



PHYTOTAXA

322

A first checklist to the vascular plants of La Amistad International Park (PILA), Costa Rica-Panama

A. K. MONRO^{1,2*}, D. SANTAMARÍA-AGUILAR³, F. GONZÁLEZ⁴, O. CHACÓN⁵, D. SOLANO⁶,
A. RODRÍGUEZ⁷, N. ZAMORA⁸, E. FEDELE¹ & M. CORREA⁹

¹Identification & Naming Department, Royal Botanic Gardens, Kew TW9 3AE, U.K.

²Botany Department, The Natural History Museum, London, SW7 5BD, U.K.

³Herbarium, Missouri Botanical Garden, P.O. Box 299, Saint Louis, Missouri 63166-0299, U.S.A.

⁴Laboratorio de Ecología Urbana, Universidad Estatal a Distancia UNED, San José, Costa Rica.

⁵Sistema Integrado de Tecnología Geográfica (SITGEO), Heredia, Costa Rica.

⁶Barrio Guachipelín, Escazú, San José, Costa Rica.

⁷Herbario Nacional (CR), P.O. Box 749-1000, San José, Costa Rica.

⁸Herbario, Instituto Nacional de Biodiversidad, P.O. Box 22-3100, Santo Domingo de Heredia, Costa Rica.

⁹Herbario, Universidad de Panamá, Estafeta Universitaria Panamá, Panamá.

* corresponding autor. Email: a.monro@kew.org



Magnolia Press
Auckland, New Zealand

A. K. MONRO, D. SANTAMARÍA-AGUILAR, F. GONZÁLEZ, O. CHACÓN, D. SOLANO, A. RODRÍGUEZ,
N. ZAMORA, E. FEDELE & M. CORREA

A first checklist to the vascular plants of La Amistad International Park (PILA), Costa Rica-Panama

(*Phytotaxa* 322)

283 pp.; 30 cm.

22 September 2017

ISBN 978-1-77670-224-4 (paperback)

ISBN 978-1-77670-225-1 (Online edition)

FIRST PUBLISHED IN 2017 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: magnolia@mapress.com

<http://www.mapress.com/j/pt/>

© 2017 Magnolia Press

All rights reserved.

No part of this publication may be reproduced, stored, transmitted or disseminated, in any form, or by any means, without prior written permission from the publisher, to whom all requests to reproduce copyright material should be directed in writing.

This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

ISSN 1179-3155 (print edition)

ISSN 1179-3163 (online edition)

Abstract

La Amistad International Park is a World Heritage Site, which comprises 401,000 ha of mainly upland continuous natural vegetation straddling the Costa Rica and Panama border. We present a first checklist of vascular plant diversity for the park and a brief discussion of how this diversity is distributed by elevation and vegetation type together with a superficial assessment of floristic affinities. The checklist recognises 3,046 vascular plant species, 26 of which are lycopods, 433 are ferns and 2,586 are seed plants. Of these, 16 are new records for Costa Rica and 39 are for the flora of Panama; 14 represent undescribed or new species to science and 73 are endemic to La Amistad or its buffer zone. For each species we document its presence within the Park by citing herbarium specimens and the associated elevational range, together with their global distribution, extinction risk assessments where undertaken, whether the taxon is exotic.

Key words: checklist, Central America, ferns, seed-plants

Introduction

La Amistad International Park (PILA) comprises 401,000 ha of continuous natural vegetation that represents some of the most biodiversity-rich and beautiful landscape in the World and is an important component of the Gran Cordillera de Talamanca indigenous peoples' spiritual world (Borge 2004). PILA forms the eastern 40% of the Talamanca mountain range connecting the Pacific and Caribbean coasts of Costa Rica and Panama. The Park is divided equally between Costa Rica and Panama and $\frac{3}{4}$ of it is in the Caribbean watershed. At regional level PILA represents the second largest state-controlled park and forms the core of the third largest biosphere reserve in Central America.

The Costa Rican component of PILA was created through Executive Decree (#13324-A) in 1982 and declared a World Heritage Site by UNESCO in 1983. The Panamanian component was created by Law decree no. 021-88 of Instituto Nacional de Recursos Naturales Renovables (INRENARE, National Institute for Natural Renewable Resources) in 1988. In 1991 PILA was listed as a Binational property on the World Heritage List under the umbrella of the La Amistad Biosphere Reserve, a designation that includes an additional 250,000 ha of indigenous territories and seven protected areas in Costa Rica and Panama. For the purposes of this paper the boundary of PILA is taken to be that included under the status of Biosphere reserve.

Physical description of the park

The Talamanca Mountains, in which PILA is situated, cover an area of ca 1 million km² bound by the Buenavista Masif/Cerros de la Muerte in Costa Rica to the north and west, between coordinates 9°33'13.8" and 9°33'37.8" north latitude, 83°45'47.1" and 83°45'47.1" west longitude, and the volcanic massif of Chiriquí in Panama to the east and south between coordinates 8°41'39.7" and 8°41'17" north latitude, 82°25'22.9" and 82°25'45.7" west longitude. The highest point in the Talamanca mountains is Cerro Chirripó in Costa Rica (3,819 m). In PILA the highest points are Cerro Kámuk (3,549 m) in Costa Rica and Cerro Fábrega (3,335 m) in Panama.

A significant massif located between the Pacific Ocean and Caribbean Sea, PILA exhibits a rainfall gradient that ranges from 2,000–2,500 mm on the Pacific slopes to 4,000–6,000(–7000) mm on the Caribbean slopes (Autoridad Nacional del Ambiente 2004, Borge 2004). The Pacific slopes experience a distinct dry season in contrast to the Caribbean slopes where two much shorter and more variable dry seasons are reported (Autoridad Nacional del Ambiente 2004). Temperatures range from freezing or several degrees below freezing (Cerro Fábrega, Monro pers. obs.) to 36 °C (Tosi 1971), with mean annual temperatures ranging from 10–28 °C (Hijmans *et al.* 2005, WorldClim accessed 9 June 2008).

The WorldClim climate data presented above are extrapolated from only two weather stations located within PILA, Las Nubes and Cerro Punta. These stations are located at 1800 m and 2000 m respectively on the Pacific slope of PILA in Panama and are therefore not representative of most of the park. Data for the Caribbean sector of the park is based on a small number of weather stations peripheral to PILA, none of which are located above 300 m elevation. WorldClim projections may not therefore offer an accurate representation of PILA's climate, which is corroborated by field observations of epiphyte load and floristic composition coupled with casual observations by park guards and field researcher. This indicates significantly greater variation in rainfall in the Caribbean sector than indicated by WorldClim data, and thus there remains a knowledge gap in detailed basic meteorological data for PILA.

Geological history

Most of the soil in PILA derives from marine conglomerates, sandstones, marls, limestones and slates laid down in the Tertiary. These are intercalated and overlaid by plutonic and volcanic lava and pyroclasts during the Upper Miocene (Gómez 1986, Kappelle 2001, Weyl 1980). The volcanic component is greatest in the southern and eastern portion of PILA (Autoridad Nacional del Ambiente 2004). What is now PILA was part of a land mass that has remained above sea level for at least 15–16 Ma and formed part of the Central American Island Arc (Jackson *et al.* 1996, Fig. 2.8).

During the Quaternary Central America experienced 27 to 29 glacial cycles clustered between 1.6 Ma and 800 Ka (Burnham & Graham 1999). There is direct evidence of glaciers forming during this period in the Talamanca Mountains above 3,100 m (Hastenrath 1973, Orvis & Horn 2000). This suggests that in PILA, Cerro Fábrega, Cerro Itamut and Cerro Kámuk would have borne glaciers, which is corroborated by the presence of moraines in all of these localities (pers. obs. AM and AR). How long the ice remained and when it receded is not known (Horn, pers. comm.). Studies of the neighbouring Cerro Chirripó indicate that here the area was clear of ice 9,600–9,700 years ago (Orvis & Horn 2000). Given the close proximity and lower elevation of Cerro Fábrega, Cerro Itamut and Cerro Kámuk (3,200–3,400 m) it is likely that the ice receded prior to this time. Glaciation would have had a profound impact on vegetation associations, which would have moved to lower elevations. Palynological data from Colombia suggests that the tree-line descended there by as much as 1,700 m (van der Hammon & Gonzalez 1964). A shift in elevation of this size in PILA would have caused páramo, oak and cloud forest associations to have experienced larger and less fragmented distribution compared to the present day (Lachniet *et al.* 2005, Vargas & Sánchez 2005). This impact would have been most pronounced with respect to páramo that is currently restricted to a few small island-like patches totalling 38 km², but if located at an elevation of 1,400–1,600 m, would have formed a band of vegetation extending some ca 450 km². Islebe & Hooghiemstra (2005) looking at pollen cores from the Talamanca mountains in Costa Rica do indeed suggest large expansions of páramo at this time (Islebe & Hooghiemstra Fig. 7, 2005). Knowledge of the duration and extent of glaciers in PILA during this period of very dynamic glacial cycles would therefore provide valuable information for understanding the current species distributions and assemblages.

With the exception of moraines above 3000 m, the terrain in PILA consists of very steep intersecting ridges. Ridges are particularly narrow, commonly 1–3 m wide at their crest and giving way to deep ‘V’ shaped undulating valleys. This has resulted in the majority of the soils of the Caribbean flanks being of alluvial and colluvial deposits overlying thin poorly developed soils derived from the impermeable clays below (Borge 2004).

There has been no research into the history of fire ecology for PILA, although studies from the neighbouring Chirripó indicate that fire has been a regular event in the recent (<10,000 years) history of the páramo and may play a role in its maintenance (League & Horn 2000). Cerro Kámuk and Cerro Fábrega have a much wetter climate due to their more south-easterly position closer to the Caribbean (Vargas & Sánchez 2005), but it is still likely that fire will have had some impact on the páramo vegetation in PILA.

Vegetation

PILA is dominated by upland or montane species assemblages (Fig. 1, Table 1). Circa 85% of the park is at or above 1,000 m elevation, 32% at or above 2000 m and 1.1% at or above 3000 m elevation. Given this fact, PILA represents an important montane resource for Central America. The most recent map of the park (Monro *et al.* 2009, Fig. 2) and assessment of rates of deforestation (INBio *et al.* 2011) indicates that PILA has suffered little deforestation caused by human pressure to date. Only 2.3% of the park has been converted to pasture or has become early succession regrowth. The Caribbean slopes are subject to significant natural disturbance in the form of landslides, which is presumably a consequence of the very steep and rapidly eroding substrate, combined with heavy rainfall and possibly tropical storm damage and volcanic activity.

Although not the focus of a dedicated classification until Monro *et al.* (2009), PILA has been included in a number of regional and national vegetation classifications. Most notably those of Holdridge *et al.* (1967, 1971), Tosi (1969), Gómez (1986), the Ecomapas Project (INBio & Sistema Nacional de Areas de Conservación, 2005) and Zamora (2008).

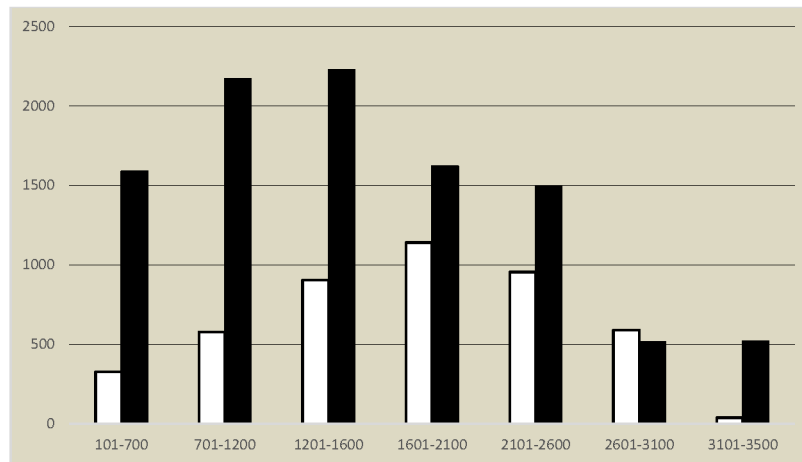


FIGURE 1. PILA species diversity and surface area by elevation range. Species diversity denoted by black bars, surface area by white bars. Surface area as km².

TABLE 1. Species diversity by biodiversity zone (Monro *et al.*, 2009).

Biodiversity zone (Monro <i>et al.</i> , 2009)	Sp no.	Area (km ²)	Sp per km ²
Páramo	518	37.9	13.67
High elevation oak forest	516	590	0.87
Low elevation oak forest	1496	955	1.57
Cloud forest	1620	1141	1.42
Mixed forest in transition to cloud forest	2227	904	2.46
Mixed forest in transition to low elevation forest	2169	578	3.75
Low elevation mixed forest	1587	326	4.86
Sabana natural grassland	82	18.7	4.38
Pasture	121	41	2.95
Dense thicket	142	40	3.55
Secondary forest	18	57	0.32

The above classifications divide PILA into between four and 12 classes. Despite the different methodologies and sources of data used in the classifications a visual comparison of the maps indicates a general congruence between them. Classifications differ mainly in the number of classes and the elevation ranges used to delimit them. The exception to this is the delimitation of the páramo class and sabana natural grassland class. Páramo and sabana natural grassland vegetation (Fig. 3, A, F) are probably the most notable and regionally scarce vegetation types in PILA. The total area of these classes calculated for PILA by Monro *et al.* (2009) is 3790 ha for páramo and 1870 ha for sabana. Interestingly, both are absent from Holdridge's 1959 map of the Panamanian sector, but are present in his 1967 map of the Costa Rican sector (Fig. 1). The extent and position of this vegetation also varies significantly between the Ecomapas and CCAD maps.

In addition to Páramo, PILA includes marshes, bogs, cloud and oak forests, riparian assemblages and many classes of mixed forest (Fig. 3). Monro *et al.* (2009, Fig. 2) funded by a Darwin Initiative (DEFRA, project 15/027) produced a dedicated map of species assemblages referred to as biodiversity zones in 2009 and identified the following zones for PILA: low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo, sabana natural grassland, pasture, dense thicket and secondary forest.

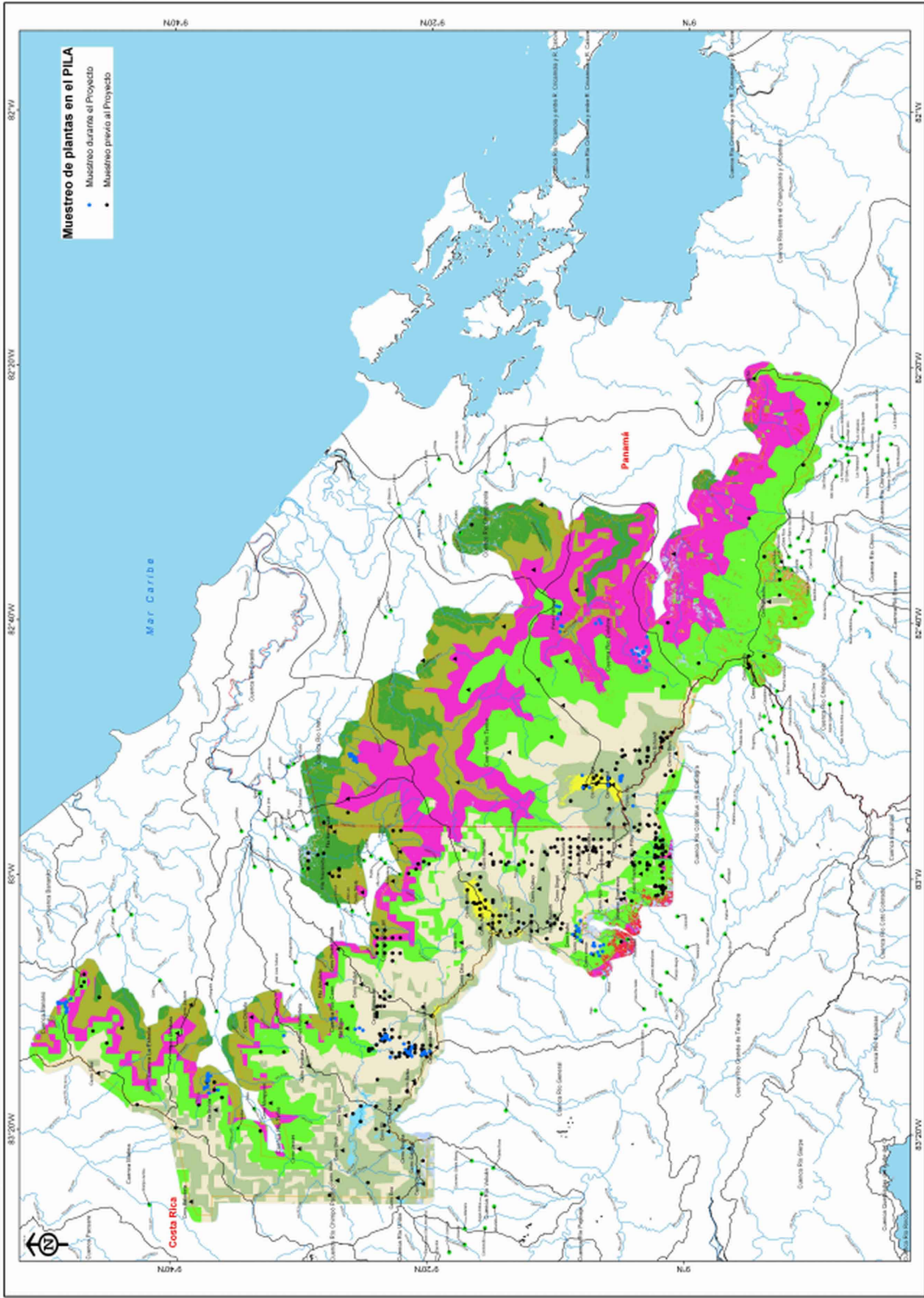


FIGURE 2. Map of biodiversity zones and collection localities within PILA. Collection localities are represented by black or blue dots. Triangles represent peaks and green dots represent villages. Black lines delimit river basins. The coloured areas represent the biodiversity zones as identified in Monro *et al.* (2009): dark green = Low elevation mixed forest, dull yellow-green = Mixed forest in transition to low elevation forest, pink = Mixed forest in transition to cloud forest, bright green = cloud forest, tan = low elevation oak forest, dull grey-green = high elevation oak forest, bright yellow = páramo, pale blue = sabana natural grassland, lilac = pasture, orange-brown = dense thicket, red = secondary forest.

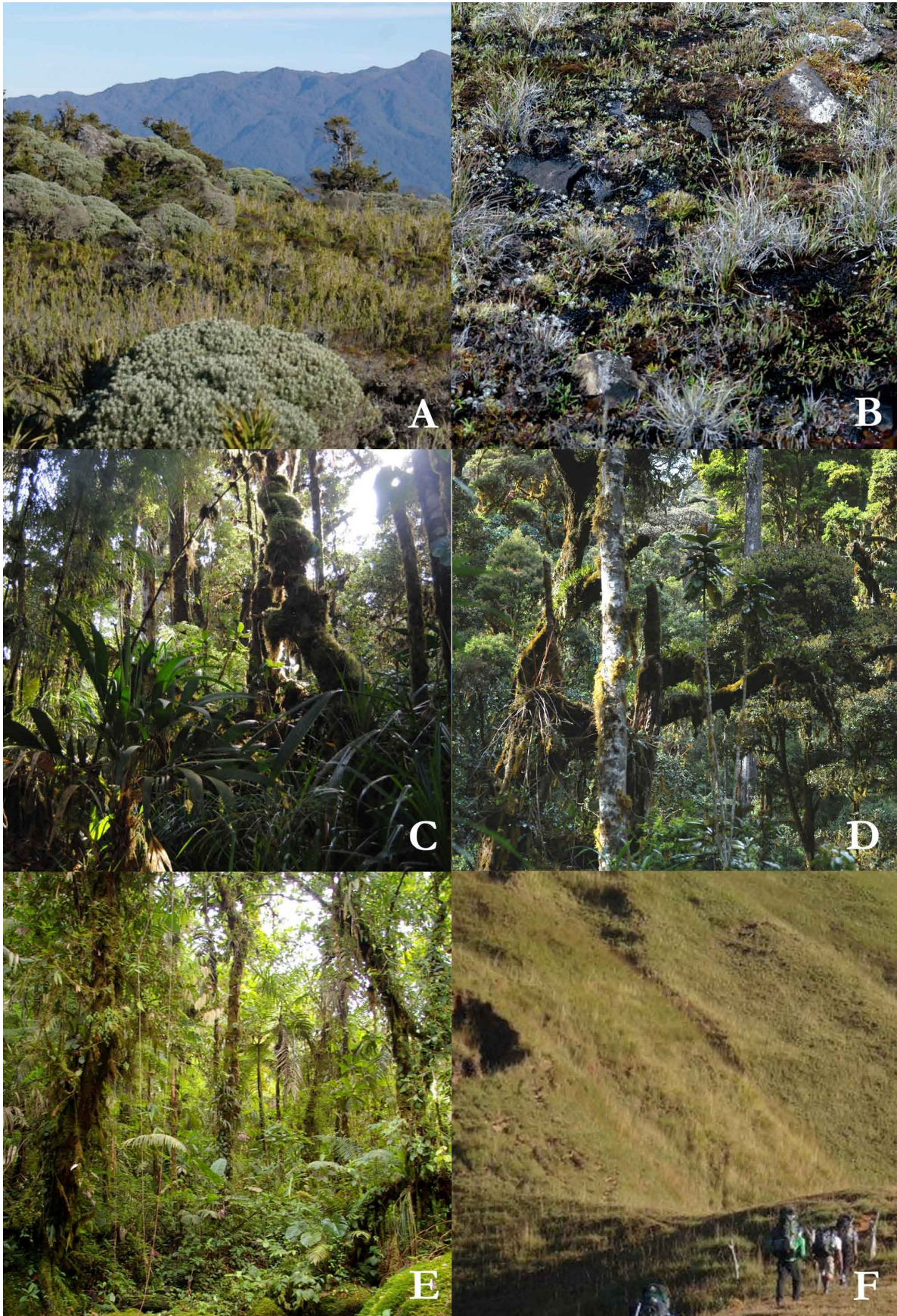


FIGURE 3. Examples of the principle climax vegetation types in PILA. A paramó vegetation, Cerro Fábrega, Panama, 2006; B wetland / bog vegetation, Cerro Fábrega, Panama, 2006; C low elevation oak forest, Casa Coca, Costa Rica, 2011; D high elevation oak forest, Cerro Itamut, Panama, 2006; E cloud forest, Trans Talamanca, Costa Rica, 2007; F sabana natural grassland. Buenos Aires, Costa Rica, 2007. Images A–E taken by A. Monro; image F taken by American Climber Science Program, Creative Commons).

Human occupation and threats to PILA

Pollen and charcoal studies suggest a 3000 year history of human occupation of the area where PILA and its buffer zone are located, with the greatest evidence for occupation at the lower elevations and on the Pacific slopes (Clement & Horn 2001). Exploration of PILA by the current authors has consistently encountered the remains of indigenous structures up to elevations of 3000 m. Indeed much of the early exploration in the area was undertaken by grave robbers searching for the gold figurines associated with 'huacas' or tombs. Currently five indigenous groups numbering ca 200,000 people belonging to the Gran Cordillera de Talamanca group are associated with PILA: Bribri, Cabécares, Teribes or Nasos, Ngöbe-Bugles (including Guaymís) (Borge 2004, Autoridad Nacional del Ambiente 2004). The indigenous peoples live in semi-autonomous territories that make up much of the Caribbean buffer zone of the park and 502 km of the park border is shared with such territories. To these communities PILA represents an important cultural and spiritual resource, for instance they believe it is the place where man was created by Sibö (god) and specific clans have affiliations with specific sites and animals in the park (Asociaciones de Desarrollo Indigenas de Talamanca 2008). To these indigenous groups PILA is a holy place. On the Pacific border of PILA ca 20,000 non-indigenous people live adjacent to the buffer zone of the park (Autoridad Nacional del Ambiente 2004, Borge 2004). In Panama a small number of people live inside the park borders, in an area of cattle pastures known as Alto Uri that largely predates the formation of the park (Autoridad Nacional del Ambiente 2004).

Although there has been some selective logging and agricultural incursion into PILA this has not had a significant impact on the park in comparison to the region as a whole. Páramo vegetation for example, is in pristine condition in PILA compared to that located in the adjacent Cerro Chirripó National Park. Using remote sensed data INBio *et al.* (2011) estimated that the extent of deforestation has doubled in the past 25 years from 1.1% to 2.3%. In 2000, The Nature Conservancy suggested that PILA should be considered a 'park in peril' (The Nature Conservancy 2009). This resulted in a Reactive Monitoring Mission from the UNESCO World Heritage Centre and IUCN to Panama and Costa Rica in 2008. This mission identified the following main threats to PILA: hydroelectric dams, encroachment of settlements and cattle ranching; and the following secondary threats: illegal fishing, poaching, pollution and the park management (UNESCO World Heritage Centre & IUCN 2008), but it did not recommend declaring PILA as 'park in peril'. In 2010 a further UNESCO World Heritage Centre and IUCN report (UNESCO World Heritage Centre & IUCN 2010) warned of heightened risks to PILA and that it may soon be declared a 'park in peril'. A declaration by the Bribri and Cabecar representative organisation Asociaciones de Desarrollo Indigenas de Talamanca (ADITIBRI, Indigenous peoples of Talamanca Development Association, 2008) identifies the following threats to PILA: agricultural encroachment, the presence of non-indigenous people who practice unsustainable agriculture, the lack of coordination between development projects in the area, the constant pressure on the natural resources of the park by external and international agents, the lack of participation of local communities in the management of PILA, the lack of an integrated strategy for the protection of PILA, the deterioration of the standard of living of indigenous communities, and little coordination of binational actions for the protection and development of local communities and PILA. In 2009 and 2010, the Comisión Nacional de Asuntos Indígenas (National Commission for Indigenous Peoples Affairs) added the threat from mining concessions as a significant threat following a series of covert attempts to obtain exploration concessions from the Ministerio de Ambiente, Energía y Telecomunicaciones (Ministry of the Environment, Energy and Telecommunications) of Costa Rica (Nación 2010a, b, c).

Management of PILA

PILA is part of the La Amistad Biosphere Reserve, a complex and heterogeneous system of areas that includes seven indigenous reserves, four protected areas in Costa Rica and six management units referred to as nucleus zones in Panama (Borge 2004, Autoridad Nacional del Ambiente 2004). In order to facilitate the coordinated management of the Biosphere Reserve that includes PILA, a commission was established by binational agreement between the governments of Costa Rica and Panama in 2005. This commission includes representatives of the Ministry of the Environment and Energy of Costa Rica, its subsidiary the Protected Areas Network of Costa Rica (SINAC), the National Environment Authority of Panama (ANAM) and its subsidiary Protected Areas together with invited technical representatives from the University of Panama and Institute of Biodiversity in Costa Rica (INBio). The commission meets on average once a year. In 2008 the UNESCO World Heritage Centre-IUCN recommended that this commission be made permanent and that representatives of civil society be included, but this recommendation has not yet been implemented. However, day to day management of PILA is still undertaken by the two government agencies, SINAC and ANAM and in both cases these divide the management of PILA between their regional offices, although this is

currently under review by ANAM. The result is that PILA is managed through four regional offices and under separate management plans. Proposals for a unified management plan (Autoridad Nacional del Ambiente 2004) were in part responsible for the Darwin Initiative decision to support the production of a unified map and baseline information on key groups of organisms (amphibians, coprofolagous scarab beetles, vascular plants and reptiles). This checklist is one output of this project.

Research and botanical exploration

PILA has not been the focus of specific studies, but rather has formed part of national or regional efforts that seek to document the diversity of the region. These include a number of expeditions by the Natural History Museum of Costa Rica (CR), Missouri Botanical Garden (MO) and the Natural History Museum of London (BM). In addition studies on *Quercus* dominated vegetation (Kappelle *et al.* 1992, Kappelle & Zamora 1995, Kappelle 1996, 2001, 2008) and the páramo (Weber 1959, Luteyn 1999, Kappelle & Horn 2005) have been undertaken.

During the mid 1890s Henri Pittier and Adolphe Tonduz were probably the first botanical explorers to collect in what is now PILA (Hammel *et al.* 2004). They collected on the Pacific watershed in 1890 and 1893 and Tonduz collected on the Caribbean side in 1895. Subsequent to this a small number of short trips to PILA by William R. Maxon, Manuel Valerio, Paul Hamilton Allen and Arthur Weston were undertaken from the early 1900s until the 1960s. These culminated in a series of longer field trips by G. Davidse (MO), I. Chacón (CR), R. Chacón (CR), L.D. Gómez (CR), M. Grayum (MO), A. Grijalva (HNMN) and G. Herrera Ch (CR) between 1983 and 1984 during which over 4,000 specimens were collected. Later, between 2003 and 2005 a series of fieldtrips by the Natural History Museum, London (BM) in association with INBio (INB) and the University of Panama (PMA) focussing on the Caribbean sector of PILA added ca 7,500 collections. The localities of these later fieldtrips are shown in Fig. 2.

Together these expeditions have resulted in the generation of ca 18,000 botanical collections deposited at BM, CR, INB, MO, PMA and SCZ. Data on these collections is available on the TROPICOS (<http://www.tropicos.org>) and ATTA (<http://atta.inbio.ac.cr/>) websites, although these databases cannot be aggregated or searched separately for PILA as a locality. These collections represent an important source of verifiable biodiversity data for PILA and form the basis of this checklist. To date the main collectors have been Gerrit Davidse (ca 4000 numbers), Alex Monro (2179 numbers), Daniel Santamaría (1275 numbers), Alexander Rodríguez (1099 numbers), Daniel Solano (1018 numbers), Gerardo Herrera (902 numbers) and Evelio Alfaro (601 numbers).

Previous publications on the flora of PILA are limited to a field guide to common trees and shrubs, ‘Árboles y arbustos comunes del Parque Internacional La Amistad’ (González A. 2005) that lists 83 species. Inventories included are ecological surveys of the páramo and oak forest (Weber 1959, Luteyn 1999, Kappelle 2008). Publications that cover areas adjacent to PILA include a guide to the plants of Cerro Chirripó (Alfaro 2003) that lists 183 species and the La Fortuna Watershed (<http://www.mobot.org/MOBOT/Research/fortunackl.shtml>) that lists 1852 species. The most recent published checklists of the floras of Costa Rica and Panama are the Manual de Plantas de Costa Rica (Hammel *et al.* 2003a,b, 2007) and Catálogo de las Plantas Vasculares de Panamá (Correa *et al.* 2004).

Methods

Taxonomy & sources of data

Chase & Reveal (2009) propose a revised classification of land plants which comprises 14 groupings at the rank of subclass. In this classification all land plants are treated as Class Equisetopsida C.Agardh and within this what are commonly known as Lycopodiophyta or lycopods (clubmosses) are treated as three subclasses, and Polypodiophyta or ferns as four subclasses (Christenhusz & Chase 2014), conifers or gymnosperms as four subclasses and flowering plants or angiosperms as a single subclass. Christenhusz & Chase (2014) proposed a classification for lycopods and ferns, Christenhusz *et al.* (2011) a classification for gymnosperms, and APG IV (2016) a classification for Angiosperms and these are followed in the checklist. For ease of use these classes are combined into the following groupings, 1) lycopods, 2) ferns, 3) gymnosperms, 4) magnoliid angiosperms and chloranthales, 5) monocot angiosperms and 6) eudicot angiosperms. Families and genera are presented alphabetically in these larger groupings (Appendix 1).

This checklist is a synthesis of identifications from the following sources: those made by the authors of material from PILA seen at BM, CR, INB, MO and PMA, those made by the authors of material observed in the field; those made by taxonomist specialists stored in the TROPICOS database (<http://mobot.mobot.org/W3T/Search/vast.html>),

the Atta database (<http://www.inbio.ac.cr/es/default.html>), the University of Panama Herbarium Brahm's database and the Herbarium of the National Museum of Costa Rica database (<http://ceiba.inbio.ac.cr:1079/pres/PresentationServlet?action=home>), published volumes of the *Manual de Plantas de Costa Rica* (Hammel *et al.* 2003a, 2003b, 2004, 2007), *Flora Costaricensis* (Burger 1971a–j, 1983a–I, 1986a,b, 1990, 1991a–c, 1995, Burger & Barringer 2000, Burger & Gentry 2000, Burger & Huft 1995, Burger & Pohl 1978, Burger & Taylor 1993, Burger & Van der Werff 1990, Burger & Zamora 1991, Gómez & Burger 2008, Luteyn & Wilbur 2005, Pohl 1980, Plowman 1991, Stone 1971), the *Flora of Panama* (Allen 1984, Amshoff 1958, Barringer & Burger 2000, Blackwell 1967a,b, 1968, Cuatrecasas & Croat 1980, Dandy 1962a,b, 1971, 1973a,b, 1975a–c, 1976a–g, 1979 a–c, 1980, D'Arcy & Tomb 1976, Dodson & Robyns 1965, Duke 1960, 1961a–c, 1962a–d, Durkee 1978, Dwyer 1980a,b, Elias & Ribyns 1975, Fries 1962, Furlow 1971, Gentry 1975, 1980, Haynes 1970, Munz 1959, Nowicke 1970, Pfeifer 1960, Pilz 1981, Porter 1970, Porter & Cuatrecasas 1975, Porter & Elias 1979, Rizzini 1960, Robyns 1964a,b, 1967a–c, 1968, Skog 1978, Taylor 1976, Wilbur 1976, Wilbur & Luteyn 1978, Woodson & Schery 1943, Woodson & Schery 1945a,b, Woodson & Schery 1958a,b, Woodson & Schery 1975), *Flora de Nicaragua* (Stevens *et al.* 2001a, 2001b, 2001c), the *Catálogo de las Plantas Vasculares de Panamá* (Correa *et al.* 2004); and finally identifications sourced from current monographic treatments, notably the *Flora Neotropica* series.

Identifications were made at the INB, BM and PMA herbaria, mainly by INB botanists. Material whose identification proved problematic was shown to the following family specialists: Asteraceae, J. Pruski (MO), A. Rodríguez (INB); Apocynaceae, Araliaceae, Bromeliaceae, Sabiaceae, Orchidaceae, J. F. Morales (INB); Araceae, Arecaceae, M. H. Grayum (MO); Araliaceae, Bromeliaceae, J. F. Morales (INB); Clusiaceae, Cyclanthaceae, Lauraceae, B. Hammel (MO); Fabaceae, N. Zamora (INB); Lauraceae, H. H. van der Werff (MO); Marcgraviaceae, B. Hammel (MO); Melastomataceae, Gesneriaceae R. Kriebel (NY); Poaceae, Gerrit Davidse (MO) & T. Bradley (INB); Rubiaceae, C.M. Taylor (MO); Solanaceae: A. Soto (INB), S. Knapp (BM); Styracaceae, P. Fritsch (CAS), Urticaceae, A.K. Monro (BM), A. Rodríguez (INB); and ferns, R. C. Moran (NY), A. Rojas (CR). The species binomials used in this list followed those recognized by the above specialists with the addition of T.D. Pennington (K) who reviewed the Sapotaceae, Meliaceae and Eleocarpaceae, and D.J.N. Hind (K) who reviewed the Asteraceae. The assignment of a family to each species follows APG4 (The Angiosperm Phylogeny Group 2016) and that of Christenhusz & Chase (2014) for the lycophytes and ferns.

Nomenclature was revised using TROPICOS (last accessed Feb. 2, 2017), IPNI (<http://www.ipni.org/ipni/plantnamesearchpage.do>, last accessed Feb. 2, 2017) and the Plant List (<http://www.theplantlist.org/>, last accessed Feb. 2, 2017). Where there was conflict between these sources of names, the World Checklist of Selected Plant Families (<http://apps.kew.org/wcsp/incfamilies.do>, last accessed Feb. 3, 2017) was used for those families whose review has been completed. TROPICOS was used for those families where the review of those families had not been completed (the majority) as of January 2017. The species list and records are available as a spreadsheet under DOI 10.6084/m9.figshare.5092237.

Checklist annotations

Species entries in the checklist are annotated with the following information: new record status for Costa Rica and or Panama, endemism with respect to PILA, keystone species status, non-native (exotic) status, species binomial, family, local name, habit, global distribution, a list of known records from PILA and where a keystone species, the Conservation status.

Species were recognized as endemic to PILA, Costa Rica or Panama when there are no known records from outside PILA (as delimited in the introduction) or its buffer zone, Costa Rica or Panama. Species were considered new records when that taxon, or its synonym had not been cited as occurring in Costa Rica or Panama in a previous floristic publications encompassing the country, the *Catálogo de las Plantas Vasculares de Panamá* (Correa *et al.* 2004) for Panama, and the *Manual de Plantas de Costa Rica* (Hammel *et al.* 2003a, 2003b, 2004, 2007) for Costa Rica.

Keystone plant status will contribute to the decision-making process underpinning the management of PILA. A 'keystone plant' is here defined as 'a species that has a disproportionate effect on its environment relative to its proportion of the diversity in a habitat'. This would be considered outside of the normal realm of definitions for keystone species (Paine 1995, Hunter 2000) as it combines the 'dominant species' and 'keystone species' concepts. However, we use this definition because it conveys the general notion that some species have a greater impact on ecosystem processes than others and will support the development of management plans. Keystone status was assigned based on the abundance, biomass and an estimate of the extent of interactions with other members of the ecosystem (Rodríguez *et al.* 2011). Two hundred keystone plant species were identified for PILA, using the data sources given above, field observations combined with the personal knowledge of the natural history of the species of the authors.

Local names follow León & Poveda (2000) for Costa Rica and the *Tree Atlas of Panama* website (Condit *et al.* 2010).

Habit was based on field observations by the authors and descriptions of the plants from collections labels. Plant form was classified using a modification of Marín's (2007) suggested classification of life forms. Marín (2007) recommends citing plant form as a quadnomial covering *form*: herb, shrub, tree, twiner, liana; *habitat*: terrestrial, epiphytic, epipetric (growing on rocks), hemi-epiphyte, aquatic; *nutrition*: autotroph, hemiparasite, parasite, mycoheterotroph; and the *axis or axes of growth*: erect, prostrate-decumbent, scandent, etc. We present our classification of plant form as binomial combinations based on Marín's categories of *form* and *habitat*. Species are therefore classed as binomial or polynomial combinations of: herb, shrub, tree, twiner or liana, combined with terrestrial, epiphytic, hemiepiphytic, or aquatic. Herbs are defined as non-lignified plants, shrubs as lignified plants with multiple main axes that have diameters at breast height of less than 10 cm, trees as lignified plants with a single main axis, or where multiple axes are present at least one of these has a diameter at breast height of 10 cm or more, twiners as herbaceous climbing plants and lianas as lignified climbing plants. So, for example, *Lycianthes pauciflora* Bitter (1919: 341) is classed as an 'epiphytic twiner or liana'; *Gaiadendron punctatum* (Ruiz & Pavon) G. Don (1834: 432) as a 'hemiepiphytic terrestrial shrub or tree'; and *Qualea polychroma* Stafleu (1953: 182) as a 'terrestrial tree'.

Distributions within PILA are based on a synthesis of TROPICOS and ATTA records where geographical coordinates can be unambiguously assigned. ATTA records included the material collected as part of the targeted collecting programme and field observations made by the authors. The TROPICOS records were filtered so as to exclude records that were deemed ambiguous for the following reasons: records lacked coordinates or any locality that was known to occur within the park, or coordinates were clearly erroneous. Information on elevation was taken from herbarium labels. Vegetation type is classified using the biodiversity zones based on a unified map of PILA produced by Monro *et al.* (2009, Fig. 2) and represent a finer scale version of the classifications of Holdridge (1959a,b) and Tosi (1971). These classes are elevation delimited and include the following 'climax' assemblages: low elevation mixed forest (bosque mixto basal); mixed forest in transition to low elevation forest (bosque mixto transición a basal); mixed forest in transition to cloud forest (bosque mixto intermedio, transición a nuboso); cloud forest (bosque mixto nuboso); low elevation oak forest (bosque de robledales de nuboso bajo); high elevation oak forest (bosque de robledales de nuboso alto); sabana natural grassland (sabanas); páramo (páramo), and the following 'non-climax or secondary' assemblages: secondary thicket (matorral denso); secondary forest (matorral denso árbolado); and pasture (herbazal).

Global distributions were based on a synthesis of country records from TROPICOS, contemporary monographic treatments and regional floras such as *Flora Mesoamericana* (Davidse *et al.* 1994), *Flora de Nicaragua* (Stevens *et al.* 2001), *Nuevo Catálogo de la Flora Vasculare de Venezuela* (Hokche *et al.* 2008), *Catálogo de las plantas vasculares de Honduras* (Sutherland 2008) and the *Manual de Plantas de Costa Rica* (Hammel *et al.* 2003a,b, 2007). Collection of the above information enabled the identification of species endemic to PILA, Costa Rica and Panama and new records for Costa Rica and or Panama.

Conservation status of the keystone plant species identified above was assessed using criteria established by IUCN (2001) applied using a methodology developed by Estrada *et al.* (2005). This method involves calculating hypothetical ranges for species using a GARP analysis based on verified high resolution georeferenced data and comparing these predicted distributions to maps of actual land cover and protected areas for Costa Rica and Panama. Estimates of past, current and future potential changes in range size can then be compared. Of the 233 assessments cited here, 200 were undertaken as part of this study (Rodríguez *et al.* 2011)

Images of living material of many of the species included in the checklist are available at TROPICOS by searching on the taxon name.

Results

New species records for Costa Rica and Panama generated in the preparation of this checklist

New records of described species for Costa Rica are indicated by “•”, new records of described species for Panama are indicated by “□”.

- *Anthurium bittneri* Grayum (Araceae)
- *Anthurium cerrofrioense* Croat & O.Ortiz (Araceae)
- *Anthurium filamatamaense* Croat & O.Ortiz (Araceae)

- *Anthurium santamariae* Croat & O.Ortiz (Araceae)
- *Anthurium solanoi* Croat & O.Ortiz (Araceae)
- *Asplenium lobulopartitum* A.Rojas (Aspleniaceae)
- *Dioscorea natalia* Hammel (Dioscoreaceae)
- *Begonia parviflora* Poepp. & Endl. (Begoniaceae)
- *Besleria triflora* (Oerst.) Hanst. (Gesneriaceae)
- *Blakea anomala* Donn.Sm. (Melastomataceae)
- *Bunchosia costaricensis* Rose (Malpighiaceae)
- *Campylocentrum amistadense* Bogarin (Orchidaceae)
- *Castilleja irasuensis* Oerst. (Orobanchaceae)
- *Ceradenia aulaeifolia* L.E.Bishop. ex A.R.Sm. (Polypodiaceae)
- *Ceradenia podocarpa* (Maxon) L.E.Bishop (Polypodiaceae)
- *Clethra gelida* Standl. (Clethraceae)
- *Conostegia rhodopetala* Donn.Sm. (Melastomataceae)
- *Dichapetalum brenesii* Standl. (Dichapetalaceae)
- *Drymonia submarginalis* Gómez-Laur. & Chavarría (Gesneriaceae)
- *Drymonia tomentulifera* Kriebel (Gesneriaceae)
- *Epidendrum jorgewarneri* Karremans & Hágsater (Orchidaceae)
- *Epidendrum vallis-silentii* M.Díaz & Karremans (Orchidaceae)
- *Epiphyllum cartagense* (F.A.C.Weber) Britton & Rose (Cactaceae)
- *Freziera tarariae* Q.Jiménez, D.Santam. & A.K.Monro (Pentaphragaceae)
- *Guatteria crassivenia* N.Zamora & Maas (Annonaceae)
- *Guatteria herrerae* N.Zamora & Maas (Annonaceae)
- *Guatteria pachycarpa* Erkens & N.Zamora (Annonaceae)
- *Hansteinia stricta* (Leonard) D.N.Gibson (Acanthaceae)
- *Huertea glandulosa* Ruiz & Pav. (Tapisciaceae)
- *Inga tonduzii* Donn.Sm. (Fabaceae)
- *Jamesonia rotundifolia* Fée (Pteridaceae)
- *Justicia pittieri* Lindau (Acanthaceae)
- *Malvaviscus achanioides* (Turcz.) Fryxell (Malvaceae)
- *Miconia amplinodis* Umaña & Almeda (Melastomataceae)
- *Miconia dolichopoda* Naudin (Melastomataceae)
- *Molinadendron guatemalense* (Radlk. ex Harms) P.K.Endress (Hamamelidaceae)
- *Myriocarpa cordifolia* Liebm. (Urticaceae)
- *Ossaea quadrisulca* (Naudin) Wurdack (Melastomataceae)
- *Parathesis glendae* Rick. (Primulaceae)
- , □ *Pentagonia gomezlauritoi* Hammel (Rubiaceae)
- *Peperomia mollis* Kunth (Piperaceae)
- *Pilea angustifolia* Killip (Urticaceae)
- *Pilea matama* A.K.Monro (Urticaceae)
- *Psychotria jimenezii* Standl. (Rubiaceae)
- *Pterichis herrerae* Kolan. (Orchidaceae)
- *Roldana heterogama* H.Rob. & Brettell (Asteraceae)
- *Sloanea herrerae* Aguilar & D.Santam. (Eleocarpaceae)
- *Synechanthus fibrosus* (H.Wendl.) H.Wendl. (Arecaceae)
- *Ternstroemia amistadensis* Q.Jiménez & D.Santam. (Pentaphragaceae)
- *Topobea arboricola* Almeda (Melastomataceae)
- *Topobea dimorphophylla* Almeda (Melastomataceae)
- *Topobea gerardoana* Almeda (Melastomataceae)
- *Tournefortia longipedicellata* J.S.Mill. (Boraginaceae)
- *Trichilia pittieri* C.DC. (Meliaceae)
- *Westoniella kohkemperi* Cuatrec. (Asteraceae)

Currently undescribed species (14 species)

The following currently undescribed species were encountered during the course of the exploration of PILA and the research undertaken as part of the preparation of this manuscript. Most of these species are in the process of being described by specialists (T. Croat, B. Hammel, T.D. Pennington, P.F. Stevens). Others, for example *Styrax* sp. A., requires more material in order to produce a useful description of the species. These species are included in the checklist (Appendix 1).

Cassipourea toroensis ined (Rhizophoraceae)
Clusia sp. B. (Clusiaceae)
Clusia sp. C. (Clusiaceae)
Columnea sp. A. (Gesneriaceae)
Dieffenbachia sp. A. (Araceae)
Graffenrieda sp. A. (Melastomataceae)
Inga sp. B. (Fabaceae)
Marila sp. A. (Calophyllaceae)
Phyllanthus sp. A. (Phyllanthaceae)
Pouteria sp. A. (Sapotaceae)
Psilochilus sp. A. (Orchidaceae)
Sacoglottis sp. A. (Humiriaceae)
Stenospermation sp. A. (Araceae)
Styrax sp. B. (Styracaceae)

Biodiversity of vascular plants

We record 3,046 vascular plant species, 26 of which are lycopods, 433 are ferns and 2,586 are seed plants. The twenty most species-rich families are listed in Table 2 and the twenty most species-rich genera in Table 3. Tables 4 lists species diversity by life-form and habit and Table 1 by biodiversity zone and elevation.

The twenty most species-rich families account for 57% of the species diversity of PILA. These largely follow the twenty most species-rich families recognized for Costa Rica (Hammel, pers. comm.) with the notable exception of Fabaceae and Euphorbiaceae, which are remarkably absent from the list of the twenty most species-rich genera in PILA. Of the twenty most species-rich families, ten are predominantly composed of herbaceous species, four are predominantly composed of shrubby species and a single family, Lauraceae is predominantly composed of tree species. Of these families ten are predominated by terrestrial species and six by epiphytic species and four are ferns.

The twenty most species-rich genera account for 24% of the species diversity of PILA (Table 3). It is surprising that a fern and not an orchid genus, was the most species-rich in a tropical forested area of this size. Indeed, amongst the twenty most species-rich genera, a total of five are ferns, *Elaphoglossum* Schott ex Smith (1842: 148), *Asplenium* Linneaus (1753: 1078), *Thelypteris* Schmidel (1763: 45), *Diplazium* Swartz (1801: 61) and *Hymenophyllum* Smith (1793: 418) and only three orchids, *Epidendrum* Linneaus (1763: 1347), *Pleurothallis* R. Brown (1813: 211) and *Maxillaria* Ruiz & Pavón (1794: 116). Of the twenty genera, fourteen are predominantly composed of herbaceous species and four of woody species. In terms of habit, nine are predominantly composed of terrestrial species and seven of epiphytic species.

At both the rank of family and genus there is a dominance of herbaceous terrestrial over herbaceous epiphytic groups and when species composition is categorized by plant form and habit (Table 4) these trends are confirmed to some extent. Terrestrial species account for 78% of the species, whilst woody species are more evenly matched in species number with herbaceous species, 52% and 48% respectively.

The biodiversity zones identified by Monro *et al.* (2009) are congruent with Holdridge's 'life zones' albeit the resolution is finer. When species diversity is compared by biodiversity zone cloud forest (1,601–2,100 m) has the highest recorded number of species, followed by low elevation oak forest (2,101–2,600 m), mixed forest in transition to cloud forest (1,201–1,600 m) and mixed forest in transition to high elevation oak forest (2,601–3,100 m). There is therefore a clear trend of species diversity increasing with elevation up to 1,601–2,100 m and then dropping sharply between 2601 and 3500 m (Fig. 1, Table 1). Such a 'mid elevation species bulge' is observed by Moran (2008) and Christenhusz (2009) for ferns and is suggested by Rahbek (2005) as a common phenomenon in animal and plant diversity where distribution is restricted by a lower (sea) and upper (sky, glacier) limit. However, it is not a phenomenon commonly observed for vascular plant floras in the tropics.

TABLE 2. The twenty most species-rich families of vascular plants in PILA, with subclass, family, form and habit information appended.

Family	Plant group	No of species
Orchidaceae	Monocot angiosperm	231
Polypodiaceae	Ferns	188
Rubiaceae	Eudicot angiosperm	179
Asteraceae	Eudicot angiosperm	151
Melastomataceae	Eudicot angiosperm	149
Piperaceae	Magnoliid angiosperms	119
Araceae	Monocot angiosperm	114
Aspleniaceae	Ferns	107
Poaceae	Monocot angiosperm	100
Solanaceae	Eudicot angiosperm	79
Gesneriaceae	Eudicot angiosperm	76
Bromeliaceae	Monocot angiosperm	67
Fabaceae	Eudicot angiosperm	60
Ericaceae	Eudicot angiosperm	56
Lauraceae	Magnoliid angiosperms	55
Urticaceae	Eudicot angiosperm	48
Arecaceae	Monocot angiosperm	42
Cyperaceae	Monocot angiosperm	40
Hymenophyllaceae	Ferns	35
Pteridaceae	Ferns	35

TABLE 3. The twenty most species-rich genera of vascular plants in PILA.

Genus	Family	Plant group	No of species
<i>Elaphoglossum</i>	Polypodiaceae	Ferns	70
<i>Anthurium</i>	Araceae	Monocot angiosperm	62
<i>Peperomia</i>	Piperaceae	Magnoliid angiosperms & chloranthales	61
<i>Piper</i>	Piperaceae	Magnoliid angiosperms & chloranthales	56
<i>Epidendrum</i>	Orchidaceae	Monocot angiosperm	50
<i>Miconia</i>	Melastomataceae	Eudicot angiosperm	45
<i>Solanum</i>	Solanaceae	Eudicot angiosperm	38
<i>Asplenium</i>	Aspleniaceae	Ferns	37
<i>Psychotria</i>	Rubiaceae	Eudicot angiosperm	37
<i>Ocotea</i>	Lauraceae	Magnoliid angiosperms & chloranthales	29
<i>Clidemia</i>	Melastomataceae	Eudicot angiosperm	27
<i>Maxillaria</i>	Orchidaceae	Monocot angiosperm	25
<i>Pilea</i>	Urticaceae	Eudicot angiosperm	25
<i>Palicourea</i>	Rubiaceae	Eudicot angiosperm	24
<i>Diplazium</i>	Aspleniaceae	Ferns	24
<i>Hymenophyllum</i>	Hymenophyllaceae	Ferns	23
<i>Hoffmannia</i>	Rubiaceae	Eudicot angiosperm	20
<i>Philodendron</i>	Araceae	Monocot angiosperm	19
<i>Cavendishia</i>	Ericaceae	Eudicot angiosperm	19
<i>Columnea</i>	Gesneriaceae	Eudicot angiosperm	18

It is also possible that this trend is a consequence of sample bias, the upland parts of PILA being more accessible than the lowland parts. A consequence of access into PILA being much easier from the Pacific than the Caribbean side meaning that low elevation Caribbean areas may have been sampled less frequently. Nevertheless, two observations make this scenario unlikely. Firstly, Hammel *et al.* (2004, Fig. 4) compared sampling intensity in Costa Rica as measured by number of collections and this indicated that low-elevation (0–800 m) Caribbean slopes are as well sampled as high elevation areas (1,501–3,800 m). Secondly, an analysis of the sampling effort which generated 42% of the records used in this checklist demonstrates that the smallest sample effort was applied to low elevation forest, low elevation oak forest, high elevation oak forest and Páramo (Monro *et al.*, *in press*). It is also possible that this trend is a product of the area of habitat in each elevational range, the larger an area the greater the number of possible niches. Figure 1 compares species number and surface area for each elevation. If species number were to reflect the area of available habitat then the trend for species number would be expected to match surface area and this is largely what

can be observed with the exceptions of the 701–1,200, 1,601–2,100 and 3001–3500 m elevation range where diversity remains high despite a reduced surface area.

Species endemic to PILA

Ageratina contigua R.M.King & H.Rob. (Asteraceae)
Ageratina croatii R.M.King & H.Rob. (Asteraceae)
Amauropelta chiriquiana (A.R.Sm.) Salino & T.E.Almeida (Aspleniaceae)
Anthurium bittneri Grayum (Araceae)
Anthurium cerrofrioense Croat & O.Ortiz (Araceae)
Anthurium filamatamaense Croat & O.Ortiz (Araceae)
Anthurium santamariae Croat & O.Ortiz (Araceae)
Anthurium solanoi Croat & O.Ortiz (Araceae)
Ardisia crassipes Lundell (Primulaceae)
Ardisia tarariae Lundell (Primulaceae)
Bartlettina chiriquensis R.M.King & H.Rob. (Asteraceae)
Begonia mucronistipula C.DC. (Begoniaceae)
Brachionidium calypso Luer (Orchidaceae)
?Brachionidium dentatum Luer & Dressler (Orchidaceae)
Brachionidium lucanoideum Luer (Orchidaceae)
Burmeistera altoculubrensis Wilbur (Campanulaceae)
Burmeistera monroi D.Santam. & Lagom. (Campanulaceae)
Burmeistera silencioensis Wilbur (Campanulaceae)
Burmeistera utleyi Wilbur (Campanulaceae)
Campylocentrum amistadense Bogarín (Orchidaceae)
Cavendishia davidsei Luteyn (Ericaceae)
Cavendishia gomezii Luteyn (Ericaceae)
Cavendishia limonensis Luteyn (Ericaceae)
Cavendishia luteynii J.F.Morales (Ericaceae)
Centropogon luteynii Wilbur (Campanulaceae)
Ceradenia aulaeifolia L.E.Bishop. ex A.R.Sm. (Polypodiaceae)
Ceradenia podocarpa (Maxon) L.E.Bishop (Polypodiaceae)
Chusquea amistadensis L.G.Clark, Davidse & R.P.Ellis (Poaceae)
Clusia talamancana Hammel (Clusiaceae)
Columnnea lariensis Kriebel (Gesneriaceae)
Cranichis talamancana Dressler (Orchidaceae)
?Cremosperma occidentale Wiehler (Gesneriaceae)
Cuatresia amistadensis D. A. Soto & A. K. Monro (Solanaceae)
Dendrophthora talamancana Kuijt (Santalaceae)
Disterigma hammelii Wilbur & Luteyn (Ericaceae)
Elaphoglossum bittneri A.Rojas (Polypodiaceae)
Elaphoglossum nigrosquama A.Rojas (Polypodiaceae)
Elaphoglossum pardalinum Mickel (Polypodiaceae)
Epidendrum jorge-warneri Karremans & Hágsater (Orchidaceae)
Epidendrum vallis-silentii M.Díaz & Karremans (Orchidaceae)
Festuca herrerae Davidse (Poaceae)
Geonoma talamancana Grayum (Arecaceae)
Graffenrieda sp. A. (Melastomataceae)
Guatteria crassivenia N.Zamora & Maas (Annonaceae)
Guatteria herrerana N.Zamora & Maas (Annonaceae)
Guatteria pachycarpa Erkens & N.Zamora (Annonaceae)
Hoffmannia manussatani Dwyer (Rubiaceae)
Illisia ehandiense R.M.King & H.Rob. (Asteraceae)
Lepanthes trichidion Luer (Orchidaceae)

Lycianthes hygrophila Bitter (Solanaceae)
Macrocarpaea browallioides (Ewan) A. Robyns. & S. Nilsson (Gentianaceae)
Maxillaria synsepalum J.T. Atwood (Orchidaceae)
Maxillaria tricarinatum J.T. Atwood (Orchidaceae)
Miconia kappellei Almeda & Kriebel (Melastomataceae)
Monochaetum amistadense Almeda (Melastomataceae)
Monochaetum vestitum Almeda, Al. Rodr. & Garita (Melastomataceae)
Monstera cotobrusense Croat (Araceae)
Pilea matama A.K. Monro (Urticaceae)
Pterichis herrerae Kolan. (Orchidaceae)
Schistocarpha croatii H. Rob. (Asteraceae)
Schultesianthus crosbyanus (D'Arcy) S. Knapp (Solanaceae)
Scutellaria talamancana A. Pool (Lamiaceae)
Siphocampylus maxonis E. Wimm. (Campanulaceae)
Sloanea herrerae Aguilar & D. Santam. (Eleocarpaceae)
Sphaeradenia rostellata R. Erikss. (Cyclanthaceae)
Stachys riparia A. Pool (Lamiaceae)
Stelis montana L.O. Williams (Orchidaceae)
Talamancaster minuscula (Cuatrec.) Pruski (Asteraceae)
Ternstroemia amistadensis Q. Jiménez & D. Santam. (Pentaphragmataceae)
Thelypteris chiriquiana A.R. Sm. (Aspleniaceae)
Tournefortia longipedicellata J.S. Mill. (Boraginaceae)
Trichomanes consanguineum C.V. Morton (Hymenophyllaceae)
Trichopilia olmosii Dressler (Orchidaceae)
Vaccinium bocatorensense Wilbur (Ericaceae)
Vriesea woodsoniana (L.B. Sm.) J.R. Grant (Bromeliaceae)

PILA includes 73 species that are endemic to the park, 195 species that are endemic to Costa Rica, 85 species that are endemic to Panama and 611 species that are restricted to Costa Rica and Panama.

Exploration of PILA

We recognise 19,466 species records for PILA, 1,219 of which consist of field observations and 18,247 of herbarium collections. Figure 2 plots collection localities on a map of PILA and can be used to assess sampling effort across PILA. It indicates that the Pacific drainage of PILA is better sampled than the Atlantic drainage and that the Costa Rican component of the park has been more intensively sampled than the Panamanian sector. No observations exist for the river basins of La Matina and Vólcan. Of the remaining river basins for which observations do exist the least sampled river basins are Changuinola (Panama, Atlantic), Culubre (Panama, Atlantic), Teribe (Panama and Costa Rica, Atlantic) and Chiriquí Viejo (Panama, Pacific). The most sampled river basins being Coto Brus-Cabagra (Costa Rica, Pacific), Coén (Costa Rica, Atlantic) and Urén (Panama, Atlantic).

DISCUSSION

Species Diversity

Three thousand and fifty-nine species are recorded for PILA, an area of 4,010 km². This figure equates to ca 1% of the vascular plant diversity of the World (Raven *et al.* 2005, IUCN 2006, Christenhusz & Byng 2016), 17% of the diversity of vascular plants in Central America (Davidse *et al.* 1994). To put these figures into context, PILA represents ca 1.7% (Food and Agriculture Organization 1993, Harcourt & Sayer 1996) of the remaining forest of Mesoamerica, a recognized biodiversity hotspot (Toledo *et al.* 1997) yet contains 17% of its vascular plants. With respect to the two host countries of the park, PILA's national components represents 8% of Costa Rica remaining forest cover (Fondo Nacional de Financiamiento Forestal 2007) and 6% of Panama's remaining forest cover (Correa *et al.* 2004) and ca 30% of their species (9,520 spp., Correa *et al.* 2004; 9,361 spp., Hammel *et al.* 2004).

Of the 3,046 vascular plant species recorded for PILA, 436 (14%) are ferns and *Elaphoglossum*, *Asplenium*, *Diplazium* and *Hymenophyllum* rank among the most species-rich genera in the park (Table 3). In fact, *Elaphoglossum* is the most species-rich genus in PILA. Compared to the flowering plants, fern diversity as a proportion of the national fern floras is relatively high, PILA harbouring 42% of the fern diversity of Costa Rica and 50% of Panama, compared to 28–30% of the diversity of flowering plants. The relative importance of ferns in PILA may be a consequence of the relatively high proportion of PILA that is above 1000 m elevation and where the greatest diversity of ferns would be expected (Moran 2008). Kreft *et al.* (2010) in a study of global patterns in pteridophyte diversity calculate the proportion of fern diversity across a range of abiotic and geographic variables. They find a mean proportion of fern diversity of 8% (SD not indicated) in montane habitats and of 6.8% (SD not indicated) in moist broad leaf forest, in contrast to an average proportion of mainland diversity of 3.6% (SD±2.5) and of island diversity of 15.3% (SD±12.6). Given the relatively high standard deviations for the above figures, the fern diversity of PILA is congruent with values for montane, moist broad-leaf forest and islands (e.g. Christenhusz 2009). If the latter were the case then this could be ascribed to PILA's island status ca 16–3 M years ago.

Also associated with the dominance of upland vegetation formations in PILA are the high proportion of epiphytic and shrubby species and low proportion of vines compared to the national floras of Costa Rica and Panama (Table 4). Upland vegetation formations contain the highest species diversity in PILA (Fig. 1) with peak diversity recorded at the 1601–2100 m elevation range characterised by oak forest. That peak diversity is observed for this elevation range is surprising for several reasons: this was one of the least sampled areas, it does not correspond to the largest surface area (Table 1) or to the area of highest topographic complexity (Solís 2009, Fig. 11) and non-fern vascular plant diversity is usually lowest at and above this elevation range in both Costa Rica and Panama (Hammel *et al.* 2004, Fig. 4, Correa *et al.* 2004, Fig. 4).

TABLE 4. Species diversity of PILA by habit and life-form.

Plant form and habit	species no.	% PILA flora	% Costa Rica Flora ¹	% Panama Flora ²
Epiphytes (all)	1002	27	19	NA
Terrestrial shrubs	1044	28	16	23
Terrestrial herbs	927	24	27	37
Terrestrial trees	660	17	19	21
Lianas / twiners	158	4	16	10

¹ Hammel *et al.*, 2004

² Correa *et al.*, 2004

It may be that peak diversity at this elevation range is related to the history of the area. Glacial cycles in the last 1.6 Ma provoked large changes to the extension and composition of species assemblages. Different species exhibit different climatic tolerances and as species ranges contracted and expanded moving up and down elevational gradients, diversity may have accumulated at elevations of greatest species turnover. The 1601–2600 m elevation range in PILA may have included the tree-line during glaciations (Van der Hammen & González 1964, Islebe & Hooghiemstra 2005) providing some support for such a hypothesis.

Floristic affinities of PILA

Barnham & Graham (1999) in their synthesis of the history of Neotropical vegetation identify a number of genera associated with specific floristic regions and geological periods. Hammel *et al.* (2004) present these under the following historical scenarios: genera of temperate North America that migrated southward to Central and South America, South American genera that migrated northward to Central America *prior* to the formation of the Central American land bridge with South America, genera of African origin that migrated to Central America via Europe and North America (boreotropics hypothesis/long-distance dispersal), and South American genera that migrated northward into Central America *after* the formation of the Central American land bridge with South America. These genera and their presence / absence in PILA are contrasted in Table 5.

Although such a comparison is simplistic, it suggests an assemblage that is most influenced by North America and one that predates the formation of the land bridge with Central America ca 3 Ma. This is most strongly suggested when comparing the percentage of genera that are hypothesised to have migrated prior and post the formation of the land bridge, 61% *versus* 33%. This comparison also suggests that the influence of genera from Africa is equal to that

of genera from South America. This is congruent with PILA having been available for colonisation for at least 13 Ma prior to the formation of the land bridge between Central and South America and the location of PILA in the Central American Island Arc having been in closer proximity to North America than South America for much of the Miocene (Burnham & Graham 1999).

In summary, superficial comparisons presented here suggest strong ‘Laurasian’ affinities, moderate ‘Gondwanan’ affinities and weak affinities with post land-bridge South American floras. The origin of PILA as an island in the Central American Arc, ca 16 Ma, and the high number of endemic species, suggest the possibility of elucidating an indigenous floristic element to PILA, as proposed by Janzen (1998) with respect to the Santa Elena flora in the northwestern Costa Rica, Guanacaste Province.

TABLE 5. Floristic affinities of PILA as indicated by the presence of genera identified by Barnham & Graham (1999) as being associated with key historical migration scenarios.

N America (Laurasia)		S America, pre land bridge		Africa via North America		S America, post land bridge	
Genus	+/-	Genus	+/-	Genus	+/-	Genus	+/-
<i>Alnus</i>	+	<i>Alchornea</i>	+	<i>Acacia</i>	-	<i>Amaioua</i>	+
<i>Berberis</i>	+	<i>Allophylus</i>	+	<i>Beilschmiedia</i>	+	<i>Clytostoma</i>	-
<i>Boehmeria</i>	+	<i>Apeiba</i>	-	<i>Bursera</i>	-	<i>Coussapoa</i>	+
<i>Cornus</i>	+	<i>Astronium</i>	-	<i>Caesalpinia</i>	-	<i>Crematosperma</i>	-
<i>Lupinus</i>	-	<i>Bauhinia</i>	+	<i>Cedrela</i>	+	<i>Dicella</i>	-
<i>Morella</i>	+	<i>Bernouilla</i>	-	<i>Chrysophyllum</i>	+	<i>Herrania</i>	-
<i>Morus</i>	+	<i>Casearia</i>	+	<i>Dalbergia</i>	-	<i>Mansoa</i>	-
<i>Nyssa</i>	+	<i>Dendropanax</i>	+	<i>Diospyros</i>	-	<i>Maripa</i>	-
<i>Oenothera</i>	+	<i>Erythrina</i>	+	<i>Ficus</i>	+	<i>Peritassa</i>	+
<i>Prunus</i>	+	<i>Eugenia</i>	+	<i>Lonchocarpus</i>	-	<i>Seguiera</i>	-
<i>Quercus</i>	+	<i>Homalium</i>	-	<i>Nectandra</i>	+	<i>Selysia</i>	-
<i>Rhamnus</i>	+	<i>Luehea</i>	-	<i>Ocotea</i>	+	<i>Siparuna</i>	+
<i>Ribes</i>	+	<i>Mabea</i>	-	<i>Oreopanax</i>	+	<i>Socratea</i>	+
<i>Rubus</i>	+	<i>Ochroma</i>	+	<i>Persea</i>	+	<i>Thinouia</i>	-
<i>Salvia</i>	+	<i>Pouteria</i>	+	<i>Sabal</i>	-	<i>Trigonia</i>	-
<i>Scutellaria</i>	+	<i>Tapirira</i>	+	<i>Sapium</i>	+		
<i>Ulmus</i>	+	<i>Thouinia</i>	-	<i>Sterculia</i>	-		
<i>Vaccinium</i>	+	<i>Trichilia</i>	+	<i>Terminalia</i>	-		
<i>Valeriana</i>	+						
<i>Viburnum</i>	+						
Total	19/20	11/18		9/18		5/15	

National and regional importance of PILA

PILA is dominated by upland vegetation classes that are well represented in other parts of Costa Rica, but are poorly represented in Panama. It could therefore be argued that in terms of vascular plant diversity PILA represents a biodiversity resource of greater importance to Panama than to Costa Rica, although this is not reflected in the number of páramo species endemic to Panama.

With 37.9 km² and 18.7 km² respectively the páramo and natural sabana grassland vegetation represent the smallest vegetation classes in PILA. Although páramo in PILA is present in both Costa Rica and Panama the sabanas natural grassland is present only in the Costa Rican component of PILA at elevations of 2001 to 2700 m. Together these grass-dominated landscapes harbour 273 species, 11 of which are endemic to PILA and 29 of which are endemic to Costa Rica, 7 to Panama and 49 restricted to Costa Rica and Panama. The páramo class is likely to be most vulnerable to a warming climate as it already occupies the highest peaks in PILA and so it cannot migrate up the mountain any further. Species restricted to these areas are therefore threatened by climate change.

PILA is also of significant national and regional importance for amphibians, reptiles, fish, birds and large mammals. Eighty species of amphibian are recorded for PILA including sixteen currently undescribed species that are in the process of being described (Eduardo Boza, pers. comm.). Fifty three reptile species are recorded for PILA, including three currently undescribed species (Boza, pers. comm.). Forty six species of freshwater fish are reported for the Caribbean slopes of PILA (McLarney 2010) including a number of fish species endemic to Costa Rica (Bussing 1998). Circa 450 bird species, representing approximately half of the avifauna of Costa Rica and Panama have also

been reported for PILA (The Nature Conservancy 2005), of these over 50 are endemic to the park which includes Important Bird Area PA003 (Angehr & Rosabel Miró 2009). The mammal fauna includes more than 20 protected species, including *Myrmecophaga tridactyla* (Giant Anteater), *Panthera onca* (Jaguar), *Tapirus bairdii* (Baird's tapir), *Tayassu pecari* (White-lipped peccary), *T. tajacu* (Collared peccary) and several endemic species such as *Cryptotis endersi* (Enders's small-eared shrew), *C. gracilis* (Talamancan small-eared shrew), *C. mera* (Darién small-eared shrew), *Syntheosciurus brochus* (Bangs's mountain squirrel) and *Sylvilagus dicei* (Dice's cottontail rabbit).

With respect to megafauna, PILA is probably of great significance to both countries and the region in general, as it represents a single 4001 km² block of natural vegetation that has been subject to minimal human disturbance.

Human impact

INBio *et al.* (2011) indicated the extent of deforestation impact to be 2.3%. A comparison with images from 1986 indicate that over the last quarter century the extent of deforestation has increased from 1.1%. PILA is therefore still subject to deforestation. It should be considered that when more fully occupied by the Chiriquí Grande group prior to the arrival of European colonists in the 16th Century there may also have been deforestation for agriculture. Indigenous maize grinding stones and mortars encountered in the park in areas that are now heavily forested are evidence of this (A. Monro, pers. obs.).

McLarney (2010), TNC (2005) and ADITIBRI (2008) documented hunting, the development of hydroelectric projects in river systems of great biodiversity importance and persistent evidence of illicit mineral exploration in PILA. Threats that are likely to be of a more immediate impact on the biodiversity, local climate and aesthetic value of the park as well as a driver of local extinction.

Future exploration of PILA

Figure 1 identifies several key areas for future exploration. These are the river basins of La Matina (Panama, Atlantic), Vólcan (Costa Rica, Pacific), Changuinola (Panama, Atlantic), Culubre (Panama, Atlantic), Teribe (Panama and Costa Rica, Atlantic) and Chiriquí Viejo (Panama, Pacific). In general the Panamanian Caribbean slopes need more study. We would strongly recommend that future exploration of PILA focuses on these areas. It should be noted that collecting in the Atlantic drainage of PILA is logistically complex, physically demanding and expensive. Access to the above river basins is largely on foot and requires several days hiking and camping in the field. In addition it is often necessary to obtain permission from indigenous groups to access the park, which is not always easy to achieve, and transporting specimens through indigenous territories is also not always permitted. These logistic issues often necessitates entry from the Pacific, adding several days of hiking. In addition the terrain is steep, the climate wet with frequent heavy rains and yet water sources are hard to find and is often the main factor determining camp locations.

Conclusions

The vascular plant checklist presented in Appendix 1 indicates that PILA represents an area of exceptionally high species diversity. However, the park has been patchily explored and there remain large unexplored areas, so our documentation of 3,046 species is likely to be an underestimate. We conclude from this that the designation of PILA as a World Heritage Site and national park in both Costa Rica and Panama is fully justified. In addition to its value as a source of vascular plant diversity PILA is of great cultural significance and remains an important resource for other groups of organisms (mammals, amphibians, reptiles, fish, birds) having a more or less intact megafauna, an increasingly rare resource in the region and globally. Given its geological and climate history, elevational gradient and relatively pristine vegetation, PILA may also be of great value to understanding the accumulation of species diversity in the biodiversity hotspot of Central America.

Acknowledgements

We are grateful to the Darwin Initiative of the UK Department for the Environment, Food and Rural Affairs who funded the field and herbarium work through grant 15/027. For their assistance with the field work we thank, Dario

Luque, Israel Tejada, Lionel Quíroz and Roney Samaniego (ANAM); Yesenia Villalobos and Armando Soto at INB, Alan Vega, Alejandro De Sedas (PMA), Alexandro De Gracia (PMA), Aurelio Hartmann (ANAM Park Guard), Billen Gamboa (INBio), Carlos Godínez (ASOPROLA), Carlos Solano, Concepción Pitty, David Mitre (PMA), Eduardo Boza Oviedo (UCR), Eyvar Rodríguez (UNACHI), Gerardo Chávez (UCR), Hugo Solano, Jorge Lezcana (PMA), José Hernández (CR National Zoo), Lauréncio Martínez (PMA), Lionel Quiroz (ANAM-Chiriquí PILA Administrator), Marcos Moraga (INBio), Marvin Sandí, Odilio Rivera, Ruth Hidalgo (UCR), Sam Bridgewater, William Gamboa, Aberlardo Pitty “Niño” (ANAM Park Guard). Work in the herbarium has been facilitated by, Lucila Guillén of the PMA herbarium; Isabel Pérez of the INB herbarium; Jonathan Gregson, Caroline Whitefoord and Juhn Hunnex of the BM herbarium for which we are grateful. We also thank Gerrit Davidse for extracting and providing us with records from the MO TOPICOS database for PILA. We thank the following specialists for their help in the identification of material whose identification proved problematic: Asteraceae, J. Pruski (MO), Nicholas Hind (K), A. Rodríguez (INB); Apocynaceae, Araliaceae, Bromeliaceae, Sabiaceae, Orchidaceae, J. F. Morales (INB); Araceae, Arecaceae, M. H. Grayum (MO); Araliaceae, Bromeliaceae, J. F. Morales (INB); Clusiaceae, Cyclanthaceae, Lauraceae, B. Hammel (MO); Fabaceae, N. Zamora (INB); Lauraceae, H. H. van der Werff (MO); Marcgraviaceae, B. Hammel (MO); Melastomataceae, Gesneriaceae R. Kriebel (NY); Poaceae, Gerrit Davidse (MO) & T. Bradley (INB); Rubiaceae, C.M. Taylor (MO); Solanaceae: A. Soto (INB), S. Knapp (BM); Styracaceae, P. Fritsch (CAS), Urticaceae, A.K. Monro (K), A. Rodríguez (INB); and Ferns, R. C. Moran (NY), A. Rojas (CR). In addition we would like to thank Minoo Lord (K) for help with the preparation of the manuscript and George Gosline (K) for help with the database.

Literature cited

- Amshoff, G.J.H. (1958) Flora of Panama, part VII, fascicle 2. Myrtaceae. *Annals of the Missouri Botanical Garden* 45: 165–201.
- Angehr, G. & Rosabel Miró, R. (2009) Panama. In: Devenish, C., Díaz Fernández, D.F., Clay, R.P., Davidson, I. & Yépez Zabala, I. (Eds.) *Important Bird Areas Americas - Priority sites for biodiversity conservation*. BirdLife International, Quito, pp. 289–298.
- Angiosperm Phylogeny Group (2016) An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV. *Botanical Journal of the Linnean Society* 181: 1–20.
<https://doi.org/10.1111/boj.12385>
- Autoridad Nacional del Ambiente (2004) *Plan de Manejo del Parque Internacional La Amistad/Corredor Biológico Mesoamericano del Atlántico Panameño*. Autoridad Nacional del Ambiente, Panamá, 264 pp.
- Asociaciones de Desarrollo Indígenas de Talamanca (2008) *Territorios indígenas Bribris - Cabecares: propuesta indígena para el manejo del Parque Internacional La Amistad*. Asociaciones de Desarrollo Indígenas de Talamanca. Shiroles, Costa Rica, 15 pp.
- Alfaro, E. (2003) *Plantas Comunes del Parque Nacional Chirripó, Costa Rica.*, Second edition. Instituto Nacional de Biodiversidad. Santo Domingo de Heredia, Costa Rica, 226 pp.
- Barringer, K. & Burger, W. (2000) Family 193. Scrophulariaceae. *Fieldiana, Botany, n.s* 41: 1–69.
- Blackwell, W.H., Jr. (1967a [1968]) Flora of Panama, Part VIII. Family 159. Loganiaceae. *Annals of the Missouri Botanical Garden* 54: 393–413.
<https://doi.org/10.2307/2395177>
- Blackwell, W.H., Jr. & Dodson, C.H. (1967b [1968]) Flora of Panama, Part VI. Family 101. Anacardiaceae. *Annals of the Missouri Botanical Garden* 54: 351–379.
<https://doi.org/10.2307/2395174>
- Blackwell, W.H. (1968) Flora of Panama, Part VIII. Family 154. Sapotaceae. *Annals of the Missouri Botanical Garden* 55: 393–169.
- Brown, R. (1813) *Hortus Kewensis ed. 2, Vol. 5*. London, 547 pp.
- Burnham, R.J. & Graham, A. (1999) The History of Neotropical vegetation: new developments and status. *Annals of the Missouri Botanical Garden* 86: 546–589.
<https://doi.org/10.2307/2666185>
- Bitter, F.A.G. (1919) Die Gattung Lycianthes. *Abhandlungen naturwissenschaftlicher vereine, Bremen* 24: 341–344.
- Borge, C.C. (2004) *Plan de Manejo Parque Internacional La Amistad Talamanca- Versión Final*- SEDER, The Nature Conservancy, Parks in Peril, USAID, Ministerio del Ambiente y Energía. Costa Rica, 215 pp.
- Burger, W.C. (1971a) Flora of Costa Rica, Family 40, Casuarinaceae. *Fieldiana, Botany* 35: 3–4.
- Burger, W.C. (1971b) Flora of Costa Rica, Family 41, Piperaceae. *Fieldiana, Botany* 35: 5–218.
- Burger, W.C. (1971c) Flora of Costa Rica, Family 42, Chloranthaceae. *Fieldiana, Botany* 40: 1–10.
- Burger, W.C. (1971d) Flora of Costa Rica, Family 43 Lacistemaceae. *Fieldiana, Botany* 40: 11–13.
- Burger, W.C. (1971e) Flora of Costa Rica, Family 45, Garryaceae. *Fieldiana, Botany* 40: 18–20.

- Burger, W.C. (1971f) Flora of Costa Rica, Family 46, Myricaceae. *Fieldiana, Botany* 40: 21–27.
- Burger, W.C. (1971g) Flora of Costa Rica, Family 50, Fagaceae. *Fieldiana, Botany* 40: 59–82.
- Burger, W.C. (1971h) Flora of Costa Rica, Family 51, Ulmaceae. *Fieldiana, Botany* 40: 83–93.
- Burger, W.C. (1971i) Flora of Costa Rica, Family 52, Moraceae. *Fieldiana, Botany* 40: 94–215.
- Burger, W.C. (1971j) Flora of Costa Rica, Family 53, Urticaceae. *Fieldiana, Botany* 40: 218–283.
- Burger, W.C. (1983a) Flora of Costa Rica, Family 55, Proteaceae. *Fieldiana, Botany, n.s* 13: 8–14.
- Burger, W.C. (1983b) Flora of Costa Rica, Family 56, Olacaceae. *Fieldiana, Botany, n.s* 13: 14–27.
- Burger, W.C. (1983c) Flora of Costa Rica, Family 58, Loranthaceae. *Fieldiana, Botany, n.s* 13: 29–79.
- Burger, W.C. (1983d) Flora of Costa Rica, Family 61, Balanophoraceae. *Fieldiana, Botany, n.s* 13: 93–99.
- Burger, W.C. (1983e) Flora of Costa Rica, Family 62, Polygonaceae. *Fieldiana, Botany, n.s* 13: 99–138.
- Burger, W.C. (1983f) Flora of Costa Rica, Family 64, Amaranthaceae. *Fieldiana, Botany, n.s* 13: 142–180.
- Burger, W.C. (1983g) Flora of Costa Rica, Family 65, Nyctaginaceae. *Fieldiana, Botany, n.s* 13: 180–199.
- Burger, W.C. (1983h) Flora of Costa Rica, Family 66, Phytolaccaceae. *Fieldiana, Botany, n.s* 13: 199–213.
- Burger, W.C. (1983i) Flora of Costa Rica, Family 70, Caryophyllaceae. *Fieldiana, Botany, n.s* 13: 227–247.
- Burger, W.C. (1986a) Flora of Costa Rica, Family 200, Acanthaceae. *Fieldiana, Botany, n.s* 18: 1–87.
- Burger, W.C. (1986b) Flora of Costa Rica, Family 201, Plantaginaceae. *Fieldiana, Botany, n.s* 18: 87–90.
- Burger, W.C. (1990) Flora of Costa Rica, Family 81, Hernandiaceae. *Fieldiana, Botany, n.s* 23: 129–138.
- Burger, W.C. (1991a) Flora of Costa Rica, Family 98, Oxalidaceae. *Fieldiana, Botany, n.s* 28: 2–16.
- Burger, W.C. (1991b) Flora of Costa Rica, Family 99, Geraniaceae. *Fieldiana, Botany, n.s* 28: 16–21.
- Burger, W.C. (1991c) Flora of Costa Rica, Family 100, Tropaeolaceae. *Fieldiana, Botany, n.s* 28: 21–23.
- Burger, W.C. (1995) Montane species-limits in Costa Rica and evidence for local speciation on latitudinal gradients. In: Churchill, S. P., Balslev, H., Forero E. & Luteyn, J.L. (Eds.) *Biodiversity and conservation of neotropical montane forest*. New York Botanical Garden, New York, pp. 127–133.
- Burger, W. & Barringer, K. (2000) Flora of Costa Rica, Family 193a, Schlegeliaceae. *Fieldiana, Botany, n.s* 41: 69–77.
- Burger, W. & Huft, M. (1995) Flora of Costa Rica, Family 113, Euphorbiaceae. *Fieldiana, Botany, n.s* 36: 1–169.
- Burger, W. & Gentry, A. (2000) Flora of Costa Rica, Family 194, Bignoniaceae. *Fieldiana, Botany, n.s* 41: 77–161.
- Burger, W.C. & Taylor, C.M. (1993) Flora of Costa Rica, Family 202, Rubiaceae. *Fieldiana, Botany, n.s* 33: 1–323.
- Burger, W.C. & van der Werff, H. (1990) Flora of Costa Rica, Family 80, Lauraceae. *Fieldiana, Botany, n.s* 23: 1–129.
- Burger, W.C. & Zamora, N. (1991) Flora of Costa Rica, Family 101a, Humiriaceae. *Fieldiana, Botany, n.s* 28: 25–30.
- Bussing, W.A. (1998) Peces de las aguas continentales de Costa Rica. *Revista de Biología Tropical* 46 suplementary volume: 1–468.
- Chase, M.W. & Reveal, J.L. (2009) A phylogenetic classification of the land plants to accompany APG III. *Botanical Journal of the Linnean Society* 161: 122–127.
<https://doi.org/10.1111/j.1095-8339.2009.01002.x>
- Christenhusz, M.J.M. (2009) Index Pteridophytorum Guadalupensium, a revised checklist of the club mosses and ferns of Guadeloupe (French West Indies). *Botanical Journal of the Linnean Society* 161: 213–277.
<https://doi.org/10.1111/j.1095-8339.2009.01005.x>
- Christenhusz, M.J.M. & Byng, J.W. (2016) The number of known plants species in the world and its annual increase. *Phytotaxa* 261: 20–217.
<https://doi.org/10.11646/phytotaxa.261.3.1>
- Christenhusz, M.J.M. & Chase, M.W. (2014) Trends and concepts in fern classification. *Annals of Botany* 113: 571–594.
<https://doi.org/10.1093/aob/mct299>
- Christenhusz, M.J.M., Reveal, J.L., Farjon, A., Gardner, M.F., Mill, R.R. & Chase, M.W. (2011) A new classification and linear sequence of extant gymnosperms. *Phytotaxa* 19: 55–70.
<https://doi.org/10.11646/phytotaxa.19.1.3>
- Clement, R.M & Horn, S.P. (2001) Pre-Columbian land-use history in Costa Rica: a 3000-year record of forest clearance, agriculture and fires from Laguna Zoncho. *The Holocene* 11: 419–426.
<https://doi.org/10.1191/095968301678302850>
- Condit, R. Pérez, R. & Daguerre, N. (2010) *Trees of Panama and Costa Rica*. Princeton University Press, Princeton, 552 pp.
<https://doi.org/10.1515/9781400836178>
- Correa, M. Galdames, C. & Stapf, M. (2004) *Catálogo de las Plantas Vasculares de Panamá*. Universidad de Panamá e Instituto Smithsonian de Investigaciones Tropicales: Corredor Biológico Mesoamericano del Atlántico Panameño. Panama City, 599 pp.
- Cuatrecasas, J. & Croat, T.B. (1980 [1981]) Flora of Panama, Part VI. 93. Malpighiaceae. *Annals of the Missouri Botanical Garden* 67: 851–899, 907–945.
<https://doi.org/10.2307/2398960>
- Dandy, J.E. (1962a) Flora of Panama, Part IV. Fascicle 5. Magnoliaceae. *Annals of the Missouri Botanical Garden* 49: 173–176.
- Dandy, J.E. (1962b) Flora of Panama, Part IV. Fascicle 5. Winteraceae. *Annals of the Missouri Botanical Garden* 49: 177–178.

- D'Arcy, W.G. (1971) Flora of Panama, Part IX. Family 178. Plantaginaceae. *Annals of the Missouri Botanical Garden* 58: 363–369.
<https://doi.org/10.2307/2394726>
- D'Arcy, W.G. (1973a) Flora of Panama, Part IX. Family 180. Caprifoliaceae. *Annals of the Missouri Botanical Garden* 60: 155–167.
<https://doi.org/10.2307/2394770>
- D'Arcy, W.G. (1973b) Flora of Panama, Part IX. Family 170. Solanaceae. *Annals of the Missouri Botanical Garden* 60: 573–780.
<https://doi.org/10.2307/2395139>
- D'Arcy, W.G. (1975a) Flora of Panama, Part VI. Family 107. Hippocastanaceae. *Annals of the Missouri Botanical Garden* 62: 57–60.
<https://doi.org/10.2307/2395050>
- D'Arcy, W.G. (1975b) Flora of Panama, Part IX. Family 184. Compositae. V. Heliantheae. E. Helianthinae. *Annals of the Missouri Botanical Garden* 62: 1101–1174.
- D'Arcy, W.G. (1975c [1976]) Flora of Panama: Family 184. Compositae. *Annals of the Missouri Botanical Garden* 62: 835–1322.
<https://doi.org/10.2307/2395231>
- D'Arcy, W.G. (1976a) Flora of Panama, Part IX. Family 184. Compositae. V. Heliantheae. F. Coreopsidinae. *Annals of the Missouri Botanical Garden* 62: 1174–1199.
- D'Arcy, W.G. (1976b) Flora of Panama, Part IX. Family 184. Compositae. VII. Anthemideae. *Annals of the Missouri Botanical Garden* 62: 1241–1244.
- D'Arcy, W.G. (1976c) Flora of Panama, Part IX. Family 184. Compositae. Introduction. *Annals of the Missouri Botanical Garden* 62: 835–857, 1306–1321.
- D'Arcy, W.G. (1976d) Flora of Panama, Part IX. Family 184. Compositae. III. Astereae. *Annals of the Missouri Botanical Garden* 62: 1004–1032.
- D'Arcy, W.G. (1976e) Flora of Panama, Part IX. Family 184. Compositae. IV. Inulae. *Annals of the Missouri Botanical Garden* 62: 1033–1053.
- D'Arcy, W.G. (1976f) Flora of Panama, Part IX. Family 184. Compositae. V. Heliantheae. *Annals of the Missouri Botanical Garden* 62: 1053–1056.
- D'Arcy, W.G. (1976g [1977]) Flora of Panama, Part VIII. Family 157. Symplocaceae. *Annals of the Missouri Botanical Garden* 63: 547–551.
<https://doi.org/10.2307/2395284>
- D'Arcy, W.G. (1979a) Flora of Panama, Part IV. Family 73A. Capparaceae-Tovarioideae. *Annals of the Missouri Botanical Garden* 66: 117–121.
<https://doi.org/10.2307/2398905>
- D'Arcy, W.G. (1979b) Flora of Panama, Part VIII. Family 156. Styracaceae. *Annals of the Missouri Botanical Garden* 66: 165–171.
<https://doi.org/10.2307/2398907>
- D'Arcy, W.G. (1979c) Flora of Panama, Part IX. Family 171. Scrophulariaceae. *Annals of the Missouri Botanical Garden* 66: 173–274.
<https://doi.org/10.2307/2398908>
- D'Arcy, W.G. (1980 [1981]) Flora of Panama, Part VI, Family 123. Guttiferae. *Annals of the Missouri Botanical Garden* 67: 969–1005, 1010–1043.
<https://doi.org/10.2307/2398964>
- D'Arcy, W.G. & Tomb, A.S. (1976) Flora of Panama, Part IX. Family 184. Compositae. XIII. Lactuceae. *Annals of the Missouri Botanical Garden* 62: 1292–1306.
- Davidse, G., Sousa S., M. & Chater, A.O (1994) *Flora Mesoamericana Volume 6*: inside cover of the dust jacket. Mexico City.
- Dodson, C.H. & Robyns, A. (1965) Flora of Panama, Part VI. Family 104. Hippocrateaceae. *Annals of the Missouri Botanical Garden* 52: 81–98.
- Don, G. 1834. *Gaiadendron punctatum*. *A General History of the Dichlamydeous Plants...London* 3: 432.
- Duke, J.A. (1960 [1961]) Flora of Panama, Part IV. Fascicle 3. Polygonaceae. *Annals of the Missouri Botanical Garden* 47: 323–359.
- Duke, J.A. (1961a) Flora of Panama, Part IV. Fascicle 4. Chenopodiaceae. *Annals of the Missouri Botanical Garden* 48: 1–6.
<https://doi.org/10.2307/2394907>
- Duke, J.A. (1961b) Flora of Panama, Part IV. Fascicle 4. Amaranthaceae. *Annals of the Missouri Botanical Garden* 48: 6–50.
<https://doi.org/10.2307/2394907>
- Duke, J.A. (1961c) Flora of Panama, Part IV. Fascicle 4. Caryophyllaceae. *Annals of the Missouri Botanical Garden* 48: 90–106.
<https://doi.org/10.2307/2394907>
- Duke, J.A. (1962a) Flora of Panama, Part IV. Fascicle 5. Ranunculaceae. *Annals of the Missouri Botanical Garden* 49: 144–153.
<https://doi.org/10.2307/2394708>
- Duke, J.A. (1962b) Flora of Panama, Part IV. Fascicle 5. Berberidaceae. *Annals of the Missouri Botanical Garden* 49: 154–156.
<https://doi.org/10.2307/2394708>
- Duke, J.A. (1962c) Flora of Panama, Part IV. Fascicle 5. Myristicaceae. *Annals of the Missouri Botanical Garden* 49: 214–225.
<https://doi.org/10.2307/2394708>

- Duke, J.A. (1962d) Flora of Panama, Part IV. Fascicle 5. Monimiaceae. *Annals of the Missouri Botanical Garden* 49: 225–239.
<https://doi.org/10.2307/2394708>
- Durkee, L.H. (1978) Flora of Panama, Part IX. Family 177. Acanthaceae. *Annals of the Missouri Botanical Garden* 65: 155–283.
<https://doi.org/10.2307/2395356>
- Dwyer, J.D. (1967) Flora of Panama, Part VI. Family 119. Ochnaceae. *Annals of the Missouri Botanical Garden* 54: 25–40.
<https://doi.org/10.2307/2394890>
- Dwyer, J.D. (1980a) Flora of Panama, Part IX. Family 179. Rubiaceae - Part 1. *Annals of the Missouri Botanical Garden* 67: 1–256.
<https://doi.org/10.2307/2398954>
- Dwyer, J.D. (1980b) Flora of Panama, Part IX. Family 179. Rubiaceae - Part 2. *Annals of the Missouri Botanical Garden* 67: 257–522.
<https://doi.org/10.2307/2398901>
- Elias, T.S. & Robyns, A. (1975) Flora of Panama, Part VIII. Family 160. Gentianaceae. *Annals of the Missouri Botanical Garden* 62: 61–101.
<https://doi.org/10.2307/2395051>
- Estrada, A., Rodríguez, A. & Sánchez, J. (2005) *Evaluación y categorización del estado de conservación de plantas en Costa Rica*. Museo Nacional de Costa Rica, Instituto Nacional de Biodiversidad, Sistema Nacional de Areas de Conservación, San José, 228 pp.
- Food and Agriculture Organization (1993) *Forest Resource Assessment 1990: Tropical Countries*. FAO Forestry Paper 112. Food and Agriculture Organization, Rome, 113 pp.
- Fondo Nacional de Financiamiento Forestal (2007) *Estudio de Monitoreo de Cobertura Forestal de Costa Rica 2005. I. Parte: Clasificación de la Cobertura Forestal con Imágenes Landsat ETM*. San José, Costa Rica, 37 pp.
- Fries, R.E. (1962) Flora of Panama, Part IV. Fascicle 5. Annonaceae. *Annals of the Missouri Botanical Garden* 49: 179–213.
- Furlow, J.C. (1971) Family 47. Betulaceae. *Fieldiana, Botany* 40: 56–58.
- Gentry, A.H. (1973) Flora of Panama, Part IX, Family 172. Bignoniaceae. *Annals of the Missouri Botanical Garden* 60: 781–977.
<https://doi.org/10.2307/2395140>
- Gentry, A.H. (1975) Flora of Panama, Part VI. Family 87A. Humiriaceae. *Annals of the Missouri Botanical Garden* 62: 35–44.
<https://doi.org/10.2307/2395048>
- Gentry, A.H. (1980 [1981]) Flora of Panama, Part VI. 109. Sabiaceae. *Annals of the Missouri Botanical Garden* 67: 949–963.
<https://doi.org/10.2307/2398962>
- Gómez, L.D. (1986) *Vegetación y Clima de Costa Rica. Vol. 1*. Universidad Estatal A Distancia, San José, 327 pp.
- Gómez, L.D. & Burger, W. (2000) Flora of Costa Rica, Family 197. Orobanchaceae. *Fieldiana, Botany, n.s* 41: 165–169.
- González-Arce, L. (2005) *Árboles y arbustos comunes del Parque Internacional La Amistad*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, 286 pp.
- Hammel, B.E., Grayum, M.H., Herrera, C. & Zamora, N. (Eds.) (2003a) Manual de Plantas de Costa Rica. Vol II. Gimnospermas y Monocotiledóneas (Agavaceae—Musaceae). *Monographs in Systematic Botany from the Missouri Botanical Garden* 92: 1–694.
- Hammel, B.E., Grayum, M.H., Herrera, C. & Zamora, N. (Eds.) (2003b) Manual de Plantas de Costa Rica. Vol III. Monocotiledóneas (Orchidaceae—Zingiberaceae). *Monographs in Systematic Botany from the Missouri Botanical Garden* 93: 1–884.
- Hammel, B.E., Grayum, M.H., Herrera, C. & Zamora, N. (Eds.) (2004) Manual de Plantas de Costa Rica. Vol I. Introducción. *Monographs in Systematic Botany from the Missouri Botanical Garden* 97: 1–299.
- Hammel, B.E., Grayum, M.H., Herrera, C. & Zamora, N. (Eds.) (2007) Manual de Plantas de Costa Rica. Vol VI. Dicotiledóneas (Haloragaceae—Phytolaccaceae). *Monographs in Systematic Botany from the Missouri Botanical Garden* 111: 1–933.
- Harcourt, C.S. & Sayer, J.A. (1996) *The Conservation Atlas of Tropical Forests: The Americas*. World Conservation Monitoring Center and International Union for Conservation of Nature and Natural Resources. Simon & Schuster, New York, 335 pp.
- Haynes, R.R. (1970) Flora of Panama, Part IX. Family 174. Orobanchaceae. *Annals of the Missouri Botanical Garden* 57: 131–134.
<https://doi.org/10.2307/2394784>
- Hijmans, R.J., Cameron, S.E., Parra, J.L., Jones, P.G. & Jarvis, A. (2005) Very high resolution interpolated climate surfaces for global land areas. *International Journal of Climatology* 25: 1965–1978.
<https://doi.org/10.1002/joc.1276>
- Hokche, O., Berry, P.E. & Huber, O. (2008) *Nuevo Catálogo de la Flora Vasculare de Venezuela*. Fundación Instituto Botánico de Venezuela, Caracas, 859 pp.
- Holdridge, L.R. (1947) Determination of World Plant Formations from Simple Climatic Data. *Science* 105 (2727): 367–368.
<https://doi.org/10.1126/science.105.2727.367>
- Holdridge, L.R. (1959a) Simple Method for Determining Potential Evapotranspiration from Temperature Data. *Science* 130: 572.
<https://doi.org/10.1126/science.130.3375.572>
- Holdridge, L.R. & Budowski, G. (1959b) *Mapa ecologico de Panama (1:1,000,000)*. Interamerican Institute of Agricultural Science, Turrialba.
- Holdridge, L.R. (1967) *Life Zone Ecology* (Revised edition). Tropical Science Center, San Jose, 206 pp.
- Holdridge, L.R., Grenke, W., Hatheway, W.H., Liang, T. & Tosi, J.A. (1971) *Forest Environments in Tropical Life Zones: A Pilot Study*.

Pergamon Press, Oxford, 780 pp.

- Hunter Jr., M.L. (2000) Refining normative concepts in conservation. *Conservation Biology* 14: 573–574.
<https://doi.org/10.1046/j.1523-1739.2000.99267.x>
- Instituto Nacional de Biodiversidad & Sistema Nacional de Areas de Conservación (2005) Ecomapas, Ecosistemas. Available from: <http://www.inbio.ac.cr/ecomapas/ecomapas/ecomapas.html> (accessed 5 June 2012)
- Instituto Nacional de Biodiversidad (2011) *Evaluación de amenazas antrópicas en el Parque Internacional La Amistad PILA y su zona de amortiguamiento*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, 14 pp.
- International Union for Conservation of Nature and Natural Resources Species Survival Commission (2001) *IUCN Red List Categories: Version 3.1*. International Union for Conservation of Nature and Natural Resources, Gland and Cambridge, 70 pp.
- Islebe, G.A. & Hooghiemstra, H. (2005) Historia y clima de la vegetación montañosa de Costa Rica desde el último glaciar. In: Kappelle, M. & Horn, S.P. (Eds.) *Páramos de Costa Rica*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, pp. 215–235.
- Jackson, J.B.C., Budd, A.F. & Coates, A.G. (1996) *Evolution & environment in tropical America*. University of Chicago Press, London, 433 pp.
- Janzen, D.H. (1998) *Conservation analysis of the Santa Elena property, Peninsula Santa Elena, northwestern Costa Rica*. Report to the Government of Costa Rica, Area de Conservacion Guanacaste, ACG, Liberia, Guanacaste, Costa Rica, 129 pp.
- Kappelle, M. (1996) *Los Bosques de Roble (Quercus) de la Cordillera de Talamanca, Costa Rica: Biodiversidad, Ecología, Conservación y Desarrollo*. Universidad de Amsterdam & Instituto Nacional de Biodiversidad, Santo Domingo de Heredia & Amsterdam 336 pp.
- Kappelle, M. (2001) Costa Rica. In: Kappelle, M. & Brown, A.D. (Eds.) *Bosques nublados del neotrópico*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, pp. 301–370.
- Kappelle, M. (2008) *Biodiversidad de los bosques de roble (encino) de América Tropical-Biodiversity of oak forests of tropical America*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, 336 pp.
- Kappelle, M., Cleef, A.M. & Chaverri, A. (1992) Phytogeography of Talamanca montane *Quercus* forests, Costa Rica. *Journal of Biogeography* 19: 299–315.
<https://doi.org/10.2307/2845453>
- Kappelle, M. & Zamora, N. (1995) Changes in woody species richness along an altitudinal gradient in Talamanca montane *Quercus* forests, Costa Rica. In: Churchill, S.P., Balslev, H., Forero, E. & Luteyn, J.L. (Eds.) *Biodiversity and Conservation of Neotropical Montane Forests*. New York Botanical Garden, New York, pp. 135–148.
- Kappelle, M. & Horn, S.P. (Eds.) (2005) *Páramos de Costa Rica*. Instituto Nacional de Biodiversidad & The Nature Conservancy, Santo Domingo de Heredia, 767 pp.
- Krefth, H., Jetz, W., Mutke, J. & Barthlott, W. (2010) Contrasting environmental and regional effects on global pteridophyte and seed plant Diversity. *Ecography* 33: 408–419.
<https://doi.org/10.1111/j.1600-0587.2010.06434.x>
- Lachniet, M.S., Seltzer, G.O. & Solis, L. (2005) Geología, Geomorfología y Depósitos Glaciares en los Páramos de Costa Rica. In: Kappelle, M. & Horn, S.P. (Eds.) *Páramos de Costa Rica*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, pp. 129–146.
- League, B.L. & Horn, S.P. (2000) A 10 000 year record of páramo fires in Costa Rica. *Journal of Tropical Ecology* 16: 747–752.
<https://doi.org/10.1017/S0266467400001693>
- León, J. & Poveda, J.L. (2000) *Nombres comunes de las plantas en Costa Rica*. Guayacán, San José Costa Rica, 915 pp.
- Linnaeus, C. (1753) *Species Plantarum 2*. Impensis Laurentii Salvii, Holmiae, 639 pp.
- Linnaeus, C. (1763) *Species Plantarum 2, second edition*. Impensis Laurentii Salvii, Holmiae, 899 pp.
- Luteyn, J.L. (1999) Paramos: a checklist of plants diversity, geographical distribution, and botanical literature. *Memoirs of the New York Botanical Garden* 84: 1–278.
- Luteyn, J.L. & Wilbur, R.L. (2005) Flora of Costa Rica, Ericaceae. *Fieldiana, Botany, n.s.* 45: 1–107.
- Marin, A.C. (2007) *Una clasificación de la vegetación por “formas de vida” utilizando información florística*. Informe interno, Museo Nacional de Costa Rica, San José, 29 pp.
- McLarney, W.O., Mafla, M., Arias, A.M. & Bouchonnet, D. (2010) *Amenazas a la biodiversidad y el funcionamiento de los ecosistemas en el sitio de Patrimonio Mundial La Amistad por las propuestas de represas hidroeléctricas, Panamá-Costa Rica. Sabanilla de Montes de Oca, Costa Rica*. Asociación Nacional de Alcaldías e Intendencias (ANAI), Sabanilla de Montes de Oca and Franklin, 134 pp.
- Ministerio de Ambiente, Energía y Telecomunicaciones, República de Costa Rica (2008) *Informe presentado ante el comité de Patrimonio Mundial en atención al párrafo sexto de la decisión 31 Com 7B.36*. Ministerio del Ambiente y Energía, San José, 29 pp.
- Monro, A.K., Bystrikova, N. & González, F. (2017) Do floristic inventories provide data useful for understanding tropical plant assemblages? A case study of La Amistad World Heritage Site. *Biotropica*.
<https://doi.org/10.1111/btp.12470>
- Monro, A.K., Chacón, O., Zamora, N., Brown, N., González, F., Santamaría, D. & Correa, M. (2009) *Zonas de Biodiversidad del Parque Internacional La Amistad (PILA) Costa Rica - Panama*. The Natural History Museum, London and Instituto Nacional de Biodiversidad, Santo Domingo de Herencia, Universidad de Panama, Panama City. Instituto Nacional de Biodiversidad, Santo

Domingo de Heredia, p. 1.

- Moran, R.C. (2008) Biogeography of ferns and lycophytes. *In*: Haufler, C. & Ranker, T.A. (Eds.) *The Biology and Evolution of Ferns and Lycophytes*. Cambridge University Press, pp. 369–396.
<https://doi.org/10.1017/CBO9780511541827.015>
- Munz, P.A. (1959) Flora of Panama, Part VII. Fascicle 4. Onagraceae. *Annals of the Missouri Botanical Garden* 46: 195–221.
<https://doi.org/10.2307/2394561>
- Nacion (2010a) Mineras intentaron explorar la cordillera al menos 20 veces. *Nacion online*, 21st April 2010. Available from: <http://www.nacion.com/2010-04-22/EIPais/Relacionados/EIPais2329332.aspx> (accessed 14 October 2011)
- Nacion (2010b) Talamanca esconde codiciados yacimientos de oro y cobre. *Nacion online*, 21st April 2010. Available from: <http://www.nacion.com/2010-04-22/EIPais/NotaPrincipal/EIPais2329308.aspx> (accessed 14 October 2011)
- Nacion (2010c) Comunidades indígenas rechazan minería. *Nacion online*, 22nd April 2010. Available from: <http://www.nacion.com/2010-04-23/EIPais/FotoVideoDestacado/EIPais2344923.aspx> (accessed 14 October 2011)
- The Nature Conservancy, Instituto Nacional de Biodiversidad & La Sociedad Mastozoológica de Panamá (2005) *Análisis de Viabilidad de los Objetos de Conservación del Sitio Binacional La Amistad, Costa Rica-Panamá. Informe Técnico No. 1*. The Nature Conservancy, Instituto Nacional de Biodiversidad and La Sociedad Mastozoológica de Panamá, San José, 93 pp.
- The Nature Conservancy (2009) Parks in Peril, La Amistad International Park / Bocas del Toro. Available from: <http://www.parksinperil.org/wherewework/centralamerica/costarica/protectedarea/amistad.html> (accessed 21st July 2009)
- Nelson-Sutherland, C.H. (2008) *Catálogo de las plantas vasculares de Honduras*. SERNA/Guaymuras, Tegucigalpa, 1576 pp.
- Nowicke, J.W. (1970) Flora of Panama, Part VIII. Family 162. Apocynaceae. *Annals of the Missouri Botanical Garden* 57: 59–13.
<https://doi.org/10.2307/2394783>
- Paine, R.T. (1995) “A Conversation on Refining the Concept of Keystone Species”. *Conservation Biology* 9: 962–964.
<https://doi.org/10.1046/j.1523-1739.1995.09040962.x>
- Pfeifer, H.W. (1960 [1961]) Flora of Panama, Part IV. Fascicle 3. Aristolochiaceae. *Annals of the Missouri Botanical Garden* 47: 309–323.
- Pilz, G.E. (1981) Sapotaceae of Panama. *Annals of the Missouri Botanical Garden* 68: 172–203.
<https://doi.org/10.2307/2398820>
- Pohl, R.W. (1980) Flora of Costa Rica, Family 15. Gramineae. *Fieldiana, Botany* 4: 1–608.
- Porter, D.M. (1970) Flora of Panama, Part VI. Family 191. Burseraceae. *Annals of the Missouri Botanical Garden* 57: 5–27.
<https://doi.org/10.2307/2394779>
- Porter, D.M. & Cuatrecasas, J. (1975) Flora of Panama, Part V. Family 80A. Brunelliaceae. *Annals of the Missouri Botanical Garden* 62: 11–14.
<https://doi.org/10.2307/2395045>
- Porter, D.M. & Elias, T.S. (1979) Flora of Panama, Part VI. Family 89. Rutaceae. *Annals of the Missouri Botanical Garden* 66: 123–164.
<https://doi.org/10.2307/2398906>
- Plowman, T. (1991) Family 101. Eythroxyllaceae. *Fieldiana, Botany, n.s* 28: 30–36.
- Rahbek, C. (2005) The role of spatial scale and the perception of large-scale species-richness patterns. *Ecology Letters* 8: 224–239.
<https://doi.org/10.1111/j.1461-0248.2004.00701.x>
- Raven, P.H., Evert, R.F. & Eichhorn, S.E. (2005) *Biology of Plants, 7th edition*. W.H. Freeman & Company, New York, 900 pp.
- Reveal, J.L. (2010) A checklist of familial and suprafamilial names for extant vascular plants. *Phytotaxa* 6: 1–402.
<https://doi.org/10.11646/phytotaxa.6.1.1>
- Rizzini, C.T. (1960 [1961]) Flora of Panama, Part IV. Fascicle 3. Loranthaceae. *Annals of the Missouri Botanical Garden* 47: 263–290.
<https://doi.org/10.2307/2394921>
- Robyns, A. (1964a) Flora of Panama, Part VI. Family 114. Tiliaceae. *Annals of the Missouri Botanical Garden* 51: 1–35.
<https://doi.org/10.2307/2394900>
- Robyns, A. (1964b) Flora of Panama, Part VI. Family 116. Bombacaceae. *Annals of the Missouri Botanical Garden* 51: 37–68.
<https://doi.org/10.2307/2394901>
- Robyns, A. (1967a) Flora of Panama, Part VI. Family 95. Vochysiaceae. *Annals of the Missouri Botanical Garden* 54: 1–7.
<https://doi.org/10.2307/2394885>
- Robyns, A. (1967b) Flora of Panama, Part VI. Family 122. Theaceae. *Annals of the Missouri Botanical Garden* 54: 41–56.
<https://doi.org/10.2307/2394891>
- Robyns, A. (1967c) Flora of Panama, Part VI. Family 127. Violaceae. *Annals of the Missouri Botanical Garden* 54: 65–84.
<https://doi.org/10.2307/2394894>
- Robyns, A. (1968) Flora of Panama, Part VI. Family 128. Flacourtiaceae. *Annals of the Missouri Botanical Garden* 55: 93–144.
<https://doi.org/10.2307/2394875>
- Rodríguez, A., Monro, A.K., Chacón, O, Solano, D., Santamaría, D., Zamora, N., González, F. & Correa, M. (2011) Regional and Global Conservation assessments for 200 vascular plant species from Costa Rica and Panama. *Phytotaxa* 21: 1–216.

<https://doi.org/10.11646/phytotaxa.21.1.1>

- Ruiz López, H. & Pavón, J.A. (1794) *Florae Peruvianae, et Chilensis prodromus*. Sancha, Madrid, 153 pp.
- Schmidel, C.C. (1763) *Icones Plantarum. Volume 3*. Typis Felseckerianis, Nuremberg, 24 pl.
- Smith, J. (1842) On the genera of ferns. *Journal of Botany, being a second series of the Botanical Miscellany* 4: 147–198.
- Skog, L. (1978) Flora of Panama, Part VIII. Gesneriaceae. Family 175. *Annals of the Missouri Botanical Garden* 65: 783–998.
- Smith, J.E. (1793) Tentamum botanicum de filicum generibus dorsiferarum. *Mémoires de l'Académie Royale des Sciences* 5: 401–422.
- Solis, A. (2009) *Análisis de la diversidad biológica de 18 sitios muestreados en el PILA, utilizando escarabajos coprófagos como grupo indicador*. Informe para el proyecto Herraminetas Básicas para el manejo del Parque Internacional La Amistad: Costa Rica-Panamá, 21 pp.
- Stafelu, F.A. (1953) *Acta Botanica Neerlandica* 2 (2): 182–184, f. 11.
- Stevens, W.D., Ulloa, C., Pool, A. & Montiel, O. (2001a) Flora de Nicaragua. *Monographs in Systematic Botany from the Missouri Botanical Garden* 85: 1–2666.
- Stone, D.E. (1971) Family 47. Juglandaceae. *Fieldiana, Botany* 40: 28–53.
- Swartz, O. (1801) Genera et species filicum ordine systematico redactarum, adiectis synonymis et iconibus selectis, nec non speciebus recenter detectis, et demum plurimis dubiosis, ulterius investigandis. *Journal für die Botanik. H. A. Schrader, Göttingen* 1800 (2): 1–120.
- Taylor, P. (1976 [1977]) Flora of Panama, Part IX. Family 176. Lentibulariaceae. *Annals of the Missouri Botanical Garden* 63: 565–580. <https://doi.org/10.2307/2395286>
- Toledo *et al.*, V.M., Rzedowski, J., Villa-Lobos, J., Gómez, L.D., Godoy, J.C. & Herrera-Macbride, O. (1997) Regional overview: Middle America. In: Davis, S.D., Heywood, V.H., Herrera-Macbride, O., Villa-Lobos, J. & Hamilton, A.C. (Eds.) *Centres of Plant Diversity: A Guide and Strategy for their Conservation. Volume 3, The Americas*. World Wide Fund for Nature and IUCN-The World Conservation Union, Oxford, pp. 97–124.
- Tosi, J.A. (1969) *Mapa ecológico, República de Costa Rica: según la clasificación de zonas de vida del mundo de L. R. Holdridge*. Centro de Ciencias Tropicales, San José.
- Tosi, J.A. (1971) *Zonas de vida: Una base ecológica para las investigaciones silvícolas e investigación forestal en la República de Panamá*. United Nations Development Programme-Food and Agriculture Organization of the United Nations Technical Report, 89 pp.
- United Nations Educational, Scientific and Cultural Organization Convention Concerning The Protection of the World Cultural and Natural Heritage World Heritage Committee (2008) *Mission report, Talamanca range-La Amistad reserves - La Amistad National Park (Costa Rica - Panama) (205 bis)*. UNESCO, Paris, 42 pp.
- United Nations Educational, Scientific and Cultural Organization Convention Concerning The Protection of the World Cultural and Natural Heritage World Heritage Committee (2010) In: *State of conservation of World Heritage properties report WHC-10/34. COM/7B*. UNESCO, Paris, pp. 85–88.
- Van der Hammen, T. & Gonzalez, E. (1964) A pollen diagram from the Quarternary of the Sabana de Bogotá (Colombia) and its significance for the geology of the Northern Andes. *Geologie en Mijnbouw* 43: 113–117.
- Vargas, G. & Sánchez, J.J. (2005) Plantas con flores de los páramos de Costa Rica y Panamá: el páramo ístmico. In: Kappelle, M. & Horn, S.P. (Eds.) *Páramos de Costa Rica*. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, pp. 397–435.
- Weber, H. (1959) *Los páramos de Costa Rica y su concatenación fitogeográfica con los Andes sudamericanos*. Instituto Geográfico de Costa Rica, San José, 67 pp.
- Weyl, R. (1980) *Geology of Central America*. Gebrüder Borntraeger, Berlin-Stuttgart, 371 pp.
- Wilbur, R.L. (1976 [1977]) Flora of Panama, Part IX. Family 183. Campanulaceae. *Annals of the Missouri Botanical Garden* 63: 593–655. <https://doi.org/10.2307/2395288>
- Wilbur, R.L. & Luteyn, J.L. (1978) Flora of Panama, Part VIII. Family 149. Ericaceae. *Annals of the Missouri Botanical Garden* 65: 27–143. <https://doi.org/10.2307/2395354>
- Woodson, Jr., R.E. & Schery, R.W. (1943) Flora of Panama, Part II. Fascicle 1. Cycadaceae. *Annals of the Missouri Botanical Garden* 30: 97–98. <https://doi.org/10.2307/2394279>
- Woodson, Jr., R.E. & Schery, R.W. (1945a) Flora of Panama, Part III. Fascicle 1. Zingiberaceae. *Annals of the Missouri Botanical Garden* 32: 57–73.
- Woodson, Jr., R.E. & Schery, R.W. (1945b) Flora of Panama, Part III. Fascicle 1. Marantaceae. *Annals of the Missouri Botanical Garden* 32: 81–105.
- Woodson, Jr., R.E. & Schery, R.W. (1958a) Flora of Panama, Part VII. Fascicle 1. Passifloraceae. *Annals of the Missouri Botanical Garden* 45: 1–22. <https://doi.org/10.2307/2394626>

- Woodson, Jr., R.E. & Schery, R.W. (1958b) Flora of Panama, Part VII. Fascicle 2. Thymelaeaceae. *Annals of the Missouri Botanical Garden* 45: 93–97.
<https://doi.org/10.2307/2394670>
- Woodson, Jr., R.E. & Schery, R.W. (1975) Flora of Panama: Family 184. Compositae. *Annals of the Missouri Botanical Garden* 62: 835–1322.
<https://doi.org/10.2307/2395231>
- Zamora, N. (2008) Unidades fitogeográficas para la clasificación de ecosistemas terrestres en Costa Rica. *Recursos Naturales y Ambiente* 54: 14–20.

Index to genera included in the checklist

<i>Abarema</i>	190	<i>Brunellia</i>	169	<i>Cornutia</i>	206
<i>Abuta</i>	228	<i>Buddleja</i>	267	<i>Cortaderia</i>	136
<i>Acalypha</i>	189	<i>Bunchosia</i>	210	<i>Corynaea</i>	164
<i>Acianthera</i>	118	<i>Burmannia</i>	106	<i>Cosmibuena</i>	247
<i>Aciotis</i>	214	<i>Burmeistera</i>	171	<i>Costus</i>	107
<i>Acmella</i>	153	<i>Byrsonima</i>	210	<i>Cotula</i>	156
<i>Acroceras</i>	133	<i>Caesalpinia</i>	190	<i>Coussapoa</i>	277
<i>Acrochis</i>	118	<i>Calamagrostis</i>	135	<i>Coussarea</i>	247
<i>Adelobotrys</i>	214	<i>Calanthe</i>	119	<i>Cranichis</i>	120
<i>Adenophaedra</i>	189	<i>Calathea</i>	117	<i>Crassocephalum</i>	156
<i>Adenostemma</i>	153	<i>Calatola</i>	228	<i>Cremosperma</i>	200
<i>Adiantum</i>	64	<i>Calceolaria</i>	170	<i>Critonia</i>	156
<i>Aechmea</i>	101	<i>Calea</i>	154	<i>Crossoglossa</i>	120
<i>Aegiphila</i>	206	<i>Calliandra</i>	191	<i>Crossopetalum</i>	174
<i>Ageratina</i>	153	<i>Callichlamys</i>	167	<i>Crotalaria</i>	191
<i>Ageratum</i>	154	<i>Calopogonium</i>	191	<i>Croton</i>	189
<i>Agrostis</i>	133	<i>Calyptrogyne</i>	97	<i>Crusea</i>	248
<i>Aiouea</i>	69	<i>Campylocentrum</i>	119	<i>Ctenanthe</i>	118
<i>Alansmia</i>	49	<i>Campyloneurum</i>	49	<i>Ctenitis</i>	51
<i>Alchornea</i>	189	<i>Canavalia</i>	191	<i>Culcita</i>	41
<i>Alfaroa</i>	205	<i>Canna</i>	106	<i>Cupania</i>	265
<i>Alibertia</i>	246	<i>Carapa</i>	226	<i>Cuphea</i>	210
<i>Allophylus</i>	265	<i>Cardamine</i>	169	<i>Cupressus</i>	67
<i>Alnus</i>	166	<i>Carex</i>	110	<i>Cyathia</i>	42
<i>Alonsoa</i>	267	<i>Carludovica</i>	109	<i>Cyathula</i>	146
<i>Alsophila</i>	41	<i>Carpotroche</i>	145	<i>Cybianthus</i>	242
<i>Alternanthera</i>	146	<i>Casearia</i>	263	<i>Cyclanthera</i>	180
<i>Alzatea</i>	146	<i>Cassipourea</i>	244	<i>Cymbopetalum</i>	67
<i>Amaioua</i>	246	<i>Castilla</i>	228	<i>Cynodon</i>	136
<i>Amalophyllon</i>	197	<i>Castilleja</i>	234	<i>Cynoglossum</i>	168
<i>Amauropelta</i>	16	<i>Catopsis</i>	101	<i>Cyperus</i>	111
<i>Amphilophium</i>	167	<i>Cavendishia</i>	182	<i>Cyrtochiloides</i>	120
<i>Amphitecna</i>	167	<i>Cayaponia</i>	179	<i>Cystopteris</i>	37
<i>Amyris</i>	261	<i>Ceanothus</i>	244	<i>Danaea</i>	48
<i>Anathallis</i>	118	<i>Cecropia</i>	277	<i>Daphnopsis</i>	276
<i>Anetium</i>	64	<i>Cedrela</i>	226	<i>Decachaeta</i>	156
<i>Andropogon</i>	133	<i>Celastrus</i>	174	<i>Declieuxia</i>	248
<i>Annona</i>	67	<i>Celtis</i>	173	<i>Dendropanax</i>	150
<i>Anomospermum</i>	228	<i>Centradenia</i>	215	<i>Dendrophthora</i>	264
<i>Anthurium</i>	86	<i>Centratherum</i>	154	<i>Dennstaedtia</i>	43
<i>Antidaphne</i>	264	<i>Centropogon</i>	172	<i>Deppea</i>	248
<i>Aphelandra</i>	143	<i>Centrosema</i>	191	<i>Desfontainia</i>	179
<i>Apteria</i>	106	<i>Ceradenia</i>	50	<i>Desmodium</i>	191
<i>Arachniodes</i>	49	<i>Cestrum</i>	267	<i>Desmopsis</i>	67
<i>Arachnothryx</i>	246	<i>Chaetolepis</i>	215	<i>Diastema</i>	200
<i>Archibaccharis</i>	154	<i>Chamaedorea</i>	97	<i>Dichaea</i>	120
<i>Arcytophyllum</i>	246	<i>Chamissoa</i>	146	<i>Dichapetalum</i>	181
<i>Ardisia</i>	241	<i>Chaptalia</i>	154	<i>Dichorisandra</i>	106
<i>Arenaria</i>	174	<i>Cheilanthes</i>	64	<i>Dicliptera</i>	143
<i>Aristolochia</i>	67	<i>Chelonanthus</i>	196	<i>Dicranopteris</i>	44
<i>Arracacia</i>	147	<i>Chimaphila</i>	184	<i>Dicranopygium</i>	109
<i>Arthrostylidium</i>	134	<i>Chimarrhis</i>	246	<i>Dictyostegia</i>	106
<i>Arundinella</i>	134	<i>Chiococca</i>	247	<i>Didonia</i>	184
<i>Aspidogyne</i>	119	<i>Chione</i>	247	<i>Didymaea</i>	248
<i>Asplenium</i>	33	<i>Chionolaena</i>	255	<i>Didymochlaena</i>	51
<i>Asplundia</i>	108	<i>Chomelia</i>	247	<i>Dieffenbachia</i>	93
<i>Aulonemia</i>	134	<i>Chorigyne</i>	109	<i>Digitaria</i>	137
<i>Axinaea</i>	214	<i>Chromolaena</i>	155	<i>Dioscorea</i>	114
<i>Axonopus</i>	134	<i>Chrysoclamys</i>	176	<i>Diplazium</i>	37
<i>Ayapana</i>	154	<i>Chrysophyllum</i>	266	<i>Diplostegium</i>	156
<i>Baccharis</i>	154	<i>Chusquea</i>	135	<i>Disterigma</i>	185
<i>Bactris</i>	97	<i>Cinchona</i>	247	<i>Dorstenia</i>	229
<i>Banara</i>	262	<i>Cinna</i>	136	<i>Dracontium</i>	93
<i>Barbosella</i>	119	<i>Cinnamomum</i>	69	<i>Dracula</i>	120
<i>Bartlettina</i>	154	<i>Cirsium</i>	155	<i>Drimys</i>	85
<i>Bauhinia</i>	190	<i>Cissampelos</i>	228	<i>Drymonia</i>	200
<i>Begonia</i>	165	<i>Cissus</i>	282	<i>Dryopteris</i>	51
<i>Beilschmiedia</i>	69	<i>Citharexylum</i>	281	<i>Dyschoriste</i>	143
<i>Bellucia</i>	214	<i>Citronella</i>	174	<i>Dysopsis</i>	490
<i>Berberis</i>	166	<i>Citrus</i>	261	<i>Dussia</i>	192
<i>Bernardia</i>	189	<i>Cladium</i>	111	<i>Echinosepala</i>	120
<i>Bertiera</i>	246	<i>Clarisia</i>	229	<i>Eclipta</i>	156
<i>Besleria</i>	197	<i>Cleidion</i>	189	<i>Eirmocephala</i>	156
<i>Bidens</i>	154	<i>Clethra</i>	176	<i>Elaeagia</i>	248
<i>Bignonia</i>	167	<i>Cleyera</i>	236	<i>Elaphoglossum</i>	52
<i>Billia</i>	265	<i>Clibadium</i>	155	<i>Eleocharis</i>	111
<i>Blakea</i>	214	<i>Clidemia</i>	216	<i>Elephantopus</i>	156
<i>Blechnum</i>	36	<i>Clinopodium</i>	206	<i>Elleanthus</i>	120
<i>Bletia</i>	119	<i>Clusia</i>	177	<i>Enterosora</i>	57
<i>Blotiella</i>	43	<i>Clusiella</i>	178	<i>Epidendrum</i>	121
<i>Bocconia</i>	235	<i>Cobaea</i>	239	<i>Epiphyllum</i>	170
<i>Boehmeria</i>	276	<i>Coccineorchis</i>	119	<i>Equisetum</i>	44
<i>Bolbitis</i>	pp	<i>Coccocypselum</i>	147	<i>Erato</i>	157
<i>Bomarea</i>	86	<i>Coccoloba</i>	240	<i>Erechtites</i>	157
<i>Botrychium</i>	49	<i>Cochleanthes</i>	120	<i>Erigeron</i>	157
<i>Brachiaria</i>	134	<i>Cojoba</i>	191	<i>Eriobotrya</i>	245
<i>Brachionidium</i>	119	<i>Columnnea</i>	198	<i>Erycina</i>	124
<i>Brachistum</i>	267	<i>Comarostaphylis</i>	184	<i>Eryngium</i>	147
<i>Brassica</i>	169	<i>Combretum</i>	179	<i>Erythrina</i>	192
<i>Browallia</i>	267	<i>Commelina</i>	106	<i>Erythroxylum</i>	188
<i>Brugmansia</i>	267	<i>Condaminea</i>	247	<i>Escallonia</i>	188
		<i>Conopholis</i>	234	<i>Eugenia</i>	231
		<i>Conostegia</i>	218	<i>Euonymus</i>	175
		<i>Conyza</i>	156	<i>Eupatorium</i>	157
		<i>Cordia</i>	167	<i>Eupodium</i>	48
		<i>Cornus</i>	179	<i>Evodiantus</i>	110

<i>Faramea</i>	248	<i>Ipomoea</i>	179	<i>Miconia</i>	220
<i>Fernandezia</i>	124	<i>Iresine</i>	146	<i>Microchilus</i>	128
<i>Festuca</i>	137	<i>Iriartea</i>	100	<i>Microgramma</i>	59
<i>Ficus</i>	229	<i>Isachne</i>	137	<i>Micropholis</i>	266
<i>Fleischmannia</i>	157	<i>Ischaemum</i>	138	<i>Micropleura</i>	147
<i>Floscopa</i>	107	<i>Ischnosiphon</i>	118	<i>Micropolypodium</i>	59
<i>Frangula</i>	244	<i>Isoëtes</i>	31	<i>Microtropis</i>	175
<i>Freziera</i>	236	<i>Jacarãtia</i>	174	<i>Mikania</i>	159
<i>Fridericia</i>	167	<i>Jaegeria</i>	158	<i>Mildella</i>	65
<i>Fuchsia</i>	233	<i>Jaltomata</i>	269	<i>Molinadendron</i>	204
<i>Gaiadendron</i>	209	<i>Jamesonia</i>	64	<i>Mollinedia</i>	74
<i>Galinsoga</i>	157	<i>Juncus</i>	117	<i>Monnina</i>	239
<i>Galium</i>	249	<i>Jungia</i>	158	<i>Monochaetum</i>	224
<i>Garcilassa</i>	157	<i>Justicia</i>	143	<i>Monopyle</i>	202
<i>Garcinia</i>	178	<i>Kalbreyeriella</i>	144	<i>Monotropa</i>	186
<i>Garrya</i>	196	<i>Klaprothia</i>	208	<i>Monstera</i>	93
<i>Gasteranthus</i>	202	<i>Koanophyllon</i>	158	<i>Morella</i>	231
<i>Gaultheria</i>	185	<i>Kohleria</i>	202	<i>Moritzia</i>	168
<i>Gentiana</i>	196	<i>Lachemilla</i>	245	<i>Mortoniadendron</i>	211
<i>Gentlea</i>	242	<i>Lacmellea</i>	148	<i>Morus</i>	230
<i>Geonoma</i>	99	<i>Ladenbergia</i>	252	<i>Mouriri</i>	224
<i>Geranium</i>	197	<i>Laestadia</i>	159	<i>Moussonia</i>	203
<i>Gibsoniothamnus</i>	266	<i>Laetia</i>	263	<i>Mucuna</i>	194
<i>Gloeospermum</i>	281	<i>Lagenophora</i>	159	<i>Muehlenbeckia</i>	240
<i>Glossoloma</i>	202	<i>Lamourouxia</i>	234	<i>Muhlenbergia</i>	139
<i>Gnaphalium</i>	157	<i>Langsdorffia</i>	164	<i>Munnozia</i>	160
<i>Goepertia</i>	117	<i>Lantana</i>	281	<i>Myoxanthus</i>	128
<i>Gongrostylus</i>	158	<i>Larnax</i>	267	<i>Myrcia</i>	232
<i>Gonocalyx</i>	185	<i>Lasiacis</i>	138	<i>Myrcianthes</i>	232
<i>Gonzalagunia</i>	249	<i>Lasianthaea</i>	159	<i>Myriocarpa</i>	277
<i>Goodyera</i>	125	<i>Lastreopsis</i>	57	<i>Myrrhidendron</i>	148
<i>Gordonia</i>	275	<i>Lateropora</i>	185	<i>Myrsine</i>	243
<i>Gouania</i>	244	<i>Leandra</i>	219	<i>Najas</i>	116
<i>Govenia</i>	125	<i>Lellingeria</i>	57	<i>Napeanthus</i>	203
<i>Graffenrieda</i>	219	<i>Lepanthes</i>	125	<i>Nasa</i>	208
<i>Grammitis</i>	57	<i>Lepechinia</i>	207	<i>Naucleopsis</i>	230
<i>Greigia</i>	102	<i>Lepidagathis</i>	144	<i>Nautilocalyx</i>	203
<i>Guarea</i>	226	<i>Lepidaploa</i>	159	<i>Nectandra</i>	70
<i>Guatteria</i>	68	<i>Lepidium</i>	169	<i>Neea</i>	232
<i>Gunnera</i>	203	<i>Leptocoryphium</i>	138	<i>Neomarica</i>	116
<i>Gurania</i>	180	<i>Leucocarpus</i>	237	<i>Neomirandea</i>	160
<i>Guzmania</i>	102	<i>Liabum</i>	159	<i>Nephrolepis</i>	59
<i>Gymnanthes</i>	190	<i>Licania</i>	175	<i>Nertera</i>	252
<i>Gymnosiphon</i>	106	<i>Lindernia</i>	208	<i>Neurolaena</i>	161
<i>Gynerium</i>	137	<i>Lindsaea</i>	48	<i>Nidema</i>	128
<i>Habenaria</i>	125	<i>Liparis</i>	126	<i>Niphidium</i>	60
<i>Hackelia</i>	168	<i>Lippia</i>	281	<i>Niphogeton</i>	148
<i>Hagenbachia</i>	101	<i>Lithachne</i>	138	<i>Notopleura</i>	252
<i>Halenia</i>	196	<i>Lobelia</i>	173	<i>Nyssa</i>	233
<i>Hampea</i>	211	<i>Lockhartia</i>	126	<i>Ochroma</i>	212
<i>Hansteinia</i>	143	<i>Lomariopsis</i>	58	<i>Ocotea</i>	70
<i>Hasseltia</i>	263	<i>Lonchitis</i>	48	<i>Odontonema</i>	144
<i>Hedychium</i>	142	<i>Lophosoria</i>	42	<i>Odontosoria</i>	48
<i>Hedyosmum</i>	68	<i>Loxosomopsis</i>	42	<i>Oenothera</i>	234
<i>Heisteria</i>	233	<i>Lozanella</i>	173	<i>Oleandra</i>	60
<i>Heliconia</i>	115	<i>Lozania</i>	205	<i>Olsynium</i>	116
<i>Helicostylis</i>	230	<i>Ludwigia</i>	234	<i>Olyra</i>	139
<i>Heliocarpus</i>	211	<i>Lunania</i>	263	<i>Oncidium</i>	128
<i>Helosis</i>	164	<i>Luzula</i>	117	<i>Oplismenus</i>	139
<i>Hemichaena</i>	237	<i>Lycaste</i>	126	<i>Oreobolus</i>	112
<i>Hemidictyum</i>	39	<i>Lycianthes</i>	269	<i>Oreomunnea</i>	205
<i>Henriettella</i>	219	<i>Lycopodiella</i>	32	<i>Oreopanax</i>	151
<i>Herpetacanthus</i>	143	<i>Lycopodium</i>	32	<i>Ornithocephalus</i>	129
<i>Hesperomeles</i>	245	<i>Machaerium</i>	194	<i>Orthrosanthus</i>	116
<i>Heterocondylus</i>	158	<i>Macleania</i>	185	<i>Oryctanthus</i>	209
<i>Heteropterys</i>	211	<i>Macrocarpaea</i>	196	<i>Ossaea</i>	224
<i>Hieracium</i>	158	<i>Macoubea</i>	148	<i>Otoglossum</i>	129
<i>Hieronyma</i>	237	<i>Macrohasseltia</i>	263	<i>Ottoa</i>	148
<i>Hillia</i>	250	<i>Macrolobium</i>	194	<i>Otopappus</i>	161
<i>Hiraea</i>	211	<i>Macrothelypteris</i>	39	<i>Oxalis</i>	234
<i>Histiopteris</i>	43	<i>Magnolia</i>	74	<i>Oyedaea</i>	161
<i>Hoffmannia</i>	250	<i>Maianthemum</i>	101	<i>Pachira</i>	212
<i>Holcus</i>	137	<i>Malaxis</i>	126	<i>Paepalanthus</i>	114
<i>Holodiscus</i>	245	<i>Malvaviscus</i>	211	<i>Paesia</i>	44
<i>Homolepis</i>	237	<i>Mandevilla</i>	148	<i>Palicourea</i>	254
<i>Huerteia</i>	275	<i>Manettia</i>	252	<i>Palmorchis</i>	129
<i>Humiriustrum</i>	204	<i>Mapania</i>	112	<i>Panamanthus</i>	209
<i>Huperzia</i>	31	<i>Marattia</i>	48	<i>Panicum</i>	139
<i>Hybanthus</i>	282	<i>Marcgravia</i>	213	<i>Panopsis</i>	243
<i>Hydrangea</i>	204	<i>Margaritaria</i>	237	<i>Paradrymonia</i>	203
<i>Hydrocotyle</i>	151	<i>Marila</i>	171	<i>Parathesis</i>	243
<i>Hymenandra</i>	242	<i>Masdevallia</i>	126	<i>Parinari</i>	176
<i>Hymenophyllum</i>	45	<i>Matayba</i>	265	<i>Paspalum</i>	140
<i>Hyospatha</i>	100	<i>Mauria</i>	147	<i>Passiflora</i>	235
<i>Hyparrhenia</i>	137	<i>Maxillaria</i>	126	<i>Paullinia</i>	265
<i>Hyperbaena</i>	228	<i>Maytenus</i>	175	<i>Pavonia</i>	212
<i>Hypericum</i>	204	<i>Megalastrum</i>	58	<i>Pecluma</i>	60
<i>Hypolepis</i>	43	<i>Melanthera</i>	159	<i>Pentacalia</i>	161
<i>Hypoxis</i>	116	<i>Melinis</i>	139	<i>Pentagonia</i>	256
<i>Hyptis</i>	206	<i>Meliosma</i>	262	<i>Peperomia</i>	75
<i>Ichnanthus</i>	137	<i>Melpomene</i>	58	<i>Perebea</i>	230
<i>Ichthyothere</i>	158	<i>Mendoncia</i>	144	<i>Peritassa</i>	175
<i>Ilex</i>	149	<i>Meriania</i>	219	<i>Pernettya</i>	186
<i>Ilitisia</i>	158	<i>Merinthopodium</i>	270	<i>Perrottetia</i>	182
<i>Impatiens</i>	164	<i>Metteniusa</i>	228	<i>Persea</i>	73
<i>Inga</i>	192	<i>Mezobromelia</i>	103	<i>Persicaria</i>	240

<i>Phanerophlebia</i>	60	<i>Ruellia</i>	144	<i>Telipogon</i>	132
<i>Pharus</i>	140	<i>Rufodorsia</i>	203	<i>Teramnus</i>	195
<i>Phaseolus</i>	194	<i>Rumex</i>	240	<i>Ternstroemia</i>	236
<i>Phenax</i>	277	<i>Rumfordia</i>	162	<i>Terpsichore</i>	63
<i>Philodendron</i>	94	<i>Rupiliocarpon</i>	208	<i>Tetragastris</i>	170
<i>Phlebodium</i>	60	<i>Russelia</i>	239	<i>Tetrorchidium</i>	190
<i>Phoradendron</i>	264	<i>Rytidostylis</i>	180	<i>Thelypteris</i>	39
<i>Phyllanthus</i>	170	<i>Sabazia</i>	162	<i>Themistoclesia</i>	187
<i>Phyllonoma</i>	237	<i>Sabicea</i>	261	<i>Thibaudia</i>	187
<i>Phytolacca</i>	238	<i>Saccoloma</i>	66	<i>Thrasya</i>	140
<i>Picramnia</i>	238	<i>Salacia</i>	175	<i>Tibouchina</i>	225
<i>Pilea</i>	278	<i>Sacoglottis</i>	204	<i>Ticodendron</i>	276
<i>Pilocosta</i>	225	<i>Salpichlaena</i>	39	<i>Tillandsia</i>	104
<i>Piper</i>	80	<i>Salvia</i>	207	<i>Tinantia</i>	107
<i>Piptocoma</i>	161	<i>Sambucus</i>	145	<i>Tococa</i>	225
<i>Pisonia</i>	233	<i>Sanicula</i>	148	<i>Topobea</i>	225
<i>Pitcairnia</i>	103	<i>Sapium</i>	190	<i>Tournefortia</i>	168
<i>Pityrogramma</i>	65	<i>Sarcostemma</i>	149	<i>Tourretia</i>	167
<i>Plantago</i>	239	<i>Satyria</i>	186	<i>Tovaria</i>	276
<i>Platystele</i>	129	<i>Saurauia</i>	145	<i>Tovomita</i>	178
<i>Pleiotachya</i>	118	<i>Sauvagesia</i>	233	<i>Toxicodendron</i>	147
<i>Pleopeltis</i>	60	<i>Scaphosepalum</i>	131	<i>Trachypogon</i>	140
<i>Pleuranthodendron</i>	263	<i>Scaphyglottis</i>	131	<i>Tradescantia</i>	107
<i>Pleuropetalum</i>	147	<i>Schefflera</i>	152	<i>Trema</i>	174
<i>Pleurothallis</i>	129	<i>Schistocarpha</i>	162	<i>Trichilia</i>	227
<i>Pleurothyrium</i>	74	<i>Schizachyrium</i>	140	<i>Trichomanes</i>	47
<i>Plinia</i>	232	<i>Schlegelia</i>	267	<i>Trichopilia</i>	133
<i>Poa</i>	140	<i>Schradera</i>	261	<i>Trichosalpinx</i>	133
<i>Podandrogyne</i>	176	<i>Schultesianthus</i>	270	<i>Trichostigma</i>	238
<i>Podocarpus</i>	67	<i>Schwartzia</i>	214	<i>Trifolium</i>	195
<i>Polyanthina</i>	162	<i>Scleria</i>	113	<i>Triolena</i>	226
<i>Polybotrya</i>	61	<i>Scutellaria</i>	207	<i>Trisetum</i>	141
<i>Polygala</i>	240	<i>Sechium</i>	180	<i>Triumfetta</i>	213
<i>Polypodium</i>	61	<i>Securidaca</i>	240	<i>Tropaeolum</i>	276
<i>Polypogon</i>	140	<i>Selaginella</i>	33	<i>Trophis</i>	231
<i>Polystachya</i>	130	<i>Senecio</i>	158	<i>Ugni</i>	232
<i>Polystichum</i>	62	<i>Senna</i>	194	<i>Ulmus</i>	276
<i>Polytaenium</i>	65	<i>Serjania</i>	266	<i>Uncinia</i>	113
<i>Ponthieva</i>	130	<i>Serpocaulon</i>	62	<i>Unonopsis</i>	68
<i>Posoqueria</i>	256	<i>Sibthorpia</i>	239	<i>Urera</i>	280
<i>Potamogeton</i>	141	<i>Sicydium</i>	180	<i>Urtica</i>	281
<i>Poulsenia</i>	230	<i>Sida</i>	212	<i>Utricularia</i>	208
<i>Pouteria</i>	266	<i>Sideroxylon</i>	266	<i>Vaccinium</i>	188
<i>Prescottia</i>	130	<i>Sigesbeckia</i>	163	<i>Valeriana</i>	281
<i>Prestoea</i>	100	<i>Sinclairia</i>	163	<i>Verbena</i>	281
<i>Prestonia</i>	148	<i>Siparuna</i>	85	<i>Verbesina</i>	163
<i>Prosthechea</i>	130	<i>Siphocampylus</i>	173	<i>Vernonanthura</i>	163
<i>Protium</i>	170	<i>Sisyrinchium</i>	116	<i>Vernonia</i>	163
<i>Prunus</i>	245	<i>Sloanea</i>	182	<i>Veronica</i>	239
<i>Psammissia</i>	186	<i>Smallanthus</i>	163	<i>Viburnum</i>	145
<i>Pseuderanthemum</i>	144	<i>Smilax</i>	141	<i>Vigna</i>	195
<i>Pseudocentrum</i>	130	<i>Sobralia</i>	131	<i>Viguiera</i>	164
<i>Pseudechinolaena</i>	140	<i>Socratea</i>	100	<i>Viola</i>	282
<i>Pseudognaphalium</i>	162	<i>Solanum</i>	270	<i>Virola</i>	75
<i>Pseudolmedia</i>	230	<i>Solenocentrum</i>	131	<i>Vismia</i>	205
<i>Psilochilus</i>	131	<i>Solenophora</i>	203	<i>Vitis</i>	282
<i>Psittacanthus</i>	209	<i>Sommeria</i>	261	<i>Vittaria</i>	66
<i>Psychotria</i>	257	<i>Sonchus</i>	163	<i>Vochysia</i>	283
<i>Pterichis</i>	131	<i>Sorocea</i>	231	<i>Voyria</i>	197
<i>Pteridium</i>	44	<i>Spathiphyllum</i>	95	<i>Vriesea</i>	105
<i>Pteris</i>	65	<i>Specklinia</i>	132	<i>Warczewiczella</i>	133
<i>Pterocarpus</i>	194	<i>Spermacoe</i>	261	<i>Weinmannia</i>	181
<i>Pterozonium</i>	66	<i>Sphaeradenia</i>	110	<i>Werauhia</i>	105
<i>Puya</i>	103	<i>Sphaeropteris</i>	43	<i>Wercklea</i>	213
<i>Quadrella</i>	174	<i>Sphyrospermum</i>	187	<i>Werneria</i>	164
<i>Qualea</i>	283	<i>Spigelia</i>	209	<i>Westoniella</i>	164
<i>Quararibea</i>	212	<i>Spirotheca</i>	213	<i>Wigandia</i>	169
<i>Quercus</i>	195	<i>Spondias</i>	147	<i>Wütheringia</i>	273
<i>Racinaea</i>	103	<i>Sporobolus</i>	140	<i>Xiphidium</i>	114
<i>Randia</i>	260	<i>Stachys</i>	207	<i>Xylobium</i>	133
<i>Ranunculus</i>	244	<i>Stanhopea</i>	132	<i>Xylosma</i>	263
<i>Raputia</i>	261	<i>Stelis</i>	132	<i>Xyris</i>	142
<i>Raritebe</i>	260	<i>Stellaria</i>	174	<i>Youngia</i>	164
<i>Rauvolfia</i>	149	<i>Stenogrammitis</i>	62	<i>Zamia</i>	67
<i>Razisea</i>	144	<i>Stenospermaton</i>	96	<i>Zanthoxylum</i>	261
<i>Renealmia</i>	142	<i>Stenostephanus</i>	144	<i>Zapoteca</i>	195
<i>Rhamnus</i>	244	<i>Sticherus</i>	44	<i>Zea</i>	141
<i>Rhipidocladum</i>	140	<i>Stigmaphyllon</i>	211	<i>Zeugites</i>	141
<i>Rhodospatha</i>	95	<i>Stigmatopteris</i>	62	<i>Zexmenia</i>	164
<i>Rhynchoglossum</i>	203	<i>Stromanthe</i>	118	<i>Zinowiewia</i>	175
<i>Rhynchosia</i>	194	<i>Struthanthus</i>	209	<i>Zygophlebia</i>	63
<i>Rhynchospora</i>	112	<i>Stylosanthes</i>	195		
<i>Ribes</i>	203	<i>Styrax</i>	274		
<i>Richeria</i>	237	<i>Swartzia</i>	195		
<i>Ricinus</i>	190	<i>Symbolanthus</i>	197		
<i>Rinorea</i>	282	<i>Symphonia</i>	178		
<i>Rogiera</i>	260	<i>Symplococarpon</i>	236		
<i>Roldana</i>	162	<i>Symplocos</i>	275		
<i>Romanschultzia</i>	169	<i>Synechanthus</i>	100		
<i>Ronabea</i>	260	<i>Syngonium</i>	96		
<i>Ronnbergia</i>	104	<i>Tabernaemontana</i>	149		
<i>Rossioglossum</i>	131	<i>Tagetes</i>	163		
<i>Roupala</i>	243	<i>Talamancaster</i>	163		
<i>Ruagea</i>	227	<i>Tapirira</i>	147		
<i>Rubus</i>	245	<i>Tapura</i>	182		
<i>Rudgea</i>	260	<i>Tectaria</i>	62		

APPENDIX 1. Checklist to the vascular plants of La Amistad National Park

We present the checklist as an alphabetical list of families grouped into the following categories based on Christenhusz et al. (2011), Christenhusz & Chase (2014) and APG IV(2016): 1) lycopods and ferns, 2) gymnosperms, 3) magnoliid angiosperms and chloranthales, 4) monocot angiosperms and 5) eudicot angiosperms. Within each family binomials (genus & species) are listed in alphabetical order.

