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Regional and global conservation assessments for 200 vascular plant species from Costa Rica and Panama

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Abstract

We present 200 species conservation assessments covering Costa Rica and Panama. Fifty-two of these represent global conservation assessments and 148 regional conservation assessments. Species were selected on the basis that they were present in the La Amistad Biosphere Reserve and deemed to be Keystone species for the reserve. We include basic taxonomic information, local names, uses, maps of the Extension of Occurrence and Area of Occupancy together with a discussion of the threats for each of the species assessed.

Key words: Extent of Occurrence, Area of Occupancy, IUCN Criteria 3.1, keystone species, La Amistad Biosphere Reserve, UNESCO World Heritage Site

Introduction

As part of a Darwin Initiative funded collaboration between the Instituto Nacional de Biodiversidad, Costa Rica (INBio), Universidad de Panamá (PMA), Autoridad Nacional del Ambiente, Panama (ANAM), Sistema Nacional de Áreas de Conservación de Costa Rica (SINAC) and The Natural History Museum, London (BM) (Darwin Initiative Project 15-027) species conservation assessments were undertaken for two hundred species designated as ‘Keystone’ for the La Amistad Biosphere Reserve (LABR). Regional assessments were undertaken for Costa Rica and Panama according to criteria established by the IUCN (IUCN 2001, version 3.1). The justification for targeting LABR is that the Biosphere Reserve is a UNESCO World Heritage Site and currently the focus of the development of a binational management plan by ANAM in Panama and SINAC in Costa Rica. In addition UNESCO report (UNESCO World Heritage Centre; IUCN 2010) a number of active threats to LABR and the property may be designated a ‘Park in Peril’ in the near future. The aim of these assessments is to inform and contribute to the decision-making process underpinning the management of La Amistad Binational Park and Biosphere Reserve.

LABR comprises 650,000 ha of continuous natural vegetation that represents some of the most biodiversity-rich landscape in the World (N.A. Brummitt, pers. comm.) and an important component of the Gran Cordillera de Talamanca peoples’ indigenous territory (Borge 2004). LABR forms the eastern 50% of the Talamanca mountain range connecting the Pacific and Caribbean coasts of Costa Rica and Panama, LABR indigenous territories and 7 protected areas in Costa Rica and Panama, the biggest of which is La Amistad Binational Park. The Park is split between Costa Rica and Panama and 3/4 is of Caribbean drainage. At regional level LABR represents the core of the third largest biosphere reserve in Central America. The highest points within LABR are Cerro Chirripó in Costa Rica (3,819 m) and Cerro Fábrega in Panama (3,335 m). Whilst a full floristic inventory of LABR does not exist, a checklist of La Amistad Binational Park (Monro *et al.* in press) records 3,089 species, 481 of which are monilophytes and 2,610 seed plants.

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. We use this definition, however, as it conveys the general notion that some species have a greater impact on ecosystem processes than others and that this distinction will support the development of a management plan for LABR. Keystone status was assigned based on the abundance, biomass and an estimate of the extent of interactions with other members of the ecosystem. Two hundred keystone plant species for LABR were identified using published taxonomic treatments and field observations combined with the authors’ personal knowledge of the natural history of the species.

Methodology

Georeference data from point locality observations for the target species was used to calculate Extensions of Occurrence and to predict Areas of Occupancy within Costa Rica and Panama using a genetic algorithm for rule-set production (GARP) analysis (Hijmans *et al.* 2005). The predicted distributions calculated using genetic algorithm for rule-set production GARP were subsequently projected onto a land use map of Costa Rica and Panama enabling the Extension of Occurrence and Area of Occupancy criteria to be calculated and inferred, as required by the IUCN conservation assessment methodology (IUCN 2001; Table 1). Our methodology (see below) differs from that outlined by the IUCN (2001) in that we use predicted as well as observed distributions for the calculation of the Extent of Occurrence and Area of Occupancy. In addition, with respect to the Area of Occupancy we do not calculate the area as the sum of grid cells but as the absolute area to the nearest hectare. The justification for this modification of the methodology is that the documentation of plant species distribution in the study area is poor and inconsistent. For example, species composition of the Talamanca Mountains is documented for the Pacific slopes, whilst the Caribbean slopes have remained largely undocumented (Monro *et al.* in press).

Extent of Occurrence is defined as the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy (IUCN 2001). This can be considered to be the potential distribution of a species expressed in km² and was calculated from recorded observations of a species across the area assessed (Costa Rica and Panama).

Area of occupancy is defined as the area within the Extension of Occurrence that is occupied by a taxon, excluding cases of vagrancy. The measure reflects that a taxon does not usually occur throughout the area of its Extent of Occurrence, which may contain unsuitable or unoccupied habitats. Direct measures of the Area of Occupancy would require extensive surveys in areas that are remote and difficult to access and resources to support such activities are currently not available. A surrogate for direct measures of the Area of Occupancy is to predict the distribution of species based on climate and ecological measures associated with existing reliable point observations for a species distribution. These measures can then be modelled and a predicted distribution calculated. We used the GARP and the DIVA-GIS (Hijmans *et al.* 2005) computer programmes to predict the Areas of Occupancy of the species.

GARP is a programme that generates a model of the ecological niche for a species based on the range of environmental conditions known for each point locality observation used. This ecological niche model is then applied to an Extension of Occurrence to define a probable Area of Occupancy for the species. GARP interactively searches for correlations between the presence and absence of a species and climate parameters using four different sets of rules: atomic, logical regression, rule range and negative rule range. Each rule set provides a prediction or model of the distribution of that species and the final prediction is based on the results of these four models. The output model from GARP is converted to raster format so that predicted distributions can be visualized and projected on land use and vegetation cover using a geographical information system. This conversion was undertaken using DIVA-GIS and the forest cover and land use data was based on the GRUAS II Land use map for Costa Rica (INBio 2006) and Land use map for Panama (ANAM 2000).

Sources of Data

Taxonomic information. The following taxonomic sources of information on the species present in LABR were used: published volumes of *Manual de Plantas de Costa Rica* (Hammel *et al.* 2003a, 2003b, 2004, 2007), *Flora Costaricensis* (Burger 1971, 1977, 1978, 1982, 1988, 1991, 1995, 1999, 2000, Burger & Pohl 1978), *Flora of Panama* (Rizzini 1960, Robyns 1964a, 1964b, 1967a, 1967b, 1967c, 1968), *Flora de Nicaragua* (Stevens *et al.* 2001a, 2001b, 2001c), *Catálogo de las Plantas Vasculares de Panamá* (Correa *et al.* 2004), and identifications sourced from current monographic treatments, notably the *Flora Neotropica* series. Reveal (2010) proposes a checklist of vascular plant families that embodies the proposed APG 3 (2009) classification for Angiosperms (Magnoliidae) and this is applied here. This classification is used as it is monophyletic, coherent, and in all likelihood stable and robust.

Distribution data. The following sources of distribution information on the species present in LABR were used: TROPICOS database (<http://mobot.mobot.org/W3T/Search/vast.html>), the INBio Atta database (<http://atta.inbio.ac.cr/>), the University of Panama Herbarium Brahms database and the Herbarium of the National Museum of Costa Rica database (<http://ceiba.inbio.ac.cr:1079/pres/PresentationServlet?action=home>). The number of point locality observations for the 200 Keystone species identified for LABR across their range within Costa Rica and Panama was 16,250 and includes both herbarium collections and field observations by the authors. The coordinates of these records were reviewed to ensure consistency of coordinate systems and that the coordinates were congruent with the geographical label information.

Climate, environmental and ecological input data. Climate data was sourced from Worldclim v1.4 using point locality observations. Costa Rican and Panamanian Worldclim data was sourced for Datum WGS84, zones 22 and 23, at a raster resolution of 30 seconds, corresponding to 0.86 km² at the equator. The data consists of Elevation and the following 19 variables: average annual temperature (BIO1), range of average diurnal temperature (the mean monthly difference between maximum and minimum diurnal temperatures, BIO2), isothermality (BIO3), seasonal deviation from the mean temperature (BIO4), maximum temperature in the hottest month (BIO5), minimum temperature in the coldest month (BIO6), range of annual temperatures (BIO7), mean temperature in the three most humid months (BIO8), mean temperature in the three driest months (BIO9), mean temperature in the three hottest months (BIO10), mean temperature in the three coldest months (BIO11), annual precipitation (BIO12), precipitation in the most humid month (BIO13), precipitation in the driest month (BIO14), coefficient of seasonal variation in precipitation (BIO15), precipitation in the three most humid months (BIO16), precipitation in the three driest months (BIO17), precipitation in the three hottest months (BIO18), precipitation in the three coolest months (BIO19).

Implementation of IUCN criteria for conservation assessments.

Together with land use information and observations by the authors in the field, the Extension of Occurrence and Area of Occupancy were used to assess the conservation status of the target species according to criteria established by IUCN (2001, version 3.1) and summarised in Table 1. IUCN criteria recognize that in the absence of high quality population size data this information can be inferred from factors related or correlated to population abundance or distribution. In the case of this study, changes in population size are based on the surrogate of Area of Occupancy whereby change is estimated by superimposing the Area of Occupancy on a current map of land use and taking the non forest cover as a reduction in available Area of Occupancy and hence population. It is assumed that, prior to human impact, forest cover was the dominant land form for Costa Rica and Panama up to an elevation of 3000 m.

TABLE 1. Summary of IUCN criteria used to evaluate threatened categories (IUCN, 2010)
 Summary of the five criteria (A–E) used to evaluate if a taxon belongs in a threatened category (Critically Endangered, Endangered or Vulnerable).

Use any of the criteria A–E	Critically Endangered	Endangered	Vulnerable
A. Population reduction			
Declines measured over the longer of 10 years or 3 generations			
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%
A1. Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased, based on and specifying any of the following:			
(a) direct observation			
(b) an index of abundance appropriate to the taxon			
(c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality			
(d) actual or potential levels of exploitation			
(e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.			
A2. Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) to (e) under A1.			
A3. Population reduction projected or suspected to be met in the future (up to a maximum of 100 years) based on (b) to (e) under A1.			
A4. An observed, estimated, inferred, projected or suspected population reduction (up to a maximum of 100 years) where the time period must include both the past and the future, and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) to (e) under A1.			
B. Geographic range in the form of either B1 (extent of occurrence) AND/OR B2 (area of occupancy)			
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following:			
(a) Severely fragmented, OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals.			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals.			
C. Small population size and decline			
Number of mature individuals	< 250	< 2,500	< 10,000
AND either C1 or C2:			
C1. An estimated continuing decline of at least: (up to a max. of 100 years in future)	25% in 3 years or 1 generation	20% in 5 years or 2 generations	10% in 10 years or 3 generations
C2. A continuing decline AND (a) and/or (b):			
(a i) Number of mature individuals in each subpopulation:	< 50	< 250	< 1,000
or			
(a ii) % individuals in one subpopulation =	90–100%	95–100%	100%
(b) Extreme fluctuations in the number of mature individuals.			
D. Very small or restricted population			
Either:			
Number of mature individuals	< 50	< 250	D1. < 1,000
VU D2. Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.			D2. typically: AOO < 20 km ² or number of locations ≤ 5
E. Quantitative Analysis			
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations (100 years max.)	≥ 20% in 20 years or 5 generations (100 years max.)	≥ 10% in 100 years

Additional criteria

In addition to the criteria required by the IUCN (2001) that are outlined above, we include an additional five which, in combination, we believe to be useful in confirming or downgrading the threat category generated by our application of the IUCN criteria *ad hoc*.

- Global distribution. We assume that the wider the distribution of a species outside of the region assessed, the greater the probability is of the species surviving in the region under assessment. The mechanism for this being the dispersal of seed through natural means or

human intervention. Where a species had a significant proportion (50% or more) of its Extension of Occurrence outside of Costa Rica and Panama, then this was considered a factor contributing to a decision to revise the status to a less threatened category. Where the majority of the Extension of Occurrence was restricted to Costa Rica and Panama then this was considered a factor contributing to the decision to leave the threat status unchanged.

- Proportion of Extension of Occurrence in a national protected area. We assume that national protection of an area reduces the risk of habitat destruction. Evidence for this can be seen from the Land Use maps of Costa Rica (INBio 2006) and Panama (ANAM 2000). Where 50% or more of the Extension of Occurrence fell in a state protected area this was considered a factor contributing to a decision to revise the status to a less threatened category. Where 30% or less of the Extension of Occurrence was located in a state protected area, this was considered a factor contributing to a decision to leave the threat status unchanged.
- Elevation range. Holdridge (1947) demonstrated that Elevation is a major determinant of vegetation type because of its influence on rainfall, temperature and therefore evapotranspiration. Indeed Holdridge's Lifezone classes for Costa Rica and Panama are very closely correlated with elevation, together with gross rainfall patterns (Pacific dry, Caribbean wet). We assume that the elevation range of a species is an indicator of habitat plasticity in a species, species with narrow elevation ranges being found in fewer habitats than species with broad elevation ranges. This will give some indication of vulnerability to habitat loss and transformation and ultimately of resistance to climate change. We arbitrarily designate an elevation range of 500 m or less as 'narrow' and of 1000 m or more as 'broad'. Narrow elevational distributions were considered a factor contributing to a decision to leave the threat status unchanged. Broad elevational distributions were considered a factor contributing to a decision to revise the status to a less threatened category.
- Field observations of rarity. The experience of the authors in collecting and observing the species in the field was used to designate some of the species as locally 'scarce' or 'abundant' in their Area of Occupancy. Where a species was designated as locally scarce this was considered a factor contributing to a decision to leave the threat status unchanged. Where a species was designated as locally abundant this was considered a factor contributing to a decision to revise the status to a less threatened category.
- Uses. Where a species is used by local communities or businesses then this will likely have an impact on the population size of that particular species, currently and in the future. Where that use is unsustainable, timber extraction or palm heart harvesting for example, then this was considered a factor contributing to a decision to leave the threat status unchanged. Where the use is seen to promote that species population, by favouring the propagation or survival of a sustainably harvested fruit for example, then this was considered a factor contributing to a decision to revise the status to a less threatened category.

Presentation of the species conservation assessments

The species conservation species assessments consist of the following information:

Genus species author (Family according to the APG 3 classification)

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

Habit is based on field observations by the authors and descriptions of the plants from collection labels. Plant form was classified using a modification of Marín's (2007) classification of life forms. We present our

classification of plant form as binomial combinations based on Marin'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, facultatively epiphytic, hemi-epiphytic, 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.

Sexual system. It has been assumed (Aizen *et al.* 2002) that the sexual system of a plant will influence its ability to sustain reproduction and to maintain genetic diversity in fragmented landscapes such as those found in Costa Rica and Panama. In particular, pollination and reproductive success of self-incompatible species is more likely to decline with habitat fragmentation than the pollination and reproductive success of self-compatible species, and pollination and reproductive success of specialist species will be more affected than the pollination and reproduction of generalist species. A recent meta data analysis (Aizen *et al.* 2002) does not support either of these assumptions and whilst not disproving them there is no basis for using such assumptions in the generation of conservation assessments. We have, however, included information on sexual systems as relevant natural history information for the species.

Uses: economic, medicinal, handicrafts.

Global distribution. This was based on a synthesis of country records from TROPICOS, contemporary monographic treatments and regional floras such as *Flora Mesoamericana*, *Flora de Nicaragua* and the *Manual de Plantas de Costa Rica*. Collection of the above information enabled the identification of species endemic to PILA, Costa Rica and Panama. Species were considered as endemic where no records were known from outside of PILA (as delimited in the introduction).

Number of herbarium collections known from Costa Rica and Panama. The abundance of herbarium collections for a species is the product of the accessibility of its Area of Occupancy to collectors, ease of collection, distinctiveness or visibility of the species in addition to the abundance of the species. The number of herbarium collections for a species therefore provides a very crude and subjective measure of that species abundance which, although not used in the generation of the conservation assessments, may be of interest to the users of these assessments.

Elevational range for Costa Rica and Panama. The proportion of the regional Extension of Occurrence within protected areas.

The final Regional or Global threat category.

Map of the Extension of Occurrence.

Rationale. The discussion presents the Extension of Occurrence, the loss of Extension of Occurrence and Area of Occupancy for Costa Rica and Panama, threat category and justifying criteria calculated using the IUCN (2001, version 3.1) methodology. This is followed by a list of the additional criteria associated with each species in order of those which support the initial threat category, followed by those which counter the initial threat category and this, in turn, is followed by the revised threat category.

Regional and global species conservation assessments

TABLE 2. List of all of the species assessed: their Threat category and Criteria for which Regional or Global conservation assessments are presented. The list is presented in alphabetical order of the binomial.

Family	Binomial	Geographical coverage	Threat category	Criteria
Fabaceae	<i>Abarema idiopoda</i>	Regional	Near Threatened (NT)	
Euphorbiaceae	<i>Acalypha diversifolia</i>	Regional	Least Concern (LC)	
Euphorbiaceae	<i>Adenophaedra grandifolia</i>	Regional	Near Threatened (NT)	
Bromeliaceae	<i>Aechmea mariae-reginae</i>	Regional	Vulnerable (NT)	
Bromeliaceae	<i>Aechmea veitchii</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Asteraceae	<i>Ageratina kupperi</i>	Global	Endangered (EN)	B 1ab(i,iii)
Euphorbiaceae	<i>Alchornea latifolia</i>	Regional	Near Threatened (NT)	
Juglandaceae	<i>Alfaroa costaricensis</i>	Regional	Near Threatened (NT)	
Betulaceae	<i>Alnus acuminata</i>	Regional	Near Threatened (NT)	
Alzateaceae	<i>Alzatea verticillata</i>	Regional	Vulnerable (VU)	B 1ab(i, iii)
Araceae	<i>Anthurium bittneri</i>	Global	Endangered (EN)	B 1ab(i,iii)
Rubiaceae	<i>Arachnothryx buddleioides</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Arcytophyllum lavarum</i>	Global	Endangered (EN)	B 1ab(i,iii)
Primulaceae	<i>Ardisia capitellata</i>	Global	Endangered (EN)	B 1ab(i,iii)
Primulaceae	<i>Ardisia compressa</i>	Regional	Least Concern (LC)	
Primulaceae	<i>Ardisia palmana</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Primulaceae	<i>Ardisia quadrata</i>	Global	Endangered (EN)	B 1ab(i,iii)
Melastomataceae	<i>Axinaea costaricensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Lauraceae	<i>Beilschmiedia alloiophylla</i>	Regional	Near Threatened (NT)	
Melastomataceae	<i>Bellucia pentamera</i>	Regional	Least Concern (LC)	
Sapindaceae	<i>Billia rosea</i>	Regional	Near Threatened (NT)	
Melastomataceae	<i>Blakea grandiflora</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Papaveraceae	<i>Bocconia frutescens</i>	Regional	Least Concern (LC)	
Brunelliaceae	<i>Brunellia costaricensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Scrophulariaceae	<i>Buddleja nitida</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Scrophulariaceae	<i>Buddleja skutchii</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Malpighiaceae	<i>Byrsonima herrerae</i>	Global	Endangered (EN)	B 1ab(i,iii)
Marantaceae	<i>Calathea crotalifera</i>	Regional	Least Concern (LC)	
Icacinaeae	<i>Calatola costaricensis</i>	Regional	Near Threatened (NT)	
Arecaceae	<i>Calyptrogyne ghiesbreghtiana</i>	Regional	Near Threatened (NT)	
Ericaceae	<i>Cavendishia atrovioleacea</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Ericaceae	<i>Cavendishia bracteata</i>	Regional	Least Concern (LC)	
Urticaceae	<i>Cecropia angustifolia</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Urticaceae	<i>Cecropia obtusifolia</i>	Regional	Least Concern (LC)	
Meliaceae	<i>Cedrela odorata</i>	Regional	Near Threatened (NT)	
Meliaceae	<i>Cedrela tonduzii</i>	Regional	Near Threatened (NT)	
Melastomataceae	<i>Chaetolepis cufodontisii</i>	Global	Endangered (EN)	B 1ab(i,iii)
Arecaceae	<i>Chamaedorea costaricana</i>	Regional	Near Threatened (NT)	

..... continued on the next page

TABLE 2 (continued)

Family	Binomial	Geographical coverage	Threat category	Criteria
Arecaceae	<i>Chamaedorea tepejilote</i>	Regional	Near Threatened (NT)	
Clusiaceae	<i>Chrysochlamys allenii</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Poaceae	<i>Chusquea costaricensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Poaceae	<i>Chusquea subtessellata</i>	Global	Endangered (EN)	A2a, B 1ab(i,iii)
Poaceae	<i>Chusquea talamancensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Rubiaceae	<i>Cinchona pubescens</i>	Regional	Near Threatened (NT)	
Lauraceae	<i>Cinnamomum triplinerve</i>	Regional	Near Threatened (NT)	
Clethraceae	<i>Clethra costaricensis</i>	Regional	Near Threatened (NT)	
Clethraceae	<i>Clethra gelida</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Pentaphragmalaceae	<i>Cleyera theoides</i>	Regional	Near Threatened (NT)	
Fabaceae	<i>Cojoba costaricensis</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Ericaceae	<i>Comarostaphylis arbutoides</i>	Regional	Near Threatened (NT)	
Myristicaceae	<i>Compsonera excelsa</i>	Global	Vulnerable (VU)	A2c
Melastomataceae	<i>Conostegia xalapensis</i>	Regional	Least Concern (LC)	
Cornaceae	<i>Cornus disciflora</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Cosmibuena valerioi</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Euphorbiaceae	<i>Croton draco</i>	Regional	Least Concern (LC)	
Sapindaceae	<i>Cupania glabra</i>	Regional	Near Threatened (NT)	
Araliaceae	<i>Dendropanax arboreus</i>	Regional	Near Threatened (NT)	
Asteraceae	<i>Diplostegium costaricense</i>	Global	Endangered (EN)	B 1ab(i,iii)
Ericaceae	<i>Disterigma humboldtii</i>	Regional	Near Threatened (NT)	
Winteraceae	<i>Drimys granadensis</i>	Regional	Near Threatened (NT)	
Clusiaceae	<i>Dystovomita paniculata</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Elaeagia auriculata</i>	Regional	Near Threatened (NT)	
Grossulariaceae	<i>Escallonia myrtilloides</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Arecaceae	<i>Euterpe precatória</i>	Regional	Near Threatened (NT)	
Moraceae	<i>Ficus caldasiana</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Moraceae	<i>Ficus cervantesiana</i>	Regional	Near Threatened (NT)	
Moraceae	<i>Ficus tonduzii</i>	Regional	Near Threatened (NT)	
Moraceae	<i>Ficus tuerckheimii</i>	Regional	Near Threatened (NT)	
Moraceae	<i>Ficus velutina</i>	Regional	Near Threatened (NT)	
Pentaphragmalaceae	<i>Freziera candicans</i>	Regional	Near Threatened (NT)	
Loranthaceae	<i>Gaiadendron punctatum</i>	Regional	Near Threatened (NT)	
Clusiaceae	<i>Garcinia madruno</i>	Regional	Near Threatened (NT)	
Garryaceae	<i>Garrya laurifolia</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Arecaceae	<i>Geonoma edulis</i>	Regional	Near Threatened (NT)	
Theaceae	<i>Gordonia brandegeei</i>	Regional	Near Threatened (NT)	
Meliaceae	<i>Guarea kunthiana</i>	Regional	Near Threatened (NT)	
Meliaceae	<i>Guarea microcarpa</i>	Regional	Near Threatened (NT)	
Meliaceae	<i>Guarea rhopalocarpa</i>	Regional	Vulnerable (VU)	A2cd

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TABLE 2 (continued)

Family	Binomial	Geographical coverage	Threat category	Criteria
Annonaceae	<i>Guatteria oliviformis</i>	Global	Vulnerable (VU)	B1ab(i,iii)
Annonaceae	<i>Guatteria tamamancana</i>	Global	Endangered (EN)	B1ab(i,iii)
Rubiaceae	<i>Guettarda crispiflora</i>	Regional	Vulnerable (VU)	A2c
Gunneraceae	<i>Gunnera insignis</i>	Regional	Near Threatened (NT)	
Gunneraceae	<i>Gunnera tamamancana</i>	Global	Endangered (EN)	B1ab(i,iii)
Euphorbiaceae	<i>Gymnanthes riparia</i>	Regional	Vulnerable (VU)	A2c
Malvaceae	<i>Hampea appendiculata</i>	Regional	Least Concern (LC)	
Chloranthaceae	<i>Hedyosmum bonplandianum</i>	Regional	Least Concern (LC)	
Heliconiaceae	<i>Heliconia latispatha</i>	Regional	Least Concern (LC)	
Moraceae	<i>Helicostylis towarensis</i>	Regional	Near Threatened (NT)	
Malvaceae	<i>Heliocarpus appendiculatus</i>	Regional	Least Concern (LC)	
Rosaceae	<i>Hesperomeles obtusifolia</i>	Regional	Vulnerable (VU)	B1ab(i,iii)
Phyllanthaceae	<i>Hieronyma oblonga</i>	Regional	Near Threatened (NT)	
Humiriaceae	<i>Humiriastrum diguense</i>	Regional	Vulnerable (VU)	A2cd
Aquifoliaceae	<i>Ilex lamprophylla</i>	Regional	Near Threatened (NT)	
Fabaceae	<i>Inga exalata</i>	Global	Endangered (EN)	A2c, B1ab(i,iii)
Fabaceae	<i>Inga longispica</i>	Global	Vulnerable (VU)	B1ab(i,iii)
Fabaceae	<i>Inga oerstediana</i>	Regional	Near Threatened (NT)	
Apocynaceae	<i>Lacmellea panamensis</i>	Regional	Near Threatened (NT)	
Melastomataceae	<i>Leandra dichotoma</i>	Regional	Least Concern (LC)	
Melastomataceae	<i>Leandra grandifolia</i>	Regional	Least Concern (LC)	
Chrysobalanaceae	<i>Licania jefensis</i>	Global	Vulnerable (VU)	B1ab(i,iii)
Cannabaceae	<i>Lozanella enantiophylla</i>	Regional	Least Concern (LC)	
Flacourtiaceae	<i>Macrohasseltia macroterantha</i>	Regional	Near Threatened (NT)	
Magnoliaceae	<i>Magnolia poasana</i>	Global	Vulnerable (VU)	B1ab(i,iii)
Magnoliaceae	<i>Magnolia sororum</i>	Global	Vulnerable (VU)	B1a
Piperaceae	<i>Manekia naranjoana</i>	Regional	Near Threatened (NT)	
Celastraceae	<i>Maytenus woodsonii</i>	Global	Endangered (EN)	B1ab(i,iii)
Sabiaceae	<i>Meliosma grandiflora</i>	Global	Vulnerable (VU)	A2c
Metteniusaceae	<i>Metteniusa tessmanniana</i>	Regional	Vulnerable (VU)	B1ab(i,iii)
Melastomataceae	<i>Miconia prasina</i>	Regional	Near Threatened (NT)	
Melastomataceae	<i>Miconia tonduzii</i>	Regional	Least Concern (LC)	
Sapotaceae	<i>Micropholis crotonoides</i>	Regional	Near Threatened (NT)	
Sapotaceae	<i>Micropholis melinoniana</i>	Regional	Near Threatened (NT)	
Araceae	<i>Monstera adansonii</i>	Regional	Near Threatened (NT)	
Malvaceae	<i>Mortoniendron abelianum</i>	Global	Endangered (EN)	B1ab(i,iii)
Polygonaceae	<i>Muehlenbeckia tamnifolia</i>	Regional	Near Threatened (NT)	
Apiaceae	<i>Myrrhidendron donnellsmithii</i>	Regional	Vulnerable (VU)	B1ab(i,iii)
Myrsinaceae	<i>Myrsine coriacea</i>	Regional	Near Threatened (NT)	
Loasaceae	<i>Nasa speciosa</i>	Global	Endangered (EN)	B1ab(i,iii)

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TABLE 2 (continued)

Family	Binomial	Geographical coverage	Threat category	Criteria
Moraceae	<i>Naucleopsis naga</i>	Regional	Near Threatened (NT)	
Lauraceae	<i>Nectandra cufodontisii</i>	Regional	Near Threatened (NT)	
Lauraceae	<i>Nectandra membranacea</i>	Regional	Near Threatened (NT)	
Lauraceae	<i>Nectandra reticulata</i>	Regional	Near Threatened (NT)	
Nyssaceae	<i>Nyssa talamancana</i>	Global	Endangered (EN)	B 1ab(i,iii)
Lauraceae	<i>Ocotea endresiana</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Lauraceae	<i>Ocotea insularis</i>	Regional	Near Threatened (NT)	
Lauraceae	<i>Ocotea stenoneura</i>	Regional	Near Threatened (NT)	
Juglandaceae	<i>Oreomunnea mexicana</i>	Regional	Near Threatened (NT)	
Araliaceae	<i>Oreopanax oerstedianus</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Araliaceae	<i>Oreopanax xalapensis</i>	Regional	Near Threatened (NT)	
Myristicaceae	<i>Otoba novogranatensis</i>	Regional	Near Threatened (NT)	
Malvaceae	<i>Pachira aquatica</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Palicourea adusta</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Rubiaceae	<i>Palicourea salicifolia</i>	Global	Endangered (EN)	B 1ab(i,iii)
Proteaceae	<i>Panopsis costaricensis</i>	Regional	Near Threatened (NT)	
Ericaceae	<i>Pernettya prostrata</i>	Regional	Near Threatened (NT)	
Dipentodontaceae	<i>Perrottetia longistylis</i>	Regional	Near Threatened (NT)	
Lauraceae	<i>Persea schiedeana</i>	Regional	Least Concern (LC)	
Phyllonomaceae	<i>Phyllonoma ruscifolia</i>	Regional	Near Threatened (NT)	
Piperaceae	<i>Piper auritum</i>	Regional	Least Concern (LC)	
Lauraceae	<i>Pleurothyrium palmanum</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Podocarpaceae	<i>Podocarpus oleifolius</i>	Regional	Near Threatened (NT)	
Arecaceae	<i>Prestoea acuminata</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Rosaceae	<i>Prunus brachybotrya</i>	Regional	Near Threatened (NT)	
Rosaceae	<i>Prunus fortunensis</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Moraceae	<i>Pseudolmedia oxyphyllaria</i>	Regional	Near Threatened (NT)	
Moraceae	<i>Pseudolmedia spuria</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Psychotria angustiflora</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Psychotria chagensis</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Psychotria elata</i>	Regional	Near Threatened (NT)	
Rubiaceae	<i>Psychotria graciliflora</i>	Regional	Near Threatened (NT)	
Bromeliaceae	<i>Puya dasylirioides</i>	Global	Endangered (EN)	B 1ab(i,iii)
Bromeliaceae	<i>Puya floccosa</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Fagaceae	<i>Quercus bumelioides</i>	Regional	Near Threatened (NT)	
Fagaceae	<i>Quercus costaricensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Fagaceae	<i>Quercus insignis</i>	Regional	Near Threatened (NT)	
Salicaceae	<i>Quercus salicifolia</i>	Regional	Near Threatened (NT)	
Rhamnaceae	<i>Rhamnus oreodendron</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Grossulariaceae	<i>Ribes costaricensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Rubiaceae	<i>Rogiera amoena</i>	Regional	Near Threatened (NT)	

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TABLE 2 (continued)

Family	Binomial	Geographical coverage	Threat category	Criteria
Proteaceae	<i>Roupala montana</i>	Regional	Near Threatened (NT)	
Adoxaceae	<i>Sambucus canadensis</i>	Regional	Near Threatened (NT)	
Euphorbiaceae	<i>Sapium glandulosum</i>	Regional	Least Concern (LC)	
Ericaceae	<i>Satyria warszewiczii</i>	Regional	Near Threatened (NT)	
Actinidiaceae	<i>Saurauia montana</i>	Regional	Near Threatened (NT)	
Actinidiaceae	<i>Saurauia pittieri</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Actinidiaceae	<i>Saurauia rubiformis</i>	Regional	Near Threatened (NT)	
Cucurbitaceae	<i>Sechium pittieri</i>	Regional	Near Threatened (NT)	
Asteraceae	<i>Senecio cooperi</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Asteraceae	<i>Senecio costaricensis</i>	Global	Endangered (EN)	B 1ab(i,iii)
Asteraceae	<i>Senecio firmipes</i>	Global	Endangered (EN)	B 1ab(i,iii)
Elaeocarpaceae	<i>Sloanea ampla</i>	Regional	Near Threatened (NT)	B 1ab(i,iii)
Gesneriaceae	<i>Solenophora calycosa</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Rubiaceae	<i>Sommeria donnell-smithii</i>	Regional	Near Threatened (NT)	
Ericaceae	<i>Sphyrospermum buxifolium</i>	Regional	Near Threatened (NT)	
Styracaceae	<i>Styrax glabrescens</i>	Regional	Near Threatened (NT)	
Clusiaceae	<i>Symphonia globulifera</i>	Regional	Near Threatened (NT)	
Pentaphylacaceae	<i>Symplocarpon purpusii</i>	Regional	Vulnerable (VU)	A2c
Symplocaceae	<i>Symplocos serrulata</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Magnoliaceae	<i>Talauma gloriensis</i>	Regional	Near Threatened (NT)	
Anacardiaceae	<i>Tapirira mexicana</i>	Regional	Near Threatened (NT)	
Burseraceae	<i>Tetragastris panamensis</i>	Regional	Near Threatened (NT)	
Euphorbiaceae	<i>Tetrorchidium euryphyllum</i>	Regional	Least Concern (LC)	
Ticodendraceae	<i>Ticodendron incognitum</i>	Regional	Least Concern (LC)	
Melastomataceae	<i>Topobea maurofernandeziana</i>	Regional	Least Concern (LC)	
Meliaceae	<i>Trichilia havanensis</i>	Regional	Least Concern (LC)	
Staphyleaceae	<i>Turpinia occidentalis</i>	Regional	Near Threatened (NT)	
Myrtaceae	<i>Ugni myricoides</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Ulmaceae	<i>Ulmus mexicana</i>	Regional	Near Threatened (NT)	
Ericaceae	<i>Vaccinium consanguineum</i>	Global	Near Threatened (NT)	
Adoxaceae	<i>Viburnum costaricanum</i>	Global	Near Threatened (NT)	
Adoxaceae	<i>Viburnum stellatotentosum</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Myristicaceae	<i>Virola guatemalensis</i>	Regional	Near Threatened (NT)	
Hypericaceae	<i>Vismia baccifera</i>	Regional	Least Concern (LC)	
Cunoniaceae	<i>Weinmannia fagaroides</i>	Regional	Vulnerable (VU)	B 1ab(i,iii)
Cunoniaceae	<i>Weinmannia karsteniana</i>	Regional	Endangered (EN)	B 1ab(i,iii)
Cunoniaceae	<i>Weinmannia pinnata</i>	Regional	Near Threatened (NT)	
Malvaceae	<i>Wercklea insignis</i>	Global	Vulnerable (VU)	B 1ab(i,iii)
Malvaceae	<i>Wercklea woodsonii</i>	Global	Endangered (EN)	B 1ab(i,iii)
Rutaceae	<i>Zanthoxylum melanostictum</i>	Regional	Near Threatened (NT)	
Celastraceae	<i>Zinowiewia integerrima</i>	Regional	Near Threatened (NT)	

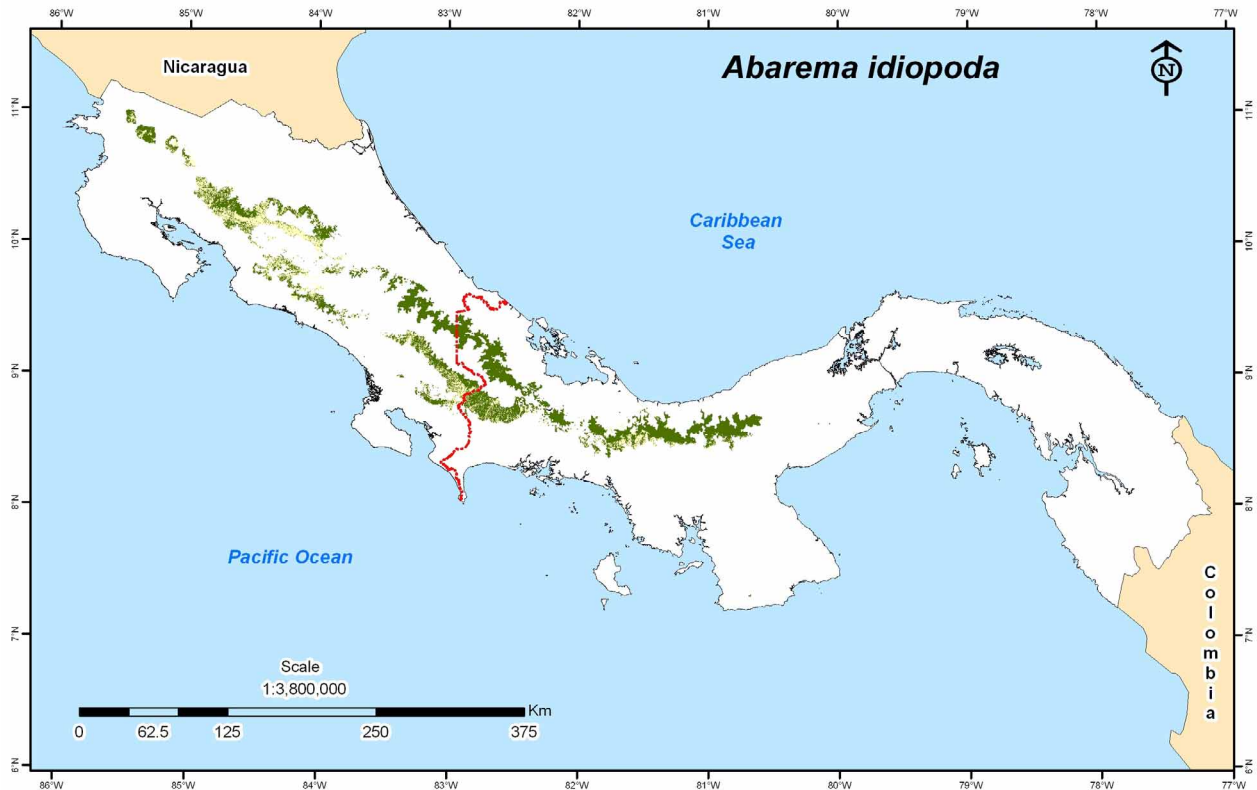
Abarema idiopoda (S.F.Blake) Barneby & J.W.Grimes (Fabaceae)

Local names: *Cashá*, *Espino blanco*, *Espino*, *Espino amarillo*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 24 herbarium collections. Elevation range for Costa Rica and Panama 800–1500 m, and the proportion of the regional Extension of Occurrence within protected areas: 38%.

- Regional threat category: **Vulnerable (VU)**

Fig. 1



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9946 km², the Area of Occupancy 7096 km² and loss of Extension of Occurrence 29%. Using the above data and IUCN (2001, version 3.1) criteria, *Abarema idiopoda* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce within its Area of Occupancy. In addition this species is extracted for timber. Countering this is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the threat status was not changed.

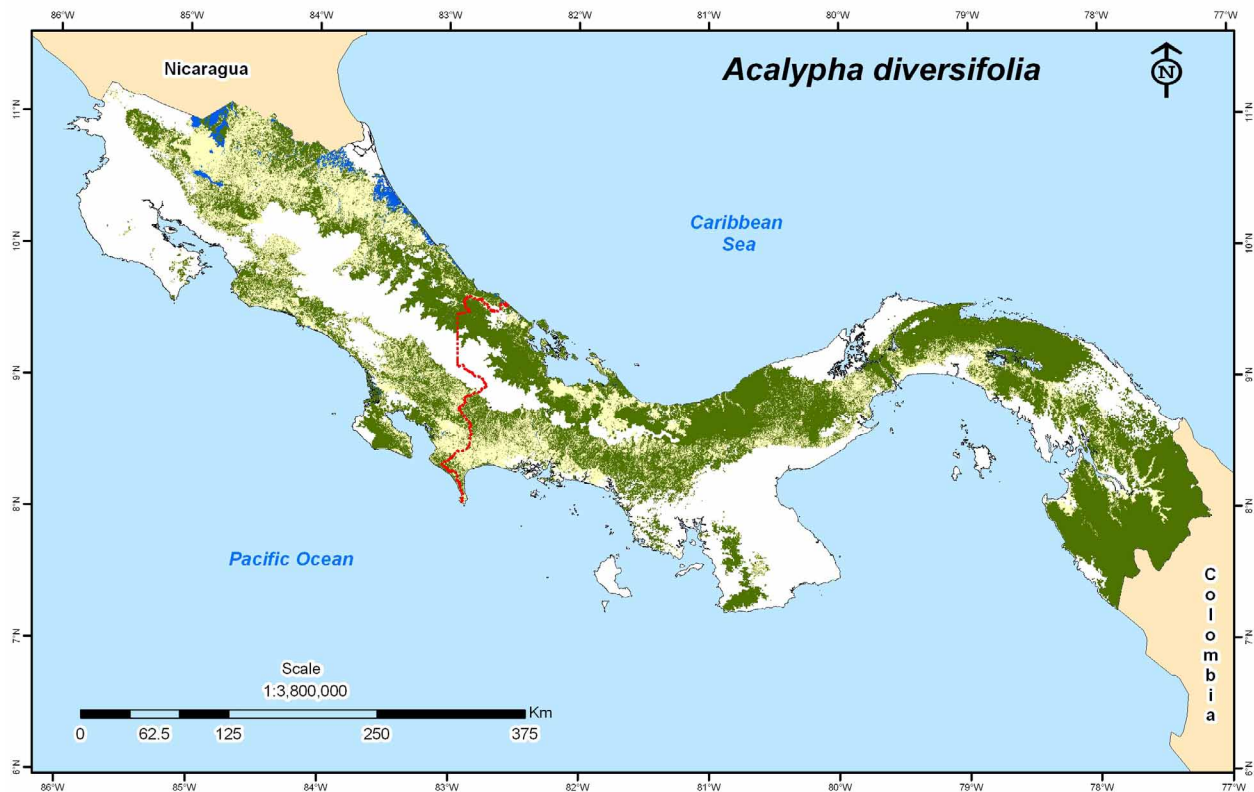
Acalypha diversifolia Jacq. (Euphorbiaceae)

Local name: *Varilla negra*.

Terrestrial shrubs or trees, flowers unisexual, monoecious. Global distribution: Mexico to Peru. Known in Costa Rica and Panama from 245 herbarium collections. Elevation range for Costa Rica and Panama 0–1200 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Least Concern (LC)**

Fig. 2



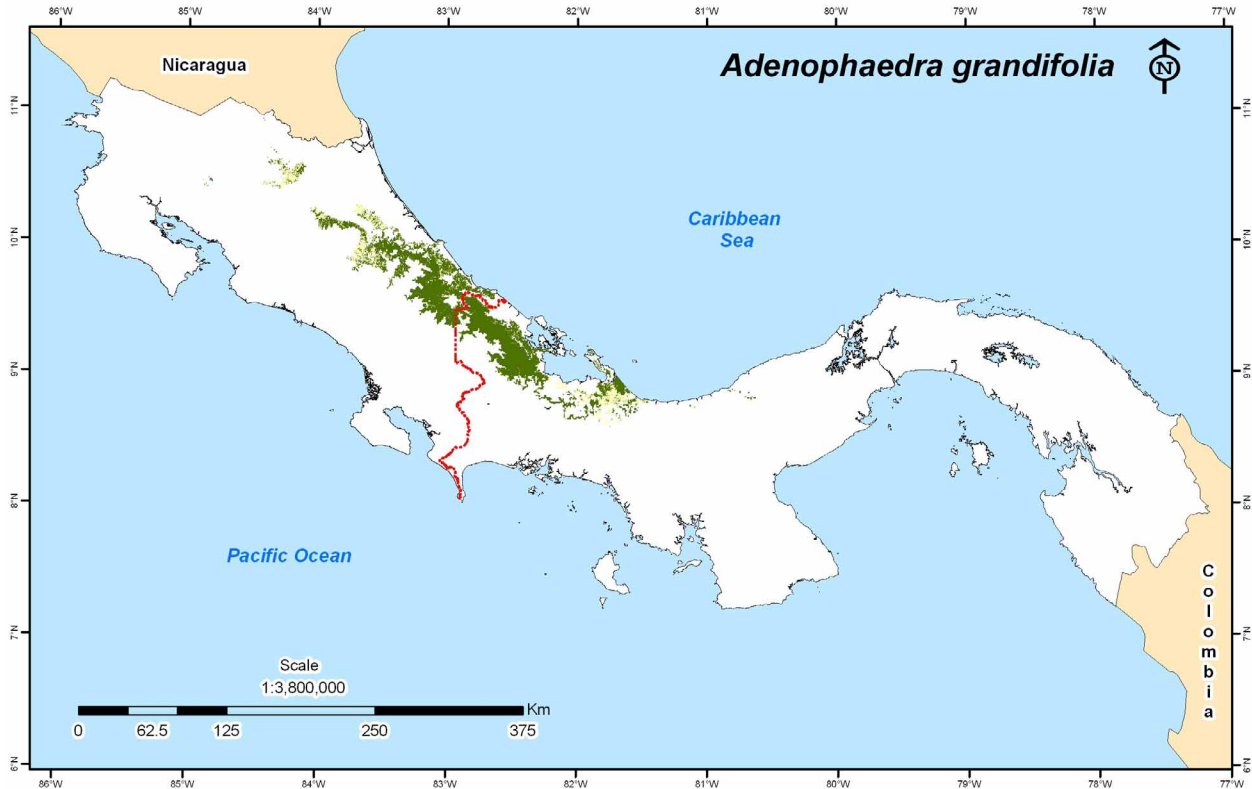
In Costa Rica and Panama the Extension of Occurrence was calculated to be 76676 km², the Area of Occupancy 57207 km² and loss of Extension of Occurrence 25%. Using the above data and IUCN (2001, version 3.1) criteria, *Acalypha diversifolia* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this is the fact that this regional assessment does not include the entire range of the species and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Least Concern (LC).

Adenophaedra grandifolia (Klotzsch) Müll.Arg. (Euphorbiaceae)

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Costa Rica to Venezuela. Known in Costa Rica and Panama from 27 herbarium collections. Elevation range for Costa Rica and Panama 100–1050 m, and the proportion of the regional Extension of Occurrence in protected areas: 37%.

- Regional threat category: **Near Threatened (NT)**

Fig. 3



In Costa Rica and Panama the Extension of Occurrence was calculated to be 7038 km², the Area of Occupancy 5456 km² and loss of Extension of Occurrence 22%. Using the above data and IUCN (2001, version 3.1) criteria, *Adenophaedra grandifolia* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field, which suggest that this species is scarce in its Area of Occupancy. Countering this is the fact that this regional assessment does not include the entire range of the species and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy is located within a protected area. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

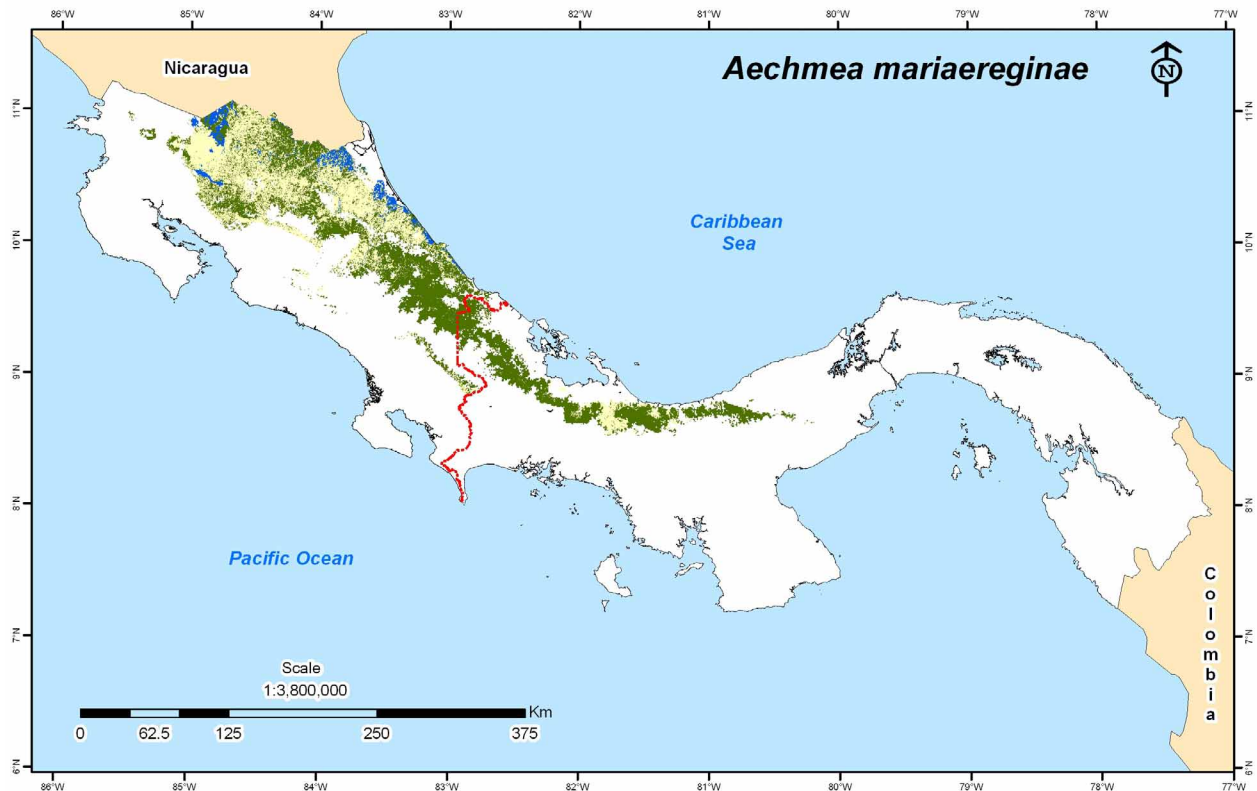
Aechmea mariae-reginae H.Wendl. (Bromeliaceae)

Local names: *Corpus*, *Espíritu Santo*, *Flor de Santa María*, *Piña de Palo*.

Epiphytic herbs, flowers unisexual, dioecious, harvested and cultivated as an ornamental. Global distribution: Nicaragua to Panama. Known in Costa Rica and Panama from 22 herbarium collections. Elevation range for Costa Rica and Panama 0–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Vulnerable (VU)**

Fig. 4



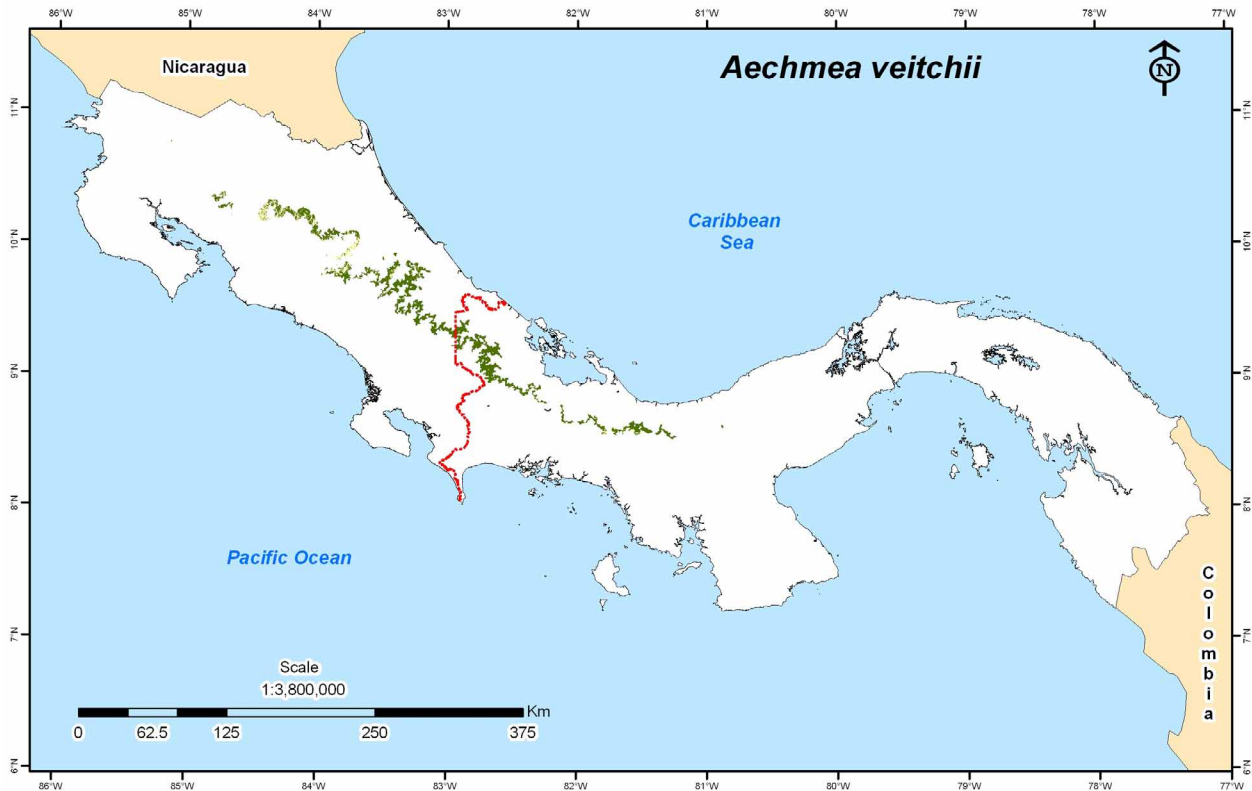
In Costa Rica and Panama the Extension of Occurrence was calculated to be 22288 km², the Area of Occupancy 11927 km² and loss of Extension of Occurrence 46%. Using the above data and IUCN (2001, version 3.1) criteria, *Aechmea mariae-reginae* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy and the low proportion of its Area of Occupancy located in a protected area.

Aechmea veitchii Baker (Bromeliaceae)

Facultatively epiphytic herbs, flowers bisexual, harvested and cultivated as an ornamental. Global distribution: Costa Rica to Peru. Known in Costa Rica and Panama from 75 herbarium collections. Elevation range for Costa Rica and Panama 1200–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 67%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 5



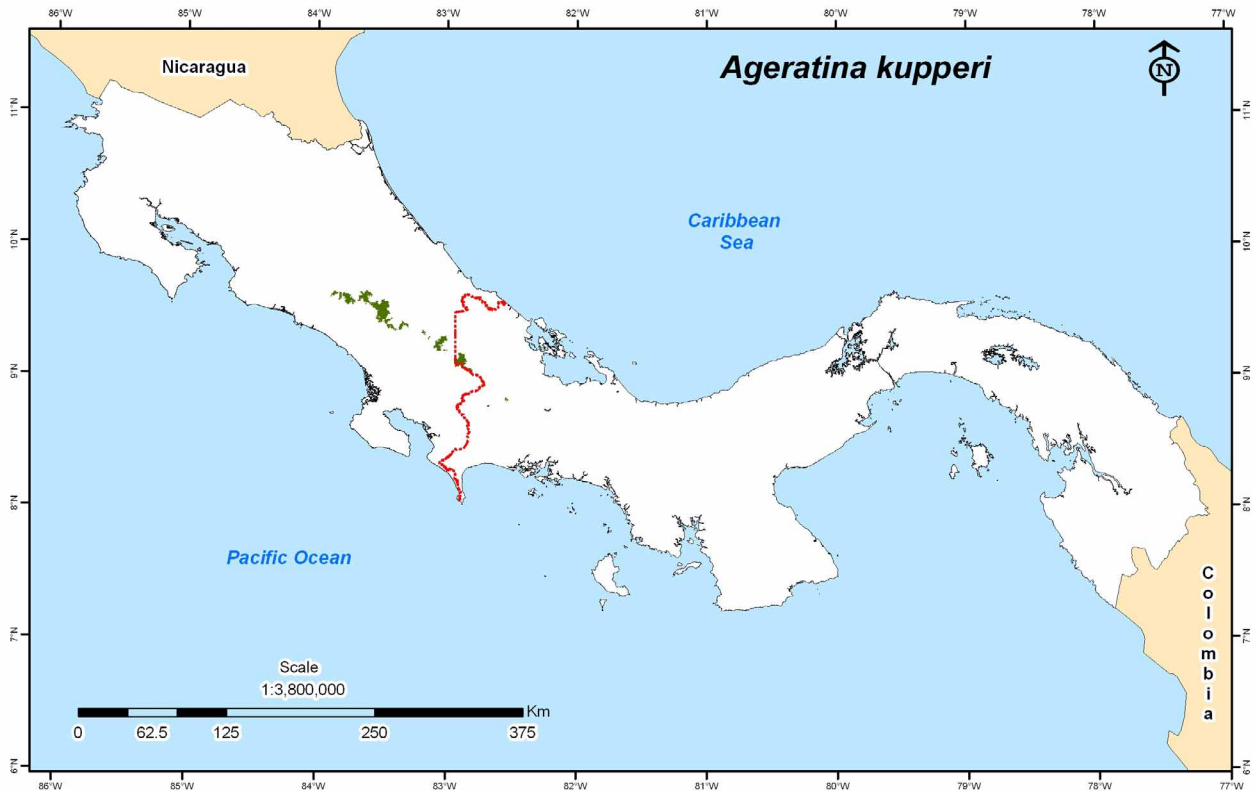
In Costa Rica and Panama the Extension of Occurrence was calculated to be 2769 km², the Area of Occupancy 2363 km² and loss of Extension of Occurrence 15%. Using the above data and IUCN (2001, version 3.1) criteria, *Aechmea veitchii* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of Occupancy. Countering this is the fact that this regional assessment does not include the entire range of the species and that populations in neighbouring regions may serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution, low levels of habitat loss, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Ageratina kupperi (Suess.) R.M.King & H.Rob. (Asteraceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 18 herbarium collections. Elevation range for Costa Rica and Panama 3100–3800 m, and the proportion of the regional Extension of Occurrence in protected areas: 85%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 6



In Costa Rica and Panama the Extension of Occurrence was calculated to be 583 km², the Area of Occupancy 580 km² and no loss of Extension of Occurrence. Using the above data and IUCN (2001, version 3.1) criteria, *Ageratina kupperi* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and countered by the low levels of habitat loss, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest this species is abundant in its Aea of Occupancy. Despite the above the threat category was not changed.

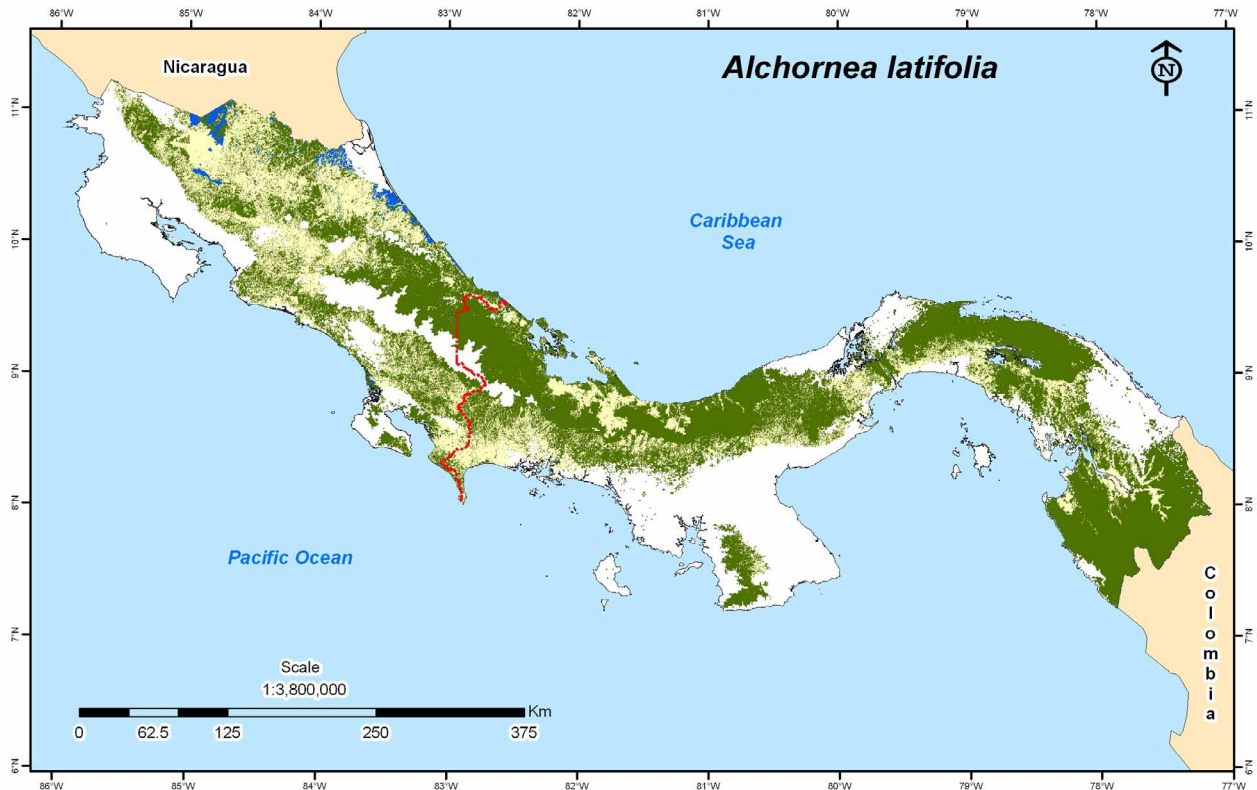
Alchornea latifolia Sw. (Euphorbiaceae)

Local names: *Caneliti*, *Chapaneo*, *Chasparria*, *Chasparrio*, *Chayote*, *Espino blanco*, *Peine tabaquillo*.

Terrestrial trees, flowers unisexual, dioecious. Global distribution: Mexico to Venezuela, the Antilles. Known in Costa Rica and Panama from 131 herbarium collections. Elevation range for Costa Rica and Panama 200–2100 m, and the proportion of the regional Extension of Occurrence in protected areas: 28%.

- Regional threat category: **Near Threatened (NT)**

Fig. 7



In Costa Rica and Panama the Extension of Occurrence was calculated to be 80849 km², the Area of Occupancy 52409 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Alchornea latifolia* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the notion that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this is the fact that the regional assessment does not include the entire range of the species and that populations in neighbouring regions may serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

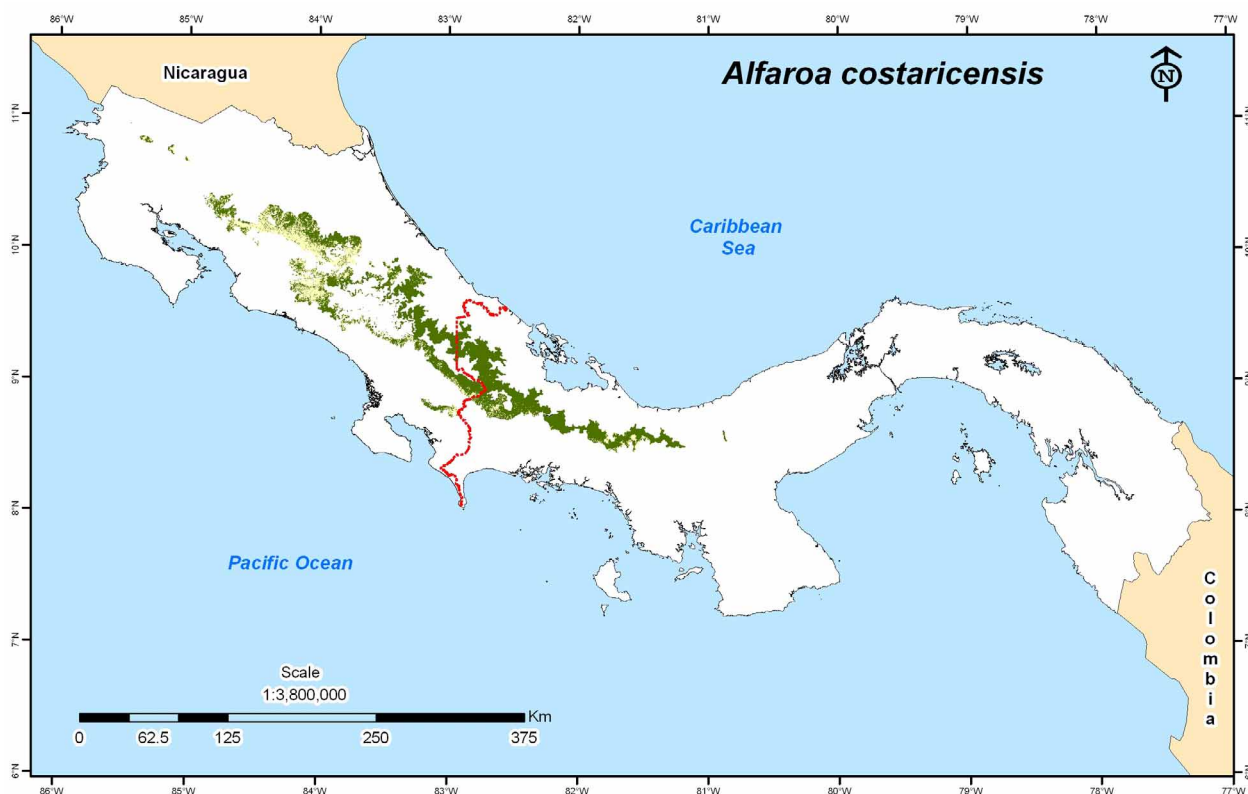
Alfaroa costaricensis Standl. (Juglandaceae)

Local names: *Gaulín*, *Campano chile*, *Gabulin gavilan*, *Gavilancillo*.

Terrestrial trees, flowers unisexual, monoecious, used as timber. Global distribution: Mexico, Guatemala, Nicaragua, Costa Rica, Panama. Known in Costa Rica and Panama from 78 herbarium collections. Elevation range for Costa Rica and Panama (600–)1100–2200 m, and the proportion of the regional Extension of Occurrence in protected areas: 50%.

- Regional threat category: **Near Threatened (NT)**

Fig. 8



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9555 km², the Area of Occupancy 7043 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Alfaroa costaricensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this is the fact that the regional assessment does not include the entire range of the species and that populations in neighbouring regions may serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

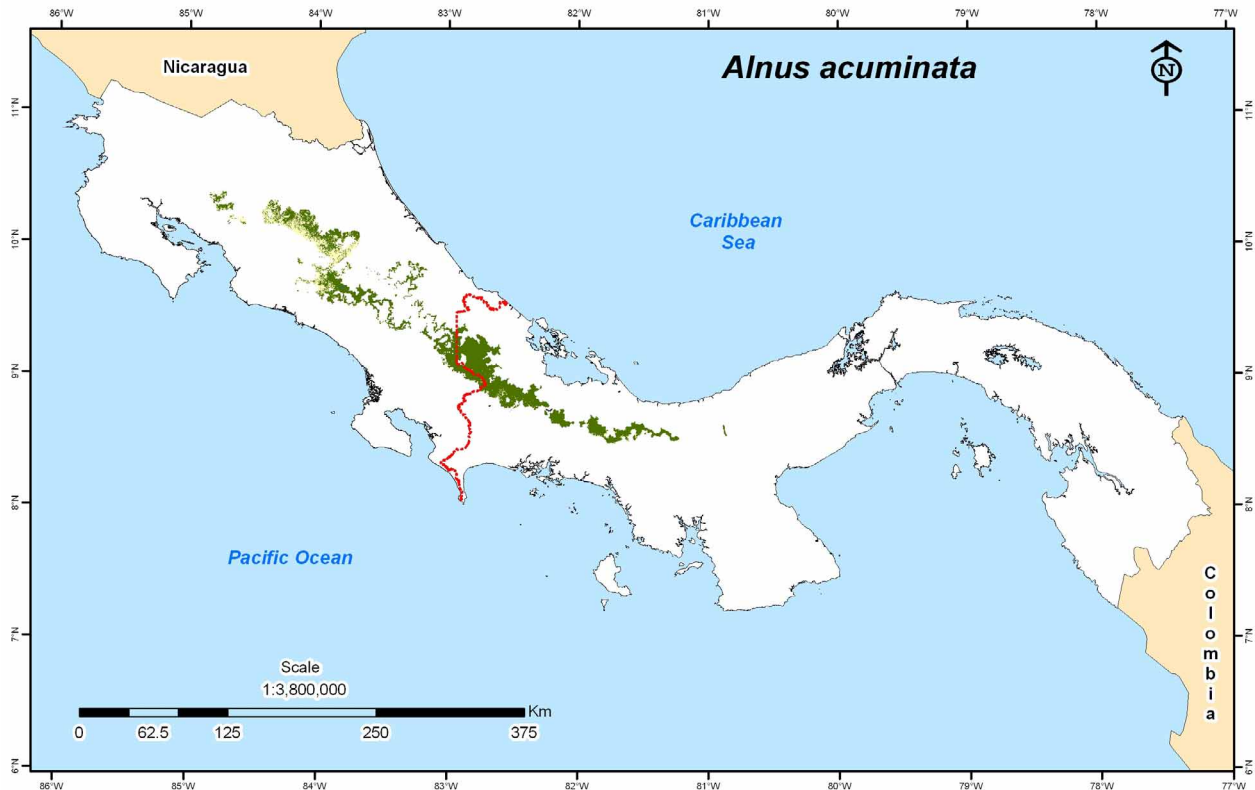
Alnus acuminata Kunth (Betulaceae)

Local names: Jaúl, Aliso.

Terrestrial trees, flowers unisexual, monoecious, used as timber. Global distribution: México to Argentina. Known in Costa Rica and Panama from 67 herbarium collections. Elevation range for Costa Rica and Panama 1500–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 65%.

- Regional threat category: **Near Threatened (NT)**

Fig. 9



In Costa Rica and Panama the Extension of Occurrence was calculated to be 5791 km², the Area of Occupancy 4699 km² and loss of Extension of Occurrence 19%. Using the above data and IUCN (2001, version 3.1) criteria, *Alnus acuminata* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Also observations by the authors that this species is abundantly becomes established in commercial forest plantations. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

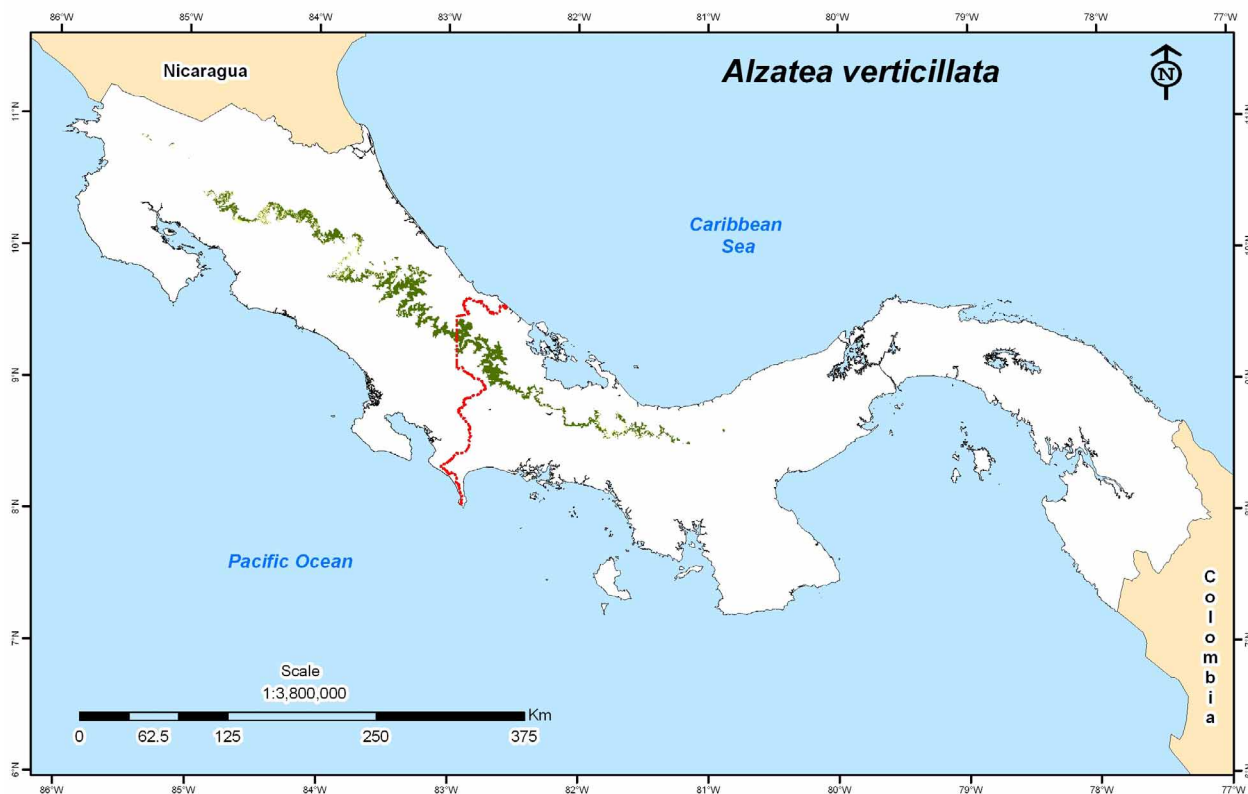
Alzatea verticillata Ruiz & Pav. (Alzateaceae)

Local names: *Madroño*, *Copey*, *Copeycillo*.

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica to Ecuador, Bolivia. Known in Costa Rica and Panama from 28 herbarium collections. Elevational range for Costa Rica and Panama 1000–2200 m, and the proportion of the regional Extension of Occurrence in protected areas: 67%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 10



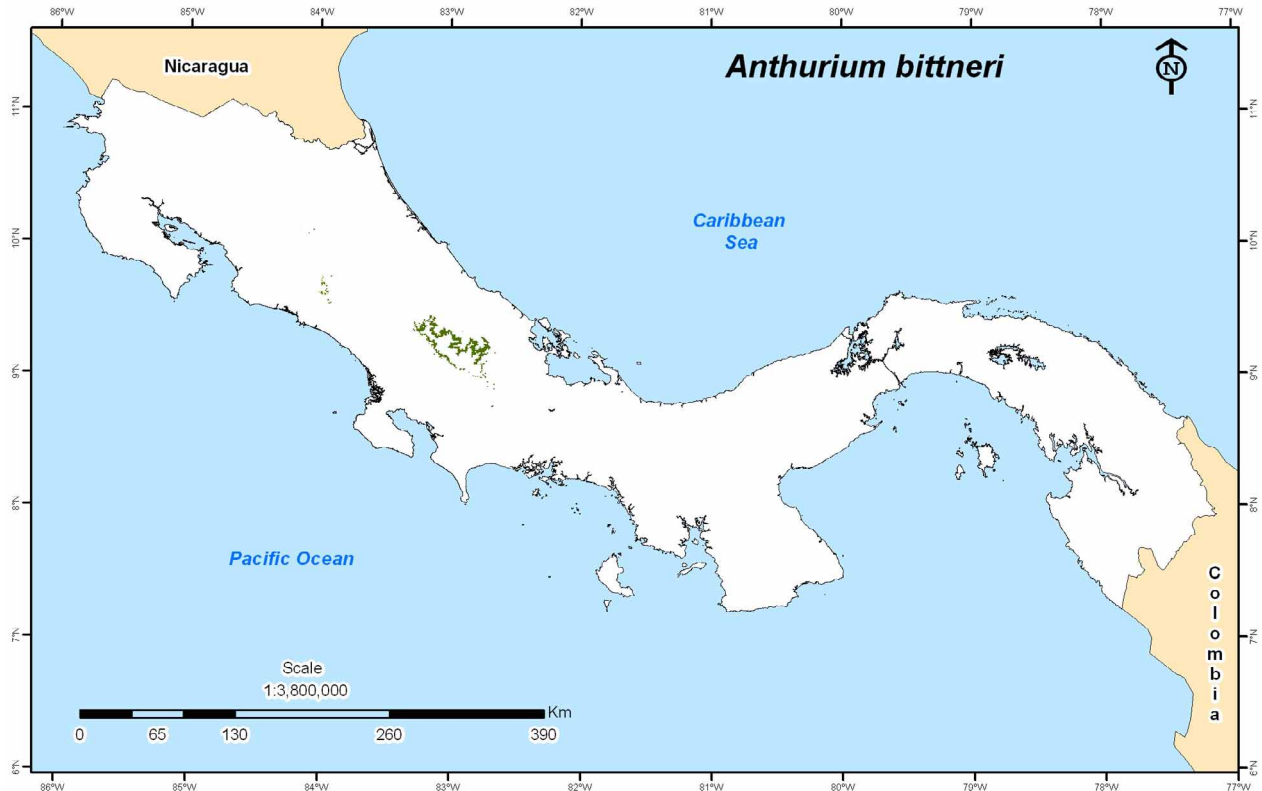
In Costa Rica and Panama the Extension of Occurrence was calculated to be 3537 km², the Area of Occupancy 3006 km² and loss of Extension of Occurrence 15%. Using the above data and IUCN (2001, version 3.1) criteria, *Alzatea verticillata* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Anthurium bittneri Grayum (Araceae)

Terrestrial herbs, flowers bisexual. Endemic to La Amistad Binational Park (Talamanca Mountains). Endemic to Costa Rica and Panama. Known from 13 herbarium collections. Elevational range 1500–1900 m, and the proportion of the regional Extension of Occurrence in protected areas: 82%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 11



In Costa Rica and Panama the Extension of Occurrence was calculated to be 585 km², the Area of Occupancy 551 km² and loss of Extension of Occurrence 1%. Using the above data and IUCN (2001, version 3.1) criteria, *Anthurium bittneri* is classified as Endangered (EN) in relation to criteria EN B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence, the narrow elevation range of the species and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the threat category was not changed.

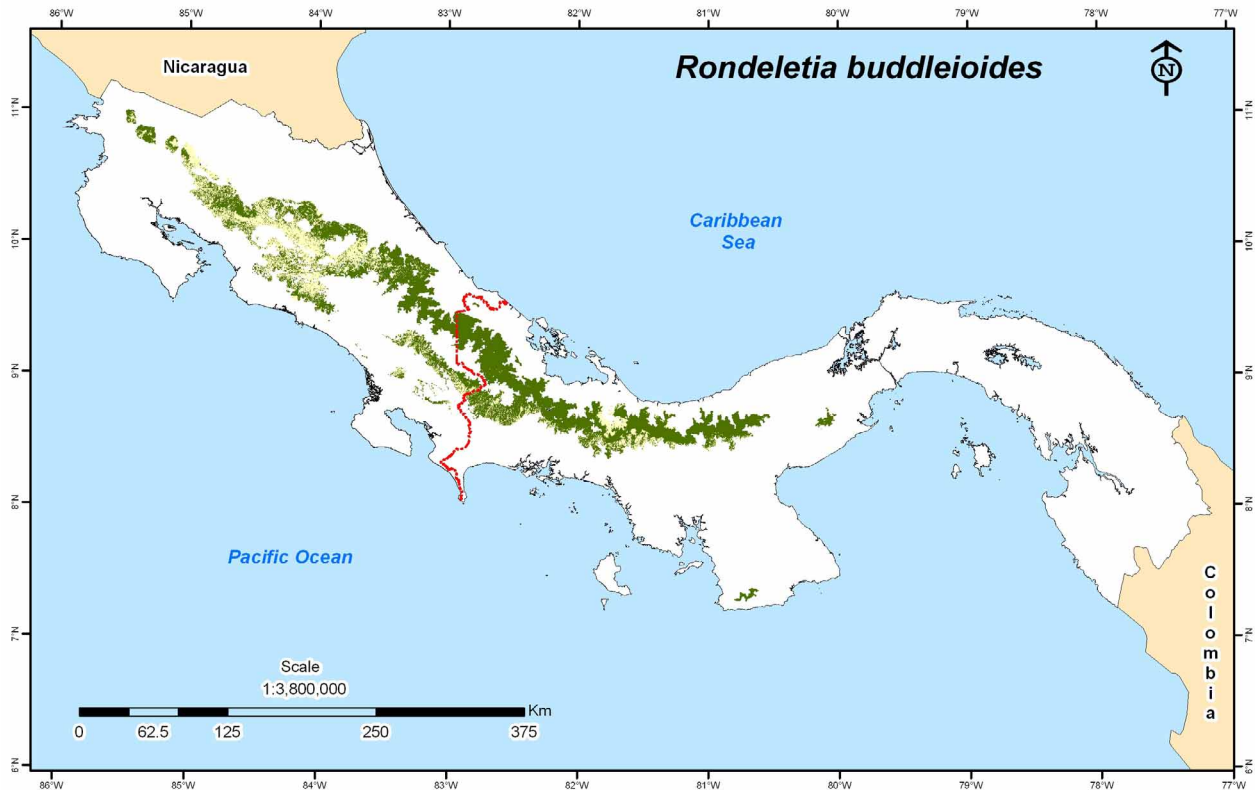
Arachnothryx buddleioides (Benth.) Planch. (Rubiaceae)

Local name: *Algodoncillo*.

Arbustos a árboles, flowers bisexual. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 52 herbarium collections. Elevational range for Costa Rica and Panama 600–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 38%.

- Regional threat category: **Near Threatened (NT)**

Fig. 12



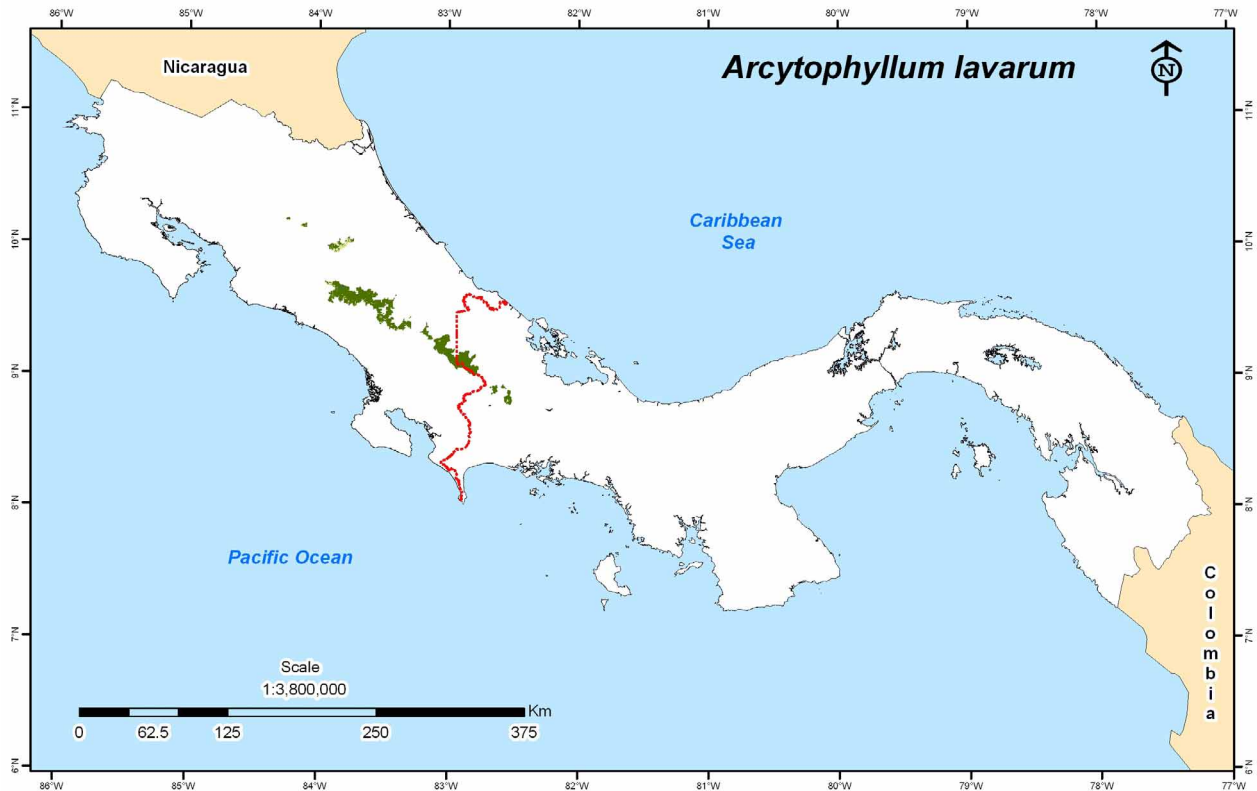
In Costa Rica and Panama the Extension of Occurrence was calculated to be 17264 km², the Area of Occupancy 12022 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Arachnothryx buddleioides* is classified as Vulnerable (VU) in relation to criteria A2c; B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Arcytophyllum lavarum K.Schum. ex Standl. (Rubiaceae)

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica and Panama. Known from 94 herbarium collections. Elevational range 2400–3350 m, and the proportion of the regional Extension of Occurrence in protected areas: 89%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 13



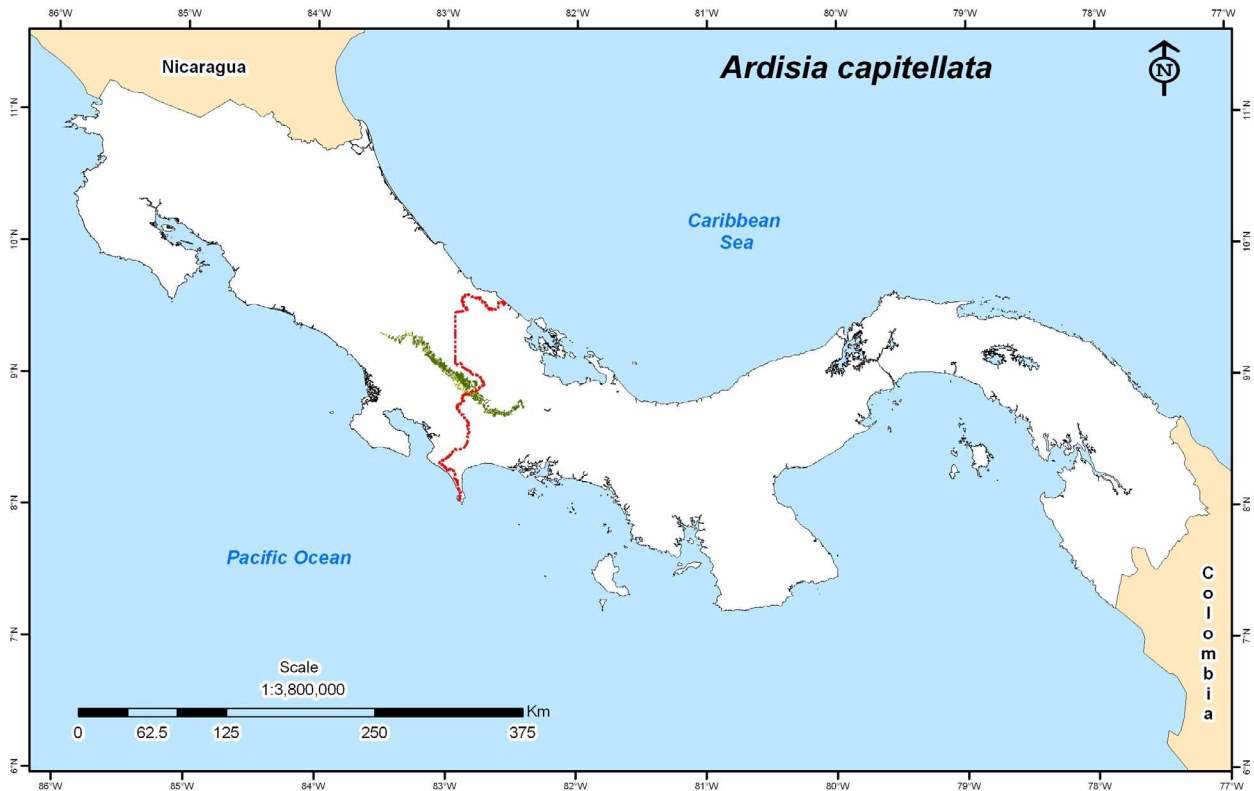
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1562 km², the Area of Occupancy 1462 km² and loss of Extension of Occurrence 6%. Using the above data and IUCN (2001, version 3.1) criteria, *Arcytophyllum lavarum* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and countered by the low levels of habitat loss, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. Despite the above the threat category was not changed.

Ardisia capitellata Lundell (Primulaceae)

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 26 herbarium collections. Elevational range 1150–1800(–2050) m, and the proportion of the regional Extension of Occurrence in protected areas: 19%.

- Global threat category: **Endangered (EN) B1ab(i, iii)**

Fig. 14



In Costa Rica and Panama the Extension of Occurrence was calculated to be 821 km², the Area of Occupancy 593 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Ardisia capitellata* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the threat category was not changed.

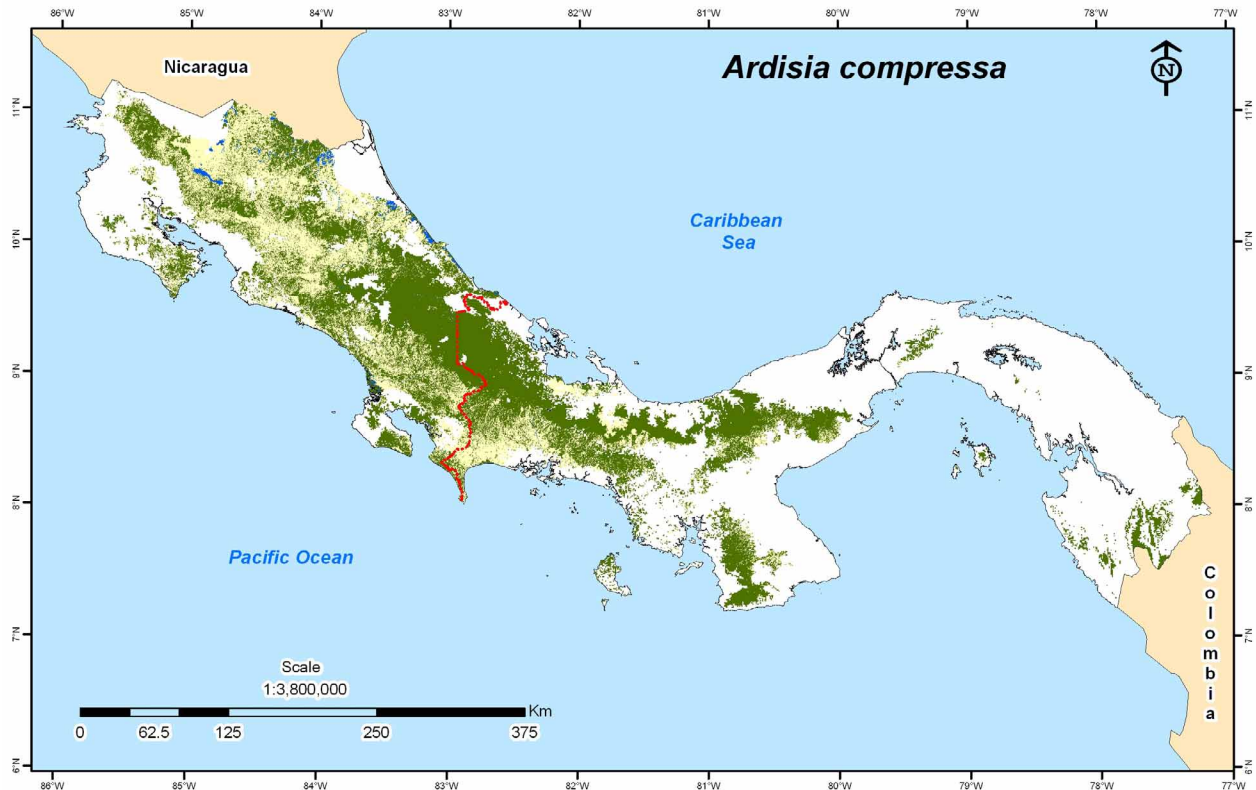
Ardisia compressa Kunth (Primulaceae)

Local names: *Murta, Huesillo, Madurillo, Tucuico.*

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Ecuador, the Antilles. Known in Costa Rica and Panama from 157 herbarium collections. Elevational range for Costa Rica and Panama 0–3100 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Least Concern (LC)**

Fig. 15



In Costa Rica and Panama the Extension of Occurrence was calculated to be 55209 km², the Area of Occupancy 42083 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Ardisia compressa* is classified as Least Concern (LC). This classification is supported by the fact that the species has a relatively broad regional and elevational distribution, and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was not changed.

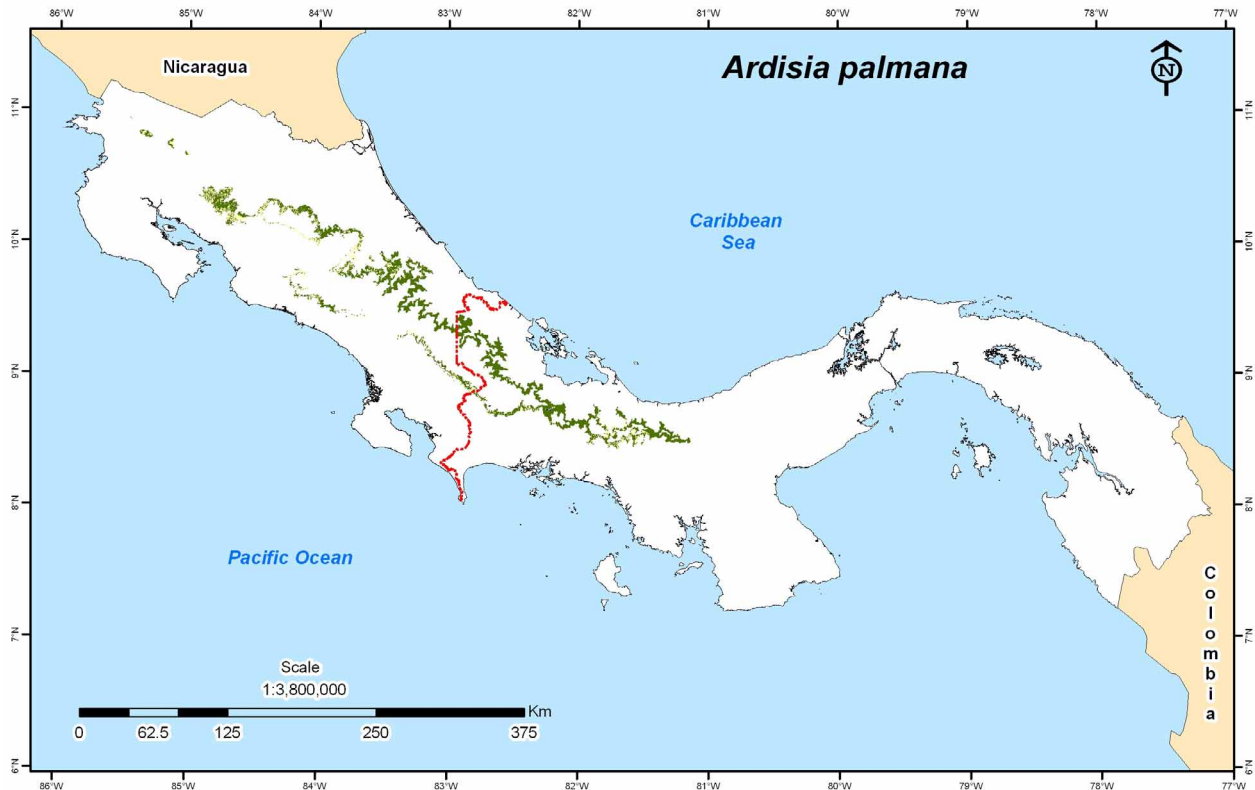
Ardisia palmana Donn.Sm. (Primulaceae)

Local names: *Tucuico, Madurillo, Hoja grande.*

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Nicaragua to Colombia. Known in Costa Rica and Panama from 28 herbarium collections. Elevational range for Costa Rica and Panama 1000–2400 m, and the proportion of the regional Extension of Occurrence in protected areas: 48%.

- Regional threat category: **Vulnerable (VU) B1ab(i, iii)**

Fig. 16



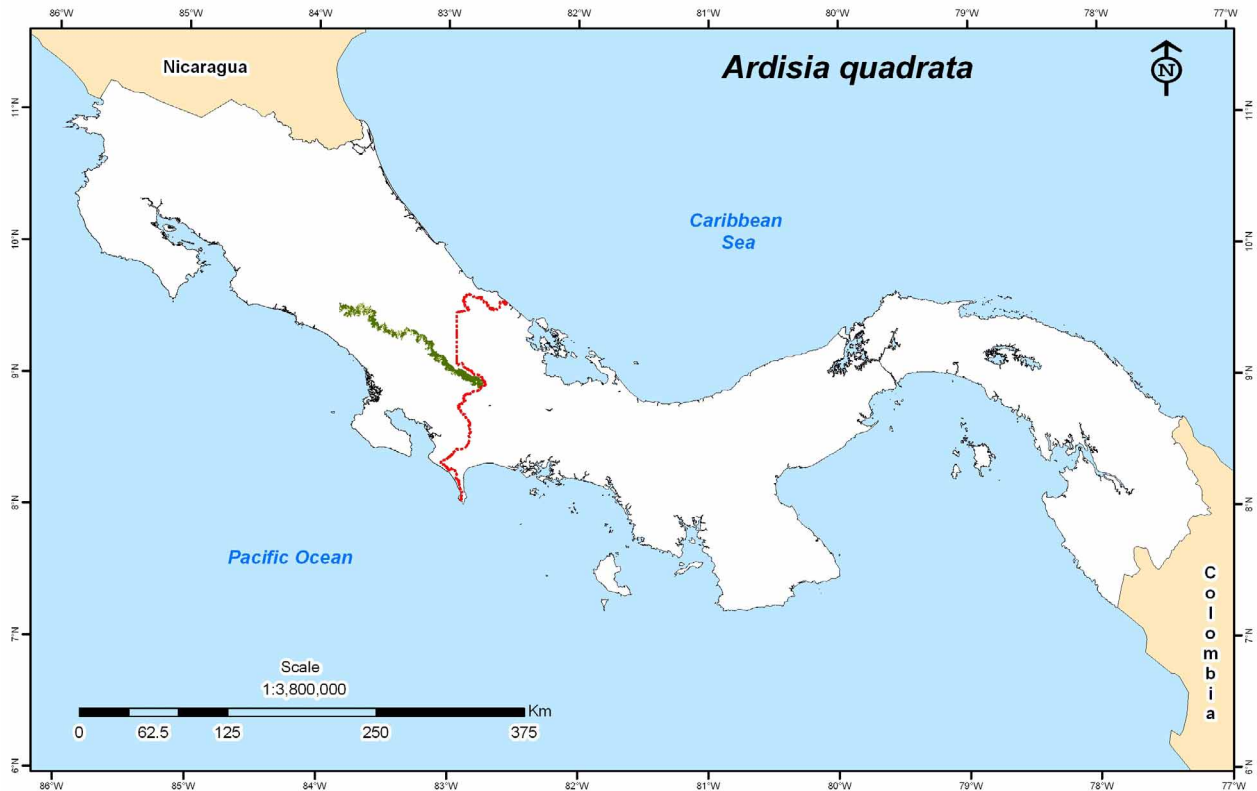
In Costa Rica and Panama the Extension of Occurrence was calculated to be 4880 km², the Area of Occupancy 3786 km² and loss of Extension of Occurrence 22%. Using the above data and IUCN (2001, version 3.1) criteria, *Ardisia palmana* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Ardisia quadrata (Lundell) J.F.Morales (Primulaceae)

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 11 herbarium collections. Elevational range 1600–1900 m, and the proportion of the regional Extension of Occurrence in protected areas: 44%.

- Global threat category: **Endangered (EN) B1ab(i, iii)**

Fig. 17



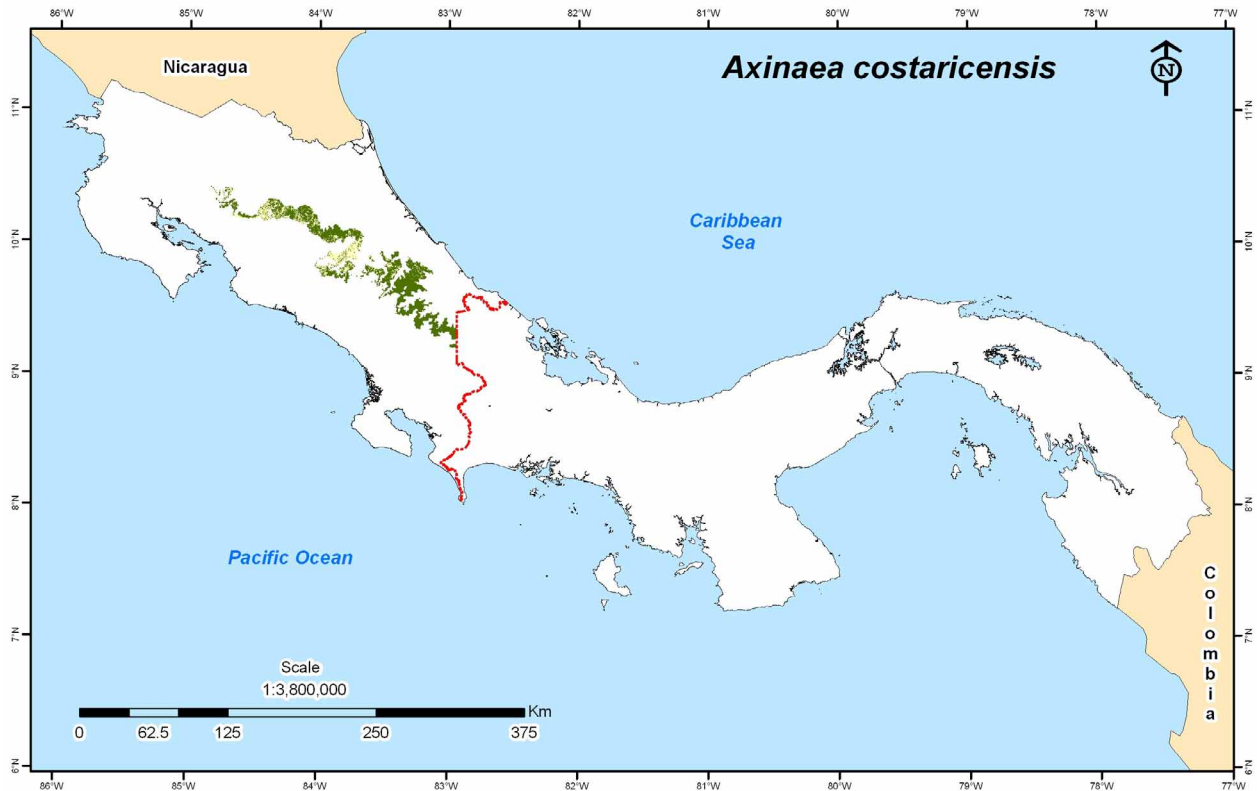
The Extension of Occurrence was calculated to be 869 km², the Area of Occupancy 710 km² and loss of Extension of Occurrence 18%. Using the above data and IUCN (2001, version 3.1) criteria, *Ardisia quadrata* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area. Despite the above the threat category was not changed.

Axinaea costaricensis Cogn. (Melastomataceae)

Terrestrial trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 30 herbarium collections. Elevational range 1500–2500 m, and the proportion of the regional Extension of Occurrence in protected areas: 62%.

- Global threat category: **Endangered (EN) B1ab(i, iii)**

Fig. 18



In Costa Rica and Panama the Extension of Occurrence was calculated to be 3258 km², the Area of Occupancy 2445 km² and loss of Extension of Occurrence 25%. Using the above data and IUCN (2001, version 3.1) criteria, *Axinaea costaricensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area. Despite the above the threat category was not changed.

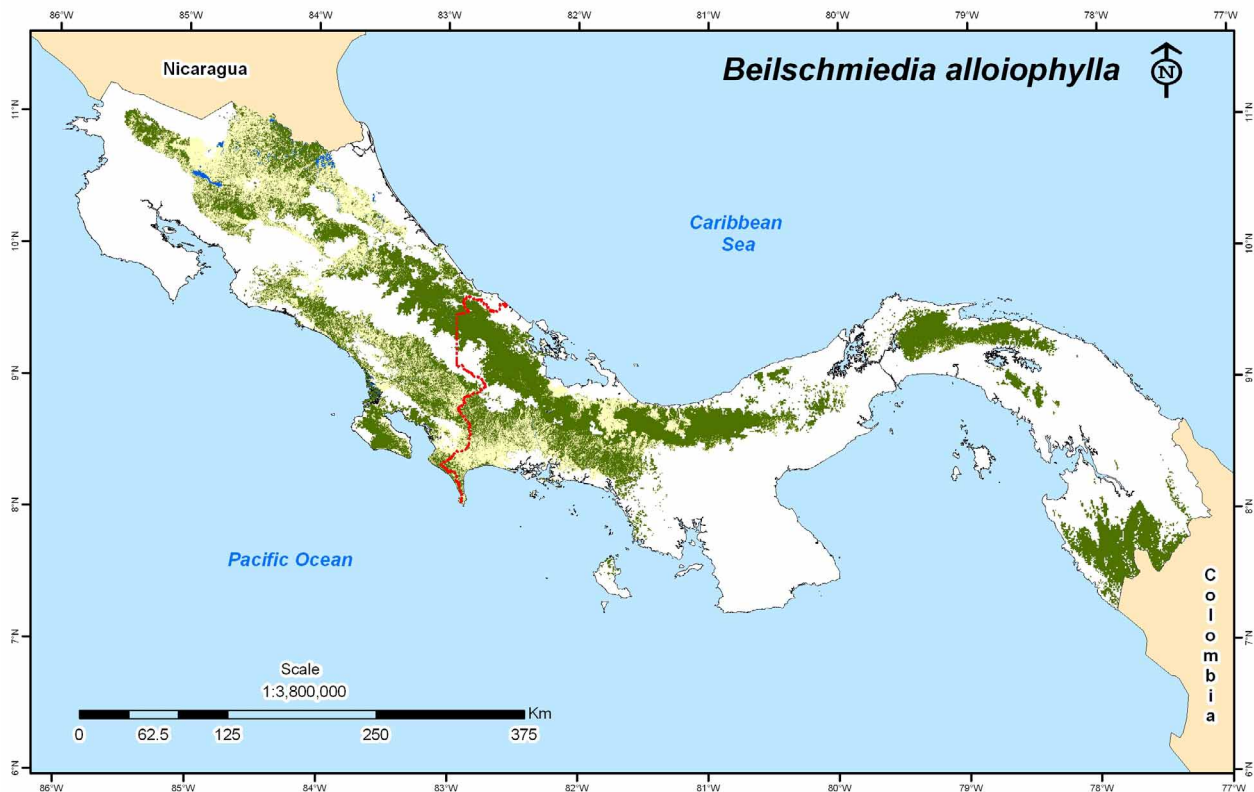
Beilschmiedia alloiophylla (Rusby) Kosterm. (Lauraceae)

Local names: *Quizarrá*, *Aguacatón*.

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica to Ecuador. Known in Costa Rica and Panama from 37 herbarium collections. Elevational range for Costa Rica and Panama 0–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 30%.

- Regional threat category: **Near Threatened (NT)**

Fig. 19



In Costa Rica and Panama the Extension of Occurrence was calculated to be 47006 km², the Area of Occupancy 30548 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Beilschmiedia alloiophylla* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and a high proportion of its Area of Occupancy located in a protected area. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

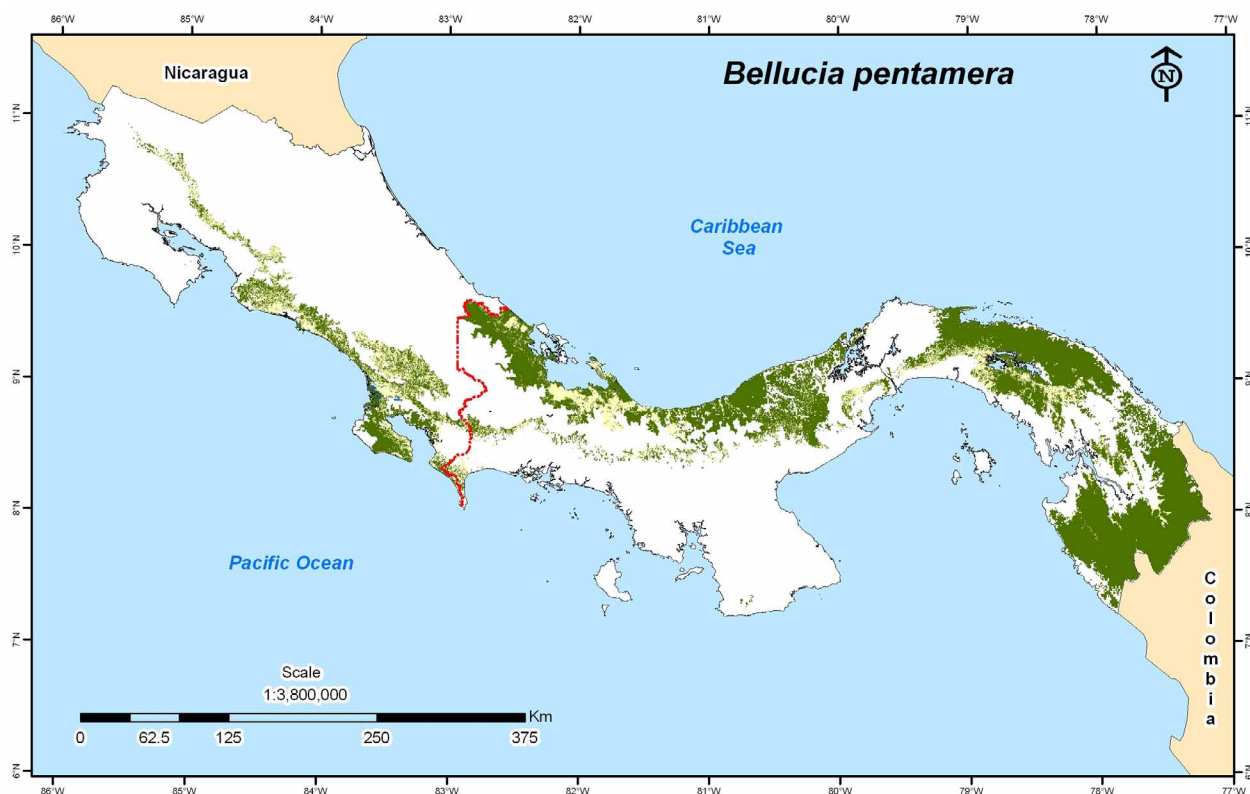
Bellucia pentamera Naudin (Melastomataceae)

Local names: *Coronillo, Higo, Papaturro agrio.*

Terrestrial trees or shrubs, flowers bisexual and its non-sustainable harvesting for food. Global distribution: Mexico to Bolivia, the Antilles. Known in Costa Rica and Panama from 52 herbarium collections. Elevational range for Costa Rica and Panama 0–600(–1000) m, and the proportion of the regional Extension of Occurrence in protected areas: 34%.

- Regional threat category: **Least Concern (LC)**

Fig. 20



In Costa Rica and Panama the Extension of Occurrence was calculated to be 35273 km², the Area of Occupancy 29626 km² and loss of Extension of Occurrence 16%. Using the above data and IUCN (2001, version 3.1) criteria, *Bellucia pentamera* is classified as Least Concern (LC). This classification is supported by the relatively broad regional distribution, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. In addition the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance.

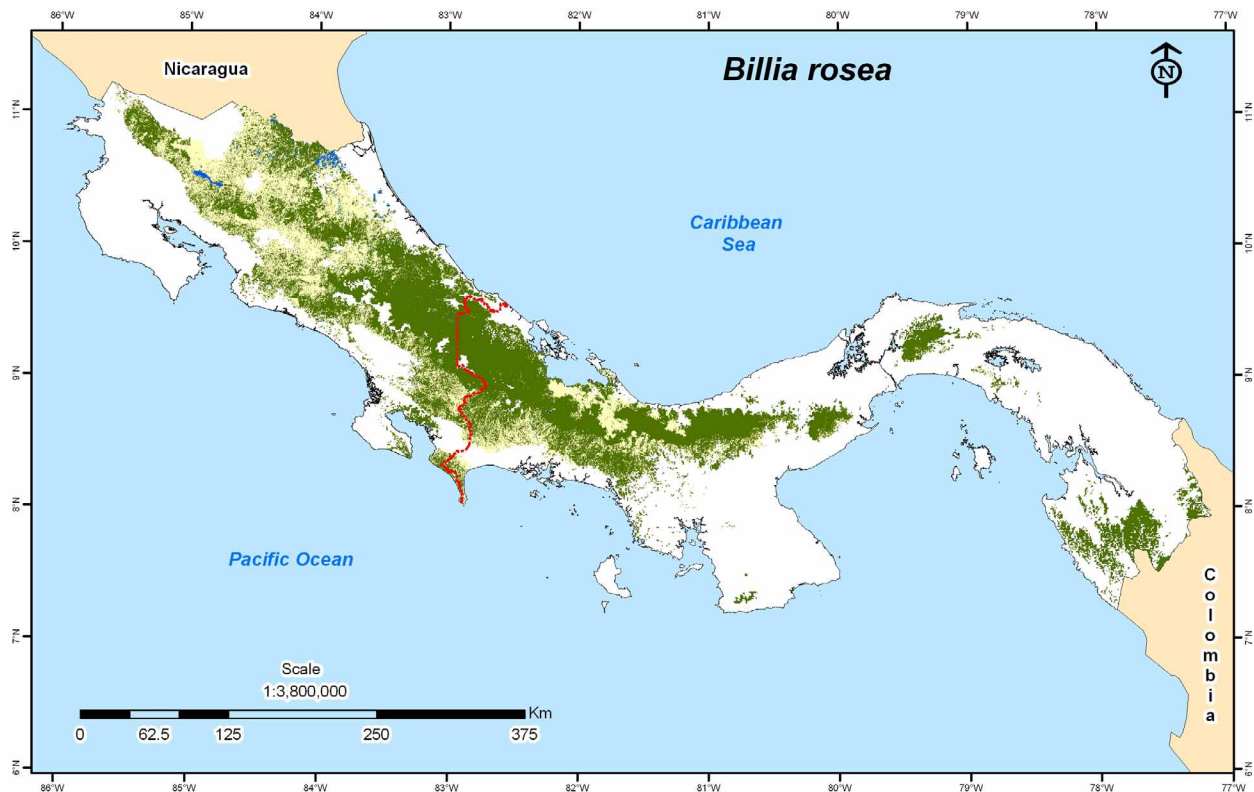
Billia rosea (Planch. & Linden) C.Ulloa & P.Jorg. (Sapindaceae)

Local names: *Cachimbó, Corona, Cucaracho, Guatuzo, Ira zapote, Ocora, Resina, Guatuza, Zapotillo.*

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica to Colombia. Known in Costa Rica and Panama from 62 herbarium collections. Elevational range for Costa Rica and Panama 0–2700 m, and the proportion of the regional Extension of Occurrence in protected areas: 33%.

- Regional threat category: **Near Threatened (NT)**

Fig. 21



In Costa Rica and Panama the Extension of Occurrence was calculated to be 49782 km², the Area of Occupancy 32793 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Billia rosea* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

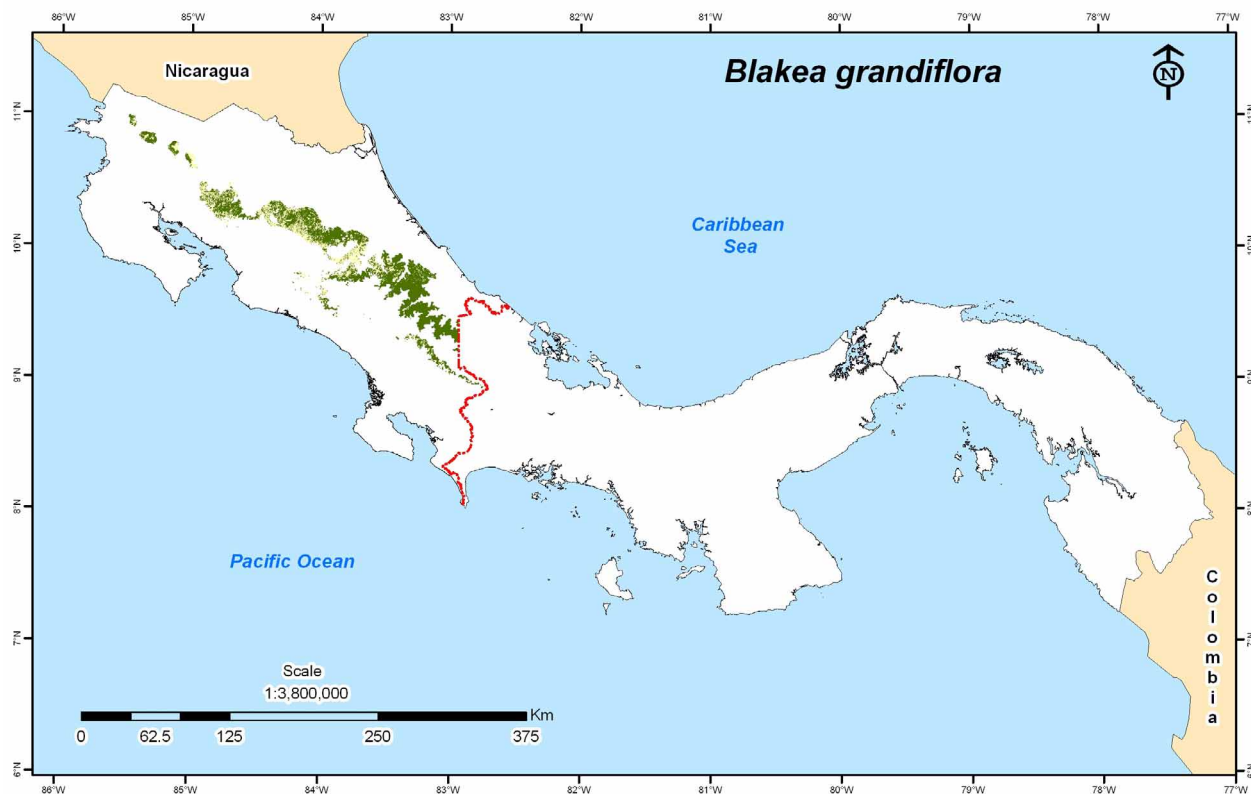
Blakea grandiflora Hemsl. (Melastomataceae)

Local names: *San Miguel*, *San Miguel blanco*.

Facultatively epiphytic shrubs or trees, flowers bisexual. Endemic to Costa Rica. Known from 48 herbarium collections. Elevational range (50–)800–2350(–2750) m, and the proportion of the regional Extension of Occurrence in protected areas: 55%.

- Global threat category: **Vulnerable (VU) B1ab(i, iii)**

Fig. 22



The Extension of Occurrence was calculated to be 5357 km², the Area of Occupancy 3771 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Blakea grandiflora* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the threat category was not changed.

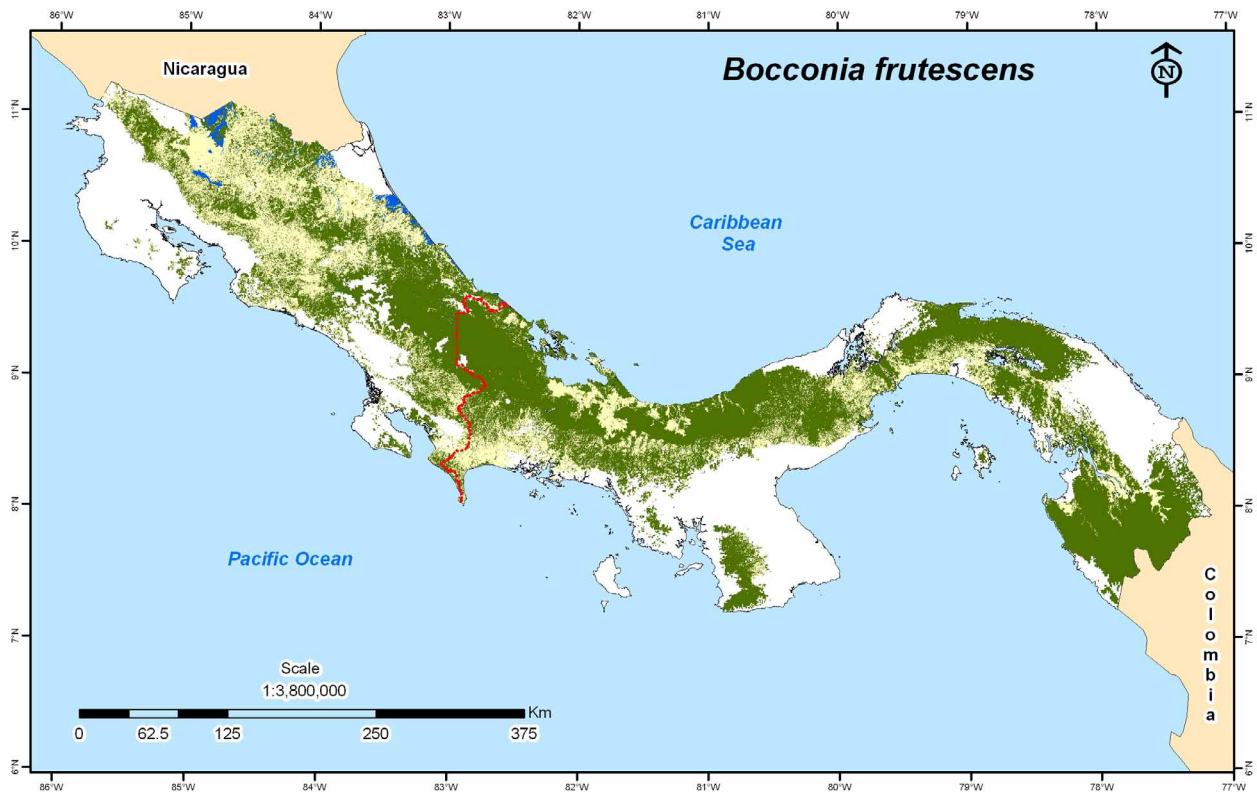
Bocconia frutescens L. (Papaveraceae)

Local names: *Cacho de venado*, *Guacamaya*, *Tabaquillo*, *Pavo*, *Guacamayo*, *Papayillo*, *Papayo*.

Terrestrial shrubs or trees, flowers bisexual, used as a herbal remedy. Global distribution: Mexico to Argentina, the Antilles. Known in Costa Rica and Panama from 146 herbarium collections. Elevational range for Costa Rica and Panama (100–)400–2800(–3300) m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Least Concern (LC)**

Fig. 23



In Costa Rica and Panama the Extension of Occurrence was calculated to be 80433 km², the Area of Occupancy 60105 km² and loss of Extension of Occurrence 25%. Using the above data and IUCN (2001, version 3.1) criteria, *Bocconia frutescens* is classified as Least Concern (LC). This classification is supported by the relatively broad regional distribution, observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy and the inclusion of secondary/successional vegetation as a habitat which implies that this species will be more resilient to future human disturbance.

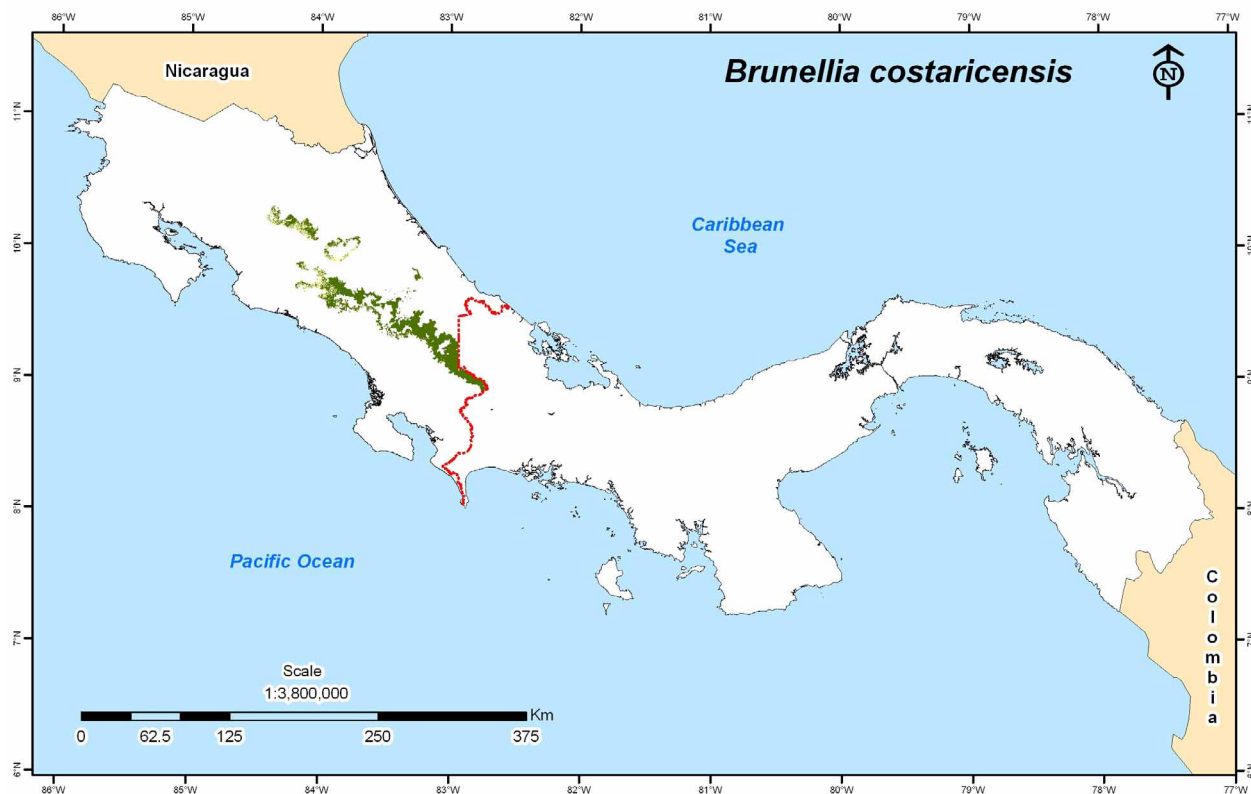
Brunellia costaricensis Standl. (Brunelliaceae)

Local names: *Cedrillo macho*, *Cedrillo*, *Cedro macho*, *Gallinazo*.

Terrestrial trees, flowers unisexual, dioecious, used as timber. Endemic to Costa Rica and Panama. Known from 61 herbarium collections. Elevational range 1700–2900 m, and the proportion of the regional Extension of Occurrence in protected areas: 75%.

- Global threat category: **Endangered (EN) B1ab(i, iii)**

Fig. 24



In Costa Rica and Panama the Extension of Occurrence was calculated to be 2950 km², the Area of Occupancy 2377 km² and loss of Extension of Occurrence 19%. Using the above data and IUCN (2001, version 3.1) criteria, *Brunellia costaricensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that it is occasionally extracted for timber by local communities. Countering this, however, the species has a relatively broad elevational distribution and a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the threat category was not changed.

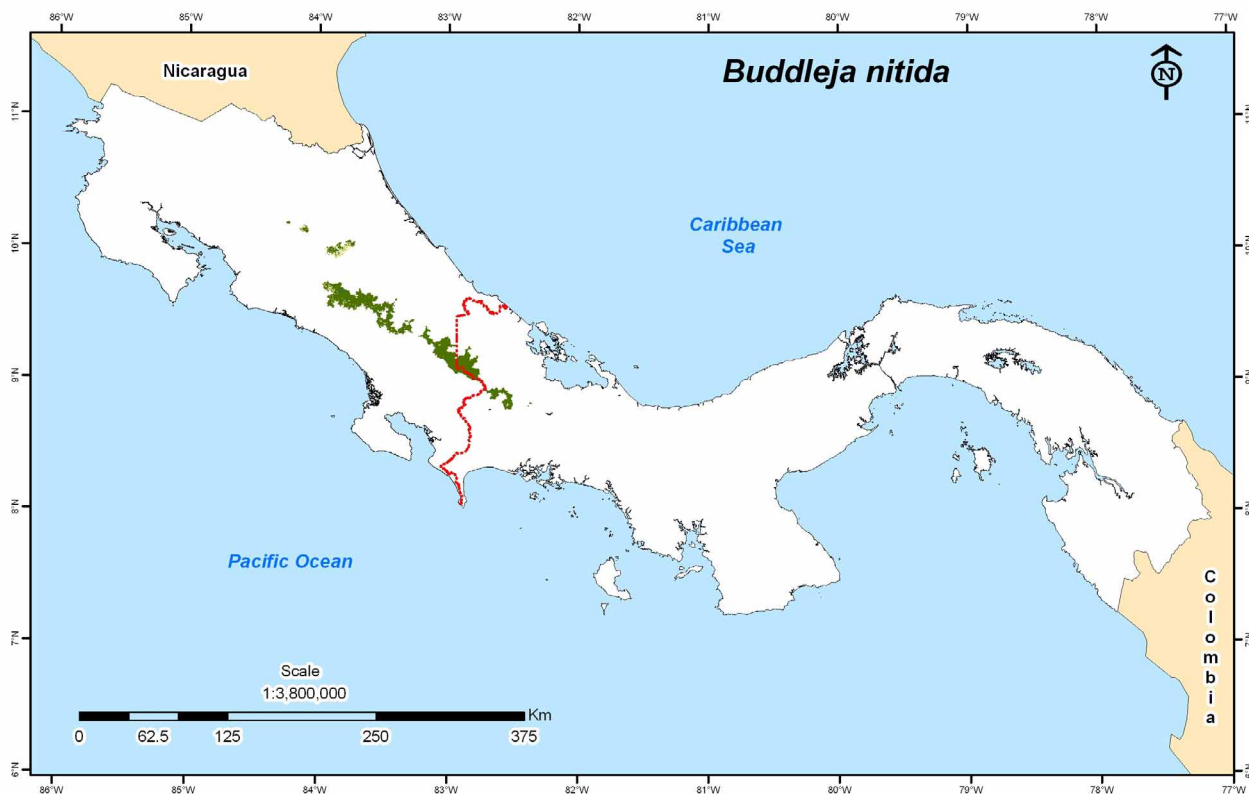
Buddleja nitida Benth. (Scrophulariaceae)

Local names: *Salvia*, *Hoja de salve*, *Salva*.

Terrestrial shrubs, flowers bisexual. Global distribution: Mexico to Honduras, Costa Rica and Panama. Known in Costa Rica and Panama from 66 herbarium collections. Elevational range for Costa Rica and Panama (1000–)2200–3700 m, and the proportion of the regional Extension of Occurrence in protected areas: 89%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 25



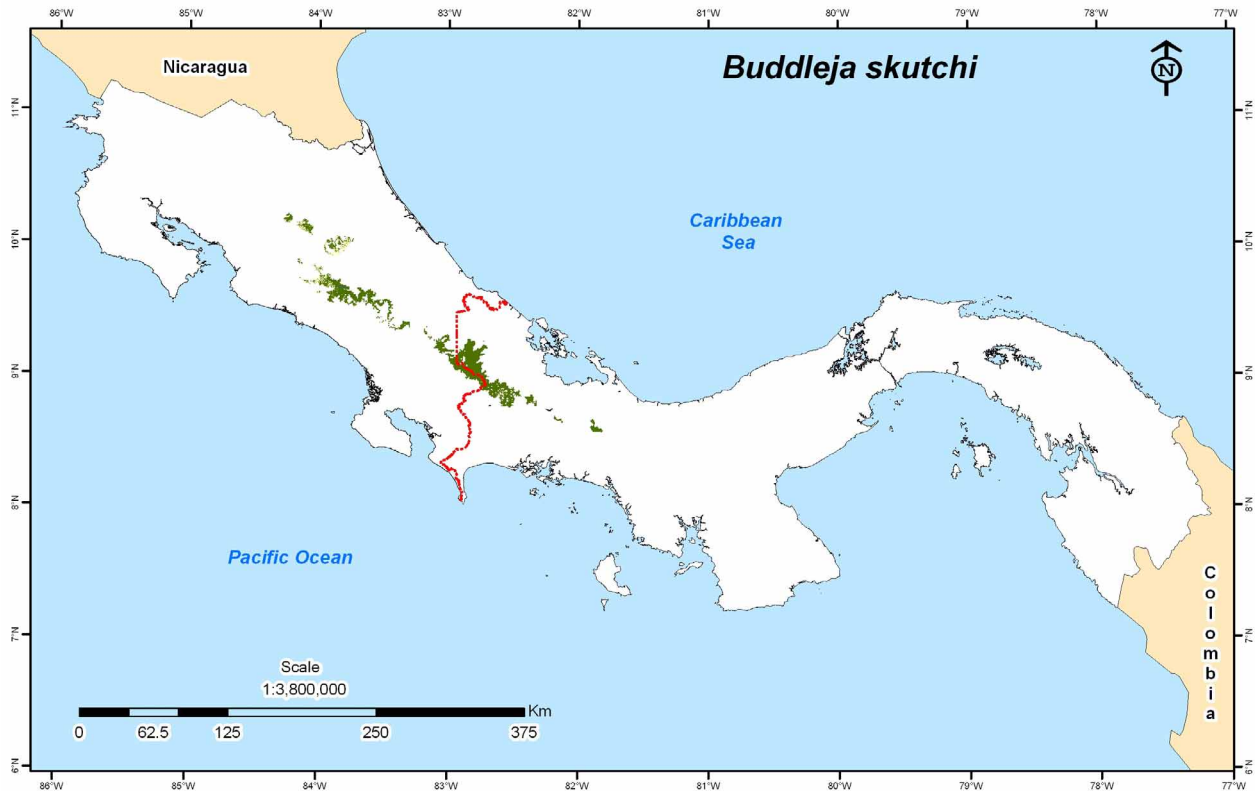
In Costa Rica and Panama the Extension of Occurrence was calculated to be 2047 km², the Area of Occupancy 1890 km² and loss of Extension of Occurrence 8%. Using the above data and IUCN (2001, version 3.1) criteria, *Buddleja nitida* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has experienced low levels of habitat loss, has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Buddleja skutchii E.M.Norman (Scrophulariaceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Mexico and Guatemala, Costa Rica and Panama
Known in Costa Rica and Panama from 19 herbarium collections. Elevational range for Costa Rica and Panama (1300–)1800–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 82%.

- Regional threat category: **Vulnerable (VU) B1ab(iii)**

Fig. 26



In Costa Rica and Panama the Extension of Occurrence was calculated to be 2232 km², the Area of Occupancy 1981 km² and loss of Extension of Occurrence 11%. Using the above data and IUCN (2001, version 3.1) criteria, *Buddleja skutchii* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has experienced low levels of habitat loss, has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

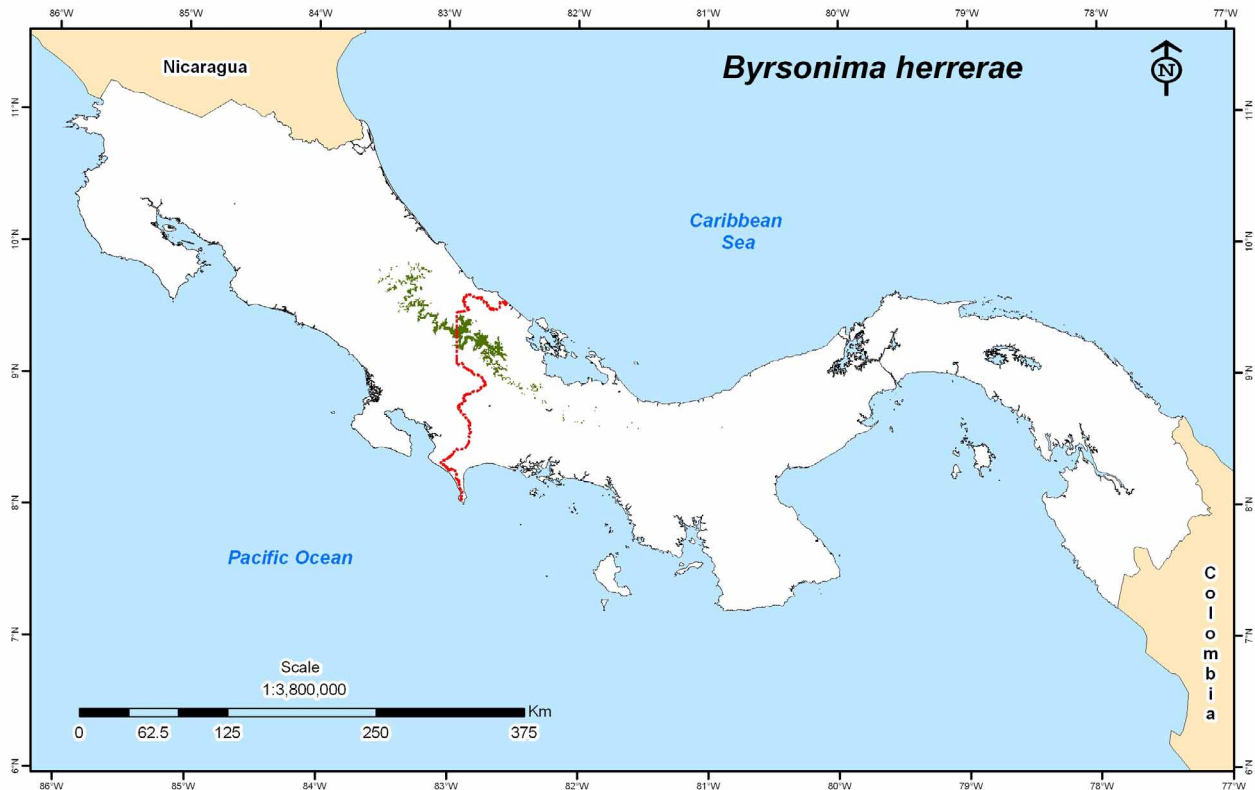
Byrsonima herrerae W.R.Anderson (Malpighiaceae)

Local names: Nance, Nancite, Tsiki.

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 10 herbarium collections. Elevational range 450–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 89%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 27



In Costa Rica and Panama the Extension of Occurrence was calculated to be 1091 km², the Area of Occupancy 1086 km² and no loss of Extension of Occurrence. Using the above data and IUCN (2001, version 3.1) criteria, *Byrsonima herrerae* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the threat category was not changed.

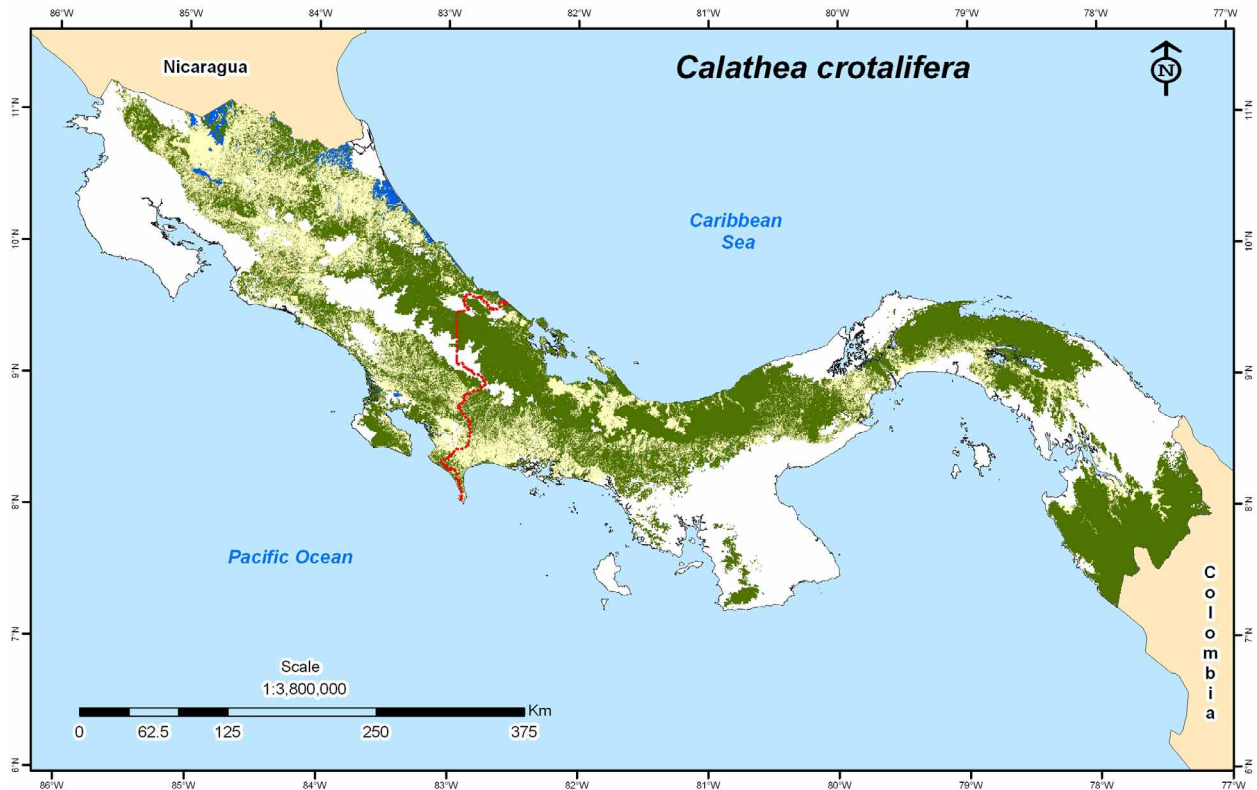
Calathea crotalifera S.Watson (Marantaceae)

Local names: *Bijagua*, *Platanilla*, *Cascabel*.

Terrestrial herbs, flowers bisexual, cultivated as an ornamental. Global distribution: Mexico to Bolivia. Known in Costa Rica and Panama from 220 herbarium collections. Elevational range for Costa Rica and Panama 0–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 28%.

- Regional threat category: **Least Concern (LC)**

Fig. 28



In Costa Rica and Panama the Extension of Occurrence was calculated to be 78399 km², the Area of Occupancy 58100 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Calathea crotalifera* is classified as Least Concern (LC). This classification is supported by the relatively broad regional distribution and Elevation range and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. In addition, the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. This classification is countered by the low proportion of its Area of Occupancy located in a protected area. Despite the above the classification was not changed.

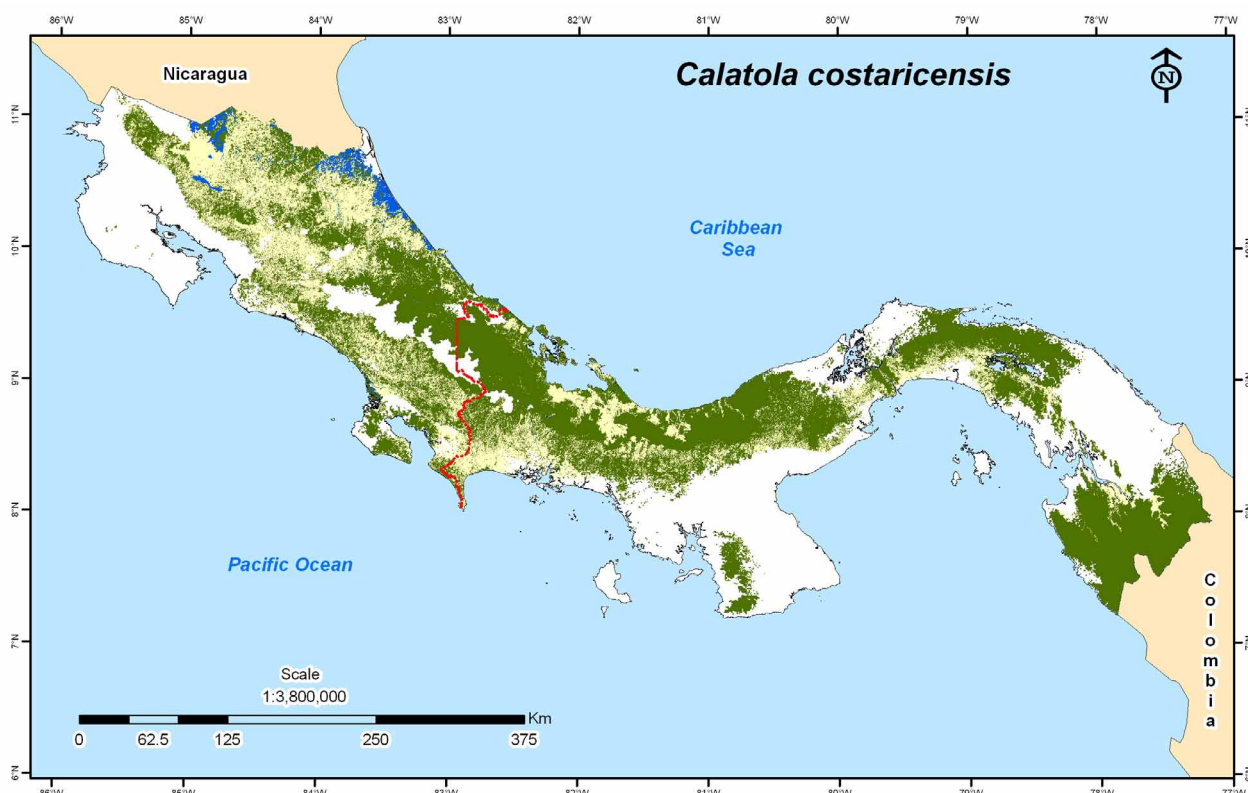
Calatola costaricensis Standl. (Icacinaceae)

Local names: Azulillo, Cucaracho, Duraznillo, Erepe, Guaitil, Icacón, Palo azul, Palo de papa, Tapa culo, Coquito, Azul, Azulillo, Erepe, Duraznillo.

Terrestrial shrubs or trees, flowers unisexual, dioecious, used as timber, food and in the production of handicrafts. Global distribution: Mexico, Belize, Honduras, Costa Rica, Panama, Venezuela and Bolivia. Known in Costa Rica and Panama from 144 herbarium collections. Elevational range for Costa Rica and Panama 0–2000(–2500) m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Near Threatened (NT)**

Fig. 29



In Costa Rica and Panama the Extension of Occurrence was calculated to be 77479 km², the Area of Occupancy 50018 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Calatola costaricensis* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

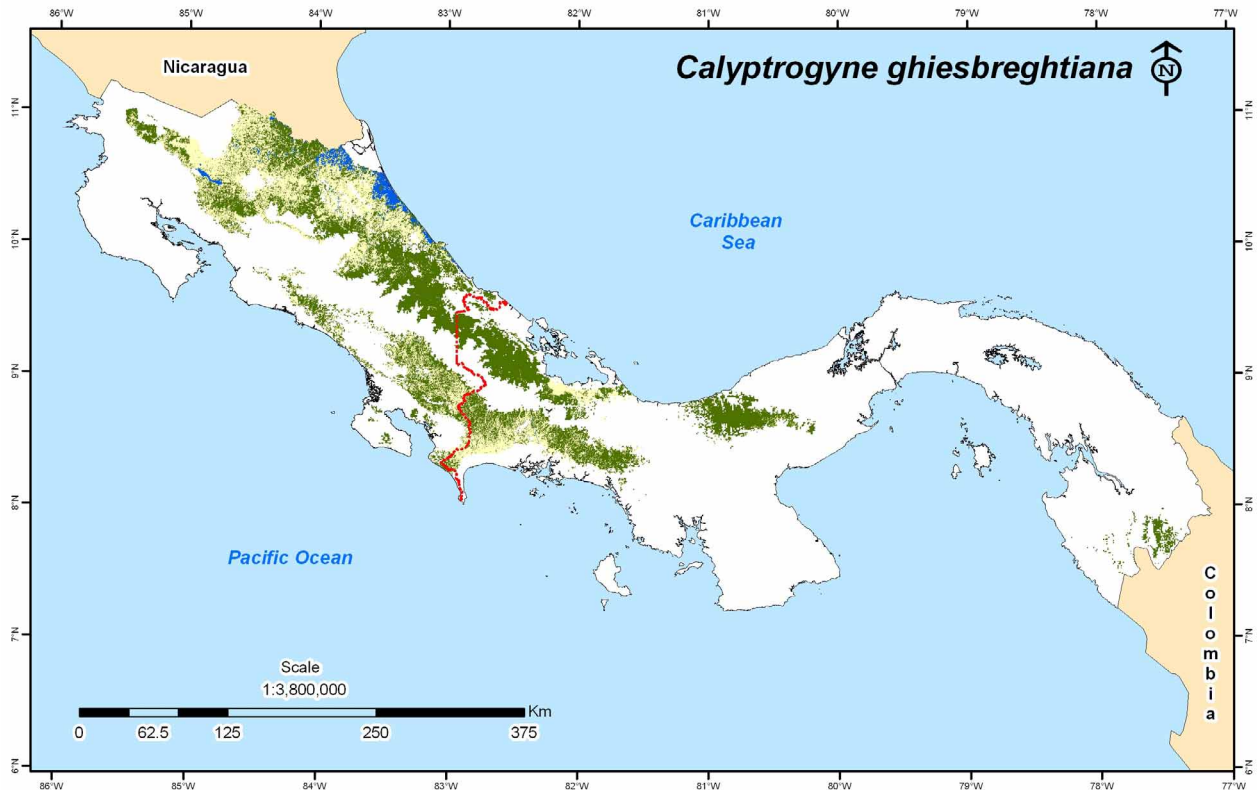
Calypstrogyne ghiesbreghtiana (Linden & H.Wendl.) H.Wendl. (Arecaceae)

Local names: *Caligallo, Siuta, Suita, Cola de gallo, Wkö, Ukö.*

Terrestrial shrubs, flowers unisexual, monoecious. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 109 herbarium collections. Elevational range for Costa Rica and Panama 0–1550 m, and the proportion of the regional Extension of Occurrence in protected areas: 28%.

- Regional threat category: **Near Threatened (NT)**

Fig. 30



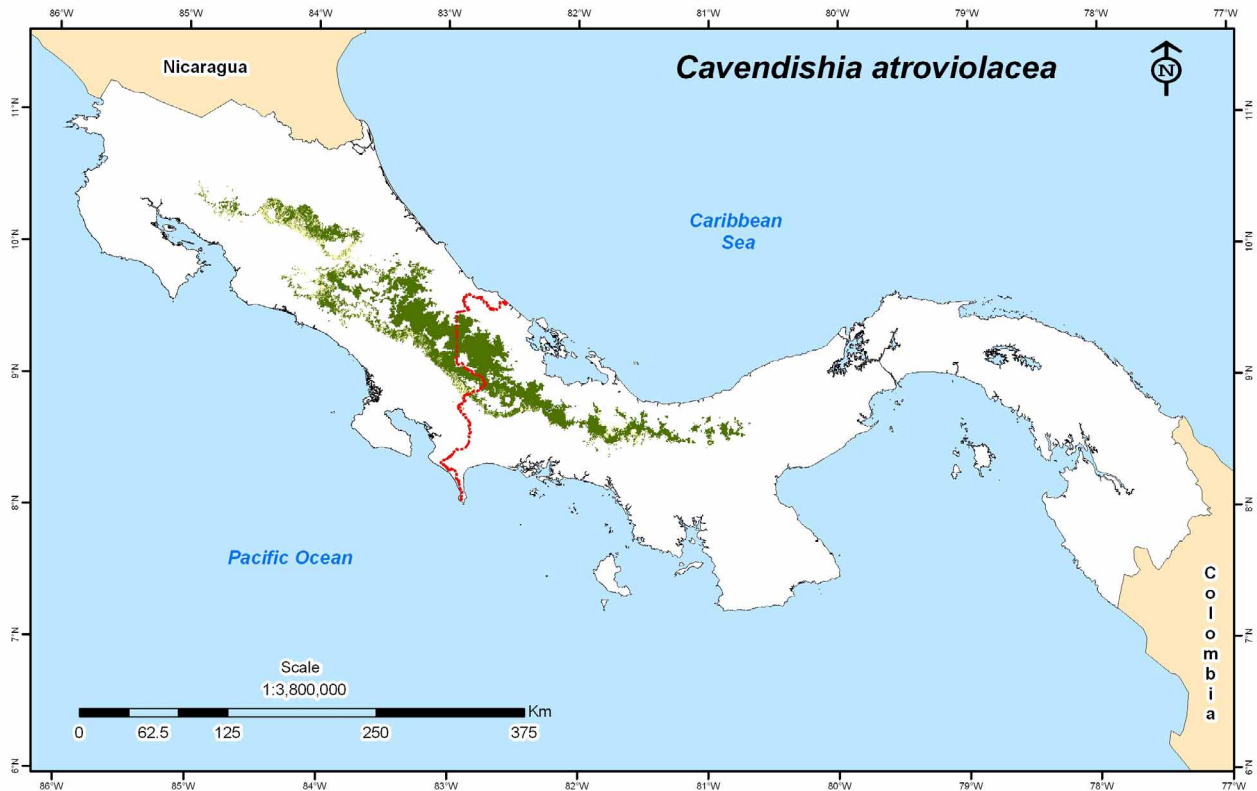
In Costa Rica and Panama the Extension of Occurrence was calculated to be 30301 km², the Area of Occupancy 16393 km² and loss of Extension of Occurrence 46%. Using the above data and IUCN (2001, version 3.1) criteria, *Calypstrogyne ghiesbreghtiana* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Cavendishia atroviolacea Luteyn (Ericaceae)

Epiphytic shrubs, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 41 herbarium collections. Elevational range (400–)600–2400(–2700) m, and the proportion of the regional Extension of Occurrence in protected areas: 59%.

- Global threat category: **Vulnerable (VU) B1ab(iii)**

Fig. 31



The Extension of Occurrence was calculated to be 10214 km², the Area of Occupancy 8476 km² and loss of Extension of Occurrence 17%. Using the above data and IUCN (2001, version 3.1) criteria, *Cavendishia atroviolacea* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, the species has a relatively broad elevational distribution and a high proportion of its Area of Occupancy located in a protected area. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

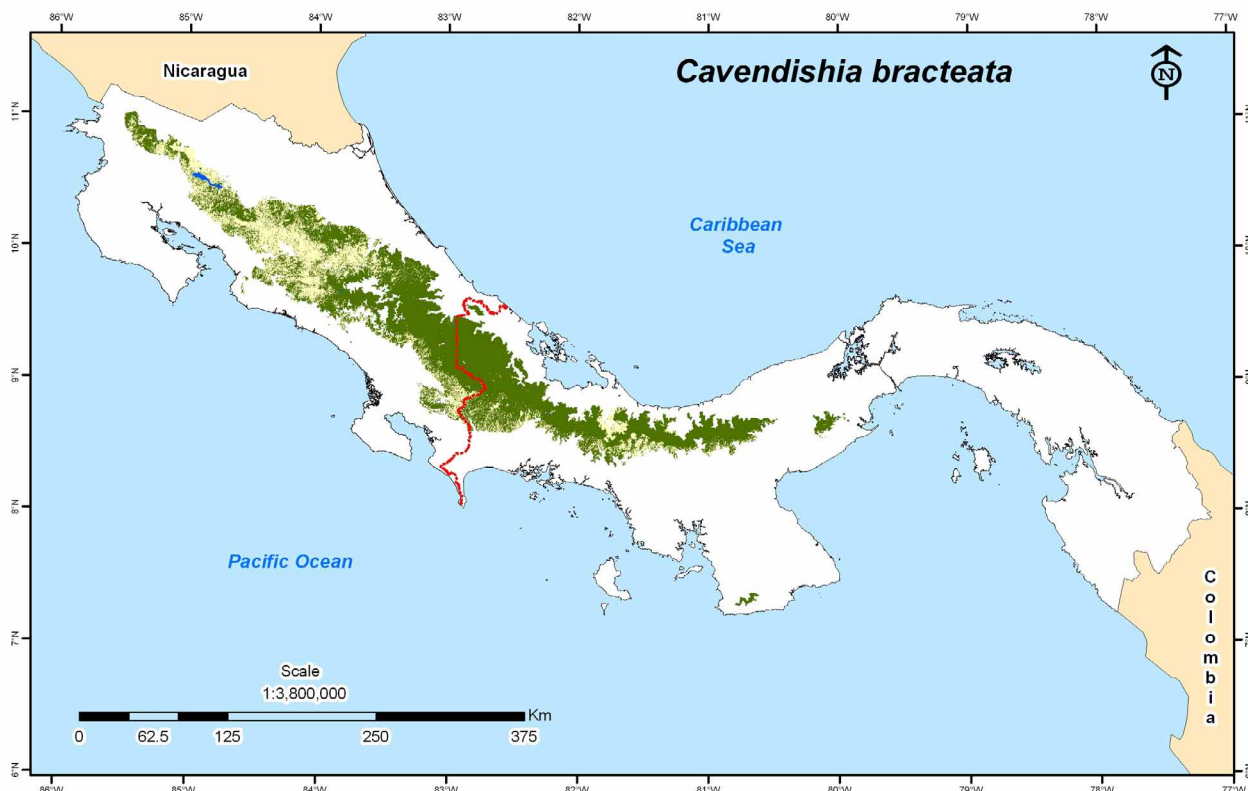
Cavendishia bracteata (Ruiz & Pav. ex J.St.-Hil.) Hoerold (Ericaceae)

Local names: *Arrayán, Clavel georgino, Colmillo, Flor de niño, San Miguel.*

Facultatively epiphytic shrubs, flowers bisexual. Global distribution: Mexico to Bolivia. Known in Costa Rica and Panama from 246 herbarium collections. Elevational range for Costa Rica and Panama 550–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 42%.

- Regional threat category: **Least Concern (LC)**

Fig. 32



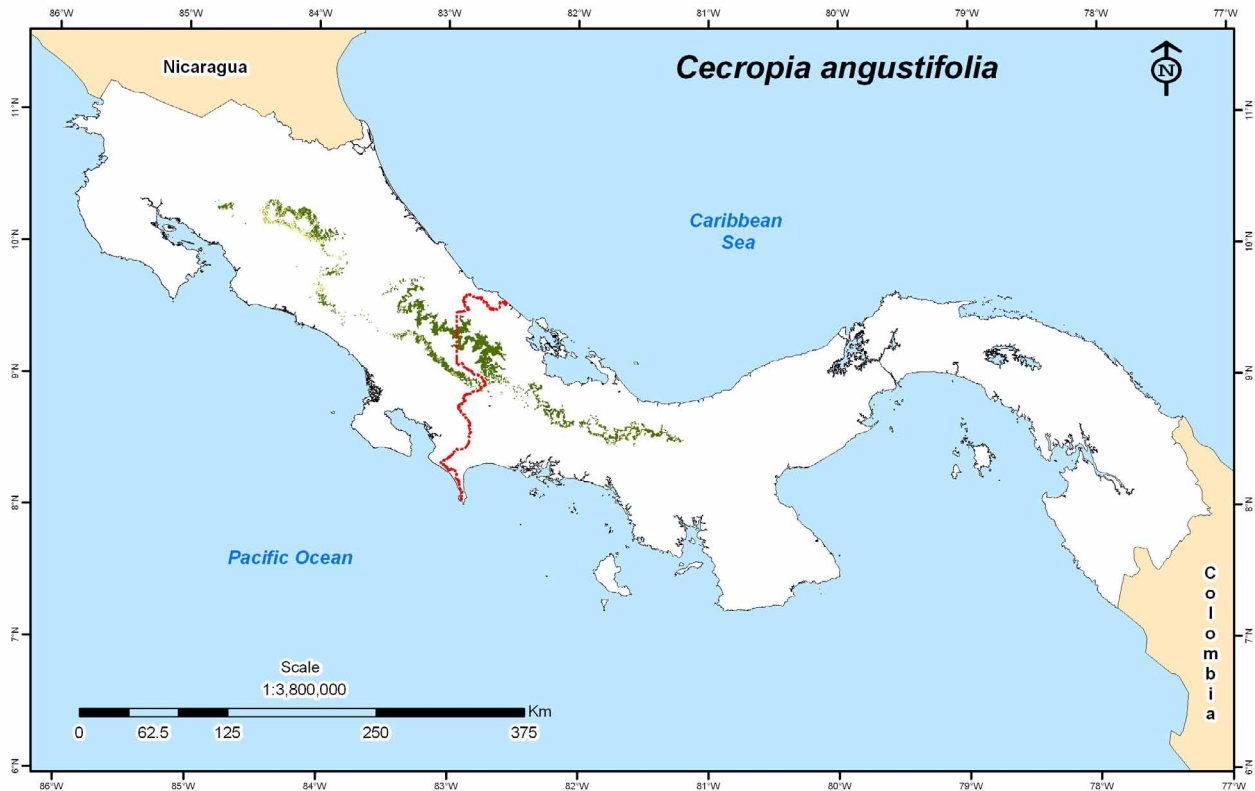
In Costa Rica and Panama the Extension of Occurrence was calculated to be 25591 km², the Area of Occupancy 1795 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Cavendishia bracteata* is classified as NT in relation to criteria AB. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a the relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

Cecropia angustifolia Trécul (Urticaceae)

Terrestrial trees, flowers unisexual, dioecious. Used in the production of handicrafts. Global distribution: Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Venezuela and Bolivia. Known in Costa Rica and Panama from 13 herbarium collections. Elevational range for Costa Rica and Panama (800–)1400–2400 m, and the proportion of the regional Extension of Occurrence in protected areas: 60%.

- Regional threat category: **Vulnerable (VU) B1ab(i, iii)**

Fig. 33



In Costa Rica and Panama the Extension of Occurrence was calculated to be 3242 km², the Area of Occupancy 2604 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Cecropia angustifolia* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

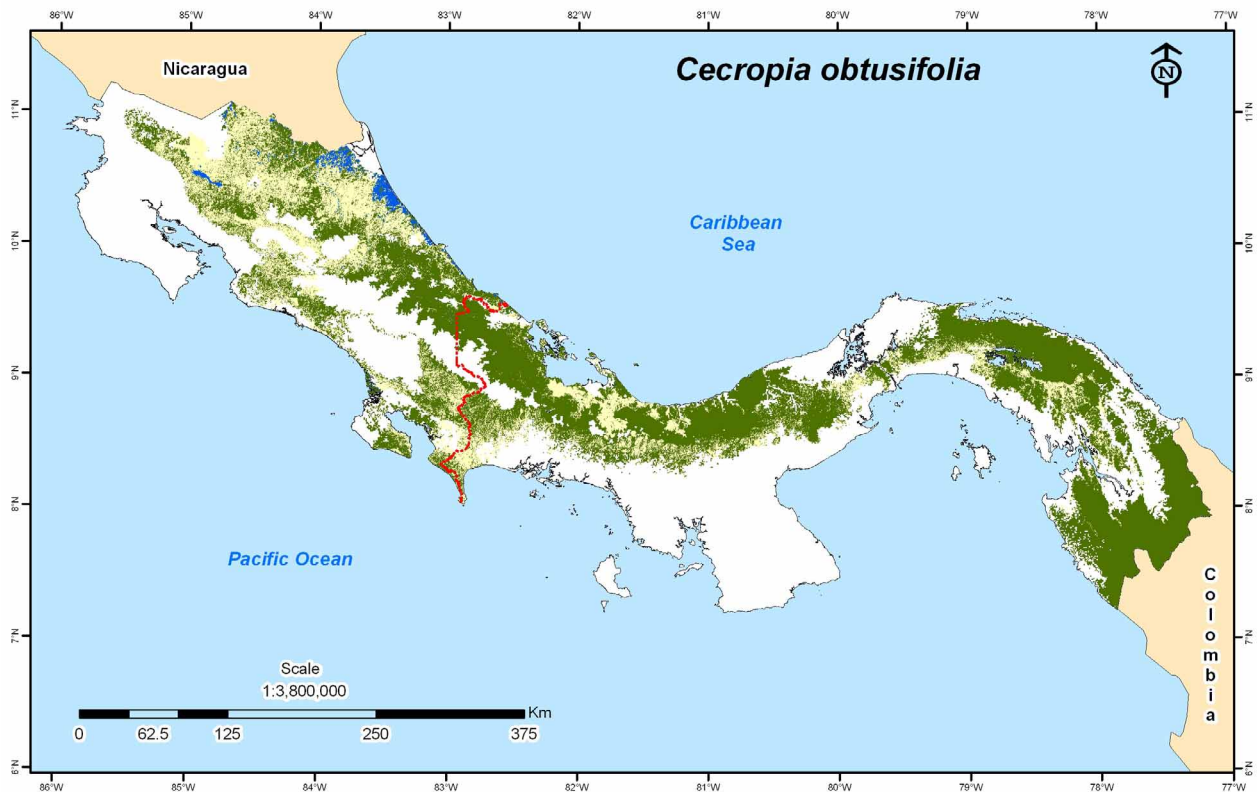
Cecropia obtusifolia Bertol. (Urticaceae)

Local names: *Guarumo colorado*, *Guarumo*, *Bitak*.

Terrestrial trees, flowers unisexual, dioecious, used as a source of fibre, food, handicrafts, animal feed and medicine. Global distribution: Mexico to Ecuador. Known in Costa Rica and Panama from 98 herbarium collections. Elevational range for Costa Rica and Panama 0–1400 m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Least Concern (LC)**

Fig. 34



In Costa Rica and Panama the Extension of Occurrence was calculated to be 64193 km², the Area of Occupancy 43444 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Cecropia obtusifolia* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Least Concern (LC).

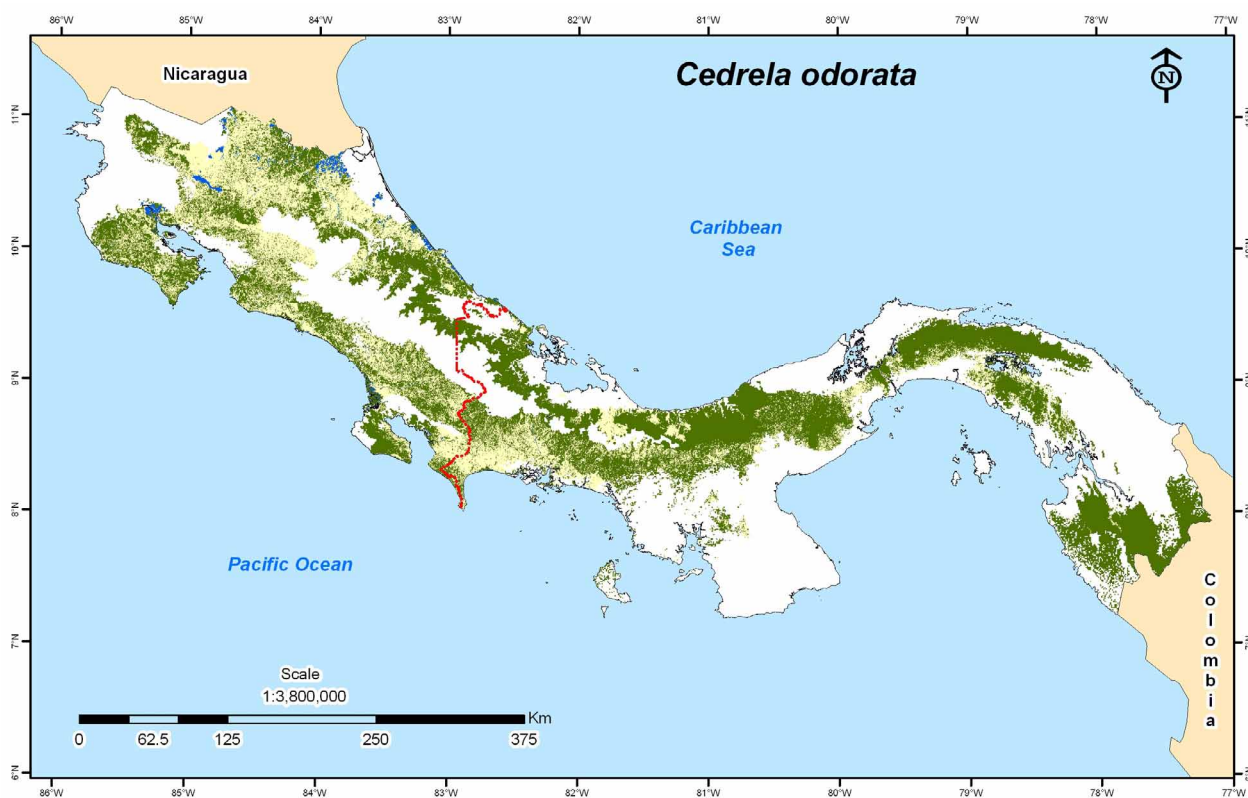
Cedrela odorata L. (Meliaceae)

Local names: *Cedro*, *Cedro cebolla*, *Cedro bateo*, *Cedro colorado*, *Cóbano*, *Cedro amargo*, *Cedro del Atlántico*, *Cedro del Pacífico*, *Cedro dulce*, *Cedro maría*, *Cedro blanco*, *Cedro real*.

Terrestrial trees, flowers unisexual, monoecious, used as a herbal remedy. Global distribution: Mexico to Argentina, the Antilles, cultivated in Africa and Madagascar. Known in Costa Rica and Panama from 43 herbarium collections. Elevational range for Costa Rica and Panama 0–1200 m, and the proportion of the regional Extension of Occurrence in protected areas: 23%.

- Regional threat category: **Near Threatened (NT)**

Fig. 35



In Costa Rica and Panama the Extension of Occurrence was calculated to be 63251 km², the Area of Occupancy 39083 km² and loss of Extension of Occurrence 38%. Using the above data and IUCN (2001, version 3.1) criteria, *Cedrela odorata* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the low proportion of its Area of Occupancy located in a protected area and the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

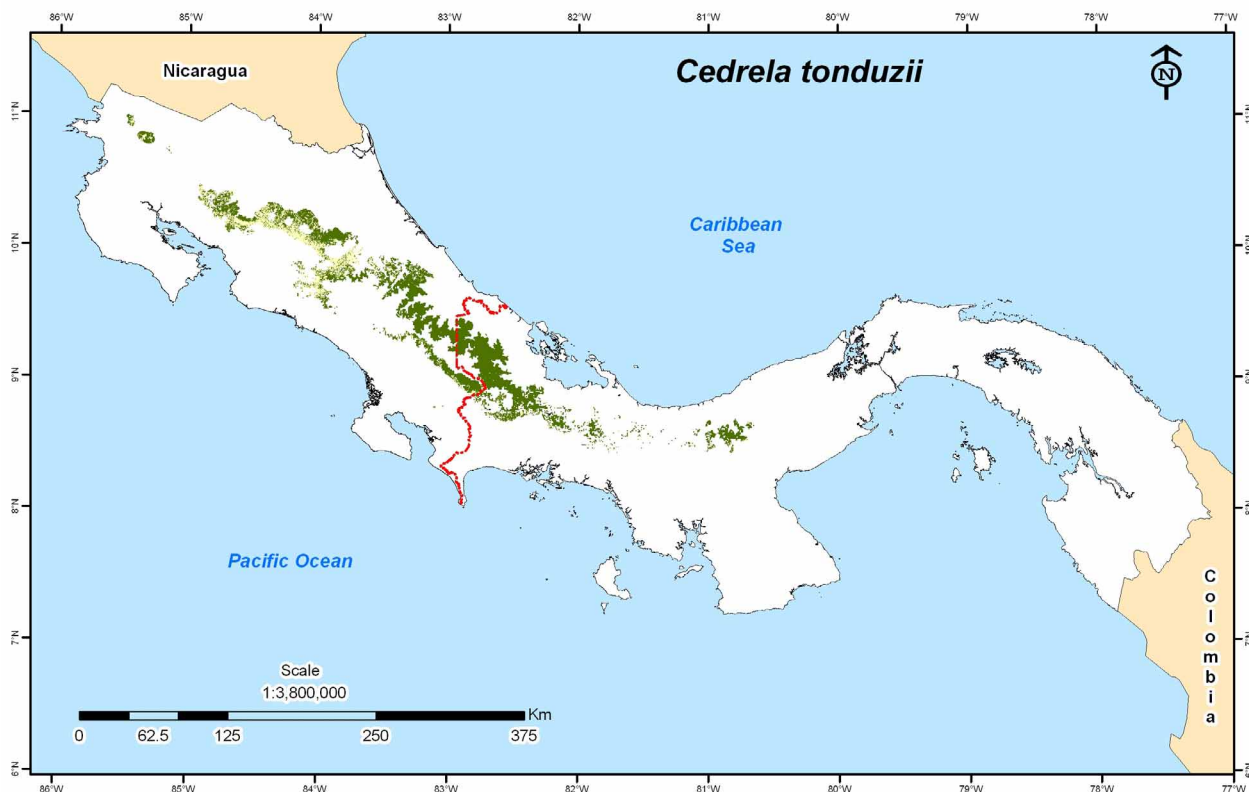
Cedrela tonduzii C.DC. (Meliaceae)

Local names: *Cedro real*, *Cedro dulce*, *Cedro*, *Cedro del atlántico*, *Cedro atlántico*, *Cedro cobano*.

Terrestrial trees, flowers unisexual, monoecious, used as a herbal remedy. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 25 herbarium collections. Elevational range for Costa Rica and Panama 990–2050 m, and the proportion of the regional Extension of Occurrence in protected areas: 58%.

- Regional threat category: **Near Threatened (NT)**

Fig. 36



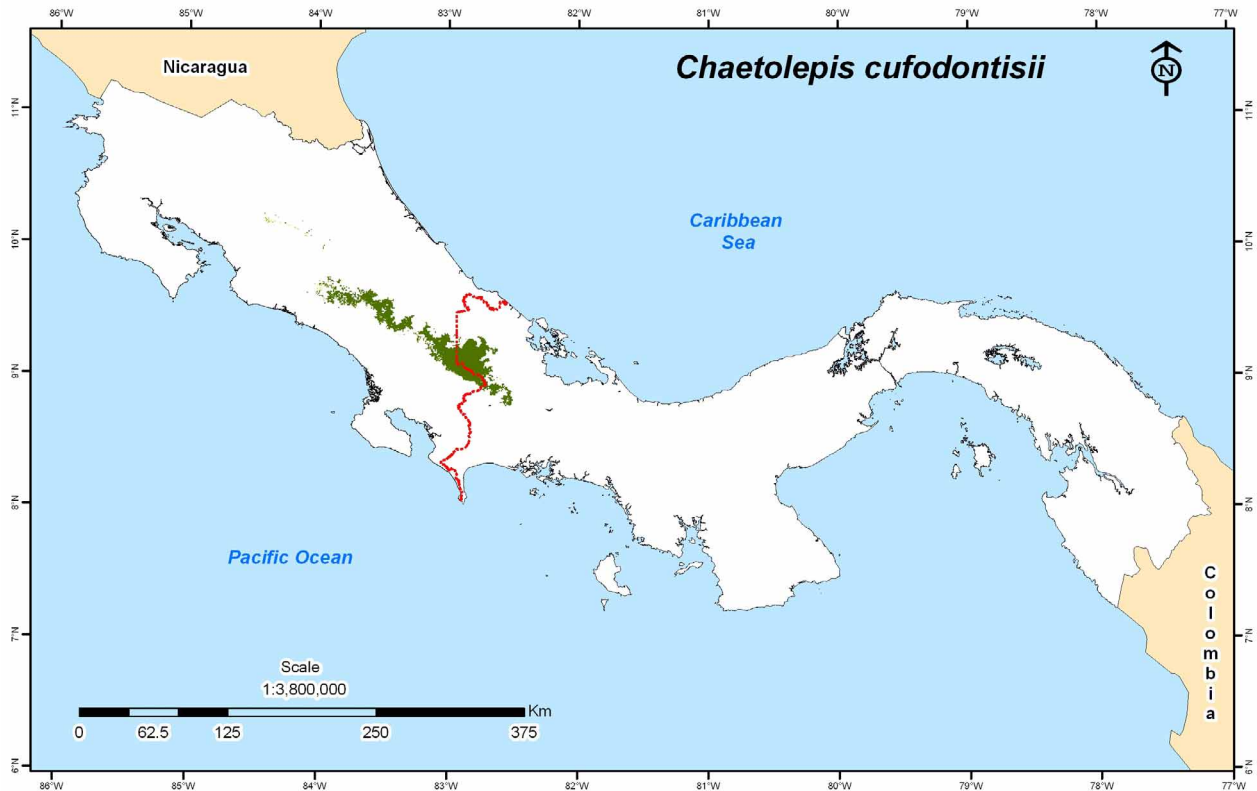
In Costa Rica and Panama the Extension of Occurrence was calculated to be 8189 km², the Area of Occupancy 6265 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Cedrela tonduzii* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and a high proportion of its Area of Occupancy located in a protected area. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Chaetolepis cufodontisii Standl. (Melastomataceae)

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 33 herbarium collections. Elevational range (1500–)2000–3700 m, and the proportion of the regional Extension of Occurrence in protected areas: 88%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 37



The Extension of Occurrence was calculated to be 2534 km², the Area of Occupancy 2415 km² and loss of Extension of Occurrence 5%. Using the above data and IUCN (2001, version 3.1) criteria, *Chaetolepis cufodontisii* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the threat category was not changed.

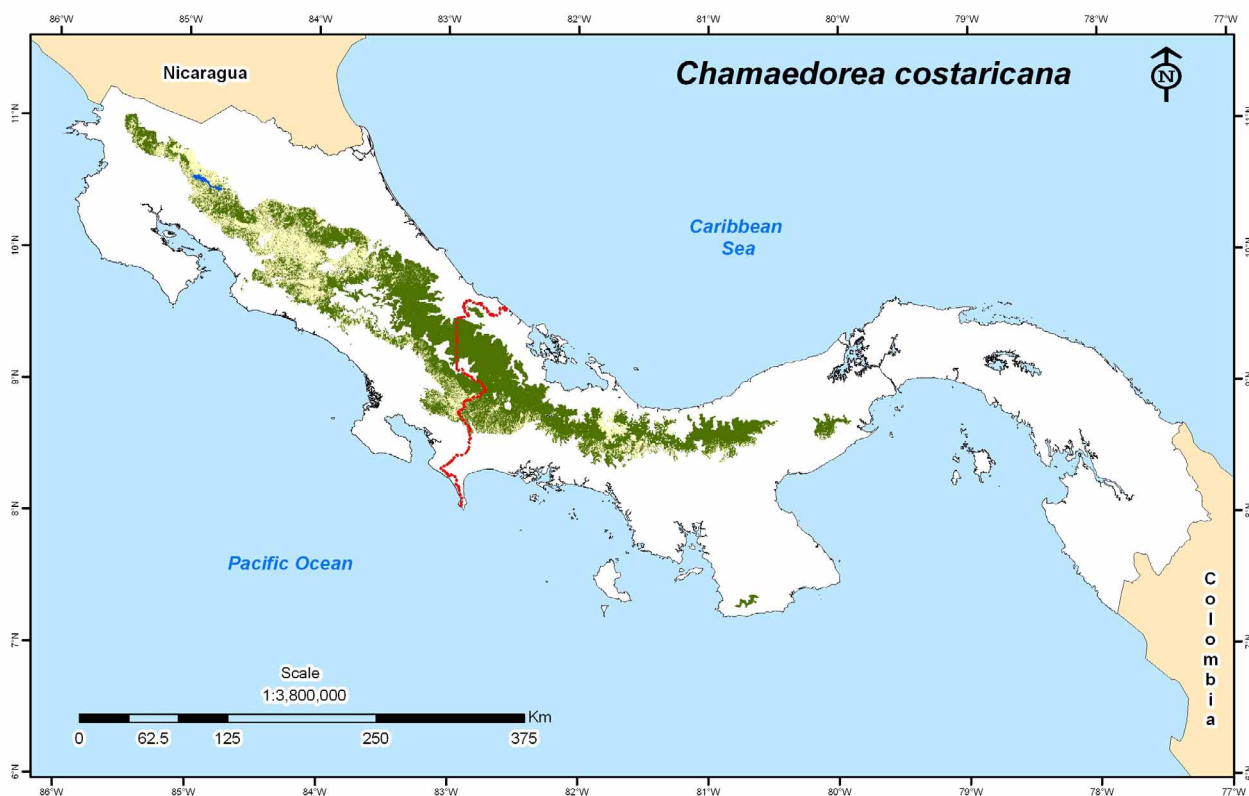
Chamaedorea costaricana Oerst. (Arecaceae)

Local names: *Pacaya*, *Yawo*, *Kiöl*.

Terrestrial shrubs, flowers unisexual, dioecious. Cultivated as an ornamental. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 123 herbarium collections. Elevational range for Costa Rica and Panama 500–2350 m, and the proportion of the regional Extension of Occurrence in protected areas: 39%.

- Regional threat category: **Near Threatened (NT)**

Fig. 38



In Costa Rica and Panama the Extension of Occurrence was calculated to be 24045 km², the Area of Occupancy 16614 km² and loss of Extension of Occurrence 31%. Using the above data and IUCN (2001, version 3.1) criteria, *Chamaedorea costaricana* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

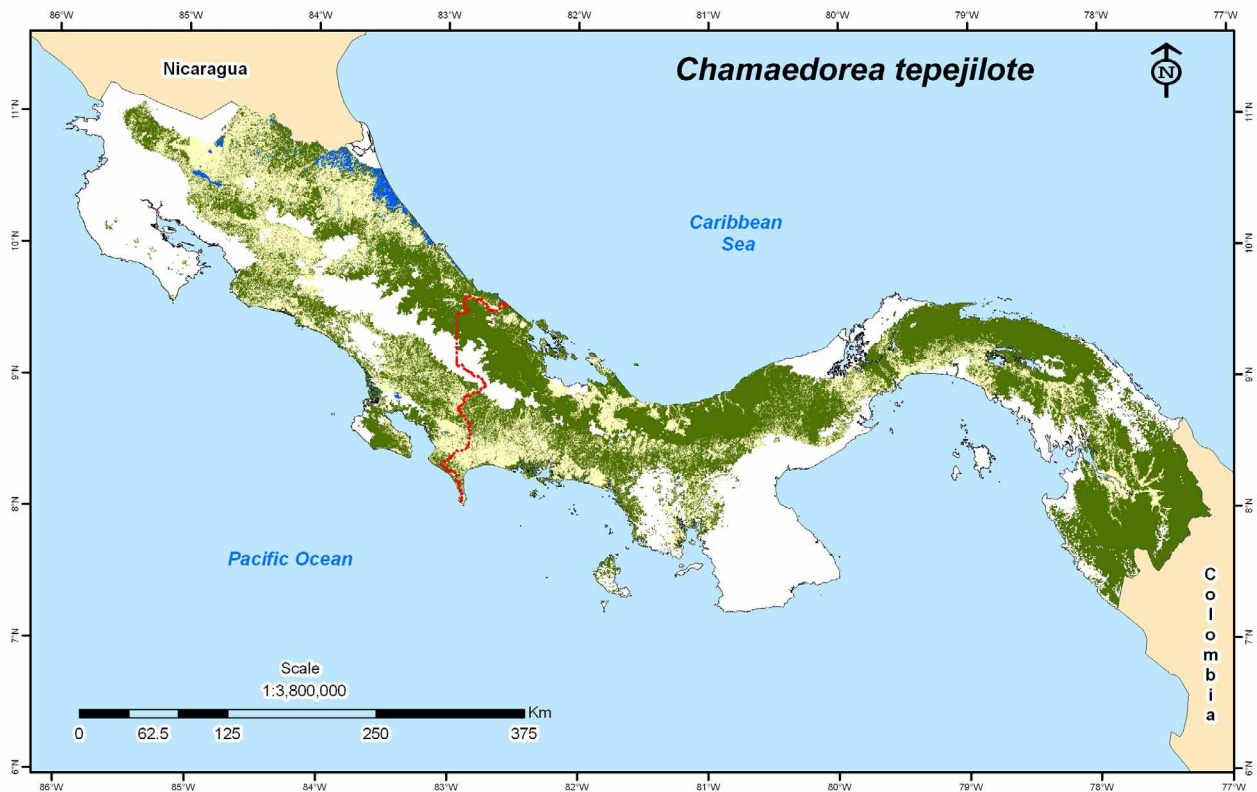
Chamaedorea tepejilote Liebm. (Arecaceae)

Local names: *Pacaya*, *Manita*.

Terrestrial shrubs, flowers unisexual, dioecious, used as a foodstuff and herbal remedy. Global distribution: Mexico to Colombia. Known in Costa Rica and Panama from 202 herbarium collections. Elevational range for Costa Rica and Panama 0–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 39



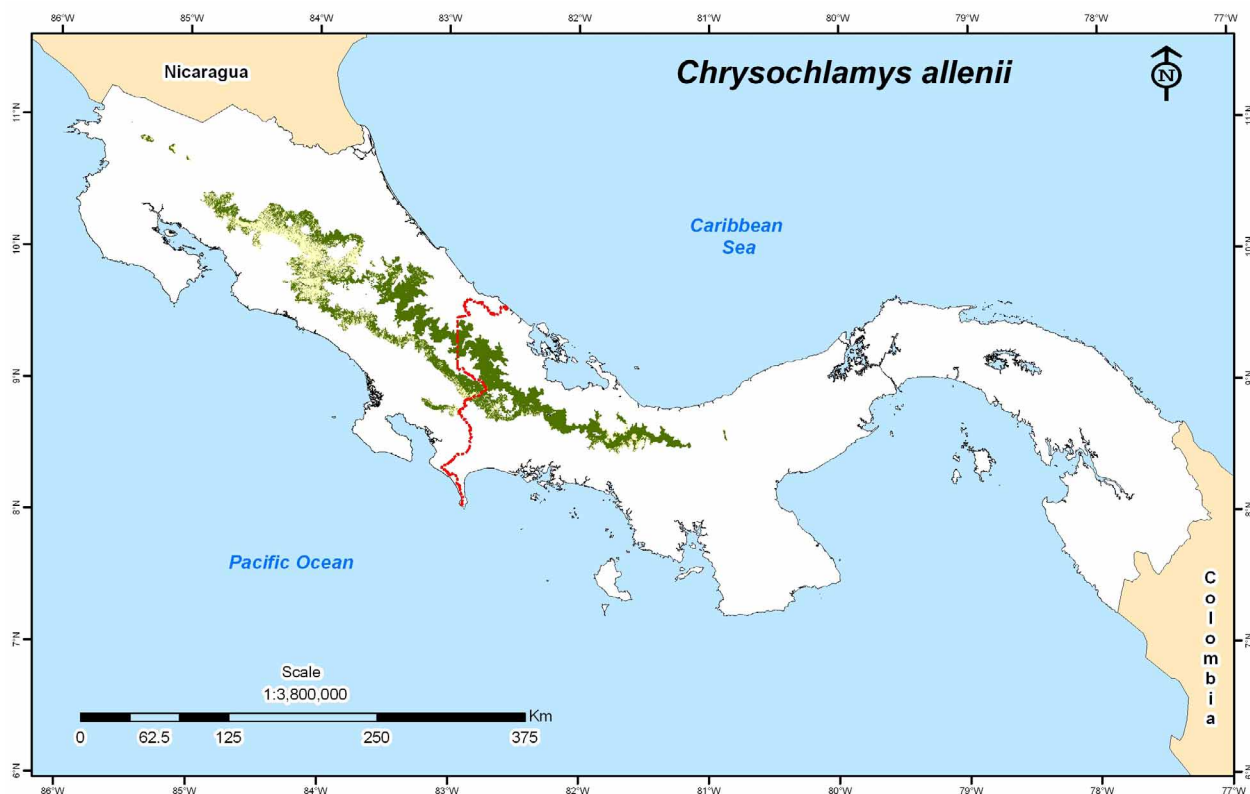
In Costa Rica and Panama the Extension of Occurrence was calculated to be 81862 km², the Area of Occupancy 52192 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Chamaedorea tepejilote* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Chrysochlamys allenii (Maguire) Hammel (Clusiaceae)

Terrestrial trees, flowers unisexual, dioecious. Endemic to Costa Rica and Panama. Known from 74 herbarium collections. Elevational range (700–)1450–2300 m, and the proportion of the regional Extension of Occurrence in protected areas: 46%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 40



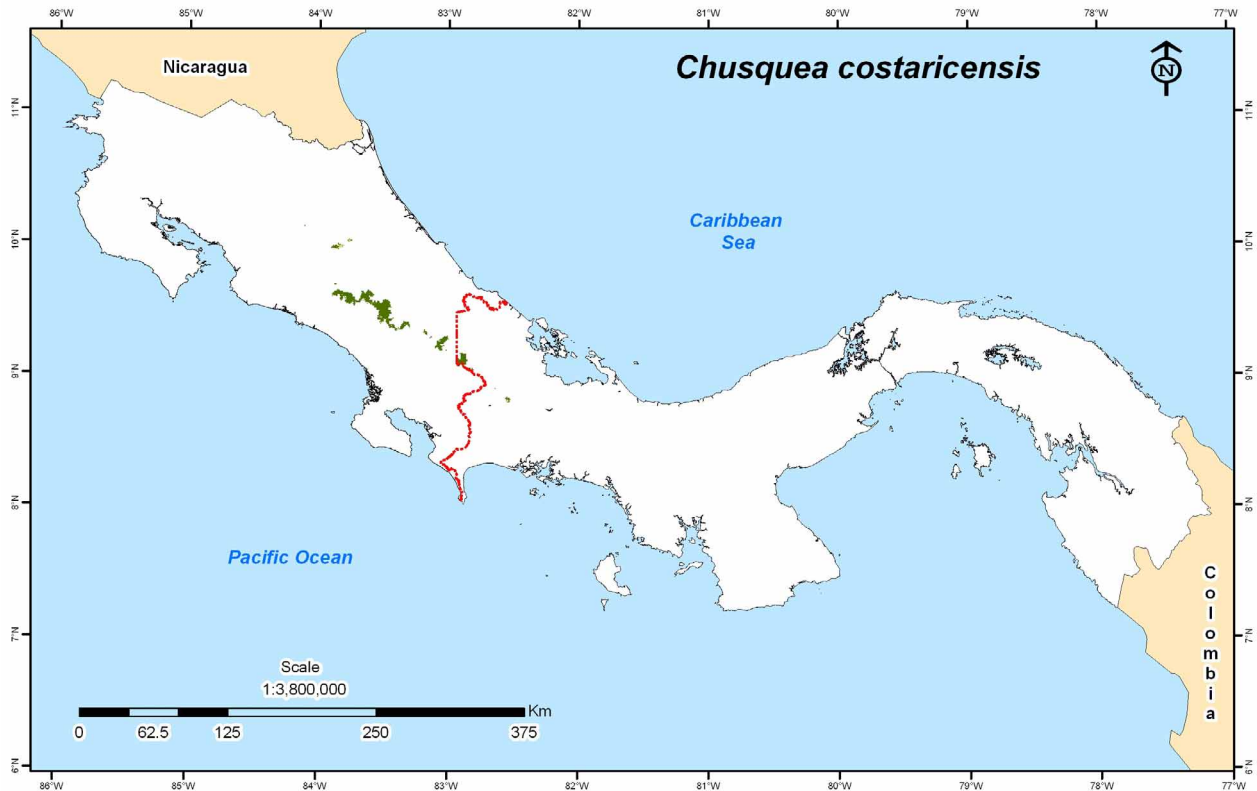
In Costa Rica and Panama the Extension of Occurrence was calculated to be 11562 km², the Area of Occupancy 8237 km² and loss of Extension of Occurrence 29%. Using the above data and IUCN (2001, version 3.1) criteria, *Chrysochlamys allenii* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a broad distribution and elevational range, a relatively high proportion of its Area of Occupancy is located with protected areas, and observations by authors in the field which suggest that this species is abundant in its Area of Occupancy. Despite the above the threat category was not changed.

Chusquea costaricensis L.G.Clark & R.H.March (Poaceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 19 herbarium collections. Elevational range 2900–3300 m, and the proportion of the regional Extension of Occurrence in protected areas: 92%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 41



In Costa Rica and Panama the Extension of Occurrence was calculated to be 675 km², the Area of Occupancy 646 km² and loss of Extension of Occurrence 4%. Using the above data and IUCN (2001, version 3.1) criteria, *Chusquea costaricensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the narrow Elevation range recorded for the species. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the threat category was not changed.

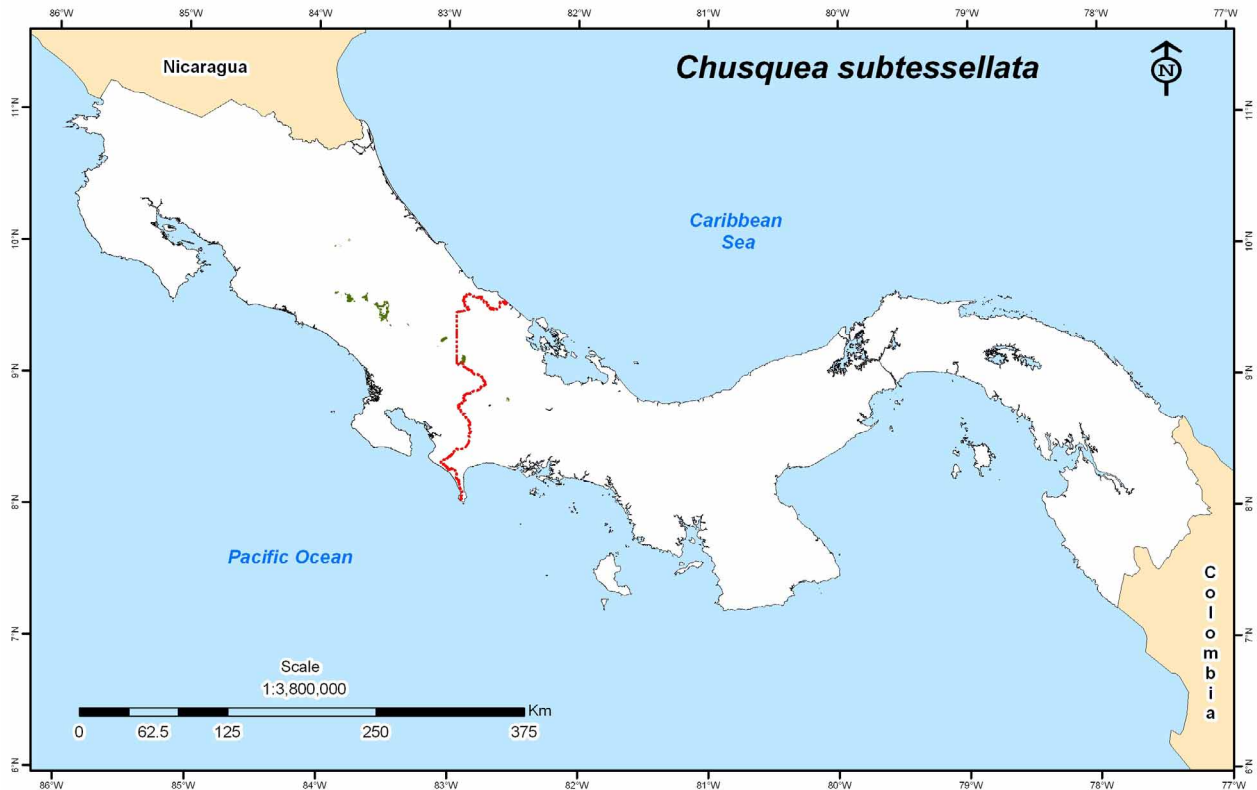
Chusquea subtessellata Hitchc. (Poaceae)

Local name: *Batamba*.

Terrestrial shrubs, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 105 herbarium collections. Elevational range (2700–)3000–3800 m, and the proportion of the regional Extension of Occurrence in protected areas: 97%.