Species endemic to PILA are indicated by “ε-PILA”, new records for Costa Rica are indicated by “•”, and new records for Panama are indicated by “□”. Keystone species are indicated by “ψ” and exotic species are indicated by “e”.

The species records below are available as a spreadsheet on the Figshare website under DOI 10.6084/m9.figshare.5092237.

LYCOPODS

ISOËTACEAE

Isoëtes storkii T.C.Palmer

Terrestrial herbs. Distribution in PILA 2500–3800 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5185* (BM, INB, MO), *B.B. Klitgaard 826* (BM, INB), *G. Davidse 25313* (CR, MO), *G. Davidse 25421* (CR, MO), *G. Herrera 3721* (INB, MO), *S. Knapp 9881* (BM, INB).

LYCOPODIACEAE

Huperzia capillaris (Sodiolo) Holub

Epiphytic herbs. Distribution in PILA 1000–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil. Records: *E. Alfaro 3477* (INB), *G. Davidse 28597* (MO), *G. Herrera 5251* (MO), *G. Herrera 5303* (MO), *G. Herrera 6051* (INB), *G. Herrera 6237* (INB), *F. Quesada 1414* (CR), *M. Moraga 307* (INB, MO).

Huperzia crassa (Humb. & Bonpl. ex Willd.) Rothm.

Terrestrial herbs. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Mexico to Ecuador, Venezuela, Bolivia, Greater Antilles. Records: *G. Davidse 25289* (MO), *G. Davidse 25905* (CR), *G. Davidse 25941* (MO), *G. Davidse 29338* (MO), *G. Davidse 29345* (MO), *G. Davidse 23848* (MO), *G. Herrera 3720* (INB).

Huperzia cuneifolia (Hieron.) Holub

Epiphytic herbs. Distribution in PILA 1900–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia, Peru, Venezuela. Records: *F. Quesada 1476* (CR, INB, MO).

Huperzia dichaeoides (Maxon) Holub

Epiphytic herbs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Fernández 1010* (INB), *A.K. Monro 5542* (BM, INB, MO, PMA), *G. Herrera 2682* (INB), *G. Herrera 5975* (CR), *J. Bittner 1514* (MO).

Huperzia funiformis (Cham. ex Spring) Trevis.

Epiphytic herbs. Distribution in PILA 600–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Costa Rica to Colombia, Greater Antilles, Lesser Antilles. Records: *G. Herrera 5346* (INB).

Huperzia hippuridea (Christ) Holub

Terrestrial herbs. Distribution in PILA 1100–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to the Guyanas. Records: *A. Chacón 514* (MO), *A. Rojas 3206* (INB), *B.B. Klitgaard 735* (BM), *B.B. Klitgaard 839* (BM), *E. Alfaro 3241* (INB), *G. Davidse 25846* (MO), *G. Davidse 29260* (MO), *G. Davidse 29388* (MO), *G. Davidse 23930* (MO), *S. Knapp 9866* (BM), *S. Knapp 9890* (BM), *S. Knapp 9982* (BM).

Huperzia hoffmannii (Maxon) Rolleri & Deferrari

Terrestrial herbs. Distribution in PILA 3000–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse 26049* (MO).

Huperzia homocarpa (Herter) Holub

Epiphytic herbs. Distribution in PILA 2300–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador, Venezuela, Greater Antilles, Lesser Antilles. Records: *G. Herrera 3677* (INB), *G. Herrera 6239* (INB), *M. Moraga 482* (INB).

Huperzia reflexa (Lam.) Trevis.

Epiphytic herbs. Distribution in PILA 900–3200 m, mixed

forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Chacón* 547 (INB), *A. Rojas* 3245 (INB).

Huperzia subulata (Desv. ex Poir.) Holub

Epiphytic herbs. Distribution in PILA 1400–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Colombia. Records: *A.K. Monro* 5266 (BM), *A. Rojas* 3204 (INB), *E. Alfaro* 3234 (INB), *G. Davidse* 23887 (CR), *G. Davidse* 25105 (CR, MO), *G. Davidse* 25384 (MO), *G. Davidse* 25864 (CR), *G. Davidse* 25886 (CR), *G. Herrera* 3639 (INB), *G. Herrera* 3662 (MO), *S. Knapp* 9918 (BM).

Huperzia talamancana B.Øllg.

Terrestrial herbs. Distribution in PILA 2500–3700 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5204 (BM), *A.K. Monro* 5285 (BM), *B.B. Klitgaard* 822 (BM), *G. Davidse* 25978 (CR).

Huperzia taxifolia (Sw.) Trevis.

Epiphytic herbs. Distribution in PILA 100–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Rojas* 3205 (CR), *B. Gamboa* 1741 (INB), *C. Hamilton* 3907 (MO), *G. Davidse* 25380 (MO), *G. Davidse* 25853 (CR), *G. Davidse* 28600 (CR), *M. Moraga* 521 (INB).

Huperzia watsoniana (Maxon) B.Øllg.

Epiphytic herbs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *M.A. Thomas* 1652 (MO).

Huperzia wilsonii (Underw. & F.E.Lloyd) B.Øllg.

Facultatively epiphytic herbs. Distribution in PILA 1900–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 10599 (BM, INB, MO, PMA), *G. Davidse* 28816 (MO).

Lycopodiella cernua (L.) Pic.Serm.

Terrestrial herbs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *D. Santamaría* 6638 (BM, INB, MO, PMA), *D. Solano* 4698 (BM, INB, MO, PMA).

Lycopodiella glaucescens (C.Presl) B.Øllg.

Terrestrial herbs. Distribution in PILA 1300–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Venezuela. Records: *A. Rodríguez* 10830 (BM, INB, MO, PMA), *G. Davidse* 25904 (CR).

Lycopodiella pendulina (Hook.) B.Øllg.

Terrestrial herbs. Distribution in PILA 1800–3100 m, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Colombia to Peru, Brazil, Bolivia. Records: *G. Davidse* 28841 (MO).

Lycopodiella riofrio (Sodiño) B.Øllg.

Terrestrial herbs. Distribution in PILA 2000–2300 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Colombia, Ecuador to Venezuela, Bolivia. Records: *A. Fernández* 682 (CR), *J. Bittner* 1794 (INB), *F. Quesada* 1428 (INB), *M. Grayum* 10341 (INB).

Lycopodiella steyermarkii B.Øllg.

Facultatively epiphytic herbs. Distribution in PILA 1600–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Panama to Ecuador, Venezuela. Records: *G. Herrera* 5459 (INB).

Lycopodium clavatum L.

Terrestrial herbs. Distribution in PILA 1000–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Worldwide (Except Australia). Records: *A.K. Monro* 5157 (BM), *A. Soto* 273 (INB), *B.B. Klitgaard* 747 (BM), *E. Alfaro* 3766 (INB), *G. Davidse* 23838 (CR, MO), *G. Davidse* 23904 (CR, MO), *G. Davidse* 25335 (CR), *G. Davidse* 25370 (CR), *G. Davidse* 26057 (CR), *G. Davidse* 28573 (CR), *G. Davidse* 29295 (CR), *F. Quesada* 1394 (CR), *L.D. Gómez* 22551 (MO), *L. González* 1182 (INB), *M. Moraga* 324 (CR), *M. Valerio* 222 (INB).

Lycopodium jussiaei Desv. ex Poir.

Terrestrial herbs. Distribution in PILA 2400–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Brazil, Greater Antilles. Records: *A. Rodríguez* 10860 (BM, INB, MO, PMA), *A. Rojas* 3234 (INB), *D. Solano* 4008 (BM, INB, MO, PMA), *G. Davidse* 25228 (CR), *G. Davidse* 26062 (CR),

G. Davidse 28838 (CR), *F. Quesada* 1426 (CR).

Lycopodium thyoides Humb. & Bonpl. ex Willd.

Terrestrial herbs. Distribution in PILA 1800–3500 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina. Records: *A. Chacón* 489 (INB), *A. Soto* 344 (INB), *D. Santamaría* 3475 (INB), *D. Solano* 5108 (BM, INB, MO, PMA), *D. Solano* 5235 (BM, INB, MO, PMA).

SELAGINELLACEAE

Selaginella arthritica Alston

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama, Greater Antilles. Records: *A. Chacón* 6 (MO).

Selaginella corrugis Mickel & Beitel

Terrestrial herbs. Distribution in PILA 1000–1000 m, mixed forest in transition to low elevation forest. Global distribution: Mexico, Costa Rica, Panama. Records: *G. Herrera* 5275 (CR, INB, MO).

Selaginella moritziana Spring ex Klotzsch

Terrestrial herbs. Distribution in PILA 2300–2500 m, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *G. Davidse* 28951 (CR, MO), *F. Quesada* 1419 (CR, INB).

FERNS

ASPLENIACEAE

Asplenium abscissum Willd.

Facultatively epiphytic herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles. Records: *G. Davidse* 29115 (CR, MO), *J. Bittner* 1906 (INB, MO).

Asplenium alatum Humb. & Bonpl. ex Willd.

Facultatively epiphytic herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *F. Quesada* 1439 (INB).

Asplenium auriculatum Sw.

Facultatively epiphytic herbs. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Fernández* 724 (CR, INB), *A. Fernández* 752 (CR, INB), *A. Rodríguez* 10619 (BM, INB, MO, PMA), *A. Rodríguez* 10642 (BM, INB, MO, PMA), *G. Davidse* 25481 (CR, MO), *G. Davidse* 28405 (MO), *G. Davidse* 28724 (CR, MO), *J. Bittner* 1857 (INB, MO), *F. Quesada* 1651 (CR, INB).

Asplenium auritum Sw.

Facultatively epiphytic herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala to the Guyanas, Greater Antilles, Africa. Records: *A. Rodríguez* 11958 (BM, INB, MO, PMA), *C. Hamilton* 3624 (MO), *C. Hamilton* 3904 (MO).

Asplenium barbaense Hieron.

Facultatively epiphytic herbs. Distribution in PILA 1100–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Ecuador, Venezuela. Records: *G. Davidse* 25725 (MO), *G. Davidse* 29224 (MO), *M. Moraga* 466 (CR, INB, MO), *M. Moraga* 495 (CR, INB, MO).

Asplenium castaneum Schldtl. & Cham.

Epipetric herbs. Distribution in PILA 2500–3800 m, low elevation oak forest, páramo. Global distribution: Mexico to Chile. Records: *G. Davidse* 25975 (MO), *G. Davidse* 26042 (CR, MO).

Asplenium cirrhatum Rich. ex Willd.

Facultatively epiphytic herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 5621 (BM, INB, MO, PMA), *A. Rodríguez* 10602 (BM, INB, MO, PMA), *A. Rodríguez* 11005 (BM, INB, MO, PMA), *D. Santamaría* 6604 (BM, INB, MO, PMA), *D. Santamaría* 6763 (BM, INB, MO, PMA), *D. Solano* 3825 (BM, INB, MO, PMA), *D. Solano* 4195 (BM, INB, MO, PMA), *J. Bittner* 1433 (MO), *J. Bittner* 1848 (CR, INB, MO).

Asplenium cladoleptum Fée

Facultatively epiphytic herbs. Distribution in PILA 1600–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Ecuador, Venezuela. Records: *E. Alfaro* 774 (INB, MO), *M. Moraga* 493 (INB, MO).

Asplenium cristatum Lam.

Facultatively epiphytic herbs. Distribution in PILA 900–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Peru, Venezuela, Brazil, Lesser Antilles. Records: *A. Rodríguez* 11931 (BM, INB, MO, PMA), *C. Hamilton* 3617 (MO), *D. Santamaría* 3739 (INB), *D. Solano* 3862 (BM, INB, MO, PMA).

Asplenium cuspidatum Lam.

Facultatively epiphytic herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala to Colombia, Venezuela to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Chacón* 537 (INB), *A. Rodríguez* 10732 (BM, INB, MO, PMA), *A. Rodríguez* 10991 (BM, INB, MO, PMA), *C. Hamilton* 3620 (MO), *D. Solano* 4197 (BM, INB, MO, PMA), *G. Herrera* 6073 (CR, INB, MO), *J. Bittner* 1855 (CR, INB, MO), *M. Valerio* 167 (INB, MO), *M. Valerio* 190 (INB, MO), *A. Rojas* 3214 (CR, INB), *G. Davidse* 25791 (MO), *G. Herrera* 3643 (INB, MO), *M. Moraga* 335 (INB, MO).

Asplenium dissectum Sw.

Facultatively epiphytic herbs. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles. Records: *A. Fernández* 745 (INB), *A.K. Monro* 5437 (BM, INB, MO, PMA), *A. Rodríguez* 10658 (BM, INB, MO, PMA), *A. Rodríguez* 10984 (BM, INB, MO, PMA), *D. Solano* 4145 (BM, INB, MO, PMA), *G. Herrera* 6026 (CR, INB, MO), *G. Herrera* 6058 (INB).

Asplenium divaricatum Kunze

Epipetric herbs. Distribution in PILA 500–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *A. Fernández* 1015 (CR, INB), *G. Herrera* 6037 (CR, INB, MO).

Asplenium excelsum Lellinger

Facultatively epiphytic herbs. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador. Records: *A. Rojas* 854 (CR, INB, MO), *D. Santamaría* 7251 (BM, INB, MO, PMA), *E. Alfaro* 777 (INB, MO).

Asplenium feei Kunze ex Fée

Facultatively epiphytic herbs. Distribution in PILA 800–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A.K. Monro* 4384 (BM, MO), *A. Rodríguez* 11774 (BM, INB, MO, PMA), *A. Rodríguez* 11778 (BM, INB, MO, PMA), *A. Rodríguez* 11784 (BM, INB, MO, PMA), *A. Rodríguez* 11787 (BM, INB, MO, PMA), *A. Rodríguez* 11875 (BM, INB, MO, PMA), *A. Rodríguez* 11886 (BM, INB, MO, PMA), *G. Davidse* 28498 (CR, MO).

Asplenium flabellulatum Kunze.

Facultatively epiphytic herbs. Distribution in PILA 2000–2000 m, cloud forest. Global distribution: Mexico to Peru, Venezuela, Greater Antilles. Records: *M. Moraga* 511 (INB).

Asplenium gomezianum Lellinger

Epiphytic herbs. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 5242 (CR, MO).

Asplenium harpeodes Kunze

Facultatively epiphytic herbs. Distribution in PILA 1100–

3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Rodríguez 10579* (BM, INB, MO, PMA), *A. Rodríguez 10721* (BM, INB, MO, PMA), *A. Rodríguez 10880* (BM, INB, MO, PMA), *A. Rojas 3259* (CR, INB, MO), *E. Mora 284* (INB), *G. Davidse 23986* (CR, MO), *G. Davidse 25781* (CR, MO), *G. Davidse 25786* (CR, MO), *G. Davidse 28680* (MO), *G. Davidse 29058* (MO), *G. Davidse 29153* (MO), *G. Herrera 6033* (CR, INB), *J. Bittner 1741* (INB, MO), *J. Bittner 1907* (INB, MO), *F. Quesada 1415* (CR, INB, MO), *F. Quesada 1969* (INB), *M.A. Thomas 1634* (MO), *M. Moraga 487* (CR, INB, MO).

Asplenium hastatum Klotzsch ex Kunze

Epiphytic herbs. Distribution in PILA 1500–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Panama to Peru. Records: *A. Rodríguez 10808* (BM, INB, MO, PMA), *D. Santamaría 5828* (BM, INB, MO, PMA), *G. Davidse 25724* (CR, MO), *M. Moraga 321* (CR, INB, MO), *M. Moraga 491* (CR, INB, MO).

Asplenium holophlebium Baker

Epiphytic herbs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Ecuador. Records: *G. Herrera 5304* (INB, MO).

Asplenium juglandifolium Lam.

Epiphytic herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Lesser Antilles, Greater Antilles. Records: *A. Rodríguez 10928* (BM, INB, MO, PMA).

Asplenium laetum Sw.

Facultatively epiphytic herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Lesser Antilles, Greater Antilles. Records: *A. Rodríguez 10815* (BM, INB, MO, PMA), *L.D. Gómez 23094* (MO).

• ***Asplenium lobulopartitum*** A.Rojas

Terrestrial herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rojas 10777* (CR, MO, USJ).

Asplenium maxonii Lellinger

Facultatively epiphytic herbs. Distribution in PILA 1000–

2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Fernández 853* (CR, INB), *A. Rodríguez 11867* (BM, INB, MO, PMA), *A. Rodríguez 11897* (BM, INB, MO, PMA), *D. Solano 4175* (BM, INB, MO, PMA), *E. Mora 304* (INB), *G. Davidse 28515* (CR, MO), *G. Herrera 6034* (CR, INB, MO), *F. Quesada 1475* (CR, INB, MO), *L. Acosta 2303* (INB), *M. Grayum 10313* (INB, MO), *R. Aguilar 1143* (INB, MO).

Asplenium miradoreense Liebm.

Facultatively epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil. Records: *A. Rojas 3225* (CR, INB).

Asplenium myriophyllum (Sw.) C.Presl

Facultatively epiphytic herbs. Distribution in PILA 1200–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *J. Dwyer 7668* (MO).

Asplenium polyphyllum Bertol.

Epiphytic herbs. Distribution in PILA 1100–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A.K. Monro 5249* (BM, INB, MO), *A. Rojas 3258* (CR, INB), *B.B. Klitgaard 810* (BM, MO), *G. Davidse 23879* (CR, MO), *G. Herrera 3641* (INB, MO).

Asplenium pteropus Kaulf.

Facultatively epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: USA to Mexico to Bolivia, Trinidad & Tobago, Lesser Antilles. Records: *A. Rodríguez 10624* (BM, INB, MO, PMA), *A. Rodríguez 11261* (BM, INB, MO, PMA), *A. Rodríguez 11348* (BM, INB, MO, PMA), *F. Quesada 1676* (CR, INB).

Asplenium pululahuae Sodiro

Epiphytic herbs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro 4383* (BM, MO).

Asplenium radicans L.

Facultatively epiphytic herbs. Distribution in PILA 1200–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low

elevation oak forest. Global distribution: Mexico to the Guyanas, Greater Antilles. Records: *G. Davidse 29182* (MO).

***Asplenium rigidum* Sw.**

Facultatively epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *D. Santamaría 3811* (INB), *G. Davidse 28443* (CR, MO), *G. Davidse 29152* (MO), *G. Davidse 29209* (CR, MO), *F. Quesada 1431* (CR, INB, MO).

***Asplenium riparium* Liebm.**

Terrestrial herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez 11253* (BM, INB, MO, PMA), *G. Davidse 28440* (CR, MO), *G. Davidse 28518* (CR, MO), *L. Acosta 2362* (INB).

***Asplenium rosenstockianum* Brade**

Epiphytic herbs. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *J. Bittner 1905* (INB, MO).

***Asplenium rutaceum* (Willd.) Mett.**

Facultatively epiphytic herbs. Distribution in PILA 500–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia, Greater Antilles. Records: *A. Fernández 663* (CR, INB, MO), *E. Alfaro 776* (INB, MO), *J. Bittner 1736* (INB, MO).

***Asplenium serra* Langsd. & Fisch.**

Facultatively epiphytic herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Lesser Antilles. Records: *A. Chacón 273* (CR, INB, MO), *A. Fernández 775* (CR, INB, MO), *A.K. Monro 5531* (BM, INB, MO, PMA), *A.K. Monro 5627* (BM, INB, MO, PMA), *A. Rodríguez 10600* (BM, INB, MO, PMA), *A. Rodríguez 10993* (BM, INB, MO, PMA), *D. Solano 4072* (BM, INB, MO, PMA), *D. Solano 4146* (BM, INB, MO, PMA), *E. Alfaro 1330* (INB), *E. Alfaro 3337* (INB), *G. Davidse 23873* (CR, MO), *G. Davidse 25465* (CR, MO), *G. Davidse 28632* (CR, MO), *G. Davidse 29232* (MO), *G. Herrera 6113* (CR, INB, MO), *J. Bittner 1742* (INB, MO), *F. Quesada 1429* (CR, INB, MO), *F. Quesada 1664* (INB), *M.A. Thomas 1611* (MO), *M. Moraga 467* (INB,

MO).

***Asplenium sessilifolium* Desv.**

Facultatively epiphytic herbs. Distribution in PILA 2000–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Peru. Records: *A. Rojas 848* (CR, INB), *B.B. Klitgaard 811* (BM, MO).

***Asplenium sphaerosporum* A.R.Sm.**

Epiphytic herbs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama, Venezuela. Records: *G. Davidse 26144* (CR, MO), *G. Herrera 6073* (CR).

***Asplenium uniseriale* Raddi**

Terrestrial herbs. Distribution in PILA 300–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Paraguay, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 5558* (BM, INB, MO, PMA), *D. Santamaría 3816* (INB), *D. Santamaría 5745* (BM, INB, MO, PMA), *D. Santamaría 6610* (BM, INB, MO, PMA), *G. Davidse 28461* (MO).

***Asplenium volubile* N.Murak. & R.C.Moran**

Epiphytic herbs. Distribution in PILA 300–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 11360* (BM, INB, MO, PMA).

***Blechnum auratum* (Fée) R.M.Tryon & Stolze**

Terrestrial herbs. Distribution in PILA 2400–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *A. Chacón 570* (INB, MO), *A.K. Monro 5173* (BM), *A.K. Monro 5192* (BM), *D. Solano 4047* (BM, INB, MO, PMA), *E. Alfaro 3770* (INB), *G. Davidse 23864* (CR, MO), *G. Davidse 25314* (CR, MO), *G. Davidse 25866* (CR, MO), *G. Davidse 25913* (CR, MO), *G. Davidse 25914* (CR, MO), *G. Davidse 28829* (CR, MO), *G. Davidse 28996* (MO), *G. Davidse 29320* (CR, MO), *L. Angulo 250* (INB), *M.A. Thomas 1563* (MO), *M. Moraga 340* (INB, MO).

***Blechnum binervatum* (Poir.) C.V.Morton & Lellinger**

Hemi-epiphytic herbs. Distribution in PILA 1800–1800 m, cloud forest. Global distribution: Mexico to Bolivia. Records: *J. Bittner 1872* (INB, MO).

Elevation based on collection notes.

***Blechnum chiriquanum* (Broadh.) C.Chr.**

Terrestrial herbs. Distribution in PILA 1300–3300 m, mixed forest in transition to cloud forest, cloud forest, low

elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Colombia. Records: *A. Chacón* 590 (INB, MO), *A. Soto* 268 (INB), *G. Davidse* 28674 (CR, MO), *M. Moraga* 341 (INB).

Blechnum christii C.Chr.

Terrestrial herbs. Distribution in PILA 1200–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 2716 (MO), *F. Quesada* 1621 (INB).

Blechnum divergens (Kunze) Mett.

Facultatively epiphytic herbs. Distribution in PILA 900–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez* 10915 (BM, INB, MO, PMA), *A. Rodríguez* 10937 (BM, INB, MO, PMA), *D. Santamaría* 7021 (BM, INB, MO, PMA), *M. Moraga* 452 (INB).

Blechnum falciforme (Liebm.) C.Chr.

Terrestrial herbs. Distribution in PILA 200–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Ecuador. Records: *A. Fernández* 699 (INB, MO), *G. Davidse* 28675 (CR, MO).

Blechnum fragile (Liebm.) C.V.Morton & Lellinger

Hemi-epiphytic herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Lesser Antilles, Greater Antilles. Records: *A. Rojas* 3263 (INB), *B. Gamboa* 1712 (INB), *D. Solano* 3849 (BM, INB, MO, PMA), *D. Solano* 4199 (BM, INB, MO, PMA), *G. Davidse* 29050 (MO), *G. Herrera* 5455 (INB), *J. Bittner* 1903 (CR, INB, MO), *F. Quesada* 1417 (INB, MO), *M. Moraga* 382 (INB).

Blechnum fuscocosquamosum A.Rojas

Epiphytic herbs. Distribution in PILA 2200–3000 m, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Costa Rica to Bolivia. Records: *G. Davidse* 23997 (CR, MO), *G. Davidse* 28676 (CR, MO).

Blechnum glandulosum Kaulf. ex Link

Terrestrial herbs. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest,

low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Venezuela. Records: *F. Quesada* 1472 (CR, INB, MO).

Blechnum loxense (Kunth) Hook. ex Salomon

Terrestrial herbs. Distribution in PILA 3000–3840 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *A. Rodríguez* 10857 (BM, INB, MO, PMA), *G. Davidse* 25996 (CR, MO).

Blechnum occidentale L.

Terrestrial herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles, Lesser Antilles. Records: *C. Hamilton* 3619 (MO), *C. Hamilton* 3911 (MO), *E. Navarro* 192 (INB).

Blechnum stoloniferum (Mett. ex E.Fourn.) C.Chr.

Terrestrial herbs. Distribution in PILA 2500–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *B. Gamboa* 1711 (INB), *G. Davidse* 23995 (MO).

Blechnum wardiae Mickel & Beitel

Terrestrial herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador. Records: *A. Fernández* 1041 (INB), *A. Fernández* 1044 (INB), *G. Herrera* 6076 (INB), *G. Herrera* 6181 (INB), *M. Moraga* 316 (CR, INB, MO).

Cystopteris fragilis (L.) Bernh.

Terrestrial herbs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Worldwide. Records: *A. Rojas* 2837 (CR), *E. Alfaro* 3313 (INB), *G. Davidse* 28592 (MO), *G. Davidse* 28594 (CR), *G. Davidse* 28594 (MO), *M. Moraga* 329 (CR), *M. Moraga* 329 (INB), *M. Moraga* 329 (MO).

Diplazium atirrense (Donn.Sm.) Lellinger

Terrestrial herbs. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro* 5557 (BM, INB, MO, PMA), *A. Rodríguez* 10593 (BM, INB, MO, PMA), *A. Rodríguez* 10806 (BM, INB, MO, PMA), *D. Solano* 5160 (BM, INB, MO, PMA), *G. Herrera* 2846 (MO), *L. Acosta* 2287 (INB).

Diplazium brausei Rosenst.

Terrestrial herbs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global

distribution: Mexico to Panama. Records: *A. Rodríguez 10878* (BM, INB, MO, PMA).

Diplazium carnosum Christ

Terrestrial herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Venezuela, Bolivia. Records: *A. Fernández 902* (INB), *A. Fernández 902* (MO), *G. Herrera 5328* (MO).

Diplazium chimuense C.D.Adams

Terrestrial herbs. Distribution in PILA 1100–1200 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2700* (INB).

Diplazium cristatum (Desr.) Alston

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 10813* (BM, INB, MO, PMA), *M. Grayum 10367* (INB), *M. Moraga 470* (INB).

Diplazium diplazioides (Klotzsch & H.Karst.) Alston

Terrestrial herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Lesser Antilles. Records: *G. Davidse 25101* (CR, MO), *G. Davidse 28678* (CR), *G. Davidse 28678* (MO).

Diplazium ferulaceum (T.Moore ex Hook.) Lellinger

Terrestrial herbs. Distribution in PILA 100–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez 10914* (BM, INB, MO, PMA), *E. Mora 283* (INB), *G. Herrera 3050* (MO).

Diplazium franconis Liebm.

Terrestrial herbs. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Davidse 23985* (CR, MO).

Diplazium grandifolium (Sw.) Sw.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Venezuela, Greater Antilles, Lesser Antilles.

Records: *C. Hamilton 3627* (MO).

Diplazium hians Kunze ex Klotzsch

Terrestrial herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles. Records: *D. Santamaría 5830* (BM, INB, MO, PMA), *G. Davidse 28432* (CR), *G. Davidse 28432* (MO), *G. Davidse 28447* (MO).

Diplazium lechleri (Mett.) T.Moore

Terrestrial herbs. Distribution in PILA 1000–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Brazil. Records: *A.K. Monro 5618* (BM, INB, MO, PMA), *D. Santamaría 6505* (BM, INB, MO, PMA), *G. Herrera 5431* (INB), *G. Herrera 5431* (MO), *J. Bittner 1475* (MO).

Diplazium lindbergii (Mett.) Christ

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Uruguay. Records: *G. Herrera 3102* (MO), *M. Grayum 10309* (INB), *M. Grayum 10309* (MO).

Diplazium multigemmatum Lellinger

Terrestrial herbs. Distribution in PILA 2100–2900 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3687* (INB).

Diplazium obscurum Christ

Terrestrial herbs. Distribution in PILA 900–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela. Records: *A. Rodríguez 10711* (BM, INB, MO, PMA), *E. Alfaro 2605* (INB), *G. Davidse 28397* (CR), *G. Davidse 28397* (MO), *G. Davidse 28509* (MO), *G. Herrera 2700* (MO), *G. Herrera 5285* (MO), *F. Quesada 1641* (INB), *L. Acosta 2319* (INB), *M. Moraga 472* (INB), *R. Villalobos 280* (CR), *R. Villalobos 280* (INB), *R. Villalobos 280* (MO).

Diplazium palmense Rosenst.

Terrestrial herbs. Distribution in PILA 700–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 4444* (BM), *A. Rodríguez 11515* (BM, INB, MO, PMA), *G. Herrera 2842* (MO), *G. Herrera 3253* (INB), *G. Herrera 3253* (MO), *M. Grayum 10312* (INB).

Diplazium prominulum Maxon

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Mexico to Panama. Records: *A. Rodríguez 10820* (BM, INB, MO, PMA), *A. Rojas 845* (CR), *C. Hamilton 3895* (MO), *G. Herrera 6056* (CR), *G. Herrera 6056* (INB).

Diplazium sanctae-rosae Christ

Terrestrial herbs. Distribution in PILA 600–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *B. Gamboa 656* (INB), *E. Alfaro 778* (INB).

Diplazium seemannii T.Moore

Terrestrial herbs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 11499* (BM, INB, MO, PMA).

Diplazium skutchii Lellinger

Terrestrial herbs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *F. Quesada 1642* (INB), *M. Grayum 10322* (MO).

Diplazium solutum (Christ) Lellinger

Terrestrial herbs. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 6075* (CR), *G. Herrera 6075* (INB), *G. Herrera 6075* (MO).

Diplazium sprucei (Baker) C.Chr.

Terrestrial herbs. Global distribution: Elevation unknown. Costa Rica, Colombia, Ecuador. Records: *A. Rodríguez 10881* (BM, INB, MO, PMA).

Diplazium subsilvaticum Christ

Terrestrial herbs. Distribution in PILA 800–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 5964* (BM, INB, MO, PMA).

Diplazium urticifolium Christ

Terrestrial herbs. Distribution in PILA 900–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela. Records: *A. Rodríguez 10818* (BM, INB, MO,

PMA), *A. Rodríguez 10913* (BM, INB, MO, PMA), *D. Solano 3830* (BM, INB, MO, PMA).

Diplazium werckleanum Christ

Terrestrial herbs. Distribution in PILA 600–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *D. Santamaría 3809* (INB).

Diplazium wilsonii (Baker) Diels

Terrestrial herbs. Distribution in PILA 100–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Colombia, Greater Antilles, Lesser Antilles. Records: *G. Davidse 29223* (CR), *G. Davidse 29223* (MO), *G. Herrera 5338* (INB), *G. Herrera 5338* (MO), *G. Herrera 5500* (INB), *G. Herrera 5500* (MO), *M. Grayum 10280* (INB), *M. Grayum 10280* (MO), *M. Grayum 10314* (INB), *M. Grayum 10314* (MO).

Hemidictyum marginatum (L.) C.Presl

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Herrera 3044* (MO).

e ***Macrothelypteris torresiana*** (Gaudich.) Ching

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Native to Asia, naturalised from the southern USA to and Mexico to Argentina, Ber, Greater Antilles, throughout Africa, Asia, Australia and the Pacific. Records: *A. Rodríguez 10591* (BM, INB, MO, PMA), *G. Herrera 3038* (MO), *M. Moraga 481* (INB).

Salpichlaena thalassica Grayum & R.C.Moran

Terrestrial herbs. Distribution in PILA 1300–2000 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez 11606* (BM, INB, MO, PMA), *D. Solano 4775* (BM, INB, MO, PMA), *J. Bittner 1515* (MO).

Thelypteris atrovirens (C.Chr.) C.F.Reed

Terrestrial herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez 10817* (BM, INB, MO,

PMA), *A. Rodríguez 10897* (BM, INB, MO, PMA), *G. Davidse 28945* (CR, MO), *G. Herrera 3272* (INB, MO), *G. Herrera 5277* (CR, INB, MO), *G. Herrera 6066* (CR, INB), *J. Bittner 1912* (INB, MO), *M. Grayum 10365* (INB, MO).

Thelypteris brachypus (Sodiolo) R.M.Tryon & A.F.Tryon
Terrestrial herbs. Distribution in PILA 2500–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Panama to Peru. Records: *L.D. Gómez 22283* (MO).

ε-PILA ***Thelypteris chiriquiana*** (A.R.Sm.) Salino & T.E.Almeida
Terrestrial herbs. Distribution in PILA 2200–2200 m, low elevation oak forest. Global distribution: endemic to Panama. Records: *H. Van der Werff 6319* (MO).

Thelypteris cinerea A.R.Sm.
Terrestrial herbs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *G. Herrera 6031* (CR, INB, MO).

Thelypteris decussata (L.) Proctor
Terrestrial herbs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Peru, the Guyanas, Brazil, Bolivia, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 5579* (BM, INB, MO, PMA), *A. Rodríguez 10768* (BM, INB, MO, PMA), *A. Rodríguez 10871* (BM, INB, MO, PMA), *A. Rodríguez 11507* (BM, INB, MO, PMA), *D. Santamaría 6616* (BM, INB, MO, PMA), *M. Moraga 507* (INB, MO).

Thelypteris deflexa (C.Presl) R.M.Tryon
Terrestrial herbs. Distribution in PILA 2400–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela. Records: *G. Davidse 28689* (CR, MO), *G. Herrera 3729* (INB, MO).

Thelypteris delasotae A.R.Sm. & Lellinger
Terrestrial herbs. Distribution in PILA 2200–3200 m, low elevation oak forest, páramo. Global distribution: Mexico, Honduras, Costa Rica, Panama. Records: *G. Davidse 24000* (CR, MO), *G. Davidse 24001* (CR, MO), *G. Davidse 28642* (CR, MO).

Thelypteris eggersii (Hieron.) C.F.Reed
Terrestrial herbs. Distribution in PILA 100–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak

forest. Global distribution: Costa Rica to Peru. Records: *G. Herrera 3120* (MO).

Thelypteris funckii (Mett.) Alston
Terrestrial herbs. Distribution in PILA 2200–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to the Guyanas. Records: *G. Davidse 25096* (CR, MO), *G. Davidse 25787* (MO), *G. Davidse 29266* (CR, MO), *M. Moraga 320* (CR, INB).

Thelypteris germaniana (Fée) Proctor
Terrestrial herbs. Distribution in PILA 900–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Venezuela, French Guyana, Greater Antilles, Lesser Antilles. Records: *A. Chacón 271* (CR, MO).

Thelypteris gigantea (Mett.) R.M.Tryon
Terrestrial herbs. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *G. Herrera 3094* (MO).

Thelypteris gomeziana A.R.Sm. & Lellinger
Terrestrial herbs. Distribution in PILA 2900–3500 m, high elevation oak forest, páramo. Global distribution: Mexico, Costa Rica, Panama. Records: *G. Davidse 26047* (CR, MO), *G. Davidse 29323* (CR, MO).

Thelypteris inaequans (C.Chr.) Lellinger
Terrestrial herbs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador. Records: *M. Grayum 10290* (INB, MO).

Thelypteris jimenezii (Maxon & C.Chr.) C.F.Reed
Terrestrial herbs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2670* (INB, MO), *G. Herrera 5479* (INB, MO), *G. Herrera 5497* (CR, INB, MO).

Thelypteris leprieurii (Hook.) R.M.Tryon
Terrestrial herbs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez 10999* (BM, INB, MO, PMA), *D. Santamaría 6669* (BM, INB, MO, PMA), *G. Herrera 2820* (INB, MO).

Thelypteris linkiana (C.Presl) R.M.Tryon

Terrestrial herbs. Distribution in PILA 900–1200 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11047 (BM, INB, MO, PMA).

Thelypteris longipilosa (Sodi) C.F.Reed

Terrestrial herbs. Distribution in PILA 2100–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *M. Moraga* 479 (CR, INB).

Thelypteris oaxacana A.R.Sm.

Terrestrial herbs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 10960 (BM, INB, MO, PMA), *M. Grayum* 10380 (INB, MO).

Thelypteris oligocarpa (Humb. & Bonpl. ex Willd.) Ching

Terrestrial herbs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *J. Bittner* 1915 (INB, MO), *M. Moraga* 478 (INB).

Thelypteris pachyrhachis (Kunze ex Mett.) Ching

Terrestrial herbs. Distribution in PILA 1900–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Davidse* 25820 (CR, MO), *M. Grayum* 10320 (INB, MO).

Thelypteris pilosula (Klotzsch & H.Karst. ex Mett.)

R.M.Tryon

Terrestrial herbs. Distribution in PILA 1600–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica to Bolivia, Greater Antilles. Records: *G. Davidse* 25778 (CR, MO), *M. Chinchilla* 5 (CR, INB, MO), *M. Moraga* 453 (INB), *M. Moraga* 480 (CR, INB).

Thelypteris pusilla (Mett.) Ching

Terrestrial herbs. Distribution in PILA 1900–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *G. Davidse* 25245 (CR, MO), *G. Davidse* 29233 (CR, MO), *G. Herrera* 3624 (MO), *M. Grayum* 10304 (CR, INB, MO).

Thelypteris rudis (Kunze) Proctor

Terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater

Antilles, Lesser Antilles. Records: *G. Davidse* 28885 (CR, MO), *G. Davidse* 28944 (CR, MO), *G. Davidse* 29222 (CR, MO), *G. Herrera* 5871 (CR, INB, MO), *F. Quesada* 1435 (INB).

Thelypteris rupestris (Klotzsch) C.F.Reed

Terrestrial herbs. Distribution in PILA 1800–2000 m, cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela, Greater Antilles. Records: *M. Grayum* 10366 (INB, MO).

Thelypteris serrata (Cav.) Alston

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11193 (BM, INB, MO, PMA).

Thelypteris subscandens A.R.Sm.

Terrestrial herbs. Distribution in PILA 1900–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *F. Quesada* 1931 (INB), *M. Grayum* 10372 (INB, MO).

Thelypteris thomsonii (Jenman) Proctor

Terrestrial herbs. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Peru, Greater Antilles. Records: *G. Davidse* 25821 (CR, MO).

Thelypteris valdepiosa (Baker) C.F.Reed

Terrestrial herbs. Distribution in PILA 700–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *A. Chacón* 289 (CR, MO), *G. Herrera* 3249 (INB, MO).

CYATHEACEAE

Alsophila erinacea (H.Karst.) D.S.Conant

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Fernández* 898 (INB), *A. Rodríguez* 11592 (BM, INB, MO, PMA), *J. Bittner* 1919 (INB, MO).

Culcita conifolia (Hook.) Maxon

Terrestrial trees. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution:

Mexico to Brazil, Greater Antilles. Records: *A.K. Monro* 5286 (BM, INB, MO), *A.K. Monro* 5484 (BM, INB, MO, PMA), *A. Rodríguez* 10659,1 (BM, INB, MO, PMA), *A. Soto* 335 (INB), *D. Santamaría* 5691 (BM, INB, MO, PMA), *G. Davidse* 25828 (CR, MO), *G. Davidse* 25829 (MO), *G. Davidse* 28641 (MO), *G. Davidse* 29238 (MO), *G. Herrera* 3712 (INB, MO), *M.A. Thomas* 1582 (MO), *M.A. Thomas* 1617 (MO), *M. Moraga* 338 (INB, MO), *R. Aguilar* 1160 (INB, MO).

Cyathea acutidens (Christ) Domin

Terrestrial trees. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Ecuador, French Guyana, Bolivia. Records: *E. Alfaro* 2606 (INB), *E. Navarro* 6 (INB), *F. González* 442 (INB), *G. Davidse* 28452 (INB, MO).

Cyathea albomarginata R.C.Moran

Terrestrial shrubs. Distribution in PILA 2200–2200 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *J. Bittner* 1765 (INB, MO).

Cyathea caracasana (Klotzsch) Domin

Terrestrial trees. Distribution in PILA 1600–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Colombia to the Guyanas. Records: *A. Fernández* 715 (INB), *A. Rojas* 3216 (CR, INB), *G. Davidse* 23998 (CR).

Cyathea delgadii Sternb.

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Argentina. Records: *A. Chacón* 277 (CR, INB, MO).

Cyathea divergens Kunze

Terrestrial trees. Distribution in PILA 1200–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to the Guyanas. Records: *J. Bittner* 1440 (MO), *M. Moraga* 650 (INB).

Cyathea fulva (M.Martens & Galeotti) Fée

Terrestrial trees. Distribution in PILA 1100–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela. Records: *A.K. Monro* 5535 (BM, INB, MO, PMA), *A. Rodríguez* 10684 (BM, INB, MO, PMA), *J. Bittner* 1918 (INB, MO).

Cyathea gracilis Griseb.

Terrestrial shrubs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia, Greater Antilles. Records: *A. Rodríguez* 10683 (BM, INB, MO, PMA), *J. Bittner* 1779 (INB, MO).

Cyathea mutica (Christ) Domin

Terrestrial shrubs. Distribution in PILA 200–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Venezuela. Records: *G. Herrera* 5476 (INB), *G. Herrera* 6045 (INB, MO).

Cyathea schiedeana (C.Presl) Domin

Terrestrial trees. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *D. Santamaría* 6648 (BM, INB, MO, PMA), *G. Herrera* 5329 (INB, MO), *J. Bittner* 1431 (MO).

Cyathea suprastrigosa (Christ) Maxon

Terrestrial trees. Distribution in PILA 1300–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 5461 (BM, INB, MO, PMA), *E. Mora* 289 (CR, INB), *G. Davidse* 28679 (CR, MO), *G. Davidse* 29247 (MO), *F. Quesada* 1560 (INB), *M. Moraga* 337 (INB).

Lophosoria quadripinnata (J.F.Gmel.) C.Chr.

Terrestrial herbs. Distribution in PILA 1100–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Honduras to El Salvador, Costa Rica to Brazil, Chile, Lesser Antilles, Greater Antilles. Records: *A.K. Monro* 5536 (BM, INB, MO, PMA), *G. Davidse* 28706 (MO), *G. Davidse* 28834 (CR), *G. Herrera* 3733 (INB), *J. Bittner* 1760 (CR), *J. Bittner* 1474 (MO), *F. Quesada* 1395 (CR), *F. Quesada* 1957 (INB).

Lophosoria quesadae A.Rojas

Terrestrial herbs. Distribution in PILA 2300–2900 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *F. Quesada* 1396 (CR), *M. Moraga* 305 (CR).

Loxsomopsis pearcei (Baker) Maxon

Terrestrial herbs. Distribution in PILA 2300–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Colombia to Bolivia. Records: *M. Grayum* 10329 (INB), *M. Moraga* 339 (CR).

Sphaeropteris brunei (Christ) R.M.Tryon

Terrestrial shrubs or trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 842 (INB), *A. Rodríguez* 10893 (BM, INB, MO, PMA).

DENNSTAEDTIACEAE

Blotiella lindeniana (Hook.) R.M.Tryon

Facultatively epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Brazil, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 5469 (BM, INB, MO, PMA), *A. Rodríguez* 11034 (BM, INB, MO, PMA), *G. Herrera* 2844 (MO), *J. Bittner* 1465 (MO), *J. Bittner* 1758 (INB).

Dennstaedtia arborescens (Willd.) Ekman ex Maxon

Terrestrial herbs. Distribution in PILA 100–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica to Bolivia. Records: *G. Herrera* 3028 (MO), *J. Bittner* 1490 (MO).

Dennstaedtia auriculata H.Navarrete & B.Ollg.

Terrestrial herbs. Distribution in PILA 0–700 m, low elevation mixed forest, sabana natural grassland. Global distribution: Costa Rica to Bolivia, Greater Antilles. Records: *M. Moraga* 484 (INB).

Dennstaedtia bipinnata (Cav.) Maxon

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Bolivia, Lesser Antilles, Greater Antilles. Records: *G. Herrera* 5511 (INB).

Dennstaedtia distenta (Kunze) T.Moore

Terrestrial herbs. Distribution in PILA 1800–2200 m, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *C. Hamilton* 3614 (MO).

Histiopteris incisa (Thunb.) J.Sm.

Terrestrial herbs. Distribution in PILA 1200–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland.

Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles, Africa, Asia, New Zealand, Tasmania. Records: *A.K. Monro* 4140 (BM, INB, MO), *G. Davidse* 23882 (CR, MO), *G. Davidse* 26209 (MO), *G. Davidse* 28589 (CR, MO), *G. Davidse* 28671 (MO), *F. Quesada* 1393 (CR, INB, MO), *L. Angulo* 244 (INB, MO), *M.A. Thomas* 1581 (MO).

Hypolepis blepharochlaena Mickel & Beitel

Terrestrial herbs. Distribution in PILA 2600–2700 m, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Panama. Records: *M. Moraga* 469 (CR, INB).

Hypolepis bogotensis H.Karst.

Terrestrial herbs. Distribution in PILA 2400–3300 m, low elevation oak forest, páramo. Global distribution: Mexico to Venezuela, Greater Antilles. Records: *A. Rojas* 3229 (INB, MO), *A. Rojas* 3230 (INB).

Hypolepis ditrichomatis R.C.Moran

Terrestrial herbs. Distribution in PILA 1400–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Bittner* 1888 (INB, MO), *M. Grayum* 10319 (INB, MO).

Hypolepis grandis Lellinger

Terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28677 (CR, MO).

Hypolepis pulcherrima Underw. & Maxon

Terrestrial herbs. Distribution in PILA 1900–3300 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *G. Davidse* 26210 (MO).

Hypolepis trichobacilliformis R.C.Moran

Terrestrial herbs. Distribution in PILA 1600–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *F. Quesada* 1438 (INB).

Hypolepis viscosa Mett.

Facultatively epiphytic herbs. Distribution in PILA 400–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Bolivia. Records: *G. Herrera* 5246 (MO).

Paesia anfractuosa (Christ) C.Chr.

Terrestrial herbs. Distribution in PILA 1100–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 693* (INB, MO), *F. Quesada 1399* (INB, MO), *M. Grayum 10332* (INB, MO).

Paesia glandulosa (Sw.) Kuhn

Terrestrial herbs. Distribution in PILA 2400–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Davidse 28842* (MO).

Pteridium arachnoideum (Kaulf.) Maxon

Helecho alambre. (CR).

Terrestrial herbs. Distribution in PILA 0–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rojas 823* (CR), *C. Hamilton 724* (MO), *D. Solano 2924* (INB), *F. Quesada 1405* (CR, INB), *F. Quesada 1469* (CR, INB).

Pteridium caudatum (L.) Maxon

Terrestrial herbs. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to French Guyana, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 9867* (INB), *A. Rodríguez 9870* (INB).

Pteridium feei (W.Schaffn ex Fée) Faull

Terrestrial herbs. Distribution in PILA 200–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 4120* (BM, INB), *F. Quesada 1408* (CR, INB, MO).

EQUISETACEAE

Equisetum bogotense Kunth

Terrestrial herbs. Distribution in PILA 400–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Brazil, Chile. Records: *A.K. Monro 5508* (BM, INB, MO, PMA), *B. Hammel 1455* (MO), *C. Hamilton 699* (MO), *E. Alfaro 749* (INB), *G. McPherson 15885* (MO), *F. Quesada 1407* (CR, INB), *L.D. Gómez 21855* (MO), *L.D. Gómez 23280* (MO), *M. Grayum 10383* (INB, MO), *R. J. Schmalzel 1347* (MO).

Uses: cosmetics, medicinal.

Equisetum giganteum L.

Terrestrial herbs. Distribution in PILA 200–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Venezuela, Brazil, Bolivia, Argentina, Chile, Greater Antilles. Records: *L.D. Gómez 23308* (MO). Uses: medicinal.

GLEICHENIACEAE

Dicranopteris flexuosa (Schrad.) Underw.

Terrestrial herbs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: USA to the Guyanas, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 9871* (INB).

Sticherus bifidus (Willd.) Ching

Terrestrial herbs. Distribution in PILA 200–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *R. J. Schmalzel 1364* (MO).

Sticherus brevipubis (Christ.) A.R.Sm.

Terrestrial herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia, Greater Antilles. Records: *G. Davidse 28845* (MO), *J. Bittner 1784* (INB, MO).

Sticherus compactus (Christ) Nakai

Terrestrial herbs. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 942* (CR, INB), *A. Rodríguez 10670* (BM, INB, MO, PMA), *D. Solano 3921* (BM, INB, MO, PMA), *J. Bittner 1473* (MO).

Sticherus intermedius (Baker) Chrysler

Terrestrial herbs. Distribution in PILA 1500–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *F. Quesada 1425* (CR, INB, MO).

Sticherus pallescens (Mett.) Vareschi

Terrestrial herbs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *D. Solano 3210* (INB), *J. Bittner 1785* (INB, MO).

Sticherus palmatus (W.Schaffn. ex E.Fourn.) Copel.
Terrestrial herbs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Greater Antilles. Records: *J. Dwyer* 482 (MO).

Sticherus penniger (Mart.) Copel.
Terrestrial herbs. Distribution in PILA – m. Global distribution: Costa Rica, Colombia to Bolivia. Records: *A. Rodríguez* 9839 (INB), *A. Rodríguez* 9880 (INB), *D. Santamaría* 4390 (INB).

Sticherus retroflexus (J.Bommer ex Christ) Copel.
Terrestrial herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Herrera* 6098 (CR, INB, MO).

Sticherus revolutus (Kunth) Ching
Terrestrial herbs. Distribution in PILA 2600–3300 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *J. Bittner* 1778 (INB, MO), *F. Quesada* 1918 (INB), *L.D. Gómez* 22254 (MO), *M. Moraga* 313 (CR, INB, MO).

HYMENOPHYLLACEAE

Hymenophyllum siliquosum Christ
Epiphytic herbs. Distribution in PILA 200–500 m, low elevation mixed forest. Global distribution: Mexico, Honduras, Costa Rica, Panama. Records: *G. Davidse* 28745 (MO), *G. Davidse* 29273 (CR, MO).

Hymenophyllum asplenioides (Sw.) Sw.
Epiphytic herbs. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Venezuela, the Guyanas, Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 10997 (BM, INB, MO, PMA), *G. Herrera* 6207 (CR, INB, MO).

Hymenophyllum consanguineum C.V.Morton
Epiphytic herbs. Distribution in PILA 400–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *A. Fernández* 941 (CR, INB), *A.K. Monro* 5479 (BM, INB, MO, PMA), *A. Rodríguez* 10651 (BM, INB, MO, PMA), *A. Rodríguez* 11052 (BM, INB, MO, PMA), *D. Santamaría* 5681 (BM, INB, MO, PMA), *D. Solano* 3928 (BM, INB, MO, PMA), *E. Alfaro* 5609 (BM, INB), *G. Davidse* 28718 (MO), *G.*

Davidse 28934 (CR, MO), *G. Herrera* 5968 (CR, INB), *G. Herrera* 6100 (CR, INB), *J. Bittner* 1770 (INB, MO), *J. Bittner* 1846 (CR, INB, MO), *F. Quesada* 1397 (INB, MO).

Hymenophyllum crispum Kunth
Epiphytic herbs. Distribution in PILA 2100–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles. Records: *A. Rojas* 3201 (INB), *G. Davidse* 28873 (CR, MO).

Hymenophyllum elegans Spreng.
Epiphytic herbs. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *G. Herrera* 5394 (CR, INB), *G. Herrera* 5966 (CR, INB, MO).

Hymenophyllum fragile (Hedw.) C.V.Morton
Epiphytic herbs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 5680 (BM, INB, MO, PMA), *G. Herrera* 5980 (CR, INB, MO).

Hymenophyllum fucooides (Sw.) Sw.
Epiphytic herbs. Distribution in PILA 300–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Chacón* 546 (INB), *A.K. Monro* 5299 (BM, INB), *A.K. Monro* 5353 (BM), *E. Alfaro* 5567 (BM, INB), *G. Davidse* 23992 (CR, MO), *G. Herrera* 5946 (CR, INB, MO), *F. Quesada* 1569 (INB), *L.D. Gómez* 22238 (MO), *S. Knapp* 9915 (BM).

Hymenophyllum hemidimorphum R.C.Moran & B.Øllg.
Epiphytic herbs. Distribution in PILA 0–0 m, low elevation mixed forest. Global distribution: Costa Rica, Ecuador. Records: *J. Bittner* 1808 (INB, MO).

Hymenophyllum hemipteron Rosenst.
Epiphytic herbs. Distribution in PILA 1000–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rojas* 3198 (INB), *A. Rojas* 3202 (INB), *G. Davidse* 26021 (CR, MO), *G. Herrera* 5288 (CR, MO).

Hymenophyllum horizontale C.V.Morton

Epiphytic herbs. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 6464 (BM, INB, MO, PMA), *G. Herrera* 5231 (CR, MO).

Hymenophyllum lineare (Sw.) Sw.

Epiphytic herbs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Greater Antilles. Records: *A. Rodríguez* 10685 (BM, INB, MO, PMA).

Hymenophyllum microcarpum Desv.

Epiphytic herbs. Distribution in PILA 900–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Rodríguez* 10581 (BM, INB, MO, PMA), *E. Alfaro* 5462 (BM, INB), *G. Davidse* 28423 (CR, MO), *G. Davidse* 28499 (CR, MO), *G. Davidse* 29117 (CR, MO), *G. Herrera* 6060 (CR, INB, MO), *J. Bittner* 1483 (MO), *M. Moraga* 516 (CR, INB), *R. J. Schmalzel* 1353 (MO).

Hymenophyllum myriocarpum Hook.

Epiphytic herbs. Distribution in PILA 1000–3600 m, mixed forest in transition to low elevation forest, mixed forest in transition to low elevation forest, páramo. Global distribution: Mexico to Bolivia. Records: *A.K. Monro* 4136 (BM, INB), *A.K. Monro* 5350 (BM, INB), *A. Rojas* 3250 (INB), *G. Davidse* 25329 (MO), *G. Davidse* 28749 (MO), *G. Davidse* 28771 (MO), *F. Quesada* 1450 (CR, INB, MO), *F. Quesada* 2001 (INB).

Hymenophyllum plumosum Kaulf.

Epiphytic herbs. Distribution in PILA 1100–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Brazil. Records: *G. Davidse* 28978 (CR, MO), *G. Herrera* 3690 (INB, MO), *G. Herrera* 5420 (CR, INB), *G. Herrera* 6153 (CR, INB, MO), *F. Quesada* 1416 (CR, INB, MO), *F. Quesada* 1628 (CR, INB, MO), *M. Moraga* 319 (INB, MO).

Hymenophyllum polyanthos Sw.

Epiphytic herbs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Africa, Asia. Records: *A.K. Monro* 5182 (BM, INB, MO), *D. Santamaría* 6701 (BM, INB, MO, PMA), *G. Davidse* 25395 (CR, MO), *G.*

Davidse 28630 (CR, MO), *G. Davidse* 29397 (MO), *G. Herrera* 5469 (INB, MO), *F. Quesada* 1440 (INB, MO), *M. Moraga* 494 (CR, INB, MO), *S. Knapp* 9972 (BM, INB).

Hymenophyllum pulchellum Schltld. & Cham.

Epiphytic herbs. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Brazil. Records: *G. Herrera* 6165 (CR, INB, MO), *M. Moraga* 323 (INB, MO).

Hymenophyllum sieberi (C.Presl) Bosch

Epiphytic herbs. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Venezuela, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 5172 (CR, MO), *J. Bittner* 1458 (MO).

Hymenophyllum subrigidum Christ

Epiphytic herbs. Distribution in PILA 1500–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *G. Davidse* 28985 (MO), *G. Herrera* 5428 (CR, INB), *G. Herrera* 6131 (CR, INB), *J. Bittner* 1879 (INB, MO).

Hymenophyllum talamancanum A.Rojas

Epiphytic herbs. Distribution in PILA 500–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *M. Grayum* 10355 (MO).

Hymenophyllum tegularis (Desv.) Proctor & Lourteig

Epiphytic herbs. Distribution in PILA 1000–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A.K. Monro* 5200 (BM), *A.K. Monro* 5335 (BM, INB), *G. Davidse* 25271 (CR, MO), *G. Davidse* 25391 (CR, MO), *G. Davidse* 29412 (CR, MO), *G. Herrera* 3674 (INB), *F. Quesada* 1413 (CR, INB, MO), *L.D. Gómez* 22268 (MO), *L.D. Gómez* 22460 (MO), *L.D. Gómez* 22654 (MO).

Hymenophyllum trapezoidale Liebm.

Epiphytic herbs. Distribution in PILA 2500–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Suriname. Records: *G. Davidse* 25816 (CR, MO), *G. Davidse* 25818 (MO).

Hymenophyllum trichophyllum Kunth

Epiphytic herbs. Distribution in PILA 1800–3100 m,

cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *G. Davidse* 25852 (CR, MO).

Hymenophyllum tunbrigense (L.) Sm.

Epiphytic herbs. Distribution in PILA 500–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Southeastern USA, Mexico to Bolivia Chile, Argentina, western and southern Europe, Macaronesia, Caucasus, subsaharan Africa, Madagascar, Mauritius. Records: *A.K. Monro* 4158 (BM, INB, MO), *A. Rojas* 3215 (CR, INB, MO), *G. Davidse* 25270 (CR, MO), *F. Quesada* 1448 (CR, INB, MO).

Hymenophyllum undulatum (Sw.) Sw.

Facultatively epiphytic herbs. Distribution in PILA 1200–3800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Rojas* 3200 (CR, INB), *G. Davidse* 25894 (CR, MO), *G. Davidse* 25986 (CR, MO), *G. Davidse* 28974 (CR, MO), *G. Herrera* 3703 (INB, MO), *G. Herrera* 5973 (CR, INB, MO), *G. Herrera* 6040 (CR, INB), *L.D. Gómez* 22227 (MO), *M. Moraga* 464 (CR, INB).

Trichomanes capillaceum L.

Epiphytic herbs. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 4342 (BM, INB, MO), *A. Rodríguez* 10812 (BM, INB, MO, PMA), *A. Rodríguez* 10920 (BM, INB, MO, PMA), *G. Herrera* 6062 (CR, INB, MO), *G. McPherson* 15897 (MO), *J. Bittner* 1902 (INB, MO), *R. Villalobos* 233 (CR, INB, MO).

Trichomanes collariatum Bosch

Epiphytic herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil. Records: *D. Santamaria* 5973 (BM, INB, MO, PMA).

ε-PILA *Trichomanes consanguineum* C.V.Morton

Terrestrial herbs. Distribution in PILA 1500–1500 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaria* 5849 (BM, INB, MO, PMA).

Trichomanes crinitum Sw.

Terrestrial herbs. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to the Guyanas, Greater Antilles. Records: *G. Herrera* 5397 (CR, INB, MO), *J. Bittner* 1502 (MO).

Trichomanes crispum L.

Epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Uruguay, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 5177 (MO), *G. Herrera* 6177 (CR, INB, MO), *G. Herrera* 6192 (CR, INB).

Trichomanes delicatum Bosch

Epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Colombia, Ecuador. Records: *G. Herrera* 5429 (CR, INB).

Trichomanes diaphanum Kunth

Epiphytic herbs. Distribution in PILA 500–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11026 (BM, INB, MO, PMA), *J. Bittner* 1449 (MO), *J. Bittner* 1485 (MO).

Trichomanes hymenophylloides Bosch

Epiphytic herbs. Distribution in PILA 100–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Davidse* 23891 (CR, MO), *G. Davidse* 25774 (CR, MO), *G. Davidse* 25817 (CR, MO), *G. Davidse* 29234 (CR, MO), *J. Bittner* 1761 (INB, MO), *J. Bittner* 1841 (INB, MO), *F. Quesada* 1398 (INB), *M. Moraga* 490 (CR, INB, MO).

Trichomanes lucens Sw.

Epiphytic herbs. Distribution in PILA 1500–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles. Records: *G. Davidse* 25229 (CR, MO), *G. Davidse* 28715 (CR, MO), *G. Davidse* 29017 (MO), *G. Herrera* 3726 (INB, MO), *G. Herrera* 5440 (CR, INB), *G. Herrera* 5991 (CR, INB, MO), *G. Herrera* 6187 (CR, INB), *M. Moraga* 328 (CR, INB), *Quesada* 1434 (MO).

Trichomanes ludovicinum Rosenst.

Epiphytic herbs. Distribution in PILA 300–1700 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *J. Bittner 1337* (MO), *J. Bittner 1447* (MO).

Trichomanes radicans Sw.

Epiphytic herbs. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to the Guyanas, Paraguay, Greater Antilles, Lesser Antilles, tropical Africa, Madagascar, Mascarenes. Records: *A. Fernández 765* (CR, INB), *D. Santamaría 5749* (BM, INB, MO, PMA), *E. Alfaro 773* (INB, MO), *E. Navarro 508* (INB, MO), *G. Davidse 29079* (CR, MO), *G. Davidse 29183* (MO), *G. Herrera 6025* (CR, INB, MO), *J. Bittner 1911* (INB), *F. Quesada 1451* (CR, INB, MO), *M. Moraga 483* (CR, INB, MO).

Trichomanes rigidum Sw.

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles, Africa. Records: *G. Herrera 5278* (CR, MO), *G. Herrera 6102* (CR, INB, MO), *J. Bittner 1437* (MO).

LINDSAEACEAE

Lindsaea arcuata Kunze

Terrestrial herbs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11331* (BM, INB, MO, PMA), *J. Bittner 1335* (MO), *J. Bittner 1450* (MO).

Lindsaea fuscopetiolata A.Rojas & Tejero

Terrestrial herbs. Distribution in PILA 1600–1700 m, mixed forest in transition to cloud forest. Global distribution: Mexico, Honduras, Costa Rica, Panama. Records: *D. Santamaría 4411* (INB). Uses: medicinal.

Lindsaea imrayana (Hook.) Pérez Arbel.

Facultatively epiphytic herbs. Distribution in PILA 1100–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Venezuela, the Guyanas, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 10648* (BM, INB, MO, PMA), *D. Santamaría 5758* (BM, INB, MO, PMA), *D. Solano 3924* (BM, INB, MO, PMA), *G. Herrera 2667* (INB), *G. Herrera 2667* (MO), *G. Herrera 5388* (INB), *G. Herrera 6190* (CR, INB, MO), *J. Bittner 1480* (MO), *M. Grayum 10368* (CR, INB, MO).

Lindsaea lancea (L.) Bedd.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11850* (BM, INB, MO, PMA), *A. Soto 1309* (INB), *D. Santamaría 5951* (BM, INB, MO, PMA).

Lindsaea quadrangularis Raddi

Terrestrial herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles. Records: *A. Chacón 272* (INB, MO).

Odontosoria gymnogrammoides Christ

Terrestrial herbs. Distribution in PILA 200–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Nicaragua to Panama. Records: *D. Solano 4720* (BM, INB, MO, PMA), *D. Solano 4821* (BM, INB, MO, PMA).

LONCHITIDACEAE

Lonchitis hirsuta L.

Terrestrial herbs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Herrera 3056* (MO).

MARATTIACEAE

Danaea moritziana C.Presl

Terrestrial herbs. Distribution in PILA 200–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Venezuela, French Guyana, Bolivia. Records: *A. Rodríguez 11508* (BM, INB, MO, PMA).

Eupodium pittieri (Maxon) Christenh.

Terrestrial herbs. Distribution in PILA 1500–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia and Venezuela, Trinidad (see Christenhusz 2010). Records: *A. Fernández 690* (INB), *M. Grayum 10310* (INB), *M. Grayum 10379* (INB).

Marattia excavata Underw.

Terrestrial herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Herrera* 5271 (MO).

OPHIOGLOSSACEAE

Botrychium virginianum (L.) Sw.

Terrestrial herbs. Distribution in PILA 1500–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Canada to Mexico, Guatemala, Eurasia. Records: *F. Quesada* 1600 (INB).

Ophioglossum palmatum L.

Epiphytic herbs. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: USA to Mexico to Suriname, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 740 (INB, MO), *A. Fernández* 828 (INB, MO), *A. Rodríguez* 10649 (BM, INB, MO, PMA), *A. Soto* 303 (INB), *D. Solano* 3829 (BM, INB, MO, PMA), *D. Solano* 4192 (BM, INB, MO, PMA), *E. Alfaro* 3674 (INB), *G. Davidse* 28822 (MO), *G. Herrera* 5905 (INB, MO), *G. Herrera* 5989 (CR, INB, MO), *G. Herrera* 6185 (CR, INB, MO), *F. Quesada* 1427 (INB), *F. Quesada* 1570 (INB).

Ophioglossum reticulatum L.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles, Africa, Asia. Records: *F. Quesada* 1555 (INB).

POLYPODIACEAE

Alansmia cultrata (Bory ex Willd.) Moguel & M.Kessler
Epiphytic herbs. Distribution in PILA 1100–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 661 (CR, INB), *A. Fernández* 939 (INB), *A. Fernández* 966 (CR, INB), *D. Santamaría* 5686 (BM, INB, MO, PMA), *G. Davidse* 28893 (MO), *G. Davidse* 29013 (MO), *G. Davidse* 29082 (CR, MO), *G. Davidse* 29229 (MO), *G. Davidse* 29233A (MO), *G. Herrera* 5302 (CR, INB, MO), *G. Herrera* 6125 (CR, INB), *J. Bittner* 1791 (INB, MO), *J. Bittner* 1856 (INB, MO), *F. Quesada* 1437 (CR, INB, MO), *F. Quesada* 1478 (CR, INB).

Alansmia senilis (Fée) Moguel & M.Kessler

Epiphytic herbs. Distribution in PILA 1900–3300 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A. Chacón* 544 (INB), *A. Rojas* 3196 (CR, INB), *G. Davidse* 25469 (MO), *G. Davidse* 25789 (MO), *G. Davidse* 28665 (MO), *G. Davidse* 28872 (MO), *G. Davidse* 28913 (MO), *G. Davidse* 29226 (MO), *G. Davidse* 29242A (MO), *G. Herrera* 3679 (INB), *G. Herrera* 3716 (INB, MO), *G. Herrera* 6160 (INB), *F. Quesada* 1571 (INB), *M. Moraga* 317 (CR, INB).

Alansmia turrialbae (Christ) Moguel & M.Kessler

Epiphytic herbs. Distribution in PILA 1000–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 502 (MO), *G. Herrera* 3642 (INB), *G. Davidse* 28892 (CR, MO), *G. Davidse* 29145 (CR, MO).

Arachniodes denticulata (Sw.) Ching

Terrestrial herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Chacón* 538 (INB, MO), *A. Fernández* 957 (CR, INB), *A.K. Monro* 4124 (BM, INB, MO), *A.K. Monro* 4159 (BM), *A. Rodríguez* 10895 (BM, INB, MO, PMA), *A. Rodríguez* 11834 (BM, INB, MO, PMA), *A. Rojas* 3251 (CR, INB), *D. Santamaría* 5760 (BM, INB, MO, PMA), *E. Alfaro* 3336 (INB), *E. Alfaro* 5606 (BM, INB), *F. Quesada* 1456 (CR, INB, MO), *G. Davidse* 25460 (CR, MO), *G. Davidse* 28629 (CR, MO), *G. Davidse* 28860 (CR, MO), *G. Davidse* 29393 (MO), *G. Davidse* 23881 (MO), *G. Herrera* 5281 (CR, MO), *G. Herrera* 6134 (CR, INB), *J. Bittner* 1737 (INB, MO), *M.A. Thomas* 1579 (MO), *M.A. Thomas* 1619 (MO), *M.A. Thomas* 1629 (MO), *M. Moraga* 460 (CR, INB, MO), *M. Valerio* 165 (CR, MO).

Arachniodes ochropteroides (Baker) Lellinger

Facultatively epiphytic herbs. Distribution in PILA 700–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador, Venezuela, Greater Antilles. Records: *G. Herrera* 5291 (CR, INB, MO), *G. Herrera* 5378 (CR, INB).

Campyloneurum amphostenon (Kunze ex Klotzsch) Fée

Facultatively epiphytic herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution:

Mexico to Bolivia, Greater Antilles. Records: *A. Chacón* 550 (INB), *A. Rojas* 3224 (INB, MO), *B.B. Klitgaard* 806 (BM, INB, MO), *B. Gamboa* 595,2 (INB), *B. Gamboa* 655 (INB, MO), *E. Alfaro* 3332 (INB), *G. Davidse* 23965 (CR, MO), *G. Davidse* 25333 (CR, MO), *G. Davidse* 25837 (CR, MO), *G. Davidse* 25897 (MO), *G. Davidse* 26019 (MO), *G. Davidse* 28649 (MO), *G. Davidse* 28746 (MO), *G. Davidse* 29070 (MO), *G. Davidse* 29328 (CR, MO), *G. Herrera* 3673 (INB, MO), *G. Herrera* 3719 (INB, MO), *G. Herrera* 5901 (CR, INB, MO), *G. Herrera* 6147 (CR, INB), *G. McPherson* 15886 (MO), *F. Quesada* 1468 (CR, INB), *F. Quesada* 1409 (CR, INB), *M. Moraga* 310 (CR, INB), *S. Knapp* 9909 (BM, INB, MO).

Campyloneurum angustifolium (Sw.) Fée

Epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Argentina, Greater Antilles. Records: *A. Rodríguez* 11381 (BM, INB, MO, PMA), *C. Hamilton* 3875 (MO), *G. Davidse* 25464 (MO), *G. Davidse* 25728 (MO), *G. Herrera* 5174 (CR, INB, MO), *F. Quesada* 1461 (CR, INB), *M. Moraga* 434 (CR, INB, MO).

Campyloneurum aphanophlebium (Kunze) T.Moore

Facultatively epiphytic herbs. Distribution in PILA 100–600 m, low elevation mixed forest. Global distribution: Mexico to Brazil. Records: *A. Rodríguez* 11265 (BM, INB, MO, PMA).

Campyloneurum densifolium (Hieron.) Lellinger

Terrestrial herbs. Distribution in PILA 2400–3300 m, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Davidse* 29003 (MO).

Campyloneurum falcoideum (Kuhn ex Hieron.) M.Mey. ex Lellinger

Epiphytic herbs. Distribution in PILA 1300–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *B. Gamboa* 651 (INB), *G. Davidse* 29159 (CR, MO), *M. Moraga* 471 (CR, INB).

Campyloneurum fasciale (Humb. & Bonpl. ex Willd.) C.Presl

Epiphytic herbs. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez* 11735 (BM, INB, MO, PMA), *L. Angulo* 149 (CR, INB), *L. Angulo* 176 (CR, INB, MO), *R. Villalobos* 288 (CR, INB).

Campyloneurum repens (Aubl.) C.Presl

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *E. Mora* 293 (CR, INB).

Campyloneurum sphenodes (Kunze & Klotzsch) Fée.

Epiphytic herbs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Fernández* 654 (CR, INB, MO), *A. Fernández* 725 (CR, INB, MO), *A. Fernández* 931 (CR, INB, MO), *A. Fernández* 999 (CR, INB, MO), *A.K. Monro* 5626 (BM, INB, MO, PMA), *A. Rodríguez* 10630 (BM, INB, MO, PMA), *A. Rodríguez* 11228 (BM, INB, MO, PMA), *B. Gamboa* 654 (INB), *D. Santamaría* 3817 (INB), *D. Santamaría* 5750 (BM, INB, MO, PMA), *D. Santamaría* 6158 (BM, INB, MO, PMA), *D. Solano* 3951 (BM, INB, MO, PMA), *D. Solano* 4183 (BM, INB, MO, PMA), *E. Alfaro* 775 (INB), *G. Herrera* 5997 (CR, INB), *J. Bittner* 1500 (MO), *J. Bittner* 1739 (INB), *J. Bittner* 1838 (INB), *J. Bittner* 1920 (INB), *F. Quesada* 1681 (INB), *M. Moraga* 498 (CR, INB), *S. Bridgewater* 4136 (BM, INB, MO, PMA).

□ ***ε-PILA Ceradenia aulaeifolia*** L.E.Bishop. ex A.R.Sm.

Epiphytic herbs. Distribution in PILA 3000–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *S. Knapp & A.K. Monro* 9867 (BM, MO, PMA), *S. Knapp & A.K. Monro* 9956 (BM, MO, PMA), *A. Rojas* 3232 (INB, MO), *G. Davidse* 25414 (MO), *G. Davidse* 25939 (CR, MO), *G. Davidse* 25966 (MO), *G. Davidse* 26048 (CR, MO).

Ceradenia fucooides (Christ) L.E.Bishop

Epiphytic herbs. Distribution in PILA 1900–2500 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 832 (INB), *A. Fernández* 977 (CR, INB), *A. Rodríguez* 10702 (BM, INB, MO, PMA), *G. Davidse* 28719 (CR, MO), *G. Davidse* 28747 (CR, MO), *G. Herrera* 3410 (MO), *G. Herrera* 5446 (INB), *G. Herrera* 5502 (INB), *G. Herrera* 5884 (CR, INB, MO), *G. Herrera* 5977 (INB), *G. Herrera* 6127 (CR, INB, MO), *J. Bittner* 1802 (INB, MO), *F. Quesada* 1410 (CR, INB, MO), *F. Quesada* 1956 (INB).

Ceradenia jungermannioides (Klotzsch) L.E.Bishop

Epiphytic herbs. Distribution in PILA 600–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Brazil, Greater Antilles, Azores. Records: *A. Rojas* 3236 (INB, MO), *G. Davidse* 28981 (MO).

Ceradenia kalbreyeri (Baker) L.E.Bishop
Facultatively epiphytic herbs. Distribution in PILA 600–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Guatemala, Costa Rica to Ecuador, Venezuela to French Guyana. Records: *G. Davidse 25249* (MO), *G. Davidse 28995* (MO), *G. Herrera 5232* (CR, MO), *G. Herrera 6222* (INB), *J. Bittner 1427* (MO), *J. Bittner 1766* (INB, MO), *F. Quesada 1402* (INB).

Ceradenia phloiocharis L.E.Bishop
Epiphytic herbs. Distribution in PILA 2300–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama, Ecuador. Records: *G. Davidse 25393* (MO), *G. Davidse 28979* (CR, MO), *G. Davidse 28980* (MO).

Ceradenia pilipes (Hook.) L.E.Bishop
Epiphytic herbs. Distribution in PILA 2700–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Colombia to Bolivia. Records: *A. Rojas 3233* (INB), *G. Davidse 25930* (MO), *G. Herrera 3428* (INB, MO).

□ **ε-PILA *Ceradenia podocarpa*** (Maxon) L.E.Bishop
Epiphytic herbs. Distribution in PILA 1600–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5381* (CR, INB, MO).

Ceradenia tristis A.R.Sm.
Epiphytic herbs. Distribution in PILA 2800–2900 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Rojas 3239* (INB, MO).

Cochlidium rostratum (Hook.) Maxon ex C.Ch.
Epiphytic herbs. Distribution in PILA 300–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Fernández 1068* (CR, INB), *G. Davidse 28781* (MO), *G. Herrera 3424* (MO), *G. Herrera 5183* (CR, MO), *G. Herrera 5391* (CR, INB), *G. Herrera 6162* (CR, INB, MO), *H. Schmidt 649* (INB), *J. Bittner 1516* (MO), *J. Bittner 1796* (INB, MO), *J. Bittner 1797* (INB, MO), *F. Quesada 1411* (INB), *R. Aguilar 1166* (INB, MO).

Cochlidium serrulatum (Sw.) L.E.Bishop
Facultatively epiphytic herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *A. Fernández 856* (CR, INB, MO).

Ctenitis equestris (Kunze) Ching
Terrestrial herbs. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Honduras to El Salvador, Costa Rica to Colombia. Records: *D. Santamaría 3733* (INB).

Ctenitis hemsleyana (Baker ex Hemsl.) Copel.
Terrestrial herbs. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 5473* (BM, INB, MO, PMA), *G. Herrera 5970* (CR, INB, MO), *M. Moraga 497* (CR, INB).

Ctenitis melanosticta (Kunze) Copel.
Terrestrial herbs. Distribution in PILA 200–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *D. Santamaría 6145* (BM, INB, MO, PMA).

Didymochlaena truncatula (Sw.) J.Sm.
Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture, dense thicket. Global distribution: Mexico to Argentina, Lesser Antilles, Greater Antilles, Asia, Africa, Madagascar. Records: *A.K. Monro 5699* (BM, INB, MO, PMA), *A.K. Monro 6166* (PMA), *A. Soto 298* (INB), *D. Santamaría 5974* (BM, INB, MO, PMA), *D. Santamaría 6159* (BM, INB, MO, PMA), *D. Santamaría 6785* (BM, INB, MO, PMA), *D. Santamaría 7225* (BM, INB, MO, PMA), *D. Santamaría 7452* (PMA), *D. Solano 4284* (BM, INB, MO, PMA), *D. Solano 4311* (BM, INB, MO, PMA), *D. Solano 4887* (BM, INB, MO, PMA), *G. Davidse 28446* (CR, MO), *G. Davidse 28512* (CR, MO), *L. Acosta 2293* (INB), *R. Villalobos 279* (CR, INB, MO).

Dryopteris flaccisquama A.Rojas
Epiphytic herbs. Distribution in PILA 1500–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *G. Davidse 28853A* (MO), *G. Davidse 29236* (CR, MO), *G. Herrera 5493* (INB), *M. Grayum 10289* (INB, MO).

Dryopteris nubigena Maxon & C.V.Morton
Terrestrial herbs. Distribution in PILA 3400–3500 m, páramo. Global distribution: Mexico to Panama. Records:

E. Alfaro 3319 (INB), *G. Davidse 26018* (MO).

Dryopteris patula (Sw.) Underw.

Facultatively epiphytic herbs. Distribution in PILA 0–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles. Records: *F. Quesada 1672* (CR, INB).

Dryopteris wallichiana (Spreng.) Hyl.

Terrestrial herbs. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina, Greater Antilles, Asia, Pacific Islands. Records: *A.K. Monro 5288* (BM, INB, MO), *A. Rojas 3264* (CR, INB), *G. Davidse 23874* (CR, MO), *G. Davidse 25707* (CR, MO), *G. Davidse 25971* (CR, MO), *G. Davidse 28694* (CR, MO), *G. Herrera 3732* (INB, MO), *M. Moraga 440* (CR, INB, MO), *M. Valerio 160* (CR, MO).

Elaphoglossum adrianae A.Rojas

Epiphytic herbs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5462* (INB), *G. Herrera 5480* (INB).

Elaphoglossum affine (M.Martens & Galeotti) T.Moore
Epiphytic herbs. Distribution in PILA 3400–3500 m, páramo. Global distribution: Mexico to Venezuela. Records: *G. Davidse 25336* (CR), *G. Davidse 29349* (CR).

Elaphoglossum alfredii Rosenst.

Facultatively epiphytic herbs. Distribution in PILA 2100–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3409* (MO).

Elaphoglossum auripilum Christ

Epiphytic herbs. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 872* (CR), *G. Herrera 5348* (INB), *G. Herrera 5472* (INB), *G. Herrera 5893* (CR), *F. Quesada 1418* (CR).

Elaphoglossum baquianorum A.Rojas

Epiphytic herbs. Distribution in PILA 2900–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Rojas*

3208 (INB).

Elaphoglossum barbatum (H.Karst.) Hieron.

Epiphytic herbs. Distribution in PILA – m. Global distribution: Elevation unknown. Mexico, Costa Rica to Peru. Records: *A. Rojas 3203* (INB).

Elaphoglossum bellermannianum (Klotzsch) T.Moore
Epiphytic herbs. Distribution in PILA 1500–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Venezuela. Records: *G. Davidse 28783* (CR).

Elaphoglossum biolleyi Christ

Facultatively epiphytic herbs. Distribution in PILA 1000–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández 1046* (INB), *A. Fernández 871* (INB), *D. Santamaría 5761* (BM, INB, MO, PMA), *D. Solano 4004* (BM, INB, MO, PMA), *G. Davidse 25175* (CR), *G. Davidse 28619* (CR), *G. Davidse 28794* (CR), *G. Herrera 5362* (INB), *G. Herrera 5503* (INB), *G. Herrera 5971* (CR), *F. Quesada 1443* (INB), *M. Moraga 345* (MO), *M. Moraga 458* (INB).

ε-PILA *Elaphoglossum bittneri* A.Rojas

Epiphytic herbs. Distribution in PILA 200–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 709* (INB), *J. Bittner 1824* (INB).

Elaphoglossum boquetense Mickel

Epiphytic herbs. Distribution in PILA 1100–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Panama to Venezuela. Records: *A. Fernández 762* (INB), *J. Dwyer 7706* (MO).

Elaphoglossum boragineum (Sodiolo) Christ

Epiphytic herbs. Distribution in PILA 600–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 10687,1* (BM, INB, MO, PMA).

Elaphoglossum brenesii Mickel

Epiphytic herbs. Distribution in PILA 300–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak

forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 4399 (INB), *E. Alfaro* 2195 (INB), *L. Angulo* 151 (CR), *L. Angulo* 152 (INB).

Elaphoglossum caricifolium Mickel

Facultatively epiphytic herbs. Distribution in PILA 1200–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *G. Herrera* 5936 (CR), *F. Quesada* 1447 (CR).

Elaphoglossum caroliae Mickel

Epiphytic herbs. Distribution in PILA 1200–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 793 (INB), *A. Rodríguez* 10654 (BM, INB, MO, PMA), *D. Solano* 4002 (BM, INB, MO, PMA), *G. Davidse* 28796a (MO), *G. Herrera* 2823 (MO), *G. Herrera* 5448 (INB), *G. Herrera* 5959 (CR).

Elaphoglossum castaneum (Baker) Diels

Epiphytic herbs. Distribution in PILA 2200–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *G. Davidse* 26159 (CR), *F. Quesada* 1925 (INB), *F. Quesada* 1996 (INB).

Elaphoglossum ciliatum (C.Presl) T.Moore

Facultatively epiphytic herbs. Distribution in PILA 400–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *G. Herrera* 5239 (CR), *G. Herrera* 5298 (MO), *G. Herrera* 6202 (CR).

Elaphoglossum cismense Rosenst.

Epiphytic herbs. Distribution in PILA 1600–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10876 (BM, INB, MO, PMA), *G. Davidse* 28793 (MO), *G. Herrera* 5482,1 (INB).

Elaphoglossum conspersum Christ

Facultatively epiphytic herbs. Distribution in PILA 1900–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rojas* 3257 (INB), *B. Gamboa* 592,1 (INB), *E. Alfaro* 1335 (INB), *G. Davidse* 23922 (CR, MO), *G. Davidse* 25875 (MO), *G. Davidse* 25917 (CR), *G. Davidse* 28825 (MO), *G. Davidse* 28971 (MO), *G. Davidse* 29031 (MO), *J. Bittner* 1798 (INB), *F. Quesada* 1412 (CR), *F. Quesada* 1619 (INB), *M. Moraga* 343 (CR), *M. Moraga* 439

(INB).

Elaphoglossum coriifolium Mickel

Facultatively epiphytic herbs. Distribution in PILA 1400–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Kress* 94-4264 (MO).

Elaphoglossum costaricense Christ

Facultatively epiphytic herbs. Distribution in PILA 700–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 5938 (CR).

Elaphoglossum coto-brusense A.Rojas

Epiphytic herbs. Distribution in PILA 1600–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *M. Moraga* 510 (CR).

Elaphoglossum cotoi A.Rojas

Terrestrial herbs. Distribution in PILA 2000–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *F. Quesada* 1464 (CR), *M. Moraga* 303 (INB).

Elaphoglossum curtii Rosenst.

Epiphytic herbs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera* 5487 (INB).

Elaphoglossum cuspidatum (Willd.) T.Moore

Facultatively epiphytic herbs. Distribution in PILA 1900–2500 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *F. Quesada* 1432 (INB), *M. Moraga* 333 (INB).

Elaphoglossum davidsei Mickel

Facultatively epiphytic herbs. Distribution in PILA 2300–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rojas* 3212 (CR), *G. Davidse* 25479 (CR), *G. Davidse* 25843 (CR), *G. Davidse* 28653 (CR), *G. Davidse* 28936 (CR), *F. Quesada* 1423 (CR, INB, MO).

Elaphoglossum decoratum (Kunze) T.Moore

Facultatively epiphytic herbs. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 870 (CR), *A. Fernández* 989 (CR), *A. Rodríguez* 10996 (BM, INB, MO, PMA), *G. Herrera* 5961 (CR).

Elaphoglossum engelii (H.Karst.) Christ
Epiphytic herbs. Distribution in PILA 3200–3400 m, páramo. Global distribution: Mexico to Venezuela, Greater Antilles. Records: *G. Davidse* 25952 (CR).

Elaphoglossum entecnum Mickel
Terrestrial herbs. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 29125A (MO).

Elaphoglossum erinaceum (Fée) T.Moore
Facultatively epiphytic herbs. Distribution in PILA 1000–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Venezuela, Greater Antilles Lesser Antilles. Records: *A. Fernández* 852 (INB), *D. Solano* 4141 (BM, INB, MO, PMA), *D. Solano* 4173 (BM, INB, MO, PMA), *G. Davidse* 28731 (MO), *G. Davidse* 28795 (MO), *G. Davidse* 29104 (MO), *J. Bittner* 1862 (INB), *F. Quesada* 1421,1 (INB), *M. Moraga* 519 (INB), *R. Villalobos* 235 (INB).

Elaphoglossum eximiiforme Mickel
Epiphytic herbs. Distribution in PILA 1200–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Belize, Costa Rica, Panama, Bolivia. Records: *G. Davidse* 28796 (CR), *F. Quesada* 1420 (INB), *F. Quesada* 1573 (INB), *F. Quesada* 1962 (INB), *L.D. Gómez* 22284 (MO).

Elaphoglossum eximium (Mett.) Christ
Facultatively epiphytic herbs. Distribution in PILA 700–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil. Records: *A. Rodríguez* 10695 (BM, INB, MO, PMA), *A. Rodríguez* 11051 (BM, INB, MO, PMA), *A. Rojas* 839 (CR), *G. Davidse* 29150 (CR), *J. Bittner* 1755 (INB), *J. Bittner* 1925 (INB), *M. Moraga* 485 (CR).

Elaphoglossum fournierianum L.D.Gómez
Facultatively epiphytic herbs. Distribution in PILA 2400–3400 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rojas* 3217 (INB).

Elaphoglossum furfuraceum (Mett. ex Kuhn) Christ
Facultatively epiphytic herbs. Distribution in PILA 700–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in

transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Rojas* 3241 (INB), *B. Gamboa* 1738 (INB), *E. Alfaro* 1328 (INB), *E. Alfaro* 3324 (INB), *G. Davidse* 23921 (CR, MO), *G. Davidse* 23923 (CR, MO), *G. Davidse* 23943 (CR, MO), *G. Davidse* 25346 (CR), *G. Davidse* 25373 (CR), *G. Davidse* 25918 (CR), *G. Davidse* 29251 (CR), *G. Davidse* 29356 (CR), *G. Davidse* 29415 (MO), *G. Herrera* 3636 (INB), *J. Bittner* 1424 (MO), *J. Bittner* 1446 (MO), *M. Moraga* 433 (CR).

Elaphoglossum glabellum J.Sm.
Epiphytic herbs. Distribution in PILA 500–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, El Salvador to French Guyana, Greater Antilles, Lesser Antilles. Records: *A. Rojas* 3268 (CR), *F. Quesada* 1634 (INB), *M. Moraga* 308 (CR), *M. Moraga* 488 (CR).

Elaphoglossum gloeorrhizum Mickel
Facultatively epiphytic herbs. Distribution in PILA 1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras, Costa Rica, Venezuela. Records: *A. Chacón* 492 (INB), *G. Davidse* 28777 (MO), *G. Davidse* 28972 (CR), *G. Davidse* 29074 (CR), *M. Moraga* 326 (CR).

Elaphoglossum hammelianum A.Rojas
Epiphytic herbs. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 739 (CR), *G. Herrera* 2702 (INB), *G. Herrera* 5219 (MO), *G. Herrera* 5234 (MO), *G. Herrera* 6001 (CR), *H. Schmidt* 620 (INB).

Elaphoglossum heterochroum Mickel
Epiphytic herbs. Distribution in PILA 200–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rojas* 3226 (CR), *G. Davidse* 28622 (CR), *F. Quesada* 1446 (CR), *M. Moraga* 332 (CR).

Elaphoglossum hoffmannii (Mett. ex Kuhn) Christ
Facultatively epiphytic herbs. Distribution in PILA 1900–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *A. Rojas* 3222 (CR), *G. Davidse* 23944 (CR, MO), *G. Davidse* 25953 (MO), *G. Davidse* 28741 (CR), *G. Davidse* 28797 (MO), *G. Davidse* 29215 (CR), *M. Moraga* 311 (MO).

Elaphoglossum inaequalifolium (Jenman) C.Chr.

Terrestrial herbs. Distribution in PILA 2000–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, El Salvador, Costa Rica to Bolivia, Greater Antilles. Records: *M. Moraga 441* (INB).

Elaphoglossum killipianum Mickel

Epiphytic herbs. Distribution in PILA 1100–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 592,2* (INB), *G. Davidse 28384* (CR), *G. Davidse 28385* (MO), *F. Quesada 1633* (INB), *F. Quesada 1655* (INB), *F. Quesada 1656* (INB), *M. Moraga 346* (INB).

Elaphoglossum lanceiforme Mickel

Epiphytic herbs. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera 5321* (CR).

Elaphoglossum latifolium (Sw.) J.Sm.

Facultatively epiphytic herbs. Distribution in PILA 200–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Davidse 29211* (MO), *J. Bittner 1336* (MO), *J. Bittner 1448* (MO).

Elaphoglossum lehmannianum Christ

Epiphytic herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: El Salvador to Panama. Records: *G. Davidse 23878* (MO), *M. Moraga 442* (INB).

Elaphoglossum leporinum L.D.Gómez

Epiphytic herbs. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *E. Alfaro 3323* (INB), *G. Davidse 26044* (CR), *G. Davidse 29348* (CR).

Elaphoglossum lingua (C.Presl) Brack.

Facultatively epiphytic herbs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Azofeifa 149* (CR), *A. Azofeifa 151* (INB), *A. Fernández 1072* (CR), *G. Davidse 28779* (CR),

M. Moraga 312 (CR), *M. Moraga 518* (CR).

Elaphoglossum lonchophyllum (Fée) T.Moore

Epiphytic herbs. Distribution in PILA 1600–1700 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera 5216* (MO), *J. Bittner 1452* (MO).

Elaphoglossum longicrura Christ

Epiphytic herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *E. Alfaro 5555* (BM).

Elaphoglossum longistipitatum A.Rojas

Epiphytic herbs. Distribution in PILA 1700–2500 m, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *J. Bittner 1803* (INB).

Elaphoglossum minutum (Pohl ex Fée) T.Moore

Terrestrial herbs. Distribution in PILA 100–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica to Brazil, Greater Antilles. Records: *A. Chacón 562* (INB), *A. Rojas 3223* (CR), *G. Davidse 28780* (CR).

Elaphoglossum moranii Mickel

Epiphytic herbs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rojas 2375* (MO), *F. Quesada 1654* (INB).

Elaphoglossum muscosum (Sw.) T.Moore

Facultatively epiphytic herbs. Distribution in PILA 600–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica to Bolivia, Greater Antilles. Records: *A. Chacón 488* (INB), *A. Rojas 3227* (CR), *A. Rojas 3249* (INB), *G. Davidse 28772* (MO), *F. Quesada 1460* (INB), *L. Angulo 155* (INB), *M. Moraga 444* (INB).

ε-PILA *Elaphoglossum nigrosquama* A.Rojas

Epiphytic herbs. Distribution in PILA 1600–1800 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 6069* (INB).

Elaphoglossum obovatum Mickel

Epiphytic herbs. Distribution in PILA 1700–2500 m,

cloud forest, low elevation oak forest. Global distribution: Belize, Costa Rica. Records: *A. Chacón 573* (INB), *A.K. Monro 5590* (BM, INB, MO, PMA), *D. Santamaría 3750* (INB), *E. Alfaro 772* (INB), *F. Quesada 1430* (INB).

Elaphoglossum paleaceum (Hook. & Grev.) Sledge
Epiphytic herbs. Distribution in PILA 400–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles, Atlantic Islands, Africa. Records: *B. Gamboa 594* (INB), *M. Moraga 461* (INB).

Elaphoglossum papillosum (Baker) Christ
Facultatively epiphytic herbs. Distribution in PILA 2400–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *A. Rojas 3213* (INB), *G. Davidse 29390* (MO), *F. Quesada 1424* (CR), *M. Moraga 330* (CR).

ε-PILA *Elaphoglossum pardalinum* Mickel
Epiphytic herbs. Distribution in PILA: Elevation unknown. Endemic to Panama. Records: *Maxon 5718* (US).

This species has been documented from and adjacent to the buffer zone of the park but is still considered endemic to PILA.

Elaphoglossum peltatum (Sw.) Urb.
Terrestrial herbs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11062* (BM, INB, MO, PMA), *E. Alfaro 5608* (BM), *G. McPherson 15909* (MO).

Elaphoglossum petiolatum (Sw.) Urb.
Epiphytic herbs. Distribution in PILA 100–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *M. Moraga 513* (CR).

Elaphoglossum pilosius Mickel
Facultatively epiphytic herbs. Distribution in PILA 2900–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *A.K. Monro 4164* (BM), *A.K. Monro 5283* (BM), *E. Alfaro 3315* (INB), *G. Davidse 26017* (CR), *G. Davidse 29324* (CR), *G. Davidse 29350* (CR).

Elaphoglossum proliferans Maxon & C.V.Morton
Epiphytic herbs. Distribution in PILA 600–1600 m,

low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *F. Quesada 1694* (INB).

Elaphoglossum proximum (J.Bommer) Christ
Epiphytic herbs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *R. Aguilar 1107* (INB).

Elaphoglossum russelliae Mickel
Epiphytic herbs. Distribution in PILA 2300–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama, Peru. Records: *G. Davidse 24007* (CR, MO).

Elaphoglossum silencioanum A.Rojas
Epiphytic herbs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28940* (CR), *F. Quesada 1421* (INB), *M. Moraga 327* (INB).

Elaphoglossum smithii (Baker) Christ
Facultatively epiphytic herbs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama, Venezuela, Greater Antilles, Lesser Antilles. Records: *F. Quesada 1657* (INB).

Elaphoglossum squamipes (Hook.) T.Moore
Facultatively epiphytic herbs. Distribution in PILA 1500–3600 m, páramo. Global distribution: Mexico to Brazil. Records: *A.K. Monro 4165* (BM), *A. Rojas 3197* (CR), *G. Davidse 25269* (CR), *G. Davidse 25834* (CR).

Elaphoglossum squamocostatum A.Rojas
Epiphytic herbs. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Costa Rica, Panama, Ecuador, Lesser Antilles, Greater Antilles. Records: *M. Moraga 517* (INB).

Elaphoglossum talamancanum A.Rojas
Epiphytic herbs. Distribution in PILA 700–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Rojas 3255* (CR), *F. Quesada 1452* (CR), *M. Moraga 432* (INB).

Elaphoglossum tectum (Humb. & Bonpl. ex Willd.) T.Moore
Facultatively epiphytic herbs. Distribution in PILA 1100–

2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 2815 (MO).

Elaphoglossum terrestre A.Rojas

Terrestrial herbs. Distribution in PILA 2200–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico, Costa Rica. Records: *A. Rojas* 3256 (CR), *F. Quesada* 1453 (INB), *M. Moraga* 428 (CR).

Elaphoglossum tonduzii H.Christ

Epiphytic herbs. Distribution in PILA 900–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28429 (CR), *G. Davidse* 28489 (CR).

Elaphoglossum variabile A.Rojas

Facultatively epiphytic herbs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Fernández* 1016 (INB), *G. Herrera* 5235 (MO), *G. Herrera* 5290 (CR), *G. Herrera* 5406 (INB), *G. Herrera* 6198 (INB).

Enterosora bishopii A.Rojas

Epiphytic herbs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 5910 (CR, INB).

Enterosora parietina (Klotzsch) L.E.Bishop

Epiphytic herbs. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles. Records: *G. Davidse* 28814 (MO), *G. Herrera* 2668 (INB, MO).

Enterosora percrassa (Baker) L.E.Bishop

Epiphytic herbs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1069 (INB), *M. Moraga* 508 (INB, MO).

Enterosora trifurcata (L.) L.E.Bishop

Epiphytic herbs. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest.

Global distribution: Mexico to Suriname, Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Chacón* 285 (CR, MO), *A.K. Monro* 5464 (BM, INB, MO, PMA).

Grammitis bryophila (Maxon) F.Seym.

Epiphytic herbs. Distribution in PILA 500–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *G. Herrera* 5444 (CR, INB), *G. Herrera* 5457 (INB, MO), *J. Bittner* 1767 (INB, MO), *F. Quesada* 1586 (INB), *R. Aguilar* 1167 (INB, MO), *R. Aguilar* 1169 (INB, MO).

Grammitis leptopoda (C.H.Wright) Copel.

Epiphytic herbs. Distribution in PILA – m. Global distribution: Elevation unknown. Costa Rica, Venezuela, Guyanas. Records: *E. Alfaro* 3390 (INB).

Grammitis marginella (Sw.) Sw.

Epiphytic herbs. Distribution in PILA 1800–2000 m, cloud forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *R. Aguilar* 1165 (INB).

Grammitis melanotrichia (Baker) Lellinger

Epiphytic herbs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela, Guyanas. Records: *G. Herrera* 2799 (MO).

Grammitis paramicola L.E.Bishop

Epiphytic herbs. Distribution in PILA 2300–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Honduras, Costa Rica, Colombia, Peru, Venezuela. Records: *A. Rojas* 3240 (INB, MO), *G. Davidse* 25914 (MO), *G. Davidse* 29020 (MO), *G. Herrera* 3749 (INB, MO).

Lastreopsis exculta (Mett.) Tindale

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Belize, Costa Rica to Ecuador, Venezuela, Bolivia. Records: *G. Herrera* 3034 (MO).

Lastreopsis killipii (C.Chr. & Maxon) Tindale

Terrestrial herbs. Distribution in PILA 1900–2200 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela, Bolivia. Records: *G. Herrera* 5513 (INB).

Lellingeria myosuroides (Sw.) A.R.Sm. & R.C.Moran

Epiphytic herbs. Distribution in PILA 0–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Ecuador, Venezuela, Greater Antilles, Africa, Madagascar. Records: *G. Davidse 25945* (MO).

Lellingeria suprasculpta (Christ) A.R.Sm. & R.C.Moran
Epiphytic herbs. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Bittner 1858* (INB, MO).

Lellingeria tmesipteris (Copel.) A.R.Sm. & R.C.Moran
Epiphytic herbs. Distribution in PILA 2900–3400 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse 25968* (MO).

Lomariopsis maxonii (Underw.) Holttum
Hemi-epiphytic herbs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *G. Herrera 5263* (MO).

Megalastrum acrosorum (Hieron.) A.R.Sm. & R.C.Moran
Terrestrial herbs. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez 10926* (BM, INB, MO, PMA), *A. Rodríguez 11465* (BM, INB, MO, PMA), *D. Santamaría 6553* (BM, INB, MO, PMA).

Megalastrum atrogriseum (Christ) A.R.Sm. & R.C.Moran
Terrestrial herbs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama, Bolivia. Records: *F. Quesada 1474* (INB), *L. Acosta 2400* (INB).

Megalastrum biseriale (Baker) A.R.Sm. & R.C.Moran
Terrestrial herbs. Distribution in PILA 0–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *M. Grayum 10315* (CR, MO).

Based on morphological and molecular characters, Christenhusz (pers. comm.) states that *M. macrotheca* (Fée) A.R. Sm. & R.C. Moran is an endemic of Guadeloupe (French West Indies) and that this taxon should be considered under the name *M. biseriale*.

Megalastrum lunense (Christ) A.R.Sm. & R.C.Moran
Terrestrial herbs. Distribution in PILA 1400–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia, Bolivia. Records: *A. Fernández 993* (CR, INB), *G. Herrera 5410* (INB), *G. Herrera 5488* (INB, MO), *G. Herrera 6064* (CR, INB,

MO).

Megalastrum palmense (Rosenst.) A.R.Sm. & R.C.Moran
Terrestrial herbs. Distribution in PILA 1500–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5559* (BM, INB, MO, PMA), *A. Rodríguez 10715* (BM, INB, MO, PMA), *G. Herrera 6116* (INB, MO), *M. Grayum 10316* (MO).

Megalastrum subincisum (Willd.) A.R.Sm. & R.C.Moran
Terrestrial herbs. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 4230* (BM), *A. Rodríguez 10825* (BM, INB, MO, PMA), *M. Moraga 486* (INB).

Melpomene firma (J.Sm.) A.R.Sm. & R.C.Moran
Epiphytic herbs. Distribution in PILA 1000–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *G. Davidse 28748* (MO), *G. Davidse 29158* (MO), *G. Herrera 6156* (INB), *H. Schmidt 648* (INB, MO), *F. Quesada 1462* (INB), *F. Quesada 1665* (INB), *F. Quesada 1668* (INB), *L. Angulo 154* (INB), *M. Moraga 445* (INB), *M. Moraga 502* (INB).

Melpomene flabelliformis (Poir.) A.R.Sm. & R.C.Moran
Facultatively epiphytic herbs. Distribution in PILA 2400–3500 m, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica to Brazil, Greater Antilles, Africa, Madagascar. Records: *A.K. Monro 4094* (BM), *A. Rojas 3199* (INB), *A. Rojas 3228* (CR, INB), *G. Davidse 25268* (MO), *G. Davidse 25338* (MO), *G. Davidse 25839* (MO), *G. Davidse 25895* (MO), *G. Davidse 25940* (MO), *G. Davidse 28986* (MO), *G. Herrera 3691* (INB, MO), *G. Herrera 3724* (INB, MO).

Melpomene moniliformis (Lag. ex Sw.) A.R.Sm. & R.C.Moran
Facultatively epiphytic herbs. Distribution in PILA 2000–3800 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica to Brazil, Greater Antilles. Records: *A. Rojas 3247* (INB), *G. Davidse 25307* (MO), *G. Davidse 25358* (MO), *G. Davidse 25434* (MO), *G. Davidse 28752* (MO), *G. Davidse 29313* (MO), *G. Davidse 23894* (MO), *G. Davidse 23917* (MO), *G. Davidse 24003* (MO), *F. Quesada 1400* (CR, INB), *F. Quesada 2003* (INB), *M. Moraga 446* (CR, INB).

Melpomene pilosissima (M.Martens & Galeotti) A.R.Sm.

& R.C.Moran

Epiphytic herbs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico, Costa Rica to Brazil. Records: *A. Rojas* 3248 (INB), *B.B. Klitgaard* 827 (BM, INB, MO), *G. Davidse* 29310 (MO), *G. Herrera* 5182 (CR, MO), *M. Moraga* 447 (INB).

Melpomene xiphopteroides (Liebm.) A.R.Sm. & R.C.Moran
Epiphytic herbs. Distribution in PILA 1300–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 935 (INB), *G. Davidse* 25735 (MO), *G. Davidse* 29230 (MO), *G. Davidse* 29231 (MO), *F. Quesada* 1401 (INB), *M. Moraga* 448 (INB).

Mickelia oligarchica (Baker) R.C.Moran, Labiak & Sundue

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Bolivia. Records: *A.K. Monro* 4320 (BM), *A. Rodríguez* 11048 (BM, INB, MO, PMA), *A. Rodríguez* 11322 (BM, INB, MO, PMA), *D. Santamaría* 5895 (BM, INB, MO, PMA), *G. Herrera* 6209 (INB).

Mickelia pergamentacea (Maxon) R.C.Moran, Labiak & Sundue

Terrestrial herbs. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 3118 (MO).

Microgramma percussa (Cav.) de la Sota

Epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez* 11380 (BM, INB, MO, PMA), *J. Bittner* 1339 (MO).

Micropolypodium hyalinum (Maxon) A.R.Sm.

Epiphytic herbs. Distribution in PILA 500–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama, Ecuador. Records: *A. Fernández* 960 (CR, INB), *A. Rojas* 3210 (CR, INB), *G. Davidse* 25211 (MO), *G. Davidse* 25896 (MO), *G. Davidse* 28883 (MO), *G. Davidse* 28900 (MO), *G. Davidse* 29038 (MO), *F. Quesada* 1580 (INB), *M. Moraga* 344 (INB).

Micropolypodium nanum (Fée) A.R.Sm.

Epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Venezuela to Brazil. Records: *F. Quesada* 1629 (INB).

Micropolypodium setulosum (Rosenst.) A.R.Sm.

Epiphytic herbs. Distribution in PILA 300–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10700 (BM, INB, MO, PMA), *J. Bittner* 1795 (INB, MO), *J. Bittner* 1860 (INB, MO), *M. Moraga* 504 (INB), *R. Aguilar* 1168 (INB).

Micropolypodium taenifolium (Jenman) A.R.Sm.

Epiphytic herbs. Distribution in PILA 100–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela to French Guyana, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11022 (BM, INB, MO, PMA), *E. Alfaro* 2194 (INB), *G. Herrera* 5390 (CR, INB), *J. Bittner* 1863 (INB, MO), *F. Quesada* 1667 (INB), *M. Chinchilla* 24 (INB), *M. Grayum* 10340 (INB, MO).

Micropolypodium truncicola (Klotzsch) A.R.Sm.

Epiphytic herbs. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Colombia to Bolivia. Records: *A. Fernández* 857 (CR, INB), *A.K. Monro* 5597 (BM, INB, MO, PMA), *A. Rodríguez* 10994 (BM, INB, MO, PMA), *A. Rodríguez* 11063 (BM, INB, MO, PMA).

e ***Nephrolepis cordifolia*** (L.) C.Presl

Facultatively epiphytic herbs. Distribution in PILA 500–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: USA to Brazil, Pacific Islands, Greater Antilles, Lesser Antilles, Asia. Records: *E. Navarro* 194 (INB), *G. Davidse* 28495 (MO), *F. Quesada* 1463 (INB), *F. Quesada* 1630 (INB), *M. Chinchilla* 193 (INB).

Nephrolepis pectinata (Willd.) Schott

Cola de quetzal. (CR).

Facultatively epiphytic herbs. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 1025 (CR, INB, MO), *A. Fernández* 943 (CR, INB, MO), *A. Rodríguez* 11050 (BM, INB, MO, PMA),

D. Santamaría 6673 (BM, INB, MO, PMA), *J. Bittner* 1487 (MO).

Nephrolepis pendula (Raddi) J.Sm.

Epiphytic herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11306 (BM, INB, MO, PMA), *G. Herrera* 5386 (INB, MO), *F. Quesada* 1638 (INB, MO), *R. J. Schmalzel* 364 (MO).

Niphidium crassifolium (L.) Lellinger

Epiphytic herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11297 (BM, INB, MO, PMA), *A. Rodríguez* 11955 (BM, INB, MO, PMA), *D. Santamaría* 6149 (BM, INB, MO, PMA), *D. Santamaría* 7479 (PMA), *D. Solano* 4114 (BM, INB, MO, PMA), *G. Davidse* 28523 (CR), *G. Herrera* 5895 (CR, INB, MO), *G. Herrera* 6003 (CR, INB, MO).

Niphidium nidulare (Rosenst.) Lellinger

Epiphytic herbs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano* 5140 (BM, INB, MO, PMA), *F. Quesada* 1465 (CR, INB, MO), *L. Angulo* 145 (CR, INB, MO), *R. Villalobos* 277 (CR, INB, MO).

Oleandra articulata (Sw.) C.Presl

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *J. Bittner* 1509 (MO).

Oleandra bradei Christ

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández* 1009 (INB), *S. Bridgewater* 4202 (BM, INB, MO, PMA).

Oleandra lehmannii Maxon

Terrestrial herbs. Distribution in PILA 700–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 10882 (BM, INB, MO, PMA), *B. Hammel* 17615 (INB, MO).

Peculuma divaricata (Fournier) Mickel & Beitel

Facultatively epiphytic herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *D. Solano* 3820 (BM, INB, MO, PMA), *J. Bittner* 1843 (INB, MO).

Peculuma dulce (Poir) F.C.Assis & Salino

Epiphytic herbs. Distribution in PILA –1000 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to Venezuela. Records: *G. Herrera* 5297 (CR, INB, MO).

Peculuma eurybasis (C.Chr.) M.G.Price

Facultatively epiphytic herbs. Distribution in PILA 800–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia, Greater Antilles. Records: *A. Rojas* 3261 (INB), *A. Rojas* 835 (CR, INB), *A. Soto* 1258 (INB), *G. Davidse* 25840 (MO), *F. Quesada* 1445 (INB, MO), *M. Moraga* 449 (INB), *M. Moraga* 450 (INB), *T. Croat* 27023 (MO).

Phanerophlebia macrosora (Baker) Underw.

Terrestrial herbs. Distribution in PILA 1800–2600 m, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Panama. Records: *D. Santamaría* 7252 (BM, INB, MO, PMA), *M. Valerio* 197 (CR, MO).

Phlebodium pseudoaureum (Cav.) Lellinger

Facultatively epiphytic herbs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Lesser Antilles, Greater Antilles. Records: *A. Azofeifa* 150 (INB), *A. Rodríguez* 10787 (BM, INB, MO, PMA), *C. Hamilton* 3628 (MO), *C. Hamilton* 3877 (MO), *D. Santamaría* 4391 (INB), *D. Santamaría* 5898 (BM, INB, MO, PMA), *G. Herrera* 6050 (CR, INB, MO), *J. Bittner* 1889 (INB, MO), *F. Quesada* 1466 (CR, INB, MO), *F. Quesada* 1467 (INB, MO), *L. Acosta* 2325 (INB), *L. Angulo* 146 (CR, INB), *M. Chinchilla* 195 (CR, INB), *M. Moraga* 520 (INB), *R. Villalobos* 261 (CR, MO).

Pleopeltis complanata (Weath.) E.G.A.Hooper

Epiphytic herbs. Distribution in PILA 800–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Dwyer* 495 (MO), *J. A. Duke* 13638 (MO), *J. Bittner* 1532 (INB, MO), *L. Angulo* 150 (CR, INB), *R. Aguilar* 1145 (INB), *R. J. Schmalzel* 35 (MO), *T. Croat* 26925

(MO).

Pleopeltis furfuracea (Schltdl. & Cham.) A.R.Sm. & Tejero

Facultatively epiphytic herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Peru, Bolivia. Records: *A. Rodríguez 11361* (BM, INB, MO, PMA). Uses: medicinal.

Pleopeltis macrolepis (Maxon) A.R.Sm. & Tejero

Epiphytic herbs. Distribution in PILA 2000–3500 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4156* (BM, INB, MO), *A.K. Monro 5245* (BM, INB, MO), *A.K. Monro 5306* (BM, INB, MO), *A. Rojas 3267* (CR, INB), *B. Gamboa 597* (INB, MO), *G. Davidse 25459* (CR, MO), *G. Davidse 25769* (CR, MO), *G. Davidse 24004* (MO), *F. Quesada 1392* (CR, INB, MO), *M. Moraga 437* (CR, INB), *M. Moraga 438* (INB), *S. Knapp 9844* (BM, INB, MO), *S. Knapp 9932* (BM, INB, MO).

Pleopeltis montigenum (Maxon) A.R.Sm. & Tejero

Epiphytic herbs. Distribution in PILA 1600–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Herrera 6240* (CR, INB, MO), *G. Herrera 6241* (CR, INB, MO), *M. Moraga 314* (INB, MO).

Pleopeltis myriolepis (Christ) A.R.Sm. & Tejero

Epiphytic herbs. Distribution in PILA 1100–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11030* (BM, INB, MO, PMA), *A. Rojas 837* (CR, INB), *G. Herrera 6163* (CR, INB, MO), *R. J. Schmalzel 34* (MO).

Pleopeltis plebei (Schltdl. & Cham.) A.R.Sm. & Tejero

Facultatively epiphytic herbs. Distribution in PILA 1200–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rojas 3266* (INB), *B. Gamboa 598* (INB, MO), *D. Santamaria 4392* (INB), *F. Quesada 1457* (CR, INB, MO).

Pleopeltis polypodioides (L.) E.G.Andrews & Windham

Epiphytic herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest,

cloud forest, low elevation oak forest. Global distribution: USA to Venezuela, Lesser Antilles, Greater Antilles, Lesser Antilles. Records: *C. Hamilton 3883* (MO).

Pleopeltis remota (Desv.) A.R.Sm.

Facultatively epiphytic herbs. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Fernández 717* (CR, INB, MO), *A. Rodríguez 10575* (BM, INB, MO, PMA), *A. Rodríguez 10626* (BM, INB, MO, PMA), *J. Bittner 1890* (INB, MO), *J. Bittner 1908* (CR, INB, MO), *M. Grayum 10359* (CR, INB, MO).

Pleopeltis rosei (Maxon) A.R.Sm. & Tejero

Facultatively epiphytic herbs. Distribution in PILA –1200 m. Global distribution: Mexico, Honduras, Costa Rica. Records: *G. Herrera 2695* (INB, MO).

Pleopeltis tico (A.Rojas) A.R.Sm.

Epiphytic herbs. Distribution in PILA 1100–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 5176* (MO), *G. Herrera 5178* (CR, INB, MO), *J. Bittner 1444* (INB, MO).

Pleopeltis wiesbaurii (Sodirol) Lellinger

Epiphytic herbs. Distribution in PILA 300–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *G. Davidse 29051* (MO), *G. Davidse 29392* (CR, MO).

Polybotrya alfredii Brade

Hemi-epiphytic herbs. Distribution in PILA 200–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Bolivia. Records: *A. Fernández 991* (CR, INB), *G. Herrera 5241* (CR, MO), *G. Herrera 6053* (CR, INB), *J. Bittner 1464* (MO), *J. Bittner 1519* (MO), *F. Quesada 1477* (CR, INB).

Polybotrya gomezii R.C.Moran

Hemi-epiphytic herbs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 10936* (BM, INB, MO, PMA), *D. Solano 4084* (BM, INB, MO, PMA).

Polypodium colpodes Kunze

Facultatively epiphytic herbs. Distribution in PILA 1700–2000 m, cloud forest. Global distribution: Mexico to Venezuela. Records: *E. Navarro 193* (INB).

Polypodium echinolepis Fée

Facultatively epiphytic herbs. Distribution in PILA 2900–2900 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *G. Herrera* 5933 (CR, INB, MO), *G. Herrera* 6005 (CR, INB).

Polypodium ursipes Moritz ex C.Ch.

Epiphytic herbs. Distribution in PILA 1700–3400 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Venezuela. Records: *A. Rojas* 3220 (CR, INB, MO), *G. Davidse* 28818 (CR, MO), *G. Davidse* 28908 (MO), *G. Davidse* 29327 (CR, MO), *F. Quesada* 1458 (INB), *F. Quesada* 1459 (CR, INB, MO), *M. Moraga* 462 (CR, INB).

Polystichum concinnum Lellinger ex Barrington

Terrestrial herbs. Distribution in PILA 1500–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica, Panama. Records: *A. Fernández* 716 (CR, INB, MO), *A.K. Monro* 4172 (BM, INB, MO), *A. Rodríguez* 10644 (BM, INB, MO, PMA), *A. Rodríguez* 10734 (BM, INB, MO, PMA), *A. Rojas* 3265 (INB), *D. Santamaría* 5683 (BM, INB, MO, PMA), *D. Santamaría* 5874 (BM, INB, MO, PMA), *G. Davidse* 28682 (CR, MO), *G. Davidse* 29118 (CR, MO), *F. Quesada* 1455 (CR, INB, MO), *M. Grayum* 10302 (INB, MO), *S. Knapp* 10063 (BM, INB).

Polystichum furnieri A.R.Sm.

Terrestrial herbs. Distribution in PILA 1600–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *G. Davidse* 25103 (MO), *G. Davidse* 25740 (MO), *G. Davidse* 25761 (MO), *G. Davidse* 24006 (MO).

Polystichum hartwegii (Klotzsch) Hieron.

Terrestrial herbs. Distribution in PILA 1800–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *J. Bittner* 1887 (INB), *J. Bittner* 1909 (INB, MO), *M. Moraga* 475 (CR, INB).

Polystichum talamancanum Barrington

Terrestrial herbs. Distribution in PILA 3000–3700 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25992 (CR).

Serpocaulon dissimile (L.) A.R.Sm.

Epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Costa Rica, Ecuador, Lesser Antilles. Records: *A. Rodríguez* 11197

(BM, INB, MO, PMA).

Serpocaulon falcaria (Kunze) A.R.Sm.

Epiphytic herbs. Distribution in PILA –900 m, mixed forest in transition to low elevation forest. Global distribution: Mexico, Honduras, Costa Rica. Records: *A. Rodríguez* 10668 (BM, INB, MO, PMA).

Stenogrammitis limula (Christ) Labiak

Epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *A. Fernández* 792 (CR, INB), *A. Rodríguez* 10661 (BM, INB, MO, PMA), *A. Rodríguez* 10678 (BM, INB, MO, PMA), *J. Bittner* 1869 (INB, MO), *M. Moraga* 501 (CR, INB).

Stigmatopteris contracta (Christ) C.Ch.

Terrestrial herbs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 992 (INB), *A. Rodríguez* 11506 (BM, INB, MO, PMA), *G. Herrera* 5226 (CR, MO).

Stigmatopteris heterophlebia (Baker) R.C.Moran

Terrestrial herbs. Distribution in PILA 300–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Peru. Records: *A. Rodríguez* 11459 (BM, INB, MO, PMA), *D. Santamaría* 6556 (BM, INB, MO, PMA), *G. Herrera* 2843 (MO).

Tectaria acerifolia R.C.Moran

Terrestrial herbs. Distribution in PILA 100–200 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 3110 (MO).

Tectaria heracleifolia (Willd.) Underw.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles, Lesser Antilles. Records: *C. Hamilton* 3629 (MO).

Tectaria incisa Cav.

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles, Lesser Antilles. Records: *G. Davidse* 28510 (CR, MO), *G. Herrera* 3116 (MO).

Tectaria nicotianifolia (Baker) C.Ch.

Terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Ecuador. Records: *G. Herrera 3052* (MO).

Tectaria rufovillosa (Rosenst.) C.Chr.

Terrestrial herbs. Distribution in PILA 0–300 m, low elevation mixed forest. Global distribution: Mexico to Panama. Records: *G. Herrera 3053* (MO).

Terpsichore alfarii (Donn.Sm.) A.R.Sm.

Epiphytic herbs. Distribution in PILA –2200 m, low elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *J. Bittner 1762* (INB, MO).

Terpsichore alsopteris (C.V.Morton) A.R.Sm.

Epiphytic herbs. Distribution in PILA 700–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *F. Quesada 1693* (INB).

Terpsichore asplenifolia (L.) A.R.Sm.

Epiphytic herbs. Distribution in PILA 500–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 10682* (BM, INB, MO, PMA), *A. Rodríguez 11035* (BM, INB, MO, PMA), *G. Davidse 28548* (MO), *G. Davidse 28918* (CR, MO), *J. Bittner 1738* (INB, MO), *F. Quesada 1936* (INB), *M. Grayum 10307* (INB, MO), *M. Moraga 322* (INB, MO), *M. Moraga 506* (CR, INB).

Terpsichore atroviridis (Copel.) A.R.Sm.

Epiphytic herbs. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *G. Herrera 5272* (CR, MO), *J. Bittner 1451* (MO), *M. Grayum 11092* (INB, MO).

Terpsichore jamesonioides (Fée) A.R.Sm.

Epiphytic herbs. Distribution in PILA 1900–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Rojas 3211* (CR, INB), *G. Davidse 25267* (CR, MO), *G. Davidse 26048A* (MO), *G. Davidse 29383* (CR, MO), *F. Quesada 2002* (INB).

Terpsichore lanigera (Desv.) A.R.Sm.

Epiphytic herbs. Distribution in PILA 700–3200 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 10645* (BM, INB, MO, PMA), *A. Rodríguez 10694* (BM, INB, MO, PMA), *A. Rojas 3207* (INB, MO), *G. Davidse 25251* (CR, MO), *G. Davidse 28917* (CR, MO), *G. Herrera 5449* (INB), *F. Quesada 1436* (INB), *F. Quesada 1666* (INB), *F. Quesada 1679* (INB).

Terpsichore longisetosa (Hook.) A.R.Sm.

Facultatively epiphytic herbs. Distribution in PILA 2400–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *A.K. Monro 4128* (BM, INB, MO), *A. Rojas 3209* (CR, INB), *A. Rojas 3252* (INB, MO), *G. Davidse 25822* (MO), *G. Davidse 28853* (MO), *G. Davidse 29254* (MO), *G. Herrera 3647* (INB), *G. Herrera 3670* (INB).

Terpsichore semihirsuta (Klotzsch) A.R.Sm.

Facultatively epiphytic herbs. Distribution in PILA 1400–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Brazil, Greater Antilles. Records: *G. Davidse 25890* (MO), *G. Davidse 28886* (MO), *G. Davidse 28938* (MO), *G. Davidse 29009* (MO), *G. Davidse 29398* (MO).

Terpsichore subtilis (Kunze ex Klotzsch) A.R.Sm.

Epiphytic herbs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Mexico to Ecuador, Venezuela. Records: *M. Moraga 505* (INB).

Terpsichore zeledoniana (Lellinger) A.R.Sm.

Epiphytic herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10693* (BM, INB, MO, PMA), *D. Santamaría 5813* (BM, INB, MO, PMA), *J. Bittner 1852* (INB, MO), *F. Quesada 1404* (INB).

Zygophlebia cornuta (Lellinger) L.E.Bishop

Epiphytic herbs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5254* (CR, MO).

Zygophlebia mathewsii (Kunze ex Mett.) L.E.Bishop

Epiphytic herbs. Distribution in PILA 1800–2200 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *G. Herrera 6238* (INB),

F. Quesada 1631 (INB).

Zygophlebia sectifrons (Kunze ex Mett.) L.E. Bishop
Epiphytic herbs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela, Greater Antilles, Lesser Antilles. Records: *G. Herrera 2678* (INB, MO), *G. Herrera 5186* (CR, INB, MO), *G. Herrera 5426* (CR, INB), *H. Schmidt 650* (INB), *R. Aguilar 1117* (INB, MO).

PTERIDACEAE

Adiantum andicola Liebm.
Terrestrial herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez 9848* (INB), *C. Hamilton 3621* (MO), *C. Hamilton 3874* (MO), *G. Davidse 29168* (CR, MO).

Adiantum humile Kunze
Terrestrial herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Belize to Bolivia, Lesser Antilles. Records: *G. Herrera 3099* (MO).

Adiantum poiretii Wikstr.
Terrestrial herbs. Distribution in PILA 1500–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Argentina, Chile, Greater Antilles, Africa, Madagascar, India. Records: *C. Hamilton 760* (MO).

Adiantum seemannii Hook.
Terrestrial herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Colombia. Records: *G. Herrera 3095* (MO).

Anetium citrifolium (L.) Splitg.
Epiphytic herbs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Herrera 3108* (MO).

Cheilanthes harrisii Maxon
Terrestrial herbs. Distribution in PILA 1700–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras, Costa Rica, Greater Antilles. Records: *F. Quesada 1473* (CR, INB, MO).

Jamesonia alstonii A.F. Tryon
Terrestrial herbs. Distribution in PILA 2800–3800 m, high elevation oak forest, páramo. Global distribution: Mexico

to Peru, Bolivia. Records: *A.K. Monro 5156* (BM, INB, MO), *E. Alfaro 3295* (INB), *G. Davidse 25281* (MO).

Jamesonia congesta (Christ) Christenh.
Terrestrial herbs. Distribution in PILA 1000–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Colombia. Records: *G. Davidse 28667* (CR, MO), *G. Herrera 3406* (MO), *G. Herrera 3746* (INB, MO), *J. Bittner 1757* (INB, MO), *M. Moraga 336* (CR, INB, MO).

Jamesonia flexuosa (Maxon) Christenh.
Terrestrial herbs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A.K. Monro 5210* (BM), *A. Rojas 3235* (INB), *B.B. Klitgaard 815* (BM, INB), *E. Alfaro 3781* (INB), *G. Davidse 23893* (CR, MO), *G. Davidse 25392* (CR, MO), *G. Davidse 25893* (CR, MO), *G. Davidse 28720* (CR, MO), *F. Quesada 1433* (INB).

Jamesonia glaberrima (Humb. & Bonpl.) Christenh.
Terrestrial herbs. Distribution in PILA 700–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández 736* (CR, INB, MO), *A. Rodríguez 10677* (BM, INB, MO, PMA), *D. Santamaría 5692* (BM, INB, MO, PMA), *D. Santamaría 6656* (BM, INB, MO, PMA), *J. Bittner 1836* (INB, MO).

□ ***Jamesonia rotundifolia*** Fée
Terrestrial herbs. Distribution in PILA 2700–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Colombia, Peru. Records: *A.K. Monro 4091* (BM, INB, MO), *A.K. Monro 5165* (BM, INB, MO), *G. Davidse 25982* (CR, MO), *G. Davidse 26045* (CR, MO), *G. Davidse 29316* (CR, MO).

Jamesonia scammaniae A.F. Tryon
Terrestrial herbs. Distribution in PILA 2400–3800 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *A. Chacón 522* (MO), *A.K. Monro 4081* (BM, INB), *A. Rojas 3243* (INB), *E. Alfaro 3296* (INB), *G. Davidse 23842* (CR, MO), *G. Davidse 25297* (CR, MO), *G. Davidse 25401* (CR, MO), *G. Davidse 25980* (CR, MO), *G. Davidse 26025* (CR, MO), *G. Davidse 26031* (CR, MO), *G. Davidse 29318* (CR, MO), *G. Herrera 3705* (INB, MO), *S. Knapp 9853* (BM, INB), *S. Knapp 9939* (BM, INB, MO).

Jamesonia warszewiczii (Mett.) Christenh.
Terrestrial herbs. Distribution in PILA 2700–3400 m,

high elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *A. Rojas* 3238 (INB), *E. Alfaro* 3318 (INB), *G. Davidse* 23916 (CR, MO), *G. Davidse* 25989 (MO), *G. Davidse* 26020 (CR, MO), *G. Davidse* 29325 (CR, MO).

Mildella intramarginalis (Kaulf. ex Link) Trevis.

Terrestrial herbs. Distribution in PILA 500–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Pacific Islands. Records: *C. Hamilton* 3622 (MO).

Pityrogramma ferruginea (Kunze) Maxon

Terrestrial herbs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Peru. Records: *C. Hamilton* 3623 (MO).

Polytaenium cajenense (Desv.) Benedict

Epiphytic herbs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 917 (CR), *A. Rodríguez* 11216 (BM, INB, MO, PMA), *D. Santamaría* 6200 (BM, INB, MO, PMA), *G. Herrera* 5260 (MO).

Polytaenium chlorosporum (Mickel & Beitel) E.H.Crane

Epiphytic herbs. Distribution in PILA 1000–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *A. Fernández* 947 (INB).

Polytaenium lineatum (Sw.) J.Sm.

Epiphytic herbs. Distribution in PILA 600–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 721 (CR), *A. Fernández* 738 (CR), *A. Rodríguez* 10577 (BM, INB, MO, PMA), *A. Rojas* 856 (CR), *G. Davidse* 29186 (CR), *G. Herrera* 5900 (CR), *J. Bittner* 1921 (INB), *M. Moraga* 492 (INB).

Pteris altissima Poir.

Terrestrial herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *C. Hamilton* 3616 (MO), *G. Herrera* 3103 (MO), *J. Bittner* 1886 (INB, MO).

Pteris livida Mett.

Terrestrial herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Fernández* 676 (CR, INB, MO).

Pteris muricata Hook.

Terrestrial herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru, Bolivia. Records: *C. Hamilton* 766 (MO).

Pteris muricatopedata Arbeláez

Terrestrial herbs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Costa Rica to Bolivia. Records: *F. Quesada* 1470 (INB).

Pteris muricella Fée

Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Venezuela. Records: *R. Villalobos* 278 (INB, MO).

Pteris navarrensensis Christ

Terrestrial herbs. Distribution in PILA 400–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama, Peru. Records: *J. Bittner* 1763 (INB, MO), *F. Quesada* 1449 (CR, INB, MO).

Pteris paucinervata Fée

Terrestrial herbs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *C. Hamilton* 3615 (MO).

Pteris podophylla Sw.

Terrestrial herbs. Distribution in PILA 900–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *F. Quesada* 1690 (INB), *L. Acosta* 2353 (INB).

Pteris quadriaurita Retz.

Terrestrial herbs. Distribution in PILA 0–1800 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *F. Quesada 1454* (INB, MO).

Pterozonium brevifrons (A.C.Sm.) Lellinger

Terrestrial herbs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to the Guyanas. Records: *G. Herrera 3265* (INB), *G. Herrera 3265* (MO).

Radiovittaria gardneriana (Fée) E.H.Crane

Epiphytic herbs. Distribution in PILA 1700–2500 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Brazil, Greater Antilles. Records: *A. Fernández 817* (INB), *F. Quesada 1959* (INB).

Radiovittaria minima (Baker) E.H.Crane

Epiphytic herbs. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *G. Davidse 28482* (MO).

Radiovittaria moritziana (Mett.) E.H.Crane

Epiphytic herbs. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia, Greater Antilles. Records: *G. Davidse 28402* (MO), *G. Davidse 28730* (MO), *G. Davidse 28902* (MO).

Radiovittaria remota (Fée) E.H.Crane

Epiphytic herbs. Distribution in PILA 800–1600 m, mixed forest in transition to low elevation forest. Global distribution: Guatemala to Suriname, Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Fernández 998* (INB).

Radiovittaria stipitata (Kunze) E.H.Crane

Epiphytic herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Soto 308* (INB), *G. Herrera 6205* (INB), *J. Bittner 1478* (MO), *F. Quesada 1422* (INB), *F. Quesada 1669* (INB), *M. Moraga 318* (INB), *M. Moraga 499* (INB), *Quesada 1422* (MO).

Vittaria dimorpha Müll.Berol.

Epiphytic herbs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records:

A. Fernández 1034 (INB), *A. Fernández 925* (CR), *A. Fernández 925* (INB), *G. Herrera 2699* (INB), *G. Herrera 6028* (CR), *G. Herrera 6028* (INB), *G. Herrera 6028* (MO).

Vittaria graminifolia Kaulf.

Epiphytic herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Uruguay, Greater Antilles, Lesser Antilles. Records: *A. Chacón 581* (INB), *A. Fernández 746* (CR), *A. Fernández 746* (INB), *A. Fernández 956* (INB), *A. Rodríguez 10637* (BM, INB, MO, PMA), *A. Rodríguez 10983* (BM, INB, MO, PMA), *A. Rodríguez 11909* (BM, INB, MO, PMA), *A. Rojas 3218* (CR), *A. Rojas 3218* (INB), *D. Santamaría 5738* (BM, INB, MO, PMA), *D. Solano 3852* (BM, INB, MO, PMA), *G. Davidse 23962* (CR, MO), *G. Davidse 25276* (CR), *G. Davidse 25276* (MO), *G. Davidse 25734* (CR), *G. Davidse 25734* (MO), *G. Davidse 25827* (CR), *G. Davidse 25827* (MO), *G. Davidse 28530* (MO), *G. Davidse 28588* (CR), *G. Davidse 28588* (MO), *G. Davidse 29085* (CR), *G. Davidse 29085* (MO), *G. Davidse 29207* (CR), *G. Herrera 2699* (MO), *G. Herrera 6155* (CR), *G. Herrera 6155* (INB), *J. Bittner 1479* (MO), *J. Bittner 1486* (MO), *J. Bittner 1759* (INB), *J. Bittner 1759* (MO), *F. Quesada 1575* (INB), *M.A. Thomas 163* (MO), *M. Moraga 309* (CR), *M. Moraga 514* (CR), *M. Moraga 514* (INB).

Vittaria lineata (L.) Sm.

Epiphytic herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Uruguay, Greater Antilles, Lesser Antilles. Records: *Blum 2572* (MO), *G. Herrera 6180* (CR), *G. Herrera 6180* (INB), *G. Herrera 6180* (MO).

SACCOLOMATACEAE

Saccoloma inaequale (Kunze) Mett.

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to French Guyana, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 10786* (BM, INB, MO, PMA), *A. Rodríguez 10941* (BM, INB, MO, PMA).

GYMNOSPERMS

CUPRESSACEAE

e *Cupressus lusitanica* Mill.

Ciprés, Cipres mexicano (CR).

Terrestrial trees. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, cultivated throughout the Neotropics. Records: *C. Hamilton 3636* (MO), *C. Hamilton 712* (MO). Uses: medicinal.

PODOCARPACEAE

ψ *Podocarpus oleifolius* D.Don ex Lamb.

Ciprés, Cipresillo, Ciprés blanco, Ciprés amarillo, Coloba, Lorito, Cobola (CR).

Terrestrial trees. Distribution in PILA 1200–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia. Records: *D. Solano 3909* (BM, INB, MO, PMA), *G. Davidse 25121* (MO), *G. Davidse 25220* (CR, MO), *G. Davidse 29376* (CR, MO), *G. Herrera 3417* (INB, MO), *G. Herrera 6159* (CR, INB, MO), *F. Quesada 1480* (INB, MO), *L.D. Gómez 22248* (MO), *L. González 1665* (INB), *R. Aguilar 1102* (INB, MO), *R. J. Schmalzel 1337* (MO). Regional conservation status: Near Threatened (NT).

ZAMIACEAE

Zamia fairchildiana L.D.Gómez

Zamia (CR).

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez, Feb. 21, 2008* (Field obs.), *D. Solano, Oct. 28, 2007* (Field obs.).

MAGNOLIID ANGIOSPERMS & CHLORANTHALES

ARISTOLOCHIACEAE

Aristolochia sprucei Mast.

Terrestrial lianas. Distribution in PILA 0–400 m, low elevation mixed forest. Global distribution: Costa Rica to Brazil. Records: *G. Herrera 5243* (MO).

Aristolochia tonduzii O.C.Schmidt

Curarina, Tripa de cusuco (CR).

Terrestrial lianas. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Belize to Colombia, Peru. Records: *M. Moraga 73* (INB).

ANNONACEAE

Annona pittieri Donn.Sm.

Anona de montaña, Anona (CR), Anon de montaña, Chirimoya, Nonita de montaña, Nonita de mono (P).

Terrestrial trees. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5936* (BM, INB, MO, PMA), *D. Santamaría 6000* (BM, INB, MO, PMA), *D. Santamaría 7213* (BM, INB, MO, PMA), *S. Bridgewater 4223* (BM, INB, MO, PMA).

Cymbopetalum costaricense (Donn.Sm.) Saff.

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Honduras to Panama. Records: *D. Santamaría 6732* (BM, INB, MO, PMA), *G. Herrera 3111* (MO).

Desmopsis maxonii Saff.

Terrestrial shrubs or trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11630* (BM, INB, MO, PMA), *A. Rodríguez 11801* (BM, INB, MO, PMA), *A. Rodríguez 11829* (BM, INB, MO, PMA), *E. Fletes 198* (INB, MO), *G. Davidse 28462* (CR, MO), *J. Dwyer 524* (MO), *L. Acosta 2284* (INB), *L. Angulo 162* (CR, INB).

Desmopsis microcarpa R.E.Fr.

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *F. González 446* (INB), *G. Herrera 3107* (MO).

Desmopsis oerstedii Saff.

Guineo (CR).

Terrestrial shrubs or trees. Distribution in PILA 700–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *F. González 450* (INB).

Gutteria amplifolia Triana & Planch.

Anonillo, Anonillo negro (CR).

Terrestrial trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *F. Quesada 1547* (INB).

Gutteria costaricensis R.E.Fr.

Terrestrial trees. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5227* (CR, INB, MO), *E. Alfaro 5447* (BM, INB, MO).

• ***ε-PILA Gutteria crassivenia*** N.Zamora & Maas

Terrestrial trees. Distribution in PILA 1600–1600 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera & A. Chacón 2746* (INB, U).

Gutteria diospyroides Baill.

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A.K. Monro 4257* (BM, INB), *A.K. Monro 5671* (BM, INB, MO, PMA), *A.K. Monro 6016* (PMA), *A.K. Monro 6206* (PMA), *D. Santamaría 7233* (BM, INB, MO, PMA), *G. Gallardo 315* (CR, INB).

Gutteria dolichopoda Donn.Sm.

Terrestrial trees. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Panama. Records: *D. Santamaría 6148* (BM, INB, MO, PMA), *D. Santamaría*

6186 (BM, INB, MO, PMA), *D. Solano 4412* (BM, INB, MO, PMA), *D. Solano 5054* (BM, INB, MO, PMA), *G. Herrera 3329* (INB, MO).

• ***ε-PILA Gutteria herrerana*** N.Zamora & Maas

Terrestrial trees. Distribution in PILA –1200 m. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 8401* (CR, L).

ψ ***Gutteria oliviformis*** Donn.Sm.

Anonillo, Malagueto (CR).

Terrestrial trees. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5958* (INB, MO), *J. González 828* (CR), *J. González 828* (MO), *L. Acosta 2411* (INB). Global conservation status: Vulnerable (VU), B1ab(i,iii).

• ***ε-PILA Gutteria pachycarpa*** Erkens & N.Zamora

Terrestrial trees. Distribution in PILA 1300–1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 5227* (INB, MO, U).

ψ ***Gutteria talamancana*** N.Zamora & Maas

Terrestrial trees. Distribution in PILA 400–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 588* (PMA), *A.K. Monro 4925* (BM, INB, MO), *E. Alfaro 5445* (BM, INB, MO), *G. Herrera 5249* (CR, INB, MO). Global conservation status: Endangered (EN), B1ab(i,iii).

Gutteria verrucosa R.E.Fr.

Anonillo, Malagueto, Malaqueto (CR).

Terrestrial trees. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Ecuador. Records: *J. González 828* (INB, MO), *M. Chinchilla 181* (INB).

Unonopsis storkii Standl. & L.O.Williams

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3024* (MO).

CHLORANTHACEAE

ψ ***Hedyosmum bonplandianum*** Kunth

Aguillo (CR), Sauquillo (P).

Terrestrial shrubs or trees. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *D. Santamaría* 6306 (BM, INB, MO, PMA), *D. Santamaría* 7541 (PMA), *D. Solano* 2923 (INB). Regional conservation status: Least Concern (LC).

Hedyosmum brenesii Standl.

Terrestrial shrubs or trees. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Honduras to Panama. Records: *G. Gallardo* 80 (INB).

Hedyosmum costaricense C.E. Wood ex W.C. Burger

Tucuico, Aguillo (CR), Sauquillo (P).

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 6344 (PMA), *D. Santamaría* 5905 (BM, INB, MO, PMA), *D. Santamaría* 6619 (BM, INB, MO, PMA), *D. Santamaría* 6715 (BM, INB, MO, PMA), *D. Santamaría* 7813 (PMA), *D. Solano* 4728 (BM, INB, MO, PMA), *D. Solano* 4747 (BM, INB, MO, PMA), *D. Solano* 4762 (BM, INB, MO, PMA), *H. Schmidt* 625 (INB, MO).

Hedyosmum goudotianum Solms

Agüillo, Tucuico (CR), Sauquillo (P).

Terrestrial shrubs or trees. Distribution in PILA 200–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez* 10866 (BM, INB, MO, PMA), *D. Solano* 5483 (PMA), *G. Davidse* 28865 (CR, MO), *G. Davidse* 29081 (MO), *G. McPherson* 15898 (MO).

HERNANDIACEAE

Hernandia stenura Standl.

Chayotillo, Zopilote, Muñeco (CR).

Terrestrial shrubs. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala, Honduras to Panama. Records: *A. Rodríguez*, *Jul. 22, 2007 (Field obs.)*, *N. Zamora*, *Aug. 8, 2008 (Field obs.)*. Uses: timber.

LAURACEAE

Aiouea costaricensis (Mez) Kosterm.

Ira, Ira hoja menuda, Manglillo, Ira mangle, Quizarrá,

Mangle, Ira hoja grande (CR).

Terrestrial shrubs or trees. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 6006 (INB, MO), *J. González* 827 (CR, INB, MO), *L. Acosta* 2327 (INB), *M. Alfaro* 141 (INB), *M. Alfaro* 25 (INB). Uses: timber.

Aiouea talamancensis W.C. Burger

Terrestrial shrubs or trees. Distribution in PILA 1600–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 29178 (MO).

ψ ***Beilschmiedia alloiophylla*** (Rusby) Kosterm.

Quizarrá, Aguacatón (CR).

Terrestrial trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *F. Quesada* 1673 (CR, INB). Regional conservation status: Near Threatened (NT).

Beilschmiedia costaricensis (Mez & Pittier) C.K. Allen

Aguacatón, Irör (CR).

Terrestrial trees. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru, Venezuela. Records: *G. Davidse* 29213 (MO), *J. González* 790 (CR, INB, MO), *K. E. Blum* 2624 (MO).

Beilschmiedia pendula (Sw.) Hemsl.

Quizarrá, Quizarrá rosado, Tiquizarra, Chanco blanco, Comenegro, Tigísaro, Volador (CR), Aguacatillo, Torpedo (P).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Peru, Caribbean. Records: *N. Zamora*, *Aug. 8, 2008 (Field obs.)*. Uses: timber.

Beilschmiedia towarensis (Meisn.) Sach. Nishida

Terrestrial trees. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *E. Alfaro* 5385 (BM, MO), *J. González* 800 (CR, INB, MO).

Cinnamomum brenesii (Standl.) Kosterm.

Aguacatillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Gallardo 285* (CR, INB, MO).

Cinnamomum costaricanum (Mez & Pittier) Kosterm.
Terrestrial shrubs or trees. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *G. Davidse 28505* (CR, MO).

Cinnamomum hammelianum (W.C.Burger) Lorea-Hern. ex J.A.González & Hammel
Aguacate de potrero (CR).

Terrestrial trees. Distribution in PILA 300–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 710* (CR, INB).

Cinnamomum tonduzii (Mez) Kosterm.
Aguacatillo blanco, Quizarrá quina (CR).

Terrestrial trees. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2821* (MO).

ψ ***Cinnamomum triplinerve*** (Ruiz & Pav.) Kosterm.
Aguacatillo (CR), Sigua, Sigua blanca (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Venezuela, French Guyana, Brazil, Paraguay, Antilles. Records: *A. Soto 1275* (INB). Regional conservation status: Near Threatened (NT).

ψ ***Nectandra cufodontisii*** (O.C.Schmidt) C.K.Allen
Quizarrá, Sigua amarillo, Yema de huevo, Ira, Ira amarillo, Ira colorado, Ira rosa (CR).

Terrestrial trees. Distribution in PILA 1200–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5251* (BM, INB, PMA), *E. Alfaro 4672* (INB), *G. Davidse 25210* (CR, MO), *G. Herrera 5928* (INB, MO). Uses: timber. Global conservation status: Near Threatened (NT).

ψ ***Nectandra membranacea*** (Sw.) Griseb.
Quizarrá, Aguacatillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Honduras to Bolivia, Venezuela, Antilles, Trinidad, Brazil. Records: *A. Soto 1254* (INB), *F. González 465* (INB), *L.D. Gómez 23132* (MO). Regional conservation status: Near Threatened (NT).

Nectandra purpurea (Ruiz & Pav.) Mez
Terrestrial trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Bolivia, Venezuela, French Guyana, Brazil. Records: *L. Acosta 2402* (INB).

ψ ***Nectandra reticulata*** Mez
Quizarrá zopilote, Quizarrá, Quina, Zopilote (CR).

Terrestrial trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil. Records: *L.D. Gómez 23304* (MO). Uses: timber. Regional conservation status: Near Threatened (NT).

Nectandra salicina C.K.Allen
Aguacatillo, Ira, Ira coralillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 900–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *C. von Hagen 2094* (MO). Conservation status: Near Threatened (NT), ver 2.3 (1994).

Nectandra smithii C.K.Allen
Terrestrial shrubs or trees. Distribution in PILA 1400–1800 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 3901* (BM, INB, PMA). Conservation status: Vulnerable (VU), A1c, B1+2c ver 2.3 (1994).

Nectandra umbrosa (Kunth) Mez
Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Honduras to Ecuador. Records: *A. Rodríguez 11324* (BM, INB, MO, PMA).

Ocotea atirrensis Mez & Donn.Sm.
Quizarrá canela, Tiquizarrá macho, Quizarrá, Quizarrá canelo, Quizarrá quina, Quizarrá barcino, Aguacatillo, Sigua, Sigua canelo, tiquisaro (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11558* (BM, INB, PMA), *A. Rodríguez 11666* (BM, INB, PMA), *D. Santamaría 5958* (BM, INB, PMA), *D. Santamaría 6828* (BM, INB, PMA), *D. Solano 4880* (BM, INB, PMA).

Ocotea austinii C.K.Allen

Ira rosa, Ira colorado, Ira, Quizarrá barcino (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras, Costa Rica, Panama. Records: *A. Chacón 575* (INB, MO), *G. Davidse 25203* (CR, MO), *G. Herrera 3426* (MO), *G. Herrera 5456* (CR, INB, MO), *G. Herrera 5891* (CR, INB, MO), *G. Herrera 6141* (CR, INB, MO), *G. Herrera 6216* (INB, MO), *G. McPherson 15942* (MO), *M. Grayum 10369* (CR, INB, MO). Uses: timber.

Ocotea brenesii Standl.

Terrestrial shrubs or trees. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4816* (INB).

Ocotea dendrodaphne Mez

Aguacate de mono, Aguacate de mico, Quizarrá, Quizarrá canelo, Ira zopilote, Ira zoncho (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *F. Solís 27* (CR, INB).

Ocotea dentata van der Werff

Terrestrial trees. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11355* (BM, INB, PMA), *G. Gallardo 46* (CR, INB, MO). Uses: timber.

ψ ***Ocotea endresiana*** Mez

Ira mangle, Sigua oloroso, Mararñón, Ira rosa, Sigua amarillo, Sigua (CR).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4265* (MO), *R. Aguilar 1084* (INB, MO). Uses: timber. Global conservation status: Vulnerable (VU), B1ab(i,iii).

Ocotea fulvescens Standl. & L.O.Williams

Terrestrial trees. Distribution in PILA 2800–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Colombia to Peru, Venezuela. Records: *G. Herrera 3684* (INB, MO).

Ocotea glaucosericea Rohwer

Terrestrial trees. Distribution in PILA 700–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11861* (BM, INB, PMA), *C. von Hagen 2128* (MO), *E. Alfaro 2603* (INB), *L. Angulo 328* (INB). Uses: timber. Conservation status: Near Threatened (NT), ver 2.3 (1994).

Ocotea gomezii W.C.Burger

Terrestrial shrubs or trees. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 5551* (MO), *G. Herrera 5103* (INB, MO), *G. Herrera 6027* (CR, INB, MO).

Ocotea gordonii van der Werff

Terrestrial shrubs or trees. Distribution in PILA 1100–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *A.K. Monro 4260* (BM, INB, MO), *A.K. Monro 4902* (MO), *A.K. Monro 5936* (PMA), *A.K. Monro 6011* (PMA), *D. Solano 5430* (PMA), *J. Lezcano 324* (PMA).

Ocotea guatemalensis Lundell

Terrestrial trees. Distribution in PILA 300–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Honduras, Costa Rica, Panama. Records: *D. Solano 4147* (BM, INB, PMA), *G. Herrera 5404* (INB, MO), *G. Herrera 6078* (CR, INB, MO), *G. Herrera 6137* (CR, INB, MO).

Ocotea haberi van der Werff

Quizarrá amarillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *F. González 740* (INB, PMA), *L. Martínez 379* (INB, PMA), *D. Santamaría 7801* (INB, PMA), *D. Santamaría 7816* (INB, MO, PMA), *D. Solano 5704* (INB, PMA).

Ocotea holdridgeana W.C.Burger

Aguacatillo blanco, Quizarrá baboso (CR).

Terrestrial trees. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse 29106* (MO), *L.D. Gómez 21496* (MO).

ψ *Ocotea insularis* (Meisn.) Mez

Aguacatillo asca, aguacatón, ira amarillo, ira marañón, pocora, ira rosa, quizarrá (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Nicaragua to Peru. Records: *C. von Hagen 2117* (MO), *L. Acosta 2342* (INB). Uses: timber. Regional conservation status: Near Threatened (NT).

Ocotea laetevirens Standl. & Steyerf.

Terrestrial shrubs or trees. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *F. González 479* (INB), *G. Herrera 5916* (CR, INB), *L. González 3625* (INB).

Ocotea lentii W.C.Burger

Terrestrial shrubs or trees. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11064* (BM, INB, PMA), *D. Santamaría 5875* (BM, INB, PMA), *D. Solano 4196* (BM, INB, PMA).

Ocotea leucoxydon (Sw.) Laness.

Terrestrial shrubs or trees. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Peru, Venezuela, Trinidad, Guayanas, Brazil, Antilles. Records: *R. Aguilar 1151* (INB, MO).

Ocotea mollicella (S.F.Blake) van der Werff

Terrestrial shrubs or trees. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 5101* (BM, INB, PMA), *E. Alfaro 3821* (INB), *G. Davidse 28555* (CR, MO), *L. González 3629* (INB).

Ocotea oblonga (Meisn.) Mez

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Honduras, Costa Rica to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Greater Antilles. Records: *G. Herrera 3342* (INB, MO). Uses: timber.

Ocotea patula van der Werff

Terrestrial trees. Distribution in PILA 900–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Endemic to Costa Rica. Records: *D. Solano 5021* (BM, INB, PMA), *D. Solano 5269* (BM, INB, PMA).

Ocotea pentagona Mez

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *A. Rodríguez 11758* (BM, INB, PMA), *A. Rodríguez 11857* (BM, INB, PMA), *A. Rodríguez 11901* (BM, INB, PMA), *G. Herrera 3332* (INB, MO).

Ocotea praetermissa van der Werff

Aguacatillo, Aguacatillo blanco (CR).

Terrestrial shrubs or trees. Distribution in PILA 1400–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3481* (INB), *E. Alfaro 3814* (INB), *E. Alfaro 4629* (INB), *G. Davidse 28547* (MO), *G. Davidse 28551* (MO), *G. Davidse 28627* (MO), *G. Davidse 28809* (MO), *G. Davidse 28922* (MO), *G. Davidse 28924* (MO), *G. Herrera 3681* (INB), *F. Quesada 1595* (INB), *L. Angulo 200* (INB, MO), *L. Angulo 238* (INB), *L. González 3602* (INB), *M.A. Thomas 1602* (MO), *M. Moraga 368* (INB, MO), *R. Aguilar 5228* (CR, INB, MO).

Ocotea pseudopalmana W.C.Burger

Terrestrial shrubs or trees. Distribution in PILA 1600–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *C. Galdames 3420* (MO), *G. Davidse 25152* (CR, MO), *G. Davidse 25259* (MO), *G. Davidse 28550* (MO), *G. Davidse 28906* (MO), *G. Davidse 29417* (MO). Uses: timber.

Ocotea rufescens van der Werff

Terrestrial trees. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 5279* (CR, MO), *R. Aguilar 1134* (INB, MO).

ψ *Ocotea stenoneura* Mez & Pittier

Quizarrá amarillo, Yayo, Aguacatillo, Quizarrá canelo, Yaya (CR).

Terrestrial trees. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera 5947* (CR, INB, MO), *G. Herrera 6035* (CR, INB, MO), *G. Herrera 6074* (CR, INB, MO), *F. Quesada 1622* (CR, INB), *F. Quesada 1661* (INB), *F. Quesada 1881* (INB), *N. Zamora 4231* (BM, INB, PMA), *R. Aguilar 1176* (INB, MO). Uses: timber. Regional conservation status: Near Threatened (NT).

***Ocotea tenera* Mez & Donn.Sm.**

Aguacatillo, Quizarrá lentisco, Quizarrá (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala, Costa Rica. Records: *A. Rodríguez 11249* (BM, INB, PMA), *D. Santamaría 6205* (BM, INB, PMA), *D. Solano 4399* (BM, INB, PMA).

***Ocotea tonduzii* Standl.**

Ira rosa, Ira, Ira marañón, Ira amarillo (CR).

Terrestrial trees. Distribution in PILA 1400–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *L. Acosta 2423* (INB).

Según Hammel esa especie corresponde a *Ocotea insularis*.

***Ocotea valerioana* (Standl.) W.C.Burger**

Terrestrial shrubs or trees. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5180* (BM, INB, PMA).

***Ocotea viridiflora* Lundell**

Terrestrial shrubs or trees. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Proctor 31916* (MO). Conservation status: Vulnerable (VU), D2 ver 2.3 (1994).

***Ocotea whitei* Woodson**

Ira patón, Ira rosa, Sigua amarilla, Bambito colorado, Bambito, Ira, Ira colorado, Sigua (CR), Sigua (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Panama, Ecuador. Records: *A. Rodríguez 11934* (BM, INB, PMA), *G. Davidse 28520* (MO), *F. Quesada 1674* (INB), *L. Acosta 2377* (INB), *M. Alfaro 145* (INB), *T.*

Croat 26934 (MO). Uses: timber.

***Persea americana* Mill.**

Aguacate, Aguacatillo, Avocado, Amó, Jamó (CR), Aguacate, Avocado (P).

Terrestrial trees. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Peru, introduced in Greater Antilles, Lesser Antilles, Africa. Records: *G. Davidse 28401* (MO). Uses: timber, medicinal.

***Persea cuneata* Meisn.**

Terrestrial shrubs or trees. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *D. Solano 4474* (INB).

***Persea donnellsmithii* Mez**

Terrestrial trees. Distribution in PILA 2500–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Herrera 3710* (INB, MO).

***Persea obtusifolia* L.E.Kopp**

Aguacatillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1800–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 542* (INB), *D. Solano 4012* (BM, INB, MO, PMA), *E. Alfaro 3293* (INB), *E. Alfaro 3405* (INB), *G. Davidse 26063* (MO), *G. Davidse 29372* (MO), *G. Davidse 29381* (MO), *F. Quesada 1834* (INB), *L. González 1654* (INB). Conservation status: Vulnerable (VU), B1+2c ver 2.3 (1994).

***Persea rigens* C.K.Allen**

Aguacatillo (CR).

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera 3324* (INB). Uses: timber.

ψ *Persea schiedeana* Nees

Aguacate de montaña, Aguacatón, Aguacate de monte, Yas (CR).

Terrestrial trees. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *G. Herrera 5924* (CR, INB, MO), *G. Herrera 5926* (CR, INB, MO). Uses: timber. Regional conservation status: Least Concern (LC).

Pleurothyrium golfodulcense W.C.Burger & N.Zamora
Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11789* (INB), *D. Santamaría 6926* (INB).

ψ ***Pleurothyrium palmanum*** (Mez & Donn.Sm.) Rohwer
Ira zopilote, Quizarrá zopilote, Plomo, Reseco, Tostado, Ira mangle, Quizarrá, Ira, Ira zoncho (CR).

Terrestrial trees. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *L. Acosta 2291* (INB), *R. Aguilar 1146* (INB, MO), *R. Aguilar 1173* (MO). Uses: timber. Global conservation status: Vulnerable (VU), B1ab(i,iii).

MAGNOLIACEAE

ψ ***Magnolia gloriensis*** (Pittier) Govaerts
Anonillo, Magnolia (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *E. Alfaro 5580* (BM, MO). Uses: timber. Regional conservation status: Near Threatened (NT).

Magnolia morii (Lozano) Govaerts
Terrestrial trees. Distribution in PILA 1200–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4975* (BM, INB, MO).

Magnolia panamensis A.Vázquez & Iltis
Terrestrial trees. Distribution in PILA 2200–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 25207* (CR, MO), *G. McPherson 15882* (MO). Conservation status: Endangered (EN), B1+2c ver 2.3 (1994).

ψ ***Magnolia poasana*** (Pittier) Dandy
Candelillo, Magnolia (CR).

Terrestrial trees. Distribution in PILA 500–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *F. Solís 30* (CR, MO). Uses: timber. Global conservation status: Vulnerable (VU), B1ab(i,iii).

ψ ***Magnolia sororum*** Seibert
Magnolia, Magnolia amarilla (CR).

Terrestrial trees. Distribution in PILA 1300–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2818* (MO), *L. González 3595* (INB). Uses: timber. Global conservation status: Vulnerable (VU), B1ab(i,iii).

MONIMIACEAE

Mollinedia costaricensis Donn.Sm.
Limoncillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4433* (BM), *A.K. Monro 4912* (BM, INB), *A.K. Monro 4998* (BM, INB).

Mollinedia viridiflora Tul.

Terrestrial shrubs or trees. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Mexico to Colombia. Records: *A. De Sedas 556* (PMA), *A. De Sedas 581* (PMA), *A. Fernández 694* (CR, INB), *A. Fernández 808* (CR, INB, MO), *A.K. Monro 4350* (BM, INB, MO), *A.K. Monro 4988* (BM, MO), *A.K. Monro 5453* (BM, INB, MO, PMA), *A.K. Monro 6058* (PMA), *A.K. Monro 6225* (PMA), *A.K. Monro 6253* (PMA), *A. Rodríguez 10801* (BM, INB, PMA), *A. Rodríguez 11274* (BM, INB, PMA), *A. Rodríguez 11339* (BM, INB, PMA), *A. Rodríguez 11842* (BM, INB, PMA), *A. Rodríguez 11885* (BM, INB, PMA), *A. Rodríguez 11920* (BM, INB, PMA), *A. Soto 361* (INB), *C. von Hagen 2064* (MO), *D. Santamaría 3736* (INB), *D. Santamaría 5724* (BM, INB, MO, PMA), *D. Santamaría 5884* (BM, INB, PMA), *D. Santamaría 6994* (BM, INB, PMA), *D. Santamaría 7011* (BM, INB, PMA), *D. Santamaría 7226* (BM, INB, PMA), *D. Santamaría 7608* (PMA), *D. Santamaría 7671* (PMA), *D. Santamaría 7702* (PMA), *D. Solano 3861* (BM, INB, PMA), *D. Solano 4434* (BM, INB, PMA), *D. Solano 4994* (BM, INB, PMA), *D. Solano 5027* (BM, INB, PMA), *E. Alfaro 2184* (CR, INB), *E. Alfaro 4671* (INB), *E. Alfaro 5448* (BM, INB, MO), *G. Davidse 28950* (CR), *G. Gallardo 85* (INB), *L. Acosta 2329* (INB), *L. Acosta 2369* (INB), *L. Angulo 161* (INB), *L. Martínez 355* (PMA), *M. Moraga 388* (INB), *T. Croat 26948* (MO), *T. Croat 26992* (MO).

MYRISTICACEAE

Componeura mexicana (Hemsl.) J.P.Janovec
Fruta dorada, Sangre, Sangrillo, Sebo, Fruta (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *A. Chacón* 257 (CR, INB, MO).

ψ ***Otoba novogranatensis*** Moldenke

Bogamandí, Bola de oro, Campano, Escobo negro, Fruta dorada, Hoja dorada, Sebo, Yaya, Hoja plateada (CR), Miguelario, Velario, Sangrillo de montaña, Fruta dorada (P).

Terrestrial trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Ecuador. Records: *G. Herrera* 3076 (MO), *F. Quesada* 1884 (CR, INB). Uses: timber. Regional conservation status: Near Threatened (NT).

ψ ***Virola guatemalensis*** (Hemsl.) Warb.

Fruta dorada, Fruta, Mayo, Palo de mayo, Chanco, Palo de chanco, Bogamaní (CR).

Terrestrial trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A. Chacón* 194 (INB, MO), *J. González* 823 (CR, INB, MO), *M. Chinchilla* 3 (CR, INB, MO), *R. Aguilar* 1131 (INB, MO). Uses: timber. Regional conservation status: Near Threatened (NT).

Virola koschnyi Warb.

Fruta dorada, Miguelario, Fruta, Bogamaní, Candelo (CR), Fruta dorada, Sangrillo (P).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A. Rodríguez*, Feb. 20 2008 (*Field obs.*), *A. Rodríguez*, Nov. 1, 2007 (*Field obs.*), *A. Rodríguez*, Sept 28, 2007 (*Field obs.*), *A. Rodríguez*, Sept 29, 2007 (*Field obs.*). Uses: timber.

Virola sebifera Aubl.

Cotón, Miguelario, Fruta dorada, Fruta, Cotón, Shurekimo, Brok (CR), Velario colorado, Copidijo, Bogamani, Sangre (P).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Honduras to Bolivia, Venezuela, Guayanas, Brazil. Records: *D. Solano*, Oct. 25, 2007 (*Field obs.*). Uses: timber, medicinal.

ψ ***Manekia naranjoana*** (C.DC.) Callejas ex N.Zamora, Hammel & Grayum

Terrestrial twiners. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua, Costa Rica. Records: *A. Maroto* 199 (INB), *G. Herrera* 5382 (INB). Regional conservation status: Near Threatened (NT).

PIPERACEAE

Peperomia acuminata Ruiz & Pav.

Soledad (CR).

Facultatively epiphytic herbs. Distribution in PILA 2100–2400 m, cloud forest, low elevation oak forest. Global distribution: El Salvador, Costa Rica to the Guyanas. Records: *E. Alfaro* 3630 (INB), *L. Angulo* 234 (INB).

Peperomia adscendens C.DC.

Facultatively epiphytic herbs. Distribution in PILA 1400–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Peru. Records: *B. Hammel* 1399 (MO), *D. Santamaría* 5677 (BM, INB, MO, PMA), *G. Davidse* 25191 (CR), *G. Davidse* 25768 (MO), *G. Davidse* 28603 (CR), *J. F. Morales* 5820 (CR), *L. González* 1186 (INB).

Peperomia alata Ruiz & Pav.

Epiphytic herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Suriname, Bolivia, Greater Antilles, Lesser Antilles. Records: *L. Acosta* 2304 (INB).

Peperomia alpina (Sw.) A.Dietr.

Facultatively epiphytic herbs. Distribution in PILA 600–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *E. Alfaro* 3209 (INB), *E. Alfaro* 3386 (INB), *A. Chacón* 284 (CR), *A. Fernández* 691 (INB), *A.K. Monro* 5476 (BM, INB, MO, PMA), *A. Soto* 342 (INB), *D. Santamaría* 5709 (BM, INB, MO, PMA), *D. Solano* 3903 (BM, INB, MO, PMA), *D. Solano* 4149 (BM, INB, MO, PMA), *E. Alfaro* 3370 (INB), *G. Davidse* 23769 (CR, MO), *G. Davidse* 25122 (CR, MO), *G. Davidse* 25130 (CR, MO), *G. Davidse* 25692 (CR), *G. Davidse* 28788 (CR), *G. Herrera* 3412 (MO), *G. Herrera* 6148 (CR), *J. Bittner* 1811 (INB), *M.A. Thomas* 1597 (MO).

Peperomia amphitricha Trel.

Facultatively epiphytic herbs. Distribution in PILA

1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Costa Rica, Panama. Records: *B. Hammel 1414* (MO).

***Peperomia calvicaulis* C.DC.**

Epiphytic herbs. Distribution in PILA 0–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama. Records: *G. Davidse 29237* (MO), *L.D. Gómez 23092A* (MO).

***Peperomia choroniana* C.DC.**

Terrestrial herbs. Distribution in PILA 1000–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Brazil. Records: *C. von Hagen 2155* (MO), *E. Alfaro 5403* (BM).

***Peperomia cordulatiformis* Trel.**

Terrestrial herbs. Distribution in PILA 1600–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Panama, Colombia. Records: *G. Davidse 25158* (CR).

***Peperomia crispipetiola* Trel.**

Epiphytic herbs. Distribution in PILA 300–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *Gómez 23143* (CR, MO).

***Peperomia davidsoniae* Yunck.**

Terrestrial herbs. Distribution in PILA 2000–2900 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *Gentry 5890* (MO).

***Peperomia dendrophila* Schltld.**

Facultatively epiphytic herbs. Distribution in PILA 400–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, El Salvador to Venezuela, Antilles. Records: *L. Angulo 153* (INB), *J. Bittner 1924* (INB), *C. Hamilton 778* (MO), *G. Davidse 29144* (MO), *G. Davidse 29162* (MO), *A. Rodríguez 10614* (BM, INB, MO, PMA), *A. Rodríguez 10967* (BM, INB, MO, PMA), *D. Solano 4118* (BM, INB, MO, PMA), *G. Herrera 5932* (CR), *R. J. Schmalzel 1366* (MO).

***Peperomia deppeana* Schltld. & Cham.**

Epiphytic herbs. Distribution in PILA 600–1500 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Peru. Records: *D. Santamaría 5996* (BM, INB, MO, PMA).

***Peperomia distachyos* (L.) A.Dietr.**

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Nicaragua to Venezuela, Greater Antilles. Records: *D. Santamaría 5983* (BM, INB, MO, PMA), *D. Solano 4043* (BM, INB, MO, PMA), *D. Solano 4359* (BM, INB, MO, PMA), *J. Bittner 1435* (MO), *A.K. Monro 4198* (BM).

***Peperomia donnell-smithii* C.DC.**

Epiphytic herbs. Distribution in PILA 100–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 4168* (BM, INB, MO, PMA).

***Peperomia duricaulis* Trel.**

Facultatively epiphytic herbs. Distribution in PILA 600–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 656* (CR), *B. Hammel 1416* (MO), *D. Solano 4909* (BM, INB, MO, PMA), *G. Davidse 28621* (INB, MO), *J. Bittner 1746* (INB), *F. Quesada 1556* (INB).

***Peperomia elata* C.DC. ex L.J.Schroeder**

Epiphytic herbs. Distribution in PILA 600–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández 664* (CR), *A. Fernández 918* (INB), *A. Maroto 205* (INB), *D. Santamaría 6602* (BM, INB, MO, PMA), *D. Solano 4033* (BM, INB, MO, PMA), *D. Solano 4101* (BM, INB, MO, PMA), *D. Solano 4683* (BM, INB, MO, PMA), *G. Davidse 25746* (CR), *G. Davidse 25756* (CR), *G. Davidse 29099* (CR), *G. Herrera 2796* (MO), *G. Herrera 5334* (INB), *J. Bittner 1748* (INB), *R. Villalobos 226* (CR).

***Peperomia esperanzana* Trel.**

Epiphytic herbs. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse 26059* (CR), *G. Davidse 28952* (MO), *G. Davidse 29047* (MO), *L.D. Gómez 22538* (MO).

Peperomia fissispica Trel.

Epiphytic herbs. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25262 (MO), *G. Herrera* 5180 (MO).

Peperomia galioides Kunth

Epiphytic herbs. Distribution in PILA 1200–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Colombia. Records: *B. Hammel* 1415 (MO), *E. Alfaro* 3212 (INB), *G. Davidse* 25691 (CR), *G. Davidse* 25742 (MO), *G. Davidse* 28620 (CR), *G. Davidse* 28871 (CR), *G. Davidse* 29208 (MO), *G. Davidse* 29250 (CR), *G. Davidse* 23941 (MO), *L. Angulo* 208 (INB).

Peperomia hernandiifolia (Vahl) A.Dietr.

Facultatively epiphytic herbs. Distribution in PILA 600–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *A.K. Monro* 5591 (BM, INB, MO, PMA), *A. Rodríguez* 10605 (BM, INB, MO, PMA), *A. Rodríguez* 11915 (BM, INB, MO, PMA), *D. Santamaría* 5821 (BM, INB, MO, PMA), *D. Santamaría* 6580 (BM, INB, MO, PMA), *D. Santamaría* 6595 (BM, INB, MO, PMA), *D. Solano* 3865 (BM, INB, MO, PMA), *G. Herrera* 5367 (INB), *G. Herrera* 6018 (INB), *J. Bittner* 1513 (MO), *J. Bittner* 1880 (INB, MO), *L. Martínez* 415 (PMA), *S. Bridgewater* 4178 (BM, INB, MO, PMA), *T. Croat* 26985 (MO).

Peperomia heterophylla Miq.

Terrestrial herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela, Bolivia. Records: *D. Solano* 4182 (BM, INB, MO, PMA), *G. Davidse* 29164 (CR), *G. Herrera* 5206 (MO), *G. Herrera* 6004 (CR), *J. Bittner* 1881 (INB), *R. Villalobos* 223 (INB).

Peperomia hirta C.DC.

Facultatively epiphytic herbs. Distribution in PILA 200–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *L.D. Gómez* 23262 (MO).

Peperomia hispidula (Sw.) A.Dietr.

Epiphytic herbs. Distribution in PILA 0–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak

forest, páramo. Global distribution: Mexico, Nicaragua to the Guyanas, Brazil, Greater Antilles. Records: *G. Davidse* 23988 (CR, MO), *G. Davidse* 25795 (CR), *G. Davidse* 25859 (CR), *J. Bittner* 1871 (INB), *M. Grayum* 10300 (INB).

Peperomia hygrophiloides C.DC.

Terrestrial herbs. Distribution in PILA 1100–1200 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *H. Pittier* 3205 (CR?).

Peperomia jamesoniana C.DC.

Epiphytic herbs. Distribution in PILA 1000–1100 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *G. Davidse* 29083 (MO), *G. Davidse* 29180 (MO).

Peperomia lanceolata C.DC.

Facultatively epiphytic herbs. Distribution in PILA 900–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *C. Hamilton* 3882 (MO), *E. Alfaro* 758 (INB), *L.D. Gómez* 23266 (MO).

Peperomia lancifolia Hook.

Facultatively epiphytic herbs. Distribution in PILA 700–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez* 10606 (BM, INB, MO, PMA), *G. Davidse* 25106A (CR, MO), *G. Davidse* 28392 (MO), *G. Davidse* 28517 (MO), *G. Herrera* 5369 (INB).

Peperomia lignescens C.DC.

Facultatively epiphytic herbs. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *B. Gamboa* 626 (INB), *E. Alfaro* 732 (INB), *G. Davidse* 28508 (CR), *R. Villalobos* 254 (INB).

Peperomia maculosa (L.) Hook.

Epiphytic herbs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela. Records: *C. Hamilton* 3913 (MO), *E. Alfaro* 733 (INB), *G. Davidse* 28507 (CR), *R. Villalobos* 222 (INB), *T. Croat* 26916 (MO). Uses: medicinal.

Peperomia matlalucaensis C.DC.

Epiphytic herbs. Distribution in PILA 400–2100 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Solano 4034* (BM, INB, MO, PMA), *G. Herrera 5214* (MO), *J. Bittner 1484* (MO), *J. Bittner 1558* (MO).

□ *Peperomia mollis* Kunth

Epiphytic herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Panama to Peru, Venezuela. Records: *A.K. Monro 5167* (BM).

Peperomia obscurifolia C.DC.

Epiphytic herbs. Distribution in PILA 400–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *G. Davidse 28868* (CR).

Peperomia obtusifolia (L.) A.Dietr.

Facultatively epiphytic herbs. Distribution in PILA 200–700 m, low elevation mixed forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez 11256* (BM, INB, MO, PMA), *L.D. Gómez 23234* (MO).

Peperomia ocumarana Trel. & Yunck.

Epiphytic herbs. Distribution in PILA 2200–2300 m, low elevation oak forest. Global distribution: Costa Rica, Venezuela. Records: *A. Rodríguez 10706* (BM, INB, MO, PMA), *J. Bittner 1776* (INB), *M. Grayum 10344* (INB).

Peperomia olivacea C.DC.

Facultatively epiphytic herbs. Distribution in PILA 900–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *A. Maroto 204* (INB), *G. Davidse 28491* (MO).

Peperomia palmana C.DC.

Facultatively epiphytic herbs. Distribution in PILA 800–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 761* (INB), *A. Rodríguez 10727* (BM, INB, MO, PMA), *C. Hamilton 3910* (MO), *C. Hamilton 774* (MO), *D. Solano 4087* (BM, INB, MO, PMA), *D. Solano 4142* (BM, INB, MO, PMA), *D. Solano 4989* (BM, INB, MO, PMA), *D. Solano 5152* (BM, INB, MO, PMA), *D. Solano 5171* (BM, INB, MO, PMA), *G. Davidse 28487* (CR), *G. Davidse 28798* (CR), *G. Davidse 29102* (CR), *G. Herrera 3414* (MO), *G. Herrera 5882* (CR), *F. Quesada 1934* (INB), *M. Chinchilla 179* (INB).

e *Peperomia pascuicola* C.DC.

Facultatively epiphytic herbs. Distribution in PILA 1900–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Costa Rica. Records: *E. Alfaro 3213* (INB).

Peperomia peltimba C.DC. ex Trel.

Culantro de montaña (CR).

Epiphytic herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera 5200* (MO), *G. Herrera 5274* (MO), *L. Angulo 147* (INB), *M. Moraga 74* (INB).

Peperomia pittieri C.DC.

Epiphytic herbs. Distribution in PILA 700–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5780* (BM, INB, MO, PMA), *A.K. Monro 5790* (BM, INB, MO, PMA), *A. Rodríguez 10767* (BM, INB, MO, PMA), *G. Herrera 5316* (MO), *G. Herrera 6055* (INB), *J. Bittner 1847* (INB), *R. Aguilar 1144* (INB).

Peperomia poasana C.DC.

Facultatively epiphytic herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5049* (BM), *D. Santamaría 5919* (BM, INB, MO, PMA), *D. Santamaría 6007* (BM, INB, MO, PMA), *E. Navarro 682* (MO), *G. Herrera 2655* (INB), *G. Herrera 5221* (MO), *J. Bittner 1557* (MO).

Peperomia pseudoalpina Trel.

Facultatively epiphytic herbs. Distribution in PILA 1300–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 1845* (INB), *D. Solano 3184* (INB), *D. Solano 5119* (BM, INB, MO, PMA), *D. Solano 5230* (BM, INB, MO, PMA), *L. Angulo 186* (INB), *L. González 1224* (INB), *M. Alfaro 28* (INB).

Peperomia pyramidata Sodiro

Terrestrial herbs. Distribution in PILA 300–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador, the Guyanas, Brazil. Records: *G. Herrera 3246* (INB, MO).

Peperomia quadrifolia (L.) Kunth

Epiphytic herbs. Distribution in PILA 100–3200 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Brazil, Greater Antilles. Records: *A.K. Monro 4162* (BM), *A.K. Monro 5217* (BM), *A. Rodríguez 10720* (BM, INB, MO, PMA), *B. Gamboa 571* (INB), *D. Solano 4315* (BM, INB, MO, PMA), *G. Davidse 25272* (CR), *G. Herrera 5930* (CR), *J. Bittner 1926* (INB), *L.D. Gómez 22549* (MO), *L.D. Gómez 23164* (MO).

***Peperomia rhexiifolia* Moritz ex C.DC.**

Facultatively epiphytic herbs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Nicaragua to Ecuador, Venezuela. Records: *A. Fernández 996* (INB), *A.K. Monro 4197* (BM), *A.K. Monro 5454* (BM, INB, MO, PMA), *A. Rodríguez 10729* (BM, INB, MO, PMA), *D. Santamaría 5826* (BM, INB, MO, PMA), *D. Solano 3954* (BM, INB, MO, PMA), *D. Solano 4133* (BM, INB, MO, PMA), *G. Herrera 6057* (CR).

***Peperomia rotundifolia* (L.) Kunth**

Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *A. Soto 274* (INB). Uses: medicinal.

***Peperomia saligna* Kunth**

Facultatively epiphytic herbs. Distribution in PILA 1500–3600 m, mixed forest in transition to cloud forest, páramo. Global distribution: Costa Rica to Peru. Records: *A. Soto 275* (INB), *E. Alfaro 3247* (INB), *G. Davidse 25349* (CR), *G. Davidse 25463* (CR), *G. Davidse 25862* (CR), *G. Davidse 25998* (CR), *G. Herrera 3753* (INB), *L.D. Gómez 22544* (MO).

***Peperomia serpens* (Sw.) Loudon**

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Solano 4289* (BM, INB, MO, PMA), *G. Davidse 29112* (CR).

***Peperomia silvivaga* C.DC.**

Epiphytic herbs. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Belize, Nicaragua to Ecuador, Greater Antilles, Lesser Antilles. Records: *G. Herrera 2723* (MO), *G. Herrera 2830* (MO), *G. Herrera 5198* (MO), *J. Bittner 1462* (MO).

***Peperomia striata* Ruiz & Pav.**

Facultatively epiphytic herbs. Distribution in PILA 200–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A. Fernández 707* (INB), *A. Fernández 719* (INB), *D. Santamaría 5742* (BM, INB, MO, PMA), *G. Davidse 28371* (MO), *G. Davidse 29095* (CR), *G. Davidse 29114* (CR), *G. Davidse 29193* (CR), *L. Acosta 2294* (INB).

***Peperomia succulenta* C.DC.**

Epiphytic herbs. Distribution in PILA 1100–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela, Bolivia. Records: *G. Davidse 28420* (CR), *G. Davidse 28435* (CR), *L.D. Gómez 23092* (MO), *S. Knapp 10016* (BM).

***Peperomia talinifolia* Kunth**

Facultatively epiphytic herbs. Distribution in PILA 2400–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama, Ecuador to Venezuela, Bolivia. Records: *G. Davidse 23877* (CR, MO), *G. Davidse 25187* (MO), *G. Davidse 25824* (MO), *G. Davidse 28638* (CR), *G. Davidse 29057* (MO), *G. Davidse 29264* (MO), *G. Davidse 29389* (MO), *G. Herrera 6172* (INB).

***Peperomia tenella* (Sw.) A.Dietr.**

Epiphytic herbs. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Honduras, Costa Rica to Colombia to Brazil, Greater Antilles. Records: *G. Davidse 28813* (MO), *G. Davidse 28819* (MO), *G. Davidse 28930* (MO), *G. Herrera 3407* (MO), *F. Quesada 1558* (INB), *M.A. Thomas 1625* (MO).

***Peperomia tenelliformis* Trel.**

Epiphytic herbs. Distribution in PILA 900–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *J. Bittner 1744* (INB).

***Peperomia tenuipes* Trel.**

Facultatively epiphytic herbs. Distribution in PILA 1200–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Honduras to Ecuador, Venezuela. Records: *A.K. Monro 4531* (BM), *D. Solano 3927* (BM, INB, MO, PMA), *D. Solano 4125* (BM, INB, MO, PMA), *G. Herrera 5418* (INB).

***Peperomia ternata* C.DC.**

Facultatively epiphytic herbs. Distribution in PILA 600–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama, Ecuador, Venezuela. Records: *R. Aguilar 1162* (INB), *E. Alfaro 3633* (INB), *G. Davidse 25693* (CR), *G. Davidse 25729* (CR), *G. Davidse 26162* (MO).

Peperomia tetraphylla (G. Forst.) Hook. & Arn.
Garrapatilla (CR).

Epiphytic herbs. Distribution in PILA 800–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Pantropical. Records: *A. Chacón 579* (INB), *A. Fernández 1846* (INB), *B. Gamboa 570* (INB), *D. Solano 5084* (BM, INB, MO, PMA), *D. Solano 5129* (BM, INB, MO, PMA), *E. Alfaro 2265* (INB), *E. Alfaro 3210* (INB), *E. Alfaro 3211* (INB), *E. Alfaro 3632* (INB), *E. Alfaro 3639* (INB), *G. Davidse 23964* (CR, MO), *G. Davidse 25477* (MO), *G. Davidse 25694* (CR), *G. Davidse 25775* (CR), *G. Davidse 26163* (MO), *G. Davidse 26164* (CR), *G. Davidse 28617* (CR), *G. Davidse 28618* (MO), *G. Herrera 3680* (INB), *F. Quesada 1565* (INB), *L. Angulo 191* (INB), *L. González 1177* (INB), *M. Moraga 1565* (CR).

Peperomia tonduzii C.DC.

Epiphytic herbs. Distribution in PILA 2000–2500 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28540* (CR).

Peperomia tovariana C.DC.

Epiphytic herbs. Distribution in PILA 1700–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: El Salvador, Costa Rica to Venezuela, Greater Antilles. Records: *E. Alfaro 3624* (INB), *G. Davidse 25190* (MO), *G. Davidse 25230* (MO), *M.A. Thomas 1578* (MO).

Peperomia tsakiana C.DC.

Epiphytic herbs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3031* (MO).

Peperomia urocarpa Fisch. & C.A.Mey.

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Costa Rica, Brazil, the Guyanas, Argentina, Greater Antilles. Records: *A. Rodríguez 10977* (BM, INB, MO, PMA), *G. Herrera 3055* (MO), *M. Moraga 77* (INB).

Peperomia venabulifolia Trel.

Facultatively epiphytic herbs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 3976* (BM, INB, MO, PMA).

Peperomia villarrealii Yunck.

Terrestrial herbs. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Colombia to Ecuador. Records: *A. Fernández 820* (MO), *G. Herrera 6022* (INB).

Piper aduncum L.

Cordoncillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles, Trinidad. Records: *D. Santamaría 3513* (INB), *D. Santamaría 3780* (INB), *R. Villalobos 295* (CR). Uses: medicinal.

Piper aequale Vahl

Hoja de calentura (CR).

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Brazil, Lesser Antilles. Records: *D. Solano 4355* (BM, INB, MO, PMA).

Piper aereum Trel.

Terrestrial shrubs. Distribution in PILA 800–1600 m, mixed forest in transition to low elevation forest. Global distribution: Mexico, Costa Rica, Panama. Records: *D. Santamaría 6004* (BM, INB, MO, PMA), *G. Herrera 2704* (INB), *J. Bittner 1520* (MO).

Piper arboreum Aubl.

Terrestrial shrubs or trees. Distribution in PILA 300–500 m, low elevation mixed forest. Global distribution: Mexico to Paraguay. Records: *E. Mora 309* (INB), *F. Quesada 1871* (INB), *L. Acosta 2422* (INB), *M. Alfaro 7* (INB). Uses: medicinal.

Piper arieianum C.DC.

Terrestrial shrubs. Distribution in PILA 0–300 m, low elevation mixed forest. Global distribution: Mexico to Colombia, Greater Antilles, Lesser Antilles. Records: *H. Pittier 9387* (MO).

Piper asymmetricum C.DC.

Terrestrial shrubs. Distribution in PILA 0–800 m, low

elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala, Nicaragua to Panama. Records: *G. Herrera 2683* (INB).

ψ *Piper auritum* Kunth

Alcotán, Estrella, Hoja de estrella, Hinojillo, Pir-kú (Cabécar) (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *D. Santamaría 6162* (BM, INB, MO, PMA), *E. Mora 295* (CR), *L.D. Gómez 23314* (MO), *R. Villalobos 249* (INB). Uses: Edible, medicinal. Regional conservation status: Least Concern (LC).

Piper bauritum C.DC.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 7049* (BM, INB, MO, PMA), *D. Solano 4271* (BM, INB, MO, PMA), *D. Solano 4280* (BM, INB, MO, PMA), *D. Solano 4281* (BM, INB, MO, PMA), *D. Solano 4283* (BM, INB, MO, PMA), *D. Solano 4310* (BM, INB, MO, PMA).

Piper bisasperatum Trel.

Terrestrial shrubs. Distribution in PILA 400–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Honduras to Panama. Records: *A. Rodríguez 10918* (BM, INB, MO, PMA), *A. Rodríguez 10935* (BM, INB, MO, PMA), *B. Gamboa 625* (INB), *D. Solano 5041* (BM, INB, MO, PMA), *G. Herrera 5311* (MO).

Piper biseriatum C.DC.

Terrestrial shrubs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez 11254* (BM, INB, MO, PMA), *A. Rodríguez 11663* (BM, INB, MO, PMA), *D. Santamaría 6259* (BM, INB, MO, PMA), *D. Santamaría 6814* (BM, INB, MO, PMA), *D. Solano 4408* (BM, INB, MO, PMA), *D. Solano 4543* (BM, INB, MO, PMA), *G. Herrera 5366* (INB), *L. Angulo 180* (INB).

Piper calceolarium C.DC.

Terrestrial shrubs. Distribution in PILA 1700–1700 m, cloud forest. Global distribution: Panama to Ecuador. Records: *G. Herrera 6121* (INB).

Piper carpinteranum C.DC.

Terrestrial shrubs. Distribution in PILA 700–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Fernández 648* (INB), *A. Fernández 735* (CR), *A.K. Monro 5496* (BM, INB, MO, PMA), *C. Hamilton 3647* (MO), *D. Santamaría 5827* (BM, INB, MO, PMA), *D. Solano 4533* (BM, INB, MO, PMA), *D. Solano 4541* (BM, INB, MO, PMA), *G. Davidse 25248* (CR), *G. Davidse 25476* (CR), *G. Herrera 3402* (MO), *G. Herrera 6132* (CR), *G. Herrera 6208* (CR), *J. Bittner 1834* (INB), *F. Quesada 1963* (INB), *T. Croat 26905* (MO).

Piper cenocladum C.DC.

Terrestrial shrubs. Distribution in PILA 400–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11407* (BM, INB, MO, PMA), *D. Santamaría 6817* (BM, INB, MO, PMA), *D. Santamaría 6845* (BM, INB, MO, PMA), *M. Correa 3621* (MO).

Piper corrugatum Kuntze

Terrestrial shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *D. Santamaría 5897* (BM, INB, MO, PMA), *D. Santamaría 6736* (BM, INB, MO, PMA), *D. Santamaría 6833* (BM, INB, MO, PMA), *G. Herrera 3123* (MO), *G. Herrera 3247* (INB), *G. Herrera 6179* (CR).

Piper crassinervium Kunth

Terrestrial shrubs or trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Paraguay. Records: *A.K. Monro 6086* (PMA), *A. Rodríguez 11751* (BM, INB, MO, PMA), *A. Rodríguez 11797* (BM, INB, MO, PMA), *A. Rodríguez 11950* (BM, INB, MO, PMA), *D. Santamaría 7014* (BM, INB, MO, PMA), *D. Santamaría 7023* (BM, INB, MO, PMA), *D. Santamaría 7075* (BM, INB, MO, PMA), *D. Solano 5074* (BM, INB, MO, PMA), *D. Solano 5261* (BM, INB, MO, PMA), *J. Dwyer 491* (MO), *L. Angulo 179* (CR), *R. Villalobos 293* (CR), *R. Villalobos 275* (CR).

Piper cuspidispicum Trel.

Terrestrial shrubs. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández 900* (INB), *A. Rodríguez 11058* (BM, INB, MO, PMA), *C. von Hagen 2009* (MO), *D. Santamaría 5892* (BM, INB, MO, PMA), *J. D. Dwyer 7753* (MO), *J. Dwyer 8753* (MO).

Piper davidsoniae Yunck.

Terrestrial shrubs. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa* 627 (INB).

Piper distigmatum Yunck.

Terrestrial shrubs. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *D. Solano* 4184 (BM, INB, MO, PMA), *G. Herrera* 5223 (MO), *G. Herrera* 5343 (INB), *G. Herrera* 6059 (CR). Conservation status: Data deficient(DD), ver 2.3 (1994).

Piper dolichotrichum Yunck.

Terrestrial lianas. Distribution in PILA 100–400 m, low elevation mixed forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera* 3098 (MO).

Piper dotanum Trel.

Terrestrial shrubs. Distribution in PILA 900–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 5981 (BM, INB, MO, PMA), *G. Herrera* 6206 (INB), *M. Alfaro* 3 (INB).

Piper exiguicaule Yunck.

Terrestrial shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A. Chacón* 301 (CR), *G. Herrera* 3252 (INB).

Piper fimbriulatum C.DC.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Nicaragua to Colombia. Records: *A. De Sedas* 624 (PMA), *A.K. Monro* 4794 (BM), *A.K. Monro* 6018 (PMA), *D. Santamaría* 7008 (BM, INB, MO, PMA), *D. Santamaría* 7457 (PMA), *D. Santamaría* 7683 (PMA), *D. Solano* 5020 (BM, INB, MO, PMA), *D. Solano* 5407 (PMA), *E. Alfaro* 5487 (BM). Conservation status: Near Threatened (NT), ver 2.3 (1994).

Piper fortunaense Tebbs

Terrestrial shrubs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records:

A. Rodríguez 11619 (BM, INB, MO, PMA), *G. Herrera* 3251 (INB).

Piper friedrichsthalii C.DC.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez* 11369 (BM, INB, MO, PMA), *D. Solano* 4516 (BM, INB, MO, PMA), *L.D. Gómez* 23261 (MO).

Piper gibbosum C.DC.

Terrestrial herbs or shrubs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Costa Rica, Panama. Records: *A.K. Monro* 4382 (BM), *A.K. Monro* 5567 (BM, INB, MO, PMA), *A. Rodríguez* 10783 (BM, INB, MO, PMA), *A. Rodríguez* 10909 (BM, INB, MO, PMA), *A. Rodríguez* 11049 (BM, INB, MO, PMA), *D. Santamaría* 5752 (BM, INB, MO, PMA), *D. Santamaría* 5893 (BM, INB, MO, PMA), *D. Solano* 4134 (BM, INB, MO, PMA), *D. Solano* 4203 (BM, INB, MO, PMA), *G. Herrera* 5983 (CR), *G. Herrera* 6081 (INB).

Piper glabrescens (Miq.) C.DC.

Terrestrial shrubs. Distribution in PILA 200–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Mexico to Venezuela. Records: *A.K. Monro* 5767 (BM, INB, MO, PMA), *A. Rodríguez* 11497 (BM, INB, MO, PMA), *D. Santamaría* 6605 (BM, INB, MO, PMA), *R. Villalobos* 247 (CR).

Piper hebetifolium W.C.Burger

Terrestrial herbs. Distribution in PILA 900–1100 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 6013 (BM, INB, MO, PMA).

Piper hispidum Sw.

Cigarrillo (CR).

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Paraguay. Records: *K. E. Blum* 2637 (MO), *R. Villalobos* 248 (INB). Uses: medicinal.

Piper holdridgeanum W.C.Burger

Terrestrial shrubs. Distribution in PILA 600–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A.*

De Sedas 901 (PMA), *González 734* (PMA), *Martínez 350* (PMA), *A.K. Monro 5727* (PMA), *A.K. Monro 6299* (PMA), *D. Santamaría 7894* (PMA).

Piper imperiale (Miq.) C.DC.

Fideillo (CR).

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez, Jul. 22, 2007* (Field obs.).

Piper irazuanum C.DC.

Terrestrial shrubs or trees. Distribution in PILA 1700–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to El Salvador, Costa Rica to Colombia. Records: *B. Gamboa 1699* (MO), *G. Davidse 23991* (CR, MO), *G. Davidse 25754* (CR), *G. McPherson 15910* (MO).

Piper lanceifolium Kunth

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4981* (BM).

Piper longispicum C.DC.

Terrestrial shrubs or trees. Distribution in PILA 1600–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Venezuela. Records: *A.K. Monro 4985* (BM), *Rodríguez 11344* (BM, INB, MO, PMA), *D. Santamaría 5702* (BM, INB, MO, PMA), *D. Santamaría 6707* (BM, INB, MO, PMA), *D. Solano 4823* (BM, INB, MO, PMA).

Piper magnantherum C.DC.

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4332* (INB).

Piper maxonii C.DC.

Terrestrial shrubs or trees. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *C. Hamilton 3610* (MO), *J. D. Dwyer 7747* (MO), *J. Dwyer 8768A* (MO).

Piper nudifolium C.DC.

Terrestrial herbs or shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama.

Records: *G. Herrera 3254* (INB).

Piper obliquum Ruiz & Pav.

Terrestrial shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Brazil. Records: *Davidse 29200* (CR), *Fernández 1048* (CR), *Navaro 22* (MO), *Quesada 1878* (INB).

Piper otophorum C.DC.

Terrestrial shrubs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *D. Solano 4441* (BM, INB, MO, PMA), *G. Herrera 3138* (MO).

Piper peltatum L.

Baquiña, Belladona, Hoja de estrella, Pañuelitos de pobre, Pata de vaca, D. Santamaría, Canfut, Koró (Bribri) (CR).

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Honduras to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11375* (CRINB).

Piper phytolaccifolium Opiz.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras, Costa Rica to Peru, Venezuela. Records: *D. Solano 4333* (BM, INB, MO, PMA).

Piper pittieri C.DC.

Terrestrial shrubs. Distribution in PILA 600–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama, Ecuador, Peru. Records: *A. Fernández 936* (INB), *A. Fernández 938* (CR), *A.K. Monro 5303* (BM), *A.K. Monro 5506* (BM, INB, MO, PMA), *A. Rodríguez 10760* (BM, INB, MO, PMA), *B. Gamboa 1243* (INB), *B. Gamboa 1704* (MO), *D. Solano 4060* (BM, INB, MO, PMA), *E. Alfaro 1609* (MO), *G. Davidse 25081* (CR, MO), *G. Davidse 25162* (CR), *G. Davidse 25835* (CR), *G. Davidse 28708* (CR), *G. Davidse 29010* (CR), *G. Davidse 23983* (MO), *G. Herrera 3650* (INB), *G. Herrera 5468* (INB), *G. Herrera 5885* (CR), *J. Bittner 1792* (INB), *F. Quesada 1577* (INB), *L. González 3610* (INB), *S. Knapp 10036* (BM), *S. Knapp 9934* (BM).

***Piper poasanum* C.DC.**

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Ecuador. Records: *A. Rodríguez 10769* (BM, INB, MO, PMA), *J. Bittner 1849* (CR).

***Piper prismaticum* C.DC.**

Terrestrial shrubs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico, Honduras to Brazil, Bolivia. Records: *A. Chacón 265* (CR), *A. De Sedas 575* (PMA), *A. De Sedas 673* (PMA), *A. Fernández 1033* (INB), *A.K. Monro 5041* (BM), *A.K. Monro 5864* (BM, INB, MO, PMA), *A. Rodríguez 11502* (BM, INB, MO, PMA), *D. Santamaría 5985* (BM, INB, MO, PMA), *D. Santamaría 6014* (BM, INB, MO, PMA), *D. Santamaría 7359* (PMA), *D. Santamaría 7374* (PMA), *D. Solano 4292* (BM, INB, MO, PMA), *D. Solano 4305* (BM, INB, MO, PMA), *G. Davidse 28457* (CR), *F. Quesada 1643* (INB), *K. Sytsma 4952* (MO), *L. Angulo 178* (INB), *M. Alfaro 10* (INB), *R. Villalobos 15* (CR), *R. Villalobos 220* (CR).

***Piper quitense* C.DC.**

Terrestrial shrubs. Distribution in PILA 1600–1600 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *G. Herrera 6094* (CR).

***Piper sancti-felicis* Trel.**

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Ecuador, Venezuela, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 6230* (BM, INB, MO), *D. Santamaría 6156* (BM, INB, MO).

***Piper zarceroense* Trel.**

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11766* (BM, INB, MO, PMA), *D. Santamaría 7060* (BM, INB, MO, PMA), *D. Santamaría 7074* (BM, INB, MO, PMA), *D. Solano 5072* (BM, INB, MO, PMA), *D. Solano 5153* (BM, INB, MO, PMA), *E. Alfaro 738* (INB), *R. Villalobos 274* (INB).

***Piper sublineatum* Kuntze**

Terrestrial shrubs. Distribution in PILA 0–1500 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Costa Rica. Records: *A. Rodríguez 11165* (BM, INB, MO, PMA), *A. Rodríguez 11168* (BM, INB, MO, PMA), *D. Santamaría 6144* (BM, INB, MO, PMA), *D. Santamaría 7691* (PMA), *D. Solano 4269* (BM, INB, MO, PMA), *M. Alfaro 15* (INB).

***Piper subsessilifolium* C.DC.**

Epiphytic shrubs. Distribution in PILA 1000–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández 1032* (INB), *A.K. Monro 4231* (BM), *G. Herrera 2825* (MO).

***Piper tenuimucronatum* C.DC.**

Terrestrial shrubs. Distribution in PILA 300–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico to Panama. Records: *A. Fernández 829* (CR), *A.K. Monro 5455* (BM, INB, MO, PMA), *A.K. Monro 5576* (BM, INB, MO, PMA), *A. Rodríguez 10796* (BM, INB, MO, PMA), *A. Rodríguez 10912* (BM, INB, MO, PMA), *A. Rodríguez 10921* (BM, INB, MO, PMA), *A. Rodríguez 11510* (BM, INB, MO, PMA), *A. Rodríguez 11529* (BM, INB, MO, PMA), *D. Santamaría 5666* (BM, INB, MO, PMA), *D. Santamaría 5868* (BM, INB, MO, PMA), *D. Solano 3839* (BM, INB, MO, PMA), *D. Solano 4097* (BM, INB, MO, PMA), *D. Solano 4785* (BM, INB, MO, PMA), *G. Herrera 5473* (INB), *J. A. Duke 13652* (MO), *J. Dwyer 523A* (MO), *J. Dwyer 526* (MO), *K. E. Blum 2645* (MO), *T. Croat 27003* (MO).

***Piper terrabanum* C.DC.**

Terrestrial shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11286* (BM, INB, MO, PMA), *D. Santamaría 5979* (BM, INB, MO, PMA), *D. Santamaría 6012* (BM, INB, MO, PMA), *D. Solano 4344* (BM, INB, MO, PMA), *D. Solano 5037* (BM, INB, MO, PMA).

***Piper thomasii* Tebbs**

Terrestrial shrubs. Distribution in PILA 1000–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5755* (BM, INB, MO, PMA), *D. Solano 4814* (BM, INB, MO, PMA), *G. Herrera 2810* (MO).

***Piper tonduzii* C.DC.**

Terrestrial shrubs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Costa

Rica. Records: *G. Herrera* 3097 (MO), *Tonduz* 9392 (MO).

***Piper umbellatum* L.**

Cigarrillo, Hoja de estrella, Pata de vaca, Santamaría (CR).

Terrestrial shrubs. Distribution in PILA 100–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil. Records: *A.K. Monro* 6096 (PMA). Uses: medicinal.

***Piper umbricola* C.DC.**

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *A.K. Monro* 6047 (BM, INB, MO, PMA), *N. Zamora* 4369 (BM, INB, MO, PMA).

***Piper verruculosum* C.DC.**

Caña de muelas (CR).

Terrestrial shrubs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez* 11255 (CR, INB), *D. Santamaría* 6210 (CR, INB), *D. Solano* 4355 (CR, INB), *D. Solano* 4438 (PMA).

***Piper wagneri* C.DC.**

Terrestrial shrubs. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *J. A. Duke* 13636 (MO).

***Piper zhorquinense* C.DC.**

Terrestrial shrubs. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4666 (BM), *D. Santamaría* 5980 (BM, INB, MO, PMA), *D. Santamaría* 6767 (BM, INB, MO, PMA).

SIPARUNACEAE

***Siparuna gesnerioides* (Kunth) A.DC.**

Limoncillo (CR).

Terrestrial shrubs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica to Venezuela. Records: *D. Santamaría* 3799 (INB), *E. Alfaro* 736 (INB).

***Siparuna grandiflora* (Kunth) Perkins**

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Brazil, Bolivia. Records: *A. Rodríguez*, Sept 28, 2007 (*Field obs.*).

***Siparuna thecaphora* (Poepp. & Endl.) A.DC.**

Limoncillo (CR).

Terrestrial shrubs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Venezuela, Brazil, Bolivia. Records: *A.K. Monro* 4413 (BM), *G. Davidse* 28382 (MO), *G. Herrera* 5338A (MO), *J. Dwyer* 7734 (MO), *J. Dwyer* 8751 (MO), *J. H. Kirkbride Jr.* 144 (MO), *K. E. Blum* 2639 (MO).

WINTERACEAE

ψ *Drimys granadensis* L.f.

Chilemucho (CR).

Terrestrial shrubs or trees. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: Mexico to Venezuela. Records: *A. Chacón* 491 (INB), *A.K. Monro* 4096 (BM), *A.K. Monro* 5351 (BM), *A.K. Monro* 5352 (BM), *A.K. Monro* 6201 (PMA), *B. Gamboa* 1714 (INB), *D. Solano* 4013 (BM, INB, MO, PMA), *E. Alfaro* 3260 (INB), *G. Davidse* 23898 (CR, MO), *G. Davidse* 25127 (CR, MO), *G. Davidse* 25386 (CR), *G. Davidse* 25386 (MO), *G. Davidse* 25473 (CR), *G. Davidse* 25473 (MO), *G. Davidse* 25779 (CR), *G. Davidse* 25779 (MO), *G. Davidse* 25885 (CR), *G. Davidse* 25885 (MO), *G. Davidse* 28585 (CR), *G. Davidse* 28585 (MO), *G. Davidse* 29286 (CR), *G. Davidse* 29286 (MO), *G. Davidse* 29416 (CR), *G. Davidse* 29416 (MO), *G. Herrera* 5402 (INB), *G. Herrera* 5402 (MO), *G. Herrera* 6255 (CR), *G. Herrera* 6255 (INB), *G. Herrera* 6255 (MO), *G. McPherson* 15901 (MO), *F. Quesada* 1915 (CR), *F. Quesada* 1820 (INB), *F. Quesada* 1915 (INB), *L. González* 3591 (INB), *M.A. Thomas* 1536 (MO), *M. Moraga* 385 (INB), *M. Valerio* 212 (INB), *S. Bridgewater* 4198 (BM, INB, MO, PMA), *S. Knapp* 9872 (BM). Uses: cellulose. Regional global conservation status: Near Threatened (NT).

MONOCOT ANGIOSPERMS

ALSTROEMERIACEAE

Bomarea acutifolia (Link & Otto) Herb.
Papa de venado (CR).

Terrestrial twiners. Distribution in PILA 1200–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *B.B. Klitgaard* 801 (BM, INB), *G. Davidse* 29044 (MO), *G. Davidse* 29263 (CR), *G. Davidse* 29263 (MO), *S. Knapp* 10055 (BM, INB), *Sytsma* 4957 (MO).

Bomarea andreana Baker

Terrestrial twiners. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 5323 (BM), *E. Alfaro* 3945 (INB), *E. Alfaro* 3958 (INB), *G. Davidse* 25147 (MO), *G. Davidse* 25219 (CR, INB, MO), *G. Davidse* 25825 (INB, MO).

Bomarea caudatisepala Gereau

Terrestrial twiners. Distribution in PILA 1700–2100 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *L. Andersson* 1307 (MO).

Bomarea chiriquina Killip

Terrestrial twiners. Distribution in PILA 1300–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *D. Solano* 5132 (BM, INB, MO, PMA), *D. Solano* 5168 (BM, INB, MO, PMA), *D. Solano* 5237 (BM, INB, MO, PMA), *G. Herrera* 3736 (MO), *T. Croat* 26995 (MO).

Bomarea costaricensis Kraenzl.

Terrestrial twiners. Distribution in PILA 1000–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 5859 (BM, INB, MO, PMA), *G. Herrera* 5491 (INB), *G. Herrera* 5491 (MO).

Bomarea hirsuta (Kunth) Herb.

Terrestrial twiners. Distribution in PILA 1300–3600 m, páramo. Global distribution: Costa Rica to Ecuador. Records: *A. Chacón* 539 (INB), *A. Fernández* 701 (CR, INB, MO), *A. Fernández* 702 (INB), *A.K. Monro* 4090

(BM, INB), *A. Soto* 297 (INB), *B. Gamboa* 1232 (INB), *E. Alfaro* 3262 (INB), *E. Alfaro* 3647 (INB), *E. Alfaro* 3717 (INB), *E. Alfaro* 3810 (INB), *E. Alfaro* 3938 (INB), *E. Alfaro* 4625 (INB), *E. Alfaro* 4650 (INB), *G. Davidse* 25284 (CR), *G. Davidse* 25284 (MO), *G. Davidse* 25425 (CR), *G. Davidse* 25425 (MO), *G. Davidse* 25512 (INB), *G. Davidse* 25512 (MO), *G. Davidse* 25705 (INB, MO), *G. Davidse* 25747 (MO), *G. Davidse* 25832 (MO), *G. Davidse* 25887 (MO), *G. Davidse* 26030 (CR), *G. Davidse* 26030 (MO), *G. Davidse* 23920 (MO), *G. Herrera* 6254 (CR, INB, MO), *F. Quesada* 1497 (INB), *F. Quesada* 1821 (INB), *F. Quesada* 1909 (INB), *L. Angulo* 184 (INB), *L. Angulo* 193 (INB), *L. Angulo* 254 (INB), *L.D. Gómez* 22453 (MO), *L.D. Gómez* 22582 (MO), *L.D. Gómez* 22616 (MO), *M.A. Thomas* 1539 (MO), *M. Moraga* 372 (INB), *M. Valerio* 159 (MO), *S. Knapp* 9940 (BM).

Bomarea multiflora (L.f.) Mirb.

Terrestrial twiners. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Solano* 3965 (BM, INB, MO, PMA), *L.D. Gómez* 22275 (MO).

Bomarea obovata Herb.

Terrestrial twiners. Distribution in PILA 100–700 m, low elevation mixed forest. Global distribution: Nicaragua to Peru. Records: *D. Solano* 4294 (BM, INB, MO, PMA).

Bomarea suberecta Gereau

Terrestrial twiners. Distribution in PILA 1900–2900 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28957 (MO), *G. Davidse* 29046 (INB), *G. Davidse* 29046 (MO), *G. Davidse* 29206 (MO).

ARACEAE

Anthurium acutangulum Engl.

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Colombia. Records: *A.K. Monro* 4927 (BM, MO), *G. Herrera* 6196 (MO).

Anthurium alticola Croat

Epiphytic herbs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera* 3287 (INB, MO).

Anthurium angustispadix Croat & R.A. Baker

Facultatively epiphytic herbs. Distribution in PILA

300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 3734 (INB), *D. Santamaría* 3814 (INB), *E. Alfaro* 2196 (CR, INB), *E. Mora* 291 (INB), *E. Mora* 308 (INB), *G. Davidse* 28519 (CR, MO), *G. Davidse* 28433 (MO), *G. Davidse* 28455 (MO), *F. Quesada* 1686 (INB, MO), *R. Villalobos* 246 (INB, MO), *R. Villalobos* 270 (INB, MO).

Anthurium antonioanum Croat

Epiphytic herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 5863 (BM, INB, PMA), *D. Solano* 4205 (BM, INB, PMA), *G. Herrera* 6122 (MO).

Anthurium austinsmithii Croat & R.A.Baker

Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Costa Rica. Records: *G. Herrera* 2680 (INB, MO), *G. Herrera* 6196 (INB).

Anthurium bakeri Hook. f.

Epiphytic herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *A. Rodríguez* 11204 (BM, INB, PMA), *A. Rodríguez* 11247 (BM, INB, PMA), *A. Rodríguez* 11667 (BM, INB, PMA), *D. Santamaría* 6181 (BM, INB, PMA), *R. Robles* 2761 (MO), *S. Bridgewater* 4141 (BM, INB, PMA).

Anthurium baldinii Croat & O.Ortiz

Epiphytic herbs. Distribution in PILA 300–350 m, low elevation mixed forest. Global distribution: Endemic to Panama. Records: *De Sedas et al.* 958 (PMA), *A. De Sedas et al.* 874 (PMA), *O. Ortiz et al.* 1243 (MO).

□ **ε-PILA** ***Anthurium bittneri*** Grayum

Terrestrial herbs. Distribution in PILA 1300–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 730 (INB, MO), *A.K. Monro* 4945 (MO), *A.K. Monro* 6179 (PMA), *A. Rodríguez* 10646 (BM, INB, PMA), *D. Santamaría* 5707 (BM, INB, PMA), *D. Solano* 3920 (BM, INB, PMA), *G. Herrera* 5483 (INB, MO), *G. Herrera* 5512 (INB, MO), *J. Bittner* 1875 (MO). Global conservation status: Endangered (EN), B1ab(i,iii).

Anthurium caperatum Croat & R.A.Baker

Facultatively epiphytic herbs. Distribution in PILA

0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture, dense thicket. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 839 (INB, MO), *A. Fernández* 864 (INB), *A.K. Monro* 5612 (BM, INB, PMA), *A. Rodríguez* 10574 (BM, INB, PMA), *A. Rodríguez* 10902 (BM, INB, PMA), *D. Santamaría* 5989 (BM, INB, PMA), *D. Santamaría* 6457 (BM, INB, PMA), *D. Santamaría* 6569 (BM, INB, PMA), *D. Santamaría* 6773 (BM, INB, PMA), *D. Santamaría* 6782 (BM, INB, PMA), *D. Santamaría* 7000 (BM, INB, PMA), *D. Santamaría* 7026 (BM, INB, PMA), *D. Solano* 3838 (BM, INB, PMA), *D. Solano* 5033 (BM, INB, PMA), *G. Davidse* 28400 (MO), *G. Davidse* 29139 (CR, MO), *G. Davidse* 29204 (MO), *G. Herrera* 5475 (INB, MO), *G. Herrera* 5874 (INB, MO), *J. Bittner* 1901 (INB, MO), *R. Aguilar* 1082 (INB, MO).

Anthurium carnosum Croat & R.A.Baker

Facultatively epiphytic herbs. Distribution in PILA 100–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1027 (INB), *A. Fernández* 978 (CR, INB), *A.K. Monro* 6046 (PMA), *A.K. Monro* 6210 (PMA), *A. Rodríguez* 10653 (BM, INB, PMA), *A. Rodríguez* 10691 (BM, INB, PMA), *A. Rodríguez* 10861 (BM, INB, PMA), *A. Rodríguez* 11888 (BM, INB, PMA), *A. Soto* 295 (INB), *B. Gamboa* 572 (INB, MO), *C. Galdames* 3398 (MO), *C. von Hagen* 2035 (MO), *D. Santamaría* 5762 (BM, INB, PMA), *D. Santamaría* 7029 (BM, INB, MO, PMA), *D. Santamaría* 7362 (PMA), *D. Santamaría* 7447 (PMA), *D. Solano* 5517 (PMA), *E. Alfaro* 3218 (INB), *E. Alfaro* 4596 (INB), *E. Navarro* 472 (MO), *G. Davidse* 25172 (CR, MO), *G. Davidse* 25702 (CR, MO), *G. Davidse* 28553 (CR, MO), *G. Davidse* 28736 (MO), *G. Herrera* 5486 (INB), *G. Herrera* 6170 (CR, MO), *G. Herrera* 8607 (MO), *J. Bittner* 1867 (INB, MO), *F. Quesada* 1613 (INB), *F. Quesada* 1618 (INB, MO), *F. Quesada* 1940 (INB), *F. Quesada* 1966 (INB), *F. Quesada* 1967 (INB), *L. Angulo* 148 (INB, MO), *J. Luteyn* 3778 (MO), *J. Luteyn* 3782 (MO), *M.A. Thomas* 1618 (MO), *M.A. Thomas* 1688 (MO), *M. Valerio* 181 (MO), *N. Zamora* 4151 (BM, INB, MO, PMA), *G. Proctor* 31917 (MO).

□ **ε-PILA** ***Anthurium cerrofríoense*** Croat & O.Ortiz

Epiphytic herbs. Distribution in PILA –1100 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *L. Martínez et al.* 370 (BM, MO, PMA).

Anthurium clavatum Croat & R.A.Baker

Facultatively epiphytic herbs. Distribution in PILA

1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *R. Aguilar 1152* (INB, MO).

Anthurium concinnatum Schott

Facultatively epiphytic herbs. Distribution in PILA 100–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5297* (BM, MO), *A. Rodríguez 10776* (BM, INB, PMA), *A. Soto 285* (INB), *E. Alfaro 3237* (INB), *E. Alfaro 4690* (INB), *G. Davidse 23940* (CR, MO), *G. Davidse 25078* (CR, MO), *G. Davidse 25812* (CR, MO), *G. Davidse 28633* (CR, MO), *G. Davidse 28905* (MO), *G. Davidse 28984* (CR, MO), *G. Herrera 5887* (INB), *G. Herrera 6146* (INB, MO), *G. Herrera 6146* (MO), *J. Bittner 1789* (INB, MO), *F. Quesada 1609* (INB), *M.A. Thomas 1609* (MO), *M. Valerio 178* (MO), *J. Kress 94-4086* (CR).

Anthurium consobrinum Schott

Epiphytic herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *S. Bridgewater 4175* (BM, INB, PMA).

Anthurium cotobrusii Croat & R.A. Baker

Terrestrial herbs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11760* (BM, INB, MO, PMA), *A. Rodríguez 11859* (BM, INB, MO, PMA), *D. Santamaría 3735* (INB), *D. Santamaría 3798* (INB), *D. Santamaría 4422* (INB), *D. Santamaría 7097* (BM, INB, MO, PMA), *G. Davidse 28366* (CR, MO).

Anthurium cucullispathum Croat

Epiphytic herbs. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera 5282* (MO).

Anthurium cuspidatum Mast.

Epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Ecuador. Records: *A.K. Monro 5804* (BM, INB, MO, PMA), *A.K. Monro 5878* (MO), *A.K. Monro 6302* (PMA), *D. Santamaría 6241* (BM, INB, MO, PMA), *D. Santamaría 6496* (BM, INB, MO, PMA), *D. Santamaría 6534* (BM, INB, MO, PMA), *D. Santamaría 6719* (BM, INB, MO,

PMA), *D. Santamaría 6772* (BM, INB, MO, PMA), *D. Solano 4692* (BM, INB, MO, PMA), *L. Martínez 374* (PMA).

Anthurium davidsoniae Standl.

Facultatively epiphytic herbs. Distribution in PILA 300–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10807* (BM, INB, PMA), *D. Santamaría 5723* (BM, INB, MO, PMA), *D. Santamaría 6593* (BM, INB, MO, PMA), *E. Alfaro 5503* (BM), *G. Davidse 29156* (MO), *G. Herrera 6175* (INB, MO).

Anthurium durandii Engl.

Epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5347* (INB, MO).

Anthurium fatoense K. Krause

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4762* (MO), *A. De Sedas 636* (PMA), *A. De Sedas 684* (PMA), *A. Rodríguez 11273* (BM, INB, PMA), *D. Santamaría 7443* (PMA), *D. Santamaría 7530* (PMA), *D. Santamaría 7689* (PMA), *D. Solano 4433* (BM, INB, PMA).

• ***Anthurium filamatamaense*** Croat & O. Ortiz

Epiphytic herbs. Distribution in PILA 1300–1400 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría et al. 6663* (BM, INB, MO, INB).

Anthurium formosum Schott

Facultatively epiphytic herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández 1038* (INB, MO), *G. Herrera 2845* (MO), *G. Herrera 3093* (MO), *G. Herrera 6122* (INB).

Anthurium globosum Croat

Terrestrial herbs. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *B. Hammel 7445* (MO).

Anthurium gracililaminum Croat

Terrestrial herbs. Distribution in PILA 1000–1700 m,

mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *T. Croat* 48790 (B, CM, MEXU, MO, WU).

Anthurium hoffmannii Schott

Facultatively epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7001 (BM, INB, PMA), *D. Santamaría* 7209 (BM, INB, PMA), *G. Herrera* 5215 (MO), *G. Herrera* 6021 (MO), *R. Villalobos* 298 (CR).

Anthurium hornitense Croat

Epiphytic herbs. Distribution in PILA 800–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 5171 (MO).

Anthurium interruptum Sodiro

Epiphytic herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Ecuador. Records: *A. Fernández* 978 (MO), *A.K. Monro* 4232 (BM), *A.K. Monro* 4331 (BM, MO), *A.K. Monro* 5887 (BM, INB, PMA).

Anthurium lancifolium Schott

Facultatively epiphytic herbs. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Colombia. Records: *A. De Sedas* 597 (PMA), *A. De Sedas* 672 (PMA), *A.K. Monro* 5682 (BM, INB, PMA), *A.K. Monro* 5960 (PMA), *A.K. Monro* 6051 (PMA), *A.K. Monro* 6300 (PMA), *A. Rodríguez* 10907 (BM, INB, PMA), *A. Rodríguez* 10924 (BM, INB, PMA), *A. Rodríguez* 11732 (BM, INB, PMA), *A. Rodríguez* 11812 (BM, INB, PMA), *D. Santamaría* 5814 (BM, INB, PMA), *D. Santamaría* 5910 (BM, INB, PMA), *D. Santamaría* 5963 (BM, INB, PMA), *D. Santamaría* 6240 (BM, INB, PMA), *D. Santamaría* 6808 (BM, INB, PMA), *D. Santamaría* 7055 (BM, INB, MO, PMA), *D. Santamaría* 7070 (BM, INB, PMA), *D. Solano* 4098 (BM, INB, PMA), *D. Solano* 4406 (BM, INB, PMA), *D. Solano* 5409 (PMA), *E. Alfaro* 5502 (BM), *J. Bittner* 1425 (MO), *J. Bittner* 1445 (MO), *J. Bittner* 1510 (MO), *S. Bridgewater* 4176 (BM, INB, PMA), *S. Bridgewater* 4186 (BM, INB, PMA).

Anthurium lentii Croat & R.A.Baker

Epiphytic herbs. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest.

Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 928 (INB), *A.K. Monro* 4386 (MO), *G. Herrera* 3331 (MO), *G. Herrera* 5184 (MO), *G. Herrera* 6048 (INB, MO).

Anthurium longistipitatum Croat

Epiphytic herbs. Distribution in PILA 900–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 782 (INB, MO), *D. Santamaría* 5705 (BM, INB, PMA), *G. Herrera* 5963 (INB, MO), *G. Herrera* 5988 (CR, MO).

Anthurium louisii Croat & R.A.Baker

Terrestrial herbs. Distribution in PILA 1300–2000 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández* 731 (INB, MO), *A. Fernández* 731 (MO), *A. Fernández* 862 (INB, MO), *A.K. Monro* 5574 (BM, INB, PMA), *A. Rodríguez* 10896 (BM, INB, PMA), *D. Santamaría* 5704 (BM, INB, PMA), *D. Santamaría* 5850 (BM, INB, PMA), *D. Solano* 3911 (BM, INB, PMA), *D. Solano* 4064 (BM, INB, PMA), *G. Herrera* 5342 (INB, MO), *G. Herrera* 5364 (INB), *G. Herrera* 5435 (INB, MO), *G. Herrera* 5509 (INB), *G. Herrera* 5509 (MO).

Anthurium madisonianum Croat

Epiphytic herbs. Distribution in PILA 850–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *A. De Sedas* 569 (PMA), *A.K. Monro* 4254 (BM, MO), *D. Santamaría* 7364 (PMA), *D. Santamaría* 7491 (PMA), *D. Solano* 5365 (PMA), *D. Solano* 5453 (PMA), *J. Kress* 82-1373 (MO).

Anthurium michelii Guillaumin

Facultatively epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, secondary forest. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro* 6362 (PMA), *D. Santamaría* 6476 (BM, INB, PMA), *D. Santamaría* 6820 (BM, INB, PMA), *D. Santamaría* 7394 (PMA), *L. Martínez* 410 (PMA).

Anthurium microspadix Schott

Facultatively epiphytic herbs. Distribution in PILA 600–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture, dense thicket. Global distribution: Mexico to Ecuador. Records: *A. De Sedas* 552 (PMA), *A. De Sedas* 707 (PMA), *A. Fernández* 639 (INB, MO), *A. Fernández* 644 (INB, MO), *A. Fernández* 718 (INB), *A. Fernández* 744 (INB, MO), *A. Fernández* 744 (MO), *A. Fernández*

929 (CR, INB), *A.K. Monro 4227* (BM, MO), *A.K. Monro 4336* (BM, MO), *A.K. Monro 5442* (BM, INB, MO, PMA), *A.K. Monro 5623* (BM, INB, PMA), *A.K. Monro 5992* (PMA), *A.K. Monro 6048* (PMA), *A. Rodríguez 10612* (BM, INB, PMA), *A. Rodríguez 10761* (BM, INB, PMA), *A. Rodríguez 11762* (BM, INB, PMA), *A. Soto 327* (INB), *D. Santamaría 3815* (INB), *D. Santamaría 4384* (INB), *D. Santamaría 5851* (BM, INB, PMA), *D. Santamaría 6494* (BM, INB, PMA), *D. Santamaría 6549* (BM, INB, PMA), *D. Santamaría 6841* (BM, INB, PMA), *D. Santamaría 7015* (BM, INB, PMA), *D. Santamaría 7044* (BM, INB, PMA), *D. Santamaría 7071* (BM, INB, PMA), *D. Santamaría 7093* (BM, INB, PMA), *D. Santamaría 7215* (BM, INB, PMA), *D. Santamaría 7258* (BM, INB, PMA), *D. Santamaría 7289* (BM, INB, PMA), *D. Santamaría 7350* (PMA), *D. Santamaría 7504* (PMA), *D. Santamaría 7660* (PMA), *D. Santamaría 7825* (PMA), *D. Solano 3881* (BM, INB, PMA), *D. Solano 3998* (BM, INB, PMA), *D. Solano 4144* (BM, INB, PMA), *D. Solano 4407* (BM, INB, PMA), *D. Solano 4427* (BM, INB, PMA), *D. Solano 4689* (BM, INB, PMA), *D. Solano 5018* (BM, INB, PMA), *E. Alfaro 5644* (BM, MO), *E. Alfaro 763* (INB), *E. Mora 290* (CR, INB), *G. Davidse 23777* (CR, MO), *G. Davidse 29136* (CR, MO), *G. Herrera 5466* (INB, MO), *G. McPherson 15914* (MO), *L.D. Gómez 23087* (MO), *M. Alfaro 30* (INB), *N. Zamora 4092* (BM, INB, PMA), *R. Villalobos 225* (INB, MO), *S. Bridgewater 4182* (BM, INB, PMA).

***Anthurium obtusilobum* Schott**

Comida de culebra (CR).

Facultatively epiphytic herbs. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest, dense thicket. Global distribution: Costa Rica to Ecuador. Records: *A. De Sedas 683* (PMA), *A.K. Monro 4721* (BM, MO), *A.K. Monro 5877* (BM, INB, PMA), *A.K. Monro 6143* (PMA), *A. Rodríguez 11276* (BM, INB, PMA), *A. Rodríguez 11235* (BM, INB, PMA), *A. Rodríguez 11596* (BM, INB), *D. Santamaría 6577* (BM, INB, PMA), *D. Santamaría 6597* (BM, INB, PMA), *D. Santamaría 6771* (BM, INB, PMA), *D. Santamaría 7710* (PMA), *D. Santamaría 7715* (PMA), *D. Santamaría 7835* (PMA), *D. Solano 4554* (BM, INB, PMA), *L. Martínez 409* (PMA), *S. Bridgewater 4179* (BM, INB), *S. Bridgewater 4219* (BM, INB).

***Anthurium ochranthum* K.Koch.**

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *A.K. Monro 4733* (BM, MO, PMA).

***Anthurium oerstedianum* Schott**

Terrestrial herbs. Distribution in PILA 400–1500 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría 7046* (BM, INB, MO, PMA).

***Anthurium ortegianum* Engl.**

Facultatively epiphytic herbs. Distribution in PILA 800–800 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A. Chacón 295* (CR), *A.K. Monro 5878* (BM, INB, MO, PMA), *D. Santamaría 6454* (BM, INB, PMA), *D. Santamaría 6479* (BM, INB, MO, PMA), *D. Santamaría 6515* (BM, INB, MO, PMA), *D. Santamaría 6590* (BM, INB, PMA).

***Anthurium pageanum* Croat**

Epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández 916* (INB), *A.K. Monro 5824* (BM, INB, PMA), *A. Rodríguez 11526* (BM, INB, PMA), *D. Santamaría 6497* (BM, INB, PMA), *D. Santamaría 6557* (BM, INB, PMA), *D. Santamaría 6629* (BM, INB, MO, PMA), *D. Solano 4750* (BM, INB, PMA), *D. Solano 4760* (BM, INB, PMA), *D. Solano 4789* (BM, INB, PMA), *G. Herrera 3277* (MO), *G. Herrera 3279* (INB, MO), *G. Herrera 5286* (MO), *G. Herrera 5365* (INB, MO).

***Anthurium paludosum* Engl.**

Epiphytic herbs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera 3134* (MO).

***Anthurium panduriforme* Schott**

Epiphytic herbs. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *D. Santamaría 6320* (BM, INB, PMA), *D. Santamaría 6677* (BM, INB, PMA), *D. Santamaría 6798* (BM, INB, PMA), *D. Solano 4456* (BM, INB, MO, PMA).

***Anthurium pentaphyllum* (Aubl.) G.Don**

Epiphytic herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Guyana, Trinidad, Brazil. Records: *A.K. Monro 6316* (PMA), *D. Santamaría 6486* (BM, INB, PMA), *S. Bridgewater 4181* (BM, INB, PMA).

***Anthurium pittieri* Engl.**

Epiphytic herbs. Distribution in PILA 400–2100 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6243* (PMA), *A.K. Monro 6317* (PMA), *D. Santamaría 7874* (PMA).

Anthurium prolatum Croat & R.A.Baker

Epiphytic herbs. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 1008* (INB), *D. Santamaría 5822* (BM, INB, PMA), *L.D. Gómez 23155* (MO).

Anthurium propinquum Sodiro

Facultatively epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Solano 4847* (BM, INB, PMA), *S. Bridgewater 4224* (BM, INB, PMA).

Anthurium protensum Schott

Epiphytic herbs. Distribution in PILA 800–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11299* (BM, INB, PMA), *B. Hammel 6254* (MO), *D. Santamaría 6518* (BM, INB, PMA), *D. Solano 4347* (BM, INB, PMA), *G. Davidse 29212* (MO), *G. Herrera 5196* (INB, MO), *G. Herrera 5331* (INB, MO), *G. Herrera 5368* (INB, MO), *G. Herrera 6046* (CR, INB, MO), *G. Herrera 6046* (MO), *H. Pittier 3160* (CR), *H. Pittier 3161* (CR).

Anthurium ramonense Engl. ex K. Krause

Epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *D. Santamaría 6500* (BM, INB, PMA), *G. Herrera 3277* (MO).

Anthurium ranchoanum Engl.

Facultatively epiphytic herbs. Distribution in PILA 800–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 733* (INB, MO), *A. Fernández 867* (INB, MO), *A. Fernández 874* (CR, INB), *A. Fernández 963* (INB, MO), *A.K. Monro 5470* (BM, INB, PMA), *A.K. Monro 5472* (BM, INB, MO, PMA), *A.K. Monro 5523* (BM, INB, MO, PMA), *A.K. Monro 5592* (BM, INB, MO, PMA), *A.K. Monro 5625* (BM, INB, MO, PMA), *A. Rodríguez*

10671 (BM, INB, PMA), *A. Rodríguez 11775* (BM, INB, PMA), *C. Galdames 3402* (MO), *D. Santamaría 5862* (BM, INB, PMA), *D. Solano 3836* (BM, INB, PMA), *D. Solano 3910* (BM, INB, PMA), *D. Solano 4068* (BM, INB, PMA), *J. Dwyer 545* (MO), *E. Navarro 484* (INB, MO), *G. Herrera 2663* (INB, MO), *G. Herrera 545* (MO), *G. Herrera 5482* (INB), *G. Herrera 5935* (INB, MO), *K. Sytsma 4949* (MO).

Anthurium ravenii Croat & R.A.Baker

Epiphytic herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras to Colombia. Records: *S. Bridgewater et al. 4219* (BM, INB), *A. Rodríguez et al. 11235* (INB).

Anthurium salvinii Hemsl.

Tabacón (CR).

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Honduras to Colombia. Records: *D. Santamaría 7047* (BM, INB, PMA).

□ **ε-PILA *Anthurium santamariae*** Croat & O.Ortiz

Epiphytic herbs. Distribution in PILA 1500–1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *D. Santamaría et al. 7535* (BM, PMA), *D. Solano & A. De Sedas 5429* (BM, PMA), *J. Lezcano et al. 305* (BM, PMA), *D. Santamaría et al. 7449* (BM, PMA).

Anthurium scandens (Aubl.) Engl.

Elotillo, Maicillo, Bejuco real, Kú+kitsa (Bribri), Beritsúa (Térraba) (CR).

Epiphytic herbs. Distribution in PILA 100–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia Brazil, Trinidad, Greater Antilles. Records: *A. Fernández 1070* (CR, INB, MO), *A.K. Monro 6007* (PMA), *A. Rodríguez 11343* (BM, INB, PMA), *K. Barringer 1622* (MO), *T. Cochrane 6245* (MO), *D. Solano 5080* (BM, INB, PMA), *D. Solano 5209* (BM, INB, PMA), *G. Davidse 25498* (MO), *G. Herrera 5185* (INB, MO), *L. Angulo 335* (INB, MO), *M.A. Thomas 1676* (MO), *M. Alfaro 29* (INB), *N. Zamora 4125* (BM, INB, PMA), *R. Villalobos 224* (INB).

Anthurium scherzerianum Schott

Lengua de diablo (CR).

Facultatively epiphytic herbs. Distribution in PILA 100–2100 m, low elevation mixed forest, mixed forest

in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Chacón* 286 (CR, MO), *A.K. Monro* 5870 (BM, INB, PMA), *B. Hammel* 17624 (CR, MO), *D. Solano* 4831 (BM, INB, PMA), *G. Herrera* 2681 (INB, MO), *G. Herrera* 5181 (MO).

Anthurium seibertii Croat & R.A.Baker

Facultatively epiphytic herbs. Distribution in PILA 1000–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11776 (BM, INB, PMA), *A. Rodríguez* 11821 (BM, INB), *J. Averett* 1084 (MO), *B. Gamboa* 645 (INB), *D. Burch* 553 (MO), *C. Hamilton* 3894 (MO), *D. Santamaría* 7061 (BM, INB, PMA), *D. Santamaría* 7262 (BM, INB, PMA), *D. Santamaría* 7285 (BM, INB, PMA), *D. Solano* 5091 (BM, INB, PMA), *D. Solano* 5186 (BM, INB, PMA), *J. Dwyer* 8749 (MO), *G. Davidse* 28395 (MO), *G. Davidse* 28565 (CR, MO), *L. Acosta* 2386 (INB), *L. Angulo* 326 (INB), *M.A. Thomas* 1675 (MO), *M. Valerio* 196 (CR, MO), *N. Zamora* 4128 (BM, INB, PMA), *N. Zamora* 4134 (BM, INB, PMA), *N. Zamora* 4143 (BM, INB, PMA), *T. Croat* 26976 (MO).

□ **ε-PILA *Anthurium solanoi*** Croat & O.Ortiz

Epiphytic herbs. Distribution in PILA 1500–1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *Solano & De Sedas* 5381 (BM, PMA).

Anthurium teribense Croat

Terrestrial herbs. Distribution in PILA 300–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 267 (CR, MO).

Anthurium testaceum Croat & R.A.Baker

Facultatively epiphytic herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras to Ecuador. Records: *A. Fernández* 1020 (CR, INB), *D. Santamaría* 7002 (BM, INB, PMA), *G. Herrera* 5935 (MO), *F. Quesada* 1663 (INB), *L. Angulo* 325 (INB, MO), *R. Villalobos* 221 (INB, MO), *R. Villalobos* 236 (CR, INB).

Anthurium tilaranense Standl.

Epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría* 5988 (BM, INB, PMA).

Anthurium tonduzii Engl.

Facultatively epiphytic herbs. Distribution in PILA 1100–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría* 6545 (BM, INB, PMA), *D. Solano* 4805 (BM, INB, PMA), *G. Herrera* 5376 (INB, MO), *G. Herrera* 5424 (INB, MO), *L. Martínez* 390 (PMA).

Anthurium upalaense Croat & R.A.Baker

Tabacón (CR).

Epiphytic herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11368 (BM, INB, PMA).

Anthurium validifolium K.Krause

Epiphytic herbs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7003 (BM, INB, PMA), *S. Knapp* 1513 (MO).

Anthurium watermaliense Hort. ex L.H.Bailey & Nash

Terrestrial herbs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 1057 (INB, MO), *A. Fernández* 734 (INB, MO), *A. Fernández* 875 (INB), *A. Rodríguez* 11500 (BM, INB, PMA), *A. Rodríguez* 10712 (BM, INB, PMA), *A. Rodríguez* 11534 (BM, INB, PMA), *B. Hammel* 17614 (CR, MO), *D. Santamaría* 5690 (BM, INB, PMA), *D. Santamaría* 6634 (BM, INB, PMA), *D. Santamaría* 6720 (BM, INB, PMA), *D. Solano* 4063 (BM, INB, PMA), *G. Herrera* 5268 (MO), *G. Herrera* 5484 (INB, MO), *G. Herrera* 5506 (INB, MO), *G. Herrera* 5507 (INB), *G. Herrera* 5519 (INB, MO), *G. Herrera* 5876 (INB, MO), *G. Herrera* 5897 (CR, INB, MO), *G. Herrera* 5950 (INB, MO), *L.D. Gómez* 23225 (MO).

Anthurium wendlingeri G.M.Barroso

Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *A. Fernández* 860 (INB, MO), *B. Hammel* 17614 (CR, MO), *G. Herrera* 2510 (MO), *H. Schmidt* 651 (INB, MO).

Chlorospatha croatianana Grayum

Terrestrial herbs. Distribution in PILA 300–1100 m, low elevation mixed forest, mixed forest in transition

to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 6229* (PMA), *D. Santamaría 7826* (PMA).

Dieffenbachia oerstedii Schott

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez, Sept 28, 2007* (Field obs.).

***Dieffenbachia* sp. A.**

Terrestrial herbs. Distribution in PILA –800 m, mixed forest in transition to low elevation forest. Global distribution: Elevation unknown. Endemic to Costa Rica. Records: *A. Rodríguez 11166* (INB, MO).

Material of this species was identified as a likely new species by Mike Grayum (Pers. Comm.).

Dieffenbachia tonduzii Croat & Grayum

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Ecuador. Records: *A. Rodríguez 11552* (BM, INB, MO, PMA), *D. Santamaría 6188* (BM, INB, MO, PMA), *S. Bridgewater 4215* (BM, INB, MO, PMA).

Dracontium spruceanum (Schott) G.Zhu

Terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru, Suriname, Brazil. Records: *A. Chacón 1* (MO).

Homalomena wendlandii Schott

Terrestrial herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *G. Herrera 5330* (MO).

Lemna valdiviana Phil.

Aquatic herbs. Distribution in PILA 0–0 m, low elevation mixed forest. Global distribution: USA to Argentina, Chile, Lesser Antilles, Greater Antilles. Records: *L.D. Gómez 23200* (MO).

ψ *Monstera adansonii* Schott

Piñanona, Chirriraca, Ventanilla (CR).

Hemi-epiphytic herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Honduras to Peru, Antilles, Guyanas, Brazil. Records: *G. Davidse 28424* (CR, MO), *L. Acosta 2425* (INB). Regional conservation status: Near Threatened (NT).

ε-PILA *Monstera cotobrusense* Croat

Epiphytic herbs. Distribution in PILA 1700–2500 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 6052* (CR, INB, MO).

Monstera deliciosa Liebm.

Costilla de Adán, Hoja de piedra, Mano de tigre, Piñanona, Chirriraca (CR).

Hemi-epiphytic herbs. Distribution in PILA 400–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández 1029* (INB, MO), *A. Fernández 861* (INB, MO), *A.K. Monro 4322* (BM, MO), *A.K. Monro 6129* (PMA), *A. Rodríguez 10714* (BM, INB, PMA), *C. Hamilton 3900* (MO), *D. Santamaría 7489* (PMA), *D. Solano 5164* (BM, INB, PMA), *G. Herrera 5412* (INB, MO), *G. Herrera 5972* (INB, MO), *L. Acosta 2374* (INB, MO), *L. Angulo 334* (INB, MO), *M. Chinchilla 25* (INB, MO), *R. Aguilar 1106* (INB, MO).

Monstera dissecta (Schott) Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Belize to Panama. Records: *G. Herrera 5358* (INB, MO), *L. Acosta 2314* (INB, MO), *L. Acosta 2383* (INB).

Monstera epipremnoides Engl.

Epiphytic herbs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28425* (MO).

Monstera oreophila Madison

Hemi-epiphytic herbs. Distribution in PILA 800–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 743* (INB, MO), *A. Fernández 815* (INB, MO), *C. Hamilton 3898* (MO), *D. Santamaría 6742* (BM, INB, PMA), *D. Solano 4857* (BM, INB, PMA), *E. Alfaro 765* (INB), *G. Herrera 5361* (INB, MO), *G. Herrera 5976* (INB), *G. Herrera 6071* (INB, MO), *M. Grayum 10281* (INB, MO), *R. Aguilar 1110* (INB, MO).

Monstera punctulata (Schott) Scott ex Engl.

Hemi-epiphytic herbs. Distribution in PILA 800–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *K. Barringer 1639* (MO), *L.*

Acosta 2346 (INB).

Monstera spruceana (Schott) Engl.

Hemi-epiphytic herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia, Guyanas, Brazil. Records: *G. Herrera 3330* (INB, MO).

Monstera standleyana G.S.Bunting

Hemi-epiphytic herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *G. Davidse 28563* (CR, MO).

Monstera tenuis K.Koch

Hemi-epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 7027* (BM, INB, PMA), *G. Davidse 28393* (CR, MO), *F. Quesada 1623* (INB, MO), *L. Acosta 2352* (INB), *M. Chinchilla 7* (INB).

Philodendron alticola Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28735* (CR, MO), *G. Davidse 28931* (MO).

Philodendron anisotomum Schott

Mata de culebra, Daguila (CR).

Hemi-epiphytic herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Costa Rica. Records: *A. Rodríguez 11908* (BM, INB, PMA), *A. Rodríguez 11925* (BM, INB, PMA).

Philodendron aurantiifolium Schott

Hemi-epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 4842* (BM, INB, MO), *A. Maroto 203* (INB, MO), *G. Davidse 28428* (MO).

Philodendron brenesii Standl.

Hemi-epiphytic herbs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica,

Panama. Records: *A. Fernández 816* (INB), *A. Rodríguez 10874* (BM, INB, PMA), *D. Santamaría 5673* (BM, INB, PMA), *D. Santamaría 6550* (BM, INB, PMA), *D. Santamaría 6625* (BM, INB, PMA), *D. Solano 4065* (BM, INB, PMA), *G. Herrera 5384* (INB, MO), *T. Croat 27000* (MO).

Philodendron cotonense Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28367* (CR, MO), *M. Alfaro 26* (INB, MO).

Philodendron crassispathum Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 900–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5504* (INB, MO), *G. Herrera 6219* (CR, INB, MO), *J. Bittner 1864* (INB, MO).

Philodendron dodsonii Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 200–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Ecuador. Records: *D. Santamaría 7212* (INB, MO).

Philodendron findens Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 6203* (BM, INB, PMA), *D. Santamaría 7780* (PMA), *L.D. Gómez 23061* (MO).

Philodendron rothschuhianum (Engl.) Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Honduras to Panama. Records: *A. Chacón 294* (CR, MO).

Philodendron sagittifolium Liebm.

Hemi-epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia, Venezuela. Records: *A. Rodríguez 11873* (BM, INB, PMA).

Philodendron schottianum H.Wendl. ex Schott

Hemi-epiphytic herbs. Distribution in PILA 700–2300 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 3972* (BM, INB, PMA), *G. Herrera 6044* (INB, MO), *T. Croat 48545* (MO).

Philodendron standleyi Grayum

Hemi-epiphytic herbs. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 4843* (BM, MO, PMA).

Philodendron straminicaule Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *K. E. Blum 2591* (MO), *C. von Hagen 2073* (MO), *C. von Hagen 2164* (MO).

Philodendron strictum G.S.Bunting

Terrestrial herbs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, pasture. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *A.K. Monro 5839* (BM, INB, PMA), *A. Rodríguez 11549* (BM, INB, PMA).

Philodendron sulcatum K.Krause

Hemi-epiphytic herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Ecuador. Records: *D. Santamaría 6816* (BM, INB, PMA), *D. Santamaría 7037* (BM, INB, PMA), *D. Santamaría 7043* (BM, INB, PMA).

Philodendron thalassicum Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5457* (BM, INB, PMA), *A.K. Monro 5545* (BM, INB, PMA), *E. Alfaro 741* (INB, MO), *G. Davidse 28365* (CR), *G. Davidse 29201* (MO), *J. Bittner 1787* (INB, MO), *M. Grayum 10282* (INB, MO), *T. Croat 27000A* (MO).

Philodendron tripartitum (Jacq.) Schott

Comida de culebra (CR).

Hemi-epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia, Jamaica. Records: *D. Santamaría 6150* (BM,

INB, PMA), *G. Davidse 28422* (CR, MO), *R. Villalobos 302* (CR, MO).

Philodendron verrucosum L.Mathieu ex Schott

Hemi-epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Costa Rica to Peru. Records: *A. De Sedas 667* (PMA), *A.K. Monro 6158* (PMA), *D. Santamaría 7366* (PMA), *D. Santamaría 7453* (PMA), *D. Santamaría 7537* (PMA), *D. Solano 4172* (BM, INB, MO, PMA).

Philodendron wendlandii Schott

Epiphytic herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *G. Davidse 29203* (CR).

Philodendron wilburii Croat & Grayum

Hemi-epiphytic herbs. Distribution in PILA 800–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5556* (BM, INB, PMA), *A.K. Monro 6006* (PMA), *A. Rodríguez 10899* (BM, INB, PMA), *D. Santamaría 5682* (BM, INB, PMA), *D. Santamaría 6558* (BM, INB, PMA), *D. Santamaría 6606* (BM, INB, PMA), *D. Santamaría 7536* (PMA), *D. Santamaría 7646* (PMA), *D. Solano 5448* (PMA), *G. Davidse 29203* (MO), *J. Aranda 3265* (MO), *J. Bittner 1877* (INB, MO), *L. Acosta 2418* (INB).

Rhodospatha moritziana Schott

Terrestrial herbs. Distribution in PILA 100–500 m, low elevation mixed forest. Global distribution: Costa Rica to Peru, Venezuela. Records: *G. Herrera 3040* (MO).

Rhodospatha wendlandii Schott

Epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *G. Davidse 28427* (CR, MO), *G. Herrera 3328* (INB, MO), *F. Quesada 1649* (INB), *T. Croat 26687* (MO).

Spathiphyllum laeve Engl.

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *A. Chacón 270* (CR, INB, MO), *A.K. Monro 5825* (BM, INB, MO, PMA), *A.K. Monro 5885* (BM, INB, MO, PMA), *A.K. Monro 6304* (PMA), *D. Santamaría 7875* (PMA), *W. S. Alverson 3219* (CR).

Spathiphyllum montanum (R.A.Baker) Grayum

Terrestrial herbs. Distribution in PILA 800–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6052* (PMA), *A. Rodríguez 10595* (BM, INB, MO, PMA), *A. Rodríguez 10896,1* (BM, INB, MO, PMA), *A. Rodríguez 11813* (BM, INB, MO, PMA), *D. Santamaría 7068* (BM, INB, MO, PMA), *J. Bittner 1552* (MO), *M. Grayum 10375* (INB, MO).

Spathiphyllum wendlandii Schott

Terrestrial herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras, Costa Rica, Panama. Records: *A. Rodríguez 11618* (BM, INB, MO, PMA), *G. Davidse 28444* (MO).

Spirodela polyrhiza (L.) Schleid.

Lentejita de pato (CR).

Aquatic or terrestrial herbs. Distribution in PILA 0–100 m, low elevation mixed forest. Global distribution: Worldwide. Records: *A. Rodríguez 11250* (BM, INB, MO, PMA), *S. Bridgewater 4158* (BM, INB, MO, PMA).

Stenospermatum angustifolium Hemsl.

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Peru. Records: *A.K. Monro 4279* (BM, MO), *A. Rodríguez 10875* (BM, INB, MO, PMA), *A. Rodríguez 10995* (BM, INB, MO, PMA).

Stenospermatum marantifolium Hemsl.

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Chacón 300* (CR, MO).

Stenospermatum sessile Engl.

Facultatively epiphytic herbs. Distribution in PILA 600–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 1017* (INB, MO), *A. Fernández 933* (INB), *A. Rodríguez 11018* (BM, INB, MO, PMA), *D. Santamaría 6296* (BM, INB, MO, PMA), *D. Santamaría 6670* (BM, INB, MO, PMA).

***Stenospermatum* sp. A.**

Epiphytic herbs. Distribution in PILA –1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *A.K. Monro 4279* (BM,

MO).

This species was identified as an undescribed species by T. Croat who has provisionally assigned it with the name *Stenospermatum monroi* ined. (Pers. Comm., 2007).

Stenospermatum spruceanum Schott

Epiphytic herbs. Distribution in PILA 800–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Peru, the Guyanas, Brazil. Records: *D. Solano 4066* (BM, INB, MO, PMA), *G. Herrera 2816* (MO), *G. Herrera 5187* (INB, MO), *G. Herrera 5896* (CR, INB, MO), *J. Bittner 1432* (MO).

Syngonium hoffmannii (A.C.Sm.) A.C.Sm.

Hemi-epiphytic herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras to Panama. Records: *A. Rodríguez 11870* (BM, INB, MO, PMA), *G. Davidse 28485* (CR, MO), *L. Acosta 2360* (INB), *L. Acosta 2431* (INB).

Syngonium podophyllum Schott

Garrobo (CR).

Hemi-epiphytic herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Lesser Antilles. Records: *L.D. Gómez 23162* (MO), *D. Solano 4335* (BM, INB, MO, PMA).

Syngonium schottianum H.Wendl. ex Schott

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Panama. Records: *D. Santamaría, Oct. 23, 2008 (Field obs.)*, *D. Santamaría, Oct. 24, 2008 (Field obs.)*, *D. Santamaría, Oct. 26, 2008 (Field obs.)*, *D. Santamaría, Oct. 28, 2008 (Field obs.)*, *D. Santamaría, Oct. 29, 2008 (Field obs.)*, *A. Rodríguez, Jul. 23, 2007 (Field obs.)*.

Xanthosoma undipes (K.Koch & C.D.Bouché) K.Koch

Terrestrial herbs. Distribution in PILA 200–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A. Fernández 1050* (INB), *A.K. Monro 6077* (PMA), *Blum 2644* (CR), *M. Grayum 10374* (INB, MO), *R. Aguilar 1091* (INB, MO).

ARECACEAE (PALMAE)

Aiphanes hirsuta Burret

Terrestrial shrubs or trees. Distribution in PILA 900–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Santamaría*, Oct. 24, 2008 (Field obs.), *D. Santamaría*, Oct. 25, 2008 (Field obs.), *D. Santamaría*, Oct. 26, 2008 (Field obs.), *D. Santamaría*, Oct. 27, 2008 (Field obs.), *D. Santamaría*, Oct. 28, 2008 (Field obs.), *D. Santamaría*, Oct. 29, 2008 (Field obs.), *D. Santamaría* 7645 (PMA). Conservation status: Least Concern, ver 2.3 (1994).

Astrocaryum alatum Loomis

Coyolillo, Coquillo, Coquito, Palma coquito (CR), Coquito, Coquillo, Chonta (P).

Terrestrial herbs. Distribution in PILA 0–200 m, low elevation mixed forest. Global distribution: Honduras to Colombia. Records: *D. Solano*, Oct. 27, 2007 (Field obs.).

Bactris caudata H.Wendl. ex Burret

Terrestrial shrubs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Nicaragua to Panama. Records: *D. Solano*, Oct. 25, 2007 (Field obs.), *D. Solano*, Oct. 28, 2007 (Field obs.).

Bactris dianeura Burret

Viscoyol, Huiscoyol (CR).

Terrestrial shrubs. Distribution in PILA 1100–1600 m, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría* 5998 (BM, INB, MO, PMA), *D. Santamaría* 6607 (BM, INB, MO, PMA), *D. Santamaría* 6800 (BM, INB, MO, PMA).

Bactris hondurensis Standl.

Coligallo, Viscoyol, Huiscoyol (CR).

Terrestrial shrubs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Honduras to Ecuador. Records: *A.K. Monro* 6321 (PMA).

ψ *Calyptrogyne ghiesbreghtiana* (Linden & H.Wendl.) H.Wendl.

Caligallo, Siuta, Suita, Cola de gallo, Wkō, Ukō (CR).

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera* 6213 (INB, MO), *L.D. Gómez* 23062 (MO). Regional conservation status: Near Threatened (NT).

Calyptrogyne herrerae Grayum

Terrestrial shrubs. Distribution in PILA 1200–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro* 5772 (BM, INB, MO, PMA), *A. Rodríguez* 11464 (BM, INB, MO,

PMA).

Chamaedorea amabilis H.Wendl.

Terrestrial shrubs. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11211 (BM, INB, MO, PMA), *D. Santamaría* 5987 (BM, INB, MO, PMA), *D. Solano* 4337 (BM, INB, MO, PMA), *D. Solano* 4364 (BM, INB, MO, PMA).

Chamaedorea brachyclada H.Wendl.

Terrestrial shrubs. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11826 (BM, INB, MO, PMA), *D. Solano* 4992 (BM, INB, MO, PMA).

ψ *Chamaedorea costaricana* Oerst.

Pacaya, Yawo, Kiöl (CR).

Terrestrial shrubs. Distribution in PILA 200–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Mexico to Panama. Records: *A.K. Monro* 4210 (BM, MO), *A.K. Monro* 5462 (BM, INB, MO, PMA), *A.K. Monro* 5568 (BM, INB, MO, PMA), *A. Rodríguez* 10716 (BM, INB, MO, PMA), *A. Rodríguez* 11176 (BM, INB, MO, PMA), *C. Hamilton* 3598 (MO), *C. Hamilton* 770 (MO), *C. Hamilton* 772 (MO), *D. Santamaría* 7224 (BM, INB, MO, PMA), *E. Alfaro* 2180 (INB), *E. Alfaro* 3196 (INB, MO), *G. Davidse* 29154 (CR, MO), *M. Grayum* 10373 (CR, INB, MO), *M. Valerio* 192 (MO). Regional conservation status: Near Threatened (NT).

Chamaedorea crucensis Hodel

Terrestrial shrubs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11791 (BM, INB, MO, PMA), *D. Santamaría* 6998 (BM, INB, MO, PMA), *D. Santamaría* 7065 (BM, INB, MO, PMA), *D. Santamaría* 7243 (BM, INB, MO, PMA), *D. Solano* 3863 (BM, INB, MO, PMA), *D. Solano* 4993 (BM, INB, MO, PMA), *D. Solano* 5078 (BM, INB, MO, PMA), *D. Solano* 5188 (BM, INB, MO, PMA), *E. Alfaro* 2181 (INB), *G. Davidse* 28478 (CR), *F. Quesada* 1647 (INB), *L. Acosta* 2285 (INB).

Chamaedorea dammeriana Burret

Terrestrial shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to

Ecuador. Records: *A. Rodríguez*, Feb. 20 2008 (Field obs.), *A. Rodríguez*, Feb. 22, 2008 (Field obs.), *A. Rodríguez*, Feb. 23, 2008 (Field obs.), *A. Rodríguez*, Jul. 22, 2007 (Field obs.), *A. Rodríguez*, Jul. 24 2007 (Field obs.), *A. Rodríguez*, Jul. 25, 2007 (Field obs.), *A. Rodríguez*, Nov. 1, 2007.

Chamaedorea deckeriana (Klotzsch) Hemsl.

Terrestrial shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11211,1 (BM, INB, MO, PMA), *D. Santamaría* 6770 (BM, INB, MO, PMA), *D. Solano* 4350 (BM, INB, MO, PMA), *S. Bridgewater* 4163 (BM, INB, MO, PMA). Uses: Construcción.

Chamaedorea hodellii Grayum

Terrestrial shrubs. Distribution in PILA 1100–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro* 5448 (BM, INB, MO, PMA), *A.K. Monro* 5762 (BM, INB, MO, PMA), *A. Rodríguez* 10585 (BM, INB, MO, PMA), *D. Santamaría* 6585 (BM, INB, MO, PMA), *G. Herrera* 2666 (CR, INB, MO), *G. Herrera* 5925 (INB, MO).

Chamaedorea lucidifrons L.H.Bailey

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A.K. Monro* 5774 (BM, INB, MO, PMA), *A.K. Monro* 5889 (BM, INB, MO, PMA), *A. Rodríguez* 11462 (BM, INB, MO, PMA), *A. Rodríguez* 11466 (BM, INB, MO, PMA), *D. Santamaría* 6555 (BM, INB, MO, PMA), *D. Santamaría* 6789 (BM, INB, MO, PMA), *D. Solano* 4748 (BM, INB, MO, PMA), *D. Solano* 4790 (BM, INB, MO, PMA).

Chamaedorea macrospadix Oerst.

Pacaya (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 778 (CR), *A.K. Monro* 5028 (BM, INB, MO), *A. Rodríguez* 11214 (BM, INB, MO, PMA), *A. Rodríguez* 11453 (BM, INB, MO, PMA), *A. Rodríguez* 11746 (BM, INB, MO, PMA), *A. Rodríguez* 11792 (BM, INB, MO, PMA), *F. Quesada* 1658 (INB), *L. Acosta* 2347 (INB).

Chamaedorea palmeriana Hodel & N.W.Uhl

Terrestrial shrubs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest,

mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1003 (INB), *A. Fernández* 845 (CR, INB, MO), *A.K. Monro* 5554 (BM, INB, MO, PMA), *A.K. Monro* 5840 (BM, INB, MO, PMA), *A. Rodríguez* 10713 (BM, INB, MO, PMA), *A. Rodríguez* 11469 (BM, INB, MO, PMA), *A. Rodríguez* 11501 (BM, INB, MO, PMA), *D. Santamaría* 6608 (BM, INB, MO, PMA), *D. Solano* 4137 (BM, INB, MO, PMA), *D. Solano* 4753 (BM, INB, MO, PMA), *D. Solano* 4893 (BM, INB, MO, PMA), *E. Alfaro* 5410 (BM), *E. Alfaro* 5484 (BM), *G. Herrera* 2662 (MO), *G. Herrera* 5104 (MO), *G. Herrera* 6030 (CR, INB, MO), *G. Herrera* 6032 (CR, INB, MO), *S. Bridgewater* 4145 (BM, INB, MO, PMA).

Chamaedorea pinnatifrons (Jacq.) Oerst.

Sór (Cabécar), Tsepa, húko (Bribri), Sron+go(tirub) (Térraba) (CR).

Terrestrial shrubs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture, dense thicket. Global distribution: Mexico to Bolivia. Records: *A. Fernández* 650 (INB), *A. Fernández* 772 (INB), *A.K. Monro* 5460 (BM, INB, MO, PMA), *A.K. Monro* 5566 (BM, INB, MO, PMA), *A.K. Monro* 5575 (BM, INB, MO, PMA), *A.K. Monro* 5622 (BM, INB, MO, PMA), *A. Rodríguez* 11003 (BM, INB, MO, PMA), *A. Rodríguez* 11541 (BM, INB, MO, PMA), *A. Rodríguez* 11738 (BM, INB, MO, PMA), *A. Rodríguez* 11833 (BM, INB, MO, PMA), *B. Gamboa* 641 (INB), *D. Santamaría* 5975 (BM, INB, MO, PMA), *D. Santamaría* 7059 (BM, INB, MO, PMA), *D. Solano* 3834 (BM, INB, MO, PMA), *D. Solano* 4842 (BM, INB, MO, PMA), *D. Solano* 4996 (BM, INB, MO, PMA), *D. Solano* 5076 (BM, INB, MO, PMA), *D. Solano* 5092 (BM, INB, MO, PMA), *E. Alfaro* 4666 (INB), *G. Davidse* 25683 (CR, MO), *G. Davidse* 28504 (MO), *G. Davidse* 28895 (MO).

Chamaedorea pittieri L.H.Bailey

Terrestrial shrubs. Distribution in PILA 1700–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *C. von Hagen* 2060 (MO).

Chamaedorea pumila H.Wendl

Terrestrial herbs. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 4808 (BM), *R. Aguilar* 1132 (MO).

Chamaedorea pygmaea H.Wendl.

Terrestrial shrubs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa

Rica to Colombia. Records: *E. Alfaro* 767 (INB, MO), *G. Davidse* 28488 (CR, MO), *G. Davidse* 28490 (MO), *G. Davidse* 28506 (MO).

Chamaedorea rossteniorum Hodel, G.Herrera & Cascante
Terrestrial shrubs. Distribution in PILA 600–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11305 (BM, INB, MO, PMA).

Chamaedorea scheryi L.H.Bailey
Terrestrial shrubs. Distribution in PILA 100–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1030 (INB), *A. Fernández* 843 (INB, MO), *A. Fernández* 865 (INB, MO), *A.K. Monro* 5449 (BM, INB, MO, PMA), *A. Rodríguez* 10803 (BM, INB, MO, PMA), *D. Santamaría* 5736 (BM, INB, MO, PMA), *D. Solano* 4022 (BM, INB, MO, PMA), *E. Alfaro* 5406 (BM), *M. Grayum* 10376 (INB, MO).

ψ ***Chamaedorea tepejilote*** Liebm.
Pacaya, Manita (CR).

Terrestrial shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez* 11231 (BM, INB, MO, PMA). Uses: medicinal. Regional conservation status: Near Threatened (NT).

Chamaedorea warscewiczii H.Wendl.
Terrestrial shrubs. Distribution in PILA 400–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 6016 (BM, INB, MO, PMA).

Chamaedorea woodsoniana L.H.Bailey
Terrestrial shrubs. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Nicaragua to Ecuador. Records: *A.K. Monro* 6169 (PMA).

Colpothrinax aphanopetala R. Evans
Terrestrial trees. Distribution in PILA 800–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Chacón* 290 (CR, MO), *B. Hammel* 17623 (MO).

ψ ***Euterpe precatoria*** Mart.
Palmito, Palmito dulce, Palmito mantequilla, Kérar-tebu (Cabécar), Sin-krá (Brunka), Zé-rebó (Térraba) (CR), Palmito, Rabiahorcado (P).

Terrestrial trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Ecuador. Records: *D. Santamaría*, Oct. 22, 2008 (Field obs.), *D. Santamaría*, Oct. 24, 2008 (Field obs.), *D. Santamaría*, Oct. 25, 2008 (Field obs.), *D. Santamaría*, Oct. 27, 2008 (Field obs.), *D. Santamaría*, Oct. 28, 2008 (Field obs.), *A. Rodríguez*, Feb. 20 2008 (Field obs.), *D. Solano*, Nov. 2nd, 2008 (Field obs.), *Solan*. Uses: food, timber, medicinal. Regional conservation status: Near Threatened (NT).

Geonoma congesta H.Wendl. ex Spruce
Caña de danta, Wkō, Ukü (CR).

Terrestrial shrubs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Honduras, Nicaragua to Ecuador. Records: *D. Santamaría*, Oct. 24, 2008 (Field obs.). Uses: handicrafts.

Geonoma cuneata H.Wendl. ex Spruce.
Terrestrial shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Nicaragua to Ecuador, Venezuela. Records: *A. Rodríguez* 11213 (BM, INB, MO, PMA), *A. Rodríguez* 11820 (BM, INB, MO, PMA), *A. Rodríguez* 11905 (BM, INB, MO, PMA), *A. Rodríguez* 11960 (BM, INB, MO, PMA), *D. Solano* 5043 (BM, INB, MO, PMA), *M. Moraga* 422 (INB), *S. Bridgewater* 4180 (BM, INB, MO, PMA). Uses: handicrafts.