- Global threat category: **Endangered (EN) B1ab(iii) and A2a**

Fig. 42



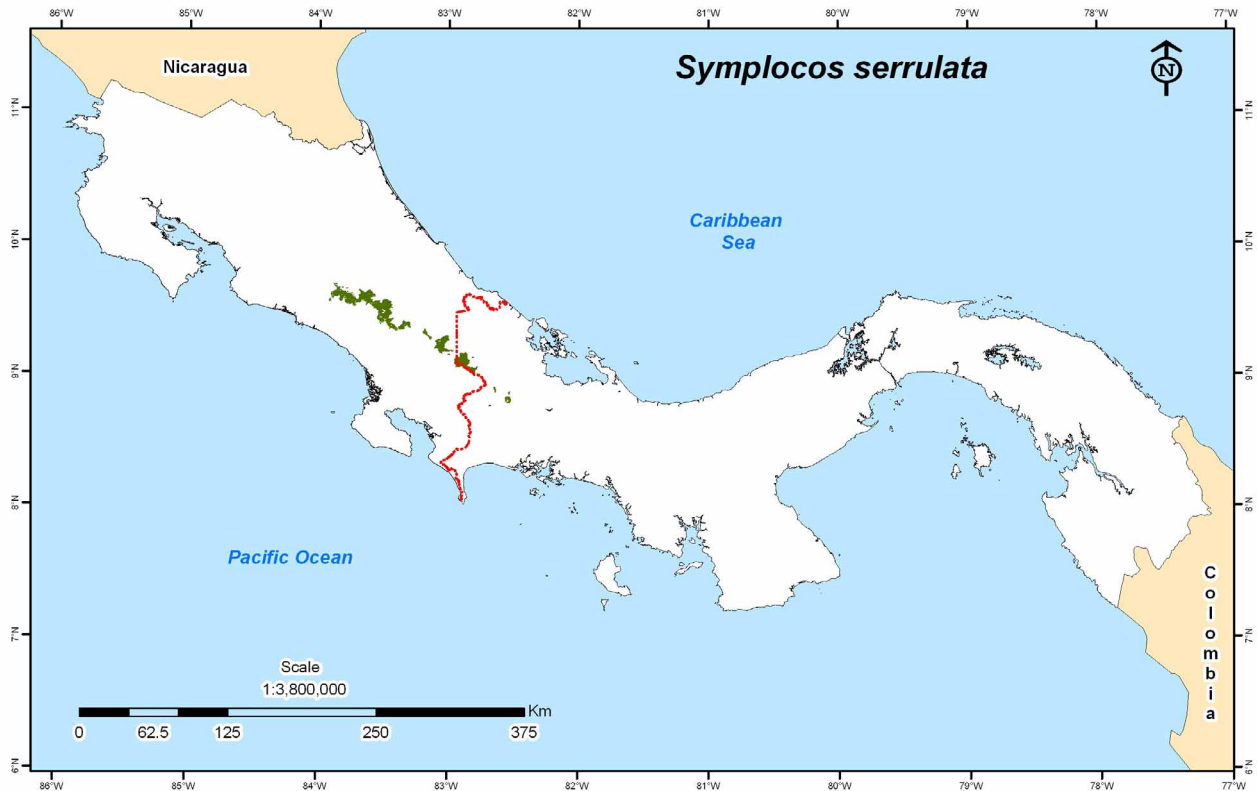
In Costa Rica and Panama the Extension of Occurrence was calculated to be 200 km², the Area of Occupancy 187 km² and loss of Extension of Occurrence 7%. Using the above data and IUCN (2001, version 3.1) criteria, *Chusquea subtessellata* is classified as Endangered (EN) in relation to criteria B1ab(i,iii) and A2a. This classification is supported by the severe fragmentation of the Extension of Occurrence. Countering this, however, are low levels of habitat loss, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. Despite the above the threat category was not changed.

Chusquea talamancensis Y.Widmer & L.G.Clark (Poaceae)

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 31 herbarium collections. Elevational range 2600–3200 m, and the proportion of the regional Extension of Occurrence in protected areas: 93%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 43



In Costa Rica and Panama the Extension of Occurrence was calculated to be 945 km², the Area of Occupancy 836 km² and loss of Extension of Occurrence 12%. Using the above data and IUCN (2001, version 3.1) criteria, *Chusquea talamancensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area. Despite the above the threat category was not changed.

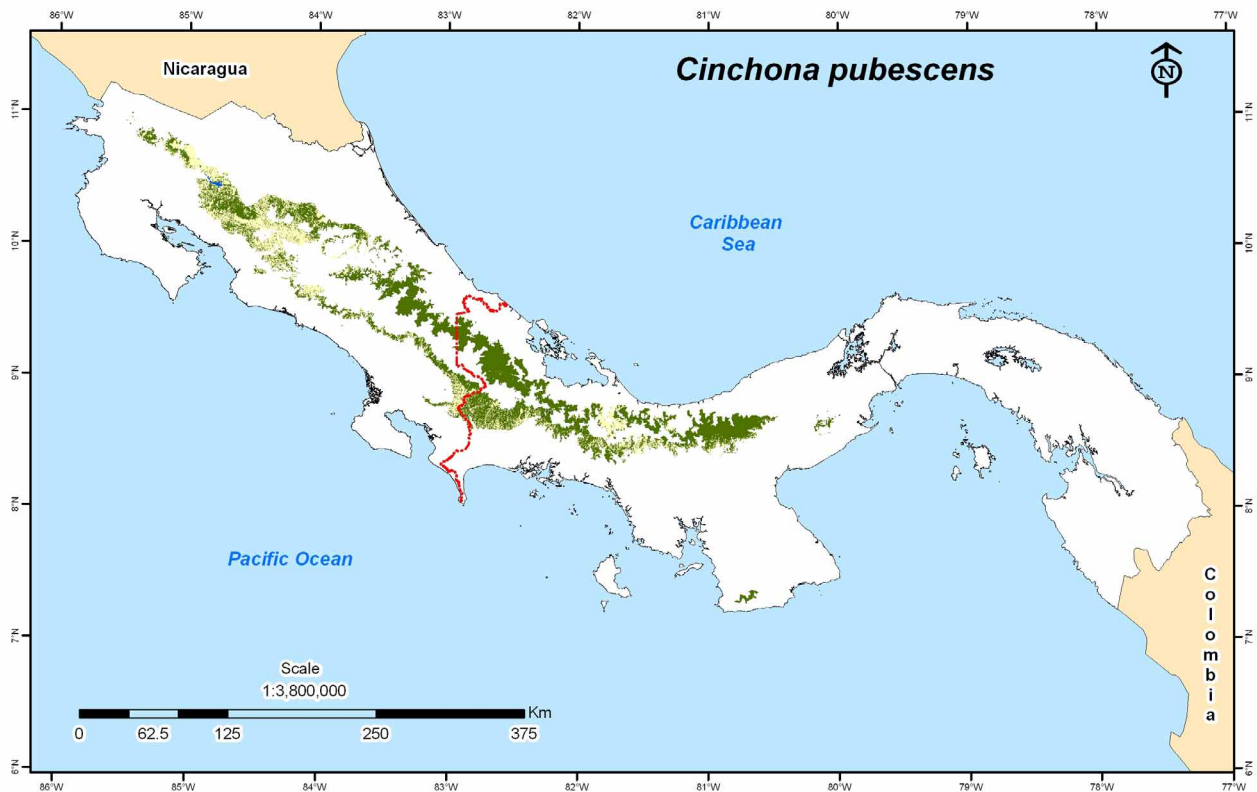
Cinchona pubescens Vahl (Rubiaceae)

Local names: *Agujilla*, *Quina*, *Palo de lagarto*, *Quinina*, *Bichá*.

Terrestrial trees, flowers bisexual, used as timber and a medicine. Global distribution: Costa Rica to Peru, Bolivia. Known in Costa Rica and Panama from 41 herbarium collections. Elevational range for Costa Rica and Panama (500–)1000–1700 m, and the proportion of the regional Extension of Occurrence in protected areas 39%.

- Regional threat category: **Near Threatened (NT)**

Fig. 44



In Costa Rica and Panama the Extension of Occurrence was calculated to be 14836 km², the Area of Occupancy 10012 km² and loss of Extension of Occurrence 33%. Using the above data and IUCN (2001, version 3.1) criteria, *Cinchona pubescens* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

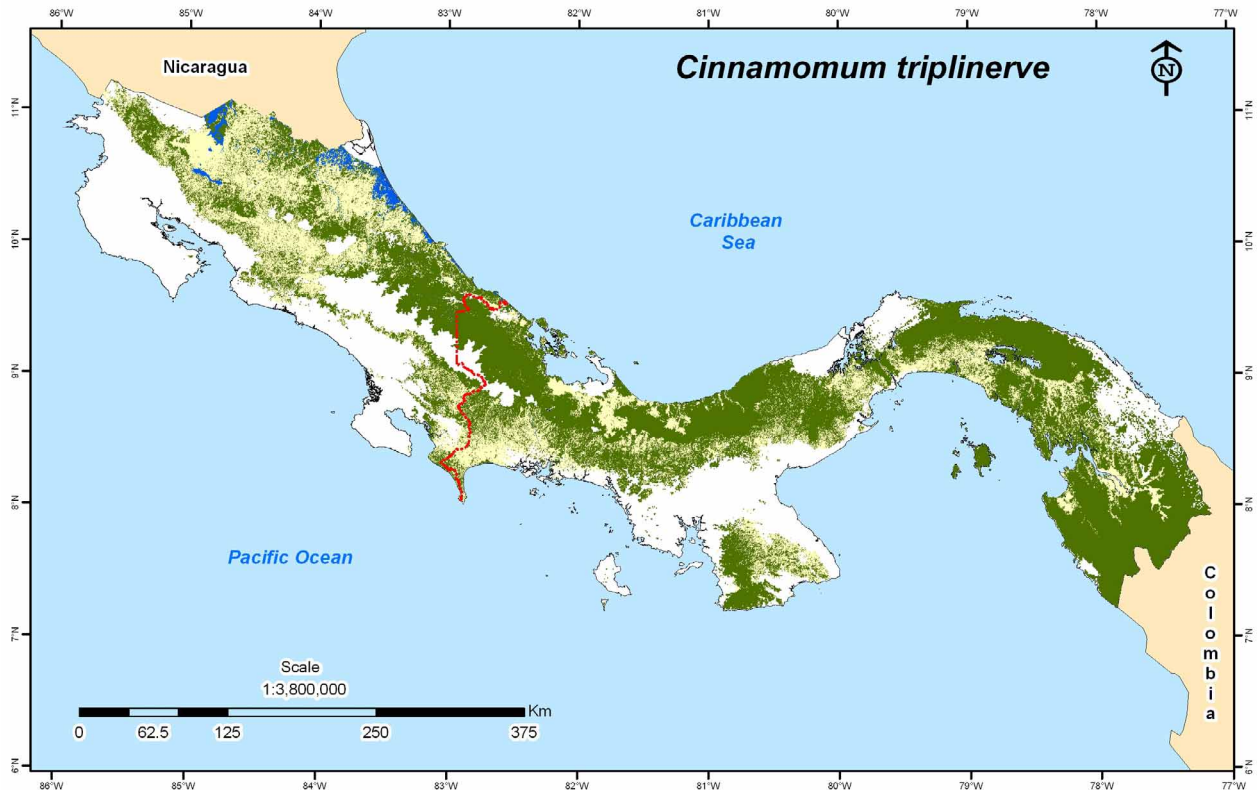
Cinnamomum triplinerve (Ruiz & Pav.) Kosterm. (Lauraceae)

Local name: Aguacatillo.

Terrestrial shrubs or trees, flowers bisexual. Used as timber. Global distribution: Mexico to Panama, the Antilles. Known in Costa Rica and Panama from 92 herbarium collections. Elevational range for Costa Rica and Panama 0–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 45



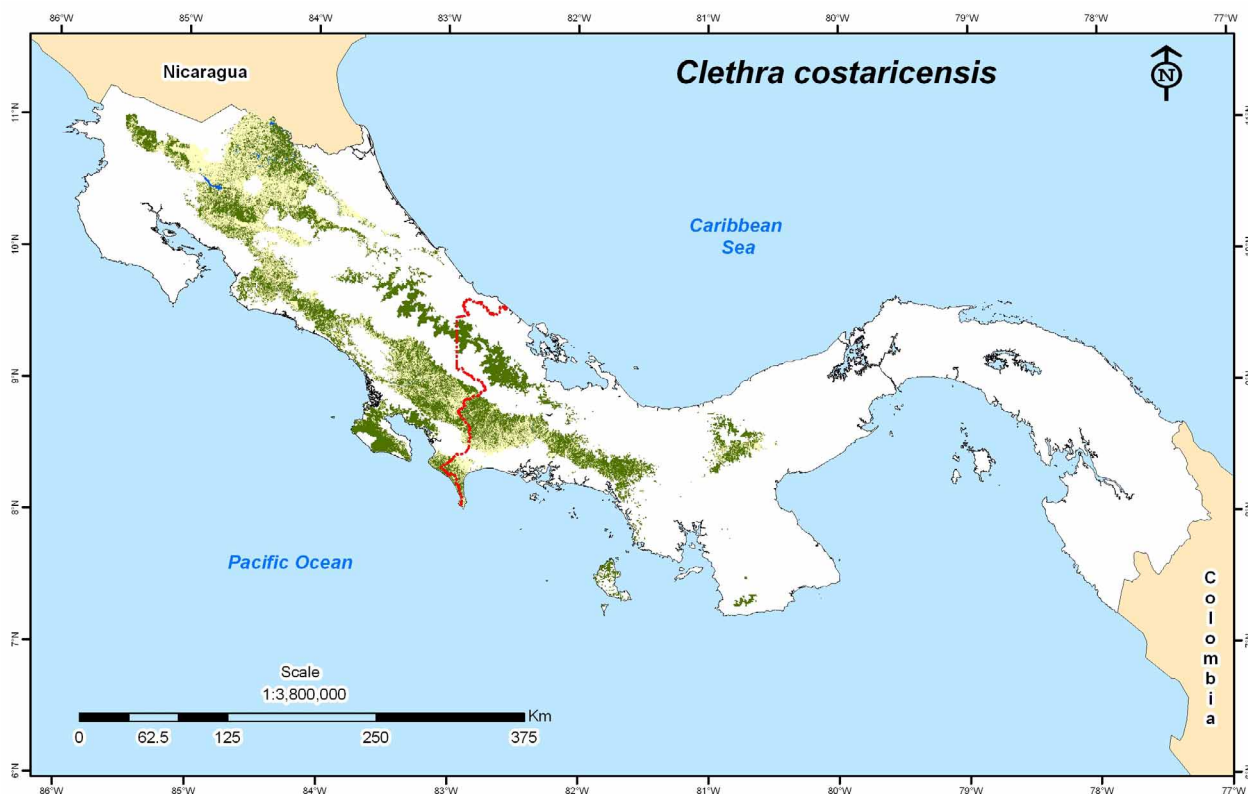
In Costa Rica and Panama the Extension of Occurrence was calculated to be 83030 km², the Area of Occupancy 53629 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Cinnamomum triplinerve* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by its extraction for timber. It is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Clethra costaricensis Britton (Clethraceae)

Terrestrial trees, flowers bisexual. Global distribution: Mexico and Guatemala, Costa Rica and Panama. Known in Costa Rica and Panama from 54 herbarium collections. Elevational range for Costa Rica and Panama 0–1500(–1700) m, and the proportion of the regional Extension of Occurrence in protected areas: 23%.

- Regional threat category: **Near Threatened (NT)**

Fig. 46



In Costa Rica and Panama the Extension of Occurrence was calculated to be 24755 km², the Area of Occupancy 13957 km² and loss of Extension of Occurrence 44%. Using the above data and IUCN (2001, version 3.1) criteria, *Clethra costaricensis* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

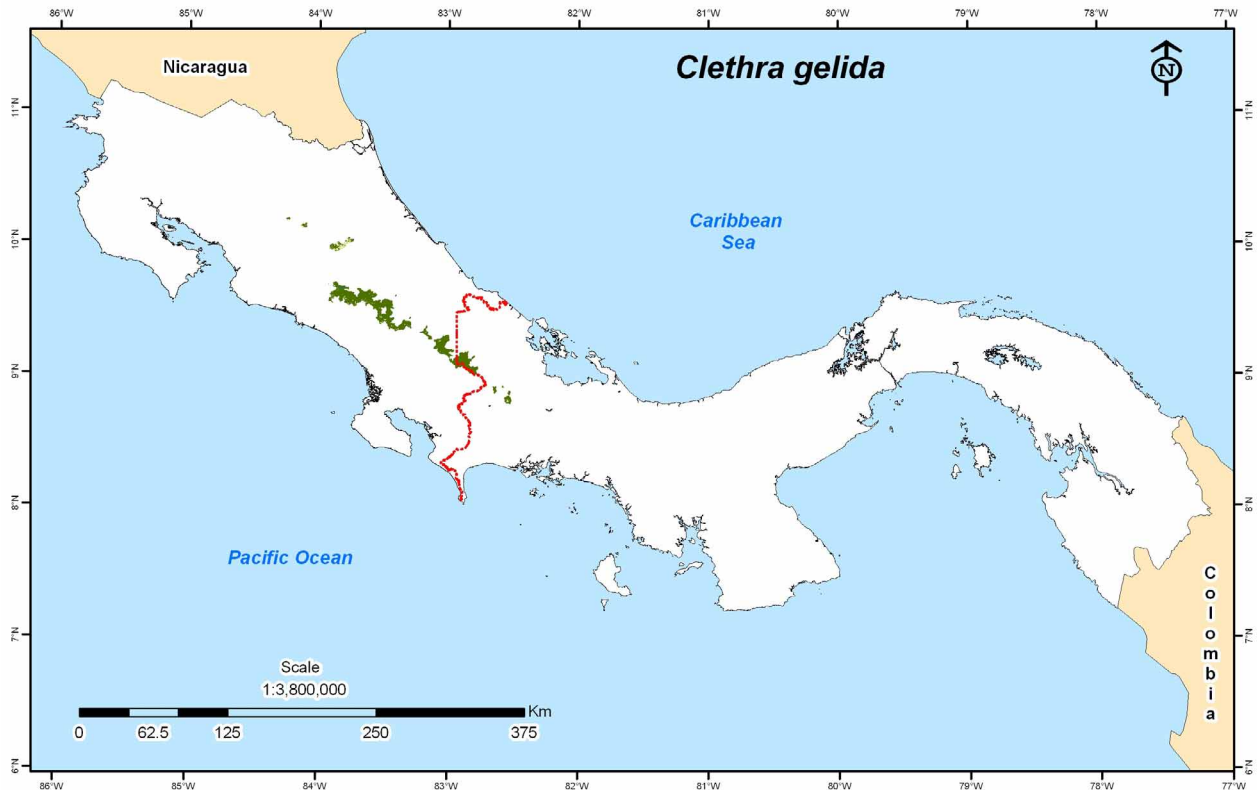
Clethra gelida Standl. (Clethraceae)

Local name: Nance.

Terrestrial shrubs, flowers bisexual. Honduras, Costa Rica and Panama. Known in Costa Rica and Panama from 20 herbarium collections. Elevational range 2500–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 90%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 47



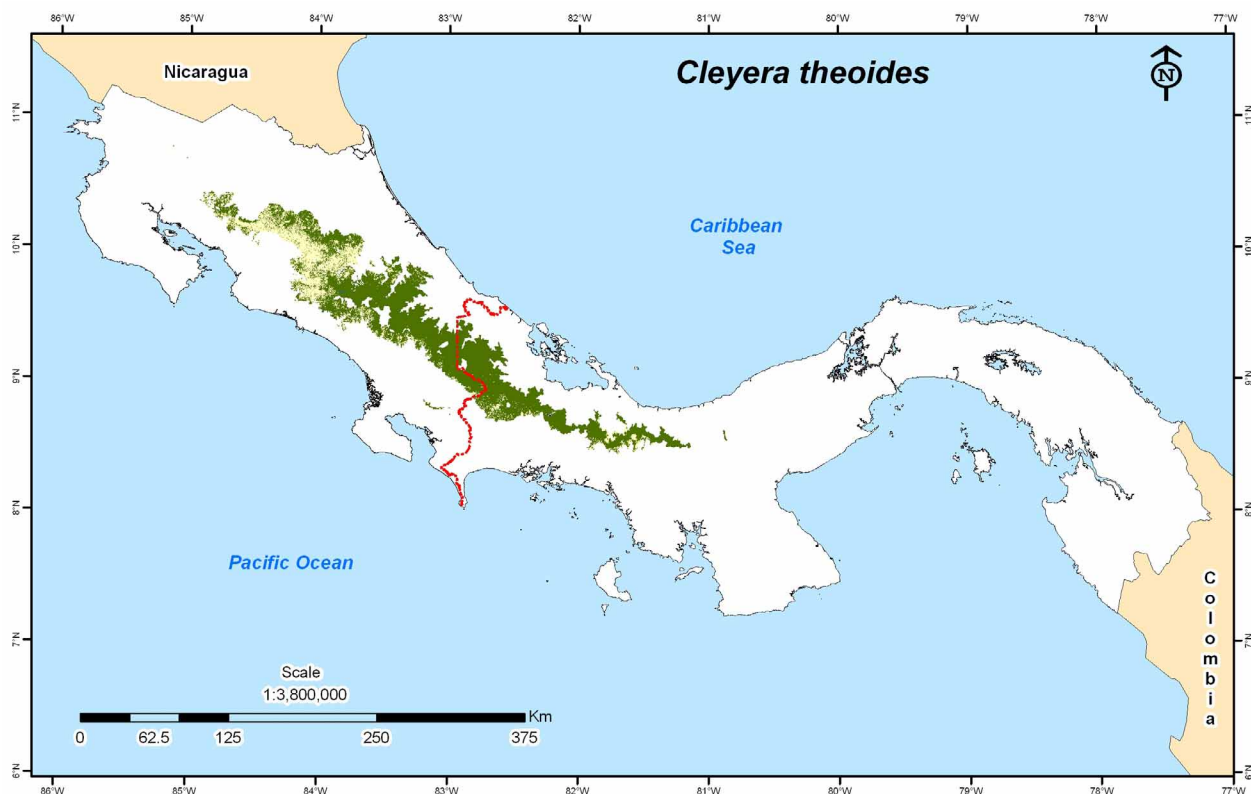
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1347 km², the Area of Occupancy 1192 km² and loss of Extension of Occurrence 11%. Using the above data and IUCN (2001, version 3.1) criteria, *Clethra gelida* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy is located in a protected area. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Cleyera theoides (Sw.) Choisy (Pentaphylacaceae)

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Panama, the Antilles. Known in Costa Rica and Panama from 125 herbarium collections. Elevational range for Costa Rica and Panama 1000–2800 m, and the proportion of the regional Extension of Occurrence in protected areas: 55%.

- Regional threat category: **Near Threatened (NT)**

Fig. 48



In Costa Rica and Panama the Extension of Occurrence was calculated to be 13314 km², the Area of Occupancy 10114 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Cleyera theoides* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

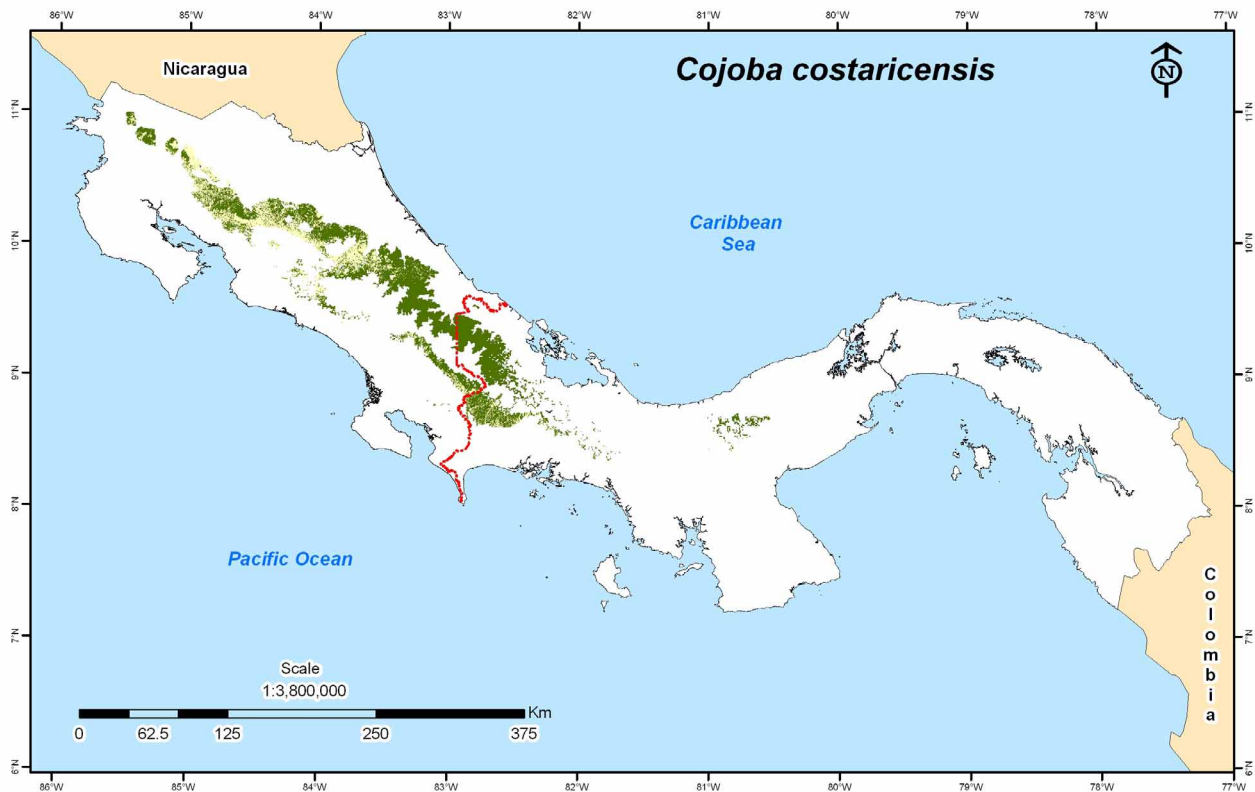
Cojoba costaricensis Britton & Rose (Fabaceae)

Local names: *Cocobola*, *Cocobolo*, *Conchudo*, *Lorito*.

Terrestrial trees, flowers bisexual, used as timber. Endemic to Costa Rica and Panama. Known from 58 herbarium collections. Elevational range 1150–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 48%.

- Global threat category: **Vulnerable (VU) B1ab(i, iii)**

Fig. 49



In Costa Rica and Panama the Extension of Occurrence was calculated to be 10953 km², the Area of Occupancy 7675 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Cojoba costaricensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy and the extraction of this species for timber. Countering this, however, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

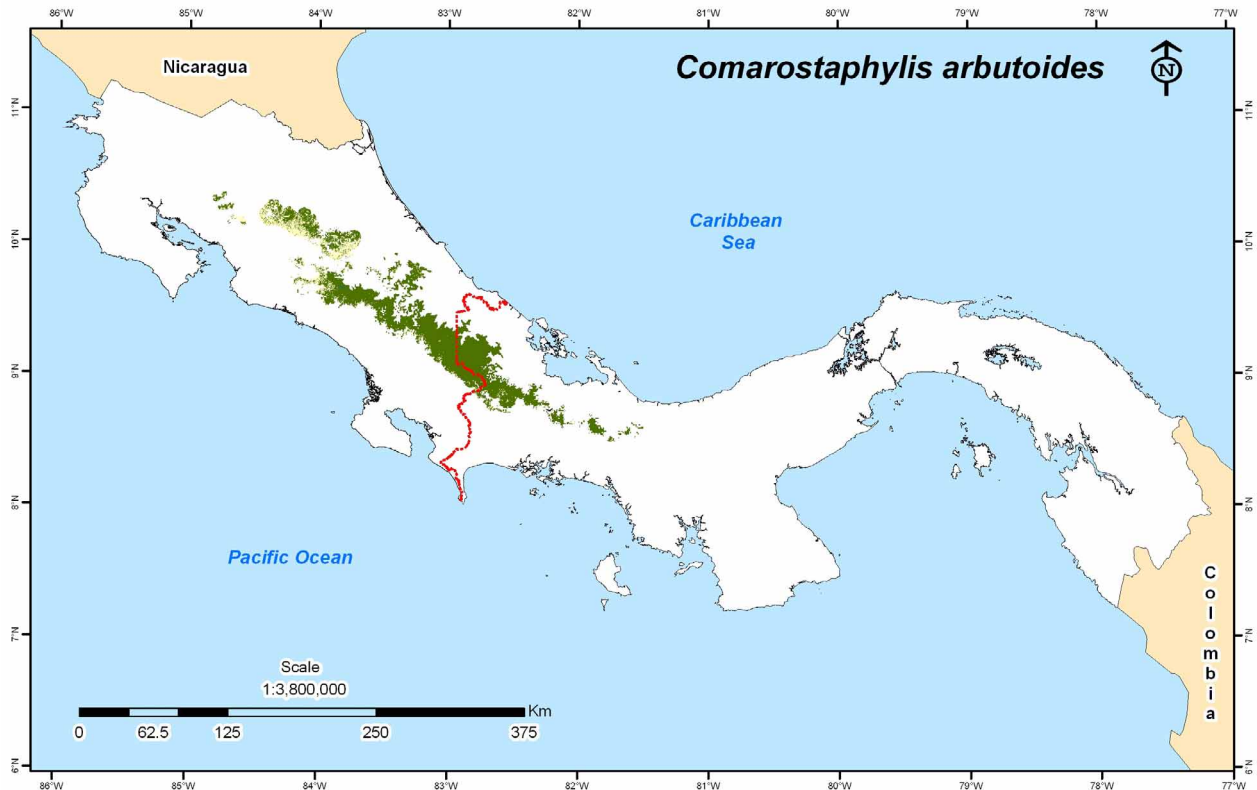
Comarostaphylis arbutoides Lindl.(Ericaceae)

Local name: Arrayán.

Terrestrial shrub or tree, flowers bisexual. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 50 herbarium collections. Elevational range 1200–3800 m, and the proportion of the regional Extension of Occurrence in protected areas: 71%.

- Regional threat category: **Near Threatened (NT)**

Fig. 50



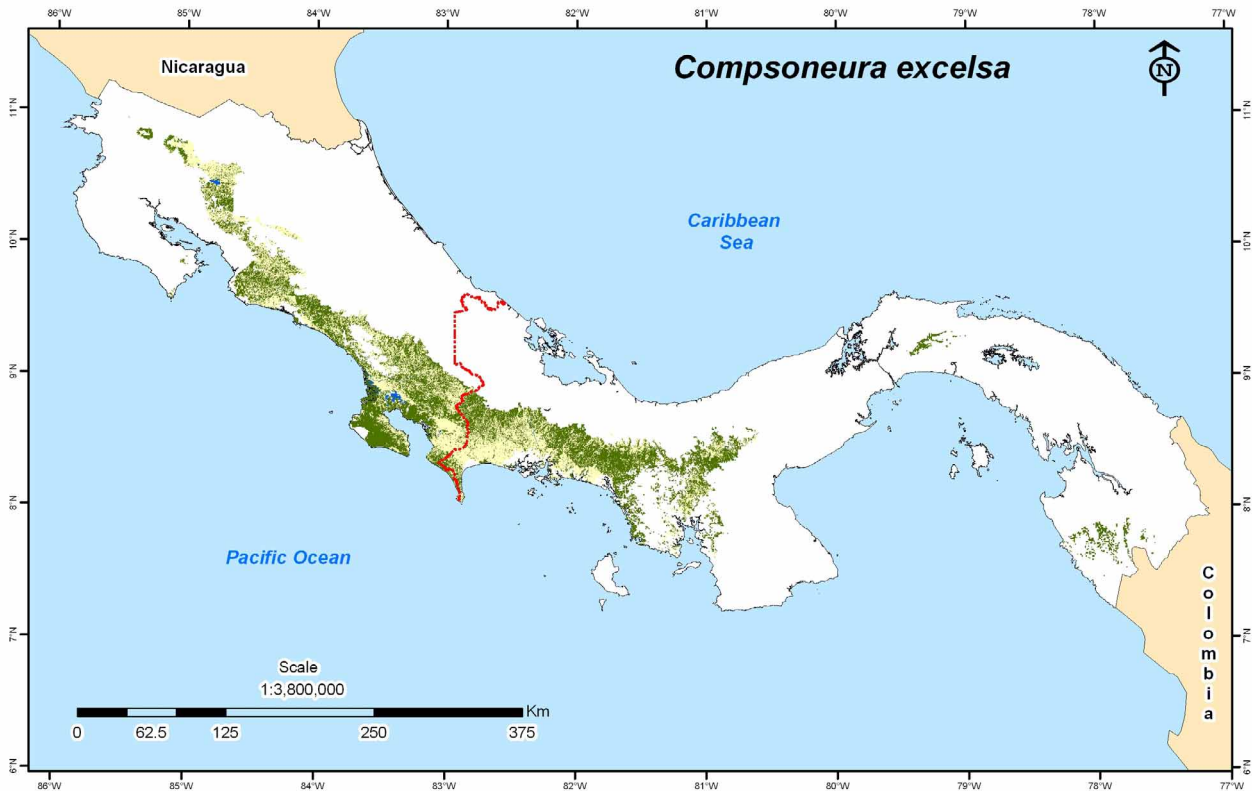
In Costa Rica and Panama the Extension of Occurrence was calculated to be 7356 km², the Area of Occupancy 6106 km² and loss of Extension of Occurrence 17%. Using the above data and IUCN (2001, version 3.1) criteria, *Comarostaphylis arbutoides* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy and the extraction of this species for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Compsonaura excelsa A.C.Sm. (Myristicaceae)

Terrestrial trees, flowers unisexual, dioecious. Endemic to Costa Rica and Panama. Known from 91 herbarium collections. Elevational range 0–1200 m, and the proportion of the regional Extension of Occurrence in protected areas: 13%.

- Global threat category: **Vulnerable (VU) A2c**

Fig. 51



In Costa Rica and Panama the Extension of Occurrence was calculated to be 21388 km², the Area of Occupancy 11146 km² and loss of Extension of Occurrence 48%. Using the above data and IUCN (2001, version 3.1) criteria, *Compsonaura excelsa* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the severe fragmentation of its Area of occupancy and the low proportion of the Extension of Occurrence located in a protected area. Countering this, however, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

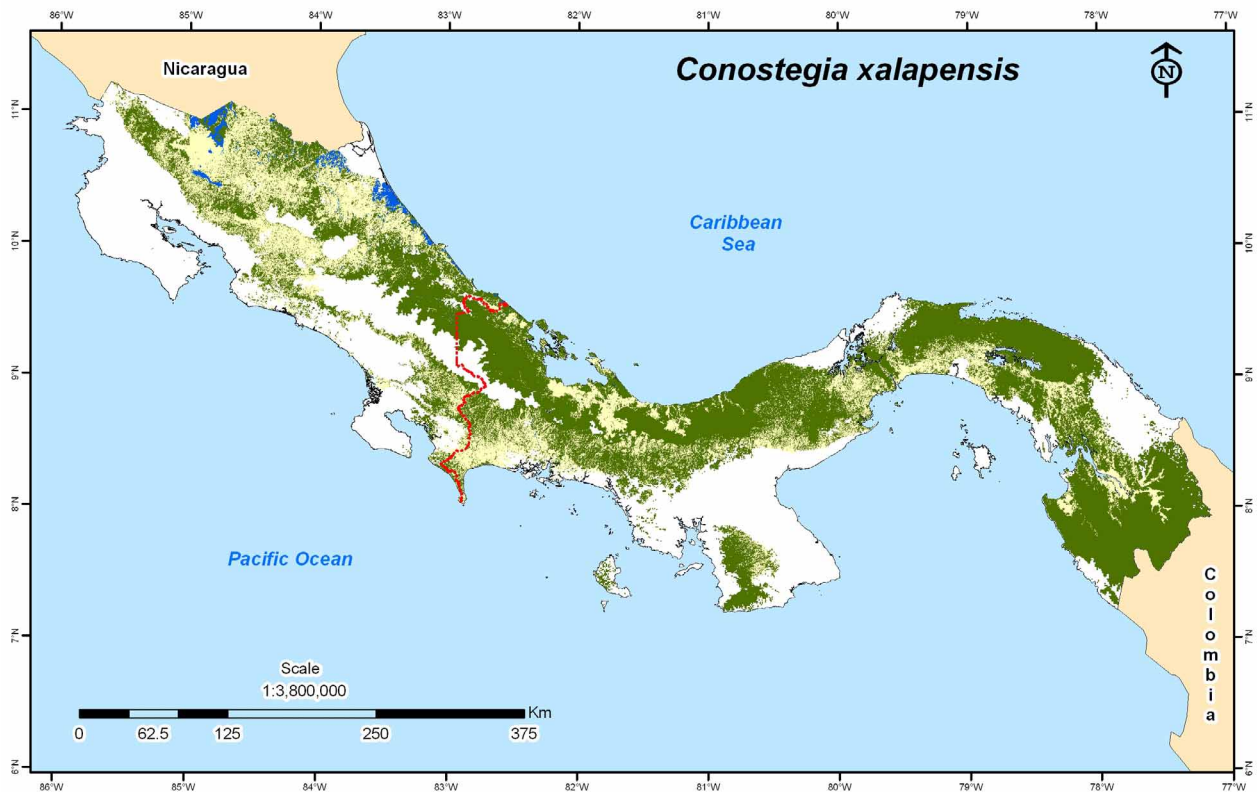
Conostegia xalapensis (Bonpl.) D.Don (Melastomataceae)

Local names: *Lengua de gato*, *Lengua de vaca*, *Uña de gato*, *Purra*, *María*, *Mariquita*.

Terrestrial shrubs or trees, flowers bisexual, used as fire wood. Global distribution: Mexico to Colombia, Cuba. Known in Costa Rica and Panama from 247 herbarium collections. Elevational range for Costa Rica and Panama 0–1600(–2200) m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Least Concern (LC)**

Fig. 52



In Costa Rica and Panama the Extension of Occurrence was calculated to be 79170 km², the Area of Occupancy 51406 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Conostegia xalapensis* is classified as Least Concern (LC). This classification is supported by the fact this species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. In addition the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. It is countered by the fact that this species is used as a source of firewood. Despite the above the classification was not changed.

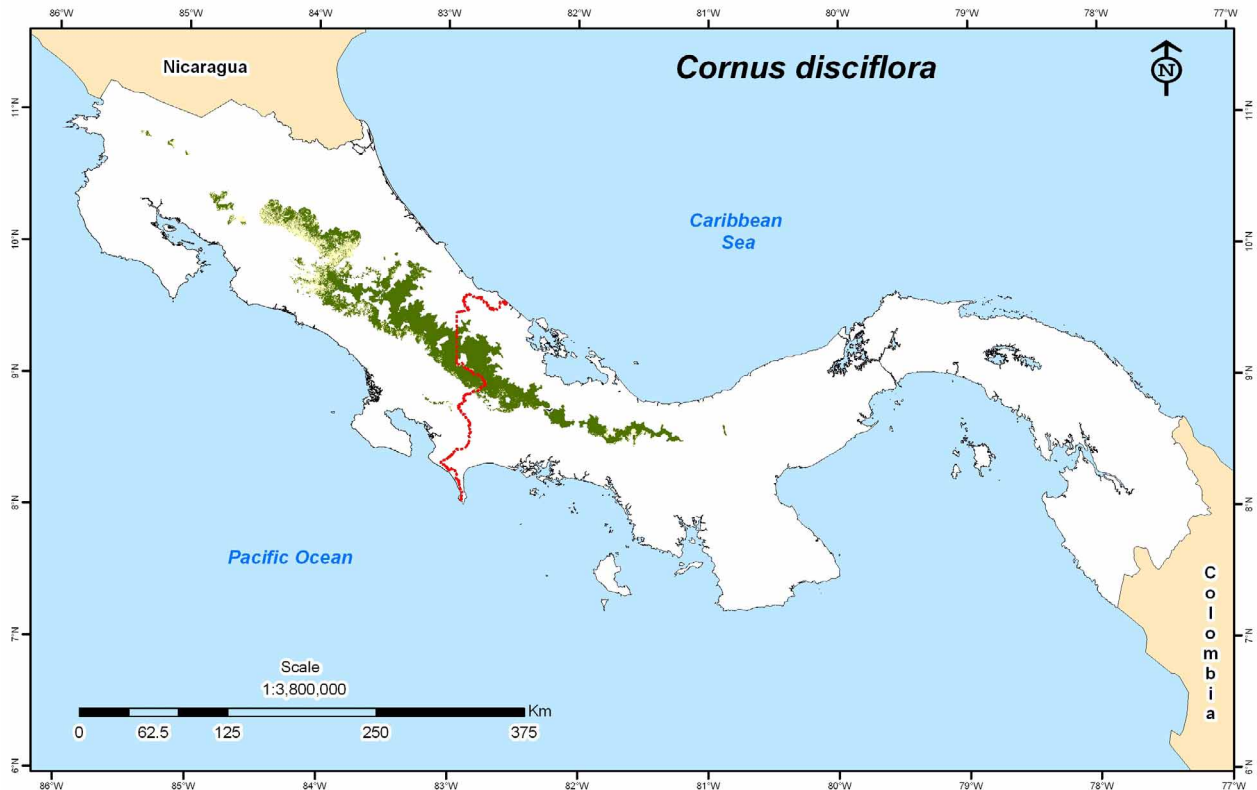
Cornus disciflora DC. (Cornaceae)

Local names: Lloró, Llorón.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 89 herbarium collections. Elevational range for Costa Rica and Panama 1200–2650(–3200) m, and the proportion of the regional Extension of Occurrence in protected areas: 61%.

- Regional threat category: **Near Threatened (NT)**

Fig. 53



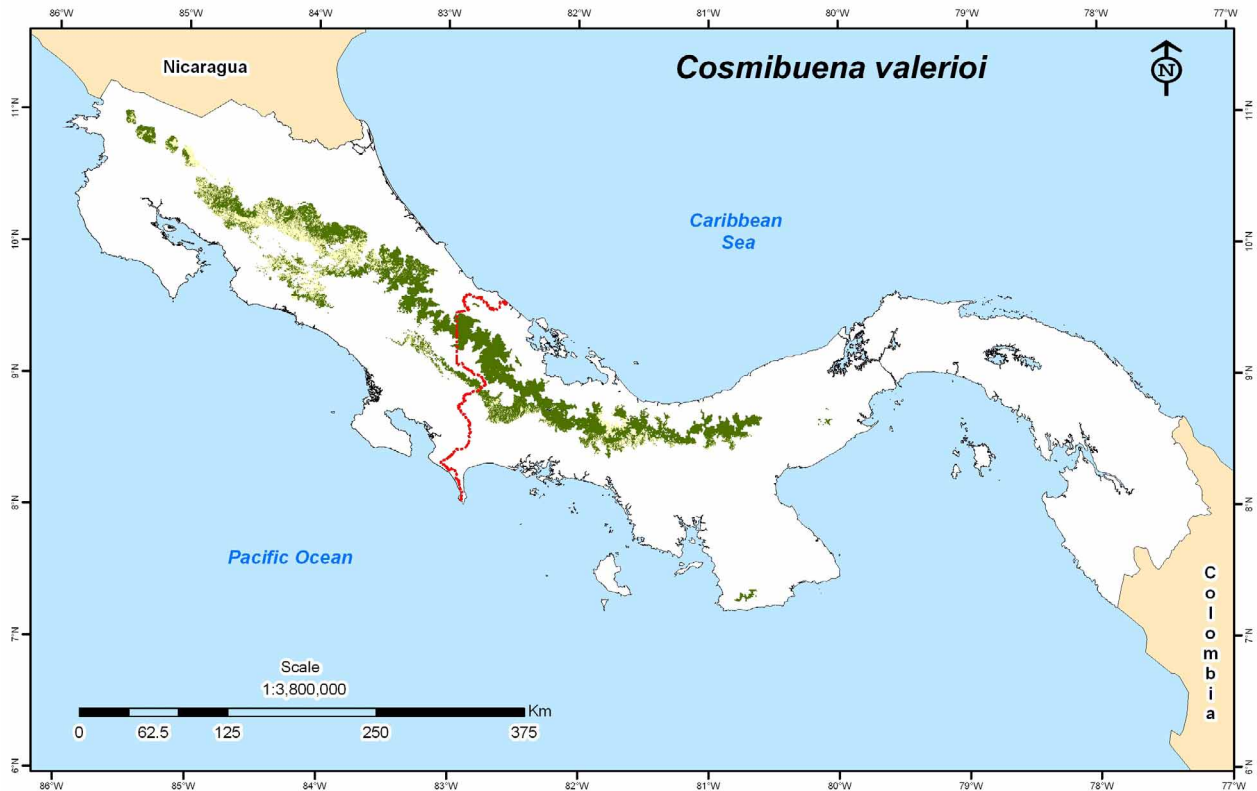
In Costa Rica and Panama the Extension of Occurrence was calculated to be 9548 km², the Area of Occupancy 7647 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Cornus disciflora* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Cosmibuena valerioi (Standl.) C.M.Taylor (Rubiaceae)

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 79 herbarium collections. Elevational range 900–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 44%.

- Global threat category: **Vulnerable (VU) B1ab(i, iii)**

Fig. 54



In Costa Rica and Panama the Extension of Occurrence was calculated to be 13874 km², the Area of Occupancy 10018 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Cosmibuena valerioi* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, are the species relatively broad elevational distribution and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

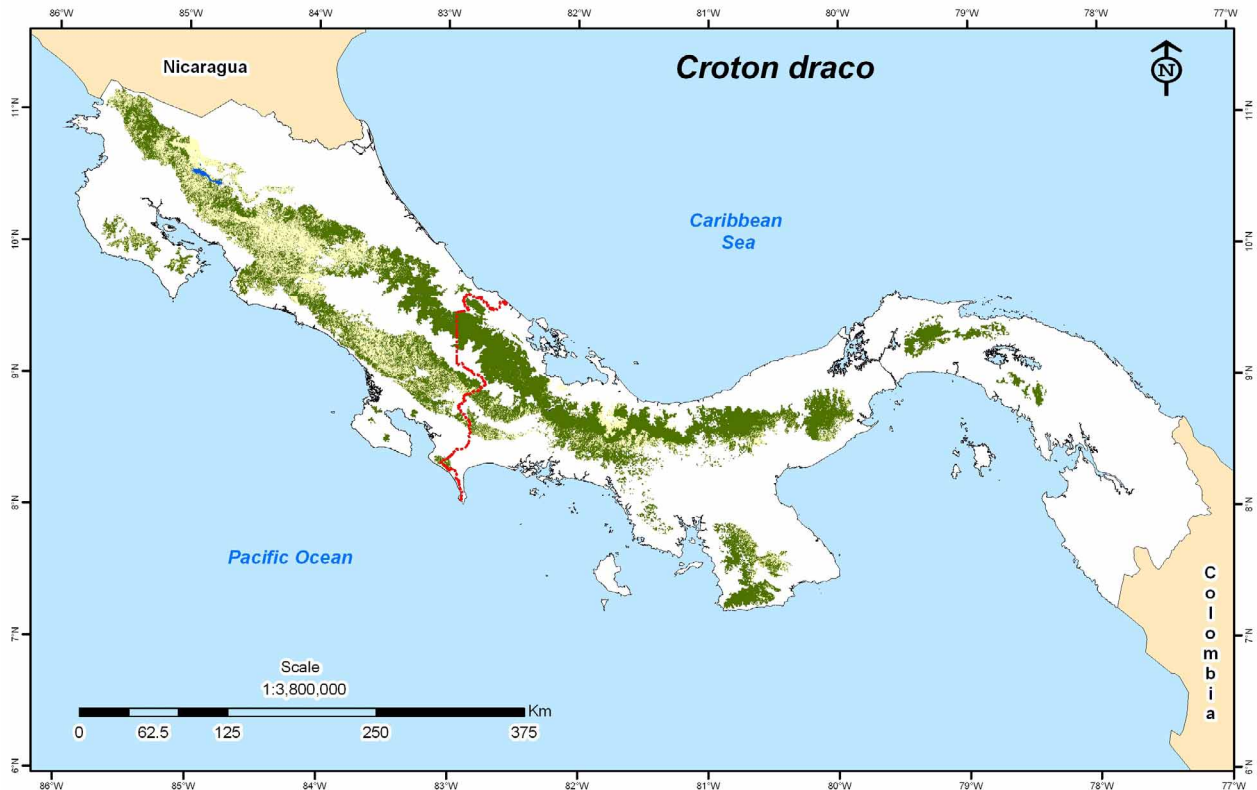
Croton draco Cham. & Schltl. (Euphorbiaceae)

Local names: *Targuá*, *Tataraguá*, *Targuá colorado*.

Terrestrial shrubs or trees, flowers bisexual. Used as a medicine. Global distribution: Mexico to Colombia. Known in Costa Rica and Panama from 54 herbarium collections. Elevational range for Costa Rica and Panama 100–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Least Concern (LC)**

Fig. 55



In Costa Rica and Panama the Extension of Occurrence was calculated to be 33962 km², the Area of Occupancy 27690 km² and loss of Extension of Occurrence 18%. Using the above data and IUCN (2001, version 3.1) criteria, *Croton draco* is classified as Least Concern (LC). This classification is supported by the relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. In addition, this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. Countering this, however, is the low proportion of its Area of Occupancy located in a protected area. Despite the above the classification was not changed.

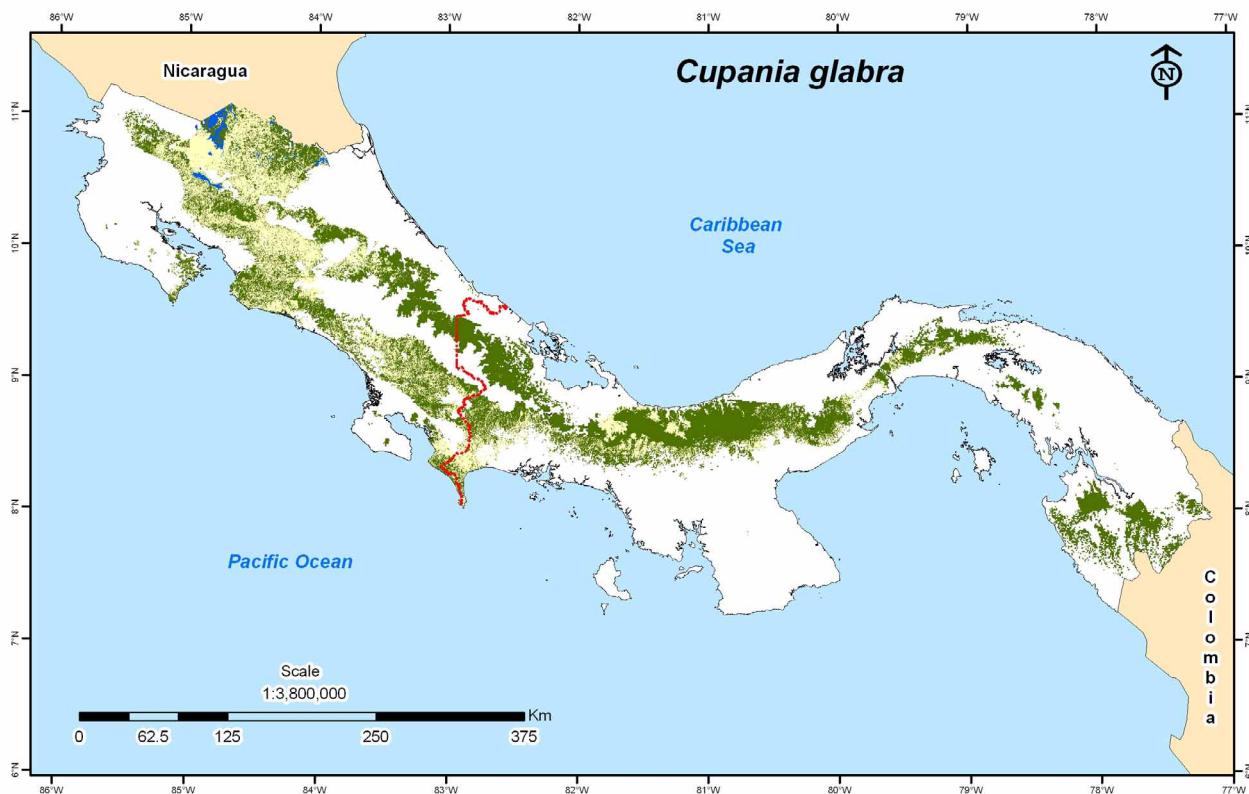
Cupania glabra Sw. (Sapindaceae)

Local names: *Cascuá*, *Tres huevos*, *Carne asada*, *Cascua*, *Güesillo*.

Terrestrial trees, flowers bisexual, used as fuel wood. Global distribution: Mexico to Costa Rica, the Antilles. Known in Costa Rica and Panama from 62 herbarium collections. Elevational range for Costa Rica and Panama 0–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Near Threatened (NT)**

Fig. 56



In Costa Rica and Panama the Extension of Occurrence was calculated to be 40614 km², the Area of Occupancy 25263 km² and loss of Extension of Occurrence 38%. Using the above data and IUCN (2001, version 3.1) criteria, *Cupania glabra* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

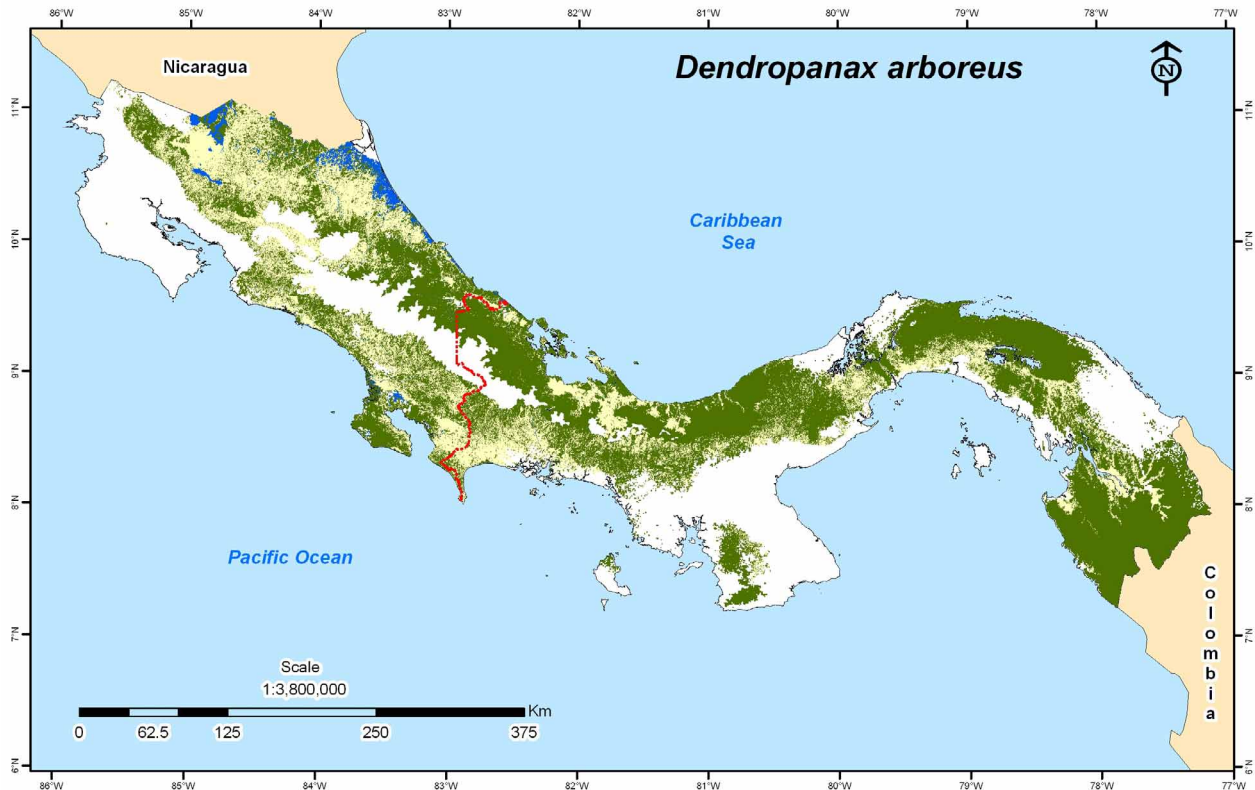
Dendropanax arboreus (L.) Decne. & Planch. (Araliaceae)

Local names: *Cacho de venado*, *Fosforillo*, *Mastate*, *Matagente*, *Palomo*, *Zopilote*.

Terrestrial shrubs or trees, flowers bisexual, used as timber. Global distribution: Mexico to Bolivia, the Antilles. Known in Costa Rica and Panama from 303 herbarium collections. Elevational range for Costa Rica and Panama 0–1400 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 57



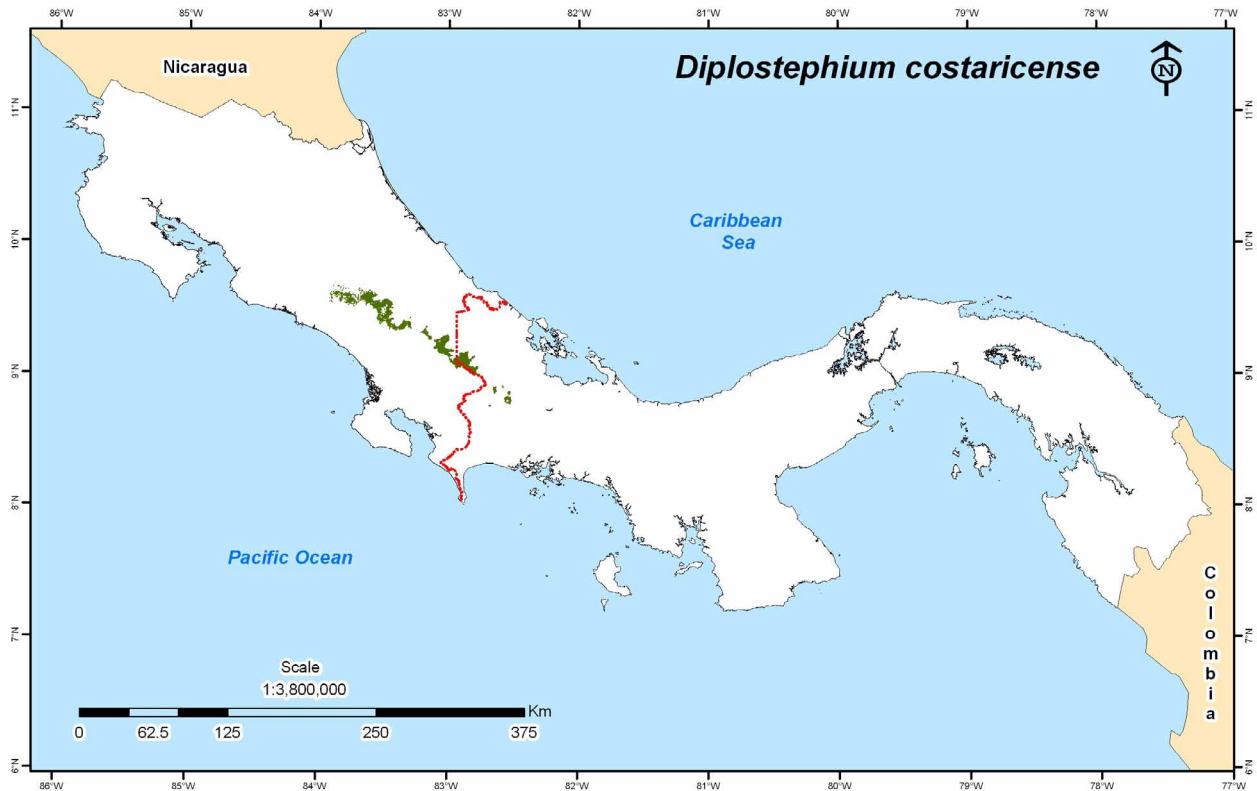
In Costa Rica and Panama the Extension of Occurrence was calculated to be 80748 km², the Area of Occupancy 51653 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Dendropanax arboreus* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Diplostephium costaricense S.F.Blake (Asteraceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 31 herbarium collections. Elevational range 2900–3460 m, and the proportion of the regional Extension of Occurrence in protected areas: 92%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 58



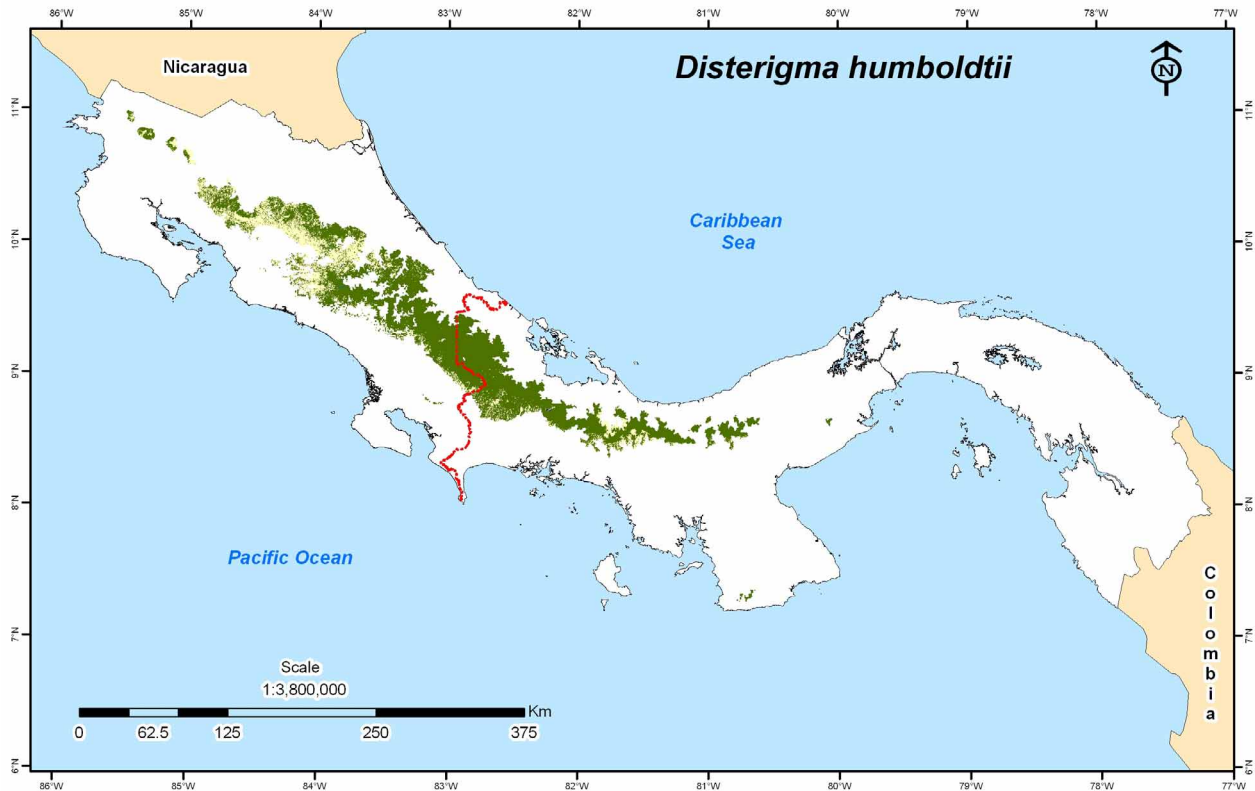
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1039 km², the Area of Occupancy 1023 km² and loss of Extension of Occurrence 1%. Using the above data and IUCN (2001, version 3.1) criteria, *Diplostephium costaricense* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and countered by the low levels of habitat loss, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. Despite the above the threat category was not changed.

Disterigma humboldtii (Klotzsch.) Nied. (Ericaceae)

Facultatively epiphytic shrubs, flowers bisexual. Global distribution: Mexico, Guatemala to Honduras, Costa Rica to the Guyanas. Known in Costa Rica and Panama from 144 herbarium collections. Elevational range for Costa Rica and Panama 800–3300 m, and the proportion of the regional Extension of Occurrence in protected areas: 53%.

- Regional threat category: **Near Threatened (NT)**

Fig. 59



In Costa Rica and Panama the Extension of Occurrence was calculated to be 15610 km², the Area of Occupancy 11981 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Disterigma humboldtii* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

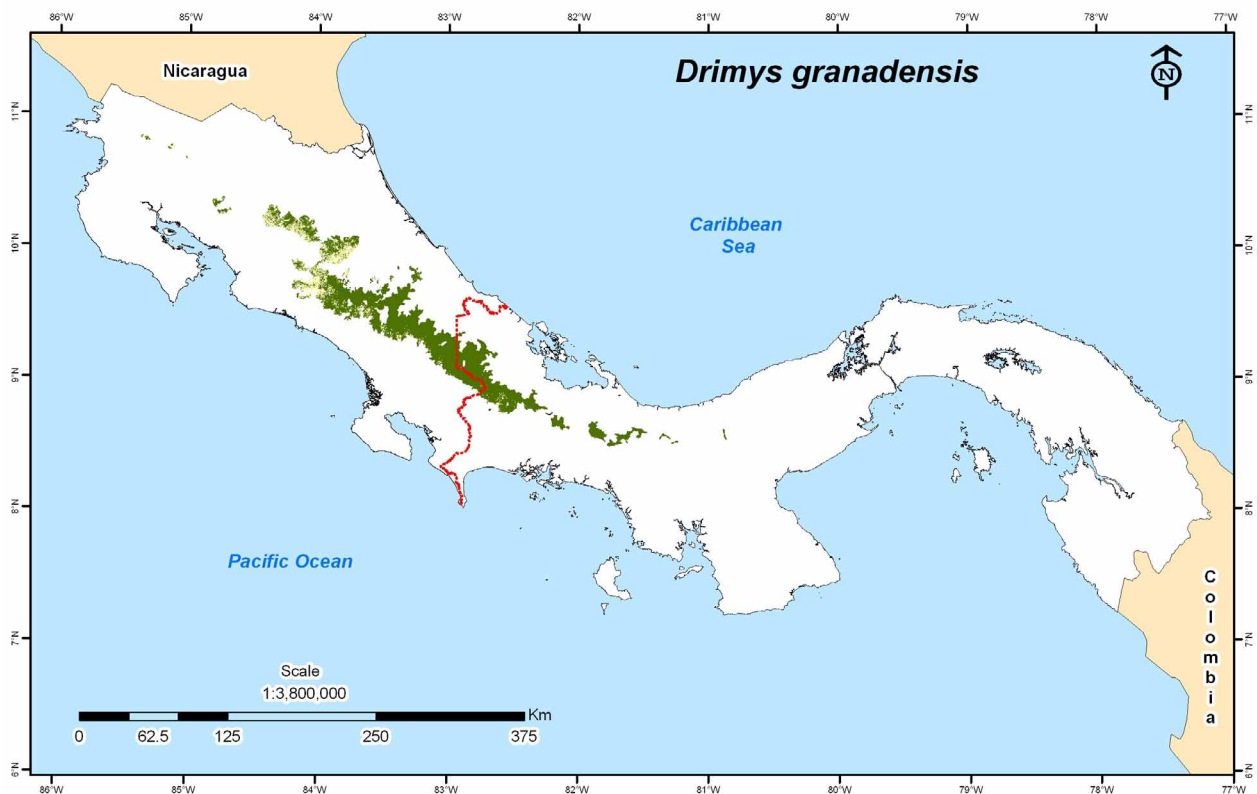
Drimys granadensis L.f. (Winteraceae)

Local name: *Chilemuelo*.

Terrestrial shrubs or trees, flowers bisexual, used as a source of aromatic compounds. Global distribution: Mexico to Venezuela. Known in Costa Rica and Panama from 108 herbarium collections. Elevational range for Costa Rica and Panama 1500–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 69%.

- Regional threat category: **Near Threatened (NT)**

Fig. 60



In Costa Rica and Panama the Extension of Occurrence was calculated to be 7257 km², the Area of Occupancy 5957 km² and loss of Extension of Occurrence 18%. Using the above data and IUCN (2001, version 3.1) criteria, *Drimys granadensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

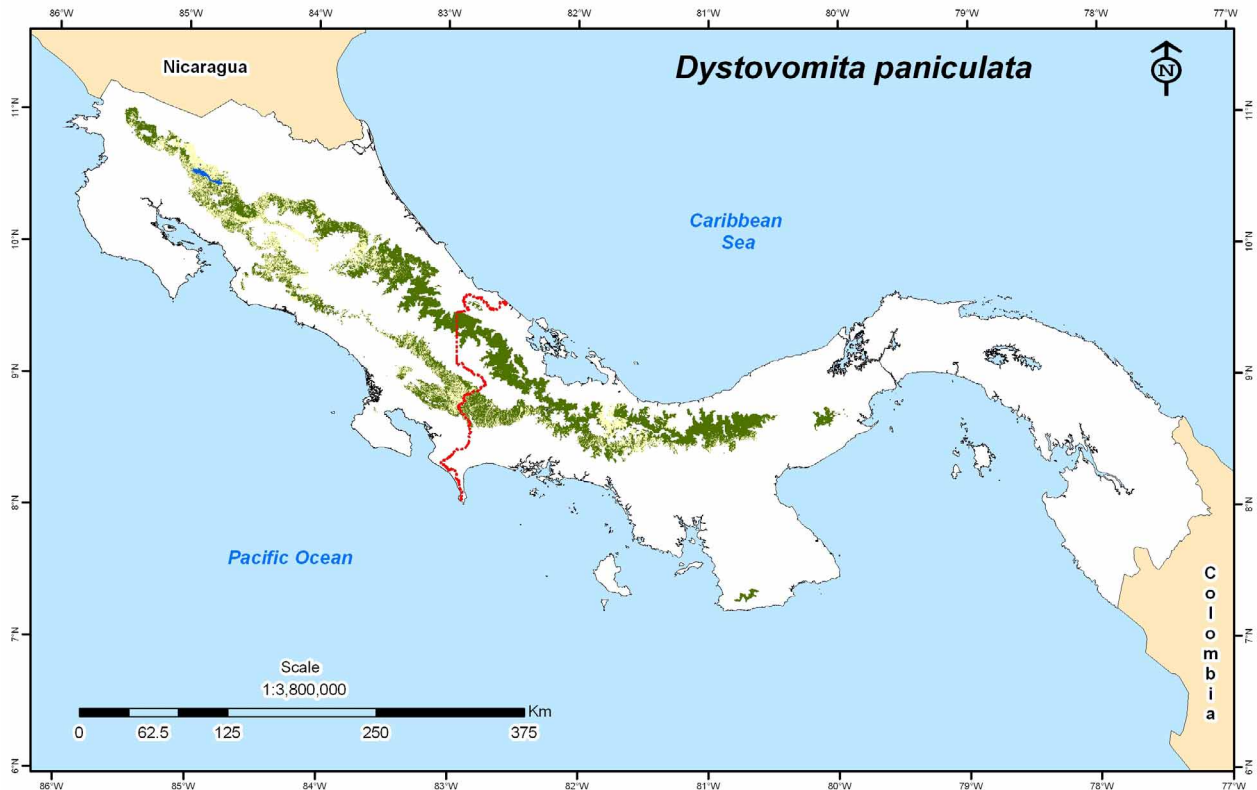
Dystovomita paniculata (Donn.Sm.) Hammel (Clusiaceae)

Local name: *Mangle colorado*.

Terrestrial trees, flowers unisexual, dioecious. Global distribution: Costa Rica to Peru. Known in Costa Rica and Panama from 46 herbarium collections. Elevational range for Costa Rica and Panama 100–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 33%.

- Regional threat category: **Near Threatened (NT)**

Fig. 61



In Costa Rica and Panama the Extension of Occurrence was calculated to be 17060 km², the Area of Occupancy 11629 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Dystovomita paniculata* is classified as Vulnerable (VU) in relation to criteria A2c; B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

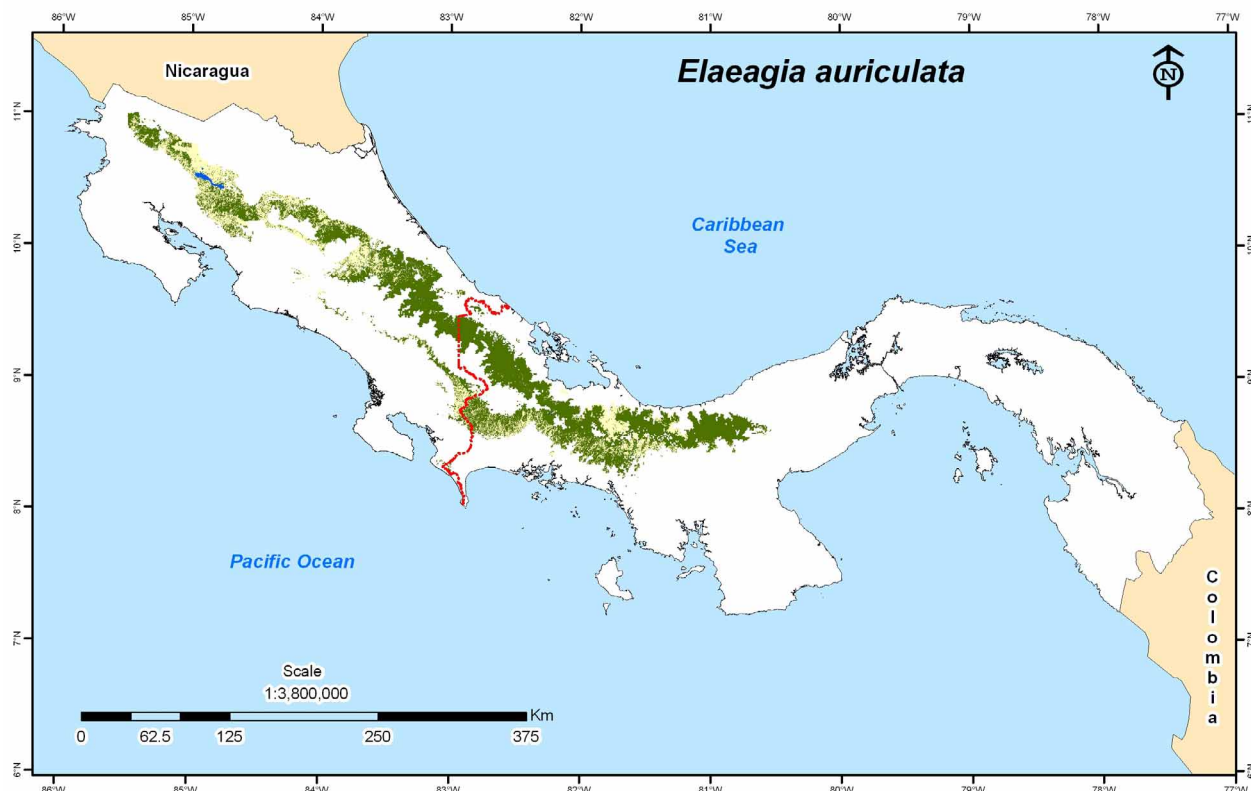
Elaeagia auriculata Hemsl. (Rubiaceae)

Local names: Gomilla, Huesillo, Madroño.

Terrestrial trees, flowers bisexual. Global distribution: Guatemala to Panama. Known in Costa Rica and Panama from 34 herbarium collections. Elevational range for Costa Rica and Panama 350–1500 m, and the proportion of the regional Extension of Occurrence in protected areas: 36%.

- Regional threat category: **Near Threatened (NT)**

Fig. 62



In Costa Rica and Panama the Extension of Occurrence was calculated to be 18012 V, the Area of Occupancy 12668 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Elaeagia auriculata* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

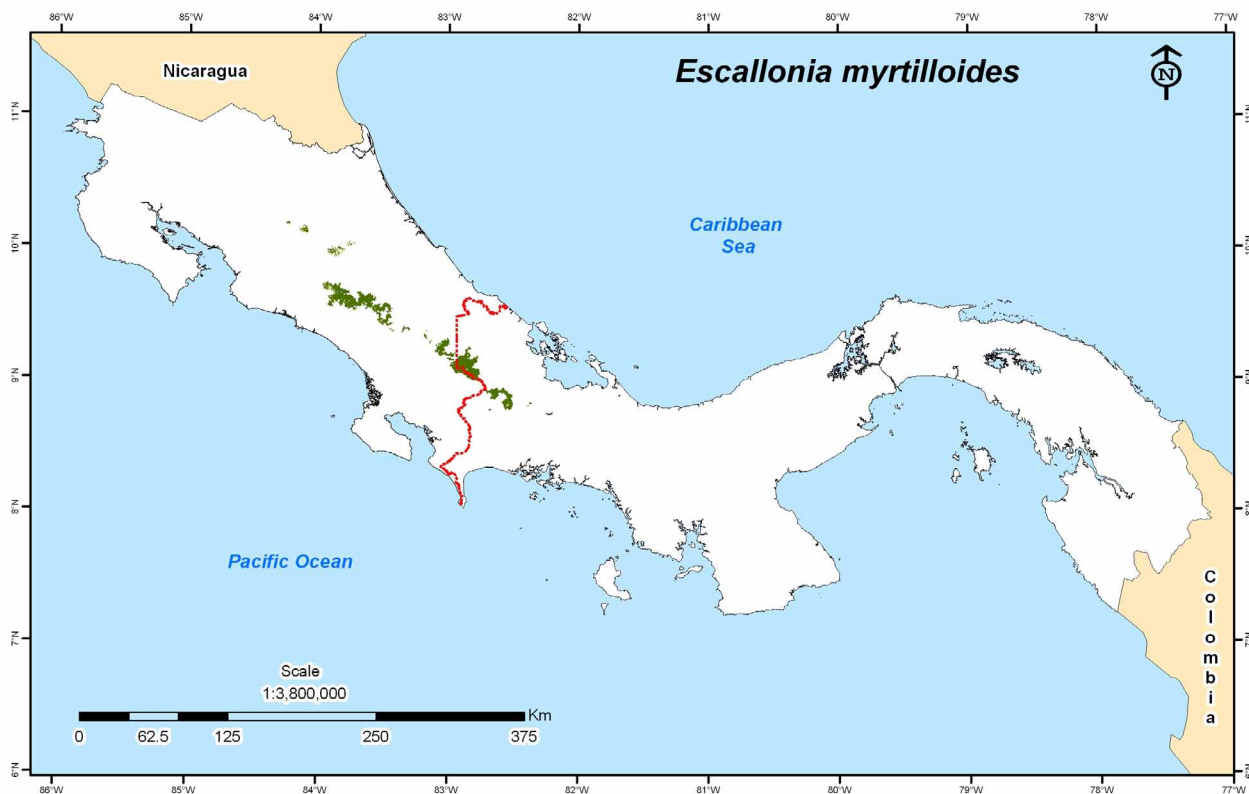
Escallonia myrtilloides L.f. (Escalloniaceae)

Local names: *Arrayán amarillo*, *Cipresillo*, *Cipreso*, *Güitemonte*, *Madroño*, *Carnitora*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Costa Rica to Argentina. Known in Costa Rica and Panama from 31 herbarium collections. Elevational range for Costa Rica and Panama 2400–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 92%.

- Regional threat category: **Vulnerable (VU) B1ab(iii)**

Fig. 63



In Costa Rica and Panama the Extension of Occurrence was calculated to be 1409 km², the Area of Occupancy 1325 km² and loss of Extension of Occurrence 6%. Using the above data and IUCN (2001, version 3.1) criteria, *Escallonia myrtilloides* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, low levels of habitat loss, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

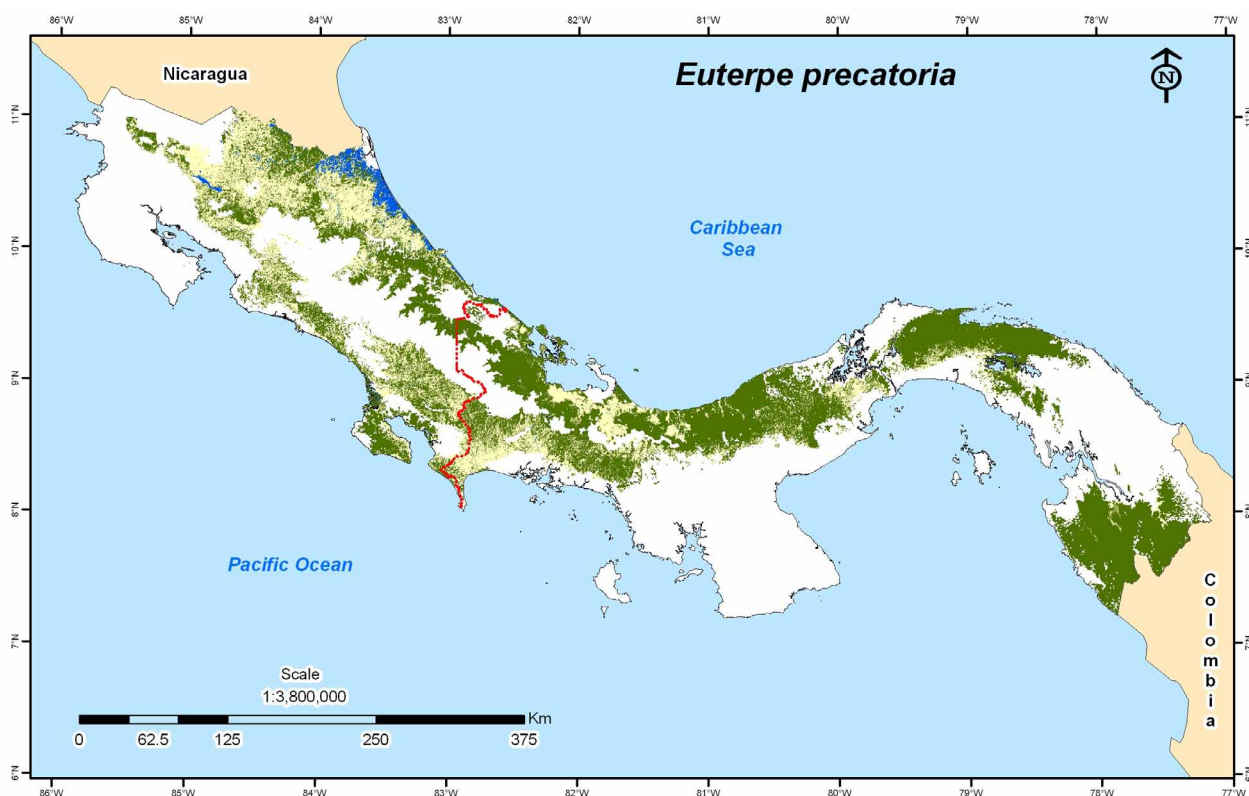
Euterpe precatória Mart. (Arecaceae)

Local names: *Palmito*, *Palmito dulce*, *Palmito mantequilla*, *Kérrar-tebu* (*Cabécar*), *Sin-krá* (*Brunka*), *Zé-rebó* (*Térraba*).

Terrestrial shrubs or trees, flowers unisexual, monoecious, used as a herbal remedy. Global distribution: Belize to Bolivia, the Guayanás, Trinidad. Known in Costa Rica and Panama from 27 herbarium collections. Elevational range for Costa Rica and Panama 0–1150 m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Near Threatened (NT)**

Fig. 64



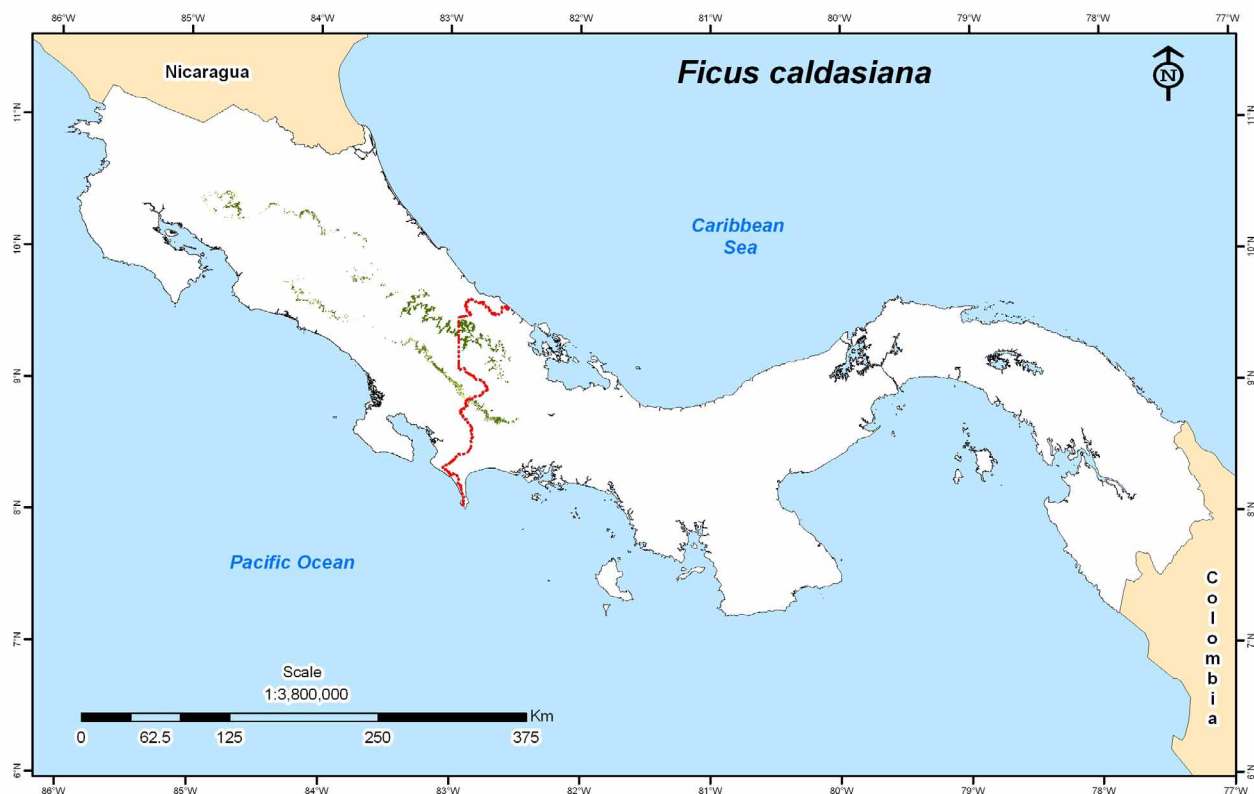
In Costa Rica and Panama the Extension of Occurrence was calculated to be 55508 km², the Area of Occupancy 36117 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Euterpe precatória* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area and its non-sustainable harvesting for food. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Ficus caldasiana Dugand (Moraceae)

Terrestrial shrubs or trees, flowers unisexual, monoecious. Global distribution: Costa Rica to Peru. Known in Costa Rica and Panama from 11 herbarium collections. Elevational range for Costa Rica and Panama 900–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 52%.

- Regional threat category: **Vulnerable (VU) B1ab(i, iii)**

Fig. 65



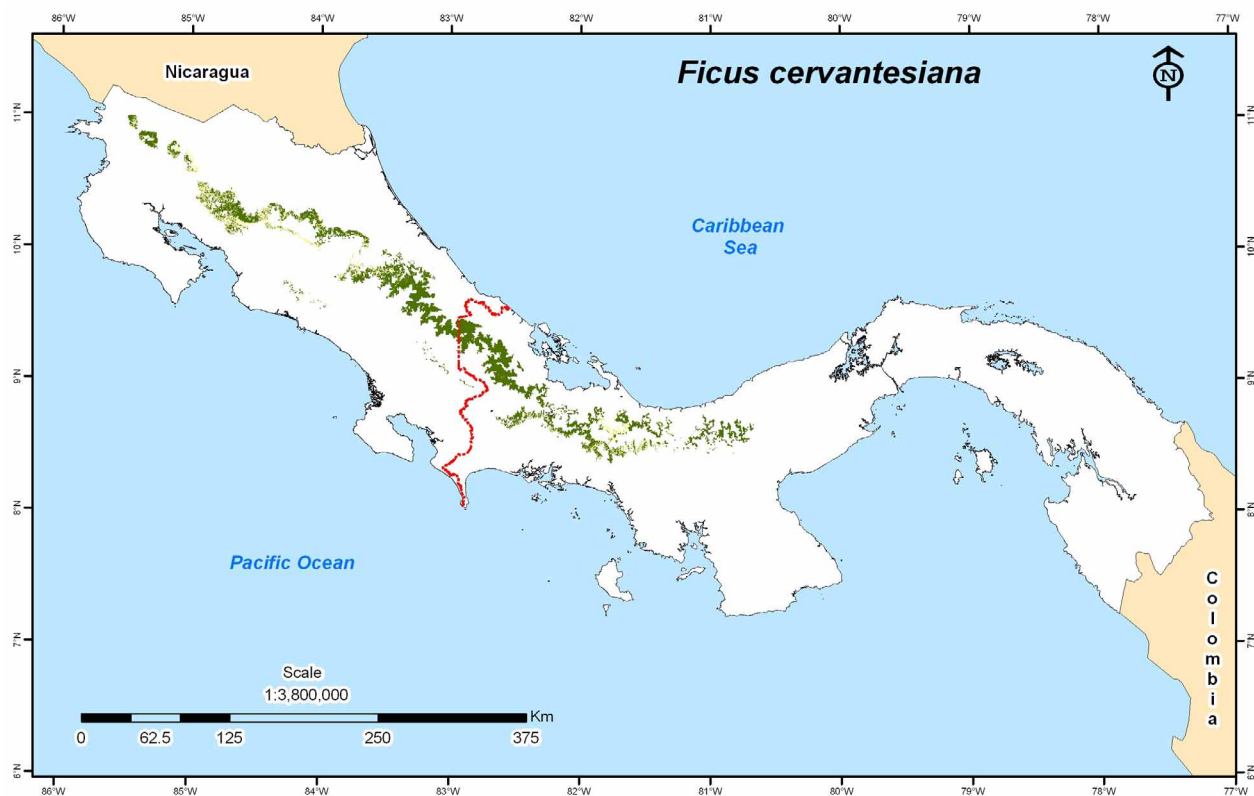
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1245 km², the Area of Occupancy 978 km² and loss of Extension of Occurrence 21%. Using the above data and IUCN (2001, version 3.1) criteria, *Ficus caldasiana* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy is located in a protected area. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Ficus cervantesiana Standl. & L.O.Williams (Moraceae)

Hemi-epiphytic trees, flowers unisexual, monoecious. Global distribution: Costa Rica to Peru. Known in Costa Rica and Panama from 18 herbarium collections. Elevational range for Costa Rica and Panama 700–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 50%.

- Regional threat category: **Near Threatened (NT)**

Fig. 66



In Costa Rica and Panama the Extension of Occurrence was calculated to be 6858 km², the Area of Occupancy 5194 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Ficus cervantesiana* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

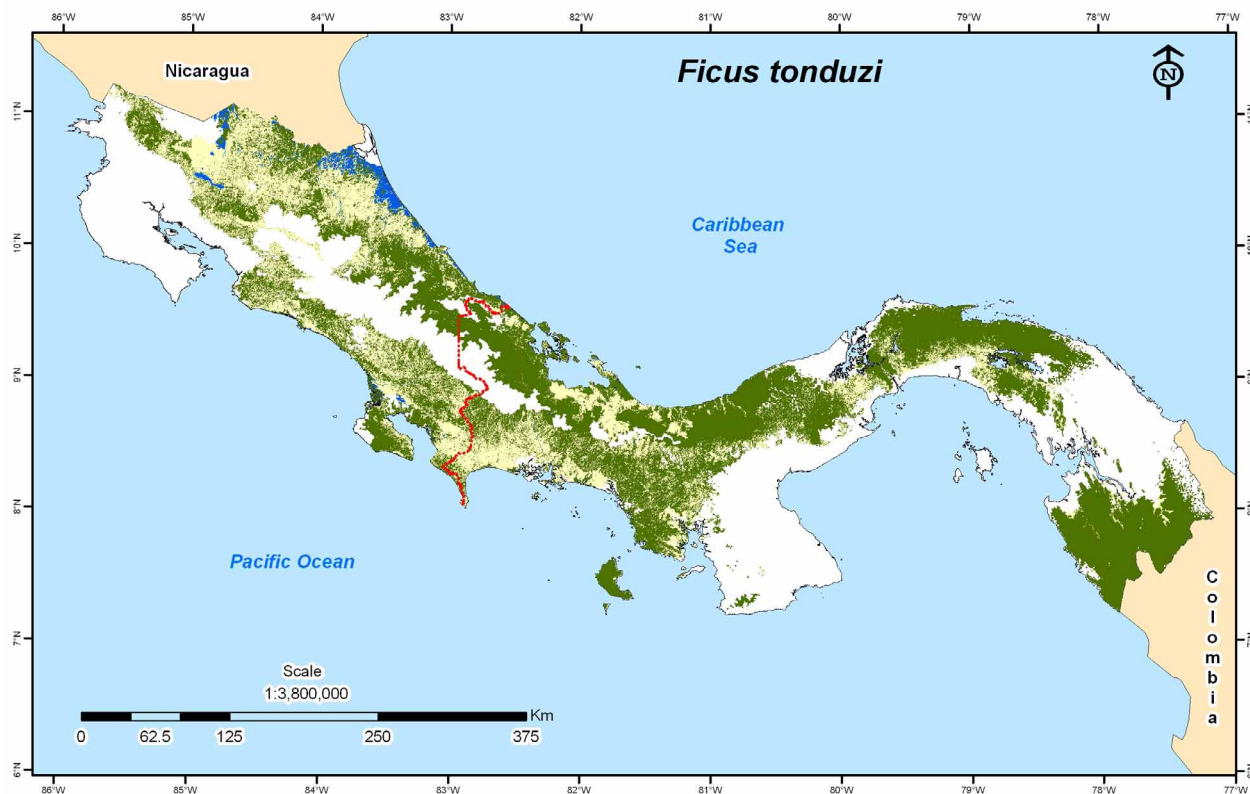
Ficus tonduzii Standl. (Moraceae)

Local names: *Batsu*, *Higuerón*, *Chilamate*.

Terrestrial trees, flowers unisexual, monoecious. Global distribution: Guatemala to Peru. Known in Costa Rica and Panama from 80 herbarium collections. Elevational range for Costa Rica and Panama 0–1000 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 67



In Costa Rica and Panama the Extension of Occurrence was calculated to be 74399 km², the Area of Occupancy 47728 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Ficus tonduzii* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

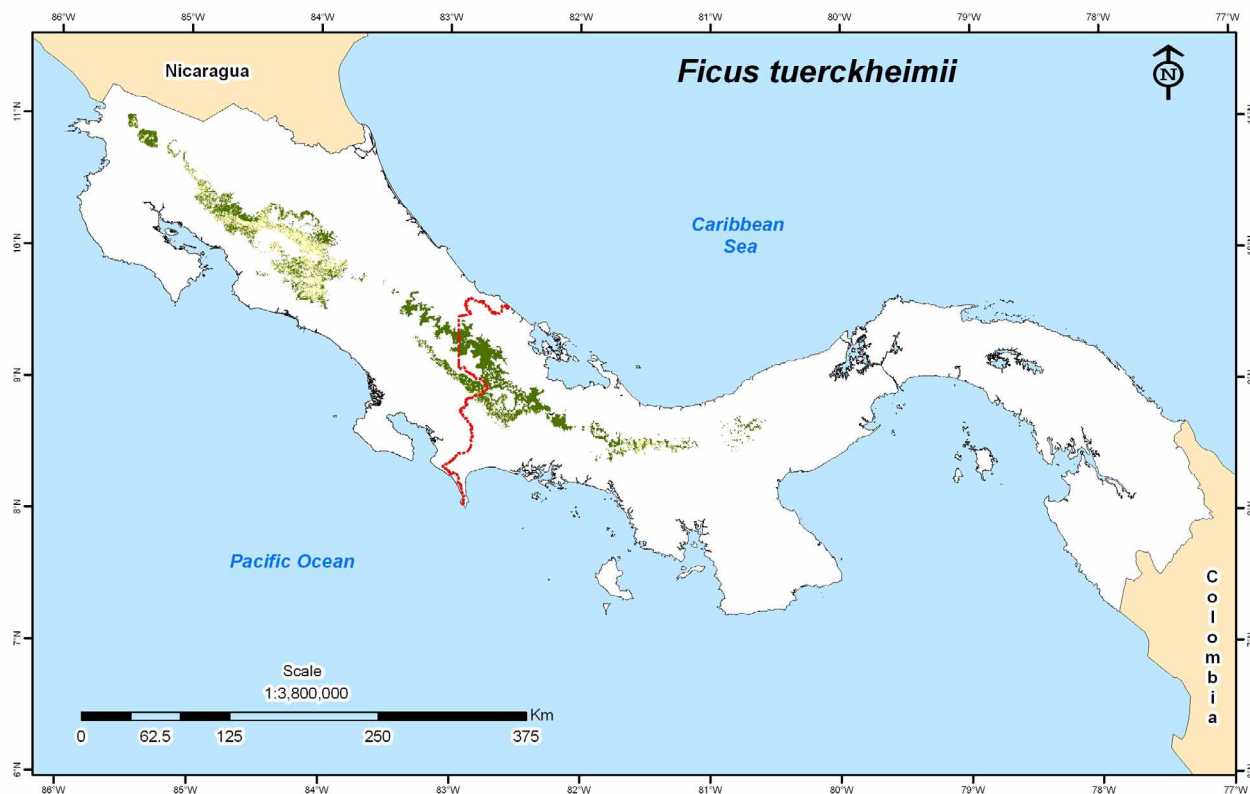
Ficus tuerckheimii Standl. (Moraceae)

Local name: *Higuerón*.

Hemi-epiphytic trees, flowers unisexual, monoecious. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 22 herbarium collections. Elevational range for Costa Rica and Panama 900–1950 m, and the proportion of the regional Extension of Occurrence in protected areas: 42%.