Geonoma ferruginea H.Wendl. ex Spruce
Terrestrial shrubs. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Guatemala to Panama. Records: *A.K. Monro* 5829 (BM, INB, MO, PMA), *A.K. Monro* 6355 (PMA), *A. Rodríguez* 11543 (BM, INB, MO, PMA), *D. Santamaría* 5942 (BM, INB, MO, PMA), *D. Santamaría* 6651 (BM, INB, MO, PMA), *D. Santamaría* 7830 (PMA), *D. Solano* 4764 (BM, INB, MO, PMA), *D. Solano* 4797 (BM, INB, MO, PMA), *G. Herrera* 2819 (INB, MO), *J. Bittner* 1471 (INB, MO), *L. Martínez* 322 (PMA), *L. Martínez* 412 (PMA).

Geonoma interrupta (Ruiz & Pav.) Mart.
Súrtuba (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A. Rodríguez 11269* (BM, INB, MO, PMA).

Geonoma Geonoma orbignyana subsp. *hoffmanniana* (H.Wendl. ex Spruce) A.J.Hend.

Terrestrial shrubs. Distribution in PILA 1400–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras to Panama. Records: *A. Fernández 937* (INB), *A.K. Monro 5529* (BM, INB, MO, PMA), *A.K. Monro 5600* (BM, INB, MO, PMA), *A. Rodríguez 10667* (BM, INB, MO, PMA), *A. Rodríguez 10865* (BM, INB, MO, PMA), *A. Rodríguez 10989* (BM, INB, MO, PMA), *A. Rodríguez 11858* (BM, INB, MO, PMA), *D. Santamaría 5674* (BM, INB, MO, PMA), *D. Solano 3907* (BM, INB, MO, PMA), *D. Solano 5067* (BM, INB, MO, PMA), *D. Solano 5093* (BM, INB, MO, PMA), *D. Solano 5271* (BM, INB, MO, PMA), *E. Alfaro 2182* (INB), *G. Davidse 26197* (CR, MO), *G. Davidse 26207* (CR, MO), *G. Davidse 28955* (INB, MO), *S. Knapp 1509* (MO).

ε-PILA *Geonoma talamancana* Grayum

Terrestrial shrubs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4994* (BM, INB, MO), *D. Solano 4766* (BM, INB, MO, PMA), *D. Solano 4818* (BM, INB, MO, PMA).

ψ *Geonoma undata* Klotzsch
Súrtuba (CR).

Terrestrial shrubs or trees. Distribution in PILA 1700–1800 m, cloud forest, pasture. Global distribution: Mexico to Panama. Records: *A.K. Monro 4772* (BM, INB, MO), *A. Rodríguez 10980* (BM, INB, MO, PMA), *A. Soto 283* (INB), *B. Gamboa 1244* (INB, MO), *D. Solano 4001* (BM, INB, MO, PMA), *E. Alfaro 3819* (INB), *E. Alfaro 756* (INB, MO), *F. González 467* (INB), *F. González 485* (INB), *G. Davidse 28640* (MO), *G. Herrera 3427* (MO), *J. Bittner 1873* (CR, INB, MO), *F. Quesada 1563* (INB), *L. González 3626* (INB), *M. Grayum 10377* (INB, MO), *M. Moraga 1563* (CR), *R. Aguilar 1092* (INB, MO). Regional conservation status: Near Threatened (NT).

Hyospathe elegans Mart.

Terrestrial shrubs. Distribution in PILA 900–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia. Records: *A. Rodríguez 11559* (BM, INB, MO, PMA), *D. Solano 4891* (BM, INB, MO, PMA), *G. Herrera 5213* (MO).

Iriarteia deltoidea Ruiz & Pav.

Consuelo de mujer, Choncha negra, Palmilera, Palmito

dulce, Maquenque, Chonta, Chonta negra, Jira, Alá (CR), Corneto, Pico de negro, Pico de chombo, Pene de chombo (P).

Terrestrial herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Ecuador. Records: *D. Santamaría, Oct. 22, 2008* (*Field obs.*), *A. Rodríguez, Nov. 1, 2007* (*Field obs.*). Uses: food, handicrafts.

ψ *Prestoea acuminata* (Willd.) H.E.Moore
Palmito morado (CR).

Terrestrial shrubs or trees. Distribution in PILA 1300–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Nicaragua to Bolivia, Greater Antilles, Lesser Antilles, Tobago. Records: *A. Fernández 749* (INB), *A. Rodríguez 10573* (BM, INB, MO, PMA), *A. Rodríguez 10942* (BM, INB, MO, PMA), *G. Davidse 28700* (MO), *L. Acosta 2328* (INB), *L.D. Gómez 21835* (MO). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Prestoea ensiformis (Ruiz & Pav.) H.E.Moore

Terrestrial shrubs or trees. Distribution in PILA 1200–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *N. Zamora 2707* (INB).

Prestoea longipetiolata (Oerst.) H.E.Moore
Pacaya de ratón (CR).

Terrestrial shrubs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Nicaragua to Panama, Venezuela. Records: *A. Rodríguez 11351* (BM, INB, MO, PMA), *A. Rodríguez 11824* (BM, INB, MO, PMA), *A. Rodríguez 11855* (BM, INB, MO, PMA), *D. Santamaría 7086* (BM, INB, MO, PMA), *D. Solano 5019* (BM, INB, MO, PMA), *D. Solano 5071* (BM, INB, MO, PMA), *G. Herrera 5276* (MO), *L. Acosta 2278* (INB), *M. Chinchilla 23* (INB, MO).

Socratea exorrhiza (Mart.) H.Wendl.

Maquenque, Palmito amargo, Palmito, Palmilera, Chonta, Chonta Patona, Huk, Stiftpalm, Kúk, Jála (CR), Jira, Palma de zancos (P).

Terrestrial herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Peru, Brazil. Records: *A. Rodríguez, Nov. 1, 2007* (*Field obs.*). Uses: food.

□ ***Synechanthus fibrosus*** (H.Wendl.) H.Wendl.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera 3276* (INB, MO), *G. Herrera 3276* (MO).

Synechanthus warscewiczianus H. Wendl.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *D. Santamaría 6010* (BM, INB, MO, PMA).

ASPARAGACEAE

Hagenbachia panamensis (Standl.) Cruden

Terrestrial herbs. Distribution in PILA 700–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *A. Chacón 274* (CR, INB, MO), *G. Gallardo 94* (INB).

Maianthemum gigas (Woodson) LaFrankie

Terrestrial herbs. Distribution in PILA 800–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A. Chacón 541* (INB), *A.K. Monro 4122* (BM), *A.K. Monro 5181* (BM), *A. Rodríguez 10799* (BM, INB, MO, PMA), *B. Gamboa 1200* (INB), *B. Gamboa 1245* (INB, MO), *D. Santamaría 5759* (BM, INB, MO, PMA), *D. Solano 3926* (BM, INB, MO, PMA), *E. Alfaro 3338* (INB), *G. Davidse 25204* (MO), *G. Davidse 25376* (MO), *G. Davidse 26009* (MO), *F. Quesada 1487* (INB), *F. Quesada 1549* (INB), *L. Angulo 243* (INB), *S. Knapp 10049* (BM), *S. Knapp 9958* (BM).

Maianthemum paludicola LaFrankie

Terrestrial herbs. Distribution in PILA 2400–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *L. González 2498* (INB).

Maianthemum paniculatum (M. Martens & Galeotti) LaFrankie

Facultatively epiphytic herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A. Fernández 920* (INB), *A. Fernández 961* (INB), *B. Gamboa 1742* (INB), *B. Gamboa 591* (INB, MO), *C. Hamilton 3644* (MO), *C. Hamilton 3908* (MO), *D. Solano 5143* (BM, INB, MO, PMA), *G. Davidse 25179* (MO), *G. Davidse 28683* (CR, MO), *G. Davidse 29007* (CR, MO), *G. Davidse 23871* (CR, MO).

BROMELIACEAE

ψ ***Aechmea mariae-reginae*** H. Wendl.

Corpus, Espíritu Santo, Flor de Santa María, Piña de Palo (CR).

Epiphytic herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Costa Rica. Records: *A. Fernández 1040* (CR, INB), *G. Gallardo 298* (CR). Uses: ornamental. Regional conservation status: Vulnerable (VU), A2c.

Aechmea mexicana Baker

Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Ecuador. Records: *L.D. Gómez 23146* (MO). Uses: ornamental.

ψ ***Aechmea veitchii*** Baker

Facultatively epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *A. Fernández 876* (CR, INB), *A.K. Monro 5519* (BM, INB, PMA), *A.K. Monro 5614* (BM, INB, PMA), *A.K. Monro 6026* (PMA), *A.K. Monro 6211* (PMA), *A. Rodríguez 10959* (BM, INB, PMA), *A. Rodríguez 11333* (BM, INB, PMA), *D. Santamaría 6642* (BM, INB, PMA), *D. Solano 4095* (BM, INB, PMA), *D. Solano 4825* (BM, INB, PMA), *G. Herrera 5341* (INB, MO), *J. Bittner 1508* (INB, MO), *S. Bridgewater 4187* (BM, INB, PMA), *S. Bridgewater 4192* (BM, INB, PMA). Uses: ornamental. Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Catopsis nitida (Hook.) Griseb.

Epiphytic herbs. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *J. Dwyer 544* (MO). Uses: ornamental.

Catopsis nutans (Sw.) Griseb.

Epiphytic herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Ecuador, Venezuela, Antilles. Records: *A.K. Monro 5729* (INB). Uses: ornamental.

Catopsis wangerinii Mez & Wercklé

Epiphytic herbs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in

transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 7176 (INB). Uses: ornamental.

Greigia columbiana L.B.Sm.

Terrestrial herbs. Distribution in PILA 2500–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *E. Alfaro* 3235 (INB), *G. Davidse* 25247 (MO), *G. Davidse* 25995 (INB, MO).

Greigia sylvicola Standl.

Terrestrial herbs. Distribution in PILA 1500–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 776 (INB), *A. Soto* 270 (INB), *E. Alfaro* 3361 (INB), *G. Davidse* 25851 (INB, MO), *G. Davidse* 28669 (INB), *G. Herrera* 3630 (INB, MO), *G. Herrera* 5340 (INB, MO), *G. Herrera* 5886 (INB), *J. F. Morales* 5797 (INB, MO), *F. Quesada* 1564 (INB).

Guzmania angustifolia (Baker) Wittm.

Epiphytic herbs. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *D. Solano* 4417 (BM, INB, PMA), *D. Solano* 4419 (BM, INB, PMA), *R. Villalobos* 237 (INB), *S. Bridgewater* 4205 (BM, INB, PMA).

Guzmania blassii Rauh

Epiphytic herbs. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11309 (BM, INB, PMA), *G. Herrera* 6086 (INB).

Guzmania condensata Mez & Wercklé

Epiphytic herbs. Distribution in PILA 1300–1300 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 11002 (BM, INB, PMA). Uses: ornamental.

Guzmania desautelsii Read & L.B.Sm.

Facultatively epiphytic herbs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *M. Moraga* 75 (INB). Uses: ornamental.

Guzmania donnellsmithii Mez.

Epiphytic herbs. Distribution in PILA 100–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution:

Nicaragua to Panama. Records: *A. Rodríguez* 10930 (BM, INB, PMA), *D. Solano* 4186 (BM, INB, PMA), *G. Gallardo* 299 (CR, INB), *M. Moraga* 78 (INB).

Guzmania glomerata Mez & Wercklé

Epiphytic herbs. Distribution in PILA 1200–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *G. Herrera* 2684 (INB, MO). Uses: ornamental.

Guzmania herrerae H.Luther & W.J.Kress

Epiphytic herbs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 4666 (BM, INB, PMA), *D. Solano* 4676 (BM, INB, PMA), *D. Solano* 4755 (BM, INB, PMA).

Guzmania lingulata (L.) Mez

Epiphytic herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Ecuador, Brazil, Antilles. Records: *A. Rodríguez* 11215 (BM, INB, PMA).

Guzmania musaica Mez

Epiphytic herbs. Distribution in PILA 700–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia, Venezuela. Records: *A. Chacón* 278 (INB, MO).

Guzmania nicaraguensis Mez & C.F.Baker

Epiphytic herbs. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Fernández* 1007 (CR, INB), *D. Solano* 4105 (BM, INB, PMA). Uses: ornamental.

Guzmania obtusiloba L.B.Sm.

Epiphytic herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 5778 (BM, INB, PMA), *A.K. Monro* 5847 (BM, INB, PMA), *A. Rodríguez* 11480 (BM, INB, PMA), *D. Solano* 4767 (BM, INB, PMA), *D. Solano* 4820 (BM, INB, PMA), *G. Herrera* 2803 (INB, MO).

Guzmania plicatifolia L.B.Sm.

Epiphytic herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1037 (INB), *A. Fernández* 945 (INB), *D. Santamaría* 5896 (BM, INB, PMA), *G. Herrera* 5416 (INB, MO), *G. Herrera* 6089

(CR, INB, MO).

Guzmania polycephala Mez & Wercklé

Epiphytic herbs. Distribution in PILA 900–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4204* (BM, INB, PMA), *E. Alfaro 2280* (INB), *G. Herrera 6017* (CR, INB, MO), *L. Acosta 2427* (INB).

Guzmania scandens H.Luther & W.J.Kress

Epiphytic herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5656* (BM, INB). Uses: ornamental.

Guzmania scherzeriana Mez

Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Belize to Ecuador. Records: *A. Rodríguez 11218* (BM, INB, PMA), *D. Solano 4471* (BM, INB, PMA), *G. Herrera 3041* (MO). Uses: ornamental.

Guzmania spectabilis (Mez & Wercklé) Utléy

Epiphytic herbs. Distribution in PILA 900–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *J. Bittner 1334* (INB), *J. Bittner 1438* (INB).

Guzmania sprucei (André) L.B.Sm.

Epiphytic herbs. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez 11675* (BM, INB, PMA), *D. Santamaría 6795* (BM, INB, PMA), *G. Gallardo 301* (CR, INB, MO), *L. Martínez 418* (PMA). Uses: ornamental.

Guzmania stenostachya L.B.Sm.

Epiphytic herbs. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 6108* (CR, INB).

Mezobromelia pleiosticha (Griseb.) Utléy & H.Luther

Epiphytic herbs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, Venezuela, Trinidad, Guyanas, Brazil. Records: *J. Dwyer 8748* (MO).

Pitcairnia atrorubens (Beer) Baker

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Colombia. Records: *A. Fernández 1019* (INB), *E. Alfaro 2268* (INB), *M. Chinchilla 191* (CR, INB), *R. Villalobos 272* (INB), *S. Bridgewater 4221* (BM, INB, PMA). Uses: ornamental.

Pitcairnia brittoniana Mez

Facultatively epiphytic herbs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Bolivia. Records: *A. Fernández 932* (INB), *D. Solano 4152* (BM, INB, PMA), *G. Herrera 6092* (INB). Uses: ornamental.

Pitcairnia kalbreyeri Baker

Terrestrial herbs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Rodríguez 10867* (BM, INB, MO, PMA), *D. Santamaría 5703* (BM, INB, MO, PMA), *D. Solano 3917* (BM, INB, MO, PMA), *G. Herrera 2848* (MO). Uses: ornamental.

Pitcairnia wendlandii Baker

Facultatively epiphytic herbs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Chacón 282* (INB, MO), *A.K. Monro 6111* (PMA), *D. Santamaría 7782* (PMA), *D. Solano 5399* (PMA), *G. Gallardo 316* (CR, INB, MO), *J. Bittner 1517* (INB, MO).

ψ ***Puya dasylirioides*** Standl.

Terrestrial herbs. Distribution in PILA 2500–3300 m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *A. Chacón 571* (INB, MO), *E. Alfaro 3403* (INB). Uses: ornamental. Global conservation status: Endangered (EN), B1ab(i,iii).

ψ ***Puya floccosa*** (Linden) E.Morren ex Mez

Terrestrial herbs. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Colombia, Venezuela. Records: *A. Rodríguez 9756* (INB), *D. Santamaría 3748* (INB), *D. Solano 2877* (INB), *L. González 1201* (INB). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Racinaea adpressa (André) J.R.Grant

Epiphytic herbs. Distribution in PILA 900–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica

to Peru. Records: *A. Fernández 830* (INB).

Racinaea schumanniana (Wittm.) J.R. Grant

Epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Rodríguez 11014* (BM, INB, PMA). Uses: ornamental.

Ronnbergia hathewayi L.B.Sm.

Epiphytic herbs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5861* (BM, INB, PMA), *A. Rodríguez 11401* (BM, INB, PMA), *D. Solano 4729* (BM, INB, PMA), *D. Solano 4866* (BM, INB, PMA).

Tillandsia acostae Mez & Tonduz

Epiphytic herbs. Distribution in PILA 200–600 m, low elevation mixed forest. Global distribution: Mexico, Honduras, Costa Rica. Records: *A.K. Monro 6126* (PMA).

Tillandsia anceps G.Lodd.

Epiphytic herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Colombia, Venezuela, Trinidad, Guyana, Brazil. Records: *G. Herrera 3289* (INB, MO). Uses: ornamental.

Tillandsia biflora Ruiz & Pav.

Epiphytic herbs. Distribution in PILA 1400–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Bolivia, Venezuela. Records: *J. F. Morales 5804* (CR, INB, MO).

Tillandsia bulbosa Hook.

Epiphytic herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Ecuador, Brazil, Antilles. Records: *G. Gallardo 305* (CR, INB, MO), *G. Herrera 5283* (INB, MO). Uses: ornamental.

Tillandsia complanata Benth.

Epiphytic herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia, Jamaica, Venezuela, Trinidad, Brazil. Records: *A. Fernández 1014* (INB).

Tillandsia excelsa Griseb.

Epiphytic herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Belize to Panama, Antilles. Records: *A. Fernández 1042* (INB), *A. Rodríguez 11816* (BM, INB, PMA), *A. Rodríguez 11835* (BM, INB, PMA), *A. Rodríguez 11881* (BM, INB, PMA), *D. Solano 5060* (BM, INB, PMA). Uses: ornamental.

Tillandsia festucoides Brongn. ex Mez

Epiphytic herbs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama, Antilles. Records: *G. Gallardo 304* (INB, MO).

Tillandsia insignis (Mez) L.B.Sm. & Pittendr.

Epiphytic herbs. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5237* (INB, MO), *R. Aguilar 1170* (INB, MO). Uses: ornamental.

Tillandsia leiboldiana Schldtl.

Epiphytic herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría 7016* (BM, INB, PMA), *D. Solano 4319* (BM, INB, PMA), *G. Herrera 3291* (INB, MO), *M. Moraga 423* (INB). Uses: ornamental.

Tillandsia longifolia Baker

Epiphytic herbs. Distribution in PILA 1800–3200 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *D. Santamaría 7140* (INB).

Tillandsia oerstediana L.B.Sm.

Epiphytic herbs. Distribution in PILA 900–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *L. Acosta 2421* (INB). Uses: ornamental.

Tillandsia punctulata Schldtl. & Cham.

Epiphytic herbs. Distribution in PILA 700–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 1047* (CR, INB), *D. Santamaría 5937* (BM, INB, PMA), *D. Solano 5115* (BM, INB, PMA), *N. Zamora 4129* (BM, INB, PMA), *R. J. Schmalzel 31* (MO).

Tillandsia usneoides (L.) L.

Barba de viejo (CR).

Epiphytic herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Argentina, Antilles. Records: *A.K. Monro 5668* (BM, INB, PMA). Uses: handicrafts.

Vriesea chontalensis (Baker) L.B.Sm.

Epiphytic herbs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11767* (BM, INB, PMA), *G. Herrera 5287* (INB, MO), *M. Chinchilla 6* (INB, MO). Uses: ornamental.

Vriesea heliconioides (Kunth) Hook. ex Walp.

Epiphytic herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Venezuela, Surinam, Brazil. Records: *S. Bridgewater 4214* (BM, INB, PMA).

Vriesea incurva (Griseb.) Read

Epiphytic herbs. Distribution in PILA 700–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia Venezuela, Antilles. Records: *A. Rodríguez 11944* (BM, INB, PMA), *A. Rodríguez 9752* (INB), *D. Santamaría 3755* (INB), *G. Herrera 5245* (INB, MO), *L. Acosta 2413* (INB), *M. Chinchilla 194* (INB). Uses: ornamental.

Vriesea monstrum (Mez) L.B.Sm.

Epiphytic herbs. Distribution in PILA 500–700 m, low elevation mixed forest. Global distribution: Nicaragua to Ecuador. Records: *G. Gallardo 288* (CR, INB). Uses: ornamental.

ε-PILA *Vriesea woodsoniana* (L.B.Sm.) J.R.Grant

Facultatively epiphytic herbs. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *R. E. Woodson 1029* (MO).

This species has been documented from and adjacent to the buffer zone of the park but is still considered endemic to PILA.

Werauhia acuminata (Mez & Wercklé) J.R.Grant

Epiphytic herbs. Distribution in PILA 300–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution:

Costa Rica, Panama. Records: *D. Solano 4104* (BM, INB, PMA), *G. Herrera 5363* (INB), *S. Bridgewater 4189* (BM, INB, PMA).

Werauhia balanophora (Mez) J.R.Grant

Facultatively epiphytic herbs. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría 5710* (BM, INB, PMA).

Werauhia barii (J.F.Morales) J.F.Morales

Epiphytic herbs. Distribution in PILA 1700–2100 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 1052* (INB, MO).

Werauhia brunei (Mez & Wercklé) J.R.Grant

Epiphytic herbs. Distribution in PILA 1800–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 6218* (INB).

Werauhia hygrometrica (André) J.R.Grant

Facultatively epiphytic herbs. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia, Venezuela. Records: *A. Rodríguez 10692* (BM, INB, PMA), *G. Herrera 5461* (INB).

Werauhia laxa (Mez & Wercklé) J.R.Grant

Facultatively epiphytic herbs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *J. Bittner 1439* (INB, MO).

Werauhia luis-gomezii (Utley) J.R.Grant

Epiphytic herbs. Distribution in PILA 2700–2700 m, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *F. Quesada 1965* (INB).

Werauhia macrochlamys (Mez & Wercklé) J.F.Morales

Epiphytic herbs. Distribution in PILA 2000–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Soto 346* (INB).

Werauhia ororiensis (Mez) J.R.Grant

Facultatively epiphytic herbs. Distribution in PILA 1100–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3412* (INB), *G. Davidse 23939* (CR, MO), *F. Quesada 1849* (INB).

Werauhia pedicellata (Mez & Wercklé) J.R. Grant
Facultatively epiphytic herbs. Distribution in PILA 1300–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras to Panama. Records: *D. Solano 3971* (BM, INB, PMA), *D. Solano 4067* (BM, INB, PMA).

Werauhia umbrosa (L.B.Sm.) J.R. Grant
Facultatively epiphytic herbs. Distribution in PILA 800–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *E. Alfaro 3411* (INB).

Werauhia viridiflora (Regel) J.R. Grant
Epiphytic herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *A. Rodríguez 11907* (BM, INB, PMA), *L. Acosta 2433* (INB), *M. Chinchilla 197* (INB), *S. Bridgewater 4188* (BM, INB, PMA).

Werauhia werckleana (Mez) J.R. Grant
Epiphytic herbs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *L. Acosta 2326* (INB).

Werauhia williamsii (L.B.Sm.) J.R. Grant
Facultatively epiphytic herbs. Distribution in PILA 1500–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3268* (INB), *G. Davidse 28828* (INB, MO).

BURMANNIACEAE

Apteria aphylla (Nutt.) Barnhart
Terrestrial herbs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: USA to the Guyanas, Greater Antilles, Lesser Antilles. Records: *G. Herrera 3135* (MO).

Burmannia kalbreyeri Oliv.
Epiphytic herbs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru, Venezuela. Records: *G. Herrera 5230* (INB, MO), *G. Herrera 5389* (INB, MO).

Cymbocarpa refracta Miers
Terrestrial herbs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Costa Rica

to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Herrera 3322* (INB, MO).

Dictyostega orobanchoides (Hook.) Miers
Terrestrial herbs. Distribution in PILA 300–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, pasture. Global distribution: Mexico to Bolivia, Lesser Antilles. Records: *D. Solano 4667* (BM, INB, MO, PMA), *G. Herrera 3335* (INB, MO), *G. Herrera 5400* (INB).

Gymnosiphon panamensis Jonker
Terrestrial herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *A. Chacón 187* (CR, INB, MO).

Gymnosiphon suaveolens (H.Karst.) Urb.
Terrestrial herbs. Distribution in PILA 200–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela. Records: *D. Santamaria 4418* (INB), *G. Davidse 23773* (CR, MO), *G. Davidse 28480* (CR, MO), *G. Davidse 29086* (MO).

CANNACEAE

Canna tuerckheimii Kraenzl.
Terrestrial herbs. Distribution in PILA 300–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A. Soto 1257* (INB), *D. Solano 2899* (INB), *L. Acosta 2341* (INB).

COMMELINACEAE

Commelina diffusa Burm. f.
Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Bolivia, Venezuela, Brazil, Paraguay, Argentina, Antilles, tróps., subtróps del Viejo Mundo. Records: *D. Solano 3925* (BM, INB, MO, PMA).

Dichorisandra amabilis J.R. Grant
Azulina (CR).

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 5549* (BM, INB, MO, PMA), *A.K. Monro 5773* (BM, INB, MO, PMA), *D. Santamaria 5675*

(BM, INB, MO, PMA), *E. Alfaro* 5560 (BM, INB), *L.D. Gómez* 23180 (MO).

Dichorisandra hexandra (Aubl.) Standl.

Hemi-epiphytic herbs. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Peru, Venezuela, the Guyanas, Lesser Antilles. Records: *A. Fernández* 804 (INB), *A. Fernández* 894 (INB), *A.K. Monro* 4449 (BM, INB), *A.K. Monro* 6293 (PMA), *A. Rodríguez* 10725 (BM, INB, MO, PMA), *A. Rodríguez* 10904 (BM, INB, MO, PMA), *A. Rodríguez* 11199 (BM, INB, MO, PMA), *D. Solano* 4077 (BM, INB, MO, PMA), *E. Alfaro* 746 (INB), *G. Gallardo* 309 (INB, MO), *G. Herrera* 5359 (INB, MO), *G. Herrera* 6054 (INB), *L. Martínez* 323 (PMA), *S. Bridgewater* 4206 (BM, INB, MO, PMA).

Floscopa discolor (Seub.) C.B. Clarke

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, secondary forest. Global distribution: Honduras to Peru Brazil. Records: *A. Rodríguez*, *Nov. 1, 2007 (Field obs.)*, *D. Solano* 5870 (PMA).

Tinantia standleyi Steyererm.

Terrestrial herbs. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *A. Soto* 1241 (INB), *M. Alfaro* 19 (INB).

Tradescantia poelliae D.R.Hunt

Terrestrial herbs. Distribution in PILA 700–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Mexico to Panama. Records: *A. Fernández* 692 (INB), *A. Rodríguez* 10888 (BM, INB, MO, PMA), *C. Hamilton* 3639 (MO), *C. Hamilton* 744 (MO), *D. Solano* 5174 (BM, INB, MO, PMA), *G. Davidse* 26135 (CR, MO), *G. Davidse* 29147 (CR, MO), *M. Grayum* 10318 (CR, INB, MO).

Tradescantia schippii D.R.Hunt

Terrestrial herbs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to Colombia. Records: *A. Fernández* 990 (INB, MO), *D. Solano* 5005 (BM, INB, MO, PMA), *G. Herrera* 2671 (INB, MO), *G. Herrera* 6188 (INB, MO).

Tradescantia zanonia (L.) Sw.

Canutillo, Matalomoyo (CR).

Terrestrial herbs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 753 (INB), *A.K. Monro* 4202 (BM, INB, MO), *A.K. Monro* 5447 (BM, INB, MO, PMA), *A.K. Monro* 5560 (BM, INB, MO, PMA), *A. Rodríguez* 10629 (BM, INB, MO, PMA), *A. Rodríguez* 11161 (BM, INB, MO, PMA), *A. Rodríguez* 11750 (BM, INB, MO, PMA), *D. Santamaría* 3524 (INB), *D. Santamaría* 3803 (INB), *D. Santamaría* 7270 (BM, INB, MO, PMA), *D. Santamaría* 7587 (PMA), *D. Santamaría* 7877 (PMA), *D. Solano* 3877 (BM, INB, MO, PMA), *D. Solano* 4334 (BM, INB, MO, PMA), *D. Solano* 4535 (BM, INB, MO, PMA), *D. Solano* 5077 (BM, INB, MO, PMA), *D. Solano* 5175 (BM, INB, MO, PMA), *G. Davidse* 28442 (CR, MO), *J. Bittner* 1883 (INB). Uses: medicinal.

COSTACEAE

Costus bracteatus Rowlee

Terrestrial herbs. Distribution in PILA 0–200 m, low elevation mixed forest. Global distribution: Nicaragua to Panama. Records: *A. Chacón* 296 (CR, MO), *G. Herrera* 2792 (MO).

Costus comosus (Jacq.) Roscoe

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: El Salvador, Costa Rica to Venezuela. Records: *A.K. Monro* 5633 (BM, INB, PMA), *A. Rodríguez* 11061 (BM, INB, PMA).

Costus curvibracteatus Maas

Terrestrial herbs. Distribution in PILA 1000–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 1043 (INB), *A. Fernández* 951 (INB), *D. Santamaría* 6312 (BM, INB, PMA).

Costus glaucus Maas

Terrestrial herbs. Distribution in PILA 100–600 m, low elevation mixed forest. Global distribution: Nicaragua to Colombia. Records: *G. Herrera* 3127 (MO).

Costus laevis Ruiz & Pav.

Terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala to Bolivia. Records: *D. Solano* 4302 (BM, INB, PMA).

Costus lima K.Schum.

Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *D. Santamaría* 6322 (BM, INB, MO, PMA).

Costus pulverulentus C.Presl

Caña agria (CR).

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Venezuela, Cuba. Records: *G. Herrera* 3273 (MO).

Costus scaber Ruiz & Pav.

Caña agria (CR).

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil, Antilles. Records: *A.K. Monro* 5886 (BM, INB, PMA), *A. Rodríguez* 11444 (BM, INB, PMA), *A. Rodríguez* 11890 (BM, INB, PMA), *D. Solano* 4687 (BM, INB, PMA). Uses: food, medicinal.

Costus villosissimus Jacq.

Terrestrial herbs. Distribution in PILA 0–400 m, low elevation mixed forest. Global distribution: Nicaragua to Ecuador, Venezuela, Guyana. Records: *G. Herrera* 3036 (MO).

Costus wilsonii Maas

Terrestrial herbs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 3506 (INB), *D. Santamaría* 4397 (INB), *D. Solano* 3180 (INB), *E. Fletes* 193 (INB), *G. Davidse* 28314 (CR, MO), *G. Davidse* 28403 (CR, MO), *J. A. Duke* 13607 (MO), *L. Acosta* 2355 (INB).

CYCLANTHACEAE

Asplundia albicarpa Hammel

Hemi-epiphytic herbs. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro* 5783 (BM, INB, PMA), *A. Rodríguez* 11580 (BM, INB, PMA), *A. Rodríguez* 11603 (BM, INB, PMA), *D. Santamaría* 6572 (BM, INB, PMA), *D. Santamaría* 6587 (BM, INB, PMA), *D. Santamaría*

7790 (PMA), *D. Solano* 4845 (BM, INB, PMA), *L. Martínez* 344 (PMA), *L. Martínez* 426 (PMA).

Asplundia aurantiaca Harling

Hemi-epiphytic herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama, Ecuador. Records: *A.K. Monro* 5690 (BM, INB, PMA), *D. Santamaría* 5955 (BM, INB, PMA), *D. Santamaría* 6726 (BM, INB, PMA), *D. Santamaría* 7783 (PMA), *G. Herrera* 5259 (CR, MO).

Asplundia ceci Hammel

Hemi-epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría* 6462 (BM, INB, PMA).

Asplundia euryspatha Harling

Hemi-epiphytic herbs. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 6381 (PMA), *A. Rodríguez* 11307 (BM, INB, PMA), *A. Rodríguez* 11823 (BM, INB, PMA), *D. Santamaría* 6168 (BM, INB, PMA), *D. Santamaría* 6243 (BM, INB, PMA), *D. Santamaría* 6568 (BM, INB, PMA), *D. Santamaría* 6774 (BM, INB, PMA), *D. Solano* 4439 (BM, INB, PMA), *E. Mora* 285 (INB), *F. Quesada* 1677 (INB), *L. Acosta* 2343 (INB).

Asplundia flavovaginata Harling

Terrestrial herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia, Peru, Venezuela. Records: *G. Herrera* 6189 (INB).

Asplundia isabellina Harling

Hemi-epiphytic herbs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Santamaría* 6996 (INB).

Asplundia microphylla (Oerst.) Harling

Hemi-epiphytic herbs. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Fernández* 847 (INB), *G. Davidse* 29199 (MO), *G. Herrera* 5898 (INB), *G. Herrera* 5984 (CR, INB, MO).

Asplundia multistaminata Harling

Hemi-epiphytic herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Solano 4400* (BM, INB, PMA), *L.D. Gómez 23165* (MO).

Asplundia sanctae-ritae Galeano & R.Bernal

Hemi-epiphytic herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández 854* (CR, INB, MO), *A.K. Monro 5537* (BM, INB, PMA), *D. Santamaría 6641* (BM, INB, PMA), *D. Santamaría 6664* (BM, INB, PMA), *D. Solano 4123* (BM, INB, PMA), *D. Solano 4817* (BM, INB, PMA).

Asplundia stenophylla (Standl.) Harling

Hemi-epiphytic herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández 800* (INB), *A. Rodríguez 11892* (BM, INB, PMA), *B. Hammel 11395* (MO), *K. Blum 2669* (MO), *D. Santamaría 7095* (BM, INB, PMA), *D. Solano 4017* (BM, INB, PMA), *D. Solano 5010* (BM, INB, PMA), *J. Dwyer 7729* (MO), *G. Davidse 28410* (CR), *G. Davidse 28410* (MO), *G. Davidse 29111* (CR, MO), *G. Herrera 5197* (MO), *L. Acosta 2290* (INB), *R. Villalobos 271* (INB).

Asplundia utilis (Oerst.) Harling

Cola de gallo, Chidra, Tucuso (CR).

Hemi-epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to Ecuador. Records: *A.K. Monro 5689* (BM, INB, PMA), *D. Santamaría 5969* (BM, INB, PMA), *G. Herrera 5344* (CR, INB, MO).

Asplundia vagans Harling

Hemi-epiphytic herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Bolivia. Records: *A.K. Monro 5962* (BM, INB, PMA), *D. Santamaría 7591* (BM, INB, PMA).

Carludovica rotundifolia H.Wendl. ex Hook. f.

Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras, Costa Rica, Panama. Records: *A. Fernández*

1036 (INB), *D. Santamaría 6622* (BM, INB, PMA), *K.E. Blum 2672* (MO). Uses: handicrafts, ornamental.

Chorigyne densiflora R.Erikss.

Epiphytic herbs. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *S. Knapp 2110* (MO).

Chorigyne ensiformis (Hook. f.) R.Erikss.

Chidra (CR).

Epiphytic herbs. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5218* (INB, MO), *G. Herrera 5986* (INB).

Chorigyne pendula (Hammel) R.Erikss.

Epiphytic herbs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3268* (INB, MO).

Cyclanthus bipartitus Poit. ex A.Rich.

Hoja de lapa, Tornillo, Oreja de burro (CR).

Terrestrial herbs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture, dense thicket. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Lesser Antilles. Records: *A. Fernández 944* (INB), *A. Rodríguez 11614* (BM, INB, MO, PMA), *G. Davidse 28503* (MO), *F. Quesada 1887* (INB).

Dicranopygium grandifolium Harling

Epiphytic herbs. Distribution in PILA 100–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Colombia, Ecuador. Records: *B. Hammel 17616* (MO).

Dicranopygium umbrophilum Hammel

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, secondary forest. Global distribution: Nicaragua to Panama. Records: *B. Hammel 17617* (MO), *G. Herrera 3025* (MO), *L. Martínez 331* (PMA).

Dicranopygium wallisii (Regel) Harling

Terrestrial herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera 5326* (MO).

Dicranopygium wedelii Harling

Epipetric herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *G. Herrera* 3039 (MO).

Evodianthus funifer (Poit.) Lindm.

Chidra, Chirrabaca, Tucuso (CR).

Hemi-epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Peru, Venezuela, Guayanas, Trinidad, Tobago, Brazil. Records: *A. Chacón* 275 (CR, INB, MO), *A. Fernández* 1000 (INB), *A.K. Monro* 6263 (PMA), *A. Rodríguez* 11346 (BM, INB, PMA), *A. Rodríguez* 11620 (BM, INB, PMA), *D. Santamaría* 6790 (BM, INB, PMA), *D. Santamaría* 7687 (PMA), *D. Santamaría* 7853 (PMA).

Sphaeradenia chiriquensis Harling

Facultatively epiphytic herbs. Distribution in PILA 1500–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25206 (MO), *G. Davidse* 28639 (CR, MO), *G. Davidse* 28920 (MO), *G. McPherson* 15903 (MO).

Sphaeradenia garciae Harling

Facultatively epiphytic herbs. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Santamaría* 6481 (BM, INB, PMA), *G. Herrera* 5377 (INB).

Sphaeradenia laucheana (Mast.) Harling

Facultatively epiphytic herbs. Distribution in PILA 1600–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Colombia to Peru. Records: *A. Soto* 287 (INB), *B. Gamboa* 1240 (INB).

Sphaeradenia magniglobula R.Erikss.

Terrestrial herbs. Distribution in PILA 1500–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 29108 (MO), *G. Herrera* 5438 (CR, INB, MO), *J. Bittner* 1865 (INB).

Sphaeradenia occidentalis R.Erikss.

Facultatively epiphytic herbs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 10643 (BM, INB, MO, PMA).

Sphaeradenia pachystigma Harling

Facultatively epiphytic herbs. Distribution in PILA 800–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. H. Kirkbride Jr.* 140 (MO).

Sphaeradenia praetermissa R.Erikss.

Facultatively epiphytic herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11546 (BM, INB, MO, PMA), *G. Davidse* 29090 (CR, MO), *G. Herrera* 2664 (INB, MO).

ε-PILA *Sphaeradenia rostellata* R.Erikss.

Facultatively epiphytic herbs. Distribution in PILA 1500–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández* 741 (INB), *A. Fernández* 970 (INB), *D. Solano* 3900 (BM, INB, PMA), *J. Bittner* 1788 (INB, MO).

CYPERACEAE

Carex bonplandii Kunth

Terrestrial herbs. Distribution in PILA 2400–3600 m, low elevation oak forest, páramo. Global distribution: USA, Guatemala, Costa Rica to Colombia. Records: *E. Alfaro* 3283 (INB), *G. Davidse* 23896 (CR, MO), *G. Davidse* 25915 (CR, MO), *G. Davidse* 26000 (CR, MO), *G. Davidse* 29304 (CR, MO), *G. Davidse* 29330 (CR, MO), *G. Davidse* 29371 (CR, MO), *G. Davidse* 29385 (CR, MO).

Carex donnellsmithii L.H.Bailey

Terrestrial herbs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A.K. Monro* 5250 (BM, INB, MO), *A. S. Weston* 10184 (MO), *B. Gamboa* 1731 (INB), *E. Alfaro* 3292 (INB), *G. Davidse* 25114 (CR, MO), *G. Davidse* 25266 (CR, MO), *G. Davidse* 25381 (CR, MO), *G. Davidse* 25508 (CR, MO), *G. Davidse* 25815 (CR, MO), *G. Davidse* 25842 (CR, MO), *G. Davidse* 25954 (CR, MO), *G. Davidse* 26036 (CR, MO), *G. Davidse* 29322 (CR, MO), *G. Davidse* 29351 (MO), *G. Davidse* 23918 (MO), *L. Angulo* 211 (INB, MO), *L.D. Gómez* 22449 (MO), *M. Grayum* 10384 (INB, MO), *S. Knapp* 10032 (BM, INB).

Carex jamesonii Boott

Terrestrial herbs. Distribution in PILA 1500–3400 m,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Venezuela. Records: *A. Chacón* 561 (INB, MO), *A. Fernández* 907 (CR, INB), *E. Alfaro* 3284 (INB), *G. Davidse* 25180 (MO), *G. Davidse* 28571 (CR, MO), *G. Davidse* 28593 (MO), *G. Davidse* 23931 (MO), *G. Herrera* 5890 (CR, INB), *F. Quesada* 1561 (INB).

Carex lemnniana Boott

Terrestrial herbs. Distribution in PILA 1600–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *G. Davidse* 25334 (CR, MO), *G. Davidse* 25399 (MO), *G. Davidse* 29322A (MO), *G. Davidse* 29336 (CR, MO), *G. Davidse* 29401 (CR, MO), *M.A. Thomas* 1551 (MO).

Carex polystachya Sw. ex Wahlenb.

Terrestrial herbs. Distribution in PILA 300–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Bolivia, Greater Antilles. Records: *A. Rodríguez* 9849 (INB), *B. Gamboa* 637 (INB), *D. Solano* 2889 (INB), *D. Solano* 3195 (INB), *G. Davidse* 28448 (CR, MO).

Carex porrecta Reznicek & Camelbeke

Terrestrial herbs. Distribution in PILA 1800–3100 m, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *G. Davidse* 29166 (CR, MO).

Carex purdiei Boott

Terrestrial herbs. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Guatemala, Costa Rica to Ecuador. Records: *G. Davidse* 25350 (CR, MO), *G. Davidse* 29339 (MO), *G. Davidse* 29374 (CR, MO).

Carex pygmaea Boeck.

Terrestrial herbs. Distribution in PILA 2300–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *G. Davidse* 23932 (CR, MO), *G. Davidse* 25312 (CR, MO), *G. Davidse* 25420 (MO), *G. Davidse* 25988 (CR, MO), *G. Davidse* 28566 (CR, MO), *G. Davidse* 29274 (CR, MO), *G. Herrera* 3654 (MO), *G. Herrera* 3698 (MO), *L.D. Gómez* 22451 (MO).

Cladium mariscus (L.) Pohl

Terrestrial herbs. Distribution in PILA –1100 m, mixed forest in transition to low elevation forest. Global distribution: USA to Honduras to Panama, Peru, Venezuela, Bolivia, Argentina, Greater Antilles. Records: *A. Rodríguez* 11352 (BM, INB, MO, PMA).

Cyperus brevifolius (Rottb.) Hassk.

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Pantropical. Records: *A.K. Monro* 6087 (PMA).

Cyperus hermaphroditus (Jacq.) Standl.

Zacate jacintillo (CR).

Terrestrial herbs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *C. Hamilton* 3651 (MO), *C. Hamilton* 704 (MO), *C. Hamilton* 721 (MO), *S. Bridgewater* 4217 (BM, INB, MO, PMA).

Cyperus niger Ruiz & Pav.

Terrestrial herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Africa. Records: *C. Hamilton* 733 (MO).

Cyperus reflexus Vahl.

Terrestrial herbs. Distribution in PILA –2400 m, low elevation oak forest. Global distribution: USA to Mexico, Costa Rica, Venezuela to Argentina. Records: *A. Chacón* 556 (INB), *G. Herrera* 3702 (INB, MO).

Cyperus tabina Steud. ex Boeck.

Terrestrial herbs. Distribution in PILA 1300–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama, Ecuador, Bolivia. Records: *A. Fernández* 751 (CR, INB), *A. Rodríguez* 10617 (BM, INB, MO, PMA), *A. Rodríguez* 10916 (BM, INB, MO, PMA), *D. Santamaría* 5734 (BM, INB, MO, PMA), *D. Solano* 3944 (BM, INB, MO, PMA), *E. Navarro* 2 (INB), *M. Grayum* 10297 (INB, MO).

Cyperus tenerrimus J.Presl & C.Presl

Botón de amor (CR).

Terrestrial herbs. Distribution in PILA 0–0 m, low elevation mixed forest. Global distribution: Mexico to Venezuela, Bolivia. Records: *E. Alfaro* 4663 (INB).

Eleocharis acicularis (L.) Roem. & Schult.

Terrestrial herbs. Distribution in PILA 3200–3500 m, páramo. Global distribution: USA to Ecuador, Bolivia, Greater Antilles, Lesser Antilles, Europe, Asia. Records: *G. Davidse* 25330 (CR, MO).

Eleocharis elegans (Kunth) Roem. & Schult.

Tristra (CR).

Aquatic or terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles. Records: *E. Alfaro* 766 (INB), *R. Quirós* 93 (INB), *S. Bridgewater* 4218 (BM, INB, MO, PMA).

Mapania cuatrecasii T.Koyama

Terrestrial herbs. Distribution in PILA 600–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Colombia, Guyanas. Records: *B. Hammel* 17619 (MO), *G. Herrera* 3282 (INB, MO), *L.D. Gómez* 23860 (MO).

Oreobolus goeppingeri Suess.

Terrestrial herbs. Distribution in PILA 2600–3500 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Brazil. Records: *G. Davidse* 23840 (CR, MO), *G. Davidse* 25310 (CR, MO), *G. Davidse* 25514 (CR, MO), *G. Davidse* 25943 (CR, MO), *G. Davidse* 26023 (MO), *G. Davidse* 29319 (MO).

Oreobolus venezuelensis Steyerem.

Terrestrial herbs. Distribution in PILA 2300–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru, Venezuela. Records: *A. Chacón* 564 (INB, MO), *E. Alfaro* 3285 (INB), *E. Alfaro* 3377 (INB), *E. Alfaro* 3721 (INB), *G. Davidse* 25404 (CR, MO), *G. Davidse* 25867 (CR), *G. Davidse* 25877 (CR, MO), *G. Davidse* 28576 (CR, MO), *G. Davidse* 28992 (CR, MO), *G. Davidse* 29272 (CR, MO), *G. Davidse* 29379 (MO), *G. Davidse* 29404 (CR, MO), *G. Herrera* 3656 (MO), *G. Herrera* 3697 (INB, MO), *L.D. Gómez* 22456 (MO).

Rhynchospora cabecarae Gómez-Laur.

Terrestrial herbs. Distribution in PILA 2300–2300 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *M. Grayum* 10354 (INB, MO).

Rhynchospora globosa (Kunth) Roem. & Schult.

Terrestrial herbs. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina, Lesser Antilles, Greater Antilles. Records: *A. Rodríguez* 9833 (INB), *D. Santamaría* 3495 (INB), *D. Santamaría* 3762 (INB), *D. Solano* 2876 (INB), *E. Alfaro* 2210 (CR, INB), *E. Alfaro* 4185 (INB), *L. González* 1218 (INB).

Rhynchospora hieronymi Boeck.

Terrestrial herbs. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Guatemala, Costa Rica, Panama,

Ecuador, Bolivia, Venezuela, Brazil, Uruguay, Argentina. Records: *G. Davidse* 26143 (MO), *G. Davidse* 29257 (MO).

Rhynchospora hirsuta (Vahl) Vahl

Aquatic or terrestrial herbs. Distribution in PILA 400–400 m, low elevation mixed forest. Global distribution: Mexico to the Guyanas, Brazil, Greater Antilles, Lesser Antilles. Records: *B. Gamboa* 1732 (INB).

Rhynchospora kunthii Nees ex Kunth

Terrestrial herbs. Distribution in PILA 2300–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica to Colombia. Records: *E. Alfaro* 4691 (INB), *G. Davidse* 28570 (CR, MO).

Rhynchospora locuples C.B.Clarke

Terrestrial herbs. Distribution in PILA 700–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *K. Sytsma* 4907 (MO), *L.D. Gómez* 22280 (MO).

Rhynchospora macrochaeta Steud. ex Boeck.

Terrestrial herbs. Distribution in PILA 3100–3800 m, páramo. Global distribution: Costa Rica to Bolivia. Records: *G. Davidse* 26040 (CR, MO), *G. Herrera* 3658 (MO).

Rhynchospora oreoboloidea Gómez-Laur.

Terrestrial herbs. Distribution in PILA 3000–3400 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador. Records: *G. Davidse* 23859 (CR, MO), *G. Davidse* 25309 (CR, MO), *G. Davidse* 25511 (CR, MO), *G. Davidse* 25987 (CR, MO), *G. Davidse* 29285 (CR, MO), *G. Davidse* 29378 (MO), *L.D. Gómez* 22459 (MO).

Rhynchospora polyphylla Vahl

Terrestrial herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11780 (BM, INB, MO, PMA), *A. Rodríguez* 11927 (BM, INB, MO, PMA), *D. Santamaría* 7223 (BM, INB, MO, PMA).

Rhynchospora radicans (Schltdl. & Cham.) H.Pfeiff.

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 5314 (MO).

***Rhynchospora rugosa* (Vahl) Gale**

Terrestrial herbs. Distribution in PILA 400–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3759 (INB), *D. Santamaría* 3772 (INB), *D. Solano* 2870 (INB), *E. Alfaro* 2207 (INB), *E. Alfaro* 3731 (INB), *E. Alfaro* 4199 (INB), *L. González* 1197 (INB), *M.A. Thomas* 1548 (MO).

***Rhynchospora ruiziana* Boeck.**

Terrestrial herbs. Distribution in PILA 0–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica to Bolivia, Venezuela, Guyanas. Records: *A. Chacón* 588 (INB, MO), *A. Rodríguez* 10737 (BM, INB, MO, PMA), *D. Solano* 3995 (BM, INB, MO, PMA), *E. Alfaro* 762 (INB), *G. Davidse* 23938 (CR, MO), *G. Davidse* 25246 (CR, MO), *G. Davidse* 25972 (MO), *G. Davidse* 28602 (MO), *G. Davidse* 28650 (CR, MO), *G. Davidse* 28713 (CR, MO), *G. Davidse* 28988 (CR, MO), *G. Herrera* 6242 (CR, INB), *M. Grayum* 10337 (CR, INB, MO).

***Rhynchospora schiedeana* Kunth**

Navajuela (CR).

Terrestrial herbs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *B.B. Klitgaard* 838 (BM, INB, MO), *G. Davidse* 23959 (CR, MO), *G. Davidse* 25844 (CR, MO), *G. Davidse* 26201 (MO), *G. Davidse* 28529 (CR, MO), *G. Davidse* 24002 (MO).

***Rhynchospora talamancensis* Gómez-Laur. & W.W.Thomas**

Terrestrial herbs. Distribution in PILA 3000–3200 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *E. Alfaro* 3767 (INB), *G. Davidse* 23865 (CR, MO), *G. Davidse* 23895 (CR, MO), *G. Davidse* 29284 (CR, MO).

***Rhynchospora torresiana* Britton & Standl.**

Terrestrial herbs. Distribution in PILA 800–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 3283 (INB, MO).

***Rhynchospora tuerckheimii* C.B.Clarke ex Kük.**

Terrestrial herbs. Distribution in PILA 0–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest,

cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Guyanas. Records: *E. Alfaro* 748 (INB), *G. Davidse* 28450 (CR, MO), *G. Herrera* 5962 (CR, INB), *J. H. Kirkbride Jr.* 160 (MO), *L. Acosta* 2382 (INB), *M. Alfaro* 41 (INB), *T. Croat* 26970 (MO).

***Rhynchospora vulcani* Boeck.**

Terrestrial herbs. Distribution in PILA 700–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *G. Davidse* 105427 (CR), *G. Davidse* 25348 (CR, MO), *G. Davidse* 25371 (CR, MO), *G. Davidse* 25919 (MO), *G. Davidse* 28889 (CR, MO), *G. Davidse* 29098 (CR, MO), *G. Davidse* 29287 (CR, MO), *G. Davidse* 29329 (CR, MO), *G. Davidse* 29347 (CR, MO), *G. Davidse* 23839 (CR, MO).

***Scleria distans* Poir.**

Terrestrial herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to the Guyanas, Chile Brazil, the Guyanas, Argentina, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *A. Rodríguez* 9764 (INB), *D. Santamaría* 3496 (INB), *D. Solano* 2926 (INB).

***Scleria secans* (L.) Urb.**

Navajuela (CR).

Terrestrial herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles. Records: *B. Hammel* 17620 (MO).

***Scleria tenella* Kunth**

Terrestrial herbs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3486 (INB).

***Uncinia hamata* (Sw.) Urb.**

Navajuela (CR).

Terrestrial herbs. Distribution in PILA 700–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: Mexico to Bolivia, Brazil, Argentina, Lesser Antilles. Records: *A. Fernández* 649 (INB, MO), *A. Fernández* 769 (INB), *A. Fernández* 984 (INB), *A.K. Monro* 5253 (BM, INB, MO), *A. Rodríguez* 10609 (BM, INB, MO, PMA), *A. Rodríguez* 11912

(BM, INB, MO, PMA), *B. Gamboa* 1229 (INB), *B. Gamboa* 634 (INB), *D. Santamaría* 3802 (INB, MO), *D. Santamaría* 5743 (BM, INB, MO, PMA), *D. Santamaría* 7450 (PMA), *D. Solano* 4153 (BM, INB, MO, PMA), *G. Davidse* 23745 (CR, MO), *G. Davidse* 25087 (MO), *G. Davidse* 25212 (CR, MO), *G. Davidse* 25823 (CR, MO), *G. Davidse* 28463 (CR, MO), *G. Davidse* 28942 (CR, MO), *G. Davidse* 29141 (CR, MO), *G. Herrera* 6114 (CR, INB, MO), *J. Aranda* 3264 (MO), *J. Bittner* 1489 (INB, MO), *N. Zamora* 4074 (BM, INB, MO, PMA), *S. Knapp* 9964 (BM, INB).

DIOSCOREACEAE

Dioscorea amazonum Martius ex Griseb.

Terrestrial twiners. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Panama, Colombia, Peru to Suriname, Brazil. Records: *L. Martínez* 321 (PMA).

Dioscorea convolvulacea Schlttdl. & Cham.

Cacai, Caqué (CR).

Terrestrial twiners. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Lesser Antilles. Records: *D. Solano* 4339 (BM, INB, MO, PMA).

Dioscorea lepida C.V.Morton

Terrestrial twiners. Distribution in PILA 1100–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Panama. Records: *L. Angulo* 182 (INB).

□ *Dioscorea natalia* Hammel

Terrestrial twiners. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *L. Martínez* 348 (INB, PMA).

Dioscorea polygonoides Humb. & Bonpl. ex Willd.

Terrestrial twiners. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, sabana natural grassland. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *J. González* 808 (CR, INB, MO).

Dioscorea racemosa (Klotzsch) Uline

Terrestrial twiners. Distribution in PILA 400–2300 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico, Costa Rica to Ecuador. Records: *A. Rodríguez* 10901 (BM, INB, MO, PMA), *G. Herrera* 2828 (MO).

Dioscorea standleyi C.V.Morton

Terrestrial twiners. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Honduras, Costa Rica, Panama. Records: *D. Santamaría* 6539 (BM, INB, MO, PMA), *D. Santamaría* 6647 (BM, INB, MO, PMA), *D. Solano* 4768 (BM, INB, MO, PMA), *D. Solano* 4903 (BM, INB, MO, PMA), *G. Herrera* 5306 (CR, INB, MO).

ERIOCAULACEAE

Paepalanthus costaricensis Moldenke

Terrestrial herbs. Distribution in PILA 2300–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama, Ecuador, Venezuela. Records: *A. Chacón* 520 (MO), *A. Soto* 321 (INB), *E. Alfaro* 3362 (INB), *E. Alfaro* 3491 (INB), *G. Davidse* 25872 (CR), *G. Davidse* 28567 (CR, MO), *G. Davidse* 28991 (CR, MO), *G. Davidse* 29399 (CR, MO), *F. Quesada* 1611 (INB), *F. Quesada* 1974 (INB), *L. Angulo* 251 (INB), *M. Valerio* 217 (CR, INB).

Paepalanthus dendroides (Kunth) Kunth

Terrestrial herbs. Distribution in PILA 2400–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *A.K. Monro* 5369 (BM, INB, MO), *A. S. Weston* 10151 (MO), *E. Alfaro* 3288 (INB), *E. Alfaro* 3718 (INB), *G. Davidse* 25928 (MO), *L.D. Gómez* 22436 (MO), *L.D. Gómez* 22439 (MO), *L.D. Gómez* 22591 (MO).

Paepalanthus pilosus (Kunth) Kunth

Terrestrial herbs. Distribution in PILA 3000–3600 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *E. Alfaro* 3966 (INB), *G. Davidse* 25303 (MO), *G. Davidse* 25419 (MO), *L.D. Gómez* 22440 (MO).

HAEMODORACEAE

Xiphidium caeruleum Aubl.

Cola de gallo, Espadaña, Palma bruja (CR).

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest. Global distribution: Mexico to Bolivia, Caribbean. Records: *D. Santamaría* 6161 (BM, INB, MO, PMA), *D. Santamaría* 6319 (BM, INB, MO, PMA), *D. Solano* 4446 (BM, INB, MO, PMA).

HELICONIACEAE

Heliconia clinophila R.R.Sm.

Terrestrial herbs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 924 (CR, INB, MO), *D. Santamaría* 6285 (BM, INB, PMA).

Heliconia colgantea R.R.Sm. ex G.S.Daniels & F.G.Stiles
Terrestrial herbs. Distribution in PILA 100–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 3104 (MO).

Heliconia danielsiana W.J.Kress

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas* 960 (PMA), *A.K. Monro* 6242 (PMA), *D. Solano* 5786 (PMA).

Heliconia gracilis G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 1200–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11560 (BM, INB, PMA), *E. Alfaro* 5414 (BM, INB).

Heliconia ignescens G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11657 (BM, INB, PMA), *G. Herrera* 3267 (CR, INB, MO), *G. Herrera* 5355 (CR, INB).

Heliconia imbricata (Kuntze) Baker

Pó (Bribri) (CR).
Terrestrial herbs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 11175 (BM, INB, PMA), *E. Alfaro* 4679 (INB).

Heliconia lankesteri Standl.

Terrestrial herbs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 903 (CR, INB), *A.K. Monro* 5459

(BM, INB, PMA), *A.K. Monro* 5541 (BM, INB, PMA), *A. Rodríguez* 10638 (BM, INB, PMA), *D. Solano* 4088 (BM, INB, PMA), *E. Alfaro* 5413 (BM, INB), *E. Alfaro* 5505 (BM, INB), *G. Herrera* 5332 (CR, INB), *J. Bittner* 1754 (INB), *L. Donzo* 1 (INB), *R. Quirós* 90 (INB).

ψ *Heliconia latispatha* Benth.

Caliguate (CR).

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru. Records: *A. Rodríguez* 11160 (BM, INB, PMA), *D. Solano* 4327 (BM, INB, PMA). Regional conservation status: Least Concern (LC).

Heliconia lophocarpa G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11676 (BM, INB, PMA), *D. Santamaría* 6446 (BM, INB, PMA), *D. Solano* 4915 (BM, INB, MO, PMA).

Heliconia mathiasiae G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Costa Rica. Records: *D. Solano* 4313 (BM, INB, PMA), *D. Solano* 4358 (BM, INB, PMA), *D. Solano* 4448 (BM, INB, PMA), *D. Solano* 4912 (BM, INB, PMA).

Heliconia nutans Woodson

Terrestrial herbs. Distribution in PILA 800–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *C. Hamilton* 765 (MO), *D. Santamaría* 7072 (BM, INB, PMA), *D. Santamaría* 7229 (BM, INB, PMA), *D. Santamaría* 7279 (BM, INB, PMA), *D. Solano* 5145 (BM, INB, PMA), *D. Solano* 5172 (BM, INB, PMA), *D. Solano* 5284 (BM, INB, PMA), *J. Bittner* 1461 (MO), *L. Acosta* 2387 (INB).

Heliconia pogonantha Cufod.

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez* 11677 (BM, INB), *D. Santamaría* 6799 (INB).

Heliconia talamancana G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama.

Records: *G. Herrera* 5324 (INB).

Heliconia tortuosa Griggs

Platanillo (CR).

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Panama. Records: *A. Fernández* 949 (CR, INB), *A. Soto* 1238 (INB), *D. Solano* 4998 (BM, INB, PMA), *D. Solano* 5031 (BM, INB, PMA), *E. Alfaro* 2175 (CR, INB), *E. Mora* 288 (INB), *L. Acosta* 2348 (INB), *R. Villalobos* 276 (INB).

Heliconia trichocarpa G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 11251 (BM, INB, MO, PMA), *A. Rodríguez* 11654 (BM, INB, PMA), *D. Solano* 4449 (BM, INB, PMA).

Heliconia vaginalis Benth.

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez* 11644 (BM, INB, PMA), *G. Herrera* 3136 (MO).

Heliconia wilsonii G.S.Daniels & F.G.Stiles

Terrestrial herbs. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11494 (BM, INB, PMA).

HYDROCHARITACEAE

Najas guadalupensis (Spreng.) Magnus

Aquatic or terrestrial herbs. Distribution in PILA 0–300 m, low elevation mixed forest. Global distribution: U.S.A. to Panama, Venezuela, the Guyanas, Bolivia, Greater Antilles, Lesser Antilles. Records: *L.D. Gómez* 23123 (MO), *L.D. Gómez* 23075 (MO).

HYPOXIDACEAE

Hypoxis decumbens L.

Trompa de chancho (CR).

Terrestrial herbs. Distribution in PILA 900–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Central America, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 10303 (INB), *A. Rodríguez* 9798 (INB), *D. Santamaría* 4386 (INB), *D. Santamaría* 4414

(INB), *D. Solano* 3199 (INB), *E. Alfaro* 4187 (INB).

IRIDACEAE

Neomarica variegata (M.Martens & Galeotti) Henrich & Goldblatt

Iris (CR).

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 11195 (BM, INB, MO, PMA).

Olsynium trinerve (Baker) R.A.Rodr. & Martic.

Terrestrial herbs. Distribution in PILA 3000–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Colombia, Venezuela. Records: *G. Davidse* 29375 (MO).

Orthrosanthus chimboracensis (Kunth) Baker

Terrestrial herbs. Distribution in PILA 1500–4000 m, mixed forest in transition to cloud forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A. Fernández* 1848 (INB), *G. Herrera* 3695 (INB, MO), *L. González* 2484 (INB), *R. Villalobos* 264 (INB).

Orthrosanthus monadelphus Ravenna

Terrestrial herbs. Distribution in PILA 1600–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *D. Solano* 5107 (BM, INB, MO, PMA), *G. Davidse* 25892 (MO), *G. Davidse* 26206 (MO).

Sisyrinchium chiricanum Woodson

Terrestrial herbs. Distribution in PILA 1900–3300 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *A.K. Monro* 4103 (BM, INB, MO), *A.K. Monro* 5240 (BM, INB, MO), *G. Davidse* 26155 (MO), *L. Angulo* 213 (INB, MO).

Sisyrinchium subalpinum Henrich & Goldblatt

Terrestrial herbs. Distribution in PILA 1600–3700 m, mixed forest in transition to cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica. Records: *E. Alfaro* 3725 (INB), *G. Davidse* 29294 (MO).

Sisyrinchium tinctorium Kunth

Terrestrial herbs. Distribution in PILA 900–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina. Records: *C. Hamilton* 728 (MO), *G. Davidse* 23900 (CR,

MO), *L.D. Gómez 22607* (MO).

JUNCACEAE

e *Juncus bufonius* L.

Terrestrial herbs. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Worldwide. Records: *G. Davidse 25800* (CR, MO).

Juncus microcephalus Kunth

Terrestrial herbs. Distribution in PILA 1200–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Paraguay. Records: *E. Alfaro 3724* (INB).

Luzula denticulata Liebm.

Terrestrial herbs. Distribution in PILA 2000–3800 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A. S. Weston 10161* (MO), *G. Davidse 29298* (CR, MO), *G. Davidse 29344* (CR, MO), *F. Quesada 1804* (INB), *L.D. Gómez 22597* (MO), *S. Knapp 10062* (BM, INB).

MARANTACEAE

Calathea brenesii Standl.

Terrestrial herbs. Distribution in PILA 1400–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 851* (CR, INB, MO), *D. Santamaría 5816* (BM, INB, MO, PMA), *D. Solano 4089* (BM, INB, MO, PMA).

ψ *Calathea crotalifera* S. Watson

Bijagua, Platanilla, Cascabel (CR).

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A. Chacón 262* (CR, INB, MO), *A.K. Monro 5865* (BM, INB, MO, PMA), *A. Rodríguez 11172* (BM, INB, MO, PMA), *A. Rodríguez 11271* (BM, INB, MO, PMA), *A. Rodríguez 11471* (BM, INB, MO, PMA), *A. Rodríguez 11661* (BM, INB, MO, PMA), *A. Rodríguez 11802* (BM, INB, MO, PMA), *D. Santamaría 6262* (BM, INB, MO, PMA), *D. Solano 4336* (BM, INB, MO, PMA), *D. Solano 4752* (BM, INB, MO, PMA), *E. Alfaro 2173* (INB), *E. Mora 294* (CR, INB), *F. Quesada 1692* (INB), *R. Villalobos 256* (CR, INB), *R. Villalobos 273* (INB). Global conservation status: Least Concern (LC).

Calathea guzmanioides L.B.Sm. & Idrobo

Terrestrial herbs. Distribution in PILA 800–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro 5712* (BM, INB, MO, PMA), *A.K. Monro 5881* (BM, INB, MO, PMA), *A. Rodríguez 11359* (BM, INB, MO, PMA), *A. Rodríguez 11456* (BM, INB, MO, PMA), *A. Rodríguez 11567* (BM, INB, MO, PMA), *D. Santamaría 5902* (BM, INB, MO, PMA), *D. Santamaría 6560* (BM, INB, MO, PMA), *D. Santamaría 7444* (PMA), *D. Solano 4671* (BM, INB, MO, PMA).

Calathea lasiostachya Donn.Sm.

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11060* (BM, INB, MO, PMA).

Calathea spiralis H.A.Kenn.

Terrestrial herbs. Distribution in PILA 600–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Chacón 261* (INB, MO), *A. Rodríguez 11532* (BM, INB, MO, PMA), *D. Santamaría 6535* (BM, INB, MO, PMA), *D. Solano 4663* (BM, INB, MO, PMA), *D. Solano 4783* (BM, INB, MO, PMA), *F. Solís 15* (CR, INB), *G. Herrera 2722* (INB, MO), *G. Herrera 5240* (CR, INB, MO), *L. Andersson 1314* (MO).

Goepertia donnellsmithii (K.Schum.) Borchs. & S.Suárez

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 5967* (BM, INB, MO, PMA).

Goepertia foliosa (Rowlee ex Woodson & Schery)

Borchs. & S.Suárez

Terrestrial herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. De Sedas 841* (INB, PMA).

Goepertia indecora (Woodson) Borchs. & S.Suárez

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A.K. Monro 5022* (BM, INB, MO), *A. Rodríguez 11313* (BM, INB, MO, PMA), *A. Rodríguez 11315* (BM, INB, MO,

PMA), *F. Quesada 1648* (INB), *S. Bridgewater 4220* (BM, INB, MO, PMA).

Goeppertia leucostachys (Hook.f.) Borchs. & S.Suárez
Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 6487* (BM, INB, MO, PMA).

Goeppertia marantifolia (Standl.) Borchs. & S.Suárez
Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Ecuador. Records: *D. Solano 4372* (BM, INB, MO, PMA), *G. Davidse 28399* (MO), *L. Acosta 2339* (INB).

Goeppertia silvicola (H.A.Kenn.) Borchs. & S.Suárez
Terrestrial herbs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera 3027* (MO).

Goeppertia trichoneura H.A.Kenn.
Terrestrial herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11493* (BM, INB, MO, PMA), *A. Rodríguez 11566* (BM, INB, MO, PMA), *D. Santamaría 6509* (BM, INB, MO, PMA), *D. Solano 4677* (BM, INB, MO, PMA).

Ctenanthe dasycarpa (Donn.Sm.) K.Schum.
Terrestrial herbs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 6295* (PMA), *A. Rodríguez 11454* (BM, INB, MO, PMA), *D. Santamaría 6674* (BM, INB, MO, PMA), *D. Santamaría 6744* (BM, INB, MO, PMA), *D. Santamaría 6999* (BM, INB, MO, PMA), *D. Solano 5009* (BM, INB, MO, PMA), *F. Quesada 1653* (INB), *L. Martínez 372* (PMA).

Ischnosiphon inflatus L.Andersson
Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Ecuador. Records: *A. Rodríguez 11659* (BM, INB, MO, PMA), *D. Santamaría 6812* (BM, INB, MO, PMA), *D. Solano 4923* (BM, INB, MO, PMA).

Pleiostachya leiostachya (Donn.Sm.) Hammel
Terrestrial herbs. Distribution in PILA 400–1200 m, low

elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6313* (PMA), *A. Rodríguez 11349* (BM, INB, MO, PMA), *A. Rodríguez 11636* (BM, INB, MO, PMA), *D. Santamaría 6447* (BM, INB, MO, PMA), *D. Santamaría 6809* (BM, INB, MO, PMA), *D. Solano 4443* (BM, INB, MO, PMA), *D. Solano 4916* (BM, INB, MO, PMA).

Pleiostachya pruinosa (Regel) K.Schum.
Platanilla (CR).

Terrestrial herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez, Jul. 21, 2007* (Field obs.), *A. Rodríguez, Jul. 22, 2007* (Field obs.), *A. Rodríguez, Jul. 24 2007* (Field obs.).

Stromanthe tonckat (Aubl.) Eichler
Terrestrial herbs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to the Guyanas, Brazil, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 6370* (PMA).

ORCHIDACEAE

Acianthera capillaris (Lindl.) Pridgeon & M.W.Chase
Facultatively epiphytic herbs. Distribution in PILA 2000–2400 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela, Greater Antilles, Lesser Antilles. Records: *G. Herrera 5889* (CR, INB, MO), *F. Quesada 1562* (INB, MO), *M. Grayum 10348* (INB, MO).

Acianthera sicaria (Lindl.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1300–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia, Venezuela, Guyanas. Records: *G. Herrera 5229* (CR, INB, MO).

Acrorchis roseola Dressler
Epiphytic herbs. Distribution in PILA 1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3423* (MO).

Anathallis dolichopus (Schltr.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *E. Alfaro 3199* (INB), *M. Moraga 431* (INB, MO).

Aspidogyne utriculata (Dressler) Szlach.

Terrestrial herbs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Mexico to Panama. Records: *G. Herrera 3245* (INB, MO).

Barbosella geminata Luer

Epiphytic herbs. Distribution in PILA 1800–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 6107* (CR, INB).

Bletia campanulata Lex

Terrestrial herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina. Records: *D. Santamaría 4415* (INB).

ε-PILA *Brachionidium calypso* Luer

Epiphytic herbs. Distribution in PILA 2200–2200 m, low elevation oak forest. Global distribution: Endemic to Panama. Records: *R. Dressler 5838* (MO).

Brachionidium cruziae L.O. Williams

Epiphytic herbs. Distribution in PILA 2300–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28727* (MO), *G. Davidse 28807* (CR, MO).

?ε-PILA *Brachionidium dentatum* Luer & Dressler

Terrestrial herbs. Distribution in PILA 2800–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *R. Dressler s.n.* (MO).

This species is only known from the type, a cultivated plant collected from the vicinity of PILA.

Brachionidium dressleri Luer

Epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *K. Sytsma 4908* (MO).

ε-PILA *Brachionidium lucanoideum* Luer

Epiphytic herbs. Distribution in PILA 2200–2200 m, low elevation oak forest. Global distribution: Endemic to Panama. Records: *S. Knapp 4829* (BM, PMA, MO).

Brachionidium polypodium Luer

Terrestrial herbs. Distribution in PILA 1200–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11537* (INB).

Brachionidium satyrium Luer

Terrestrial herbs. Distribution in PILA 1400–1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *R. Dressler 5809* (MO).

Calanthe calanthoides (A.Rich. & Galeotti) Hamer & Garay Cebollín, Legua de vaca (CR).

Terrestrial herbs. Distribution in PILA 800–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Colombia, Greater Antilles, Lesser Antilles. Records: *B. Gamboa 561* (INB, MO), *D. Solano 5215* (BM, INB, MO, PMA), *E. Alfaro 3202* (INB), *G. Davidse 25819* (CR, MO), *G. Davidse 28699* (MO), *G. Davidse 23970* (MO), *G. Herrera 3413* (MO), *F. Quesada 1608* (INB, MO), *F. Quesada 1625* (INB), *L. Acosta 2408* (INB), *L.D. Gómez 21861* (MO), *L. González 1187* (INB), *M.A. Thomas 1585* (MO), *T. Croat 26987* (MO).

• ε-PILA *Campylocentrum amistadense* Bogarín

Epiphytic herbs. Distribution in PILA –1600 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama? Records: *E. Fletes & A. Mora 204* (INB).

Cischweinfia dasyandra (Rchb.f.) Dressler & N.H. Williams

Epiphytic herbs. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *E. Navarro 206* (INB, MO).

Coccineorchis bracteosa (Ames & C.Schweinf.) Garay

Facultatively epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama, Ecuador. Records: *B. Gamboa 563* (INB, MO), *D. Solano 3945* (BM, INB, MO, PMA), *E. Alfaro 3465* (INB), *E. Alfaro 3822* (INB), *G. Davidse 28869* (CR, MO), *G. Davidse 28901* (CR, MO), *G. Davidse 29036* (CR, MO), *L. González 1178* (INB).

Coccineorchis cernua (Lindl.) Garay

Facultatively epiphytic herbs. Distribution in PILA 1000–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Peru. Records: *G. Herrera 3419* (MO).

Coccineorchis standleyi (Ames & C.Schweinf.) Garay

Facultatively epiphytic herbs. Distribution in PILA

400–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *D. Santamaría 5767* (BM, INB, MO, PMA).

Cochleanthes aromatica (Rchb.f.) R.E.Schult. & Garay
Epiphytic herbs. Distribution in PILA 900–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5569* (PMA).

Cranichis lankesteri Ames
Terrestrial herbs. Distribution in PILA 1200–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Panama. Records: *S. Knapp 1500* (MO).

Cranichis reticulata Rchb.f.
Terrestrial herbs. Distribution in PILA 1500–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28528* (MO).

ε-PILA *Cranichis talamancana* Dressler
Terrestrial herbs. Distribution in PILA 2400–2500 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28651* (MO).

Crossoglossa blephariglottis (Schltr.) Dressler
Epiphytic herbs. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10744* (BM, INB, MO, PMA), *B. Hammel 6108* (MO).

Cyrtochiloides panduriformis (Ames & C.Schweinf.)
N.H.Williams & M.W.Chase
Facultatively epiphytic herbs. Distribution in PILA 1200–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 6109* (INB).

Dichaea ciliolata Rolfe
Epiphytic herbs. Distribution in PILA 700–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11341* (BM, INB, MO, PMA), *A. Rodríguez 11345* (BM, INB, MO, PMA).

Dichaea cryptarrhena Rchb.f. ex Kraenzl.
Epiphytic herbs. Distribution in PILA 300–2200 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Honduras, Costa Rica, Panama. Records: *G. Davidse 28407* (CR, MO), *L. Acosta 2410* (INB).

Dichaea eligulata Folsom
Epiphytic herbs. Distribution in PILA 600–600 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 6099* (CR, INB, MO).

Dichaea oxyglossa Schltr.
Epiphytic herbs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *M. Chinchilla 196* (INB).

Dichaea trulla Rchb.f.
Epiphytic herbs. Distribution in PILA 200–500 m, low elevation mixed forest. Global distribution: Guatemala to Brazil. Records: *D. Solano 5868* (PMA).

Dracula erythrochaete (Rchb.f.) Luer
Epiphytic herbs. Distribution in PILA 1500–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 25135* (MO).

Dracula ripleyana Luer
Epiphytic herbs. Distribution in PILA –2200 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 6135* (CR, MO).

Echinosepala aspasicensis (Rchb.f.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1000–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, the Guyanas, Brazil. Records: *F. Quesada 1601* (INB).

Echinosepala uncinata (Fawc.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Belize to Panama, Greater Antilles. Records: *G. Herrera 5179* (CR, INB, MO).

Elleanthus aurantiacus (Lindl.) Rchb.f.
Facultatively epiphytic herbs. Distribution in PILA 1100–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Venezuela. Records: *B.*

Gamboa 1210 (INB, MO), *D. Solano 3908* (BM, INB, MO, PMA), *M.A. Thomas 1651* (MO).

Elleanthus capitatus (Poepp. & Endl.) Rchb.f.

Epiphytic herbs. Distribution in PILA 2300–2300 m, low elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *G. Davidse 28451* (CR, MO), *F. Quesada 1682* (CR, INB, MO).

Elleanthus glaucophyllus Schltr.

Facultatively epiphytic herbs. Distribution in PILA 500–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10666* (BM, INB, MO, PMA), *D. Solano 3905* (BM, INB, MO, PMA), *E. Alfaro 2266* (INB), *G. Herrera 3262* (INB, MO), *L. Angulo 330* (INB).

Elleanthus graminifolius (Barb. Rodr.) Lojtnant

Epiphytic herbs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *G. Gallardo 302* (CR, INB, MO).

Elleanthus hymenophorus (Rchb.f.) Rchb.f.

Facultatively epiphytic herbs. Distribution in PILA 200–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador. Records: *D. Solano 3193* (INB), *D. Solano 5211* (BM, INB, MO, PMA), *E. Fletes 199* (INB), *L. Angulo 319* (INB).

Elleanthus tonduzii Schltr.

Facultatively epiphytic herbs. Distribution in PILA 1000–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10842* (BM, INB, MO, PMA), *D. Santamaría 5763* (BM, INB, MO, PMA), *E. Alfaro 3263* (INB), *G. Davidse 25139* (MO), *G. Davidse 28580* (MO), *G. Davidse 28785* (MO), *G. Herrera 5454* (CR, INB, MO), *F. Quesada 1828* (INB), *L. González 3620* (INB).

Elleanthus tricallosus Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 900–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3812* (INB).

Elleanthus wercklei Schltr.

Terrestrial herbs. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Nicaragua, Costa Rica. Records: *G. Davidse 25400* (MO), *G. Davidse 25933* (INB, MO).

Epidendrum adnatum Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panamá. Records: *G. Herrera 2669* (INB, MO), *G. Herrera 5489* (CR, MO).

Epidendrum alfaroi Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 400–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *F. Solís 23* (INB, MO).

Epidendrum anoglossoides Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 1600–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3622* (INB), *G. Davidse 25929* (INB, MO), *G. Davidse 26070* (MO), *G. Davidse 28833* (CR, MO), *G. Herrera 6233* (CR, INB, MO).

Epidendrum anoglossum Schltr.

Epiphytic herbs. Distribution in PILA 1300–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3274* (INB), *G. Davidse 25134* (CR, MO), *F. Quesada 1998* (INB), *M. Valerio 172* (CR, MO).

Epidendrum atrorugosum Hágsater

Epiphytic herbs. Distribution in PILA 2300–2400 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28737* (MO), *M. Grayum 10334* (INB, MO).

Epidendrum barbae Rchb.f.

Epiphytic herbs. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3280* (INB), *E. Alfaro 3399* (INB), *E. Alfaro 3963* (INB), *G. Davidse 28544* (MO), *G. Davidse 28716* (MO), *G. Davidse 28870* (MO), *F. Quesada 1589* (INB).

Epidendrum cardiochilum L.O.Williams

Epiphytic herbs. Distribution in PILA 2400–2600 m, low

elevation oak forest, high elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *G. Davidse* 28631 (MO), *G. Davidse* 28832 (MO).

Epidendrum chirripoense Hágsater

Epiphytic herbs. Distribution in PILA 2600–3200 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 23912 (CR, MO).

Epidendrum confertum Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 200–400 m, low elevation mixed forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10673 (BM, INB, MO, PMA).

Epidendrum davidsei Hágsater

Epiphytic herbs. Distribution in PILA 3000–3300 m, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro* 1323 (INB, MO).

Epidendrum endresii Rchb.f.

Epiphytic herbs. Distribution in PILA 1400–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *Chacón* 580 (MO), *Gamboa* 1236 (INB, MO), *McPherson* 15917 (MO).

Epidendrum erythrostigma Hágsater

Epiphytic herbs. Distribution in PILA 2100–2400 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 680 (CR, INB, MO), *G. Davidse* 28784 (CR, MO), *M. Grayum* 10345 (CR, MO).

Epidendrum exasperatum Rchb.f.

Epiphytic herbs. Distribution in PILA 900–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *Gamboa* 564 (INB), *Morales* 5807 (CR, INB, MO).

Epidendrum flexicaule Schltr.

Epiphytic herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panamá. Records: *A.K. Monro* 5482 (BM, INB, MO, PMA), *A. Rodríguez* 10675 (BM, INB, MO, PMA).

Epidendrum gibbosum L.O.Williams

Epiphytic herbs. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa

Rica, Panama. Records: *G. Davidse* 26196 (MO).

Epidendrum horichii Hágsater

Epiphytic herbs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11365 (INB).

• ***ε-PILA Epidendrum jorgewarneri*** Karremans & Hágsater

Epiphytic herbs. Distribution in PILA –2500 m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *A. Karremans et al.* 5545 (CR, JBL).

Epidendrum kerichilum Hágsater

Facultatively epiphytic herbs. Distribution in PILA 1700–2300 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Hágsater* 6519 (AMO, K, MO).

Epidendrum lacustre Lindl.

Epiphytic herbs. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador, Venezuela. Records: *D. Solano* 4763 (MEXU, MO, SEL).

Epidendrum lagenocolumna Hágsater

Epiphytic herbs. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras to Panama. Records: *D. Santamaría* 7161 (CR, MO), *D. Santamaría* 7246 (CR, MO), *Zamora* 4117 (CR, MO), *N. Zamora* 4144 (CR, MO), *N. Zamora* 4150 (CR, MO).

Epidendrum lutheri Hágsater

Epiphytic herbs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *K. Sytsma* 4912 (AMO, MO, SEL).

Epidendrum microdendron Rchb.f.

Epiphytic herbs. Distribution in PILA 2900–3200 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *F. Quesada* 1584 (CR, MO).

Epidendrum miserimum Rchb.f.

Epiphytic herbs. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador, Venezuela, Suriname, Greater Antilles, Lesser Antilles. Records: *H. Schmidt* 647 (INB, MO).

Epidendrum mora-retanae Hágsater

Epiphytic herbs. Distribution in PILA 200–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *G. Herrera* 5238 (CR, MO).

Epidendrum muscicola Schltr.

Facultatively epiphytic herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1024 (INB), *A. Rodríguez* 10834 (BM, INB, MO, PMA).

Epidendrum myodes Rchb.f.

Epiphytic herbs. Distribution in PILA 900–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Solano* 4031 (BM, INB, MO, PMA), *G. Herrera* 6016 (INB, MO).

Epidendrum nocturnum Jacq.

Epiphytic herbs. Distribution in PILA 0–400 m, low elevation mixed forest. Global distribution: USA to Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 3084 (MO).

Epidendrum notabile Schltr.

Epiphytic herbs. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 6144 (CR, INB, MO).

Epidendrum obliquifolium Ames, F.T.Hubb. & C.Schweinf.

Epiphytic herbs. Distribution in PILA –2500 m, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. F. Morales* 5796 (INB).

Epidendrum oxyglossum Schltr.

Epiphytic herbs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25879 (CR, MO).

Epidendrum pachytepalum Hágsater & E.SantiagoA.

Epiphytic herbs. Distribution in PILA 2200–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Soto* 291 (INB), *E. Alfaro* 3217 (INB), *E. Alfaro* 3407 (INB), *J. F. Morales* 5808 (CR, INB, MO), *F. Quesada* 1605 (INB).

Epidendrum paucifolium Schltr.

Epiphytic herbs. Distribution in PILA 2400–3500 m, low elevation oak forest, páramo. Global distribution: Costa

Rica, Panama. Records: *G. Davidse* 25850 (MO), *G. Davidse* 25906 (MO), *G. Davidse* 26071 (MO).

Epidendrum penneystigma Hágsater & García-Cruz

Epiphytic herbs. Distribution in PILA 1100–1600 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *L. Angulo* 256 (INB).

Epidendrum pergameneum Rchb.f.

Epiphytic herbs. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 803 (CR, INB, MO), *D. Solano* 5089 (BM, INB, MO, PMA).

Epidendrum philowercklei Hágsater & E.SantiagoA.

Epiphytic herbs. Distribution in PILA 2000–2200 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10851 (BM, INB, MO, PMA), *D. Solano* 3935 (BM, INB, MO, PMA), *J. Bittner* 1777 (CR, INB, MO).

Epidendrum piliferum Rchb.f.

Epiphytic herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11754 (BM, INB, MO, PMA), *D. Solano* 4317 (BM, INB, MO, PMA), *D. Solano* 4560 (BM, INB, MO, PMA), *E. Navarro* 5 (CR, INB, MO), *L. Acosta* 2333 (INB), *M. Alfaro* 31 (INB).

Epidendrum platystigma Rchb.f.

Epiphytic herbs. Distribution in PILA 1100–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28993 (CR, MO), *M.A. Thomas* 1613 (MO).

Epidendrum pleurothalloides Hágsater

Epiphytic herbs. Distribution in PILA 1300–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *de Nevers* 6039 (MO).

Epidendrum polychlamys Schltr.

Epiphytic herbs. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 495 (MO), *G. Herrera* 3627 (MO).

Epidendrum probiflorum Schltr.

Epiphytic herbs. Distribution in PILA 1400–1400 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *C. W. Powell 250* (MO).

Epidendrum radicans Pav. ex Lindl.

Bandera española, Boca de fuego, Gallito, Juanita, Paraíso (CR).

Terrestrial herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *C. Hamilton 3604* (MO), *C. Hamilton 3673* (MO), *C. Hamilton 3890* (MO), *C. Hamilton 3891* (MO), *D. Solano 2838* (INB), *D. Solano 5240* (BM, INB, MO, PMA), *E. Alfaro 4188* (INB).

Epidendrum repens Cogn.

Epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to El Salvador to Ecuador, Greater Antilles, Lesser Antilles. Records: *N. Zamora 4145* (INB).

Epidendrum rugosum Ames

Epiphytic herbs. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 569* (INB, MO), *E. Alfaro 3264* (INB), *F. Quesada 1572* (INB).

Epidendrum sanchoi Ames

Epiphytic herbs. Distribution in PILA 1400–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3208* (INB), *E. Alfaro 3392* (INB).

Epidendrum simulacrum Schltr.

Epiphytic herbs. Distribution in PILA 1200–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *C. W. Powell 296* (MO).

Epidendrum stolidium Hágsater

Epiphytic herbs. Distribution in PILA 2200–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *A. Rojas 3246* (MO).

Epidendrum subnutans Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 1300–2000 m, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Maroto*

200 (INB).

Epidendrum talamancanum (J.T.Atwood) Mora-Ret. & J.García

Epiphytic herbs. Distribution in PILA 1400–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28776* (MO).

Epidendrum tetraceros Rchb.f.

Epiphytic herbs. Distribution in PILA 1800–2000 m, cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5245* (BM, INB, MO, PMA).

Epidendrum turialvae Rchb.f.

Epiphytic herbs. Distribution in PILA 100–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11384* (CR, MO).

• **ε-PILA *Epidendrum vallis-silentii*** M. Díaz & Karremans
Epiphytic herbs. Distribution in PILA 2500–2500 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse & G. Herrera 26195* (MO).

Erycina crista-galli (Rchb.f.) N.H.Williams & M.W.Chase
Facultatively epiphytic herbs. Distribution in PILA 400–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Peru. Records: *D. Solano 4322* (BM, INB, MO, PMA).

Fernandezia costaricensis (Ames & C.Schweinf.) M.W.Chase
Epiphytic herbs. Distribution in PILA 2500–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 25788* (MO).

Fernandezia crystallina (Lindl.) M.W.Chase

Epiphytic herbs. Distribution in PILA 1900–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru, Venezuela. Records: *G. Davidse 28782* (CR, MO), *M. Valerio 210* (INB, MO).

Fernandezia hispidula (Rchb.f.) M.W.Chase

Epiphytic herbs. Distribution in PILA 2400–3200 m, low elevation oak forest, páramo. Global distribution: Guatemala, Costa Rica to Peru, Venezuela. Records: *E. Alfaro 3366* (INB), *G. Davidse 23889* (MO), *G. Herrera 3715* (INB, MO), *L.D. Gómez 22550* (MO).

Gomphichis adnata (Ridl.) Schltr.

Facultatively epiphytic herbs. Distribution in PILA 1700–3200 m, cloud forest, low elevation oak forest, páramo.

Global distribution: Costa Rica to Peru, Venezuela. Records: *E. Alfaro* 3977 (INB).

Goodyera ovatilabia Schltr.

Terrestrial herbs. Distribution in PILA 2500–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 23963 (CR, MO), *G. Davidse* 25733 (MO).

Govenia liliacea (La Llave & L ex .) Lindl.

Terrestrial herbs. Distribution in PILA 1400–1400 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Costa Rica. Records: *D. Solano* 3190 (INB).

Habenaria distans Griseb.

Terrestrial herbs. Distribution in PILA 200–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles. Records: *F. Quesada* 1981 (INB), *M.A. Thomas* 1669 (MO).

Habenaria heptadactyla Rchb.f.

Terrestrial herbs. Distribution in PILA –700 m, low elevation mixed forest. Global distribution: Costa Rica to Brazil, Lesser Antilles. Records: *A. Rodríguez* 9767 (INB).

Lepanthes chameleon Ames

Epiphytic herbs. Distribution in PILA 1800–2400 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse* 28647 (CR, MO).

Lepanthes davidsei Luer

Epiphytic herbs. Distribution in PILA 2400–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro* 5598 (BM, INB, MO, PMA), *G. Davidse* 28648 (CR, MO), *G. Davidse* 28801 (CR, MO).

Lepanthes disticha (A.Rich. & Galeotti) Garay & R.E.Schult.

Epiphytic herbs. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera* 5255 (CR, MO).

Lepanthes elata Rchb.f.

Epiphytic herbs. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.*

Fernández 668 (INB), *E. Alfaro* 3688 (INB), *E. Alfaro* 4642 (INB), *G. Davidse* 28800 (CR, MO).

Lepanthes erinacea Rchb.f.

Epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *L.D. Gómez* 23156 (CR, MO).

Lepanthes excedens Ames & Correll

Epiphytic herbs. Distribution in PILA 1300–1300 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *Luer* 9314 (*SEL*).

Lepanthes fimbriata Ames.

Epiphytic herbs. Distribution in PILA 1300–1600 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *Luer* 9279 (*SEL*).

Lepanthes helleri A.D. Hawkes

Epiphytic herbs. Distribution in PILA 1500–1700 m, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *Luer* 1331 (*SEL*).

Lepanthes horichii Luer

Epiphytic herbs. Distribution in PILA 700–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 3821 (BM, INB, MO, PMA).

Lepanthes horrida Rchb.f.

Epiphytic herbs. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 3689 (INB), *E. Alfaro* 3690 (INB), *E. Alfaro* 4592 (INB), *E. Alfaro* 4644 (INB), *E. Alfaro* 4645 (INB), *G. Herrera* 6130 (CR, INB, MO), *G. Herrera* 6221 (INB), *M.A. Thomas* 1643 (MO).

Lepanthes lindleyana Oerst. & Rchb.f.

Epiphytic herbs. Distribution in PILA 1400–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *R. Quirós* 92 (INB).

Lepanthes mariposa Luer

Epiphytic herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *Luer* 1598 (*SEL*).

Lepanthes psyche Luer

Epiphytic herbs. Distribution in PILA 1000–1300 m, mixed forest in transition to low elevation forest, mixed

forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *Luer 1158 (SEL)*.

ε-PILA *Lepanthes trichidion* Luer

Epiphytic herbs. Distribution in PILA 2300–2300 m, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Luer 9307 (SEL)*.

***Lepanthes valerioi* Luer**

Epiphytic herbs. Distribution in PILA 2200–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *M. Valerio 179 (CR, MO)*.

***Lepanthes wendlandii* Rchb.f.**

Epiphytic herbs. Distribution in PILA 1800–2900 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 1212 (INB, MO)*, *E. Alfaro 3408 (INB)*, *E. Alfaro 3652 (INB)*, *E. Alfaro 3738 (INB)*, *G. Davidse 25131 (CR, MO)*, *G. Davidse 28881 (CR, MO)*, *G. Davidse 28899 (MO)*, *G. Davidse 29241 (MO)*, *G. Herrera 3408 (MO)*, *F. Quesada 1581 (INB)*, *F. Quesada 1582 (INB)*, *F. Quesada 1990 (INB, MO)*, *L.D. Gómez 22231 (MO)*, *S. Merz 350 (CR, MO)*.

***Liparis arnoglossophylla* (Rchb.f.) Rchb.f. ex Hemsl.**

Facultatively epiphytic herbs. Distribution in PILA 2000–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *F. Quesada 1620 (INB)*.

***Lockhartia amoena* Rchb.f.**

Trencilla (CR).

Epiphytic herbs. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Peru. Records: *L.D. Gómez 23117 (MO)*.

***Lycaste leucantha* (Klotzsch) Lindl.**

Epiphytic herbs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 730 (INB, MO)*, *G. Davidse 28502 (CR, MO)*.

***Malaxis excavata* (Lindl.) Kuntze**

Terrestrial herbs. Distribution in PILA 1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Colombia. Records: *G. Davidse 28541 (MO)*, *G. Davidse 28662 (MO)*, *G. Herrera 6091 (CR, INB, MO)*, *M.A. Thomas 1649 (MO)*.

***Malaxis tonduzii* (Schltr.) Ames**

Terrestrial herbs. Distribution in PILA 2400–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 29049 (MO)*.

***Masdevallia maduroi* Luer**

Epiphytic herbs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *Luer 18932 (MO)*.

***Masdevallia nidifica* Rchb.f.**

Epiphytic herbs. Distribution in PILA 500–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Peru. Records: *G. Herrera 5173 (CR, INB, MO)*, *G. Herrera 5257 (CR, MO)*.

***Masdevallia rafaeliana* Luer**

Epiphytic herbs. Distribution in PILA 2600–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *L.D. Gómez 22225 (MO)*.

***Masdevallia utriculata* Luer**

Epiphytic herbs. Distribution in PILA 1800–2200 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *R. Dressler s.n. (MO)*.

***Maxillaria adolphi* (Schltr.) Ames & Correll**

Epiphytic herbs. Distribution in PILA 1900–3300 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10850 (BM, INB, MO, PMA)*, *B. Gamboa 1744 (INB, MO)*, *E. Alfaro 3265 (INB)*, *G. Davidse 23870 (MO)*, *G. Davidse 25922 (MO)*, *G. Davidse 29001 (CR, MO)*, *G. Davidse 29255 (INB, MO)*, *J. F. Morales 5806 (INB, MO)*, *F. Quesada 1841 (INB)*.

***Maxillaria amabilis* J.T. Atwood**

Epiphytic herbs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 679 (INB)*.

***Maxillaria biolleyi* (Schltr.) L.O. Williams**

Epiphytic herbs. Distribution in PILA 1400–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3393 (INB)*.

***Maxillaria bracteata* (Schltr.) Ames & Correll**

Pajarillo (CR).

Epiphytic herbs. Distribution in PILA 1100–2500

m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *M.A. Thomas 1672* (MO), *M. Moraga 503* (CR, INB).

Maxillaria bradeorum (Schltr.) L.O. Williams
Facultatively epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4478* (CR).

Maxillaria brevilabia Ames & Correll
Epiphytic herbs. Distribution in PILA 1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. F. Morales 5829* (INB, MO), *M. Valerio 169* (CR, INB, MO).

Maxillaria carinulata Rchb.f.
Facultatively epiphytic herbs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera 5374* (INB, MO).

Maxillaria concavilabia Ames & Correll
Epiphytic herbs. Distribution in PILA – m. Global distribution: Endemic to Costa Rica. Records: *M. Moraga 500* (INB, MO).

Maxillaria confusa Ames & C.Schweinf.
Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Belize to Panama. Records: *F. Solís 20* (CR, INB, MO).

Maxillaria falcata Ames & Correll
Epiphytic herbs. Distribution in PILA 1500–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5733* (BM, INB, MO, PMA), *G. McPherson 15919* (MO), *J. Bittner 1809* (INB, MO).

Maxillaria fulgens (Rchb.f.) L.O. Williams
Epiphytic herbs. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Peru, Venezuela. Records: *G. Davidse 28419* (CR, MO), *J. F. Morales 5828* (INB, MO).

Maxillaria gomeziana J.T. Atwood

Epiphytic herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 3853* (BM, INB, MO, PMA).

Maxillaria horichii Senghas
Epiphytic herbs. Distribution in PILA 900–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Navarro 207* (INB, MO).

Maxillaria nutantiflorum L.O. Williams
Epiphytic herbs. Distribution in PILA 400–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 791* (CR, INB), *A. Rodríguez 10659* (BM, INB, MO, PMA), *D. Santamaría 5775* (BM, INB, MO, PMA), *D. Solano 4018* (BM, INB, MO, PMA), *G. Herrera 5939* (INB, MO).

Maxillaria microphyton Schltr.
Epiphytic herbs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2724* (MO).

Maxillaria obscura Linden & Rchb.f.
Epiphytic herbs. Distribution in PILA 1500–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 1223* (INB), *E. Alfaro 3621* (INB), *G. Herrera 5974* (CR, INB, MO), *F. Quesada 1954* (INB).

Maxillaria paleata (Rchb.f.) Ames & Correll
Epiphytic herbs. Distribution in PILA 1200–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Nicaragua to Panama. Records: *A. Chacón 498* (MO), *A. Rojas 3244* (INB, MO), *B. Gamboa 1205* (INB), *B. Gamboa 1713* (INB, MO), *B. Hammel 5795* (MO), *G. Davidse 25123* (MO), *G. Davidse 28610* (INB, MO), *G. Davidse 28877* (CR, MO), *G. Davidse 28919* (CR, MO), *G. Davidse 28994* (CR, MO), *G. Davidse 29275* (INB, MO), *G. Herrera 3628* (MO), *G. Herrera 3708* (INB, MO), *K. Sytsma 4925* (MO), *K. Sytsma 4939* (MO), *M. Valerio 203* (INB), *S. Knapp 2161* (MO).

Maxillaria parvilabia Ames & C.Schweinf.
Epiphytic herbs. Distribution in PILA 1500–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5847* (BM, INB, MO),

PMA), *J. Bittner 1775* (INB, MO), *M. Grayum 10351* (INB, MO).

Maxillaria pseudoneglecta J.T.Atwood

Epiphytic herbs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 729* (INB).

Maxillaria quadrata Ames & Correll

Facultatively epiphytic herbs. Distribution in PILA 1700–2800 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 25771* (MO).

ε-PILA *Maxillaria synsepalum* J.T.Atwood

Epiphytic herbs. Distribution in PILA 2200–2200 m, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Van der Werff 6435* (MO, SEL).

Maxillaria tigrina C.Schweinf.

Epiphytic herbs. Distribution in PILA 2000–2500 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28634* (CR, MO), *F. Quesada 1596* (INB).

ε-PILA *Maxillaria tricarinatum* J.T.Atwood

Epiphytic herbs. Distribution in PILA 1500–1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *R. Dressler 5810* (SEL).

Maxillaria tubercularis J.T.Atwood

Epiphytic herbs. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón 490* (INB, MO), *A. Soto 333* (INB), *B. Gamboa 565* (INB, MO), *G. Davidse 23979* (CR, MO).

Maxillaria umbratilis L.O. Williams

Epiphytic herbs. Distribution in PILA 900–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3367* (INB), *G. Herrera 6231* (CR, INB, MO).

Maxillaria vaginalis Rchb.f.

Facultatively epiphytic herbs. Distribution in PILA 1800–2500 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 1854* (INB), *E. Navarro 475* (INB, MO), *G. Davidse 28539* (INB, MO), *G. Davidse 28926* (MO).

Microchilus nigrescens (Schltr.) Ormerod

Terrestrial herbs. Distribution in PILA 1500–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Bittner 1910* (INB, MO).

Myoxanthus colothrix (Luer) Luer

Epiphytic herbs. Distribution in PILA 1700–1700 m, cloud forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *E. Alfaro 3464* (INB).

Nidema boothii (Lindl.) Schltr.

Epiphytic herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *L.D. Gómez 23286* (CR, MO).

Oncidium bryolophotum Rchb.f.

Facultatively epiphytic herbs. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *D. Solano 3891* (BM, INB, MO, PMA).

Oncidium cheiroporum Rchb.f.

Facultatively epiphytic herbs. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *J. Dwyer 440* (MO).

Oncidium lineoligerum Rchb.f. & Warsz.

Facultatively epiphytic herbs. Distribution in PILA – m. Global distribution: Elevation unknown. Costa Rica, Panama. Records: *L.D. Gómez 23257* (CR, MO).

Oncidium maduroi Dressler

Facultatively epiphytic herbs. Distribution in PILA 1200–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *R. Dressler 6220* (MO).

Oncidium nebulosum Lindl.

Facultatively epiphytic herbs. Distribution in PILA 1000–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *J. Dwyer 514* (MO).

Oncidium poikilostalix (Kraenzl.) M.W.Chase & N.H.Williams

Epiphytic herbs. Distribution in PILA 1200–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution:

Mexico to Ecuador. Records: *Davidse 28460* (CR, MO), *Davidse 28459* (CR, MO), *Herrera 5102* (CR, INB, MO).

Oncidium warszewiczii Rehb.f.

Facultatively epiphytic herbs. Distribution in PILA 1300–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *N. Zamora 4118* (INB).

Ornithocephalus bicornis Lindl.

Epiphytic herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela. Records: *L.D. Gómez 23096A* (MO).

Otoglossum chiriquense (Rehb.f.) Garay & Dunst.
Monedas (CR).

Epiphytic herbs. Distribution in PILA 1100–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Panama. Records: *F. Solís 16* (INB, MO).

Otoglossum globuliferum (Kunth) N.H. Williams & M.W. Chase

Facultatively epiphytic herbs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *E. Alfaro 739* (INB), *J. F. Morales 5811* (INB, MO).

Palmorchis trilobulata L.O. Williams

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama (possibly South America). Records: *D. Solano 4894* (BM, INB, MO, PMA), *L.D. Gómez 23093* (MO).

Platystele compacta (Ames) Ames

Epiphytic herbs. Distribution in PILA 200–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Solano 4778* (BM, INB, MO, PMA).

Platystele oxyglossa (Schltr.) Garay

Epiphytic herbs. Distribution in PILA 1700–2600 m, cloud forest, low elevation oak forest, high elevation oak

forest. Global distribution: Mexico to Brazil. Records: *E. Alfaro 4643* (INB), *G. Davidse 28802* (MO), *G. Herrera 6106* (CR, INB, MO).

Pleurothallis bivalvis Lindl.

Facultatively epiphytic herbs. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Ecuador. Records: *G. Herrera 5099* (CR, INB, MO), *G. Herrera 5199* (MO).

Pleurothallis cardiothallis Rehb.f.

Epiphytic herbs. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *D. Santamaría 5769* (BM, INB, MO, PMA).

Pleurothallis colossus Kraenzl. ex Kerch.

Facultatively epiphytic herbs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *B. Hammel 5791* (MO).

Pleurothallis cordifolia Rehb.f. & Wagoner

Epiphytic herbs. Distribution in PILA 200–200 m, low elevation mixed forest. Global distribution: Costa Rica to Peru. Records: *M.A. Thomas 1621* (MO).

Pleurothallis instar Luer

Epiphytic herbs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *Luer 1389* (SEL).

Pleurothallis longipedicellata Ames & C. Schweinf.

Epiphytic herbs. Distribution in PILA 600–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *E. Alfaro 3461* (INB).

Pleurothallis nitida Luer

Epiphytic herbs. Distribution in PILA 1700–1700 m, cloud forest. Global distribution: Costa Rica, Panama. Records: *Luer 1337* (SEL).

Pleurothallis peculiaris Luer

Epiphytic herbs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *F. Solís 25* (CR, INB, MO).

Pleurothallis phyllocardia Rehb.f.

Epiphytic herbs. Distribution in PILA 700–2500 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Panama. Records: *A. Fernández* 914 (CR, MO), *A. Rodríguez* 10810 (BM, INB, MO, PMA), *B. Hammel* 1425 (MO), *D. Solano* 3916 (BM, INB, MO, PMA), *D. Solano* 5224 (BM, INB, MO, PMA), *E. Alfaro* 4687 (INB), *G. Davidse* 29171 (MO), *G. Herrera* 5252 (CR, INB, MO), *G. McPherson* 15883 (MO), *K. Uitley* 5677 (MO), *L. Angulo* 337 (INB).

Pleurothallis rhodoglossa Schltr.

Epiphytic herbs. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera* 5253 (CR, INB, MO).

Pleurothallis rowleei Ames

Epiphytic herbs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *G. Davidse* 29077 (CR, MO), *G. Davidse* 29210 (CR, MO).

Pleurothallis ruscifolia (Jacq.) R.Br.

Epiphytic herbs. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *D. Solano* 4191 (BM, INB, MO, PMA).

Pleurothallis tonduzii Schltr.

Epiphytic herbs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa* 642 (INB), *G. Davidse* 28437 (CR, MO).

Pleurothallis volcanica Luer

Epiphytic herbs. Distribution in PILA 1300–1600 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28380 (MO), *F. Quesada* 1725 (INB, MO).

Polystachya masayensis Rchb.f.

Epiphytic herbs. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Venezuela. Records: *L.D. Gómez* 23265 (MO).

Ponthieva brenesii Schltr.

Facultatively epiphytic herbs. Distribution in PILA 1400–

1600 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *M. Moraga* 435 (INB, MO).

Ponthieva formosa Schltr.

Epiphytic herbs. Distribution in PILA 1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *E. Fletes* 179 (INB).

Prescottia stachyodes (Sw.) Lindl.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Paraguay, Greater Antilles, Lesser Antilles. Records: *G. Herrera* 6093 (INB).

Prosthechea brassavolae (Rchb.f.) W.E.Higgins

Epiphytic herbs. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández* 1851 (INB), *B. Gamboa* 567 (INB, MO), *D. Solano* 3897 (BM, INB, MO, PMA), *M.A. Thomas* 1667 (MO), *T. Croat* 26936 (MO).

Prosthechea ochracea (Lindl.) W.E.Higgins

Epiphytic herbs. Distribution in PILA 1300–1900 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Costa Rica. Records: *A. Rodríguez* 11383 (INB).

Prosthechea pseudopygmaea (Finet) W.E.Higgins

Epiphytic herbs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *C. Hamilton* 3909 (MO), *G. Davidse* 29160 (CR, MO).

Prosthechea vespa (Vell.) W.E.Higgins

Epiphytic herbs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11403 (BM, INB, MO, PMA), *D. Santamaría*, Oct. 26, 2007 (*Field obs.*), *G. Herrera* 2686 (INB), *J. Dwyer* 8774 (MO).

Pseudocentrum hoffmannii (Rchb.f.) Rchb.f.

Terrestrial herbs. Distribution in PILA 2200–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Hammel* 5777 (MO), *G. Davidse* 23990 (CR, MO), *G. Herrera*

3672 (INB, MO).

***Psilochilus* sp. A.**

Terrestrial herbs. Distribution in PILA 3400–3500 m, páramo. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11536* (INB).

The above material was determined as being of a currently undescribed species by R.L. Dressler in the Manual de Plantas de Costa Rica (MO, Hammel et al. 2003).

***Pterichis galeata* Lindl.**

Terrestrial herbs. Distribution in PILA 2300–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Venezuela to Peru. Records: *G. Davidse 28578* (MO), *G. Davidse 29005* (CR, MO), *G. Davidse 29028* (MO), *G. Herrera 3664* (INB, MO).

***Pterichis habenarioides* (F.Lehm. & Kraenzl.) Schltr.**

Terrestrial herbs. Distribution in PILA 2300–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *B. Gamboa 1718* (INB, MO), *E. Alfaro 3713* (INB), *G. Davidse 23852* (CR, MO), *G. Davidse 28778* (MO), *G. Davidse 29296* (CR, MO), *G. Davidse 29359* (CR, MO), *G. Davidse 29414* (MO), *G. Herrera 3739* (INB, MO).

• ***ε*-PILA *Pterichis herrerae* Kolan.**

Terrestrial herbs. Distribution in PILA 3300–3300 m, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 3665* (INB, MO).

***Rossioglossum krameri* (Rchb.f.) M.W.Chase & N.H.Williams**

Epiphytic herbs. Distribution in PILA 900–1100 m, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *E. Alfaro 3333* (INB).

***Rossioglossum oerstedii* (Rchb.f.) M.W.Chase & N.H.Williams**
Clavelillo (CR).

Epiphytic herbs. Distribution in PILA 1700–3100 m, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3210* (INB), *E. Navarro 479* (INB, MO), *G. Davidse 28612* (MO), *M.A. Thomas 1646* (MO).

***Scaphosepalum microdactylum* Rolfe**

Epiphytic herbs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador. Records: *A. Fernández 985* (INB), *E. Alfaro 3676* (INB), *E. Alfaro*

3685 (INB), *E. Alfaro 4661* (INB), *G. Davidse 28805* (CR, MO), *G. Herrera 6101* (CR, INB, MO).

***Scaphyglottis acostae* (Schltr.) C.Schweinf.**

Epiphytic herbs. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5142* (BM, INB, MO, PMA), *D. Solano 5216* (BM, INB, MO, PMA), *W. R. Maxon 5399* (CR).

***Scaphyglottis corallorrhiza* (Ames) Ames, F.T.Hubb. & C.Schweinf.**

Epiphytic herbs. Distribution in PILA 1500–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5483* (BM, INB, MO, PMA), *G. Davidse 28843* (INB, MO), *G. Herrera 3713* (INB, MO).

***Scaphyglottis sigmoidea* (Ames & C.Schweinf.) B.R.Adams**

Epiphytic herbs. Distribution in PILA 1600–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 3930* (BM, INB, MO, PMA).

***Sobralia amabilis* (Rchb.f.) L.O.Williams**

Facultatively epiphytic herbs. Distribution in PILA 1100–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: El Salvador to Panama. Records: *A. Chacón 552* (INB, MO), *A. Fernández 955* (CR, INB, MO), *E. Alfaro 3969* (INB), *E. Alfaro 4705* (INB), *G. Herrera 6133* (CR, INB, MO), *F. Quesada 1832* (INB), *F. Quesada 1952* (INB).

***Sobralia leucoxantha* Rchb.f.**

Facultatively epiphytic herbs. Distribution in PILA 600–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera 2835* (MO).

***Sobralia warszewiczii* Rchb.f.**

Facultatively epiphytic herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 10309* (INB).

***Solenocentrum costaricense* Schltr.**

Epiphytic herbs. Distribution in PILA 1500–2100 m,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 23757* (CR, MO).

Specklinia endotrachys (Rchb.f.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela. Records: *E. Alfaro 3646* (INB), *E. Alfaro 4597* (INB), *G. Davidse 28729* (MO), *G. Davidse 28921* (INB, MO), *G. Herrera 3411* (INB, MO), *G. McPherson 15941* (MO), *F. Quesada 1481* (INB), *F. Quesada 1574* (INB).

Stanhopea ecornuta Lem.

Flor de vaca, Torito sin cacho (CR).

Epiphytic herbs. Distribution in PILA 500–500 m, low elevation mixed forest. Global distribution: Guatemala to Panama. Records: *A. Rodríguez 11242* (INB).

Stelis conochila (Luer) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1600–1600 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *F. Solís 24* (INB, MO).

Stelis macrantha Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1900–1900 m, cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28820* (MO).

Stelis gelida (Lindl.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Bolivia, Greater Antilles, Lesser Antilles. Records: *L.D. Gómez 23274* (MO).

ε-PILA Stelis montana L.O.Williams

Epiphytic herbs. Distribution in PILA 2000–2500 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Allen 1463* (MO).

Stelis morgani Dodson & Garay

Epiphytic herbs. Distribution in PILA 2100–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Ecuador. Records: *R. Aguilar 1141* (INB, MO).

Stelis papillifera (Rolfe) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1500–1600 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28415* (MO).

Stelis parvula Lindl.

Epiphytic herbs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Brazil. Records: *G. Herrera 5256* (CR, INB, MO).

Stelis segoviensis (Rchb.f.) Pridgeon & M.W.Chase
Epiphytic herbs. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador. Records: *T. Croat 26962* (MO).

Stelis spathulata Poepp. & Endl.

Epiphytic herbs. Distribution in PILA 1200–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, Venezuela. Records: *L.D. Gómez 23239* (MO).

Stelis superbiens Lindl.

Epiphytic herbs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru, Venezuela. Records: *G. Davidse 28695* (MO), *G. Davidse 28953* (MO).

Stelis tonduziana Schltr.

Epiphytic herbs. Distribution in PILA 1500–1500 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 2718* (INB, MO).

Telipogon costaricensis Schltr.

Epiphytic herbs. Distribution in PILA 2500–3300 m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 3621* (INB).

Telipogon distantiflorus (Ames & C.Schweinf.) N.H.Williams & Dressler

Epiphytic herbs. Distribution in PILA – m. Global distribution: Elevation unknown. Endemic to Costa Rica. Records: *G. Herrera 5945* (CR, INB, MO).

Telipogon gracilipes Schltr.

Epiphytic herbs. Distribution in PILA 2300–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28786* (MO).

Telipogon leila-alexandrae Braas

Epiphytic herbs. Distribution in PILA 2900–3200 m, low elevation oak forest, high elevation oak forest, páramo.

Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 6000 (INB, MO).

Telipogon storkii Ames & C.Schweinf.

Epiphytic herbs. Distribution in PILA 2900–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse* 26073 (MO), *G. Davidse* 28608 (MO), *G. Davidse* 28896 (MO).

Trichopilia marginata Henfr.

Epiphytic herbs. Distribution in PILA 900–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *M. Moraga* 421 (INB, MO).

ε-PILA *Trichopilia olmosii* Dressler

Epiphytic herbs. Distribution in PILA 1000–1200 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *R. Dressler* 6288 (MO).

Trichosalpinx arbuscula (Lindl.) Luer

Epiphytic herbs. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Bolivia. Records: *A. Fernández* 788 (INB).

Trichosalpinx cedralensis (Ames) Luer

Epiphytic herbs. Distribution in PILA 1100–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Bolivia, Venezuela. Records: *G. Herrera* 5427 (CR, INB, MO), *R. Aguilar* 1164 (INB, MO).

Trichosalpinx memor (Rchb.f.) Luer

Epiphytic herbs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *T. Croat* 26927 (MO), *T. Croat* 26929 (MO).

Trichosalpinx pusilla (Kunth) Luer

Epiphytic herbs. Distribution in PILA 3000–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *G. Davidse* 26069 (MO).

Warczewiczella discolor (Lindl.) Rchb.f.

Epiphytic herbs. Distribution in PILA 900–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras to Peru, Venezuela, Greater Antilles. Records: *D. Solano* 4139 (BM, INB, MO, PMA).

Xylobium elongatum (Lindl. & Paxton) Hemsl.

Epiphytic herbs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *G. Davidse* 28431 (CR, MO), *F. Quesada* 1659 (INB), *F. Quesada* 1683 (INB), *L. Acosta* 2407 (INB), *L.D. Gómez* 23096 (MO).

POACEAE

Acroceras zizanioides (Kunth) Dandy

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Antilles, Asia, tropical Africa. Records: *A. Rodríguez* 11189 (BM, INB, MO, PMA).

Agrostis bacillata Hack.

Terrestrial herbs. Distribution in PILA 2200–3800 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 519 (MO), *A. S. Weston* 10191 (MO), *B. Gamboa* 1728 (CR, INB, MO), *E. Alfaro* 3291 (INB), *E. Alfaro* 3301 (INB), *E. Alfaro* 3784 (INB), *G. Davidse* 23853 (CR, MO), *G. Davidse* 29277 (CR, MO), *F. Quesada* 1793 (INB).

Agrostis perennans (Walter) Tuck.

Terrestrial herbs. Distribution in PILA 2300–3400 m, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Bolivia. Records: *A.K. Monro* 4163 (BM), *G. Davidse* 28591 (MO).

Agrostis subpatens Hitchc.

Terrestrial herbs. Distribution in PILA 3000–3400 m, high elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica. Records: *F. Quesada* 1816 (INB).

Agrostis turrialbae Mez

Terrestrial herbs. Distribution in PILA 2500–3400 m, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica. Records: *E. Alfaro* 3730 (INB), *G. Davidse* 29406 (CR, MO).

Agrostis virescens Kunth.

Terrestrial herbs. Distribution in PILA 1400–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. S. Weston* 10177 (MO), *G. Davidse* 26035 (CR, MO).

Andropogon bicornis L.

Cola de venado (CR).

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina. Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3773 (INB), *D. Solano* 2841 (INB).

Andropogon glomeratus (Walter) Britton, Sterns & Poggenb.

Terrestrial herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Venezuela, Greater Antilles, Lesser Antilles. Records: *L.D. Gómez* 23264 (MO).

Andropogon leucostachyus Kunth

Terrestrial herbs. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 4432 (INB).

Arthrostylidium judziewiczii Davidse

Terrestrial or hemiepiphytic herbs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4977 (BM, INB).

Arthrostylidium merostachyoides R.W.Pohl

Terrestrial shrubs. Distribution in PILA 200–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 2801 (MO).

Arthrostylidium venezuelae (Steud.) McClure

Terrestrial shrubs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Venezuela, Guyanas. Records: *G. Davidse* 29107 (CR, MO).

Arundinella berteroniana (Schult.) Hitchc. & Chase

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Soto* 1234 (INB), *D. Santamaría* 3760 (INB), *D. Solano* 3181 (INB), *M. Correa* 3620 (MO).

Aulonemia patriae R.W.Pohl

Terrestrial shrubs. Distribution in PILA 2100–2600 m,

cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10703 (BM, INB, MO, PMA), *G. Davidse* 25208 (CR, MO), *M. Correa* 9894 (MO), *M. Grayum* 10288 (CR, INB, MO).

Aulonemia viscosa (Hitchc.) McClure

Terrestrial shrubs. Distribution in PILA 1500–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *G. Davidse* 28436 (CR, MO).

Axonopus aureus P.Beauv.

Terrestrial herbs. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 10294 (INB), *A. Rodríguez* 9832 (INB), *A. Soto* 1230 (INB), *D. Santamaría* 3467 (INB), *D. Santamaría* 3729 (INB), *D. Solano* 3196 (INB), *E. Alfaro* 2209 (CR, INB, MO), *L. González* 1195 (INB).

Axonopus fissifolius (Raddi) Kuhlm.

Pie de paloma (CR).

Terrestrial herbs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles, introduced in the Old World. Records: *A. Rodríguez* 10293 (INB), *A. Rodríguez* 9869 (INB), *D. Santamaría* 3507 (INB), *D. Santamaría* 4429 (INB).

e ***Axonopus micay*** García- Barr.

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: El Salvador, Costa Rica, Ecuador, Venezuela. Records: *L. Acosta* 2392 (INB), *M. Grayum* 10363 (CR, INB, MO).

Axonopus purpusii (Mez) Chase

Terrestrial herbs. Distribution in PILA 300–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Argentina. Records: *D. Santamaría* 3461 (INB), *D. Santamaría* 3477 (INB).

e ***Brachiaria arrecta*** (T.Durand & Schinz) Stent

Terrestrial herbs. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Native to Africa, widely introduced elsewhere. Records: *F. Quesada* 1687 (INB).

e *Brachiaria decumbens* Stapf

Terrestrial herbs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Native to Africa, widely introduced elsewhere. Records: *A. Rodríguez* 9866 (INB), *D. Santamaría* 3782 (INB), *D. Santamaría* 4388 (INB).

Brachiaria fasciculata (Sw.) Parodi

Terrestrial herbs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: USA to Mexico to El Salvador to Brazil, Caribe. Records: *D. Santamaría* 4401 (INB).

Calamagrostis bogotensis (Pilg.) Pilg.

Terrestrial herbs. Distribution in PILA 3000–3300 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro* 4085 (BM), *B. Gamboa* 1733 (INB, MO), *E. Alfaro* 3777 (INB), *G. Davidse* 23847 (CR, MO), *G. Davidse* 25282 (CR, MO), *G. Davidse* 25878 (CR, MO), *G. Davidse* 25882 (CR, MO), *G. Davidse* 25956 (CR, MO), *G. Davidse* 26027 (MO), *G. Davidse* 26064 (MO), *G. Davidse* 29278 (CR, MO), *G. Davidse* 29340 (MO), *G. Davidse* 29367 (CR, MO), *G. Davidse* 29368 (MO), *G. Davidse* 29373 (CR, MO), *G. Davidse* 29403 (MO), *G. Davidse* 29407 (CR, MO).

Calamagrostis intermedia (J.Presl) Steud.

Terrestrial herbs. Distribution in PILA 2900–3800 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Argentina. Records: *A.K. Monro* 4177 (BM, INB, MO), *G. Davidse* 23855 (CR, MO), *G. Davidse* 25288 (CR, MO), *G. Davidse* 25881 (CR, MO), *G. Davidse* 25934 (CR, MO), *G. Davidse* 26007 (CR, MO), *G. Davidse* 29317 (MO), *G. Davidse* 29370 (MO), *G. Davidse* 29411 (CR, MO), *F. Quesada* 1852 (INB).

Calamagrostis pittieri Hack.

Terrestrial herbs. Distribution in PILA 3100–3500 m, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse* 29365 (CR, MO).

ε-PILA *Chusquea amistadensis* L.G.Clark, Davidse & R.P.Ellis

Terrestrial shrubs. Distribution in PILA 2900–3300 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4073 (BM, INB, MO), *A.K. Monro* 4138 (BM), *A.K. Monro* 5161 (BM, INB, MO), *A.K. Monro* 5188 (BM, INB, MO), *A. S. Weston* 10144 (MO), *A. S. Weston* 10157 (MO), *A. S. Weston* 10167 (MO), *B. Gamboa* 1730 (CR, INB, MO), *E. Alfaro* 1623 (INB), *E. Alfaro* 3269 (INB), *E. Alfaro* 3711 (INB), *E. Alfaro* 3953 (INB), *E. Alfaro* 4701 (INB),

G. Davidse 23867 (CR, MO), *G. Davidse* 25280 (CR, MO), *G. Davidse* 25291 (CR, MO), *G. Davidse* 25332 (MO), *G. Davidse* 25427 (MO), *G. Davidse* 25430 (MO), *G. Davidse* 25431 (MO), *G. Davidse* 25436 (MO), *G. Davidse* 25441 (MO), *G. Davidse* 25442 (MO), *G. Davidse* 25446 (MO), *G. Davidse* 25449 (MO), *G. Davidse* 25452 (MO), *G. Davidse* 25455 (MO), *G. Davidse* 25513 (MO), *G. Davidse* 25958 (MO), *G. Davidse* 26061 (MO), *G. Davidse* 28839 (CR, MO), *G. Davidse* 29269 (CR, MO), *G. Davidse* 23909 (MO), *G. Davidse* s.n. (CR), *L.D. Gómez* 22437 (MO), *S. Knapp* 9847 (BM, INB, MO).

ψ *Chusquea costaricensis* L.G.Clark & R.H.March

Terrestrial shrubs. Distribution in PILA 2200–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25331 (MO). Global conservation status: Endangered (EN), B1ab(i,iii).

Chusquea foliosa L.G.Clark

Terrestrial shrubs. Distribution in PILA 1800–3100 m, cloud forest, low elevation oak forest, high elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico, Costa Rica. Records: *G. Davidse* 23999 (CR, MO).

Chusquea longifolia Swallen

Terrestrial shrubs. Distribution in PILA 1000–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A. Rodríguez* 11277 (BM, INB, MO, PMA), *D. Santamaría* 6315 (BM, INB, MO, PMA), *D. Solano* 4537 (BM, INB, MO, PMA), *G. Davidse* 23744 (CR), *G. Davidse* 25494 (MO), *G. Davidse* 25704 (CR, MO).

Chusquea longiligulata (Soderstr. & C.E.Calderón) L.G.Clark

Terrestrial shrubs. Distribution in PILA 1500–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Endemic to Costa Rica. Records: *A. Soto* 260 (INB), *C. M. Rodríguez* 1917 (CR, MO), *G. Davidse* 23937 (CR, MO), *F. Quesada* 1917 (INB), *M. Grayum* 10287 (INB, MO).

Chusquea magnifolia L.G.Clark

Terrestrial shrubs. Distribution in PILA 1400–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela, Brazil. Records: *G. Herrera* 5437 (CR, INB, MO), *G. Herrera* 5985 (CR, INB, MO), *R. Aguilar* 1093 (INB, MO).

Chusquea paludicola L.G.Clark

Terrestrial shrubs. Distribution in PILA 1400–3000 m,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 4798* (BM, INB, MO, PMA), *E. Alfaro 3374* (INB).

Chusquea patens L.G.Clark

Terrestrial shrubs. Distribution in PILA 1400–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5526* (PMA), *G. Davidse 25119* (CR, MO), *G. Davidse 25201* (CR, MO), *G. Davidse 25485* (CR, MO), *G. Davidse 28658* (CR, MO), *M.A. Thomas 1583* (MO).

Chusquea pohlii L.G.Clark

Terrestrial shrubs. Distribution in PILA 900–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5601* (BM, INB, MO, PMA), *D. Santamaría 6208* (BM, INB, MO, PMA), *G. Davidse 28722* (CR, MO), *J. Aranda 3093* (MO).

ψ ***Chusquea subtessellata*** Hitchc.

Batamba (CR).

Terrestrial shrubs. Distribution in PILA 1900–3800 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 523* (INB, MO), *A. S. Weston 10166* (MO), *B.B. Klitgaard 744* (BM, MO), *B. Gamboa 1729* (INB, MO), *E. Alfaro 1622,1* (CR, INB), *E. Alfaro 3331* (INB), *E. Alfaro 3790* (INB), *E. Alfaro 3936* (INB), *G. Davidse 233935* (CR), *G. Davidse 23841* (CR, MO), *G. Davidse 23933* (CR, MO), *G. Davidse 25306* (CR, MO), *G. Davidse 25426* (MO), *G. Davidse 25428* (MO), *G. Davidse 25429* (MO), *G. Davidse 25432* (MO), *G. Davidse 25435* (MO), *G. Davidse 25438* (MO), *G. Davidse 25439* (MO), *G. Davidse 25440* (MO), *G. Davidse 25443* (MO), *G. Davidse 25444* (CR, MO), *G. Davidse 25447* (MO), *G. Davidse 25448* (CR, MO), *G. Davidse 25450* (MO), *G. Davidse 25451* (MO), *G. Davidse 25453* (MO), *G. Davidse 25454* (CR, MO), *G. Davidse 25457* (MO), *G. Davidse 25515* (MO), *G. Davidse 25516* (MO), *G. Davidse 25955* (CR, MO), *G. Davidse 25973* (MO), *G. Davidse 25974* (MO), *G. Davidse 26033* (MO), *G. Davidse 29268* (CR, MO), *G. Davidse 29363* (MO), *G. Davidse 29364* (MO), *G. Davidse 29366* (MO), *G. Davidse 23935* (MO), *G. Herrera 3659* (INB, MO), *F. Quesada 1846* (INB), *S. Knapp 9873* (BM, INB, MO). Uses: Ecologica. Global conservation status: Endangered (EN), B1ab(I, iii) and A2a.

Chusquea subtilis Y.Widmer & L.G.Clark

Terrestrial shrubs. Distribution in PILA 2000–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *I. Widmer 510* (CR, INB, MO).

ψ ***Chusquea talamancensis*** Y.Widmer & L.G.Clark

Terrestrial shrubs. Distribution in PILA 2600–3200 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 23885* (MO), *G. Davidse 23961* (MO), *I. Widmer 518* (INB, MO), *I. Widmer 519* (INB, MO). Global conservation status: Endangered (EN), B1ab(i,iii).

Chusquea tonduzii Hack.

Terrestrial shrubs. Distribution in PILA 2200–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *C. Galdames 3433* (MO), *E. Alfaro 3493* (INB), *E. Alfaro 4699* (INB).

Chusquea vulcanalis (Soderstr. & C.E.Calderón) L.G.Clark

Terrestrial shrubs. Distribution in PILA 2400–3400 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5248* (BM, INB, MO), *E. Alfaro 3957* (INB).

Cinna poiformis (Kunth) Scribn. & Merr.

Terrestrial herbs. Distribution in PILA 2300–3400 m, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *G. Davidse 28595* (CR, MO), *G. Herrera 3730,1* (INB, MO).

Cortaderia hapalotricha (Pilg.) Conert

Terrestrial herbs. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *A.K. Monro 4086* (BM, INB, MO), *B. Gamboa 1734* (CR, INB, MO), *E. Alfaro 3328* (INB), *E. Alfaro 3723* (INB), *G. Davidse 23846* (CR, MO), *G. Davidse 25296* (CR, MO), *G. Davidse 25308* (MO), *G. Davidse 25368* (CR, MO), *G. Davidse 25403* (CR, MO), *G. Davidse 25957* (CR, MO), *G. Davidse 26028* (MO), *G. Davidse 26056* (MO), *G. Davidse 26058* (MO), *G. Davidse 26060* (CR, MO), *G. Davidse 29270* (CR, MO), *G. Davidse 29346* (CR, MO), *G. Davidse 29377* (CR, MO), *F. Quesada 1850* (INB).

Cortaderia nitida (Kunth) Pilg.

Terrestrial herbs. Distribution in PILA 2400–3800 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru, Venezuela. Records: *A. Chacón 533* (INB, MO), *A. Chacón 557* (INB, MO), *L.D. Gómez 22454* (MO).

e ***Cynodon nlemfuensis*** Vanderyst

Estrella africana, Pasto estrella (CR).

Terrestrial herbs. Distribution in PILA 700–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Belize, Honduras to El Salvador, Costa Rica, Ecuador, Brazil, Greater Antilles, Africa. Records: *D. Santamaría 3462* (INB).

e *Digitaria eriantha* Steud.

Pangola, Transvala (CR).

Terrestrial herbs. Distribution in PILA 1500–1600 m, mixed forest in transition to cloud forest. Global distribution: USA to Costa Rica, Peru, Africa. Records: *D. Santamaría* 3777 (INB).

Festuca breviglumis Swallen

Terrestrial herbs. Distribution in PILA 1500–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *G. Herrera* 3730 (INB, MO).

ε-PILA *Festuca herrerae* Davidse

Terrestrial herbs. Distribution in PILA 2900–3300 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 3282 (INB), *G. Davidse* 25354 (CR, MO), *G. Davidse* 25390 (MO), *G. Davidse* 25876 (CR, MO), *G. Davidse* 29291 (CR, MO), *G. Davidse* 29369 (MO), *G. Davidse* 29405 (CR, MO).

Festuca talamancensis Davidse

Terrestrial herbs. Distribution in PILA 3000–3800 m, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse* 29335 (CR, MO).

Gynerium sagittatum (Aubl.) P.Beauv.

Caña blanca, Caña brava, Caña de construcción (CR).

Terrestrial shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to the Guyanas, Argentina, Chile, Lesser Antilles. Records: *L.D. Gómez* 23251 (MO).

Holcus lanatus L.

Mielilla (CR).

Terrestrial herbs. Distribution in PILA 900–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Native to Asia, naturalized Worldwide. Records: *E. Alfaro* 3495 (INB), *G. Davidse* 25807 (CR, MO), *M.A. Thomas* 1655 (MO).

Homolepis aturensis (Kunth) Chase

Cansagente (CR).

Terrestrial herbs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Lesser Antilles. Records: *A. Rodríguez* 9865 (INB), *D. Santamaría* 3483 (INB).

Homolepis glutinosa (Sw.) Zuloaga & Soderstr.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Guyana, Brazil, Guyanas, Uruguay, Argentina, Lesser Antilles. Records: *A. Rodríguez* 9812 (INB), *D. Santamaría* 3465 (INB), *D. Solano* 2847 (INB), *L. Acosta* 2358 (INB).

e *Hyparrhenia rufa* (Nees) Stapf

Jaragua (CR).

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Native to Africa, naturalised Worldwide. Records: *D. Santamaría* 3523 (INB).

Ichnanthus nemoralis (Schrad.) Hitchc. & Chase

Terrestrial herbs. Distribution in PILA 200–200 m, low elevation mixed forest. Global distribution: Mexico to Venezuela, Lesser Antilles. Records: *A.K. Monro* 6005 (PMA).

Ichnanthus nemorosus (Sw.) Döll

Terrestrial herbs. Distribution in PILA 100–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 6090 (PMA), *D. Santamaría* 5740 (BM, INB, MO, PMA), *D. Solano* 4110 (BM, INB, MO, PMA), *E. Alfaro* 5597 (BM, INB), *G. Davidse* 23762 (CR, MO), *L. Acosta* 2356 (INB).

Ichnanthus pallens (Sw.) Munro ex Benth.

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Pantropical. Records: *A.K. Monro* 4199 (BM), *D. Santamaría* 3458 (INB).

Ichnanthus tenuis (J.Presl) Hitchc. & Chase

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Fernández* 809 (CR, INB, MO).

Isachne arundinacea (Sw.) Griseb.

Terrestrial herbs. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3527 (INB), *D. Santamaría* 3752 (INB), *D. Solano* 3205 (INB), *D. Solano* 4513 (BM, INB, MO, PMA).

Ischaemum latifolium (Spreng.) Kunth

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 10296 (INB), *A. Rodríguez* 10302 (INB), *A. Soto* 1229 (INB), *D. Santamaría* 3741 (INB), *D. Solano* 2862 (INB), *D. Solano* 3182 (INB).

Lasiacis linearis Swallen

Terrestrial herbs. Distribution in PILA 100–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *D. Solano* 5213 (BM, INB, MO, PMA).

Lasiacis maculata (Aubl.) Urb.

Carricillo, Carricillo trepador (CR).

Terrestrial herbs. Distribution in PILA 1500–1700 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11753 (BM, INB, MO, PMA), *A. Rodríguez* 11939 (BM, INB, MO, PMA).

Lasiacis nigra Davidse

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico to Bolivia. Records: *A.K. Monro* 5827 (BM, INB, MO, PMA), *A. Rodríguez* 11956 (BM, INB, MO, PMA), *A. Rodríguez* 9864 (INB), *B. Gamboa* 635 (INB), *D. Santamaría* 3521 (INB), *D. Santamaría* 3743 (INB), *D. Solano* 2928 (INB), *D. Solano* 4709 (BM, INB, MO, PMA), *D. Solano* 4878 (BM, INB, MO, PMA), *F. Quesada* 1646 (CR, INB).

Lasiacis oaxacensis (Steud.) Hitchc.

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3459 (INB).

Lasiacis rhizophora (E.Fourn.) Hitchc.

Terrestrial herbs. Distribution in PILA 1000–2000 m,

mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela. Records: *D. Solano* 2873 (INB).

Lasiacis rugelii (Griseb.) Hitchc.

Terrestrial herbs. Distribution in PILA 1400–1500 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *D. Solano* 4440 (BM, INB, MO, PMA).

Lasiacis ruscifolia (Kunth) Hitchc.

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 5673 (INB, MO).

Lasiacis scabrior Hitchc.

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela. Records: *A.K. Monro* 4661 (BM, INB, MO).

Lasiacis standleyi Hitchc.

Terrestrial herbs. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico to Venezuela. Records: *A. Rodríguez* 11748 (BM, INB, MO, PMA), *D. Santamaría* 3824 (INB), *D. Santamaría* 7222 (BM, INB, MO, PMA), *D. Santamaría* 7441 (PMA), *D. Solano* 5002 (BM, INB, MO, PMA), *D. Solano* 5146 (BM, INB, MO, PMA), *D. Solano* 5253 (BM, INB, MO, PMA), *J. Lezcano* 330 (PMA), *F. Quesada* 1879 (CR, INB).

Leptocoryphium lanatum (Kunth) Nees

Terrestrial herbs. Distribution in PILA 800–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 4461 (INB).