- Regional threat category: **Near Threatened (NT)**

Fig. 68



In Costa Rica and Panama the Extension of Occurrence was calculated to be 7271 km², the Area of Occupancy 4571 km² and loss of Extension of Occurrence 37%. Using the above data and IUCN (2001, version 3.1) criteria, *Ficus tuerckheimii* is classified as Vulnerable (VU) in relation to criteria A2c; B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

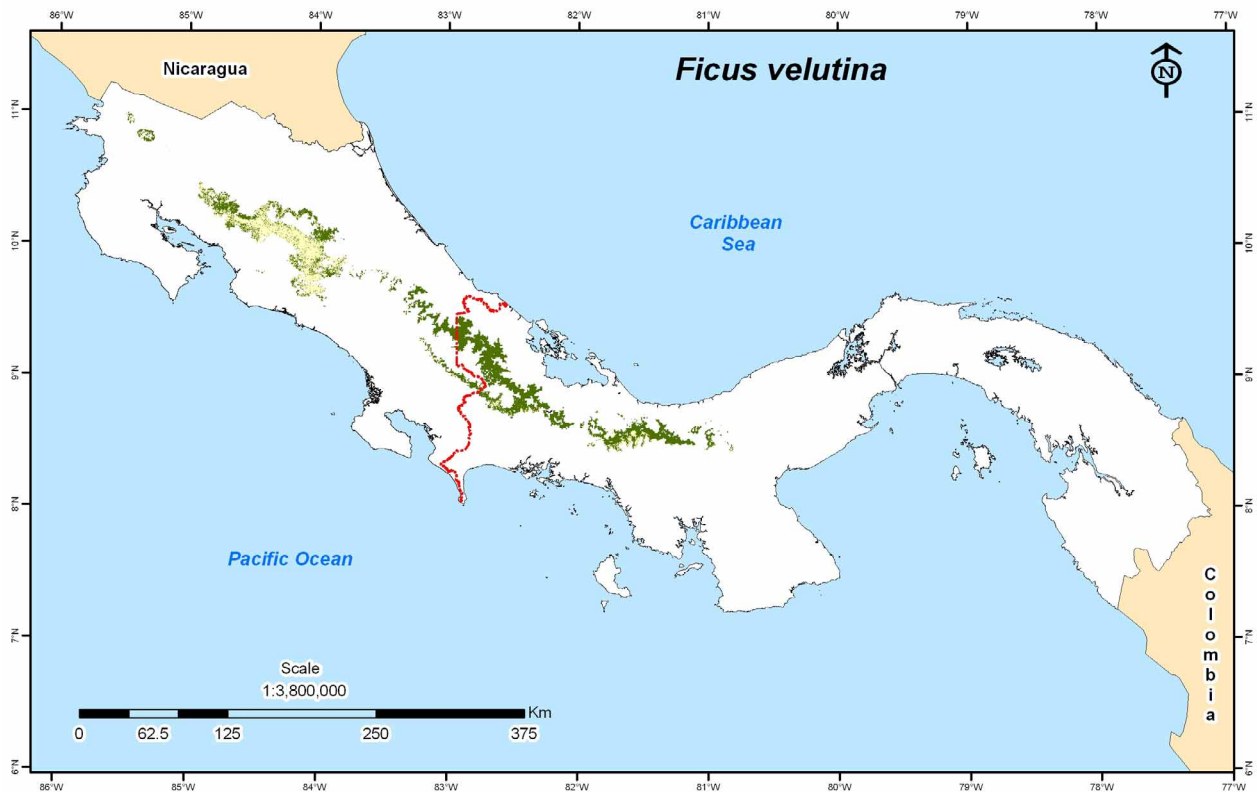
Ficus velutina Humb. & Bonpl. ex Willd. (Moraceae)

Local names: *Amate*, *Higuerón*, *Matapalo*, *Barrú*, *Barú*.

Hemi-epiphytic trees, flowers unisexual, monoecious. Global distribution: Mexico to Ecuador and Venezuela. Known in Costa Rica and Panama from 17 herbarium collections. Elevational range for Costa Rica and Panama (1100–)1300–1900 m, and the proportion of the regional Extension of Occurrence in protected areas: 42%.

- Regional threat category: **Near Threatened (NT)**

Fig. 69



In Costa Rica and Panama the Extension of Occurrence was calculated to be 6658 km², the Area of Occupancy 4410 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Ficus velutina* is classified as Vulnerable (VU) in relation to criteria A2c; B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

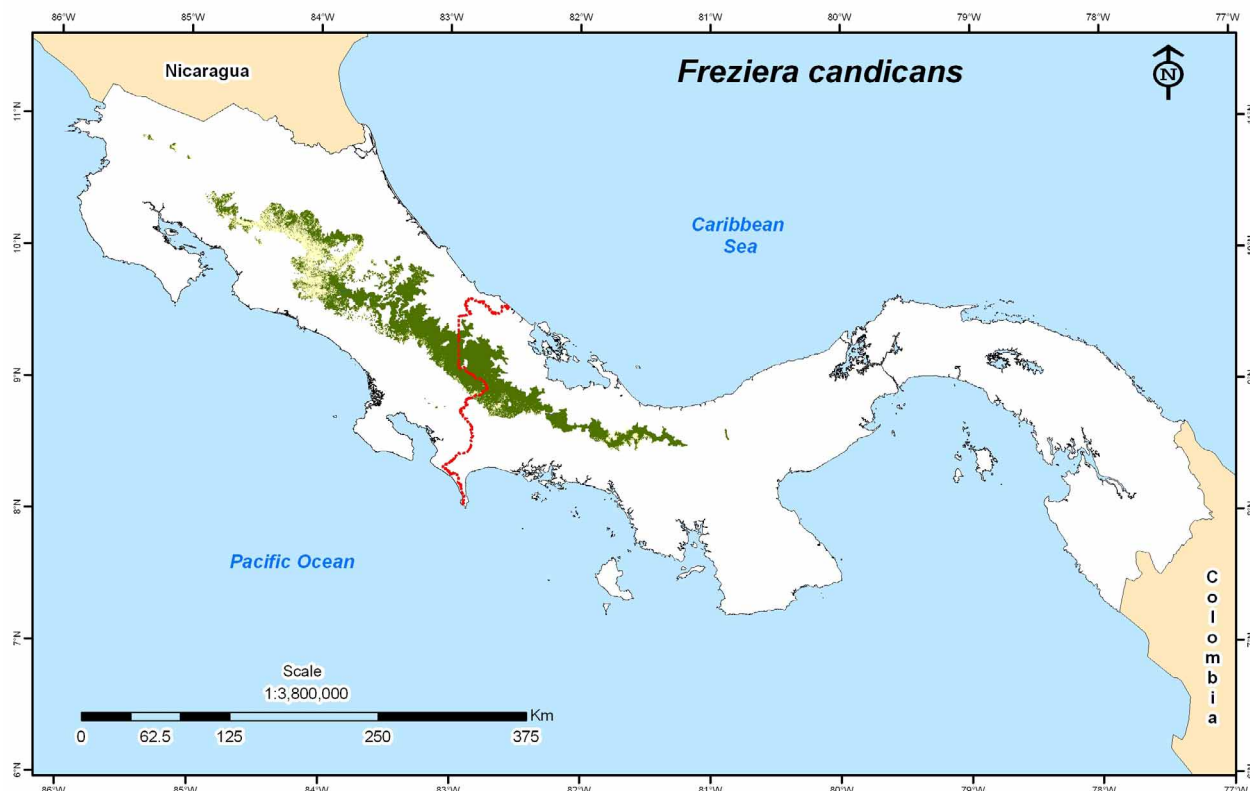
Freziera candicans Tul. (Pentaphylacaceae)

Local name: Coral.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Costa Rica to Venezuela. Known in Costa Rica and Panama from 73 herbarium collections. Elevational range for Costa Rica and Panama (50–)1400–2600 m, and the proportion of the regional Extension of Occurrence in protected areas: 57%.

- Regional threat category: **Near Threatened (NT)**

Fig. 70



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11157 km², the Area of Occupancy 8552 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Freziera candicans* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

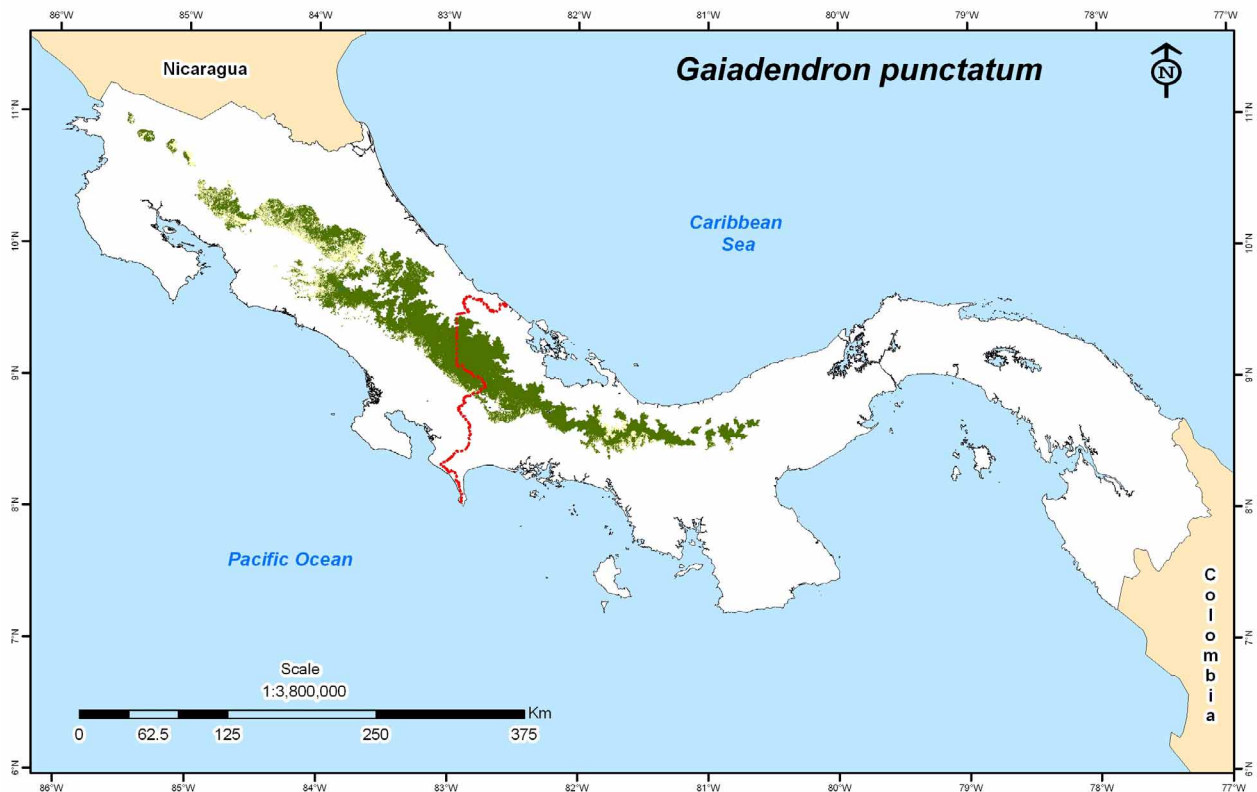
Gaiadendron punctatum (Ruiz & Pav.) G.Don (Loranthaceae)

Local name: *Matapalo*.

Facultatively epiphytic shrubs or trees, flowers bisexual. Global distribution: Nicaragua to Bolivia, Venezuela and Guyanas. Known in Costa Rica and Panama from 141 herbarium collections. Elevational range for Costa Rica and Panama (800–)1450–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 57%.

- Regional threat category: **Near Threatened (NT)**

Fig. 71



In Costa Rica and Panama the Extension of Occurrence was calculated to be 14620 km², the Area of Occupancy 11664 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Gaiadendron punctatum* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

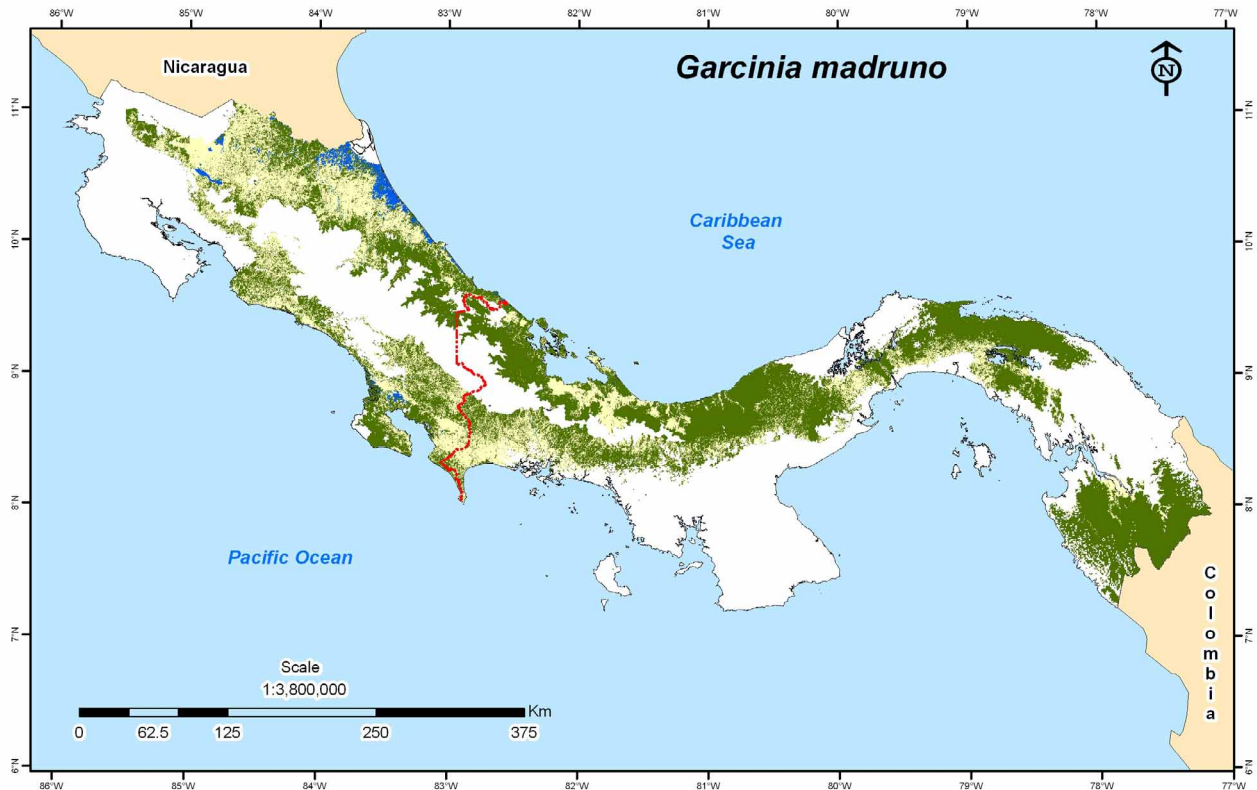
Garcinia madruno (Kunth) Hammel (Clusiaceae)

Local names: *Madroño*, *Limón de montaña*, *Manzana amarilla*, *Jorco*, *Azufre*, *Zatra*, *Manzana*.

Terrestrial trees, flowers unisexual, dioecious. Used as a foodstuff. Global distribution: Nicaragua to Paraguay. Known in Costa Rica and Panama from 58 herbarium collections. Elevational range for Costa Rica and Panama 25–400 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 72



In Costa Rica and Panama the Extension of Occurrence was calculated to be 61259 km², the Area of Occupancy 38616 km² and loss of Extension of Occurrence 37%. Using the above data and IUCN (2001, version 3.1) criteria, *Garcinia madruno* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

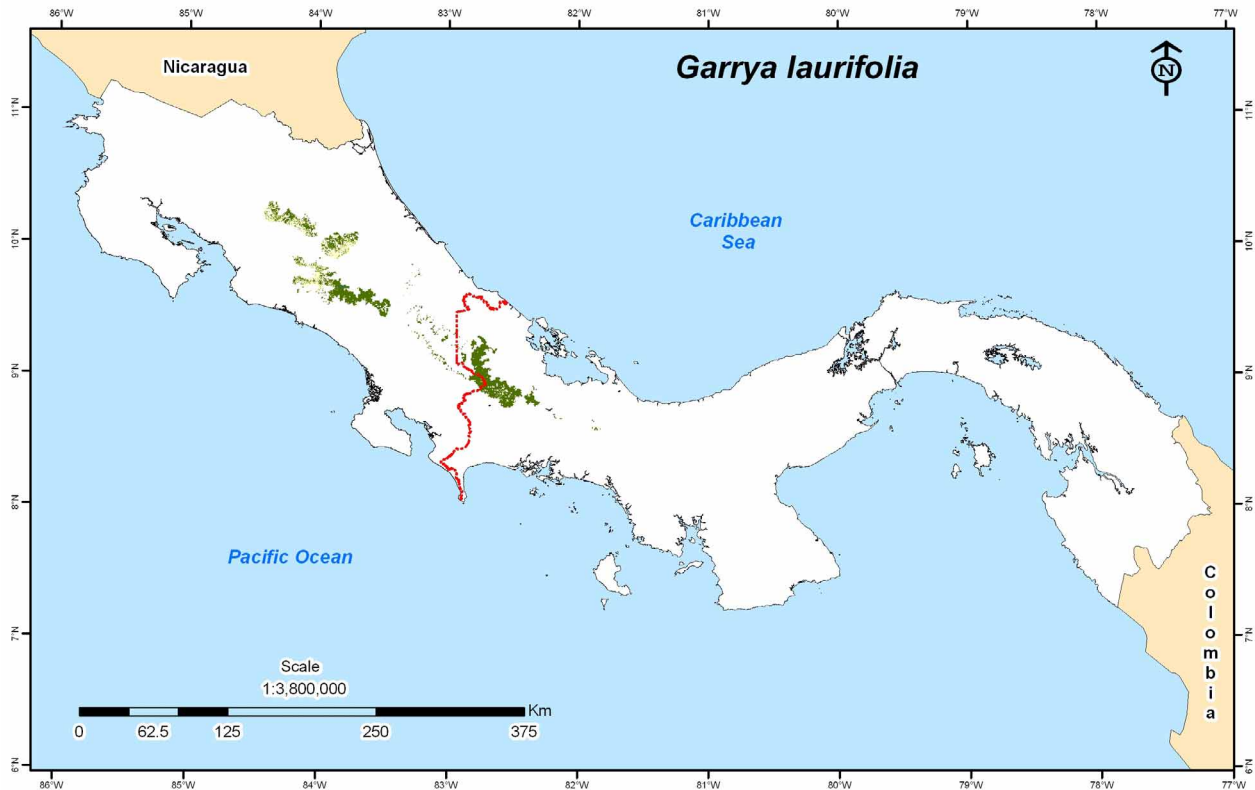
Garrya laurifolia Hartw. ex Benth. (Garryaceae)

Local names: *Comenegro*, *cimanagro*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Costa Rica. Known in Costa Rica from 22 herbarium collections. Elevational range for Costa Rica (1600–)2400–3500 m, and the proportion of the regional Extension of Occurrence in protected areas: 72%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 73



In Costa Rica and Panama the Extension of Occurrence was calculated to be 2805 km², the Area of Occupancy 2145 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Garrya laurifolia* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

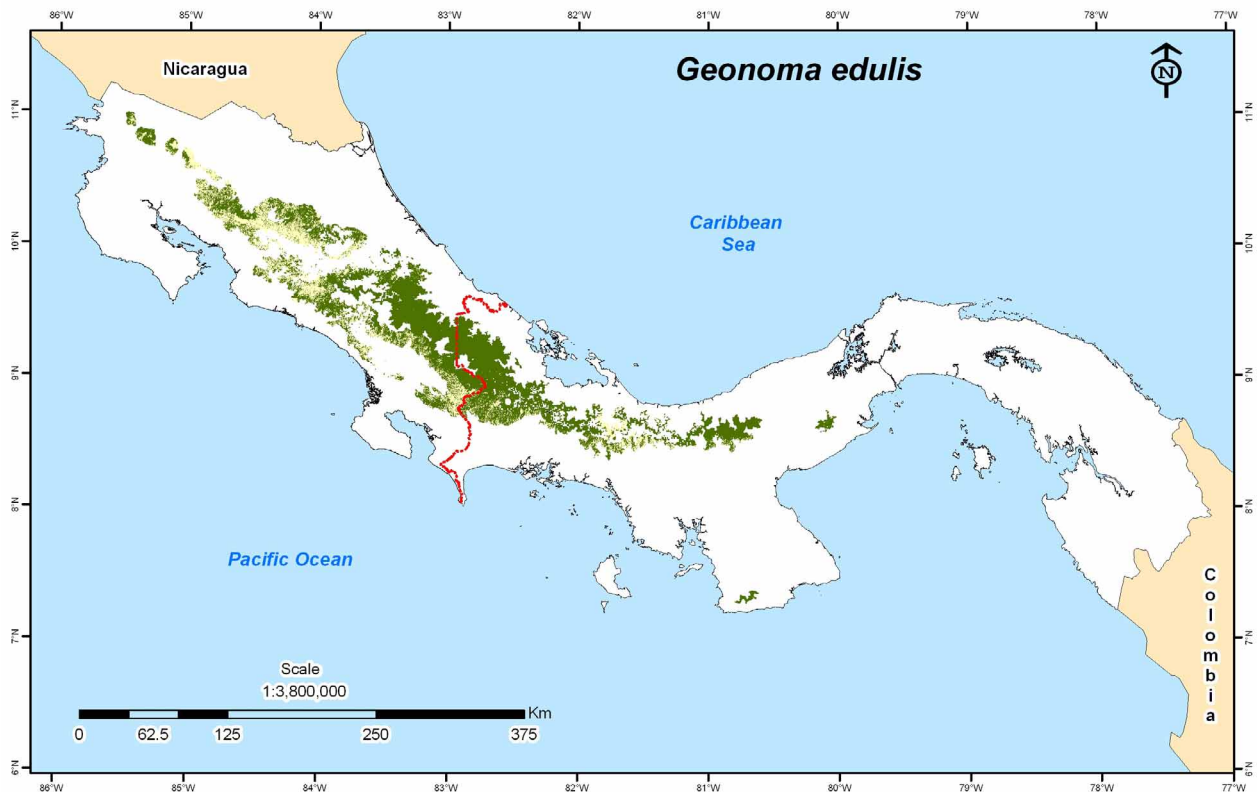
Geonoma edulis H.Wendl. ex Spruce (Arecaceae)

Local name: *Súrtuba*.

Terrestrial shrubs or trees, flowers unisexual, monoecious. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 64 herbarium collections. Elevational range for Costa Rica and Panama (700–)1000–2500 m, and the proportion of the regional Extension of Occurrence in protected areas: 47%.

- Regional threat category: **Near Threatened (NT)**

Fig. 74



In Costa Rica and Panama the Extension of Occurrence was calculated to be 17317 km², the Area of Occupancy 12575 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Geonoma edulis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

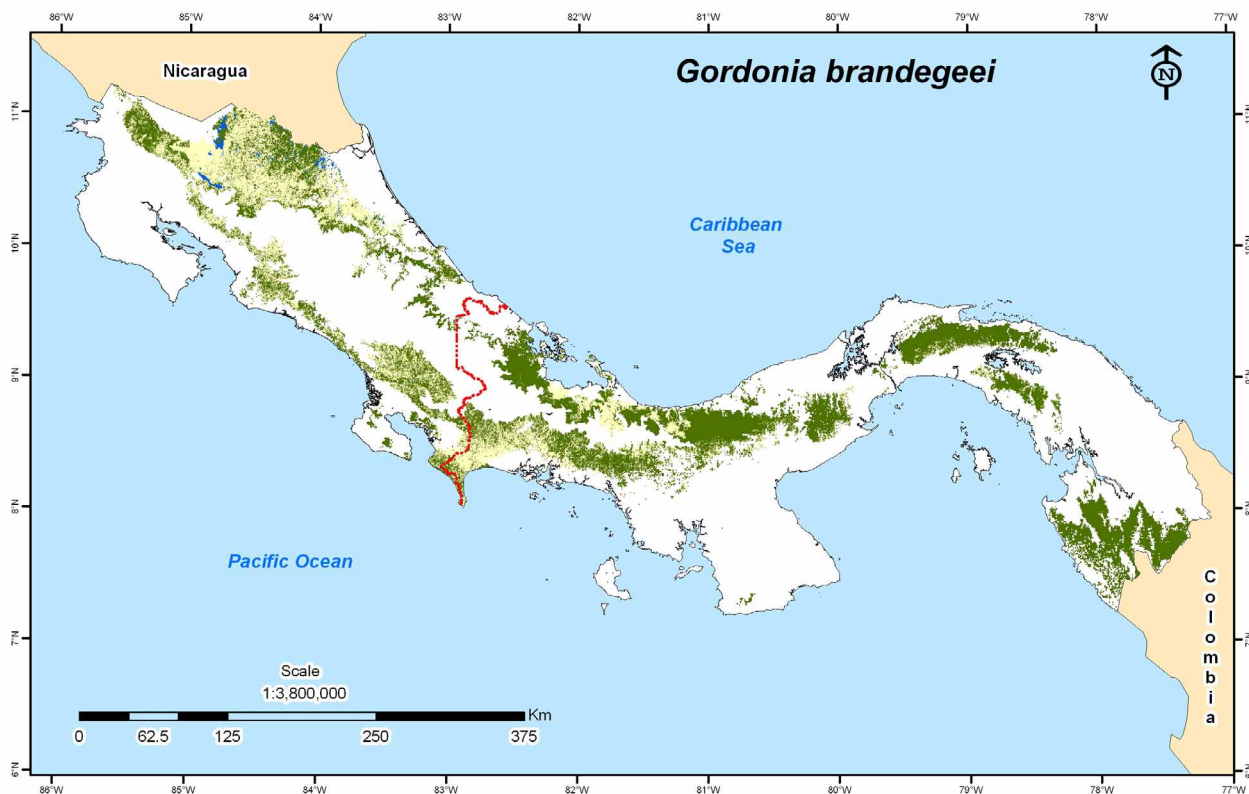
Gordonia brandegeei H.Keng (Theaceae)

Local names: *Campano*, *Campano Chile*, *Fierro*, *Llorón*, *Varo*, *Yoro*, *Yorón*, *Canto amarillo*, *Ira*, *Chiricano*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico, Honduras, Costa Rica and Panama. Known in Costa Rica and Panama from 25 herbarium collections. Elevational range for Costa Rica and Panama 500–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Near Threatened (NT)**

Fig. 75



In Costa Rica and Panama the Extension of Occurrence was calculated to be 36931 km², the Area of Occupancy 23104 km² and loss of Extension of Occurrence 37%. Using the above data and IUCN (2001, version 3.1) criteria, *Gordonia brandegeei* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the species extraction for timber by local communities, the low proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

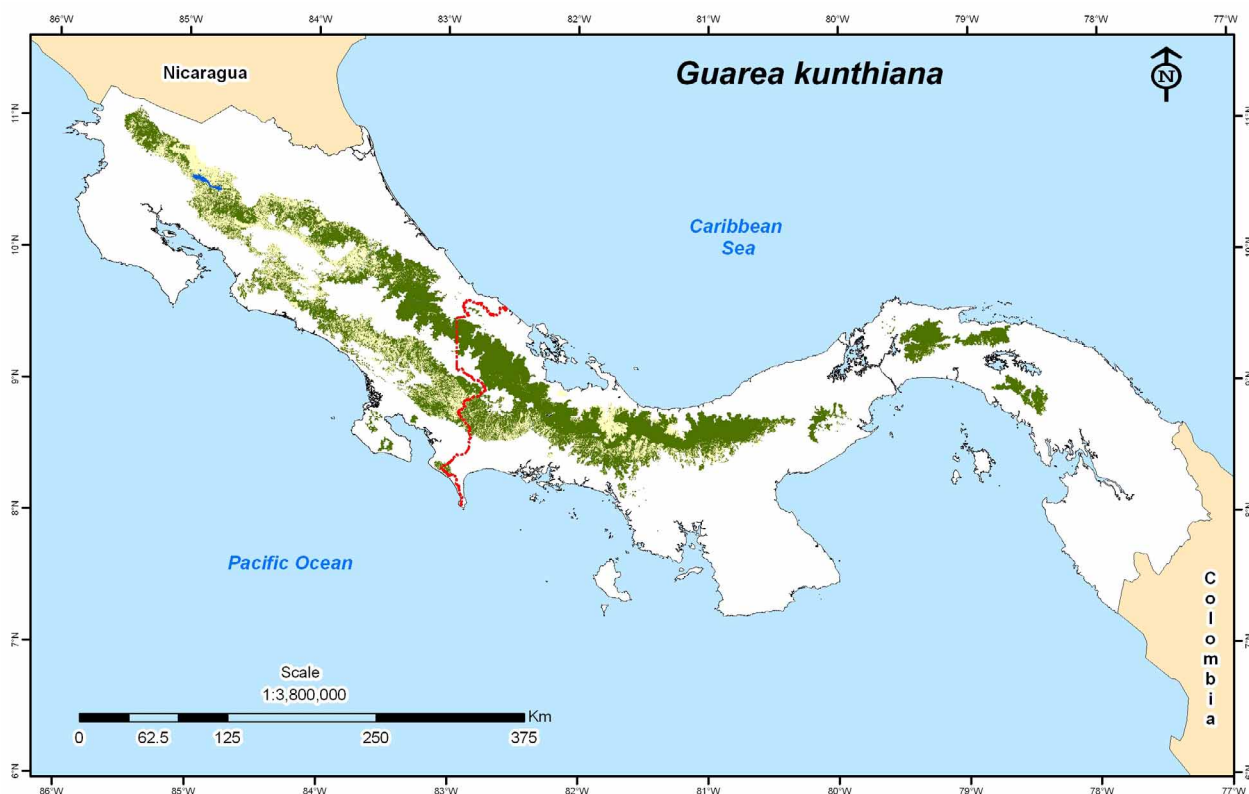
Guarea kunthiana A.Juss. (Meliaceae)

Local names: *Cocora*, *Ocora*.

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Nicaragua to Venezuela, Argentina, the Guayanas, Brazil, the Antilles. Known in Costa Rica and Panama from 56 herbarium collections. Elevational range for Costa Rica and Panama (0–)300–1750 m, and the proportion of the regional Extension of Occurrence in protected areas: 32%.

- Regional threat category: **Near Threatened (NT)**

Fig. 76



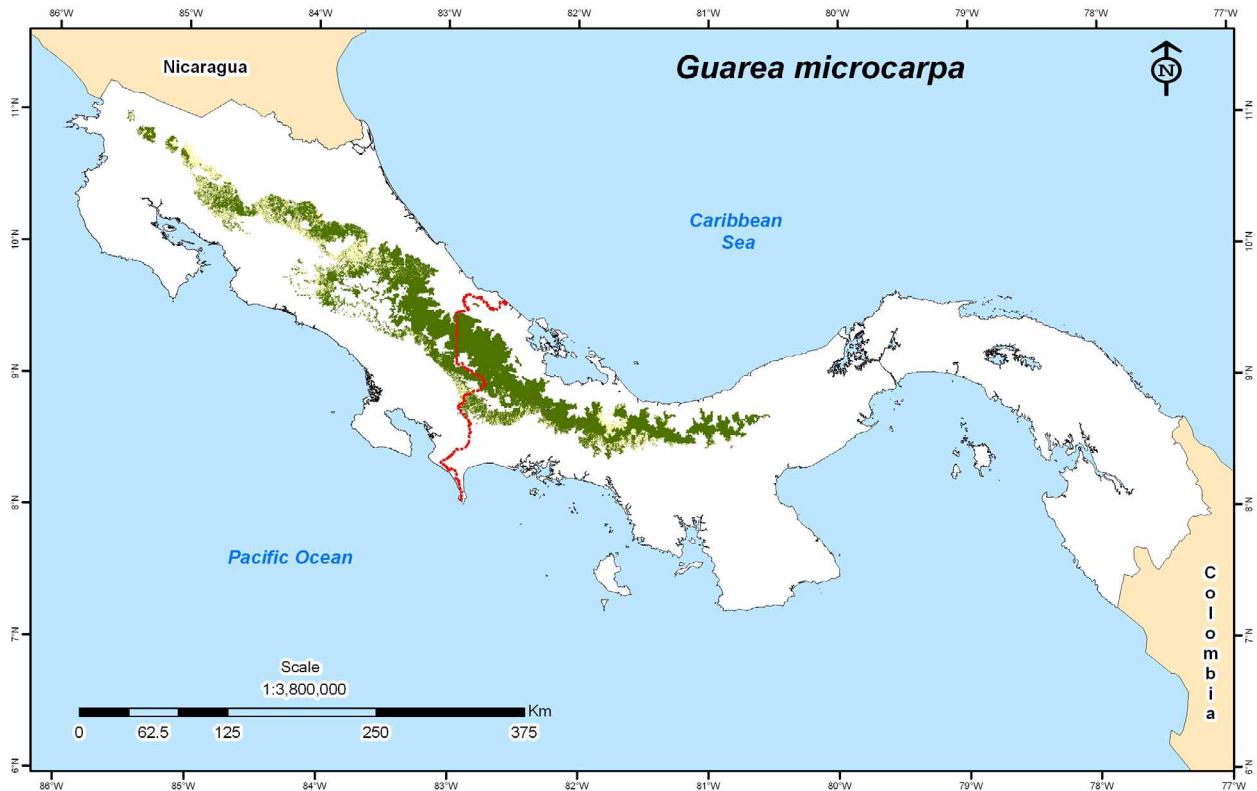
In Costa Rica and Panama the Extension of Occurrence was calculated to be 28888 km², the Area of Occupancy 20118 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Guarea kunthiana* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and a high proportion of its Area of Occupancy located in a protected area. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Guarea microcarpa C.DC. (Meliaceae)

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Honduras to Panama. Known in Costa Rica and Panama from 64 herbarium collections. Elevational range for Costa Rica and Panama 600–2400 m, and the proportion of the regional Extension of Occurrence in protected areas: 49%.

- Regional threat category: **Near Threatened (NT)**

Fig. 77



In Costa Rica and Panama the Extension of Occurrence was calculated to be 16442 km², the Area of Occupancy 12582 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Guarea microcarpa* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

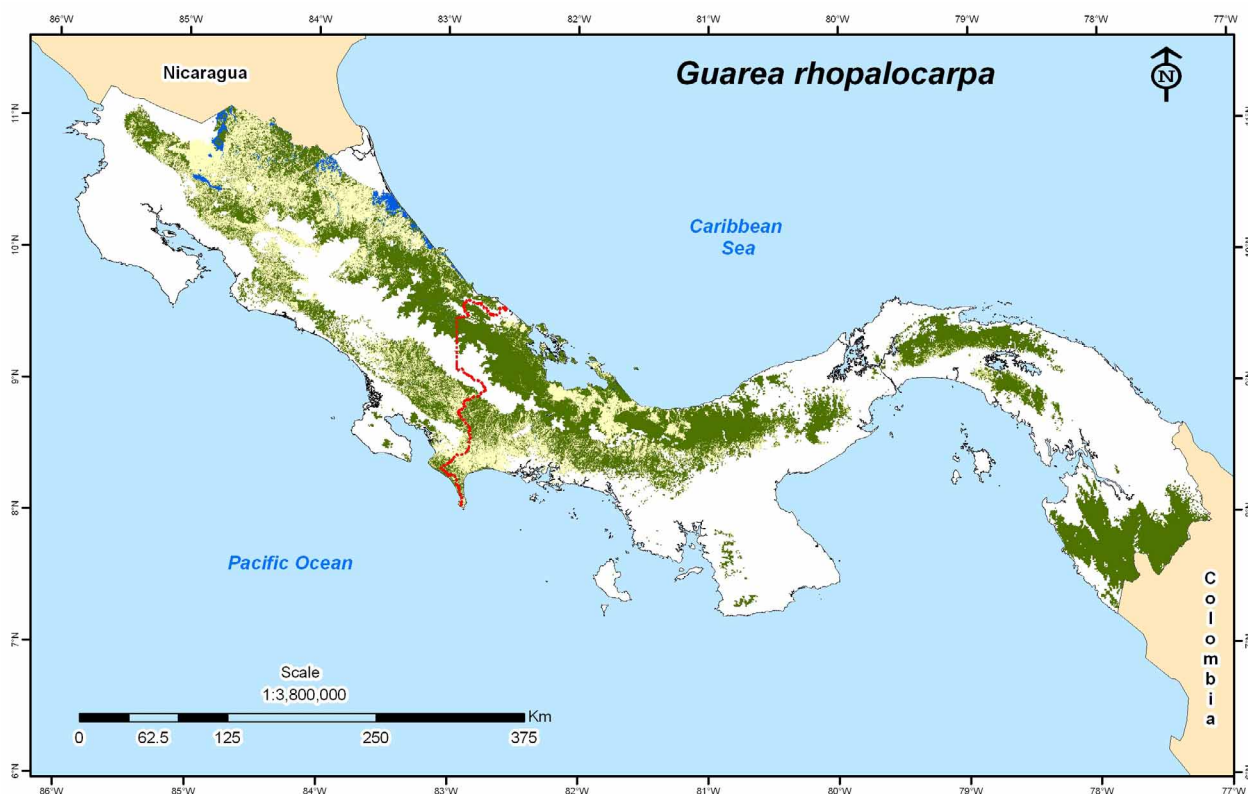
Guarea rhopalocarpa Radlk. (Meliaceae)

Local names: *Cacao de ardilla*, *Cocora*, *Pocora*, *Ocora*.

Terrestrial shrubs or trees, flowers unisexual, dioecious, used as timber. Global distribution: Nicaragua to Colombia. Known in Costa Rica and Panama from 149 herbarium collections. Elevational range for Costa Rica and Panama 0–1650 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Vulnerable (VU) A2cd**

Fig. 78



In Costa Rica and Panama the Extension of Occurrence was calculated to be 17907 km², the Area of Occupancy 8154 km² and loss of Extension of Occurrence 54%. Using the above data and IUCN (2001, version 3.1) criteria, *Guarea rhopalocarpa* is classified as Endangered (EN) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

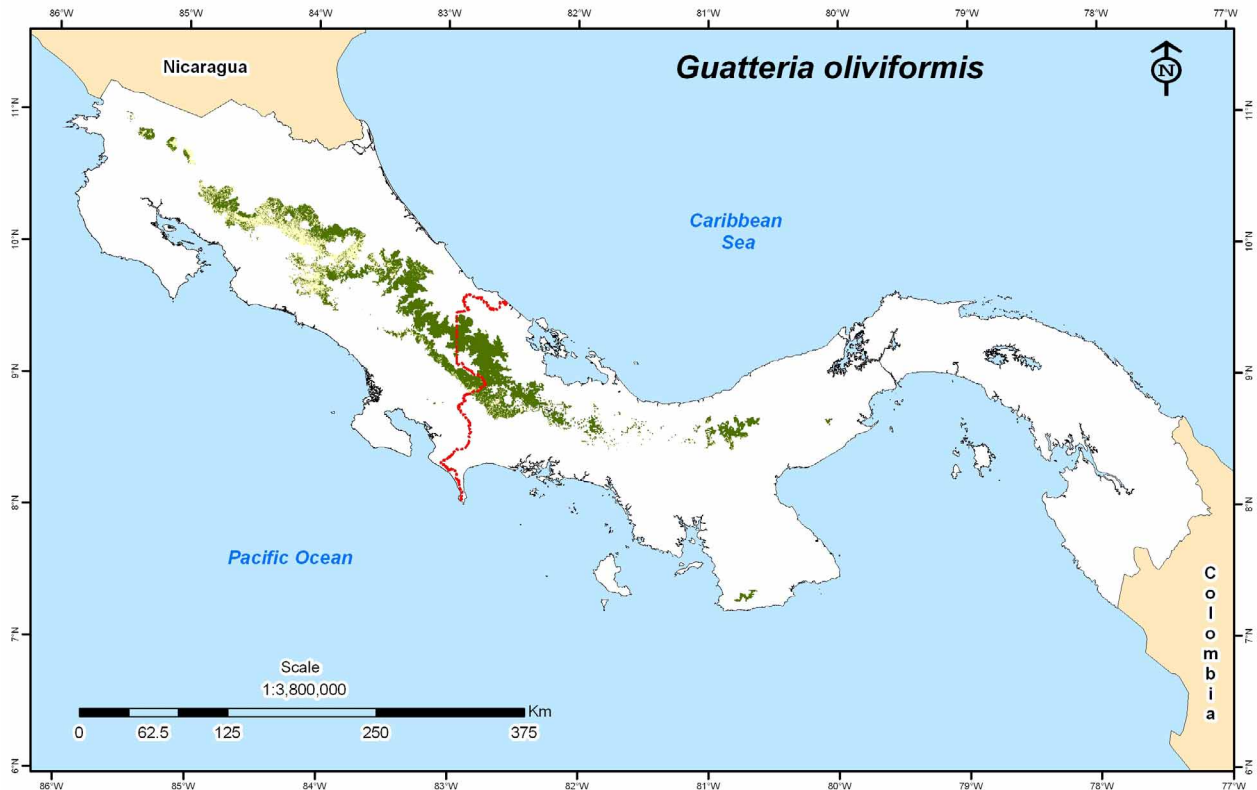
Guatteria oliviformis Donn.Sm. (Annonaceae)

Local name: Anonillo.

Terrestrial trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 65 herbarium collections. Elevational range for Costa Rica and Panama 1200–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 56%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 79



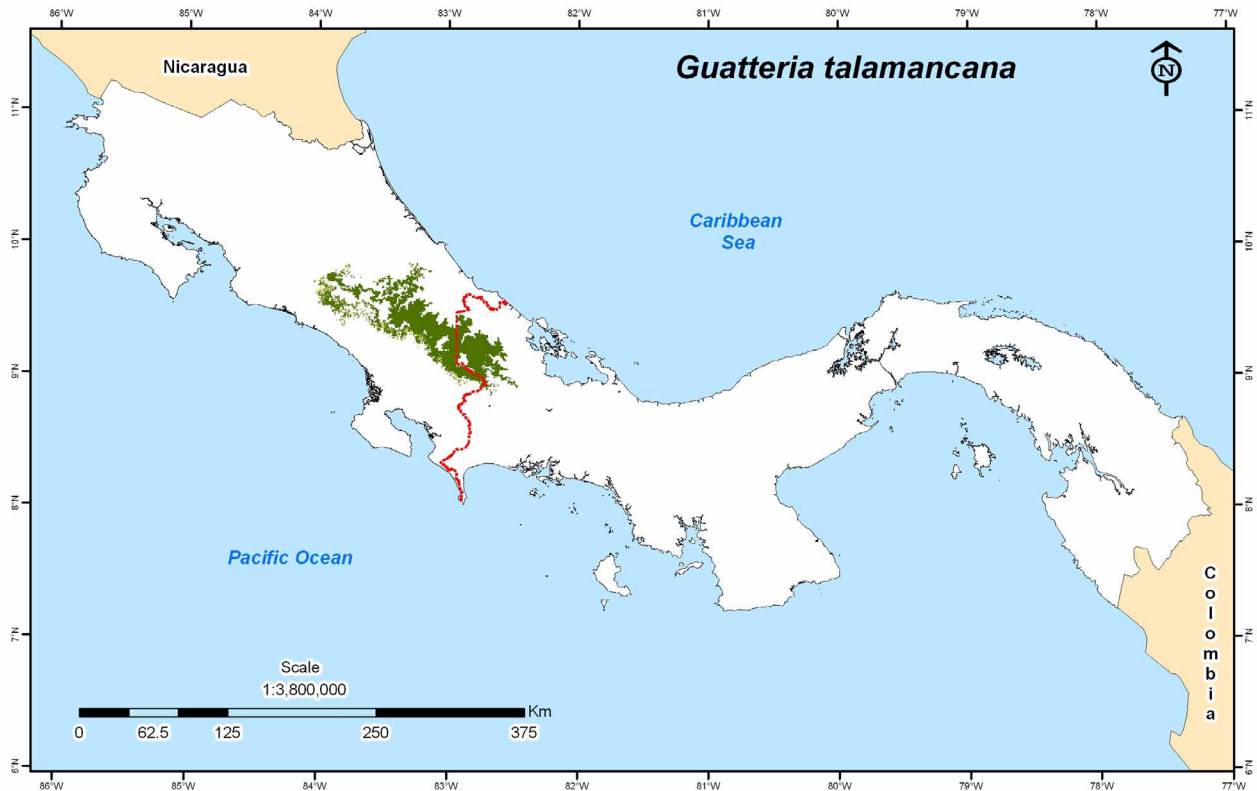
In Costa Rica and Panama the Extension of Occurrence was calculated to be 10136 km², the Area of Occupancy 7502 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Guatteria oliviformis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

Guatteria talamancana N.Zamora & Maas (Annonaceae)

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 15 herbarium collections. Elevational range 1700–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 80%.

- Regional threat category: **Endangered (EN) B1ab(iii)**

Fig. 80



In Costa Rica and Panama the Extension of Occurrence was calculated to be 4613 km², the Area of Occupancy 4269 km² and loss of Extension of Occurrence 7%. Using the above data and IUCN (2001, version 3.1) criteria, *Guatteria talamancana* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the classification was not changed.

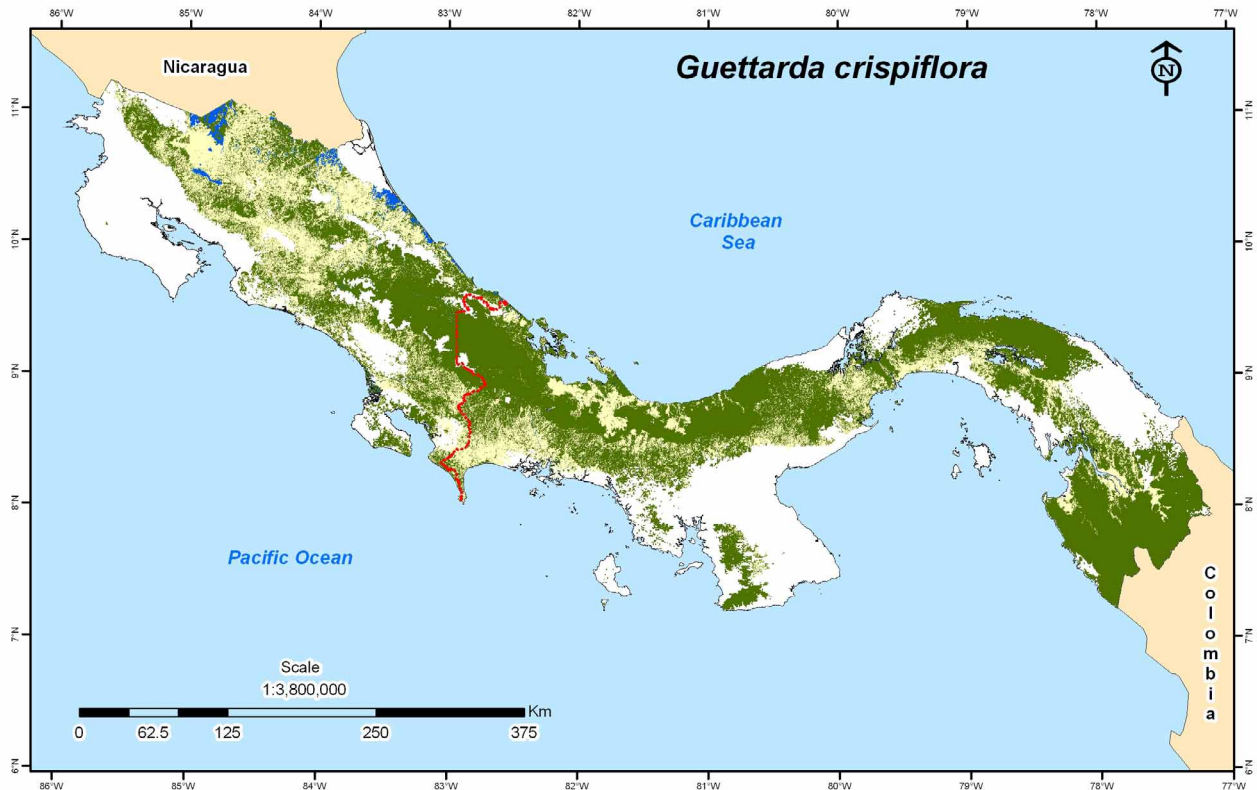
Guettarda crispiflora Vahl (Rubiaceae)

Local names: *Cantarillo*, *Mosqueta de montaña*.

Terrestrial trees, flowers bisexual. Costa Rica, Panama, the Antilles. Known in Costa Rica and Panama from 109 herbarium collections. Elevational range 50–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 30%.

- Regional threat category: **Vulnerable (VU) A2c**

Fig. 81



In Costa Rica and Panama the Extension of Occurrence was calculated to be 25016 km², the Area of Occupancy 12211 km² and loss of Extension of Occurrence 51%. Using the above data and IUCN (2001, version 3.1) criteria, *Guettarda crispiflora* is classified as Endangered (EN) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad elevational distribution and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy, and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

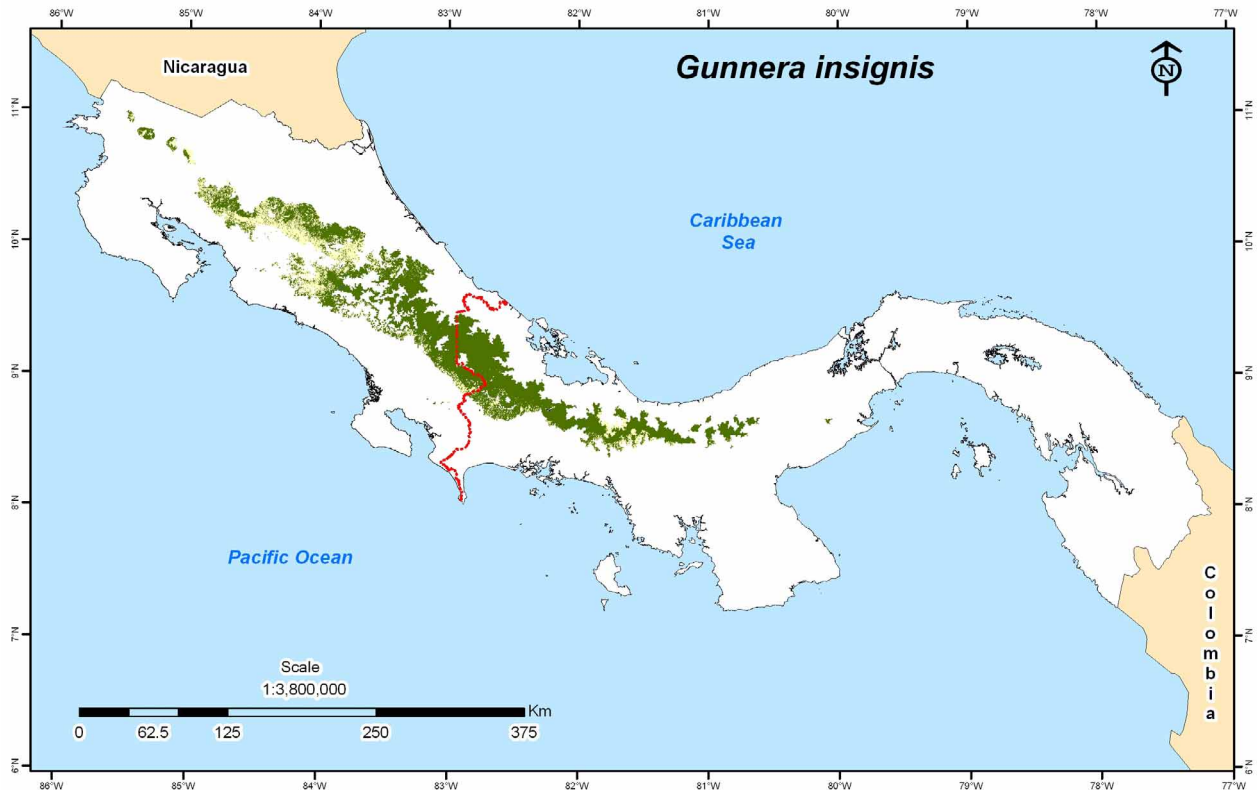
Gunnera insignis (Oerst.) A.DC. (Gunneraceae)

Local names: *Higuera*, *Mano de tigre*, *Sombrilla de pobre*.

Terrestrial herbs, flowers bisexual. Global distribution: Nicaragua to Colombia. Known in Costa Rica and Panama from 55 herbarium collections. Elevational range for Costa Rica and Panama 800–2600(–3200) m, and the proportion of the regional Extension of Occurrence in protected areas: 52%.

- Regional threat category: **Near Threatened (NT)**

Fig. 82



In Costa Rica and Panama the Extension of Occurrence was calculated to be 14843 km², the Area of Occupancy 11324 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Gunnera insignis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, the species has a relatively broad elevational distribution, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

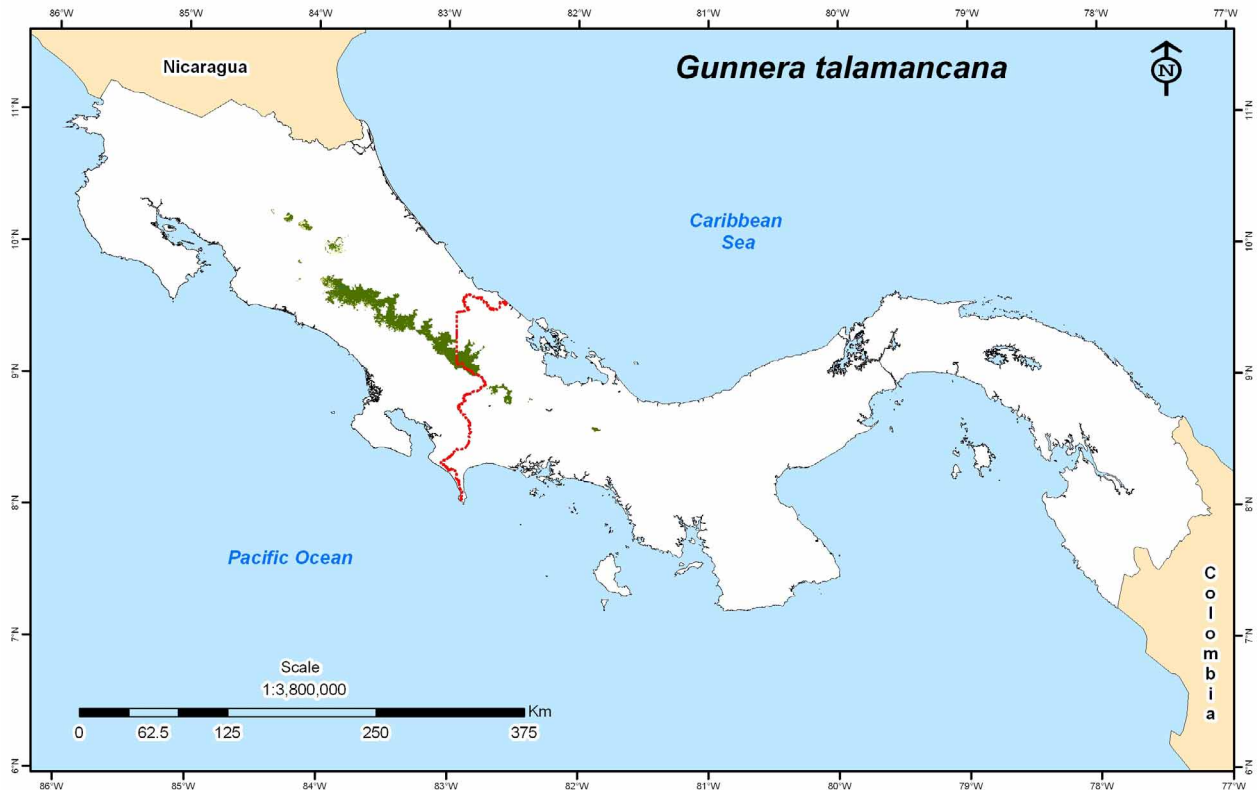
Gunnera tamamancana Weber & L.E.Mora (Gunneraceae)

Local name: *Sombrilla de pobre*.

Terrestrial herbs, flowers bisexual. Global distribution: Endemic to Costa Rica and Panama. Known from 27 herbarium collections. Elevational range for Costa Rica and Panama 2300–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 88%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 83



In Costa Rica and Panama the Extension of Occurrence was calculated to be 2488 km², the Area of Occupancy 2303 km² and loss of Extension of Occurrence 7%. Using the above data and IUCN (2001, version 3.1) criteria, *Gunnera tamamancana* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

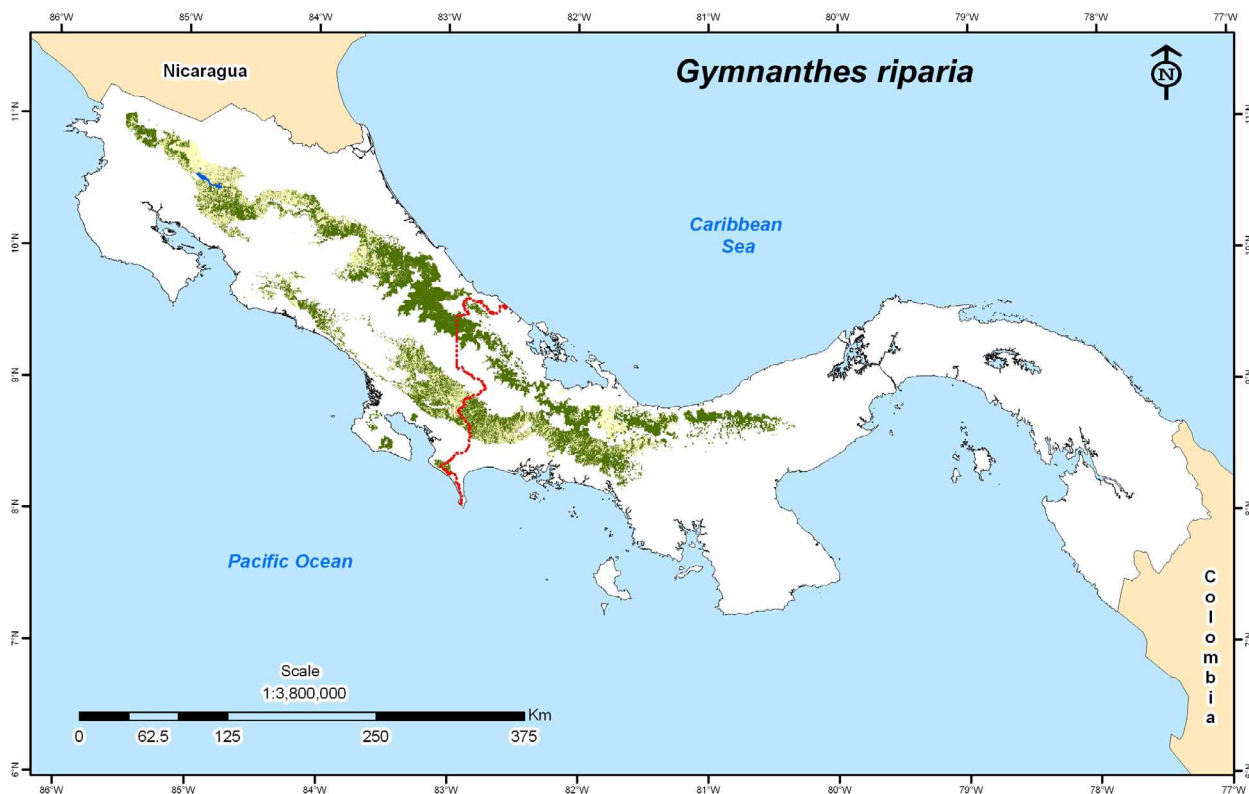
Gymnanthes riparia (Schltdl.) Klotzsch (Euphorbiaceae)

Local name: *Marío*.

Terrestrial trees, flowers bisexual or unisexual, where unisexual, monoecious. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 49 herbarium collections. Elevational range for Costa Rica and Panama 200–1100 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Vulnerable (VU) A2c**

Fig. 84



In Costa Rica and Panama the Extension of Occurrence was calculated to be 6933 km², the Area of Occupancy 3335 km² and loss of Extension of Occurrence 52%. Using the above data and IUCN (2001, version 3.1) criteria, *Gymnanthes riparia* is classified as Endangered (EN) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

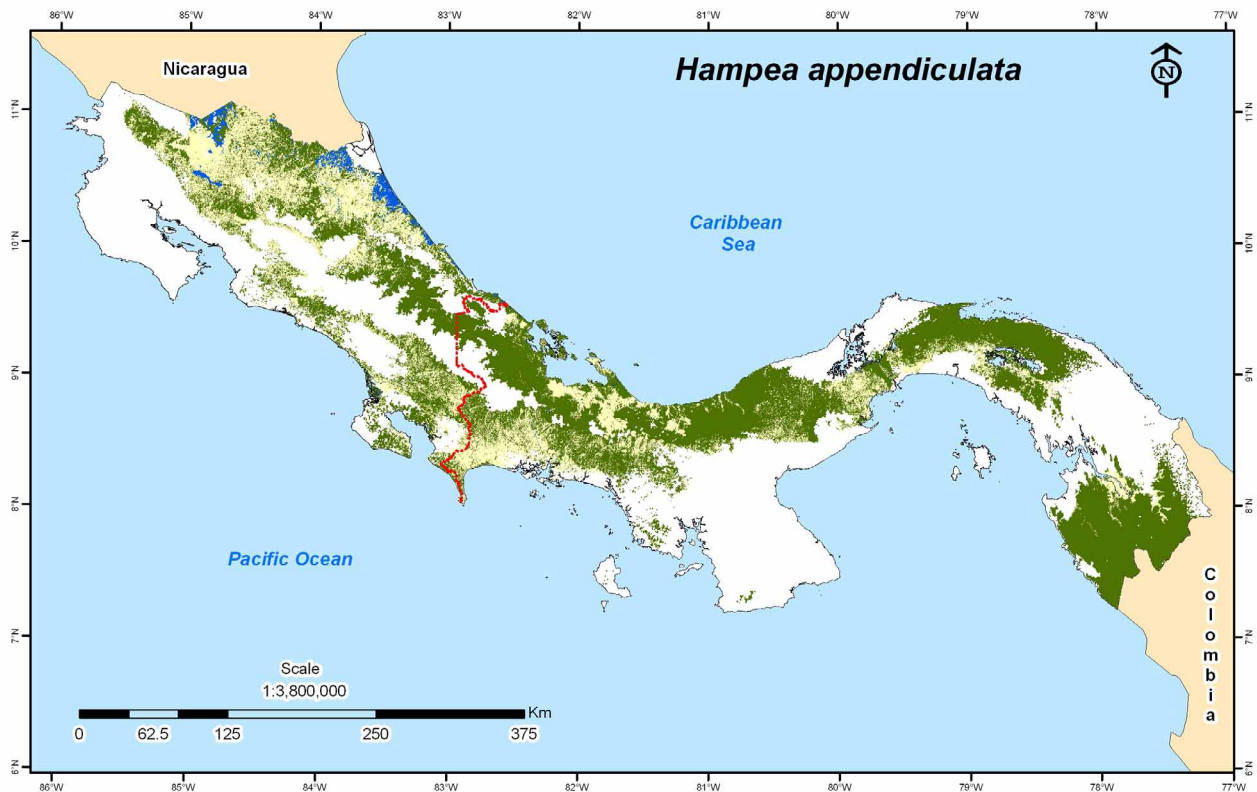
Hampea appendiculata (Donn.Sm.) Standl. (Malvaceae)

Local names: *Biriogre*, *Algodoncillo*, *Burío blanco*, *Azajardillo*, *Burío*, *Burío raton*.

Terrestrial shrubs or trees, flowers unisexual, dioecious, used as a source of fibre and timber. Global distribution: Honduras to Panama. Known in Costa Rica and Panama from 161 herbarium collections. Elevational range for Costa Rica and Panama 0–1350(–1700) m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Least Concern (LC)**

Fig. 85



In Costa Rica and Panama the Extension of Occurrence was calculated to be 63829 km², the Area of Occupancy 47541 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Hampea appendiculata* is classified as Least concern (LC). This classification is supported by the species relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. This classification is countered, however, by the low proportion of its Area of Occupancy located in a protected area and the extraction of this species for timber. Despite the above the classification was unchanged.

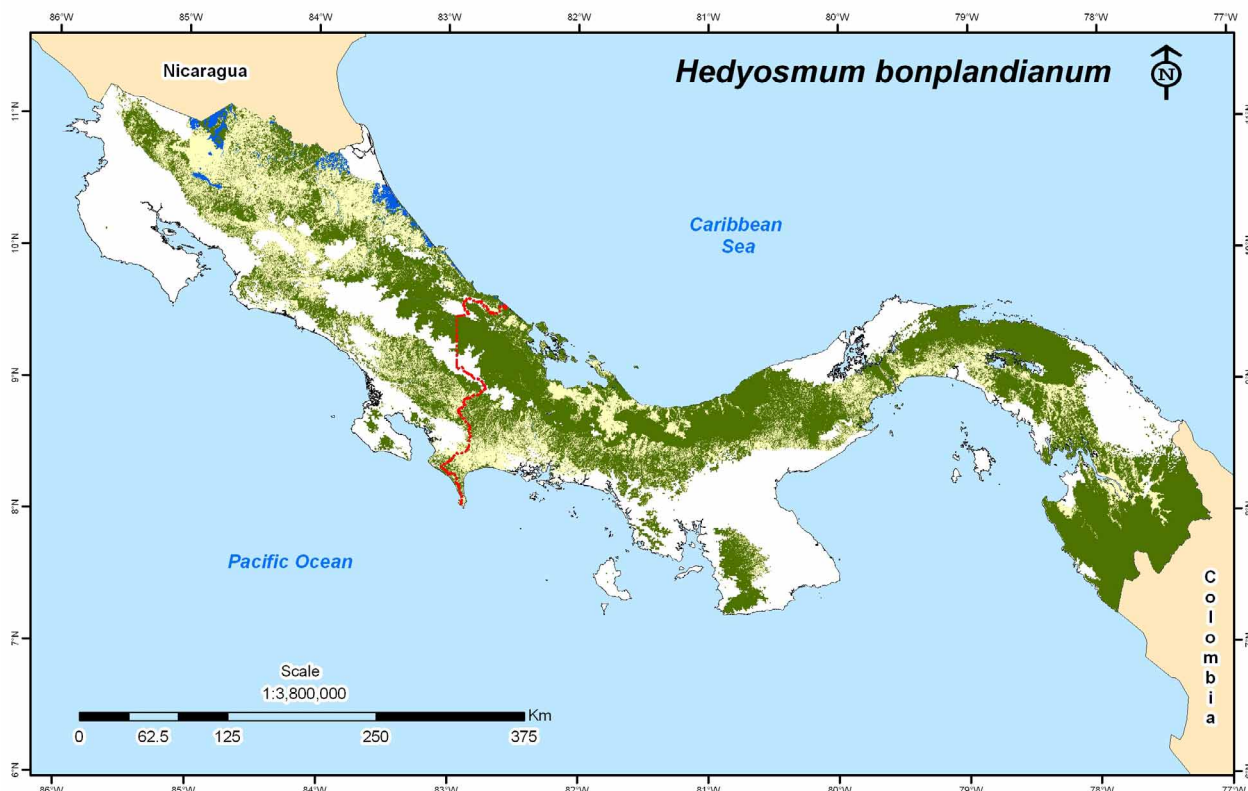
Hedyosmum bonplandianum Kunth (Chloranthaceae)

Local name: *Aguillo*.

Terrestrial shrubs or trees, flowers unisexual, monoecious. Global distribution: Nicaragua to Ecuador. Known in Costa Rica and Panama from 224 herbarium collections. Elevational range for Costa Rica and Panama 200–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Least Concern (LC)**

Fig. 86



In Costa Rica and Panama the Extension of Occurrence was calculated to be 79140 km², the Area of Occupancy 58932 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Hedyosmum bonplandianum* is classified as Least Concern. This classification is supported by the species relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. This classification is countered, however, by the low proportion of its Area of Occupancy located in a protected area. Despite the above the classification was not changed.

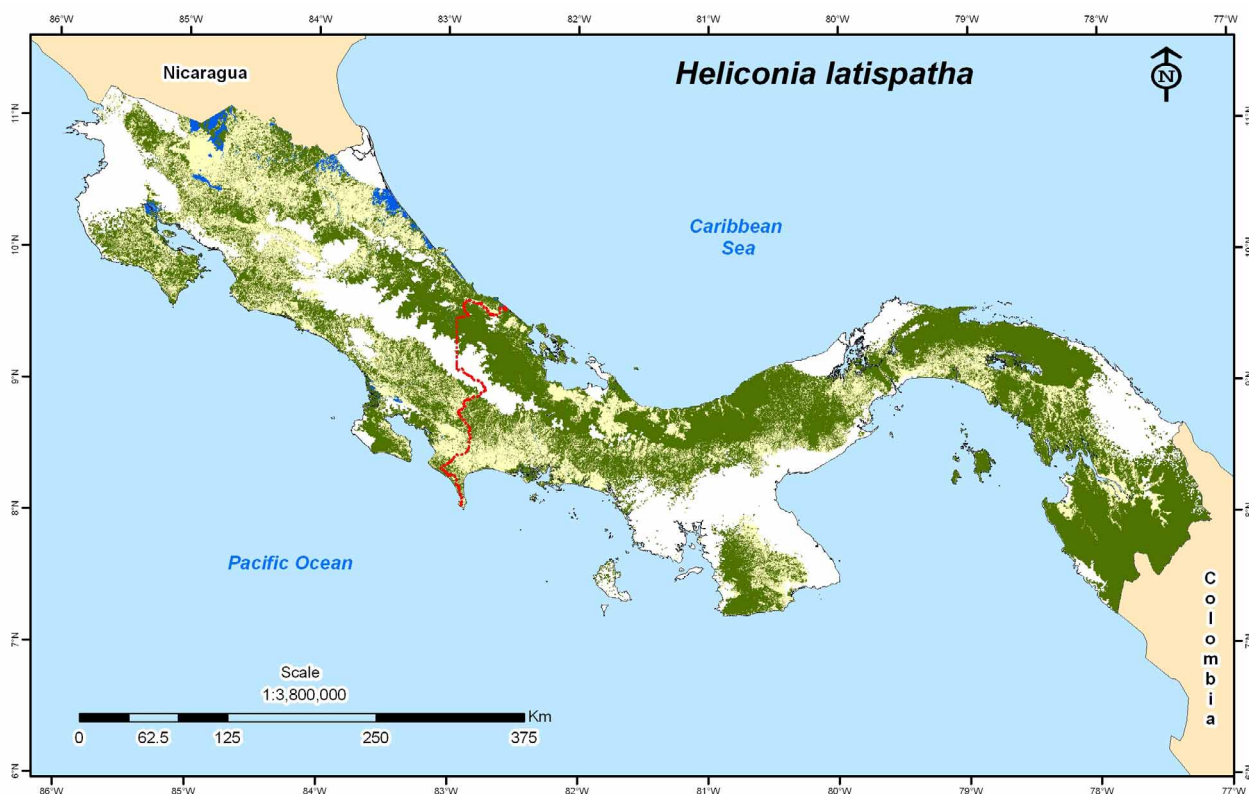
Heliconia latispatha Benth. (Heliconiaceae)

Local name: *Caliguate*.

Terrestrial herbs, flowers bisexual, used as a medicine, cultivated as an ornamental. Global distribution: Mexico to Peru. Known in Costa Rica and Panama from 158 herbarium collections. Elevational range for Costa Rica and Panama 0–1500 m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Least Concern (LC)**

Fig. 87



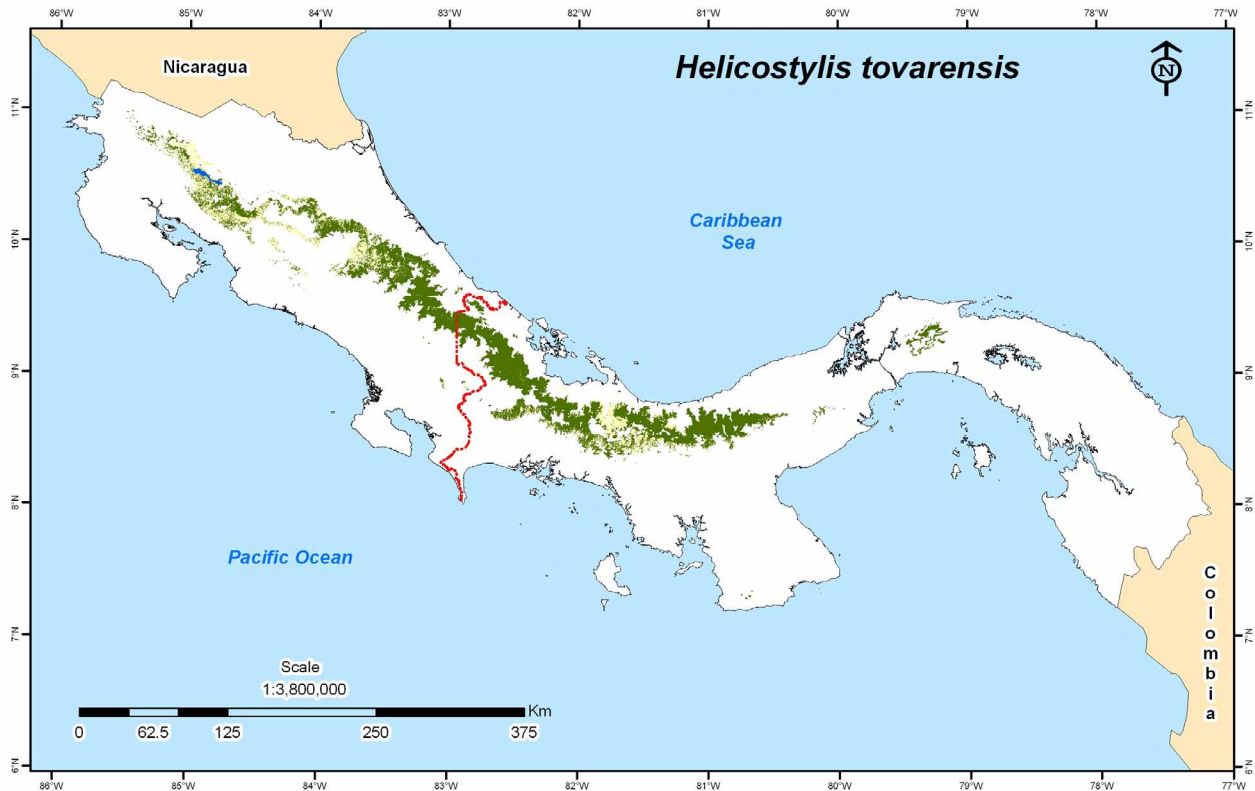
In Costa Rica and Panama the Extension of Occurrence was calculated to be 90671 km², the Area of Occupancy 67187 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria A2c, *Heliconia latispatha* is classified as Least Concern (LC). This classification is supported by the species relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance.

Helicostylis towarensis (Klotzsch & H.Karst.) C.C.Berg (Moraceae)

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Costa Rica to Bolivia and Venezuela. Known in Costa Rica and Panama from 56 herbarium collections. Elevational range for Costa Rica and Panama 450–1550 m, and the proportion of the regional Extension of Occurrence in protected areas: 41%.

- Regional threat category: **Near Threatened (NT)**

Fig. 88



In Costa Rica and Panama the Extension of Occurrence was calculated to be 13289 km², the Area of Occupancy 9768 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Helicostylis towarensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

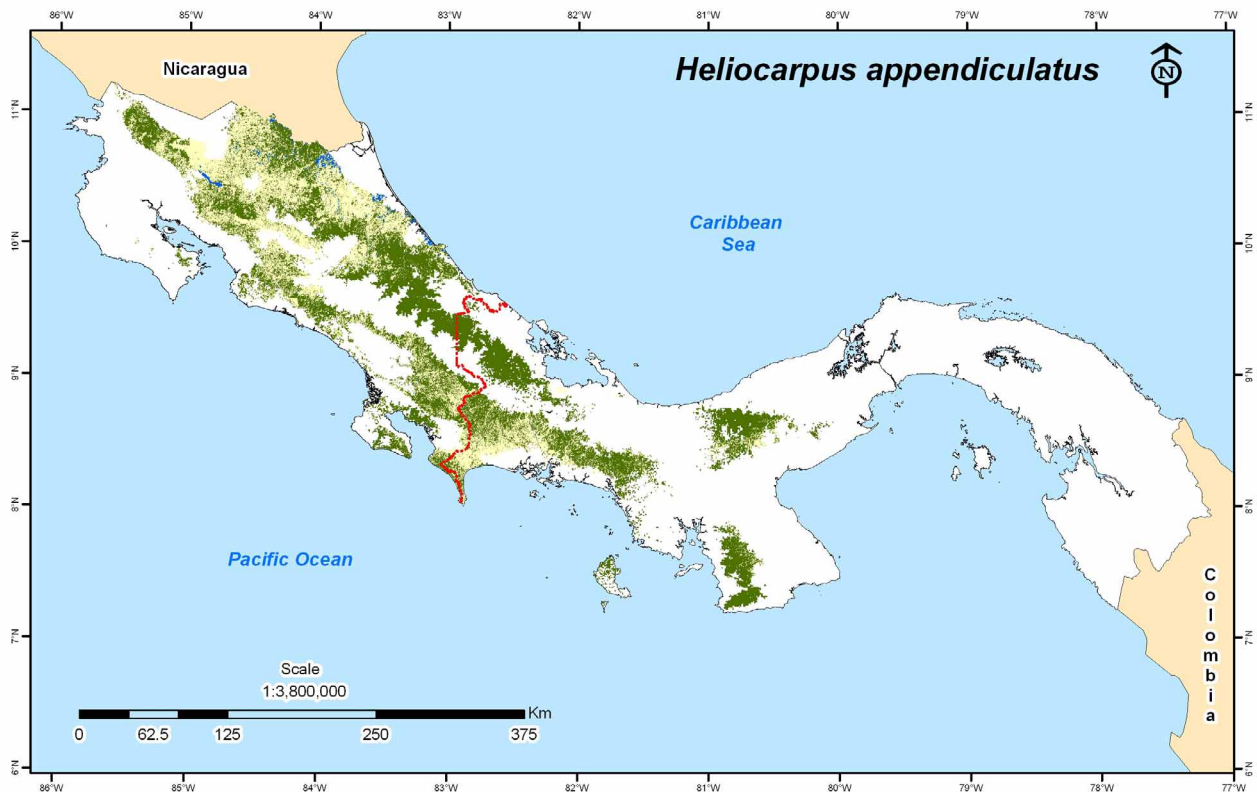
Heliocarpus appendiculatus Turcz. (Malvaceae)

Local names: *Burío*, *Burillo*, *Buría*, *Burío patón*, *Buriogre*, *Tsa-ri* (Cabécar), *Stsa* (Bribri), *Gsii+krá* (Brunka), *Rús-ura+gró* (Térraba).

Terrestrial shrubs or trees, flowers bisexual, used as a source of fibre. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 53 herbarium collections. Elevational range for Costa Rica and Panama 50–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 24%.

- Regional threat category: **Least Concern (LC)**

Fig. 89



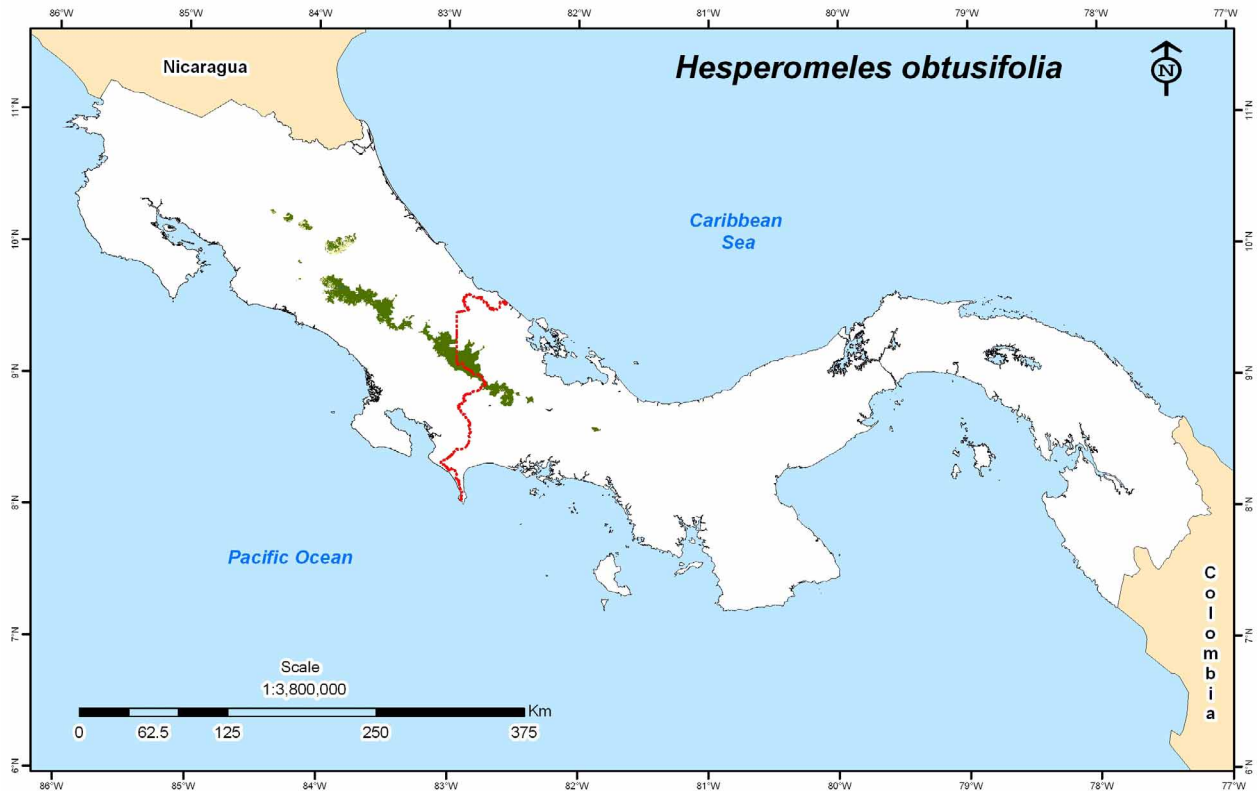
In Costa Rica and Panama the Extension of Occurrence was calculated to be 35507 km², the Area of Occupancy 26110 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Heliocarpus appendiculatus* is classified as Least Concern (LC). This classification is supported by the species relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Countering this, however, is the low proportion of its Area of Occupancy located in a protected area is the fact that this species is extracted for timber, albeit rarely. Despite the above, the classification was not changed.

Hesperomeles obtusifolia (Pers.) Lindl. (Rosaceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Costa Rica to Bolivia. Known in Costa Rica and Panama from 67 herbarium collections. Elevational range for Costa Rica and Panama 2300–3800 m, and the proportion of the regional Extension of Occurrence in protected areas: 88%.

- Regional threat category: **Vulnerable (VU) B1ab(iii)**

Fig. 90



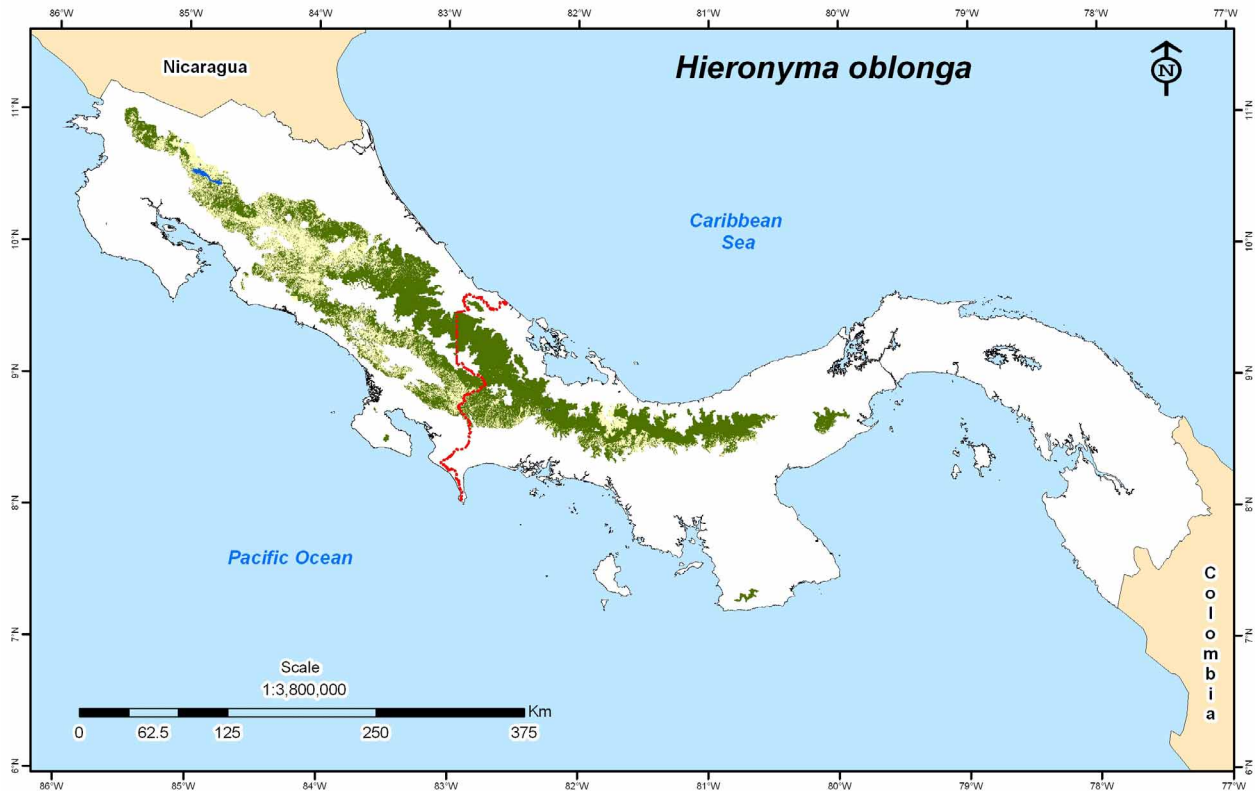
In Costa Rica and Panama the Extension of Occurrence was calculated to be 2634 km², the Area of Occupancy 2385 km² and loss of Extension of Occurrence 9%. Using the above data and IUCN (2001, version 3.1) criteria, *Hesperomeles obtusifolia* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, low levels of habitat loss, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Hieronyma oblonga (Tul.) Müll.Arg. (Phyllanthaceae)

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Mexico to the Guyanas and Bolivia. Known in Costa Rica and Panama from 164 herbarium collections. Elevational range for Costa Rica and Panama 500–2500 m, and the proportion of the regional Extension of Occurrence in protected areas: 36%.

- Regional threat category: **Near Threatened (NT)**

Fig. 91



In Costa Rica and Panama the Extension of Occurrence was calculated to be 25631 km², the Area of Occupancy 17336 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Hieronyma oblonga* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

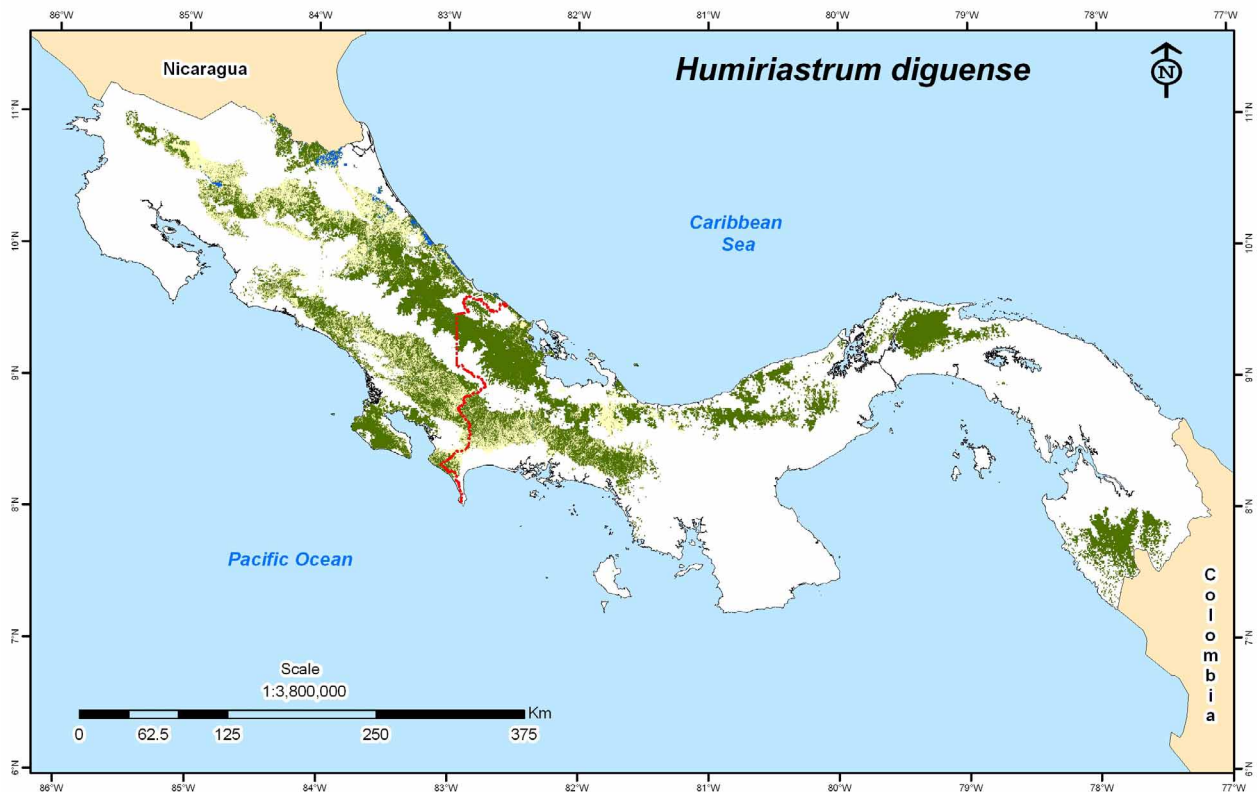
Humiriastrum diguense Cuatrec. (Humiriaceae)

Local names: *Chiricano*, *Chiricano alegre*, *Chiricano triste*, *Lorito*, *Níspero*, *Campano*, *Campano blanco*, *Loro*, *Níspero lorito*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Costa Rica to Ecuador. Known in Costa Rica and Panama from 42 herbarium collections. Elevational range for Costa Rica and Panama 10–950 m, and the proportion of the regional Extension of Occurrence in protected areas: 33%.

- Regional threat category: **Vulnerable (VU) A2cd**

Fig. 92



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12796 km², the Area of Occupancy 5970 km² and loss of Extension of Occurrence 53%. Using the above data and IUCN (2001, version 3.1) criteria, *Humiriastrum diguense* is classified as Endangered (EN) in relation to criteria A2cd. This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that the species is extracted for timber by local communities, the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

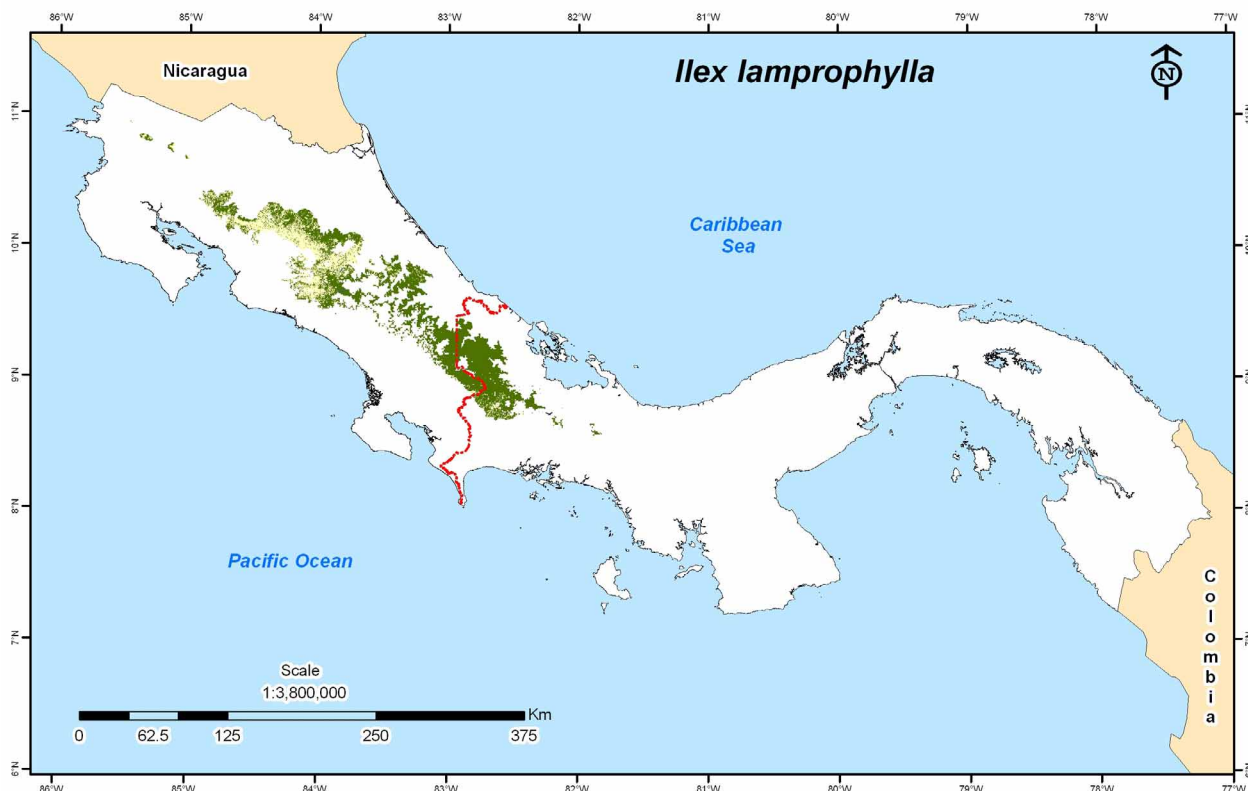
Ilex lamprophylla Standl. (Aquifoliaceae)

Local name: Azulillo.

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: El Salvador to Panama. Known in Costa Rica and Panama from 71 herbarium collections. Elevational range for Costa Rica and Panama 1300–3080 m, and the proportion of the regional Extension of Occurrence in protected areas: 59%.

- Regional threat category: **Near Threatened (NT)**

Fig. 93



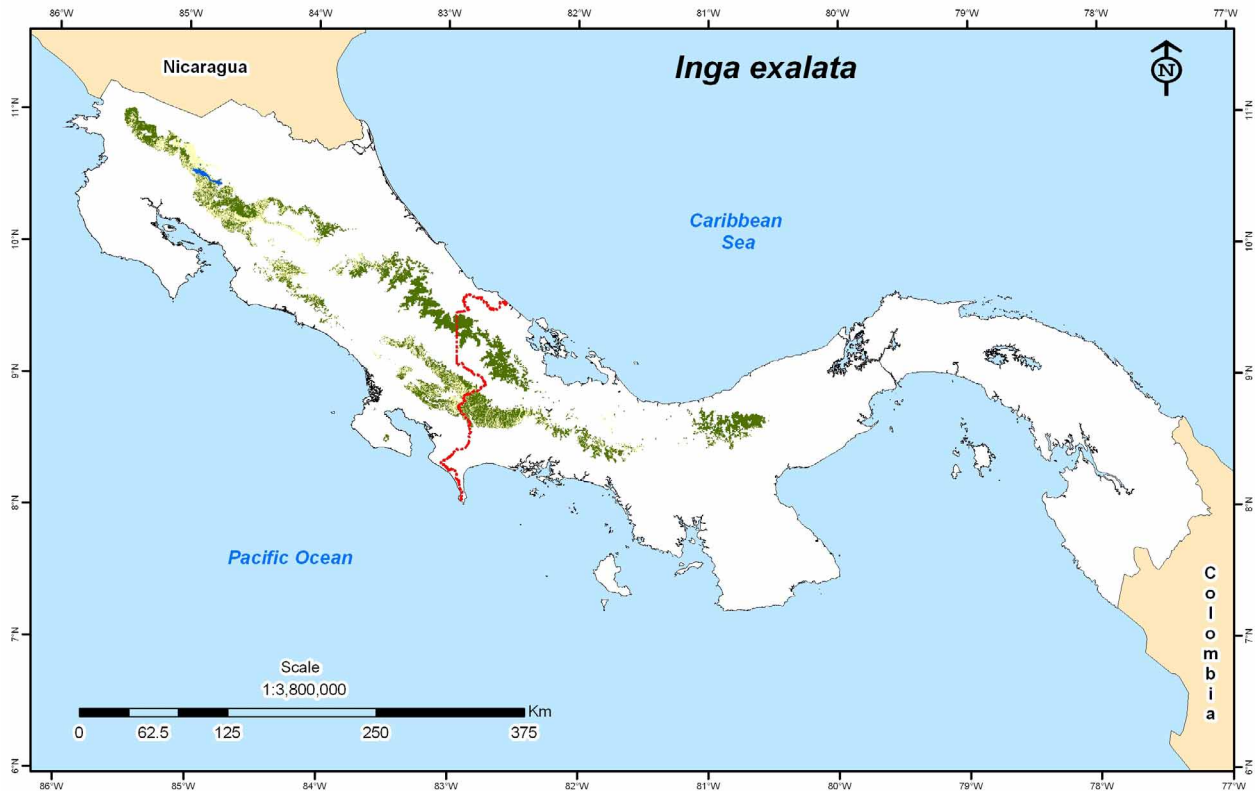
In Costa Rica and Panama the Extension of Occurrence was calculated to be 8974 km², the Area of Occupancy 6453 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Ilex lamprophylla* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Inga exalata T.S.Elias (Fabaceae)

Terrestrial trees, flowers bisexual, used as fuel wood. Endemic to Costa Rica and Panama. Known from 33 herbarium collections. Elevational range, 550–1300 m, and the proportion of the regional Extension of Occurrence in protected areas: 87%.