Lithachne pauciflora (Sw.) P.Beauv.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Ecuador, Guyanas, Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11290 (BM, INB, MO, PMA), *E. Fletes* 188 (INB, MO), *G. Davidse* 23764 (CR, MO).

e *Melinis minutiflora* P.Beauv.

Calingüero, Zacate gordura (CR).

Terrestrial herbs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Native to Africa, naturalised Worldwide. Records: *A. Rodríguez 9868* (INB), *D. Santamaría 3783* (INB), *D. Solano 2859* (INB).

Muhlenbergia flabellata Mez

Terrestrial herbs. Distribution in PILA 3100–3800 m, páramo. Global distribution: Costa Rica, Panama. Records: *A. S. Weston 10190* (MO).

Muhlenbergia lehmanniana Henrard

Zacaton (CR).

Terrestrial herbs. Distribution in PILA 600–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez 9835* (INB), *D. Solano 2871* (INB), *L. González 1196* (INB).

Olyra latifolia L.

Trompillo (CR).

Terrestrial herbs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles, introd en Africa trop, subtrop, Madag. Records: *G. Herrera 3091* (MO).

Oplismenus hirtellus (L.) P.Beauv

Terrestrial herbs. Distribution in PILA 700–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Pantropical. Records: *A.K. Monro 5088* (MO, PMA).

Panicum acuminatum Sw.

Terrestrial herbs. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Venezuela, Greater Antilles, Lesser Antilles. Records: *J. A. Duke 13626* (MO), *J. A. Duke 13683* (MO).

Panicum cordovense E.Fourn.

Terrestrial herbs. Distribution in PILA 1300–1900 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Brazil, Bolivia, Argentina. Records: *G. Davidse 23766* (CR, MO), *G. Davidse 28486* (CR, MO).

Panicum laxiflorum Lam.

Terrestrial herbs. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA, Costa Rica, Greater Antilles, Lesser Antilles. Records: *E. Alfaro 2206* (CR, INB).

Panicum pantrichum Hack.

Terrestrial herbs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Peru. Records: *D. Santamaría 4395* (INB).

Panicum polygonatum Schrad.

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 6085* (PMA), *A.K. Monro 6102* (PMA), *A. Rodríguez 11281* (BM, INB, MO, PMA), *D. Santamaría 6184* (BM, INB, MO, PMA), *D. Solano 4321* (BM, INB, MO, PMA), *D. Solano 4458* (BM, INB, MO, PMA), *D. Solano 4514* (BM, INB, MO, PMA), *S. Bridgewater 4213* (BM, INB, MO, PMA).

Panicum sellowii Nees

Terrestrial herbs. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, sabana natural grassland. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *G. Davidse 23765* (MO).

Panicum strigosum Muhl. ex Elliott.

Terrestrial herbs. Distribution in PILA 1400–1800 m, mixed forest in transition to cloud forest. Global distribution: USA to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Soto 1235* (INB), *D. Solano 2888* (INB), *F. González 340* (INB).

Panicum trichanthum Nees

Terrestrial herbs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11190* (BM, INB, MO, PMA).

Panicum viscidellum Scribn.

Terrestrial herbs. Distribution in PILA 600–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 10295* (INB), *A. Rodríguez 9759* (INB), *A. Rodríguez 9765* (INB), *A. Rodríguez 9847*

(INB), *D. Santamaría* 3480 (INB), *D. Santamaría* 3776 (INB), *D. Solano* 3188 (INB), *E. Alfaro* 2208 (CR, INB).

Paspalum conjugatum P.J.Bergius.

Turvará, Zacate amargo (CR).

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Pantropical. Records: *D. Santamaría* 3515 (INB).

Paspalum minus E.Fourn.

Terrestrial herbs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3487 (INB).

Paspalum saccharoides Nees ex Trin.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Bolivia. Records: *A. Rodríguez* 11373,1 (BM, INB, MO, PMA), *D. Santamaría* 6536 (BM, INB, MO, PMA), *D. Solano* 4702 (BM, INB, MO, PMA), *D. Solano* 4800 (BM, INB, MO, PMA).

Pharus lappulaceus Aubl.

Tsub úk-uo (Bribri) (CR).

Terrestrial herbs. Distribution in PILA 600–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 7639 (PMA).

Pharus vittatus Lem.

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala to Panama. Records: *F. Solís* 33 (CR, INB, MO).

Poa annua L.

Zacate de ratón (CR).

Terrestrial herbs. Distribution in PILA 1200–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Native to Europe, naturalised Worldwide. Records: *B. Hammel* 1409 (MO), *G. Davidse* 25802 (CR, MO).

Polypogon elongatus Kunth

Terrestrial herbs. Distribution in PILA 1200–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low

elevation oak forest, high elevation oak forest. Global distribution: Mexico to Argentina. Records: *C. Hamilton* 713 (MO), *E. Alfaro* 753 (INB, MO), *G. Davidse* 26145 (CR, MO).

Pseudechinolaena polystachya (Kunth) Stapf

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Pantropical. Records: *L. Acosta* 2434 (INB).

Rhipidocladum pacuarensense R.W.Pohl

Terrestrial shrubs. Distribution in PILA 300–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua, Costa Rica. Records: *A. Rodríguez* 11230 (BM, INB, MO, PMA).

Rhipidocladum racemiflorum (Steud.) Mc Clure

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *B. Gamboa* 636 (INB).

Schizachyrium sanguineum (Retz) Alston

Terrestrial herbs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles, Old World. Records: *D. Santamaría* 3466 (INB).

Sporobolus indicus (L.) R.Br.

Pitilla (CR).

Terrestrial herbs. Distribution in PILA 700–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles. Records: *C. Hamilton* 698 (MO).

Thrasya robusta Hitchc. & Chase

Terrestrial herbs. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to the Guyanas, Lesser Antilles. Records: *G. Davidse* 29418 (CR, MO).

Trachypogon spicatus (L.f.) Kuntze

Terrestrial herbs. Distribution in PILA 1700–1800 m, cloud forest. Global distribution: USA to Argentina, Greater Antilles. Records: *A. Rodríguez* 10304 (INB), *A. Rodríguez* 9768 (INB), *A. Rodríguez* 9836 (INB), *D. Santamaría* 3489 (INB), *D. Santamaría* 3730 (INB), *D. Santamaría* 3761 (INB), *D. Solano* 2881 (INB).

Trisetum irazuense (Kuntze) Hitchc.

Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Ecuador, Venezuela. Records: *E. Alfaro* 3729 (INB).

Trisetum pringlei (Scribn. ex Beal) Hitchc.

Terrestrial herbs. Distribution in PILA 2700–3600 m, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *G. Davidse* 29353 (CR, MO).

e ***Zea mays*** L.

Maíz, Ik (Cabécar), Ik (Bribri), Rukrá (Brunka), Ip (Térraba), Aí (Guatuso) (CR).

Terrestrial herbs. Distribution in PILA 1500–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, cultivated elsewhere in the tropics. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.)*. Uses: food, handicrafts, Edible, Laboral, medicinal.

Zeugites americana Willd.

Terrestrial herbs. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 9811 (INB), *D. Santamaría* 3520 (INB), *D. Solano* 2872 (INB), *G. Davidse* 28923 (MO).

POTAMOGETONACEAE

Potamogeton paramoanus R.R.Haynes & Holm-Niels.

Aquatic or terrestrial herbs. Distribution in PILA 2400–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Colombia to Peru. Records: *E. Alfaro* 3681 (INB), *G. Davidse* 28858 (CR, MO).

SMILACACEAE

Smilax domingensis Willd.

Bejuco de canastos (CR).

Terrestrial lianas. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *A. Chacón* 281 (CR, MO), *A. Fernández* 975 (INB), *D. Santamaría* 6153 (BM, INB, MO, PMA), *D. Santamaría* 6561 (BM, INB, MO, PMA), *D. Solano* 5219 (BM, INB, MO, PMA), *G. Davidse* 23783 (CR, MO), *G. Gallardo* 307 (CR, INB), *G. McPherson* 15895 (MO), *H. Schmidt* 644 (CR, INB,

MO), *J. Bittner* 1805 (INB, MO), *L. Angulo* 177 (INB). Uses: medicinal.

Smilax mollis Humb. & Bonpl. ex Willd.

Terrestrial lianas. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez* 11525 (BM, INB, MO, PMA), *A. Rodríguez* 11921 (BM, INB, MO, PMA), *E. Alfaro* 5444 (BM, MO), *F. Solís* 36 (CR, INB, MO), *G. Gallardo* 89 (CR, INB).

Smilax officinalis Kunth

Terrestrial lianas. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *D. Solano* 4330 (BM, INB, MO, PMA), *F. González* 656 (BM, INB, MO, PMA), *G. Herrera* 5211 (CR, INB, MO).

Smilax purhampuy Ruiz

Terrestrial lianas. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Panama. Records: *A. Soto* 329 (INB), *D. Solano* 4279 (BM, INB, MO, PMA), *E. Alfaro* 2192 (CR, INB), *E. Alfaro* 3982 (INB), *E. Mora* 311 (CR, INB), *G. Davidse* 23760 (CR, MO), *J. Dwyer* 536 (MO), *R. Villalobos* 287 (CR, INB), *S. Bridgewater* 4153 (BM, INB, MO, PMA).

Smilax spinosa Mill.

Terrestrial lianas. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 3505 (INB), *D. Santamaría* 4393 (INB), *D. Solano* 3215 (INB), *E. Alfaro* 2205 (CR, INB). Uses: medicinal.

Smilax subpubescens A.DC.

Terrestrial lianas. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 9845 (INB), *C. Hamilton* 3906 (MO), *G. Davidse* 25263 (CR, MO), *G. Davidse* 28559 (MO), *G. Davidse* 29069 (MO), *G. Davidse* 29262 (CR, MO), *H. Schmidt* 641 (INB, MO), *F. Quesada* 1616 (CR, INB, MO), *F. Quesada* 1964 (INB), *K. E. Blum* 2659 (MO).

XYRIDACEAE

Xyris nigrescens Kral

Terrestrial herbs. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Chacón 560* (INB), *A. Chacón 560* (MO), *G. Davidse 1984* (CR).

Xyris subulata Ruiz & Pav.

Terrestrial herbs. Distribution in PILA 1300–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to the Guyanas, Bolivia. Records: *A.K. Monro 5191* (BM), *A. Soto 306* (INB), *E. Alfaro 3271* (INB), *E. Alfaro 3373* (INB), *E. Alfaro 3712* (INB), *G. Davidse 25402* (MO), *G. Davidse 25903* (MO), *G. Davidse 28575* (CR), *G. Davidse 28989* (CR), *G. Davidse 29271* (CR), *G. Herrera 3666* (MO), *F. Quesada 1848* (INB), *F. Quesada 1948* (INB), *L. Angulo 252* (INB), *S. Knapp 9880* (BM).

ZINGIBERACEAE

e ***Hedychium coronarium*** J.König

Flor de San Juan, Heliotropo Lirio blanco (CR).

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Indian Subcontinent to Taiwan, introduced from Mexico to Argentina, Greater Antilles. Records: *C. Hamilton 711* (MO).

Renealmia alpinia (Rottb.) Maas

Terrestrial herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to the Guyanas, Lesser Antilles, the Guyanas, Lesser Antilles. Records: *A. Rodríguez 11159* (BM, INB, MO, PMA). Uses: medicinal.

Renealmia cernua (Sw. ex Roem. & Schult.) J.F.Macbr.

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Mexico to Peru, Venezuela. Records: *A.K. Monro 6098* (PMA), *A.K. Monro 6162* (PMA), *A.K. Monro 6196* (PMA), *A.K. Monro 6244* (PMA), *A. Rodríguez 11565* (BM, INB, MO, PMA), *D. Santamaría 6574* (BM, INB, MO, PMA), *D. Solano 4290* (BM, INB, MO, PMA), *D. Solano 4324* (BM, INB, MO, PMA), *E. Navarro 21* (MO), *G. Gallardo 91* (INB), *J. Bittner 1429* (MO), *R. Villalobos 300* (CR).

Renealmia chiriquina Standl.

Terrestrial herbs. Distribution in PILA 1200–2000 m,

mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *K. Sytsma 4932* (MO).

Renealmia concinna Standl.

Terrestrial herbs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Costa Rica to Colombia. Records: *E. Alfaro 5631* (BM, INB).

Renealmia congesta Maas

Terrestrial herbs. Distribution in PILA 1000–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4734* (BM, INB, MO), *A. Rodríguez 11304* (BM, INB, MO, PMA), *D. Santamaría 6265* (BM, INB, MO, PMA).

Renealmia foliifera Standl.

Terrestrial herbs. Distribution in PILA 700–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Chacón 263* (CR), *A. Chacón 263* (INB), *A. Chacón 263* (MO), *A. Rodríguez 11472* (BM, INB, MO, PMA), *A. Rodríguez 11906* (BM, INB, MO, PMA), *D. Santamaría 6810* (BM, INB, MO, PMA), *D. Santamaría 6831* (BM, INB, MO, PMA).

Renealmia ligulata Maas

Terrestrial herbs. Distribution in PILA 1300–1900 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 11910* (BM, INB, MO, PMA), *M. Chinchilla 4* (INB).

Renealmia pluriplicata Maas

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Ecuador. Records: *A.K. Monro 5867* (BM, INB, MO, PMA), *A. Rodríguez 11623* (BM, INB, MO, PMA), *D. Santamaría 6506* (BM, INB, MO, PMA), *D. Santamaría 6727* (BM, INB, MO, PMA), *D. Solano 4844* (BM, INB, MO, PMA), *D. Solano 4897* (BM, INB, MO, PMA), *F. Solís 31* (INB), *F. Solís 31* (MO), *S. Bridgewater 4173* (BM, INB, MO, PMA).

Renealmia scaposa Maas

Terrestrial herbs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 844* (INB), *A. Rodríguez 10990* (BM, INB, MO, PMA), *A. Rodríguez 11547* (BM, INB, MO, PMA), *D. Santamaría 5817* (BM, INB, MO, PMA), *D. Santamaría 6598* (BM, INB, MO, PMA), *D. Solano 4106* (BM, INB, MO, PMA), *G. Herrera 2714* (MO).

EUDICOT ANGIOSPERMS

ACANTHACEAE

Aphelandra arnoldii Mildbr.

Terrestrial herbs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Panama to Venezuela. Records: *J. Dwyer 468* (MO).

Aphelandra aurantiaca (Scheidw.) Lindl.

Pavoncillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez 11196* (BM, INB, MO, PMA), *D. Santamaría 6172* (BM, INB, MO, PMA), *D. Santamaría 6173* (BM, INB, MO, PMA), *D. Solano 4299* (BM, INB, MO, PMA), *D. Solano 4411* (BM, INB, MO, PMA), *L.D. Gómez 23177* (MO).

Aphelandra dolichantha Donn.Sm.

Terrestrial herbs or shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Nicaragua to Colombia. Records: *A. Chacón 269* (CR), *A. Chacón 269* (INB), *A. Chacón 269* (MO), *F. Solís 35* (INB), *F. Solís 35* (MO), *G. Herrera 5225* (MO).

Aphelandra seibertii Leonard

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11419* (BM, INB, MO, PMA), *G. Herrera 3109* (MO).

Aphelandra tonduzii Leonard

Terrestrial herbs. Distribution in PILA 0–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 647* (INB), *E. Alfaro 759* (INB).

Dicliptera iopus Lindau

Terrestrial shrubs. Distribution in PILA 500–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Fernández*

667 (INB), *A.K. Monro 4420* (BM), *A. Rodríguez 10604* (BM, INB, MO, PMA), *A. Rodríguez 11788* (BM, INB, MO, PMA), *A. Soto 1240* (INB), *B. Hammel 1387* (MO), *D. Santamaría 5823* (BM, INB, MO, PMA), *D. Santamaría 7271* (BM, INB, MO, PMA), *D. Solano 2908* (INB), *D. Solano 3828* (BM, INB, MO, PMA), *D. Solano 5012* (BM, INB, MO, PMA), *J. Bittner 1747* (INB).

Dicliptera pallida Leonard

Terrestrial shrubs. Distribution in PILA 900–900 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *N. Zamora 4195* (BM, INB), *N. Zamora 4199* (BM, INB).

Dyschoriste quadrangularis (Oerst.) Kuntze

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Nicaragua to Panama. Records: *A.K. Monro 5974* (BM, PMA).

□ *Hansteinia stricta* (Leonard) D.N.Gibson

Terrestrial shrubs. Distribution in PILA 200–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5430* (BM, INB, MO, PMA), *A. Rodríguez 10710* (BM, INB, MO, PMA), *D. Solano 3878* (BM, INB, MO, PMA), *D. Solano 4075* (BM, INB, MO, PMA).

Hansteinia ventricosa (Donn.Sm.) D.N.Gibson

Terrestrial shrubs. Distribution in PILA 1100–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5731* (BM, INB, MO, PMA), *D. Solano 3999* (BM, INB, MO, PMA).

Herpetacanthus panamensis Leonard

Terrestrial herbs or shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Solano 4871* (BM, INB, MO, PMA).

Justicia aurea Schltdl.

Pavón, Pavoncillo amarillo, Pavoncillo (CR).

Terrestrial shrubs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Solano 4019* (BM, INB, MO, PMA), *G. Davidse 28370* (CR), *G. Davidse 28370* (MO), *L. Acosta 2345* (INB), *L.*

Angulo 324 (INB).

Justicia brenesii (Leonard) D.N.Gibson

Terrestrial herbs. Distribution in PILA 500–500 m, low elevation mixed forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 2657* (INB).

Justicia oerstedii Leonard

Terrestrial herbs. Distribution in PILA 200–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 7230* (BM, INB, MO, PMA), *G. Herrera 3087* (MO).

Justicia orosiensis Durkee

Terrestrial shrubs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 758* (INB), *A.K. Monro 5435* (BM, INB, MO, PMA), *A. Rodríguez 10589* (BM, INB, MO, PMA), *A. Rodríguez 11582* (BM, INB, MO, PMA), *D. Santamaría 5668* (BM, INB, MO, PMA), *D. Santamaría 6578* (BM, INB, MO, PMA), *D. Solano 3876* (BM, INB, MO, PMA), *D. Solano 4658* (BM, INB, MO, PMA), *D. Solano 4795* (BM, INB, MO, PMA), *G. Herrera 2657* (MO), *J. Bittner 1923* (INB).

□ ***Justicia pittieri*** Lindau

Terrestrial herbs. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 854* (INB, PMA), *González 742* (INB, PMA), *A.K. Monro 6258* (INB, PMA), *D. Solano 5659* (INB, PMA).

Justicia tonduzii Lindau

Terrestrial herbs. Distribution in PILA 100–400 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 551* (INB, PMA), *D. Solano 5377* (INB, PMA), *D. Solano 5562* (INB, PMA).

Kalbreyeriella rioquebradasiana Gómez-Laur. & Hammel

Terrestrial shrubs. Distribution in PILA 1200–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11730* (BM, INB, MO, PMA).

Lepidagathis alopecuroidea (Vahl) R.Br. ex Griseb.

Terrestrial herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *D.*

Santamaría 3530 (INB), *H. Schmidt 621* (MO).

Mendoncia brenesii Standl. & Leonard

Terrestrial lianas. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *A.K. Monro 5980* (PMA), *D. Santamaría 7494* (PMA), *E. Alfaro 2601* (INB), *R. Villalobos 268* (INB).

Odontonema tubaeforme (Bertol.) Kuntze

Terrestrial herbs to shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 11771* (CR, INB).

Pseuderanthemum cuspidatum (Nees) Radlk.

Terrestrial herbs. Distribution in PILA 600–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Colombia. Records: *L.D. Gómez 23188* (MO).

Razisea spicata Oerst.

Coral, Pavoncillo rojo (CR).

Terrestrial shrubs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture, dense thicket. Global distribution: Mexico to Colombia. Records: *A. Chacón 276* (CR), *A. Chacón 276* (INB), *A. Chacón 276* (MO), *A.K. Monro 4228* (BM), *A.K. Monro 5763* (BM, INB, MO, PMA), *A.K. Monro 6193* (PMA), *A. Rodríguez 11364* (BM, INB, MO, PMA), *A. Rodríguez 11588* (BM, INB, MO, PMA), *D. Santamaría 5885* (BM, INB, MO, PMA), *D. Santamaría 5954* (BM, INB, MO, PMA), *D. Santamaría 6614* (BM, INB, MO, PMA), *D. Santamaría 7649* (PMA), *D. Santamaría 7740* (PMA), *D. Solano 4369* (BM, INB, MO, PMA), *D. Solano 4787* (BM, INB, MO, PMA), *G. Davidse 28417* (MO), *G. Herrera 5320* (MO), *L.D. Gómez 23159* (MO), *R. Aguilar 1088* (INB), *R. Aguilar 1088* (MO), *S. Bridgewater 4142* (BM, INB, MO, PMA).

Ruellia jussieuoides Schldtl.

Terrestrial herbs. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Solano 2857* (INB).

Stenostephanus silvaticus (Nees) T.F.Daniel

Pavoncillo azul (CR).

Terrestrial shrubs. Distribution in PILA 300–1600 m, low elevation mixed forest, mixed forest in transition to low

elevation forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 6140* (PMA), *D. Santamaría 7739* (INB, MO, PMA).

ACHARIACEAE

Carpotroche platyptera Pittier

Carambola de monte, Caraña, Cresta de gallo, Cola de ardilla, Caraño (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala to Ecuador. Records: *A. Rodríguez 11617* (BM, INB, PMA), *D. Santamaría 6507* (BM, INB, PMA). Uses: medicinal.

ACTINIDIACEAE

ψ *Saurauia montana* Seem.

Moco, Moquillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 100–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras to Panama. Records: *A. Fernández 651* (CR, INB, MO), *A. Rodríguez 11898* (BM, INB, MO, PMA), *A. Rodríguez 9843* (INB), *B. Gamboa 1215* (INB), *B. Gamboa 1215* (MO), *D. Santamaría 3510* (INB), *D. Santamaría 3796* (INB), *D. Solano 3201* (INB), *D. Solano 3974* (BM, INB, MO, PMA), *D. Solano 5106* (BM, INB, MO, PMA), *D. Solano 5218* (BM, INB, MO, PMA), *D. Solano 5288* (BM, INB, MO, PMA), *E. Alfaro 3637* (INB), *E. Alfaro 4678* (INB), *E. Alfaro 737* (INB), *J. Bittner 1753* (INB), *F. Quesada 1885* (INB), *L. González 3637* (INB), *M. Alfaro 39* (INB), *M. Moraga 418* (INB), *M. Moraga 72* (INB). Regional conservation status: Vulnerable (Near Threatened).

ψ *Saurauia pittieri* Donn.Sm.

Moco, Moquillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 500–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4178* (BM), *A.K. Monro 6173* (PMA), *A. Rodríguez 10785* (BM, INB, MO, PMA), *D. Solano 4085* (BM, INB, MO, PMA), *G. Davidse 29138* (CR), *G. Davidse 29138* (MO), *G. Herrera 6254* (INB), *F. Quesada 1671* (CR), *L. González 3608* (INB), *M. Moraga 419* (CR), *M. Moraga 419* (INB). Global Conservation status: Vulnerable (VU), B1ab(i,iii).

ψ *Saurauia rubiformis* Vatke

Moco, Moquillo (CR).

Terrestrial trees. Distribution in PILA 100–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Guatemala, Costa Rica, Panama. Records: *A. Rodríguez 10742* (BM, INB, MO, PMA), *D. Santamaría 5869* (BM, INB, MO, PMA), *D. Solano 4827* (BM, INB, MO, PMA), *G. Davidse 23978* (CR, MO), *G. Davidse 25717* (MO), *G. Davidse 29094* (MO), *F. Quesada 1671* (INB), *M. Moraga 418* (CR), *S. Knapp 10042* (BM). Regional conservation status: Near Threatened (NT).

Saurauia seibertii Standl.

Terrestrial shrubs or trees. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *S. Knapp 2040* (MO).

Saurauia yasicae Loes.

Terrestrial shrubs or trees. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez 11379* (BM, INB, MO, PMA), *D. Solano 4549* (BM, INB, MO, PMA).

ADOXACEAE

ψ *Sambucus nigra* L.

Terrestrial shrubs or trees. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Canada to Argentina. Records: *A. Fernández 727* (INB), *G. Herrera 5902* (INB), *J. Lezcano 341* (INB), *A. Rodríguez 10958* (INB), *D. Santamaría 7502* (INB), *D. Solano 4161* (INB). Uses: food, medicinal. Regional conservation status: Near Threatened (NT).

ψ *Viburnum costaricanum* (Oerst.) Hemsl.

Conchudo, Copalchí, Cura, Paraviento (CR).

Terrestrial shrubs or trees. Distribution in PILA 700–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5269* (BM, INB, MO), *A.K. Monro 5298* (BM, INB, MO), *A. Rodríguez 9879* (INB), *A. Soto 360* (INB), *B.B. Klitgaard 794* (BM, INB, MO), *B. Gamboa 574* (INB, MO), *C. Hamilton 3635* (MO), *C. Hamilton 3671* (MO), *C. Hamilton 3897* (MO), *D. Solano 2849* (INB), *D. Solano 5226* (BM, INB, MO, PMA), *E. Alfaro 1324* (INB), *G. Davidse 25849* (CR, MO), *L. Acosta 2378* (INB), *L. Angulo 257* (CR, INB), *M. Alfaro 38* (INB), *S. Knapp 9957* (BM, INB), *S. Knapp 9960* (BM,

INB). Uses: handicrafts. Global conservation status: Near Threatened (NT).

ψ *Viburnum stellatomentosum* (Oerst.) Hemsl.
Copalchí, Curá, Colpachí (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5257 (BM, INB, MO), *E. Alfaro* 4695 (INB), *G. Davidse* 28582 (CR, MO), *G. Herrera* 3709 (INB, MO). Global conservation status: Vulnerable (VU), B1ab(i,iii).

Viburnum venustum C.V.Morton
Copalchí, Colpalchí, Curá (CR).

Terrestrial shrubs or trees. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A.K. Monro* 4078 (BM, MO), *A.K. Monro* 5166 (BM, INB, MO), *E. Alfaro* 1624 (INB), *G. Davidse* 23914 (CR, MO), *G. Davidse* 25407 (CR, MO), *G. Davidse* 26005 (CR, MO), *G. Herrera* 6154 (CR, INB, MO), *L.D. Gómez* 22482 (MO), *L. González* 1597 (INB), *L. González* 2491 (INB), *S. Knapp* 9988 (BM, INB).

ALZATEACEAE

ψ *Alzatea verticillata* Ruiz & Pav.
Madroño, Copey, Copeycillo (CR).

Terrestrial trees. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Bolivia. Records: *D. Santamaría* 5880 (BM, INB, PMA), *D. Santamaría* 5912 (BM, INB, PMA), *G. Herrera* 2713 (MO), *S. Bridgewater* 4197 (BM, INB, PMA). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

AMARANTHACEAE

Alternanthera laguroides (Standl.) Standl.

Terrestrial herbs or shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11378 (BM, INB, MO, PMA).

Alternanthera lanceolata (Benth.) Schinz

Terrestrial herbs. Distribution in PILA 400–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Costa Rica to Bolivia. Records: *G. Davidse*

28449 (MO).

Alternanthera mexicana Moq

Terrestrial herbs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Guatemala to Colombia. Records: *A.K. Monro* 5578 (BM, INB, MO, PMA), *A. Rodríguez* 10740 (BM, INB, MO, PMA), *D. Santamaría* 5649 (BM, INB, MO, PMA), *D. Solano* 3888 (BM, INB, MO, PMA), *M. Grayum* 10285 (INB, MO).

Chamissoa altissima (Jacq.) Kunth

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles, Lesser Antilles. Records: *A. Rodríguez* 11162 (BM, INB, MO, PMA), *D. Santamaría* 6324 (BM, INB, MO, PMA), *D. Solano* 4267 (BM, INB, MO, PMA).

Cyathula achyranthoides (Kunth) Moq.
Mangalarga (CR).

Terrestrial herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 11647 (BM, INB, MO, PMA), *D. Solano* 4556 (BM, INB, MO, PMA).

Iresine diffusa Humb. & Bonpl. ex Willd.
Camarón (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: USA to Venezuela. Records: *A. De Sedas* 610 (PMA), *A. Fernández* 665 (INB), *A.K. Monro* 4310 (BM), *A.K. Monro* 5494 (BM, INB, MO, PMA), *A. Rodríguez* 10597 (BM, INB, MO, PMA), *A. Rodríguez* 11807 (BM, INB, MO, PMA), *C. Hamilton* 3657 (MO), *D. Santamaría* 3522 (INB), *D. Santamaría* 3812 (INB), *D. Santamaría* 7273 (BM, INB, MO, PMA), *D. Solano* 2915 (INB), *D. Solano* 3964 (BM, INB, MO, PMA), *D. Solano* 5036 (BM, INB, MO, PMA), *González* 810 (MO), *J. Bittner* 1534 (MO), *J. Bittner* 1866 (INB, MO), *M. Grayum* 10283 (INB), *M. Grayum* 10283 (MO), *N. Zamora* 4162 (BM, INB, MO, PMA), *N. Zamora* 4188 (BM, INB, MO, PMA), *N. Zamora* 4189 (BM, INB, MO, PMA).

Iresine nigra Uline & Bray

Terrestrial herbs or shrubs. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana

natural grassland. Global distribution: Mexico to Panama. Records: *A. Fernández* 665 (CR).

Pfaffia costaricensis (Standl.) Borsch

Terrestrial shrubs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 5536 (BM).

Pleuropetalum pleiogynum (Kuntze) Standl.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *F. Quesada* 1637 (INB).

Pleuropetalum sprucei (Hook.f.) Standl.

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A. De Sedas* 595 (PMA), *A.K. Monro* 5942 (PMA), *A.K. Monro* 6109 (PMA), *A.K. Monro* 6155 (PMA), *A.K. Monro* 6227 (PMA), *A. Rodríguez* 11200 (BM, INB, MO, PMA), *A. Rodríguez* 11651 (BM, INB, MO, PMA), *A. Soto* 1239 (INB), *C. Hamilton* 3880 (MO), *D. Santamaría* 7525 (PMA), *D. Santamaría* 7603 (PMA), *D. Santamaría* 7668 (PMA), *D. Solano* 2905 (INB), *D. Solano* 4266 (BM, INB, MO, PMA), *D. Solano* 5404 (PMA), *E. Mora* 301 (INB), *G. Davidse* 28478 (MO), *L. Acosta* 2337 (INB), *L. Angulo* 173 (INB), *L. Angulo* 317 (INB, MO), *R. Villalobos* 255 (INB, MO).

ANACARDIACEAE

Mauria heterophylla Kunth

Cirrí, Cirrí amarillo, Cirrí colorado, Lentisco, Jiñocuabe, Dantisco de montaña, Lantisco (CR).

Terrestrial shrubs or trees. Distribution in PILA 600–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *D. Solano* 5494 (PMA).

Spondias mombin L.

Bara, Jobo, Jocote jobo, Jocote hogplum, Blá, Bala, Daplá (CR), Jobo, Jobo amarillo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, El Salvador, Panama, Ecuador, Bolivia. Records: *A. Rodríguez*, Jul. 21, 2007 (*Field obs.*). Uses: food, Edible,

cosmetics, timber, medicinal.

ψ ***Tapirira mexicana*** Marchand

Ciruelo de montaña, Cirrí, Cirrí blanco, Cirrí colorado (CR).

Terrestrial trees. Distribution in PILA 400–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, El Salvador, Panama, Ecuador, Bolivia. Records: *A. Rodríguez*, Feb. 24, 2008 (*Field obs.*), *N. Zamora*, Aug. 4, 2008 (*Field obs.*), *N. Zamora*, Aug. 5, 2008 (*Field obs.*), *N. Zamora*, Aug. 8, 2008 (*Field obs.*), *N. Zamora*, Jul. 29, 2008 (*Field obs.*), *N. Zamora*, Jul. 30, 2008 (*Field obs.*), *N. Zamora*, Jul. 31, 2008 (*Field obs.*). Uses: timber. Regional conservation status: Near Threatened (NT).

Toxicodendron striatum (Ruiz & Pav.) Kuntze

Carras, Hinchador (CR).

Terrestrial trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, El Salvador, Panama, Ecuador, Bolivia. Records: *J. A. Duke* 13658 (MO), *L. Acosta* 2428 (INB).

APIACEAE

Arracacia aegopodioides (Kunth) J.M.Coult. & Rose

Terrestrial herbs. Distribution in PILA 700–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *C. Hamilton* 3893 (MO), *D. Solano* 5283 (BM, INB, MO, PMA).

Eryngium humile Cav.

Terrestrial herbs. Distribution in PILA 2400–3800 m, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Peru. Records: *A. Chacón* 524 (MO), *A.K. Monro* 5360 (BM), *A. S. Weston* 10159 (MO), *B.B. Klitgaard* 824 (BM), *E. Alfaro* 1347 (MO), *E. Alfaro* 3330 (INB), *E. Alfaro* 3383 (INB), *G. Davidse* 25345 (CR, MO), *G. Davidse* 26067 (MO), *G. Davidse* 29282 (CR, MO), *G. Davidse* 29384 (CR, MO), *G. Herrera* 3668 (MO), *G. Herrera* 3693 (INB, MO), *L.D. Gómez* 22445 (MO), *S. Knapp* 9942 (BM).

Micropleura renifolia Lag.

Terrestrial herbs. Distribution in PILA 700–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *A. Rodríguez* 9763 (INB),

D. Santamaría 3482 (INB), *D. Santamaría* 3512 (INB),
D. Santamaría 4412 (INB).

Myrrhidendron chirripoense Suess.

Terrestrial herbs. Distribution in PILA 3000–3800 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5279 (BM), *A. S. Weston* 10156 (MO), *L.D. Gómez* 22546 (MO), *S. Knapp* 9851 (BM).

ψ ***Myrrhidendron donnellsmithii*** J.M.Coult. & Rose

Arracachillo, Arrecachillo, Arracachón, Sauco silvestre (CR).

Terrestrial herbs to shrubs. Distribution in PILA 1300–3800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A.K. Monro* 4100 (BM), *A.K. Monro* 5207 (BM), *E. Alfaro* 3309 (INB), *G. Davidse* 25234 (CR, MO), *G. Davidse* 25375 (CR, MO), *G. Davidse* 25999 (MO), *F. Quesada* 1803 (INB), *L.D. Gómez* 22686 (MO), *L. González* 3632 (INB), *S. Knapp* 9876 (BM). Regional conservation status: Vulnerable (VU), Blab(i,iii).

Niphogeton chirripoi (Suess.) Mathias & Constance

Terrestrial herbs. Distribution in PILA 2400–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *A. S. Weston* 10179 (MO), *B. Gamboa* 1736 (INB, MO), *E. Alfaro* 3308 (CR, INB, MO), *G. Davidse* 23907 (CR, MO), *G. Davidse* 29334 (CR, MO), *G. Davidse* 29362 (MO), *G. Davidse* 29408 (CR, MO), *G. Herrera* 3689 (INB, MO), *F. Quesada* 1815 (INB).

Niphogeton lingula (Wedd.) Mathias & Constance

Terrestrial herbs. Distribution in PILA 3000–3200 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *B. Gamboa* 1735 (INB), *G. Davidse* 23850 (MO), *L.D. Gómez* 22571 (MO).

Ottoa oenanthoides Kunth

Cebolleta (CR).

Terrestrial herbs. Distribution in PILA 3000–3800 m, high elevation oak forest, páramo. Global distribution: Mexico to Ecuador, Venezuela. Records: *A. S. Weston* 10180 (MO), *E. Alfaro* 3300 (INB), *G. Davidse* 26015 (CR, MO), *G. Davidse* 29299 (CR, MO).

Sanicula liberta Cham. & Schltdl.

Arracachillo de montaña (CR).

Terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation

oak forest. Global distribution: Mexico to Peru, Bolivia. Records: *A.K. Monro* 4426 (BM), *A.K. Monro* 6092 (PMA), *A. Rodríguez* 10923 (BM, INB, MO, PMA), *D. Santamaría* 6310 (BM, INB, MO, PMA), *D. Solano* 3887 (BM, INB, MO, PMA), *E. Alfaro* 4676 (INB), *E. Alfaro* 764 (INB), *G. Davidse* 25157 (CR, MO), *G. Davidse* 25770 (CR), *G. Davidse* 28670 (CR, MO), *J. Bittner* 1928 (CR, INB).

APOCYNACEAE

ψ ***Lacmellea panamensis*** (Woodson) Markgr.

Alcabú, Cerillo, Chicoso, Espinudo, Lagarto negro, Lagartillo negro, Monachina, Cerillo, Espinudo, Lacmelia, Lagartillo, Lagarto (CR), Lagarto negro (P).

Terrestrial trees. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Colombia. Records: *G. Herrera* 3042 (MO). Uses: food. Regional conservation status: Near Threatened (NT).

Lacmellea speciosa Woodson

Terrestrial trees. Distribution in PILA 600–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *A. Chacón* 299 (MO), *G. Herrera* 3284 (INB, MO).

Macoubea mesoamericana J.F.Morales

Terrestrial trees. Distribution in PILA 100–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 185 (INB, MO), *G. Herrera* 3343 (INB, MO).

Mandevilla hirsuta (A.Rich.) K.Schum.

Terrestrial lianas. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Paraguay. Records: *E. Navarro* 202 (MO), *F. Quesada* 1701 (INB).

Mandevilla veraguasensis (Seem.) Hemsl.

Terrestrial lianas. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Venezuela. Records: *D. Solano* 4382 (BM, INB, MO, PMA).

Prestonia longifolia (Sessé & Moc.) J.F.Morales

Terrestrial lianas. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *A.K. Monro* 6268 (PMA).

Rauvolfia aphlebia (Standl.) A.H.Gentry

Terrestrial shrubs or trees. Distribution in PILA 700–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 6297* (PMA), *A. Rodríguez 11799* (BM, INB, MO, PMA), *D. Santamaría 5934* (BM, INB, MO, PMA), *G. Herrera 2705* (MO).

Sarcostemma clausum (Jacq.) Schltr.

Terrestrial lianas. Distribution in PILA 0–300 m, low elevation mixed forest. Global distribution: USA to Mexico, Panama, Brazil, Argentina, Greater Antilles, Lesser Antilles. Records: *L.D. Gómez 23068* (MO).

Tabernaemontana alfaroi Donn.Sm.

Güevos de caballo, Huevos de caballo, Guijarro, Cojón de caballo (CR), Huevos de gato (P).

Terrestrial shrubs or trees. Distribution in PILA 600–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5994* (BM, INB, PMA), *D. Santamaría 6017* (BM, INB, PMA), *D. Solano 4910* (BM, INB, PMA), *S. Bridgewater 4162* (BM, INB, MO, PMA).

Tabernaemontana amygdalifolia Jacq.

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela. Records: *D. Solano 4361* (BM, INB, MO, PMA), *D. Solano 4526* (BM, INB, MO, PMA), *D. Solano 4837* (BM, INB, MO, PMA).

Tabernaemontana longipes Donn.Sm.

Cojón (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Honduras to Ecuador, Venezuela. Records: *A.K. Monro 5949* (PMA), *A.K. Monro 5996* (PMA), *A. Rodríguez 11749* (BM, INB, MO, PMA), *A. Rodríguez 11822* (BM, INB, MO, PMA), *D. Santamaría 3810* (INB), *D. Santamaría 5935* (BM, INB, MO, PMA), *D. Santamaría 6009* (BM, INB, MO, PMA), *D. Santamaría 7012* (BM, INB, MO, PMA), *D. Santamaría 7475* (PMA), *D. Santamaría 7629* (PMA), *D. Santamaría 7728* (PMA), *D. Santamaría 7774* (PMA), *D. Solano 4991* (BM, INB, MO, PMA), *D. Solano 5032* (BM, INB, MO, PMA), *F. González 458* (INB), *G. Davidse 28412* (MO), *G. Herrera 2707* (MO), *G. Herrera 6072* (INB), *F. Quesada 1434* (INB), *L. Angulo 163* (INB), *L. Martínez 330* (PMA), *M. Alfaro 18* (INB).

Tabernaemontana robinsonii (Woodson) A.O.Simões & M.E.Endress

Terrestrial shrubs or trees. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez, Jul. 22, 2007* (Field obs.), *A. Rodríguez, Jul. 24 2007* (Field obs.), *A. Rodríguez, Jul. 25, 2007* (Field obs.), *A. Rodríguez, Nov. 1, 2007* (Field obs.), *A. Rodríguez, Sept 28, 2007* (Field obs.).

AQUIFOLIACEAE

Ilex chiriquensis Standl.

Azulillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1600–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10853* (BM, INB, MO, PMA), *A. Soto 334* (INB), *D. Santamaría 5711* (BM, INB, MO, PMA), *D. Santamaría 5771* (BM, INB, MO, PMA), *D. Solano 3929* (BM, INB, MO, PMA), *G. Davidse 25776* (MO), *G. Davidse 28830* (MO), *G. Davidse 28894* (CR, MO), *F. Quesada 1960* (INB, MO), *M. Grayum 10331* (MO), *R. Aguilar 1155* (INB, MO).

Ilex costaricensis Donn.Sm.

Azulillo (CR).

Terrestrial trees. Distribution in PILA 1200–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama. Records: *B. Gamboa 589* (CR, INB), *D. Solano 5134* (BM, INB, MO, PMA), *F. González 341* (INB), *G. Davidse 26203* (MO). Conservation status: Vulnerable (VU), A2c ver 2.3 (1994).

Ilex guianensis (Aubl.) Kuntze

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 9758* (INB), *A. Rodríguez 9820* (INB), *A. Soto 1308* (INB), *D. Santamaría 3792* (INB).

ψ ***Ilex lamprophylla*** Standl.

Azulillo (CR).

Shrubs or epiphytic trees. Distribution in PILA 800–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: El Salvador to Panama. Records: *A.K. Monro 5344* (BM), *B.B. Klitgaard 833* (BM), *G. Davidse 28483*

(CR, MO), *G. Davidse* 28657 (MO), *G. McPherson* 15900 (MO), *G. McPherson* 15940 (MO), *R. Aguilar* 1125 (INB, MO), *R. Villalobos* 219 (INB, MO), *S. Knapp* 9896 (BM), *S. Knapp* 9911 (BM). Regional conservation status: Near Threatened (NT).

Ilex maxima W.J.Hahn

Terrestrial trees. Distribution in PILA 500–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 11916 (BM, INB, MO, PMA), *D. Santamaría* 5701 (BM, INB, MO, PMA), *E. Alfaro* 5442 (BM), *G. Davidse* 28470 (CR, MO), *L. Acosta* 2368 (INB).

Ilex pallida Standl.

Azulillo, Hoja menuda, Hojamenudo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: El Salvador to Panama. Records: *A.K. Monro* 5264 (BM), *A. Rodríguez* 9858 (INB), *A. Soto* 264 (INB), *B. Gamboa* 1218 (INB, MO), *D. Solano* 3906 (BM, INB, MO, PMA), *E. Alfaro* 3409 (INB), *E. Alfaro* 3640 (INB), *E. Alfaro* 3813 (INB), *G. Davidse* 25237 (CR, MO), *G. Davidse* 26134 (CR, MO), *G. Davidse* 28673 (MO), *L. González* 3601 (INB), *L. González* 3658 (INB), *M.A. Thomas* 1599 (MO), *M. Moraga* 367 (INB), *S. Knapp* 10015 (BM). Conservation status: Vulnerable (VU), B1+2bd ver 2.3 (1994).

Ilex vulcanicola Standl.

Azulillo (CR).

Shrubs or epiphytic trees. Distribution in PILA 1000–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *D. Solano* 4055 (BM, INB, MO, PMA), *E. Alfaro* 3964 (INB), *G. Herrera* 5267 (MO). Conservation status: Vulnerable (VU), A2c ver 2.3 (1994).

Ilex yurumanguinis Cuatrec.

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Venezuela. Records: *A.K. Monro* 5802 (BM, INB, MO, PMA), *A. Rodríguez* 11481 (BM, INB, MO, PMA), *B. Hammel* 17609 (MO), *D. Santamaría* 6548 (BM, INB, MO, PMA), *D. Santamaría* 6692 (BM, INB, MO, PMA), *D. Solano* 4734 (BM, INB, MO, PMA), *F. Solís* 18 (INB, MO), *G. Herrera* 2654 (INB), *G. Herrera* 2654 (MO).

ARALIACEAE

ψ ***Dendropanax arboreus*** (L.) Decne. & Planch.

Cacho de venado, Fosforillo, Mastate, Matagente, Palomo, Zopilote (CR), Vaquero, Muñequito, Palomo, Jamaica (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico to El Salvador to the Guianas, Bolivia, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 4891 (BM, INB), *G. Davidse* 28375 (CR, MO), *G. Davidse* 28493 (MO). Uses: timber. Regional conservation status: Near Threatened (NT).

Dendropanax capillaris M.J.Cannon & Cannon

Terrestrial shrubs or trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Honduras, Costa Rica, Panama. Records: *A.K. Monro* 5053 (BM, INB), *D. Santamaría* 5923 (BM, INB, MO, PMA), *E. Alfaro* 2271 (INB, MO), *J. González* 794 (CR, INB, MO), *J. González* 818 (CR, INB, MO), *L. Angulo* 320 (INB, MO), *N. Zamora* 2697 (INB).

Dendropanax globosus M.J.Cannon & Cannon

Terrestrial shrubs or trees. Distribution in PILA 300–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 4456 (BM, INB), *A. Rodríguez* 10795 (BM, INB, MO, PMA), *D. Santamaría* 5660 (BM, INB, MO, PMA), *D. Santamaría* 5754 (BM, INB, MO, PMA), *D. Solano* 3872 (BM, INB, MO, PMA).

Dendropanax gonatopodus (Donn.Sm.) A.C.Sm.

Terrestrial trees. Distribution in PILA 100–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *F. Quesada* 1892 (CR, INB), *R. Villalobos* 294 (CR, MO).

Dendropanax latilobus M.J.Cannon & Cannon

Terrestrial trees. Distribution in PILA 1300–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Hammel* 5780 (MO).

Dendropanax sessiliflorus (Standl. & A.C.Sm.) A.C.Sm.

Terrestrial shrubs or trees. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition

to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Navarro* 195 (INB), *G. Davidse* 28453 (MO), *J. González* 786 (CR, INB, MO), *F. Quesada* 1691 (INB). Conservation status: Vulnerable (VU), C2a ver 2.3 (1994).

Hydrocotyle leucocephala Cham. & Schltldl.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina. Records: *E. Alfaro* 5527 (BM).

Hydrocotyle mexicana Schltldl. & Cham.

Terrestrial herbs. Distribution in PILA 600–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Panama. Records: *A. Fernández* 789 (INB, MO), *A.K. Monro* 6084 (PMA), *A. Rodríguez* 10922 (BM, INB, MO, PMA), *A. Rodríguez* 11298 (BM, INB, MO, PMA), *A. Rodríguez* 11650 (BM, INB, MO, PMA), *D. Santamaría* 4420 (INB), *D. Santamaría* 5773 (BM, INB, MO, PMA), *D. Solano* 3185 (INB), *D. Solano* 4028 (BM, INB, MO, PMA), *E. Alfaro* 5639 (BM, INB), *E. Navarro* 191 (INB), *G. Herrera* 6257 (CR, INB, MO), *M. Alfaro* 12 (INB), *M. Grayum* 10381 (CR, INB, MO), *R. J. Schmalzel* 1350 (MO).

Hydrocotyle pusilla A.Rich.

Terrestrial herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru, Argentina, Greater Antilles, Lesser Antilles. Records: *E. Alfaro* 3722 (CR, INB), *G. Davidse* 28964 (CR, MO).

Hydrocotyle ribifolia Rose & Standl.

Terrestrial herbs. Distribution in PILA 2100–3500 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5331 (BM), *E. Alfaro* 4688 (INB), *G. Herrera* 3740 (INB, MO), *M.A. Thomas* 1592 (MO).

Hydrocotyle torresiana Rose & Standl.

Terrestrial herbs. Distribution in PILA 1700–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Brazil, Chile. Records: *A. Rodríguez*, Feb. 25, 2007 (*Field obs.*).

Hydrocotyle umbellata L.

Comalillo, Sombrerito (CR).

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Brazil, Chile. Records: *B. Hammel* 5828 (MO), *C. Hamilton* 707 (MO).

Oreopanax capitatus (Jacq.) Decne. & Planch.

Terrestrial trees. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 4335 (BM, INB), *A.K. Monro* 4881 (BM, INB), *A.K. Monro* 5098 (BM, INB).

Oreopanax costaricensis Marchal

Shrubs or facultatively epiphytic trees. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11843 (BM, INB, MO, PMA), *D. Solano* 5252 (BM, INB, MO, PMA), *F. Quesada* 1976 (INB), *M. Alfaro* 23 (INB).

Oreopanax nicaraguensis M.J.Cannon & Cannon

Shrubs or facultatively epiphytic trees. Distribution in PILA 2900–3000 m, high elevation oak forest, páramo. Global distribution: Nicaragua. Records: *G. Davidse* 23876 (MO), *F. Quesada* 1994 (INB), *L.D. Gómez* 22461 (MO), *L. González* 1592 (INB).

ψ ***Oreopanax oerstedianus*** Marchal

Moquillo (CR).

Shrubs or epiphytic trees. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 987 (INB), *A. Rodríguez* 10743 (BM, INB, MO, PMA), *A. Rodríguez* 10794 (BM, INB, MO, PMA), *A. Rodríguez* 11032 (BM, INB, MO, PMA), *A. Rodríguez* 11358 (BM, INB, MO, PMA), *D. Solano* 4029 (BM, INB, MO, PMA), *D. Solano* 4124 (BM, INB, MO, PMA), *G. Herrera* 3725 (INB, MO), *G. Herrera* 6043 (CR, INB, MO). Global conservation status: Vulnerable (VU), B1ab(i,iii).

Oreopanax paramicola J.F.Morales & A.Idarraga

Shrubs or epiphytic trees. Distribution in PILA 2500–3400 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 23876 (MO), *González* 1592 (INB).

Oreopanax pycnocarpus Donn.Sm.

Caho de venado (CR).

Shrubs or facultatively epiphytic trees. Distribution

in PILA 1100–3600 m, mixed forest in transition to low elevation forest, mixed forest in transition to low elevation forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4070* (BM, MO), *A.K. Monro 5242* (BM, INB, MO), *A.K. Monro 5632* (BM, INB, MO, PMA), *D. Solano 4725* (BM, INB, MO, PMA), *D. Solano 5124* (BM, INB, MO, PMA), *F. Quesada 1822* (INB), *L. González 3659* (INB), *S. Knapp 9864* (BM, INB), *S. Knapp 9883* (BM, INB).

Oreopanax spathulatus M.J.Cannon & Cannon

Terrestrial shrubs or trees. Distribution in PILA 1700–2400 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *B. Hammel 6776* (MO, BM).

Oreopanax standleyi A.C.Sm.

Cacho de venado, Volador (CR).

Shrubs or facultatively epiphytic trees. Distribution in PILA 1400–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2665* (INB, MO).

Oreopanax striatus M.J.Cannon & Cannon

Facultatively epiphytic trees. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Soto 1255* (INB), *D. Santamaría 4410* (INB), *L. Angulo 144* (INB, MO), *L. González 3639* (INB).

ψ *Oreopanax xalapensis* (Kunth) Decne. & Planch.

Cacho de venado, Higuera, Matagente, Papayillo, Matapalo, Matacartago (CR).

Terrestrial trees. Distribution in PILA 800–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *D. Solano 5135* (BM, INB, MO, PMA), *D. Solano 5270* (BM, INB, MO, PMA), *G. Davidse 25743* (CR, MO), *G. Herrera 3671* (INB), *L. González 3636* (INB). Regional conservation status: Near Threatened (NT).

Schefflera brenesii A.C.Sm.

Terrestrial shrubs. Distribution in PILA 800–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4755* (BM, INB, MO, PMA), *N. Zamora, Aug. 5, 2008* (*Field obs.*). Conservation status: Vulnerable (VU), A2c ver 2.3 (1994).

Schefflera cartagoensis M.J.Cannon & Cannon

Terrestrial trees. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution:

Costa Rica, Panama. Records: *R. Aguilar 1097* (INB).

Schefflera instita M.J.Cannon

Epiphytic tree. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11027* (BM, INB, MO, PMA), *D. Santamaría 5697* (BM, INB, MO, PMA).

Schefflera robusta (A.C.Sm.) A.C.Sm.

Cacho de venado (CR).

Shrubs or epiphytic trees. Distribution in PILA 700–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández 988* (INB), *A.K. Monro 4363* (BM, MO), *A.K. Monro 5480* (BM, INB, MO, PMA), *A.K. Monro 5521* (BM, INB, MO, PMA), *A.K. Monro 5615* (BM, INB, MO, PMA), *A. Rodríguez 11044* (BM, INB, MO, PMA).

Schefflera rodriguesiana Frodin ex M.J.Cannon & Cannon

Papayillo, Cacho de venado, Paloma (CR).

Terrestrial trees. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4139* (BM, INB, MO), *A.K. Monro 5199* (BM, INB), *A.K. Monro 5294* (BM, INB, MO), *A.K. Monro 5346* (BM, INB, MO), *B.B. Klitgaard 731* (BM, MO), *B. Gamboa 1724* (INB, MO), *E. Alfaro 3259* (INB), *E. Alfaro 4667* (INB), *G. Davidse 25478* (MO), *G. Davidse 26074* (MO), *G. Davidse 28887* (INB, MO), *G. Davidse 29041* (MO), *G. Davidse 29289* (CR, MO), *J. Bittner 1874* (INB, MO), *F. Quesada 1578* (INB), *M.A. Thomas 1638* (MO), *S. Knapp 9906* (BM, INB).

Schefflera sphaerocoma (Benth.) Harms

Terrestrial shrubs or trees. Distribution in PILA 0–100 m, low elevation mixed forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández 1039* (INB, MO), *A. Rodríguez 11523* (BM, INB, MO, PMA), *D. Santamaría 6645* (BM, INB, MO, PMA), *D. Santamaría 6675* (BM, INB, MO, PMA), *D. Solano 4772* (BM, INB, MO, PMA). Conservation status: Data deficient (DD), ver 2.3 (1994).

Schefflera systyla (Donn.Sm.) R. Vig.

Papayo (CR).

Shrubs or epiphytic trees. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition

to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez 11519* (BM, INB, MO, PMA), *D. Santamaría 6565* (BM, INB, MO, PMA), *D. Solano 4718* (BM, INB, MO, PMA), *D. Solano 4740* (BM, INB, MO, PMA), *D. Solano 4822* (BM, INB, MO, PMA), *H. Schmidt 622* (INB), *J. Bittner 1756* (INB, MO).

ASTERACEAE

Acmella papposa (Hemsl.) R.K.Jansen

Terrestrial herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina. Records: *A. Rodríguez 11285* (BM, INB, MO, PMA).

Acmella radicans (Jacq.) R.K.Jansen

Quiébramuelas (CR).

Terrestrial herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *A. Picado 7* (CR, INB, MO).

Adenostemma platyphyllum Cass.

Terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *A. Rodríguez 11366* (BM, INB, MO, PMA).

Ageratina anisochroma (Klatt) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Nicaragua to Panama. Records: *A. Chacón 518* (INB, MO), *A. Rodríguez 9821* (INB), *A. Rodríguez 9854* (INB), *D. Santamaría 3766* (INB), *D. Santamaría 5889* (BM, INB, MO, PMA), *D. Solano 5217* (BM, INB, MO, PMA), *G. Davidse 25244* (MO).

Ageratina badia (Klatt) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 2100–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5495* (BM, INB, MO, PMA), *A. Rodríguez 10747* (BM, INB, MO, PMA), *D. Solano 3983* (BM, INB, MO, PMA), *M. Grayum 10296* (INB, MO).

Ageratina chiriquensis (B.L.Rob.) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 2500–3400 m, low elevation oak forest, páramo. Global

distribution: Panama, Paraguay. Records: *W. D'Arcy 13280* (MO).

ε-PILA Ageratina contigua R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 2500–2800 m, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 25504* (MO).

ε-PILA Ageratina croatii R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 2000–2000 m, cloud forest. Global distribution: Endemic to Panama. Records: *Croat 26432* (US, MO).

Ageratina ixiocladon (Benth.) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse 25178* (CR, MO), *F. Quesada 1812* (INB), *L. Acosta 2338* (INB), *L. González 1189* (INB), *S. Knapp 9987* (BM, INB).

ψ Ageratina kupperi (Suess.) R.M.King & H.Rob.

Terrestrial shrubs. Distribution in PILA 100–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. S. Weston 10171* (MO), *G. Davidse 25311* (CR, MO), *G. Davidse 25405* (CR, MO), *G. Davidse 25948* (CR, MO), *S. Knapp 9870* (BM, INB). Global conservation status: Endangered (EN), B1ab(i,iii).

Ageratina ligustrina (DC.) R.M.King & H.Rob.

Candelilla (CR).

Terrestrial shrubs or trees. Distribution in PILA 2600–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *A. Rodríguez 9757* (INB), *A. Rodríguez 9834* (INB), *D. Santamaría 3517* (INB), *D. Santamaría 3726* (INB), *D. Solano 2843* (INB).

Ageratina molinae R.M.King & H.Rob.

Terrestrial herbs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Honduras, Costa Rica, Panama. Records: *N. Zamora 4196* (BM, INB, MO, PMA).

Ageratina pichinchensis (Kunth) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 1000–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico,

Nicaragua to Peru. Records: *A. Rodríguez* 9856 (INB), *D. Santamaría* 3784 (INB), *G. Davidse* 25095 (MO), *J. Averett* 1076 (MO), *M.A. Thomas* 1661 (MO), *M. Moraga* 681 (INB).

Ageratum chiriquense (B.L.Rob.) R.M.King & H.Rob.
Terrestrial herbs or shrubs. Distribution in PILA 1000–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Soto* 1231,1 (INB), *D. Santamaría* 3769 (INB), *D. Solano* 2875 (INB).

Archibaccharis jacksonii S.D.Sundb.
Terrestrial lianas. Distribution in PILA 2400–2500 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse* 28663 (MO).

Archibaccharis schiedeana (Benth.) J.D.Jacks.
Terrestrial shrubs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 9840 (INB), *G. Davidse* 29066 (MO).

Ayapana elata (Steetz) R.M.King & H.Rob.
Terrestrial herbs. Distribution in PILA 300–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, , dense thicket. Global distribution: Costa Rica to Peru. Records: *A.K. Monro* 4999 (BM, INB, MO).

Baccharis inamoena Gardner
Alcotán, Jalapatrás, Santo Domingo (CR).
Terrestrial shrubs. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina. Records: *A.K. Monro* 4282 (BM, MO), *A. Rodríguez* 10306 (INB), *D. Solano* 4444 (BM, INB, MO, PMA), *G. Herrera* 6119 (INB, MO).

Baccharis pedunculata (Mill.) Cabrera
Terrestrial shrubs. Distribution in PILA 300–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Honduras, Mexico to Bolivia, Venezuela, Lesser Antilles. Records: *D. Santamaría* 6541 (BM, INB, MO, PMA), *D. Solano* 4707 (BM, INB, MO, PMA), *R. Villalobos* 262 (CR, INB, MO).

ε-PILA *Bartlettina chiriquensis* R.M.King & H.Rob.
Terrestrial shrubs. Distribution in PILA 1500–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to

Panama. Records: *T. Cochrane* 6288 (US, WIS).

Bartlettina maxonii (B.L.Rob.) R.M.King & H.Rob.
Terrestrial shrubs. Distribution in PILA 800–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11962 (BM, INB, MO, PMA), *D. Solano* 5035 (BM, INB, MO, PMA).

Bartlettina prionophylla (B.L.Rob.) R.M.King & H.Rob.
Terrestrial shrubs. Distribution in PILA 1200–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7277 (BM, INB, MO, PMA), *G. Davidse* 25810 (MO).

Bidens pilosa L.
Moriseco, Mozote, Mozotillo (CR).
Terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Argentina, Old World. Records: *E. Alfaro* 4627 (INB).

Bidens reptans (L.) G.Don
Terrestrial lianas. Distribution in PILA 900–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Venezuela, Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Soto* 350 (INB), *D. Santamaría* 3499 (INB), *D. Solano* 2921 (INB), *L.D. Gómez* 23311 (MO).

Calea prunifolia Kunth
Terrestrial herbs or shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela. Records: *A. Rodríguez* 9827 (INB), *A. Soto* 1232 (INB), *D. Santamaría* 3745 (INB), *D. Santamaría* 3763 (INB).

ε *Centratherum punctatum* Cass.
Terrestrial herbs to shrubs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Argentina, Lesser Antilles, Lesser Antilles, Greater Antilles. Records: *J. A. Duke* 13641 (MO), *J. A. Duke* 13646 (MO).

Chaptalia nutans (L.) Polák
Arnica, Árnica falsa, Trancaculo (CR).

Terrestrial herbs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Argentina, Lesser Antilles, Greater Antilles, Lesser Antilles. Records: *E. Navarro 185* (INB). Uses: medicinal.

Chionolaena costaricensis (G.L.Nesom) G.L.Nesom
Terrestrial herbs or shrubs. Distribution in PILA 3400–3400 m, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4113* (BM, INB), *E. Alfaro 3316* (INB), *G. Davidse 26003* (CR, MO), *G. Davidse 29331* (CR, MO), *F. Quesada 1802* (INB), *S. Knapp 10045* (BM, INB).

Chionolaena salicifolia (Bertol.) G.L.Nesom
Terrestrial herbs. Distribution in PILA 1600–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Herrera 6253* (INB, MO).

Chromolaena collina (DC.) R.M.King & H.Rob.
Terrestrial shrubs. Distribution in PILA 800–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría 3785* (INB).

Chromolaena laevigata (Lam.) R.M.King & H.Rob.
Terrestrial shrubs. Distribution in PILA 400–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil. Records: *A. Rodríguez 9761* (INB), *D. Santamaría 3494* (INB).

Chromolaena odorata (Lam.) R.M.King & H.Rob.
Charralera (CR).

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Brazil, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *A. Rodríguez 9855* (INB), *F. Quesada 1872* (INB).

Cirsium mexicanum DC.
Cardo (CR).

Terrestrial herbs. Distribution in PILA 800–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Soto 1249* (INB), *E. Navarro 183* (INB).

Cirsium subcoriaceum (Less.) Sch.Bip. ex Sch.Bip.
Cardo (CR).

Terrestrial herbs. Distribution in PILA 700–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *F. Quesada 1486* (INB).

Clibadium anceps Greenm.

Shrubs or lianas. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Panama. Records: *D. Santamaría 6540* (BM, INB, MO, PMA).

Clibadium eggertii Hieron.

Terrestrial shrubs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Belize, Costa Rica to Peru. Records: *D. Solano 4854* (BM, INB, MO, PMA).

Clibadium glomeratum Greenm.

Terrestrial shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Panama. Records: *D. Santamaría 6552* (BM, INB, MO, PMA), *D. Solano 4714* (BM, INB, MO, PMA).

Clibadium leiocarpum Steetz

Terrestrial shrubs. Distribution in PILA 200–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11911* (BM, INB, MO, PMA), *C. Hamilton 3656* (MO), *C. Hamilton 715* (MO), *C. Hamilton 756* (MO), *D. Solano 5212* (BM, INB, MO, PMA), *J. A. Duke 13642* (MO).

Clibadium surinamense L.

Terrestrial shrubs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: incorrecta Mexico., Honduras to Panama, Colombia to Brazil. Records: *A. Rodríguez, Jul. 21, 2007* (Field obs.), *N. Zamora, Jul. 29, 2008* (Field obs.).

Conyza laevigata (Rich.) Pruski

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Bolivia, Greater Antilles. Records: *A. Rodríguez 11377* (BM, INB, MO, PMA).

Cotula mexicana (DC.) Cabrera

Terrestrial herbs. Distribution in PILA 1400–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Panama to Ecuador. Records: *A. S. Weston 10174* (MO).

Crassocephalum crepidioides (Benth.) S.Moore

Terrestrial herbs. Distribution in PILA 900–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Africa, Madagascar to Panama, China, Aust. Records: *D. Solano 4285* (BM, INB, MO, PMA), *E. Navarro 186* (INB), *R. Villalobos 245* (Costa Rica INB, MO). Records: *D. Solano 4285* (BM, INB, PMA), *E. Navarro 186* (INB), *R. Villalobos 245* (CR, INB, MO).

Critonia daleoides DC.

Terrestrial shrubs or trees. Distribution in PILA 400–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Rodríguez 9853* (INB), *D. Solano 2853* (INB).

Critonia morifolia (Mill.) R.M.King & H.Rob.

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru, Bolivia. Records: *A. Rodríguez, Jul. 25, 2007 (Field obs.)*, *J. Lezcano 332* (BM, INB, MO).

Critonia sexangularis (Klatt) R.M.King & H.Rob.

Terrestrial shrubs. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Costa Rica. Records: *D. Santamaría 5920* (BM, INB, MO, PMA).

Decachaeta thieleana (Klatt) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 9819* (INB), *N. Zamora 4163* (BM, INB, MO, PMA).

ψ ***Diplostegium costaricense*** S.F.Blake

Terrestrial shrubs. Distribution in PILA 2400–3700 m, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A. Chacón 568* (INB, MO), *A.K. Monro 4082* (BM, INB), *A.K. Monro 5164* (BM, INB, MO), *A.K. Monro 5362* (BM, INB, MO), *A. S. Weston 10172* (MO), *E. Alfaro 1329* (INB), *G. Davidse 23858* (CR, MO), *G.*

Davidse 25304 (CR, MO), *G. Davidse 25921* (CR, MO), *G. Davidse 25938* (MO), *G. Davidse 26034* (CR, MO), *G. Davidse 29034* (CR, MO), *G. Davidse 29290* (CR, MO), *G. Herrera 3696* (INB, MO), *F. Quesada 1851* (INB). Global conservation status: Endangered (EN), B1ab(i,iii).

Diplostegium floribundum (Benth.) Wedd.

Terrestrial shrubs. Distribution in PILA 2500–3200 m, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Colombia, Ecuador. Records: *E. Alfaro 3768* (INB).

Eclipta prostrata (L.) L.

Clavel de pozo (CR).

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: USA to Panama, Greater Antilles, Lesser Antilles, Africa, Madagascar, Asia. Records: *L. Acosta 2361* (INB).

Eirmocephala brachiata H.Rob.

Caña de danto (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Costa Rica to Venezuela. Records: *D. Santamaría 7040* (BM, INB, MO, PMA), *M. Correa 3609* (MO).

Elephantopus mollis Kunth

Escobilla, Hierba de San Antonio, Lechuguilla, Oreja de burro (CR).

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *D. Santamaría 3508* (INB), *D. Santamaría 3790* (INB), *D. Solano 2855* (INB), *L. Acosta 2389* (INB).

Elephantopus spiralis (Less.) Clonts

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Peru, Argentina. Records: *L. Acosta 2335* (INB).

Erato costaricensis E.Moran & V.A.Funk

Terrestrial herbs or shrubs. Distribution in PILA 1700–1700 m, cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4517* (BM, INB, MO, PMA).

Erechtites hieracifolia (L.) Raf. ex DC.

Lechuga de cabro, Té del suelo (CR).

Terrestrial herbs. Distribution in PILA – m. Global distribution: Elevation unknown. USA to Mexico, El Salvador, Ecuador, Venezuela, Guyanas. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.)*.

Erechtites valerianifolius (Link ex Spreng.) DC.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, the Guyanas. Records: *Acosta 2299* (INB).

Erigeron bonariensis L.

Juanparao (CR).

Terrestrial herbs. Distribution in PILA 1000–1100 m, mixed forest in transition to low elevation forest. Global distribution: USA to Venezuela, Brazil, Bolivia, Guyanas, Argentina, Africa, Madagascar. Records: *A. Rodríguez 9877* (INB), *D. Santamaría 3518* (INB), *D. Solano 2891* (INB), *D. Solano 3189* (INB), *F. Quesada 1855* (INB), *N. Zamora 4186* (BM, INB, MO, PMA).

Erigeron canadensis L.

Terrestrial herbs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles, Asia. Records: *G. Davidse 28387* (MO).

Eupatorium hylonomum B.L.Rob.

Terrestrial shrubs or trees. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *Alfaro 5521* (INB, MO, PMA), *A.K. Monro 4863* (INB, MO, PMA).

Fleischmannia allenii R.M.King & H.Rob.

Terrestrial herbs. Distribution in PILA 1200–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11768* (BM, INB, MO, PMA), *D. Solano 5117* (BM, INB, MO, PMA), *E. Alfaro 2191* (INB), *G. Davidse 23750* (CR, MO), *N. Zamora 4191* (BM, INB, MO, PMA).

Fleischmannia plectranthifolia (Benth.) R.M.King & H.Rob.

Terrestrial herbs. Distribution in PILA 2500–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 25721* (CR, MO).

Fleischmannia pratensis (Klatt) R.M.King & H.Rob.

Terrestrial herbs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *Croat 22400* (MO).

Fleischmannia pycnocephala (Less.) R.M.King & H.Rob.

Santalucía (CR).

Terrestrial herbs. Distribution in PILA 900–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to Panama. Records: *A. Fernández 729* (INB), *A. Rodríguez 10962* (BM, INB, MO, PMA), *A. Rodríguez 9857* (INB), *C. Hamilton 3625* (MO), *D. Santamaría 3789* (INB), *D. Santamaría 5714* (BM, INB, MO, PMA), *D. Solano 3899* (BM, INB, MO, PMA), *D. Solano 4690* (BM, INB, MO, PMA), *G. Davidse 25227* (MO), *M. Moraga 683* (INB), *N. Zamora 4174* (BM, INB, MO, PMA).

Galinsoga quadriradiata Ruiz & Pav.

Terrestrial herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Bolivia, Argentina, Greater Antilles, Lesser Antilles. Records: *B. Hammel 1386* (MO), *D. Solano 3952* (BM, INB, MO, PMA), *J. A. Duke 13688* (MO), *J. Averett 1079* (MO).

Garcilassa rivularis Poepp.

Terrestrial herbs. Distribution in PILA 100–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.)*.

Gnaphalium americanum Mill.

Agenillo, Algodoncillo (CR).

Terrestrial herbs. Distribution in PILA 500–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Argentina, Greater Antilles. Records: *D. Solano 4038* (BM, INB, MO, PMA), *E. Alfaro 3644* (INB), *G. Davidse 29303* (MO), *L. Angulo 215* (CR, INB, MO), *N. Zamora 4157* (BM, INB, MO, PMA). Uses: medicinal.

Gnaphalium attenuatum DC.

Ajenjillo cimarrón (CR).

Terrestrial herbs. Distribution in PILA 300–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 9876 (INB), *G. Davidse* 26002 (CR, MO), *G. Davidse* 26198 (MO), *F. Quesada* 1873 (INB). Uses: medicinal.

Gnaphalium roseum Kunth

Terrestrial herbs. Distribution in PILA 2600–3500 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *G. Davidse* 29337 (CR, MO).

Gongrostylus costaricensis (Kuntze) R.M.King & H.Rob.

Terrestrial lianas. Distribution in PILA 200–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez*, *Jul. 25, 2007* (*Field obs.*), *D. Solano* 4519 (BM, INB).

Heterocondylus vitalbae (DC.) R.M.King & H.Rob.

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Honduras, Nicaragua to Peru, Bolivia. Records: *D. Santamaría* 3795 (INB).

Hieracium abscissum Less.

Terrestrial herbs. Distribution in PILA 1500–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *G. Davidse* 28568 (CR, MO), *G. Herrera* 3667 (MO), *M.A. Thomas* 1564 (MO).

Hieracium irasuense Benth. ex Oerst.

Papelillo, Papelito blanco, Papelillo macho (CR).

Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Chacón* 527 (INB, MO), *A. Chacón* 559 (CR, INB, MO), *B. Gamboa* 1230 (INB, MO), *B. Gamboa* 1727 (INB, MO), *E. Alfaro* 3229 (INB), *E. Alfaro* 3787 (INB), *E. Alfaro* 3949 (INB), *G. Davidse* 23837 (CR, MO), *G. Davidse* 25902 (CR, MO), *G. Davidse* 28836 (CR, MO), *G. Davidse* 28987 (CR, MO), *G. Davidse* 29288 (CR, MO), *F. Quesada* 1808 (INB), *F. Quesada* 1987 (INB).

Ichthyothere scandens S.F.Blake

Terrestrial herbs to shrubs. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Peru, Venezuela. Records: *D. Solano* 5003 (BM, INB, MO, PMA).

ε-PILA *Itisia ehandiensis* R.M.King & H.Rob.

Terrestrial herbs. Distribution in PILA 2900–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 548 (INB), *E. Alfaro* 1343 (INB), *E. Alfaro* 3297 (INB), *E. Alfaro* 3785 (INB), *G. Davidse* 29305 (MO), *G. Davidse* 29343 (MO).

Jaegeria hirta (Lag.) Less.

Mielilla, Mielcilla (CR).

Terrestrial herbs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina, Greater Antilles. Records: *A. Rodríguez* 10766 (BM, INB, MO, PMA), *D. Santamaría* 5647 (BM, INB, MO, PMA), *D. Solano* 3942 (BM, INB, MO, PMA), *E. Alfaro* 4620 (INB), *G. Davidse* 25174 (MO), *G. Davidse* 28644 (CR, MO), *M.A. Thomas* 1659 (MO), *M. Grayum* 10293 (CR, INB, MO).

Jungia ferruginea L.f.

Terrestrial lianas. Distribution in PILA 1400–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica to Colombia. Records: *D. Solano* 4062 (BM, INB, MO, PMA), *E. Alfaro* 1629 (INB, MO), *G. Davidse* 25727 (CR, MO).

Koanophyllon pittieri (Klatt) R.M.King & H.Rob.

Quitirrichico, Zorrillo de montaña, Quitirrí (CR).

Terrestrial shrubs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Belize, Costa Rica, Panama. Records: *D. Solano* 5065 (BM, INB, MO, PMA), *D. Solano* 5151 (BM, INB, MO, PMA).

Laestadia costaricensis S.F.Blake

Terrestrial herbs. Distribution in PILA 2300–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4116 (BM, INB), *E. Alfaro* 3298 (INB), *G. Davidse* 29386 (CR, MO).

Lagenophora panamensis S.F.Blake

Terrestrial herbs. Distribution in PILA 2400–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 29400 (CR, MO), *G. Herrera* 3692 (INB, MO).

Lasianthaea fruticosa (L.) K.M.Becker

Quitirrisí, Tora, San rafael, Ira, Ira colorado, Skri (CR).

Terrestrial shrubs or trees. Distribution in PILA 200–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 3732 (INB). Uses: Firewood,

medicinal, ornamental.

The Plant List cites this name as illegitimate and unresolved whereas Davidse et al. 2017 accept the name as legitimate.

Lepidaploa chiriquiensis (S.C.Keeley) H.Rob.

Terrestrial shrubs. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *McPherson 8331* (MO).

Liabum bourgeaui Hieron.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez, Jul. 25, 2007 (Field obs.)*.

Melanthera nivea (L.) Small

Paiva, Totolquelite (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru, Bolivia, Greater Antilles, Lesser Antilles. Records: *D. Santamaría 6155* (BM, INB, MO, PMA), *D. Solano 4470* (BM, INB, MO, PMA).

Mikania aschersonii Hieron.

Terrestrial lianas. Distribution in PILA 800–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia. Records: *A.K. Monro 4258* (BM, INB, MO), *A.K. Monro 5526* (BM, INB, MO, PMA), *A. Rodríguez 10873* (BM, INB, MO, PMA), *A. Rodríguez 11845* (BM, INB, MO, PMA), *D. Santamaría 5715* (BM, INB, MO, PMA).

Mikania banisteriae DC.

Terrestrial lianas. Distribution in PILA 900–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Honduras, Costa Rica to Bolivia, Mexico to Panama, Suriname. Records: *A. Fernández 785* (INB), *A. Rodríguez 11786* (BM, INB, MO, PMA), *A. Rodríguez 11868* (BM, INB, MO, PMA), *A. Rodríguez 9771* (INB), *A. Rodríguez 9873* (INB), *D. Santamaría 3531* (INB), *D. Santamaría 3747* (INB), *D. Solano 3973* (BM, INB, MO, PMA), *G. Herrera 3398* (INB, MO), *G. Herrera 5248* (CR, INB, MO), *G. Herrera 5941* (CR, INB, MO), *F. Quesada 1876* (INB), *K. Sytsma 4910* (MO).

Mikania castroi R.M.King & H.Rob.

Terrestrial lianas. Distribution in PILA 1500–2600 m,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 25784* (CR, MO).

Mikania cordifolia (L.f.) Willd.

Terrestrial lianas. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *G. Davidse 29067* (CR, MO).

Mikania hookeriana DC.

Terrestrial lianas. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Peru, Lesser Antilles. Records: *G. Davidse 26054* (CR, MO).

Mikania iltisii R.M.King & H.Rob.

Terrestrial lianas. Distribution in PILA 1900–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 1341* (INB), *E. Alfaro 3231* (INB), *E. Alfaro 3487* (INB), *G. Davidse 28874* (CR, MO), *G. Davidse 29030* (CR, MO), *G. Davidse 29071* (CR, MO), *G. Davidse 29242* (MO), *G. Herrera 3711* (INB, MO), *J. F. Morales 5816* (INB), *F. Quesada 1844* (INB).

Mikania leiostachya Benth.

Terrestrial lianas. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador, Peru. Records: *G. McPherson 15913* (MO).

Mikania micrantha Kunth

Terrestrial lianas. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, sabana natural grassland. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *G. Davidse 28907* (CR, MO).

Mikania pittieri B.L.Rob.

Terrestrial lianas. Distribution in PILA 2000–2200 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *E. Alfaro 2282* (INB).

Mikania simpsonii W.C.Holmes & McDaniel

Terrestrial lianas. Distribution in PILA 800–800 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records:

A. Rodríguez, Jul. 21, 2007 (Field obs.), A. Rodríguez, Jul. 22, 2007 (Field obs.), A. Rodríguez, Jul. 23, 2007 (Field obs.), A. Rodríguez, Jul. 24 2007 (Field obs.), A. Rodríguez, Jul. 25, 2007 (Field obs.).

***Mikania tonduzii* B.L.Rob.**

Terrestrial lianas. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.).*

***Mikania vitifolia* DC.**

Terrestrial lianas. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.).*

***Munnozia senecionidis* Benth.**

Terrestrial herbs or shrubs. Distribution in PILA 1700–3200 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Peru, Bolivia. Records: *A. Chacón 583 (INB, MO), A. Fernández 713 (CR, INB), G. Davidse 25241 (MO), G. Davidse 25274 (MO), G. Davidse 25826 (MO).*

***Munnozia wilburii* H.Rob.**

Terrestrial herbs or shrubs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro 4617 (INB).*

***Neomirandea allenii* R.M.King & H.Rob.**

Epiphytic shrubs. Distribution in PILA 600–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera 3285 (CR, INB, MO).*

***Neomirandea angularis* (B.L.Rob.) R.M.King & H.Rob.**

Terrestrial shrubs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 3977 (BM, INB, MO, PMA), G. Davidse 29056 (CR, MO), K. Sytsma 4901 (MO).*

***Neomirandea araliifolia* (Less.) R.M.King & H.Rob.**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 200–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *E. Alfaro 3651 (INB).*

***Neomirandea biflora* R.M.King & H.Rob.**

Terrestrial shrubs. Distribution in PILA 2000–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *Gómez 22644 (CR).*

***Neomirandea burgeri* R.M.King & H.Rob.**

Epiphytic shrubs. Distribution in PILA 1200–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *Allen 4954 (MO).*

***Neomirandea carnososa* (Kuntze) R.M.King & H.Rob.**

Epiphytic shrubs. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4824 (BM, INB, MO).*

***Neomirandea chiriquensis* R.M.King & H.Rob.**

Terrestrial shrubs. Distribution in PILA 1400–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Hamilton 3343 (MO).*

***Neomirandea croatii* R.M.King & H.Rob.**

Epiphytic shrubs. Distribution in PILA 900–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 834 (INB, MO).*

***Neomirandea eximia* (B.L.Rob.) R.M.King & H.Rob.**

Epiphytic shrubs. Distribution in PILA 1000–2900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández 786 (INB), A. Fernández 934 (INB), A. Rodríguez 10696 (BM, INB, MO, PMA), D. Santamaría 5656 (BM, INB, MO, PMA), E. Alfaro 3371 (INB), G. Davidse 25111 (CR, MO), G. Davidse 28537 (CR, MO), G. Davidse 28663 (CR), G. Davidse 28790 (CR, MO), G. Davidse 28847 (MO), G. Davidse 28897 (MO), G. Davidse 29040 (MO), G. Herrera 5445 (INB), J. Bittner 1782 (INB, MO), F. Quesada 1980 (INB, MO), M. Grayum 10350 (INB, MO), M. Moraga 386 (INB), R. Aguilar 1161 (INB, MO).*

***Neomirandea guevarae* R.M.King & H.Rob.**

Terrestrial shrubs. Distribution in PILA 900–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *Grayum 10284 (CR, MO).*

Neomirandea parasitica (Klatt) R.M.King & H.Rob.

Epiphytic shrubs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *G. Davidse 28854* (CR, MO).

Neomirandea psoralea (B.L.Rob.) R.M.King & H.Rob.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3242* (INB), *G. Davidse 25110* (MO), *G. Davidse 25491* (CR, MO).

Neomirandea standleyi (B.L.Rob.) R.M.King & H.Rob.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 500–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 801* (INB), *A.K. Monro 4234* (BM), *A. Rodríguez 10782* (BM, INB, MO, PMA), *A. Rodríguez 11963* (BM, INB, MO, PMA), *D. Santamaría 5901* (BM, INB, MO, PMA), *D. Solano 4025* (BM, INB, MO, PMA), *K. Sytsma 4906* (MO).

Neomirandea turrialbae R.M.King & H.Rob.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1500–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro 1625* (INB, MO), *G. Davidse 25884* (CR, MO), *F. Quesada 1993* (INB).

Neurolaena lobata (L.) R.Br. ex Cass.

Capitana, Gavilana, Ax+ki-krí (Bribri) (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *D. Solano 4700* (BM, INB, MO, PMA), *F. Quesada 1695* (CR, INB). Uses: biological control, medicinal, Repelente.

Otopappus verbesinoides Benth.

Terrestrial herbs. Distribution in PILA 600–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez, Feb. 24 2008* (Field obs.).

Oyedaea verbesinoides DC.

Margarita de monte (CR).

Terrestrial shrubs. Distribution in PILA 500–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *A. Rodríguez 9755* (INB), *D. Santamaría 3470* (INB), *D. Solano 2851* (INB).

ψ ***Pentacalia andicola*** (Turcz.) Cuatrec.

Terrestrial shrubs. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *A. S. Weston 10187* (MO), *B.B. Klitgaard 752* (BM), *E. Alfaro 1331* (INB), *G. Davidse 25302* (CR, MO), *G. Davidse 26046* (CR, MO), *F. Quesada 1807* (INB), *S. Knapp 9846* (BM, INB).

ψ ***Pentacalia firmipes*** (Greenm.) Cuatrec.

Terrestrial shrubs. Distribution in PILA 2400–3700 m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5160* (BM, INB), *A. S. Weston 10188* (MO), *E. Alfaro 3975* (INB), *G. Davidse 23899* (CR, MO), *G. Davidse 25290* (CR, MO), *G. Davidse 25300* (CR, MO), *G. Davidse 25869* (CR, MO), *G. Davidse 25891* (CR, MO), *G. Davidse 25936* (CR, MO), *L.D. Gómez 22679* (MO), *S. Knapp 9843* (BM, INB), *S. Knapp 9882* (BM, INB). Global conservation status: Endangered (EN), B1ab(i,iii).

Pentacalia parasiticus H.Rob.

Terrestrial lianas. Distribution in PILA 2000–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Honduras, Costa Rica, Panama, Ecuador. Records: *G. Herrera 6012* (INB, MO).

Piptocoma discolor (Kunth) Pruski

Terrestrial shrubs or trees. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *D. Santamaría 3498* (INB).

Polyanthina nemorosa (Klatt) R.M.King & H.Rob.

Terrestrial herbs or shrubs. Distribution in PILA 600–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, Bolivia. Records: *A. Rodríguez 11279* (BM, INB, MO, PMA), *D. Solano 4515* (BM, INB, MO, PMA).

Pseudognaphalium elegans (Kunth) Kartesz

Terrestrial herbs to shrubs. Distribution in PILA 800–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution:

Nicaragua to Panama, Ecuador, Peru, Venezuela. Records: *E. Alfaro 3255* (INB), *G. Davidse 26202* (MO).

Pseudognaphalium standleyi (Steierm.) G.L.Nesom
Terrestrial herbs. Distribution in PILA 2900–3500 m, high elevation oak forest, páramo. Global distribution: Guatemala to Costa Rica. Records: *A. Chacón 543* (INB), *E. Alfaro 3388* (INB), *F. Quesada 1806* (INB).

□ ***Roldana heterogama*** H.Rob. & Brettell
Terrestrial herbs or shrubs. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Guatemala, Costa Rica, Panama. Records: *A.K. Monro 5342* (BM, INB, MO), *B.B. Klitgaard 792* (BM, INB), *G. Davidse 23996* (CR, MO), *G. Davidse 25154* (CR, MO).

Rumfordia guatemalensis (J.M.Coult.) S.F.Blake
Terrestrial herbs to shrubs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11966* (BM, INB, MO, PMA).

Sabazia sarmentosa Less.
Terrestrial herbs. Distribution in PILA 1200–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A. Rodríguez 10968* (BM, INB, MO, PMA), *D. Solano 4076* (BM, INB, MO, PMA), *E. Alfaro 4618* (INB), *G. Herrera 6115* (INB, MO), *L. Angulo 218* (INB).

ε-PILA ***Schistocarpha croatii*** H.Rob.
Terrestrial herbs. Distribution in PILA 2000–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *Croat 26411* (MO).

This species has been documented from and adjacent to the buffer zone of the park but is still considered endemic to PILA.

Schistocarpha eupatorioides (Fenzl) Kuntze
Terrestrial herbs or shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez 11374* (BM, INB, MO, PMA).

ψ ***Senecio costaricensis*** R.M.King
Terrestrial herbs or shrubs. Distribution in PILA 2300–3500

m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro 3321* (INB), *E. Alfaro 3497* (INB), *G. Herrera 3701* (INB, MO). Global conservation status: Endangered (EN), B1ab(i,iii).

ψ ***Senecio cooperi*** (Greenm.) H.Rob. & Cuatrec.
Terrestrial shrubs. Distribution in PILA 900–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11964* (BM, INB, MO, PMA), *C. Hamilton 735* (MO), *G. Davidse 25106* (CR, MO), *J. Bittner 1892* (INB, MO), *S. Knapp 9985* (BM, INB). Global conservation status: Vulnerable (VU), B1ab(i,iii).

Senecio grandifolius Less.
Terrestrial shrubs or trees. Distribution in PILA 1300–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica. Records: *A. Rodríguez 11922* (BM, INB, MO, PMA), *A. Rodríguez 9852* (INB), *D. Santamaría 7250* (BM, INB, MO, PMA), *D. Solano 3987* (BM, INB, MO, PMA), *D. Solano 5202* (BM, INB, MO, PMA), *L. Acosta 2376* (INB), *N. Zamora 4076* (BM, INB, MO, PMA).

Senecio megaphyllus (Greenm.) H.Rob. & Cuatrec.
Terrestrial shrubs. Distribution in PILA 1300–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica, Panama. Records: *B.B. Klitgaard 791* (BM, INB), *B.B. Klitgaard 819* (BM), *G. Davidse 25231* (MO), *F. Quesada 1970* (INB, MO).

Senecio multivenius Benth.
Quiebrahacha, Tabaquillo, Quiebra hacha, Quiebrabracho (CR).

Terrestrial shrubs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3818* (INB), *G. Davidse 105380* (CR), *G. Davidse 25833* (MO), *G. Herrera 2824* (MO), *L. Angulo 210* (INB, MO).

Senecio phanerandrus Cufod.
Terrestrial shrubs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4112* (BM, INB, MO), *A.K. Monro 5175* (BM, INB, MO), *A.K. Monro 5179* (BM, INB, MO), *A.K. Monro 5312* (BM, INB, MO), *A. Rodríguez 10662* (BM, INB, MO, PMA), *A. Rodríguez 11016* (BM, INB, MO, PMA), *B.B. Klitgaard 760* (BM), *B.B. Klitgaard 835* (BM, INB), *E. Alfaro 3976*

(INB), *G. Davidse 25377* (MO), *G. Davidse 25466* (MO), *F. Quesada 1907* (INB), *L. Angulo 201* (INB), *S. Knapp 9897* (BM, INB), *S. Knapp 9955* (BM, INB), *S. Knapp 9975* (BM, INB).

***Sigesbeckia jorullensis* Kunth**
Mielilla (CR).

Terrestrial herbs. Distribution in PILA 800–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Peru, Bolivia, Greater Antilles. Records: *A.K. Monro 4161* (BM, INB), *A. Picado 8* (CR, INB), *B.B. Klitgaard 790* (BM, INB), *D. Solano 3957* (BM, INB, MO, PMA), *G. Davidse 25166* (MO), *G. Herrera 3745* (INB, MO), *G. Herrera 6117* (CR, INB), *M. Grayum 10356* (CR, INB, MO), *S. Knapp 10003* (BM, INB), *S. Knapp 10039* (BM, INB).

***Sinclairia polyantha* (Klatt) Rydb.**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Panama. Records: *A.K. Monro 4248* (BM), *A. Rodríguez 10954* (BM, INB, MO, PMA).

***Smallanthus maculatus* (Cav.) H. Rob.**
Purca, Tora (CR).

Terrestrial herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *C. Hamilton 740* (MO).

e ***Sonchus oleraceus* L.**
Cerraja, Cerrajilla, Lechuguilla (CR).

Terrestrial herbs. Distribution in PILA 700–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles, Lesser Antilles, Europe, Africa, Madagascar. Records: *C. Hamilton 736* (MO). Uses: medicinal.

***Tagetes filifolia* Lag.**
Anisillo, Manzanilla (CR).

Terrestrial herbs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru, Bolivia, Argentina. Records: *A. Rodríguez 9813* (INB), *D. Santamaría 3529* (INB), *D. Solano 2874* (INB).

ε-**PILA *Talamancaster minuscula* (Cuatrec.) Pruski**
Terrestrial herbs. Distribution in PILA 3000–3300 m, high elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *Weston 10154* (MO).

***Talamancaster westonii* (Cuatrec.) Pruski**
Terrestrial herbs. Distribution in PILA 3100–3200 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *Alfaro 3719* (INB), *Quesada 1999* (INB).

***Verbesina baruensis* Hammel & D'Arcy**
Terrestrial shrubs. Distribution in PILA 3000–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama, Venezuela. Records: *N. Zamora, Jul. 29, 2008 (Field obs.)*.

***Verbesina fuscasiccans* (D'Arcy) D'Arcy**
Terrestrial shrubs. Distribution in PILA 3000–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *A.K. Monro 5334* (BM, INB, MO), *A.K. Monro 4144* (BM, INB, MO).

***Verbesina oerstediana* Benth.**
Torilla, tora (CR).

Terrestrial shrubs. Distribution in PILA 100–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama, Venezuela. Records: *A. Rodríguez, Feb. 25, 2007 (Field obs.)*.

***Verbesina pleistocephala* (Donn.Sm.) B.L. Rob.**
Terrestrial shrubs or trees. Distribution in PILA –1700 m. Global distribution: Costa Rica, Panama border. Records: *T. Croat 26997* (MO).

***Verbesina turbacensis* Kunth**
Tora (CR).

Terrestrial shrubs. Distribution in PILA 600–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama, Venezuela. Records: *A. Rodríguez 9754* (INB), *D. Santamaría 3472* (INB), *D. Solano 2887* (INB), *F. Quesada 1897* (INB).

***Vernonanthura patens* (Kunth) H. Rob.**
Tuete, Tuetillo, Dawaska, Tuete blanco, Dowás (CR).

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Brazil. Records: *A. Soto 1306* (INB). Uses: medicinal.

Vernonia arborescens (L.) Sw.

Tuete, tuetillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Venezuela, Bolivia, Lesser Antilles. Records: *A. Rodríguez 11928* (BM, INB, MO, PMA), *A. Rodríguez 9762* (INB), *A. Rodríguez 9846* (INB), *D. Santamaría 3742* (INB), *D. Santamaría 7469* (PMA), *D. Solano 2844* (INB), *D. Solano 5113* (BM, INB, MO, PMA), *M. Moraga 682* (INB).

Viguiera sylvatica Klatt

Terrestrial shrubs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: El Salvador, Costa Rica, Panama. Records: *C. Hamilton 3666* (MO).

Werneria nubigena Kunth

Terrestrial herbs. Distribution in PILA 3200–3300 m, páramo. Global distribution: Mexico, Guatemala, Costa Rica to Bolivia. Records: *A.K. Monro 5184* (BM, MO), *L.D. Gómez 22448* (MO).

Westoniella eriocephala (Klatt) Cuatrec.

Terrestrial herbs or shrubs. Distribution in PILA 3100–3500 m, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 26043* (CR, MO).

□ *Westoniella kohkemperi* Cuatrec.

Terrestrial herbs to shrubs. Distribution in PILA 3400–3800 m, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4089* (BM, INB), *A.K. Monro 5361* (BM, INB), *B.B. Klitgaard 825* (BM, INB).

Westoniella lanuginosa Cuatrec.

Terrestrial herbs. Distribution in PILA 3200–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. S. Weston 10169* (MO), *L.D. Gómez 22471* (MO).

e *Youngia japonica* (L.) DC.

Terrestrial herbs. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Venezuela, Guyanas, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *E. Navarro 184* (INB).

Zexmenia virgulta Klatt

Terrestrial shrubs. Distribution in PILA 200–1700 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *M. Alfaro 11* (INB).

BALANOPHORACEAE

Corynaea crassa Hook.f.

Terrestrial herbs. Distribution in PILA 1700–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A. Fernández 670* (CR, INB, MO), *A. Fernández 825* (CR, INB), *A. Fernández 826* (INB), *A. Fernández 826* (INB, MO), *E. Alfaro 3225* (INB), *E. Alfaro 4657* (INB), *G. Davidse 25205* (CR, MO), *G. Davidse 25847* (CR, MO), *G. Davidse 29196* (CR, MO), *J. Bittner 1884* (INB, MO), *J. Bittner 1929* (INB, MO).

Helosis cayanensis (Sw.) Spreng.

Terrestrial herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Fernández 774* (INB), *A. Fernández 827* (INB), *A.K. Monro 5948* (PMA), *A. Rodríguez 11860* (BM, INB, MO, PMA), *D. Solano 3947* (BM, INB, MO, PMA), *D. Solano 4268* (BM, INB, MO, PMA), *E. Alfaro 5575* (BM), *F. González 649* (BM, INB, MO, PMA), *J. Bittner 1916* (INB, MO), *J. Lezcano 353* (PMA), *L. Acosta 2384* (INB), *L.D. Gómez 23103* (MO), *V. H. Ramírez 627* (INB).

Langsdorffia hypogaea Mart.

Terrestrial herbs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Paraguay. Records: *S. Knapp 1502* (MO).

BALSAMINACEAE

Impatiens turrialbana Donn.Sm.

China de monte (CR).

Terrestrial herbs. Distribution in PILA 900–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Soto 309* (INB), *E. Alfaro 3489* (INB), *G. Davidse 25808* (CR, MO), *G. Davidse 28645* (CR, MO), *G. Herrera 3635* (INB, MO), *G. Herrera 3735* (INB, MO), *G. Herrera 6250* (INB, MO), *F. Quesada 1495* (CR, INB), *L. Angulo 217* (CR, INB), *M.A. Thomas 1658* (MO), *M. Moraga 401* (INB).

e *Impatiens walleriana* Hook. f.

China, China, Sultana (CR).

Terrestrial herbs. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Africa, introduced in Mexico, Nicaragua, Panama, Ecuador, Africa, Asia. Records: *C. Hamilton* 722 (MO).

BEGONIACEAE

Begonia carletonii Standl.

Terrestrial herbs. Distribution in PILA 100–400 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11420 (BM, INB, MO, PMA).

Begonia convallariodora C.DC.

Terrestrial herbs. Distribution in PILA 400–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández* 897 (INB), *A. Picado* 3 (CR, INB), *A. Rodríguez* 10762 (BM, INB, MO, PMA), *A. Rodríguez* 10906 (BM, INB, MO, PMA), *A. Rodríguez* 11929 (BM, INB, MO, PMA), *C. Hamilton* 3648 (MO), *D. Santamaría* 5831 (BM, INB, MO, PMA), *D. Santamaría* 7092 (BM, INB, MO, PMA), *D. Solano* 3948 (BM, INB, MO, PMA), *E. Alfaro* 5497 (BM, INB, MO), *G. Gallardo* 83 (INB).

Begonia cooperi C.DC.

Ala de ángel (CR).

Terrestrial herbs to shrubs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 5642 (BM, INB, MO, PMA), *J. Bittner* 1752 (INB, MO).

Begonia copeyana C.DC.

Terrestrial herbs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 3831 (BM, INB, MO, PMA).

Begonia estrellensis C.DC.

Facultatively epiphytic herbs. Distribution in PILA 700–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28323 (CR).

Begonia glabra Aubl.

Terrestrial herbs. Distribution in PILA 0–2600 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture, dense thicket. Global distribution: Mexico to Peru, Greater Antilles, Lesser Antilles. Records: *A.K. Monro* 5737 (BM, INB, MO, PMA), *D. Santamaría* 5972 (BM, INB, MO, PMA), *D. Santamaría* 7419 (PMA), *D. Solano* 4323 (BM, INB, MO, PMA), *E. Alfaro* 17 (MO), *J. Lezcano* 343 (PMA).

Begonia heydei C.DC.

Terrestrial herbs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Guatemala to Panama. Records: *A. Rodríguez* 11233 (BM, INB, MO, PMA), *A. Soto* 315 (INB), *G. Herrera* 8108 (CR).

Begonia involucrata Liebm.

Terrestrial herbs. Distribution in PILA 1300–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Guatemala to Panama. Records: *A. Rodríguez* 11757 (BM, INB, MO, PMA), *D. Santamaría* 7266 (BM, INB, MO, PMA), *D. Solano* 5048 (BM, INB, MO, PMA), *D. Solano* 5158 (BM, INB, MO, PMA), *D. Solano* 5170 (BM, INB, MO, PMA), *N. Zamora* 4062 (BM, INB, MO, PMA). Uses: medicinal.

ε-PILA *Begonia mucronistipula* C.DC.

Epiphytic herbs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *T. Cochrane et al.* 6272 (MO), *W. D'Arcy* 10106 (MO), *J. Dwyer et al.* 441 (MO), *J. Folsom et al.* 2256 (MO), *B. Hammel* 5682 (MO), *W. Hoover* 554 (MO), *H. Pittier* 3172 (US), *R. Wilbur & j. Luteyn* 19247 (DUKE), *R. Woodson & R. Schery* 620 (MO).

Begonia oaxacana A.DC.

Terrestrial herbs. Distribution in PILA 1400–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A.K. Monro* 4063 (BM, INB, MO), *A.K. Monro* 5565 (BM, INB, MO, PMA), *D. Solano* 3953 (BM, INB, MO, PMA), *E. Alfaro* 3240 (INB), *G. Davidse* 25098 (CR, MO), *G. Davidse* 25765 (MO), *G. Davidse* 25858 (CR, MO), *G. Davidse* 26139 (CR, MO), *G. Davidse* 28652 (CR), *G. Davidse* 28687 (MO), *G. McPherson* 15906 (MO), *J. Bittner* 1897 (INB, MO), *F. Quesada* 1493 (INB), *F. Quesada* 1911 (INB), *M.A. Thomas* 1607 (MO), *M. Grayum* 10311 (INB, MO), *S. Knapp* 9984 (BM, INB).

□ *Begonia parviflora* Poepp. & Endl.

Terrestrial herbs. Distribution in PILA 900–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Costa Rica to Ecuador. Records: *A. De Sedas 591* (PMA), *A.K. Monro 4213* (BM), *A. Rodríguez 11755* (BM, INB, MO, PMA), *D. Santamaría 7412* (PMA), *D. Solano 5046* (BM, INB, MO, PMA).

Begonia quaternata L.B.Sm. & B.G.Schub.

Terrestrial herbs. Distribution in PILA 1200–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *C. Hamilton 3646* (MO).

Begonia semiovata Liebm.

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Peru. Records: *G. Herrera 3057* (MO).

Begonia strigillosa A.Dietr.

Facultatively epiphytic herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Davidse 28426* (MO), *G. Herrera 5336* (MO).

Begonia urophylla Hook.

Terrestrial herbs. Distribution in PILA 100–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Colombia. Records: *D. Santamaría 3823* (INB), *E. Alfaro 2608* (INB), *E. Navarro 3* (INB, MO), *G. Herrera 5336* (INB), *F. Quesada 1888* (INB).

Begonia urticae L.f.

Terrestrial herbs. Distribution in PILA 700–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *A. Chacón 501* (MO), *A. Fernández 671* (CR, INB), *A. Fernández 959* (CR, INB), *A.K. Monro 4144* (BM, INB), *A.K. Monro 4145* (BM, INB, MO), *A.K. Monro 5209* (BM, INB), *A. Rodríguez 10616* (BM, INB, MO, PMA), *A. Rodríguez 10862* (BM, INB, MO, PMA), *B. Gamboa 1197* (INB), *C. Hamilton 691* (MO), *D. Santamaría 5634* (BM, INB, MO, PMA), *D. Solano 3886* (BM, INB, MO, PMA), *E. Alfaro 3219* (INB), *G. Davidse 23977* (CR, MO), *G. Davidse 25086* (CR, MO),

G. Davidse 25094 (CR, MO), *G. Davidse 25136* (MO), *G. Davidse 25161* (CR, MO), *G. Davidse 25475* (CR), *G. Davidse 25773* (MO), *G. Davidse 25841* (CR, MO), *G. Davidse 28862* (CR, MO), *G. Davidse 28983* (MO), *G. Davidse 29165* (CR, MO), *G. Herrera 5514* (INB), *G. Herrera 6068* (INB), *G. Herrera 6151* (CR, INB), *G. Herrera 6245* (CR, INB), *G. Herrera 6252* (INB), *J. Bittner 1844* (INB, MO), *J. F. Morales 5824* (INB, MO), *F. Quesada 1500* (CR, INB), *F. Quesada 1824* (INB), *M.A. Thomas 1606* (MO), *S. Knapp 10026* (BM, INB).

Begonia vestita C.DC.

Terrestrial herbs. Distribution in PILA 1200–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5609* (BM, INB, MO, PMA), *A. Rodríguez 10627* (BM, INB, MO, PMA), *A. Rodríguez 10952* (BM, INB, MO, PMA), *D. Santamaría 5676* (BM, INB, MO, PMA), *D. Santamaría 5890* (BM, INB, MO, PMA), *D. Santamaría 6278* (BM, INB, MO, PMA).

BERBERIDACEAE

Berberis nigricans Kuntze

Terrestrial shrubs. Distribution in PILA 2300–3200 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4148* (BM), *A.K. Monro 5270* (BM, INB, MO), *E. Alfaro 3727* (INB), *E. Alfaro 4703* (INB), *G. Herrera 3738* (INB, MO).

BETULACEAE

ψ ***Alnus acuminata*** Kunth

Jaúl, Aliso (CR), Aliso, Jaúl (P).

Terrestrial trees. Distribution in PILA 800–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina. Records: *G. Davidse 23752* (CR), *G. Davidse 29167* (CR, MO), *G. Herrera 3694* (INB, MO), *F. Quesada 1485* (CR, INB), *R. J. Schmalzel 1349* (MO). Uses: cellulose, timber. Regional conservation status: Near Threatened (NT).

BIGNONIACEAE

Amphilophium crucigerum (L.) L.G.Lohmann

Bateita, Petaquilla, Cucharilla, Peine de mico (CR).

Terrestrial twiners. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Argentina, Lesser Antilles. Records: *A. Rodríguez, Jul.*

21, 2007 (Field obs.), A. Rodríguez, Jul. 24 2007 (Field obs.). Uses: medicinal.

Amphilophium paniculatum (L.) Kunth
Bejuco de fierro, Cucharilla, Bateíta (CR).

Terrestrial lianas. Distribution in PILA 0–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Argentina. Records: L. Acosta 2332 (INB), L.D. Gómez 23144 (MO). Uses: medicinal.

Amphilophium pannosum (DC.) Bureau & K.Schum.
Bejuco de fierro, Cucharilla (CR).

Terrestrial lianas. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Costa Rica to Argentina. Records: J. González 806 (CR, INB, MO).

Amphitecna kennedyi (A.H.Gentry) A.H.Gentry
Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Honduras, Nicaragua to Colombia. Records: A. Fernández 1001 (INB).

Amphitecna sessilifolia (Donn.Sm.) L.O.Williams
Guacalillo, Jícaro, Calabacero, Calabacillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: A. Fernández 892 (INB, MO), B. Gamboa 650 (INB), C. Hamilton 3599 (MO), D. Santamaría 7220 (BM, INB, MO, PMA), J. Dwyer 444 (MO), E. Alfaro 744 (INB), L. Acosta 2370 (INB).

Bignonia quadrivalvis Jacq.

Terrestrial lianas. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, sabana natural grassland. Global distribution: Mexico to Argentina. Records: N. Zamora 4085 (BM, INB, MO, PMA).

Callichlamys latifolia (Rich.) K.Schum.

Terrestrial twiners. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Mexico to Brazil. Records: A. Rodríguez, Nov. 1, 2007 (Field obs.).

Fridericia chica (Bonpl.) L.G.Lohmann

Terrestrial lianas. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Argentina. Records: F. Quesada 1899 (INB). Uses: colouring, cosmetics.

Fridericia schumanniana (Loes.) L.G.Lohmann

Terrestrial lianas. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia. Records: F. González 484 (INB).

Tourretia lappacea (L'Hér.) Willd.

Terrestrial twiners. Distribution in PILA 600–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina. Records: A. Fernández 796 (INB), A. Rodríguez 10789 (BM, INB, MO, PMA), D. Solano 4021 (BM, INB, MO, PMA).

BORAGINACEAE

Cordia alliodora (Ruiz & Pav.) Oken

Laurel, Molenito, Onión, Laurel negro, Yawé, Yuë, Yëvé (CR), Laurel, Laurel negro, Muñeco (P).

Terrestrial trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: A. Rodríguez, Jul. 21, 2007 (Field obs.). Uses: timber, medicinal.

Cordia croatii J.S.Mill.

Terrestrial trees. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: A. Rodríguez 11601 (BM, INB, MO, PMA), A. Rodríguez 11764 (BM, INB, MO, PMA), B. Hammel 5829 (MO). Conservation status: Vulnerable (VU), A2c.

Cordia cymosa (Donn.Sm.) Standl.

Laurel, Muñeco, Mastate, Laurel de montaña (CR), Laurel negro (P).

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Peru. Records: D. Santamaría 6238 (BM, INB, MO, PMA), E. Mora 310 (CR, INB), F. Quesada 1670 (CR, INB, MO), L. Acosta 2403 (INB), M. Alfaro 14 (INB), R. Villalobos 296 (CR, INB).

Cordia eriostigma Pittier

Muñeco, Nigüito, Nigüite, Buriogre (CR).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru. Records: *A. Rodríguez 11229* (BM, INB, MO, PMA).

Cordia lucidula I.M.Johnst.

Terrestrial trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 6824* (BM, INB, MO, PMA), *L. Acosta 2275* (INB).

Cordia porcata Nowicke

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Nicaragua to Panama, Ecuador. Records: *A. Rodríguez 11637* (BM, INB, MO, PMA), *D. Solano 4997* (BM, INB, MO, PMA), *D. Solano 5161* (BM, INB, MO, PMA).

Cynoglossum amabile Stapf & J.R.Drumm.

Terrestrial herbs. Distribution in PILA 1000–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Bhutan to C. China, introduced in Mexico, Honduras, Costa Rica to Bolivia. Records: *C. Hamilton 747* (MO), *C. Hamilton 779* (MO), *E. Alfaro 3326* (INB).

Hackelia mexicana (Schltdl. & Cham.) I.M.Johnst.

Terrestrial herbs. Distribution in PILA 1500–3700 m, mixed forest in transition to cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica to Peru. Records: *G. Davidse 25803* (MO), *F. Quesada 1809* (INB).

Moritzia lindenii (A.DC.) Benth. ex Gürke

Terrestrial herbs. Distribution in PILA 2300–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador. Records: *A. S. Weston 10162* (MO), *G. Davidse 29352* (MO), *G. Herrera 3728* (INB, MO).

Tournefortia angustiflora Ruiz & Pav.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru. Records: *G. Davidse 44* (MO).

Tournefortia bicolor Sw.

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to

low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Bolivia. Records: *A. Soto 1243* (INB).

Tournefortia cuspidata Kunth

Palomo de sol (CR).

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela. Records: *J. González 787* (CR, INB, MO).

Tournefortia glabra L.

Maíz de gallo, Maicillo (CR).

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia, Greater Antilles. Records: *A. Rodríguez 11924* (BM, INB, MO, PMA), *D. Solano 5480* (PMA), *E. Alfaro 2190* (CR, INB, MO), *G. Davidse 28368* (MO), *J. A. Duke 13637* (MO), *F. Quesada 1939* (CR, MO), *L. Acosta 2321* (INB), *L. Angulo 323* (INB, MO).

Tournefortia hirsutissima L.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *E. Alfaro 3187* (INB), *M. Alfaro 13* (INB), *M. Alfaro 140* (INB).

• ***Tournefortia longipedicellata*** J.S.Mill.

Terrestrial shrubs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *J. Bittner 1828* (INB, MO), *Solano et al. 4705* (BM, CR, MO, PMA).

Tournefortia maculata Jacq.

Bejuco de venado (CR).

Terrestrial lianas. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela. Records: *A. Rodríguez 11599* (BM, INB, MO, PMA), *G. Herrera 6217* (CR, INB, MO).

Tournefortia ramonensis Standl.

Terrestrial shrubs. Distribution in PILA 1400–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 1028* (INB), *D. Solano 4705* (BM, INB, MO, PMA), *G. Herrera 6211* (INB, MO), *J. Bittner 1828* (CR, MO), *J. Bittner 1829* (INB, MO), *J. F. Morales 5810* (CR, INB).

Tournefortia subspicata Donn.Sm.

Terrestrial shrubs. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11450* (BM, INB, MO, PMA), *A. Rodríguez 11504* (BM, INB, MO, PMA), *D. Santamaría 6583* (BM, INB, MO, PMA), *G. Davidse 29053* (MO), *G. Herrera 5471* (INB, MO).

Tournefortia urceolata J.S.Mill.

Terrestrial shrubs. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2798* (MO).

Varronia spinescens (L.) Borhidi

Vara de agua, Varilla negra (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Mexico to Peru. Records: *J. A. Duke 13628* (MO), *J. González 788* (CR, INB, MO).

Wigandia urens (Ruiz & Pav.) Kunth

Ortiga de montaña, Tabacón, Ortiga, Ortiga blanca (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Brazil. Records: *D. Solano 5125* (BM, INB, MO, PMA), *D. Solano 5239* (BM, INB, MO, PMA), *N. Zamora 4156* (BM, INB, MO, PMA). Uses: medicinal.

BRASSICACEAE

e ***Brassica rapa*** L.

Pak-choi y Pet-sai, Repollo chino, Nabo (CR).

Terrestrial herbs. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Canada to Chile. Records: *C. Hamilton 3668* (MO).

Cardamine bonariensis Pers.

Platanillo, Berrillo (CR).

Aquatic or terrestrial herbs. Distribution in PILA 1600–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica, Colombia, Argentina, Chile. Records: *G. Davidse 28863* (MO), *F. Quesada*

1973 (CR, MO), *L. Angulo 207* (MO).

e ***Cardamine flexuosa*** With.

Terrestrial herbs. Distribution in PILA 700–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Canada to Mexico, Panama, Venezuela, Africa, native to Europe and Asia, introduced elsewhere. Records: *G. Davidse 25805* (MO), *J. Aranda 3242* (MO).

Cardamine fulcrata Greene

Terrestrial herbs. Distribution in PILA 1100–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Rodríguez 10887* (BM, INB, MO, PMA), *A. Rodríguez 10943* (BM, INB, MO, PMA), *E. Alfaro 4675* (INB).

Cardamine ovata Benth.

Terrestrial herbs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A. Fernández 812* (CR, INB), *A. Rodríguez 10770* (BM, INB, MO, PMA), *A. Soto 254* (INB), *G. Davidse 25080* (CR, MO), *G. Davidse 25221* (MO), *J. Bittner 1853* (INB, MO), *J. F. Morales 5819* (CR, MO), *M. Grayum 10294* (INB, MO).

Lepidium costaricense Thell.

Terrestrial herbs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *C. Hamilton 3669* (MO).

Romanschulzia costaricensis (Standl.) Rollins

Nabo (CR).

Terrestrial herbs. Distribution in PILA 800–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 798* (CR, INB), *D. Solano 3854* (BM, INB, MO, PMA), *M. Grayum 10382* (INB, MO).

BRUNELLIACEAE

ψ ***Brunellia costaricensis*** Standl.

Cedrillo macho, Cedrillo, Cedro macho, Gallinazo (CR).

Terrestrial trees. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest.

Global distribution: Costa Rica to Panama. Records: *G. Davidse* 25489 (CR, MO), *G. Herrera* 3625 (INB, MO), *G. Herrera* 6173 (CR, INB, MO). Uses: timber. Global conservation status: Endangered (EN), B1ab(i, iii).

Brunellia standleyana Cuatrec.
Capulín (CR).

Terrestrial trees. Distribution in PILA 1300–1900 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *D. Solano*, Oct. 25, 2007 (*Field obs.*).

BURSERACEAE

Protium panamense (Rose) I.M.Johnst.
Alacáfor, Canfin, Copal, Churtra (CR), Copal, Copá, Chutra (P).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *D. Solano*, Oct. 28, 2007 (*Field obs.*). Uses: timber.

ψ ***Tetragastris panamensis*** (Engl.) Kuntze
Canfin, Estaquillo, Copal, Querosén (CR), Animé, Cuatro estómagos, Chutra, Kerosín (P).

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Honduras to Brazil. Records: *A. Rodríguez*, Nov. 1, 2007 (*Field obs.*). Uses: timber. Regional conservation status: Near Threatened (NT).

CACTACEAE

□ ***Epiphyllum cartagense*** (F.A.C.Weber) Britton & Rose
Platanillo de monte (CR).

Epiphytic herbs. Distribution in PILA 900–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 855 (CR, INB), *L. Acosta* 2310 (INB), *L.D. Gómez* 23124 (MO).

Epiphyllum phyllanthus (L.) Haw.
Epiphytic herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *M.A. Thomas* 1535 (MO), *T. Croat* 26919 (MO).

CALCEOLARIACEAE

Calceolaria irazuensis Donn.Sm.
Zapatillas, Botón de oro (CR).

Terrestrial shrubs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4160 (BM, INB, MO), *A.K. Monro* 5282 (BM, INB, MO), *E. Alfaro* 3325 (INB), *G. Davidse* 25092 (CR, MO), *G. Davidse* 25132 (CR, MO), *G. Davidse* 25718 (CR, MO), *G. Davidse* 25860 (CR, MO), *G. Davidse* 26037 (MO), *G. Davidse* 28609 (MO), *G. Davidse* 29355 (CR, MO), *G. Herrera* 3737 (INB, MO), *F. Quesada* 1496 (INB), *F. Quesada* 1811 (INB), *S. Knapp* 9989 (BM, INB, MO).

Calceolaria mexicana Benth.
Bombilla, Botón de oro, Patita, Zapatillas (CR).

Terrestrial herbs. Distribution in PILA 1000–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Bolivia. Records: *A. Fernández* 726 (CR, INB, MO), *A. Fernández* 813 (CR, INB, MO), *A. Rodríguez* 10615 (BM, INB, MO, PMA), *B. Gamboa* 1241 (INB, MO), *D. Santamaría* 5659 (BM, INB, MO, PMA), *D. Solano* 3895 (BM, INB, MO, PMA), *E. Alfaro* 3232 (INB), *E. Alfaro* 3641 (INB), *G. Davidse* 25093 (CR, MO), *G. Davidse* 25801 (MO), *G. Davidse* 29258 (MO), *J. Bittner* 1854 (INB, MO), *F. Quesada* 1498 (CR, INB), *F. Quesada* 1933 (INB), *M. Grayum* 10299 (INB, MO), *R. J. Schmalzel* 32A (MO).

Calceolaria microbefaria Kraenzl.
Terrestrial herbs. Distribution in PILA 3100–3400 m, high elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *M. Valerio* 164 (CR, MO).

Calceolaria tripartita Ruiz & Pav.
Terrestrial herbs. Distribution in PILA 1200–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Peru. Records: *L. Angulo* 216 (INB), *S. Knapp* 9992 (BM).

CALOPHYLLACEAE

Calophyllum brasiliense Cambess.
Cedro María, María, María colorado, D. Santamaría, María blanco, Palo maria, Jorco (CR), María (P).

Terrestrial trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Peru, Brazil. Records: *D. Santamaría*, Oct. 22, 2008 (*Field obs.*), *D. Santamaría*, Oct. 24, 2008 (*Field obs.*), *D. Santamaría*, Oct. 28, 2008 (*Field obs.*), *D. Santamaría*, Oct. 29, 2008 (*Field obs.*). Uses: timber.

Marila laxiflora Rusby
Goma (CR).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama, Ecuador. Records: *A. Rodríguez*, Nov. 1, 2007 (Field obs.), *A. Rodríguez*, Sept 28, 2007 (Field obs.), *A. Rodríguez*, Sept 29, 2007 (Field obs.).

Esa especie basado en un observación es complicada, no hay una colección conocida de esos sectores.

Marila pluricostata Standl. & L.O. Williams
Camarón (CR).

Terrestrial trees. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Costa Rica to Ecuador. Records: *A. Chacón* 5 (MO).

***Marila* sp. A.**

Terrestrial trees. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *B. Hammel* 17608 (MO), *Herrera* 3275 (INB).

This species is being described as *Marila jefensis* by Barry Hammel (Pers. Comm.). This species will be included in the Manual de Plantas de Costa Rica.

CAMPANULACEAE

Burmeistera almedae Wilbur

Terrestrial herbs. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Soto* 266 (INB), *E. Alfaro* 3482 (INB), *G. Herrera* 3648 (INB, MO).

ε-PILA Burmeistera altocolubrensis Wilbur

Terrestrial herbs. Distribution in PILA 2500–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *G. Davidse* 25196 (CR, MO).

Burmeistera chiriquiensis Wilbur

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 1100–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Soto* 293 (INB), *B. Gamboa* 1226 (INB), *E. Alfaro* 4634 (INB), *G. Davidse* 28626 (CR, MO), *G. Davidse* 29244 (CR, MO), *G. Herrera* 6126 (INB, MO), *G. Herrera* 6164 (CR, INB, MO).

Burmeistera cyclostigmata Donn.Sm.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández* 770 (INB, MO), *A.K. Monro* 5426 (BM, INB, MO, PMA), *A.K. Monro* 5443 (BM, INB, MO, PMA), *A.K. Monro* 6068 (PMA), *A.K. Monro* 6274 (PMA), *A. Rodríguez* 10613 (BM, INB, MO, PMA), *A. Rodríguez* 11414 (BM, INB, MO, PMA), *D. Santamaría* 6276 (BM, INB, MO, PMA), *D. Santamaría* 6537 (BM, INB, MO, PMA), *D. Santamaría* 6576 (BM, INB, MO, PMA), *D. Santamaría* 6627 (BM, INB, MO, PMA), *D. Solano* 3856 (BM, INB, MO, PMA), *D. Solano* 4660 (BM, INB, MO, PMA), *D. Solano* 4788 (BM, INB, MO, PMA), *D. Solano* 4851 (BM, INB, MO, PMA), *G. Gallardo* 86 (INB, MO), *G. Herrera* 2717 (MO), *G. Herrera* 5370 (INB, MO), *J. Bittner* 1913 (CR, INB, MO).

Burmeistera dendrophila E.Wimm.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *H. Pittier* 3255 (MO?).

Burmeistera glauca (E.Wimm.) Gleason

Epiphytic herbs. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *G. Davidse* 25107 (CR, MO), *G. Davidse* 25202 (MO).

Burmeistera mcvaughii Wilbur

Terrestrial herbs. Distribution in PILA 1300–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *B. Hammel* 5823 (MO).

Burmeistera microphylla Donn.Sm.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 10854 (BM, INB, MO, PMA), *A. Rodríguez* 11544 (BM, INB, MO, PMA), *B. Gamboa* 1198 (INB, MO), *D. Solano* 4662 (BM, INB, MO, PMA), *D. Solano* 4703 (BM, INB, MO, PMA), *D. Solano* 4907 (BM, INB, MO, PMA), *D. Solano* 4920 (BM, INB, MO, PMA), *G. Davidse* 28546 (CR, MO), *G. Davidse* 29097 (MO), *J. Bittner* 1806 (INB, MO), *M.A. Thomas* 1608c (MO), *M. Moraga* 403 (INB).

ε-PILA *Burmeistera monroi* D.Santam. & Lagom.

Terrestrial herbs. Distribution in PILA *ca* 2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro & D. Santamaría 6986* (BM, INB, MO), *A.K. Monro & S. Knapp 5225* (BM, PMA).

Burmeistera parviflora E.Wimm. ex Standl.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 1100–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 516* (MO), *A. Fernández 675* (INB), *A. Fernández 973* (CR, INB, MO), *A.K. Monro 5750* (BM, INB, MO, PMA), *A. Rodríguez 10753* (BM, INB, MO, PMA), *B. Gamboa 1217* (INB, MO), *B. Hammel 5790* (MO), *D. Santamaría 5725* (BM, INB, MO, PMA), *D. Santamaría 5764* (BM, INB, MO, PMA), *D. Solano 3985* (BM, INB, MO, PMA), *E. Alfaro 3634* (INB), *G. Davidse 25198* (CR, MO), *G. Davidse 28707* (CR, MO), *G. Davidse 28864* (CR, MO), *G. Herrera 5333* (INB, MO), *J. Bittner 1764* (INB, MO), *F. Quesada 1488* (CR, INB, MO), *L. Angulo 230* (INB, MO), *L. Angulo 232* (INB, MO), *M. Moraga 393* (INB).

ε-PILA *Burmeistera silencioensis* Wilbur

Terrestrial lianas. Distribution in PILA 2500–2600 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 578* (MO), *E. Alfaro 3205* (INB), *G. Davidse 25732* (CR, MO), *G. Davidse 25809* (CR, MO), *Thomas 1608a* (MO).

Burmeistera toroensis Wilbur

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 700–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *A. De Sedas 957* (BM, PMA).

ε-PILA *Burmeistera utleyi* Wilbur

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 1300–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Wilbur 15222* (Duke, MICH).

This species has been documented from and adjacent to the buffer zone of the park but is still considered endemic to PILA.

Burmeistera vulgaris E.Wimm.

Terrestrial herbs or terrestrial or facultatively epiphytic

shrubs. Distribution in PILA 1000–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández 657* (INB), *A. Fernández 967* (INB), *A.K. Monro 5503* (BM, INB, MO, PMA), *D. Solano 3979* (BM, INB, MO, PMA), *G. Davidse 25253* (CR, MO), *G. Davidse 28738* (CR, MO), *G. Davidse 28739* (CR, MO), *G. Herrera 5899* (INB, MO), *G. Herrera 6259* (INB, MO).

Centropogon congestus Gleason

Terrestrial herbs. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 6237* (PMA), *A. Maroto 197* (INB), *D. Santamaría 5774* (BM, INB, MO, PMA), *D. Solano 3958* (BM, INB, MO, PMA), *G. Davidse 29194* (MO), *G. Herrera 5879* (CR, INB, MO), *J. Bittner 1823* (INB), *F. Quesada 1929* (CR, INB, MO), *L. Acosta 2349* (INB).

Centropogon costaricae (Vatke) McVaugh

Terrestrial lianas. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11024* (BM, INB, MO, PMA), *B. Gamboa 1703* (INB, MO), *D. Solano 4037* (BM, INB, MO, PMA), *E. Alfaro 3250* (INB), *E. Alfaro 3783* (INB), *E. Alfaro 3950* (INB), *G. Davidse 25861* (CR, MO), *G. Davidse 28614* (MO), *M.A. Thomas 1653* (MO), *S. Knapp 10035* (BM, INB), *S. Knapp 9991* (BM, INB).

Centropogon ferrugineus (L.f.) Gleason

Terrestrial herbs or shrubs. Distribution in PILA 1100–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Guatemala to Peru, Venezuela. Records: *A.K. Monro 4056* (BM, MO), *A.K. Monro 5302* (BM, INB, MO), *B. Gamboa 1700* (INB, MO), *E. Alfaro 3954* (INB), *G. Davidse 25238* (CR, MO), *G. Davidse 25782* (CR, MO), *G. Davidse 23884* (MO), *G. Herrera 3632* (INB, MO).

Centropogon floricomus McVaugh

Terrestrial herbs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3399* (MO).

Centropogon granulosus C.Presl

Terrestrial herbs or shrubs. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition

to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Bolivia. Records: *A. Fernández 754* (INB, MO), *A.K. Monro 4432* (BM, MO), *A.K. Monro 5504* (BM, INB, MO, PMA), *D. Santamaría 6451* (BM, INB, MO, PMA), *D. Solano 3879* (BM, INB, MO, PMA), *D. Solano 4669* (BM, INB, MO, PMA), *G. Davidse 28492* (CR, MO), *G. Gallardo 81* (INB, MO).

Centropogon gutierrezii (Planch. & Oerst.) E. Wimm.
Terrestrial herbs or shrubs. Distribution in PILA 600–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5330* (BM, INB, MO, PMA).

Centropogon leucocarpus McVaugh
Terrestrial herbs or shrubs. Distribution in PILA 1500–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *von Hagen 2030*).

ε-PILA *Centropogon luteynii* Wilbur
Terrestrial herbs or shrubs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *Wilbur 17163* (*Duke, F, GH, LL, MICH, MO, NY, PMA, US*).

Centropogon palmanus (Donn.Sm.) E. Wimm.
Terrestrial herbs. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11405* (BM, INB, MO, PMA), *D. Solano 4697* (BM, INB, MO, PMA).

Centropogon smithii E. Wimm.
Terrestrial herbs. Distribution in PILA 800–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 1701* (INB, MO), *G. Davidse 25104* (CR, MO).

Centropogon solanifolius Benth.
Gallito, Pavoncillo (CR).
Terrestrial herbs. Distribution in PILA 700–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Colombia to Peru. Records: *A. Fernández 673* (INB, MO), *A. Rodríguez 10590* (BM, INB, MO, PMA), *A. Rodríguez 10775* (BM, INB, MO,

PMA), *D. Santamaría 5638* (BM, INB, MO, PMA), *D. Solano 3988* (BM, INB, MO, PMA), *G. Herrera 6247* (INB), *J. Bittner 1772* (INB, MO).

Centropogon talamancensis Wilbur
Terrestrial lianas. Distribution in PILA 2500–3400 m, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Endemic to Costa Rica. Records: *B.B. Klitgaard 813* (BM, INB), *S. Knapp 10061* (BM).

Lobelia irasuensis Planch. & Oerst.
Terrestrial herbs. Distribution in PILA 1800–3500 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *S. Knapp 9943* (BM, PMA, INB).

Lobelia laxiflora Kunth
Caragallo, Ceragallo, Pastorcillo, Yuquilla (CR).
Terrestrial shrubs. Distribution in PILA 900–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Colombia. Records: *C. Hamilton 3603* (MO).

Lobelia longicaulis Brandegee
Terrestrial herbs. Distribution in PILA 2300–2700 m, high elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Davidse 28968* (MO).

ε-PILA *Siphocampylus maxonis* E. Wimm.
Terrestrial herbs or shrubs. Distribution in PILA 1500–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *W. R. Maxon 5433* (US).

CANNABACEAE

Celtis iguanaea (Jacq.) Sarg.
Cagalera (CR).
Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: USA to Tropical America. Records: *A.K. Monro 5093* (BM).
Uses: medicinal.

ψ *Lozanella enantiophylla* (Donn.Sm.) Killip & C.V.Morton
Terrestrial shrubs or trees. Distribution in PILA 200–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández 908* (INB), *A.K. Monro 4237* (BM), *A.K. Monro 4402* (BM), *A.K. Monro 5636*

(BM, INB, MO, PMA), *A. Rodríguez 10738* (BM, INB, MO, PMA), *D. Solano 3968* (BM, INB, MO, PMA), *J. Bittner 1859* (INB), *J. Bittner 1900* (INB). Regional conservation status: Least Concern (LC).

Trema integerrima (Beurl.) Standl.
Capulín blanco, Capulín, Jucó (CR).

Terrestrial trees. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles. Records: *A. Rodríguez, Feb. 23, 2008 (Field obs.)*, *A. Rodríguez, Feb. 25, 2007 (Field obs.)*, *A. Rodríguez, Jul. 21, 2007 (Field obs.)*. Uses: timber.

Trema micrantha (L.) Blume
Capulín, Capulín blanco, Capulín negro, Jucó, Vara blanca, Vara, Urré (CR), Jordancillo, Capulín, Capulín macho (P).

Terrestrial trees. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles. Records: *C. Hamilton 3612* (MO), *D. Santamaría 7465* (PMA), *J. González 805* (MO).

CAPPARACEAE

Quadrella filipes (Donn.Sm.) Iltis & Cornejo
Terrestrial shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3030* (MO).

CARDIOPTERIDACEAE

Citronella costaricensis (Donn.Sm.) R.A.Howard
Terrestrial shrubs or trees. Distribution in PILA 700–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Venezuela, Peru. Records: *L.D. Gómez 23729* (MO), *N. Zamora 4235* (BM, INB, MO, PMA).

CARICACEAE

Jacaratia dolichaula (Donn.Sm.) Woodson
Ceiba papaya, Palo de barril, Papayillo, Papayillo de monte, Papaya de venado, Kicho, Nicho, Kinickacho, Kocho, Papaya de monte (CR).

Terrestrial trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 6003* (BM, INB, MO, PMA), *D. Santamaría 7675* (PMA), *D. Solano 4366* (BM, INB, MO, PMA).

CARYOPHYLLACEAE

Arenaria lanuginosa (Michx.) Rohrb.
Terrestrial herbs. Distribution in PILA 1100–3800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Bolivia, Chile. Records: *A. Fernández 700* (INB), *A.K. Monro 4058* (BM, INB), *A. Soto 259* (INB), *D. Santamaría 5836* (BM, INB, MO, PMA), *G. Davidse 23906* (CR, MO), *G. Davidse 26149* (CR, MO), *G. Davidse 29035* (MO), *G. Herrera 3400* (MO), *F. Quesada 1588* (INB).

Stellaria cuspidata Willd. ex Schtdl.
Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Bolivia. Records: *B.B. Klitgaard 787* (BM, INB, MO), *E. Alfaro 3334* (INB), *G. Davidse 28696* (MO), *G. Herrera 3401* (MO), *G. Herrera 5921* (INB), *F. Quesada 1927* (INB), *S. Knapp 10008* (BM, INB), *S. Knapp 9966* (BM, INB).

Stellaria irazuensis Donn.Sm.
Terrestrial herbs. Distribution in PILA 1500–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *D. Solano 4050* (BM, INB, MO, PMA), *G. Herrera 6011* (INB), *J. F. Morales 5822* (INB), *M. Grayum 10306* (CR, INB, MO).

Stellaria ovata Willd. ex Schtdl.
Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A.K. Monro 6097* (PMA), *J. Lezcano 325* (PMA), *R. Aguilar 1079* (INB, MO).

CELASTRACEAE

Celastrus liebmannii Standl.
Terrestrial shrubs. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *G. Herrera 2827* (MO), *R. Aguilar 1156* (INB, MO).

Crossopetalum enervium Hammel
Terrestrial shrubs or trees. Distribution in PILA 200–2100

m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 4423 (INB), *L. Angulo* 164 (INB).

Crossopetalum parviflorum (Hemsl.) Lundell
(CR), Limoncillo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, sabana natural grassland. Global distribution: Mexico to Panama. Records: *G. Davidse* 23785 (CR, MO). Conservation status: Near Threatened (NT), ver 2.3 (1994).

Euonymus costaricensis Standl.

Terrestrial shrubs or trees. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua, Costa Rica. Records: *A. Rodríguez* 11796 (BM, INB, MO, PMA), *B. Gamboa* 628 (INB), *D. Santamaría* 5915 (BM, INB, MO, PMA), *D. Santamaría* 7231 (BM, INB, MO, PMA), *D. Santamaría* 7264 (BM, INB, MO, PMA), *D. Solano* 5155 (BM, INB, MO, PMA), *D. Solano* 5203 (BM, INB, MO, PMA), *E. Alfaro* 751 (INB), *F. González* 658 (BM, INB, MO, PMA), *G. Dauphin* 1393 (INB), *G. Davidse* 28471 (CR, MO), *L. Acosta* 2404 (INB), *L. Angulo* 171 (CR, INB, MO), *M. Chinchilla* 178 (INB).

ψ ***Maytenus woodsonii*** Lundell

Terrestrial shrubs or trees. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4149 (BM, INB, MO), *D. Solano* 4058 (BM, INB, MO, PMA), *E. Alfaro* 1338 (CR, INB, MO), *E. Alfaro* 4659 (INB), *F. Quesada* 1937 (CR, INB, MO), *L. González* 3634 (INB), *S. Knapp* 9862 (BM, INB). Global conservation status: Endangered (EN), B1ab(i,iii).

Microtropis occidentalis Loes.
Corroncho (CR).

Terrestrial shrubs or trees. Distribution in PILA 500–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *A. Fernández* 659 (CR, INB), *A.K. Monro* 5977 (PMA), *D. Solano* 5390 (PMA), *G. Davidse* 29080 (MO), *G. Herrera* 6105 (CR, INB).

Peritassa pruinosa (Seem.) A.C.Sm.

Terrestrial lianas. Distribution in PILA 400–400 m, low

elevation mixed forest. Global distribution: Guatemala, Costa Rica to Venezuela. Records: *G. Herrera* 2689 (INB).

Salacia petenensis Lundell

Terrestrial trees. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A. De Sedas* 599 (PMA), *C. von Hagen* 2133 (MO), *L. Angulo* 314 (INB).

ψ ***Zinowiewia integerrima*** (Turcz.) Turcz.
Corroncho (CR).

Terrestrial shrubs or trees. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 9851 (INB), *D. Santamaría* 3765 (INB), *M. Alfaro* 40 (INB). Regional conservation status: Near Threatened (NT).

CERATOPHYLLACEAE

Ceratophyllum demersum L.

Aquatic or terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez* 11243 (BM, INB, MO, PMA), *S. Bridgewater* 4159 (BM, INB, MO, PMA).

CHRYSOBALANACEAE

Hirtella triandra Sw.

Chicharrón, Sudor de buey (CR), Camaroncillo, Garrapato, Conejo, Chicharrón, Camaron (P).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Brazil. Records: *A. Chacón* 4 (MO), *S. Bridgewater* 4161 (BM, INB, MO, PMA).