- Global threat category: **Endangered (EN) A2c, B1ab(i, iii)**

Fig. 94



In Costa Rica and Panama the Extension of Occurrence was calculated to be 4009 km², the Area of Occupancy 1902 km² and loss of Extension of Occurrence 53%. Using the above data and IUCN (2001, version 3.1) criteria, *Inga exalata* is classified as Endangered (EN) in relation to criteria A2c; B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

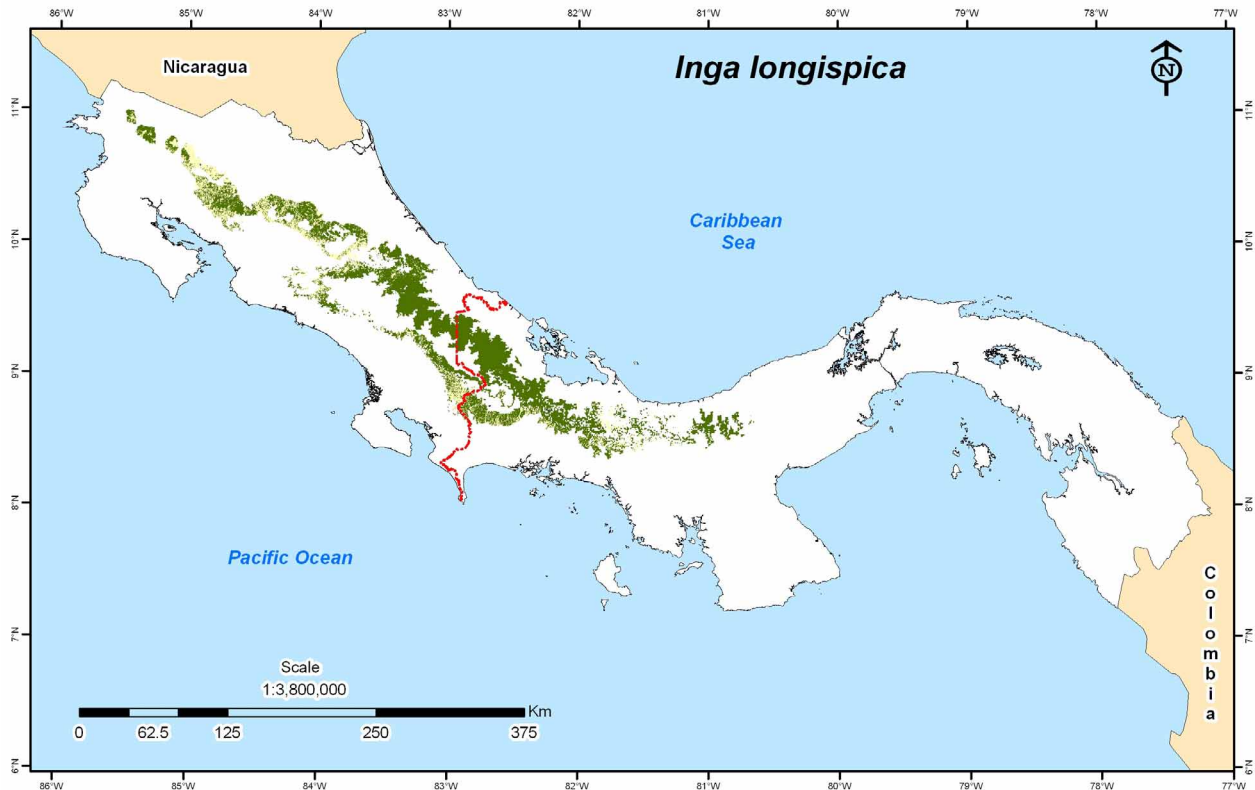
Inga longispica Standl. (Fabaceae)

Local names: *Guabo ronron*, *Guabo*, *Guaba*, *Guaba ron ron*.

Terrestrial trees, flowers bisexual, used as fuel wood. Endemic to Costa Rica and Panama. Known from 27 herbarium collections. Elevational range (600–)1000–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 50%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 95



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12567 km², the Area of Occupancy 9430 km² and loss of Extension of Occurrence 25%. Using the above data and IUCN (2001, version 3.1) criteria, *Inga longispica* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a relatively broad elevational distribution. Despite the above the classification was not changed.

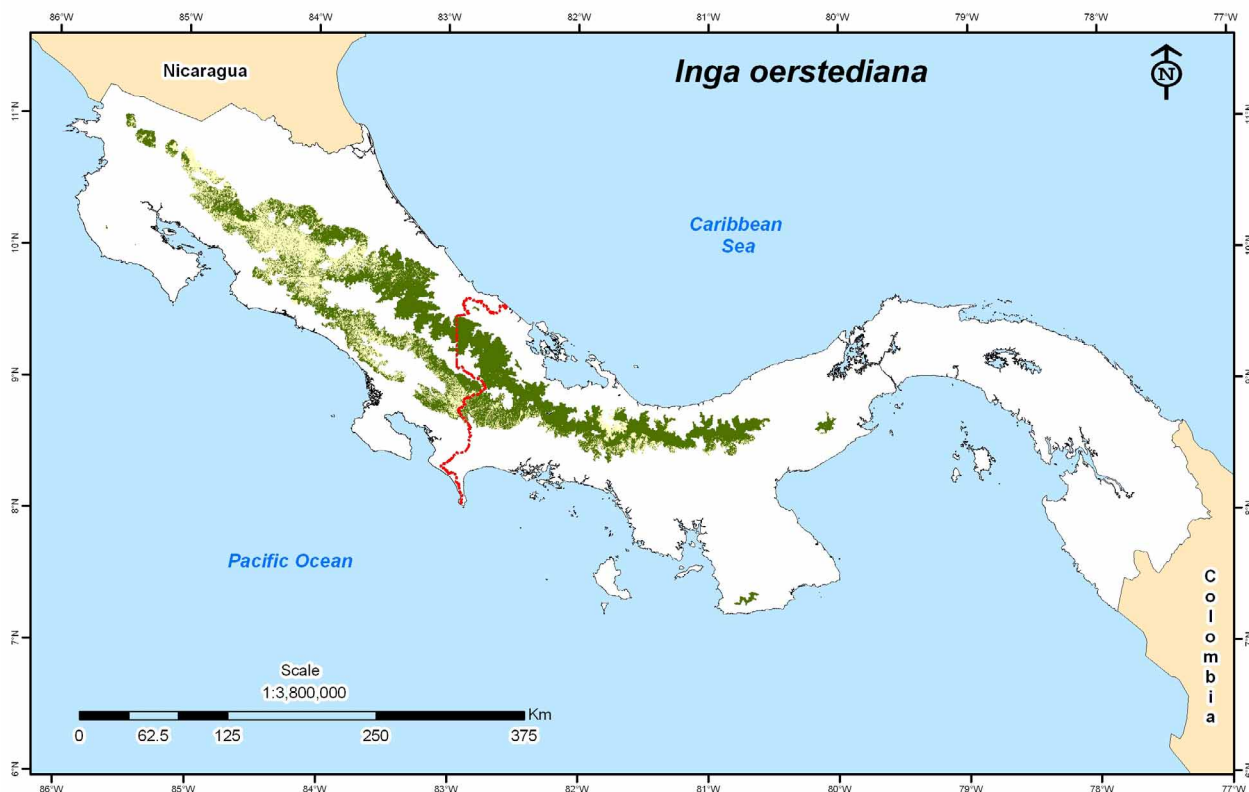
Inga oerstediana Benth. ex Seem. (Fabaceae)

Local names: *Cuajiniquil peludo*, *Guaba peluda*, *Guabo*, *Guaba*, *Guaba chilillo*, *Cuajiniquil colorado*.

Terrestrial trees, flowers bisexual, used as fuel wood. Global distribution: Mexico to Venezuela and Bolivia, the Antilles. Known in Costa Rica and Panama from 146 herbarium collections. Elevational range for Costa Rica and Panama 0–2050 m, and the proportion of the regional Extension of Occurrence in protected areas: 36%.

- Regional threat category: **Near Threatened (NT)**

Fig. 96



In Costa Rica and Panama the Extension of Occurrence was calculated to be 21752 km², the Area of Occupancy 14605 km² and loss of Extension of Occurrence 33%. Using the above data and IUCN (2001, version 3.1) criteria, *Inga oerstediana* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the fact that this species is extracted for firewood by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

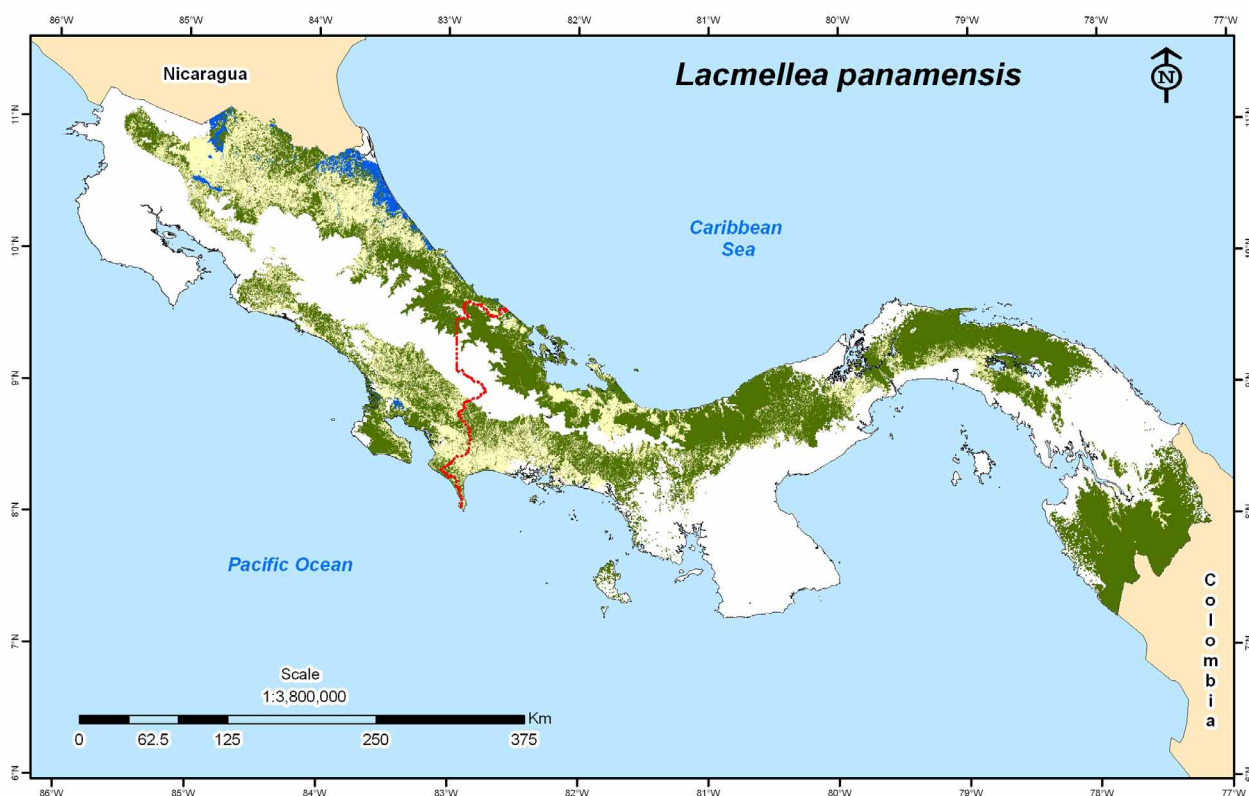
Lacmellea panamensis (Woodson) Markgr. (Apocynaceae)

Local names: Alcabú, Cerillo, Chicloso, Espinudo, Lagarto negro, Lagartillo negro, Monachina, Cerillo, Espinudo, Lacmelia, Lagartillo, Lagarto.

Terrestrial trees, flowers bisexual, the fruits of this species are edible . Global distribution: Nicaragua to Colombia. Known in Costa Rica and Panama from 120 herbarium collections. Elevational range for Costa Rica and Panama 0–700 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 97



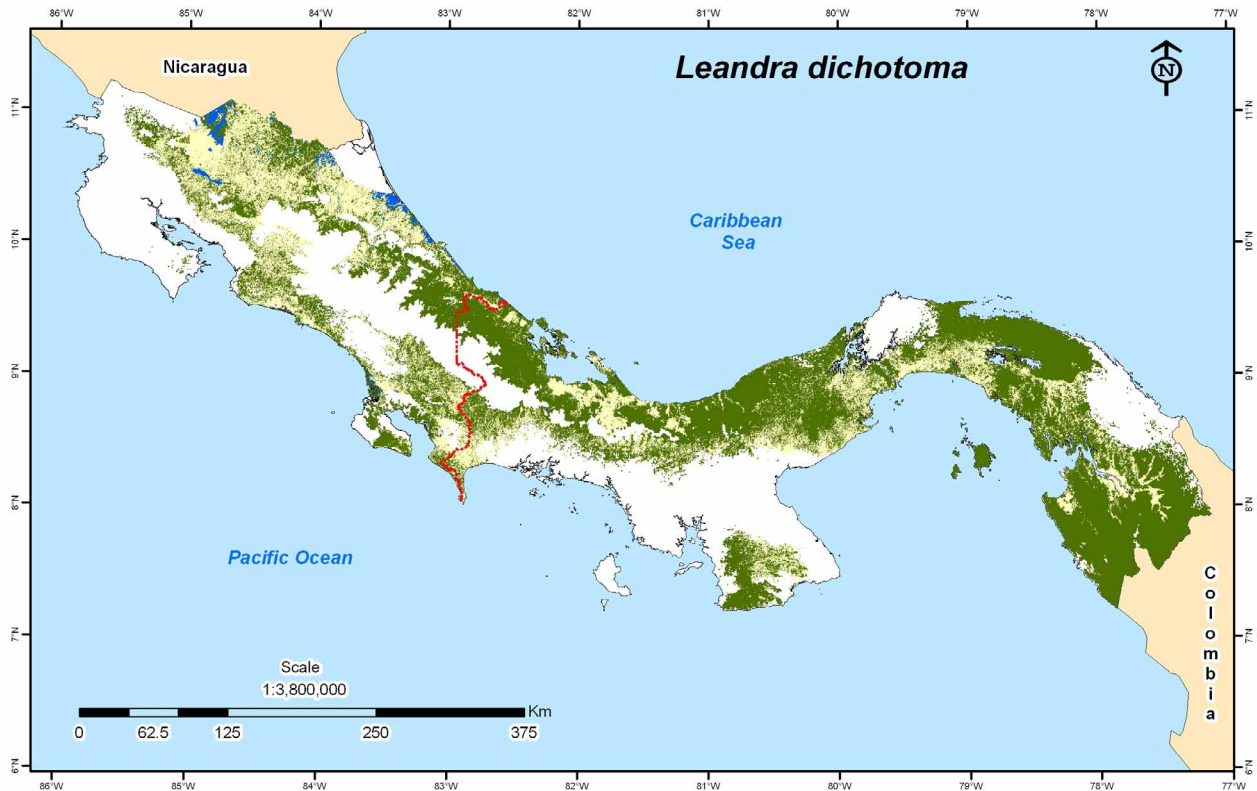
In Costa Rica and Panama the Extension of Occurrence was calculated to be 65510 km², the Area of Occupancy 42148 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Lacmellea panamensis* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Leandra dichotoma (G.Don) Cogn. (Melastomataceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Guatemala to Bolivia. Known in Costa Rica and Panama from 130 herbarium collections. Elevational range for Costa Rica and Panama 0–600(–1050) m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Least Concern (LC)**

Fig. 98



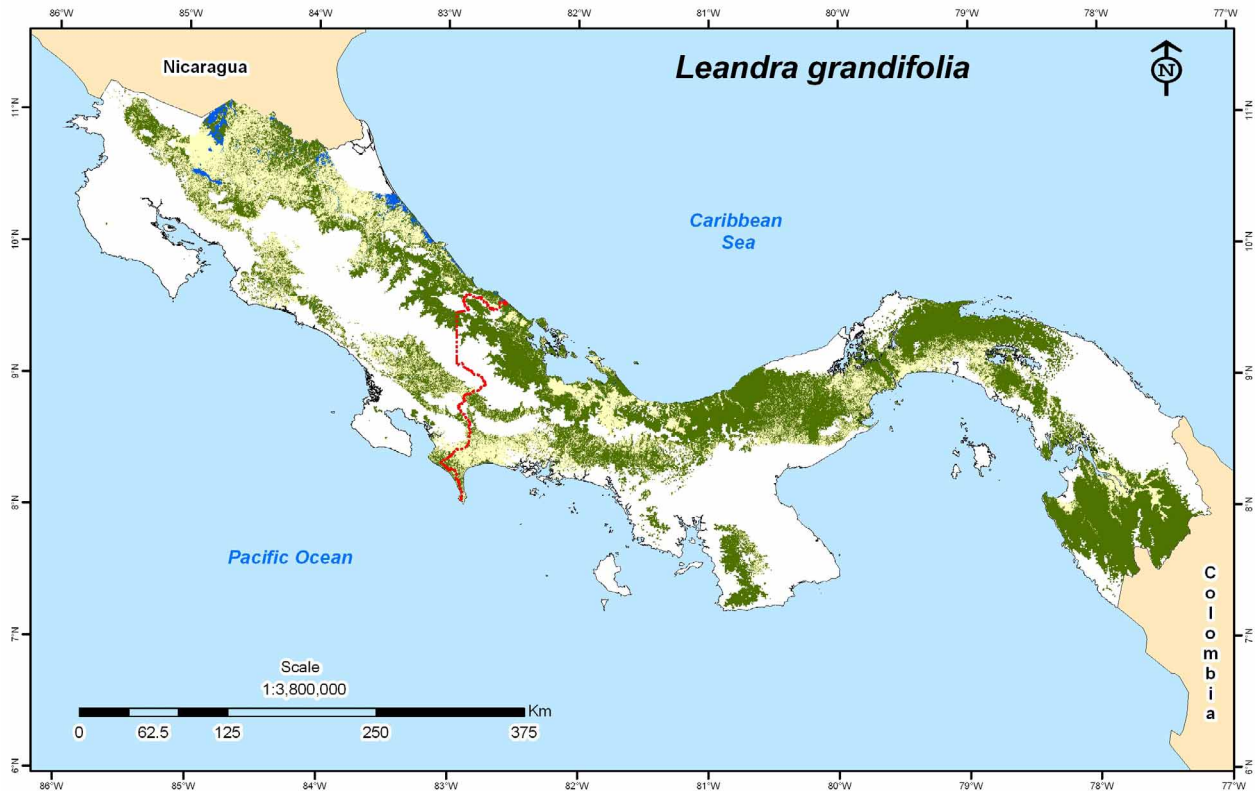
In Costa Rica and Panama the Extension of Occurrence was calculated to be 74467 km², the Area of Occupancy 53891 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Leandra dichotoma* is classified as Near Threatened (NT) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

Leandra grandifolia Cogn. (Melastomataceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Guatemala to Ecuador. Known in Costa Rica and Panama from 132 herbarium collections. Elevational range for Costa Rica and Panama 100–1050(–1400) m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Least Concern (LC)**

Fig. 99



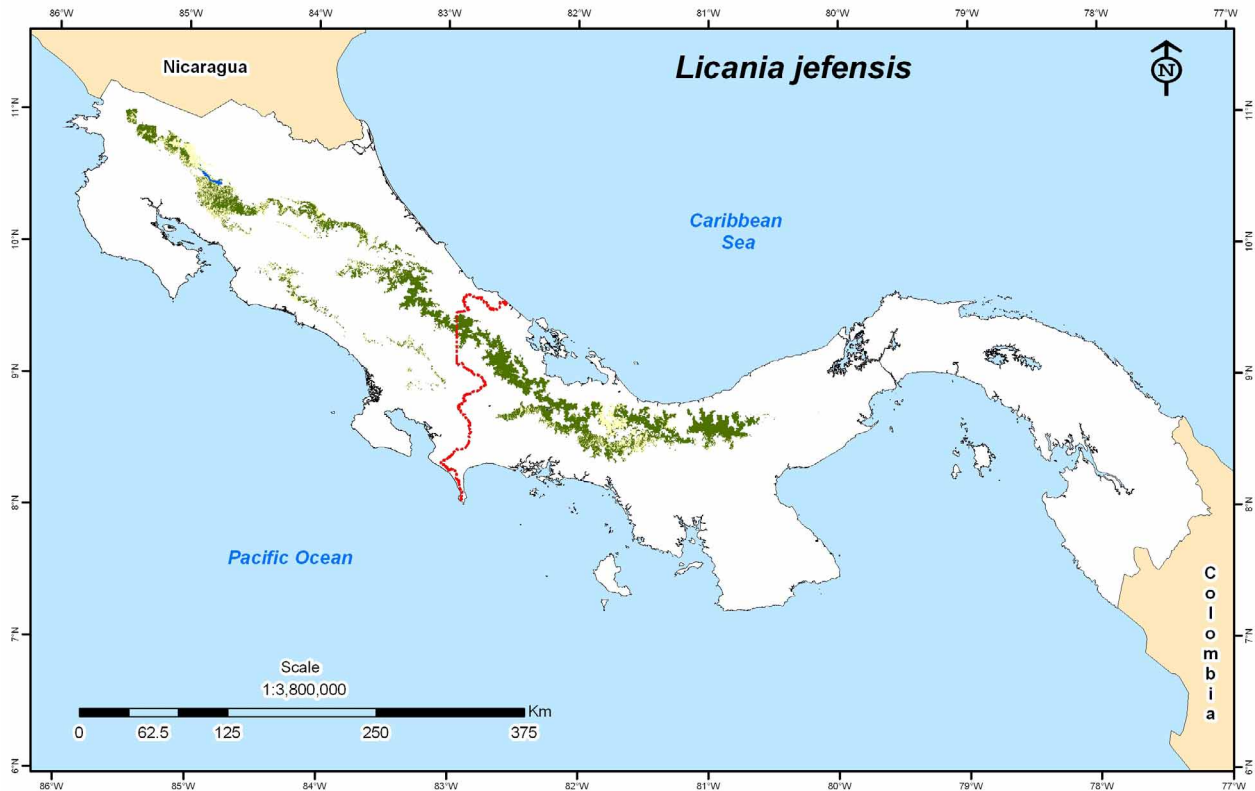
In Costa Rica and Panama the Extension of Occurrence was calculated to be 61156 km², the Area of Occupancy 44606 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Leandra grandifolia* is classified as Near Threatened (NT) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

Licania jefensis Prance (Chrysobalanaceae)

Terrestrial trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 17 herbarium collections. Elevational range 650–1200 m, and the proportion of the regional Extension of Occurrence in protected areas: 44%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 100



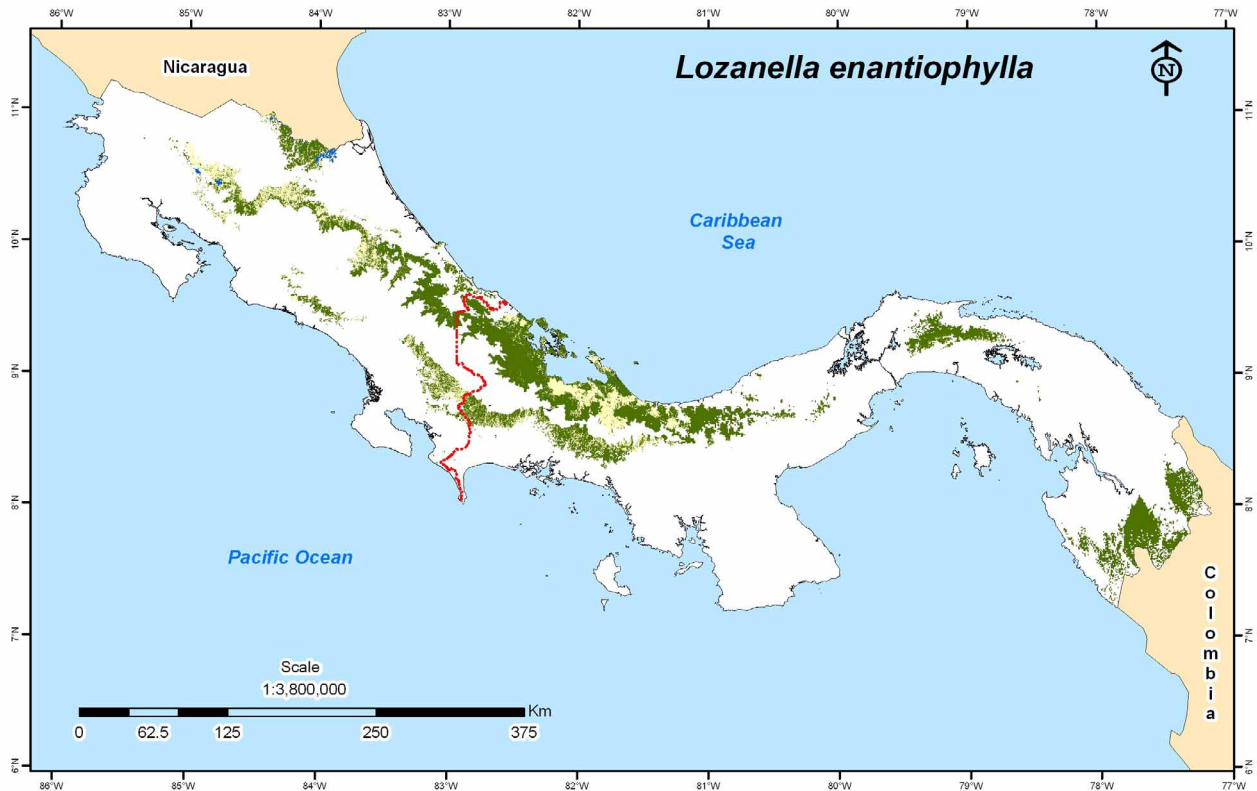
In Costa Rica and Panama the Extension of Occurrence was calculated to be 9413 km², the Area of Occupancy 6759 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Licania jefensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area. Despite this the classification was not changed.

Lozanella enantiophylla (Donn.Sm.) Killip & C.V.Morton (Cannabaceae)

Terrestrial shrubs or trees, flowers unisexual, monoecious. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 78 herbarium collections. Elevational range for Costa Rica and Panama 1100–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 40%.

- Regional threat category: **Least Concern (LC)**

Fig. 101



In Costa Rica and Panama the Extension of Occurrence was calculated to be 20835 km², the Area of Occupancy 16633 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Lozanella enantiophylla* is classified as Near Threatened (NT) in relation to criteria B. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

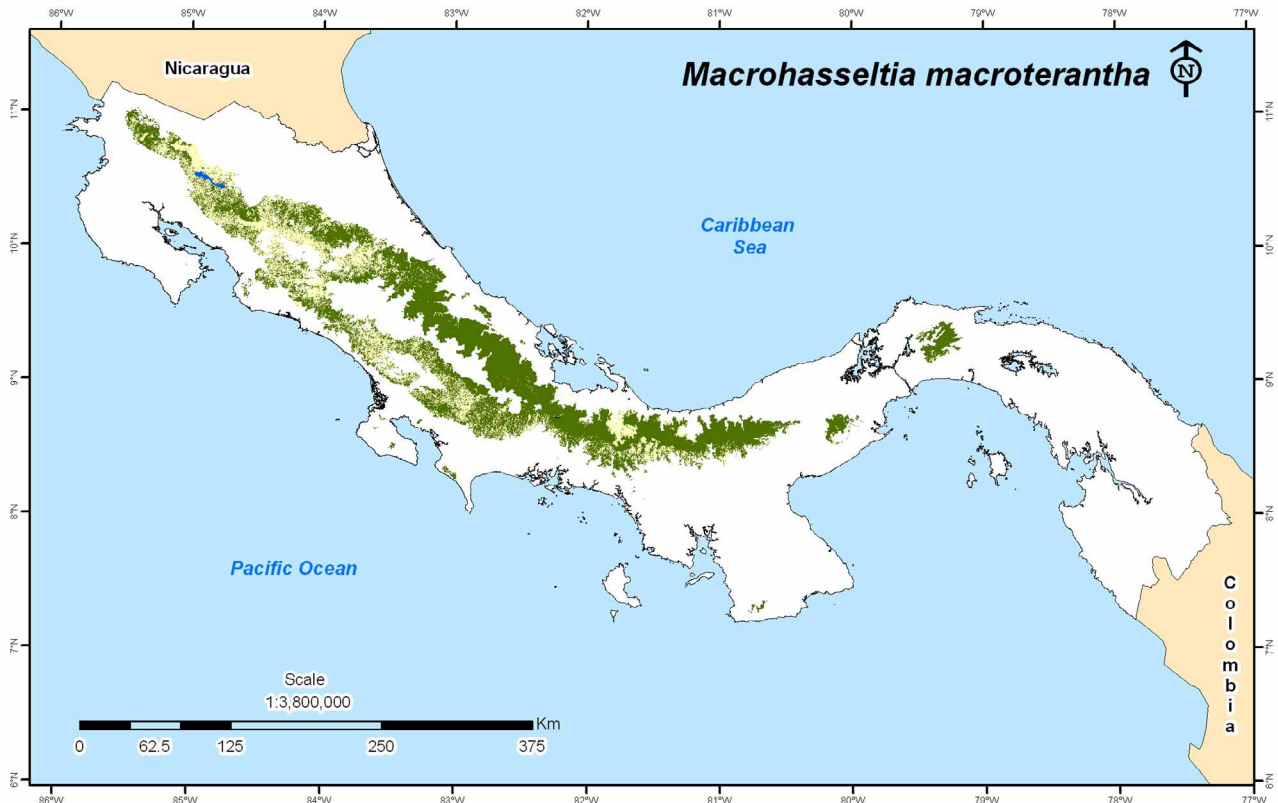
Macrohasseltia macroterantha (Standl. & L.O.Williams) L.O.Williams (Salicaceae)

Local names: *Chanco blanco*, *Ratón colorado*, *Espino blanco*, *Espino*.

Terrestrial shrubs or trees, flowers bisexual, used as timber. Global distribution: Honduras to Panama. Known in Costa Rica and Panama from 41 herbarium collections. Elevational range for Costa Rica and Panama 400–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 33%.

- Regional threat category: **Near Threatened (NT)**

Fig. 102



In Costa Rica and Panama the Extension of Occurrence was calculated to be 26365 km², the Area of Occupancy 17835 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Macrohasseltia macroterantha* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

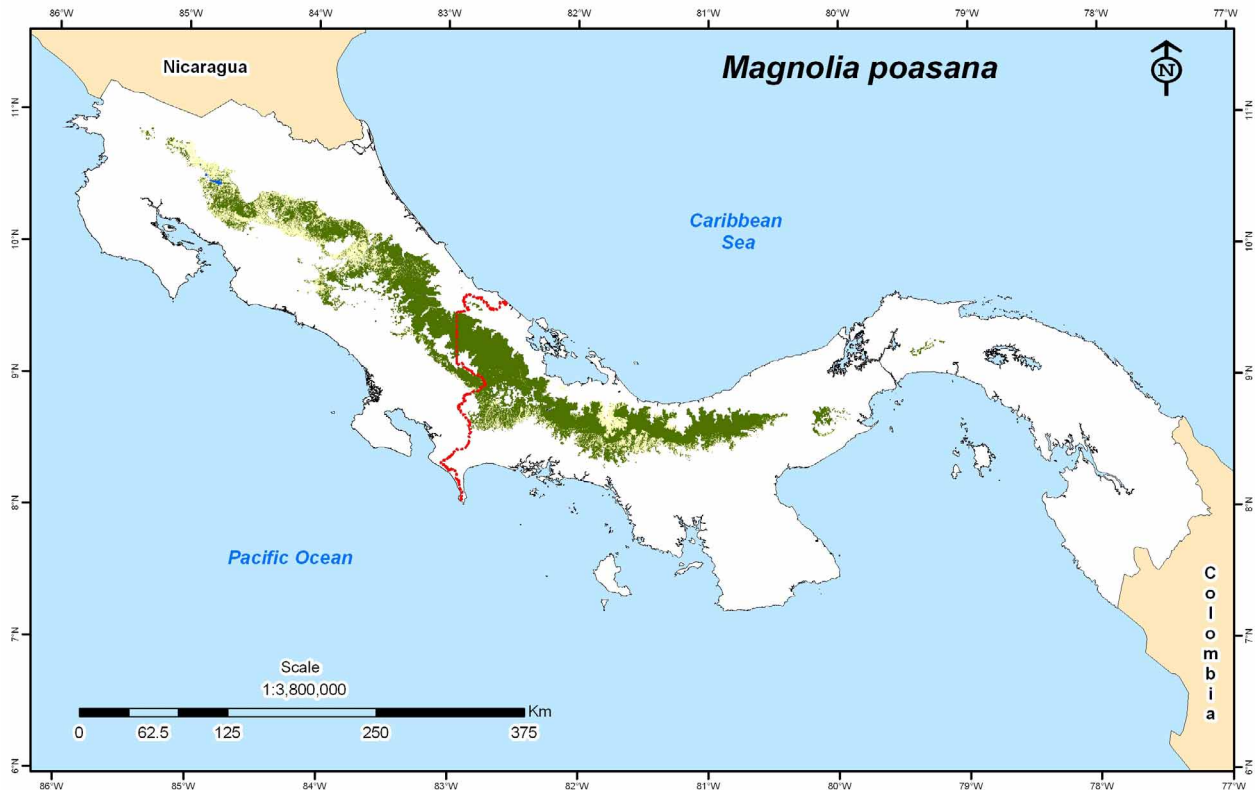
Magnolia poasana (Pittier) Dandy (Magnoliaceae)

Local names: *Candelillo*, *Magnolia*.

Terrestrial trees, flowers bisexual, used as timber. Endemic to Costa Rica and Panama. Known from 48 herbarium collections. Elevational range for Costa Rica and Panama (500–)1150–2400 m, and the proportion of the regional Extension of Occurrence in protected areas: 45%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 103



In Costa Rica and Panama the Extension of Occurrence was calculated to be 18982 km², the Area of Occupancy 14334 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Magnolia poasana* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

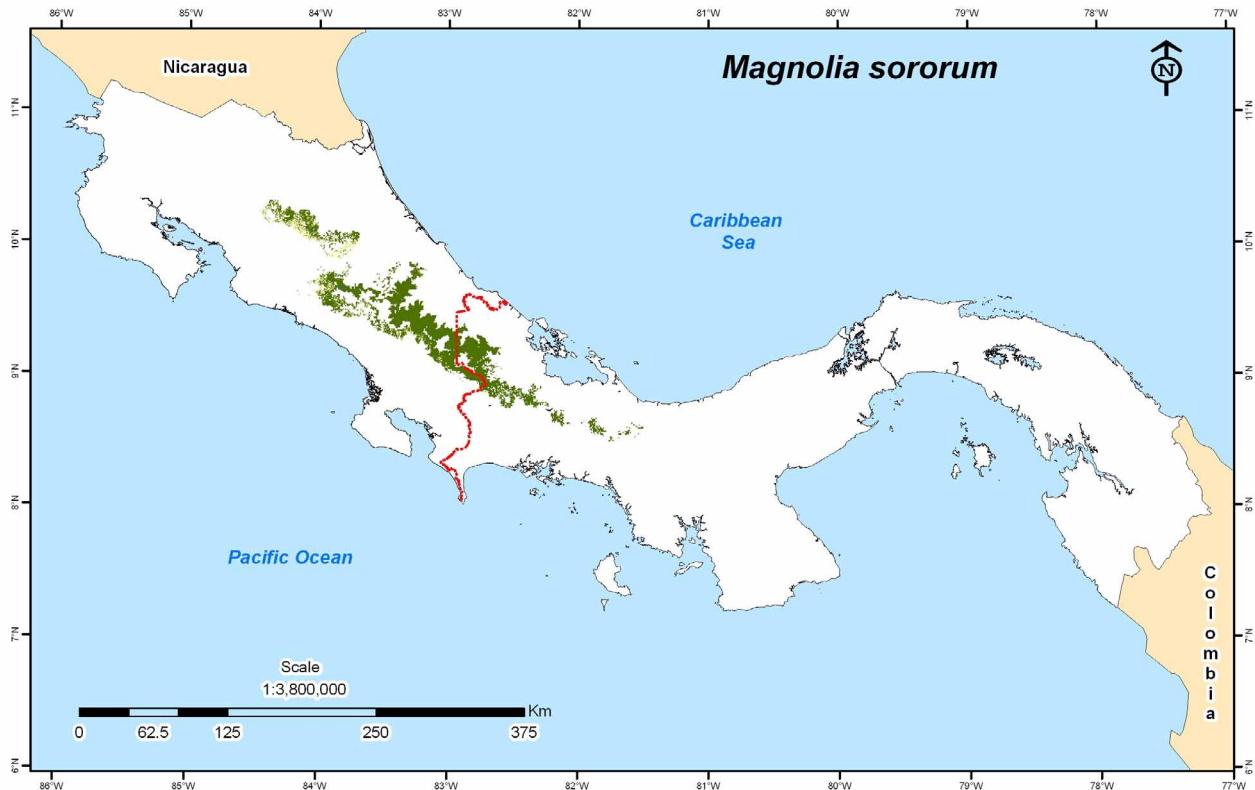
Magnolia sororum Seibert (Magnoliaceae)

Local names: *Magnolia*, *Magnolia amarilla*.

Terrestrial trees, flowers bisexual, used as timber. Endemic to Costa Rica and Panama. Known from 17 herbarium collections. Elevational range 1300–3100 m, and the proportion of the regional Extension of Occurrence in protected areas: 73%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 104



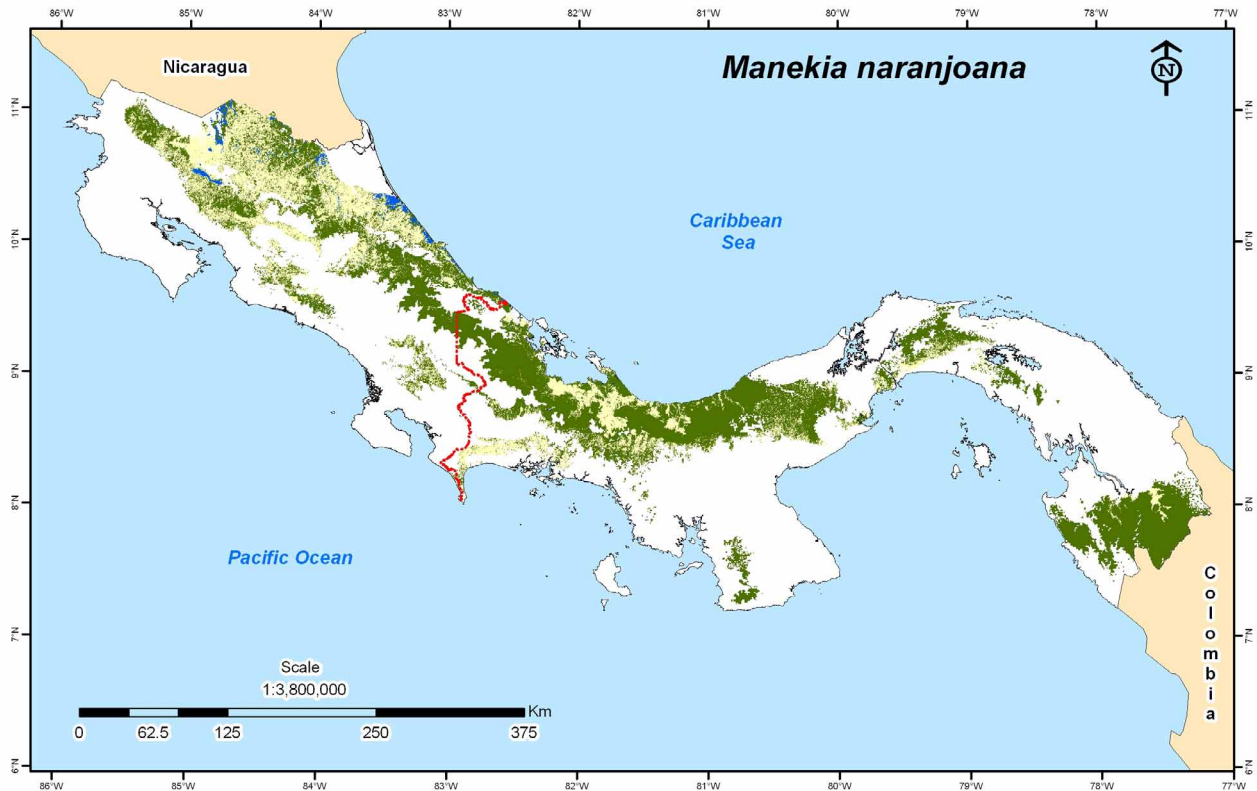
In Costa Rica and Panama the Extension of Occurrence was calculated to be 5515 km², the Area of Occupancy 4720 km² and loss of Extension of Occurrence 14%. Using the above data and IUCN (2001, version 3.1) criteria, *Magnolia sororum* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that the species is extracted for timber by local communities, observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area. Despite the above the classification was not changed.

Manekia naranjoana (C.DC.) Callejas (Piperaceae)

Terrestrial twiners, flowers bisexual. Global distribution: Nicaragua and Costa Rica. Known in Costa Rica from 52 herbarium collections. Elevational range for Costa Rica 0–1500 m, and the proportion of the regional Extension of Occurrence in protected areas: 30%.

- Regional threat category: **Near Threatened (NT)**

Fig. 105



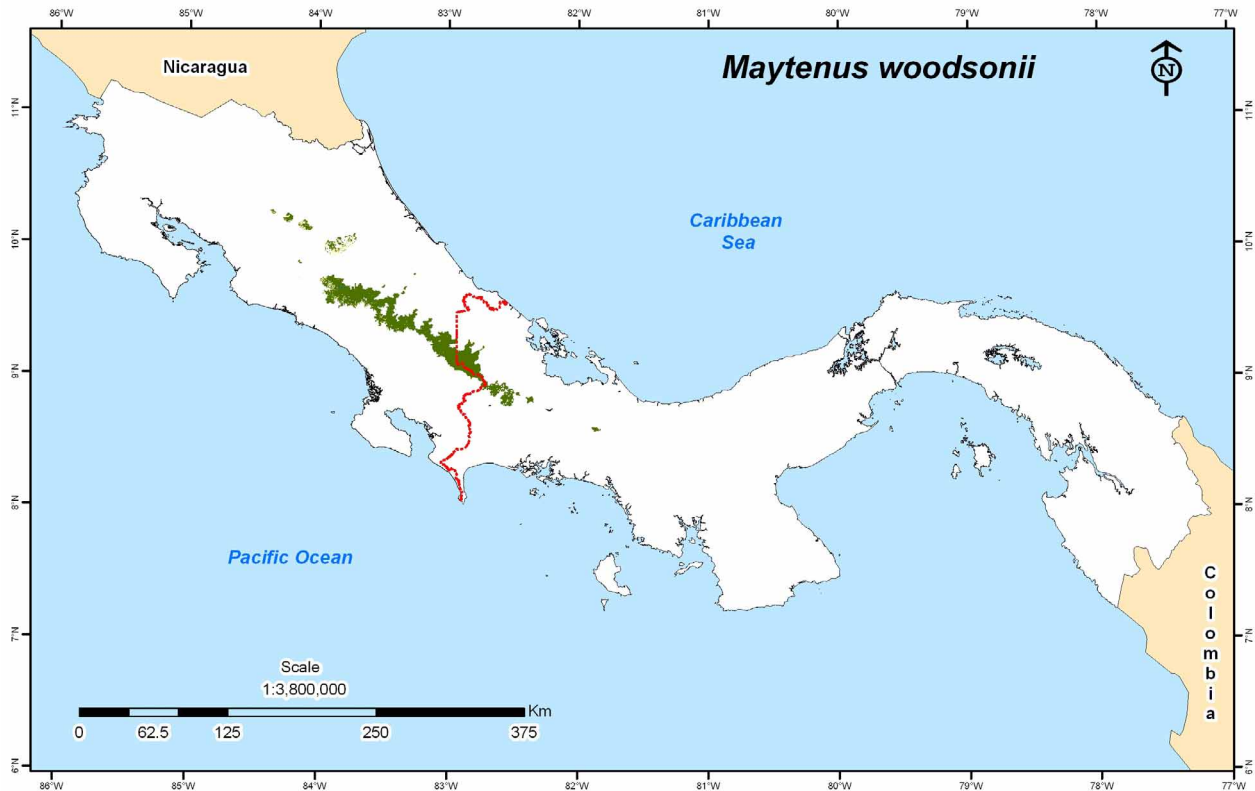
In Costa Rica and Panama the Extension of Occurrence was calculated to be 43112 km², the Area of Occupancy 27839 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Manekia naranjoana* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Maytenus woodsonii Lundell (Celastraceae)

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 41 herbarium collections. Elevational range 2400–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 87%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 106



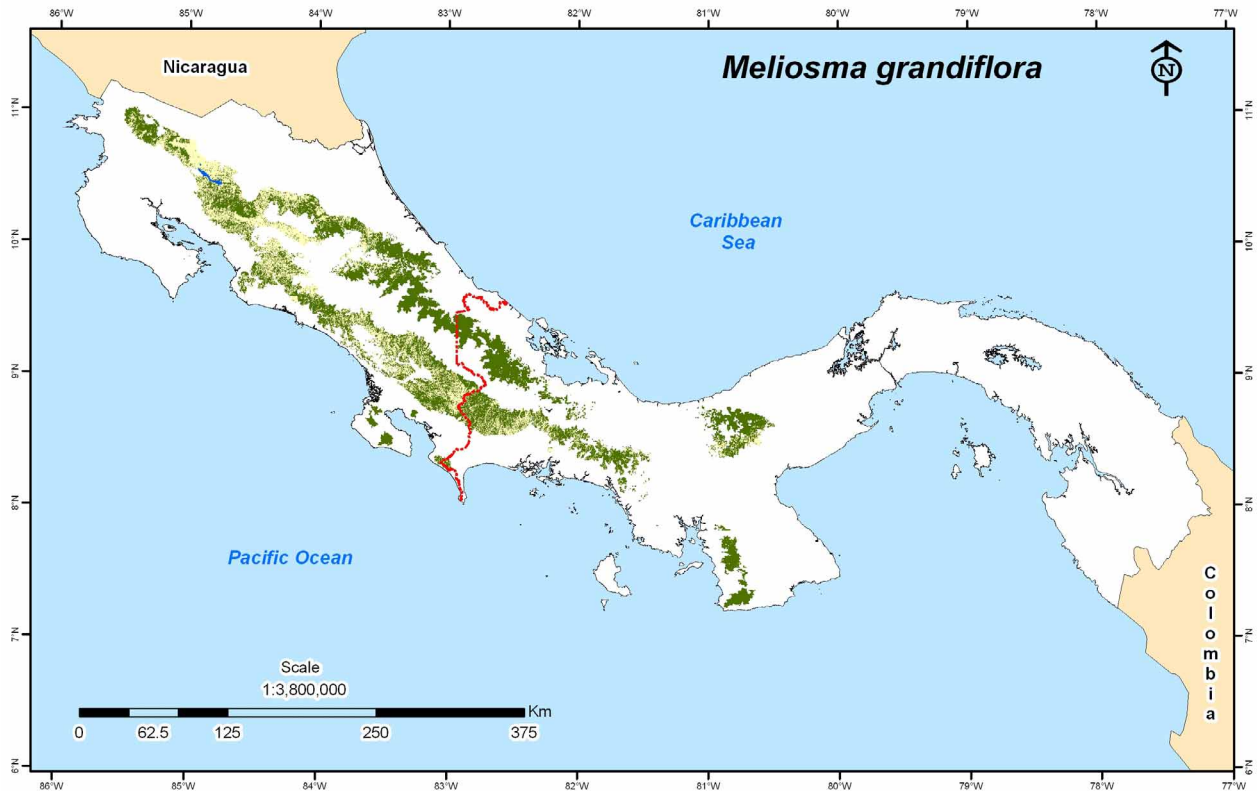
In Costa Rica and Panama the Extension of Occurrence was calculated to be 2976 km², the Area of Occupancy 2758 km² and loss of Extension of Occurrence 7%. Using the above data and IUCN (2001, version 3.1) criteria, *Maytenus woodsonii* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the classification was not changed.

Meliosma grandiflora C.V.Morton ex A.H.Gentry (Sabiaceae)

Terrestrial trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 48 herbarium collections. Elevational range 0–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 30%.

- Global threat category: **Vulnerable (VU) A2c**

Fig. 107



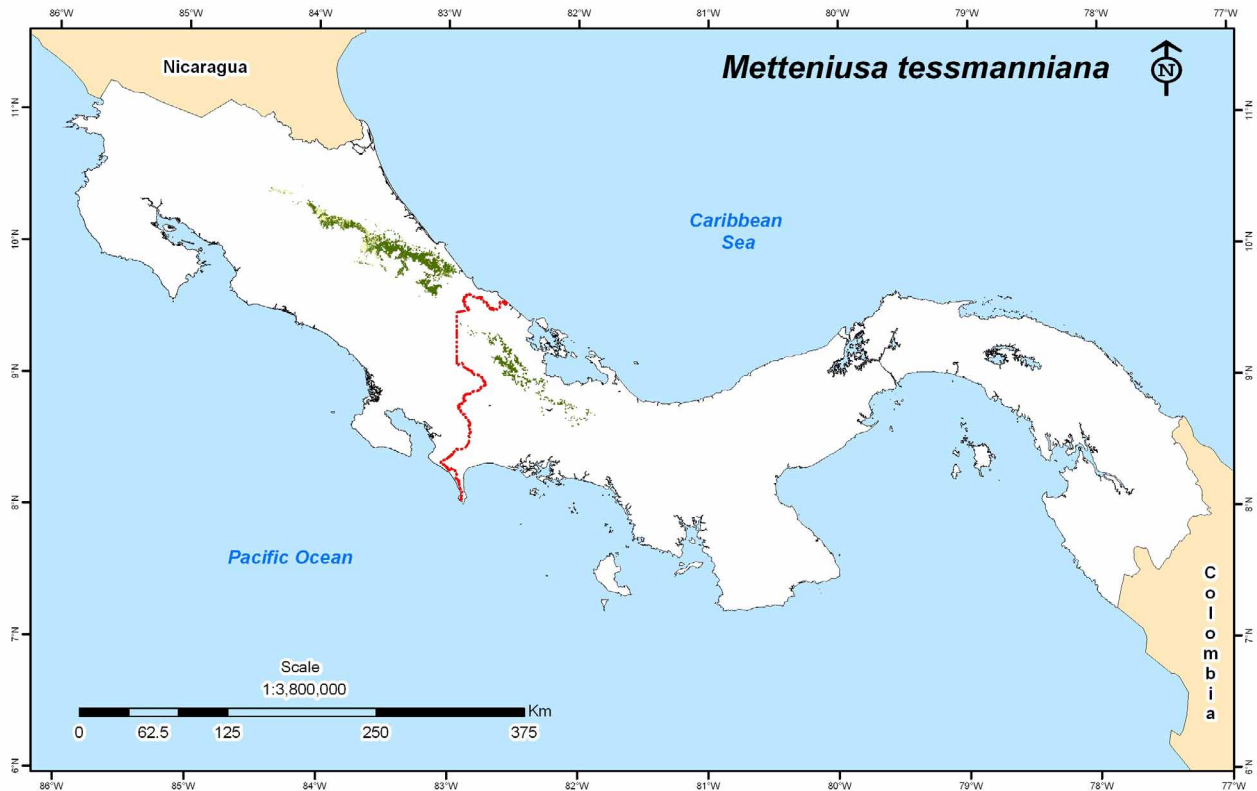
In Costa Rica and Panama the Extension of Occurrence was calculated to be 20185 km², the Area of Occupancy 13026 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Meliosma grandiflora* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, are the species relatively broad elevational distribution and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

Metteniusa tessmanniana (Sleumer) Sleumer (Metteniusaceae)

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica to Peru. Known in Costa Rica and Panama from 23 herbarium collections. Elevational range for Costa Rica and Panama 50–1000 m, and the proportion of the regional Extension of Occurrence in protected areas: 47%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 108



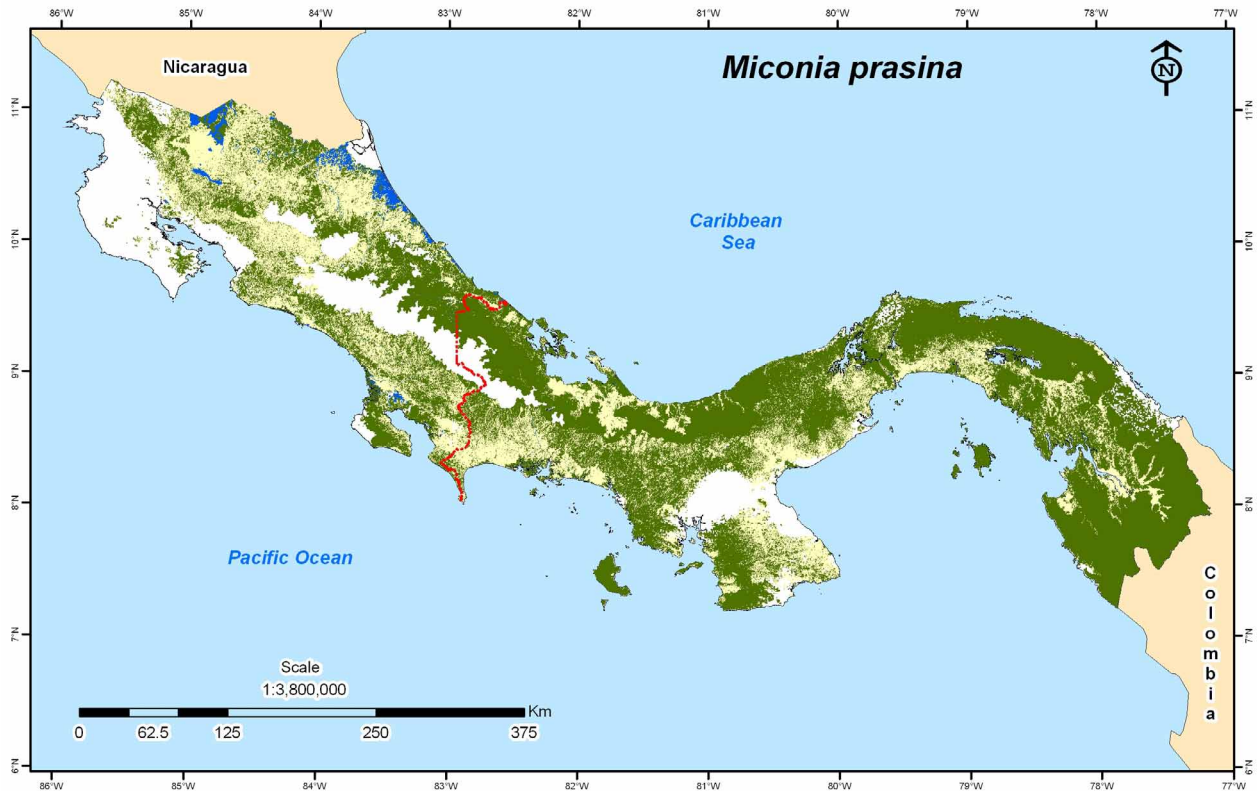
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1979 km², the Area of Occupancy 1590 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Metteniusa tessmanniana* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Miconia prasina (Sw.) DC. (Melastomataceae)

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Bolivia, the Antilles. Known in Costa Rica and Panama from 172 herbarium collections. Elevational range for Costa Rica and Panama 0–1500(–1800) m, and the proportion of the regional Extension of Occurrence in protected areas: 24%.

- Regional threat category: **Near Threatened (NT)**

Fig. 109



In Costa Rica and Panama the Extension of Occurrence was calculated to be 102402 km², the Area of Occupancy 64168 km² and loss of Extension of Occurrence 37%. Using the above data and IUCN (2001, version 3.1) criteria, *Miconia prasina* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

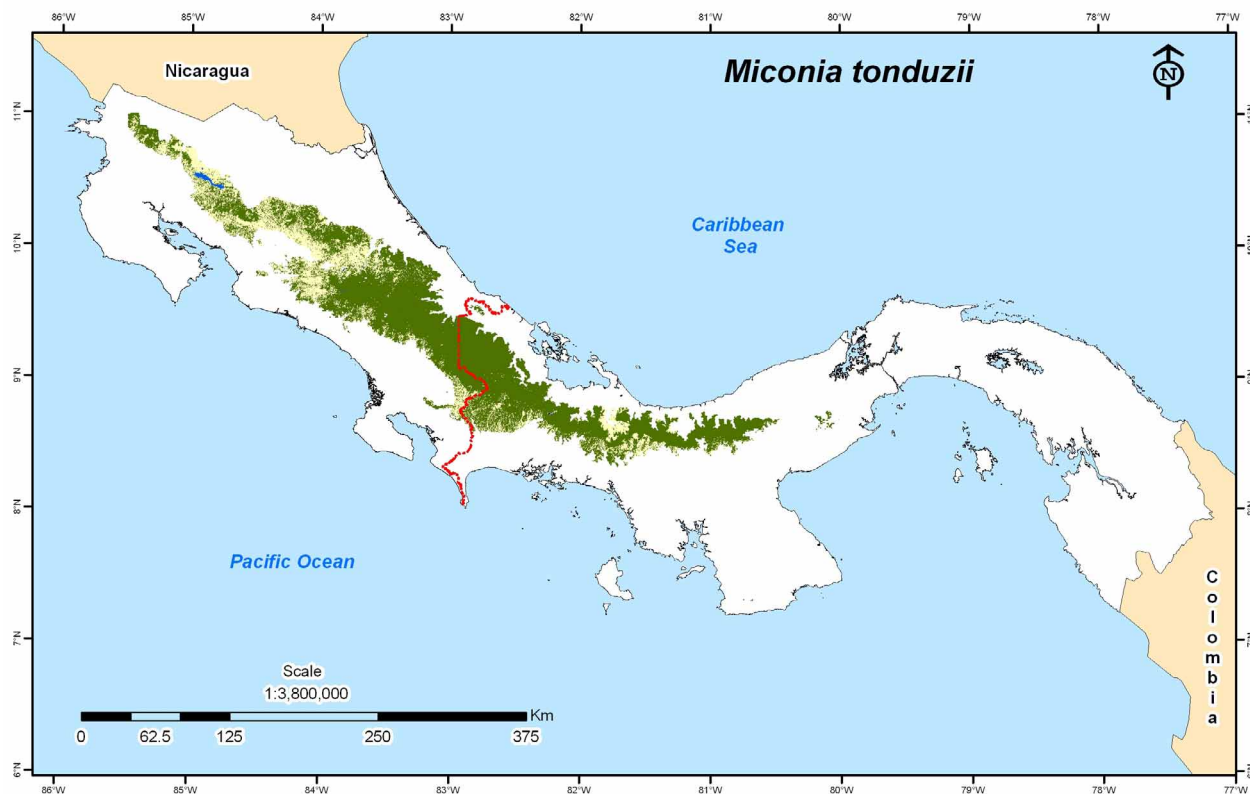
Miconia tonduzii Cogn.(Melastomataceae)

Local name: Lengua de gato.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Nicaragua to Panama. Known in Costa Rica and Panama from 177 herbarium collections. Elevational range for Costa Rica and Panama (800–)1000–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 46%.

- Regional threat category: **Least Concern (LC)**

Fig. 110



In Costa Rica and Panama the Extension of Occurrence was calculated to be 23872 km², the Area of Occupancy 17449 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Miconia tonduzii* is classified as Near Threatened (NT) in relation to criteria A2c and B1ab(i,iii). This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

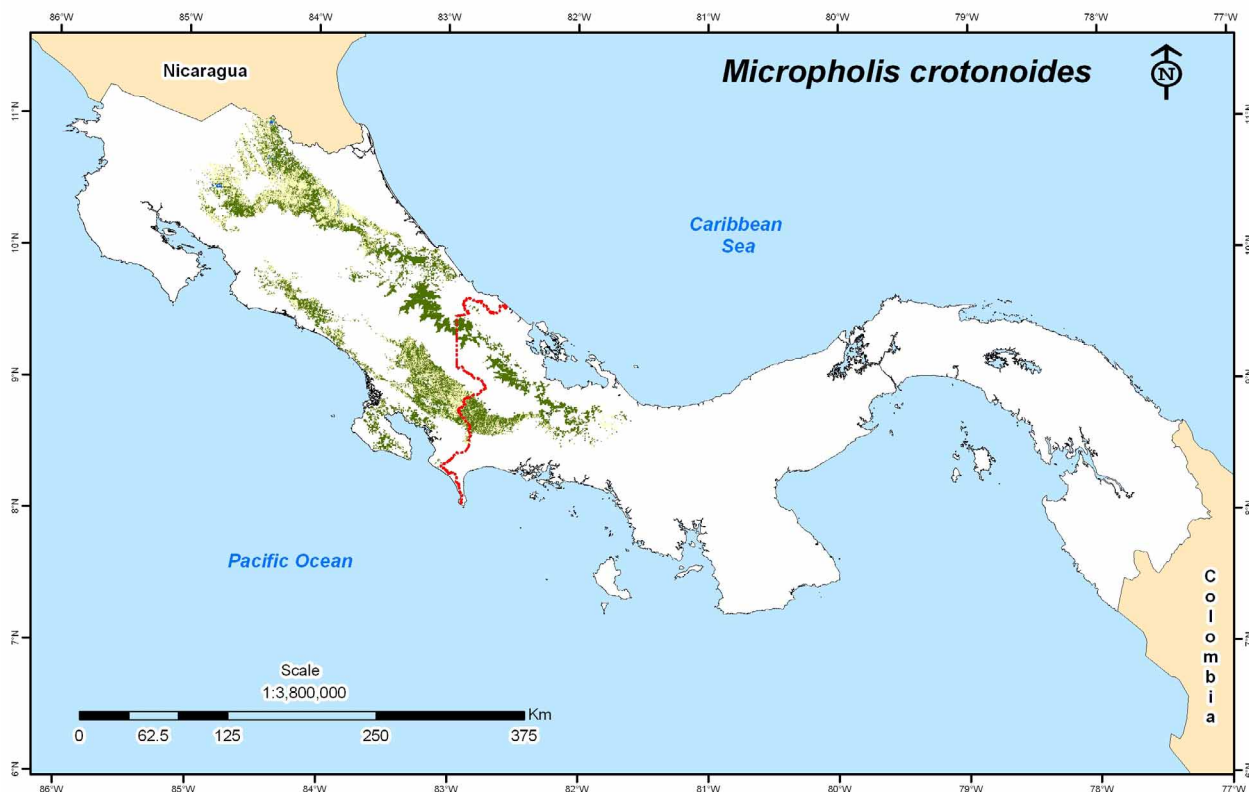
Micropholis crotonoides (Pierre) Pierre (Sapotaceae)

Local names: Zapotillo, Caimito, Ala de ángel.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Costa Rica to Colombia, Venezuela, the Antilles. Known in Costa Rica and Panama from 22 herbarium collections. Elevational range for Costa Rica and Panama 50–2150 m, and the proportion of the regional Extension of Occurrence in protected areas: 24%.

- Regional threat category: **Near Threatened (NT)**

Fig. 111



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12578 km², the Area of Occupancy 7592 km² and loss of Extension of Occurrence 40%. Using the above data and IUCN (2001, version 3.1) criteria, *Micropholis crotonoides* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab(i,iii). This classification is supported by the extraction of this species for timber, the severe fragmentation of the Extension of Occurrence, the low proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

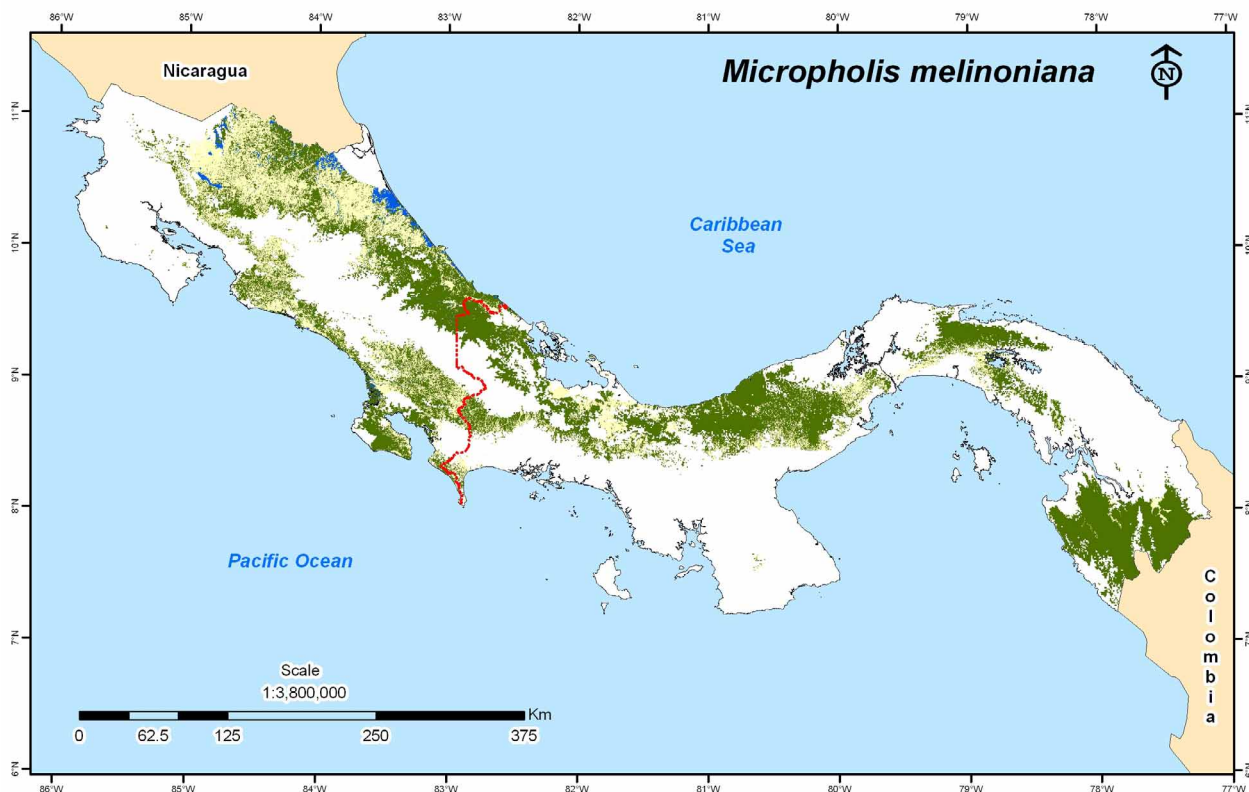
Micropholis melinoniana Pierre (Sapotaceae)

Local names: *Maraibé, María, Bé, Ojoche macho.*

Terrestrial trees, flowers bisexual. Global distribution: Mexico and Guatemala, Costa Rica and Panama, Ecuador and Venezuela to Brazil. Known in Costa Rica and Panama from 26 herbarium collections. Elevational range for Costa Rica and Panama 50–1300 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 112



In Costa Rica and Panama the Extension of Occurrence was calculated to be 47530 km², the Area of Occupancy 30365 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Micropholis melinoniana* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

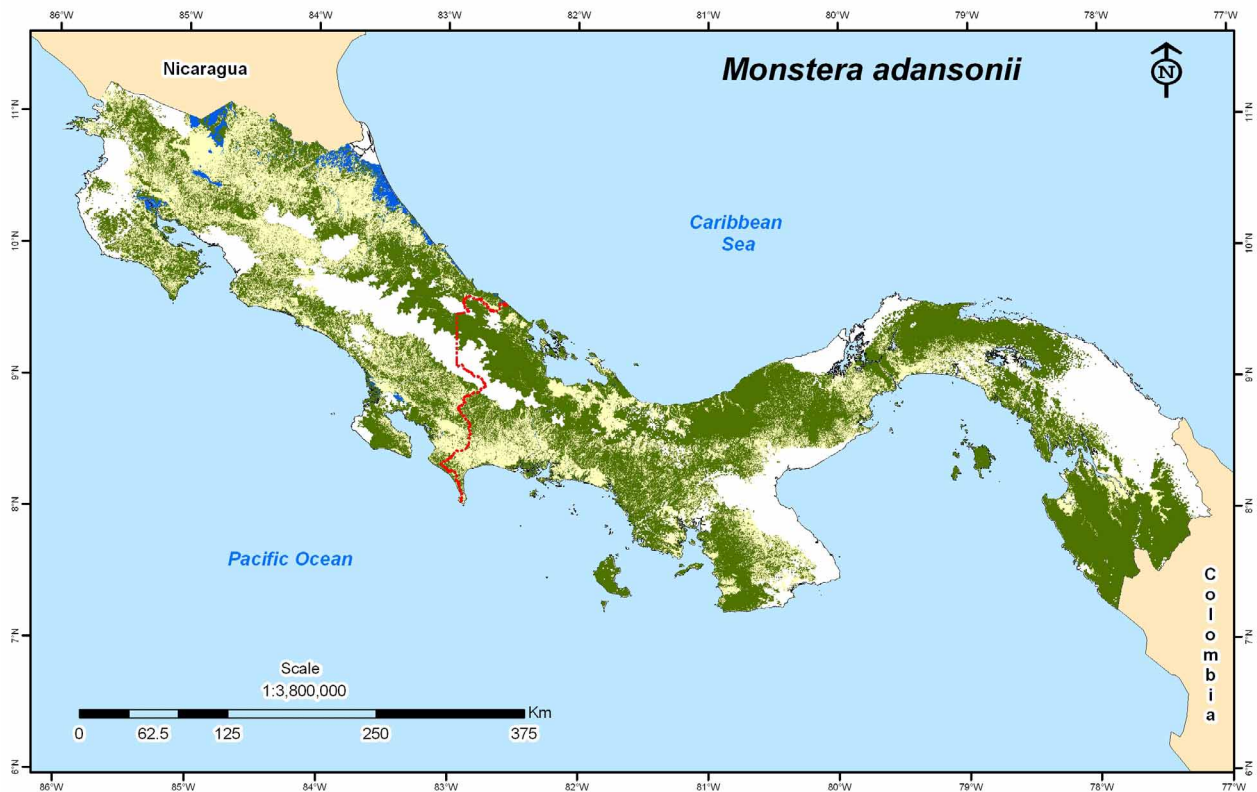
Monstera adansonii Schott (Araceae)

Local names: Piñanona, Chirriraca, Ventanilla.

Hemi-epiphytic or terrestrial herbs, flowers bisexual. Global distribution: Honduras to Brazil, the Antilles. Known in Costa Rica and Panama from 96 herbarium collections. Elevational range for Costa Rica and Panama 0–1200(–1700) m, and the proportion of the regional Extension of Occurrence in protected areas: 23%.

- Regional threat category: **Near Threatened (NT)**

Fig. 113



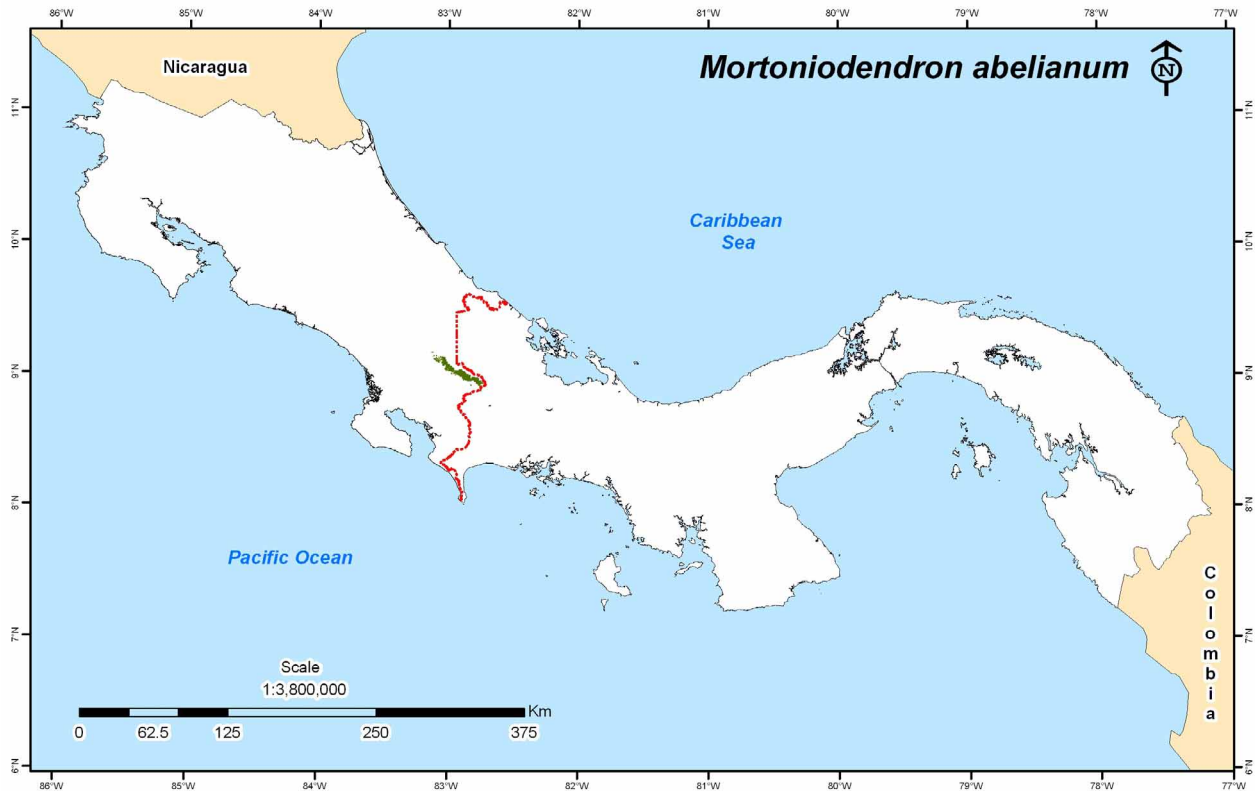
In Costa Rica and Panama the Extension of Occurrence was calculated to be 94669 km², the Area of Occupancy 57816 km² and loss of Extension of Occurrence 39%. Using the above data and IUCN (2001, version 3.1) criteria, *Monstera adansonii* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Mortoniodendron abelianum Al.Rodr. (Malvaceae)

Terrestrial trees, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 12 herbarium collections. Elevational range 1600–2100 m, and the proportion of the regional Extension of Occurrence in protected areas: 87%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 114



In Costa Rica and Panama the Extension of Occurrence was calculated to be 226 km², the Area of Occupancy 210 km² and loss of Extension of Occurrence 7%. Using the above data and IUCN (2001, version 3.1) criteria, *Mortoniodendron abelianum* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the narrow Elevation range observed and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the classification was not changed.

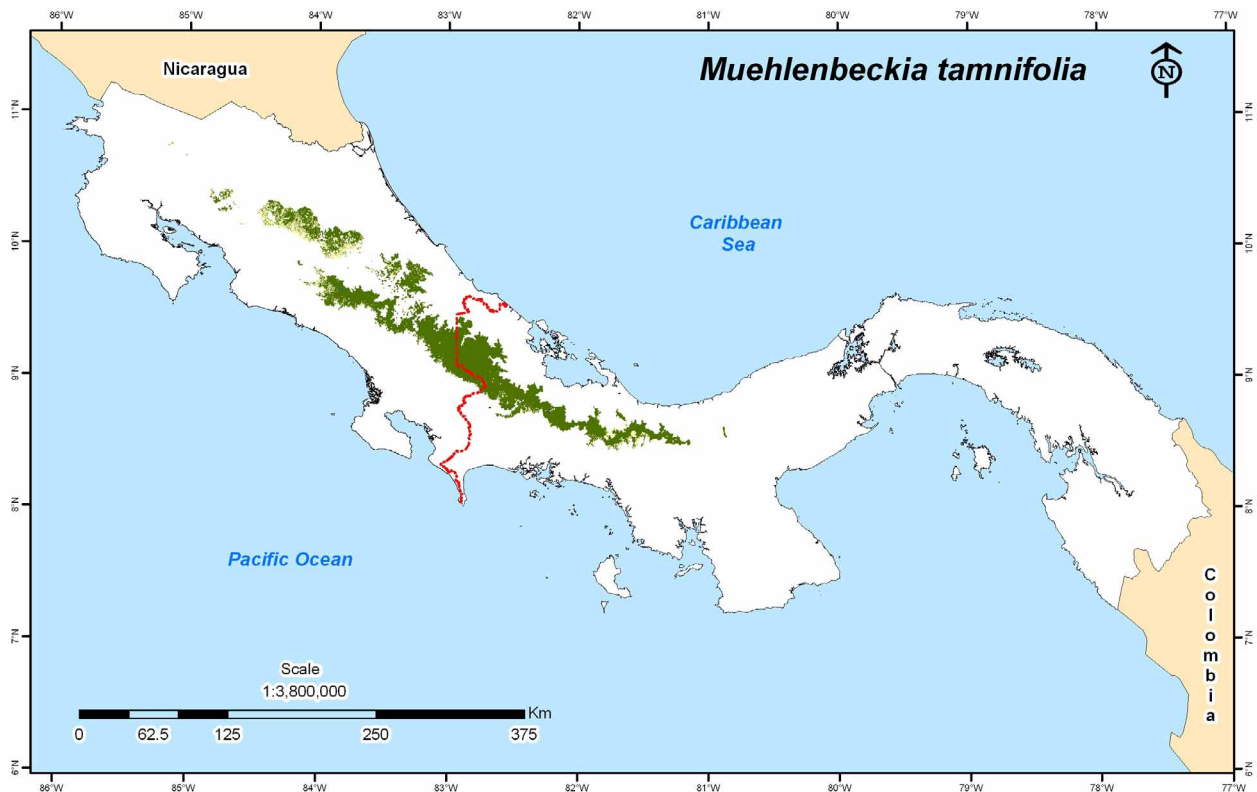
Muehlenbeckia tamnifolia (Kunth) Meisn. (Polygonaceae)

Local name: *Bejuco colorado*.

Terrestrial vines, flowers bisexual, used as a medicine. Global distribution: Mexico to El Salvador, Costa Rica to Venezuela, Argentina. Known in Costa Rica and Panama from 128 herbarium collections. Elevational range for Costa Rica and Panama 1100–3700 m, and the proportion of the regional Extension of Occurrence in protected areas: 66%.

- Regional threat category: **Near Threatened (NT)**

Fig. 115



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9023 km², the Area of Occupancy 7645 km² and loss of Extension of Occurrence 15%. Using the above data and IUCN (2001, version 3.1) criteria, *Muehlenbeckia tamnifolia* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

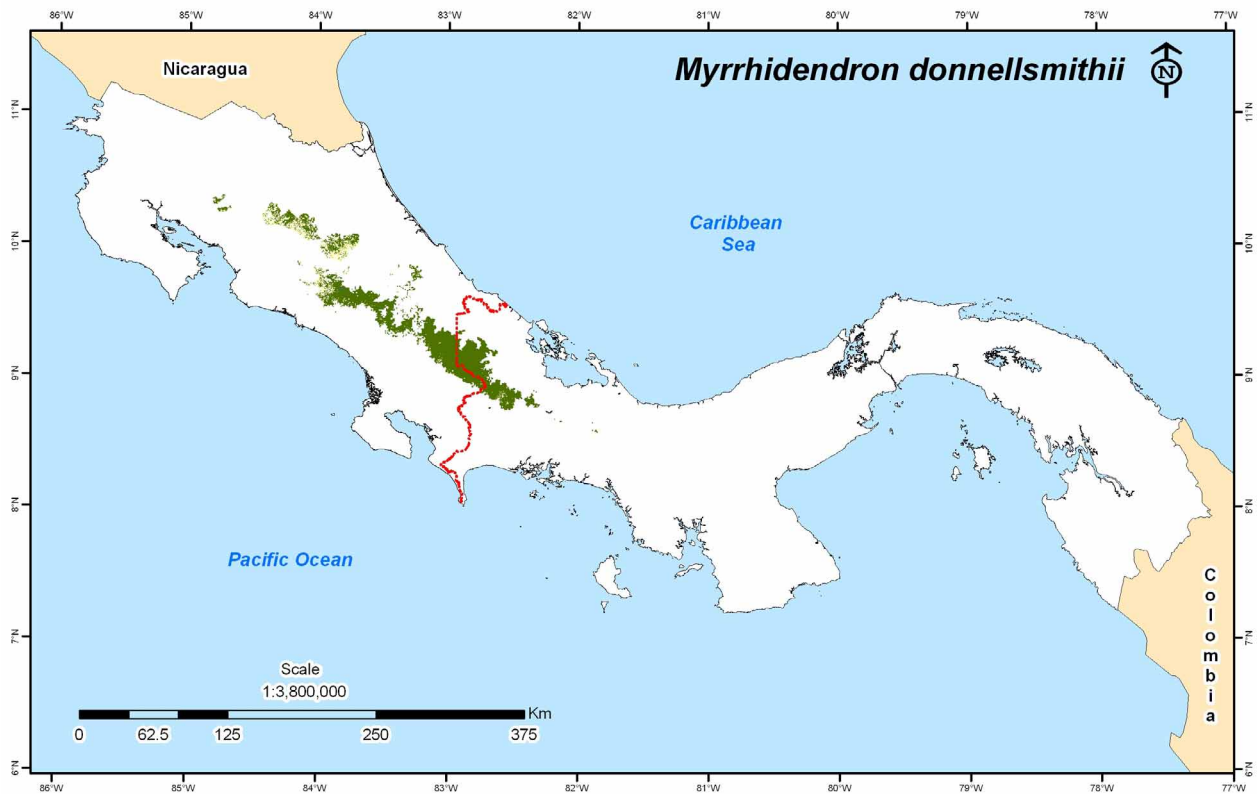
Myrrhidendron donnellsmithii J.M.Coult. & Rose (Apiaceae)

Local names: *Arracachillo*, *Arrecachillo*, *Arracachón*, *Sauco silvestre*.

Terrestrial herbs or shrubs, flowers bisexual. Global distribution: Mexico, Guatemala to Honduras, Costa Rica and Panama. Known in Costa Rica and Panama from 73 herbarium collections. Elevational range for Costa Rica and Panama (1700–)2500–3800 m, and the proportion of the regional Extension of Occurrence in protected areas: 80%.

- Regional threat category: **Vulnerable (VU) B1ab(iii)**

Fig. 116



In Costa Rica and Panama the Extension of Occurrence was calculated to be 4900 km², the Area of Occupancy 4189 km² and loss of Extension of Occurrence 15%. Using the above data and IUCN (2001, version 3.1) criteria, *Myrrhidendron donnellsmithii* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

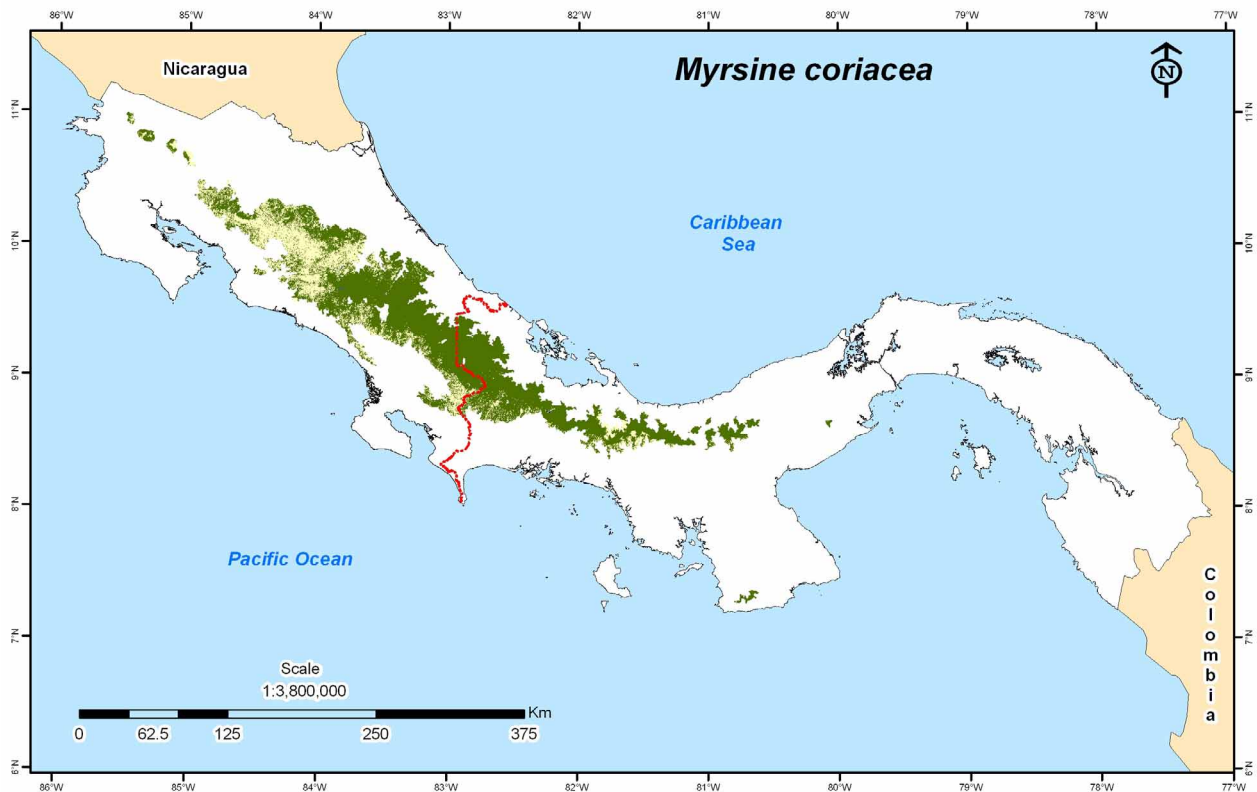
Myrsine coriacea (Sw.) R.Br. ex Roem. & Schult. (Primulaceae)

Local names: *Hojalarga*, *Ratón blanco*, *Ratoncillo*, *Ratón*.

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Mexico and Guatemala, Nicaragua to Argentina, the Antilles. Known in Costa Rica and Panama from 103 herbarium collections. Elevational range for Costa Rica and Panama 800–3000(–3400) m, and the proportion of the regional Extension of Occurrence in protected areas: 48%.

- Regional threat category: **Near Threatened (NT)**

Fig. 117



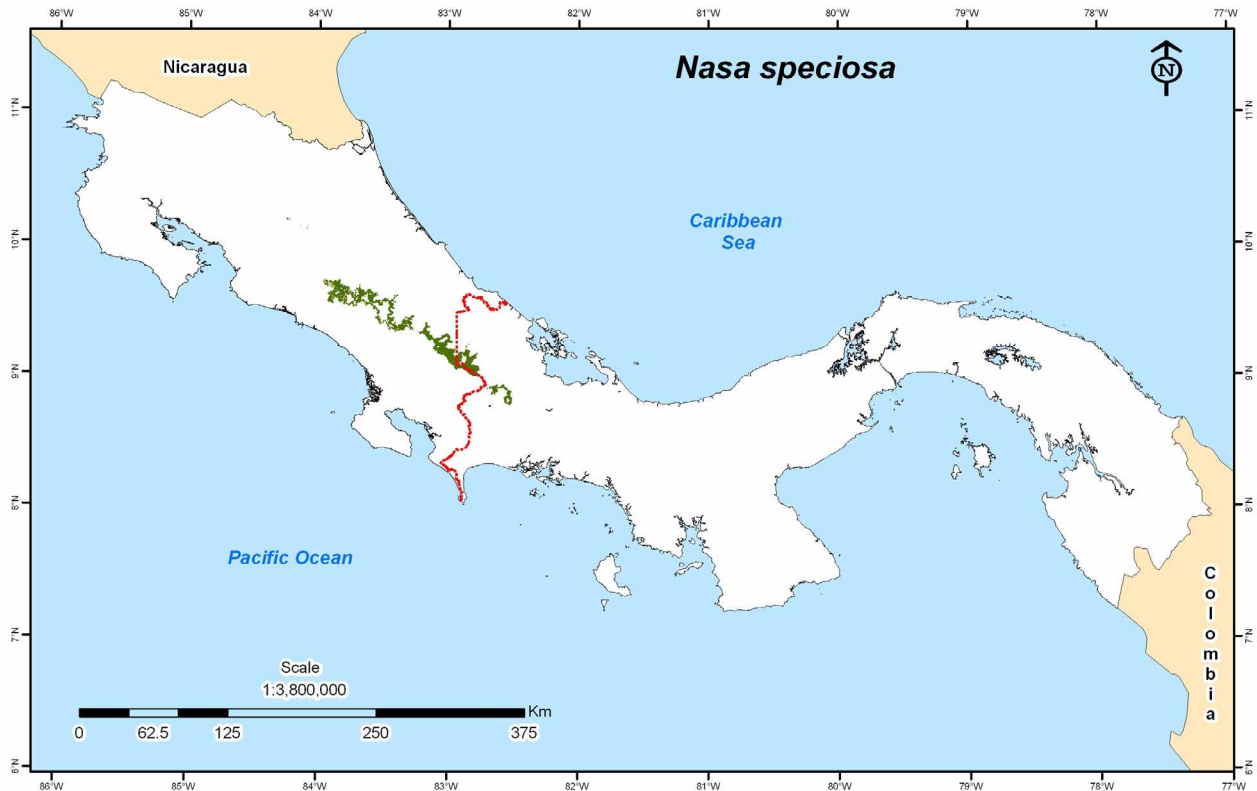
In Costa Rica and Panama the Extension of Occurrence was calculated to be 19427 km², the Area of Occupancy 14028 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Myrsine coriacea* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Nasa speciosa (Donn.Sm.) Weigend (Loasaceae)

Terrestrial herbs or shrubs, flowers bisexual. Endemic to Costa Rica and Panama. Known from 28 herbarium collections. Elevational range for Costa Rica and Panama 2300–3200 m, and the proportion of the regional Extension of Occurrence in protected areas: 91%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 118



In Costa Rica and Panama the Extension of Occurrence was calculated to be 1412 km², the Area of Occupancy 1405 km² and loss of Extension of Occurrence 1%. Using the above data and IUCN (2001, version 3.1) criteria, *Nasa speciosa* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the classification was not changed.

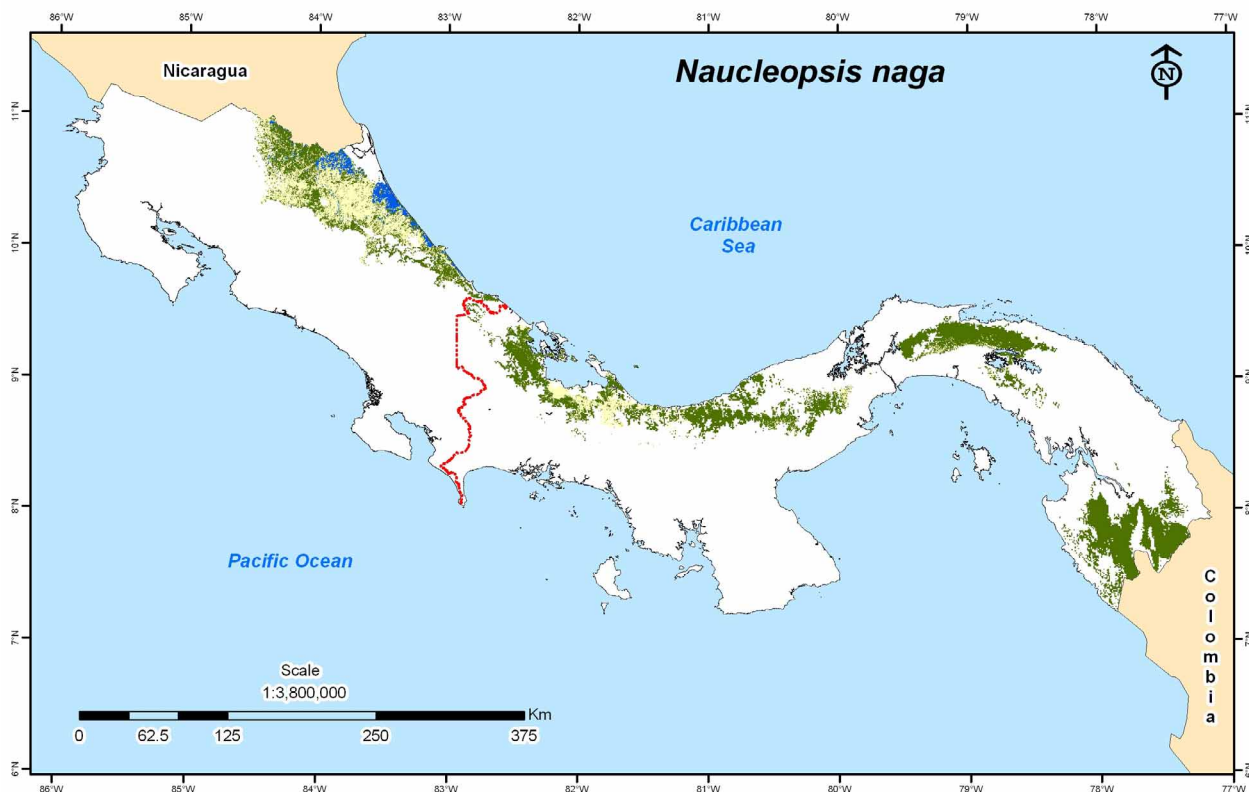
Naucleopsis naga Pittier (Moraceae)

Local names: *Amargo*, *Naga*, *Quina*.

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Honduras to Ecuador. Known in Costa Rica and Panama from 43 herbarium collections. Elevational range for Costa Rica and Panama 0–800(–1500) m, and the proportion of the regional Extension of Occurrence in protected areas: 37%.

- Regional threat category: **Near Threatened (NT)**

Fig. 119



In Costa Rica and Panama the Extension of Occurrence was calculated to be 19018 km², the Area of Occupancy 12863 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Naucleopsis naga* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. For the above reason the classification was revised from Vulnerable (VU) to Near Threatened (NT).

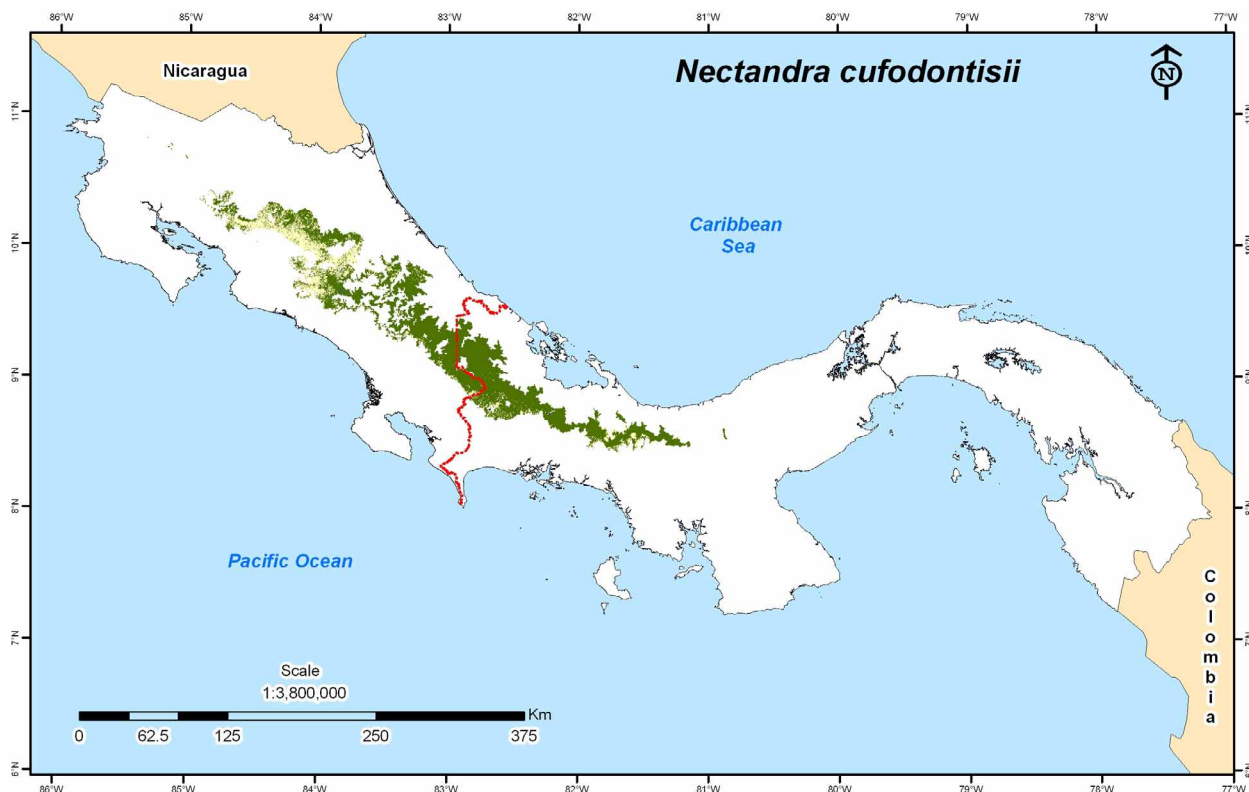
Nectandra cufodontisii (O.C.Schmidt) C.K.Allen (Lauraceae)

Local names: *Quizarrá*, *Sigua amarillo*, *Yema de huevo*, *Ira*, *Ira amarillo*, *Ira colorado*, *Ira rosa*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico to Paraguay and Brazil, Venezuela, French Guyana, Brazilthe Antilles. Known in Costa Rica and Panama from 68 herbarium collections. Elevational range for Costa Rica and Panama 1000–2800 m, and the proportion of the regional Extension of Occurrence in protected areas: 55%.

- Regional threat category: **Near Threatened (NT)**

Fig. 120



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11038 km², the Area of Occupancy 8539 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Nectandra cufodontisii* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

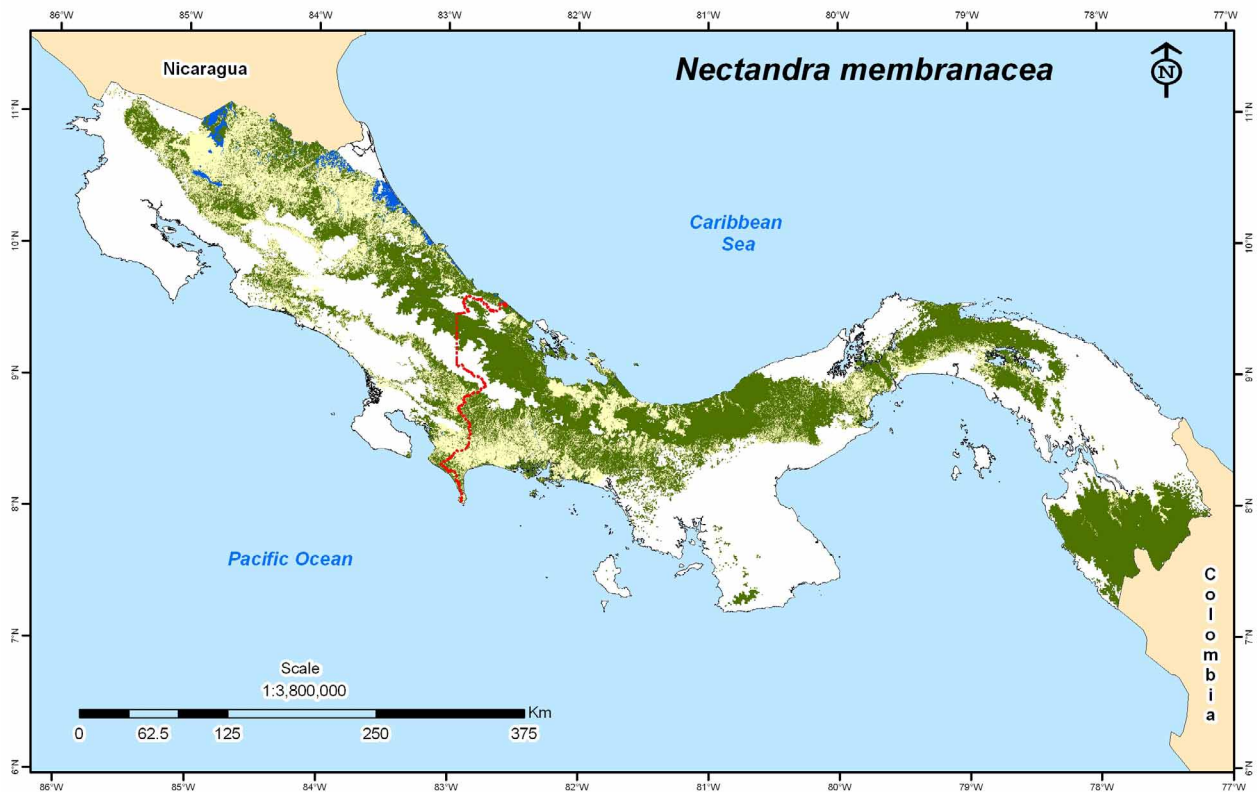
Nectandra membranacea (Sw.) Griseb. (Lauraceae)

Local names: *Quizarrá*, *Aguacatillo*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico, Honduras to Bolivia, Venezuela, Brazil, the Antilles. Known in Costa Rica and Panama from 114 herbarium collections. Elevational range for Costa Rica and Panama (0–)300–1550(–2000) m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 121



In Costa Rica and Panama the Extension of Occurrence was calculated to be 63479 km², the Area of Occupancy 40292 km² and loss of Extension of Occurrence 37%. Using the above data and IUCN (2001, version 3.1) criteria, *Nectandra membranacea* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

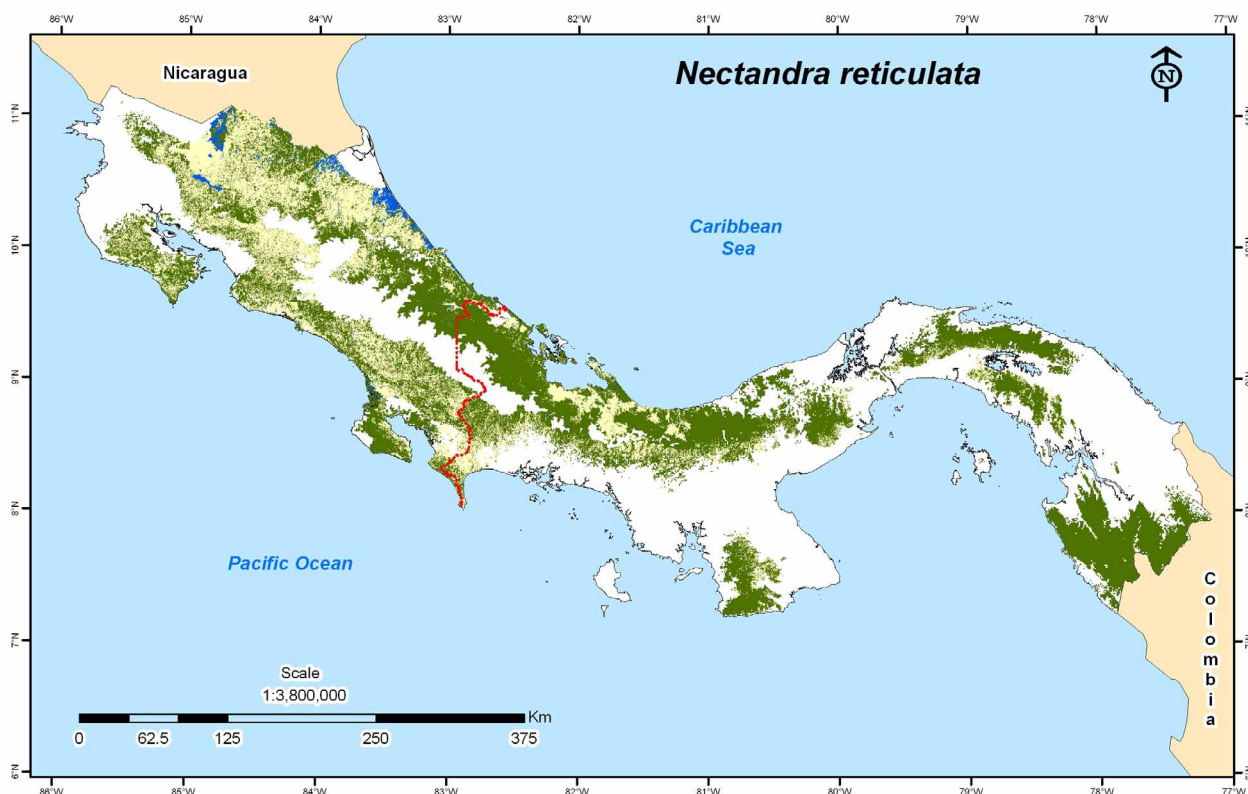
Nectandra reticulata (Ruiz & Pav.) Mez (Lauraceae)

Local names: *Quizarrá zopilote*, *Quizarrá*, *Quina*, *Zopilote*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico to Bolivia and Venezuela, the Guayanas, Brazil. Known in Costa Rica and Panama from 47 herbarium collections. Elevational range for Costa Rica and Panama 0–1400 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 122



In Costa Rica and Panama the Extension of Occurrence was calculated to be 63194 km², the Area of Occupancy 39905 km² and loss of Extension of Occurrence 37%. Using the above data and IUCN (2001, version 3.1) criteria, *Nectandra reticulata* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

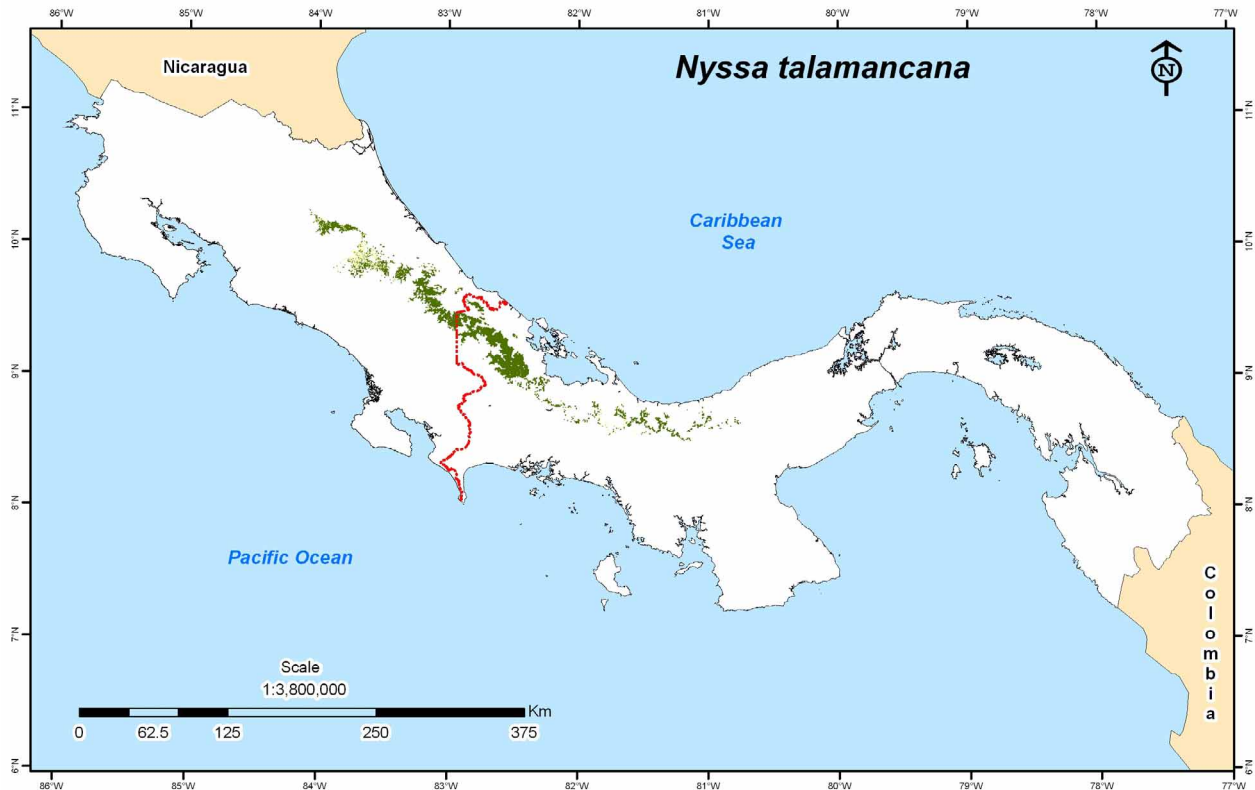
Nyssa talamancana Hammel & N.Zamora (Nyssaceae)

Local name: *Buesibo*.

Terrestrial trees, flowers unisexual, monoecious. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 16 herbarium collections. Elevational range, 450–800 m, and the proportion of the regional Extension of Occurrence in protected areas: 57%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 123



In Costa Rica and Panama the Extension of Occurrence was calculated to be 3106 km², the Area of Occupancy 2700 km² and loss of Extension of Occurrence 13%. Using the above data and IUCN (2001, version 3.1) criteria, *Nyssa talamancana* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence, the narrow Elevation range of the species and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area.

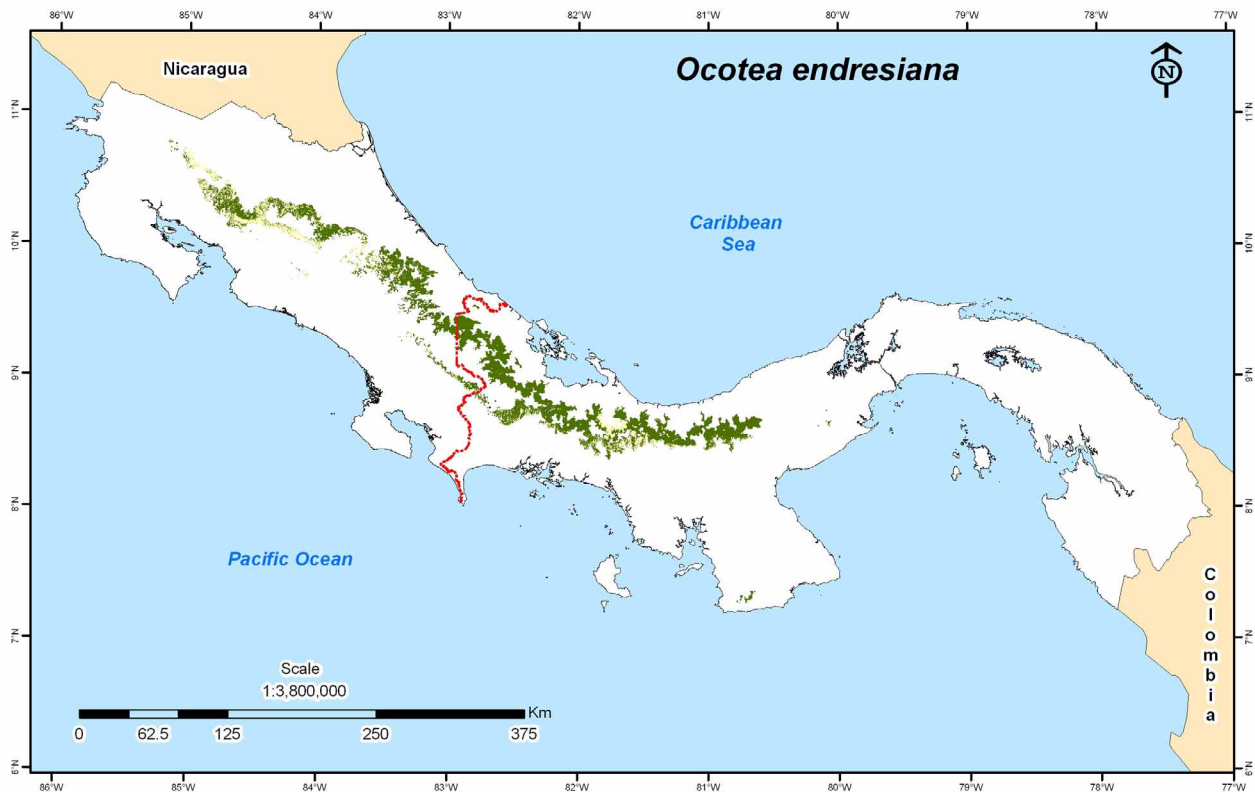
Ocotea endresiana Mez (Lauraceae)

Local names: *Ira mangle*, *Sigua oloroso*, *Mararñón*, *Ira rosa*, *Sigua amarillo*, *Sigua*.

Terrestrial trees, flowers bisexual, used as timber. Endemic to Costa Rica and Panama. Known from 46 herbarium collections. Elevational range, (0–)750–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 45%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 124



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9227 km², the Area of Occupancy 7101 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Ocotea endresiana* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities.

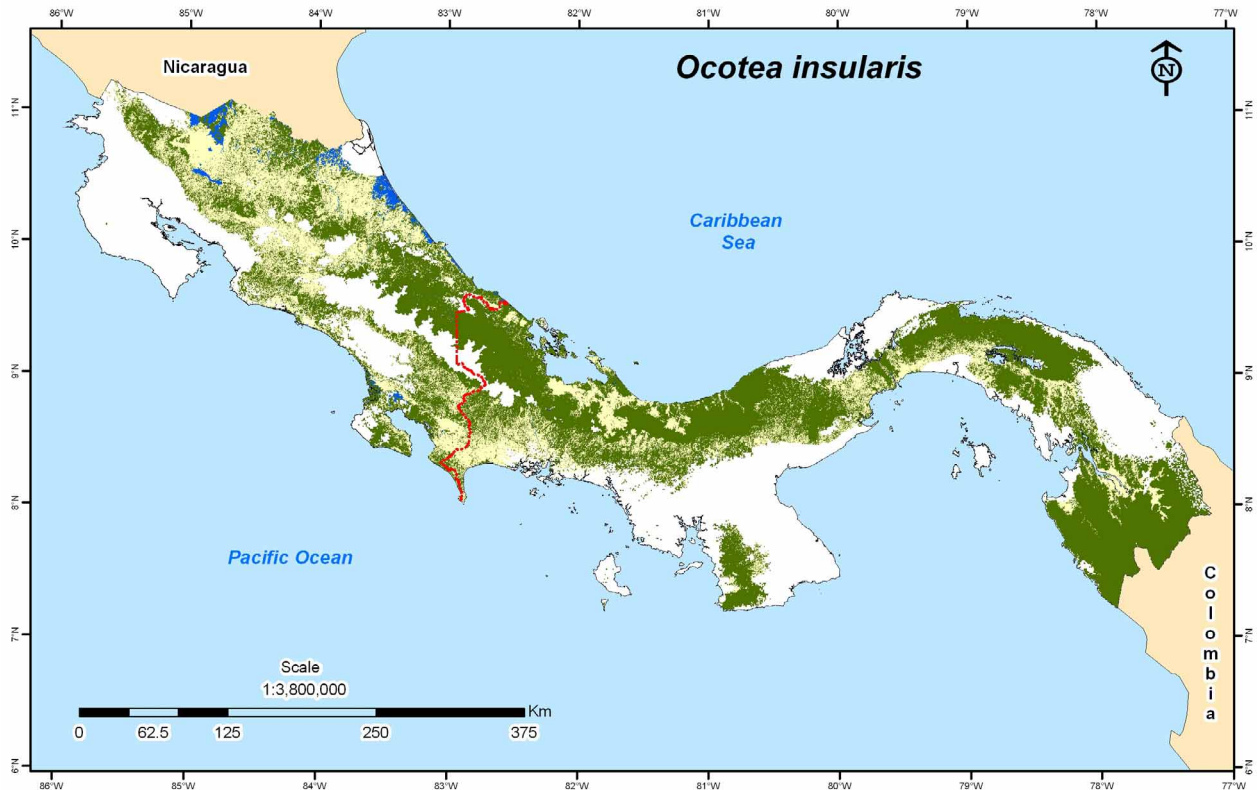
Ocotea insularis (Meisn.) Mez (Lauraceae)

Local names: *Aguacatillo asca*, *aguacatón*, *ira amarillo*, *ira marañón*, *pocora*, *ira rosa*, *quizarrá*.

Terrestrial shrubs or trees, flowers bisexual, used as timber. Global distribution: Costa Rica to Peru. Known in Costa Rica and Panama from 245 herbarium collections. Elevational range for Costa Rica and Panama 0–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 125



In Costa Rica and Panama the Extension of Occurrence was calculated to be 78326 km², the Area of Occupancy 50089 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Ocotea insularis* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

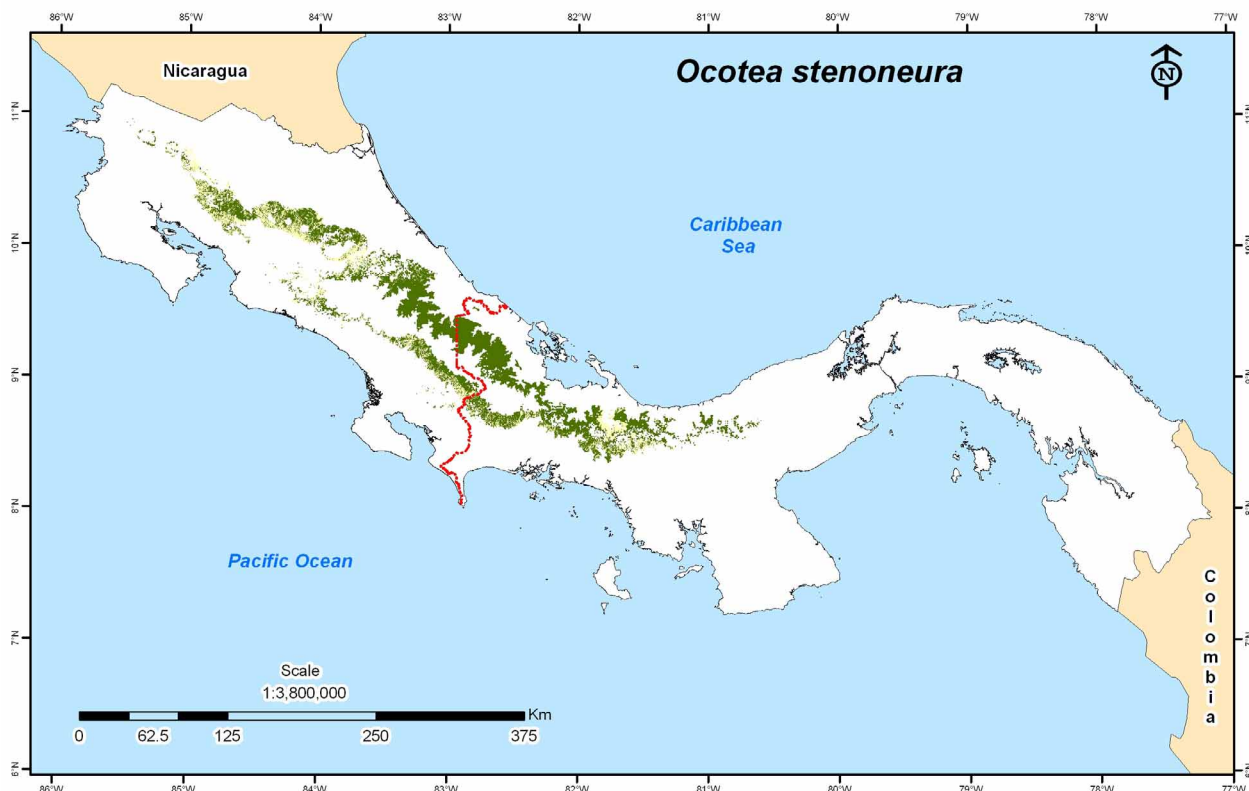
Ocotea stenoneura Mez & Pittier (Lauraceae)

Local names: *Quizarrá amarillo*, *Yayo*, *Aguacatilo*, *Quizarrá canelo*, *Yaya*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Costa Rica to Ecuador. Known in Costa Rica and Panama from 34 herbarium collections. Elevational range for Costa Rica and Panama 600–1800(–2400) m, and the proportion of the regional Extension of Occurrence in protected areas: 44%.

- Regional threat category: **Near Threatened (NT)**

Fig. 126



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11407 km², the Area of Occupancy 8339 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Ocotea stenoneura* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that the species is extracted for timber by local communities, and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

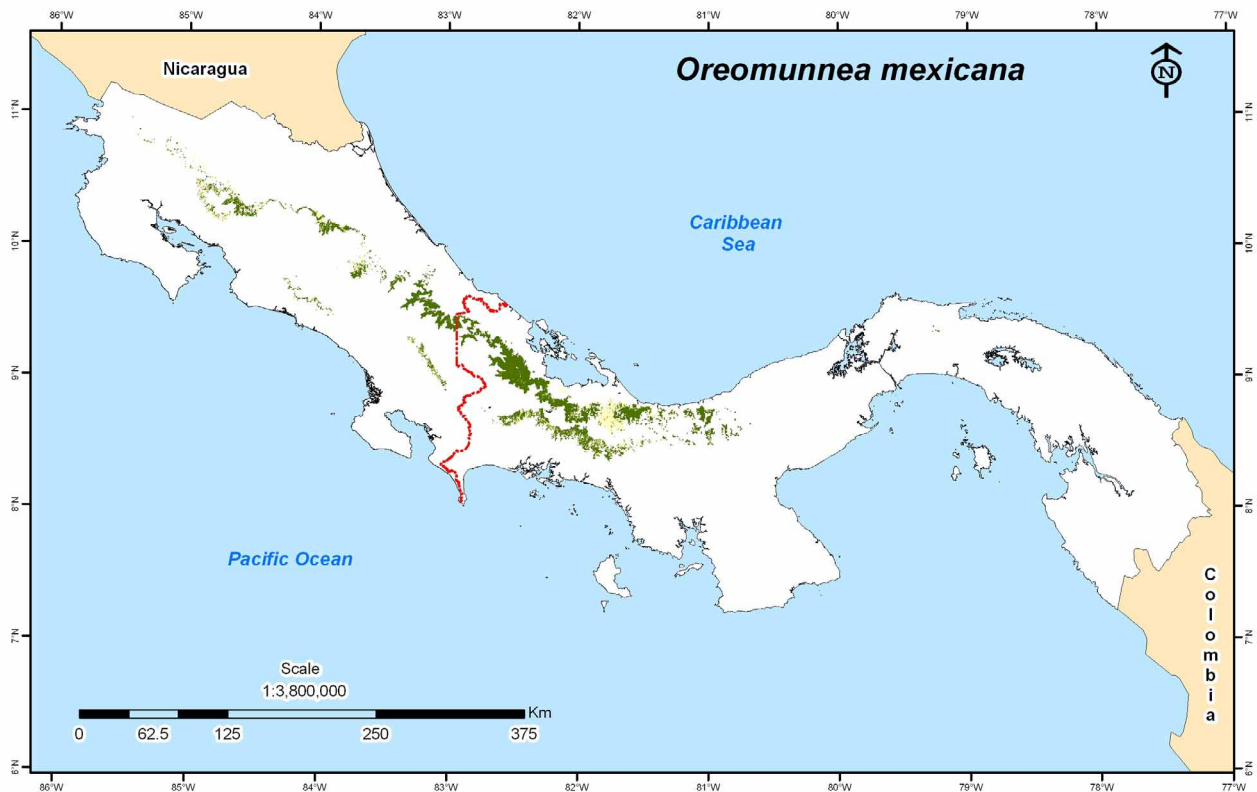
Oreomunnea mexicana (Standl.) J.-F.Leroy (Juglandaceae)

Local name: *Gaulín*.

Terrestrial trees, flowers unisexual, monoecious. Global distribution: Mexico and Guatemala, Nicaragua to Panama. Known in Costa Rica and Panama from 18 herbarium collections. Elevational range for Costa Rica and Panama 450–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 41%.

- Regional threat category: **Near Threatened (NT)**

Fig. 127



In Costa Rica and Panama the Extension of Occurrence was calculated to be 5522 km², the Area of Occupancy 4122 km² and loss of Extension of Occurrence 25%. Using the above data and IUCN (2001, version 3.1) criteria, *Oreomunnea mexicana* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

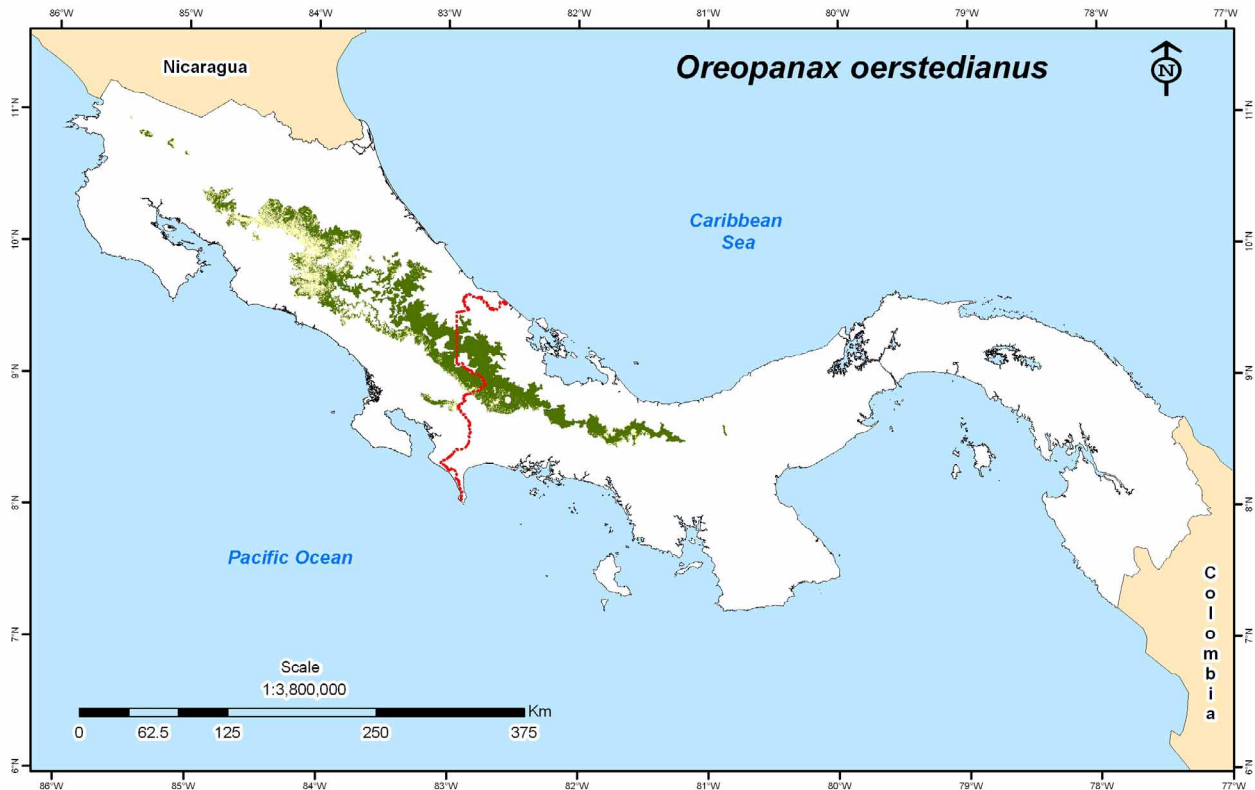
Oreopanax oerstedianus Marchal (Araliaceae)

Local name: *Moquillo*.

Terrestrial shrubs or epiphytic trees, flowers bisexual or unisexual, where unisexual, dioecious. Endemic to Costa Rica and Panama. Known from 80 herbarium collections. Elevational range for Costa Rica and Panama 1100–2500 m, and the proportion of the regional Extension of Occurrence in protected areas: 52%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 128



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11179 km², the Area of Occupancy 8250 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Oreopanax oerstedianus* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, the species has a relatively broad elevational distribution, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

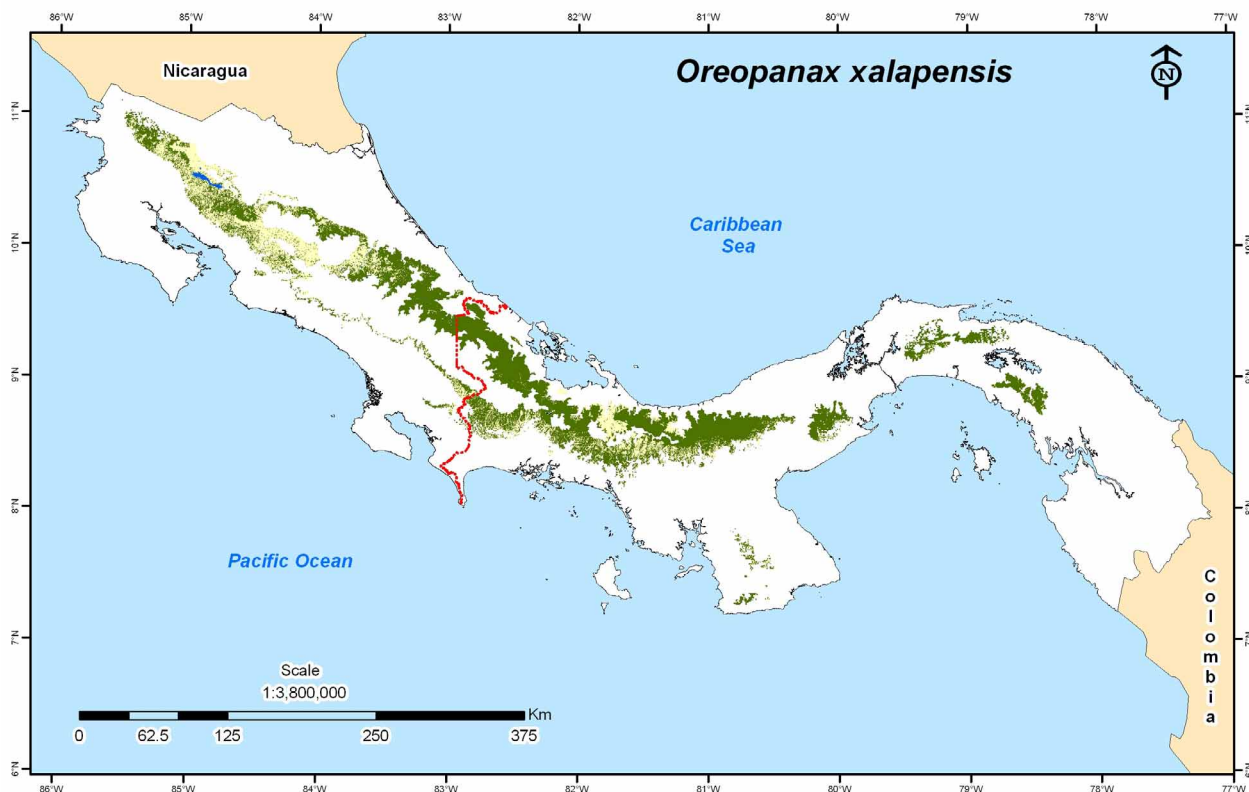
Oreopanax xalapensis (Kunth) Decne. & Planch. (Araliaceae)

Local names: *Cacho de venado*, *Higuera*, *Matagente*, *Papayillo*, *Matapalo*, *Matacartago*.

Terrestrial trees, flowers bisexual or unisexual, where unisexual, dioecious. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 97 herbarium collections. Elevational range for Costa Rica and Panama 1100–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 30%.

- Regional threat category: **Near Threatened (NT)**

Fig. 129



In Costa Rica and Panama the Extension of Occurrence was calculated to be 21241 km², the Area of Occupancy 14674 km² and loss of Extension of Occurrence 31%. Using the above data and IUCN (2001, version 3.1) criteria, *Oreopanax xalapensis* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

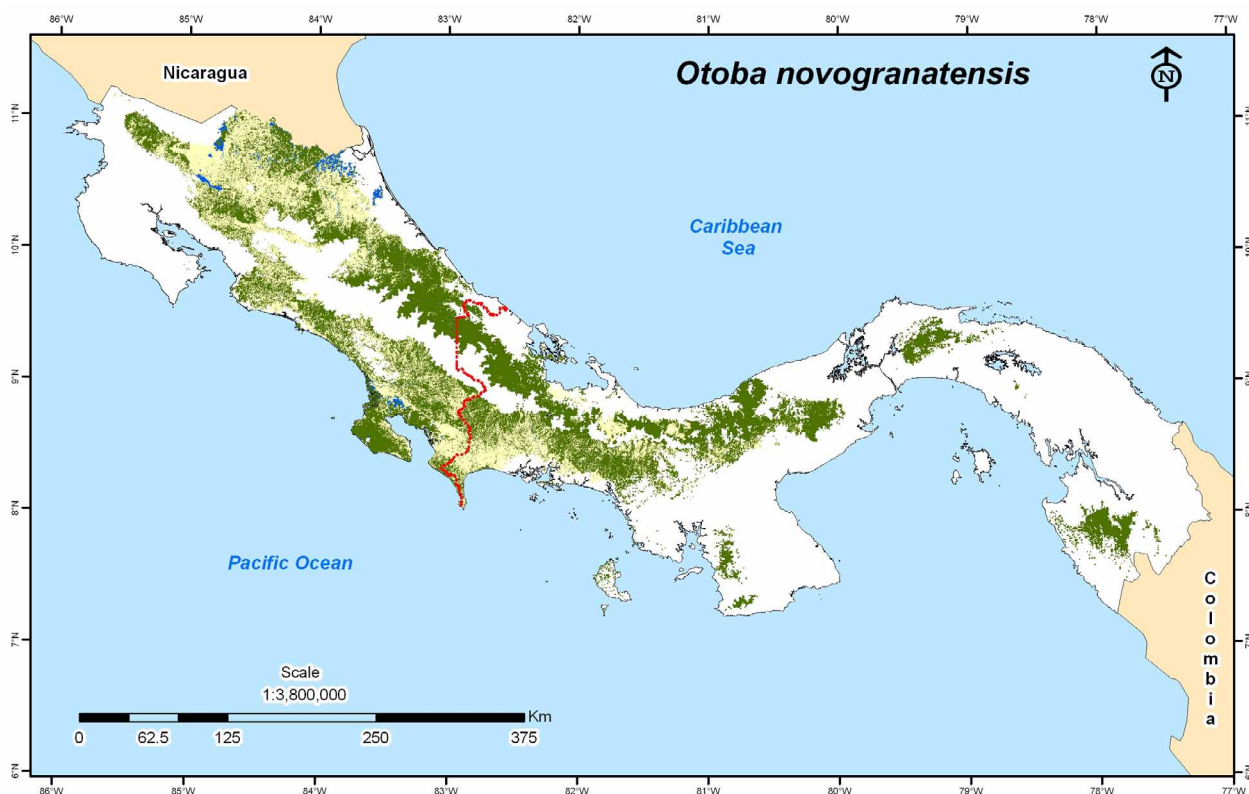
Otoba novogranatensis Moldenke (Myristicaceae)

Local names: *Bogamandí*, *Bola de oro*, *Campano*, *Escobo negro*, *Fruta dorada*, *Hoja dorada*, *Sebo*, *Yaya*, *Hoja plateada*.

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Honduras to Ecuador. Known in Costa Rica and Panama from 67 herbarium collections. Elevational range for Costa Rica and Panama 0–1300 m, and the proportion of the regional Extension of Occurrence in protected areas: 24%.

- Regional threat category: **Near Threatened (NT)**

Fig. 130



In Costa Rica and Panama the Extension of Occurrence was calculated to be 46267 km², the Area of Occupancy 27762 km² and loss of Extension of Occurrence 40%. Using the above data and IUCN (2001, version 3.1) criteria, *Otoba novogranatensis* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

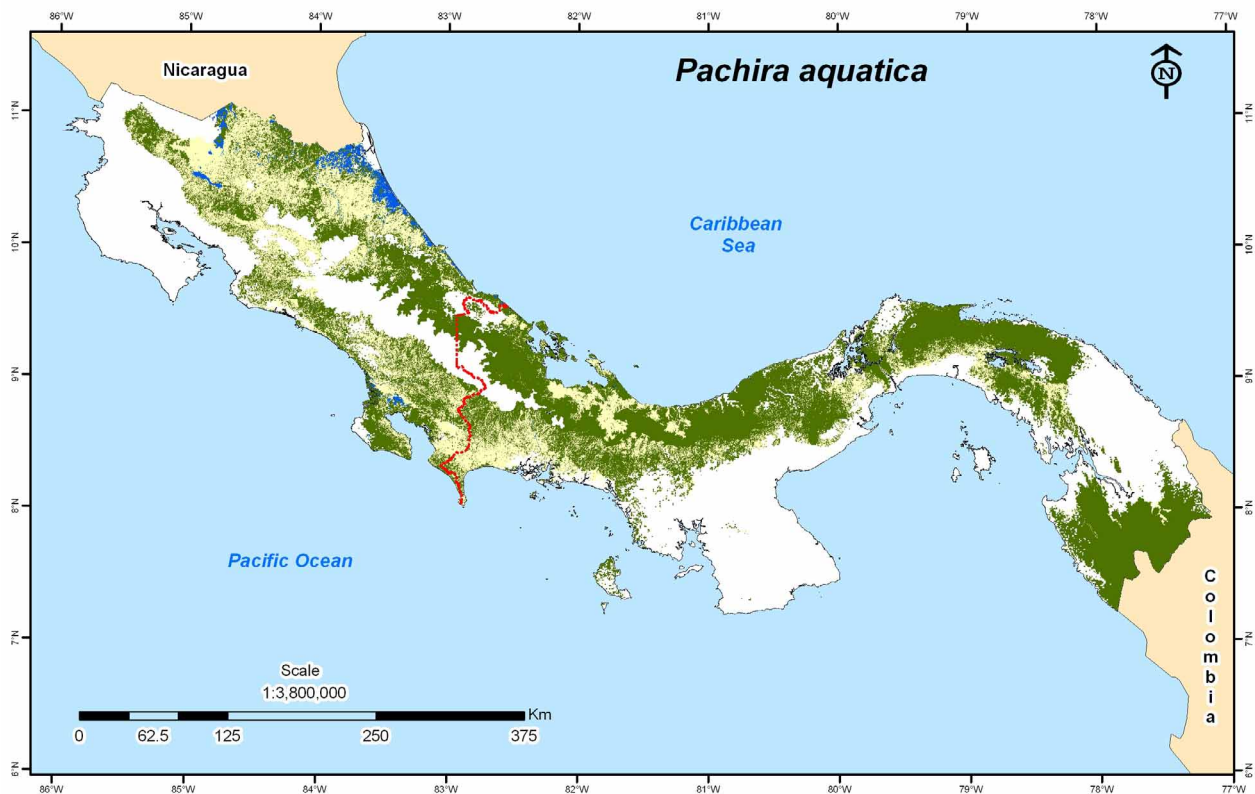
Pachira aquatica Aubl. (Malvaceae)

Local names: *Cacao cimarrón*, *Cacao de danta*, *Huevos de burro*, *Jelinjoche*, *Lirio de montaña*, *Poponjoche*, *Quirihuillo*, *Zapotón*, *Pluma*, *Quiquiullo*, *Popojiroche*, *Operihoche*, *Psi+krá (Térraba)*, *Popenjoche*, *Jilinjoche*.

Terrestrial trees, flowers bisexual. Global distribution: Mexico to Brazil. Known in Costa Rica and Panama from 93 herbarium collections. Elevational range for Costa Rica and Panama 0–700 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 131



In Costa Rica and Panama the Extension of Occurrence was calculated to be 71913 km², the Area of Occupancy 47482 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Pachira aquatica* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

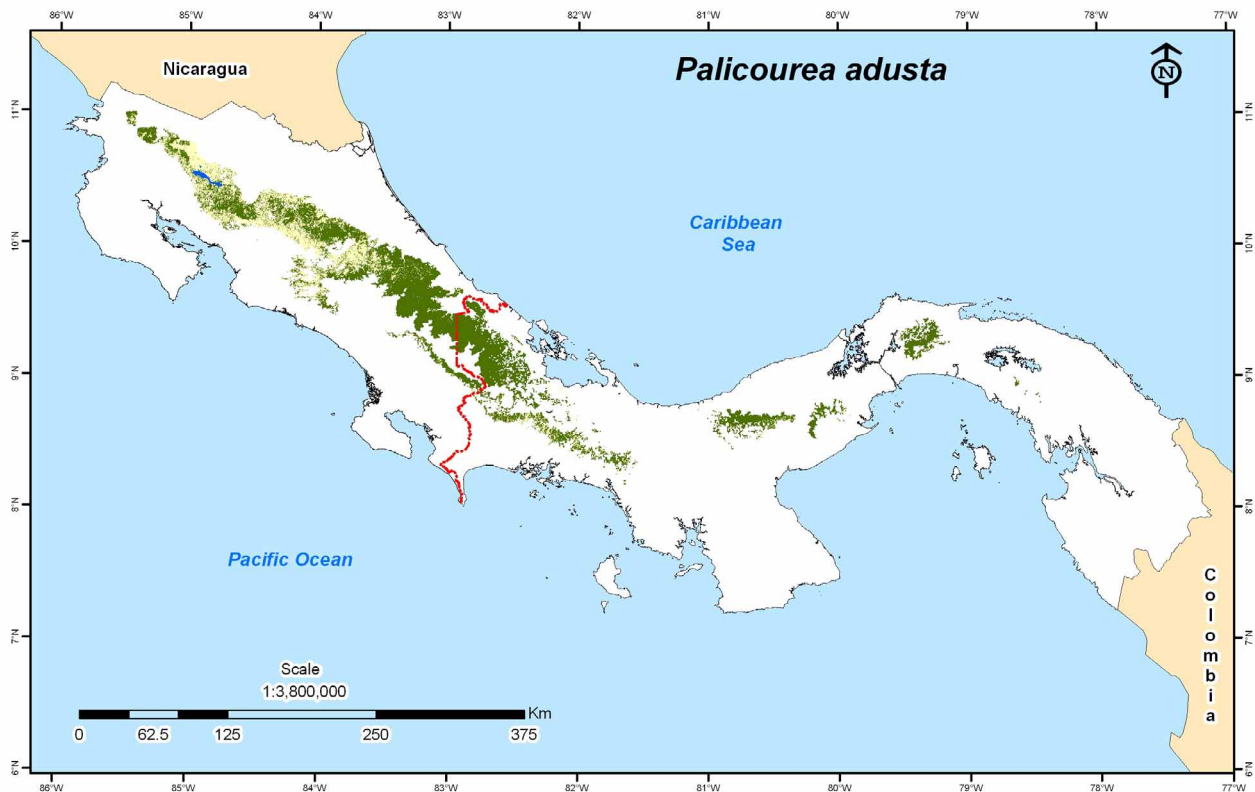
Palicourea adusta Standl. (Rubiaceae)

Local names: *Cafecillo*, *Candelilla*.

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica and Panama. Known from 71 herbarium collections. Elevational range 1800–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 47%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 132



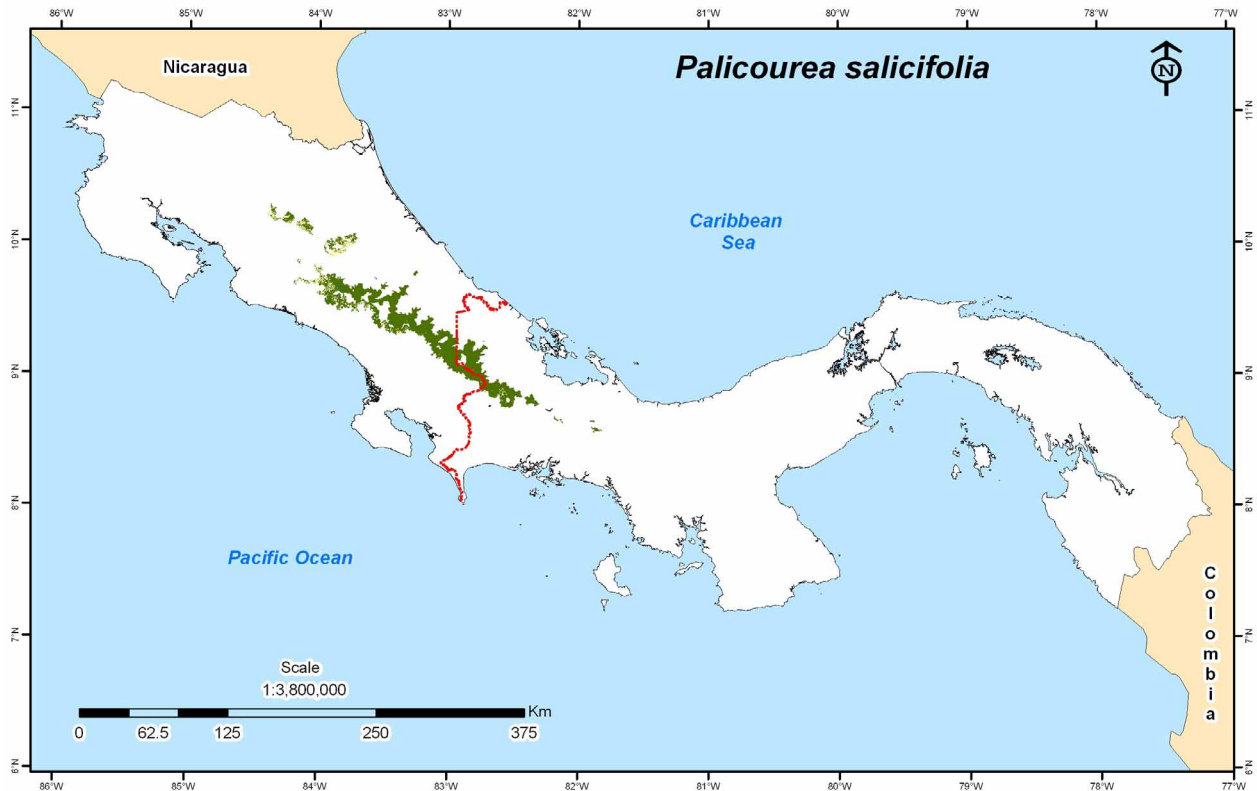
In Costa Rica and Panama the Extension of Occurrence was calculated to be 14956 km², the Area of Occupancy 10516 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Palicourea adusta* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, are the species relatively broad elevational distribution and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

Palicourea salicifolia Standl. (Rubiaceae)

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica and Panama. Known from 58 herbarium collections. Elevational range for Costa Rica and Panama 2000–2650 m, and the proportion of the regional Extension of Occurrence in protected areas: 81%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 133



In Costa Rica and Panama the Extension of Occurrence was calculated to be 3915 km², the Area of Occupancy 3470 km² and loss of Extension of Occurrence 11%. Using the above data and IUCN (2001, version 3.1) criteria, *Palicourea salicifolia* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

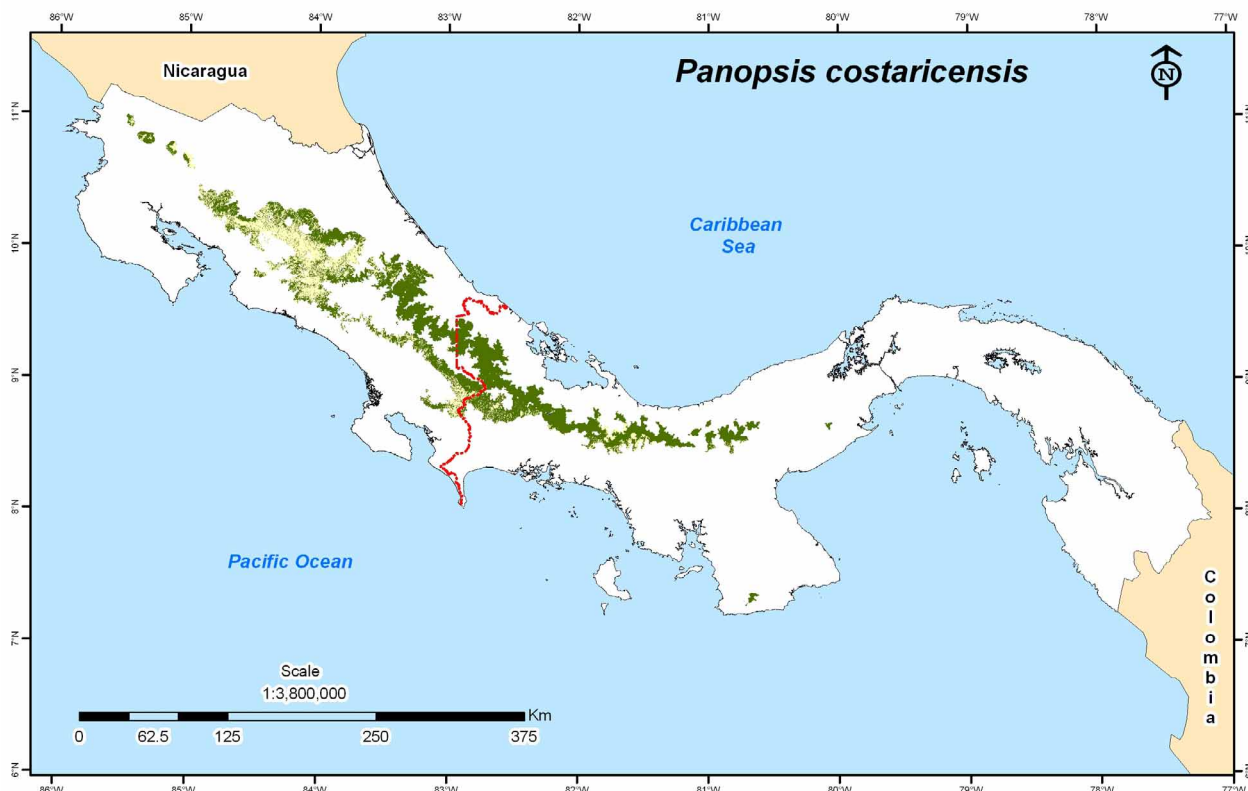
Panopsis costaricensis Standl. (Proteaceae)

Local name: *Palo papa*.

Terrestrial trees, flowers bisexual. Usado como madera. Global distribution: Costa Rica to Colombia. Known in Costa Rica and Panama from 53 herbarium collections. Elevational range for Costa Rica and Panama 1000–2200 m, and the proportion of the regional Extension of Occurrence in protected areas: 43%.

- Regional threat category: **Near Threatened (NT)**

Fig. 134



In Costa Rica and Panama the Extension of Occurrence was calculated to be 13632 km², the Area of Occupancy 9556 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Panopsis costaricensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

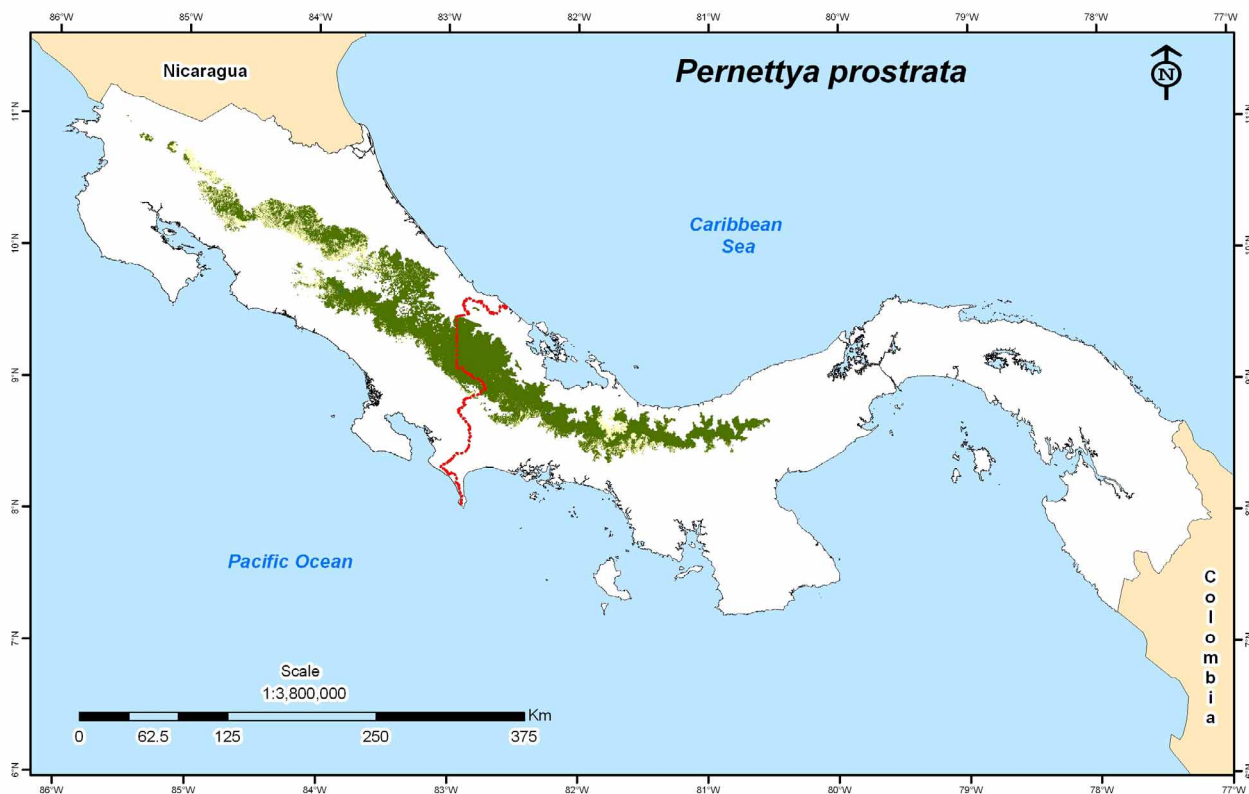
Pernettya prostrata (Cav.) DC. (Ericaceae)

Local name: Arrayán.

Terrestrial shrubs, flowers bisexual, used as a dye. Global distribution: Mexico to Bolivia, Argentina. Known in Costa Rica and Panama from 172 herbarium collections. Elevational range for Costa Rica and Panama (600–)1300–3800 m, and the proportion of the regional Extension of Occurrence in protected areas: 56%.

- Regional threat category: **Near Threatened (NT)**

Fig. 135



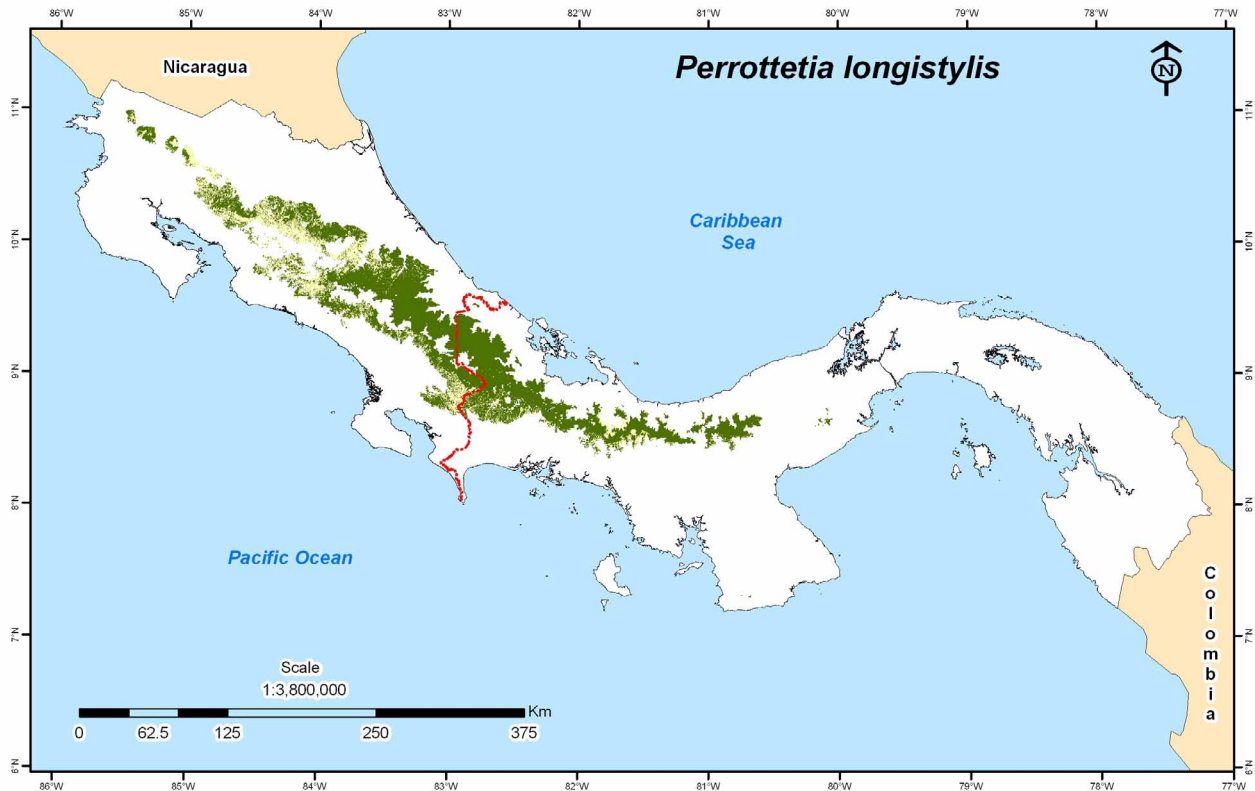
In Costa Rica and Panama the Extension of Occurrence was calculated to be 16274 km², the Area of Occupancy 13033 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Pernettya prostrata* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Perrottetia longistylis Rose (Dipentodontaceae)

Terrestrial trees, flowers bisexual. Global distribution: Mexico, Guatemala, El Salvador, Costa Rica. Known in Costa Rica and Panama from 55 herbarium collections. Elevational range for Costa Rica and Panama 1500–2400 m, and the proportion of the regional Extension of Occurrence in protected areas: 32%.

- Regional threat category: **Near Threatened (NT)**

Fig. 136



In Costa Rica and Panama the Extension of Occurrence was calculated to be 18006 km², the Area of Occupancy 13364 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Perrottetia longistylis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

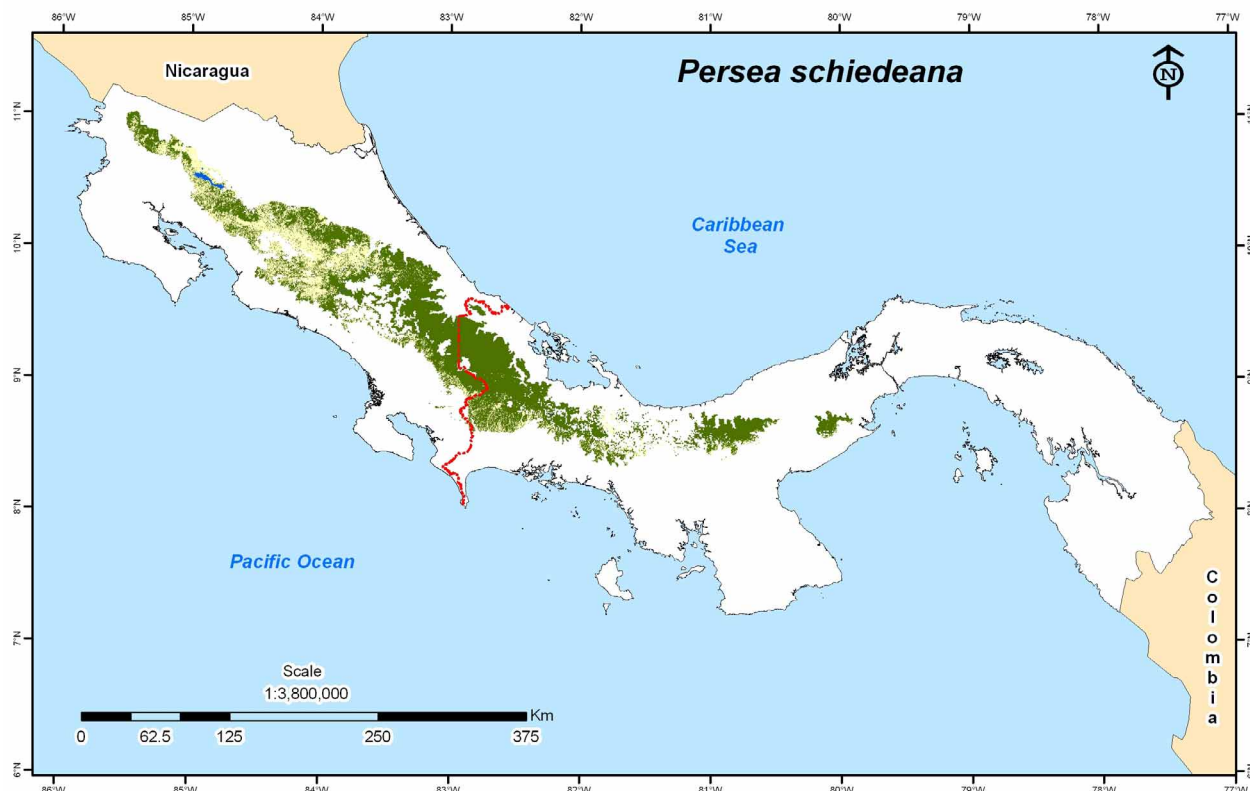
Persea schiedeana Nees (Lauraceae)

Local names: *Aguacate de montaña*, *Aguacatón*, *Aguacate de monte*, *Yas*.

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico to Colombia. Known in Costa Rica and Panama from 78 herbarium collections. Elevational range for Costa Rica and Panama 500–2800 m, and the proportion of the regional Extension of Occurrence in protected areas: 45%.

- Regional threat category: **Least Concern (LC)**

Fig. 137



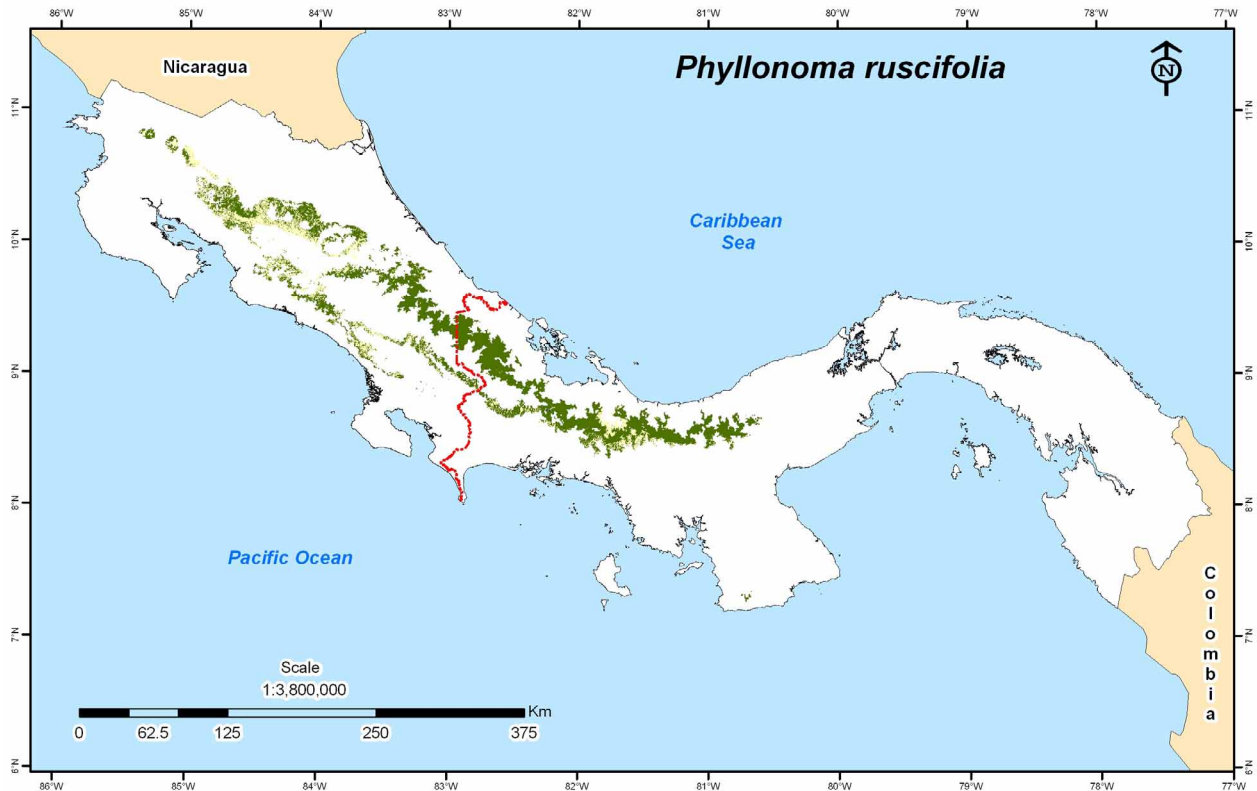
In Costa Rica and Panama the Extension of Occurrence was calculated to be 20795 km², the Area of Occupancy 14748 km² and loss of Extension of Occurrence 29%. Using the above data and IUCN (2001, version 3.1) criteria, *Persea schiedeana* is classified as Near Threatened (NT) in relation to criterias A 2cd, B 1ab(i,iii) . This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

Phyllonoma ruscifolia Willd. ex Schult. (Phyllonomaceae)

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Guatemala, Costa Rica to Bolivia. Known in Costa Rica and Panama from 36 herbarium collections. Elevational range for Costa Rica and Panama 900–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 43%.

- Regional threat category: **Near Threatened (NT)**

Fig. 138



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11292 km², the Area of Occupancy 8203 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Phyllonoma ruscifolia* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

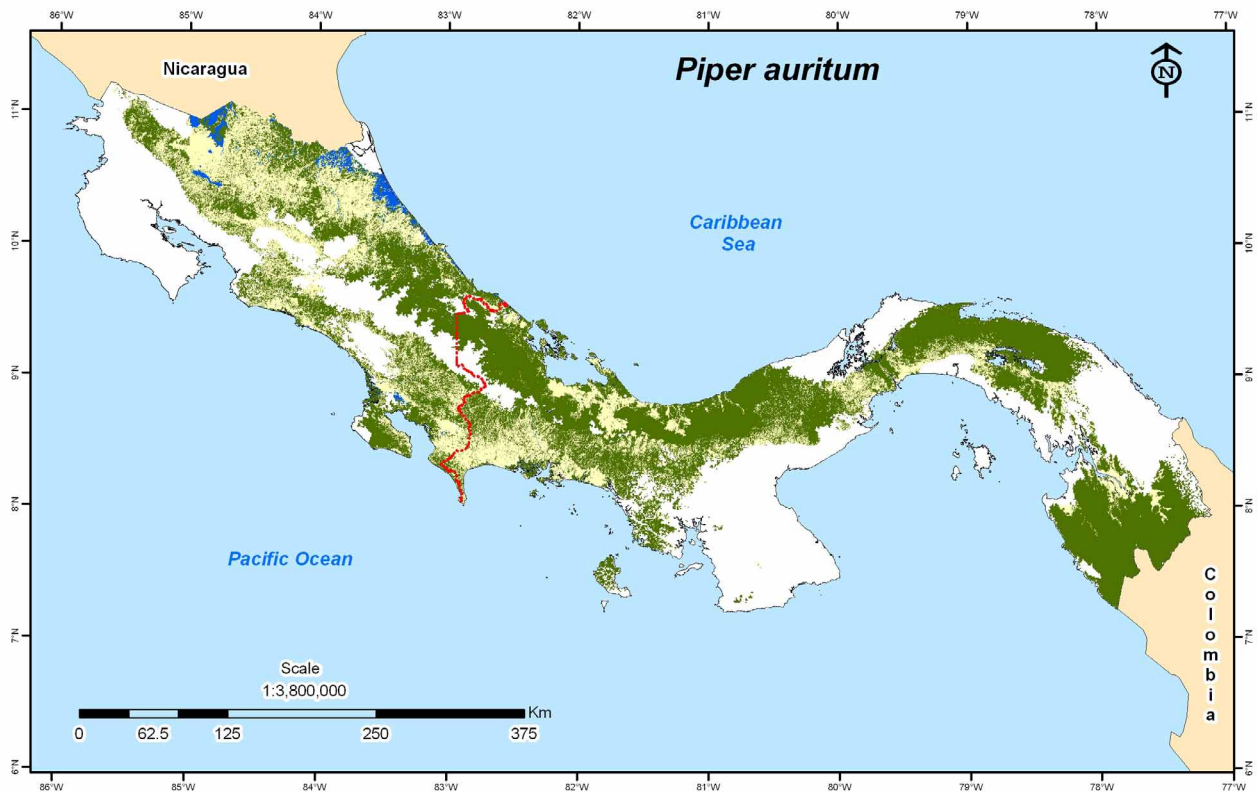
Piper auritum Kunth (Piperaceae)

Local names: *Alcotán, Estrella, Hoja de estrella, Hinojillo, Pir-kú (Cabécar)*.

Terrestrial shrubs or trees, flowers bisexual, used as a herbal remedy and condiment. Global distribution: Mexico to Colombia. Known in Costa Rica and Panama from 229 herbarium collections. Elevational range for Costa Rica and Panama 0–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Least Concern (LC)**

Fig. 139



In Costa Rica and Panama the Extension of Occurrence was calculated to be 75999 km², the Area of Occupancy 55728 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Piper auritum* is classified as Least Concern (LC). This classification is supported by the relatively broad regional and elevational distribution and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. In addition, the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance.

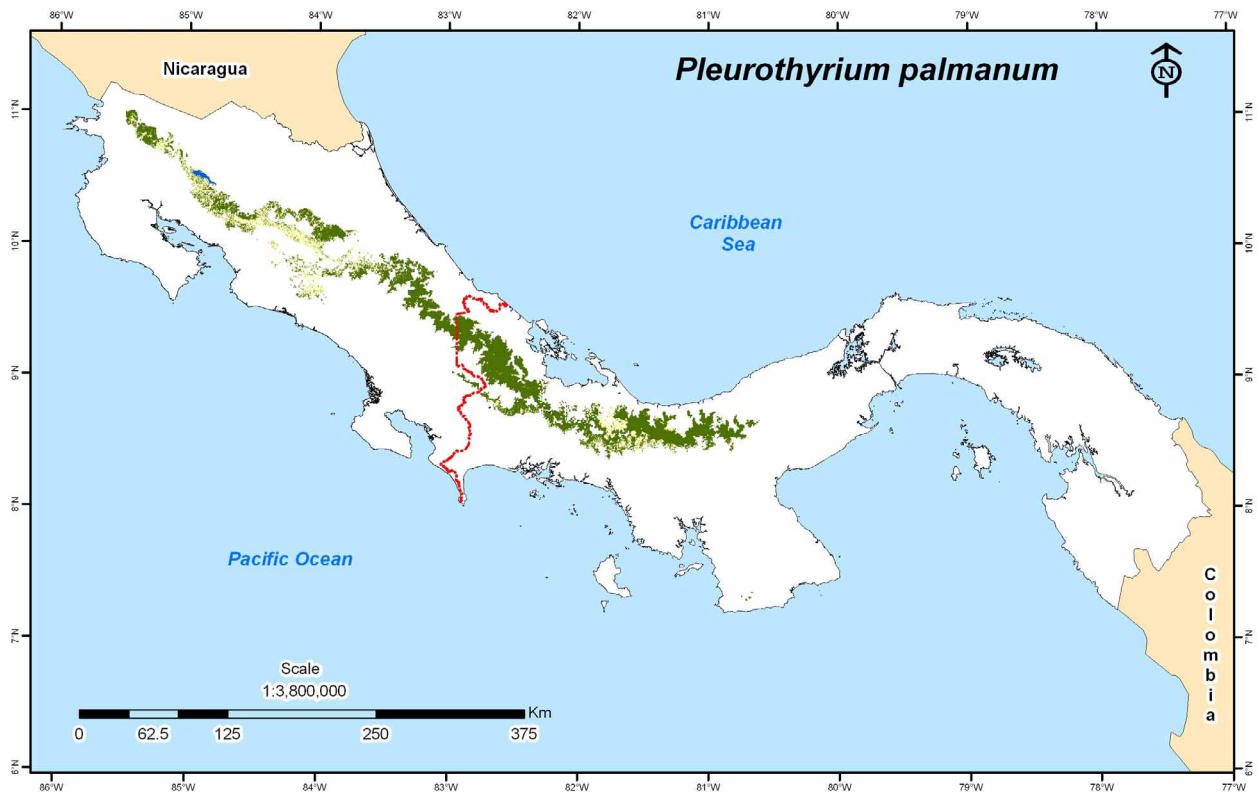
Pleurothyrium palmanum (Mez & Donn.Sm.) Rohwer (Lauraceae)

Local names: *Ira zopilote*, *Quizarrá zopilote*, *Plomo*, *Reseco*, *Tostado*, *Ira mangle*, *Quizarrá*, *Ira*, *Ira zoncho*.

Terrestrial trees, flowers bisexual, used as timber. Endemic to Costa Rica and Panama. Known from 21 herbarium collections. Elevational range, 500–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 42%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 140



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11215 km², the Area of Occupancy 8093 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Pleurothyrium palmanum* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that the species is extracted for timber by local communities, observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a relatively broad elevational distribution. Despite the above the classification was not changed.

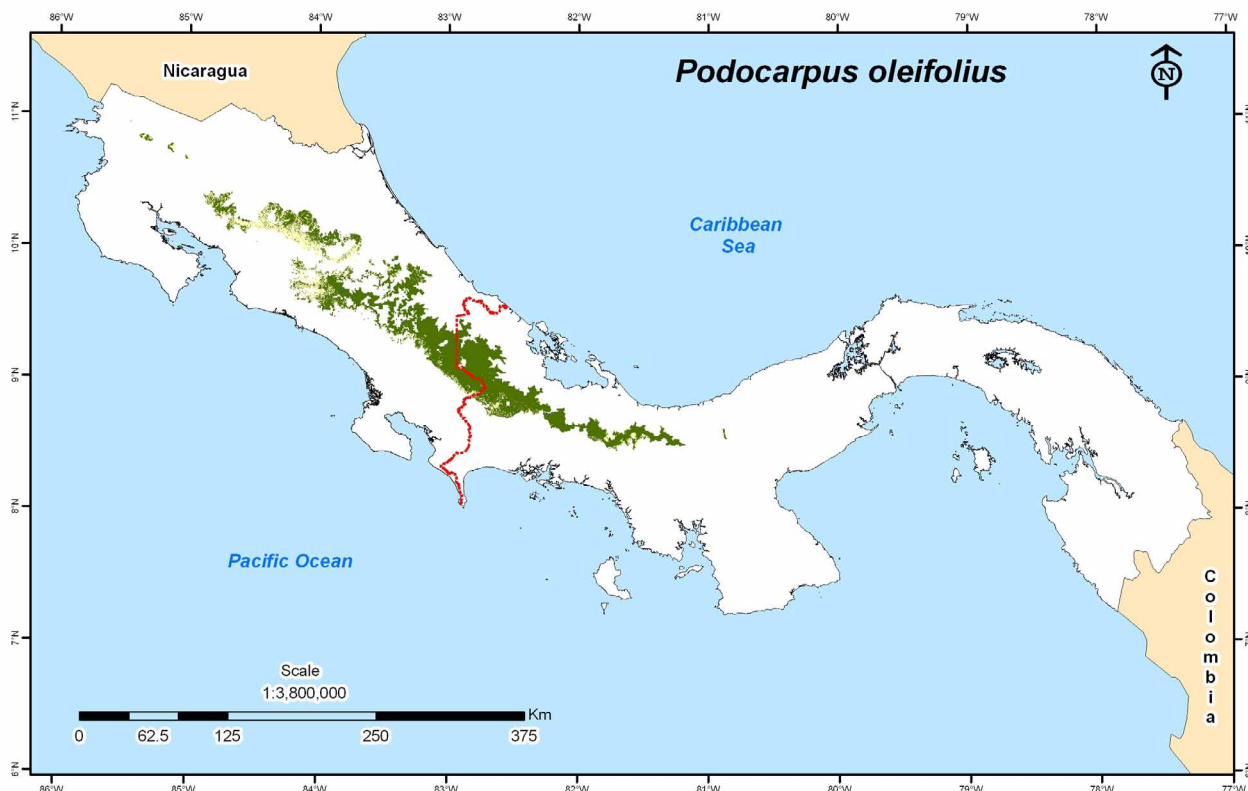
Podocarpus oleifolius D.Don ex Lamb. (Podocarpaceae)

Local names: *Ciprés*, *Cipresillo*, *Ciprés blanco*, *Cípres amarillo*, *Coloba*, *Lorito*, *Cobola*.

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Mexico to Bolivia. Known in Costa Rica and Panama from 125 herbarium collections. Elevational range for Costa Rica and Panama 1100–3100 m, and the proportion of the regional Extension of Occurrence in protected areas: 59%.

- Regional threat category: **Near Threatened (NT)**

Fig. 141



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9860 km², the Area of Occupancy 7815 km² and loss of Extension of Occurrence 21%. Using the above data and IUCN (2001, version 3.1) criteria, *Podocarpus oleifolius* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and a high proportion of its Area of Occupancy located in a protected area. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

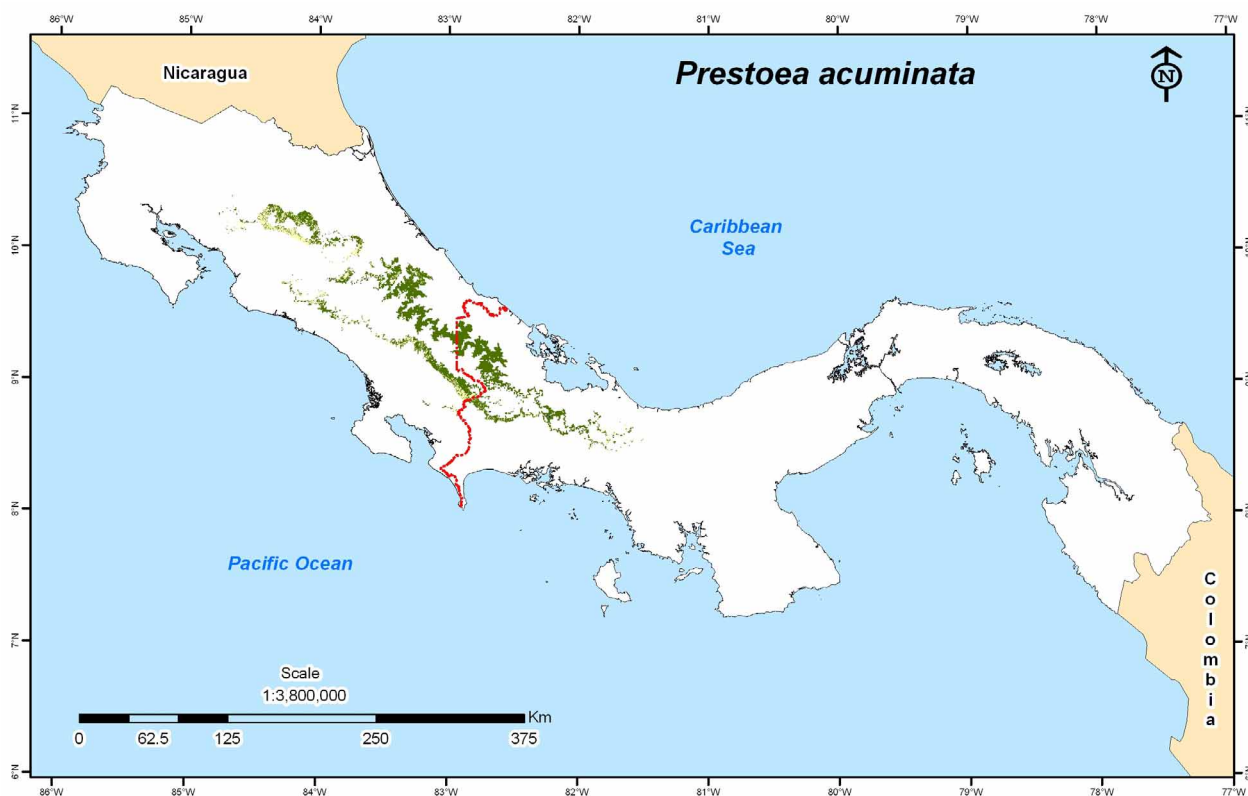
Prestoea acuminata (Willd.) H.E.Moore (Arecaceae)

Local name: *Palmito morado*.

Terrestrial shrubs or trees, flowers unisexual, monoecious, used as a food stuff. Global distribution: Nicaragua to Bolivia, the Antilles. Known in Costa Rica and Panama from 21 herbarium collections. Elevational range for Costa Rica and Panama (1000–)1400–2450 m, and the proportion of the regional Extension of Occurrence in protected areas: 55%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 142



In Costa Rica and Panama the Extension of Occurrence was calculated to be 4906 km², the Area of Occupancy 3871 km² and loss of Extension of Occurrence 21%. Using the above data and IUCN (2001, version 3.1) criteria, *Prestoea acuminata* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence, food destructive. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the relatively broad regional and elevational distribution, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

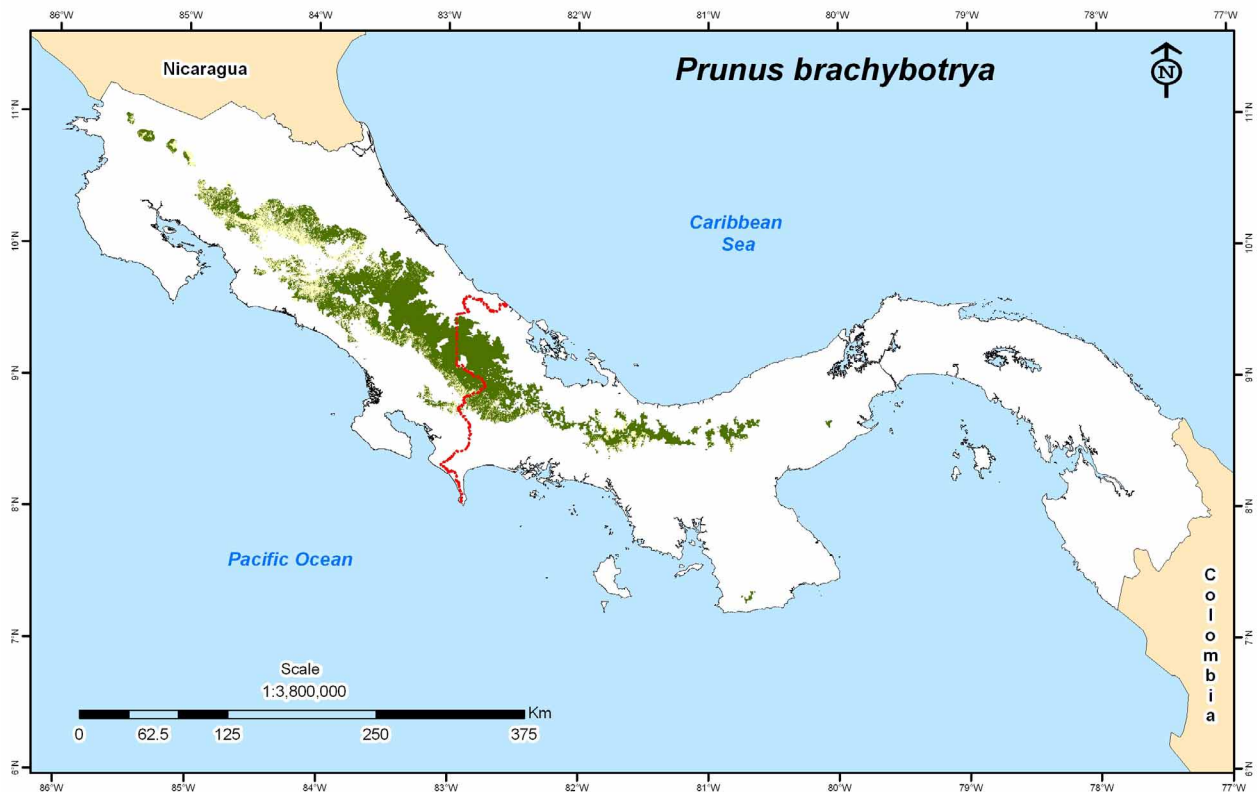
Prunus brachybotrya Zucc. (Rosaceae)

Local names: *Cipresillo, Durazno, Manguillo, Mariquita, Lentisco, Zapotillo, Duraznillo.*

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico to Peru. Known in Costa Rica and Panama from 48 herbarium collections. Elevational range for Costa Rica and Panama 800–2650 m, and the proportion of the regional Extension of Occurrence in protected areas: 51%.

- Regional threat category: **Near Threatened (NT)**

Fig. 143



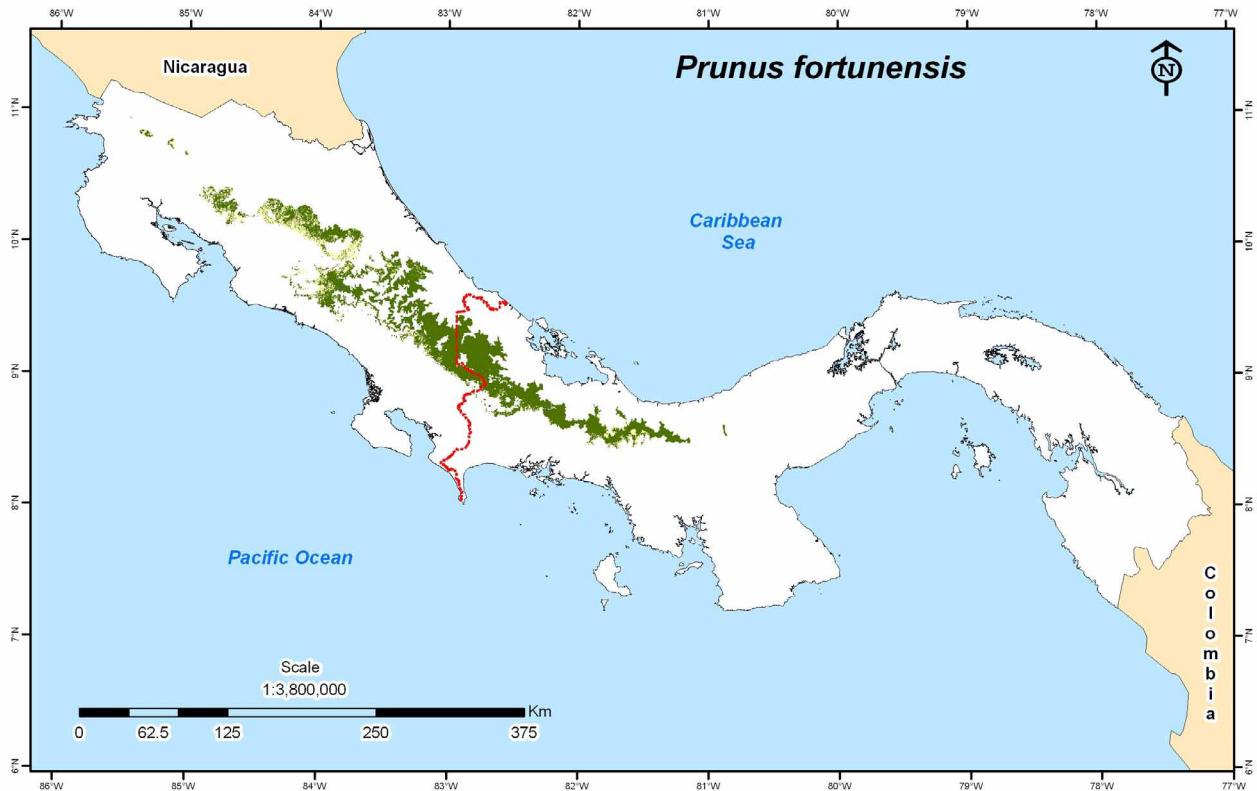
In Costa Rica and Panama the Extension of Occurrence was calculated to be 15577 km², the Area of Occupancy 11806 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Prunus brachybotrya* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the relatively broad regional and elevational distribution, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Prunus fortunensis McPherson (Rosaceae)

Terrestrial trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 36 herbarium collections. Elevational range 1000–2950 m, and the proportion of the regional Extension of Occurrence in protected areas: 60%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 144



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9891 km², the Area of Occupancy 8054 km² and loss of Extension of Occurrence 19%. Using the above data and IUCN (2001, version 3.1) criteria, *Prunus fortunensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy and observations by the authors in the field that the species is scarce in its Area of Occupancy. Countering this, however, the species has a relatively broad elevational distribution and high proportion of its Area of Occupancy located in a protected area. Despite the above the classification was not changed.

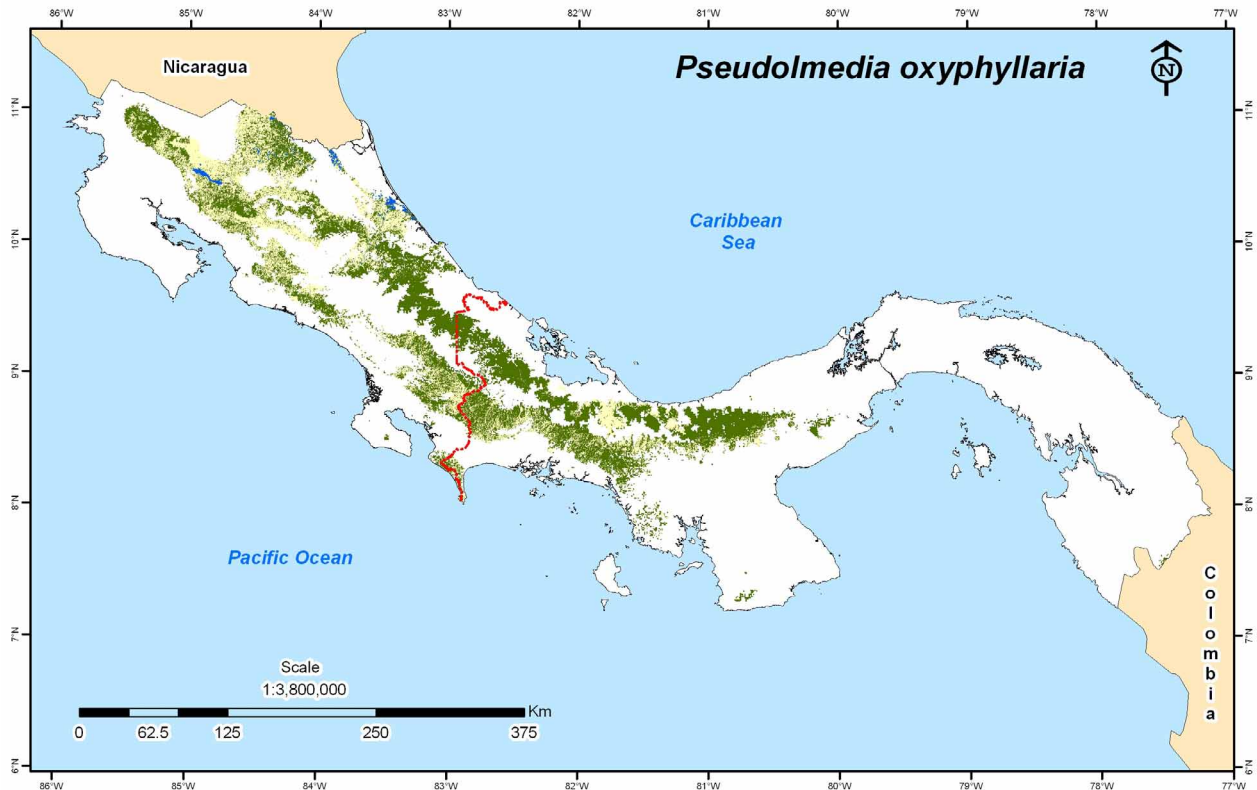
Pseudolmedia glabrata (Liebm.) C.C.Berg (Moraceae)

Local names: *Quiubra*, *Ojoche*.

Terrestrial trees, flowers unisexual, dioecious. Global distribution: Mexico to Costa Rica. Known in Costa Rica and Panama from 27 herbarium collections. Elevational range for Costa Rica and Panama 150–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 145



In Costa Rica and Panama the Extension of Occurrence was calculated to be 28201 km², the Area of Occupancy 17252 km² and loss of Extension of Occurrence 39%. Using the above data and IUCN (2001, version 3.1) criteria, *Pseudolmedia glabrata* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by low proportion of the Extension of Occurrence located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

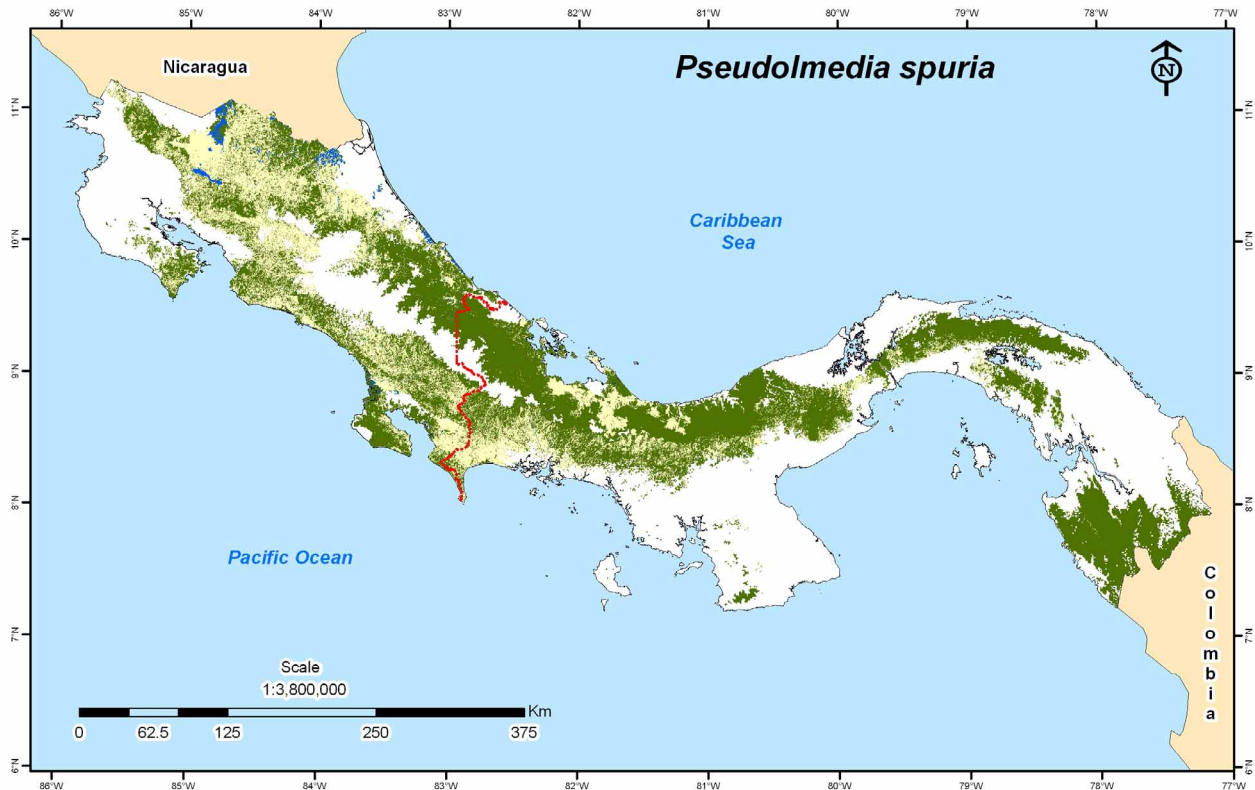
Pseudolmedia spuria (Sw.) Griseb. (Moraceae)

Local names: Casanegro, Guapinolillo, Guiubra, Ojochillo, Ojoche colorado.

Terrestrial trees, flowers unisexual, dioecious. Global distribution: Mexico to Panama, the Antilles. Known in Costa Rica and Panama from 45 herbarium collections. Elevational range for Costa Rica and Panama 0–550(–1600) m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 146



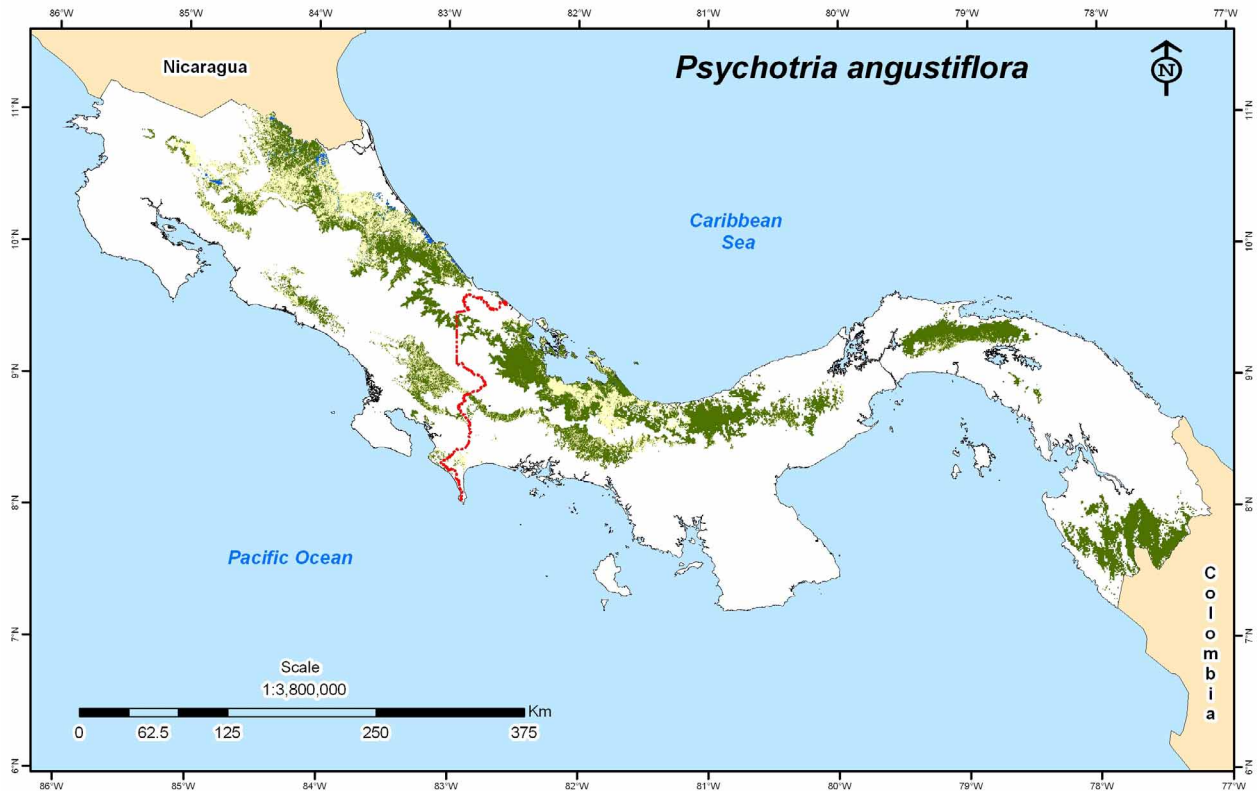
In Costa Rica and Panama the Extension of Occurrence was calculated to be 64921 km², the Area of Occupancy 41631 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Pseudolmedia spuria* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Psychotria angustiflora K.Krause (Rubiaceae)

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Costa Rica to Colombia. Known in Costa Rica and Panama from 72 herbarium collections. Elevational range for Costa Rica and Panama 0–1000 m, and the proportion of the regional Extension of Occurrence in protected areas: 32%.