Licania hypoleuca Benth.

Cuero de sapo, Pejibaye colorado, Chozo (CR), Corocillo, Garrapato (P).

Terrestrial trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Costa Rica to Colombia, Peru, Bolivia. Records: *D. Santamaría*, Oct. 22, 2008 (Field obs.), *D. Santamaría*, Oct. 27, 2008 (Field obs.), *D. Santamaría*, Oct. 28, 2008 (Field obs.), *D. Santamaría*, Oct. 29, 2008 (Field obs.).

ψ ***Licania jefensis*** Prance

Terrestrial trees. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global

distribution: Costa Rica, Panama. Records: *G. Herrera* 2696 (INB, MO), *G. Herrera* 3274 (INB, MO). Global conservation status: Vulnerable (VU), B1ab(i,iii).

Licania micrantha Miq.

Terrestrial trees. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Costa Rica to Colombia, Peru, Bolivia. Records: *A. Rodríguez* 11595 (BM, INB, MO, PMA), *G. Herrera* 3344 (INB, MO).

Licania platycalyx (Cuatrec.) Sothers & Pranc.

Terrestrial trees. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *A. Rodríguez* 11570 (BM, INB, MO, PMA), *G. Herrera* 5375 (INB), *R. Aguilar* 1099 (INB), *R. Aguilar* 1133 (INB, MO).

Parinari excelsa Sabine

Tamarindo gigante, Areno, Turrú, Turú, Pejibaye (CR).

Terrestrial trees. Distribution in PILA 0–200 m, low elevation mixed forest. Global distribution: Costa Rica to Colombia, Peru, Bolivia, Tropical Africa. Records: *D. Santamaría*, Oct. 28, 2008 (*Field obs.*). Uses: timber.

CLEOMACEAE

Podandroyne decipiens (Triana & Planch.) Woodson

Terrestrial shrubs. Distribution in PILA 300–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras, Costa Rica to Peru, Venezuela. Records: *A. Fernández* 840 (INB), *A. Soto* 1260 (INB), *D. Santamaría* 7240 (BM, INB, MO, PMA), *D. Santamaría* 7499 (PMA), *E. Mora* 198 (MO), *G. Davidse* 29089 (MO), *G. Herrera* 5998 (CR, INB, MO), *L.D. Gómez* 23167 (MO), *N. Zamora* 4193 (BM, INB, MO, PMA), *N. Zamora* 4229 (BM, INB, MO, PMA), *R. Villalobos* 259 (INB).

Podandroyne formosa Cochrane

Terrestrial shrubs. Distribution in PILA 2500–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25855 (MO).

CLETHRACEAE

Clethra consimilis Sleumer

Terrestrial shrubs. Distribution in PILA 1200–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica,

Panama. Records: *G. Davidse* 28856 (CR, MO).

Clethra formosa E. Alfaro & J.F. Morales

Terrestrial trees. Distribution in PILA 2300–3400 m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 3682 (INB, MO).

□ ***ψ Clethra gelida*** Standl.

Nance (CR).

Terrestrial shrubs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Honduras, Costa Rica, Panama. Records: *S. Knapp* 10009 (BM, INB). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Clethra lanata M. Martens & Galeotti

(CR), Nancito, Nancillo, Nance macho, Mamecillo (P).

Terrestrial shrubs. Distribution in PILA 300–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *E. Alfaro* 4193 (INB), *J. A. Duke* 13618 (MO), *A. Rodríguez* 9807 (INB), *A. Rodríguez* 9824 (INB), *M. Alfaro* 36 (INB), *S. Bridgewater* 4204 (BM, INB, MO, PMA).

Clethra pyrogena Sleumer

Terrestrial trees. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *R. Aguilar* 1124 (INB).

CLUSIACEAE

ψ ***Chrysochlamys allenii*** (Maguire) Hammel

Terrestrial trees. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7082 (BM, INB, PMA), *D. Solano* 5149 (BM, INB, PMA), *D. Solano* 5279 (BM, INB, PMA), *F. González* 478 (INB), *G. Davidse* 28390 (MO), *G. Herrera* 6020 (INB), *F. Quesada* 1662 (INB), *L. Acosta* 2298 (INB). Global conservation status: Vulnerable (VU), B1ab(i,iii).

Chrysochlamys glauca (Oerst. ex Planch. & Triana) Hemsl. Coralillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Nicaragua to Colombia, Venezuela. Records: *A. Rodríguez* 11357 (BM, INB, PMA), *D. Solano* 2907

(INB), *D. Solano 4345* (BM, INB, PMA), *D. Solano 5034* (BM, INB, PMA), *F. Quesada 1652* (INB), *L. Angulo 159* (INB, MO), *M. Alfaro 4* (INB).

Chrysochlamys nicaraguensis (Oerst. ex Planch. & Triana) Hemsl.

Terrestrial shrubs or trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Panama. Records: *A.K. Monro 6372* (PMA), *L. Martínez 367* (PMA).

Chrysochlamys psychotriifolia (Oerst. ex Planch. & Triana) Hemsl.

Sangre de toro (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 604* (PMA), *A.K. Monro 5975* (PMA), *A. Rodríguez 11312* (BM, INB, PMA), *D. Santamaría 6019* (BM, INB, PMA), *D. Santamaría 6581* (BM, INB, PMA), *D. Santamaría 7517* (PMA), *D. Santamaría 7626* (PMA), *D. Solano 5388* (PMA), *D. Solano 5446* (PMA), *E. Alfaro 5425* (BM), *J. Lezcano 304* (PMA), *J. Lezcano 352* (PMA), *R. Aguilar 1135* (INB, MO).

Chrysochlamys silvicola (Hammel) Hammel

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *G. Gallardo 313* (INB).

Chrysochlamys tenuis Hammel

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5900* (BM, INB, PMA), *A.K. Monro 6234* (PMA), *A. Rodríguez 11594* (BM, INB, PMA), *D. Santamaría 6730* (BM, INB, PMA), *D. Solano 4429* (BM, INB, PMA), *D. Solano 4896* (BM, INB, PMA), *G. Herrera 2673* (MO), *L. Martínez 368* (PMA).

Clusia croatii D'Arcy

Hemi-epiphytic shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *A.K. Monro 6032* (PMA), *D. Solano 5498* (PMA), *L.D. Gómez 23252* (MO). Conservation status: Vulnerable (VU), A2c ver 2.3 (1994).

Clusia dukei Maguire

Hemi-epiphytic shrubs. Distribution in PILA 300–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5828* (BM, INB, MO, PMA), *A.K. Monro 5933* (PMA), *E. Alfaro 5450* (BM, INB, MO).

Clusia gracilis Standl.

Hemi-epiphytic shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11282* (BM, INB, MO, PMA), *S. Bridgewater 4135* (BM, INB, MO, PMA).

Clusia multiflora Kunth

Shrubs or epiphytic trees. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera 3686* (INB).

Clusia osseocarpa Maguire

Hemi-epiphytic shrubs. Distribution in PILA 1000–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5188* (MO). Conservation status: Vulnerable (VU), C1 ver 2.3 (1994).

Clusia palmana Standl.

Azahar bejuco, Copey (CR).

Shrubs or epiphytic trees. Distribution in PILA 300–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4455* (BM, INB), *A. Rodríguez 11017* (BM, INB, MO, PMA), *G. Herrera 2676* (MO).

Clusia salvinii Donn.Sm.

Shrubs or epiphytic trees. Distribution in PILA 1200–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *B. Hammel 17610* (MO), *D. Santamaría 7282* (BM, INB, PMA), *E. Alfaro 3699* (INB), *G. Davidse 28661* (MO), *G. Davidse 28787* (MO), *M.A. Thomas 1591* (MO).

***Clusia* sp. B.**

Hemi-epiphytic shrubs. Distribution in PILA 1300–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *R. Aguilar 1150* (INB, MO), *G. Herrera 2675* (CR, MO), *A. Rodríguez*

11518 (CR, INB MO).

The above material was determined as being of a currently undescribed species by Barry Hammel (pers. comm.). This species will be included in the Manual de Plantas de Costa Rica (Hammel *et al.*, in prep.).

***Clusia* sp. C.**

Hemi-epiphytic shrubs. Distribution in PILA 2200–2600 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Bittner* 1783 (CR, INB, MO), *M. Grayum* 10324 (INB, MO), *G. Herrera* 6220 (CR, INB).

The above material was determined as being of a currently undescribed species by Barry Hammel (pers. comm.). This species will be included in the Manual de Plantas de Costa Rica (Hammel *et al.*, in prep.).

***Clusia stenophylla* Standl.**

Copey, Azahar, Azahar de montaña, Azahar de monte (CR).

Hemi-epiphytic shrubs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Belize to Ecuador. Records: *A. Fernández* 986 (CR, INB, MO), *A. Rodríguez* 9753 (INB), *D. Santamaría* 3474 (INB), *D. Santamaría* 3737 (INB), *G. Davidse* 29176 (MO), *R. Aguilar* 1108 (INB, MO).

ε-PILA *Clusia talamancana* Hammel

Terrestrial shrubs or trees. Distribution in PILA 2100–3100 m, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 3236 (INB), *J. Bittner* 1780 (INB, MO), *A. Fernández* 687 (INB), *M. Grayum* 10323 (INB, MO), *G. Herrera* 6167 (INB), *G. Herrera* 6170 (INB).

***Clusia torresii* Standl.**

Shrubs or epiphytic trees. Distribution in PILA 100–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Panama. Records: *A. Fernández* 799 (INB), *B. Hammel* 6158 (MO), *G. Herrera* 3133 (MO), *G. Herrera* 5217 (MO), *G. Herrera* 5447 (INB, MO), *G. Herrera* 5873 (INB, MO), *R. Aguilar* 1158 (INB, MO).

***Clusiella isthmensis* Hammel**

Epiphytic shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *B. Hammel* 17625 (MO), *G. Herrera* 5190 (INB, MO), *G. Herrera* 5422 (INB, MO), *L. Martínez* 417 (PMA).

ψ *Dystovomita paniculata* (Donn. Sm.) Hammel
Mangle colorado (CR).

Terrestrial trees. Distribution in PILA 400–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Peru. Records: *D. Santamaría* 6620 (BM, INB, PMA), *G. Herrera* 2710 (MO). Regional conservation status: Near Threatened (NT).

***Garcinia intermedia* (Pittier) Hammel**

Jorco (CR), Sastra, Satra, Satro, Sastro, Fruta de mono, Chaparrón, Madroño (P).

Terrestrial trees. Distribution in PILA 1100–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 6015 (BM, INB, MO, PMA).

ψ *Garcinia madruno* (Kunth) Hammel

Madroño, Limón de montaña, Manzana amarilla, Jorco, Azufre, Zatra, Manzana (CR), Sastra, Satra, Satro, Sastro, Fruta de mono, Chaparrón, Madroño (P).

Terrestrial trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Bolivia, Venezuela, Guayanas, Brazil. Records: *A. Chacón* 2 (MO). Regional conservation status: Near Threatened (NT).

***Garcinia magnifolia* (Pittier) Hammel**

Satra (CR).

Terrestrial trees. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría*, Oct. 27, 2008 (*Field obs.*), *D. Santamaría*, Oct. 28, 2008 (*Field obs.*).

ψ *Symphonia globulifera* L.f.

Botoncillo, Caraña, Cerillo, Leche amarillo, Amarillo (CR), Cerillo, Cero, Barillo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Argentina, Antilles, tropical Africa. Records: *A. Chacón* 195 (INB, MO), *A.K. Monro* 6288 (PMA), *A. Rodríguez* 11628 (BM, INB, PMA), *D. Solano* 4405 (BM, INB, PMA), *G. Gallardo* 320 (MO), *G. Gallardo* 95 (INB), *F. Quesada* 1660 (INB), *M. Chinchilla* 27 (INB). Uses: timber. Regional conservation status: Near Threatened (NT).

***Tovomita weddelliana* Planch. & Triana**

Mangle blanco, Mangle, Mangle colorado (CR).

Terrestrial shrubs or trees. Distribution in PILA

0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Bolivia, Venezuela, Guayanas, Brazil. Records: *D. Santamaría*, Oct. 22, 2008 (Field obs.), *D. Santamaría*, Oct. 25, 2008 (Field obs.), *D. Santamaría*, Oct. 26, 2008 (Field obs.), *D. Santamaría*, Oct. 28, 2008 (Field obs.), *D. Santamaría*, Oct. 29, 2008 (Field obs.), *D. Santamaría*, Oct. 26, 2007 (Field obs.), *D. Solano*, Oct. 26, 2008 (Field obs.).

COLUMELLIACEAE

Desfontainia splendens Bonpl.

Terrestrial shrubs. Distribution in PILA 2400–2700 m, high elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Chacón* 536 (INB), *A.K. Monro* 5186 (BM, INB, MO), *A. Soto* 280 (INB), *B. Gamboa* 1740 (INB), *E. Alfaro* 1614 (INB, MO), *E. Alfaro* 3223 (INB), *E. Alfaro* 3387 (INB), *E. Alfaro* 3775 (INB), *E. Alfaro* 4692 (INB), *G. Davidse* 23911 (CR, MO), *G. Davidse* 25413 (CR, MO), *G. Davidse* 28581 (CR, MO), *G. Davidse* 28891 (MO), *G. Davidse* 29012 (MO), *G. Davidse* 29306 (CR, MO), *F. Quesada* 1836 (INB), *L. Angulo* 228 (CR, INB, MO), *L.D. Gómez* 22475 (MO), *L. González* 1625 (INB), *L. González* 2477 (INB), *M. Moraga* 399 (INB), *S. Knapp* 9905 (BM, INB).

COMBRETACEAE

Combretum laxum Jacq.

Terrestrial shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Paraguay, Argentina, Greater Antilles. Records: *A.K. Monro* 5988 (PMA), *L. Acosta* 2375 (INB), *L. Acosta* 2379 (INB).

CONVOLVULACEAE

e *Ipomoea batatas* (L.) Lam.

Camote, Arabá (Bribri), Deki (Térraba) (CR).

Terrestrial twiners. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Chile, Venezuela, Trinidad & Tobago, Guayanas, Brazil, Paraguay, Uruguay, Argentina, Antilles, Bahamas, introd. tróps., subtróps. del Viejo Mundo. Records: *D. Solano* 2846 (INB), *D. Solano* 5478 (PMA). Uses: medicinal.

Ipomoea batatoides Choisy

Terrestrial lianas. Distribution in PILA 0–2000 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil, Argentina. Records: *D. Solano* 5250 (BM, INB, PMA), *G. Davidse* 28472 (MO), *F. Quesada* 1726 (INB, MO).

Ipomoea indica (Burm.) Merr.

Terrestrial twiners. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Chile, Venezuela, Guayanas, Brazil, Paraguay, Uruguay, Argentina, Antilles Mayores, Bahamas, tróps. del Viejo Mundo. Records: *B. Hammel* 1998 (MO), *D. Solano* 4388 (BM, INB, PMA), *D. Solano* 4457 (BM, INB, PMA), *F. Quesada* 1703 (INB), *L.D. Gómez* 23313 (MO), *M. M. Chavarria* 736 (INB), *M. Moraga* 416 (INB).

Ipomoea lindenii M.Martens & Galeotti

Terrestrial twiners. Distribution in PILA 200–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru, Venezuela. Records: *A. Soto* 1245 (INB), *B. Gamboa* 646 (INB), *G. Davidse* 28416 (MO), *F. Quesada* 1702 (INB), *R. Villalobos* 266 (CR, INB).

Ipomoea santillanii O'Donell

Terrestrial twiners. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to El Salvador, Nicaragua, Costa Rica. Records: *L.D. Gómez* 23318 (MO).

CORNACEAE

ψ *Cornus disciflora* DC.

Lloró, Llorón (CR).

Terrestrial trees. Distribution in PILA 1300–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *A.K. Monro* 5333 (BM, INB), *A.K. Monro* 5338 (BM, INB, MO), *G. Davidse* 26133 (MO), *L. González* 3640 (INB). Uses: timber. Regional conservation status: Near Threatened (NT).

CUCURBITACEAE

Cayaponia sp. nov.

Terrestrial twiners. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Endemic to Costa Rica. Records: *L. Acosta* 2317 (INB), *E. Alfaro* 2171 (INB), *L. Angulo* 142 (CR, INB).

The above material appears to be conspecific with a currently undescribed species identified by González & Poveda (in press).

Cyclanthera cogniauxii C.E.Jones & Kearns

Terrestrial twiners. Distribution in PILA 1000–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 5661 (BM, INB, MO, PMA), *D. Solano* 4071 (BM, INB, MO, PMA).

Cyclanthera langaei Cogn.

Terrestrial twiners. Distribution in PILA 900–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández* 728 (INB), *D. Santamaría* 5631 (BM, INB, MO, PMA), *D. Solano* 3893 (BM, INB, MO, PMA), *E. Alfaro* 1303 (MO), *E. Alfaro* 3473 (INB), *G. Davidse* 26138 (CR, MO), *G. Davidse* 29155 (MO), *G. Herrera* 5872 (INB), *J. Bittner* 1885 (INB, MO).

Cyclanthera multifoliola Cogn.

Terrestrial twiners. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama, Ecuador, Peru, Brazil. Records: *D. Solano* 4121 (BM, INB, MO, PMA), *G. Davidse* 25215 (MO). Records: *D. Solano* 4121 (BM, INB, MO), *G. Davidse* 25215 (MO).

Gurania coccinea Cogn.

Terrestrial twiners. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Colombia. Records: *D. Solano* 4287 (BM, INB, MO, PMA), *D. Solano* 4529 (BM, INB, MO, PMA).

Gurania makoyana (Lem.) Cogn.

Bejuco de papalomoyo, Pata de danta (CR).

Terrestrial twiners. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *G. Gallardo* 40 (CR).

Gurania tubulosa Cogn.

Terrestrial twiners. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Solano* 4370 (BM, INB, MO, PMA).

Rytidostylis gracilis Hook. & Arn.

Terrestrial twiners. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Mexico to Venezuela. Records: *D. Solano* 5200 (BM, INB, MO, PMA), *J. Dwyer* 466 (MO), *L.D. Gómez* 23309A (MO).

Sechium panamense (Wunderlin) Lira & F.Chiang

Terrestrial lianas. Distribution in PILA 1900–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *Croat* 22403 (MO).

ψ ***Sechium pittieri*** (Cogn.) C.Jeffrey

Tacá, Tacaco cimarrón, Trijonio, Tacaco de monte, Tacaquillo, Pepinillo de monte (CR).

Terrestrial twiners. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11965 (BM, INB, MO, PMA), *C. Hamilton* 3642 (MO), *C. Hamilton* 731 (MO), *D. Santamaría* 7669 (PMA), *D. Solano* 5000 (BM, INB, MO, PMA), *D. Solano* 5384 (PMA), *E. Alfaro* 2177 (CR, INB), *E. Alfaro* 2599 (INB), *E. Alfaro* 750 (INB), *E. Fletes* 181 (INB, MO), *E. Mora* 306 (CR, INB). Regional conservation status: Near Threatened (NT).

Sechium talamancense (Wunderlin) C.Jeffrey

Terrestrial lianas. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *Davidse* 28468 (MO).

Sechium venosum (L.D.Gómez) Lira & F.Chiang

Terrestrial twiners. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 904 (CR, INB), *L.D. Gómez* 23309B (MO), *R. Aguilar* 1089 (INB, MO).

Sicydium schiedeanum Schldl.

Terrestrial twiners. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Costa Rica, Colombia. Records: *G. Herrera* 2685 (INB), *F. Quesada* 1880 (INB), *L. Angulo* 157 (CR, INB).

CUNONIACEAE

Weinmannia balbisiana Kunth

Terrestrial trees. Distribution in PILA 700–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A.K. Monro 4514* (BM, INB), *A.K. Monro 5465* (BM, INB, MO, PMA), *A. Rodríguez 11001* (BM, INB, MO, PMA), *E. Alfaro 3278* (INB), *E. Alfaro 3700* (INB), *G. Davidse 25128* (CR, MO), *G. Davidse 25193* (MO), *G. Davidse 28956* (INB, MO).

Weinmannia burserifolia Standl.

Terrestrial shrubs or trees. Distribution in PILA 700–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Nicaragua to Panama. Records: *A. Fernández 706* (INB, MO), *E. Alfaro 3279* (INB).

ψ *Weinmannia fagaroides* Kunth

Terrestrial shrubs or trees. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Honduras, Costa Rica to Bolivia. Records: *D. Solano 4056* (BM, INB, MO, PMA), *G. Davidse 25856* (CR, MO), *G. Davidse 29309* (CR, MO), *F. Quesada 1819* (INB), *F. Quesada 1992* (INB). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

ψ *Weinmannia karsteniana* Szyszyl.

Terrestrial shrubs or trees. Distribution in PILA 2300–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Venezuela. Records: *N. Zamora, Aug. 5, 2008* (Field obs.). Regional conservation status: Endangered (EN), B1ab(i,iii).

ψ *Weinmannia pinnata* L.

Arrayán, Arrayán blanco, Loro, Lorito, Arrayán colorado (CR).

Terrestrial shrubs or trees. Distribution in PILA 1200–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *B. Gamboa 582* (INB, MO), *G. Davidse 25099* (CR, MO), *G. Gallardo 284* (CR), *J. F. Morales 5817* (CR, MO), *L. González 3600* (INB), *M. Valerio 200* (MO). Uses: timber. Regional conservation status: Near Threatened (NT).

Weinmannia vulcanicola J.F.Morales

Terrestrial shrubs or trees. Distribution in PILA 2300–2700 m, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Chacón 584* (INB, MO), *G. Davidse 28848* (INB, MO), *F. Quesada 1924* (INB).

Weinmannia wercklei Standl.

Arrayán mora, Arrayán (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *R. Aguilar 1114* (INB, MO).

DICHAPETALACEAE

Dichapetalum axillare Woodson

Azulillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Venezuela to Brazil, Greater Antilles, Lesser Antilles. Records: *D. Solano, Oct. 28, 2007* (Field obs.).

□ *Dichapetalum brenesii* Standl.

Terrestrial shrubs or trees. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5878* (BM, INB, PMA), *D. Santamaría 6749* (BM, INB, PMA), *D. Solano 4793* (BM, INB, PMA).

Dichapetalum donnellsmithii Engl.

Terrestrial trees. Distribution in PILA 300–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Colombia. Records: *N. Zamora 2700* (INB).

Dichapetalum odoratum Baill.

Terrestrial lianas. Distribution in PILA 800–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, Venezuela, Brazil. Records: *A.K. Monro 4521* (BM, INB, MO), *A. Rodríguez 11191* (BM, INB, PMA).

Dichapetalum pedunculatum (DC.) Baill.

Terrestrial lianas. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica,

Colombia, Venezuela, Peru, Trinidad, Guyanas, Brazil. Records: *A. Rodríguez 11031* (BM, INB, PMA).

Tapura guianensis Aubl.

Terrestrial trees. Distribution in PILA 500–700 m, low elevation mixed forest. Global distribution: Costa Rica to Peru, Venezuela, Guayanas, Brazil. Records: *G. Herrera 2651* (MO).

DIPENTODONTACEAE

ψ ***Perrottetia longistylis*** Rose

Terrestrial trees. Distribution in PILA 600–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to El Salvador, Honduras, Costa Rica. Records: *A. Rodríguez 10739* (BM, INB, MO, PMA), *J. Bittner 1833* (CR, INB, MO), *F. Quesada 1689* (INB, MO). Regional conservation status: Near Threatened (NT).

ELAEOCARPACEAE

ψ ***Sloanea ampla*** I.M.Johnst.

Peine de mico (CR).

Terrestrial trees. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *D. Solano 3848* (BM, INB, PMA), *L. Acosta 2350* (INB). Regional conservation status: Near Threatened (NT).

Sloanea brenesii Standl.

Terrestrial trees. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *R. Aguilar 1138* (INB, MO).

Sloanea faginea Standl.

Paleta, Peine de mico, Terciopelo, Abrojo (CR).

Terrestrial trees. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *S. Bridgewater 4150* (BM, INB, PMA). Uses: timber.

Sloanea guianensis (Aubl.) Benth.

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Nicaragua, Costa Rica Colombia to Bolivia, Venezuela, Trinidad, Guayanas, Brazil. Records: *G. Herrera 2653* (INB, MO).

Sloanea laevigata D.A.Sm.

Terrestrial trees. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Costa Rica & Ecuador. Records: *G. Herrera 2650* (INB, MO).

Sloanea medusula K.Schum. & Pittier

Mano de león, Abrojo, Güellaperro (CR).

Terrestrial trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Honduras to Costa Rica. Records: *G. Herrera 3142* (MO).

Sloanea meianthera Donn.Sm.

Terrestrial trees. Distribution in PILA 1000–1100 m, mixed forest in transition to low elevation forest. Global distribution: Honduras to Costa Rica. Records: *N. Zamora, Aug. 8, 2008* (Field obs.).

Sloanea zuliaensis Pittier

Abrojo, Gambón (CR), Achotillo, Terciopelo (P).

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica to Peru Venezuela. Records: *A. Rodríguez, Feb. 25, 2007* (Field obs.).

• ε-**PILA *Sloanea herrerae*** Aguilar & D.Santam.

Terrestrial trees. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *B. Hammel 17612* (MO), *G. Herrera 3390* (MO).

ERICACEAE

ψ ***Cavendishia atrovioleacea*** Luteyn

Epiphytic shrubs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10886* (BM, INB, PMA), *A. Rodríguez 11040* (BM, INB, PMA), *D. Solano 4006* (BM, INB, PMA), *E. Alfaro 3636* (INB), *E. Alfaro 3693* (INB), *G. Davidse 25224* (MO), *G. Davidse 28710* (CR, MO), *G. Davidse 28812* (CR, MO), *G. Davidse 28909* (CR, MO), *G. Herrera 5419* (CR, INB), *G. Herrera 5510* (CR), *G. Herrera 5913* (CR, INB), *G. Herrera 6138* (CR, INB, MO), *G. Herrera 6145* (CR, INB), *G. Herrera 6161* (CR, INB, MO), *F. Quesada 1941* (INB), *F. Quesada 1968* (INB). Global conservation status: Vulnerable (VU), B1ab(i, iii).

Cavendishia axillaris A.C.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 400–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5871* (BM, INB, PMA), *A.K. Monro 6335* (PMA).

A. Rodríguez 11338 (BM, INB, PMA), *A. Rodríguez 11574* (BM, INB, PMA), *D. Santamaría 6547* (BM, INB, PMA), *D. Santamaría 7767* (PMA), *D. Santamaría 7829* (PMA), *D. Solano 4693* (BM, INB, PMA), *D. Solano 4802* (BM, INB, MO, PMA), *D. Solano 5488* (PMA), *G. Gallardo 100* (CR, INB), *G. Gallardo 279* (CR, INB), *G. Herrera 5233* (CR, INB, MO), *J. Bittner 1496* (INB), *L.D. Gómez 23283* (MO), *S. Bridgewater 4195* (BM, INB, PMA).

ψ *Cavendishia bracteata* (Ruiz & Pav. ex J.St.-Hil.) Hoerold Arrayan, Clavel georgino, Colmillo, Flor de niño, San Miguel (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 700–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: Mexico to Bolivia, Venezuela. Records: *A.K. Monro 5564* (BM, INB, PMA), *A. Rodríguez 10780* (BM, INB, PMA), *A. Rodríguez 11020* (BM, INB, PMA), *A. Soto 286* (INB), *B. Gamboa 576* (INB, MO), *C. Hamilton 3643* (MO), *D. Santamaría 5699* (BM, INB, PMA), *D. Solano 3217* (INB), *D. Solano 5122* (BM, INB, PMA), *D. Solano 5241* (BM, INB, PMA), *E. Alfaro 3935* (INB), *E. Alfaro 3971* (INB), *G. Davidse 24036* (MO), *G. Davidse 25186* (MO), *G. Davidse 25255* (CR, MO), *G. Davidse 25356* (MO), *G. Davidse 25961* (CR, MO), *G. Davidse 26120* (CR, MO), *G. Davidse 28533* (CR, MO), *G. Davidse 28999* (MO), *G. Davidse 29027* (MO), *G. Davidse 29253* (CR, MO), *G. Davidse 29267* (CR, MO), *G. Herrera 6225* (INB), *J. Aranda 3090* (MO), *J. Aranda 3354* (MO), *F. Quesada 1829* (INB), *F. Quesada 1847* (INB), *F. Quesada 1921* (INB), *L. Angulo 188* (INB), *M.A. Thomas 1680* (MO), *M. Valerio 180* (MO), *M. Valerio 191* (MO), *R. Aguilar 1105* (INB, MO), *S. Knapp 9879* (BM, INB, MO), *S. Knapp 9902* (BM, INB, MO), *S. Knapp 9920* (BM, INB, MO). Regional conservation status: Least Concern (LC).

Cavendishia callista Donn.Sm.
Ariz (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 200–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Nicaragua to Ecuador, Venezuela, Guayanas, Brazil. Records: *A.K. Monro 5831* (BM, INB, PMA), *A. Rodríguez 11581* (BM, INB, PMA), *D. Solano 4654* (BM, INB, PMA), *G. Herrera 5352* (CR, INB), *L. Angulo 174* (INB).

Cavendishia calycina A.C.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *G. Davidse*

25374 (CR, MO).

Cavendishia capitulata Donn.Sm.

Epiphytic shrubs. Distribution in PILA 200–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 4471* (BM, INB), *A.K. Monro 5478* (BM, INB, PMA), *C. Galdames 3390* (MO), *D. Santamaría 5924* (BM, INB, PMA), *G. Davidse 29188* (CR, MO), *G. Gallardo 99* (CR, INB), *H. Schmidt 643* (INB, MO), *L. Martínez 393* (PMA), *L. Martínez 395* (PMA).

Cavendishia chiriquiensis A.C.Sm.

Epiphytic shrubs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10676* (BM, INB, PMA), *A. Rodríguez 11486* (BM, INB, PMA), *G. Herrera 5993* (CR, INB, MO).

Cavendishia ciliata Luteyn

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 4475* (INB).

Cavendishia complectens Hemsl.

Epiphytic shrubs. Distribution in PILA 300–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Peru. Records: *A.K. Monro 6337* (PMA), *L. Martínez 405* (PMA).

Cavendishia confertiflora A.C.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1200–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano 4027* (BM, INB, PMA).

ε-PILA *Cavendishia davidsei* Luteyn

Epiphytic shrubs. Distribution in PILA 2000–2800 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Soto 301* (INB), *G. Davidse 25736* (INB, MO), *G. Davidse 26204* (MO), *G. Davidse 28552* (MO), *G. Davidse 28601* (CR, MO), *J. F. Morales 5795* (INB), *J. F. Morales 5800* (INB).

Cavendishia endresii Hemsl.

Colmillo (CR).

Terrestrial or facultative epiphytic shrubs. Distribution

in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 1026* (INB), *A. Rodríguez 9828* (INB), *B. Gamboa 577* (CR, INB, MO), *D. Solano 5144* (BM, INB, PMA), *D. Solano 5287* (BM, INB, PMA), *F. Solís 19* (CR, INB, MO), *G. Herrera 6200* (CR, INB), *L. González 1205* (INB), *L. González 3641* (INB), *S. Bridgewater 4196* (BM, INB, PMA).

ε-PILA *Cavendishia gomezii* Luteyn

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 2400–2900 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *G. Davidse 25472* (MO), *G. Davidse 25149* (MO), *L.D. Gómez 22378* (MO), *L.D. Gómez 22385* (MO, NY), *L.D. Gómez 22393* (MO).

ε-PILA *Cavendishia limonensis* Luteyn

Epiphytic shrubs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Endemic to Costa Rica. Records: *F. Solís 37* (CR, INB), *G. Herrera 3321* (INB).

ε-PILA *Cavendishia luteynii* J.F.Morales

Epiphytic shrubs. Distribution in PILA 2000–2200 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10884* (BM, INB, PMA), *A. Rodríguez 11009* (BM, INB, PMA), *G. Herrera 6140* (CR, INB), *J. Bittner 1820* (INB).

Cavendishia megabracteata Luteyn

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse 28726* (MO), *J. Luteyn 4594* (MO), *R. J. Schmalzel 1640* (MO).

Cavendishia melastomoides (Klotzsch) Hemsl.

Epiphytic shrubs. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5695* (BM, INB, PMA), *D. Solano 3902* (BM, INB, PMA), *D. Solano 4784* (BM, INB, PMA), *D. Solano 4908* (BM, INB, PMA).

Cavendishia quercina A.C.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1200–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 3483* (INB), *E. Alfaro 3811* (INB), *E. Alfaro*

4609 (INB), *E. Alfaro 5585* (BM, INB), *G. Davidse 25356* (CR, MO).

Cavendishia quereme (Kunth) Benth. & Hook.
Colmillo (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 4447* (BM, INB), *A.K. Monro 5571* (BM, INB, PMA), *A. Rodríguez 11301* (BM, INB, PMA), *A. Rodríguez 11382* (BM, INB, PMA), *A. Rodríguez 11665* (BM, INB, PMA), *D. Solano 4176* (BM, INB, PMA), *D. Solano 5369* (PMA), *G. Herrera 6118* (CR, INB, MO), *J. Lezcano 351* (PMA), *L.D. Gómez 23278* (MO), *L.D. Gómez 23299* (MO).

Cavendishia talamancensis Luteyn

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1500–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro 3281* (INB).

Chimaphila maculata (L.) Pursh

Terrestrial herbs. Distribution in PILA 1800–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Panama. Records: *B. Gamboa 599* (CR, INB, MO), *E. Alfaro 3215* (INB), *G. Davidse 25497* (MO), *G. Davidse 25713* (CR), *G. Davidse 28562* (MO), *G. Davidse 23969* (MO), *J. F. Morales 5803* (CR, INB, MO), *F. Quesada 1612* (INB), *L. Angulo 263* (CR, INB), *M.A. Thomas 1677* (MO), *M. Moraga 430* (CR, INB, MO).

ψ *Comarostaphylis arbutoides* Lindl.

Arrayán (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 1852* (CR, INB, MO), *A.K. Monro 4171* (BM, MO), *A.K. Monro 5293* (BM, INB, MO), *A.K. Monro 5354* (BM, INB, MO), *A. Rodríguez 10307* (INB), *B.B. Klitgaard 739* (BM, MO), *B.B. Klitgaard 758* (MO), *D. Santamaría 3473* (INB), *D. Santamaría 3767* (INB), *D. Santamaría 4460* (INB), *D. Solano 2884* (INB), *E. Alfaro 1334* (INB), *E. Alfaro 3382* (INB), *G. Davidse 23934* (CR, MO), *G. Davidse 25509* (CR, MO), *G. Davidse 26055* (CR, MO), *G. Davidse 26110* (MO), *L. Angulo 260* (CR, INB, MO), *L.D. Gómez 22468* (MO), *S. Knapp 9858* (BM, MO). Regional conservation status: Near Threatened (NT).

Didonica pendula Luteyn & Wilbur

Epiphytic shrubs. Distribution in PILA 600–2600 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 5757 (BM, INB, PMA), *G. Herrera* 6227 (INB), *L. Martínez* 403 (PMA).

ε-PILA *Disterigma hammelii* Wilbur & Luteyn

Terrestrial shrubs. Distribution in PILA 2100–2200 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *B. Hammel* 7390 (Duke).

ψ *Disterigma humboldtii* (Klotzsch.) Nied.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica to Peru, Venezuela, Guyana. Records: *A. Chacón* 526 (MO), *A.K. Monro* 5202 (BM, INB, MO), *A.K. Monro* 5758 (BM, INB, PMA), *A. Soto* 262 (INB), *C. Galdames* 3400 (MO), *D. Solano* 4829 (BM, INB, PMA), *E. Alfaro* 1320 (INB), *E. Alfaro* 3287 (INB, MO), *E. Alfaro* 3384 (INB, MO), *E. Alfaro* 3645 (INB), *E. Alfaro* 3715 (INB, MO), *E. Alfaro* 3776 (INB, MO), *E. Alfaro* 3951 (INB, MO), *E. Alfaro* 3965 (INB, MO), *E. Alfaro* 4694 (INB), *G. Davidse* 23845 (CR), *G. Davidse* 23897 (CR, MO), *G. Davidse* 23908 (CR, MO), *G. Davidse* 25328 (CR, MO), *G. Davidse* 25977 (CR, MO), *G. Davidse* 28569 (CR, MO), *G. Davidse* 28698 (MO), *G. Davidse* 28709 (CR, MO), *G. Davidse* 28754 (MO), *G. Davidse* 29033 (MO), *G. Davidse* 29281 (CR, MO), *G. Herrera* 5940 (CR, INB), *G. Herrera* 5987 (CR, INB, MO), *J. Bittner* 1815 (INB), *F. Quesada* 1830 (INB), *L. Angulo* 227 (INB, MO), *L. González* 2488 (INB), *M. Moraga* 381 (INB), *S. Knapp* 9878 (BM, INB, MO), *S. Knapp* 9977 (BM, INB). Regional conservation status: Near Threatened (NT), B1ab(i).

Disterigma pilosum Wilbur

Epiphytic shrubs. Distribution in PILA 2300–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 28937 (CR, INB, MO), *J. F. Morales* 5801 (INB), *J. F. Morales* 5818 (CR, MO), *M.A. Thomas* 1630 (MO).

Disterigma trimerum Wilbur & Luteyn

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10831 (BM, INB, PMA), *D. Solano* 4054 (BM, INB, PMA), *J. Bittner* 1816 (INB), *R. Aguilar* 1157 (INB).

Gaultheria erecta Vent.

Borrachera (CR).

Facultatively epiphytic herbs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Venezuela, Guyana, Brazil, Argentina. Records: *A. Rodríguez* 9770 (INB), *A. Rodríguez* 9823 (INB), *A. Soto* 1228 (INB), *B. Gamboa* 578 (INB, MO), *D. Santamaría* 3469 (INB), *D. Santamaría* 3754 (INB), *D. Solano* 2886 (INB), *D. Solano* 5118 (BM, INB, PMA), *D. Solano* 5285 (BM, INB, PMA), *E. Alfaro* 1626 (INB), *G. Davidse* 26212 (MO), *G. Davidse* 23910 (MO), *G. Davidse* 26128 (MO), *G. Davidse* 28660 (CR, MO), *F. Quesada* 1946 (INB, MO), *L. Angulo* 187 (INB, MO), *L. Angulo* 225 (CR, INB, MO), *N. Zamora* 4135 (BM, INB, PMA).

Gaultheria gracilis Small

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 686 (CR, INB, MO), *A.K. Monro* 5490 (BM, INB, PMA), *A. Rodríguez* 10843 (BM, INB, PMA), *A. Soto* 257 (INB), *B. Gamboa* 1234 (INB, MO), *B. Gamboa* 1719 (INB, MO), *D. Santamaría* 6708 (BM, INB, PMA), *D. Solano* 4011 (BM, INB, PMA), *E. Alfaro* 3227 (INB), *E. Alfaro* 3946 (INB), *E. Alfaro* 4612 (INB), *G. Davidse* 23910 (CR, MO), *G. Davidse* 25112 (CR, MO), *G. Davidse* 25868 (CR, MO), *G. Davidse* 25925 (CR, MO), *G. Davidse* 28846 (CR, MO), *G. Davidse* 28982 (MO), *G. Herrera* 3259 (INB, MO), *J. Bittner* 1819 (INB), *F. Quesada* 1840 (INB), *F. Quesada* 1903 (INB), *F. Quesada* 1908 (INB), *L. Angulo* 192 (INB, MO), *L. González* 2013 (INB), *M.A. Thomas* 1644 (MO), *M. Moraga* 371 (INB), *S. Knapp* 9888 (BM, INB, MO).

Gonocalyx almedae Luteyn

Epiphytic shrubs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 5925 (BM, INB, PMA), *G. Herrera* 5270 (CR, MO).

Lateropora ovata A.C. Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *H. Schmidt* 642 (INB), *J. Luteyn* 4621 (MO).

Macleania rupestris (Kunth) A.C. Sm.

Colmillos, Muelas (CR).

Terrestrial or facultative epiphytic shrubs. Distribution

in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A.K. Monro* 5343 (BM, INB), *A. Soto* 271 (INB), *B. Gamboa* 1743 (INB), *D. Solano* 5114 (BM, INB, PMA), *D. Solano* 5233 (BM, INB, PMA), *E. Alfaro* 1342 (INB, MO), *E. Alfaro* 3793 (INB), *G. Davidse* 23915 (CR, MO), *G. Davidse* 23967 (CR, MO), *F. Quesada* 1603 (INB, MO), *F. Quesada* 1615 (INB, MO), *F. Quesada* 1838 (INB), *S. Knapp* 10051 (BM, MO), *S. Knapp* 9838 (BM, INB), *S. Knapp* 9954 (BM, INB), *T. Croat* 26952 (MO), *W. H. Lewis* 550 (MO). Uses: food.

***Monotropa uniflora* L.**

Terrestrial herbs. Distribution in PILA 1200–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: North, Central and South America, Asia. Records: *A. Fernández* 1045 (INB), *A. Fernández* 981 (INB), *A. Rodríguez* 11854 (BM, INB, PMA), *B. Gamboa* 573 (CR, INB, MO), *E. Alfaro* 3372 (INB), *G. Davidse* 25690 (MO), *G. Davidse* 28464 (MO), *G. Herrera* 6049 (INB, MO), *J. F. Morales* 5805 (INB), *L. González* 1183 (INB), *M. Moraga* 463 (INB), *S. Knapp* 1503 (MO).

ψ ***Pernettya prostrata* (Cav.) DC.**

Arrayán (CR).

Terrestrial shrubs. Distribution in PILA 1100–3800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Bolivia, Venezuela, Argentina. Records: *A. Fernández* 683 (CR, INB, MO), *A.K. Monro* 4077 (BM, INB, MO), *A.K. Monro* 5158 (BM, INB, MO), *A. S. Weston* 10170 (MO), *A. S. Weston* 10195 (MO), *E. Alfaro* 3258 (INB, MO), *G. Davidse* 25352 (CR, MO), *G. Davidse* 25912 (CR, MO), *G. Davidse* 25935 (MO), *G. Davidse* 26050 (CR, MO), *G. Davidse* 28590 (CR, MO), *G. Davidse* 29314 (CR, MO), *G. Davidse* 29402 (CR, MO), *J. Bittner* 1817 (INB), *J. Bittner* 1818 (INB), *F. Quesada* 1798 (INB), *F. Quesada* 1950 (INB, MO), *L. Angulo* 196 (INB, MO), *L.D. Gómez* 22470 (MO), *L. González* 2505 (INB), *M.A. Thomas* 1543 (MO), *M. Moraga* 400 (INB), *S. Knapp* 9852 (BM, INB, MO), *S. Knapp* 9894 (BM, INB, MO), *S. Knapp* 9936 (MO). Uses: Colouring agent. Regional conservation status: Near Threatened (NT).

***Psammisia ramiflora* Klotzsch**

Colmillos (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 600–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in

transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 930 (CR, INB, MO), *A.K. Monro* 4434 (BM, INB), *A.K. Monro* 5057 (BM, INB), *B. Hammel* 1467 (MO), *E. Alfaro* 5587 (BM, INB), *F. Almeda* 3494 (MO), *G. Herrera* 5979 (INB, MO), *G. McPherson* 15894 (MO), *J. Averett* 1083 (MO), *K. Sytsma* 4933 (MO).

***Psammisia ulbrichiana* Hoerold**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1000–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *E. Alfaro* 3702 (INB).

***Psammisia williamsii* A.C.Sm.**

Epiphytic shrubs. Distribution in PILA 600–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano* 5455 (PMA).

***Satyria allenii* A.C.Sm.**

Epiphytic tree. Distribution in PILA 800–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5793 (BM, INB, PMA), *A.K. Monro* 5872 (BM, INB, PMA), *D. Santamaria* 6551 (BM, INB, PMA), *D. Solano* 4804 (BM, INB, PMA).

***Satyria meiantha* Donn.Sm.**

Epiphytic shrubs. Distribution in PILA 1100–1600 m, mixed forest in transition to low elevation forest, pasture. Global distribution: Guatemala to Costa Rica. Records: *F. González* 342 (INB).

Revisar quién determino la muestra, esa especie hasta el momento no es conocida de la Cordillera de Talamanca.

***Satyria panurensis* Benth. & Hook.f.**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Nicaragua to Ecuador, Venezuela, Guyanas, Brazil. Records: *S. Bridgewater* 4201 (BM, INB, PMA).

Cambie los autores según IPNI.

ψ ***Satyria warszewiczii* Klotzsch**

Arrayán, Colmillos, Coral, Coralillo, Matapalo de uva, Palo de miel, Uva de montaña, Palo de uva, Quiquicirri (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in

in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Mexico to Peru, Venezuela. Records: *A. Fernández* 995 (CR, INB), *A.K. Monro* 4337 (BM, INB), *A.K. Monro* 6003 (PMA), *A. Rodríguez* 11844 (BM, INB, PMA), *A. Rodríguez* 9829 (INB), *A. Soto* 1227 (INB), *C. Hamilton* 3634 (MO), *D. Santamaría* 5712 (BM, INB, PMA), *D. Santamaría* 6710 (BM, INB, PMA), *D. Santamaría* 7488 (PMA), *D. Solano* 3912 (BM, INB, PMA), *D. Solano* 4155 (BM, INB, PMA), *D. Solano* 4668 (BM, INB, PMA), *D. Solano* 5109 (BM, INB, PMA), *D. Solano* 5508 (PMA), *G. Davidse* 25235 (CR, MO), *G. Davidse* 25240 (CR, MO), *G. Davidse* 28721 (CR, MO), *G. Herrera* 2809 (MO), *G. Herrera* 6193 (CR, INB, MO). Regional conservation status: Near Threatened (NT).

ψ *Sphyrospermum buxifolium* Poepp. & Endl.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Guatemala to Bolivia, Venezuela, Guyana, French Guyana. Records: *A.K. Monro* 4285 (BM, INB), *A.K. Monro* 4954 (MO), *A. Soto* 269 (INB), *D. Santamaría* 7523 (PMA), *D. Solano* 4717 (BM, INB, PMA), *G. Herrera* 5937 (CR, INB), *L.D. Gómez* 23142 (MO), *L.D. Gómez* 23242 (MO), *S. Knapp* 9892 (MO). Regional conservation status: Near Threatened (NT).

Sphyrospermum cordifolium Benth.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to French Guiana, Bolivia, Greater Antilles. Records: *A. Fernández* 790 (CR, INB), *A. Rodríguez* 10608 (BM, INB, PMA), *A. Rodríguez* 10757 (BM, INB, PMA), *A. Rodríguez* 10852 (BM, INB, PMA), *A. Rodríguez* 11029 (BM, INB, PMA), *E. Alfaro* 3290 (INB), *E. Alfaro* 3335 (INB, MO), *G. Davidse* 25260 (CR), *G. Davidse* 29022 (MO), *G. Davidse* 29198 (MO), *G. Herrera* 6087 (CR, INB, MO), *J. Bittner* 1814 (INB), *F. Quesada* 1607 (INB, MO), *M. Grayum* 10339 (INB, MO).

Sphyrospermum dissimile (S.F.Blake) Luteyn

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 600–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Peru. Records: *A.K. Monro* 6340 (PMA), *A. Rodríguez* 11535 (BM, INB, MO, PMA), *D. Solano* 4682 (BM, INB, PMA), *D. Solano* 4889 (BM, INB, PMA), *E. Alfaro* 3792 (INB).

Sphyrospermum standleyi A.C.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 6342 (PMA), *R. Aguilar* 1123 (INB, MO).

Themistoclesia costaricensis Luteyn & Wilbur

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 10708 (BM, INB, PMA), *A. Rodríguez* 10847 (BM, INB, PMA), *D. Solano* 3980 (BM, INB, PMA), *M. Grayum* 10338 (CR, INB, MO).

Themistoclesia horquetensis Luteyn & Wilbur

Epiphytic shrubs. Distribution in PILA 2000–2800 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 29060 (INB, MO).

Themistoclesia pentandra Sleumer

Epiphytic shrubs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 5931 (CR, INB).

Themistoclesia smithiana (Standl.) Sleumer

Epiphytic shrubs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5760 (BM, INB, PMA), *A. Rodríguez* 10707 (BM, INB, PMA), *A. Rodríguez* 11012 (BM, INB, PMA), *A. Soto* 288 (INB), *D. Santamaría* 5651 (BM, INB, PMA), *D. Santamaría* 6654 (BM, INB, PMA), *D. Solano* 4190 (BM, INB, PMA), *D. Solano* 4706 (BM, INB, PMA), *D. Solano* 4758 (BM, INB, PMA), *G. Herrera* 5434 (CR, INB, MO), *G. Herrera* 5915 (CR, INB, MO), *G. Herrera* 6191 (CR, INB).

Thibaudia costaricensis Hoerold

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras, Costa Rica, Panama. Records: *A. De Sedas* 554 (PMA), *A. Fernández* 737 (CR, INB, MO), *A.K. Monro* 5605 (BM, INB, PMA), *A.K. Monro* 5990 (PMA), *A.K. Monro* 6022 (PMA), *A. Rodríguez* 10872 (BM, INB, PMA), *D. Santamaría* 5861 (BM, INB, MO, PMA), *D. Solano* 4083 (BM, INB, MO, PMA), *D. Solano* 5506 (PMA), *G. Herrera* 5356 (CR, INB, MO), *G. Herrera*

5929 (CR, INB, MO).

ε-PILA *Vaccinium bocatorensis* Wilbur

Epiphytic shrubs. Distribution in PILA 2100–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Panama. Records: *L.D. Gómez* 22368 (DUKE, MO).

ψ *Vaccinium consanguineum* Klotzsch

Arrayán, Madroño de potrero, Madroño (CR).

Terrestrial shrubs or trees. Distribution in PILA 600–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Honduras, Costa Rica, Panama. Records: *A. Chacón* 487 (INB, MO), *A. Chacón* 565 (INB), *A. Fernández* 1850 (CR, INB, MO), *A.K. Monro* 4168 (MO), *A. S. Weston* 10140 (MO), *B. Gamboa* 1739 (INB, MO), *B. Gamboa* 586 (CR, INB, MO), *B.B. Klitgaard* 725 (MO), *B.B. Klitgaard* 750 (MO), *B.B. Klitgaard* 759 (MO), *E. Alfaro* 3228 (INB), *E. Alfaro* 3364 (INB), *E. Alfaro* 4693 (INB), *G. Davidse* 23844 (CR, MO), *G. Davidse* 24034 (MO), *G. Davidse* 24751 (MO), *G. Davidse* 25305 (CR, MO), *G. Davidse* 25355 (CR, MO), *G. Davidse* 25492 (MO), *G. Davidse* 25900 (INB, MO), *G. Davidse* 25937 (CR, MO), *G. Davidse* 26121 (MO), *G. Davidse* 26142 (CR, MO), *G. Davidse* 28613 (CR, MO), *G. Davidse* 29301 (CR, MO), *F. Quesada* 1548 (INB), *L.D. Gómez* 22462 (MO), *L.D. Gómez* 22466 (MO), *L. González* 1219 (INB, MO), *L. González* 3628 (INB), *M. Valerio* 161 (MO), *N. Zamora* 4155 (BM, INB, PMA), *N. Zamora* 4158 (BM, INB, PMA), *S. Knapp* 9875 (MO), *S. Knapp* 9951 (MO), *S. Knapp* 9981 (MO), *S. Knapp* 9887 (MO). Regional conservation status: Near Threatened (NT).

***Vaccinium costaricense* Wilbur & Luteyn**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 3655 (INB).

***Vaccinium floccosum* (L.O. Williams) Wilbur & Luteyn**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1000–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Luteyn* 4600 (MO).

***Vaccinium floribundum* Kunth**

Terrestrial shrubs. Distribution in PILA 1900–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia, Venezuela, Argentina. Records: *A.K. Monro* 4168 (BM, INB), *A.K. Monro* 5151 (BM, INB), *A.K. Monro* 5296 (BM, INB, MO), *D. Solano*

3214 (INB), *D. Solano* 5120 (BM, INB, PMA), *D. Solano* 5222 (BM, INB, PMA), *D. Solano* 5229 (BM, INB, MO, PMA), *E. Alfaro* 3303 (INB), *E. Alfaro* 3304 (INB), *E. Alfaro* 3773 (INB), *E. Alfaro* 3948 (INB), *G. Davidse* 25979 (CR, MO), *G. Davidse* 29302 (CR, MO), *G. Davidse* 23856 (MO), *F. Quesada* 1813 (INB), *S. Knapp* 9840 (BM, INB), *S. Knapp* 9887 (BM, INB).

***Vaccinium furfuraceum* Wilbur & Luteyn**

Terrestrial lianas. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 3286 (INB, MO).

***Vaccinium poasanum* Donn.Sm.**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Guatemala to Panama. Records: *A. Chacón* 499 (MO), *A. Fernández* 1853 (INB, MO), *A. Rodríguez* 10709 (BM, INB, PMA), *A. Rodríguez* 10855 (BM, INB, PMA), *A. Soto* 337 (INB), *B. Gamboa* 1201 (INB, MO), *D. Santamaría* 5646 (BM, INB, PMA), *D. Santamaría* 5700 (BM, INB, PMA), *D. Solano* 3922 (BM, INB, PMA), *E. Alfaro* 3365 (INB), *G. Davidse* 25129 (CR, MO), *G. Davidse* 28536 (CR, MO), *G. Davidse* 28717 (CR, MO), *G. Davidse* 28891A (MO), *G. Davidse* 29072 (MO), *G. Davidse* 29252 (MO), *G. Herrera* 3404 (MO), *G. Herrera* 3629 (MO), *G. McPherson* 15881 (MO), *J. Bittner* 1799 (INB), *F. Quesada* 1916 (INB, MO), *F. Quesada* 1979 (CR, INB, MO), *M. Grayum* 10326 (CR, INB, MO), *R. Aguilar* 1154 (INB, MO).

ERYTHROXYLACEAE

***Erythroxylum macrophyllum* Cav.**

Alcarreto (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil, Lesser Antilles. Records: *G. Herrera* 3043 (MO).

ESCALLONIACEAE

ψ *Escallonia myrtilloides* L.f.

Arrayán amarillo, Cipresillo, Cipreso, Güitemonte, Madroño, Carnitora (CR).

Terrestrial shrubs or trees. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia, Venezuela, Argentina. Records: *A.K. Monro* 4110 (BM, INB, MO), *A.K. Monro* 5262 (BM, INB, MO), *A.K. Monro* 5339 (BM, INB, MO),

E. Alfaro 1336 (INB, MO), *L.D. Gómez 22464* (MO), *M.A. Thomas 1633* (MO). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

EUPHORBIACEAE

Acalypha costaricensis (Kuntze) Knobl. ex Pax & K.Hoffm. Terrestrial herbs or shrubs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Honduras, Costa Rica Panama. Records: *G. Herrera 3085* (MO).

ψ *Acalypha diversifolia* Jacq. (CR), Palito feo, Prende-prende (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil. Records: *A.K. Monro 5094* (BM, INB, MO), *A.K. Monro 5955* (PMA). Regional conservation status: Least Concern (LC).

Acalypha macrostachya Jacq.

Ortiga (CR), Moco de pavo, Rabo de gato (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Bolivia Venezuela, Guyana, Surinam, Brazil. Records: *D. Santamaría 6230* (BM, INB, PMA), *D. Solano 4298* (BM, INB, PMA), *D. Solano 4383* (BM, INB, PMA), *D. Solano 5022* (BM, INB, PMA).

ψ *Adenophaedra grandifolia* (Klotzsch) Müll.Arg.

Terrestrial shrubs or trees. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru, Venezuela, Guyanas. Records: *A.K. Monro 6346* (PMA), *D. Santamaría 6504* (BM, INB, MO, PMA), *G. Gallardo 314* (INB, MO), *G. Gallardo 87* (CR, INB, MO). Regional conservation status: Near Threatened (NT).

Alchornea glandulosa Poepp.

Terrestrial trees. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica to Bolivia, Venezuela, Brazil, Paraguay, Argentina. Records: *A. Rodríguez 11902* (BM, INB, MO, PMA), *D. Santamaría 7056* (BM, INB, MO, PMA).

Alchornea guatemalensis Lundell

Terrestrial trees. Distribution in PILA 1700–2100 m, cloud forest, low elevation oak forest. Global distribution:

Guatemala., Costa Rica. Records: *A. Rodríguez, Feb. 20 2007* (Field obs.), *A. Rodríguez, Feb. 23, 2008* (Field obs.), *A. Rodríguez, March, 2007* (Field obs.), *A. Rodríguez, March 3, 2007* (Field obs.).

ψ *Alchornea latifolia* Sw.

Caneliti, Chapaneo, Chasparrio, Chayote, Peine tabaquillo, Chasparria, Espino blanco (CR), Achotillo (P).

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Bolivia, Venezuela, Brazil, Antilles. Records: *A.K. Monro 5631* (BM, INB, MO, PMA), *D. Santamaría 7498* (PMA), *D. Solano 3875* (BM, INB, MO, PMA), *E. Navarro 23* (MO), *J. González 783* (CR, INB, MO), *J. González 802* (CR, INB, MO). Regional conservation status: Near Threatened (NT).

Bernardia macrophylla Standl.

Terrestrial shrubs. Distribution in PILA 1300–1900 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11865* (BM, INB, MO, PMA).

Cleidion castaneifolium Müll.Arg.

Hojancha, Hoja ancha, Alchornea (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Mexico, Belize, Guatemala, Nicaragua to Panama, Ecuador, Peru, Venezuela. Records: *G. Herrera 3115* (MO), *G. Herrera 3117* (CR, MO).

ψ *Croton draco* Schltld.

Targuá, Tataraguá, Targuá colorado (CR), Sangrillo, Sangare, Sangre de drago, Algodoncillo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *D. Santamaría 3519* (INB), *E. Navarro 19* (MO), *González 807* (MO).

Croton megistocarpus J.A.González & L.J.Poveda

Terrestrial shrubs or trees. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez, Jul. 25, 2007* (Field obs.).

Croton niveus Jacq.

Copalchí, Colpachí, Meusche, Colpache (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico

to Colombia, Venezuela, Antilles. Records: *D. Santamaria* 4394 (INB), *E. Alfaro* 4191 (INB).

Croton schiedeana Schltldl.

Copalchí, Colpachí de montaña, Quizarrá, Colpache (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil. Records: *A.K. Monro* 6385, *A. Rodríguez*, Jul. 21, 2007 (Field obs.), *A. Rodríguez*, Jul. 23, 2007 (Field obs.), *D. Solano* 5885 (BM, INB, MO).

Dysopsis paucidentata (Müll.Arg.) Lozano & J.Murillo

Terrestrial herbs. Distribution in PILA 2600–2900 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *E. Alfaro* 3714 (INB), *G. Davidse* 28697 (CR, MO), *B. Gamboa* 1228 (INB, MO), *A.K. Monro* 5254 (BM, INB, MO), *A.K. Monro* 5274 (BM), *A.K. Monro* 4143 (BM, INB, MO, PMA), *A. Rodríguez* 10596 (BM, INB, MO, PMA), *D. Solano* 4007 (BM, INB, MO, PMA).

ψ *Gymnanthes riparia* (Schltldl.) Klotzsch

Marío (CR).

Terrestrial trees. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to Panama. Records: *A.K. Monro* 5103 (BM, INB), *A.K. Monro* 6105 (PMA). Regional conservation status: Vulnerable (VU), A2c.

e ***Ricinus communis*** L.

Higuerilla, Higuerilla blanca, Higuerilla roja, Castor, Sii+krá (Brunka) (CR).

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: E. Africa, naturalised Worldwide in the Tropics. Records: *C. Hamilton* 748 (MO). Uses: Agroforestería, colouring, Forraje, cellulose, medicinal.

ψ *Sapium glandulosum* (L.) Morong

Yos (CR), Olivo (P).

Terrestrial trees. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Bolivia, Venezuela, Trinidad & Tobago, Guayanas, Brazil, Paraguay, Uruguay, Argentina, Lesser Antilles. Records: *J. González* 815 (INB, CR, MO). Regional conservation status: Least Concern (LC).

Sapium macrocarpum Müll.Arg.

Yos, Lechillo (CR).

Terrestrial trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Costa Rica. Records: *A. Rodríguez*, Feb. 25, 2007 (Field obs.), *A. Rodríguez*, March 3, 2007 (Field obs.), *A. Rodríguez*, Sept 28, 2007 (Field obs.), *D. Solano*, Feb. 23 2007 (Field obs.), *D. Solano*, Feb. 24 2007 (Field obs.), *D. Solano*, Oct. 24, 2007 (Field obs.), *D. Solano*, Oct. 25, 2007 (Field obs.).

Sapium rigidifolium Huft

Yos (CR).

Terrestrial trees. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *J. González* 824 (CR, MO).

ψ *Tetrorchidium euryphyllum* Standl.

Terrestrial trees. Distribution in PILA 300–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *D. Santamaria*, Oct. 27, 2008 (Field obs.), *D. Santamaria*, Oct. 28, 2008 (Field obs.), *D. Santamaria*, Oct. 29, 2008 (Field obs.), *A. Rodríguez*, Sept 28, 2007 (Field obs.), *A. Rodríguez*, Sept 29, 2007 (Field obs.), *D. Santamaria*, Oct. 24, 2007 (Field obs.), *D. Santamaria*, Oct. 26, 2007 (Field). Regional conservation status: Least Concern (LC).

FABACEAE

ψ *Abarema idiopoda* (S.F.Blake) Barneby & J.W.Grimes
Cashá, Espino blanco, Espino, Espino amarillo (CR).

Terrestrial trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Mexico to Panama. Records: *A. Chacón* 256 (CR, INB), *D. Solano* 3178 (INB). Uses: timber. Regional conservation status: Near Threatened (NT).

Bauhinia reflexa Schery

Terrestrial lianas. Distribution in PILA 200–200 m, low elevation mixed forest. Global distribution: Panama, Colombia. Records: *G. Herrera* 3086 (MO).

Caesalpinia urophylla (Donn.Sm.) Standl.

Terrestrial lianas. Distribution in PILA 1300–1700 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *F. González*

809 (CR, INB, MO).

Calliandra trinervia Benth.

Terrestrial shrubs or trees. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Colombia, Ecuador, Brazil, Bolivia. Records: *A.K. Monro 4876* (BM, INB, MO).

Calopogonium galactioides (Kunth) Benth. ex Hemsl.
Frijolillo (CR).

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Nicaragua, Costa Rica, Colombia to the Guyanas, Brazil, Argentina. Records: *N. Zamora, Jul. 29, 2008 (Field obs.)*.

Canavalia oxyphylla Standl. & L.O. Williams

Terrestrial twiners. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Venezuela. Records: *D. Solano 4919* (BM, INB, MO, PMA), *E. Alfaro 3745* (INB), *N. Zamora 2329* (INB).

Centrosema plumieri (Turpin ex Pers.) Benth.
Gallinita (CR).

Terrestrial twiners. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles, naturalised Old World Tropics. Records: *L.D. Gómez 23312* (MO).

ψ ***Cojoba costaricensis*** Britton & Rose

Cocobolo, Conchudo, Lorito, Cocobola (CR).

Terrestrial trees. Distribution in PILA 800–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4129* (BM, INB, MO, PMA), *D. Solano 4167* (BM, INB, MO, PMA), *G. Herrera 5969* (CR, INB), *R. Aguilar 1137* (INB, MO). Uses: timber. Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Cojoba membranacea (Benth.) L.Rico

Terrestrial trees. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5045* (BM, INB, MO).

Cojoba rufescens (Benth.) Britton & Rose
(CR), Coralillo, Harino (P).

Terrestrial trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica to Ecuador. Records: *D. Solano 5040* (BM, INB, MO, PMA). Conservation status: Least Concern, ver 2.3 (1994).

Cojoba sophorocarpa (Benth.) Britton & Rose

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Costa Rica. Records: *N. Zamora, Jul. 30, 2008 (Field obs.)*.

Cojoba undulatomarginata L.Rico

Terrestrial shrubs or trees. Distribution in PILA 0–200 m, low elevation mixed forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 7048* (BM, INB, MO, PMA).

Cojoba valerioi Britton & Rose

Terrestrial shrubs or trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 3080* (MO).

Crotalaria sagittalis L.

Terrestrial herbs to shrubs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles. Records: *C. Hamilton 708* (MO). Uses: medicinal.

Desmodium adscendens (Sw.) DC.

Terrestrial herbs to shrubs. Distribution in PILA 0–3800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to the Guyanas, to the Guyanas, Argentina, Greater Antilles, Lesser Antilles, Old World Tropics. Records: *D. Solano 3211* (INB).

Desmodium axillare (Sw.) DC.

Terrestrial herbs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Brazil, Greater Antilles, Lesser Antilles. Records: *D. Solano 4551* (BM, INB, MO, PMA).

Desmodium caripense (Kunth) G. Don

Terrestrial herbs. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico,

Nicaragua, Costa Rica, Colombia. Records: *A. Soto 351* (INB).

Desmodium intortum (Mill.) Urb.

Terrestrial twiners. Distribution in PILA 900–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A. Soto 349* (INB), *D. Solano 2856* (INB).

Desmodium maxonii (Standl.) Standl.

Terrestrial herbs. Distribution in PILA 1200–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Belize, Honduras, Costa Rica, Panama. Records: *G. Davidse 25541* (CR, MO).

Desmodium procumbens (Mill.) Hitchc.

Terrestrial herbs to shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Ecuador, Venezuela, Guyanas to Suriname, Brazil, Greater Antilles, Lesser Antilles. Records: *L. Acosta 2305* (INB).

Desmodium purpusii Brandege

Terrestrial lianas. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Peru. Records: *D. Santamaría 6147* (BM, INB, MO, PMA), *D. Solano 4567* (BM, INB, MO, PMA).

Dussia macrophyllata (Donn.Sm.) Harms

Buteo, Frijolón, Granadillo, Sangrillo amarillo, Targuayuyo, Targuayuyo blanco, Targuayugo amarillo, Sangregao, Paleta, Sangrillo, Targuayugo blanco (CR).

Terrestrial trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez, Nov. 1, 2007 (Field obs.)*. Uses: timber.

Dussia tessmannii Harms

Frijolón, Sangrillo (CR).

Terrestrial trees. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Colombia, Brazil. Records: *A. Rodríguez, Sept 29, 2007 (Field obs.)*.

Erythrina berteroa Urb.

Poró, Poró de cerca, Palo de cerca, Palo de mona (CR).

Terrestrial trees. Distribution in PILA 0–2400 m, low

elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru, Greater Antilles, Lesser Antilles. Records: *L. Acosta 2398* (INB). Uses: medicinal.

Erythrina chiriquensis Krukoff

Terrestrial trees. Distribution in PILA 1300–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *C. Hamilton 3649* (MO), *C. Hamilton 725* (MO).

Erythrina costaricensis Micheli

Poró cimarrón, Poró, Pito, Poró colorado, Balo, Pato trinidad, Poró espinoso (CR), Pito, Machetito, Palo santo (P).

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras, Costa Rica to Colombia. Records: *A. Rodríguez 11831* (BM, INB, MO, PMA), *D. Solano 4342* (BM, INB, MO, PMA).

Erythrina gibbosa Cufod.

Poró (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Honduras, Costa Rica, Panama. Records: *A. Soto 1236* (INB), *D. Solano 2904* (INB), *D. Solano 4990* (BM, INB, MO, PMA).

Inga barbourii Standl.

Terrestrial trees. Distribution in PILA 200–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Solano 4530* (BM, INB, MO, PMA), *S. Bridgewater 4167* (BM, INB, MO, PMA). Uses: Firewood, ornamental.

ψ ***Inga exalata*** T.S.Elias

Terrestrial trees. Distribution in PILA 500–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6328* (PMA), *G. Herrera 2703* (INB, MO). Uses: Firewood. Global conservation status: Endangered (EN), A2c and B1ab(i,iii).

Inga goldmanii Pittier

Guaba amarilla, Guabo, Guaba, Guaba peluda (CR), Guabo pelu, Guaba, Guaba de mono, Guabo colorado, Candelillo (P).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *N. Zamora*, Aug. 8, 2008 (*Field obs.*), *N. Zamora*, Jul. 29, 2008 (*Field obs.*), *N. Zamora*, Jul. 31, 2008 (*Field obs.*). Uses: Agroforestería, Firewood.

Inga jinicuil Schltld.

Terrestrial trees. Distribution in PILA 300–300 m, low elevation mixed forest. Global distribution: Mexico, Costa Rica. Records: *A.K. Monro* 4319 (BM, INB, MO), *L.D. Gómez* 23289 (MO). Uses: food.

Inga latipes Pittier

Terrestrial trees. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *R. Aguilar* 1139 (INB, MO). Uses: Firewood. Conservation status: Endangered (EN), B1+2c ver 2.3 (1994).

Inga leonis N.Zamora

Terrestrial trees. Distribution in PILA 100–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. De Sedas* 646 (INB, PMA). Uses: Firewood.

ψ ***Inga longispica*** Standl.

Guabo ronron, Guabo, Guaba, Guaba ron ron (CR).

Terrestrial trees. Distribution in PILA 900–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7288 (BM, INB, MO, PMA), *D. Solano* 4708 (BM, INB, MO, PMA), *L. González* 1190 (INB), *N. Zamora* 4061 (BM, INB, MO, PMA). Uses: Firewood. Global conservation status: Vulnerable (VU), B1ab(i,iii).

Inga marginata Willd.

Cuajiniquil negro, Guaba, Guabo, Atuña, Cuajiniquil, Cuajiniquil blanco, Guaba ron ron (CR), Guabo, Guaba, Guaba de mono, Guabito cansa boca (P).

Terrestrial trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico, Costa Rica to Paraguay, Argentina. Records: *A.K. Monro* 4821 (BM, INB, MO), *D. Santamaría* 6192 (BM, INB, MO, PMA). Uses: Firewood, ornamental.

Inga micheliana Harms

Terrestrial trees. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest,

low elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 7237 (BM, INB, MO, PMA), *D. Solano* 3833 (BM, INB, MO, PMA), *G. Herrera* 5934 (CR, INB). Uses: Firewood. Conservation status: Least Concern, ver 2.3 (1994).

Inga mortoniana J.León

Guabo marun, Guaba María, Guaba, Guabo (CR).

Terrestrial trees. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras, Costa Rica, Panama. Records: *R. Aguilar* 1100 (MO). Uses: food, Firewood. Conservation status: Endangered (EN), B1+2c ver 2.3 (1994).

ψ ***Inga oerstediana*** Benth.

Cuajiniquil peludo, Guaba peluda, Guabo, Guaba, Guaba chilillo, Cuajiniquil colorado (CR), Guabo, Guaba, Guaba de mono, Guabito (P).

Terrestrial trees. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles, Lesser Antilles. Records: *C. Hamilton* 3633 (MO), *D. Solano* 2916 (INB), *E. Alfaro* 5518 (BM, INB, MO), *R. Aguilar* 1083 (INB, MO). Uses: Firewood. Regional conservation status: Near Threatened (NT).

Inga pezizifera Benth.

(CR), Guabo, Guaba, Guaba de mono, Guabito (P).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Brazil. Records: *A. Chacón* 292 (CR, MO). Uses: Firewood.

Inga punctata Willd.

Cuajiniquil, Juaniquil, Guaba, Guabo, Cuajiniquil colorado, Puraa, Surri (CR), Guabo, Guaba, Guaba de mono, Guabito cansa boca (P).

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to the Guyanas, Bolivia, Lesser Antilles, Greater Antilles. Records: *D. Solano* 3187 (INB), *F. Quesada* 1723 (INB). Uses: Firewood.

□ ***Inga tonduzii*** Donn.Sm.

Guabopeludo, Guaba amarilla, Guabo, Guaba, Cuajiniquil, Cuajiniquil colorado, Guaba peluda, Guaba verde, Guaba amarilla (CR).

Terrestrial trees. Distribution in PILA 300–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to

Panama. Records: *A.K. Monro 6130* (INB, MO, PMA), *A. Rodríguez, Jul. 24 2007* (Field obs.). Uses: food, Firewood.

Inga venusta Standl.

Guabo amarillo, Guaba amarilla, Guaba, Guabo (CR), Guabo, Guaba, Guaba de mono, Guabito (P).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Santamaría, Oct. 29, 2008* (Field obs.). Uses: Firewood.

Inga sp. B.

Terrestrial trees. Distribution in PILA –1500 m, mixed forest in transition to cloud forest. Global distribution: Elevation unknown. Endemic to Costa Rica. Records: *González 473* (INB).

The above material was determined as being of a currently undescribed species by Nelson Zamora (pers. comm.). This species will be included in the Manual de Plantas de Costa Rica (MO, Hammel *et al.*, in prep.).

Machaerium seemannii Benth.

Terrestrial shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela. Records: *G. Herrera 3083* (MO).

Macrolobium costaricense W.C.Burger

Pata de elefante (CR).

Terrestrial trees. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *G. Herrera 3088* (MO).

Macrolobium hartshornii R.S.Cowan

Josefino, Tamarindo de suampo (CR).

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3341* (INB, MO).

Mucuna globulifera T.M. Moura, N. Zamora & A.M.G. Azevedo

Terrestrial lianas. Distribution in PILA 1200–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. K. Monro 6088* (INB, PMA).

Mucuna holtonii C. (Kuntze) Moldenke

Terrestrial lianas. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *L. D.*

Gómez 23122 (MO), *D. Solano 4553* (BM, INB, MO, PMA).

Mucuna urens (L.) DC.

Ojo de venado, Ojo de buey (CR).

Terrestrial lianas. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *D. Solano, Feb. 25, 2008* (Field obs.).

Phaseolus talamancensis Debouck & A.M.Torres

Terrestrial lianas. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 29127* (CR, MO).

Phaseolus tuerckheimii Donn.Sm.

Terrestrial herbs. Distribution in PILA 1200–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *M.A. Thomas 1601* (MO).

Phaseolus vulgaris L.

Frijol (CR).

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Cultivated Worldwide. Records: *D. Solano 4296* (BM, INB, MO, PMA). Uses: food, cosmetics, medicinal, terapéutica.

Pterocarpus rohrii Vahl

Sangrillo, Sangregado (CR), Sangre de gallo, Sangre, Cricamola, Suela (P).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Nicaragua, Costa Rica, Colombia to the Guyanas, Brazil, Argentina. Records: *A. Rodríguez, Sept 29, 2007* (Field obs.). Uses: timber, medicinal.

Rhynchosia quercetorum Standl.

Terrestrial lianas. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *C. Hamilton 3655* (MO), *D. Santamaría 7283* (BM, INB, MO, PMA), *D. Solano 5262* (BM, INB, MO, PMA).

Senna papillosa (Britton & Rose) H.S.Irwin & Barneby

Candelillo, Caraito, Vainillo (CR).

Terrestrial trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Nicaragua to Venezuela. Records: *D. Solano 4557* (BM, INB, MO, PMA), *J. González 799* (INB, MO), *R. Villalobos 284* (CR).

Stylosanthes guianensis (Aubl.) Sw.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *D. Santamaría 3484* (INB), *F. Quesada 1699* (INB).

Swartzia simplex (Sw.) Spreng.

Cacho, Drago, Manicillo, Naranjito, Naranjo de monte (CR), Naranjita, Naranjito, Naranjo de monte, Limoncillo (P).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *G. Gallardo 90* (CR, INB).

Teramnus uncinatus (L.) Sw.

Bejuco engordador, Juanita, Terciopelo (CR).

Terrestrial lianas. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to the Guyanas, Lesser Antilles, Africa. Records: *F. Quesada 1854* (INB).

e ***Trifolium repens*** L.

Trébol blanco (CR).

Terrestrial herbs. Distribution in PILA 1500–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Europe to Asia, introduced in USA to Panama. Records: *C. Hamilton 690* (MO).

Vigna candida (Vell.) Marechal, Mascherpa & Stainier

Terrestrial lianas. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Nicaragua to Costa Rica, Colombia to the Guyanas, Brazil, Argentina. Records: *E. Alfaro 2179* (CR, INB), *E. Alfaro 2609* (INB), *F. Quesada 1624* (INB).

Zapoteca tetragona (Willd.) H.M.Hern.

Carboncillo, Palo de ángel (CR).

Terrestrial shrubs. Distribution in PILA 700–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador. Records: *A. Soto 1247* (INB), *D. Solano 2902* (INB).

FAGACEAE

Quercus copeyensis C.H.Müll.

Roble, Roble blanco, Roble barsino, Encino, Roble colorado, Barcino blanco (CR).

Terrestrial trees. Distribution in PILA 500–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras, Costa Rica, Panama. Records: *A. Rodríguez, Feb. 20 2007* (*Field obs.*). Uses: timber.

Quercus corrugata Hook.

Encino, Roble (CR).

Terrestrial trees. Distribution in PILA 700–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *R. Aguilar 1149* (INB, MO).

Quercus cortesii Liebm.

Terrestrial trees. Distribution in PILA 1300–2400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *N. Zamora, Feb. 26, 2008* (*Field obs.*).

ψ ***Quercus costaricensis*** Liebm.

Roble, Roble negro, Roble encino, Encino blanco, Encino, Pakchi, Kos (CR).

Terrestrial trees. Distribution in PILA 1800–3600 m, cloud forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4083* (BM, INB, MO), *A.K. Monro 4121* (BM, INB, MO), *A.K. Monro 4123* (BM, INB, MO), *A.K. Monro 5314* (BM, INB, MO), *A.K. Monro 5355* (BM, INB, MO), *E. Alfaro 3244* (INB), *G. Davidse 25277* (CR, MO), *G. Davidse 25458* (CR, MO), *G. Davidse 25959* (CR, MO), *G. Davidse 28572* (CR, MO), *G. Davidse 28607* (CR, MO), *G. Davidse 28624* (CR, MO), *G. Davidse 29380* (CR, MO), *G. Davidse 23886* (MO), *G. Vargas 1225* (CR), *F. Quesada 1955* (CR, INB, MO), *L.D. Gómez 22474* (MO), *L.D. Gómez 22587* (MO), *L. González 3590* (INB), *M.A. Thomas 1654* (MO), *S. Knapp 9952* (BM, INB), *S. Knapp 9962* (BM, INB), *S. Knapp 9973* (BM, INB). Uses: timber. Global conservation status: Endangered (EN), B1ab(i,iii).

ψ ***Quercus insignis*** M.Martens & Galeotti

Roble, Encino (CR).

Terrestrial trees. Distribution in PILA 700–2000 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 11841* (BM, INB, PMA), *T. Croat 26938* (MO). Regional conservation status: Near Threatened (NT).

ψ *Quercus salicifolia* Née
Encino, Roble (CR).

Terrestrial trees. Distribution in PILA 1100–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *L. Acosta 2295* (INB), *R. Aguilar 1148* (INB), *E. Alfaro 5582* (INB), *G. Davidse 23755* (BM, INB), *G. Davidse 28557* (INB), *A. Fernández 1059* (INB), *A. Fernández 1061* (BM, INB), *A. Fernández 1062* (INB), *A. Fernández 1065* (INB), *Q. Jiménez, 1717* (INB), *A. Rodríguez 10864* (BM, INB, PMA), *A. Rodríguez 11880* (BM, INB, PMA), *A. Rodríguez 9760* (INB), *G. Davidse 29192* (MO), *L. Angulo 259* (INB), *L. González 1180* (INB), *D. Santamaría 3468* (INB), *D. Solano 5138* (BM, INB, PMA), *M. Grayum 10370* (INB, CR, MO). Regional conservation status: Vulnerable (VU), A2cd and B1ab(i,iii).

Quercus sapotifolia Liebm.

Terrestrial trees. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Solano 2885* (INB), *G. Davidse 28878* (CR, MO), *L. Angulo 258* (INB, MO).

GARRYACEAE

ψ *Garrya laurifolia* Benth.
Comenegro, cimanagro (CR).

Terrestrial shrubs or trees. Distribution in PILA 1600–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A.K. Monro 4175* (BM), *A.K. Monro 5241* (BM, INB, MO), *A.K. Monro 5260* (BM, INB, MO), *A.K. Monro 5337* (BM, INB, MO), *A. S. Weston 10194* (MO), *B.B. Klitgaard 834* (BM). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

GENTIANACEAE

Chelonanthus alatus (Aubl.) Pulle
Cholaga (CR).

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to

low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil. Records: *D. Solano 2869* (INB).

Curtia tenella (Mart.) Cham.

Terrestrial herbs. Distribution in PILA 200–200 m, low elevation mixed forest. Global distribution: Mexico to Colombia, Bolivia, Venezuela, Surinam, French Guyana, Brazil. Records: *D. Santamaría 3502* (INB).

Gentiana sedifolia Kunth

Terrestrial herbs. Distribution in PILA 2300–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Chile, Venezuela, Argentina. Records: *A. Chacón 549* (INB, MO), *A. S. Weston 10175* (MO), *E. Alfaro 1322* (INB), *E. Alfaro 3720* (INB), *E. Alfaro 3782* (INB), *G. Davidse 23849* (CR, MO), *G. Davidse 25369* (CR, MO), *G. Davidse 25872* (CR), *G. Davidse 25944* (MO), *G. Herrera 3655* (MO), *F. Quesada 1842* (INB), *L.D. Gómez 22443* (MO), *L.D. Gómez 22675* (MO).

Halenia aquilegiella Standl.

Terrestrial herbs. Distribution in PILA 2500–3500 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 532* (MO), *A. S. Weston 10143* (MO), *E. Alfaro 1333* (INB), *E. Alfaro 3385* (INB), *G. Davidse 23851* (CR, MO), *F. Quesada 1794* (INB), *F. Quesada 1986* (INB), *L.D. Gómez 22574* (CR, MO).

Halenia euryphylla C.K.Allen

Terrestrial herbs. Distribution in PILA 2300–3300 m, low elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *P. Allen 4900* (MO).

Halenia rhyacophila C.K.Allen

Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5180* (BM, MO), *G. Davidse 23919* (CR, MO), *G. Davidse 25965* (CR, MO), *G. Davidse 29292* (CR, MO).

ε-PILA *Macrocarpaea browallioides* (Ewan) A.Robyns. & S.Nilsson

Terrestrial shrubs. Distribution in PILA 1700–2300 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4991* (INB, MO), *A.K. Monro 6188* (PMA), *A. Rodríguez 10838* (BM, INB, PMA), *B. Hammel 5781* (MO), *B. Hammel 6112* (MO), *D. Solano 3940* (BM, INB, PMA), *D. Solano 4053* (BM, INB, PMA), *J. Bittner 1781* (INB, MO), *M. Grayum 10347* (INB, MO).

Macroparpea macrophylla (Kunth) Gilg

Terrestrial shrubs. Distribution in PILA 1100–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro 3701* (INB).

Macroparpea subcaudata Ewan

Terrestrial shrubs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5349* (INB), *G. Herrera 5421* (INB).

Symbolanthus pulcherrimus Gilg

Terrestrial shrubs. Distribution in PILA 700–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6187* (MO), *A. Rodríguez 11326* (INB), *D. Santamaría 5632* (INB), *D. Santamaría 6307* (INB), *D. Santamaría 7108* (INB), *D. Solano 3941* (INB), *D. Solano 5105* (INB), *D. Solano 5244* (INB), *E. Alfaro 1627* (INB), *G. Davidse 29006* (MO), *L. Acosta 3484* (INB).

Voyria aphylla (Jacq.) Pers.

Terrestrial herbs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Paraguay, Antilles. Records: *A. Rodríguez 9713* (INB), *A. Rodríguez 9750* (INB), *D. Solano 2839* (INB), *E. Alfaro 4203* (INB).

GERANIACEAE

Geranium costaricense H.E.Moore

Terrestrial herbs. Distribution in PILA 2500–3700 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 531* (MO), *E. Alfaro 4702* (INB), *G. Davidse 25874* (CR, MO), *G. Davidse 29409* (CR), *G. Davidse 29409* (MO), *L.D. Gómez 22592* (MO), *L.D. Gómez 22611* (MO), *S. Knapp 9938* (BM, INB).

GESNERIACEAE

Amalophyllon laceratum (C.V.Morton) Boggan, L. E.Skog & Roalson

Terrestrial herbs. Distribution in PILA 300–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 747* (INB, MO), *G. Davidse 28434* (MO), *E. Fletes 178* (INB), *T. Antonio*

1681 (MO).

Besleria arborescens C.V.Morton

Terrestrial shrubs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *A.K. Monro 5011* (BM, INB).

Besleria barbensis Hanst.

Terrestrial herbs. Distribution in PILA 300–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón 555* (INB, MO), *B. Gamboa 1199* (INB), *B. Gamboa 1221* (INB), *E. Alfaro 3627* (INB), *E. Alfaro 4608* (INB), *E. Alfaro 4658* (INB), *G. Davidse 25079* (MO), *G. Davidse 25188* (MO), *G. Davidse 29037* (CR, MO), *G. Herrera 3633* (INB, MO), *F. Quesada 1490* (INB), *M.A. Thomas 1682* (MO).

Besleria formicaria Nowicke

Terrestrial shrubs. Distribution in PILA 500–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *A. De Sedas 915* (INB, PMA), *A.K. Monro 6273* (INB, PMA), *A.K. Monro 6368* (INB, PMA).

Besleria formosa C.V.Morton

Terrestrial herbs or shrubs. Distribution in PILA 800–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández 689* (INB), *A. Fernández 968* (CR, INB), *A.K. Monro 4422* (BM), *A.K. Monro 5595* (BM, INB, PMA), *A.K. Monro 6023* (PMA), *A. Rodríguez 10701* (BM, INB, PMA), *D. Santamaría 3822* (INB), *D. Santamaría 5672* (BM, INB, PMA), *D. Santamaría 5741* (BM, INB, PMA), *D. Solano 4745* (BM, INB, PMA), *D. Solano 4873* (BM, INB, PMA), *G. Davidse 25242* (MO), *G. Davidse 28810* (MO), *G. Herrera 5269* (CR, INB, MO), *J. Bittner 1821* (INB, MO).

Besleria laxiflora Benth.

Terrestrial herbs or shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador Venezuela, Guayanas, Brazil. Records: *D. Santamaría 6274* (BM, INB, PMA), *D. Santamaría 6741* (BM, INB, PMA), *D. Solano 3884* (BM, INB, PMA).

Besleria notabilis C.V.Morton

Terrestrial shrubs. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Fernández* 802 (CR, INB), *A.K. Monro* 6323 (PMA), *A. Rodríguez* 10587 (BM, INB, PMA), *D. Santamaría* 5891 (BM, INB, PMA), *D. Santamaría* 6839 (BM, INB, PMA), *D. Solano* 4049 (BM, INB, PMA), *E. Alfaro* 3703 (INB).

Besleria princeps Hanst.

Chirrite (CR).

Terrestrial herbs. Distribution in PILA 100–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 255 (CR, INB, MO), *A. Fernández* 642 (CR, INB), *A.K. Monro* 5500 (BM, INB, PMA), *A. Rodríguez* 10733 (BM, INB, PMA), *B. Hammel* 5805 (MO), *D. Santamaría* 6718 (BM, INB, PMA), *D. Solano* 3867 (BM, INB, PMA), *D. Solano* 4786 (BM, INB, PMA), *J. Bittner* 1850 (INB, MO).

Besleria solanoides Kunth

Terrestrial herbs or shrubs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Honduras to Bolivia, Antilles. Records: *A.K. Monro* 5869 (BM, INB, PMA), *A. Rodríguez* 11639 (BM, INB, PMA), *A. Rodríguez* 11783 (BM, INB, PMA), *A. Rodríguez* 11798 (BM, INB, PMA), *A. Rodríguez* 11945 (BM, INB, PMA), *D. Santamaría* 7039 (BM, INB, PMA), *D. Santamaría* 7084 (BM, INB, PMA), *D. Santamaría* 7094 (BM, INB, PMA), *D. Solano* 2913 (INB), *D. Solano* 3826 (BM, INB, PMA), *D. Solano* 3827 (BM, INB, PMA), *D. Solano* 4856 (BM, INB, PMA), *D. Solano* 5008 (BM, INB, PMA), *E. Alfaro* 5548 (BM, INB), *G. Herrera* 2802 (MO), *J. Bittner* 1460 (INB, MO), *L. Acosta* 2297 (INB), *L. Angulo* 167 (CR, INB, MO), *M. Alfaro* 6 (INB).

Besleria trichostegia Donn.Sm.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture, secondary forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11329 (BM, INB, PMA), *D. Solano* 5023 (BM, INB, PMA), *F. Solís* 26 (INB, MO).

□ ***Besleria triflora*** (Oerst.) Hanst.

Terrestrial shrubs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A.*

Fernández 895 (CR, INB), *A.K. Monro* 5555 (BM, INB, PMA), *D. Santamaría* 5968 (BM, INB, PMA), *J. Bittner* 1453 (INB, MO).

Codonanthe uleana Fritsch

Epiphytic herbs. Distribution in PILA 0–400 m, low elevation mixed forest. Global distribution: Mexico, Belize, Honduras to Bolivia, Venezuela, Trinidad, Guyana, Brazil. Records: *G. Herrera* 3037 (MO).

Columnnea anisophylla DC.

Epiphytic herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A. Fernández* 863 (CR, INB, MO), *A.K. Monro* 5451 (BM, INB, MO, PMA), *A.K. Monro* 5524 (BM, INB, MO, PMA), *A. Rodríguez* 10582 (BM, INB, MO, PMA), *D. Santamaría* 5669 (BM, INB, MO, PMA), *D. Santamaría* 5932 (BM, INB, MO, PMA), *D. Solano* 3892 (BM, INB, MO, PMA), *D. Solano* 4462 (BM, INB, MO, PMA), *G. Davidse* 29110 (MO), *G. Herrera* 5207 (CR, INB, MO), *G. Herrera* 5880 (CR, INB), *J. Bittner* 1878 (INB, MO), *K. E. Blum* 2595 (MO).

Columnnea chiricana Wiehler

Epiphytic herbs. Distribution in PILA 1800–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 4680 (INB), *G. Davidse* 29172 (MO).

Columnnea consanguinea Hanst.

Hoja de duende (CR).

Facultatively epiphytic herbs. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Ecuador. Records: *A. Fernández* 1058 (INB, MO), *A. Rodríguez* 10814 (BM, INB, PMA), *A. Rodríguez* 11011 (BM, INB, PMA), *D. Santamaría* 5684 (BM, INB, PMA), *D. Santamaría* 6199 (BM, INB, PMA), *D. Santamaría* 6453 (BM, INB, PMA), *D. Santamaría* 6750 (BM, INB, PMA), *D. Solano* 3844 (BM, INB, PMA), *D. Solano* 3967 (BM, INB, PMA), *D. Solano* 4306 (BM, INB, PMA), *D. Solano* 4403 (BM, INB, PMA), *D. Solano* 4861 (BM, INB, PMA), *G. Herrera* 3282,1 (INB), *G. Herrera* 3282a (MO), *G. Herrera* 5189 (CR, INB, MO), *G. Herrera* 5875 (CR, INB), *G. Herrera* 5978 (CR, INB), *J. Bittner* 1459 (INB, MO), *J. Lezcano* 315 (PMA).

Columnnea gloriosa Sprague

Epiphytic herbs. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *D.*

Santamaria 6470 (BM, INB, PMA), *E. Alfaro* 5643 (BM, MO), *G. Gallardo* 79 (INB).

Columnnea grata C.V.Morton

Terrestrial herbs or epiphytic shrubs. Distribution in PILA 500–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaria* 6011 (BM, INB, PMA).

Columnnea incarnata C.V.Morton

Terrestrial herbs or epiphytic shrubs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *J. H. Kirkbride Jr.* 130 (MO).

ε-PILA *Columnnea lariensis* Kriebel

Epiphytic herbs. Distribution in PILA 1300–1600 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 5360 (INB, MO), *G. Herrera* 5417 (CR, INB), *R. Aguilar* 1112 (INB, MO).

Columnnea magnifica Klotzsch ex Oerst.

Epiphytic herbs. Distribution in PILA 300–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 969 (CR, INB, MO), *A. Soto* 290 (INB), *B. Gamboa* 580 (INB), *A. Chacón* 503 (MO), *D. Santamaria* 5770 (BM, INB, PMA), *D. Santamaria* 5848 (BM, INB, PMA), *D. Solano* 3934 (BM, INB, PMA), *D. Solano* 4201 (BM, INB, PMA), *E. Alfaro* 3391 (INB), *E. Alfaro* 4636 (INB), *E. Navarro* 477 (INB, MO), *G. Herrera* 3678 (INB), *G. Herrera* 5451 (CR, INB), *M. Valerio* 182 (CR).

Columnnea microcalyx Hanst.

Epiphytic herbs. Distribution in PILA 1000–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *A. Soto* 338 (INB), *D. Solano* 3870 (BM, INB, PMA), *G. Davidse* 25225 (MO), *G. Davidse* 25261 (MO), *G. McPherson* 15893 (MO), *M.A. Thomas* 1684 (MO).

Columnnea nervosa (Klotzsch ex Oerst.) Hanst.

Epiphytic shrubs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, El Salvador, Costa Rica, Panama. Records: *D. Santamaria* 4462 (INB), *D. Solano* 3191 (INB), *D.*

Solano 3194 (INB), *F. Quesada* 1550 (INB), *R. Quirós* 91 (INB).

Columnnea nicaraguensis Oerst.

Terrestrial herbs or epiphytic shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez* 11656 (BM, INB, PMA), *G. Gallardo* 96 (INB), *G. Herrera* 2687 (INB, MO), *G. Herrera* 5295 (CR, INB), *G. Herrera* 5439 (CR, INB).

Columnnea oerstediana Klotzsch ex Oerst.

Epiphytic herbs. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Panama, French Guyana. Records: *D. Solano* 4885 (BM, INB, PMA), *J. Bittner* 1421 (INB, MO).

Columnnea oxyphylla Hanst.

Epiphytic herbs. Distribution in PILA 300–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Solano* 4849 (BM, INB, PMA).

Columnnea parviflora C.V.Morton

Epiphytic herbs. Distribution in PILA 300–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez* 11404 (BM, INB, PMA), *D. Solano* 4913 (BM, INB, PMA).

Columnnea purpurata Hanst.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Belize, Guatemala, Nicaragua to Colombia. Records: *D. Solano* 4307 (BM, INB, PMA), *G. Herrera* 3047 (MO).

Columnnea querceti Oerst.

Terrestrial herbs or epiphytic shrubs. Distribution in PILA 700–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández* 771 (CR, INB), *A. Rodríguez* 11591 (BM, INB, PMA), *A. Rodríguez* 11602 (BM, INB, PMA), *G. Gallardo* 300 (MO), *G. Gallardo* 78 (CR, INB), *G. Herrera* 6088 (CR, INB, MO), *G. Herrera* 6199 (CR, INB), *H. Schmidt* 628 (INB), *M. Grayum* 10386 (INB, MO).

Columnnea sanguinolenta (Klotzsch ex Oerst.) Hanst.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 4756* (BM, INB), *M. Moraga 76* (INB).

***Columnnea* sp. A.**

Epiphytic herbs. Distribution in PILA 2100–2200 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5491* (INB), *A. Rodríguez 10791* (INB), *G. Herrera 5868* (INB), *G. Herrera 6128* (INB).

The above material was determined as being of a currently undescribed species by Kriebel (pers. comm.). This species will be included in the Manual de Plantas de Costa Rica (Hammel *et al.*, in prep.).

***Columnnea verecunda* C.V.Morton**

Terrestrial herbs or epiphytic shrubs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 5202* (CR, MO), *G. Herrera 5244* (CR, MO).

***Cremosperma maculatum* L.E.Skog**

Facultatively epiphytic herbs. Distribution in PILA 700–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11340* (BM, INB, PMA), *D. Santamaría 6288* (BM, INB, PMA), *G. Herrera 3257* (INB, MO), *G. Herrera 5264* (CR, INB).

?ε-PILA *Cremosperma occidentale* Wiehler

Epiphytic herbs. Distribution in PILA – m. Global distribution: Elevation unknown. Endemic to Panama. Records: *R. Dressler 5475* (SEL).

This species is only known from the type, a cultivated plant collected from the vicinity of PILA.

***Diastema affine* Fritsch**

Terrestrial herbs. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *A. Rodríguez 11652* (BM, INB, PMA), *D. Santamaría 6806* (BM, INB, PMA), *G. Herrera 3058* (MO).

***Diastema racemiferum* Benth.**

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala,

Costa Rica to Peru, Venezuela. Records: *D. Solano 4447* (BM, INB, MO, PMA).

***Drymonia alloplectoides* Hanst.**

Terrestrial lianas. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Peru. Records: *A. Rodríguez, Jul. 21, 2007* (Field obs.).

***Drymonia ambonensis* (L.E.Skog) J.L.Clark**

Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4961* (BM, PMA), *Rodríguez 11046* (INB), *D. Santamaría 5870* (INB), *D. Solano 4091* (INB).

***Drymonia conchocalyx* Hanst.**

Epiphytic shrubs. Distribution in PILA 400–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama, Ecuador. Records: *A.K. Monro 5952* (PMA), *A.K. Monro 5995* (PMA), *A. Rodríguez 11447* (BM, INB, PMA), *D. Santamaría 5908* (BM, INB, PMA), *D. Santamaría 6570* (BM, INB, PMA), *D. Santamaría 7787* (PMA), *D. Solano 4699* (BM, INB, PMA), *L. Martínez 340* (PMA).

***Drymonia coriacea* (Oerst. ex Hanst.) Wiehler**

Epiphytic herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Peru. Records: *D. Santamaría 6832* (INB).

***Drymonia fimbriata* C.V.Morton**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 900–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11803* (BM, INB, PMA), *D. Santamaría 7013* (BM, INB, PMA), *D. Santamaría 7064* (BM, INB, PMA), *E. Fletes 184* (INB).

***Drymonia folsomii* L.E.Skog**

Terrestrial twiners. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4525* (MO), *E. Alfaro 5602* (BM, INB).

***Drymonia lanceolata* (Hanst.) C.V.Morton**

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 800–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest,

cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 889 (CR, INB, MO), *A.K. Monro* 5586 (BM, INB, PMA), *A. Rodríguez* 10891 (BM, INB, PMA), *A. Rodríguez* 11449 (BM, INB, PMA), *D. Santamaría* 5748 (BM, INB, PMA), *D. Santamaría* 6519 (BM, INB, PMA), *D. Santamaría* 6794 (BM, INB, PMA), *D. Solano* 4119 (BM, INB, PMA), *G. Herrera* 5337 (CR, INB, MO), *L. Acosta* 2311 (INB).

Drymonia macrantha (Donn.Sm.) D.N.Gibson

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A. Maroto* 207 (CR, INB), *E. Alfaro* 4200 (INB), *L. Acosta* 2414 (INB), *M. Alfaro* 35 (INB).

Drymonia macrophylla (Oerst.) H.E.Moore

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Belize & Guatemala, Nicaragua to Costa Rica, Peru, Venezuela. Records: *G. Davidse* 28500 (CR, MO), *G. Herrera* 3082 (MO).

Drymonia multiflora (Oerst. ex Hanst.) Wiehler

Epiphytic lianas. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, secondary forest. Global distribution: Mexico, Nicaragua to Panama. Records: *A.K. Monro* 4911 (BM), *D. Santamaría* 5913 (BM, INB, PMA), *D. Santamaría* 6516 (BM, INB, PMA), *J. Bittner* 1507 (INB, MO), *L. Martínez* 347 (PMA).

Drymonia parviflora Hanst.

Terrestrial herbs or epiphytic shrubs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Fletes* 183 (CR, INB, MO), *L. Acosta* 2359 (INB).

Drymonia pilifera Wiehler

Epiphytic twiners. Distribution in PILA 200–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *A. Chacón* 196 (CR, INB, MO), *A.K. Monro* 5883 (BM, INB, PMA), *A. Rodríguez* 11576 (BM, INB, PMA), *G. Herrera* 3248 (INB, MO).

Drymonia rubra C.V.Morton

Epiphytic shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 1035 (CR, INB), *A. Fernández* 747 (CR, INB), *A.K. Monro* 4242 (BM), *A.K. Monro* 4754 (BM, INB, MO), *A.K. Monro* 5421 (BM, INB, PMA), *A.K. Monro* 5553 (BM, INB, PMA), *A. Rodríguez* 10607 (BM, INB, PMA), *A. Rodríguez* 10622 (BM, INB, PMA), *D. Santamaría* 5670 (BM, INB, PMA), *D. Santamaría* 5938 (BM, INB, PMA), *D. Santamaría* 7395 (PMA), *D. Santamaría* 7513 (PMA), *D. Solano* 3894 (BM, INB, PMA).

Drymonia serrulata (Jacq.) Mart.

Viejitas (CR).

Epiphytic shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil. Records: *S. Bridgewater* 4212 (BM, INB, PMA).

□ ***Drymonia submarginalis*** Gómez-Laur. & Chavarría
Epiphytic shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11622 (BM, INB, PMA), *D. Solano* 4890 (BM, INB, PMA).

□ ***Drymonia tomentulifera*** Kriebel

Epiphytic twiners. Distribution in PILA 1200–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano* 4902 (BM, INB, MO, PMA).

Drymonia turrialvae Hanst.

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Nicaragua to Ecuador. Records: *A.K. Monro* 4793 (BM), *A.K. Monro* 6223 (PMA), *A. Rodríguez* 11587 (BM, INB, PMA), *A. Rodríguez* 11640 (BM, INB, PMA), *D. Santamaría* 5949 (BM, INB, PMA), *D. Santamaría* 6526 (BM, INB, PMA), *D. Santamaría* 6611 (BM, INB, PMA), *D. Santamaría* 7656 (PMA), *D. Solano* 4523 (BM, INB, PMA), *D. Solano* 4534 (BM, INB, PMA), *D. Solano* 4744 (BM, INB, PMA), *S. Bridgewater* 4151 (BM, INB, PMA).

Drymonia warszewicziana Hanst.

Epiphytic herbs. Distribution in PILA 200–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, , dense thicket. Global distribution: Nicaragua to Peru. Records: *A. De Sedas* 947 (INB), *D.*

Santamaria 7045 (INB), *D. Solano* 5866 (INB).

Gasteranthus acropodus (Donn.Sm.) Wiehler

Terrestrial herbs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 2615 (MO).

Gasteranthus delphinoides (Seem.) Wiehler

Terrestrial herbs or shrubs. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez* 11809 (BM, INB, PMA).

Gasteranthus imbricans (Donn.Sm.) Wiehler

Terrestrial herbs or shrubs. Distribution in PILA 100–600 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaria* 6793 (BM, INB, PMA), *G. Gallardo* 92 (INB), *G. Herrera* 3048 (MO), *J. Bittner* 1493 (INB, MO).

Gasteranthus wendlandianus (Hanst.) Wiehler

Terrestrial herbs or shrubs. Distribution in PILA 900–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A. Rodríguez* 10633 (BM, INB, PMA), *A. Rodríguez* 11511 (BM, INB, PMA), *A. Rodríguez* 11961 (BM, INB, PMA), *D. Solano* 4032 (BM, INB, PMA), *D. Solano* 4404 (BM, INB, PMA), *E. Alfaro* 5480 (BM, INB), *E. Fletes* 180 (CR, INB, MO), *G. Herrera* 5317 (CR, INB), *G. Herrera* 5339 (INB), *G. Herrera* 5949 (CR, INB), *G. Herrera* 6090 (INB), *Z. Fuentes* 791 (INB).

Glossoloma ichthyoderma (Hanst.) J.L.Clark

Terrestrial herbs or shrubs. Distribution in PILA 1200–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru, Venezuela. Records: *A. Rodríguez* 10781 (INB), *D. Santamaria* 5635 (INB), *D. Solano* 3991 (INB).

Glossoloma medusaeum (L.E.Skog) J.L.Clark

Terrestrial shrubs. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *D. Solano* 4187 (BM, INB).

Glossoloma panamense (C.V.Morton) J.L.Clark

Terrestrial shrubs. Distribution in PILA 100–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest,

cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro* 4201 (BM, MO), *A.K. Monro* 4969 (BM, MO).

Glossoloma tetragonum Hanst

Terrestrial shrubs. Distribution in PILA 600–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *D. Solano* 4174 (PMA).

Kohleria spicata (Kunth) Oerst.

Terrestrial herbs or shrubs. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Peru, Venezuela. Records: *A. Rodríguez* 11363 (BM, INB, PMA), *D. Solano* 4921 (BM, INB, PMA), *J. Bittner* 1491 (MO), *F. Quesada* 1870 (INB), *M. Moraga* 425 (INB).

Kohleria tigridia (Ohlend.) Roalson & Boggan

Epiphytic herbs. Distribution in PILA 800–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica to Ecuador, Venezuela. Records: *A.K. Monro* 4452 (BM), *A.K. Monro* 4770 (BM), *A. Rodríguez* 10944 (INB), *D. Santamaria* 5894 (INB), *D. Solano* 4160 (INB), *D. Solano* 5181 (INB), *G. Davidse* 25163 (MO), *L.D. Gómez* 22320 (MO), *N. Zamora* 4180 (INB).

Kohleria tubiflora (Cav.) Hanst.

Terrestrial herbs or shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Honduras, Panama, Ecuador. Records: *D. Solano*, Feb. 29, 2008 (*Field obs.*).

Monopyle maxonii C.V.Morton

Terrestrial herbs. Distribution in PILA 200–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala, Costa Rica, Panama. Records: *D. Santamaria*, Oct. 26, 2008 (*Field obs.*), *D. Solano* Oct. 27 2008 (*Field obs.*).

Monopyle puberula C.V.Morton

Terrestrial herbs. Distribution in PILA 700–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala, Costa Rica, Panama.

Records: *D. Santamaría* 7657 (PMA), *G. Herrera* 5351 (CR, INB, MO).

Moussonia ampla L.E.Skog

Terrestrial shrubs. Distribution in PILA 1900–2000 m, cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7274 (BM, INB, PMA), *K. Utley* 5670 (MO), *N. Zamora* 4060 (BM, INB, PMA).

Moussonia deppeana (Schltdl. & Cham.) Hanst.

Terrestrial shrubs. Distribution in PILA 1600–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *D. Solano* 5130 (BM, INB, PMA), *D. Solano* 5225 (BM, INB, PMA).

Moussonia serrulata (C.V.Morton) Wiehler

Terrestrial shrubs. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *C. Hamilton* 741 (MO), *C. Hamilton* 742 (MO).

Napeanthus apodemus Donn.Sm.

Terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Honduras, Costa Rica to Peru. Records: *A.K. Monro* 6219 (PMA).

Nautilocalyx dressleri Wiehler

Facultatively epiphytic herbs. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 6247 (PMA), *A. Rodríguez* 11417 (BM, INB, PMA), *G. Herrera* 3256 (INB, MO).

Paradrymonia lineata (C.V.Morton) Wiehler

Epiphytic herbs. Distribution in PILA 400–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 3269 (INB, MO).

Paradrymonia longipetiolata (Donn.Sm.) Wiehler

Epiphytic herbs. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 5319 (CR, INB, MO).

Paradrymonia metamorphophylla (Donn.Sm.) Wiehler

Terrestrial herbs or shrubs. Distribution in PILA 1200–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru, Venezuela. Records: *A. Fernández* 983 (CR, INB),

A.K. Monro 5583 (BM, INB, PMA), *A. Rodríguez* 10868 (BM, INB, PMA), *B. Hammel* 5822 (MO), *D. Santamaría* 5766 (BM, INB, PMA), *D. Santamaría* 5818 (BM, INB, PMA), *G. Herrera* 5515 (INB, MO), *J. Bittner* 1876 (INB, MO).

Rhynchoglossum azureum (Schltdl.) Burt

Facultatively epiphytic herbs. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras, Costa Rica to Peru. Records: *A.K. Monro* 4427 (BM), *E. Alfaro* 5529 (BM, INB).

Rufodorsia cerricola (Wiehler) Kriebel

Terrestrial herbs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5606 (INB), *A. Rodríguez* 11025 (INB).

ψ ***Solenophora calycosa*** Donn.Sm.

Princesa (CR).

Terrestrial shrubs. Distribution in PILA 200–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 554 (INB), *A. Fernández* 705 (CR, INB), *B. Hammel* 1462 (MO), *D. Santamaría* 5727 (BM, INB, PMA), *D. Solano* 3997 (BM, INB, PMA), *E. Navarro* 686 (INB, MO), *F. Almeda* 3534 (MO), *G. Davidse* 25116 (MO), *G. Davidse* 25117 (MO), *G. Herrera* 5335 (CR, INB, MO), *J. Dwyer* 8754 (MO), *J. H. Kirkbride Jr.* 151 (MO), *M. Moraga* 424 (INB), *M. Valerio* 221 (INB). Global conservation status: Vulnerable (VU), B1ab(i,iii).

GROSSULARIACEAE

ψ ***Ribes costaricense*** Weigend

Terrestrial shrubs. Distribution in PILA 2700–3400 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5152 (BM, INB), *S. Knapp* 9855 (BM, INB). Global conservation status: Endangered (EN), B1ab(i,iii).

GUNNERACEAE

ψ ***Gunnera insignis*** (Oerst.) A.DC.

Higuera, Mano de tigre, Sombrilla de pobre (CR).

Terrestrial herbs. Distribution in PILA 1100–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution:

Nicaragua to Colombia. Records: *B. Hammel 1463* (MO), *G. Davidse 25265* (CR, MO), *L. Angulo 219* (INB). Regional conservation status: Near Threatened (NT).

ψ *Gunnera talamancana* Weber & L.E.Mora
Sombrilla de pobre (CR).

Terrestrial herbs. Distribution in PILA 2000–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Fernández 757* (INB), *E. Alfaro 3467* (INB), *G. Davidse 26148* (CR, MO), *G. Davidse 28712* (CR, MO), *F. Quesada 1502* (INB). Global conservation status: Endangered (EN), B1ab(i,iii).

HAMAMELIDACEAE

□ *Molinadendron guatemalense* (Radlk. ex Harms)
P.K.Endress

Terrestrial trees. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Guatemala, Hond to Panama. Records: *A.K. Monro 5946* (PMA).

HUMIRIACEAE

ψ *Humiriastrum diguense* Cuatrec.

Chiricano, Chiricano alegre, Chiricano triste, Lorito, Nispero, Campano, Campano blanco, Loro, Nispero lorito (CR), Corocito, Corozo (P).

Terrestrial trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Ecuador. Records: *F. Solís 28* (INB, MO). Uses: timber. Regional conservation status: Vulnerable (VU), A2cd.

ψ *Sacoglottis trichogyna* Cuatrec.

Campano, colmena, Cucaracho danto, Erizo, Colmillo, Terciopelo, Titor, Lorito, Campana, Danto plomillo (CR), Corocito, Corozo (P).

Terrestrial trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Nicaragua to Panama. Records: *G. Herrera 3114* (MO). Uses: timber.

Sacoglottis sp A.

Terrestrial trees. Distribution in PILA –1000 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5836* (INB, PMA).

The above material was determined as being of a currently undescribed species by Nelson Zamora (pers. comm.). This species was identified as an unpublished name in the Manual de Plantas de Costa Rica (Hammel *et al.*, in prep).

HYDRANGEACEAE

Hydrangea asterolasia Diels

Epiphytic shrubs. Distribution in PILA 1100–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *G. Davidse 25214* (MO).

Hydrangea diplostemonia (Donn.Sm.) Standl.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 900–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *G. Davidse 26158* (CR, MO), *L. Acosta 2388* (INB).

Hydrangea peruviana Moric.

Epiphytic shrubs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A. Fernández 653* (CR, INB, MO), *A.K. Monro 4315* (BM, INB, MO), *A. Rodríguez 10829* (BM, INB, MO, PMA), *B. Hammel 1428* (MO), *D. Solano 4046* (BM, INB, MO, PMA), *E. Alfaro 3978* (INB), *G. Davidse 25254* (MO), *J. Aranda 3251* (MO), *L.D. Gómez 23171* (MO).

HYPERICACEAE

Hypericum cardonae Cuatrec.

Terrestrial shrubs. Distribution in PILA 3000–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *E. Alfaro 3277* (INB), *L. González 2492* (INB).

Hypericum costaricense N.Robson

Terrestrial herbs or shrubs. Distribution in PILA 400–3700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5150* (BM, INB, MO), *A. S. Weston 10168* (MO), *A. Soto 310* (INB), *B. Gamboa 1725* (INB, MO), *E. Alfaro 3252* (INB), *E. Alfaro 3401* (INB), *E. Alfaro 3476* (INB), *E. Alfaro 3772* (INB), *E. Alfaro 3788* (INB), *G. Davidse 23890* (CR, MO), *G. Davidse 25283* (CR, MO), *G. Davidse 25372* (CR, MO), *G. Davidse 25927* (MO), *G. Davidse 25963* (CR, MO), *G. Davidse 29280* (CR, MO), *G. Davidse 29360* (CR, MO), *G. Herrera 3699* (INB, MO), *F. Quesada 1800* (INB), *F. Quesada 1972* (INB), *L. Angulo 224* (CR, INB), *L. González 1668* (INB), *L. González 2503* (INB), *M. Valerio 220* (CR, INB, MO), *S. Knapp 9842* (BM, INB), *S. Knapp 9885* (BM, INB).

Hypericum gnidioides Seem.

Terrestrial herbs or shrubs. Distribution in PILA 1000–3800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: El Salvador to Panama. Records: *D. Santamaría 3731* (INB), *D. Solano 2860* (INB), *L. González 1198* (INB).

Hypericum irazuense Kuntze ex N. Robson

Terrestrial shrubs. Distribution in PILA 2100–3700 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 528* (MO), *A. S. Weston 10189* (MO), *E. Alfaro 3306* (INB), *G. Davidse 25357* (MO), *G. Davidse 25962* (MO), *G. Davidse 26016* (MO), *G. Davidse 26029* (MO), *G. Davidse 29361* (MO), *F. Quesada 1799* (INB).

Hypericum jaramilloi N. Robson

Terrestrial shrubs. Distribution in PILA 2900–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *G. Davidse 25880* (MO).

Hypericum monroi N. Robson

Terrestrial herbs or shrubs. Distribution in PILA 1600–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Honduras, Costa Rica to Venezuela. Records: *A.K. Monro 4093* (BM, INB, MO, PMA), *B. Klitgaard 749* (BM, INB, MO, PMA), *G. Davidse 23905* (BM, MO), *G. Davidse 25286* (BM, MO), *G. Davidse 25963* (BM, MO), *G. Davidse 29280* (BM, MO), *G. Davidse 29413* (BM, MO), *L.D. Gómez 22525* (BM, MO), *L.D. Gómez 22677* (BM, MO).

Hypericum thesiifolium Kunth

Terrestrial herbs or shrubs. Distribution in PILA 1000–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Honduras, Costa Rica to Venezuela. Records: *M. Valerio 216* (INB, MO).

ψ ***Vismia baccifera*** (L.) Triana & Planch.

Achiotillo (CR), Pinta mozo, Achioté, Sangrillo, Achioté, Achioté tigre (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez 11874* (BM, INB, MO, PMA), *A. Rodríguez 9878* (INB), *D. Santamaría 3471* (INB), *D. Santamaría 3728* (INB), *D. Santamaría 3781* (INB), *D. Solano 3207* (INB), *J. González 785* (INB, MO), *L. González 3648*

(INB). Regional conservation status: Least Concern (LC). (NT).

JUGLANDACEAE

ψ ***Alfaroa costaricensis*** Standl.

Gaulín, Campano chile, Gabulin gavilan, Gavilancillo (CR).

Terrestrial trees. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Mexico, Guatemala, Nicaragua to Panama. Records: *A. Fernández 926* (CR, INB, MO), *C. von Hagen 2096* (MO), *C. von Hagen 2179* (MO), *D. Solano 3859* (BM, INB, PMA), *G. Davidse 29205* (INB, MO), *J. A. Duke 13661* (MO), *L. Acosta 2322* (INB), *L. González 3647* (INB). Uses: timber. Regional conservation status: Near Threatened (NT).

Alfaroa williamsii Ant. Molina

Terrestrial trees. Distribution in PILA 700–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Fernández 777* (CR, INB, MO), *A.K. Monro 4991* (INB, MO), *A.K. Monro 6200* (PMA), *A. Rodríguez 10934* (BM, INB, PMA).

ψ ***Oreomunnea mexicana*** (Standl.) J.-F. Leroy

Gaulín (CR).

Terrestrial trees. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Nicaragua to Panama. Records: *A. Rodríguez 11327* (BM, INB, PMA), *S. Bridgewater 4194* (BM, INB, PMA). Regional conservation status: Near Threatened (NT).

Oreomunnea pterocarpa Oerst.

Campana, Campano, Gavilán, Gavilán blanco, Gavilancillo (CR).

Terrestrial trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 6187* (BM, INB, PMA). Uses: timber. Conservation status: Endangered (EN), C2a ver 2.3 (1994).

LACISTEMATAACEAE

Lozania mutisiana Schult.

Terrestrial shrubs or trees. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, low elevation oak forest, pasture. Global distribution: Nicaragua to Bolivia, Venezuela. Records: *A. De Sedas* 577 (PMA), *A.K. Monro* 6059 (PMA), *A. Rodríguez* 11739 (BM, INB, PMA), *D. Santamaría* 4425 (INB), *D. Santamaría* 6678 (BM, INB, PMA), *D. Santamaría* 7755 (PMA), *D. Solano* 5503 (PMA), *J. González* 791 (CR, INB).

Lozania pittieri (S.F.Blake) L.B.Sm.

Terrestrial shrubs or trees. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Bolivia. Records: *D. Solano*, Feb. 23, 2008 (Field obs.), *D. Solano*, Feb. 25, 2008 (Field obs.).

LAMIACEAE

Aegiphila anomala Pittier

Tabaquillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, , dense thicket. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría* 7700 (PMA), *D. Santamaría* 7839 (PMA), *G. Herrera* 2706 (MO), *J. González* 789 (CR).

Aegiphila cephalophora Standl.

Terrestrial lianas. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 6380 (PMA), *L. Martínez* 336 (PMA).

Aegiphila elata Sw.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to Venezuela, Brazil, Bolivia, Greater Antilles. Records: *A.K. Monro* 5000 (BM, INB, PMA).

Aegiphila falcata Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 6325 (BM, INB, MO, PMA).

Aegiphila odontophylla Donn.Sm.

Salvia hoja grande (CR).

Terrestrial shrubs or trees. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *A. Soto* 302 (INB), *E. Alfaro*

4637 (INB), *E. Alfaro* 4655 (INB), *G. Davidse* 25749 (CR), *G. Davidse* 29076 (CR), *G. Davidse* 29228 (CR), *J. Bittner* 1535 (MO).

Aegiphila panamensis Moldenke

Terrestrial shrubs or trees. Distribution in PILA 100–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Colombia. Records: *D. Solano* 2906 (INB), *E. Navarro* 182 (INB), *J. González* 797 (INB), *R. Villalobos* 251 (CR). Conservation status: Vulnerable (VU), A1c ver 2.3 (1994).

Aegiphila valerioi Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Nicaragua to Panama. Records: *D. Solano* 5248 (BM, INB, MO, PMA), *F. González* 449 (INB).

Clinopodium foliolosum (Benth.) Govaerts

Terrestrial shrubs. Distribution in PILA 3100–3400 m, high elevation oak forest, páramo. Global distribution: Costa Rica, Colombia, Venezuela. Records: *G. Herrera* 3663 (MO).

Cornutia pyramidata L.

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Mexico to Panama, Caribbean. Records: *D. Santamaría* 7442 (PMA).

Hyptis brachiata Briq.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Venezuela. Records: *D. Solano* 2866 (INB), *L. González* 1325 (INB).

Hyptis brevipes Poit.

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Lesser Antilles, Africa, Asia. Records: *D. Santamaría* 4417 (INB).

Hyptis lantanifolia Poit.

Terrestrial herbs to shrubs. Distribution in PILA 200–1600 m, low elevation mixed forest, mixed forest in transition

to low elevation forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *D. Solano 2864* (INB), *E. Alfaro 4197* (INB), *L. González 1200* (INB).

Hyptis obtusiflora C.Presl ex Benth.

Terrestrial herbs or shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Belize, Nicaragua to Bolivia. Records: *A. Rodríguez 11372* (BM, INB, MO, PMA), *E. Alfaro 3697* (INB), *L. Acosta 2393* (INB).

Hyptis sinuata Pohl ex Benth

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia, Brazil, Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 2811* (INB, MO), *E. Alfaro 3696* (INB), *M. Alfaro 143* (INB).

Hyptis vilis Kunth & C.D.Bouché

Terrestrial herbs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama, Venezuela. Records: *A. Picado 4* (CR, INB, MO), *E. Navarro 189* (INB).

Lepechinia schiedeana (Schltdl.) Vatke

Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica to Colombia. Records: *G. Davidse 26012* (MO).

Salvia alvajaca Oerst.

Alabaca cimarrona, Chirristate blanco (CR).

Terrestrial herbs. Distribution in PILA 800–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Nicaragua to Ecuador. Records: *A. Fernández 858* (INB, MO), *A. Rodríguez 10890* (BM, INB, PMA), *D. Solano 4069* (BM, INB, PMA), *G. Herrera 6024* (CR, INB, MO).

Salvia carnea Kunth

Terrestrial herbs. Distribution in PILA 800–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica to Ecuador, Venezuela. Records: *A.K. Monro 4053* (BM, INB), *A.K. Monro 4101* (BM), *A.K. Monro 5244* (BM, INB), *B.B. Klitgaard 800* (BM, INB), *G.*

Davidse 25150 (CR, MO), *G. Davidse 25170* (CR, MO), *G. Davidse 25730* (CR, MO), *G. Davidse 25848* (MO), *G. Herrera 3634* (INB), *G. Herrera 3747* (INB, MO), *S. Knapp 10052* (BM, INB).

Salvia pteroura Briq.

Terrestrial herbs or shrubs. Distribution in PILA 900–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: El Salvador, Costa Rica, Panama. Records: *A. Rodríguez 9841* (INB), *D. Solano 2892* (INB).

Scutellaria costaricana H.Wendl.

Pavoncillo rojo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11418* (BM, INB, PMA), *D. Santamaría 5909* (BM, INB, PMA), *G. Gallardo 104* (INB).

Scutellaria glabra Leonard

Platanillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4288* (BM, INB, PMA).

Scutellaria isocheila Donn.Sm.

Terrestrial herbs. Distribution in PILA 1400–1400 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *F. González 773* (INB, PMA).

ε-PILA *Scutellaria talamancana* A.Pool

Terrestrial herbs. Distribution in PILA 1100–1200 m, mixed forest in transition to low elevation forest. Global distribution: endemic to Costa Rica. Records: *M. Grayum 10909* (INB, MO).

Scutellaria tenuipetiolata A.Pool

Terrestrial herbs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3101* (MO).

Stachys costaricensis Briq.

Terrestrial herbs. Distribution in PILA 1000–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Colombia. Records: *M.A. Thomas 1660* (MO).

Stachys pittieri Briq.

Terrestrial herbs. Distribution in PILA 1400–3400 m,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *M. Grayum 10364* (CR).

ε-PILA *Stachys riparia* A.Pool

Terrestrial herbs. Distribution in PILA 1400–1800 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría 5839* (BM, INB, PMA), *D. Solano 4107* (BM, INB, PMA).

***Stachys uniflora* A.Pool**

Terrestrial herbs. Distribution in PILA 1600–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10771* (BM, INB, PMA), *D. Santamaría 5648* (BM, INB, PMA), *G. Davidse 26154* (CR, MO).

LENTIBULARIACEAE

***Utricularia amethystina* Salzm. ex A.St.-Hil. & Girard**
Aquatic or terrestrial herbs. Distribution in PILA 500–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras, Costa Rica to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Greater Antilles. Records: *D. Santamaría 3504* (INB), *D. Solano 2880* (INB).

***Utricularia jamesoniana* Oliv.**

Epiphytic herbs. Distribution in PILA 700–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Nicaragua to Bolivia, Venezuela, Guayanas, N Brazil, Antilles. Records: *A. Chacón 193* (CR, INB, MO), *A. Chacón 279* (CR, MO), *D. Santamaría 4463* (INB), *G. Herrera 3288* (INB, MO), *G. Herrera 5348* (INB, MO), *G. Herrera 5348,1* (INB), *S. Knapp 4836* (MO).

***Utricularia praetermissa* P.Taylor**

Facultatively epiphytic herbs. Distribution in PILA 800–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, sabana natural grassland. Global distribution: Nicaragua to Panama. Records: *A. Soto 325* (INB), *F. Solís 13* (CR, INB, MO).

***Utricularia unifolia* Ruiz & Pav.**

Facultatively epiphytic herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A. Chacón 569* (INB, MO), *G. Davidse 28586* (CR, MO), *G. Herrera 3707* (INB, MO).

LEPIDOBOTRYACEAE

***Ruptiliocarpon caracolito* Hammel & N.Zamora**
Caracolito, Cedro caracolito, Lépedo (CR).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama, Colombia to Peru. Records: *D. Santamaría, Oct. 22, 2008* (Field obs.), *D. Santamaría, Oct. 25, 2008* (Field obs.). Uses: timber.

LINDERNIACEAE

***Lindernia diffusa* (L.) Wettst.**

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Brazil, Lesser Antilles, Greater Antilles. Records: *M. Alfaro 2* (INB).

LOASACEAE

***Klaprothia mentzelioides* Kunth**

Terrestrial herbs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica to Bolivia. Records: *A. Fernández 911* (CR, INB, MO), *A. Rodríguez 10961* (BM, INB, MO, PMA), *B. Hammel 5809* (MO), *D. Santamaría 5726* (BM, INB, MO, PMA), *D. Santamaría 5782* (BM, INB, MO, PMA), *D. Solano 3993* (BM, INB, MO, PMA), *G. Herrera 6009* (CR, INB, MO), *J. Bittner 1835* (CR, INB, MO), *M. Grayum 10361* (CR, INB, MO).

ψ *Nasa speciosa* (Donn.Sm.) Weigend

Terrestrial herbs to shrubs. Distribution in PILA 1900–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *B. Hammel 1453* (MO), *F. Almeda 3508* (MO), *G. Davidse 25780* (CR, MO), *G. Herrera 3669* (INB), *G. Herrera 6249* (CR, INB, MO). Global conservation status: Endangered (EN), B1ab(i,iii).

***Nasa triphylla* (Juss.) Weigend**

Terrestrial herbs to shrubs. Distribution in PILA 1600–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Nicaragua to Panama, Colombia, Peru, Venezuela. Records: *D. Santamaría 5780* (BM, INB, MO, PMA), *D. Santamaría 7247* (BM, INB, MO, PMA), *D. Solano 4112* (BM, INB, MO, PMA), *K. E. Blum 2670* (MO), *L. Acosta 2301* (INB).

LOGANIACEAE

Spigelia scabra Cham. & Schltld.

Terrestrial herbs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina. Records: *D. Santamaría* 7098 (BM, INB, MO, PMA), *G. Herrera* 3090 (MO).

LORANTHACEAE

ψ *Gaiadendron punctatum* (Ruiz & Pav.) G. Don Matapalo (CR).

Shrubs or facultatively epiphytic trees. Distribution in PILA 0–3800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A. Chacón* 582 (INB, MO), *A. Fernández* 1053 (INB), *A. Fernández* 684 (CR, INB, MO), *A. Fernández* 922 (CR, INB), *A.K. Monro* 4097 (BM, INB, MO), *A.K. Monro* 4307 (BM, INB, MO), *A.K. Monro* 5176 (BM, INB, MO), *A.K. Monro* 5187 (BM, INB, MO), *A.K. Monro* 5234 (BM, INB, MO), *A. Soto* 322 (INB), *B.B. Klitgaard* 799 (BM, INB, MO), *B. Gamboa* 1237 (INB), *B. Gamboa* 1723 (INB, MO), *B. Gamboa* 585 (CR, INB, MO), *D. Solano* 5223 (BM, INB, MO, PMA), *E. Alfaro* 3289 (INB), *E. Alfaro* 4696 (INB), *G. Davidse* 23866 (CR, MO), *G. Davidse* 25379 (CR, MO), *G. Davidse* 25854 (CR, MO), *G. Davidse* 25899 (MO), *G. Davidse* 28756 (CR, MO), *G. Herrera* 6110 (CR, INB, MO), *J. Bittner* 1810 (INB, MO), *F. Quesada* 1835 (INB), *F. Quesada* 1947 (INB), *L. Angulo* 240 (CR, INB), *L. González* 2487 (INB), *L. González* 3635 (INB), *M. Grayum* 10346 (CR, INB, MO), *M. Moraga* 395 (INB), *M. Moraga* 429 (CR, INB), *R. Aguilar* 1109 (INB, MO), *R. Aguilar* 1119 (INB), *S. Knapp* 9974 (BM, INB, MO). Regional conservation status: Near Threatened (NT).

Oryctanthus occidentalis (L.) Eichler

Epiphytic shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Bolivia, Greater Antilles. Records: *D. Solano* 5490 (PMA), *G. Herrera* 5209 (CR, INB, MO).

Oryctanthus spicatus (Jacq.) Eichler

Epiphytic shrubs. Distribution in PILA 200–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Belize, Guatemala, Costa Rica, Venezuela to Bolivia. Records: *A.K. Monro* 5991 (PMA), *D. Santamaría* 7473 (PMA), *D. Santamaría* 7597 (PMA).

Panamanthus panamensis (Rizzini) Kuijt

Epiphytic shrubs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *F. Almeda* 3536 (MO).

Psittacanthus rhynchanthus (Benth.) Kuijt

Epiphytic shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela. Records: *L. Acosta* 2318 (INB).

Psittacanthus scheryi Woodson

Epiphytic shrubs. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4483 (BM, INB), *A.K. Monro* 4936 (BM, INB, MO), *M. Chinchilla* 192 (CR, INB).

Psittacanthus schiedeana (Schltld. & Cham.) G. Don Matapalo (CR).

Epiphytic shrubs. Distribution in PILA 1200–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A.K. Monro* 4496 (BM, INB), *D. Santamaría* 5899 (BM, INB, MO, PMA), *G. Herrera* 6039 (CR, INB, MO), *R. J. Schmalzel* 1348 (MO).

Struthanthus burgeri Kuijt

Epiphytic shrubs. Distribution in PILA 800–800 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 3326 (INB, MO).

Struthanthus cansjerifolius (Oliv.) Eichler

Epiphytic shrubs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: El Salvador, Costa Rica to Panama. Records: *A.K. Monro* 5611 (BM, INB, MO, PMA), *A. Rodríguez* 11919 (BM, INB, MO, PMA), *D. Solano* 4057 (BM, INB, MO, PMA), *G. Herrera* 6096 (CR, INB), *N. Zamora* 4097 (BM, INB, MO, PMA).

Struthanthus hartwegii (Benth.) Standl.

Epiphytic shrubs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *R. Villalobos* 218 (CR, INB).

Struthanthus leptostachyus (Kunth) G. Don

Epiphytic shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez 11887* (BM, INB, MO, PMA), *A. Soto 1256* (INB), *D. Solano 3208* (INB), *J. Corrales 30* (INB), *F. Quesada 1883* (INB), *R. Aguilar 1120* (INB).

Struthanthus quercicola (Schltdl. & Cham.) D. Don

Epiphytic shrubs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Chacón 587* (INB, MO), *A. Fernández 1855* (INB), *A.K. Monro 4155* (BM), *A.K. Monro 5287* (BM, INB, MO), *D. Santamaría 4426* (INB), *D. Santamaría 5755* (BM, INB, MO, PMA), *E. Alfaro 4639* (INB), *E. Alfaro 4686* (INB), *E. Alfaro 734* (INB), *G. Davidse 25471* (MO), *G. Davidse 25748* (CR, MO), *G. Davidse 25753* (CR, MO), *G. Davidse 29026* (CR, MO), *G. Davidse 29124* (CR, MO), *J. Bittner 1812* (INB), *F. Quesada 1617* (INB), *F. Quesada 1945* (INB), *M. Alfaro 37* (INB), *M. Grayum 10330* (CR, INB, MO), *M. Moraga 402* (INB), *S. Knapp 10007* (BM, INB), *S. Knapp 9910* (BM, INB).

LYTHRACEAE

Cuphea appendiculata Benth.

Terrestrial shrubs. Distribution in PILA 300–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Maroto 202* (INB, MO), *A. Rodríguez 11362* (BM, INB, MO, PMA), *C. Hamilton 3654* (MO), *C. Hamilton 719* (MO), *C. Hamilton 745* (MO), *L. Acosta 2394* (INB), *S. Knapp 1516* (MO).

Cuphea carthagenensis (Jacq.) J.F. Macbr.

Santalucía, Nicaragua (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Argentina, Greater Antilles, Lesser Antilles, Pacific Islands. Records: *C. Hamilton 697* (MO), *L. Acosta 2315* (INB).

Cuphea epilobiifolia Koehne

Terrestrial herbs or shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest. Global distribution: Costa Rica to Venezuela. Records: *M. Correa 3625* (MO).

MALPIGHIACEAE

□ ***Bunchosia costaricensis*** Rose

Terrestrial shrubs or trees. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Panama. Records: *A. De Sedas 606* (INB, PMA), *D. Santamaría 6450* (BM, INB, MO, PMA).

Bunchosia macrophylla Rose

Muñeco (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Colombia. Records: *D. Santamaría 7259* (BM, INB, MO, PMA), *D. Solano 5198* (BM, INB, MO, PMA).

Bunchosia polystachia (Andrews) DC.

Terrestrial shrubs or trees. Distribution in PILA 800–800 m, mixed forest in transition to low elevation forest. Global distribution: Belize, El Salvador to Costa Rica, French Guyana, Greater Antilles, Lesser Antilles. Records: *A. Fernández 833* (CR, INB).

Bunchosia ternata Dobson

Terrestrial shrubs or trees. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5585* (BM, INB, MO, PMA), *A. Rodríguez 10809* (BM, INB, MO, PMA), *D. Solano 3949* (BM, INB, MO, PMA), *G. Herrera 5878* (CR, INB).

Byrsonima arthropoda A. Juss.

Terrestrial shrubs or trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Brazil. Records: *G. Herrera 3340* (INB, MO).

Byrsonima crassifolia (L.) Kunth

Nance, Nancite, Tsiki, Bek (Cabécar), Si+krá (Brunka), Skír-ko (Térraba) (CR), Nance (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles. Records: *D. Solano 2878* (INB). Uses: colouring, Edible, biological control, timber, medicinal, Textil.

ψ ***Byrsonima herrerae*** W.R. Anderson

Nance, Nancite, Tsiki (CR).

Terrestrial trees. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 6716 (BM, INB, MO, PMA), *G. Herrera* 2709 (MO), *G. Herrera* 3333 (INB, MO). Global conservation status: Endangered (EN), B1ab(iii).

Heteropterys panamensis Cuatrec. & Croat

Terrestrial lianas. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 11294 (BM, INB, MO, PMA).

Hiraea fagifolia (DC.) A.Juss.

Terrestrial lianas. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Lesser Antilles. Records: *D. Santamaría* 6244 (BM, INB, MO, PMA).

Hiraea smilacina Standl.

Terrestrial lianas. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Honduras, Costa Rica to Ecuador. Records: *E. Alfaro* 2186 (CR, INB).

Stigmaphyllon lindenianum A.Juss.

Terrestrial lianas. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez*, *Jul. 21, 2007 (Field obs.)*.