- Regional threat category: **Near Threatened (NT)**

Fig. 147



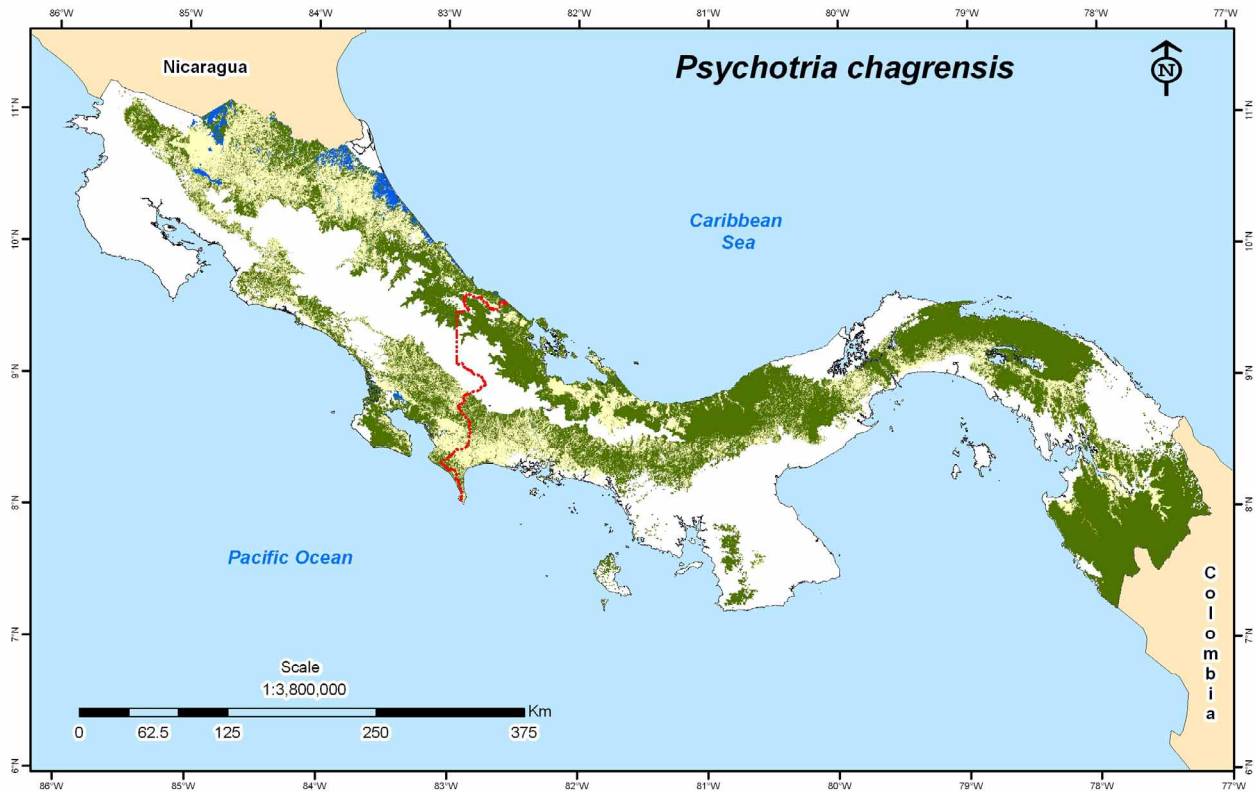
In Costa Rica and Panama the Extension of Occurrence was calculated to be 27010 km², the Area of Occupancy 18337 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Psychotria angustiflora* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Psychotria chagensis Standl. (Rubiaceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Mexico to Peru. Known in Costa Rica and Panama from 150 herbarium collections. Elevational range for Costa Rica and Panama 0–700 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 148



In Costa Rica and Panama the Extension of Occurrence was calculated to be 69529 km², the Area of Occupancy 44841 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Psychotria chagensis* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

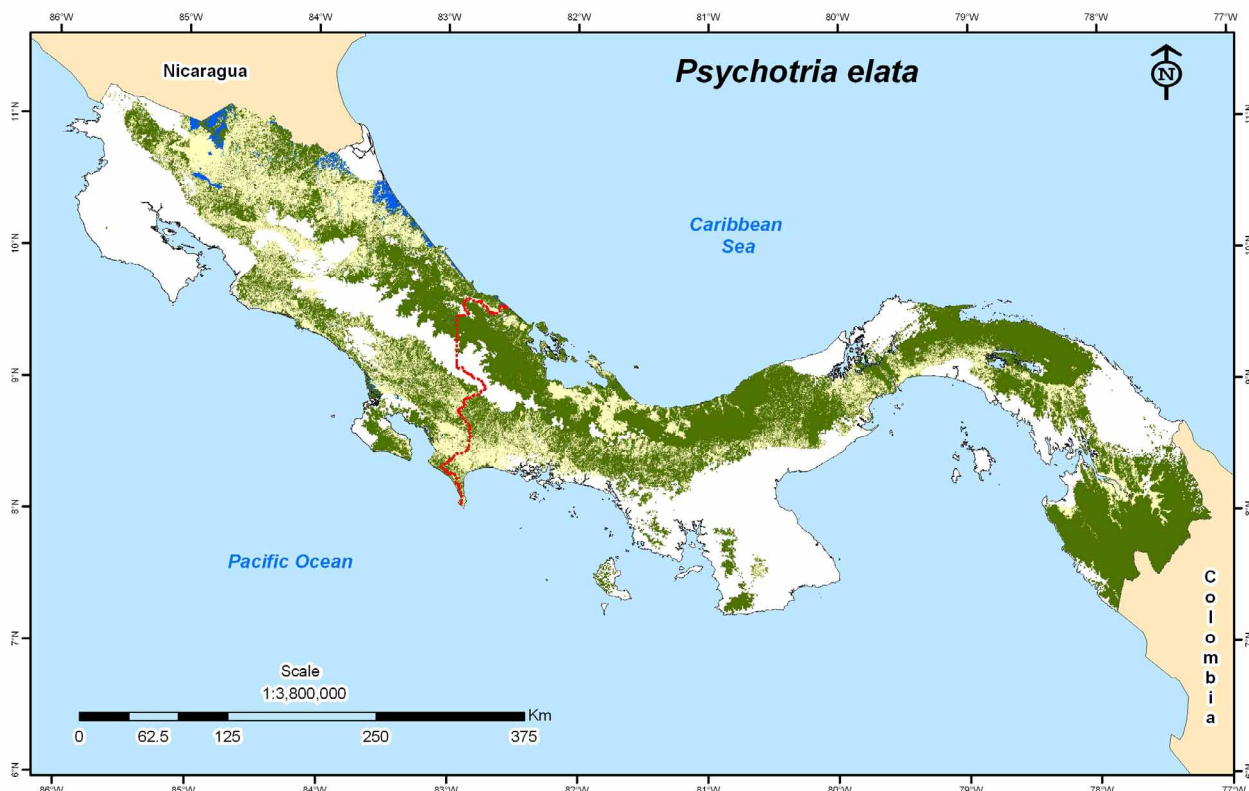
Psychotria elata (Sw.) Hammel (Rubiaceae)

Local names: *Botón rojo*, *Manga de señora*, *Labios de mujer*, *Labios de puta*, *Labios de novia*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Ecuador, the Antilles. Known in Costa Rica and Panama from 485 herbarium collections. Elevational range for Costa Rica and Panama 0–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 26%.

- Regional threat category: **Near Threatened (NT)**

Fig. 149



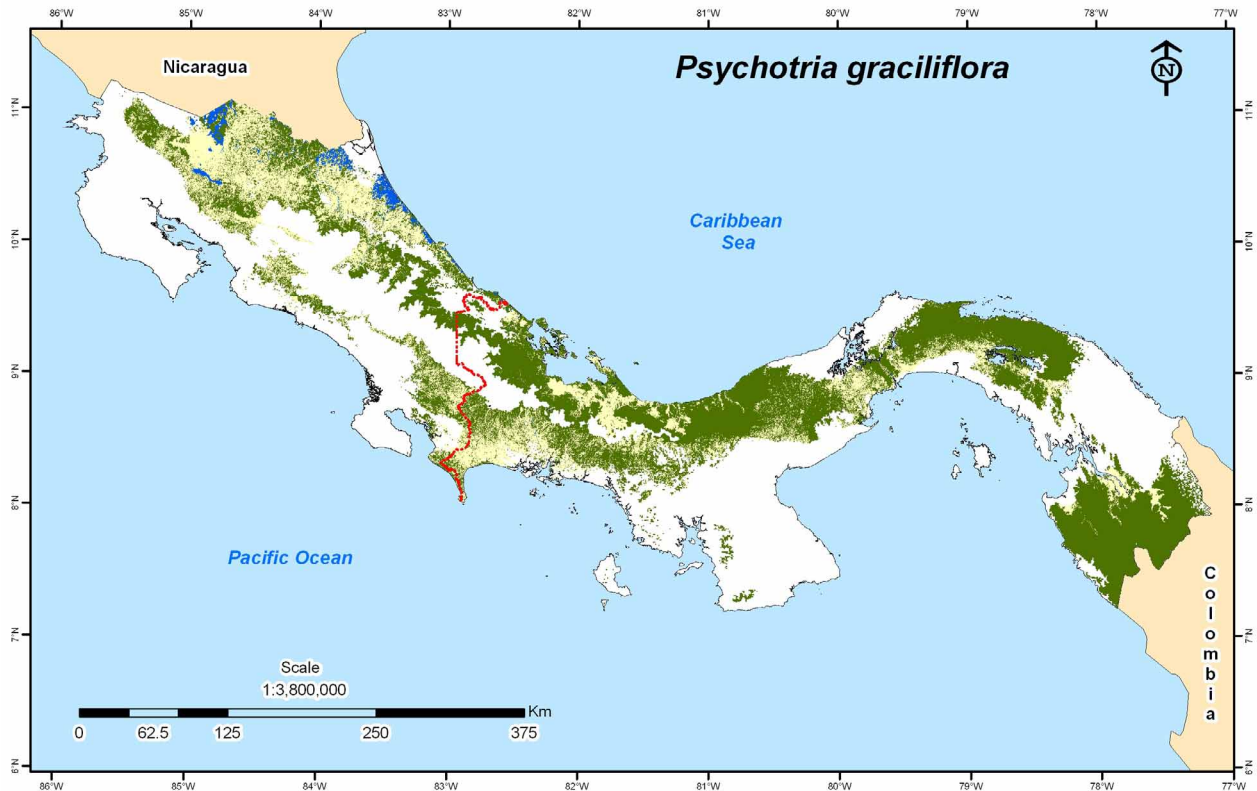
In Costa Rica and Panama the Extension of Occurrence was calculated to be 77890 km², the Area of Occupancy 50115 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Psychotria elata* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Psychotria graciliflora Benth. (Rubiaceae)

Terrestrial shrubs, flowers bisexual. Global distribution: Mexico to Colombia. Known in Costa Rica and Panama from 177 herbarium collections. Elevational range for Costa Rica and Panama 0–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 150



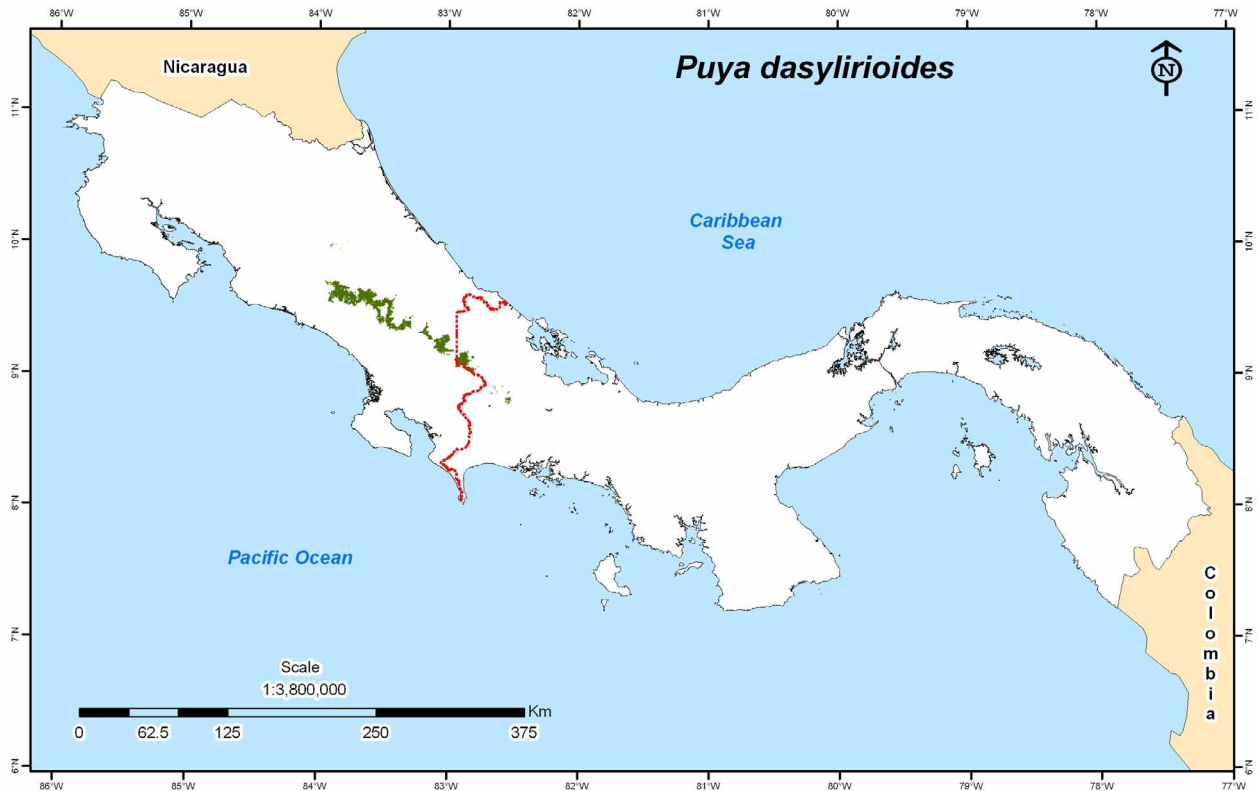
In Costa Rica and Panama the Extension of Occurrence was calculated to be 60446 km², the Area of Occupancy 39130 km² and loss of Extension of Occurrence 35%. Using the above data and IUCN (2001, version 3.1) criteria, *Psychotria graciliflora* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Puya dasylirioides Standl. (Bromeliaceae)

Terrestrial herbs, flowers bisexual, harvested and cultivated as an ornamental, Endemic to Costa Rica (Talamanca mountains). Known from 21 herbarium collections. Elevational range for Costa Rica and Panama 2400–3050 m, and the proportion of the regional Extension of Occurrence in protected areas: 90%.

- Global threat category: **Endangered (EN) B1ab(iii)**

Fig. 151



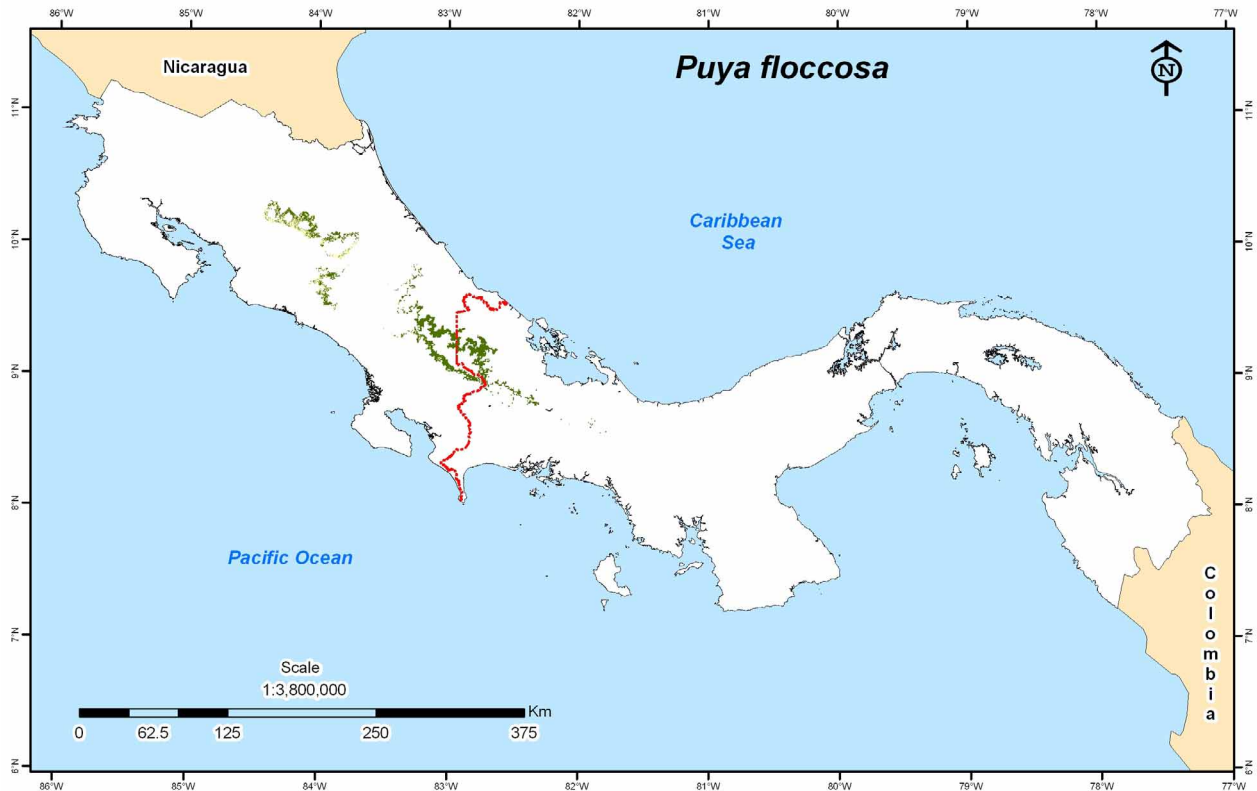
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1124 km², the Area of Occupancy 1045 km² and loss of Extension of Occurrence 7%. Using the above data and IUCN (2001, version 3.1) criteria, *Puya dasylirioides* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence, the narrow Elevation range observed, observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy, collected as an ornamental, confined to bogs and natural grassland. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite this the classification is unchanged.

Puya floccosa (Linden) E.Morren ex Mez (Bromeliaceae)

Terrestrial herbs, flowers bisexual. Global distribution: Costa Rica, Colombia and Venezuela. Known in Costa Rica and Panama from 14 herbarium collections. Elevational range for Costa Rica and Panama 1500–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 73%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 152



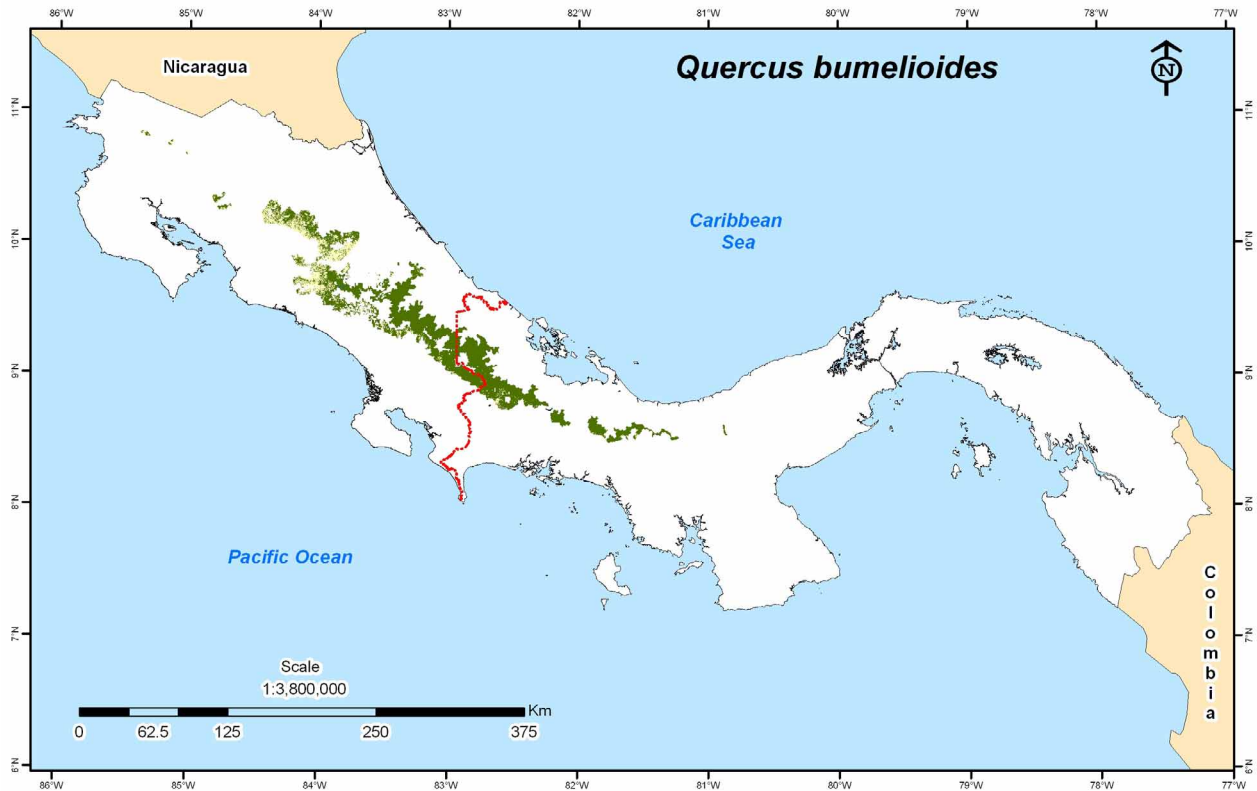
In Costa Rica and Panama the Extension of Occurrence was calculated to be 2044 km², the Area of Occupancy 1627 km² and loss of Extension of Occurrence 20%. Using the above data and IUCN (2001, version 3.1) criteria, *Puya floccosa* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence, the narrow Elevation range observed, observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy, confined to bogs and natural grassland. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy is located in a protected area. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

Quercus bumelioides Liebm. (Fagaceae)

Terrestrial trees, flowers unisexual, monoecious, used as timber. Global distribution: Mexico to Guatemala, Costa Rica to Panama. Known in Costa Rica and Panama from 118 herbarium collections. Elevational range for Costa Rica and Panama (600–)1400–2900 m, and the proportion of the regional Extension of Occurrence in protected areas: 65%.

- Regional threat category: **Near Threatened (NT)**

Fig. 153



In Costa Rica and Panama the Extension of Occurrence was calculated to be 7137 km², the Area of Occupancy 5758 km² and loss of Extension of Occurrence 19%. Using the above data and IUCN (2001, version 3.1) criteria, *Quercus bumelioides* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

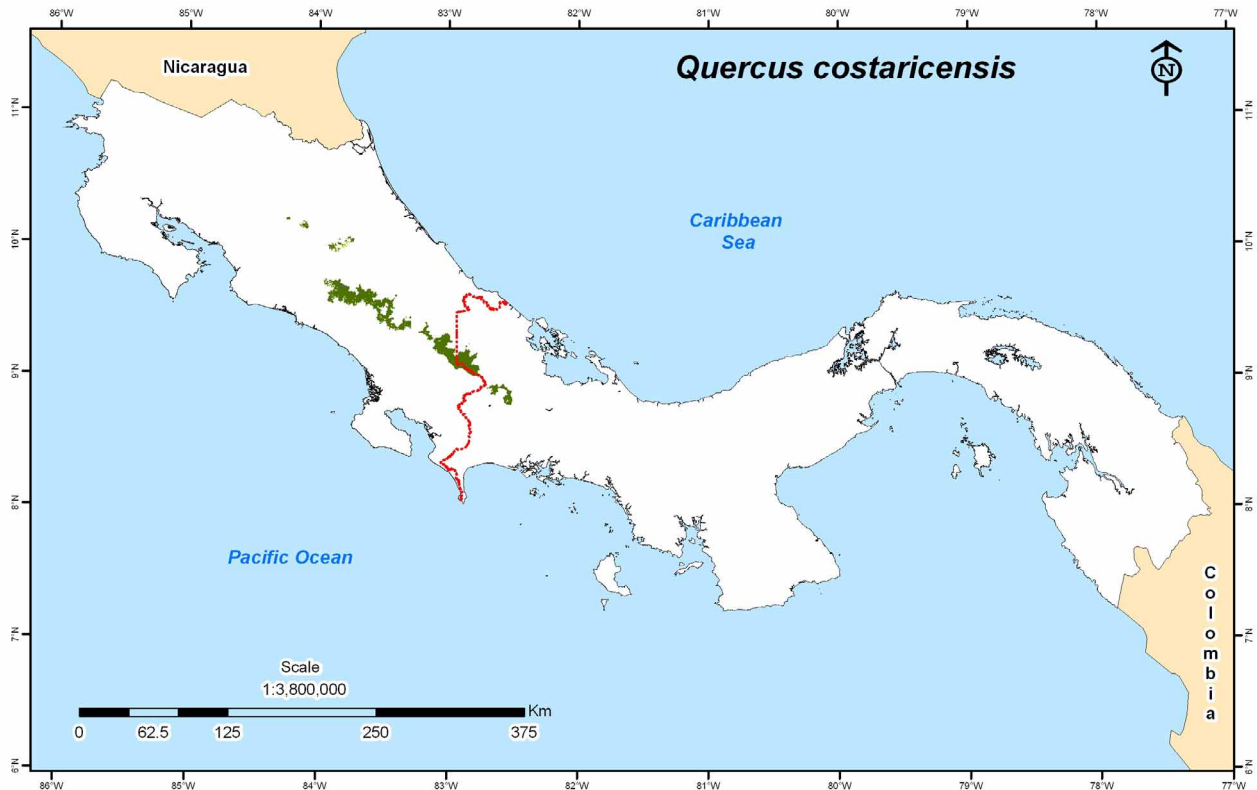
Quercus costaricensis Liebm. (Fagaceae)

Local names: *Roble*, *Roble negro*, *Roble encino*, *Encino blanco*, *Encino*, *Pakchi*, *Kos*.

Terrestrial trees, flowers unisexual, monoecious, used as timber. Endemic to Costa Rica to Panama. Known from 63 herbarium collections. Elevational range for Costa Rica and Panama (1800–)2300–3600 m, and the proportion of the regional Extension of Occurrence in protected areas: 90%.

- Regional threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 154



In Costa Rica and Panama the Extension of Occurrence was calculated to be 1724 km², the Area of Occupancy 1618 km² and loss of Extension of Occurrence 6%. Using the above data and IUCN (2001, version 3.1) criteria, *Quercus costaricensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, the species has a relatively broad elevational distribution, a high proportion of its Area of Occupancy located in a protected area, low levels of habitat loss and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

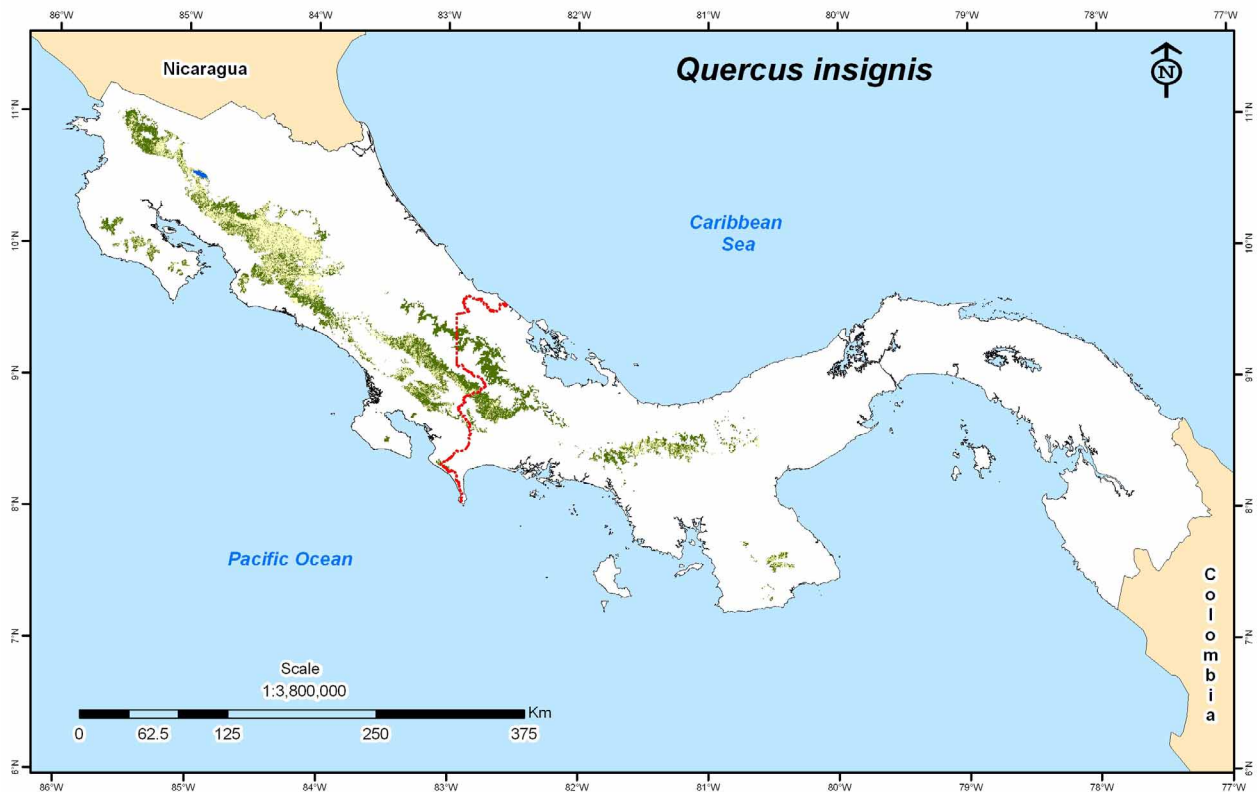
Quercus insignis M.Martens & Galeotti (Fagaceae)

Local names: *Roble, Encino.*

Terrestrial trees, flowers unisexual, monoecious, used as timber. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 32 herbarium collections. Elevational range for Costa Rica and Panama 450–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 21%.

- Regional threat category: **Near Threatened (NT)**

Fig. 155



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11279 km², the Area of Occupancy 6278 km² and loss of Extension of Occurrence 44%. Using the above data and IUCN (2001, version 3.1) criteria, *Quercus insignis* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that the species is extracted for timber by local communities, the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

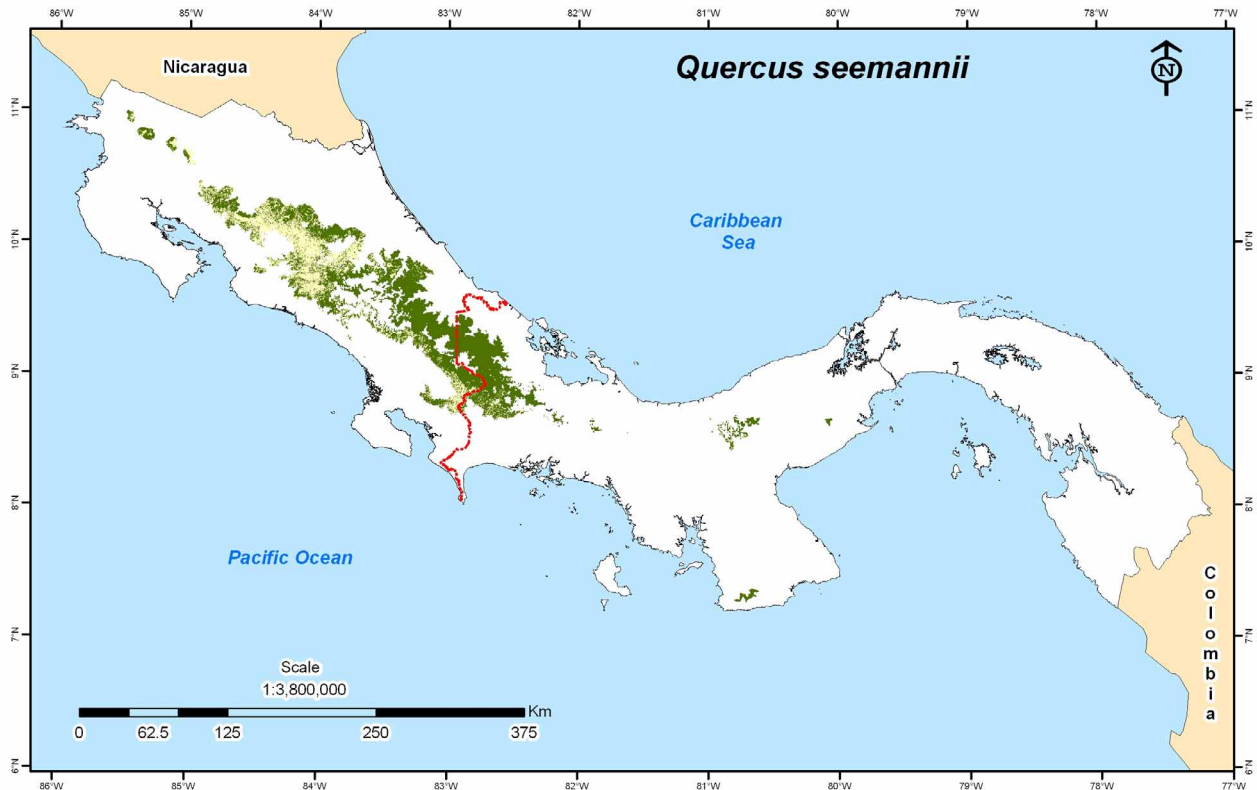
Quercus salicifolia Née (Fagaceae)

Local names: *Encino, Roble.*

Terrestrial trees, flowers unisexual, monoecious. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 77 herbarium collections. Elevational range 900–2300(–2600) m, and the proportion of the regional Extension of Occurrence in protected areas: 51%.

- Regional threat category: **Near Threatened (NT)**

Fig. 156



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12603 km², the Area of Occupancy 8750 km² and loss of Extension of Occurrence 31%. Using the above data and IUCN (2001, version 3.1) criteria, *Quercus salicifolia* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the fact that the species is extracted for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

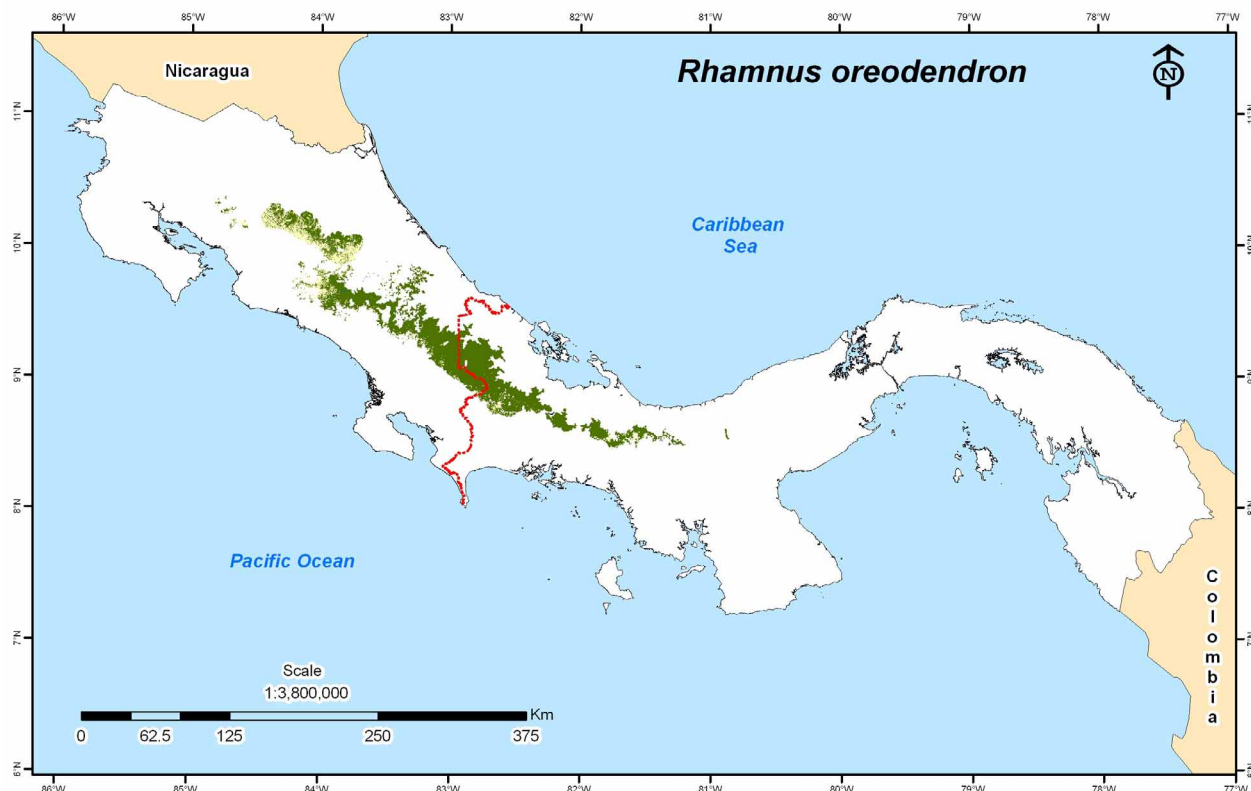
Rhamnus oreodendron L.O.Williams (Rhamnaceae)

Local name: *Duraznillo*.

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 89 herbarium collections. Elevational range for Costa Rica and Panama 1200–3300 m, and the proportion of the regional Extension of Occurrence in protected areas: 65%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 157



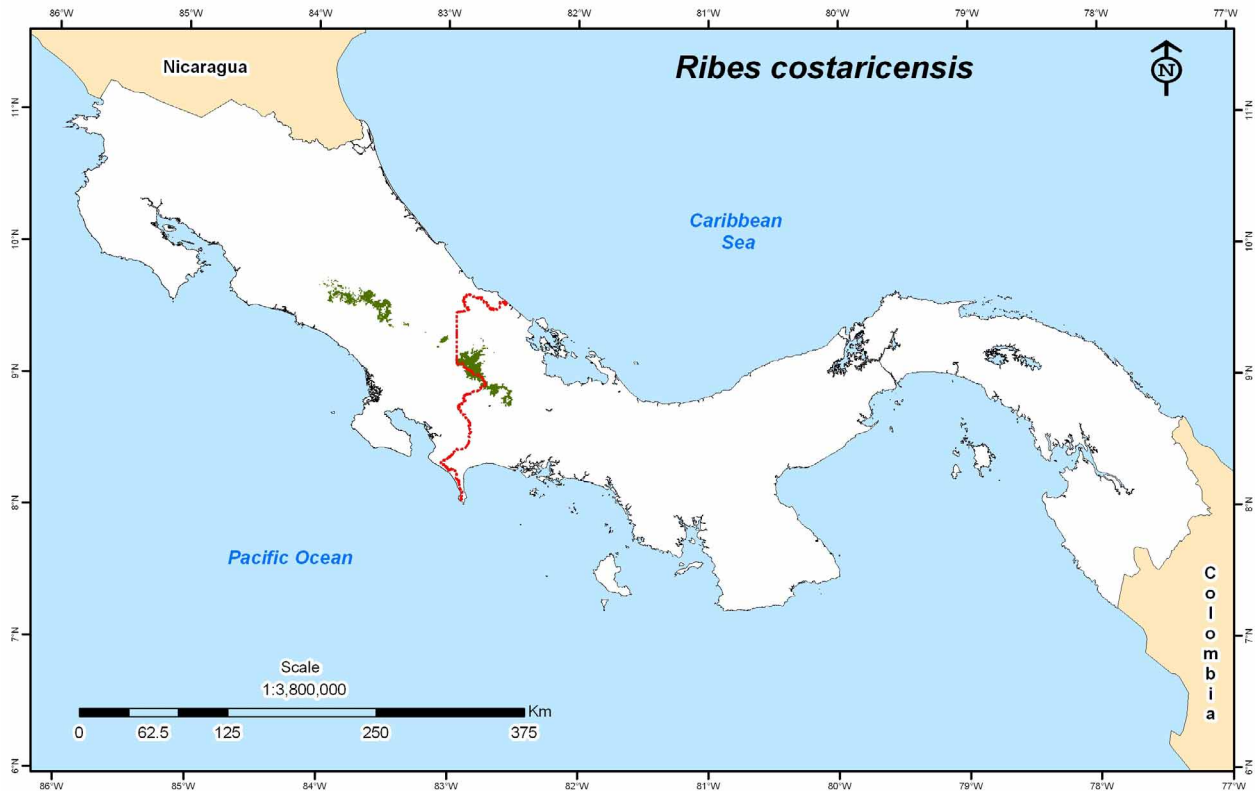
In Costa Rica and Panama the Extension of Occurrence was calculated to be 8223 km², the Area of Occupancy 6710 km² and loss of Extension of Occurrence 18%. Using the above data and IUCN (2001, version 3.1) criteria, *Rhamnus oreodendron* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

Ribes costaricensis Weigend (Grossulariaceae)

Terrestrial shrubs, flowers unisexual, dioecious. Endemic to Costa Rica and Panama. Known from 27 herbarium collections. Elevational range 2700–3500 m, and the proportion of the regional Extension of Occurrence in protected areas: 96%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 158



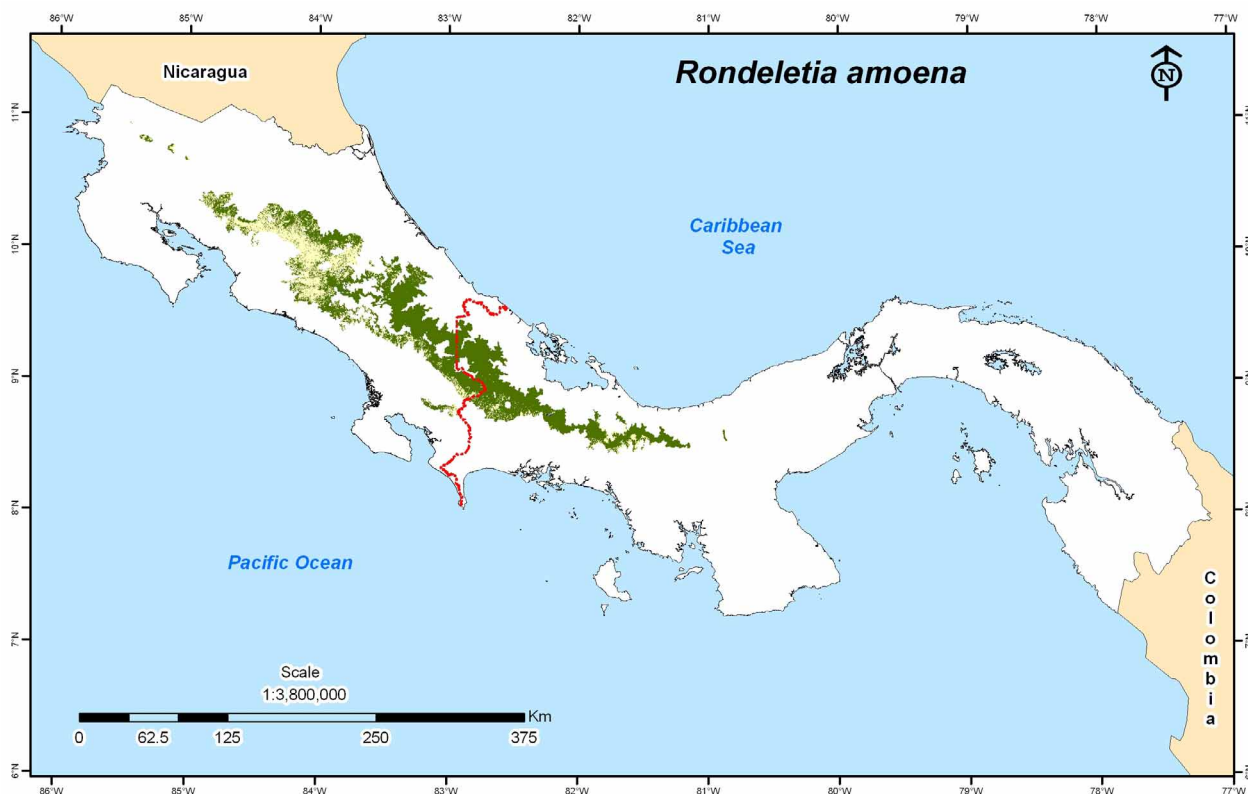
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1105 km², the Area of Occupancy 1087 km² and loss of Extension of Occurrence 2%. Using the above data and IUCN (2001, version 3.1) criteria, *Ribes costaricensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and countered by the low levels of habitat loss, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy.

Rogiera amoena Planch. (Rubiaceae)

Local name(s): Quina, Teresa. Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 61 herbarium collections. Elevational range for Costa Rica and Panama 1000–2000(–2500) m, and the proportion of the regional Extension of Occurrence in protected areas: 51%.

- Regional threat category: **Near Threatened (NT)**

Fig. 159



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12832 km², the Area of Occupancy 9436 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Rogiera amoena* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy located in a protected area and observations by the authors suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

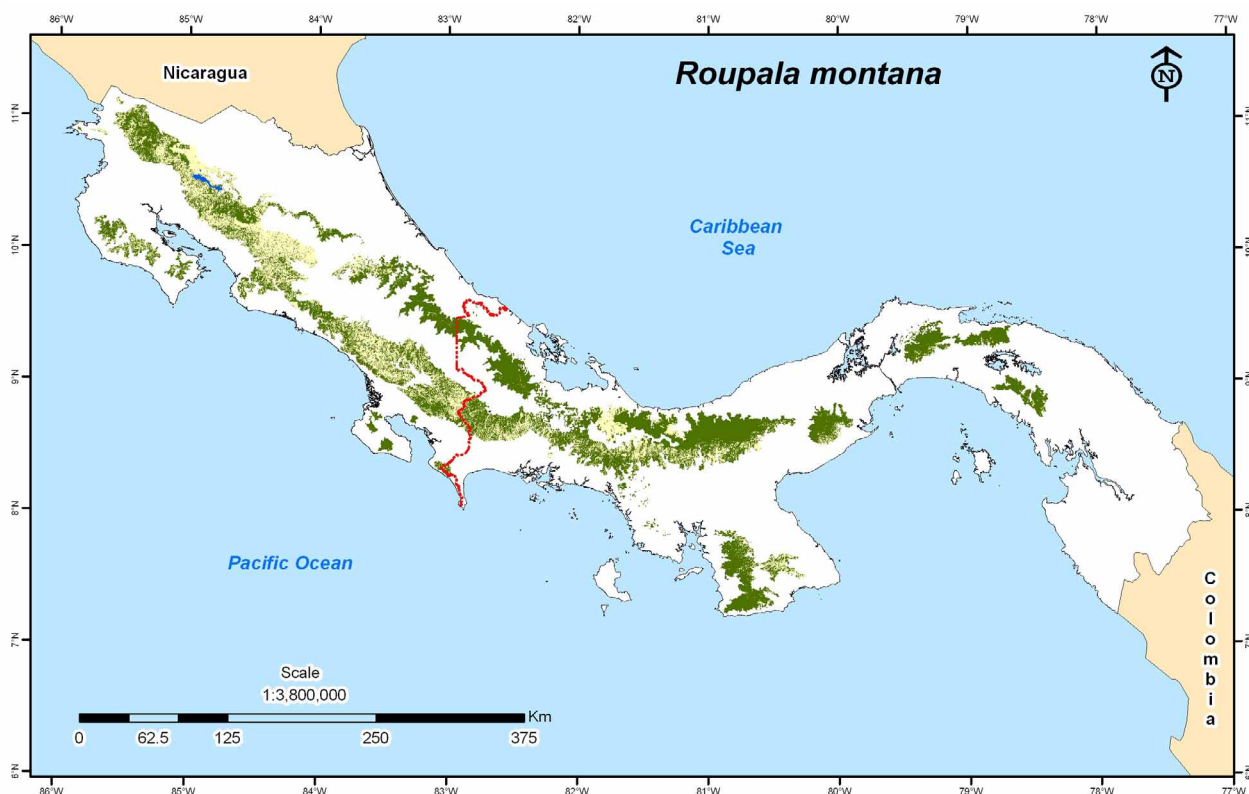
Roupala montana Aubl.(Proteaceae)

Local names: *Danto*, *Danto hediondo*, *Danto ratón*, *Ratón*, *Danto amarillo*, *Danto carne*, *Zorrillo*, *Kagdži+krá* (*Brunka*), *Kirba+gró* (*Térraba*).

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Bolivia and Brazil. Known in Costa Rica and Panama from 87 herbarium collections. Elevational range for Costa Rica and Panama 300–1000 m, and the proportion of the regional Extension of Occurrence in protected areas: 23%.

- Regional threat category: **Near Threatened (NT)**

Fig. 160



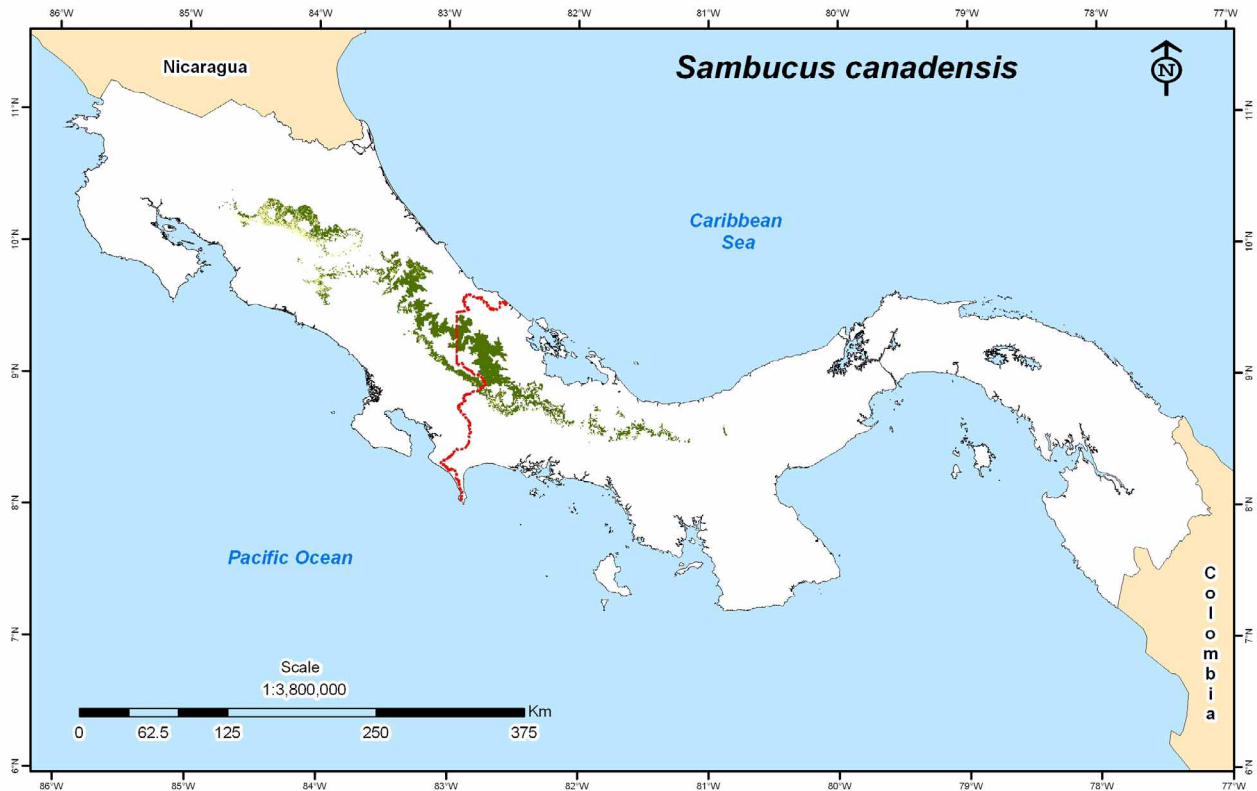
In Costa Rica and Panama the Extension of Occurrence was calculated to be 28156 km², the Area of Occupancy 18566 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Roupala montana* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Sambucus nigra L. (Adoxaceae)

Terrestrial shrubs or trees, flowers bisexual, harvested and cultivated as an ornamental. Global distribution: Canada to Argentina. Known in Costa Rica and Panama from 18 herbarium collections. Elevational range for Costa Rica and Panama 1100–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 62%.

- Regional threat category: **Near Threatened (NT)**

Fig. 161



In Costa Rica and Panama the Extension of Occurrence was calculated to be 5495 km², the Area of Occupancy 4537 km² and loss of Extension of Occurrence 17%. Using the above data and IUCN (2001, version 3.1) criteria, *Sambucus nigra* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy is located in a protected area. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

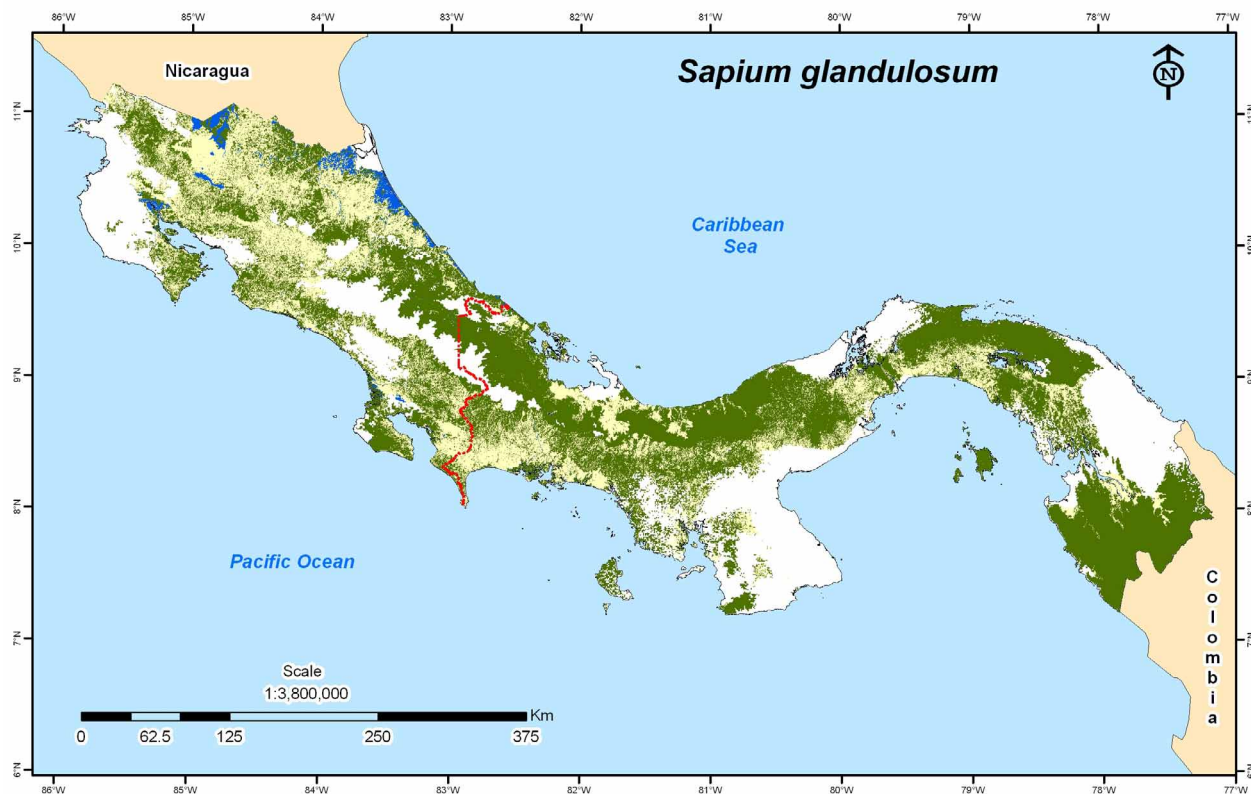
Sapium glandulosum (L.) Morong (Euphorbiaceae)

Local names: *Yoz*, *Palo de Leche*.

Terrestrial trees, flowers unisexual, monoecious. Global distribution: Mexico to Bolivia, the Antilles. Known in Costa Rica and Panama from 148 herbarium collections. Elevational range for Costa Rica and Panama 50–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Least Concern (LC)**

Fig. 162



In Costa Rica and Panama the Extension of Occurrence was calculated to be 87334 km², the Area of Occupancy 64424 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Sapium glandulosum* is classified as Least Concern (LC). This classification is supported by the authors in the field suggest that this species is abundant in its Area of Occupancy and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Countering this, however, is the fact that a low proportion of its Area of Occupancy located in a protected area. . Despite the above reasons the classification was not changed.

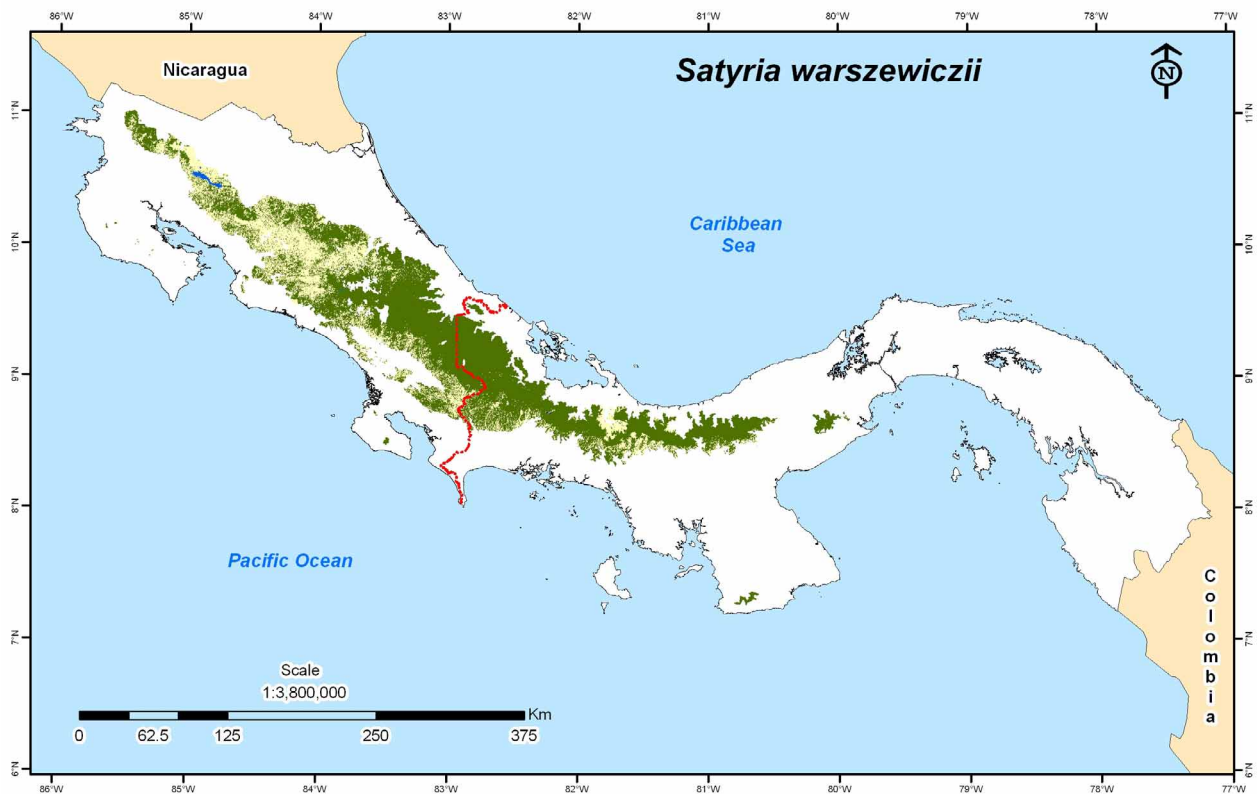
Satyria warszewiczii Klotzsch (Ericaceae)

Local names: Arrayán, Colmillos, Coral, Coralillo, Matapalo de uva, Palo de miel, Uva de montaña, Palo de uva, Quiquicirrí.

Facultatively epiphytic shrubs, flowers bisexual, used as a foodstuff. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 270 herbarium collections. Elevational range for Costa Rica and Panama (200–)500–2700(–3000) m, and the proportion of the regional Extension of Occurrence in protected areas: 40%.

- Regional threat category: **Near Threatened (NT)**

Fig. 163



In Costa Rica and Panama the Extension of Occurrence was calculated to be 27410 km², the Area of Occupancy 19087 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Satyria warszewiczii* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

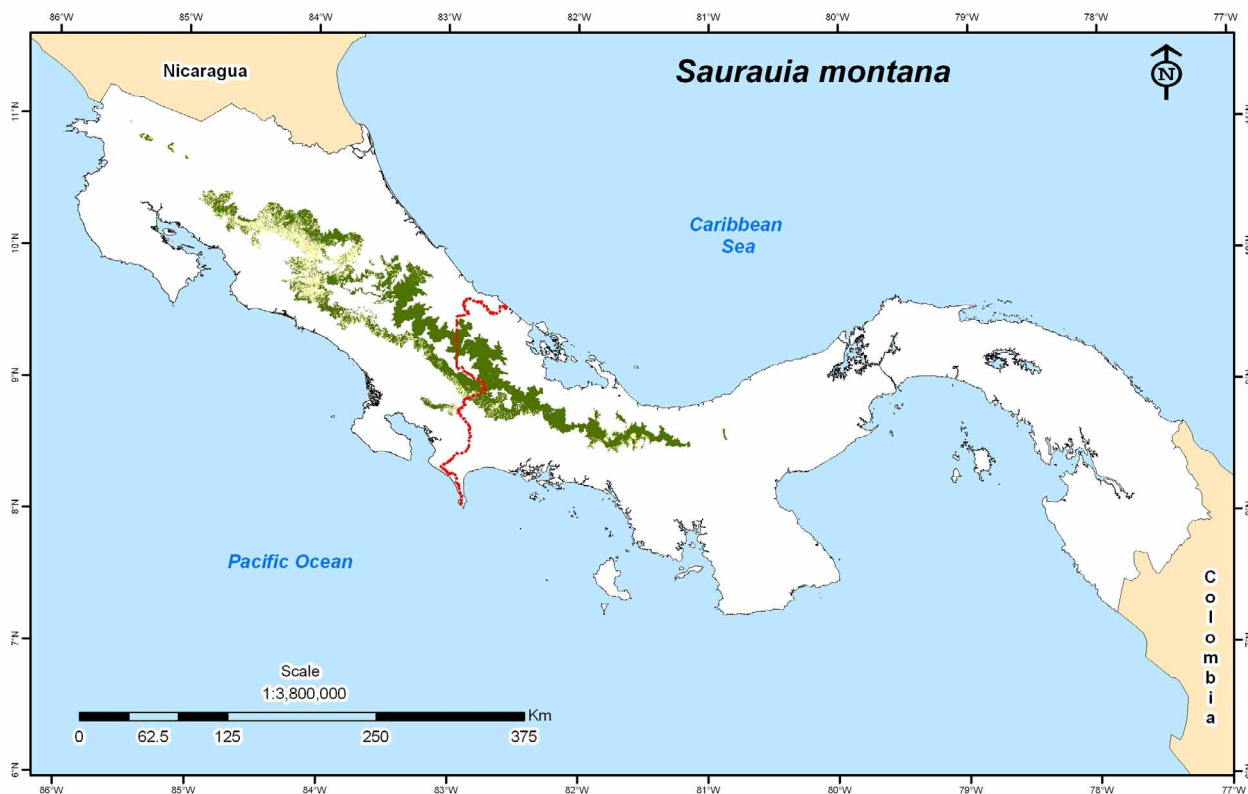
Saurauia montana Seem. (Actinidiaceae)

Local names: *Moco, Moquillo*.

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Honduras to Panama. Known in Costa Rica and Panama from 129 herbarium collections. Elevational range for Costa Rica and Panama (600–)1100–2200 m, and the proportion of the regional Extension of Occurrence in protected areas: 48%.

- Regional threat category: **Near Threatened (NT)**

Fig. 164



In Costa Rica and Panama the Extension of Occurrence was calculated to be 11708 km², the Area of Occupancy 8498 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Saurauia montana* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

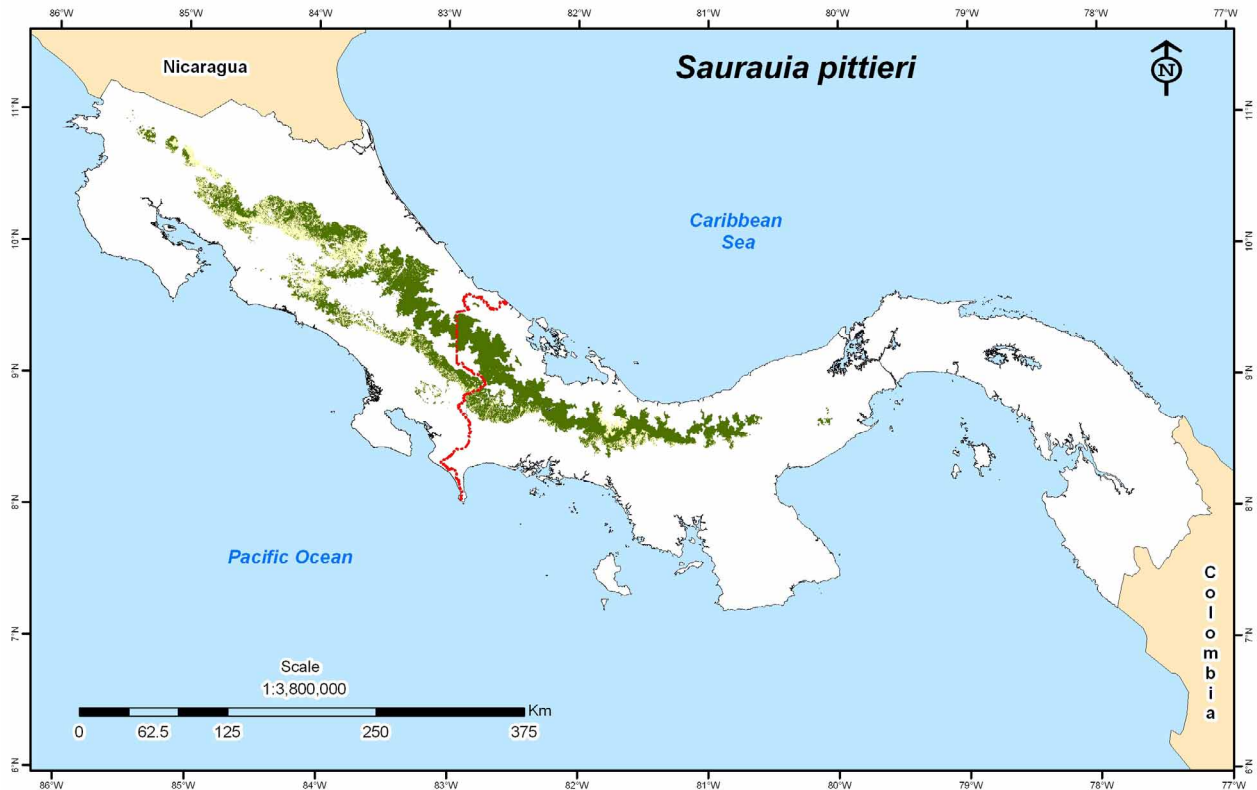
Saurauia pittieri Donn.Sm. (Actinidiaceae)

Local names: *Moco, Moquillo*.

Terrestrial shrubs or trees, flowers unisexual, dioecious. Endemic to Costa Rica and Panama. Known from 52 herbarium collections. Elevational range 700–1900 m, and the proportion of the regional Extension of Occurrence in protected areas: 44%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 165



In Costa Rica and Panama the Extension of Occurrence was calculated to be 15766 km², the Area of Occupancy 11571 km² and loss of Extension of Occurrence 27%. Using the above data and IUCN (2001, version 3.1) criteria, *Saurauia pittieri* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, are observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy and the inclusion of secondary/successional vegetation as a habitat which implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

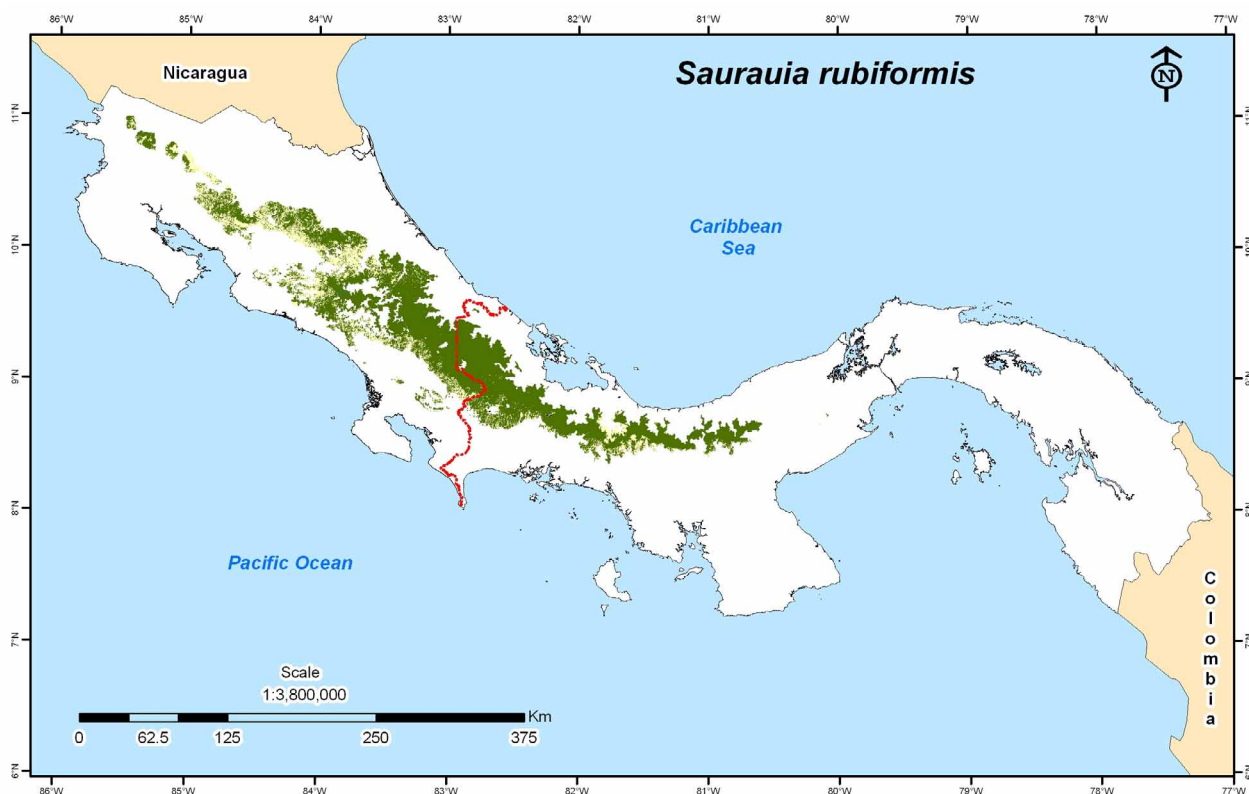
Saurauia rubiformis Vatke (Actinidiaceae)

Local names: *Moco, Moquillo*.

Terrestrial trees, flowers unisexual, dioecious. Global distribution: Guatemala, Costa Rica and Panama. Known in Costa Rica and Panama from 73 herbarium collections. Elevational range for Costa Rica and Panama (500–)700–2050(–3000) m, and the proportion of the regional Extension of Occurrence in protected areas: 49%.

- Regional threat category: **Near Threatened (NT)**

Fig. 166



In Costa Rica and Panama the Extension of Occurrence was calculated to be 18421 km², the Area of Occupancy 13994 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Saurauia rubiformis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

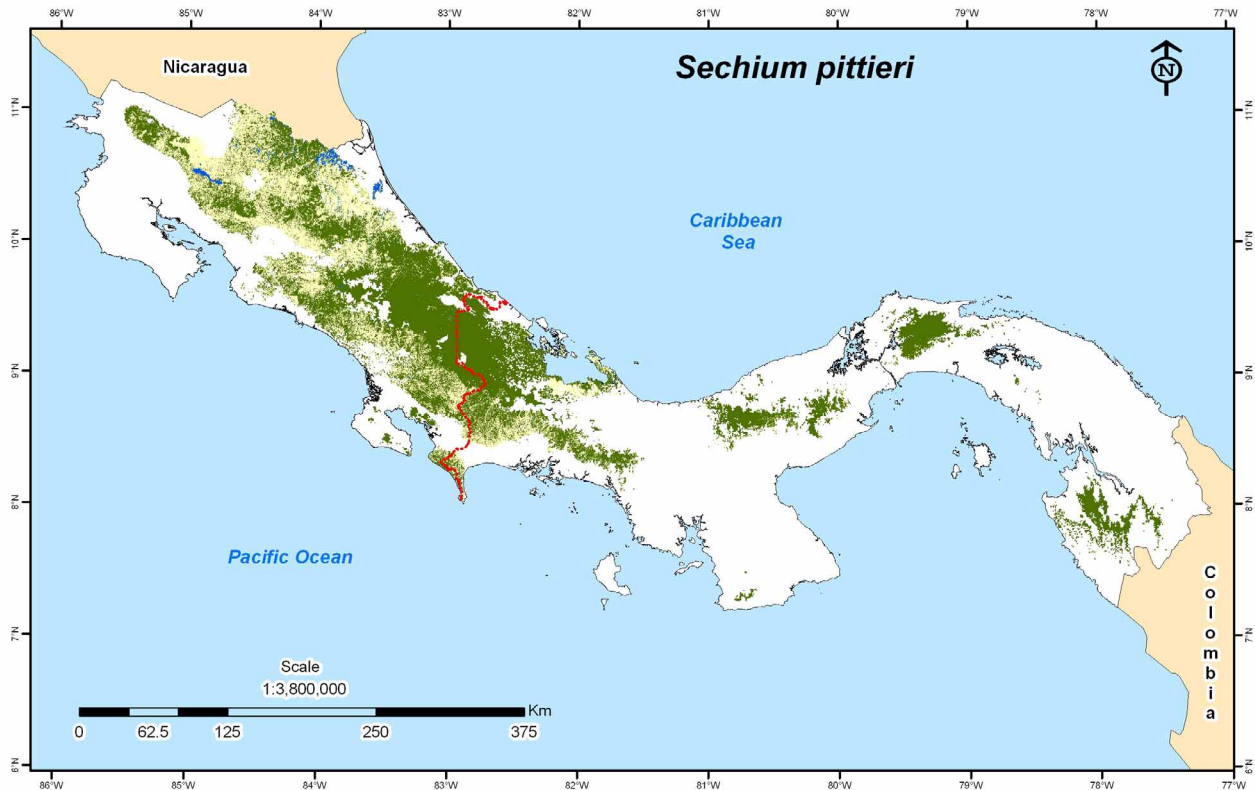
Sechium pittieri (Cogn.) C.Jeffrey (Cucurbitaceae)

Local names: Tacá, Tacaco cimarrón, Trijonio, Tacaco de monte, Tacaquillo, Pepinillo de monte.

Terrestrial twiners, flowers unisexual, monoecious. Global distribution: Nicaragua to Panama. Known in Costa Rica and Panama from 118 herbarium collections. Elevational range for Costa Rica and Panama 0–2400(–2900) m, and the proportion of the regional Extension of Occurrence in protected areas: 34%.

- Regional threat category: **Near Threatened (NT)**

Fig. 167



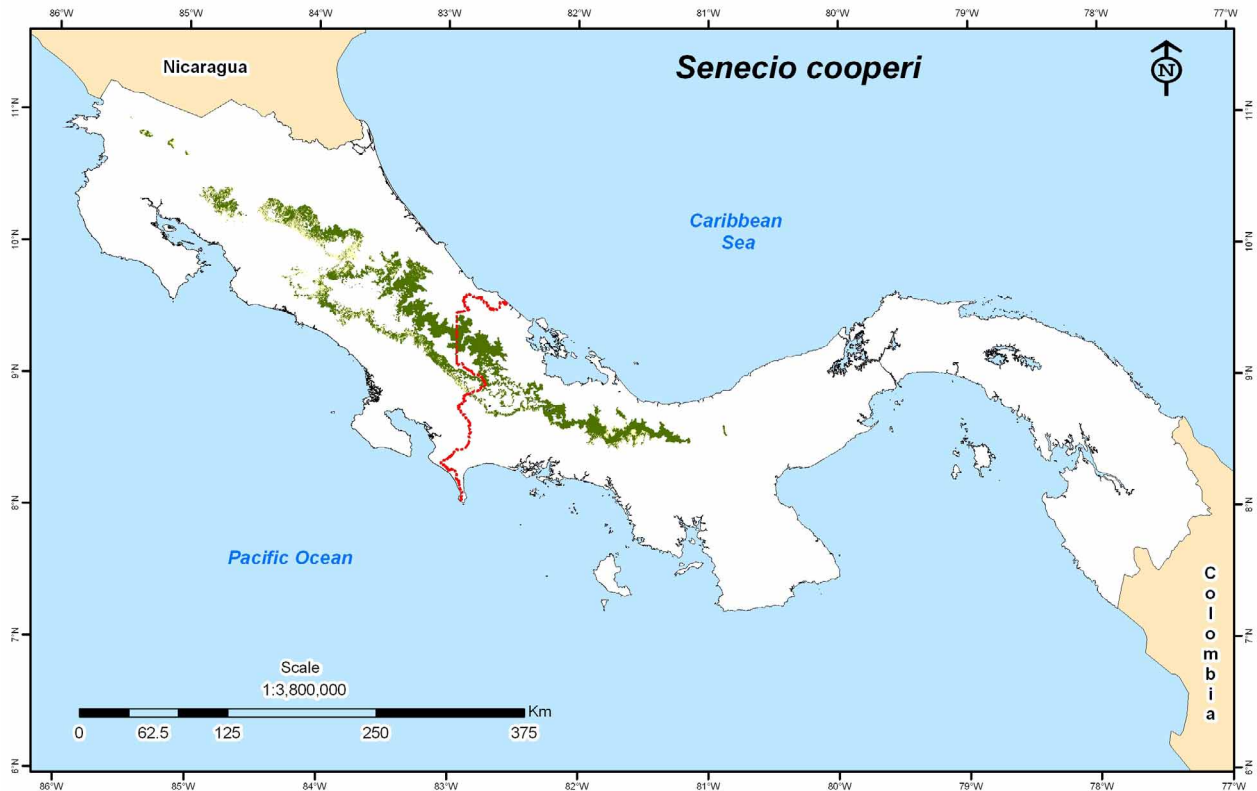
In Costa Rica and Panama the Extension of Occurrence was calculated to be 40609 km², the Area of Occupancy 26076 km² and loss of Extension of Occurrence 36%. Using the above data and IUCN (2001, version 3.1) criteria, *Sechium pittieri* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Senecio cooperi Greenm. (Asteraceae)

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica and Panama. Known from 20 herbarium collections. Elevational range 1100–2100 m, and the proportion of the regional Extension of Occurrence in protected areas: 53%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 168



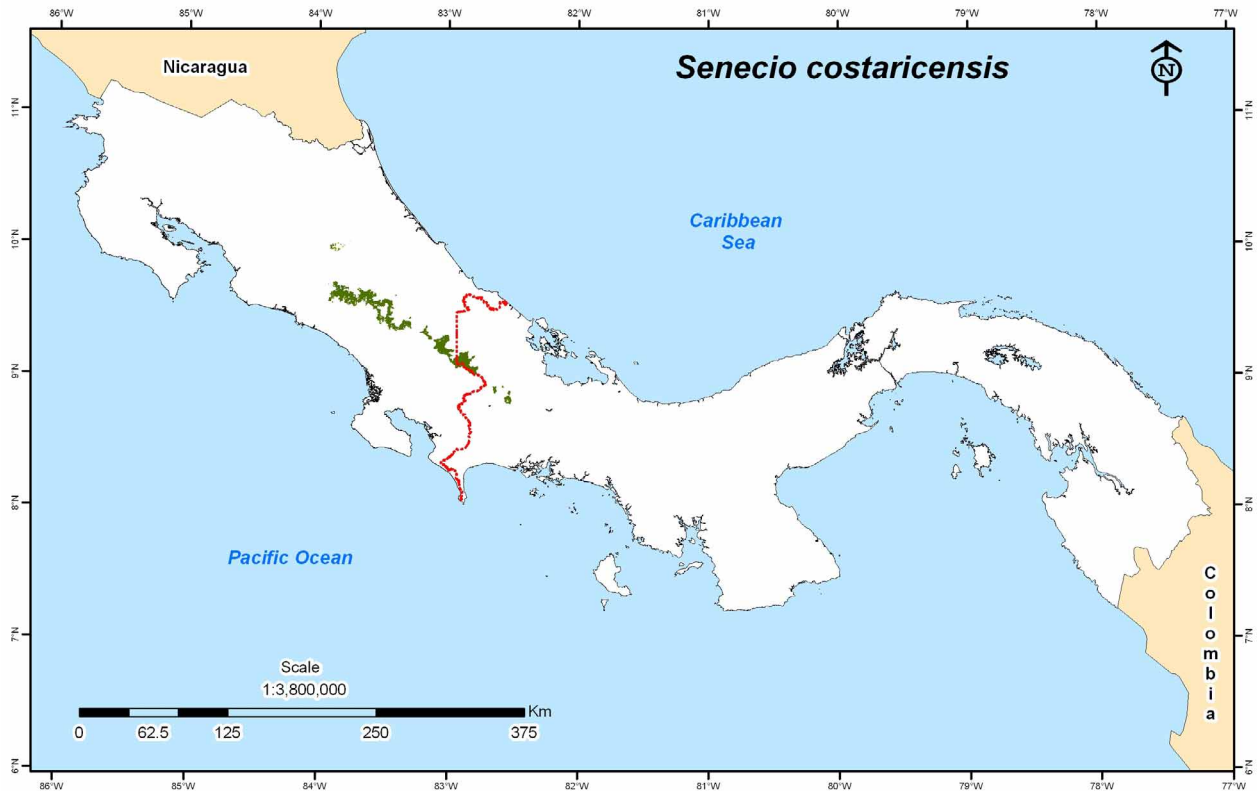
In Costa Rica and Panama the Extension of Occurrence was calculated to be 8378 km², the Area of Occupancy 6600 km² and loss of Extension of Occurrence 21%. Using the above data and IUCN (2001, version 3.1) criteria, *Senecio cooperi* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area and the relatively broad elevational distribution. Despite the above the classification was not changed.

Senecio costaricensis R.M.King (Asteraceae)

Terrestrial herbs or shrubs, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 16 herbarium collections. Elevational range 2700–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 91%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 169



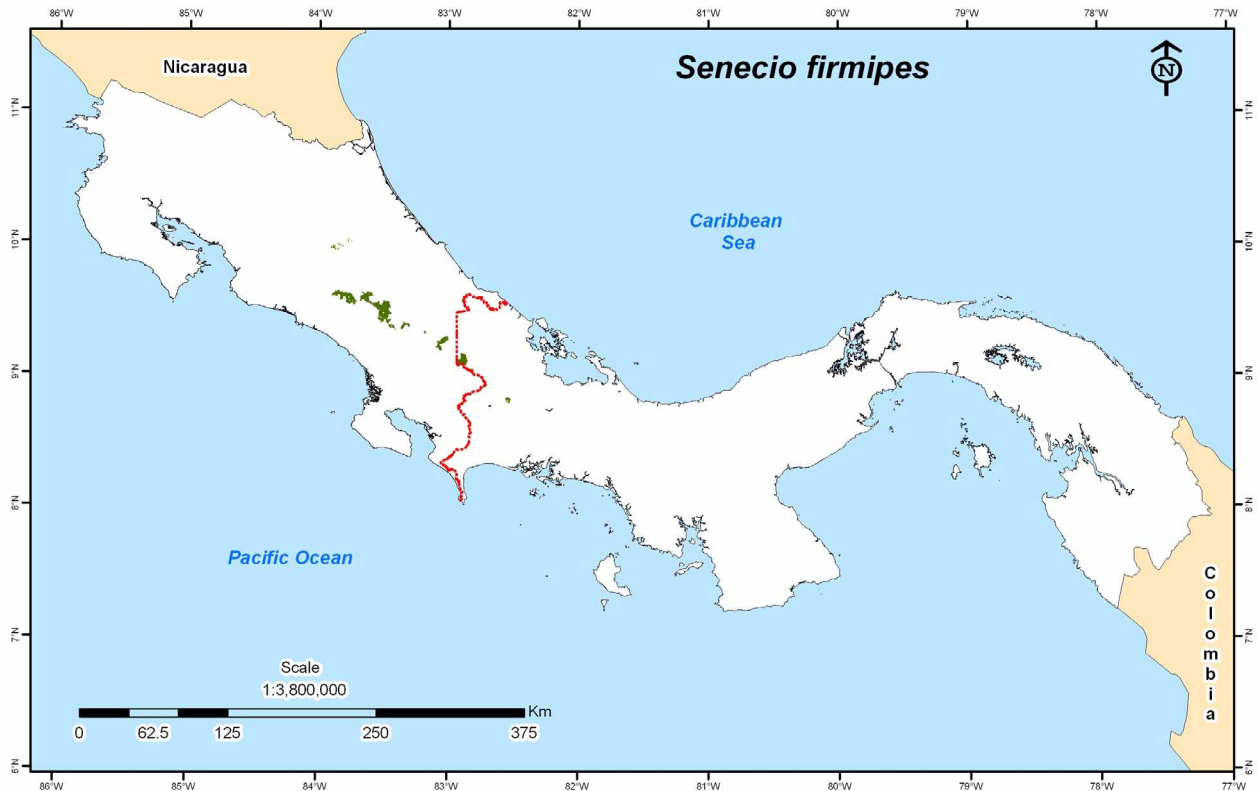
In Costa Rica and Panama the Extension of Occurrence was calculated to be 1162 km², the Area of Occupancy 1123 km² and loss of Extension of Occurrence 3%. Using the above data and IUCN (2001, version 3.1) criteria, *Senecio costaricensis* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

Senecio firmipes Greenm. (Asteraceae)

Terrestrial shrubs, flowers bisexual. Endemic to Costa Rica (Talamanca mountains). Known from 40 herbarium collections. Elevational range 2800–3600 m, and the proportion of the regional Extension of Occurrence in protected areas: 94%.

- Global threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 170



In Costa Rica and Panama the Extension of Occurrence was calculated to be 553 km², the Area of Occupancy 532 km² and loss of Extension of Occurrence 4%. Using the above data and IUCN (2001, version 3.1) criteria, *Senecio firmipes* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and countered by the low levels of habitat loss, the high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

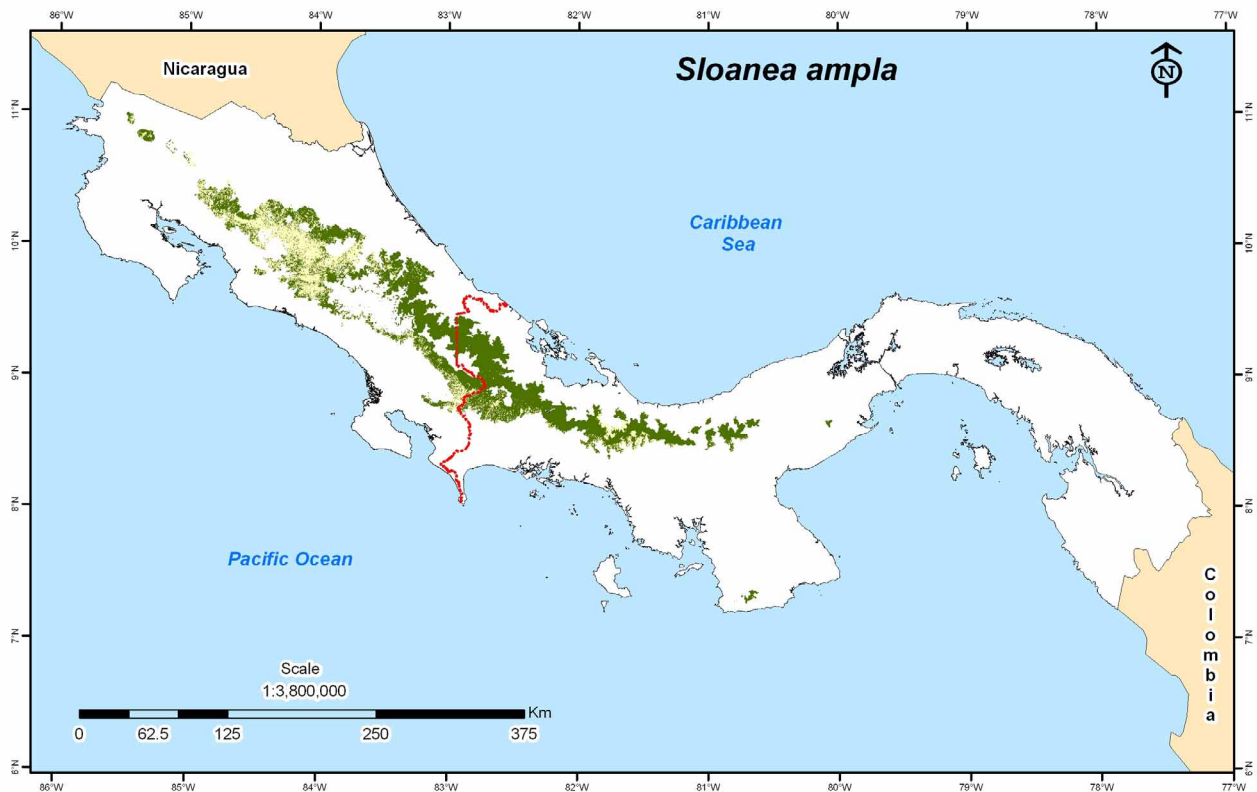
Sloanea ampla I.M.Johnst. (Elaeocarpaceae)

Local name: *Peine de mico*.

Terrestrial trees, flowers bisexual. Global distribution: Mexico (Chiapas.), Guatemala, Costa Rica and Panama. Known in Costa Rica and Panama from 37 herbarium collections. Elevational range for Costa Rica and Panama 1000–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 43%.

- Regional threat category: **Near Threatened (NT) B1ab(i,iii)**

Fig. 171



In Costa Rica and Panama the Extension of Occurrence was calculated to be 15106 km², the Area of Occupancy 10658 km² and loss of Extension of Occurrence 29%. Using the above data and IUCN (2001, version 3.1) criteria, *Sloanea ampla* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

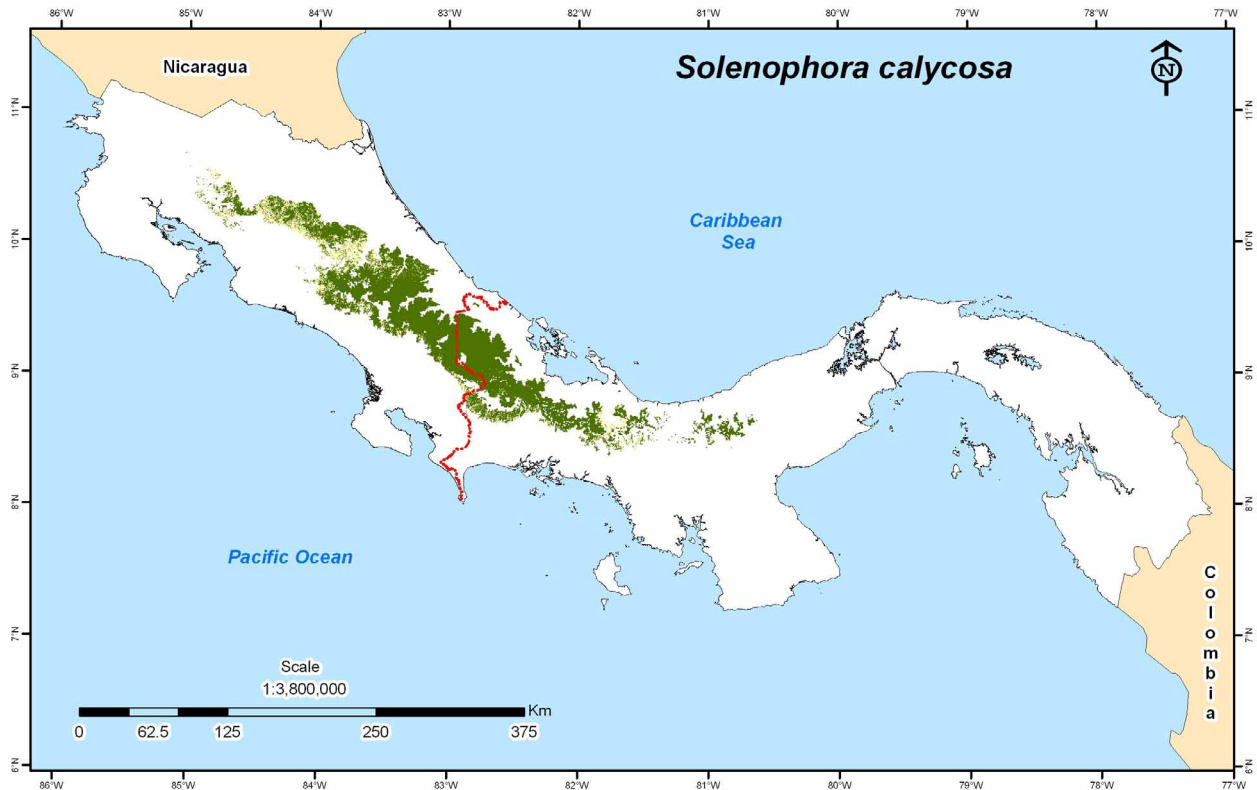
Solenophora calycosa Donn.Sm. (Gesneriaceae)

Local name: *Princesa*.

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 78 herbarium collections. Elevational range 1100–2700 m, and the proportion of the regional Extension of Occurrence in protected areas: 59%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 172



In Costa Rica and Panama the Extension of Occurrence was calculated to be 13817 km², the Area of Occupancy 11216 km² and loss of Extension of Occurrence 19%. Using the above data and IUCN (2001, version 3.1) criteria, *Solenophora calycosa* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, the species has a relatively broad elevational distribution, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

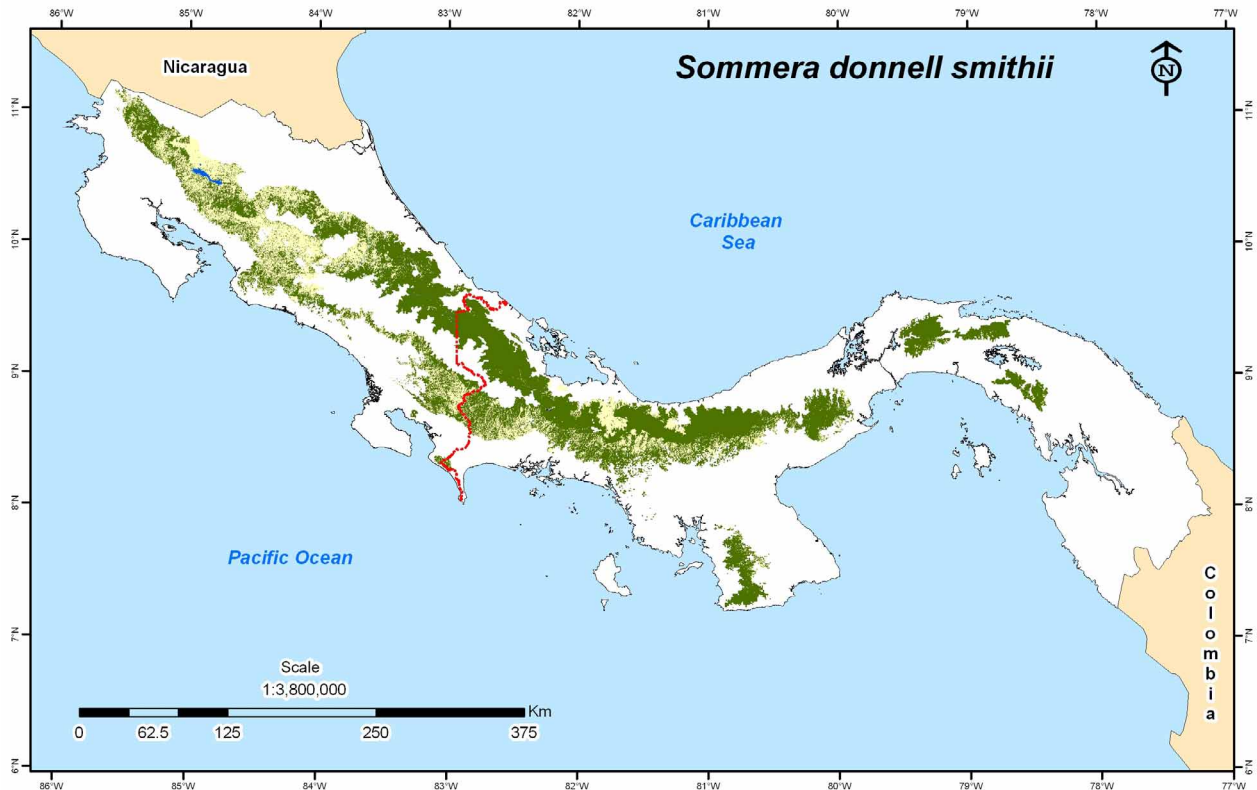
Sommeria donnell-smithii Standl. (Rubiaceae)

Local name: *Mosqueta*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Nicaragua to Colombia. Known in Costa Rica and Panama from 137 herbarium collections. Elevational range, 200–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 27%.