MALVACEAE

ψ ***Hampea appendiculata*** (Donn.Sm.) Standl.

Buriogre, Algodoncillo, Burío blanco, Azajardillo, Burío, Burío raton (CR), Playo blanco, Azote (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Honduras to Panama. Records: *D. Solano* 4673 (BM, INB, MO, PMA), *J. González* 820 (CR, INB). Uses: handicrafts, cellulose. Regional conservation status: Least Concern (LC).

Heliocarpus americanus L.

Burío, Burillo (CR), Majaguillo, Majagua (P).

Terrestrial trees. Distribution in PILA 300–2100 m, low elevation mixed forest, mixed forest in transition to

low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, sabana natural grassland. Global distribution: Mexico to Paraguay, Lesser Antilles. Records: *L. González* 3587 (INB).

ψ ***Heliocarpus appendiculatus*** Turcz.

Burío, Burillo, Buría, Burío patón, Buriogre, Tsa-ri (Cabécar), Stsa (Bribri), Gsii+krá (Brunka), Rús-ura+gró (Térraba) (CR).

Terrestrial trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez*, *Jul. 21, 2007 (Field obs.)*, *A. Rodríguez*, *Jul. 25, 2007 (Field obs.)*, *N. Zamora*, *Aug. 1, 2008 (Field obs.)*, *N. Zamora*, *Jul. 29, 2008 (Field obs.)*. Uses: handicrafts, cellulose. Regional conservation status: Least Concern (LC).

□ ***Malvaviscus achanoides*** (Turcz.) Fryxell

Terrestrial shrubs. Distribution in PILA 300–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica, Panamá. Records: *A. Rodríguez* 10979 (BM, INB, MO, PMA), *D. Santamaría* 7265 (BM, INB, MO, PMA), *D. Solano* 4565 (BM, INB, MO, PMA), *D. Solano* 5257 (BM, INB, MO, PMA), *E. Alfaro* 754 (INB), *G. Davidse* 28418 (CR, MO), *N. Zamora* 4173 (BM, INB, MO, PMA).

Malvaviscus arboreus Cav.

Tulipancillo, Obelisco, Quesito, Amapolita, Amapola (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Venezuela. Records: *C. Hamilton* 759 (MO). Uses: handicrafts, medicinal.

Malvaviscus concinnus Kunth

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Costa Rica to Brazil. Records: *A. Fernández* 1051 (INB), *D. Santamaría* 7438 (PMA), *D. Solano* 4078 (BM, INB, MO, PMA), *J. Lezcano* 350 (PMA).

ψ ***Mortoniendron abelianum*** Al.Rodr.

Terrestrial trees. Distribution in PILA 1400–2000 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 5050 (BM, INB, MO, PMA), *D. Solano* 5193 (BM, INB, MO, PMA), *L. Angulo* 165 (INB), *M. Chinchilla* 180

(INB), *M. Chinchilla* 22 (INB). Global conservation status: Endangered (EN), B1ab(i,iii).

Mortoniendron anisophyllum (Standl.) Standl. & Steyerl. Palo yuca, Pellejo de vieja, Cuero de vieja (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría*, Oct. 27, 2008 (*Field obs.*), *A. Rodríguez*, Sept 29, 2007 (*Field obs.*). Uses: timber.

Mortoniendron moralesii Al.Rodr.

Terrestrial trees. Distribution in PILA 900–900 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11207 (BM, INB, MO, PMA).

Ochroma pyramidale (Cav. ex Lamarck) Urb.

Balsa, Balso, Enea, Wlúklo, Kachá, Dachaclö, Dichá, Dachá, Urú (Bribri), Pung (Térraba), Piú (Guatuso) (CR), Balso, Balsa, Lano (P).

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica to Bolivia. Records: *A. Rodríguez*, Jul. 21, 2007 (*Field obs.*). Uses: timber, Textil.

ψ ***Pachira aquatica*** Aubl.

Cacao cimarrón, Cacao de danta, Huevos de burro, Jelinjoche, Lirio de montaña, Poponjoche, Quirihuillo, Zapotón, Pluma, Quiguillo, Popojiroche, Operihoche, Psi+krá (Térraba), Popenjoche, Jilinjoché (CR), Sapote, Coco de agua (P).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to French Guyana, Bolivia. Records: *A. Maroto* 267 (INB). Regional conservation status: Near Threatened (NT).

Pavonia castaneifolia A.St.-Hil. & Naudin

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Honduras to Bolivia, Lesser Antilles. Records: *A. Rodríguez* 11354 (BM, INB, MO, PMA), *A. Rodríguez* 9814 (INB), *D. Solano* 4304 (BM, INB, MO, PMA), *D. Solano* 4461 (BM, INB, MO, PMA), *J. González* 792 (CR, INB, MO).

Pavonia penduliflora (Standl.) Standl.

Terrestrial shrubs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama, Peru. Records: *J. Dwyer* 7696 (MO).

Pavonia peruviana Gürke

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Peru. Records: *E. Navarro* 190 (INB).

Pavonia schiedeana Steud.

Cadillo, Mozote (CR).

Terrestrial shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 4404 (INB), *D. Solano* 3200 (INB), *G. Davidse* 28383 (MO).

Quararibea asterolepis Pittier

Garrocho, Guácimo molenillo, Garroche, Guácimo (CR), Guayabillo, Garrocho, Panula, Cinco dedos, Palo cuadrado (P).

Terrestrial trees. Distribution in PILA 100–500 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *D. Solano*, Oct. 25, 2007 (*Field obs.*). Uses: timber.

Quararibea obliquifolia (Standl.) Standl.

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría*, Oct. 24, 2008 (*Field obs.*), *D. Santamaría*, Oct. 25, 2008 (*Field obs.*).

Quararibea ochrocalyx (K.Schum.) Vischer

Terrestrial trees. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama to Brazil. Records: *D. Santamaría*, Oct. 26, 2007 (*Field obs.*).

Quararibea parvifolia Standl.

Terrestrial trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 6005 (BM, INB, MO, PMA), *D. Solano* 4879 (BM, INB, MO, PMA), *R. Aguilar* 1174 (INB, MO).

Quararibea pendula W.S.Alverson

Terrestrial trees. Distribution in PILA 100–300 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 3074 (MO). Conservation status: Endangered (EN), C2a ver 2.3 (1994).

Sida linifolia Cav.

Hoja lanceta, Lengua de pájaro (CR).

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles, Africa, Melanesia. Records: *D. Santamaría* 3485 (INB), *D. Solano* 2918 (INB).

***Sida rhombifolia* L.**

Escobilla, Escobilla de chanco, Escobilla negra, Huinar, Azocatzín, Tüsko, Kual, Kuar+só (Térraba) (CR).

Terrestrial shrubs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: USA to Bolivia, the Guyanas, Argentina, Antilles Trópicos, Subtrópicos de Africa, Madagascar, Trópicos de Asia. Records: *C. Hamilton* 762 (MO). Uses: biological control, medicinal.

***Spirotheca rosea* (Seem.) P.E.Gibbs & W.S.Alverson**
Ceiba rosada, Ceiba (CR).

Hemi-epiphytic tree. Distribution in PILA 500–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia. Records: *D. Santamaría* 5962 (BM, INB, MO, PMA). Conservation status: Vulnerable (VU), A; c.

***Triumfetta bogotensis* DC.**

Mostrenco, Mozote de caballo (CR).

Terrestrial shrubs. Distribution in PILA 300–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *D. Santamaría* 3509 (INB), *D. Solano* 2842 (INB), *J. A. Duke* 13630 (MO).

***Triumfetta grandiflora* Vahl**

Terrestrial shrubs. Distribution in PILA 1200–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru. Records: *G. Herrera* 6201 (INB).

ψ ***Wercklea insignis* Pittier & Standl.**

Burío extranjero, Burío guaria, Clavelón de montaña, Tabacón, Panama, Clavelón, Burío, Farol Chino (CR).

Terrestrial trees. Distribution in PILA 400–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez, Jul. 25, 2007 (Field obs.)*. Global conservation status: Vulnerable (VU), B1ab(i,iii).

ψ ***Wercklea woodsonii* (A.Robyns.) Fryxell**
Terrestrial trees. Distribution in PILA 900–2800 m, mixed

forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 655 (INB), *D. Solano* 3996 (BM, INB, MO, PMA), *E. Alfaro* 742 (INB), *R. Villalobos* 267 (CR, INB). Global conservation status: Endangered (EN), B1ab(i,iii).

MARCGRAVIACEAE

***Marcgravia brownei* (Triana & Planch.) Krug & Urb.**

Hemi-epiphytic shrubs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela, Greater Antilles. Records: *A. Maroto* 201 (CR, INB), *A. Rodríguez* 10778 (BM, INB, MO, PMA), *D. Solano* 5007 (BM, INB, MO, PMA), *G. Davidse* 28396 (CR, MO), *J. González* 826 (CR, INB, MO), *K. E. Blum* 2653 (MO), *M. Chinchilla* 2 (CR, INB).

***Marcgravia caudata* Triana & Planch.**

Hemi-epiphytic shrubs. Distribution in PILA 400–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A.K. Monro* 5803 (BM, INB, MO, PMA), *B. Hammel* 17611 (MO), *D. Santamaría* 6472 (BM, INB, MO, PMA), *D. Santamaría* 6533 (BM, INB, MO, PMA), *D. Santamaría* 7791 (PMA), *D. Solano* 4724 (BM, INB, MO, PMA), *D. Solano* 4794 (BM, INB, MO, PMA), *G. Gallardo* 82 (CR, INB), *L. Martínez* 359 (PMA), *L. Martínez* 416 (PMA).

***Marcgravia mexicana* Gilg**

Hemi-epiphytic shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Honduras to Panama. Records: *A.K. Monro* 4316 (BM, INB), *A.K. Monro* 4440 (BM, INB), *A.K. Monro* 6030 (PMA), *A. Rodríguez* 11007 (BM, INB, MO, PMA), *D. Santamaría* 5883 (BM, INB, MO, PMA), *D. Solano* 4159 (BM, INB, MO, PMA), *G. Herrera* 5236 (CR, INB, MO).

***Marcgravia nepenthoides* Seem.**

Hemi-epiphytic shrubs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Mexico to Colombia. Records: *A.K. Monro* 4314 (BM, INB, MO).

***Marcgravia roonii* S.Dressler**

Hemi-epiphytic shrubs. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed

forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro 6014* (PMA), *D. Solano 5406* (PMA).

Marcgravia schippii Standl.

Hemi-epiphytic shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Belize, Guatemala, Nicaragua to Venezuela. Records: *G. Herrera 2679* (INB, MO).

Marcgravia serrae de Roon

Hemi-epiphytic shrubs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5920* (CR, INB, MO), *J. Aranda 3256* (MO).

Marcgraviastrum subsessile (Benth.) Bedell

Hemi-epiphytic shrubs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Ecuador. Records: *L.D. Gómez 23322* (MO).

Schwartzia costaricensis (Gilg) Bedell

Hemi-epiphytic shrubs. Distribution in PILA 900–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11524* (BM, INB, MO, PMA), *A. Soto 345* (INB), *D. Solano 5499* (PMA), *E. Alfaro 4708* (INB), *G. Herrera 5430* (CR, INB, MO), *J. A. Duke 13648* (MO), *F. Quesada 1982* (CR, INB, MO), *M. Moraga 512* (CR, INB), *N. Zamora 4142* (BM, INB, MO, PMA).

MELASTOMATACEAE

Aciotis rubricaulis (Mart. ex DC.) Triana

Terrestrial herbs or shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Belize to Bolivia, Venezuela, Guayanas, Brazil. Records: *A. Chacón 3* (MO), *D. Santamaría 6456* (BM, INB, MO, PMA).

Adelobotrys adscendens (Sw.) Triana

Terrestrial lianas. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Venezuela,

Guayanas, Brazil, Antilles Mayores. Records: *A.K. Monro 5742* (BM, INB, MO, PMA), *A. Rodríguez 11621* (BM, INB, MO, PMA).

ψ ***Axinaea costaricensis*** Cogn.

Terrestrial trees. Distribution in PILA 200–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 703* (CR, INB, MO), *G. Davidse 25195* (CR), *G. Herrera 3750* (INB, MO). Global conservation status: Endangered (EN), B1ab(i, iii).

ψ ***Bellucia pentamera*** Naudin

Coronillo, Higo, Papaturro agrio (CR), Coronillo (P).

Terrestrial trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia Venezuela, Guyana, Brazil, Lesser Antilles. Records: *A. Soto 1253* (INB). Uses: food. Regional conservation status: Least Concern (LC).

□ ***Blakea anomala*** Donn.Sm.

Sanmiguel (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4860* (BM, INB, MO), *A.K. Monro 5543* (BM, INB, MO, PMA), *A. Rodríguez 11308* (BM, INB, MO, PMA), *A. Rodríguez 11670* (BM, INB, MO, PMA), *D. Santamaría 6469* (BM, INB, MO, PMA), *D. Santamaría 6702* (BM, INB, MO, PMA), *D. Solano 4026* (BM, INB, MO, PMA), *D. Solano 4420* (BM, INB, MO, PMA), *D. Solano 4864* (BM, INB, MO, PMA), *L.D. Gómez 23260* (MO).

Blakea calycosa Gleason

Epiphytic shrubs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Gallardo 280* (MO).

Blakea costaricensis Umaña & Almeda

Epiphytic shrubs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4982* (BM, INB, MO), *D. Santamaría 6700* (BM, INB, MO, PMA), *G. Herrera 5192* (CR, MO), *G. Herrera 6215* (CR, INB, MO), *R. Aguilar 1098* (CR, INB, MO).

Blakea dimorphophylla (Almeda) Penneys & Almeda

Hemi-epiphytic shrubs. Distribution in PILA 100–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4838* (BM, INB, PMA), *G. Herrera 5294* (CR, INB, MO).

Faltan testigos para Panamá, los que mencionamos son de CR.

Blakea elliptica (Gleason) Almeda

Epiphytic shrubs. Distribution in PILA 1400–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *G. McPherson 8331* (MO).

Blakea gracilis Hemsl.

Sanmiguel, Catarina (CR).

Epiphytic shrubs. Distribution in PILA 100–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *B. Gamboa 632* (INB), *D. Santamaría 7261* (BM, INB, MO, PMA), *E. Alfaro 760* (INB), *F. Quesada 1724* (CR, INB), *M. Alfaro 22* (INB).

ψ ***Blakea grandiflora*** Hemsl.

Sanmiguel, Sanmiguel blanco (CR).

Shrubs or facultatively epiphytic trees. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5539* (BM, INB, MO, PMA), *A. Rodríguez 10663* (INB), *A. Rodríguez 10779* (BM, INB, MO), *A. Rodríguez 11772* (BM, INB, MO, PMA), *D. Santamaría 5662* (BM, INB, MO, PMA), *D. Solano 4140* (BM, INB, MO, PMA). Global conservation status: Vulnerable (VU), B1ab(i, iii).

Blakea guatemalensis Donn.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, , dense thicket. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A.K. Monro 5096* (BM, INB, MO), *E. Alfaro 5537* (BM, INB, MO).

Blakea pauciflora Gleason

Epiphytic shrubs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 596* (PMA), *A. Fernández 822* (CR, INB, MO), *A.K. Monro 4317* (BM, INB, MO), *A.K. Monro 4500* (BM, INB), *A.K. Monro 6010* (PMA), *A. Rodríguez 10790* (BM, INB, MO, PMA), *A. Rodríguez 11033* (BM, INB, MO, PMA), *D. Santamaría 5739*

(BM, INB, MO, PMA), *D. Santamaría 7348* (PMA), *D. Santamaría 7477* (PMA), *L. Martínez 429* (PMA), *R. J. Schmalzel 38* (MO).

Blakea penduliflora Almeda

Epiphytic shrubs. Distribution in PILA 1400–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *B. Gamboa 1204* (INB, MO), *G. Davidse 28855* (INB, MO).

Blakea storkii (Standl.) Almeda

Epiphytic shrubs. Distribution in PILA 900–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11900* (BM, INB, MO, PMA), *D. Santamaría 7022* (BM, INB, MO, PMA), *D. Santamaría 7221* (BM, INB, MO, PMA), *D. Solano 5058* (BM, INB, MO, PMA), *E. Alfaro 3989* (INB), *G. Davidse 23960* (CR, MO), *G. Davidse 25256* (CR, MO), *G. Davidse 28467* (CR, MO), *G. Herrera 3261* (INB, MO), *G. Herrera 3415* (MO), *F. Quesada 1554* (INB), *F. Quesada 1684* (CR, INB), *L. González 3627* (INB), *L. González 3646* (INB), *M.A. Thomas 1686* (MO), *M. Moraga 267* (CR, INB), *R. Villalobos 260* (CR, INB).

Blakea tuberculata Donn.Sm.

San Miguel (CR).

Epiphytic shrubs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4861* (BM, INB, MO), *D. Santamaría 6646* (BM, INB, MO, PMA), *E. Alfaro 5559* (BM, INB, MO).

Centradenia grandifolia (Schltdl.) Endl.

Terrestrial shrubs. Distribution in PILA 1300–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica. Records: *D. Solano 5128* (BM, INB, MO, PMA), *E. Navarro 4* (CR, INB, MO).

Centradenia inaequilateralis (Schltdl. & Cham.) G.Don

Terrestrial shrubs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Solano 4524* (BM, CR, INB).

ψ ***Chaetolepis cufodontisii*** Standl.

Terrestrial shrubs. Distribution in PILA 2000–3700 m, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 28888* (CR, MO). Global conservation status: Endangered

(EN), B1ab(i, iii).

Clidemia biolleyana Cogn.

Terrestrial shrubs. Distribution in PILA 600–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. De Sedas* 824 (BM, PMA), *A. De Sedas* 928 (BM, PMA), *A. De Sedas* 946 (BM, PMA).

Clidemia clandestina Almeda

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1000–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *F. Solís* 21 (CR, INB, MO), *G. Herrera* 5280 (CR, MO), *G. Herrera* 5383 (INB).

Clidemia coloradensis Almeda

Terrestrial shrubs. Distribution in PILA 1200–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5620 (BM, INB, MO, PMA), *D. Santamaría* 5837 (BM, INB, MO, PMA), *D. Santamaría* 5866 (BM, INB, MO, PMA), *D. Solano* 4656,1 (BM, INB, MO, PMA), *G. Herrera* 6065 (INB).

Clidemia coronata Gleason

Terrestrial shrubs. Distribution in PILA 900–900 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 6141 (BM, INB, MO, PMA), *D. Santamaría* 6207 (BM, INB, MO, PMA), *D. Solano* 4354 (BM, INB, MO, PMA).

Clidemia costaricensis Cogn. & Gleason
Purrá (CR).

Terrestrial shrubs or trees. Distribution in PILA 900–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10947 (BM, INB, MO, PMA), *A. Rodríguez* 11513 (BM, INB, MO, PMA), *D. Santamaría* 5840 (BM, INB, MO, PMA), *D. Santamaría* 6596 (BM, INB, MO, PMA), *D. Santamaría* 6615 (BM, INB, MO, PMA).

Clidemia davidsei Almeda

Terrestrial shrubs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Nicaragua, Costa Rica. Records: *G. Davidse* 28374 (CR, MO).

Clidemia densiflora (Standl.) Gleason

Terrestrial shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low

elevation forest. Global distribution: Belize to Ecuador. Records: *A.K. Monro* 6310 (PMA), *A.K. Monro* 6356 (PMA), *A. Rodríguez* 11556 (BM, INB, MO, PMA), *D. Santamaría* 6818 (BM, INB, MO, PMA), *D. Solano* 4858 (BM, INB, MO, PMA).

Clidemia dentata D. Don

Purrá (CR).

Terrestrial shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil. Records: *A. Rodríguez* 11171 (BM, INB, MO, PMA), *D. Solano* 4272 (BM, INB, MO, PMA), *G. Herrera* 3051 (MO).

Clidemia discolor (Triana) Cogn.

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Nicaragua to Peru, Venezuela. Records: *G. Herrera* 5203 (CR, INB, MO), *J. Bittner* 1523 (INB, MO).

Clidemia epiphytica (Triana) Cogn.

Terrestrial lianas. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala, Honduras, Costa Rica to Bolivia, Venezuela, French Guyana, Brazil. Records: *D. Santamaría* 6474 (BM, INB, MO, PMA), *S. Bridgewater* 4147 (BM, INB, MO, PMA).

Clidemia evanescens Almeda

Terrestrial shrubs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría* 7827 (BM, INB, MO), *L. Martínez* 399 (BM, INB, MO).

Clidemia globuliflora (Cogn.) L.O. Williams

Terrestrial herbs or shrubs. Distribution in PILA 1200–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 5453 (INB, MO), *G. Herrera* 5481 (CR, INB, MO), *G. Herrera* 5494 (INB), *G. Herrera* 5496 (CR, INB, MO).

Clidemia gracilis Pittier

Terrestrial shrubs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Nicaragua to Colombia. Records: *G. Herrera* 3029 (MO).

Clidemia hammelii Almeda

Terrestrial shrubs or trees. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition

to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *G. Herrera* 3026 (MO).

Clidemia lanuginosa Almeda

Terrestrial shrubs. Distribution in PILA 400–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Gallardo* 281 (CR, MO), *G. Gallardo* 88 (CR, INB, MO).

Clidemia ombrophila Gleason

Terrestrial shrubs. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Ecuador. Records: *A. Fernández* 869 (CR, INB, MO), *A.K. Monro* 4276 (BM, INB, MO), *A.K. Monro* 5058 (BM, INB, MO), *A. Rodríguez* 10911 (BM, INB, MO, PMA), *A. Rodríguez* 11474 (BM, INB, MO, PMA), *D. Santamaría* 5832 (BM, INB, MO, PMA), *D. Santamaría* 6517 (BM, INB, MO, PMA), *D. Solano* 4151 (BM, INB, MO, PMA), *G. Herrera* 6178 (INB), *J. Bittner* 1527 (MO).

Clidemia pubescens Gleason

Terrestrial herbs or shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 3032 (MO).

Clidemia radicans Cogn.

Terrestrial herbs or shrubs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *D. Solano* 4542 (BM, INB, MO, PMA), *S. Bridgewater* 4172 (BM, INB, MO, PMA).

Clidemia reitziana Cogn. & Gleason

Terrestrial shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Panama. Records: *D. Solano* 4301 (BM, INB, MO, PMA), *G. Herrera* 3122 (MO).

Clidemia septuplinervia Cogn.

Terrestrial shrubs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, secondary forest. Global distribution: Mexico to Bolivia, Venezuela, Surinam, French Guyana, Brazil, Jamaica. Records: *G. Herrera* 3105 (MO).

Clidemia sericea D. Don

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to

low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil. Records: *A. Rodríguez* 9838 (INB), *A. Soto* 1232.1 (INB), *D. Santamaría* 3463 (INB), *D. Santamaría* 3749 (INB), *D. Solano* 2882 (INB), *E. Alfaro* 2204 (INB), *F. González* 347 (INB).

Clidemia sessiliflora (Naudin) Cogn.

Terrestrial shrubs. Distribution in PILA 600–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A.K. Monro* 6377 (PMA).

Clidemia setosa (Triana) Gleason

Terrestrial herbs or shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture, secondary forest. Global distribution: Mexico to Panama. Records: *D. Santamaría* 6745 (BM, INB, MO, PMA), *E. Alfaro* 5522 (BM, INB, MO), *G. Herrera* 6013 (CR, INB, MO).

Clidemia spectabilis Gleason

Felpudo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 200–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A.K. Monro* 5874 (BM, INB, MO, PMA), *A. Rodríguez* 11416 (BM, INB, MO, PMA), *D. Santamaría* 6512 (BM, INB, MO, PMA), *D. Solano* 4656 (BM, INB, MO, PMA), *D. Solano* 4777 (BM, INB, MO, PMA), *G. Herrera* 5405 (CR, INB).

Clidemia subpeltata Kriebel & Almeda

Terrestrial shrubs. Distribution in PILA 1100–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 4454 (BM, INB).

Clidemia tenebrosa Almeda

Terrestrial herbs. Distribution in PILA 1000–1000 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *A.K. Monro* 6271 (BM, INB, PMA), *A.K. Monro* 6351 (BM, INB, PMA).

Clidemia tetrapetala Almeda

Terrestrial shrubs. Distribution in PILA 1400–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10940 (BM, INB, PMA), *A. Rodríguez* 11335 (BM, INB, PMA), *D. Santamaría* 5746 (BM, INB, PMA), *G. Herrera*

2831 (MO).

Clidemia utleyana Almeda

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5751* (BM, INB, MO, PMA), *A. Rodríguez 11053* (BM, INB, MO, PMA), *A. Rodríguez 11545* (BM, INB, MO, PMA), *D. Solano 4193* (BM, INB, MO, PMA), *D. Solano 4711* (BM, INB, MO, PMA), *D. Solano 4819* (BM, INB, MO, PMA), *G. Herrera 5423* (CR, INB, MO).

Conostegia bigibbosa Cogn.

Terrestrial shrubs or trees. Distribution in PILA 600–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Soto 1252* (INB), *F. Quesada 1894* (INB), *L. Acosta 2279* (INB).

Conostegia chiriquensis Gleason ex Woodson & Schery

Terrestrial trees. Distribution in PILA 700–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10690* (BM, INB, MO, PMA), *D. Santamaría 5855* (BM, INB, MO, PMA). Conservation status: Vulnerable (VU), C1 ver 2.3 (1994).

Conostegia icosandra Urb.

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia, Venezuela, Trinidad & Tobago, Brazil, Antilles. Records: *D. Santamaría 6660* (BM, INB, MO, PMA).

Conostegia lasiopoda Benth.

Terrestrial trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *A.K. Monro 6388* (BM, INB, MO).

Conostegia micrantha Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Nicaragua to Panama, Ecuador. Records: *A. Rodríguez 11262* (BM, INB, MO, PMA), *A. Rodríguez 11296* (BM, INB, MO, PMA), *D. Santamaría 4407* (INB).

Conostegia montana (Sw.) D. Don ex DC.

Terrestrial shrubs or trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture, dense thicket. Global distribution: Mexico to Ecuador, Venezuela, Guyana, Antilles. Records: *A.K. Monro 4267* (BM, INB, MO), *A.K. Monro 4370* (BM, MO), *A.K. Monro 4510* (BM, MO), *A.K. Monro 5540* (BM, INB, MO, PMA), *D. Santamaría 5833* (BM, INB, MO, PMA), *D. Santamaría 7219* (BM, INB, MO, PMA), *D. Solano 4165* (BM, INB, MO, PMA), *G. Herrera 3270* (INB, MO), *G. Herrera 5964* (CR, INB).

Conostegia oerstediana O. Berg ex Triana

Cantarillo, Mariquita, Leña de gato (CR).

Terrestrial shrubs or trees. Distribution in PILA 900–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Panama. Records: *J. Bittner 1548* (INB).

Conostegia pittieri Cogn.

Escobillo, Purrá lengua de vaca (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *E. Alfaro 5610* (BM, INB), *E. Alfaro 5623* (BM, INB, MO).

□ ***Conostegia rhodopetala*** Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 700–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6338* (INB), *D. Santamaría 6302* (BM, INB, MO, PMA), *D. Santamaría 6468* (BM, INB, MO, PMA), *D. Solano 4357* (BM, INB, MO, PMA), *D. Solano 4852* (BM, INB, MO, PMA), *G. Herrera 2690* (INB, MO), *G. Herrera 5372* (CR, INB), *G. Herrera 6010* (CR, INB), *S. Bridgewater 4211* (BM, INB, MO, PMA).

Conostegia setifera Standl.

Terrestrial shrubs or trees. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *G. Herrera 5322* (CR, MO).

Conostegia setosa Triana

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador, Venezuela.

Records: *A.K. Monro 6349* (PMA), *D. Santamaría 6502* (BM, INB, MO, PMA).

Conostegia volcanalis Standl. & Steyerl.

Terrestrial shrubs or trees. Distribution in PILA 1500–1900 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 4401* (BM, INB, MO).

Conostegia vulcanicola Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *F. Solís 12* (CR, INB).

ψ ***Conostegia xalapensis*** (Bonpl.) D. Don

Lengua de gato, Lengua de vaca, Uña de gato, Purra, María, Mariquita (CR), Papelillo, Dos caras, Raspa lengua, Quita manteca (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia, Greater Antilles. Records: *D. Santamaría 3501* (INB). Uses: timber. Regional conservation status: Least Concern (LC).

ε-PILA ***Graffenrieda*** sp. A.

Terrestrial shrubs. Distribution in PILA –1100 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5669* (INB).

This species was identified as an undescribed species by Kriebel and Umaña in the Manual de Plantas de Costa Rica (Hammel *et al.*, in press).

Henriettella trachyphylla Triana

Terrestrial trees. Distribution in PILA 1400–2000 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez 11765* (BM, INB, MO, PMA), *D. Solano 5056* (BM, INB, MO, PMA), *D. Solano 5154* (BM, INB, MO, PMA).

Henriettella tuberculosa Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Ecuador. Records: *A.K. Monro 6296* (PMA).

ψ ***Leandra dichotoma*** (G. Don) Cogn.

Terrestrial shrubs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala to

Bolivia, Brazil. Records: *G. Herrera 3045* (MO). Regional conservation status: Least Concern (LC).

ψ ***Leandra grandifolia*** Cogn.

Terrestrial shrubs. Distribution in PILA 300–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Ecuador. Records: *A.K. Monro 6246* (PMA), *D. Santamaría 6449* (BM, INB, MO, PMA), *G. Herrera 5193* (CR, MO), *L. Martínez 435* (PMA). Regional conservation status: Least Concern (LC).

Leandra melanodesma (Naudin) Cogn.

Terrestrial shrubs. Distribution in PILA 1200–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to El Salvador Honduras, Costa Rica to Colombia. Records: *D. Solano 5182* (BM, INB, MO, PMA), *G. Proctor 31890* (MO), *J. A. Duke 13621* (MO).

Leandra subseriata (Naudin) Cogn.

Lengua de vaca, Zapotillo (CR).

Terrestrial shrubs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica to Ecuador, Venezuela. Records: *C. Hamilton 702* (MO), *S. Knapp 1996* (MO).

Leandra subulata Gleason

Epiphytic shrubs. Distribution in PILA 1000–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría 6521* (INB), *D. Santamaría 6639* (INB), *D. Santamaría 7837* (PMA), *D. Solano 4811* (BM, INB, MO, PMA), *G. Herrera 5175* (CR, MO), *G. Herrera 5399* (CR, INB, MO), *G. Herrera 5436* (CR, INB, MO), *K. Sytsma 4942* (MO).

Meriania grandiflora (Standl.) Almeda

Terrestrial trees. Distribution in PILA 1400–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 835* (CR, INB, MO), *A.K. Monro 5629* (BM, INB, MO, PMA), *A. Rodríguez 10749* (BM, INB, MO, PMA), *D. Santamaría 5732* (BM, INB, MO, PMA), *D. Santamaría 5812* (BM, INB, MO, PMA), *D. Solano 3989* (BM, INB, MO, PMA), *D. Solano 4079* (BM, INB, MO, PMA).

Meriania macrophylla (Benth.) Triana

Terrestrial trees. Distribution in PILA 1200–2300 m, mixed forest in transition to low elevation forest, mixed forest in

transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica to Colombia, Venezuela. Records: *G. Herrera 5942* (CR, INB).

Meriania odorata Almeda

Terrestrial trees. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro 5578* (INB, MO, PMA), *A.K. Monro 4937* (INB, MO, PMA).

Meriania panamensis Gleason

Terrestrial trees. Distribution in PILA 1800–2600 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5904* (CR, INB, MO).

Meriania phlomoides (Triana) Almeda

Lengua de vaca, Plomillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5431* (BM, INB, MO, PMA), *D. Santamaría 5645* (BM, INB, MO, PMA), *D. Santamaría 6682* (BM, INB, MO, PMA), *D. Solano 3845* (BM, INB, MO, PMA), *D. Solano 4039* (BM, INB, MO, PMA), *D. Solano 5147* (BM, INB, MO, PMA).

Miconia albicans (Sw.) Steud.

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Guayanas, Brazil, Paraguay, Greater Antilles. Records: *D. Solano 2920* (INB), *F. González 343* (INB), *M. Alfaro 42* (INB).

□ ***Miconia amplinodis*** Umaña & Almeda

Terrestrial shrubs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11476* (BM, INB, PMA), *D. Santamaría 6628* (BM, INB, PMA), *D. Solano 4815* (BM, INB, PMA).

Miconia arboricola Almeda

Terrestrial lianas. Distribution in PILA 500–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *L. Martínez 404* (PMA).

Miconia astroplocama Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 600–1200 m, low elevation mixed forest, mixed forest in transition

to low elevation forest. Global distribution: Nicaragua to Panama, Ecuador, Peru, Venezuela. Records: *D. Santamaría 5945* (BM, INB, MO, PMA).

Miconia benthamiana Triana

Terrestrial shrubs. Distribution in PILA 100–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *G. Gallardo 103* (CR, INB).

Miconia biperulifera Cogn.

Uña de gato (CR).

Terrestrial shrubs or trees. Distribution in PILA 2500–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 1227* (INB), *D. Solano 4009* (BM, INB, MO, PMA), *G. Davidse 25144* (CR, MO), *F. Quesada 1602* (CR, INB), *F. Quesada 1944* (INB), *F. Quesada 1961* (INB).

Miconia brenesii Standl.

Terrestrial shrubs or trees. Distribution in PILA 700–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 6460* (BM, INB, MO, PMA), *D. Santamaría 6528* (BM, INB, MO, PMA), *D. Santamaría 6693* (BM, INB, MO, PMA), *D. Solano 4738* (BM, INB, MO, PMA).

Miconia brevitheca Gleason

Terrestrial shrubs or trees. Distribution in PILA 1600–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *A.K. Monro 6091* (INB, MO, PMA).

Miconia calvescens DC.

Terrestrial shrubs or trees. Distribution in PILA 100–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Mexico to Bolivia, Brazil, Paraguay, Argentina. Records: *D. Santamaría 7555* (INB, MO, PMA), *D. Santamaría 7607* (INB, MO, PMA).

Miconia carnea Cogn.

Terrestrial shrubs or trees. Distribution in PILA 1500–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 662* (CR, INB, MO), *A.K. Monro 5423* (BM, INB, MO, PMA), *A.K. Monro 5552* (BM, INB, MO, PMA), *A.K. Monro 5628* (BM, INB, MO, PMA), *A. Rodríguez 10620* (BM, INB, MO, PMA), *A. Rodríguez 10724* (BM, INB, MO, PMA), *A. Rodríguez 10745* (BM, INB, MO, PMA), *D. Santamaría 5650* (BM, INB, MO,

PMA), *D. Santamaría* 5824 (BM, INB, MO, PMA), *D. Solano* 3860 (BM, INB, MO, PMA), *D. Solano* 4127 (BM, INB, MO, PMA), *D. Solano* 4135 (BM, INB, MO, PMA), *D. Solano* 4136 (BM, INB, MO, PMA), *E. Alfaro* 5509 (BM, INB, MO), *G. Davidse* 25084 (CR, MO), *G. Herrera* 5923 (CR, INB, MO), *G. Herrera* 6244 (INB), *J. Bittner* 1751 (CR, INB, MO), *F. Quesada* 1912 (INB), *F. Quesada* 1943 (INB).

Miconia chionophila Naudin

lengua de vaca, Uña de gato (CR).

Terrestrial shrubs. Distribution in PILA 2800–3500 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *B.B. Klitgaard* 770 (MO), *G. Davidse* 25967 (CR, MO), *G. Davidse* 26026 (CR, MO).

Miconia chiriquiensis Almeda

lengua de vaca, Uña de gato (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11041 (BM, INB, MO, PMA), *A. Soto* 314 (INB), *D. Solano* 4005 (BM, INB, MO, PMA), *E. Alfaro* 3470 (INB), *E. Alfaro* 4649 (INB), *F. Almeda* 3535 (MO), *G. Davidse* 25250 (CR, MO), *G. Davidse* 28655 (CR, MO), *G. Davidse* 28939 (CR, MO), *G. Herrera* 5909 (CR, INB, MO), *G. Herrera* 6142 (CR, INB, MO), *J. Bittner* 1793 (INB, MO), *L. González* 3599 (INB), *M. Grayum* 10333 (INB, MO), *M. Moraga* 392 (INB).

Miconia colliculosa Almeda

Terrestrial shrubs or trees. Distribution in PILA 200–200 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 3129 (MO).

Miconia coriacea (Sw.) DC.

Terrestrial shrubs or trees. Distribution in PILA 1600–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Lesser Antilles. Records: *D. Solano* 4015 (BM, INB, PMA).

Miconia costaricensis Cogn.

Lengua de vaca, Uña de gato (CR).

Terrestrial shrubs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico, Costa Rica to Colombia. Records: *A. De Sedas* 565 (PMA), *A.K. Monro* 4216 (BM, MO), *A.K. Monro* 5434 (BM, INB, MO, PMA), *A.K. Monro* 5581 (BM, INB, MO, PMA), *A.K. Monro* 5619 (BM, INB, MO, PMA), *A.K. Monro* 5834 (BM, INB, MO, PMA), *A.K. Monro*

5964 (PMA), *A.K. Monro* 5985 (PMA), *A.K. Monro* 6021 (PMA), *A. Rodríguez* 10681 (BM, INB, MO, PMA), *D. Santamaría* 7344 (PMA), *D. Solano* 4073 (BM, INB, MO, PMA), *D. Solano* 5449 (PMA), *G. Herrera* 5906 (CR, INB, MO).

Miconia cremadena Gleason

Terrestrial shrubs. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano* 4003 (BM, INB), *D. Solano* 4070 (BM, INB, PMA), *L. Acosta* 2429 (INB).

Miconia cuspidatissima Pittier

Terrestrial shrubs or trees. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 5665 (BM, INB, PMA), *D. Santamaría* 5744 (BM, INB, PMA), *D. Santamaría* 5886 (BM, INB, PMA), *D. Santamaría* 6591 (BM, INB, PMA).

Miconia danielii Almeda

Terrestrial shrubs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *M. Moraga* 394 (INB).

Miconia dodecandra Cogn.

Santa María (CR).

Terrestrial trees. Distribution in PILA 0–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guyana, Surinam, Brazil, Antilles. Records: *A. Rodríguez* 11864 (BM, INB), *A. Rodríguez* 9825 (INB), *A. Soto* 1231 (INB), *D. Santamaría* 3746 (INB), *D. Solano* 2879 (INB), *L. Acosta* 2416 (INB).

□ ***Miconia dolichopoda*** Naudin

Canilla de Mula, Oreja de mula, Capilote (CR).

Terrestrial trees. Distribution in PILA 1400–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Colombia, Venezuela. Records: *A.K. Monro* 4459 (BM, INB, MO), *A. Rodríguez* 11019 (BM, INB, PMA), *G. Herrera* 5912 (CR, INB).

Miconia dolichorrhyncha Naudin

Terrestrial trees. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest.

Global distribution: Costa Rica to Bolivia, Venezuela, Trinidad, Guyanas, Brazil. Records: *R. Aguilar 1051* (MO).

Miconia doniana Naudin

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Panama, Perú, Venezuela. Records: *D. Santamaría 6237* (BM, INB, PMA), *D. Solano 2922* (INB), *F. González 447* (INB), *L. Donzo 4* (INB).

Miconia friedmaniorum Almeda & Umaña

Terrestrial trees. Distribution in PILA 700–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5510* (BM, INB, PMA), *A.K. Monro 5826* (BM, INB, MO, PMA), *A.K. Monro 5832* (BM, INB, PMA), *A. Rodríguez 10746* (BM, INB, PMA), *A. Rodríguez 11342* (BM, INB, PMA), *A. Rodríguez 11408* (BM, INB, PMA), *A. Rodríguez 11470* (BM, INB, MO, PMA), *D. Solano 4759* (BM, INB, PMA), *D. Solano 4859* (BM, INB, PMA).

ε-PILA *Miconia kappellei* Almeda & Kriebel

Terrestrial shrub. Distribution in PILA 2100–2300 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Fernández 974* (CR, MO), *G. Herrera 5911* (CAS, CR, INB, MO).

Miconia ligulata Almeda

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Colombia, Venezuela. Records: *D. Santamaría 5914* (BM, INB, PMA).

Miconia livida Triana

Terrestrial shrubs or trees. Distribution in PILA 1300–2700 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica Panama, Ecuador to Bolivia. Records: *D. Santamaría 6655* (BM, INB, PMA), *D. Solano 4765* (BM, INB, PMA), *D. Solano 4770* (BM, INB, PMA).

Miconia lonchophylla Naudin

Terrestrial shrubs or trees. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Honduras, Costa Rica to Colombia, Venezuela. Records: *A. Soto 358* (INB).

Miconia longibracteata Almeda

Oreja de mula (CR).

Terrestrial shrubs. Distribution in PILA 1300–2800 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 3420* (INB), *J. Bittner 1800* (INB).

Miconia loreyoides Triana

Hemi-epiphytic shrubs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, Guyana. Records: *A. Chacón 191* (CR, INB, MO), *A.K. Monro 4204* (BM, MO), *A.K. Monro 4915* (MO), *D. Santamaría 6658* (BM, INB, MO, PMA), *D. Solano 4710* (BM, INB, MO, PMA), *G. Davidse 29396* (CR, MO), *G. Herrera 2829* (MO), *J. Bittner 1506* (INB, MO).

Miconia melanotricha (Triana) Gleason

Terrestrial shrubs. Distribution in PILA 1500–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 784* (CR, INB, MO), *A.K. Monro 4458* (BM, INB, MO), *A. Rodríguez 10571* (BM, INB, PMA), *A. Rodríguez 10827* (BM, INB, PMA), *B. Hammel 1421* (MO), *B. Hammel 5801* (MO), *D. Santamaría 5641* (BM, INB, PMA), *D. Solano 3864* (BM, INB, MO, PMA), *E. Alfaro 3643* (INB), *G. Davidse 25148* (CR, MO), *G. Davidse 25223* (MO), *G. Herrera 5485* (INB), *G. Herrera 5869* (CR, INB, MO), *G. Herrera 5951* (CR, INB, MO), *J. Bittner 1868* (INB, MO), *F. Quesada 1942* (INB), *M. Grayum 10385* (CR, INB, MO), *R. Aguilar 1095* (INB, MO).

Miconia minutiflora (Bonpl.) DC.

Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Surinam, French Guyana, N Brazil, Antilles Mayores. Records: *F. Quesada 1697* (INB).

Miconia multiplinervia Cogn.

Terrestrial shrubs or trees. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro 4470* (MO), *A.K. Monro 6027* (PMA), *A. Rodríguez 11038* (BM, INB, MO, PMA), *D. Santamaría 5716* (BM, INB, PMA), *D. Santamaría 5854* (BM, INB, PMA), *D. Santamaría 6612* (BM, INB, PMA), *D. Santamaría 6631* (BM, INB, PMA), *D. Solano 4828* (BM, INB, PMA), *D. Solano 5379* (PMA), *J. Bittner 1504* (INB, MO), *L. Martínez 436* (PMA), *R. Aguilar 1115* (INB, MO).

Miconia multispicata Naudin

Terrestrial shrubs or trees. Distribution in PILA 0–300 m, low elevation mixed forest. Global distribution: Nicaragua to Bolivia, Venezuela, Trinidad, N Brazil, Antilles Mayores. Records: *D. Santamaría* 6314 (BM, INB, PMA).

Miconia nutans Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Perú. Records: *D. Santamaría* 3806 (INB), *D. Solano* 5061 (BM, INB, PMA).

Miconia pendula Umaña & Almeda

Terrestrial shrubs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 6672 (BM, INB, PMA).

Miconia pittieri Cogn.

Oreja de mula, Uña de gato (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 25759 (CR, MO).

ψ ***Miconia prasina*** (Sw.) DC.

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Paraguay, Antilles Mayores. Records: *D. Santamaría* 3497 (INB), *D. Santamaría* 3751 (INB), *D. Santamaría* 7228 (BM, INB, PMA), *D. Solano* 2845 (INB), *E. Alfaro* 2200 (INB), *F. González* 346 (INB), *F. Quesada* 1696 (INB). Regional conservation status: Near Threatened (NT).

Miconia reducens Triana

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Colombia, Venezuela. Records: *G. Herrera* 5401 (CR, INB, MO).

Miconia schnellii Wurdack

Oreja de mula, Uña de gato (CR).

Terrestrial shrubs or trees. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global

distribution: Costa Rica, Panama. Records: *A.K. Monro* 4106 (BM, INB, MO), *A.K. Monro* 5178 (BM, INB), *A.K. Monro* 5201 (BM, INB), *B.B. Klitgaard* 836 (BM, INB), *D. Santamaría* 7290 (BM, INB, PMA), *D. Solano* 5090 (BM, INB, PMA), *D. Solano* 5210 (BM, INB, PMA), *G. Davidse* 23901 (MO), *N. Zamora* 4087 (BM, INB, PMA). Nuevo registro para Panamá.

Miconia smaragdina Naudin

Terrestrial shrubs or trees. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Mexico, Belize, Costa Rica to Ecuador, Venezuela. Records: *A.K. Monro* 5036 (BM, INB), *A.K. Monro* 5083 (BM, INB), *A.K. Monro* 5835 (BM, INB, PMA), *A. Rodríguez* 11068 (BM, INB, PMA), *D. Santamaría* 5997 (BM, INB, PMA), *E. Alfaro* 5493 (BM, MO), *G. Herrera* 5258 (CR, INB, MO).

□ ***Miconia stipularis*** Naudin

Terrestrial shrubs or trees. Distribution in PILA 1700–2200 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 4454 (BM, INB), *A.K. Monro* 5429 (BM, INB, PMA), *A.K. Monro* 5525 (BM, INB, PMA), *A. Rodríguez* 10877 (BM, INB, PMA), *D. Santamaría* 5657 (BM, INB, PMA), *D. Solano* 4156 (BM, INB, PMA), *G. Herrera* 5955 (CR, INB, MO).

Miconia talamancensis Almeda

Terrestrial trees. Distribution in PILA 1400–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5263 (BM), *G. Davidse* 25970 (CR, MO).

Miconia theizans (Bonpl.) Cogn.

Terrestrial shrubs or trees. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia, Venezuela, Brazil, Paraguay, Greater Antilles. Records: *A. Rodríguez* 10601 (BM, INB, PMA), *A. Rodríguez* 10898 (BM, INB, PMA), *D. Santamaría* 5857 (BM, INB, PMA), *D. Solano* 4109 (BM, INB, PMA), *G. Davidse* 28925 (CR, MO), *L. Acosta* 2417 (INB), *M. Moraga* 587 (INB).

ψ ***Miconia tonduzii*** Cogn.

Lengua de gato (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo, pasture, dense thicket. Global distribution: Nicaragua to

Panama. Records: *A.K. Monro 4206* (BM), *A.K. Monro 4375* (BM, MO), *A.K. Monro 4406* (BM, MO), *A.K. Monro 4464* (BM, MO), *A.K. Monro 5326* (BM, INB, MO), *A. Rodríguez 10859* (BM, INB, PMA), *A. Rodríguez 10927* (BM, INB, PMA), *A. Soto 265* (INB), *A. Soto 311* (INB), *D. Santamaría 5653* (BM, INB, PMA), *D. Santamaría 5696* (BM, INB, PMA), *D. Santamaría 5768* (BM, INB, PMA), *D. Santamaría 5943* (BM, INB, PMA), *E. Alfaro 3628* (INB), *E. Alfaro 3629* (INB), *G. Davidse 23875* (CR, MO), *G. Davidse 25089* (CR, MO), *G. Davidse 25709* (CR, MO), *G. Davidse 25714* (CR, MO), *L. Acosta 2366* (INB), *L. Acosta 2426* (INB), *L. González 3616* (INB), *L. González 3618* (INB), *L. González 3642* (INB), *N. Zamora 2703* (INB, MO). Regional conservation status: Least Concern (LC).

Miconia trinervia (Sw.) D. Don ex Loudon

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, French Guyana, Brazil, Antilles. Records: *G. Herrera 5387* (CR, INB, MO), *M. Alfaro 43* (INB).

Miconia valeriana (Standl.) Wurdack

Terrestrial shrubs. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 880* (INB, PMA), *A. De Sedas 918* (INB, PMA), *L. Martínez 369* (INB, PMA), *A.K. Monro 6113* (INB, PMA), *D. Santamaría 7725* (INB, PMA), *D. Solano 5891* (INB, PMA).

ε-PILA *Monochaetum amistadense* Almeda

Terrestrial shrubs. Distribution in PILA 2400–3300 m, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *A. Chacón 521* (CR, INB, MO), *E. Alfaro 3276* (INB), *G. Davidse 25932* (CR, MO), *G. Davidse 29023* (MO).

Monochaetum cordatum Almeda

Terrestrial shrubs. Distribution in PILA 1500–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *D. Solano 3982* (BM, INB, PMA).

Monochaetum exaltatum Almeda

Terrestrial shrubs. Distribution in PILA 1700–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *C. Hamilton 3343* (MO).

Monochaetum floribundum (Schltdl.) Naudin

Terrestrial shrubs. Distribution in PILA 100–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 9809* (INB), *A. Rodríguez 9861* (INB), *C. Hamilton 737* (MO), *D. Santamaría 3500* (INB), *D. Santamaría 3793* (INB), *D. Santamaría 6321* (BM, INB, PMA), *D. Solano 2919* (INB), *D. Solano 4036* (BM, INB, PMA), *J. Bittner 1501* (INB, MO), *L. González 3638* (INB), *N. Zamora 4175* (BM, INB, PMA).

Monochaetum neglectum Almeda

Terrestrial shrubs. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5685* (BM, INB, PMA), *G. Davidse 223976* (CR, MO), *G. Davidse 28605* (CR, MO), *G. Davidse 23976* (MO), *L. Angulo 209* (INB), *M.A. Thomas 1666* (MO).

Monochaetum trichophyllum Almeda

Terrestrial shrubs. Distribution in PILA 1700–2400 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón 585* (INB, MO), *A. Rodríguez 10873,1* (BM, INB, PMA), *D. Santamaría 5876* (BM, INB, PMA), *D. Solano 3994* (BM, INB, PMA), *G. Davidse 28946* (CR, MO).

ε-PILA *Monochaetum vestitum* Almeda, Al. Rodr. & Garita

Terrestrial trees. Distribution in PILA 2300–2300 m, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 7876* (CR, INB).

Mouriri cyphocarpa Standl.

Uña de gato, Candelero (CR).

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Guatemala, Nicaragua to Panama. Records: *G. Herrera 3121* (MO?).

Mouriri exilis Gleason

Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Belize, Guatemala, Costa Rica. Records: *G. Herrera 3130* (MO).

Ossaea usplundii Wurdack

Terrestrial shrubs. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica, Panama, Ecuador. Records: *A.K. Monro 5863* (BM, INB, PMA), *A.K. Monro 6222* (PMA), *A.K. Monro 6371* (PMA), *A.*

Rodríguez 11413 (BM, INB, PMA), *A. Rodríguez 11528* (BM, INB, PMA), *D. Santamaría 6524* (BM, INB, PMA), *D. Santamaría 6617* (BM, INB, PMA), *D. Solano 4732* (BM, INB, PMA), *D. Solano 4836* (BM, INB, PMA), *L. Martínez 420* (PMA).

Ossaea brenesii Standl.

Terrestrial shrubs or trees. Distribution in PILA 500–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 11557* (BM, INB, PMA), *D. Solano 4860* (BM, INB, PMA).

Ossaea macrophylla (Benth.) Cogn.

Terrestrial shrubs or trees. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Peru. Records: *A. Rodríguez, Sept 28, 2007* (Field obs.).

Ossaea micrantha (Sw.) Macfad. ex Cogn.

Terrestrial shrubs or trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture, dense thicket. Global distribution: Mexico to Peru, Venezuela, Antilles Mayores. Records: *A. De Sedas 633* (PMA), *A. De Sedas 678* (PMA), *A.K. Monro 4723* (BM, INB), *A. Rodríguez 10889* (BM, INB, PMA), *A. Rodríguez 11248* (BM, INB, PMA), *A. Rodríguez 11793* (BM, INB, PMA), *D. Santamaría 5664* (BM, INB, PMA), *D. Santamaría 6136* (BM, INB, MO, PMA), *D. Santamaría 7087* (BM, INB, MO, PMA), *D. Santamaría 7398* (PMA), *D. Santamaría 7508* (PMA), *D. Solano 4340* (BM, INB, PMA), *D. Solano 4397* (BM, INB, PMA), *D. Solano 4437* (BM, INB, PMA), *D. Solano 5044* (BM, INB, PMA), *D. Solano 5069* (BM, INB, PMA), *F. González 464* (INB), *G. Herrera 3096* (MO), *G. Herrera 5982* (CR, INB, MO), *J. Lezcano 270* (PMA), *J. Lezcano 334* (PMA), *L. Angulo 172* (CR, INB), *M. Alfaro 136* (INB), *M. Moraga 575* (INB).

□ ***Ossaea quadrisulca*** (Naudin) Wurdack

Terrestrial shrubs. Distribution in PILA 700–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia, French Guyana. Records: *A. De Sedas 898* (BM, CR, INB, PMA), *A. De Sedas 910* (BM, CR, INB, PMA), *F. González 681* (BM, CR, INB, PMA), *F. González 731* (BM, CR, INB, PMA), *L. Martínez 329* (BM, CR, INB, PMA), *D. Santamaría 7775* (BM, CR, INB, PMA), *D. Santamaría 7799* (BM, CR, INB).

Ossaea robusta (Triana) Cogn.

Terrestrial shrubs or trees. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to

cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Peru. Records: *A.K. Monro 6339* (PMA), *A.K. Monro 6363* (PMA), *A. Rodríguez 11564* (BM, INB, PMA), *D. Santamaría 6463* (BM, INB, PMA), *D. Solano 4862* (BM, INB, PMA), *G. Herrera 3290* (INB, MO), *L. Martínez 402* (PMA).

Pilocosta oerstedii (Triana) Almeda & Whiffin

Terrestrial shrubs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 4458* (INB).

e ***Tibouchina heteromalla*** (D. Don) Cogn.

Terrestrial shrubs. Distribution in PILA 1400–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Brazil. Records: *E. Mora 303* (CR, INB).

e ***Tibouchina urvilleana*** (DC.) Cogn.

Nazareno, Príncipe negro (CR).

Terrestrial shrubs. Distribution in PILA 2300–2300 m, low elevation oak forest. Global distribution: Mexico to Brazil. Records: *E. Alfaro 3698* (INB).

Tococa guianensis Aubl.

Terrestrial shrubs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Bolivia, Venezuela, Tobago, Guayanas, Brazil. Records: *G. Gallardo 102* (CR, INB).

Tococa platyphylla Benth.

Terrestrial shrubs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *D. Santamaría 7632* (PMA), *D. Solano 4348* (BM, INB, PMA), *D. Solano 4539* (BM, INB, PMA).

Topobea amplifolia Almeda

Terrestrial trees. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera 5407* (CR, INB, MO).

• ***Topobea arboricola*** Almeda

Epiphytic shrubs. Distribution in PILA 1100–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11487* (BM, INB, PMA), *D. Santamaría 6618* (BM, INB, PMA), *D. Santamaría 6667* (BM, INB, PMA), *D. Santamaría 6698* (BM, INB, PMA), *D. Solano 4746* (BM, INB, PMA).

□ *Topobea gerardoana* Almeda

Epiphytic shrubs. Distribution in PILA 1700–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4944* (BM, INB, MO), *A.K. Monro 5607* (BM, INB, PMA), *A. Rodríguez 10699* (BM, INB, PMA), *A. Rodríguez 11015* (BM, INB, PMA), *D. Santamaría 5637* (BM, INB, PMA), *D. Santamaría 5844* (BM, INB, PMA), *D. Solano 3938* (BM, INB, PMA), *G. Herrera 5492* (CR, INB, MO), *G. Herrera 5914* (CR, INB, MO).

Topobea intricata Almeda

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Fernández 742* (CR, INB), *A. Fernández 795* (CR, INB), *A. Fernández 896* (CR, INB), *A.K. Monro 4225* (BM, INB), *A.K. Monro 5466* (BM, INB, PMA), *A.K. Monro 5550* (BM, INB, PMA), *A.K. Monro 5594* (BM, INB, PMA), *A. Rodríguez 10819* (BM, INB, PMA), *A. Rodríguez 10900* (BM, INB, PMA), *D. Santamaría 5765* (BM, INB, PMA), *D. Santamaría 5845* (BM, INB, PMA), *D. Solano 3915* (BM, INB, PMA), *D. Solano 4194* (BM, INB, PMA), *G. Herrera 6036* (CR, INB, MO), *G. Herrera 6182* (CR, INB, MO).

ψ *Topobea maurofernandeziana* Cogn.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Nicaragua to Panama. Records: *F. Quesada 1889* (INB), *F. Quesada 2031* (INB). Regional conservation status: Least Concern (LC).

Topobea multiflora (D. Don) Triana

Epiphytic shrubs. Distribution in PILA 900–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama, Ecuador, Bolivia. Records: *A.K. Monro 6065* (PMA).

Topobea pittieri Cogn.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1100–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *A.K. Monro 5610* (BM, INB, PMA), *A. Rodríguez 11042* (BM, INB, PMA), *A. Rodríguez 11521* (BM, INB, PMA), *D. Santamaría 5865* (BM, INB, PMA), *D. Santamaría 6588* (BM, INB, PMA), *D. Solano 4189* (BM, INB, PMA), *D. Solano 4701* (BM, INB, MO, PMA), *E. Alfaro 5554* (BM, INB), *G. Herrera 6194* (CR, INB, MO), *L. Martínez 386* (PMA).

Topobea watsonii Cogn.

Epiphytic shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Colombia. Records: *A.K. Monro 6009* (BM, INB, PMA), *D. Solano 5447* (BM, INB, PMA).

Triolena hirsuta (Benth.) Triana

Terrestrial herbs to shrubs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Nicaragua to Ecuador. Records: *G. Herrera 3046* (MO), *G. Herrera 3049* (MO).

Triolena spicata (Triana) L.O. Williams

Epiphytic herbs. Distribution in PILA 100–600 m, low elevation mixed forest. Global distribution: Costa Rica to Ecuador. Records: *D. Santamaría 6843* (BM, INB, MO, PMA).

MELIACEAE

Carapa guianensis Aubl.

Terrestrial shrubs or trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Mexico to Paraguay, Greater Antilles. Records: *A. Rodríguez, Nov. 1, 2007 (Field obs.)*. Uses: timber.

ψ *Cedrela odorata* L.

Cedro, Cedro cebolla, Cedro bateo, Cedro colorado, Cóbano, Cedro amargo, Cedro del Atlántico, Cedro del Pacífico, Cedro dulce, Cedro maría, Cedro blanco, Cedro real (CR), Cedro, Cedro amargo, Cedro cebolla (P).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez, Feb. 24 2008 (Field obs.)*, *A. Rodríguez, Jul. 22, 2007 (Field obs.)*, *A. Rodríguez, Jul. 24 2007 (Field obs.)*, *N. Zamora, Aug. 5, 2008 (Field obs.)*. Uses: timber, medicinal. Regional conservation status: Near Threatened (NT).

ψ *Cedrela tonduzii* C. DC.

Cedro real, Cedro dulce, Cedro, Cedro del atlántico, Cedro atlántico, Cedro cobano (CR).

Terrestrial trees. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Fernández 1066* (CR, INB), *D. Santamaría 6248* (BM, INB, MO, PMA). Uses: timber, medicinal. Regional conservation status: Near Threatened (NT).

Guarea bullata Radlk.

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala, Nicaragua, Costa Rica, Panamá. Records: *A. Rodríguez*, Jul. 22, 2007 (*Field obs.*).

Guarea chiricana Standl.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua, Costa Rica. Records: *A. Rodríguez* 11336 (BM, INB, MO, PMA), *D. Santamaría* 6722 (BM, INB, MO, PMA).

Guarea glabra Vahl

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Honduras to Panama. Records: *Acosta* 2320 (INB), *Azofeifa* 148 (INB), *González* 453 (INB), *González* 480 (INB), *Herrera* 5927 (CR, INB, MO), *Mora* 302 (INB), *D. Solano* 4876 (BM, INB, MO, PMA).

Guarea grandifolia DC.

Caobilla, Uña de gato, Ocora, Pocora, Pochote de bajura, Cedro macho, Cortez negro, Cedro cóbano, Cola de pavo (CR), Chuchupate, Cedro macho, Tres bocas (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Bolivia, Venezuela, Trinidad, Guayanas, Brazil, Paraguay. Argentina, Greater Antilles. Records: *A. Rodríguez*, Sept 29, 2007 (*Field obs.*), *D. Santamaría*, Oct. 24, 2007 (*Field obs.*), *D. Solano*, Oct. 24, 2007 (*Field obs.*), *D. Solano*, Oct. 27, 2007 (*Field obs.*), *D. Solano*, Oct. 28, 2007 (*Field obs.*). Uses: timber.

Guarea kegelii Turcz.

Terrestrial shrubs or trees. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 11187 (BM, INB, MO, PMA).

ψ *Guarea kunthiana* A.Juss.

Cocora, Ocora (CR).

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Nicaragua to Paraguay. Records: *D. Solano* 4158 (BM, INB, MO, PMA). Uses: timber. Regional conservation status: Near Threatened (NT).

Guarea macrocalyx Al.Rodr.

Terrestrial shrubs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 6001 (BM, INB, MO, PMA), *D. Solano* 4276 (BM, INB, MO, PMA), *D. Solano* 4309 (BM, INB, MO, PMA).

ψ *Guarea rhopalocarpa* Radlk.

Cacao de ardilla, Cocora, Pocora, Ocora (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *G. Herrera* 3278 (INB, MO). Uses: timber. Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Guarea tonduzii C.DC.

Terrestrial trees. Distribution in PILA 300–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *E. Alfaro* 5557 (BM, INB, MO), *Rodríguez* 11455 (BM, INB, MO, PMA), *D. Santamaría* 6532 (BM, INB, MO, PMA), *D. Solano* 4695 (BM, INB, MO, PMA), *N. Zamora*, Aug. 4, 2008 (*Field obs.*).

ψ *Ruagea glabra* Triana & Planch.

Caoba, Cedro cóbano (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Bolivia. Records: *A. De Sedas* 681 (PMA), *A.K. Monro* 4865 (BM, INB, MO), *A.K. Monro* 5015 (BM, INB, MO), *A. Rodríguez* 11593 (BM, INB, MO, PMA), *D. Santamaría* 5722 (BM, INB, MO, PMA), *D. Santamaría* 7470 (PMA), *D. Santamaría* 7487 (PMA), *G. Herrera* 5505 (CR, INB, MO), *J. Lezcano* 338 (PMA), *R. Aguilar* 1130 (INB, MO), *S. Bridgewater* 4146 (BM, INB, MO, PMA), *T. Croat* 26972 (MO).

ψ *Trichilia havanensis* Jacq.

Uruca, Caracolillo, Cedro cóbano, Ocora (CR).

Terrestrial trees. Distribution in PILA 500–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Chacón* 574 (INB, MO). Uses: biological control, timber (Guatemala), medicinal, ornamental. Regional conservation status: Least Concern (LC).

Trichilia martiana C.DC.

Cedrillo, Cola de pava, Manteco, Guacatillo, Jocotillo, Limoncillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela and Suriname, Brazil, Greater Antilles, Lesser Antilles. Records: *D. Solano 5047* (BM, INB, MO, PMA), *G. Davidse 28454* (CR, MO). Uses: medicinal.

Trichilia pallida Sw.

(CR), Terciopelo, Conejito colorado (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Paraguay, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11551* (BM, INB, MO, PMA), *A. Rodríguez 11641* (BM, INB, MO, PMA).

□ ***Trichilia pittieri*** C.DC.

Cedro cóbano (CR).

Terrestrial shrubs or trees. Distribution in PILA 700–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica Panama, Ecuador, Peru. Records: *N. Zamora, Aug. 8, 2008 (Field obs.)*.

MENISPERMACEAE

Abuta panamensis (Standl.) Krukoff & Barneby

Terrestrial lianas. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 6012* (PMA), *L. Acosta 2309* (INB).

Anomospermum reticulatum (Mart.) Eichler

Manguito (CR).

Terrestrial lianas. Distribution in PILA 200–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Bolivia. Records: *G. Herrera 3119* (MO).

Cissampelos andromorpha DC.

Terrestrial twiners. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Guatemala, Nicaragua to Bolivia, Venezuela, the Guyanas, Brazil. Records: *G. Herrera 5293* (CR, INB, MO).

Cissampelos pareira L.

Bejuco azul, Venadera, Venadero (CR).

Terrestrial twiners. Distribution in PILA 0–2000 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Argentina, Lesser Antilles, Africa, Madagascar Asia, Australia. Records: *A. Soto 1248* (INB). Uses: medicinal.

Cissampelos tropaeolifolia DC.

Terrestrial twiners. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Paraguay. Records: *J. González 814* (CR, INB, MO).

Hyperbaena smilacina Standl.

Terrestrial lianas. Distribution in PILA 600–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua, Costa Rica, Colombia. Records: *D. Santamaría 6185* (BM, INB, MO, PMA).

METTENIUSSACEAE

ψ ***Calatola costaricensis*** Standl.

Azulillo, Cucaracho, Duraznillo, Erepe, Guaitil, Icacón, Palo azul, Palo de papa, Tapa culo, Coquito, Azul, Azulillo, Erepe, Duraznillo (CR), Jaguey (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico, Belize, Honduras to Bolivia, Venezuela. Records: *A.K. Monro 4461* (BM, MO), *E. Navarro 688* (INB, MO), *F. González 468* (INB), *J. González 803* (CR, MO). Uses: food, timber. Regional conservation status: Near Threatened

ψ ***Metteniusa tessmanniana*** (Sleumer) Sleumer

Terrestrial shrubs or trees. Distribution in PILA 100–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *D. Santamaría 6840* (BM, INB, MO, PMA). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

MORACEAE

Castilla elastica Sessé

Hule, Ule, Palo de hule, Tseni (Cabécar), Sini, Tsini (Bribri) (CR), Caucho, Mastate blanco, Hule (P).

Terrestrial tree. Distribution in PILA 0–100 m, low elevation mixed forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.)*, *A. Rodríguez, Jul. 22, 2007 (Field obs.)*.

Clarisia biflora Ruiz & Pav.

Lechillo, Ojoche, Ojoche negro, Ojochillo, Quihra (CR).

Terrestrial trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil. Records: *D. Santamaría 6180* (BM, INB, MO, PMA).

Dorstenia choconiana S. Watson

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Guatemala to Panama. Records: *A. Rodríguez 11781* (BM, INB, MO, PMA), *D. Solano 5016* (BM, INB, MO, PMA), *D. Solano 5038* (BM, INB, MO, PMA).

Dorstenia contrajerva L.

Contrayerba, Mano de sapo (CR).

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *D. Solano 4375* (BM, INB, MO, PMA), *D. Solano 4558* (BM, INB, MO, PMA). Uses: medicinal.

Ficus americana Aubl.

Higuito, Higuierón (CR).

Shrubs or epiphytic trees. Distribution in PILA 0–3800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 5074* (BM, INB), *D. Santamaría 5953* (BM, INB, MO, PMA).

Ficus cahuitensis C.C.Berg

Hemi-epiphytic tree. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Belize, Honduras, Costa Rica, Panama. Records: *L.D. Gómez 23832* (INB).

ψ ***Ficus caldasiana*** Dugand

Terrestrial shrubs. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *N. Zamora, Aug. 1, 2008 (Field obs.)*, *N. Zamora, Jul. 29, 2008 (Field obs.)*. Regional conservation status: Vulnerable (VU), B1ab(i,iii).

ψ ***Ficus cervantesiana*** Standl. & L.O. Williams

Hemi-epiphytic tree. Distribution in PILA 700–2100 m, low elevation mixed forest, mixed forest in transition to

low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru, Venezuela. Records: *M. Moraga 589* (INB). Regional conservation status: Near Threatened (NT).

Ficus citrifolia Mill.

Higo, Higuierón (CR).

Shrubs or epiphytic trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to the Guyanas, Greater Antilles, Lesser Antilles. Records: *J. González 784* (CR, INB, MO), *J. González 821* (CR, INB, MO).

Ficus crassiuscula Warb. ex Standl.

Higuierón (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Peru, Venezuela. Records: *A. Fernández 1067* (CR, INB, MO), *C. von Hagen 2095* (MO), *G. Herrera 6112* (CR, INB, MO).

Ficus crassivenosa W.C.Burger

Shrubs or epiphytic trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez 11028* (BM, INB, MO, PMA).

Ficus macbridei Standl.

Terrestrial trees. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Bolivia. Records: *F. Quesada 1688* (CR, INB, MO), *F. Quesada 1896* (INB).

Ficus obtusifolia Kunth

Higuierón, Capulamate, Matapalo, Palo de agua (CR).

Hemi-epiphytic tree. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia. Records: *A. Soto 1251* (INB).

Ficus pertusa L.f.

Higuierón, Higuito (CR).

Shrubs or epiphytic trees. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to the Guyanas, Greater Antilles. Records: *D. Santamaría 7216* (BM, INB, MO, PMA), *D. Solano 5435* (PMA), *J. Dwyer 6954* (MO).

Ficus schippii Standl.

Hemi-epiphytic shrubs. Distribution in PILA 0–600 m, low elevation mixed forest. Global distribution: Belize, Nicaragua to Peru, Venezuela. Records: *G. Herrera* 3113 (MO).

ψ ***Ficus tonduzii*** Standl.

Batsu, Higuerón, Chilamate (CR).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, dense thicket. Global distribution: Guatemala to Bolivia, Venezuela. Records: *D. Solano* 4563 (BM, INB, MO, PMA), *E. Navarro* 212 (MO). Regional conservation status: Near Threatened (NT).

ψ ***Ficus tuerckheimii*** Standl.

Higuerón (CR).

Hemi-epiphytic tree. Distribution in PILA 1200–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *J. González* 829 (CR, INB, MO), *M. Chinchilla* 182 (INB). Regional conservation status: Near Threatened (NT).

ψ ***Ficus velutina*** Humb. & Bonpl. ex Willd.

Amate, Higuerón, Matapalo, Barrú, Barú (CR).

Hemi-epiphytic tree. Distribution in PILA 700–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador, Venezuela. Records: *L. Acosta* 2283 (INB). Regional conservation status: Near Threatened (NT).

ψ ***Helicostylis towarensis*** (Klotzsch & H.Karst.) C.C.Berg

Terrestrial shrubs or trees. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A. De Sedas* 699 (PMA), *A.K. Monro* 5013 (BM, INB), *D. Santamaría* 5939 (BM, INB, PMA), *D. Santamaría* 6679 (BM, INB, PMA), *G. Herrera* 2697 (INB, MO). Regional conservation status: Near Threatened (NT).

e ***Morus alba*** L.

Morera (CR).

Terrestrial shrubs. Distribution in PILA 1600–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA, Bolivia, Guyanas, Madagascar, Phillipines. Records: *M. Moraga* 417 (CR, INB). Uses: food, medicinal.

Naucleopsis capirensis C.C.Berg

Terrestrial shrubs or trees. Distribution in PILA 700–1700 m, low elevation mixed forest, mixed forest in transition

to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *D. Solano* 4727 (BM, INB, MO, PMA), *F. González* 452 (INB), *J. González* 825 (CR, INB, MO).

ψ ***Naucleopsis naga*** Pittier

Amargo, Naga, Quina (CR).

Terrestrial trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Honduras to Ecuador. Records: *G. Herrera* 2674 (INB, MO). Uses: timber. Regional conservation status: Near Threatened (NT).

Naucleopsis ulei (Warb.) Ducke

Quina, Amargo (CR).

Terrestrial trees. Distribution in PILA 0–400 m, low elevation mixed forest. Global distribution: Costa Rica to Bolivia. Records: *A. Chacón* 8 (INB, MO).

Perebea hispidula Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Nicaragua to Peru. Records: *A. Rodríguez* 11743 (BM, INB, MO, PMA), *A. Rodríguez* 11759 (BM, INB, MO, PMA).

Poulsenia armata (Miq.) Standl.

Calugo, Chilamate espina, Mastate, Calabacillo de playa, Chilamate espinoso, Chilamate (CR), Cocua, Cucua, Mastate (P).

Terrestrial trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala, Costa Rica to Bolivia. Records: *D. Santamaría* 6020 (BM, INB, MO, PMA). Uses: timber.

ψ ***Pseudolmedia glabrata*** (Liebm.) C.C.Berg

Terrestrial trees. Distribution in PILA 200–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Costa Rica. Records: *L. Acosta* 2351 (INB). Regional conservation status: Near Threatened (NT).

ψ ***Pseudolmedia spuria*** (Sw.) Griseb.

Casanegro, Guapinolillo, Guiubra, Ojochillo, Ojocho colorado (CR).

Terrestrial trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Costa Rica. Records: *N. Zamora*, Aug. 4, 2008 (*Field obs.*), *N. Zamora*, Jul. 30, 2008 (*Field obs.*). Regional conservation status: Near Threatened (NT).

Sorocea pubivena Hemsl.

Ojochillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Guyana, Brazil. Records: *D. Santamaría 6140* (BM, INB, MO, PMA), *D. Santamaría 7850* (PMA), *D. Solano 4555* (BM, INB, MO, PMA), *G. Gallardo 321* (CR).

Sorocea trophoides W.C.Burger

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica to Peru. Records: *D. Solano 2901* (INB), *F. González 443* (INB), *L. Angulo 315* (INB), *N. Zamora 2698* (CR, INB, MO).

Trophis mexicana (Liebm.) Bureau

Terrestrial shrubs or trees. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *A. De Sedas 705* (PMA), *D. Santamaría 5992* (BM, INB, MO, PMA), *L. Acosta 2331* (INB).

Trophis racemosa (L.) Urb.

Lechillo, Ojoche macho, Ojoche negro, Ojochillo colorado, Lechoso, Ojochillo (CR), Morillo, Gallote, Lechosa (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.)*, *D. Solano, Oct. 25, 2007 (Field obs.)*.

MYRICACEAE

Morella pubescens (Humb. & Bonpl. ex Willd.) Wilbur Encirilo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1200–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *E. Alfaro 3394* (INB).

MYRTACEAE

Eugenia austinsmithii Standl.

Turrusí (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica,

Panama. Records: *D. Solano 3869* (BM, INB, PMA).

Eugenia basilaris McVaugh

Terrestrial shrubs or trees. Distribution in PILA 100–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11174* (BM, INB, PMA), *A. Rodríguez 11266* (BM, INB, PMA), *S. Bridgewater 4164* (BM, INB, PMA).

Eugenia glandulosopunctata P.E.Sánchez & Poveda

Terrestrial shrubs or trees. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11569* (BM, INB, PMA), *G. Gallardo 97* (CR, INB).

Eugenia gomezii Barrie

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *M. Grayum 10286* (INB, MO).

Eugenia grayumii Barrie

Terrestrial trees. Distribution in PILA 500–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría 5991* (INB).

Eugenia hartshornii Barrie

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11740* (BM, INB, PMA).

Eugenia mcphersonii Barrie

Terrestrial shrubs or trees. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *C. von Hagen 2030* (MO).

Eugenia oerstediana O.Berg

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru, Venezuela, Lesser Antilles. Records: *F. Quesada 1901* (INB, MO).

Eugenia sarapiquensis P.E.Sánchez

Terrestrial shrubs or trees. Distribution in PILA 0–1400

m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11503* (BM, INB, PMA).

ψ *Myrcia splendens* (Sw.) DC.

Gauyabillo, Tarrú colorado, Murta, Mirto (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Bolivia, Venezuela, Trinidad & Tobago, Guayanas, Brazil, Antilles. Records: *A. Chacón 259* (CR, INB, MO), *A. Rodríguez 10299* (INB), *A. Rodríguez 11736* (BM, INB, PMA), *D. Santamaría 4400* (INB), *D. Solano 3186* (INB), *D. Solano 4924* (BM, INB, PMA), *E. Alfaro 3195* (INB), *G. Herrera 5460* (INB, MO), *J. González 819* (CR, INB, MO), *F. Quesada 1632* (CR, INB, MO), *M. Alfaro 44* (INB).

Myrcianthes storkii (Standl.) McVaugh

Terrestrial shrubs or trees. Distribution in PILA 100–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3685* (CR, MO), *G. Herrera 6041* (CR, MO), *G. McPherson 15939* (CR, MO), *A. Rodríguez 9842* (CR, MO).

Plinia salticola McVaugh

Terrestrial trees. Distribution in PILA 400–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11550* (BM, INB, PMA), *G. Herrera 2712* (MO).

ψ *Ugni myricoides* (Kunth) O.Berg

Arrayán, Mirto (CR).

Terrestrial shrubs. Distribution in PILA 1100–3700 m, mixed forest in transition to low elevation forest, mixed forest in transition to low elevation forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Venezuela, Guyana, Brazil. Records: *A. Chacón 530* (MO), *A.K. Monro 4074* (BM, MO), *A.K. Monro 4079* (BM, INB, MO), *A.K. Monro 5155* (BM, INB, MO), *B.B. Klitgaard 832* (BM, INB), *E. Alfaro 1340* (INB), *E. Alfaro 3233* (INB), *E. Alfaro 3253* (INB), *E. Alfaro 3363* (INB), *E. Alfaro 3789* (INB), *G. Davidse 25351* (CR, MO), *G. Davidse 25949* (MO), *G. Davidse 26010* (CR, MO), *G. Davidse 28753* (CR, MO), *G. Davidse 28852* (MO), *G. Davidse 28853* (CR), *G. Davidse 29024* (MO), *G. Davidse 29276* (CR, MO), *G. Herrera 3706* (INB, MO), *G. Herrera 3718* (INB, MO), *F. Quesada 1833* (INB), *L. González 2506* (INB), *M. Moraga 397* (INB), *M. Valerio 214* (CR, INB, MO), *M. Valerio 218* (CR, INB,

MO), *S. Knapp 9860* (BM, INB), *S. Knapp 9886* (BM, INB), *S. Knapp 9950* (BM, INB). Uses: food. Regional conservation status: Vulnerable (VU), B1ab(i,iii).

NYCTAGINACEAE

Neea amplifolia Donn.Sm.

Bombeta, Corcho, Ayotillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Ecuador. Records: *D. Solano 4169* (BM, INB, MO, PMA).

Neea laetevirens Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez 11794* (BM, INB, MO, PMA), *D. Santamaría 5971* (BM, INB, MO, PMA), *D. Solano 4365* (BM, INB, MO, PMA), *D. Solano 5014* (BM, INB, MO, PMA), *E. Alfaro 2270* (INB).

Neea orosiana Standl.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua, Costa Rica. Records: *A. Rodríguez 11473* (BM, INB, MO, PMA), *D. Santamaría 6571* (BM, INB, MO, PMA), *D. Santamaría 6592* (BM, INB, MO, PMA), *D. Solano 4362* (BM, INB, MO, PMA).

Neea pittieri Standl.

Terrestrial shrubs or trees. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A. Fernández 891* (CR, INB, MO), *A.K. Monro 5014* (BM, INB, MO), *A. Rodríguez 11240* (BM, INB, MO, PMA), *A. Rodríguez 11302* (BM, INB, MO, PMA), *A. Rodríguez 11673* (BM, INB, MO, PMA), *D. Solano 4393* (BM, INB, MO, PMA), *D. Solano 4739* (BM, INB, MO, PMA), *D. Solano 4843* (BM, INB, MO, PMA), *E. Alfaro 3192* (INB), *L. Angulo 333* (INB).

Neea psychotrioides Donn.Sm.

Teñidor (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A. Chacón 287* (INB, MO), *F.*

González 477 (INB), *F. Solís 34* (INB, MO), *G. Herrera 5379* (INB, MO), *J. Bittner 1466* (INB, MO), *J. Bittner 1549* (INB, MO), *L. Acosta 2323* (INB), *L. Angulo 158* (CR, INB, MO).

***Neea urophylla* Standl.**

Terrestrial shrubs or trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4327* (BM, MO), *A. Rodríguez 11571* (BM, INB, MO, PMA), *D. Santamaría 6008* (BM, INB, MO, PMA), *S. Bridgewater 4168* (BM, INB, MO, PMA).

***Pisonia aculeata* L.**

Pegapollo, Petronio, petrono, Uña de tigre (CR).

Terrestrial shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Brazil Paraguay, Argentina. Antilles, Bahamas, tróps, subtróps del Viejo Mundo. Records: *A. Rodríguez, Jul. 21, 2007* (Field obs.), *A. Rodríguez, Jul. 22, 2007* (Field obs.), *A. Rodríguez, Jul. 24 2007* (Field obs.), *A. Rodríguez, Jul. 25, 2007* (Field obs.).

NYSSACEAE

ψ *Nyssa talamancana* Hammel & N.Zamora
Buesibo (CR).

Terrestrial trees. Distribution in PILA 500–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11608* (BM, INB, MO, PMA), *B. Hammel 17613* (MO), *D. Santamaría 7826* (PMA). Global conservation status: Endangered (EN).

OCHNACEAE

***Sauvagesia erecta* L.**

Terrestrial herbs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles, Africa, Madagascar. Records: *D. Santamaría 3464* (INB), *E. Alfaro 4196* (INB), *M. Correa 3629* (MO).

OLACACEAE

***Heisteria costaricensis* Donn.Sm.**

Terrestrial shrubs. Distribution in PILA 100–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to

Panama. Records: *G. Herrera 3079* (MO).

***Heisteria macrophylla* Oerst.**

Chupeta, Manglillo, Sombbrero naranjillo (CR).

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Panama. Records: *F. González 466* (INB), *L. Angulo 166* (INB, MO).

***Heisteria povedae* Q.Jiménez & S.Knapp**

Terrestrial shrubs. Distribution in PILA 100–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to El Salvador, Nicaragua to Panama. Records: *A. Rodríguez 11731* (BM, INB, MO, PMA), *A. Rodríguez 11819* (BM, INB, MO, PMA), *A. Soto 1274* (INB), *D. Santamaría 6762* (BM, INB, MO, PMA), *D. Santamaría 7773* (PMA), *D. Santamaría 7795* (PMA), *D. Solano 5017* (BM, INB, MO, PMA), *G. Davidse 28398* (CR, MO), *L. Acosta 2406* (INB), *L. Martínez 334* (PMA), *M. Alfaro 9* (INB).

***Heisteria scandens* Ducke**

Terrestrial lianas. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Nicaragua to Bolivia. Records: *G. Herrera 2652* (INB, MO).

ONAGRACEAE

***Fuchsia jimenezii* Breedlove, P.E.Berry & P.H.Raven**

Terrestrial shrubs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5492* (BM, INB, MO, PMA), *A.K. Monro 5637* (BM, INB, MO, PMA), *D. Santamaría 5644* (BM, INB, MO, PMA), *D. Santamaría 5871* (BM, INB, MO, PMA), *D. Solano 3984* (BM, INB, MO, PMA), *E. Alfaro 5388* (BM, MO), *E. Alfaro 5486* (BM, INB).

***Fuchsia microphylla* Kunth**

Madroncillo (CR).

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A. Chacón 572* (INB, MO), *A. Fernández 767* (CR, INB, MO), *A. Fernández 909* (CR, INB, MO), *A.K. Monro 4119* (BM, MO), *A. Soto 267* (INB), *E. Alfaro 1630* (INB), *G. Davidse 25182* (MO), *G. Davidse 25738* (CR, MO), *G. Davidse 28743* (CR, MO), *G. Davidse 28744* (CR, MO), *J. Bittner 1893* (INB, MO), *L. Angulo 194* (INB), *L. González 3594* (INB), *M.A. Thomas 1642* (MO), *M. Moraga 370* (INB), *S. Knapp*

10073 (BM, INB).

Fuchsia paniculata Lindl.

Achiotillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1400–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 666* (INB, MO), *A.K. Monro 4055* (BM, INB, MO), *A.K. Monro 5329* (BM, INB, MO), *C. Hamilton 3912* (MO), *C. Hamilton 755* (MO), *D. Santamaría 7276* (BM, INB, MO, PMA), *D. Solano 5099* (BM, INB, MO, PMA), *D. Solano 5199* (BM, INB, MO, PMA), *E. Alfaro 3224* (INB), *E. Alfaro 755* (INB), *G. Davidse 25755* (CR, MO), *G. Davidse 28943* (CR, MO), *J. Bittner 1771* (INB, MO), *L. González 1181* (INB), *L. González 3588* (INB), *M. Grayum 10308* (CR, INB, MO), *N. Zamora 4192* (BM, INB, MO, PMA), *Z. Fuentes 792* (INB).

Fuchsia splendens Zucc.

Epiphytic shrubs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A.K. Monro 4061* (BM, MO), *A.K. Monro 4118* (BM, INB, MO), *A.K. Monro 5229* (BM, INB), *A.K. Monro 5259* (BM, MO), *G. Davidse 25907* (CR, MO), *F. Quesada 1991* (INB), *M.A. Thomas 1580* (MO), *M. Moraga 376* (INB), *S. Knapp 9865* (BM).

Ludwigia foliobracteolata (Munz) H.Hara

Terrestrial herbs or shrubs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to the Guianas, Lesser Antilles. Records: *L. Acosta 2391* (INB), *S. Bridgewater 4210* (BM, INB, MO, PMA).

Oenothera elata Kunth

Terrestrial herbs. Distribution in PILA 1700–3200 m, cloud forest, low elevation oak forest, páramo. Global distribution: USA to El Salvador, Costa Rica, Panama. Records: *C. Hamilton 692* (MO).

OROBANCHACEAE

Castilleja arvensis Schlttdl. & Cham.

Terrestrial herbs. Distribution in PILA 700–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *D. Santamaría 3794* (INB), *E. Navarro 7* (CR, INB, MO).

□ ***Castilleja irasuensis*** Oerst.

Gallito (CR).

Terrestrial herbs or shrubs. Distribution in PILA 2000–3500 m, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5153* (BM, INB, MO), *B. Gamboa 1717* (INB, MO), *E. Alfaro 3256* (INB), *E. Alfaro 3389* (INB), *E. Alfaro 3771* (INB), *G. Davidse 29279* (CR, MO), *G. Davidse 29358* (MO).

Castilleja talamancensis N.H.Holmgren

Terrestrial herbs or shrubs. Distribution in PILA 300–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 517* (MO), *A. Chacón 558* (INB, MO), *E. Alfaro 1339* (INB), *E. Alfaro 3940* (INB), *G. Davidse 25337* (CR, MO), *G. Davidse 25883* (CR, MO), *G. Davidse 25947* (CR, MO), *G. Davidse 23857* (CR, MO), *G. Herrera 3723* (INB, MO), *F. Quesada 1810* (INB).

Conopholis alpina Liebm.

Terrestrial herbs. Distribution in PILA 1700–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Honduras, Costa Rica Panama. Records: *E. Alfaro 4600* (INB), *G. Davidse 25688* (MO), *J. F. Morales 5802* (INB), *F. Quesada 1971* (INB), *L. Angulo 189* (INB), *M. Moraga 383* (INB), *N. Zamora 4137* (BM, INB, MO, PMA), *S. Knapp 10076* (BM).

Lamourouxia gutierrezii Oerst.

Terrestrial herbs or shrubs. Distribution in PILA 900–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 3791* (INB), *D. Solano 2867* (INB), *E. Alfaro 2201* (INB).

OXALIDACEAE

Oxalis corniculata L.

Terrestrial herbs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest, páramo. Global distribution: Costa Rica to Bolivia. Records: *F. Quesada 1801* (INB).

Oxalis rhombifolia Jacq.

Terrestrial herbs. Distribution in PILA 900–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras, Costa Rica to Venezuela. Records: *J. A. Duke 13631* (MO).

Oxalis spiralis Ruiz & Pav. ex G. Don

Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to El Salvador, Costa Rica to Bolivia, Argentina. Records: *A. Fernández 714* (CR, INB), *A. Fernández 763* (CR, INB, MO), *A. Fernández 905* (CR, INB), *A.K. Monro 5212* (BM, INB, MO), *A.K. Monro 5308* (BM), *A.K. Monro 5320* (BM, INB, MO), *A. Rodríguez 10754* (BM, INB, MO, PMA), *A. Rodríguez 10917* (BM, INB, MO, PMA), *A. Soto 323* (INB), *B.B. Klitgaard 788* (BM, INB, MO), *B.B. Klitgaard 803* (BM, INB, MO), *B.B. Klitgaard 805* (BM, INB, MO), *D. Santamaría 5834* (BM, INB, MO, PMA), *D. Solano 3975* (BM, INB, MO, PMA), *E. Alfaro 1325* (INB), *E. Alfaro 3222* (INB), *E. Alfaro 4638* (INB), *G. Davidse 25088* (CR, MO), *G. Davidse 25462* (CR, MO), *G. Davidse 25731* (CR, MO), *G. Davidse 26038* (MO), *G. Davidse 29157* (CR, MO), *G. Herrera 3742* (INB, MO), *F. Quesada 1928* (INB), *M. Grayum 10292* (INB, MO), *S. Knapp 9863* (BM, INB), *S. Knapp 9990* (BM, MO). Uses: food.

PAPAVERACEAE

ψ ***Bocconia frutescens*** L.

Cacho de venado, Guacamaya, Tabaquillo, Pavo, Guacamayo, Papayillo, Papayo, Papagayo (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Mexico to Argentina, Lesser Antilles. Records: *A.K. Monro 5797* (BM, INB, MO, PMA), *B. Hammel 1405* (MO), *C. von Hagen 2012* (MO), *D. Santamaría 5843* (BM, INB, MO, PMA), *D. Santamaría 6137* (BM, INB, MO, PMA), *D. Santamaría 6531* (BM, INB, MO, PMA), *D. Solano 4035* (BM, INB, MO, PMA), *D. Solano 5214* (BM, INB, MO, PMA), *J. A. Duke 13679* (MO), *J. Dwyer 512* (MO), *K. E. Blum 2603* (MO), *M. Moraga 414* (INB), *R. J. Schmalzel s. n.* (MO), *T. Croat 26971* (MO). Uses: medicinal. Regional conservation status: Least Concern (LC).

PASSIFLORACEAE

Passiflora apetala Killip

Calzoncillo (CR).

Terrestrial twiners. Distribution in PILA 300–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *C. Hamilton 3605* (MO), *D. Santamaría 3738* (INB).

Passiflora auriculata Kunth

Terrestrial twiners. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Bolivia. Records: *A. Rodríguez, Feb. 23, 2008* (Field obs.).

Passiflora biflora Lam.

Calzoncillo, Nórbito, Nórbo, Sandia cimarrona (CR).

Terrestrial twiners. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Ecuador, Venezuela, Lesser Antilles. Records: *F. Quesada 1893* (INB), *L.D. Gómez 23254* (MO). Uses: medicinal.

Passiflora brevifila Killip

Canjura, Canfura (CR).

Terrestrial lianas. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *C. von Hagen 2141* (MO).

Passiflora capsularis L.

Terrestrial twiners. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Bolivia. Records: *A. Rodríguez 11585* (BM, INB, MO, PMA).

Passiflora hahnii (E.Fourn.) Mast.

Terrestrial lianas. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Honduras, Costa Rica to Panama. Records: *L. Acosta 2302* (INB).

Passiflora lancearia Mast.

Terrestrial twiners. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A.K. Monro 4524* (BM, INB, MO), *G. Herrera 2708* (MO), *G. Herrera 6085* (CR, INB, MO), *McPherson 15904* (MO).

e ***Passiflora ligularis*** Juss.

Granadilla, Granadilla dulce, Granadilla Colombiana (CR).

Terrestrial lianas. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru, Venezuela (widely cultivated). Records: *B. Gamboa*

644 (INB), *Blum* 2602 (MO), *J. Dwyer* 7730 (MO), *J. Dwyer* 529 (MO). Uses: food, medicinal.

Passiflora lobata (Killip) Hutch. ex J.M.MacDougal
Terrestrial twiners. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *E. Fletes* 186 (CR, INB), *G. Herrera* 6083 (CR, INB, MO).

Passiflora membranacea Benth.
Granadilla bellísima (CR).

Terrestrial twiners. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *B. Hammel* 1457 (MO), *D. Solano* 3841 (BM, INB, MO, PMA), *E. Alfaro* 4677 (INB), *G. Davidse* 25814 (CR, MO), *G. Herrera* 5922 (CR, INB, MO), *L. Angulo* 181 (INB), *L.D. Gómez* 22670 (MO), *M. Moraga* 304 (INB), *G. McPherson* 15891 (MO).

Passiflora sexflora Juss.
Terrestrial twiners. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Ecuador, Lesser Antilles. Records: *D. Solano* 3850 (BM, INB, MO, PMA), *J. Dwyer* 461 (MO), *J. Bittner* 1898 (INB, MO), *R. J. Schmalzel* 1365 (MO).

Passiflora talamancensis Killip
Terrestrial twiners. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *A.K. Monro* 5079 (BM, INB, MO).

Passiflora tica Gómez-Laur. & L.D.Gómez
Terrestrial trees. Distribution in PILA 900–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1031 (CR, INB), *A. Rodríguez* 11495 (BM, INB, MO, PMA), *G. Herrera* 2800 (MO), *G. Herrera* 5305 (CR, MO), *G. Herrera* 5409 (CR, INB, MO), *R. Aguilar* 1087 (INB, MO).

Passiflora vitifolia Kunth
Flor de Pasión, Pastora de monte, Pasionaria, Granadilla de monte (CR).

Terrestrial lianas. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, dense thicket. Global distribution: Nicaragua to Bolivia. Records: *A. Rodríguez* 11882 (BM, INB, MO, PMA).

PENTAPHYLACACEAE

ψ ***Cleyera theaeoides*** (Sw.) Choisy
Terrestrial shrubs or trees. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Greater Antilles. Records: *A. Chacón* 486 (INB, MO), *A. Rodríguez* 10308 (INB), *A. Rodríguez* 11840 (BM, INB, MO, PMA), *A. Soto* 331 (INB), *C. Hamilton* 3872 (MO), *D. Santamaría* 3771 (INB), *G. Davidse* 25499 (MO), *G. Davidse* 26157 (CR, MO), *G. Davidse* 29387 (CR, MO), *L. González* 3631 (INB), *N. Zamora* 2706 (INB), *N. Zamora* 4086 (BM, INB, MO, PMA), *N. Zamora* 4111 (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

ψ ***Freziera candicans*** Tul.
Coral (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Nicaragua. Records: *B. Gamboa* 590 (CR, INB, MO), *D. Solano* 5243 (BM, INB, PMA). Regional conservation status: Near Threatened (NT).

• ***Freziera tarariae*** Q.Jiménez, D.Santam. & A.K.Monro
Terrestrial trees. Distribution in PILA 2200–2900 m, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *G. Davidse et al.* 29054 (CR, GH), *D. Santamaría et al.* 9162 (BM, GH, INB, K, MO, NY), *D. Santamaría et al.* 9167 (BM, GH, INB, K, MO, NY), *D. Santamaría et al.* 9191 (BM, GH, INB, K, MO, NY, US).

ψ ***Symplocarpon purpusii*** (Brandege) Kobuski
Terrestrial trees. Distribution in PILA 700–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Colombia, Venezuela. Records: *D. Solano* 5228 (BM, INB, PMA), *L. Acosta* 2324 (INB), *L. Angulo* 143 (INB), *L. Angulo* 331 (INB), *N. Zamora* 4232 (BM, INB, MO, PMA), *T. Croat* 26940 (MO). Regional conservation status: Vulnerable (VU), A2c.

• ε-PILA ***Ternstroemia amistadensis*** Q.Jiménez & D.Santam.

Terrestrial shrubs or trees. Distribution in PILA 1100–2000 m, mixed forest in transition to low elevation forest, mixed

forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *T. Antonio* 2586 (MO), *G. Herrera* 5414 (CR, MO), *G. Herrera* 3266 (CR, MO), *D. Santamaría* 6700 (INB), *D. Solano & et al.* 4799 (INB, PMA, MO), *Solano* 5721 (INB, PMA, MO).

Ternstroemia tepezapote Schlttdl. & Cham.

Terrestrial trees. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *G. Herrera* 2694 (INB, MO).

PHRYMACEAE

Hemichaena fruticosa Benth.

Terrestrial herbs or shrubs. Distribution in PILA 1600–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Costa Rica. Records: *D. Solano* 5121 (BM, INB, MO, PMA), *D. Solano* 5227 (BM, INB, MO, PMA), *E. Alfaro* 3369 (INB).

Leucocarpus perfoliatus (Kunth) Benth.

Terrestrial herbs or shrubs. Distribution in PILA 500–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A. Fernández* 921 (CR, INB, MO), *D. Santamaría* 5779 (BM, INB, MO, PMA), *G. Herrera* 6002 (CR, INB, MO), *M. Valerio* 163 (MO).

PHYLLANTHACEAE

ψ ***Hieronyma oblonga*** (Tul.) Müll.Arg.

Algodoncillo, Campano chile, Cucaracho, Llorón, Llorón colorado, Pilón, Comenegro, Nacintón, Ascá, Zapatero, Kúlök (CR), Trompito (P).

Terrestrial trees. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia. Records: *D. Santamaría* 7506 (PMA), *S. Bridgewater* 4203 (BM, INB, MO, PMA). Uses: timber. Regional conservation status: Near Threatened (NT).

Margaritaria nobilis L.f.

Espuela de gallo (CR), Clavito (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Brazil, Greater Antilles, Lesser Antilles.

Records: *S. Bridgewater* 4154 (BM, INB, MO, PMA).

Phyllanthus anisobus Müll.Arg.

Terrestrial shrubs or trees. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Ecuador. Records: *D. Solano* 4395 (INB, MO), *D. D. Solano* 4455 (INB, MO).

Phyllanthus niruri L.

Terrestrial herbs or shrubs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: USA to Argentina. Records: *A. Rodríguez* 10919 (BM, INB, MO, PMA), *D. Santamaría* 5781 (BM, INB, MO, PMA), *G. Davidse* 29169 (CR, MO), *G. Herrera* 5996 (CR, INB, MO), *M. Grayum* 10378 (CR, INB, MO).

***Phyllanthus* sp A.**

Terrestrial shrubs. Distribution in PILA 1400–1600 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *E. Alfaro* 5530 (INB, MO, PMA), *J. Lezcano* 278 (PMA).

This species was identified as an undescribed species by the authors.

Phyllanthus stipulatus (Raf.) G.L. Webster

Terrestrial herbs or shrubs. Distribution in PILA 400–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Brazil. Records: *D. Solano* 4116 (BM, INB, MO, PMA).

Phyllanthus valerioi Standl.

Terrestrial shrubs. Distribution in PILA 700–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 6061 (CR, INB, MO).

Richeria obovata (Müll.Arg.) Pax & K.Hoffm.

Terrestrial herbs. Distribution in PILA 0–400 m, low elevation mixed forest. Global distribution: Costa Rica to Ecuador, Brazil, Bolivia. Records: *A. Rodríguez*, Sept 28, 2007 (Field obs.).

PHYLLONOMACEAE

Phyllonoma laticuspis (Turcz.) Engl.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A.K. Monro* 5477 (BM, INB,

PMA).

ψ *Phyllonoma ruscifolia* Willd. ex Schult.

Terrestrial shrubs or trees. Distribution in PILA 700–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Guatemala, Hon., Costa Rica to Colombia, Peru, Bolivia. Records: *A.K. Monro 6182* (PMA), *A.K. Monro 6347* (PMA), *A. Rodríguez 11531* (BM, INB, PMA), *G. Gallardo 287* (CR, INB, MO), *G. Herrera 3271* (INB, MO), *G. Herrera 5371* (CR, INB, MO). Regional conservation status: Near Threatened (NT).

Phyllonoma tenuidens Pittier

Epiphytic shrubs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras to Panama. Records: *A.K. Monro 5680* (BM, INB, PMA), *A. Rodríguez 10837* (BM, INB, PMA), *A. Rodríguez 11325* (BM, INB, PMA), *D. Santamaría 6671* (BM, INB, PMA), *M. Grayum 10352* (INB, MO).

PHYTOLACCACEAE

Phytolacca icosandra L.

Calalú, Jaboncillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 800–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *E. Alfaro 5501* (PMA).

Phytolacca meziana H. Walter

Terrestrial herbs or shrubs. Distribution in PILA 1800–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, El Salvador, Costa Rica, Panama. Records: *A. Fernández 696* (CR, INB, MO), *A.K. Monro 5485* (BM, INB, MO, PMA), *D. Solano 3981* (BM, INB, MO, PMA), *E. Alfaro 1628* (CR, INB), *E. Alfaro 4610* (INB).

Phytolacca rivinoides Kunth & C.D. Bouché

Calalú, Jaboncillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 4805* (BM, INB, MO), *A. Rodríguez 10802* (BM, INB, MO, PMA), *A. Rodríguez 10964* (BM, INB, MO, PMA), *A. Rodríguez 11642* (BM, INB, MO, PMA), *A. Soto 1261*

(INB), *D. Santamaría 5835* (BM, INB, MO, PMA), *D. Santamaría 6452* (BM, INB, MO, PMA), *D. Santamaría 6543* (BM, INB, MO, PMA), *D. Santamaría 7414* (PMA), *D. Santamaría 7709* (PMA), *D. Solano 4712* (BM, INB, MO, PMA), *D. Solano 4872* (BM, INB, MO, PMA), *J. Lezcano 327* (PMA).

Phytolacca rugosa A. Braun & C.D. Bouché

Terrestrial herbs or shrubs. Distribution in PILA 800–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture. Global distribution: Mexico to Venezuela. Records: *A. Soto 294* (INB), *C. Hamilton 709* (MO), *D. Santamaría 7531* (PMA), *G. Davidse 25077* (CR, MO), *G. Davidse 26147* (MO), *G. Herrera 3652* (INB, MO), *J. A. Duke 13699B* (MO), *L.D. Gómez 22585* (MO), *L. González 1184* (INB), *M.A. Thomas 1600* (MO), *S. Knapp 9996* (BM, INB, MO).

Trichostigma octandrum (L.) H. Walter

Terrestrial shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Venezuela. Records: *A. Rodríguez, Jul. 25, 2007* (Field obs.).

Trichostigma polyandrum (Loes.) H. Walter

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *A. Rodríguez 11173* (BM, INB, MO, PMA), *D. Santamaría 5995* (BM, INB, MO, PMA), *D. Solano 4278* (BM, INB, MO, PMA), *D. Solano 4326* (BM, INB, MO, PMA), *L.D. Gómez 23086* (MO).

PICRAMNIACEAE

Picramnia latifolia Tul.

Coralillo, Caragre (CR).

Terrestrial trees. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Brazil. Records: *A. Rodríguez 11263* (BM, INB, MO, PMA), *A. Rodríguez 11624* (BM, INB, MO, PMA), *D. Solano 4548* (BM, INB, MO, PMA), *G. Davidse 29184* (CR, MO).

Picramnia teapensis Tul.

Caregre, Caragre (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Ecuador.

Records: *A.K. Monro 6255* (PMA), *D. Santamaría 7035* (BM, INB, MO, PMA), *D. Santamaría 7234* (BM, INB, MO, PMA), *D. Solano 5196* (BM, INB, MO, PMA), *E. Alfaro 752* (INB), *L. Martínez 375* (PMA), *N. Zamora 4194* (BM, INB, MO, PMA).

PLANTAGINACEAE

Plantago australis Lam.

Llantén (CR).

Terrestrial herbs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Colombia, Brazil, Bolivia, Argentina. Records: *G. Davidse 26153* (CR, MO), *G. Davidse 28616* (MO), *F. Quesada 1491* (INB), *L. Angulo 212* (INB). Uses: medicinal.

e *Plantago major* L.

Llantén (CR).

Terrestrial herbs. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Worldwide. Records: *C. Hamilton 727* (MO), *J. A. Duke 13619* (MO). Uses: medicinal.

Russelia sarmentosa Jacq.

Coralillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia, Greater Antilles. Records: *D. Santamaría 3788* (INB), *G. Gallardo 54* (CR, INB). Uses: medicinal.

Sibthorpia repens (L.) Kuntze

Terrestrial herbs. Distribution in PILA 1800–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, El Salvador, Costa Rica to Bolivia, Argentina. Records: *A.K. Monro 5511* (BM, INB, MO, PMA), *A. Rodríguez 10772* (BM, INB, MO, PMA), *B.B. Klitgaard 821* (BM, INB), *E. Alfaro 3974* (INB), *G. Davidse 28958* (CR).

e *Veronica peregrina* L.

Terrestrial herbs. Distribution in PILA 1300–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Worldwide. Records: *G. Davidse 26151* (CR, MO).

POLEMONIACEAE

Cobaea gracilis (Oerst.) Hemsl.

Terrestrial herbs. Distribution in PILA 700–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández 806* (CR, INB, MO), *A. Rodríguez 10925* (BM, INB, MO, PMA), *A. Soto 1271* (INB), *D. Solano 4086* (BM, INB, MO, PMA), *D. Solano 5206* (BM, INB, MO, PMA), *E. Alfaro 2602* (INB).

The above material was determined as being of a currently undescribed species by Barry Hammel (Pers. Comm.). This species will be included in the Manual de Plantas de Costa Rica (Hammel et al., in prep.).

Cobaea lutea D. Don

Terrestrial herbs. Distribution in PILA 2300–3000 m, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to El Salvador, Honduras, Costa Rica Peru. Records: *E. Alfaro 3480* (INB).

Cobaea minor M. Martens & Galeotti

Terrestrial herbs. Distribution in PILA 1900–2800 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *F. Quesada 1499* (INB).

POLYGALACEAE

Monnina costaricensis Chodat

Terrestrial herbs or shrubs. Distribution in PILA 1600–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Endemic to Costa Rica. Records: *D. Solano 5137* (BM, INB, MO, PMA).

Monnina crepinii Chodat

Terrestrial shrubs. Distribution in PILA 1500–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4072* (BM, INB), *A.K. Monro 5340* (BM, INB, MO), *B.B. Klitgaard 795* (BM, INB, MO), *B.B. Klitgaard 840* (BM, INB, MO), *E. Alfaro 3955* (INB), *E. Alfaro 4709* (INB), *G. Davidse 25243* (CR, MO), *S. Knapp 9874* (BM, CR, MO).

Monnina parasylvatica C.M. Taylor

Terrestrial shrubs. Distribution in PILA 300–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama. Records: *A. Rodríguez 11371* (BM, INB, MO, PMA).

Monnina saprogena Donn.Sm.

Terrestrial shrubs. Distribution in PILA 1400–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10846* (BM, INB, MO, PMA), *A. Soto 324* (INB), *B. Gamboa 1219* (INB, MO), *B. Gamboa 1238* (INB), *D. Solano 4014* (BM, INB, MO, PMA), *E. Alfaro 3656* (INB), *E. Alfaro 4697* (INB), *G. Davidse 25233* (MO), *G. Davidse 28652* (MO), *G. Herrera 3727* (INB, MO), *G. Herrera 6169* (CR, INB, MO), *G. Herrera 6228* (CR, INB, MO), *J. Bittner 1807* (INB, MO), *M. Grayum 10349* (CR, INB, MO).

Monnina sylvatica Schltld. & Cham.

Terrestrial shrubs. Distribution in PILA 400–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 1049* (INB), *A. Rodríguez 11869* (BM, INB, MO, PMA), *D. Solano 2850* (INB), *D. Solano 5232* (BM, INB, MO, PMA), *G. Herrera 6246* (CR, INB, MO), *R. Villalobos 263* (CR, INB), *Z. Fuentes 793* (INB).

Monnina xalapensis Kunth

Terrestrial shrubs. Distribution in PILA 1100–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 1849* (CR, INB), *B. Hammel 1391* (MO), *C. Hamilton 696* (MO), *C. von Hagen 2074* (MO), *G. Davidse 26213* (MO), *J. A. Duke 13653* (MO), *J. Dwyer 435* (MO), *F. Quesada 1890* (INB), *K. E. Blum 2617* (MO), *T. Croat 27012* (MO).

Polygala paniculata L.

Canchalagua, Conchalagua, Cofalillo (CR).

Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela. Records: *D. Solano 3183* (INB). Uses: medicinal.

Securidaca diversifolia Pol.

Bejuco mariposa, Guatemala (CR).

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: USA to Honduras, Nicaragua, Panama, Ecuador to the Guyanas, Brazil, Bolivia, Greater Antilles, Lesser Antilles. Records: *G. Herrera 8102* (CR). Uses: medicinal.

Securidaca sylvestris Schltld.

Terrestrial shrubs. Distribution in PILA 300–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama. Records: *D. Solano 3212* (INB). Uses: medicinal.

POLYGONACEAE

Coccoloba tuerckheimii Donn.Sm.

Alma negra, Irayol de montaña, Quebracho, Zapatón, Piedra (CR).

Terrestrial trees. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez, Jul. 22, 2007* (Field obs.), *A. Rodríguez, Jul. 24 2007* (Field obs.), *A. Rodríguez, Jul. 25, 2007* (Field obs.), *N. Zamora, Aug. 8, 2008* (Field obs.). Uses: timber.

ψ ***Muehlenbeckia tamnifolia*** (Kunth) Meisn.

Bejuco colorado (CR).

Terrestrial lianas. Distribution in PILA 200–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to El Salvador, Costa Rica to Venezuela, Argentina. Records: *A. Fernández 704* (CR, INB, MO), *A. Rodríguez 10777* (BM, INB, MO, PMA), *B.B. Klitgaard 774* (BM, MO), *D. Solano 4030* (BM, INB, MO, PMA), *G. Davidse 23913* (CR, MO), *G. Davidse 25183* (MO), *G. Davidse 25806* (CR, MO), *G. Davidse 25997* (MO), *S. Knapp 10013* (BM, INB, MO), *S. Knapp 9946* (BM, INB, MO), *S. Knapp 9959* (BM, MO), *S. Knapp 9999* (BM, INB, MO). Regional conservation status: Near Threatened (NT).

Persicaria acuminata (Kunth) M.Gómez

Terrestrial herbs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Ecuador to Suriname, Bolivia, Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11192* (BM, INB, MO, PMA).

Rumex costaricensis Rech.f.

Terrestrial herbs. Distribution in PILA 1300–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *B.B. Klitgaard 804* (BM, MO), *E. Alfaro 3239* (INB), *G. Davidse 25857* (MO).

e ***Rumex obtusifolius*** L.

Ruibarba (CR).

Terrestrial herbs. Distribution in PILA 1000–3400 m, mixed forest in transition to low elevation forest,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA, Guatemala to Honduras, Costa Rica, Ecuador, Peru, Bolivia, Chile. Records: *C. Hamilton* 750 (MO), *C. Hamilton* 751 (MO).

PRIMULACEAE

Ardisia blepharodes Lundell

Terrestrial shrubs or trees. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 4731 (BM, INB, PMA), *D. Solano* 4835 (BM, INB, PMA).

ψ *Ardisia capitellata* Lundell

Terrestrial shrubs or trees. Distribution in PILA 1200–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11936 (BM, INB, PMA), *B. Gamboa* 633 (INB), *D. Santamaría* 7034 (BM, INB, PMA), *D. Santamaría* 7088 (BM, INB, PMA), *D. Santamaría* 7235 (BM, INB, PMA), *E. Alfaro* 2188 (INB), *E. Alfaro* 761 (INB), *G. Davidse* 28363 (INB, MO), *L. Acosta* 2289 (INB). Global conservation status: Endangered (EN), B1ab(i,iii).

Ardisia cartagoana Lundell

Terrestrial shrubs or trees. Distribution in PILA 1000–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 4522 (BM, INB, MO, PMA).

ψ *Ardisia compressa* Kunth

Murta, Huesillo, Madurillo, Tucuico (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador, Venezuela, Antilles. Records: *A.K. Monro* 4205 (BM, MO), *A.K. Monro* 4278 (BM, MO), *C. Hamilton* 3600 (MO), *D. Santamaría* 4413 (INB), *D. Solano* 5268 (BM, INB, PMA), *L. González* 3605 (INB). Regional conservation status: Least Concern (LC).

Ardisia copeyana Standl.

Terrestrial shrubs or trees. Distribution in PILA 1000–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico, Nicaragua to Colombia, Venezuela. Records: *D. Santamaría* 5904 (BM, INB, PMA), *D. Santamaría* 7024

(BM, INB, PMA), *F. Quesada* 1895 (INB). Conservation status: Least Concern, ver 2.3 (1994).

ε-PILA *Ardisia crassipes* Lundell

Terrestrial shrubs or trees. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *S. Mori* 7330 (NY, MO).

Ardisia glandulosomarginata Oerst.

Madurillo, Tucuico (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 4632 (INB), *G. Davidse* 25708 (CR, MO), *G. Davidse* 25719 (CR, MO), *G. Davidse* 29125 (INB), *G. Davidse* 29391 (MO).

Ardisia guianensis (Aubl.) Mez

Huesillo, Tucuico, Hoja larga (CR).

Terrestrial shrubs or trees. Distribution in PILA 900–1400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala, Belize, Nicaragua to Panama, Ecuador, Bolivia, Guayanas, Brazil, Antilles. Records: *E. Alfaro* 4195 (INB).

Ardisia nigropunctata Oerst.

Terrestrial shrubs or trees. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Belize to Panama. Records: *A. Rodríguez* 10885 (BM, INB, PMA), *A. Rodríguez* 11660 (BM, INB, PMA), *A. Rodríguez* 11763 (BM, INB, PMA), *A. Rodríguez* 11933 (BM, INB, PMA), *D. Santamaría* 5663 (BM, INB, PMA), *D. Santamaría* 6471 (BM, INB, PMA), *D. Santamaría* 6573 (BM, INB, PMA), *D. Santamaría* 6779 (BM, INB, PMA), *D. Santamaría* 6815 (BM, INB, PMA), *D. Solano* 4042 (BM, INB, PMA), *D. Solano* 4881 (BM, INB, PMA), *D. Solano* 4901 (BM, INB, PMA), *A. Soto* 1269 (INB), *A. Soto* 359 (INB), *D. Solano* 5136 (BM, INB, PMA), *D. Solano* 5267 (BM, INB, PMA), *E. Alfaro* 2187 (CR, INB), *G. Davidse* 25764 (CR, MO), *L. Angulo* 381 (INB).

Ardisia opegrapha Oerst.

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *D. Santamaría* 4382A (INB), *G. Gallardo* 41 (CR).

ψ *Ardisia palmana* Donn.Sm.

Tucuico, Madurillo, Hoja grande (CR).

Terrestrial shrubs or trees. Distribution in PILA 100–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *A. Fernández* 836 (CR, INB, MO), *D. Solano* 4020 (BM, INB, PMA), *G. Davidse* 25486 (MO). Regional conservation status: Vulnerable (VU), B1ab(i, iii).

Ardisia panamensis Lundell

Terrestrial shrubs or trees. Distribution in PILA 1800–2300 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *H. Pittier* 3255 (S).

Ardisia pleurobotrya Donn.Sm.

Tucuico (CR).

Terrestrial shrubs or trees. Distribution in PILA 2400–3300 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4067 (BM, INB, MO), *G. Davidse* 25124 (CR, MO), *G. Davidse* 29021 (INB, MO), *G. Herrera* 3626 (MO), *M. Valerio* 208 (CR, INB, MO), *S. Knapp* 10029 (BM, INB), *S. Knapp* 9895 (BM, INB).

Ardisia subsessilifolia Lundell

Terrestrial shrubs or trees. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *B. Gamboa* 1707 (INB, MO), *E. Alfaro* 3254 (INB), *G. Davidse* 25279 (CR, MO), *G. Davidse* 25710 (INB, MO), *G. Davidse* 28560 (INB, MO), *G. Herrera* 3638 (INB), *G. Herrera* 6157 (CR, INB, MO), *G. Herrera* 6248 (CR, INB, MO), *J. F. Morales* 5815 (INB, MO), *S. Knapp* 10072 (BM, INB). Conservation status: Vulnerable (VU), B1+2c ver 2.3 (1994).

ε-PILA *Ardisia tarariae* Lundell

Terrestrial shrubs or trees. Distribution in PILA 2100–2800 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *E. Alfaro* 4604 (INB), *E. Alfaro* 4685 (INB), *G. Davidse* 28656 (MO), *G. Davidse* 28703 (INB, MO), *G. Davidse* 28882 (INB, MO), *G. Davidse* 29065 (INB, MO), *F. Quesada* 1938 (INB), *L. Angulo* 199 (INB), *L. Angulo* 203 (INB), *L. González* 3612 (INB).

Cybianthus costaricanus Hemsl.

Shrubs or epiphytic trees. Distribution in PILA 800–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low

elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4397 (BM, MO), *A. Rodríguez* 10705 (BM, INB, PMA), *A. Rodríguez* 10833 (BM, INB, PMA), *B. Gamboa* 1211 (INB), *D. Santamaría* 5730 (BM, INB, PMA), *D. Solano* 4010 (BM, INB, PMA), *D. Solano* 4059 (BM, INB, PMA), *E. Alfaro* 3267 (INB), *E. Alfaro* 3376 (INB), *E. Alfaro* 3496 (INB), *E. Alfaro* 3962 (INB), *E. Alfaro* 4628 (INB), *G. Davidse* 25120 (CR, MO), *G. Davidse* 25920 (MO), *G. Davidse* 28791 (MO), *G. Davidse* 28824 (MO), *G. Davidse* 28827 (MO), *G. Davidse* 29084 (CR, MO), *G. Herrera* 3258 (INB, MO), *G. Herrera* 3418 (INB, MO), *G. Herrera* 3714 (INB), *G. Herrera* 5433 (INB), *G. Herrera* 6047 (CR, INB, MO), *F. Quesada* 1792 (INB).

Cybianthus pastensis (Mez) G.Agostini

Terrestrial shrubs. Distribution in PILA 2000–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A. Fernández* 971 (CR, INB), *A. Rodríguez* 10835 (BM, INB, PMA), *E. Alfaro* 3410 (INB), *E. Alfaro* 3654 (INB), *G. Davidse* 25108 (CR, MO), *G. Davidse* 25181 (CR, MO), *J. Bittner* 1813 (INB), *L. González* 1990 (INB), *L. González* 2458 (INB).

Cybianthus schlimii (Hook.f.) G.Agostini

Terrestrial herbs or shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, pasture. Global distribution: Nicaragua to Bolivia, Brazil. Records: *A.K. Monro* 6309 (PMA), *A. Rodríguez* 11643 (BM, INB, PMA).

Gentlea austinsmithii (Lundell) Lundell

Terrestrial shrubs or trees. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Panama. Records: *E. Alfaro* 3984 (INB), *L. Angulo* 261 (INB).

Gentlea venosissima (Ruiz & Pav.) Lundell

Terrestrial shrubs or trees. Distribution in PILA 900–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Belize, Guatemala, Costa Rica, Colombia, Peru, Venezuela. Records: *A. Rodríguez* 11871 (BM, INB, PMA).

Hymenandra pittieri (Mez) Pipoly & Ricketson

Terrestrial shrubs or trees. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría* 7018 (BM, INB, PMA), *D. Solano* 5006 (BM, INB, PMA), *D. Solano* 5049 (BM, INB, PMA).

ψ *Myrsine coriacea* (Sw.) R.Br. ex Roem. & Schult.

Hojalarga, Ratón blanco, Ratoncillo, Ratón (CR), Mangle de montaña, Mangle, Mangle de sabanas (P).

Terrestrial shrubs or trees. Distribution in PILA 800–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Mexico, Belize to Bolivia, Venezuela, Antilles, Guyana, Paraguay, Uruguay, Argentina. Records: *A. Fernández* 712 (CR, INB, MO), *A.K. Monro* 4952 (BM, INB, MO), *A. Rodríguez* 9822 (INB), *A. Soto* 1307 (INB), *B. Gamboa* 1239 (INB, MO), *D. Santamaría* 3476 (INB), *D. Santamaría* 3744 (INB), *D. Solano* 5131 (BM, INB, PMA), *E. Alfaro* 3490 (INB), *E. Alfaro* 3816 (INB), *G. Davidse* 25239 (MO), *G. Davidse* 25496 (MO), *G. Davidse* 25737 (MO), *G. Davidse* 28583 (CR, MO), *G. Davidse* 28701 (CR, MO), *F. Quesada* 1559 (INB), *L. Angulo* 197 (INB), *L. Angulo* 226 (CR, INB), *L. González* 3606 (INB), *M. Moraga* 1559 (CR). Regional conservation status: Near Threatened (NT).

Myrsine dependens (Ruiz & Pav.) Spreng.

Terrestrial shrubs or trees. Distribution in PILA 2300–3400 m, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia, Venezuela. Records: *B. Gamboa* 1202 (INB, MO), *B. Gamboa* 1715 (INB, MO), *E. Alfaro* 3230 (INB), *E. Alfaro* 3794 (INB), *G. Davidse* 23843 (CR, MO), *G. Davidse* 23903 (CR, MO), *G. Davidse* 25118 (CR, MO), *G. Davidse* 25301 (MO), *G. Davidse* 25507 (CR, MO), *G. Davidse* 25865 (INB, MO), *G. Davidse* 25901 (MO), *G. Davidse* 25964 (CR, MO), *G. Davidse* 25985 (CR, MO), *G. Davidse* 29332 (CR, MO), *F. Quesada* 1825 (INB), *S. Knapp* 9841 (BM, INB), *S. Knapp* 9871 (BM, INB), *S. Knapp* 9884 (BM, INB), *S. Knapp* 9898 (BM, INB).

Myrsine juergensenii (Mez) Ricketson & Pipoly

Terrestrial shrubs or trees. Distribution in PILA 200–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *E. Alfaro* 3631 (INB), *E. Alfaro* 3991 (INB, MO), *L. González* 3603 (INB).

Myrsine pellucidopunctata Oerst.

Ratón de agua, Ratón, Ratoncillo, Kag-dži+krá (Brunka), Kirba+gró (Térraba) (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 3990 (INB, MO).

Parathesis cartagoana Lundell

Terrestrial trees. Distribution in PILA 1700–1700 m, cloud forest. Global distribution: Endemic to Costa Rica. Records: *B. Gamboa* 648 (INB).

Parathesis crassiramea Lundell

Terrestrial shrubs or trees. Distribution in PILA 800–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Colombia. Records: *S. Bridgewater* 4199 (BM, INB, PMA).

Parathesis glabra Donn.Sm.

Tucuico, Huesillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 600–3800 m, low elevation mixed forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *C. Hamilton* 3659 (MO), *D. Solano* 5086 (BM, INB, PMA), *D. Solano* 5205 (BM, INB, PMA), *S. Mori* 5646 (LL, MO).

□ *Parathesis glendae* Rick.

Terrestrial trees. Distribution in PILA 600–600 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 6195 (BM, INB, PMA).

PROTEACEAE

Panopsis acostana J.F.Morales

Terrestrial trees. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría* 5906 (BM, INB, MO, PMA).

ψ *Panopsis costaricensis* Standl.

Palo papa (CR).

Terrestrial trees. Distribution in PILA 400–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Soto* 341 (INB), *E. Alfaro* 2283 (INB). Regional conservation status: Near Threatened (NT).

Roupala glaberrima Pittier

Danto, Danto hediondo, Danto amarillo, Zorrillo, Zorrillo blanco, Danto carne (CR).

Terrestrial trees. Distribution in PILA 500–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: El Salvador, Costa Rica, Panama. Records:

D. Santamaría 5931 (BM, INB, MO, PMA), *E. Alfaro 2211* (INB), *E. Alfaro 3200* (INB). Uses: timber. (INB).

ψ *Roupala montana* Aubl.

Carne asada, Danto, Danto hediondo, Danto ratón, Ratón, Danto amarillo, Danto carne, Zorrillo, Kag-dži+krá (Brunka), Kirba+gró (Térraba) (CR), Carne asada, Árbol carne, Ratón (P).

Terrestrial shrubs or trees. Distribution in PILA 200–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil. Records: *A. Rodríguez 9810* (INB), *A. Rodríguez 9837* (INB), *D. Santamaría 3528* (INB). Regional conservation status: Near Threatened (NT).

RANUNCULACEAE

Ranunculus flagelliformis J.E.Sm.

Terrestrial herbs. Distribution in PILA 1800–3700 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Colombia to Venezuela, Brazil, Bolivia, Chile. Records: *E. Alfaro 3678* (INB).

Ranunculus geranioides Kunth ex DC.

Terrestrial herbs. Distribution in PILA 1000–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Peru. Records: *G. Davidse 25156* (CR, MO), *G. Davidse 26152* (CR, MO), *G. Davidse 28970* (CR, MO), *G. Herrera 6261* (CR, INB, MO).

Ranunculus peruvianus Pers.

Terrestrial herbs. Distribution in PILA 3000–3700 m, high elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica to Peru. Records: *A. S. Weston 10152* (MO), *S. Knapp 9854* (BM, MO).

RHAMNACEAE

Ceanothus caeruleus Lag.

Terrestrial shrubs. Distribution in PILA 2100–3500 m, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras., Costa Rica, Panama. Records: *A.K. Monro 4176* (BM, INB, PMA).

Frangula capreifolia (Schltdl.) Grubov

Duraznillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 2600–2700 m, high elevation oak forest. Global distribution: Mexico to Costa Rica. Records: *B. Gamboa 1224* (INB), *E. Alfaro 3251* (INB), *E. Alfaro 3778* (INB), *G. Davidse 28550* (CR), *F. Quesada 1837* (INB), *L. González 3589*

Frangula discolor (Donn.Sm.) Grubov

Terrestrial shrubs or trees. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 11043* (BM, INB, MO, PMA), *B. Gamboa 1209* (INB), *D. Santamaría 5852* (BM, INB, MO, PMA), *E. Alfaro 3468* (INB), *E. Alfaro 3815* (INB), *E. Alfaro 4611* (INB), *G. Davidse 25213* (CR, MO), *G. Davidse 28579* (CR, MO), *G. Herrera 5919* (CR, INB, MO), *G. Herrera 6186* (CR, INB, MO), *L. Acosta 2282* (INB), *L. Angulo 204* (INB), *L. González 3592* (INB), *M. Moraga 380* (INB).

Frangula sphaerosperma (Sw.) Kartesz & Gandhi

Duraznillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru, Greater Antilles, Lesser Antilles. Records: *C. Hamilton 3889* (MO).

Gouania lupuloides (L.) Urb.

Terrestrial lianas. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *G. Davidse 28521* (MO).

ψ *Rhamnus oreodendron* L.O.Williams

Duraznillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–3400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A. Chacón 493* (CR, INB, MO), *A. Chacón 563* (CR, INB, MO), *A.K. Monro 4946* (BM, INB, MO), *A. Soto 261* (INB), *B.B. Klitgaard 789* (BM, INB, MO), *B. Gamboa 1720* (INB), *B. Gamboa 575* (INB, MO), *E. Alfaro 3947* (INB), *E. Alfaro 3973* (INB), *E. Alfaro 4613* (INB), *G. Davidse 25137* (CR, MO), *G. Davidse 25275* (CR, MO), *G. Davidse 28549* (MO), *G. Davidse 28751* (CR, MO), *G. Davidse 23968* (MO), *G. Davidse 24003A* (MO), *G. Herrera 6171* (CR, INB, MO), *M.A. Thomas 1598* (MO), *S. Knapp 9903* (BM, INB, MO). Global conservation status: Vulnerable (VU), B1ab(i,iii).

RHIZOPHORACEAE

Cassipourea toroensis, nom. prov. ined.

Jicaro (CR), Huesito, Limoncillo, Ajo (P).

Terrestrial shrubs. Distribution in PILA 0–1200 m,

low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *A.K. Monro 6312* (BM, INB, MO), *D. Santamaría 7785* (BM, INB, MO), *D. Santamaría 7798* (BM, INB, MO), *D. Santamaría, Oct. 24, 2008* (Field obs.), *D. Santamaría, Oct. 25, 2008* (Field obs.), *D. Santamaría, Oct. 27, 2008* (Field obs.), *D. Santamaría, Oct. 28, 2008* (Field obs.), *L. Martínez 362* (BM, INB, MO).

To be published by G. Prance in *Flora Neotropica* (in press).

ROSACEAE

e *Eriobotrya japonica* (Thunb.) Lindl.

Níspero, Níspero de Japón (CR).

Terrestrial trees. Distribution in PILA 1500–1800 m, mixed forest in transition to cloud forest. Global distribution: China, introduced from Mexico to Bolivia. Records: *M. Moraga 415* (CR, INB, MO).

ψ *Hesperomeles obtusifolia* (Pers.) Lindl.

Terrestrial shrubs. Distribution in PILA 800–3700 m, mixed forest in transition to low elevation forest, mixed forest in transition to low elevation forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *A.K. Monro 5154* (MO), *A.K. Monro 5336* (MO), *B. Gamboa 581* (INB), *B. Klitgaard 753* (MO), *E. Alfaro 1319* (INB), *E. Alfaro 3774* (INB), *E. Alfaro 3246* (INB), *E. Alfaro 3404* (INB), *G. Davidse 28584* (CR, INB), *G. Davidse 25924* (CR, INB), *G. Davidse 25960* (CR, INB), *G. Davidse 29032* (CR, INB), *G. Davidse 29283* (CR, INB), *S. Knapp 10047* (MO). Regional conservation status: Vulnerable (VU), B1a.

Holodiscus argenteus (L.f.) Maxim.

Terrestrial shrubs. Distribution in PILA 3000–3700 m, high elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica to Colombia. Records: *A.K. Monro 5258* (MO).

Lachemilla fulvescens (L.M.Perry) Rothm.

Terrestrial herbs. Distribution in PILA 3200–3200 m, low elevation oak forest, páramo. Global distribution: Panama to Ecuador, Venezuela. Records: *F. Quesada 2004* (INB).

Lachemilla pectinata (Kunth) Rothm.

Terrestrial herbs. Distribution in PILA 1100–3500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Honduras, Costa Rica to Bolivia. Records: *A.K. Monro 4114* (BM, INB, MO), *S. Knapp 10028* (BM, INB, MO, PMA), *S. Knapp 9941* (BM, INB, MO).

Lachemilla verticillata (Fielding & Gardner) Rothm.

Terrestrial herbs. Distribution in PILA 3100–3800 m, páramo. Global distribution: Costa Rica to Venezuela. Records: *E. Alfaro 3311* (INB), *F. Quesada 1805* (INB).

ψ *Prunus annularis* Koehne

Terrestrial trees. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 4826* (BM, INB, MO, PMA), *E. Alfaro 3988* (INB), *L. González 1185* (INB), *N. Zamora 4091* (BM, INB, MO, PMA), *S. Bridgewater 4208* (BM, INB, MO, PMA). Uses: timber. Global conservation status: Vulnerable (VU), B1ab(i,iii).

ψ *Prunus brachybotrya* Zucc.

Terrestrial trees. Distribution in PILA 600–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A. Rodríguez 11932* (BM, INB, MO, PMA), *E. Alfaro 3695* (INB), *G. Davidse 23981* (CR, MO), *J. González 804* (CR, INB, MO), *L. González 3633* (INB), *M. Grayum 10325* (INB, MO). Regional conservation status: Near Threatened (NT).

Prunus occidentalis Sw.

Terrestrial trees. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica. Records: *F. González 460* (INB), *L. Acosta 2364* (INB).

Prunus rhamnoides Koehne

Terrestrial trees. Distribution in PILA 1000–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica. Records: *N. Zamora, Feb. 27, 2008* (Field obs.).

Rubus eriocarpus Liebm.

Mora, Mora blanca, Zarzamora (CR).

Terrestrial shrubs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *E. Alfaro 3307* (INB), *E. Alfaro 4700* (INB), *G. Davidse 25445* (CR, MO), *G. Davidse 25510* (MO), *G. Davidse 26039* (CR, MO), *J. A. Duke 13623* (MO), *D. Solano 5242* (BM, INB, MO, PMA). Uses: food.

Rubus irasuensis Liebm.

Terrestrial shrubs. Distribution in PILA 1800–2700 m, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Honduras, Costa Rica. Records: *N. Zamora 4169* (BM, INB, MO, PMA).

Rubus malacocarpus Standl. & L.O. Williams

Terrestrial shrubs. Distribution in PILA 2200–3200 m, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *B. Gamboa 1233* (INB, MO), *E. Alfaro 3257* (INB), *G. Davidse 24005* (CR, MO), *G. Davidse 25185* (MO), *G. Davidse 28910* (CR, MO), *G. Davidse 29045* (MO), *M. Moraga 369* (INB).

Rubus miser Liebm.

Terrestrial shrubs. Distribution in PILA 1600–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *A. Fernández 720* (CR, INB, MO), *A. Fernández 912* (CR, INB, MO), *A. Soto 256* (INB), *B.B. Klitgaard 786* (BM, INB, MO), *C. Hamilton 775* (MO), *D. Santamaría 7483* (PMA), *D. Solano 4099* (BM, INB, MO, PMA), *D. Solano 5286* (BM, INB, MO, PMA).

Rubus urticifolius Poir.

Terrestrial shrubs. Distribution in PILA 500–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 11926* (BM, INB, MO, PMA), *A. Rodríguez 9769* (INB), *A. Rodríguez 9850* (INB), *A. Soto 1304* (INB), *D. Santamaría 4428* (INB), *D. Solano 2917* (INB), *F. Quesada 1626* (INB, MO).

RUBIACEAE

Alibertia atlantica (Dwyer) Delprete & C.H.Perss.

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Panama. Records: *G. Davidse 28514* (CR, MO), *G. Herrera 3059* (MO).

Alibertia premontana C.M. Taylor

Terrestrial trees. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 5947* (BM, INB, PMA).

Amaioua pedicellata Dwyer

Terrestrial trees. Distribution in PILA 400–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5739* (BM, INB, PMA), *L. Martínez 341* (PMA).

ψ ***Arachnothryx buddleioides*** (Benth.) Planch.

Algodoncillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *A.K. Monro 4905* (BM, MO), *A.K. Monro 5683* (INB), *A. Rodríguez 10972* (BM, INB, PMA), *G. Herrera 6123* (MO). Regional conservation status: Near Threatened (NT).

Arachnothryx tayloriae (Lorence) Borhidi

Terrestrial shrubs or trees. Distribution in PILA 900–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5862* (BM, INB, PMA), *D. Solano 4830* (BM, INB, MO, PMA), *G. Herrera 2656* (INB, MO), *R. Aguilar 1116* (INB, MO).

ψ ***Arcytophyllum lavarum*** K.Schum. ex Standl.

Terrestrial shrubs. Distribution in PILA 800–3800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Chacón 534* (INB, MO), *B. Gamboa 1208* (CR, INB, MO), *E. Alfaro 3275* (INB), *E. Alfaro 3322* (INB), *E. Alfaro 3397* (INB), *G. Davidse 25916* (CR, MO), *G. Davidse 25951* (CR, MO), *G. Davidse 28826* (CR, MO), *G. Davidse 29315* (CR, MO), *G. Davidse 29342* (CR, MO), *F. Quesada 1795* (INB), *W. Burger 8539* (MO). Global conservation status: Endangered (EN), B1ab(i,iii).

Arcytophyllum muticum (Wedd.) Standl.

Terrestrial shrubs. Distribution in PILA 2700–3800 m, high elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *E. Alfaro 3327* (INB), *G. Davidse 29297* (CR, MO).

Bertiera guianensis Aubl.

Terrestrial shrubs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia, Brazil. Records: *G. Gallardo 60* (MO).

Chimarrhis parviflora Standl.

Pejibayillo, Manwood, Plátano amarillo, Ullama, Yema de huevo, Jagua amarillo (CR).

Terrestrial tree. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Honduras to Panama. Records: *A. Rodríguez*, *Jul. 22, 2007 (Field obs.)*. Uses: timber.

Chiococca pachyphylla Wernham

Chiraquilla, Zorro (CR).

Terrestrial shrubs or trees. Distribution in PILA 200–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *C. Hamilton 3873* (MO), *E. Alfaro 4711* (INB).

Chione venosa (Sw.) Urb.

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru, Antilles. Records: *J. H. Kirkbride Jr. 158* (MO), *K. E. Blum 2651* (MO).

Chomelia venulosa W.C.Burger & C.M.Taylor

Terrestrial tree. Distribution in PILA 200–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Global distribution Costa Rica, Panama. Records: *A. Rodríguez*, *Nov. 1, 2007 (Field obs.)*.

ψ ***Cinchona pubescens*** Vahl

Agujilla, Quina, Palo de lagarto, Quinina, Bichá (CR).

Terrestrial trees. Distribution in PILA 900–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica to Bolivia, Venezuela. Records: *D. Solano 2897* (INB), *G. Davidse 28466* (CR, MO), *L. Acosta 2280* (INB), *R. Villalobos 257* (CR, INB). Uses: timber. Regional conservation status: Near Threatened (NT).

Coccocypselum condalia Pers.

Huevos de indio (CR).

Terrestrial herbs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama, Peru, Venezuela, Brazil, Bolivia, Lesser Antilles. Records: *A. Rodríguez 9872* (INB), *A. Rodríguez 9881* (INB,), *A. Soto 1305* (INB), *D. Santamaría 3758* (INB), *D. Santamaría 4430* (INB), *D. Solano 2865* (INB), *E. Alfaro 4192* (INB), *E. Alfaro 4198* (INB), *F. Quesada 1698* (CR, INB).

Coccocypselum cordifolium Nees & Mart.

Terrestrial herbs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Brazil. Records: *A. Rodríguez 11876* (BM, INB, MO, PMA).

Coccocypselum herbaceum P.Browne ex Aubl.

Terrestrial herbs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 11411* (BM, INB, MO, PMA), *G. Gallardo 77* (CR, INB, MO), *G. Herrera 3244* (MO).

Coccocypselum hirsutum Bartl. ex DC.

Huevos de indio (CR).

Terrestrial herbs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Costa Rica to Argentina. Records: *A. Chacón 690* (MO), *A. Rodríguez 9872* (INB), *A. Rodríguez 9881* (INB), *A. Soto 1305* (INB), *D. Santamaría 3758* (INB), *D. Santamaría 4430* (INB), *D. Solano 2865* (INB), *E. Alfaro 4192* (INB), *E. Alfaro 4198* (INB), *F. Quesada 1698* (CR, INB).

Coccocypselum lanceolatum (Ruiz & Pav.) Pers.

Terrestrial herbs. Distribution in PILA 1100–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala, Costa Rica to Argentina. Records: *A. Rodríguez 9875* (INB), *D. Santamaría 4457* (INB), *D. Solano 2868* (INB), *D. Solano 3202* (INB), *E. Alfaro 2202* (INB), *E. Alfaro 4186* (INB), *E. Alfaro 4189* (INB), *L. González 1221* (INB).

Condaminea corymbosa (Ruiz & Pav.) DC.

Terrestrial shrubs. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Bolivia. Records: *A.K. Monro 4697* (BM, INB).

ψ ***Cosmibuena valerioi*** (Standl.) C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 800–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2698* (INB, MO), *G. Herrera 3334* (INB, MO). Global conservation status: Vulnerable (VU), B1ab(i,iii).

Coussarea caroliniana Standl.

Terrestrial shrubs or trees. Distribution in PILA 500–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica,

Panama. Records: *A. Rodríguez 11475* (BM, INB, MO, PMA), *A. Rodríguez 11629* (BM, INB, MO, PMA), *D. Santamaría 5911* (BM, INB, MO, PMA), *D. Santamaría 5929* (BM, INB, MO, PMA).

Coussarea latifolia Standl.

Terrestrial trees. Distribution in PILA 200–600 m, low elevation mixed forest. Global distribution: Costa Rica to Peru. Records: *G. Herrera 3126* (MO).

Coussarea talamancana Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *C. Davidson 6719* (MO).

Crusea coccinea DC.

Terrestrial herbs. Distribution in PILA 1800–2600 m, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Mexico to Panama. Records: *E. Alfaro 3471* (INB), *G. Davidse 26136* (CR, MO), *G. Davidse 28604* (CR, MO), *J. F. Morales 5823* (INB), *M. Moraga 374* (INB).

Declieuxia fruticosa (Willd. ex Roem. & Schult.) Kuntze

Terrestrial herbs to shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, El Salvador, Nicaragua to Venezuela, Suriname, Brazil, Paraguay. Records: *A. Rodríguez 10305* (INB), *D. Solano 2863* (INB), *E. Alfaro 4205* (INB).

Deppea grandiflora Schldl.

Terrestrial shrubs. Distribution in PILA 1600–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Santamaría 7146* (INB).

Didymaea mexicana Hook.f.

Terrestrial herbs. Distribution in PILA 1400–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama. Records: *Davidse 26065* (INB), *Davidse 26160* (INB), *Davidse 28789* (INB), *Herrera 3637* (INB), *A.K. Monro 4059* (INB).

ψ ***Elaeagia auriculata*** Hemsl.

Gomilla, Huesillo, Madroño (CR).

Terrestrial trees. Distribution in PILA 1200–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 3818* (INB, MO), *D. Solano 2898* (INB),

D. Solano 4157 (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

Elaeagia chiriquina C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5752* (INB).

Elaeagia myriantha (Standl.) C.M.Taylor & Hammel

Terrestrial trees. Distribution in PILA 600–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Venezuela. Records: *A. Rodríguez, Feb. 21, 2008* (Field obs.).

Faramea eurycarpa Standl.

Azulejo (CR).

Terrestrial shrubs or trees. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, secondary forest. Global distribution: Costa Rica to Peru. Records: *D. Solano 4863* (BM, INB, MO, PMA).

Faramea glandulosa Poepp. & Endl.

Terrestrial shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Brazil. Records: *González 774* (INB, PMA), *D. Santamaría 7370* (INB, PMA), *D. Santamaría 7851* (INB, PMA), *D. Solano 4675* (BM, INB, MO, PMA), *D. Solano 4792* (BM, INB, MO, PMA), *D. Solano 5657* (INB, PMA).

Faramea multiflora A.Rich. ex DC.

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Nicaragua to Bolivia. Records: *A.K. Monro 4761* (BM, INB, MO), *A.K. Monro 6326* (PMA), *D. Santamaría 6490* (BM, INB, MO, PMA).

Faramea occidentalis (L.) A.Rich.

Cafecillo (CR), Benjamín, Huesito, Garrotillo, Jazmín (P).

Terrestrial shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Tropical America. Records: *A. Rodríguez, Nov. 1, 2007* (Field obs.), *A. Rodríguez, Sept 29, 2007* (Field obs.), *D. Santamaría, Oct. 24, 2007* (Field obs.).

Faramea ovalis Standl.

Terrestrial shrubs or trees. Distribution in PILA 1000–

3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 11540* (BM, INB, MO, PMA), *D. Santamaría 6665* (BM, INB, MO, PMA), *D. Santamaría 7211* (BM, INB, MO, PMA), *D. Santamaría 7260* (BM, INB, MO, PMA), *D. Solano 5204* (BM, INB, MO, PMA), *G. Herrera 2836* (MO), *N. Zamora 4096* (BM, INB, MO, PMA).

Faramea scalaris Standl.

Terrestrial shrubs. Distribution in PILA 300–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *Alfaro 5498* (MO).

Faramea suerrensii (Donn.Sm.) Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture. Global distribution: Nicaragua to Ecuador. Records: *A. Jiménez 2818* (MO), *A. Rodríguez 11634* (BM, INB, MO, PMA), *A. Rodríguez 11664* (BM, INB, MO, PMA), *D. Solano 4675* (BM, INB, MO, PMA), *D. Solano 4792* (BM, INB, MO, PMA).

Faramea uniflora Dwyer & M.V.Hayden

Terrestrial shrubs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *D. Santamaría 6740* (BM, INB, MO, PMA), *D. Solano 4120* (BM, INB, MO, PMA), *D. Solano 4678* (BM, INB, MO, PMA), *G. Herrera 5373* (INB, MO).

Galium aschenbornii Schauer

Terrestrial herbs. Distribution in PILA 1400–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to El Salvador, Costa Rica, Panama, Ecuador. Records: *E. Alfaro 4615* (INB).

Galium hypocarpium (L.) Endl. ex Griseb.

Terrestrial herbs. Distribution in PILA 1000–3600 m, mixed forest in transition to low elevation forest, mixed forest in transition to low elevation forest, páramo. Global distribution: Mexico to Brazil, Chile. Records: *A. Soto 281* (INB), *D. Santamaría 3491* (INB), *D. Santamaría 3786* (INB), *D. Solano 2852* (INB), *D. Solano 5104* (BM, INB, MO, PMA), *E. Alfaro 3305* (INB), *E. Alfaro 3728* (INB), *E. Alfaro 4190* (INB), *G. Herrera 3704* (INB, MO), *J. A. Duke 13699A* (MO), *F. Quesada 1587* (INB).

Galium orizabense Hemsl.

Terrestrial herbs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low

elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Panama. Records: *A.K. Monro 4104* (BM), *C. Hamilton 3914* (MO), *E. Alfaro 3204* (INB), *E. Alfaro 3396* (INB).

Gonzalagunia ovatifolia (Donn.Sm.) B.L.Rob.

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Colombia. Records: *A.K. Monro 6239* (PMA), *D. Solano 4550* (BM, INB, MO, PMA).

Gonzalagunia rosea Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 4220* (BM, INB, MO), *A. Soto 1246* (INB), *C. Hamilton 3609* (MO), *C. Hamilton 3640* (MO), *D. Solano 5053* (BM, INB, MO, PMA), *E. Alfaro 743* (INB), *E. Fletes 182* (INB), *E. Mora 286* (CR, INB), *G. Davidse 28469* (CR, MO), *L. Acosta 2390* (INB), *M. Alfaro 144* (INB). Uses: ornamental.

Gonzalagunia stenostachya (Standl.) W.C.Burger

Terrestrial shrubs. Distribution in PILA 400–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11451* (BM, INB, MO, PMA), *D. Santamaría 6582* (BM, INB, MO, PMA), *D. Solano 4688* (BM, INB, MO, PMA), *D. Solano 4855* (BM, INB, MO, PMA), *G. Herrera 5325* (CR, INB, MO).

ψ ***Guettarda crispiflora*** Vahl

Cantarillo, Mosqueta de montaña (CR), Salvia de montaña, Salvia de monte (P).

Terrestrial trees. Distribution in PILA 0–2700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Belize to Venezuela, Bolivia, Greater Antilles, Lesser Antilles. Records: *L. Martínez 425* (PMA). Regional conservation status: Vulnerable (VU), A2c.

Hamelia macrantha Little

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Rodríguez 11284* (BM, INB, MO, PMA), *A. Rodríguez 11452* (BM, INB, MO, PMA), *D. Santamaría*

6318 (BM, INB, MO, PMA), *D. Santamaría* 6579 (BM, INB, MO, PMA), *D. Santamaría* 7676 (PMA).

Hillia grayumii C.M.Taylor

Epiphytic shrubs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Solano* 4100 (BM, INB, MO, PMA).

Hillia loranthoides Standl.

Epiphytic shrubs. Distribution in PILA 300–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Guatemala., Costa Rica. Panama. Records: *G. Herrera* 6195 (CR, INB, MO).

Hillia maxonii Standl.

Epiphytic shrubs. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Nicaragua to Ecuador. Records: *A. Rodríguez* 10832 (BM, INB, MO, PMA), *D. Solano* 4048 (BM, INB, MO, PMA).

Hillia panamensis Standl.

Epiphytic shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Guatemala, Nicaragua to Panama. Records: *G. Davidse* 25503 (MO).

Hillia triflora (Oerst.) C.M.Taylor

Tres flores (CR).

Epiphytic shrubs. Distribution in PILA 800–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *D. Santamaría* 7017 (BM, INB, MO, PMA), *F. Quesada* 1685 (INB).

Hoffmannia amplexifolia Standl.

Terrestrial herbs or shrubs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 768 (CR, INB, MO), *A. Fernández* 868 (CR, INB, MO), *A.K. Monro* 4330 (BM, INB, MO), *A.K. Monro* 5433 (BM, INB, MO, PMA), *A.K. Monro* 5582 (BM, INB, MO, PMA), *D. Santamaría* 6613 (BM, INB, MO, PMA), *D. Santamaría* 6717 (BM, INB, MO, PMA), *D. Solano* 3866 (BM, INB, MO, PMA), *D. Solano* 4813 (BM, INB, MO, PMA), *G. Davidse* 29189 (MO), *R. Aguilar* 1096 (INB, MO).

Hoffmannia arborescens Donn.Sm.

Terrestrial herbs to shrubs. Distribution in PILA 300–3000

m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *L. Acosta* 2365 (INB), *J. Bittner* 1749 (INB, MO), *K. E. Blum* 2643 (MO), *K. E. Blum* 2599 (MO), *A. Fernández* 647 (CR, INB, MO), *B. Hammel* 1404 (MO), *B. Hammel* 1440 (MO), *B. Hammel* 5813 (MO), *A. Rodríguez* 10636 (BM, INB, MO, PMA), *A. Rodríguez* 10759 (BM, INB, MO, PMA), *A. Rodríguez* 11941 (BM, INB, MO, PMA), *D. Santamaría* 5728 (BM, INB, MO, PMA), *D. Solano* 3992 (BM, INB, MO, PMA), *D. Solano* 5051 (BM, INB, MO, PMA), *D. Solano* 5184 (BM, INB, MO, PMA), *D. Solano* 5195 (BM, INB, MO, PMA), *N. Zamora* 4104 (BM, INB, MO, PMA), *N. Zamora* 4154 (BM, INB, MO, PMA), *N. Zamora* 4165 (BM, INB, MO, PMA), *N. Zamora* 4198 (BM, INB, MO, PMA).

Hoffmannia areolata Standl.

Terrestrial herbs to shrubs. Distribution in PILA 1400–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas* 692 (PMA), *A.K. Monro* 5427 (BM, INB, MO, PMA), *A. Rodríguez* 10800 (BM, INB, MO, PMA), *A. Rodríguez* 10892 (BM, INB, MO, PMA), *D. Solano* 3871 (BM, INB, MO, PMA), *D. Solano* 3946 (BM, INB, MO, PMA), *E. Alfaro* 5539 (BM, INB), *G. Davidse* 29134 (MO), *G. Herrera* 5465 (INB, MO), *J. Lezcano* 280 (PMA).

Hoffmannia asclepiadea Standl.

Terrestrial herbs to shrubs. Distribution in PILA 1100–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *D. Solano* 3990 (BM, INB, MO, PMA), *E. Alfaro* 4670 (INB), *G. Davidse* 23779 (CR, MO), *F. Quesada* 1935 (INB).

Hoffmannia bullata L.O.Williams

Terrestrial herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez* 11320 (BM, INB, MO, PMA), *D. Santamaría* 6273 (BM, INB, MO, PMA).

Hoffmannia congesta (Oerst.) Dwyer

Terrestrial herbs or shrubs. Distribution in PILA 400–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 759 (CR, INB, MO), *A. Fernández* 901 (CR, INB, MO), *A.K. Monro* 5438 (BM, INB, MO, PMA), *A.K. Monro* 6250 (PMA), *A. Rodríguez* 10588 (BM, INB, MO, PMA), *A. Rodríguez* 11288 (BM, INB, MO, PMA), *A.*

Rodríguez 11648 (BM, INB, MO, PMA), *D. Santamaría 5809* (BM, INB, MO, PMA), *D. Santamaría 6282* (BM, INB, MO, PMA), *D. Santamaría 6821* (BM, INB, MO, PMA), *D. Solano 4416* (BM, INB, MO, PMA), *D. Solano 4531* (BM, INB, MO, PMA), *D. Solano 4532* (BM, INB, MO, PMA), *S. Bridgewater 4177* (BM, INB, MO, PMA).

Hoffmannia davidsoniae Standl.

Terrestrial herbs or shrubs. Distribution in PILA 1100–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Rodríguez 10736* (BM, INB, MO, PMA), *A. Rodríguez 11818* (BM, INB, MO, PMA), *D. Santamaría 5751* (BM, INB, MO, PMA), *D. Santamaría 7085* (BM, INB, MO, PMA), *D. Solano 3960* (BM, INB, MO, PMA), *D. Solano 4023* (BM, INB, MO, PMA), *D. Solano 5055* (BM, INB, MO, PMA), *D. Solano 5156* (BM, INB, MO, PMA), *G. Davidse 29120* (CR, MO), *G. Davidse 29175* (CR, MO), *G. Herrera 5892* (CR, INB, MO), *J. Dwyer 8756* (MO), *J. Dwyer 8789* (MO), *K. E. Blum 2623* (MO).

Hoffmannia dotae Standl.

Terrestrial shrubs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A. Fernández 779* (INB), *A. Rodríguez 11827* (BM, INB, MO, PMA), *A. Rodríguez 11923* (BM, INB, MO, PMA), *A. Rodríguez 11959* (BM, INB, MO, PMA), *A. Soto 1237* (INB), *D. Santamaría 7050* (BM, INB, MO, PMA), *D. Santamaría 7091* (BM, INB, MO, PMA), *D. Santamaría 7278* (BM, INB, MO, PMA), *D. Solano 2909* (INB), *D. Solano 5165* (BM, INB, MO, PMA), *F. González 456* (INB), *F. González 475* (INB), *G. Davidse 23776* (CR, MO), *F. Quesada 1650* (INB, MO), *L. Acosta 2288* (INB), *M. Alfaro 20* (INB), *M. Moraga 427* (INB).

Hoffmannia dwyeri W.C.Burger

Terrestrial herbs or shrubs. Distribution in PILA 1300–2100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *B. Hammel 5814* (MO).

Hoffmannia hondurensis Standl.

Terrestrial herbs to shrubs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Honduras, Panama. Records: *D. Santamaría 7901* (INB, PMA).

Hoffmannia liesneriana L.O.Williams

Terrestrial herbs or shrubs. Distribution in PILA 0–1100

m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3054* (MO).

Hoffmannia limonensis C.M.Taylor

Terrestrial herbs to shrubs. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 691* (PMA), *A.K. Monro 4738* (BM, INB, MO), *A.K. Monro 5873* (BM, INB, MO, PMA), *Rodríguez 11065* (BM, INB, MO, PMA), *Rodríguez 11512* (BM, INB, MO, PMA), *D. Santamaría 5811* (BM, INB, MO, PMA), *D. Santamaría 5978* (BM, INB, MO, PMA).

Hoffmannia longipetiolata Pol.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Costa Rica to Peru. Records: *A. Fernández 972* (CR, INB, MO), *A.K. Monro 5766* (BM, INB, MO, PMA), *A. Rodríguez 11270* (BM, INB, MO, PMA), *A. Rodríguez 11505* (BM, INB, MO, PMA), *D. Santamaría 6311* (BM, INB, MO, PMA), *D. Santamaría 6566* (BM, INB, MO, PMA), *D. Solano 4000* (BM, INB, MO, PMA), *D. Solano 4422* (BM, INB, MO, PMA), *D. Solano 4536* (BM, INB, MO, PMA), *D. Solano 4655* (BM, INB, MO, PMA), *D. Solano 4735* (BM, INB, MO, PMA), *E. Alfaro 4202* (INB), *G. Davidse 28372* (CR, MO), *G. Herrera 3106* (INB, MO), *M. Alfaro 139* (INB).

ε-PILA *Hoffmannia manussatani* Dwyer

Terrestrial herbs to shrubs. Distribution in PILA 1600–1900 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *B. Hammel 5811* (MO), *S. Knapp 2122* (MO).

This species has been documented from and adjacent to the buffer zone of the park but is still considered endemic to PILA.

Hoffmannia nicotianifolia (M.Martens & Galeotti)

L.O.Williams

Terrestrial herbs to shrubs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *C. Hamilton 3899* (MO), *C. Hamilton 771* (MO), *J. A. Duke 13634* (MO), *K. E. Blum 2619* (MO), *L.D. Gómez 23063* (MO).

Hoffmannia pittieri Standl.

Terrestrial shrubs. Distribution in PILA 700–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution:

Costa Rica to Colombia. Records: *E. Mora* 305 (INB), *G. Herrera* 5981 (CR, INB, MO), *J. A. Duke* 13651 (MO), *J. Dwyer* 525 (MO), *J. Dwyer* 8765 (MO), *J. Dwyer* 8783 (MO), *J. Dwyer* 8790 (MO), *J. Dwyer* 8797 (MO), *J. H. Kirkbride Jr.* 147 (MO), *K. E. Blum* 2647 (MO), *M. Chinchilla* 176 (INB), *T. Croat* 27005 (MO), *T. Cochrane* 6244 (MO).

Hoffmannia psychotriifolia (Benth.) Griseb.

Terrestrial herbs or shrubs. Distribution in PILA 300–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez* 10611 (BM, INB, MO, PMA), *A. Rodríguez* 11937 (BM, INB, MO, PMA), *C. Hamilton* 3645 (MO), *C. Hamilton* 3901 (MO), *D. Santamaría* 7254 (BM, INB, MO, PMA), *D. Solano* 3896 (BM, INB, MO, PMA), *D. Solano* 5063 (BM, INB, MO, PMA), *D. Solano* 5166 (BM, INB, MO, PMA), *D. Solano* 5263 (BM, INB, MO, PMA), *G. Davidse* 23761 (CR, MO), *G. Davidse* 28414 (CR, MO), *J. Dwyer* 518 (MO), *K. E. Blum* 2626 (MO), *M. Alfaro* 33 (INB), *N. Zamora* 4064 (BM, INB, MO, PMA), *N. Zamora* 4140 (BM, INB, MO, PMA), *N. Zamora* 4178 (BM, INB, MO, PMA).

Hoffmannia subauriculata Standl.

Terrestrial herbs to shrubs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez* 10731 (BM, INB, MO, PMA), *D. Solano* 4331 (BM, INB, MO, PMA), *D. Solano* 4374 (BM, INB, MO, PMA), *D. Solano* 4460 (BM, INB, MO, PMA), *G. Davidse* 23788 (CR, MO), *G. Herrera* 3124 (MO), *G. Herrera* 5477 (INB, MO), *L.D. Gómez* 23148 (MO), *V. Dryer* 1092 (MO).

Hoffmannia subcapitata C.M.Taylor

Terrestrial herbs. Distribution in PILA 300–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez* 11457 (INB), *D. Santamaría* 6567 (BM, INB), *D. Solano* 4898 (BM, INB).

Hoffmannia valerioi Standl.

Terrestrial herbs to shrubs. Distribution in PILA 100–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas* 941 (INB, PMA).

Hoffmannia viridis Rusby

Terrestrial herbs to shrubs. Distribution in PILA 100–1500

m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Peru. Records: *A.K. Monro* 4750 (BM, INB, MO), *A. De Sedas* 677 (INB, PMA), *D. Santamaría* 7439 (INB, PMA).

Ladenbergia brenesii Standl.

Agujilla, Ascá, Quina, Tabaquillo de montaña, Zapatero (CR).

Terrestrial trees. Distribution in PILA 900–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Panama. Records: *A.K. Monro* 6202 (PMA), *N. Zamora* 4054 (BM, INB, MO, PMA).

Manettia barbata Oerst.

Terrestrial twiners. Distribution in PILA 600–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *M. Grayum* 10305 (INB, MO).

Manettia flexilis Brandege

Terrestrial twiners. Distribution in PILA 1300–1800 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez* 11949 (BM, INB, MO, PMA).

Nertera granadensis (Mutis ex L.f.) Druce

Frutilla del diablo (CR).

Terrestrial herbs. Distribution in PILA 200–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Argentina, Chile, Greater Antilles. Records: *A. Fernández* 708 (INB), *A. Fernández* 958 (CR, INB, MO), *A.K. Monro* 4964 (BM, INB, MO), *A.K. Monro* 5174 (BM), *A.K. Monro* 5277 (BM, INB, MO), *A.K. Monro* 5603 (BM, INB, MO, PMA), *A. Rodríguez* 11010 (BM, INB, MO, PMA), *A. Soto* 296 (INB), *B.B. Klitgaard* 785 (BM, INB, MO), *D. Solano* 3873 (BM, INB, MO, PMA), *E. Alfaro* 4681 (INB), *G. Davidse* 23980 (CR, MO), *G. Davidse* 25133 (CR, MO), *G. Davidse* 25209 (CR, MO), *G. Davidse* 26011 (CR, MO), *G. Davidse* 26161 (CR, MO), *G. Davidse* 28691 (CR, MO), *G. Davidse* 28969 (CR, MO), *F. Quesada* 1494 (CR, INB), *L. Angulo* 190 (INB), *M.A. Thomas* 1577 (MO).

Notopleura aggregata (Standl.) C.M.Taylor

Terrestrial herbs to shrubs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense

thicket. Global distribution: Costa Rica to Colombia. Records: *A. Fernández* 645 (CR, INB, MO), *A. Fernández* 899 (CR, INB, MO), *D. Santamaría* 6690 (BM, INB, MO, PMA), *D. Solano* 5159 (BM, INB, MO, PMA), *G. Davidse* 29075 (MO), *G. Herrera* 5470 (INB, MO), *G. Herrera* 5490 (INB, MO), *M. Grayum* 10291 (INB, MO), *R. Villalobos* 253 (INB).

Notopleura amicitiae C.M.Taylor

Terrestrial herbs or shrubs. Distribution in PILA 1300–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *B. Gamboa* 630 (INB), *D. Solano* 5059 (BM, INB, MO, PMA), *D. Solano* 5150 (BM, INB, MO, PMA), *E. Alfaro* 2267 (INB), *G. Davidse* 28445 (MO), *L. Angulo* 321 (INB).

Notopleura anomothyrsa (K.Schum. & Donn.Sm.) C.M.Taylor

Terrestrial shrubs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez* 11616 (BM, INB, MO, PMA), *D. Solano* 4895 (BM, INB, MO, PMA), *G. Herrera* 5315 (MO).

Notopleura camponutans (Dwyer & Hayden) C.M.Taylor
Terrestrial herbs or shrubs. Distribution in PILA 300–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A. De Sedas* 689 (PMA).

Notopleura capacifolia (Dwyer) C.M.Taylor
Terrestrial herbs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Peru. Records: *A. Rodríguez* 11272 (BM, INB, MO, PMA), *D. Solano* 4360 (BM, INB, MO, PMA), *S. Bridgewater* 4144 (BM, INB, MO, PMA).

Notopleura capitata C.M.Taylor

Terrestrial herbs or shrubs. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Nicaragua to Colombia. Records: *D. Solano* 3824 (BM, INB, MO, PMA).

Notopleura costaricensis C.M.Taylor

Terrestrial herbs or shrubs. Distribution in PILA 1000–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro* 4222 (BM, MO), *A.K.*

Monro 4795 (BM, MO).

Notopleura elegans C.M.Taylor

Terrestrial herbs or terrestrial or facultatively epiphytic shrubs. Distribution in PILA 1400–2500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 711 (CR, INB, MO), *A. Fernández* 976 (CR, INB, MO), *A.K. Monro* 5488 (BM, INB, MO, PMA), *A. Rodríguez* 10845 (BM, INB, MO, PMA), *D. Solano* 3936 (BM, INB, MO, PMA), *J. Bittner* 1801 (INB, MO).

Notopleura guadalupensis (DC.) C.M.Taylor

Epiphytic shrubs. Distribution in PILA 1200–1200 m, mixed forest in transition to low elevation forest. Global distribution: Mexico to the Guyanas, Greater Antilles. Records: *G. Herrera* 5380 (INB, MO).

Notopleura longipedunculoides (C.M.Taylor) C.M.Taylor

Terrestrial shrubs. Distribution in PILA 700–700 m, low elevation mixed forest. Global distribution: Costa Rica to Ecuador. Records: *G. Herrera* 3255 (INB, MO).

Notopleura maxonii (Standl.) C.M.Taylor

Epiphytic shrubs. Distribution in PILA 1200–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10674 (BM, INB, MO, PMA), *A. Rodríguez* 11530 (BM, INB, MO, PMA), *D. Santamaría* 6652 (BM, INB, MO, PMA).

Notopleura pacorana C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1000–1000 m, mixed forest in transition to low elevation forest, , dense thicket. Global distribution: Endemic to Panama. Records: *A.K. Monro* 4767 (BM).

Notopleura panamensis (Dwyer) C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *J. Dwyer* 7711 (MO).

Notopleura peperomia (Standl.) C.M.Taylor

Epiphytic shrubs. Distribution in PILA 600–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 2688 (INB, MO).

Notopleura pithecolobium (Standl.) C.M.Taylor

Epiphytic shrubs. Distribution in PILA 600–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest.

Global distribution: Costa Rica to Peru. Records: *A. Fernández* 787 (CR, INB, MO), *A.K. Monro* 4246 (BM, INB, MO), *A.K. Monro* 5522 (BM, INB, MO, PMA), *A.K. Monro* 5608 (BM, INB, MO, PMA), *A.K. Monro* 6209 (PMA), *A. Rodríguez* 10580 (BM, INB, MO, PMA), *A. Rodríguez* 11586.1 (BM, INB, MO, PMA), *D. Santamaría* 5678 (BM, INB, MO, PMA), *D. Santamaría* 6653 (BM, INB, MO, PMA), *D. Solano* 4148 (BM, INB, MO, PMA), *D. Solano* 4803 (BM, INB, MO, PMA), *E. Alfaro* 5598 (BM, INB), *G. Herrera* 5960 (CR, INB, MO), *R. Aguilar* 1113 (INB, MO), *S. Bridgewater* 4190 (BM, INB, MO, PMA).

Notopleura polyphlebia (Donn.Sm.) C.M.Taylor

Terrestrial herbs or shrubs. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Peru. Records: *A.K. Monro* 6270 (PMA), *D. Solano* 4905 (BM, INB, MO, PMA).

Notopleura tolimensis (Wernham) C.M.Taylor

Terrestrial shrubs. Distribution in PILA 800–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Peru. Records: *A. Rodríguez* 11806 (BM, INB, MO, PMA), *A. Rodríguez* 11914 (BM, INB, MO, PMA), *D. Santamaría* 4398 (INB), *D. Santamaría* 7042 (BM, INB, MO, PMA), *D. Solano* 5001 (BM, INB, MO, PMA), *F. Quesada* 1645 (INB, MO), *L. Acosta* 2372 (INB), *L. Angulo* 160 (INB), *L. Angulo* 169 (INB), *L. Angulo* 318 (INB), *M. Alfaro* 21 (INB).

Notopleura tonduzii (Standl.) C.M.Taylor

Terrestrial shrubs. Distribution in PILA 300–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Solano* 4188 (BM, INB, MO, PMA).

Notopleura uliginosa (Sw.) Bremek.

Terrestrial herbs. Distribution in PILA 800–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to the Guyanas, Bolivia, Greater Antilles, Tri. Records: *A.K. Monro* 6314 (PMA), *D. Santamaría* 6747 (BM, INB, MO, PMA), *D. Solano* 4840 (BM, INB, MO, PMA), *D. Solano* 5015 (BM, INB, MO, PMA), *D. Solano* 5028 (BM, INB, MO, PMA), *L. Martínez* 335 (PMA).

ψ ***Palicourea adusta*** Standl.

Cafecillo, Candelilla (CR).

Terrestrial shrubs. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest,

low elevation oak forest, páramo. Global distribution: Nicaragua to Panama. Records: *E. Alfaro* 3981 (INB), *G. Davidse* 23872 (CR, MO), *G. Davidse* 28596 (CR, MO), *G. Herrera* 5450 (CR, INB, MO), *M.A. Thomas* 1614 (MO). Regional conservation status: Vulnerable (VU), B1ab(i,iii).

Palicourea alajuelensis C.M.Taylor.

Terrestrial shrubs. Distribution in PILA 700–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 7598 (INB, PMA), *N. Zamora* 4380 (INB, PMA).

Palicourea albocaerulea C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras, Costa Rica. Records: *R. Aguilar* 1153 (INB, MO).

Palicourea angustifolia Kunth

Cafecillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 800–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Venezuela. Records: *A. Soto* 1266 (INB), *C. Hamilton* 3878 (MO), *D. Santamaría* 3768 (INB), *D. Solano* 3206 (INB), *D. Solano* 5082 (BM, INB, MO, PMA), *G. Davidse* 23782 (CR, MO), *L. González* 3622 (INB), *L. González* 3665 (INB), *M. Alfaro* 137 (INB), *N. Zamora* 4093 (BM, INB, MO, PMA), *N. Zamora* 4105 (BM, INB, MO, PMA), *N. Zamora* 4126 (BM, INB, MO, PMA).

Palicourea calophlebioides C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1800–2700 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 10583 (BM, INB, MO, PMA), *D. Solano* 3956 (BM, INB, MO, PMA), *D. Solano* 4061 (BM, INB, MO, PMA), *G. Herrera* 5952 (CR, INB, MO), *G. Herrera* 5994 (CR, INB, MO).

Palicourea chiriquina Standl.

Terrestrial shrubs. Distribution in PILA 1400–2300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 685 (CR, INB, MO), *A. Fernández* 732 (CR, INB, MO), *A. Rodríguez* 10858 (BM, INB, MO, PMA), *G. Herrera* 6263 (CR, INB, MO), *J. Bittner* 1786 (INB, MO), *M. Grayum* 10342 (INB).

Palicourea discolor K.Krause

Cafecillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1200–2800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 2264 (CR, INB), *G. Davidse* 28430 (CR, MO), *J. González* 796 (CR, INB, MO), *L. Angulo* 316 (INB), *M. Moraga* 571 (INB, MO).

Palicourea garciae Standl.
Cafecillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A.K. Monro* 4478 (BM, MO), *A.K. Monro* 4527 (BM, MO), *A.K. Monro* 5596 (BM, INB, MO, PMA).

Palicourea gomezii C.M.Taylor

Terrestrial shrubs. Distribution in PILA 500–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez* 11589 (BM, INB, MO, PMA), *D. Santamaría* 6668 (BM, INB, MO, PMA), *D. Solano* 4899 (BM, INB, MO, PMA), *G. Herrera* 2840 (MO).

Palicourea hammelii C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 2781 (CR, MO).

Palicourea hondensis (Standl.) C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 11553,1 (BM, INB, MO, PMA), *D. Santamaría* 6493 (BM, INB, MO, PMA), *D. Solano* 4841 (BM, INB, MO, PMA), *G. Herrera* 3128 (MO).

Palicourea lasiorrhachis Oerst.

Zorrillo amarillo, Cafecillo, Zorrillo (CR).

Terrestrial shrubs. Distribution in PILA 700–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Ecuador. Records: *A. Chacón* 254 (CR, INB, MO), *A.K. Monro* 4414 (BM, INB, MO), *A.K. Monro* 4934 (BM, INB, MO), *D. Santamaría* 5872 (BM, INB, MO, PMA), *D. Solano* 3882 (BM, INB, MO, PMA), *D. Solano* 3966 (BM, INB, MO, PMA), *G. Davidse* 25159 (CR, MO),

G. Davidse 25192 (MO), *G. Davidse* 28857 (CR, MO), *G. Davidse* 28933 (CR, MO), *G. Davidse s.n.* (CR), *G. Herrera* 5201 (CR, INB, MO), *G. Herrera* 5463 (INB), *G. McPherson* 15920 (MO), *J. Bittner* 1743 (INB, MO), *J. González* 793 (CR, INB, MO).

Palicourea matamana C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1400–1400 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera* 2805 (MO).

Palicourea montivaga Standl.

Terrestrial shrubs. Distribution in PILA 1400–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10697 (BM, INB, MO, PMA), *A. Rodríguez* 10730 (BM, INB, MO, PMA), *A. Soto* 300 (INB), *D. Solano* 3937 (BM, INB, MO, PMA), *E. Alfaro* 3226 (INB), *E. Alfaro* 3248 (INB), *E. Alfaro* 3944 (INB), *E. Alfaro* 4616 (INB), *J. F. Morales* 5798 (INB), *F. Quesada* 1606 (INB, MO), *F. Quesada* 1823 (INB), *F. Quesada* 1922 (INB), *L. Angulo* 205 (INB), *M. Moraga* 378 (INB), *S. Knapp* 9923 (BM, INB, MO).

Palicourea nebulosa (Dwyer) C.M.Taylor

Terrestrial trees. Distribution in PILA 300–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *von Hagen* 2156 (NY).

Palicourea orosiana C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 1002 (INB), *A. Fernández* 1006 (INB), *E. Alfaro* 4710 (INB).

Palicourea padifolia (Humb. & Bonpl. ex Schult.) C.M.Taylor & Lorence
Cafecillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 600–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A.K. Monro* 4890 (BM, INB, MO), *A. Rodríguez* 11733 (BM, INB, MO, PMA), *C. Hamilton* 3601 (MO), *C. Hamilton* 3876 (MO), *C. Hamilton* 777 (MO), *D. Santamaría* 5921 (BM, INB, MO, PMA), *D. Santamaría* 7268 (BM, INB, MO, PMA), *D. Solano* 2896 (INB), *D. Solano* 2925 (INB), *D. Solano* 5201 (BM, INB, MO, PMA), *E. Alfaro* 3194 (INB), *E. Mora* 296 (CR, INB), *G. Davidse* 23778 (CR, MO), *G. Herrera* 2715 (MO), *J. Bittner* 1441 (MO), *J.*

González 795 (CR, INB, MO), L. Angulo 170 (CR, INB), L. González 3643 (INB), N. Zamora 4100 (BM, INB, MO, PMA), N. Zamora 4172 (BM, INB, MO, PMA), N. Zamora 4207 (BM, INB, MO, PMA), R. Villalobos 250 (CR, INB).

Palicourea pauciflora Standl.

Terrestrial shrubs. Distribution in PILA 1100–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: G. Herrera 5452 (CR, INB, MO).

Palicourea purpurea C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 800–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: A.K. Monro 4235 (BM, INB, MO), A.K. Monro 4318 (BM, INB, MO), A.K. Monro 4405 (BM, INB, MO), A.K. Monro 5502 (BM, INB, MO, PMA), A.K. Monro 5534 (BM, INB, MO, PMA), A.K. Monro 5577 (BM, INB, MO, PMA), A. Rodríguez 10992 (BM, INB, MO, PMA), D. Solano 3880 (BM, INB, MO, PMA), D. Solano 3959 (BM, INB, MO, PMA), G. Davidse 29073 (CR, MO), G. McPherson 15911 (MO).

ψ ***Palicourea salicifolia*** Standl.

Terrestrial shrubs. Distribution in PILA 1200–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: A. Rodríguez 10704 (BM, INB, MO, PMA), D. Santamaría 6666 (BM, INB, MO, PMA), D. Solano 5087 (BM, INB, MO, PMA), D. Solano 5133 (BM, INB, MO, PMA), E. Alfaro 3650 (INB), L. Angulo 262 (INB), L. González 3624 (INB), N. Zamora 4094 (BM, INB, MO, PMA). Global conservation status: Endangered (EN), B1ab(i,iii).

Palicourea skotakii C.M.Taylor

Terrestrial shrubs. Distribution in PILA 2300–2900 m, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: B. Gamboa 1213 (INB, MO), D. Solano 4052 (BM, INB, MO, PMA), E. Alfaro 3472 (INB), E. Alfaro 4656 (INB), G. Davidse 25125 (CR, MO), G. Davidse 28879 (CR, MO), G. Davidse 29004 (MO), L. Angulo 237 (INB), L. González 3615 (INB).

Palicourea standleyana C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica to Ecuador. Records: D. Santamaría 5877 (BM,

INB, MO, PMA), D. Santamaría 6637 (BM, INB, MO, PMA), D. Solano 4809 (BM, INB, MO, PMA), E. Alfaro 5590 (BM, MO), E. Navarro 681 (INB).

Palicourea triphylla DC.

Terrestrial herbs or shrubs. Distribution in PILA 100–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala to the Guyanas, Bolivia, Greater Antilles. Records: D. Solano 5064 (BM, INB, MO, PMA).

Palicourea umbelliformis (Dwyer & M.V.Hayden) C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: A.K. Monro 4281 (BM, INB, MO), D. Santamaría 7682 (INB, PMA).

Palicourea vestita Standl.

Terrestrial shrubs or trees. Distribution in PILA 1100–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: A. Rodríguez 10687 (BM, INB, MO, PMA), A. Rodríguez 9862 (INB), A. Soto 1267 (INB), D. Santamaría 5694 (BM, INB, MO, PMA), D. Solano 3904 (BM, INB, MO, PMA), G. Herrera 6082 (CR, INB, MO), G. Herrera 6129 (CR, INB, MO), L. González 3621 (INB).

Pentagonia costaricensis (Standl.) W.C.Burger & C.M.Taylor

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Colombia. Records: A. Rodríguez 11815 (BM, INB, MO, PMA), D. Santamaría 7028 (BM, INB, MO, PMA), D. Solano 4428 (BM, INB, MO, PMA), D. Solano 5026 (BM, INB, MO, PMA).

•, □ ***Pentagonia gomez-laurittoi*** Hammel

Terrestrial shrubs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: L. Gómez 24065 (MO), G. Herrera 3092 (MO).

Posoqueria costaricensis C.M.Taylor

Boca de vieja, Cacica, Fruta de mono, Guayaba de mico, Guayabillo de montaña, Wolf coffee, Guayaba de mono (CR), Boca de vieja, Borojó, Fruta de mono, Tuliviejo (P).

Terrestrial trees. Distribution in PILA 500–1700 m,

low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Mexico to Brazil. Records: *E. Alfaro 2198* (INB).

Posoqueria grandifructa Hammel & C.M.Taylor

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala, Costa Rica to Venezuela. Records: *G. Herrera 2711* (MO).

Psychotria acuminata Benth.

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Peru, Greater Antilles, Lesser Antilles. Records: *D. Solano 5807* (BM, INB, MO).

ψ ***Psychotria angustiflora*** K.Krause

Terrestrial shrubs or trees. Distribution in PILA 100–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría 6206* (BM, INB, MO, PMA), *D. Solano 4356* (BM, INB, MO, PMA), *D. Solano 4459* (BM, INB, MO, PMA), *S. Bridgewater 4155* (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

Psychotria aubletiana Steyererm.

Cafecillo (CR).

Terrestrial herbs or shrubs. Distribution in PILA 800–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Mexico to the Guyanas, Lesser Antilles, Greater Antilles. Records: *A. Fernández 877* (CR, INB, MO), *A.K. Monro 4233* (BM, MO), *A.K. Monro 4845* (BM, MO), *A.K. Monro 5059* (BM, INB), *A.K. Monro 5532* (BM, INB, MO, PMA), *A.K. Monro 5593* (BM, INB, MO, PMA), *A.K. Monro 5630* (BM, INB, MO, PMA), *A. Rodríguez 10665* (BM, INB, MO, PMA), *A. Rodríguez 11782* (BM, INB, MO, PMA), *A. Soto 1264* (INB), *D. Santamaría 3757* (INB), *D. Santamaría 5687* (BM, INB, MO, PMA), *D. Santamaría 6643* (BM, INB, MO, PMA), *D. Solano 3204* (INB), *D. Solano 3874* (BM, INB, MO, PMA), *D. Solano 4664* (BM, INB, MO, PMA), *D. Solano 4779* (BM, INB, MO, PMA), *D. Solano 5081* (BM, INB, MO, PMA), *G. Davidse 28379* (CR, MO), *G. Davidse 28684* (CR, MO), *G. McPherson 15880* (MO), *J. Bittner 1477* (INB, MO), *J. Bittner 1526* (INB, MO), *J. Bittner 1837* (INB), *L. Angulo 239* (INB), *M. Valerio 188* (CR, MO), *S. Bridgewater 4193* (BM, INB, MO, PMA).

Psychotria aurantiibractea C.M.Taylor

Terrestrial shrubs. Distribution in PILA 200–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Jiménez 868* (MO), *F. Solís 32* (INB).

Psychotria berteriana DC.

Terrestrial shrubs or trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica, Panama, Ecuador, Peru, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11769* (BM, INB, MO, PMA).

Psychotria buchtienii (H.J.P.Winkl.) Standl.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Venezuela, Bolivia. Records: *A. Chacón 298* (CR, MO), *D. Santamaría 5941* (BM, INB, MO, PMA), *D. Santamaría 6491* (BM, INB, MO, PMA).

Psychotria calophylla Standl.

Terrestrial shrubs. Distribution in PILA 500–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Panama to Peru. Records: *C. Hamilton 776* (MO).

Psychotria chiriquensis (Standl.) C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1200–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Mexico, Costa Rica, Panama. Records: *A. Fernández 888* (CR, INB, MO), *A.K. Monro 5474* (BM, INB, MO, PMA), *A.K. Monro 5624* (BM, INB, MO, PMA), *A. Rodríguez 10647* (BM, INB, MO, PMA), *A. Rodríguez 11496* (BM, INB, MO, PMA), *D. Santamaría 6626* (BM, INB, MO, PMA), *D. Solano 3847* (BM, INB, MO, PMA), *D. Solano 4661* (BM, INB, MO, PMA), *G. Davidse 29131* (CR, MO).

Psychotria chiriquina Standl.

Terrestrial shrubs or trees. Distribution in PILA 1400–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *G. McPherson 15899* (MO), *M.A. Thomas 1615* (MO).

Psychotria convergens C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1100–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low

elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A.K. Monro 4499* (BM, MO), *B. Gamboa 1220* (CR, INB, MO), *G. Davidse 25751* (CR, MO), *G. Davidse 28628* (CR, MO), *G. Davidse 29227* (MO).

Psychotria croceovenosa Dwyer

Terrestrial shrubs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Santamaría 6636* (INB, MO).

Psychotria cyanococca Seem. ex Dombrain

Terrestrial shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Nicaragua to Ecuador. Records: *D. Santamaría 7688* (PMA), *D. Solano 4275* (BM, INB, MO, PMA), *D. Solano 4308* (BM, INB, MO, PMA).

Psychotria dichroa (Standl.) C.M. Taylor
Cafecillo (CR).

Terrestrial shrubs. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. De Sedas 564* (PMA), *A. Fernández 1023* (INB), *A.K. Monro 4935* (BM, INB, MO), *A.K. Monro 6036* (PMA), *A.K. Monro 6212* (PMA), *D. Santamaría 7733* (PMA).

ψ ***Psychotria elata*** (Sw.) Hammel

Botón rojo, Manga de señora, Labios de mujer, Labios de puta, Labios de novia (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–3800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, pasture, dense thicket. Global distribution: Mexico to Ecuador, Greater Antilles, Lesser Antilles. Records: *A. Fernández 1005* (CR, INB), *A.K. Monro 4806* (BM, INB, MO), *D. Santamaría 6480* (BM, INB, MO, PMA), *D. Santamaría 6689* (BM, INB, MO, PMA), *D. Santamaría 7343* (PMA), *D. Santamaría 7756* (PMA), *E. Alfaro 5538* (BM, INB, MO), *G. Gallardo 98* (CR, INB, MO), *S. Bridgewater 4185* (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

Psychotria goldmanii Standl.

Cafecillo (CR).

Terrestrial shrubs or trees. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *A.*

Fernández 1004 (CR, INB), *A.K. Monro 4360* (BM, INB, MO), *A.K. Monro 4939* (BM, INB, MO), *A.K. Monro 4949* (BM, INB, MO), *A. Rodríguez 11323* (BM, INB, MO, PMA), *G. Herrera 3280* (INB, MO), *G. Herrera 5262* (MO), *G. Herrera 6042* (CR, INB, MO), *J. Bittner 1528* (INB, MO), *R. Aguilar 1136* (INB, MO).

ψ ***Psychotria graciliflora*** Benth.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Colombia. Records: *A.K. Monro 4294* (BM, INB, MO), *A.K. Monro 4724* (BM, INB, MO), *D. Solano 5011* (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

Psychotria guapilensis (Standl.) Hammel

Terrestrial herbs to shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, secondary forest. Global distribution: Nicaragua to Ecuador. Records: *A.K. Monro 6287* (PMA), *S. Bridgewater 4170* (BM, INB, MO, PMA).

Psychotria hazenii Standl.

Terrestrial shrubs. Distribution in PILA 1100–1600 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador. Records: *D. Solano 4547* (BM, INB, MO, PMA).

□ ***Psychotria jimenezii*** Standl.

Terrestrial shrubs or trees. Distribution in PILA 1100–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11303* (BM, INB, MO, PMA), *D. Solano 4351* (BM, INB, MO, PMA), *D. Solano 4352* (BM, INB, MO, PMA), *D. Solano 4884* (BM, INB, MO, PMA).

Psychotria marginata Sw.

(CR), Cafecillo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, , dense thicket. Global distribution: Mexico to Bolivia Antilles. Records: *A.K. Monro 5084* (BM, INB).

Psychotria microbotrys Ruiz ex Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Peru. Records: *A.K. Monro 5666* (BM, INB, MO, PMA), *A.K. Monro 6148* (PMA), *D. Santamaría 5966* (BM, INB, MO, PMA), *D. Santamaría 6466* (BM, INB, MO,

PMA).

Psychotria nubiphila Dwyer

Terrestrial shrubs or trees. Distribution in PILA 900–2300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *A.K. Monro 4352* (BM), *C. Hamilton 763* (MO), *G. Davidse 28389* (CR, MO), *L. Acosta 2336* (INB), *L. Donzo 2* (INB).

Psychotria orosiana Standl.

Terrestrial shrubs. Distribution in PILA 600–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Costa Rica to Colombia. Records: *D. Santamaría 5917* (BM, INB, MO, PMA).

Psychotria panamensis Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *L. Acosta 2405* (INB).

Psychotria paradichroa C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1500–1700 m, mixed forest in transition to cloud forest. Global distribution: Endemic to Panama. Records: *A.K. Monro 4223* (BM, MO).

Psychotria parvifolia Benth.

Cafecillo (CR).

Terrestrial shrubs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala, Costa Rica, Panama. Records: *A.K. Monro 5039* (BM, INB, MO), *G. Davidse 23786* (CR, MO).

Psychotria pilosa Ruiz & Pav.

Terrestrial shrubs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Venezuela, Bolivia. Records: *A. De Sedas 578* (PMA), *A.K. Monro 4256* (BM, INB, MO), *A.K. Monro 5674* (BM, INB, MO, PMA), *D. Santamaría 6826* (BM, INB, MO, PMA), *D. Santamaría 7583* (PMA), *D. Santamaría 7636* (PMA), *D. Santamaría 7666* (PMA), *D. Solano 4346* (BM, INB, MO, PMA), *D. Solano 4401* (BM, INB, MO, PMA), *D. Solano 4848* (BM, INB, MO, PMA).

Psychotria pisonioides Standl.

Terrestrial shrubs. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *G. Davidse 25165* (CR, MO), *G. Davidse 29061* (CR, MO).

Psychotria psychotriifolia (Seem.) Standl.

Terrestrial shrubs. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Ecuador, Venezuela. Records: *D. Santamaría 6164* (BM, INB, MO, PMA).

Psychotria recordiana Standl.

Terrestrial shrubs. Distribution in PILA 900–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Honduras to Ecuador, Venezuela. Records: *B. Gamboa 629* (INB), *D. Santamaría 6202* (BM, INB, MO, PMA), *E. Alfaro 3191* (INB), *G. Davidse 23775* (CR, MO), *L. Acosta 2395* (INB), *A. Rodríguez 11201* (BM, INB, MO, PMA), *A. Rodríguez 11795* (BM, INB, MO, PMA), *D. Solano 2912* (INB).

Psychotria saltatrix C.M.Taylor

Shrubs. Distribution in PILA 1200–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *A. Fernández 1018* (CR, INB, MO).

Psychotria sarapiquensis Standl.

Terrestrial shrubs or trees. Distribution in PILA 600–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Ecuador. Records: *A. Rodríguez 11287* (BM, INB, MO, PMA), *D. Solano 4413* (BM, INB, MO, PMA).

Psychotria sixaolensis C.W.Ham.

Terrestrial shrubs. Distribution in PILA 0–700 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3077* (MO).

Psychotria sylvivaga Standl.

Terrestrial shrubs. Distribution in PILA 1400–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica to Ecuador. Records: *E. Alfaro 3484* (INB), *E. Alfaro 3626* (INB), *E. Alfaro 3985* (INB), *E. Alfaro 4599* (INB), *G. Davidse 25711* (CR, MO), *G. Herrera 3649* (INB), *G. Herrera 6023* (INB, MO), *J. F. Morales 5799* (INB, MO), *F. Quesada 1604* (INB), *F. Quesada 1904* (INB), *F. Quesada 1906* (INB), *L. Angulo 206* (INB), *L. Angulo 231* (INB), *M. Grayum 10371* (CR, INB, MO), *N.*

Zamora 2711 (INB), *N. Zamora 2714* (INB), *N. Zamora 4170* (BM, INB, MO, PMA), *A. Rodríguez 11872* (BM, INB, MO, PMA), *A. Soto 299* (INB), *D. Santamaría 7227* (BM, INB, MO, PMA).

Psychotria torresiana Standl.

Terrestrial shrubs. Distribution in PILA 1000–1800 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *J. Bittner 1528* (INB, MO), *Aguilar 1136* (INB, MO), *A. De Sedas 561* (INB, PMA), *Fernández 1004* (CR, INB), *Herrera 5262* (INB, MO), *A.K. Monro 4360* (BM, INB, MO), *D. Santamaría 7339* (INB, PMA), *D. Solano 5375* (INB, PMA).

Psychotria trichotoma M.Martens & Galeotti

Terrestrial shrubs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia. Records: *M.A. Thomas 1586* (MO).

Psychotria tsakiana C.M.Taylor

Terrestrial shrubs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Costa Rica to Bolivia. Records: *G. Herrera 3035* (MO).

Psychotria viridis Ruiz & Pav.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles. Records: *A. Rodríguez 11198* (BM, INB, MO, PMA), *D. Santamaría 7679* (PMA), *D. Solano 4295* (BM, INB, MO, PMA).

Randia calycosa Standl.

Terrestrial shrubs or trees. Distribution in PILA 1000–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *D. Solano 5207* (BM, INB, MO, PMA), *F. Quesada 1678* (INB, MO), *L. Angulo 140* (INB, MO), *M. Moraga 265* (INB, MO).

Randia gentryi Dwyer

Terrestrial trees. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *S. Bridgewater 4160* (BM, INB, MO, PMA).

Randia vazquezii Lorence & Dwyer

Terrestrial shrubs. Distribution in PILA 700–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala,

Costa Rica, Panama. Records: *D. Santamaría 5944* (INB).

Raritebe palicouroides Wernham

Terrestrial shrubs or trees. Distribution in PILA 200–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture, secondary forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5781* (BM, INB, MO, PMA), *A.K. Monro 6322* (PMA), *A. Rodríguez 11409* (BM, INB, MO, PMA), *D. Santamaría 5928* (BM, INB, MO, PMA), *D. Santamaría 6484* (BM, INB, MO, PMA), *D. Santamaría 6525* (BM, INB, MO, PMA), *D. Santamaría 6691* (BM, INB, MO, PMA), *D. Santamaría 6738* (BM, INB, MO, PMA), *D. Santamaría 7352* (PMA), *D. Santamaría 7734* (PMA), *D. Solano 4659* (BM, INB, MO, PMA), *D. Solano 4743* (BM, INB, MO, PMA), *D. Solano 5443* (PMA), *E. Alfaro 5547* (BM, INB, MO), *G. Herrera 6203* (INB), *L. Martínez 353* (PMA).

ψ *Rogiera amoena* Planch.

Quina, Teresa (CR).

Terrestrial shrubs or trees. Distribution in PILA 600–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Colombia. Records: *B. Gamboa 584* (CR, INB, MO), *J. González 3630* (INB), *C. Hamilton 3637* (MO), *C. Hamilton 3905* (MO), *A.K. Monro 4668* (BM, INB, MO), *A.K. Monro 5951* (PMA), *D. Solano 5231* (BM, INB, MO, PMA), *N. Zamora 4088* (BM, INB, MO, PMA), *N. Zamora 4131* (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

Ronabea latifolia Aubl.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras to Bolivia. Records: *A. Chacón 188* (CR, INB, MO).

Rudgea laevis C.M.Taylor

Terrestrial shrubs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11866* (INB, CR), *D. Solano 5066* (INB).

Rudgea skutchii Standl.

Terrestrial shrubs or trees. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Peru. Records: *A.K. Monro 6216* (PMA), *A.K. Monro 6277* (PMA), *L. Martínez 357* (PMA).

Rudgea trifurcata Gómez-Laur.

Terrestrial shrubs or trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 11206* (BM, INB, MO, PMA), *D. Solano 4363* (BM, INB, MO, PMA), *D. Solano 4392* (BM, INB, MO, PMA).

Sabicea panamensis Wernham

Terrestrial twiners. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Peru. Records: *A.K. Monro 5801* (BM, INB, MO, PMA), *A.K. Monro 6361* (PMA), *A. Rodríguez 11605* (BM, INB, MO, PMA), *D. Santamaría 6455* (BM, INB, MO, PMA), *L. Martínez 391* (PMA).

Sabicea villosa Willd. ex Schult.

Terrestrial twiners. Distribution in PILA 100–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Bolivia. Records: *D. Solano, Oct. 25, 2007* (Field obs.).

Schradera neeoides Standl. ex Steyerm.

Epiphytic shrubs. Distribution in PILA 1000–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador. Records: *L. Martínez 389* (BM, INB, MO, PMA).

Schradera obtusifolia C.M. Taylor

Epiphytic shrubs. Distribution in PILA 300–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 3325* (INB, MO).

ψ ***Sommeria donnellsmithii*** Standl.

Mosqueta (CR).

Terrestrial shrubs or trees. Distribution in PILA 100–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Colombia. Records: *A.K. Monro 4803* (BM, INB), *D. Solano 4343* (BM, INB, MO, PMA), *D. Solano 4525* (BM, INB, MO, PMA). Regional conservation status: Near Threatened (NT).

Spermacoce capitata Ruiz & Pav.

Terrestrial herbs. Distribution in PILA 100–100 m, low elevation mixed forest. Global distribution: Belize to Argentina. Records: *D. Solano 2861* (INB), *L. González 1199* (INB).

Spermacoce ocymifolia Willd. ex Roem. & Schult.

Terrestrial herbs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Paraguay, Caribbean. Records: *D. Solano 2840* (INB), *D. Solano 4911* (BM, INB, MO, PMA), *M. Alfaro 8* (INB).

Spermacoce remota Lam.

Terrestrial herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador, Greater Antilles, Africa, Madagascar. Records: *R. J. Schmalzel 37* (MO).

Spermacoce remota Lam.

Botoncillo, Verdolaga (CR).

Terrestrial herbs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: El Salvador, Costa Rica to Peru, French Guyana, the Guyanas, Greater Antilles, Lesser Antilles. Records: *C. Hamilton 703* (MO), *M.A. Thomas 1647* (MO).

RUTACEAE

Amyris brenesii Standl.

Terrestrial shrubs or trees. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría 5933* (BM, INB, MO, PMA).

e ***Citrus reticulata*** Blanco

Mandarina (CR).

Shrubs. Distribution in PILA 200–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Native to East Asia, naturalised elsewhere. Records: *D. Santamaría 3797* (INB).

Raputia heptaphylla Pittier

Terrestrial shrubs or trees. Distribution in PILA 700–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Ecuador, Venezuela, the Guyanas, Bolivia. Records: *N. Zamora 4530* (BM, INB, MO).

ψ ***Zanthoxylum melanostictum*** Schltldl. & Cham.

Arcabú, Lagartillo, Lagarto colorado, Lagarto, Lagartillo colorado (CR).

Terrestrial shrubs or trees. Distribution in PILA 1100–3300 m, mixed forest in transition to low elevation forest,

mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Venezuela. Records: *A. Chacón* 485 (INB), *A.K. Monro* 4098 (BM, INB, MO), *B.B. Klitgaard* 830 (BM, INB), *B.B. Klitgaard* 831 (BM, INB, MO), *B. Gamboa* 588 (INB, MO), *D. Solano* 5088 (BM, INB, MO, PMA), *D. Solano* 5139 (BM, INB, MO, PMA), *E. Alfaro* 1321 (INB), *E. Alfaro* 3249 (INB), *G. Davidse* 25505 (MO), *G. Davidse* 28561 (CR, MO), *G. Herrera* 3683 (INB, MO), *G. Herrera* 5403 (CR, INB, MO), *G. Herrera* 6197 (CR, INB, MO), *L. Acosta* 2373 (INB), *L. Angulo* 202 (INB), *L. González* 3611 (INB), *N. Zamora* 4130 (BM, INB, MO, PMA), *N. Zamora* 4167 (BM, INB, MO, PMA), *S. Knapp* 10006 (BM, INB, MO), *S. Knapp* 9859 (BM, INB, MO), *S. Knapp* 9901 (BM, INB, MO), *S. Knapp* 9953 (BM, INB, MO). Regional conservation status: Near Threatened (NT).

SABIACEAE

Meliosma brenesii Standl.

Terrestrial shrubs or trees. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Chacón* 189 (INB), *D. Solano* 5451 (MO), *D. Solano* 5736 (MO), *E. Alfaro* 740 (INB).

Meliosma cresstolina J.F.Morales

Terrestrial trees. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11917 (BM, INB, PMA), *B. Gamboa* 649 (INB), *D. Santamaría* 7081 (BM, INB, PMA), *D. Santamaría* 7214 (BM, INB, PMA), *D. Santamaría* 7281 (BM, INB, MO, PMA), *D. Solano* 4987 (BM, INB, PMA), *D. Solano* 5062 (BM, INB, PMA).

Meliosma depressiva J.F.Morales

Terrestrial shrubs or trees. Distribution in PILA 800–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez* 11741 (INB), *A. Rodríguez* 11810 (INB), *A. Soto* 1270 (INB), *D. Solano* 2914 (INB), *E. Alfaro* 2174 (INB), *E. Alfaro* 2174 (MO), *E. Alfaro* 2604 (INB, MO), *F. González* 483 (INB), *G. Davidse* 28409 (MO), *G. Davidse* 25672 (MO), *G. Davidse* 28306 (MO), *L. Acosta* 2381 (INB), *L. Angulo* 329 (INB), *M. Moraga* 266 (INB).

Meliosma glabrata (Liebm.) Urb.

Agüillo, Camaleón, Ira, María (CR).

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, pasture, dense thicket. Global distribution: Mexico, Honduras to Bolivia. Records: *A. Rodríguez* 11578 (BM, INB, PMA), *D. Santamaría* 5946 (BM, INB, PMA), *D. Santamaría* 6680 (BM, INB, PMA), *D. Santamaría* 6731 (BM, INB, PMA), *D. Santamaría* 6765 (BM, INB, PMA), *D. Santamaría* 7054 (BM, INB, PMA), *D. Solano* 4832 (BM, INB, PMA).

ψ *Meliosma grandiflora* C.V.Morton ex A.H.Gentry

Terrestrial trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Panama. Records: *E. Alfaro* 3704 (INB). Global conservation status: Vulnerable (VU), A2c.

Meliosma idiopoda S.F.Blake

Terrestrial trees. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico, Guatemala, El Salvador to Panama. Records: *A. Rodríguez* 11830 (BM, INB, PMA), *D. Santamaría* 7053 (BM, INB, PMA), *D. Santamaría* 7217 (BM, INB, PMA), *D. Santamaría* 7232 (BM, INB, PMA), *E. Alfaro* 2197 (INB), *F. González* 469 (INB), *F. González* 481 (INB), *G. Davidse* 28388 (CR, MO), *G. Davidse* 28411 (CR, MO).

Meliosma irazuensis Standl.

Terrestrial trees. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Honduras, Costa Rica, Panama. Records: *N. Zamora* 4219 (INB).

Meliosma occidentalis Cuatrec.

Terrestrial shrubs or trees. Distribution in PILA 0–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Mexico, Costa Rica to Ecuador. Records: *A.K. Monro* 4996 (BM, INB), *D. Santamaría* 5960 (BM, INB, PMA).

SALICACEAE

Banara guianensis Aubl.

Canfinillo, Rabo de chancho, Varablanca (CR), Corta lengua, Pica lengua (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Bolivia, Venezuela, Trinidad, Guayanas, Brazil.

Records: *A.K. Monro 6094* (PMA), *A. Rodríguez 11280* (BM, INB, PMA), *A. Rodríguez 11658* (BM, INB, PMA), *D. Santamaría 6157* (BM, INB, PMA), *D. Solano 4373* (BM, INB, PMA).

Casearia arborea (Rich.) Urb.

Mangalarga, Yaya Flaco, Flaco colorado, Blanco (CR), Corta lengua, Pica lengua, Manga larga (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría, Oct. 23, 2008 (Field obs.)*, *D. Santamaría, Oct. 28, 2008 (Field obs.)*, *D. Santamaría, Oct. 29, 2008 (Field obs.)*, *A. Rodríguez, Sept 28, 2007 (Field obs.)*, *A. Rodríguez, Sept 29, 2007 (Field obs.)*, *D. Solano, Oct. 22, 2008 (Field obs.)*, *D. Solano, Oct. 25, 2007 (Field obs.)*.

Casearia standleyana Sleumer

Terrestrial shrubs or trees. Distribution in PILA 0–800 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *D. Santamaría 6485* (BM, INB, PMA), *D. Solano 4904* (BM, INB, PMA), *G. Herrera 3141* (MO).

Casearia sylvestris Sw.

Huesillo, Plomillo, Quiubra, Purrá (CR), Corta lengua, Pica lengua (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez, Feb. 23, 2008 (Field obs.)*.

Casearia tacanensis Lundell

Yaya (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *D. Solano 4166* (BM, INB, PMA), *F. González 472* (INB).

Hasseltia floribunda Kunth

Canfinillo, Cancho blanco, Guatuzo, Ira carne, Laurel, Muñeco, Quebracho blanco Hojancha (CR), Parimonton, Corta lengua, Raspa lengua (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Honduras to Bolivia, Venezuela, Brazil. Records: *D.*

Solano 5247 (BM, INB, PMA).

Hasseltia guatemalensis Warb.

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico, Guatemala, Nicaragua to Ecuador, Venezuela. Records: *A.K. Monro 6001* (PMA), *A. Rodríguez 11514* (BM, INB, MO, PMA), *A. Rodríguez 11517* (BM, INB, MO, PMA), *D. Santamaría 7521* (PMA), *D. Solano 5383* (PMA), *G. Herrera 6203,1* (INB).

Laetia thamnia L.

Cafecillo, Quitacalzón (CR), Conejo, Conejo colorado, Palo blanco (P).

Terrestrial shrubs or trees. Distribution in PILA 200–400 m, low elevation mixed forest. Global distribution: Mexico to Colombia, Greater Antilles. Records: *G. Herrera 3089* (MO).

Lunania mexicana Brandegee

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *D. Santamaría 5959* (BM, INB, PMA), *D. Solano 4421* (BM, INB, PMA), *J. González 816* (CR, MO).

ψ ***Macrohasseltia macroterantha*** (Standl. & L.O. Williams) L.O. Williams

Chancho blanco, Ratón colorado, Espino blanco, Espino (CR).

Terrestrial shrubs or trees. Distribution in PILA 500–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Colombia. Records: *R. Aguilar 1147* (INB). Uses: timber. Regional conservation status: Near Threatened (NT).

Pleuranthodendron lindenii (Turcz.) Sleumer

Hojancha, Huesillo, Lunaria, Quebracho blanco (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Peru Brazil. Records: *D. Santamaría 5990* (BM, INB, MO, PMA).

Xylosma chlorantha Donn.Sm.

(CR), Cachos de venado (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Panama. Records: *A. Rodríguez 10297* (INB).

Xylosma oligandra Donn.Sm.

Terrestrial shrubs or trees. Distribution in PILA 0–2800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Ecuador. Records: *F. González 689* (BM, INB), *F. González 721* (BM, INB).

SANTALACEAE

Antidaphne viscoidea Poepp. & Endl.

Epiphytic shrubs. Distribution in PILA 800–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica to Bolivia. Records: *D. Santamaría 3479* (INB).

Dendrophthora costaricensis Urb.

Epiphytic shrubs. Distribution in PILA 1300–3500 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Ecuador. Records: *B.B. Klitgaard 736* (BM), *B. Gamboa 587* (INB), *E. Alfaro 3207* (INB), *E. Alfaro 3967* (INB), *E. Alfaro 4626* (INB), *G. Davidse 23966* (CR, MO), *G. Davidse 28997* (CR), *F. Quesada 1949* (INB), *J. Kress 94-4262* (MO), *L. Angulo 198* (INB), *L. González 1982* (INB), *M.A. Thomas 1687* (MO), *S. Knapp 9868* (BM).

Dendrophthora davidsei Kuijt

Epiphytic shrubs. Distribution in PILA 2300–2800 m, low elevation oak forest, high elevation oak forest. Global distribution: Honduras, Costa Rica, Panama. Records: *G. Davidse 28755A* (MO), *G. Davidse 28990* (MO), *M. Grayum 10353* (INB), *S. Knapp 9976* (BM).

Dendrophthora squamigera (Benth.) Kuntze

Epiphytic shrubs. Distribution in PILA 2000–3600 m, cloud forest, páramo. Global distribution: Guatemala to Bolivia. Records: *A.K. Monro 4076* (BM), *A.K. Monro 5190* (BM), *B.B. Klitgaard 748* (BM, INB), *B. Gamboa 1716* (INB), *E. Alfaro 3937* (INB), *G. Davidse 23902* (CR), *G. Davidse 23929* (CR, MO), *G. Davidse 25292* (CR), *G. Davidse 23869* (MO).

ε-PILA *Dendrophthora talamancana* Kuijt

Epiphytic shrubs. Distribution in PILA 2300–3100 m, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *B.B. Klitgaard 726* (BM), *G. Davidse 26001* (CR), *G. Davidse 28755* (INB), *F. Quesada 1839* (INB), *S. Knapp 9869* (BM).

Dendrophthora turrialbae Kuijt

Epiphytic shrubs. Distribution in PILA 1500–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *G. Davidse 29256* (CR), *G. Herrera 6168* (CR).

Phoradendron annulatum Oliv.

Epiphytic shrubs. Distribution in PILA 2000–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *F. González 661* (BM, INB, MO, PMA), *G. Davidse 25726* (CR), *G. Davidse 28558* (INB, MO).

Phoradendron chrysocladon A.Gray

Epiphytic shrubs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: USA to Bolivia, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11527* (BM, INB, MO, PMA), *D. Santamaría 6711* (BM, INB, MO, PMA), *D. Solano 4769* (BM, INB, MO, PMA), *G. Herrera 5204* (MO).

Phoradendron crassifolium (Pohl ex DC.) Eichler
Matapalo (CR).

Epiphytic shrubs. Distribution in PILA 100–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Bolivia. Records: *A. Chacón 258* (CR).

Phoradendron piperoides (Kunth) Trel.
Matapalo (CR).

Epiphytic shrubs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to the Guyanas, Greater Antilles, Lesser Antilles. Records: *F. Quesada 1898* (CR).

Phoradendron ravenii Kuijt

Epiphytic shrubs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *R. Aguilar 1104* (INB).

Phoradendron undulatum (Pohl ex DC.) Eichler

Epiphytic shrubs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, sabana natural grassland. Global distribution: Nicaragua to Bolivia. Records: *A.K. Monro 4497* (BM, INB), *A.K. Monro 4950* (BM, INB), *E. Alfaro 5642* (BM, INB), *G. Herrera 3336* (INB), *S. Knapp 9928* (BM, INB),

S. Knapp 9963 (BM, INB).

Phoradendron woodsonii Trel.

Epiphytic shrubs. Distribution in PILA 400–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Peru. Records: *A. Rodríguez 11884* (BM, INB, MO, PMA), *D. Santamaría 7210* (BM, INB, MO, PMA), *G. Davidse 28522* (CR, INB, MO), *L. González 1206* (INB), *M. Moraga 268* (CR).

SAPINDACEAE

Allophylus psilospermus Radlk.

Fierrillo, Huesillo, Huesillo de pava, Zahino de costa (CR), Esquitilla, Esquitillo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Panama, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 4689* (BM), *A. Maroto 264* (INB), *E. Alfaro 2178* (CR, INB).

ψ ***Billia rosea*** (Planch. & Linden) C.Ulloa & P.Jørg.

Cachimbó, Corona, Cucaracho, Guatuzo, Ira zapote, Ocora, Resina, Guatuzo, Zapotillo (CR).

Terrestrial trees. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A. Fernández 823* (INB), *A. Rodríguez 11836* (BM, INB, MO, PMA), *G. Davidse 29187* (CR, MO), *G. Herrera 5273* (CR, INB, MO), *G. Herrera 6235* (CR, INB). Regional conservation status: Near Threatened (NT).

ψ ***Cupania glabra*** Sw.

Cascúa, Tres huevos, Carne asada, Cascua, Güesillo (CR).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Costa Rica, Greater Antilles, Lesser Antilles. Records: *D. Solano 4561* (BM, INB, MO, PMA). Uses: Firewood. Regional conservation status: Near Threatened (NT).

Cupania rufescens Triana & Planch.

Guabillo, Escobo (CR), Candelillo, Gorgojero, Gorgojo (P).

Terrestrial shrubs or trees. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud

forest, cloud forest, dense thicket. Global distribution: Mexico to Brazil. Records: *A.K. Monro 4812* (BM, INB, MO).

Matayba ingifolia Standl.

Terrestrial shrubs or trees. Distribution in PILA 200–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 2693* (CR, INB, MO).

Matayba oppositifolia (A.Rich.) Britton

Arenillo, Mataiba (CR).

Terrestrial trees. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Guatemala to Costa Rica, Greater Antilles, Lesser Antilles. Records: *G. Herrera 5357* (CR, INB, MO).

Paullinia bracteosa Radlk.

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Venezuela. Records: *D. Santamaría 6236* (BM, INB, MO, PMA).

Paullinia brenesii Croat

Terrestrial shrubs. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *T. Croat 26906* (MO).

Paullinia faginea (Triana & Planch.) Radlk.

Terrestrial shrubs. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, Brazil. Records: *J. González 822* (CR, INB, MO).

Paullinia granatensis (Planch. & Linden) Radlk.

Terrestrial shrubs. Distribution in PILA 0–150 m, low elevation mixed forest. Global distribution: Nicaragua to Venezuela. Records: *G. Herrera 3075* (MO).

Paullinia ingifolia A.Rich.

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Peru, Suriname, Brazil. Records: *A. Rodríguez 11893* (BM, INB, MO, PMA).

Paullinia itayensis J.F.Macbr.

Terrestrial shrubs. Distribution in PILA 100–500 m, low elevation mixed forest. Global distribution: Costa Rica, Colombia to Peru. Records: *G. Herrera 5967* (INB).

Paullinia talamancensis J.F.Morales

Terrestrial shrubs. Distribution in PILA 1200–2000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *M. Alfaro* 32 (INB).

Serjania acuta Triana & Planch.
Bejuco juriso (CR).

Terrestrial shrubs. Distribution in PILA 1400–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *L. Acosta* 2281 (INB).

Serjania membranacea Splitg.

Terrestrial lianas. Distribution in PILA 700–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru, the Guyanas, Brazil. Records: *F. Quesada* 1891 (INB, MO).

Serjania mexicana (L.) Willd.
Bejuco espinoso (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru, the Guyanas, Brazil. Records: *A. Rodríguez, Jul. 21, 2007 (Field obs.)*, *A. Rodríguez, Jul. 24 2007 (Field obs.)*, *A. Rodríguez, Jul. 25, 2007 (Field obs.)*, *A. Rodríguez, Nov. 1, 2007 (Field obs.)*, *A. Rodríguez, Sept 28, 2007 (Field obs.)*.

SAPOTACEAE

Chrysophyllum colombianum (Aubrév.) T.D.Penn.
(CR), Mameicillo, Nisperillo (P).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Peru. Records: *F. Solís* 29 (INB, MO).

ψ ***Micropholis crotonoides*** (Pierre) Pierre
Zapotillo, Caimito, Ala de ángel (CR).

Terrestrial trees. Distribution in PILA 200–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia to Venezuela, Greater Antilles, Lesser Antilles. Records: *R. Aguilar* 1085 (INB, MO). Uses: timber. Regional conservation status: Near Threatened (NT).

ψ ***Micropholis melinoniana*** Pierre
Maraibé, María, Bé, Ojoche macho (CR).

Terrestrial trees. Distribution in PILA 100–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest.

Global distribution: Mexico, Guatemala, Costa Rica, Panama, Ecuador to Venezuela Sur to Brazil. Records: *G. Herrera* 2677 (INB, MO). Regional conservation status: Near Threatened (NT).

Pouteria austinsmithii (Standl.) Cronquist
Terrestrial trees. Distribution in PILA 1100–1300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *A. Rodríguez* 11742 (BM, INB, MO, PMA). Conservation status: Vulnerable (VU), D2 ver 2.3 (1994).

Pouteria congestifolia Pilz
Leche amarilla (CR).

Terrestrial trees. Distribution in PILA 1100–1500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama, Ecuador. Records: *A. Rodríguez, Sept 29, 2007 (Field obs.)*, *D. Solano, Oct. 24, 2007 (Field obs.)*, *D. Solano, Oct. 27, 2007 (Field obs.)*.

Pouteria exfoliata T.D.Penn.
Níspero (CR).

Terrestrial trees. Distribution in PILA 400–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala, Honduras, Costa Rica, Panama. Records: *A. Rodríguez, Feb. 20 2008 (Field obs.)*, *A. Rodríguez, Feb. 21, 2008 (Field obs.)*.

Pouteria reticulata (Engl.) Eyma
(CR), Faldita de puta (P).

Terrestrial trees. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Honduras, Costa Rica, Panama, Ecuador to Bolivia. Records: *A. Rodríguez* 11903 (BM, INB, MO, PMA), *M. Chinchilla* 26 (INB, MO).

***Pouteria* sp. A.**

Terrestrial trees. Distribution in PILA –300 m, low elevation mixed forest. Global distribution: Endemic to Costa Rica. Records: *G. Herrera* 3131 (INB, MO).

Sideroxylon portoricense Urb.
Níspero amarillo, Níspero caimito (CR).

Terrestrial trees. Distribution in PILA 1100–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Guatemala, Honduras, Costa Rica, Panama, Caribbean. Records: *Zamora, Feb. 28, 2008 (Field obs.)*, *N. Zamora, Jul. 30, 2008 (Field obs.)*.

SCHLEGELIACEAE

Gibsoniothamnus parvifolius Barringer

Epiphytic shrubs. Distribution in PILA 300–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5012* (BM, INB, MO), *G. Herrera 5353* (CR, INB, MO).

Schlegelia brachyantha Griseb.

Hemi-epiphytic shrubs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica to Venezuela, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 4365* (BM, INB, MO), *G. Herrera 3281* (INB, MO).

Schlegelia parviflora (Oerst.) Monach.

Hemi-epiphytic shrubs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Venezuela, French Guyana to Brazil. Records: *A.K. Monro 4362* (BM, INB), *A. Rodríguez 11878* (BM, INB, MO, PMA), *A. Rodríguez 9826* (INB), *D. Santamaría 3756* (INB), *D. Santamaría 7501* (PMA), *D. Solano 3883* (BM, INB, MO, PMA), *D. Solano 5389* (PMA), *D. Solano 5493* (PMA), *G. Herrera 5965* (CR, INB, MO), *L. Acosta 2296* (INB), *L. Angulo 138* (INB), *L. Martínez 392* (PMA).

SCROPHULARIACEAE

Alonsoa meridionalis (L.f.) Kuntze

Terrestrial herbs or shrubs. Distribution in PILA 1600–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Mexico to Bolivia. Records: *G. Davidse 26137* (CR, MO), *G. Davidse 29259* (CR, MO), *G. Herrera 3622* (MO), *M. Valerio 202* (CR, MO), *S. Knapp 10041* (BM, INB, MO).

Buddleja americana L.

Hoja de salve, Salvia, Salvia virgen, Tabaquillo, Salva, Hoja de salvia (CR).

Terrestrial shrubs. Distribution in PILA 800–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Pacific Islands, Greater Antilles. Records: *D. Solano 5249* (BM, INB, MO, PMA), *R. Villalobos 258* (INB, MO). Uses: medicinal.

ψ *Buddleja nitida* Benth.

Salvia, Hoja de salve, Salva (CR).

Terrestrial shrubs. Distribution in PILA 1400–3700 m, mixed forest in transition to cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica, Panama. Records: *A.K. Monro 4170* (BM), *A.K. Monro 5265* (BM), *B.B. Klitgaard 817* (BM, INB, MO), *M. Valerio 171* (MO). Regional conservation status: Vulnerable (VU), B1ab(i, iii).

ψ *Buddleja skutchii* Morton

Terrestrial shrubs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *G. Davidse 29220* (MO), *G. Herrera 5999* (CR, INB, MO). Regional conservation status: Vulnerable (VU), B1ab(i, iii).

SOLANACEAE

Brachistus stramonifolius (Kunth) Miers

Terrestrial shrubs. Distribution in PILA 1300–1400 m, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *B. Hammel 5784* (MO).

Browallia americana L.

Simpática (CR).

Terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Peru. Records: *D. Santamaría 5888* (BM, INB, MO, PMA), *L. Acosta 2316* (INB), *R. Villalobos 265* (CR, INB).

Browallia speciosa Hook.f.

Terrestrial herbs. Distribution in PILA 900–1900 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Peru. Records: *A.K. Monro 4412* (BM, MO).

e *Brugmansia candida* Pers.

Reina de la noche (CR).

Terrestrial shrubs. Distribution in PILA 1200–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Ecuador, Madagascar. Records: *C. Hamilton 710* (MO). Uses: medicinal.

Cestrum acuminatum Francy

Terrestrial shrubs. Distribution in PILA 2100–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Greater Antilles. Records: *A.K. Monro 4467*

(BM, MO), *E. Alfaro 4664* (INB), *G. Davidse 28941* (CR, MO), *G. Herrera 5917* (INB, MO), *G. Herrera 6095* (INB, MO), *A. Rodríguez 10750* (BM, INB, MO, PMA), *A. Rodríguez 11013* (BM, INB, MO, PMA), *D. Solano 4143* (BM, INB, MO, PMA).

Cestrum amistadense A.K.Monro

Terrestrial shrubs. Distribution in PILA 1700–2100 m, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4328* (BM, MO, PMA), *A.K. Monro 4415* (BM, INB, MO), *G. Herrera 5474* (CR, MO).

Cestrum cristinae D.A.Soto

Terrestrial shrubs. Distribution in PILA 1600–2200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez 10929* (BM, INB, MO, PMA), *G. Herrera 5220* (CR, INB, MO).

Cestrum fragile Francey

Terrestrial shrubs. Distribution in PILA 500–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *D. Solano 4081* (BM, INB, MO, PMA), *L.D. Gómez 23082* (MO).

Cestrum irazuense Kuntze

Terrestrial shrubs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *A. Soto 319* (INB), *A. Soto 343* (INB), *G. Davidse 25752* (CR, MO), *F. Quesada 1492* (CR, INB), *D. Santamaría 5957* (BM, INB, PMA).

Cestrum microcalyx Francey

Terrestrial shrubs. Distribution in PILA 0–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Peru. Records: *A.K. Monro 4774* (BM, INB, MO), *D. Solano 2895* (INB), *D. Solano 5042* (BM, INB, MO, PMA), *F. Quesada 1636* (CR, INB).

Cestrum poasanum Donn.Sm.

Terrestrial shrubs. Distribution in PILA 1100–3100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Endemic to Costa Rica. Records: *G. Davidse 23984* (CR, MO).

Cestrum racemosum Ruiz & Pav.

Terrestrial shrubs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A.K. Monro 6080* (BM, CR, INB, MO, PMA), *A. Rodríguez, Jul. 24 2007* (Field obs.).

Cestrum reflexum Sendtn.

Terrestrial shrubs. Distribution in PILA 0–200 m, low elevation mixed forest. Global distribution: Nicaragua to Bolivia. Records: *D. Santamaría 6146* (BM, INB, MO, PMA), *M.A. Thomas 1588* (MO).

Cestrum rugulosum Francey

Terrestrial shrubs. Distribution in PILA 1100–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Colombia, Brazil. Records: *B. Gamboa 1709* (INB, MO).

Cestrum schlechtendalii G.Don.

Terrestrial shrubs. Distribution in PILA 0–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Belize, Guatemala, Nicaragua to Panama. Records: *A.K. Monro 5512* (BM, INB, MO, PMA), *A. Rodríguez 10576* (BM, INB, MO, PMA), *D. Santamaría 6827* (BM, INB, MO, PMA), *D. Solano 3943* (BM, INB, MO, PMA), *D. Solano 5259* (BM, INB, MO, PMA).

Cestrum tomentosum L.f.

Zorrillo blanco, Zorrillo (CR).

Terrestrial shrubs. Distribution in PILA 800–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Peru. Records: *A. Soto 348* (INB), *D. Solano 5255* (BM, INB, MO, PMA).

Cestrum endresii Francey

Terrestrial shrubs. Distribution in PILA 1300–1500 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5052* (BM, INB, MO), *A.K. Monro 5056* (BM, INB, MO), *D. Santamaría 5918* (BM, INB, MO, PMA), *D. Santamaría 5965* (BM, INB, MO, PMA).

Cestrum talamancaense A.K.Monro

Terrestrial shrubs. Distribution in PILA 2700–3400 m, high elevation oak forest, páramo. Global distribution: Endemic to Panama. Records: *A.K. Monro 4045* (BM, MO, PMA), *B.B. Klitgaard 818* (BM, MO, PMA).

ε-PILA *Cuatresia amistadensis* D.A.Soto & A.K.Monro

Terrestrial shrubs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 781 (CR, INB, MO), *A.K. Monro* 4379 (BM, INB, MO), *A.K. Monro* 4826 (BM, INB, MO), *A.K. Monro* 5425 (BM, INB, PMA), *A.K. Monro* 6245 (PMA), *A. Rodríguez* 10584 (BM, INB, PMA), *A. Rodríguez* 10635 (BM, INB, PMA), *D. Santamaría* 5747 (BM, INB, PMA), *D. Santamaría* 6600 (BM, INB, PMA), *D. Solano* 3857 (BM, INB, PMA), *D. Solano* 4130 (BM, INB, PMA), *D. Solano* 5179 (BM, INB, PMA), *E. Alfaro* 5628 (BM, INB, MO), *J. Bittner* 1914 (INB, MO).

Jaltomata procumbens (Cav.) J.L.Gentry

Jaltomate (CR).

Terrestrial herbs. Distribution in PILA 600–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *D. Santamaría* 5841 (BM, INB, MO, PMA), *G. Davidse* 25113 (CR, MO), *G. Davidse* 25164 (CR, MO), *G. Herrera* 6120 (CR, INB, MO), *G. Herrera* 6256 (CR, INB), *J. Dwyer* 6961A (MO), *R. Aguilar* 1090 (INB, MO).

Larnax sylvarum (Standl. & C.V.Morton) Sawyer

Terrestrial herbs. Distribution in PILA 2000–3400 m, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A. Soto* 318 (INB), *B. Hammel* 1390 (MO), *E. Alfaro* 3206 (INB), *E. Alfaro* 3478 (INB), *E. Alfaro* 3635 (INB), *E. Alfaro* 4619 (INB), *G. Davidse* 23975 (CR, MO), *G. Davidse* 25091 (CR, MO), *G. Davidse* 25218 (CR, MO), *G. Davidse* 28672 (CR, MO), *L. Angulo* 222 (CR, INB, MO), *M.A. Thomas* 1664 (MO), *M. Moraga* 375 (INB).

Lycianthes beckneriana D'Arcy

Terrestrial trees. Distribution in PILA 700–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Davidse* 23972 (CR, MO), *G. Herrera* 3644 (INB, MO).

Lycianthes furcatistellata Bitter

Terrestrial lianas. Distribution in PILA 0–2900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Fernández* 674 (INB, MO), *A. Fernández* 755 (CR, INB, MO), *A. Rodríguez* 10763 (BM, INB, MO, PMA), *D. Santamaría* 5753 (BM, INB, MO, PMA), *D. Santamaría*

5864 (BM, INB, MO, PMA), *D. Solano* 4181 (BM, INB, MO, PMA), *G. Davidse* 25167 (CR, MO), *G. Herrera* 5883 (CR, INB, MO), *J. Bittner* 1922 (CR, INB, MO).

Lycianthes heteroclita (Sendtn.) Bitter

Terrestrial shrubs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Mexico to Panama. Records: *A.K. Monro* 4820 (BM, INB, MO), *A.K. Monro* 6240 (PMA), *A. Rodríguez* 11170 (BM, INB, MO, PMA), *D. Solano* 4415 (BM, INB, MO, PMA), *D. Solano* 4468 (BM, INB, MO, PMA), *D. Solano* 4538 (BM, INB, MO, PMA), *G. Gallardo* 294 (CR, INB), *G. Herrera* 5307 (CR, INB, MO), *L.D. Gómez* 23231 (MO), *R. Aguilar* 1081 (INB, MO).

ε-PILA *Lycianthes hygrophila* Bitter

Terrestrial lianas. Distribution in PILA 2100–2300 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *H. Pittier* 3263 (US).

Lycianthes lutey nii D'Arcy

Terrestrial lianas. Distribution in PILA 200–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *A. Soto* 353 (INB), *L. Angulo* 327 (INB).

Lycianthes maxonii Standl.

Terrestrial herbs. Distribution in PILA 800–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Nicaragua to Panama. Records: *A.K. Monro* 5054 (BM, INB, MO), *A.K. Monro* 6315 (PMA), *A. Rodríguez* 11635 (BM, INB, MO, PMA), *D. Santamaría* 6775 (BM, INB, MO, PMA), *F. Solís* 14 (CR, INB, MO), *G. Herrera* 5208 (CR, INB, MO).

Lycianthes multiflora Bitter

Tomatillo (CR).

Terrestrial lianas. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Nicaragua to Costa Rica. Records: *G. Gallardo* 42 (CR, INB, MO).

Lycianthes pauciflora (Vahl) Bitter

Epiphytic twiners or lianas. Distribution in PILA 1300–1700 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Bolivia, Lesser Antilles. Records: *A. Soto* 1272 (INB), *E. Alfaro* 2600 (CR, INB), *E. Alfaro* 3189 (INB), *L. Acosta* 2334 (INB).

Lycianthes sanctaeclarae (Greenm.) D'Arcy

Epiphytic shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Nicaragua to Panama. Records: *A.K. Monro 4892* (BM, INB, MO), *A. Rodríguez 11237* (BM, INB, MO, PMA), *D. Santamaría 6139* (BM, INB, MO, PMA), *D. Santamaría 6196* (BM, INB, MO, PMA), *D. Santamaría 7518* (PMA), *D. Solano 4291* (BM, INB, MO, PMA), *D. Solano 4316* (BM, INB, MO, PMA).

Lycianthes storkii Standl.

Terrestrial shrubs. Distribution in PILA 200–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *B. Gamboa 640* (INB), *D. Santamaría 5829* (BM, INB, MO, PMA), *D. Santamaría 7723* (PMA), *D. Solano 4092* (BM, INB, MO, PMA).

Lycianthes synanthera (Sendtn.) Bitter

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Venezuela. Records: *D. Solano 2894* (INB), *D. Solano 5254* (BM, INB, MO, PMA), *E. Alfaro 735* (INB), *F. Quesada 1635* (CR, INB), *L. Acosta 2432* (INB), *L. Angulo 141* (INB).

Merinthopodium neuranthum (Hemsl.) Donn.Sm.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *A. Fernández 688* (CR, INB, MO), *A. Fernández 846* (CR, INB, MO), *A.K. Monro 4264* (BM, INB, MO), *A.K. Monro 5639* (BM, INB, MO, PMA), *A. Rodríguez 10758* (BM, INB, MO, PMA), *A. Rodríguez 11000* (BM, INB, MO, PMA), *D. Santamaría 7490* (PMA), *D. Solano 3969* (BM, INB, MO, PMA), *D. Solano 4846* (BM, INB, MO, PMA), *R. Aguilar 1129* (INB, MO).

ε-PILA *Schultesianthus crosbyanus* (D'Arcy) S.Knapp

Epiphytic shrubs. Distribution in PILA 1000–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *Alfaro 3466* (INB), *Herrera 6224* (CR, INB, MO).

Schultesianthus leucanthus (Donn.Sm.) Hunz.

Terrestrial or facultative epiphytic shrubs. Distribution in PILA 500–2100 m, low elevation mixed forest, mixed

forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *D. Santamaría 5916* (BM, INB, MO, PMA), *D. Santamaría 7484* (PMA), *D. Solano 5361* (PMA), *G. Herrera 5888* (CR, INB, MO).

Solandra brachycalyx Kuntze

Caliz del Señor, Campana, Papa miel, Papturra (CR).

Terrestrial shrubs. Distribution in PILA 1400–2900 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Nicaragua to Panama. Records: *J. A. Duke 13625* (MO), *L. Angulo 255* (CR, INB).

Solanum acerifolium Dunal

Terrestrial herbs. Distribution in PILA 1000–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Lesser Antilles. Records: *A.K. Monro 6083* (PMA), *A. Rodríguez 10797* (BM, INB, MO, PMA), *A. Soto 355* (INB), *E. Mora 299* (INB), *M. Grayum 10362* (INB, MO).

Solanum adhaerens Roem. & Schult.

Terrestrial lianas. Distribution in PILA 0–200 m, low elevation mixed forest. Global distribution: Mexico to the Guyanas. Records: *A.K. Monro 5020* (BM, MO).

Solanum aligerum Schtdl.

Terrestrial lianas. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Peru. Records: *A.K. Monro 5313* (BM, MO, PMA).

Solanum americanum Mill.

Yerba mora (CR).

Terrestrial herbs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles, Europe. Records: *D. Solano 4286* (BM, INB, MO, PMA), *E. Alfaro 3987* (INB), *G. Davidse 23993* (CR, MO), *G. Davidse 25141* (CR, MO), *G. Davidse 29109* (CR, MO). Uses: Edible, medicinal, Tóxico.

Solanum aphyodendron S.Knapp

Terrestrial trees. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A.K. Monro 5432* (BM, INB,

MO, PMA), *A. Soto* 352 (INB), *D. Santamaría* 4427 (INB), *D. Solano* 3197 (INB), *D. Solano* 3855 (BM, INB, MO, PMA), *E. Mora* 297 (INB), *J. Bittner* 1899 (INB, MO), *M. Alfaro* 24 (INB).

Solanum arboreum Dunal

Terrestrial shrubs. Distribution in PILA 0–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Nicaragua to Peru, Venezuela, Lesser Antilles. Records: *A.K. Monro* 4309 (BM, INB, MO), *A.K. Monro* 4817 (BM, INB, MO), *A.K. Monro* 4825 (BM, INB, MO), *A.K. Monro* 4829 (BM, INB, MO), *A. Rodríguez* 10804 (BM, INB, MO, PMA), *D. Santamaría* 6286 (BM, INB, MO, PMA), *D. Solano* 4113 (BM, INB, MO, PMA), *G. Davidse* 28497 (CR, MO), *G. Herrera* 2661 (INB, MO).

Solanum argenteum Dunal

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Costa Rica, Panama. Records: *A. Maroto* 206 (INB), *A. Soto* 1273 (INB), *A. Soto* 357 (INB), *E. Alfaro* 2189 (INB), *E. Alfaro* 2269 (INB, MO), *L. Acosta* 2292 (INB, MO), *M. Moraga* 574 (INB).

Solanum armentalis J.L.Gentry & D'Arcy

Terrestrial shrubs. Distribution in PILA 500–3100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *D. Santamaría* 4403 (INB), *G. Davidse* 26227 (MO), *G. Davidse* 28394 (CR, MO), *L. Acosta* 2415 (INB, MO).

Solanum aturense Dunal

Terrestrial lianas. Distribution in PILA 0–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Mexico to Venezuela, French Guyana. Records: *A.K. Monro* 6017 (PMA), *D. Santamaría* 3514 (INB), *D. Santamaría* 6681 (BM, INB, MO, PMA), *D. Santamaría* 7834 (PMA), *D. Solano* 4108 (BM, INB, MO, PMA), *D. Solano* 4715 (BM, INB, MO, PMA), *D. Solano* 4926 (BM, INB, MO, PMA), *E. Alfaro* 3197 (INB), *M. Alfaro* 16 (INB), *M. Moraga* 651 (INB), *N. Zamora* 4073 (BM, INB, MO, PMA), *N. Zamora* 4164 (BM, INB, MO, PMA).

Solanum canense Rydb.

Terrestrial herbs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to

low elevation forest. Global distribution: El Salvador to Ecuador. Records: *G. Davidse* 25232 (MO).

Solanum chrysotrichum Schldl.

Terrestrial shrubs. Distribution in PILA 1000–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Panama, Peru. Records: *E. Alfaro* 768 (INB), *J. Bittner* 1895 (CR, INB, MO), *M.A. De la Fuente* 10 (INB), *M.A. De la Fuente* 9 (INB), *M. Chinchilla* 1 (CR, INB), *M. Grayum* 10358 (INB, MO), *A. Rodríguez* 9863 (INB), *D. Santamaría* 3787 (INB), *D. Santamaría* 5737 (BM, INB, MO, PMA), *D. Solano* 3819 (BM, INB, MO, PMA), *D. Solano* 3962 (BM, INB, MO, PMA), *A. Soto* 354 (INB).

Solanum circinatum Bohs

Canilla de mula, Pepinillo (CR).

Terrestrial shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Peru. Records: *G. Gallardo* 45 (CR, INB).

Solanum cordovense Sessé & Moc.

Terrestrial shrubs. Distribution in PILA 600–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras to Colombia, Guyanas to Bolivia. Records: *A. Soto* 1263 (INB).

Solanum evolvulifolium Greenm.

Terrestrial shrubs. Distribution in PILA 800–2100 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, dense thicket. Global distribution: Costa Rica to Colombia, Ecuador. Records: *A. De Sedas* 682 (PMA), *A. Fernández* 818 (CR, INB, MO), *A. Fernández* 997 (CR, INB, MO), *A.K. Monro* 4722 (BM, INB, MO), *A.K. Monro* 5805 (BM, INB, MO, PMA), *A.K. Monro* 5997 (PMA), *A. Rodríguez* 10910 (BM, INB, MO, PMA), *D. Solano* 4126 (BM, INB, MO, PMA).

Solanum fortunense Bohs

Terrestrial shrubs. Distribution in PILA 400–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5055 (BM, CR, MO), *A. Rodríguez* 11055 (BM, INB, MO, PMA), *E. Alfaro* 5528 (BM, INB, MO), *G. Herrera* 5415 (CR, INB, MO), *G. Herrera* 6204 (INB, MO). Conservation status: Vulnerable (VU), D2 ver 2.3 (1994).

Solanum fraxinifolium Dunal

Terrestrial herbs. Distribution in PILA 1500–2600 m, mixed forest in transition to cloud forest, cloud forest,

low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Nicaragua, Costa Rica, Colombia, Venezuela, Bolivia. Records: *B. Hammel 1400* (MO).

Solanum lepidotum Humb. & Bonpl. ex Dunal

Terrestrial shrubs. Distribution in PILA 200–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala, Nicaragua to Brazil. Records: *D. Santamaría 5999* (BM, INB, MO, PMA).

Solanum longiconicum Bitter

Terrestrial herbs. Distribution in PILA 1200–3300 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, sabana natural grassland. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5300* (BM, MO), *A. Soto 255* (INB), *E. Alfaro 3238* (INB), *E. Alfaro 3475* (INB), *E. Alfaro 4633* (INB), *E. Navarro 671* (INB, MO), *G. Davidse 28637* (MO), *G. Davidse 28690* (CR, MO), *F. Quesada 1988* (INB), *L. Angulo 235* (INB), *R. Aguilar 5227* (INB, MO), *S. Knapp 10024* (BM).

Solanum macrotonum Bitter

Terrestrial herbs. Distribution in PILA 1200–3200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: El Salvador to Panama, Ecuador, Peru. Records: *C. Hamilton 3896* (MO), *M.A. Thomas 1665* (MO), *S. Knapp 9997* (BM, INB, MO).

Solanum narcoticosmum Bitter

Terrestrial shrubs. Distribution in PILA 1700–3000 m, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A.K. Monro 5311* (BM, INB, MO), *A.K. Monro 5319* (BM, INB, MO), *G. Davidse 29148* (CR, MO).

Solanum nigrescens M.Martens & Galeotti

Terrestrial herbs. Distribution in PILA 600–3500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: USA to Venezuela, Brazil, Bolivia, Argentina, Greater Antilles. Records: *A. Rodríguez 10821* (BM, INB, MO, PMA), *A. Soto 253* (INB), *D. Santamaría 5783* (BM, INB, MO, PMA), *D. Santamaría 5838* (BM, INB, MO, PMA), *D. Solano 4041* (BM, INB, MO, PMA), *D. Solano 4180* (BM, INB, MO, PMA), *G. Davidse 25168* (CR, MO), *G. Davidse 26150* (CR, MO), *G. Herrera 6063* (INB, MO), *L.D. Gómez 23321* (MO).

Solanum nudum Dunal

Zorrillo (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Brazil, Greater Antilles. Records: *C. Hamilton 3641* (MO).

Solanum pastillum S.Knapp

Terrestrial shrubs. Distribution in PILA 1100–1600 m, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Costa Rica. Records: *A. Soto 356* (INB), *G. Davidse 23871* (CR, MO).

Solanum pensile Sendtn.

Terrestrial lianas. Distribution in PILA 2700–3000 m, high elevation oak forest. Global distribution: Costa Rica, Ecuador, Venezuela to French Guyana, Bolivia. Records: *E. Alfaro 1617* (INB, MO).

Solanum pertenuae Standl. & C.V.Morton

Terrestrial trees. Distribution in PILA 1000–1700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, pasture. Global distribution: Nicaragua to Panama. Records: *D. Santamaría 7404* (BM, MO, PMA).

Solanum phaseoloides Pol.

Terrestrial herbs. Distribution in PILA 600–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico, Guatemala, Honduras, Costa Rica to Venezuela. Records: *A. Soto 1259* (INB), *D. Solano 3835* (BM, INB, MO, PMA), *M. Grayum 10360* (CR, INB, MO), *R. Aguilar 1086* (INB).

Solanum ramonense C.V.Morton & Standl.

Terrestrial shrubs. Distribution in PILA 800–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 5016* (BM, INB, MO), *A. Rodríguez 11463* (BM, INB, MO, PMA), *D. Santamaría 6513* (BM, INB, MO, PMA), *D. Solano 3885* (BM, INB, MO, PMA), *D. Solano 4138* (BM, INB, MO, PMA), *D. Solano 4150* (BM, INB, MO, PMA), *D. Solano 4883* (BM, INB, MO, PMA), *G. Davidse 29101* (CR, MO), *M. Moraga 264* (INB).

Solanum roblense Bitter

Terrestrial shrubs. Distribution in PILA 1100–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture.

Global distribution: Endemic to Costa Rica. Records: *E. Alfaro* 3980 (INB), *G. Herrera* 5903 (CR, INB, MO).

Solanum rovirosanum Donn.Sm.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Panama. Records: *A. De Sedas* 647 (PMA), *A.K. Monro* 4214 (BM, INB, MO), *A.K. Monro* 5099 (BM, INB, MO), *A.K. Monro* 5983 (PMA), *A.K. Monro* 6220 (PMA), *D. Santamaría* 7527 (PMA), *D. Santamaría* 7746 (PMA), *D. Solano* 4367 (BM, INB, MO, PMA), *D. Solano* 5436 (PMA), *J. Bittner* 1537 (INB, MO), *J. Kress* 94-4585 (MO), *N. Zamora* 2709 (CR, INB, MO).

Solanum rudemannum Dunal

Berengena cimarrona, Berenjena (CR).

Terrestrial shrubs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico, Guatemala, Honduras, Costa Rica to Ecuador, Venezuela. Records: *A. Rodríguez* 11376 (BM, INB, MO, PMA), *D. Solano* 4464 (BM, INB, MO, PMA).

Solanum schlechtendalium Walp.

Terrestrial shrubs. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Costa Rica. Records: *D. Santamaría*, Oct. 27, 2008 (*Field obs.*).

Solanum steyermarkii Carvalho

Terrestrial shrubs. Distribution in PILA 1100–1100 m, mixed forest in transition to low elevation forest. Global distribution: Guatemala, Panama, Ecuador, Peru. Records: *A.K. Monro* 5024 (BM, INB, MO).

Solanum storkii C.V.Morton & Standl.

Terrestrial shrubs. Distribution in PILA 1300–3400 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4150 (BM, INB, MO), *A.K. Monro* 4154 (BM, INB, MO), *A. Soto* 305 (INB), *A. Soto* 340 (INB), *E. Alfaro* 3956 (INB), *G. Herrera* 3734 (INB, MO), *L. Angulo* 195 (CR, INB, MO), *M.A. Thomas* 1656 (MO), *M. Moraga* 389 (INB), *S. Knapp* 10053 (BM, INB, MO), *S. Knapp* 9947 (BM, INB, MO), *S. Knapp* 9971 (BM, INB, MO).

Solanum taeniotrichum Correll

Terrestrial shrubs. Distribution in PILA 2500–3400 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 5322 (BM, INB, MO), *S. Knapp* 9995 (BM, INB, MO).

Solanum trizygum Bitter

Terrestrial herbs. Distribution in PILA 0–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica to Venezuela. Records: *A. Fernández* 756 (CR, INB, MO), *A. Fernández* 952 (CR, INB, MO), *A.K. Monro* 5441 (BM, INB, MO, PMA), *A. Rodríguez* 10823 (BM, INB, MO, PMA), *A. Rodríguez* 11668 (BM, INB, MO, PMA), *A. Rodríguez* 11773 (BM, INB, MO, PMA), *A. Rodríguez* 11946 (BM, INB, MO, PMA), *A. Soto* 1262 (INB), *D. Santamaría* 5778 (BM, INB, MO, PMA), *D. Santamaría* 6804 (BM, INB, MO, PMA), *D. Santamaría* 7267 (BM, INB, MO, PMA), *D. Solano* 3950 (BM, INB, MO, PMA), *F. González* 657 (BM, INB, MO, PMA), *G. Davidse* 29142 (CR, MO), *G. Davidse* 29181 (CR, MO), *G. Herrera* 5205 (CR, INB, MO), *G. Herrera* 5464 (INB, MO), *G. Herrera* 5517 (CR, INB, MO), *J. Bittner* 1551 (INB, MO).

Solanum umbellatum Mill.

Bodoque, Zorrillo (CR).

Terrestrial shrubs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Colombia. Records: *J. A. Duke* 13656 (MO).

Solanum vacciniiflorum Standl. & L.O. Williams

Terrestrial shrubs. Distribution in PILA 1400–3100 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, páramo. Global distribution: Costa Rica to Colombia. Records: *G. Davidse* 23982 (CR, MO), *G. Davidse* 25090 (CR, MO), *G. Davidse* 25146 (CR, MO), *G. Davidse* 25236 (CR, MO), *G. Davidse* 25488 (CR, MO), *G. Davidse* 25716 (CR, MO), *G. Davidse* 29064 (MO), *G. Davidse* 29214 (CR, MO), *G. Herrera* 6260 (CR, INB, MO), *S. Knapp* 10075 (BM, INB, MO).

Solanum velutinum Dunal

Terrestrial lianas. Distribution in PILA 100–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama, Peru to Brazil. Records: *G. Gallardo* 84 (INB).

Solanum wendlandii Hook.f.

Flor de volcán, Volcán (CR).

Terrestrial lianas. Distribution in PILA 500–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Guatemala to Costa Rica. Records: *A.K. Monro* 4802 (BM, INB, MO), *E. Alfaro*

Terrestrial herbs or shrubs. Distribution in PILA 1200–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A. Rodríguez 10908* (BM, INB, MO, PMA).

Boehmeria burgeriana Wilmot-Dear, Friis & Kravts.

Terrestrial herbs. Distribution in PILA 100–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5513* (BM, INB, MO, PMA), *A. Rodríguez 10970* (BM, INB, MO, PMA), *D. Santamaría 6317* (BM, INB, MO, PMA).

Boehmeria cylindrica (L.) Sw.

Terrestrial herbs or shrubs. Distribution in PILA 0–1100 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Panama, Argentina, Greater Antilles, Lesser Antilles. Records: *A. Rodríguez 11347* (BM, INB, MO, PMA).

Boehmeria ulmifolia Wedd.

Terrestrial shrubs. Distribution in PILA 300–2600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, dense thicket. Global distribution: Mexico to Bolivia. Records: *A.K. Monro 4219* (BM), *A.K. Monro 4673* (BM), *A.K. Monro 4815* (BM), *A.K. Monro 4834* (BM), *A. Rodríguez 10971* (BM, INB, MO, PMA), *A. Rodríguez 11267* (BM, INB, MO, PMA), *C. Hamilton 3638* (MO), *C. Hamilton 3675* (MO), *D. Solano 4080* (BM, INB, MO, PMA), *D. Solano 4177* (BM, INB, MO, PMA), *D. Solano 4445* (BM, INB, MO, PMA), *D. Solano 4528* (BM, INB, MO, PMA), *E. Alfaro 3620* (INB), *J. Bittner 1917* (INB), *N. Zamora 4201* (BM, INB, MO, PMA), *S. Bridgewater 4165* (BM, INB, MO, PMA).

ψ ***Cecropia angustifolia*** Trécul

Terrestrial trees. Distribution in PILA 1500–2000 m, mixed forest in transition to cloud forest, pasture, dense thicket. Global distribution: Mexico to Venezuela. Records: *A. Fernández 750* (INB), *A.K. Monro 4424* (BM), *A.K. Monro 5035* (BM), *D. Solano 3216* (INB), *E. Alfaro 2607* (INB), *F. Quesada 1877* (INB), *Q. Jiménez 1715* (CR, INB). Regional conservation status: Vulnerable (VU), B1ab(i, iii).

Cecropia insignis Liebm.

Guarumo blanco, Guarumo (CR).

Terrestrial trees. Distribution in PILA 100–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Honduras to Ecuador. Records:

A. Rodríguez, Jul. 21, 2007 (Field obs.), *A. Rodríguez, Nov. 1, 2007* (Field obs.), *A. Rodríguez, Sept 29, 2007* (Field obs.).

ψ ***Cecropia obtusifolia*** Bertol.

Guarumo colorado, Guarumo, Bitak (CR), Guarumo (P).

Terrestrial trees. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Ecuador. Records: *D. Santamaría, Oct. 26, 2008* (Field obs.), *D. Santamaría, Oct. 27, 2008* (Field obs.), *A. Rodríguez, Jul. 21, 2007* (Field obs.), *A. Rodríguez, Jul. 22, 2007* (Field obs.), *A. Rodríguez, Jul. 24 2007* (Field obs.), *A. Rodríguez, Jul. 25, 2007* (Field obs.), *A. Rodríguez, Nov. 1, 2007* (Field. Uses: food, handicrafts, Forraje, medicinal, Textil. Regional conservation status: Least Concern (LC).

Coussapoa villosa Poepp. & Endl.

Montano (CR).

Hemi-epiphytic shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Honduras to Bolivia. Records: *F. Quesada 1902* (INB).

□ ***Myriocarpa cordifolia*** Liebm.

Terrestrial shrubs. Distribution in PILA 1400–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Guatemala, Costa Rica, Colombia. Records: *A.K. Monro 4630* (BM, MO, PMA).

Myriocarpa longipes Liebm.

Ortiga, Estrella (CR).

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Argentina. Records: *A.K. Monro 4627* (BM), *A.K. Monro 4816* (BM), *D. Solano 4312* (BM, INB, MO, PMA).

Phenax hirtus (Sw.) Wedd.

Terrestrial herbs or shrubs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 4450* (BM), *A.K. Monro 5509* (BM, INB, MO, PMA), *A. Rodríguez 10752* (BM, INB, MO, PMA), *A. Rodríguez 11057* (BM, INB, MO, PMA), *D. Santamaría 5721* (BM, INB, MO, PMA), *D. Solano 3961* (BM, INB, MO, PMA), *D. Solano 5183* (BM, INB, MO, PMA), *E. Alfaro 3691* (INB), *J. Bittner 1831* (INB, MO), *J. Bittner*

1832 (INB), *M. Grayum* 10295 (INB).

Phenax mexicanus Wedd.

Terrestrial shrubs or trees. Distribution in PILA 800–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *A. Soto* 312 (INB), *D. Solano* 5256 (BM, INB, MO, PMA), *N. Zamora* 4168 (BM, INB, MO, PMA).

Phenax rugosus (Poir.) Wedd.

Terrestrial shrubs. Distribution in PILA 300–2300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Bolivia. Records: *A. Rodríguez* 10680 (BM, INB, MO, PMA), *C. Hamilton* 3676 (MO), *L. Acosta* 2419 (INB).

Pilea acuminata Liebm.

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Colombia. Records: *A. Rodríguez* 11367 (BM, INB, MO, PMA), *D. Solano* 4082 (BM, INB, MO, PMA).

□ ***Pilea angustifolia*** Killip

Terrestrial herbs. Distribution in PILA 1100–2400 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Peru. Records: *A. De Sedas* 584 (PMA), *A.K. Monro* 4394 (BM), *A.K. Monro* 4463 (BM), *A. Rodríguez* 10949 (BM, INB, MO, PMA), *A. Rodríguez* 11337 (BM, INB, MO, PMA), *D. Solano* 4094 (BM, INB, MO, PMA), *D. Solano* 5422 (PMA), *S. Bridgewater* 4191 (BM, INB, MO, PMA).

Pilea auriculata Liebm.

Terrestrial herbs. Distribution in PILA 500–3200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo, dense thicket. Global distribution: Mexico to Panama, Venezuela. Records: *A. Fernández* 652 (INB), *A. Fernández* 669 (CR), *A. Fernández* 979 (INB), *A.K. Monro* 4050 (BM), *A.K. Monro* 4142 (BM), *A.K. Monro* 4391 (BM), *A.K. Monro* 4439 (BM), *A.K. Monro* 5562 (BM, INB, MO, PMA), *A.K. Monro* 5769 (BM, INB, MO, PMA), *A. Rodríguez* 10641 (BM, INB, MO, PMA), *A. Rodríguez* 11069 (BM, INB, MO, PMA), *A. Soto* 317 (INB), *D. Santamaría* 5633 (BM, INB, MO, PMA), *D. Santamaría* 5679 (BM, INB, MO, PMA), *D. Santamaría* 5867 (BM, INB, MO, PMA), *D. Solano* 3843 (BM, INB, MO, PMA), *D. Solano*

4185 (BM, INB, MO, PMA), *G. Davidse* 25766 (MO), *G. Davidse* 28947 (MO), *G. Davidse* 28960 (MO), *G. Davidse* 29103 (MO), *G. Herrera* 5308 (MO), *G. Herrera* 6166 (INB), *Garwood* 1367 (MO), *J. Bittner* 1745 (INB), *M.A. Thomas* 1605 (MO), *M.A. Thomas* 1650 (MO), *S. Knapp* 10019 (BM), *S. Knapp* 9998 (BM).

Pilea chiriquina Killip

Terrestrial herbs. Distribution in PILA 1000–2200 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4296 (BM), *A.K. Monro* 4509 (BM), *A.K. Monro* 4874 (BM), *A.K. Monro* 5572 (BM, INB, MO, PMA), *A.K. Monro* 5613 (BM, INB, MO, PMA), *A.K. Monro* 5687 (BM, INB, MO, PMA), *A.K. Monro* 5768 (BM, INB, MO, PMA), *A. Rodríguez* 10726 (BM, INB, MO, PMA), *A. Rodríguez* 11066,1 (BM, INB, MO, PMA), *D. Solano* 3832 (BM, INB, MO, PMA), *D. Solano* 4096 (BM, INB, MO, PMA), *G. Herrera* 5516 (INB).

Pilea conjugalis A.K.Monro

Terrestrial herbs. Distribution in PILA 1200–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A. Rodríguez* 10764 (BM, INB, MO, PMA), *A. Rodríguez* 10985 (BM, INB, MO, PMA), *D. Santamaría* 5636 (BM, INB, MO, PMA), *D. Solano* 3986 (BM, INB, MO, PMA), *E. Alfaro* 3245 (INB), *J. Bittner* 1774 (INB).

Pilea cornmaniae Killip.

Epiphytic herbs. Distribution in PILA 1000–2500 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico, Costa Rica, Panama. Records: *A.K. Monro* 4764 (BM).

Pilea cornutocucullata Cufod.

Terrestrial herbs. Distribution in PILA 2400–3400 m, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro* 4051 (BM), *A.K. Monro* 4147 (BM), *A.K. Monro* 4166 (BM), *A.K. Monro* 4180 (BM), *E. Alfaro* 3942 (INB), *G. Davidse* 29000 (MO).

Pilea corona A.K.Monro

Epiphytic herbs. Distribution in PILA 100–1500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Endemic to Panama. Records: *A.K. Monro* 4211 (BM), *A.K. Monro* 4240 (BM), *A.K. Monro* 4347 (BM), *A.K. Monro* 4758 (BM).

Pilea costaricensis Donn.Sm.

Terrestrial herbs. Distribution in PILA 500–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4238* (BM).

Pilea dauciodora Pav. ex Wedd.

Terrestrial herbs. Distribution in PILA 1600–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A.K. Monro 4167* (BM), *A.K. Monro 5273* (BM), *B. Gamboa 1242* (INB), *G. Davidse 28723* (MO), *G. Davidse 29163* (MO), *S. Knapp 10018* (BM).

Pilea donnellsmithiana Killip

Terrestrial herbs. Distribution in PILA 600–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4341* (BM), *A. Rodríguez 11067,1* (BM, INB, MO, PMA), *J. Bittner 1436* (MO).

Pilea glabra S.Watson.

Terrestrial herbs. Distribution in PILA 400–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Honduras to Costa Rica, Colombia. Records: *G. Davidse 29146* (MO).

Pilea herniarioides (Sw.) Lindl.

Terrestrial herbs. Distribution in PILA 1500–1500 m, mixed forest in transition to cloud forest. Global distribution: USA to Panama, Greater Antilles, Lesser Antilles. Records: *D. Solano 5744* (PMA).

Pilea herrerae Al.Rodr. & A.K.Monro

Terrestrial herbs. Distribution in PILA 1100–1600 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A. Rodríguez 11066* (INB, MO).

• ***ε-PILA Pilea matama*** A.K.Monro

Terrestrial herbs. Distribution in PILA 1200–1600 m, mixed forest in transition to low elevation forest. Global distribution: Endemic to Costa Rica. Records: *A.K. Monro 5761* (BM, INB, MO, PMA), *A.K. Monro 5770* (BM, INB, MO, PMA), *A.K. Monro 5808* (BM, INB, MO, PMA), *A.K. Monro 5848* (BM, INB, MO, PMA), *Rodríguez 11448* (BM, INB, MO, PMA), *D. Solano 4670* (BM, INB, MO, PMA), *G. H Herrera 2658* (BM, MO).

Pilea microphylla (L.) Liebm.

Terrestrial herbs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Argentina. Records: *G. Gallardo 51* (CR).

Pilea pallida Killip

Terrestrial herbs. Distribution in PILA 0–1900 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4610* (BM), *A.K. Monro 5514* (BM, INB, MO, PMA), *A. Rodríguez 10828* (BM, INB, MO, PMA), *A. Rodríguez 11220* (BM, INB, MO, PMA), *A. Rodríguez 11257* (BM, INB, MO, PMA).

Pilea parietaria (L.) Blume

Terrestrial herbs. Distribution in PILA 100–2400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Guatemala to Panama, Venezuela, Greater Antilles, Lesser Antilles. Records: *C. Hamilton 3607* (MO), *C. Hamilton 773* (MO).

Pilea pittieri Killip

Terrestrial herbs. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia. Records: *A.K. Monro 5446* (BM, INB, MO, PMA), *A.K. Monro 5489* (BM, INB, MO, PMA), *A.K. Monro 5515* (BM, INB, MO, PMA), *A. Rodríguez 10623* (BM, INB, MO, PMA), *A. Rodríguez 10679* (BM, INB, MO, PMA), *A. Rodríguez 11258* (BM, INB, MO, PMA), *D. Santamaría 5810* (BM, INB, MO, PMA), *D. Santamaría 6796* (BM, INB, MO, PMA), *D. Solano 3842* (BM, INB, MO, PMA), *D. Solano 4016* (BM, INB, MO, PMA), *J. Bittner 1891* (INB).

Pilea plumulosa A.K.Monro

Terrestrial herbs. Distribution in PILA 1300–1900 m, mixed forest in transition to cloud forest. Global distribution: Costa Rica to Colombia. Records: *J. Dwyer 8768* (MO).

Pilea ptericlada Donn.Sm.

Terrestrial herbs. Distribution in PILA 0–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Honduras, Costa Rica to Colombia. Records: *A. Fernández 723* (INB), *A.K. Monro 5551* (BM, INB, MO, PMA), *A.K. Monro 5635,1* (BM, INB, MO, PMA), *A. Rodríguez 10610* (BM, INB, MO, PMA), *D. Solano 3890* (BM, INB, MO, PMA), *G. Davidse 29151* (MO), *J. Bittner 1428* (MO), *J. Bittner 1481* (MO), *J. Bittner 1896* (INB), *L.D. Gómez 23145* (MO), *R. Aguilar 1128* (INB).

Pilea pteropodon Wedd.

Terrestrial herbs. Distribution in PILA 0–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Costa Rica to Colombia, possibly Nicaragua. Records: *A.K. Monro 5445* (BM, INB, MO, PMA).

Pilea pubescens Liebm.

Vidriillo (CR).

Terrestrial herbs. Distribution in PILA 200–2100 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *D. Santamaría 6242* (BM, INB, MO, PMA), *D. Santamaría 7707* (PMA), *D. Solano 4349* (BM, INB, MO, PMA), *G. Herrera 3078* (MO), *S. Bridgewater 4149* (BM, INB, MO, PMA).

Pilea rugosissima Killip

Terrestrial herbs. Distribution in PILA 1800–2500 m, cloud forest, low elevation oak forest. Global distribution: Endemic to Panama. Records: *B. Hammel 5798* (MO).

Pilea tripartita A.K.Monro

Terrestrial herbs. Distribution in PILA 1500–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4181* (BM), *A.K. Monro 4965* (BM), *A. Rodríguez 10966* (BM, INB, MO, PMA), *D. Santamaría 5643* (BM, INB, MO, PMA), *G. Herrera 3752* (INB), *G. Herrera 6150* (INB), *S. Knapp 9931* (BM).

Pilea vulcanica Liebm.

Facultatively epiphytic herbs. Distribution in PILA 1300–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Honduras, Costa Rica to Colombia. Records: *M.A. Thomas 1645* (MO).

Pourouma minor Benoist

Chumico, Huevos de gato (CR), Uvito, Uvito de pava (P).

Hemi-epiphytic shrubs. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Honduras to Bolivia. Records: *A. Rodríguez, Jul. 25, 2007* (Field obs.). Uses: handicrafts.

Urera baccifera (L.) Gaudich ex Wedd.

Ortiga (CR).

Terrestrial herbs or shrubs. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition

to cloud forest. Global distribution: Mexico to Argentina, Greater Antilles, Lesser Antilles. Records: *A.K. Monro 4663* (BM). Uses: medicinal.

Urera caracasana (Jacq.) Gaudich ex Griseb.

Crespón, Ortiga de montaña, Ortiga, Ortiga blanca (CR).

Terrestrial shrubs or trees. Distribution in PILA 0–2500 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Honduras, Costa Rica to the Guyanas, Argentina. Records: *A.K. Monro 4241* (BM), *A.K. Monro 4344* (BM), *A.K. Monro 4346* (BM), *A.K. Monro 4392* (BM), *C. Hamilton 3631* (MO), *D. Solano 4328* (BM, INB, MO, PMA), *S. Bridgewater 4222* (BM, INB, MO, PMA). Uses: medicinal.

Urera fenestrata A.K.Monro & Al.Rodr.

Terrestrial shrubs. Distribution in PILA 0–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest, pasture. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 4425* (PMA), *A.K. Monro 4855* (PMA), *A.K. Monro 4856* (PMA), *A.K. Monro 5452* (PMA), *A. Rodríguez 10811* (PMA), *A. Rodríguez 11948* (PMA), *D. Santamaría 7083* (PMA), *D. Santamaría 7400* (PMA), *D. Solano 5367* (PMA), *D. Solano 3851* (PMA), *D. Solano 4040* (PMA), *D. Solano 4170* (PMA), *J. Lezcano 348* (PMA).

Urera lianoides A.K.Monro & Al.Rodr.

Terrestrial shrubs. Distribution in PILA 0–1200 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico, Guatemala, Honduras to Panama, Peru, Bolivia. Records: *D. Santamaría 6825* (BM, INB, MO, PMA), *D. Solano 4132* (INB).

Urera simplex Wedd.

Terrestrial shrubs. Distribution in PILA 0–2000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, dense thicket. Global distribution: Mexico to Ecuador, Venezuela. Records: *A.K. Monro 5102* (BM, INB, MO), *D. Santamaría 6142* (BM, INB, MO, PMA), *D. Santamaría 6323* (BM, INB, MO, PMA), *D. Solano 4282* (BM, INB, MO, PMA), *D. Solano 4314* (BM, INB, MO, PMA), *D. Solano 4338* (BM, INB, MO, PMA).

Urera verrucosa (Liebm.) V.W.Steinn.

Terrestrial shrubs. Distribution in PILA 1200–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico, Honduras, Costa Rica, Panama.

Records: *D. Solano 5266* (BM, INB, MO, PMA).

***Urtica leptophylla* Kunth**

Ortiga, Urraca extrangera, Chilicaste (CR).

Terrestrial herbs or shrubs. Distribution in PILA 2000–3400 m, cloud forest, low elevation oak forest, páramo. Global distribution: Pantropical. Records: *B.B. Klitgaard 796* (BM), *B.B. Klitgaard 812* (BM), *B. Gamboa 1698* (MO), *G. Davidse 23942* (CR, MO), *G. Davidse 25115* (MO), *G. Davidse 25762* (MO), *S. Knapp 10002* (BM), *S. Knapp 10065* (BM). Uses: medicinal.

VALERIANACEAE

***Valeriana laxissima* Standl. & L.O. Williams**

Terrestrial herbs. Distribution in PILA 1300–3000 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica, Panama. Records: *G. Herrera 5345* (INB).

***Valeriana prionophylla* Standl.**

Terrestrial herbs. Distribution in PILA 2500–3800 m, low elevation oak forest, páramo. Global distribution: Mexico, Guatemala, Costa Rica, Panama. Records: *A. S. Weston 10181* (MO).

***Valeriana pulchella* M. Martens & Galeotti**

Terrestrial herbs. Distribution in PILA 2500–3700 m, low elevation oak forest, páramo. Global distribution: Mexico, Costa Rica, Panama. Records: *E. Alfaro 3317* (INB), *G. Davidse 29300* (CR), *G. Davidse 29341* (MO).

***Valeriana scandens* L.**

Terrestrial herbs. Distribution in PILA 500–3300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A. Fernández 640* (INB), *A. Rodríguez 10718* (BM, INB, MO, PMA), *A. Rodríguez 11953* (BM, INB, MO, PMA), *C. Hamilton 3670* (MO), *C. Hamilton 3881* (MO), *D. Santamaría 3457* (INB), *D. Santamaría 5820* (BM, INB, MO, PMA), *D. Solano 2854* (INB), *D. Solano 3823* (BM, INB, MO, PMA), *D. Solano 3963* (BM, INB, MO, PMA), *D. Solano 4131* (BM, INB, MO, PMA), *D. Solano 5116* (BM, INB, MO, PMA), *G. Herrera 6007* (CR), *J. Bittner 1750* (INB), *M. Grayum 10317* (CR), *N. Zamora 4197* (BM, INB, MO, PMA).

VERBENACEAE

***Citharexylum affine* D. Don**

Terrestrial shrubs or trees. Distribution in PILA – m.

Global distribution: Mexico to Panama. Records: *N. Zamora 4122* (BM, INB, MO, PMA).

***Citharexylum donnellsmithii* Greenm.**

Dama, Huelenoche (CR).

Terrestrial shrubs or trees. Distribution in PILA 800–2600 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *C. Hamilton 757* (MO).

e ***Lantana camara* L.**

Cinco negritos, Cuasquite, Flor de muerto, Jaral, Mora de caballo, Soterré, Uvita, Soterré blanco, Jarilla (CR).

Terrestrial shrubs. Distribution in PILA 0–1800 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: USA to Argentina, Lesser Antilles, Greater Antilles. Records: *G. Davidse 28386* (MO). Uses: medicinal.

***Lantana hirta* Graham**

Terrestrial shrubs. Distribution in PILA 1000–3000 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *C. Hamilton 758* (MO).

***Lippia myriocephala* Schlttdl. & Cham.**

Caragra, Caraire (CR).

Terrestrial shrubs or trees. Distribution in PILA 1000–2700 m, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Panama. Records: *D. Solano 5246* (BM, INB, MO, PMA), *N. Zamora 4227* (BM, INB, MO, PMA). Uses: timber.

***Verbena litoralis* Kunth**

Verbena (CR).

Terrestrial herbs. Distribution in PILA 0–3400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Brazil to Argentina. Records: *B. Hammel 1456* (MO), *C. Hamilton 695* (MO), *D. Santamaría 4431* (INB), *E. Navarro 188* (INB), *J. Dwyer 7738* (MO). Uses: medicinal.

VIOLACEAE

***Gloospermum diversipetalum* Standl. & L.O. Williams**

Terrestrial shrubs or trees. Distribution in PILA 0–1200

m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica, Panama. Records: *A.K. Monro 6231* (PMA), *A. Rodríguez 11598* (BM, INB, MO, PMA), *D. Santamaría 6729* (BM, INB, MO, PMA).

Hybanthus galeottii (Turcz.) C.V.Morton ex L.O.Williams
Terrestrial shrubs. Distribution in PILA 500–2200 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest. Global distribution: Mexico to Panama. Records: *E. Alfaro 2172* (CR), *E. Alfaro 2273* (CR), *L. Acosta 2344* (INB), *M. Moraga 573* (INB), *Z. Fuentes 794* (INB).

Rinorea dasyadena A.Robyns

Terrestrial herbs. Distribution in PILA 0–900 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *D. Solano, Oct. 25, 2007* (Field obs.).

Viola guatemalensis W.Becker

Terrestrial herbs. Distribution in PILA 2300–3500 m, low elevation oak forest, páramo, dense thicket. Global distribution: Mexico to Panama. Records: *A.K. Monro 4152* (BM), *E. Alfaro 3972* (INB), *G. Davidse 28962* (MO).

Viola nannei Pol.

Violeta (CR).

Terrestrial herbs. Distribution in PILA 1300–3300 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Costa Rica. Records: *A.K. Monro 5290* (BM, INB, MO).

Viola scandens Humb. & Bonpl. ex Roem. & Schult.

Terrestrial shrubs. Distribution in PILA 1500–3200 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, páramo. Global distribution: Mexico to Bolivia. Records: *A. Soto 316* (INB), *E. Alfaro 4635* (INB), *G. Davidse 25712* (CR), *G. Davidse 28966* (CR), *G. Herrera 3741* (INB), *M.A. Thomas 1657* (MO).

Viola stipularis Sw.

Terrestrial shrubs. Distribution in PILA 300–3000 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Costa Rica to Ecuador, Venezuela. Records: *D. Santamaría 5887* (BM, INB, MO, PMA), *E. Alfaro 3706* (INB), *E. Alfaro 769* (INB), *G. Herrera 6210* (CR).

VITACEAE

Cissus anisophylla Lombardi

Terrestrial lianas. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Costa Rica, Ecuador to Brazil. Records: *G. Herrera 3112* (MO), *J. González 817* (MO).

Cissus biformifolia Standl.

Terrestrial lianas. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Panama. Records: *F. Quesada 1882* (INB).

Cissus erosa Rich.

Terrestrial lianas. Distribution in PILA 100–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Mexico to Paraguay. Records: *F. Quesada 1700* (INB). Uses: medicinal.

Cissus microcarpa Vahl

Picapica (CR).

Terrestrial lianas. Distribution in PILA 0–1300 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest. Global distribution: Mexico to Bolivia, Greater Antilles, Lesser Antilles. Records: *D. Solano 5502* (BM, INB, MO).

Cissus trianae Planch.

Terrestrial lianas. Distribution in PILA 1300–2600 m, mixed forest in transition to cloud forest, cloud forest, low elevation oak forest, high elevation oak forest. Global distribution: Mexico to Brazil. Records: *A. Fernández 831* (CR), *A.K. Monro 4495* (BM, INB), *E. Alfaro 2176* (CR), *F. Almeda 3521* (MO), *G. Davidse 25264* (CR), *G. Herrera 5948* (CR), *G. Herrera 6077* (CR).

Cissus verticillata (L.) Nicolson & C.E.Jarvis

Terrestrial lianas. Distribution in PILA 0–1400 m, low elevation mixed forest, mixed forest in transition to low elevation forest, mixed forest in transition to cloud forest, dense thicket. Global distribution: Tropical America. Records: *A.K. Monro 5080* (BM, INB), *A. Rodríguez 11300* (BM, INB, MO, PMA), *D. Santamaría 6538* (BM, INB, MO, PMA), *D. Solano 4691* (BM, INB, MO, PMA).

Vitis tiliifolia Humb. & Bonpl. ex Schult.

Agrá, Bejuco de agua, Bejuco negro (CR).

Terrestrial lianas. Distribution in PILA 0–1700 m, low elevation mixed forest, mixed forest in transition to low

elevation forest, mixed forest in transition to cloud forest, cloud forest. Global distribution: Mexico to Venezuela, Greater Antilles, Lesser Antilles. Records: *A. Soto 1244* (INB), *D. Santamaría 4405* (INB), *D. Solano 3213* (INB). Uses: Agroforestería, food, Edible, medicinal.

VOCHYSIACEAE

Qualea polychroma Stafleu

Terrestrial trees. Distribution in PILA 0–500 m, low elevation mixed forest. Global distribution: Panama, Venezuela, Guyanas. Records: *A. Chacón 186* (CR, INB, MO), (INB). Conservation status: Near Threatened (NT), A, B, C; c.

Vochysia allenii Standl. & L.O.Williams

Mayo, Mayo blanco, Botarrama blanco, Mayo rosado, Palo de mayo, Areno colorado, Botarrama negro, Baak, Barbachele, Barbaschele, San juanillo (CR).

Terrestrial trees. Distribution in PILA 0–1000 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Nicaragua to Colombia. Records: *R. Aguilar 1140* (INB). Uses: timber.

Vochysia jefensis A.Robyns

Terrestrial trees. Distribution in PILA 700–1600 m, low elevation mixed forest, mixed forest in transition to low elevation forest. Global distribution: Endemic to Panama. Records: *D. Santamaría, Oct. 24, 2008 (Field obs.)*, *D. Santamaría, Oct. 26, 2008 (Field obs.)*, *D. Santamaría, Oct. 27, 2008 (Field obs.)*, *D. Santamaría, Oct. 28, 2008 (Field obs.)*, *N. Zamora, Aug. 8, 2008 (Field obs.)*.