- Regional threat category: **Near Threatened (NT)**

Fig. 173



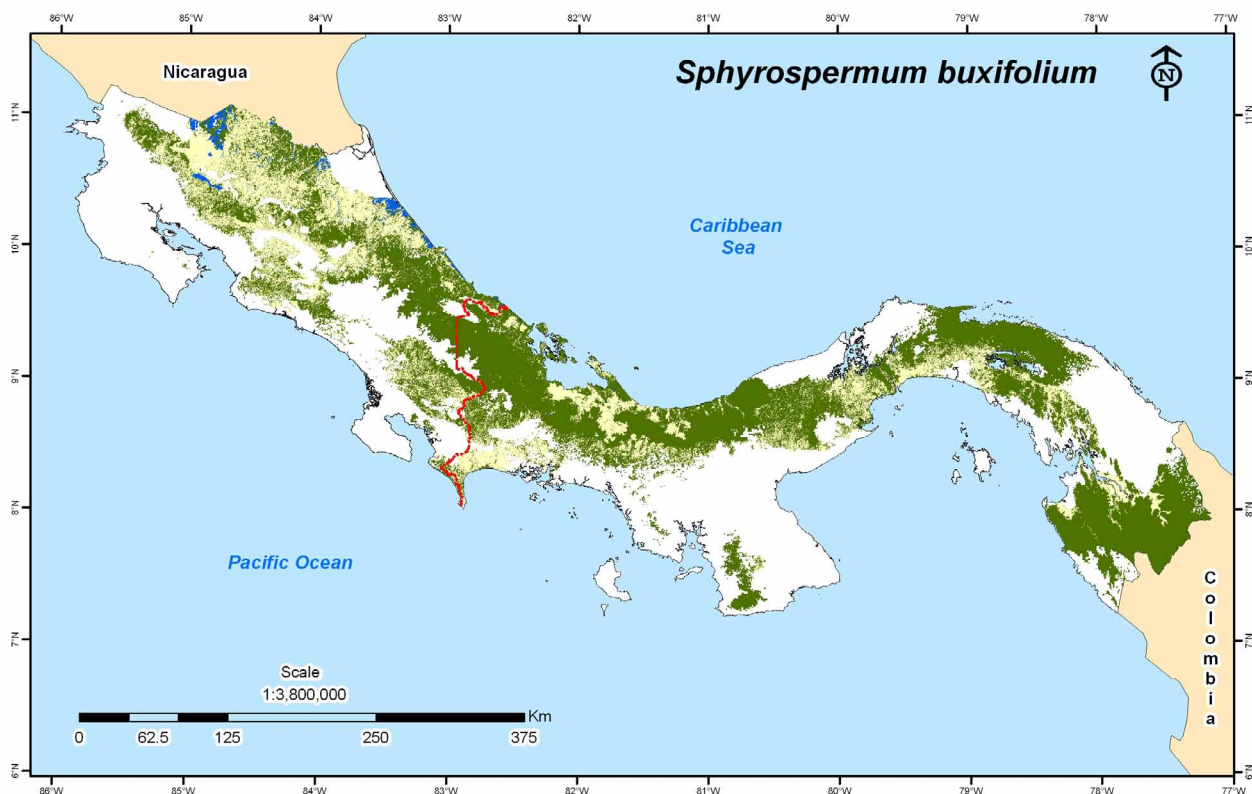
In Costa Rica and Panama the Extension of Occurrence was calculated to be 34569 km², the Area of Occupancy 23616 km² and loss of Extension of Occurrence 32%. Using the above data and IUCN (2001, version 3.1) criteria, *Sommeria donnell-smithii* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Sphyrospermum buxifolium Poepp. & Endl.(Ericaceae)

Facultatively epiphytic shrubs, flowers bisexual. Global distribution: Nicaragua to Bolivia. Known in Costa Rica and Panama from 142 herbarium collections. Elevational range 0–1900(–2350) m, and the proportion of the regional Extension of Occurrence in protected areas: 29%.

- Regional threat category: **Near Threatened (NT)**

Fig. 174



In Costa Rica and Panama the Extension of Occurrence was calculated to be 65802 km², the Area of Occupancy 43328 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Sphyrospermum buxifolium* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

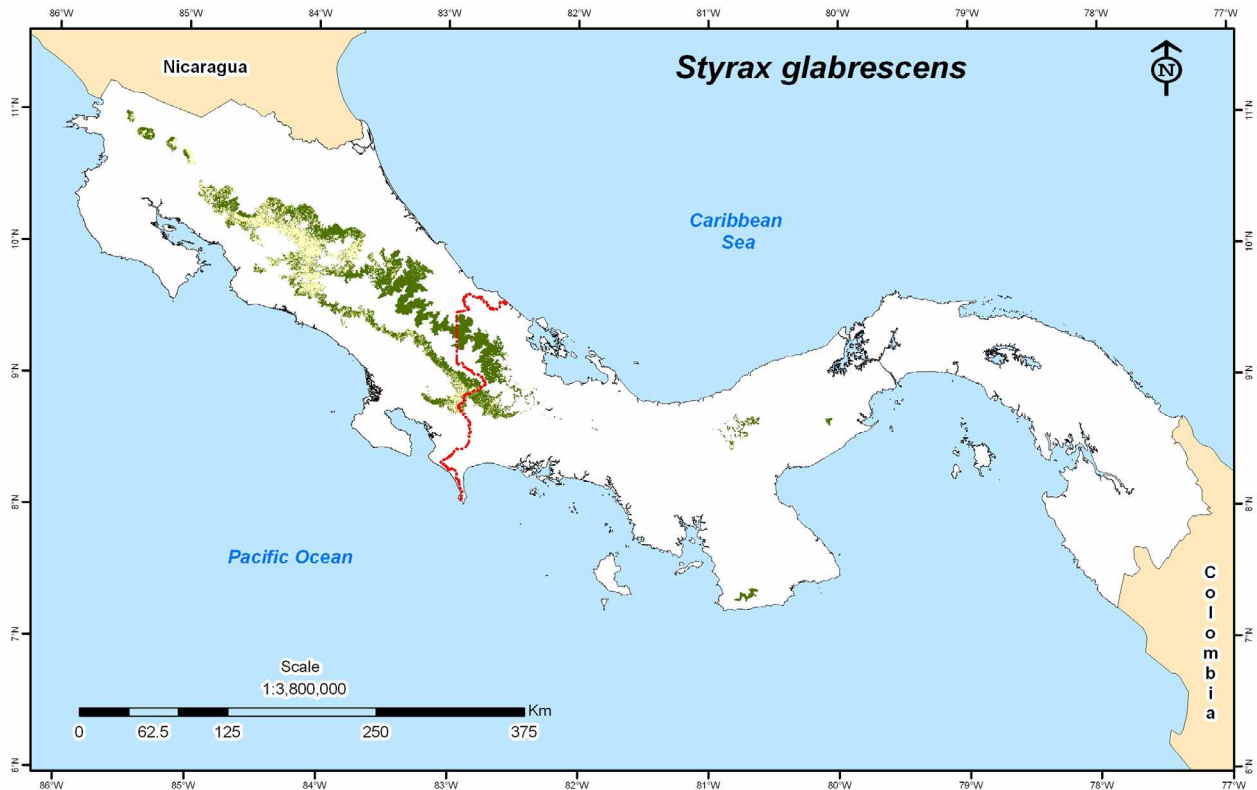
Styrax glabrescens Benth. (Styracaceae)

Local names: *Botoncillo*, *Violín*, *Quiquicirrí*, *Quitirrisí*, *Bracino*.

Terrestrial trees, flowers bisexual. Global distribution: Mexico to Costa Rica. Known in Costa Rica and Panama from 66 herbarium collections. Elevational range for Costa Rica and Panama 900–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 46%.

- Regional threat category: **Near Threatened (NT)**

Fig. 175



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9861 km², the Area of Occupancy 6520 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Styrax glabrescens* is classified as Vulnerable (VU) in relation to criteria A2c and B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

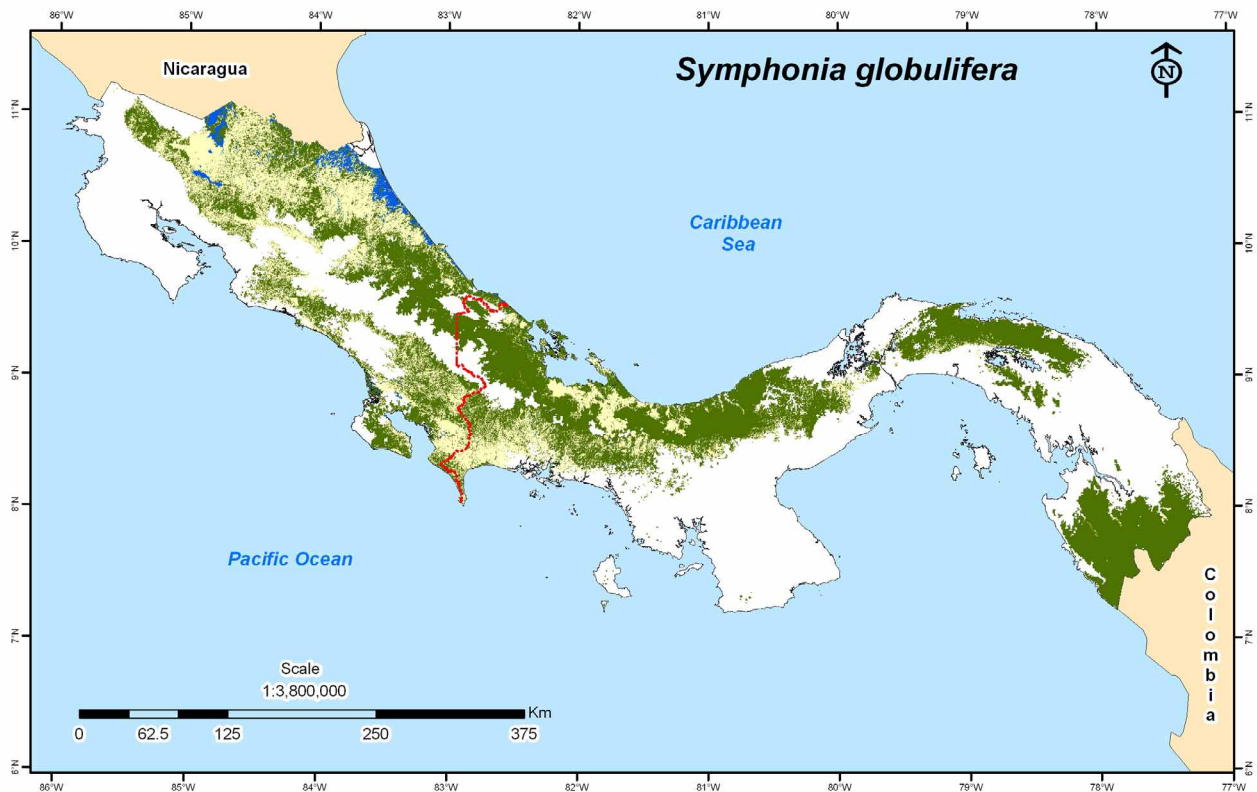
Symphonia globulifera L.f. (Clusiaceae)

Local names: *Botoncillo*, *Caraña*, *Cerillo*, *Leche amarillo*, *Amarillo*.

Terrestrial shrubs or trees, flowers bisexual, used as timber, artesanal, Medinal. Global distribution: Mexico to Bolivia. Known in Costa Rica and Panama from 264 herbarium collections. Elevational range for Costa Rica and Panama 0–1200(–1700) m, and the proportion of the regional Extension of Occurrence in protected areas: 30%.

- Regional threat category: **Near Threatened (NT)**

Fig. 176



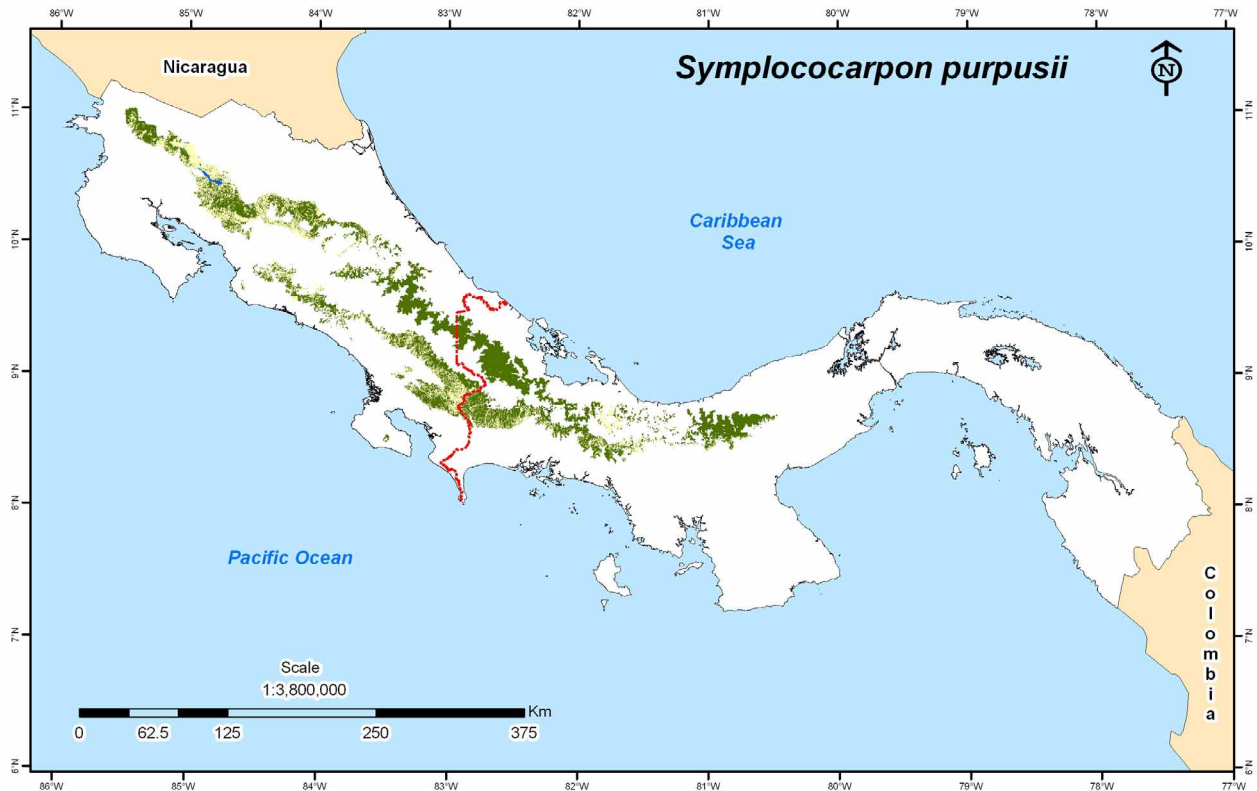
In Costa Rica and Panama the Extension of Occurrence was calculated to be 61674 km², the Area of Occupancy 41057 km² and loss of Extension of Occurrence 33%. Using the above data and IUCN (2001, version 3.1) criteria, *Symphonia globulifera* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Symplocarpon purpusii (Brandege) Kobuski (Pentaphylacaceae)

Terrestrial trees, flowers bisexual. Global distribution: Mexico to Colombia. Known in Costa Rica and Panama from 50 herbarium collections. Elevational range for Costa Rica and Panama 700–1700 m, and the proportion of the regional Extension of Occurrence in protected areas: 63%.

- Regional threat category: **Vulnerable (VU) A2c**

Fig. 177



In Costa Rica and Panama the Extension of Occurrence was calculated to be 23415 km², the Area of Occupancy 9581 km² and loss of Extension of Occurrence 59%. Using the above data and IUCN (2001, version 3.1) criteria, *Symplocarpon purpusii* is classified as Endangered (EN) in relation to criteria A2c. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and a high proportion of its Area of Occupancy located in a protected area. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

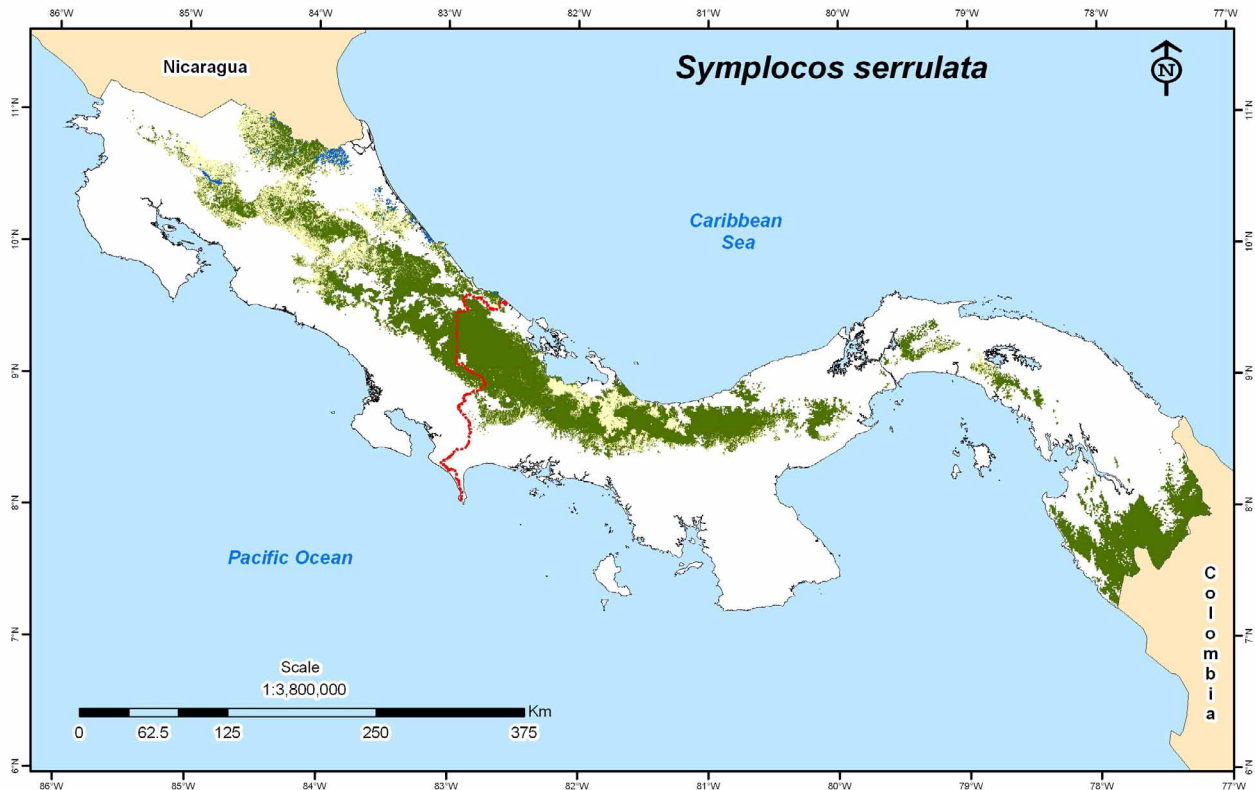
Symplocos serrulata Humb. & Bonpl. (Symplocaceae)

Local names: Corral, Cuerillo.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Costa Rica to Colombia. Known in Costa Rica and Panama from 64 herbarium collections. Elevational range for Costa Rica and Panama (1800–)2000–3150 m, and the proportion of the regional Extension of Occurrence in protected areas: 81%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 178



In Costa Rica and Panama the Extension of Occurrence was calculated to be 3575 km², the Area of Occupancy 3419 km² and loss of Extension of Occurrence 4%. Using the above data and IUCN (2001, version 3.1) criteria, *Symplocos serrulata* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad elevational distribution, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field that suggest that this species abundante in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

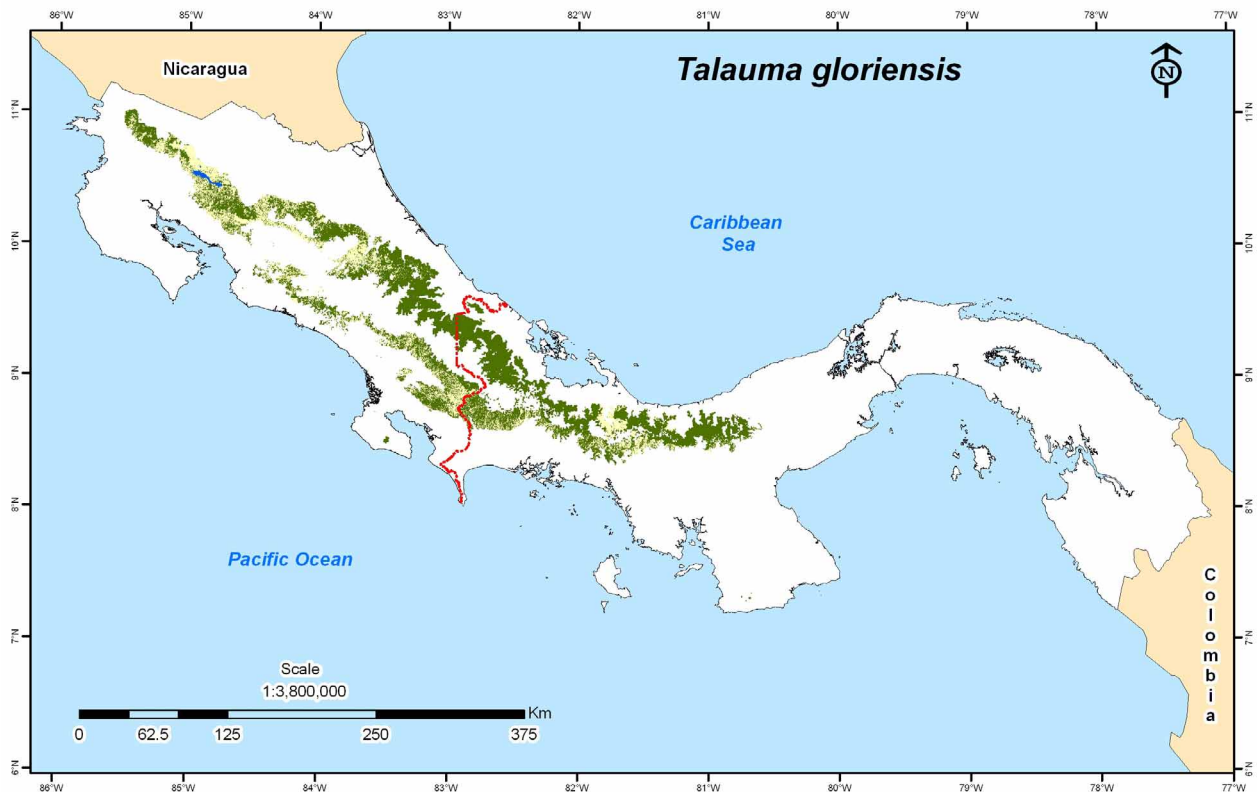
Talauma gloriensis Pittier (Magnoliaceae)

Local names: Anonillo, Magnolia.

Terrestrial shrubs or trees, flowers bisexual, used as timber. Global distribution: Nicaragua to Panama. Known in Costa Rica and Panama from 60 herbarium collections. Elevational range for Costa Rica and Panama 0–800(–1400) m, and the proportion of the regional Extension of Occurrence in protected areas: 35%.

- Regional threat category: **Near Threatened (NT)**

Fig. 179



In Costa Rica and Panama the Extension of Occurrence was calculated to be 17685 km², the Area of Occupancy 12206 km² and loss of Extension of Occurrence 31%. Using the above data and IUCN (2001, version 3.1) criteria, *Talauma gloriensis* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab(i,iii). This classification is supported by extracted for timber by local communities, the severe fragmentation of the Extension of Occurrence. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

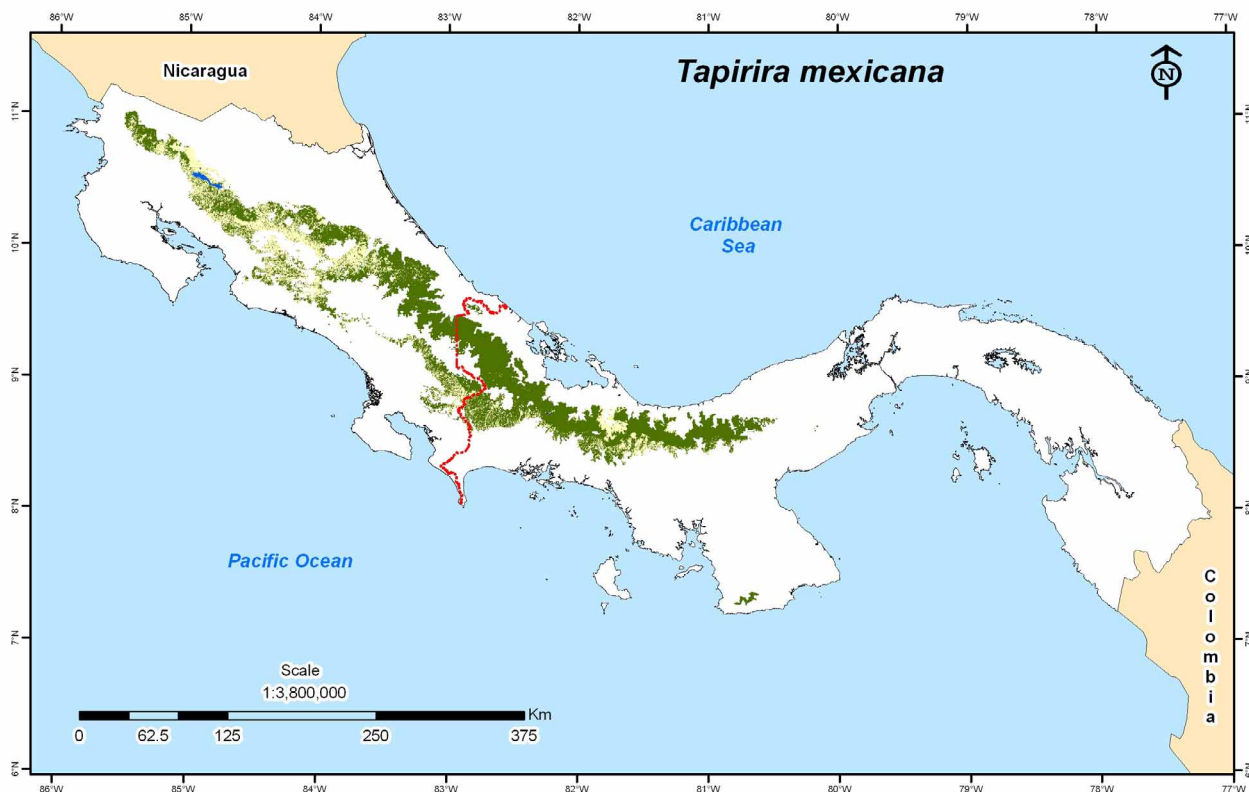
Tapirira mexicana Marchand (Anacardiaceae)

Local names: *Ciruelo de montaña*, *Cirrí*, *Cirrí blanco*, *Cirrí colorado*.

Terrestrial shrubs or trees, flowers unisexual, dioecious, used as timber. Global distribution: Mexico to Panama. Known in Costa Rica and Panama from 40 herbarium collections. Elevational range for Costa Rica and Panama 500–1800 m, and the proportion of the regional Extension of Occurrence in protected areas: 38%.

- Regional threat category: **Near Threatened (NT)**

Fig. 180



In Costa Rica and Panama the Extension of Occurrence was calculated to be 19710 km², the Area of Occupancy 13742 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Tapirira mexicana* is classified as Vulnerable (VU) in relation to criteria A2cd and B1ab (i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the species extraction for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

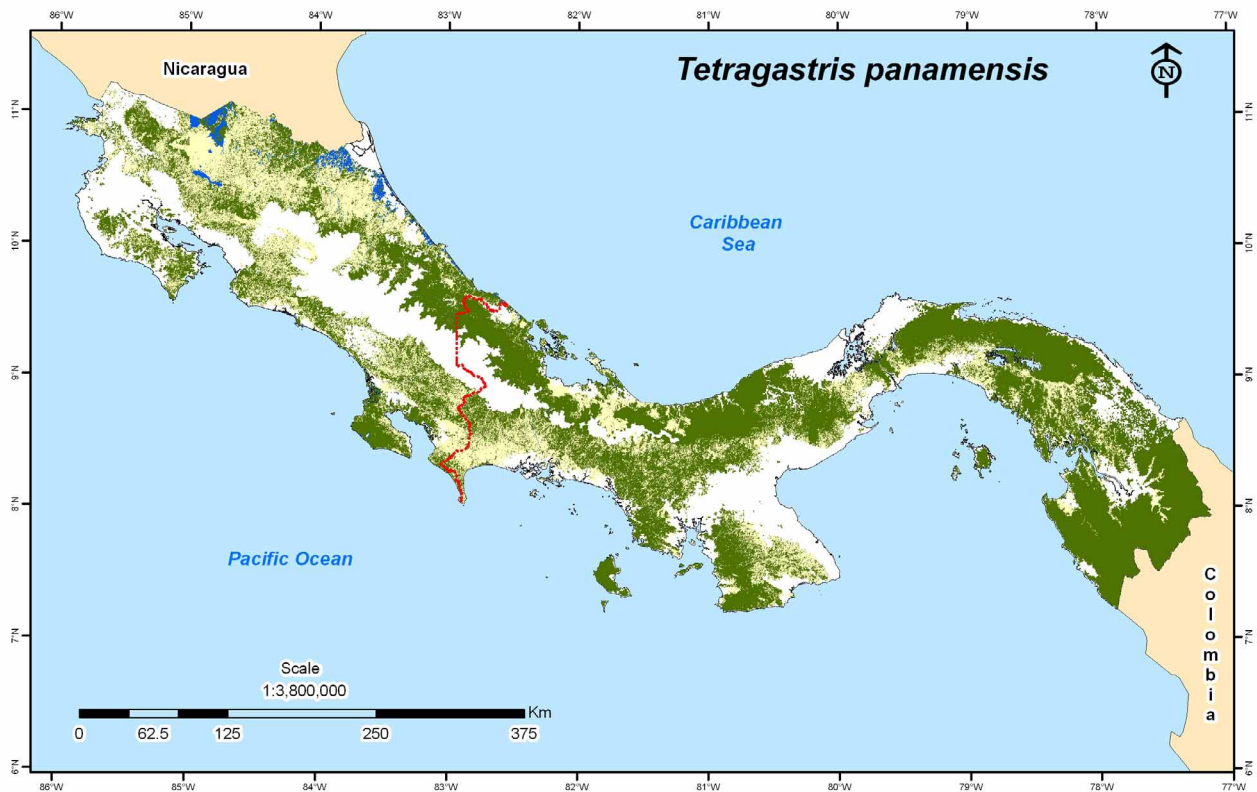
Tetragastris panamensis (Engl.) Kuntze (Burseraceae)

Local names: *Canfín, Estaquillo, Copal, Querosén.*

Terrestrial shrubs or trees, flowers bisexual, used as timber. Global distribution: Belize and Honduras, Costa Rica to the Guyanas, Ecuador and Peru. Known in Costa Rica and Panama from 112 herbarium collections. Elevational range for Costa Rica and Panama 0–900 m, and the proportion of the regional Extension of Occurrence in protected areas: 25%.

- Regional threat category: **Near Threatened (NT)**

Fig. 181



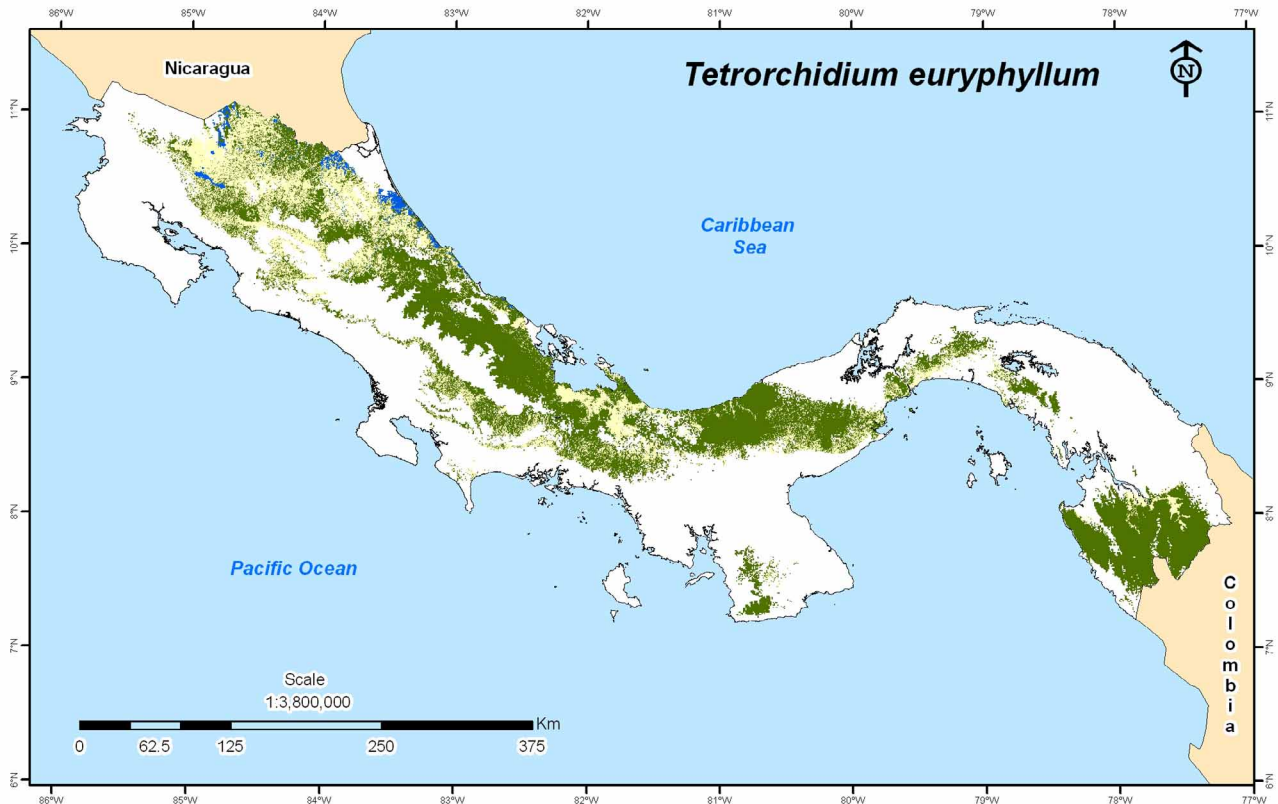
In Costa Rica and Panama the Extension of Occurrence was calculated to be 86931 km², the Area of Occupancy 57146 km² and loss of Extension of Occurrence 34%. Using the above data and IUCN (2001, version 3.1) criteria, *Tetragastris panamensis* is classified as Vulnerable (VU) in relation to criteria A2cd. This classification is supported by the fact that this species is extracted for timber and the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

Tetrorchidium euryphyllum Standl. (Euphorbiaceae)

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Costa Rica to Ecuador. Known in Costa Rica and Panama from 89 herbarium collections. Elevational range for Costa Rica and Panama 100–1600 m, and the proportion of the regional Extension of Occurrence in protected areas: 31%.

- Regional threat category: **Least Concern (LC)**

Fig. 182



In Costa Rica and Panama the Extension of Occurrence was calculated to be 46617 km², the Area of Occupancy 34682 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Tetrorchidium euryphyllum* is classified as Least Concern (LC). This classification is supported by relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat which implies that this species will be more resilient to future human disturbance. Countering this, however, the species has a low proportion of its Area of Occupancy located in a protected area. Despite the above reasons the classification was not changed.

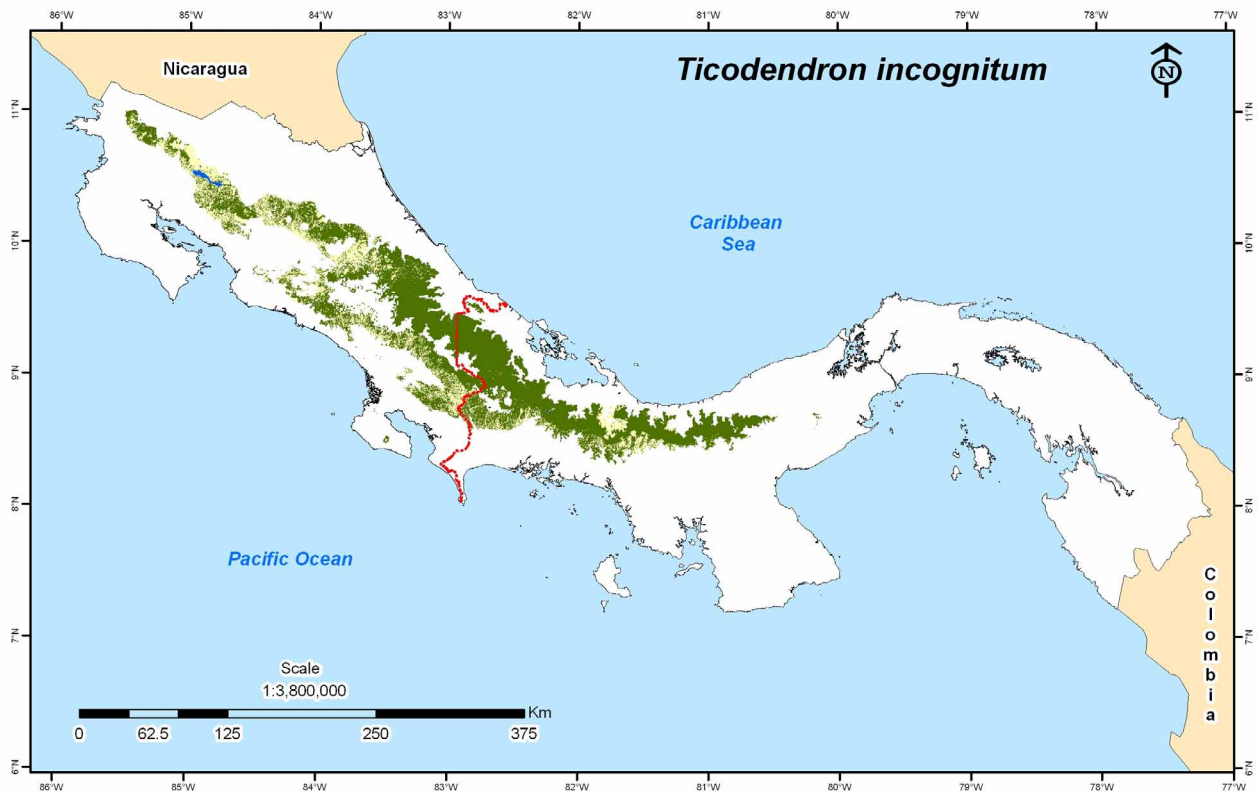
Ticodendron incognitum Gómez-Laur. & L.D.Gómez (Ticodendraceae)

Local name(s): *Duraznillo, Jaúl macho, Jaúl nazareno, Candelillo.*

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 92 herbarium collections. Elevational range for Costa Rica and Panama 500–2400 m, and the proportion of the regional Extension of Occurrence in protected areas: 41%.

- Regional threat category: **Least Concern (LC)**

Fig. 183



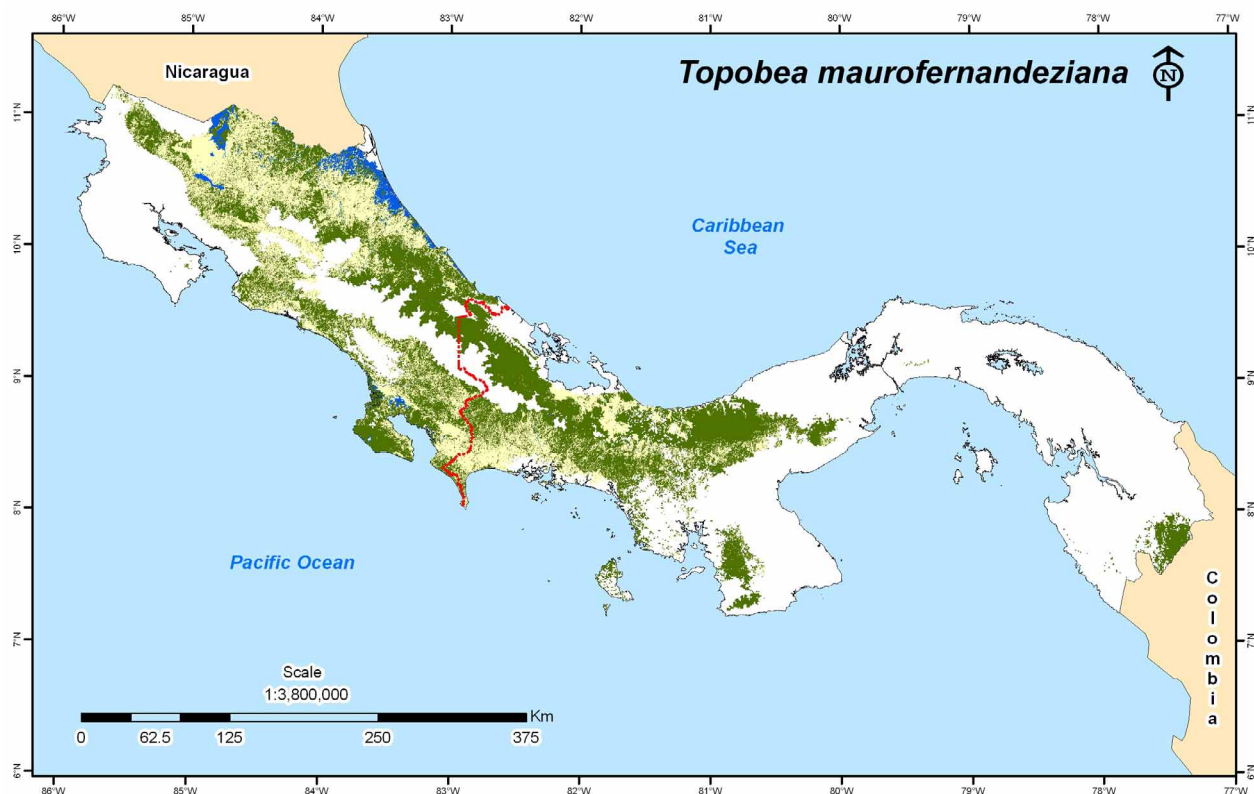
In Costa Rica and Panama the Extension of Occurrence was calculated to be 21536 km², the Area of Occupancy 15597 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Ticodendron incognitum* is classified as Near Threatened (NT) in relation to criteria A and B. This classification is supported by the fact that this species is extracted for timber. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

Topobea maurofernandeziana Cogn. (Melastomataceae)

Facultatively epiphytic shrubs, flowers bisexual. Global distribution: Mexico, Nicaragua to Panama. Known in Costa Rica and Panama from 132 herbarium collections. Elevational range for Costa Rica and Panama 0–1500 m, and the proportion of the regional Extension of Occurrence in protected areas: 23%.

- Regional threat category: **Least Concern (LC)**

Fig. 184



In Costa Rica and Panama the Extension of Occurrence was calculated to be 52970 km², the Area of Occupancy 37342 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Topobea maurofernandeziana* is classified as Near Threatened (NT) in relation to criteria A. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

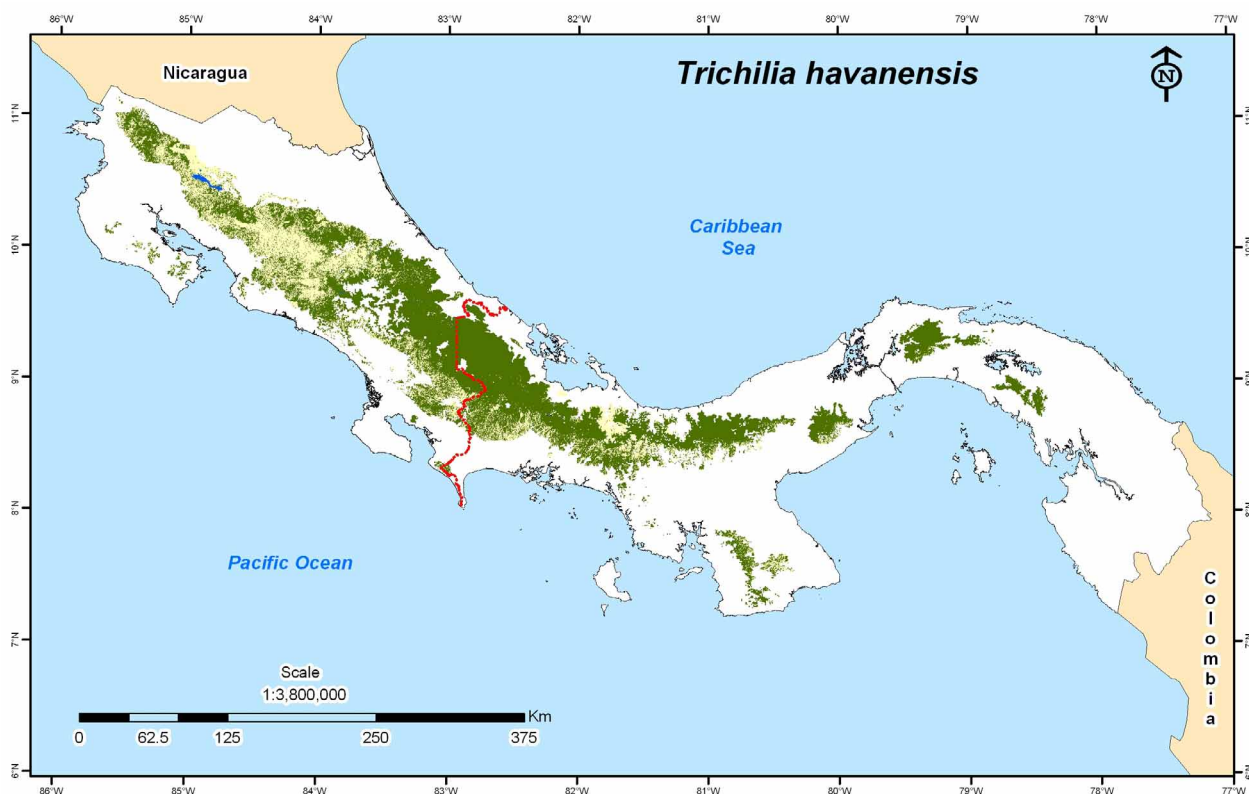
Trichilia havanensis Jacq. (Meliaceae)

Local names: *Uruca*, *Caracolillo*, *Cedro cóbano*, *Ocora*.

Terrestrial trees, flowers unisexual, dioecious, harvested and cultivated as an ornamental. Global distribution: Mexico to Venezuela, the Antilles. Known in Costa Rica and Panama from 95 herbarium collections. Elevational range for Costa Rica and Panama (300–)500–2650 m, and the proportion of the regional Extension of Occurrence in protected areas: 36%.

- Regional threat category: **Least Concern (LC)**

Fig. 185



In Costa Rica and Panama the Extension of Occurrence was calculated to be 33610 km², the Area of Occupancy 23575 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Trichilia havanensis* is classified as Near Threatened (NT) in relation to criteria A. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Near Threatened (NT) to Least Concern (LC).

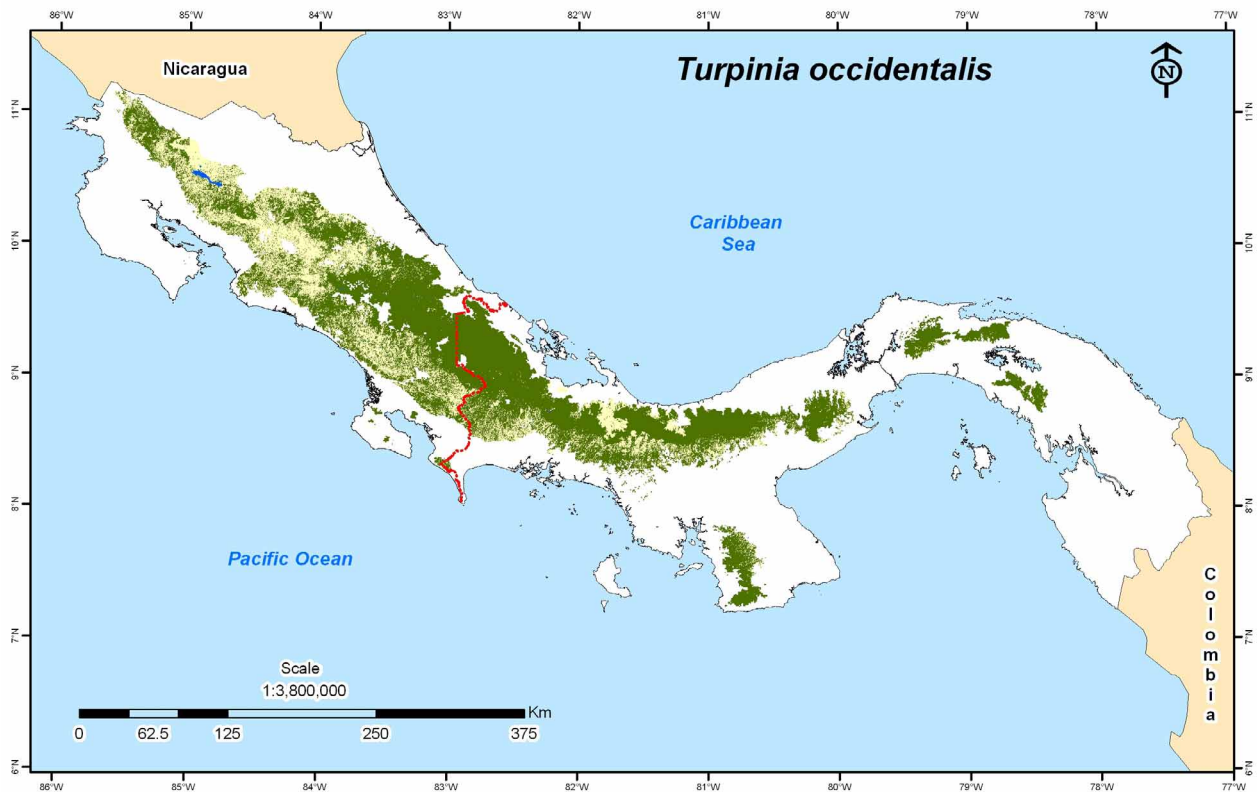
Turpinia occidentalis (Sw.) G.Don (Staphyleaceae)

Local names: *Dachalong*, *Sanlorenzo*, *Mariposa amarilla*, *Falso Cristóbal*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico to Bolivia, Peru and Brazil, the Antilles. Known in Costa Rica and Panama from 180 herbarium collections. Elevational range for Costa Rica and Panama 200–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 31%.

- Regional threat category: **Near Threatened (NT)**

Fig. 186



In Costa Rica and Panama the Extension of Occurrence was calculated to be 41433 km², the Area of Occupancy 28561 km² and loss of Extension of Occurrence 31%. Using the above data and IUCN (2001, version 3.1) criteria, *Turpinia occidentalis* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is supported by the low proportion of its Area of Occupancy located in a protected area. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

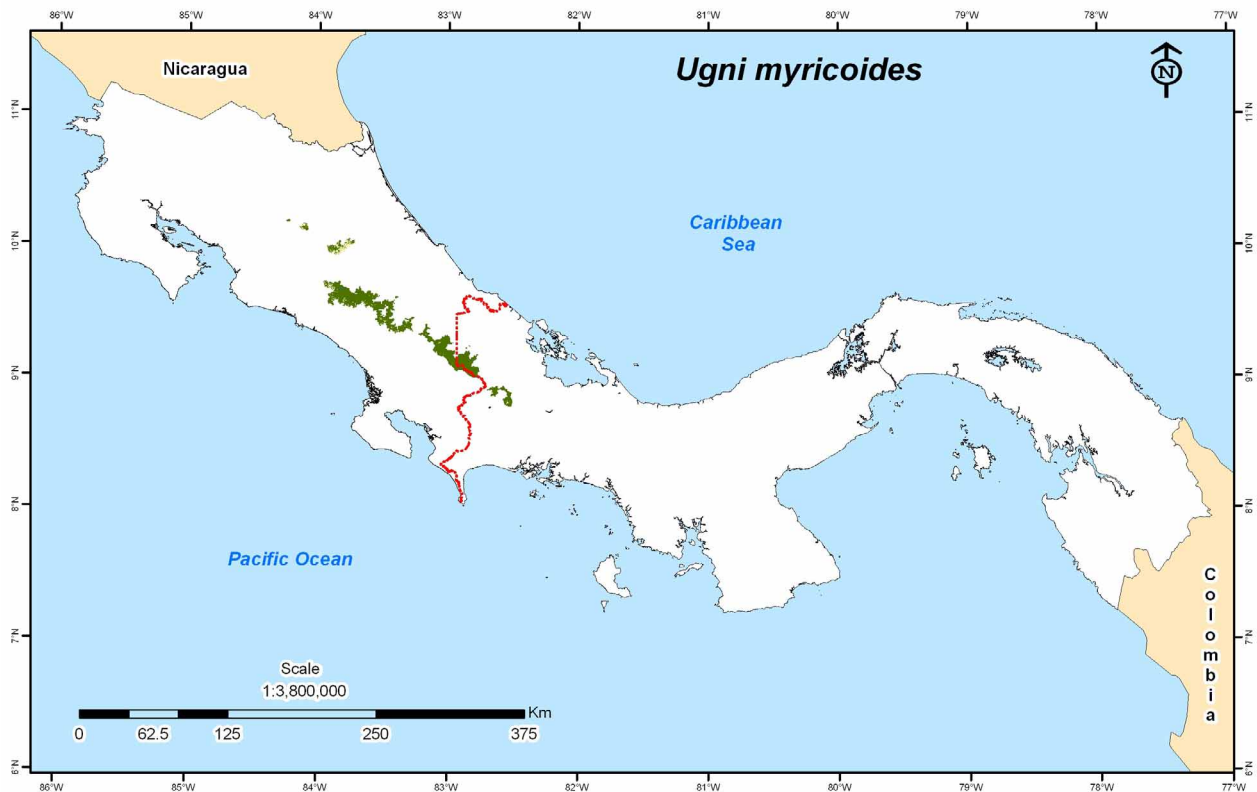
Ugni myricoides (Kunth) O.Berg (Myrtaceae)

Local names: Arrayán, Mirto.

Terrestrial herbs or shrubs, flowers bisexual and its non-sustainable harvesting for food. Global distribution: Mexico to Bolivia, Venezuela, the Guyanas and Brazil. Known in Costa Rica and Panama from 116 herbarium collections. Elevational range for Costa Rica and Panama 2300–3700 m, and the proportion of the regional Extension of Occurrence in protected areas: 76%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 187



In Costa Rica and Panama the Extension of Occurrence was calculated to be 1899 km², the Area of Occupancy 1754 km² and loss of Extension of Occurrence 8%. Using the above data and IUCN (2001, version 3.1) criteria, *Ugni myricoides* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

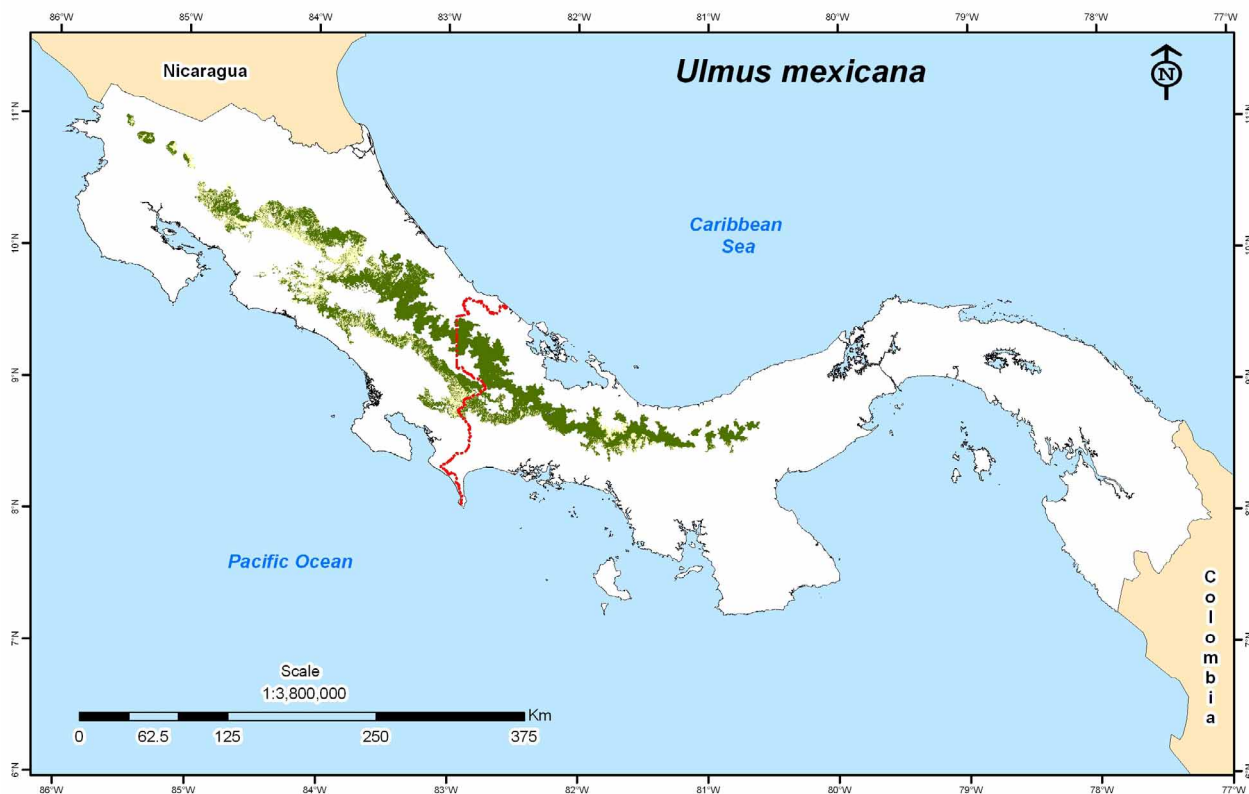
Ulmus mexicana (Liebm.) Planch. (Ulmaceae)

Local names: *Cenizo*, *Tirrá*, *Džai* (*Cabécar*).

Terrestrial trees, flowers bisexual, used as timber. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 33 herbarium collections. Elevational range for Costa Rica and Panama 800–1900 m, and the proportion of the regional Extension of Occurrence in protected areas: 46%.

- Regional threat category: **Near Threatened (NT)**

Fig. 188



In Costa Rica and Panama the Extension of Occurrence was calculated to be 14360 km², the Area of Occupancy 10733 km² and loss of Extension of Occurrence 25%. Using the above data and IUCN (2001, version 3.1) criteria, *Ulmus mexicana* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by extracted for timber by local communities, the severe fragmentation of the Extension of Occurrence. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

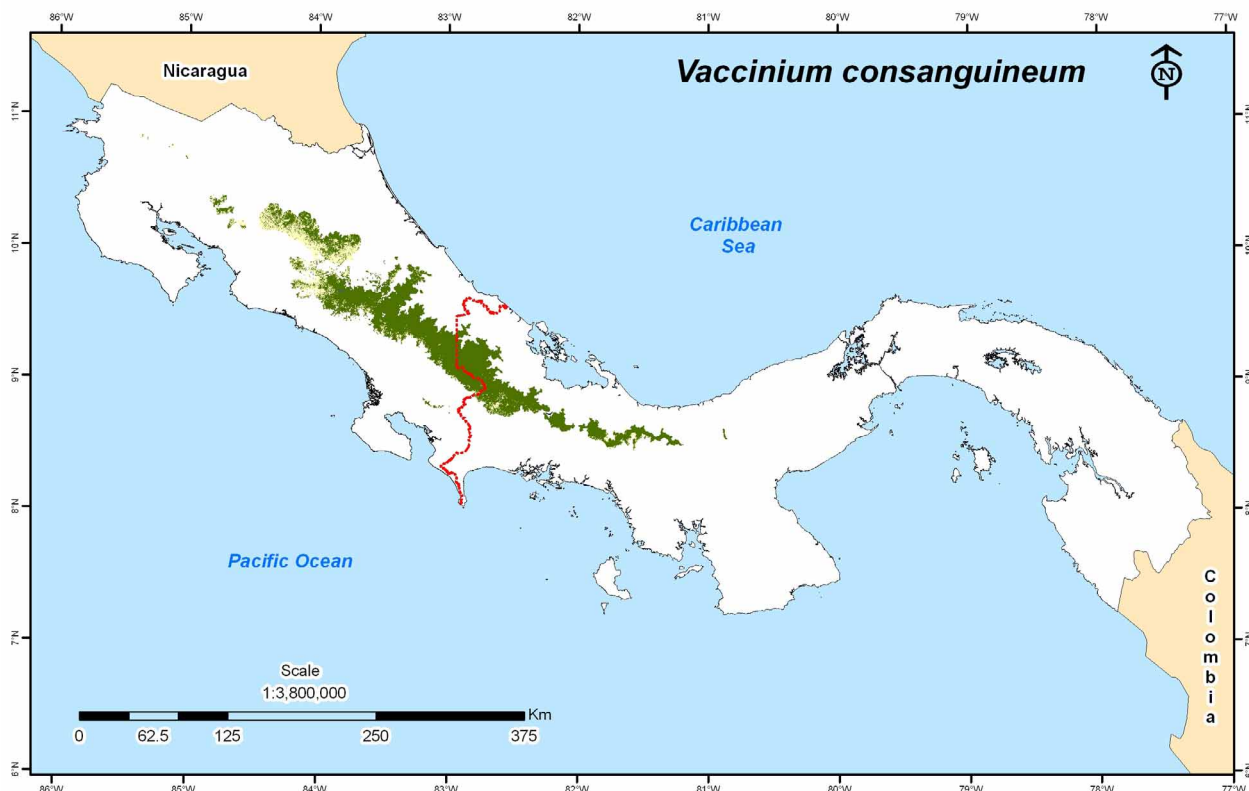
Vaccinium consanguineum Klotzsch (Ericaceae)

Local names: Arrayán, Madroño de potrero, Madroño.

Shrubs or trees, flowers bisexual, fruits edible. Global distribution: Honduras, Costa Rica and Panama. Known in Costa Rica and Panama from 188 herbarium collections. Elevational range (1200–)1500–3500 m, and the proportion of the regional Extension of Occurrence in protected areas: 63%.

- Regional threat category: **Near Threatened (NT)**

Fig. 189



In Costa Rica and Panama the Extension of Occurrence was calculated to be 10040 km², the Area of Occupancy 8124 km² and loss of Extension of Occurrence 19%. Using the above data and IUCN (2001, version 3.1) criteria, *Vaccinium consanguineum* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above and the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT). The fruits of this species are edible.

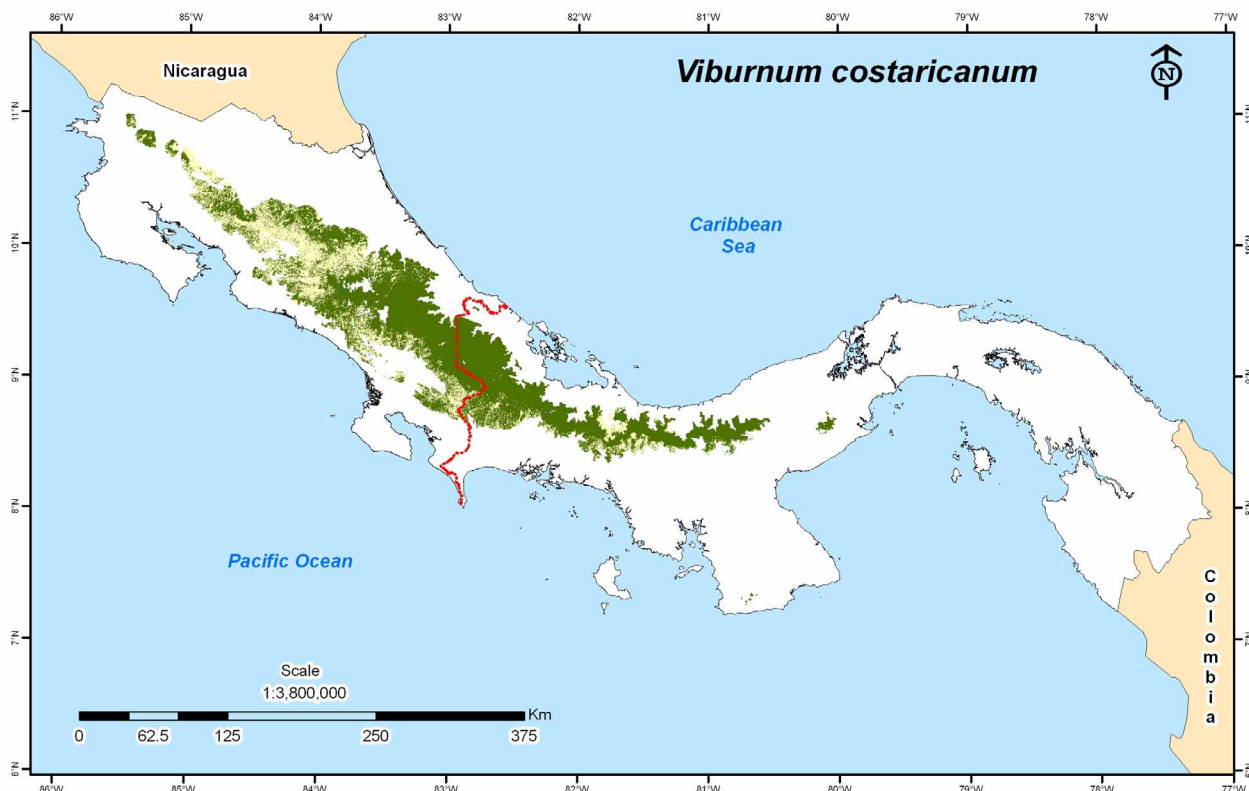
Viburnum costaricanum (Oerst.) Hemsl. (Adoxaceae)

Local names: *Conchudo, Copalchí, Cura, Paraviento.*

Terrestrial shrubs or trees, flowers bisexual, used as a raw material for the production of handicrafts. Endemic to Costa Rica and Panama. Known from 241 herbarium collections. Elevational range 600–3850 m, and the proportion of the regional Extension of Occurrence in protected areas: 43%.

- Global threat category: **Near Threatened (NT)**

Fig. 190



In Costa Rica and Panama the Extension of Occurrence was calculated to be 24222 km², the Area of Occupancy 17073 km² and loss of Extension of Occurrence 30%. Using the above data and IUCN (2001, version 3.1) criteria, *Viburnum costaricanum* is classified as Near Threatened (NT) in relation to criteria B. Countering this, however, the species has a relatively broad regional and elevational distribution, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

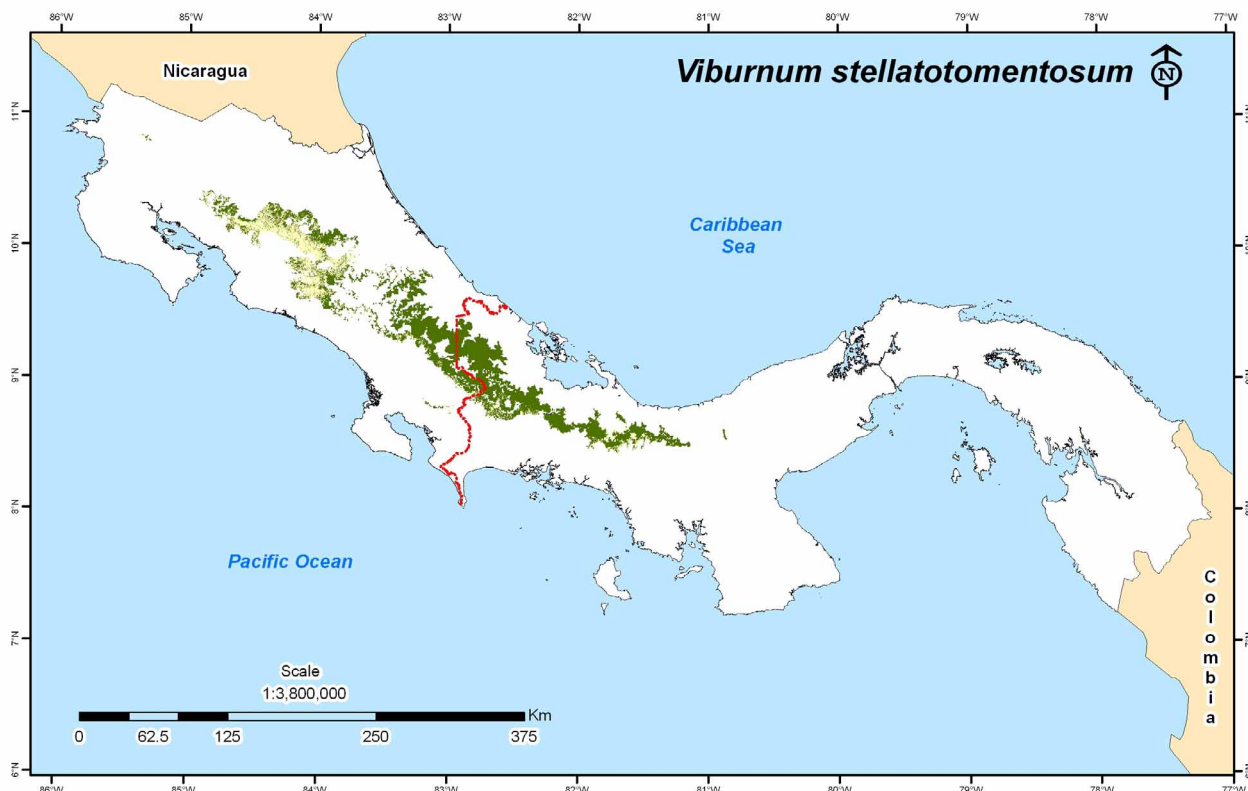
Viburnum stellatomentosum (Oerst.) Hemsl. (Adoxaceae)

Local names: Copalchí, Curá, Colpachí.

Terrestrial shrubs or trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 42 herbarium collections. Elevational range for Costa Rica and Panama 1000–2500 m, and the proportion of the regional Extension of Occurrence in protected areas: 51%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 191



In Costa Rica and Panama the Extension of Occurrence was calculated to be 9621 km², the Area of Occupancy 7130 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Viburnum stellatomentosum* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, the species has a high proportion of its Area of Occupancy located in a protected area. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. Despite the above the classification was not changed.

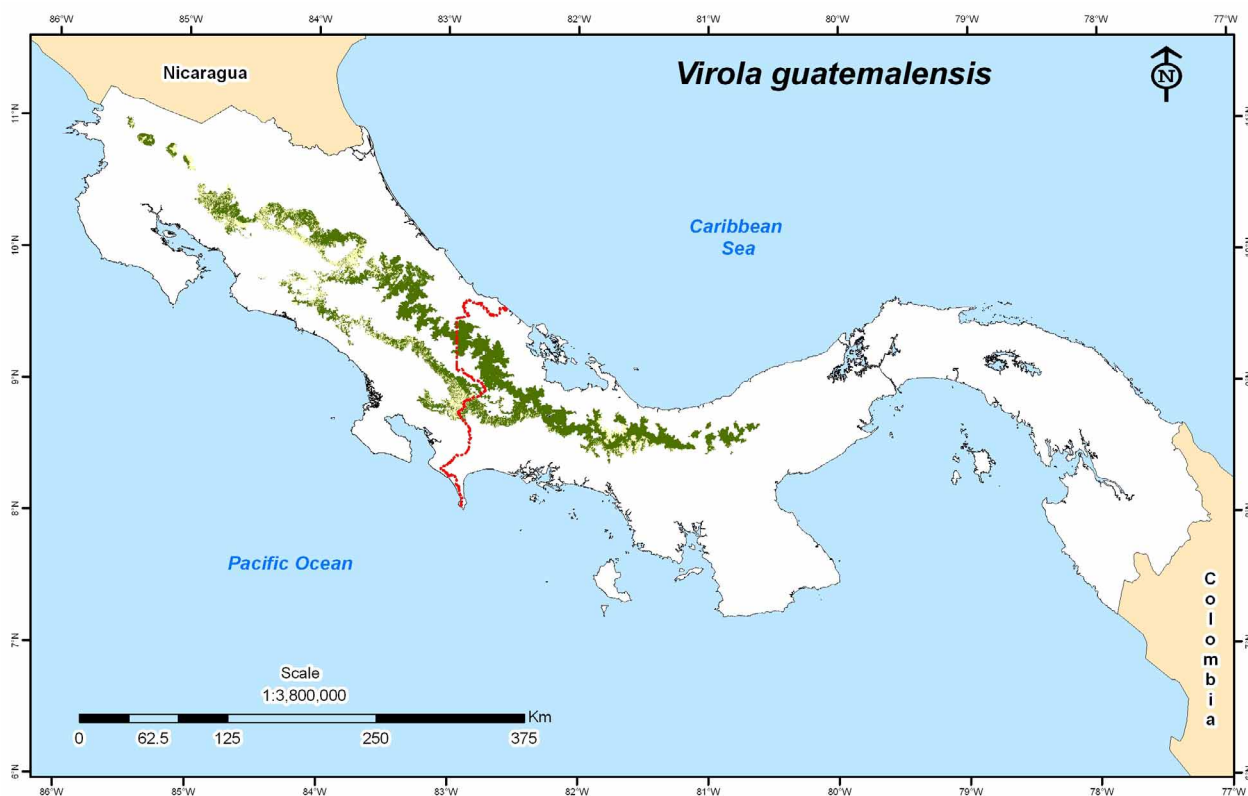
Virola guatemalensis (Hemsl.) Warb. (Myristicaceae)

Local names: *Fruta dorada*, *Fruta*, *Mayo*, *Palo de mayo*, *Chancho*, *Palo de chancho*, *Bogamaní*.

Terrestrial trees, flowers unisexual, dioecious, used as timber. Global distribution: Mexico to Honduras, Costa Rica and Panama. Known in Costa Rica and Panama from 38 herbarium collections. Elevational range for Costa Rica and Panama 800–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 44%.

- Regional threat category: **Near Threatened (NT)**

Fig. 192



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12337 km², the Area of Occupancy 9184 km² and loss of Extension of Occurrence 26%. Using the above data and IUCN (2001, version 3.1) criteria, *Virola guatemalensis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by extracted for timber by local communities, the severe fragmentation of the Extension of Occurrence. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and the inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

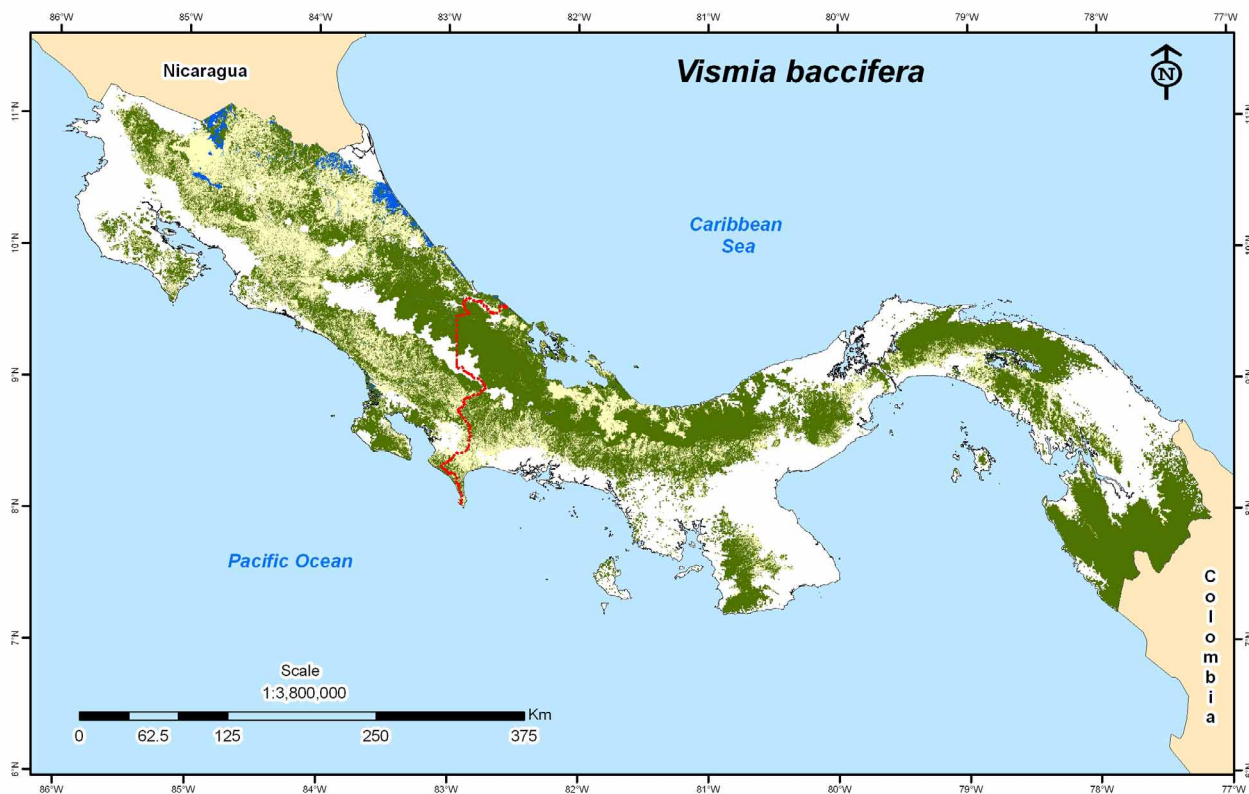
Vismia baccifera (L.) Triana & Planch. (Hypericaceae)

Local name: Achiotillo.

Terrestrial shrubs or trees, flowers bisexual, used as a popular medicinal. Global distribution: Mexico to Venezuela, Bolivia, Suriname, French Guyana and Brazil. Known in Costa Rica and Panama from 171 herbarium collections. Elevational range for Costa Rica and Panama 0–2000 m, and the proportion of the regional Extension of Occurrence in protected areas: 28%.

- Regional threat category: **Least Concern (LC)**

Fig. 193



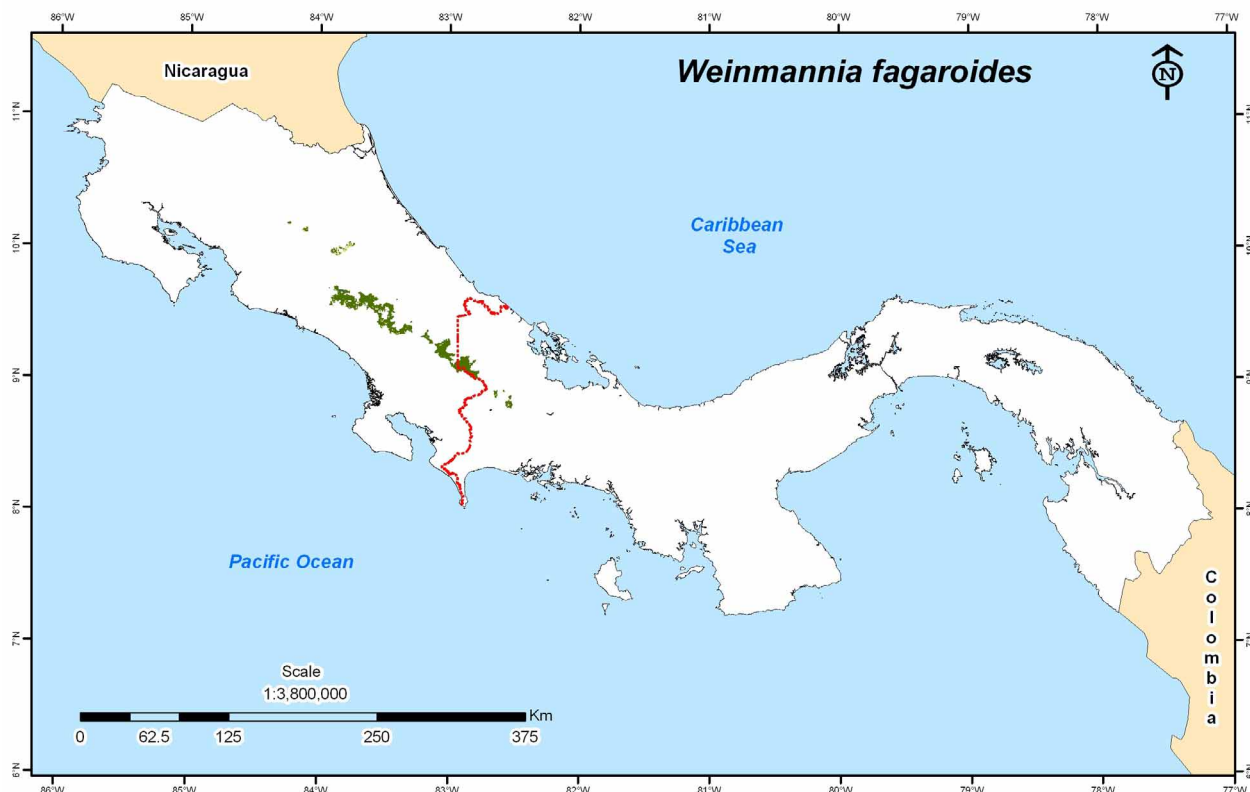
In Costa Rica and Panama the Extension of Occurrence was calculated to be 78585 km², the Area of Occupancy 60480 km² and loss of Extension of Occurrence 23%. Using the above data and IUCN (2001, version 3.1) criteria, *Vismia baccifera* is classified as Least Concern (LC). This classification is supported by the high proportion of the Extension of Occurrence located in protected areas, the relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

Weinmannia fagaroides Kunth (Cunoniaceae)

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Honduras, Costa Rica to Bolivia. Known in Costa Rica and Panama from 60 herbarium collections. Elevational range for Costa Rica and Panama 2500–3400 m, and the proportion of the regional Extension of Occurrence in protected areas: 90%.

- Regional threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 194



In Costa Rica and Panama the Extension of Occurrence was calculated to be 1249 km², the Area of Occupancy 1181 km² and loss of Extension of Occurrence 5%. Using the above data and IUCN (2001, version 3.1) criteria, *Weinmannia fagaroides* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has low levels of habitat loss were recorded for this species and a high proportion of its Area of Occupancy is located in a protected area. For the above reasons the classification was revised from Endangered (EN) to Vulnerable (VU).

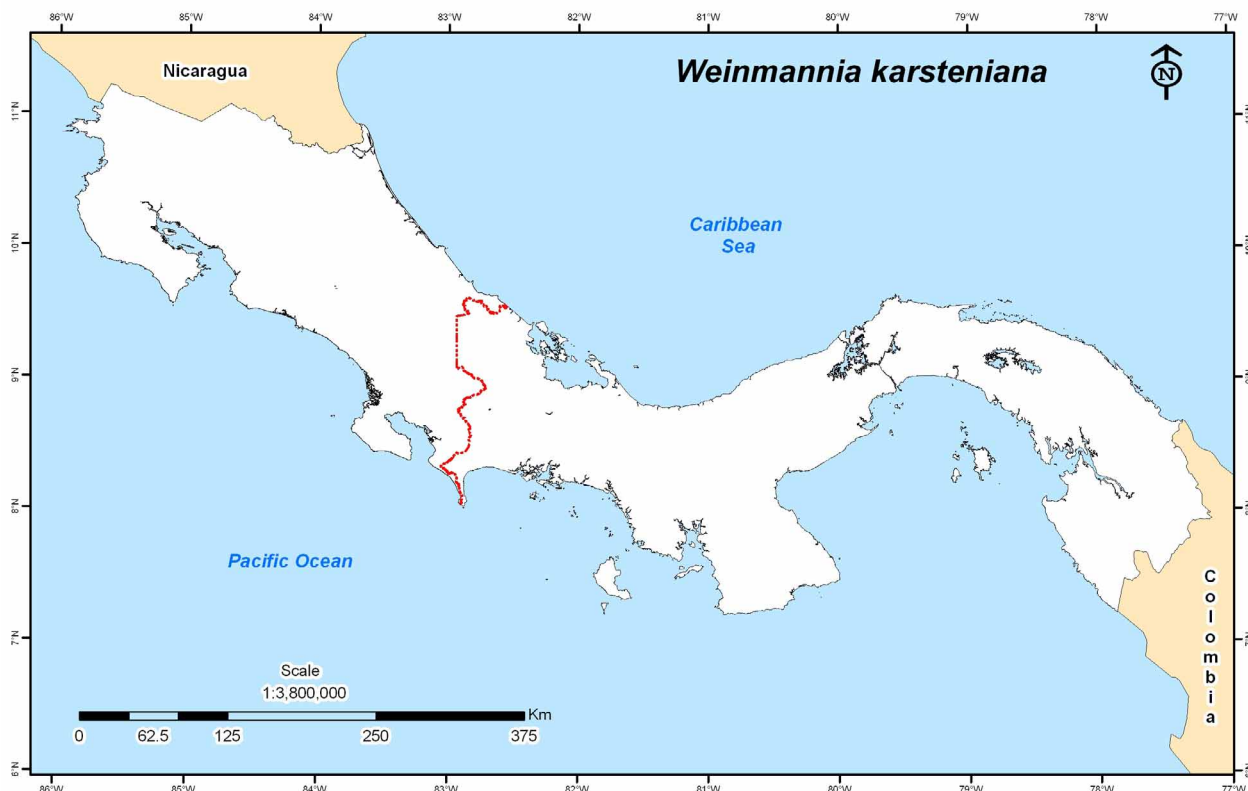
Weinmannia karsteniana Szyszyl. (Cunoniaceae)

Local names: *Arrayán*, *Arrayán lorito*, *Lorito*.

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica, Colombia and Venezuela. Known in Costa Rica and Panama from 11 herbarium collections. Elevational range for Costa Rica and Panama 2300–2950 m, and the proportion of the regional Extension of Occurrence in protected areas: 100%.

- Regional threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 195



In Costa Rica and Panama the Extension of Occurrence was calculated to be 4 km², the Area of Occupancy 4 km² and no loss of Extension of Occurrence. Using the above data and IUCN (2001, version 3.1) criteria, *Weinmannia karsteniana* is classified as Critically Endangered (CR) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and observations by the authors in the field that suggest that this species is scarce in its Area of Occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has low levels of habitat loss were recorded for this species and a high proportion of its Area of Occupancy is located in a protected area. For the above reasons the classification was revised from Critically Endangered (CR) to Endangered (EN).

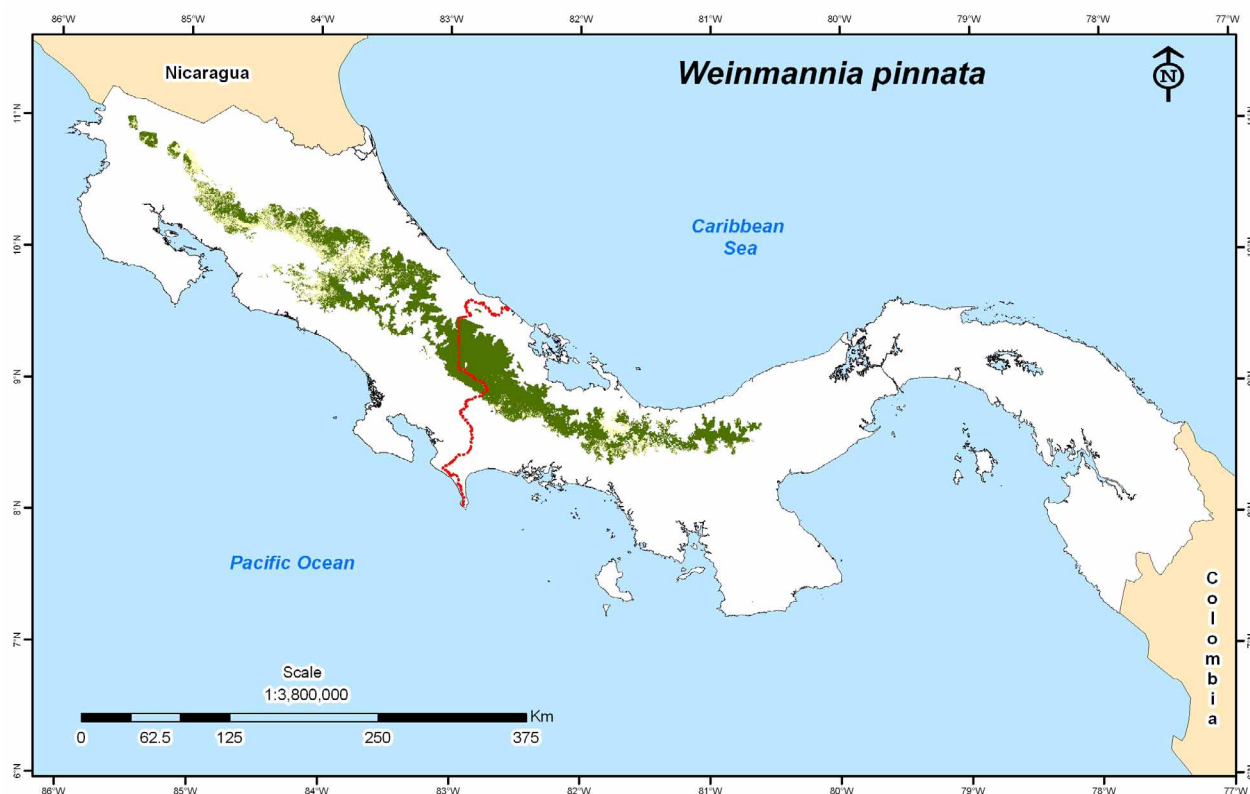
Weinmannia pinnata L. (Cunoniaceae)

Local names: Arrayán, Arrayán blanco, Loro, Lorito, Arrayán colorado.

Terrestrial shrubs or trees, flowers bisexual, used as timber. Global distribution: Mexico to Bolivia, the Antilles. Known in Costa Rica and Panama from 138 herbarium collections. Elevational range for Costa Rica and Panama (600–)1250–3200 m, and the proportion of the regional Extension of Occurrence in protected areas: 53%.

- Regional threat category: **Near Threatened (NT)**

Fig. 196



In Costa Rica and Panama the Extension of Occurrence was calculated to be 15438 km², the Area of Occupancy 11778 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Weinmannia pinnata* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of the Extension of Occurrence and the extraction of this species for timber by local communities. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional distribution and a high proportion of its Area of Occupancy located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

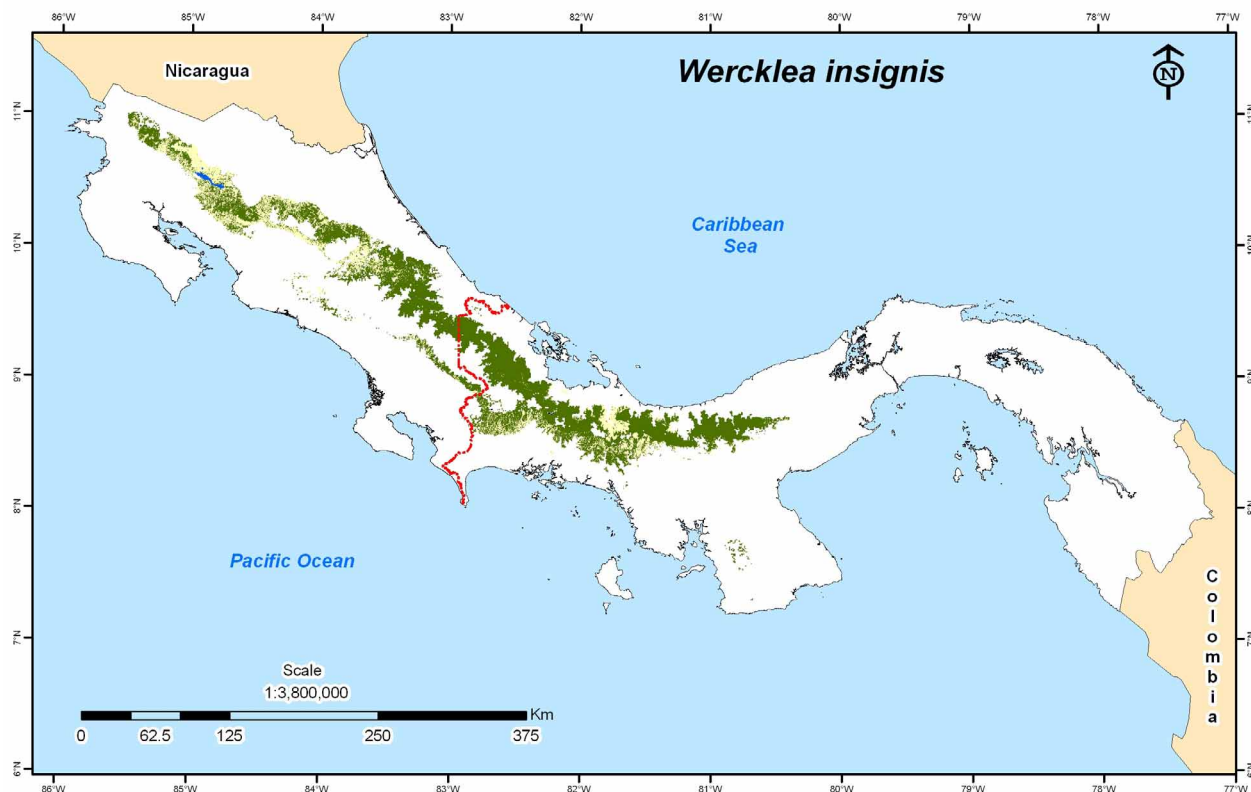
Wercklea insignis Pittier & Standl. (Malvaceae)

Local names: *Burío extranjero*, *Burío guaria*, *Clavelón de montaña*, *Tabacón*, *Panamá*, *Clavelón*, *Burío*, *Farol Chino*.

Terrestrial trees, flowers bisexual. Endemic to Costa Rica and Panama. Known from 40 herbarium collections. Elevational range, (400–)700–1650 m, and the proportion of the regional Extension of Occurrence in protected areas: 40%.

- Global threat category: **Vulnerable (VU) B1ab(i,iii)**

Fig. 197



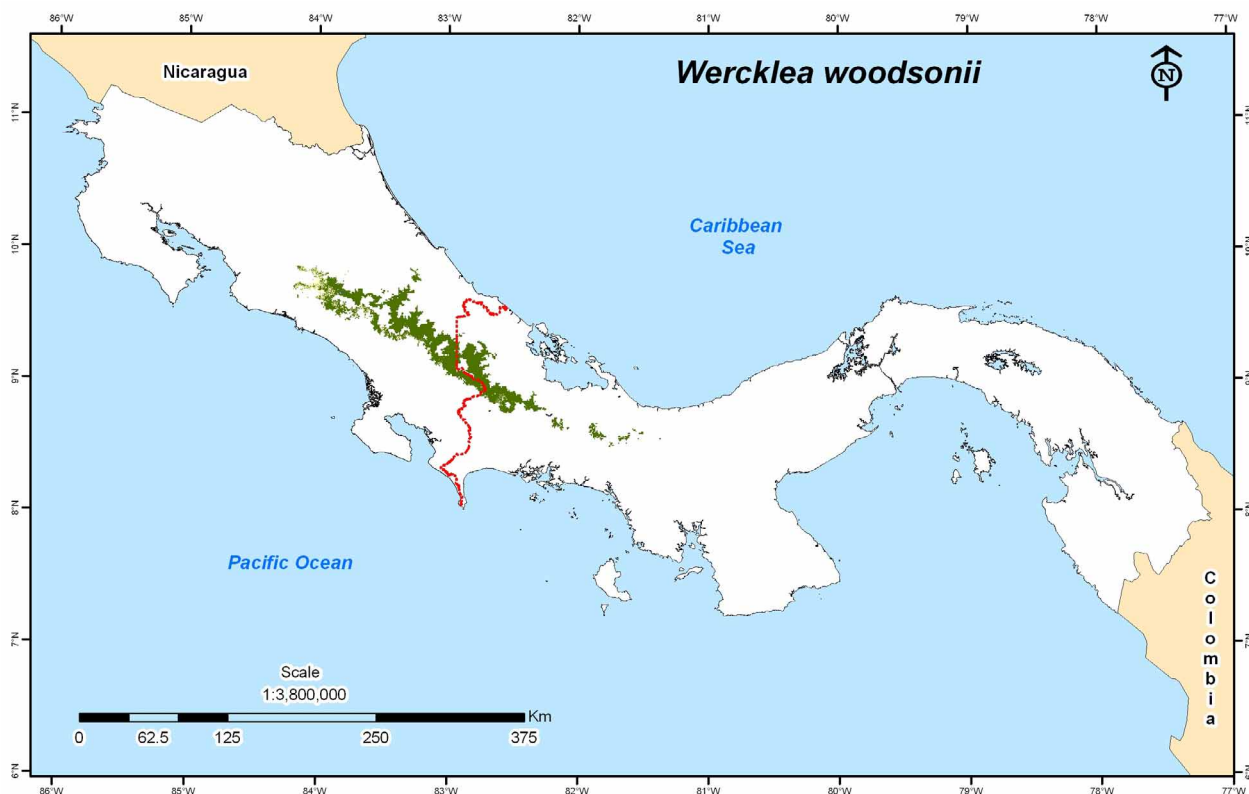
In Costa Rica and Panama the Extension of Occurrence was calculated to be 16918 km², the Area of Occupancy 12255 km² and loss of Extension of Occurrence 28%. Using the above data and IUCN (2001, version 3.1) criteria, *Wercklea insignis* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. Despite the above the classification was not changed.

Wercklea woodsonii (A.Robyns.) Fryxell (Malvaceae)

Terrestrial trees, flowers bisexual. Global distribution: Costa Rica and Panama, endemic to the Talamanca Mountains. Known from 32 herbarium collections. Elevational range 1700–2900 m, and the proportion of the regional Extension of Occurrence in protected areas: 77%.

- Regional threat category: **Endangered (EN) B1ab(i,iii)**

Fig. 198



In Costa Rica and Panama the Extension of Occurrence was calculated to be 4120 km², the Area of Occupancy 3767 km² and loss of Extension of Occurrence 9%. Using the above data and IUCN (2001, version 3.1) criteria, *Wercklea woodsonii* is classified as Endangered (EN) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that the species has experienced low levels of habitat loss and a high proportion of its Area of Occupancy is located in a protected area. Despite the above the classification was not changed.

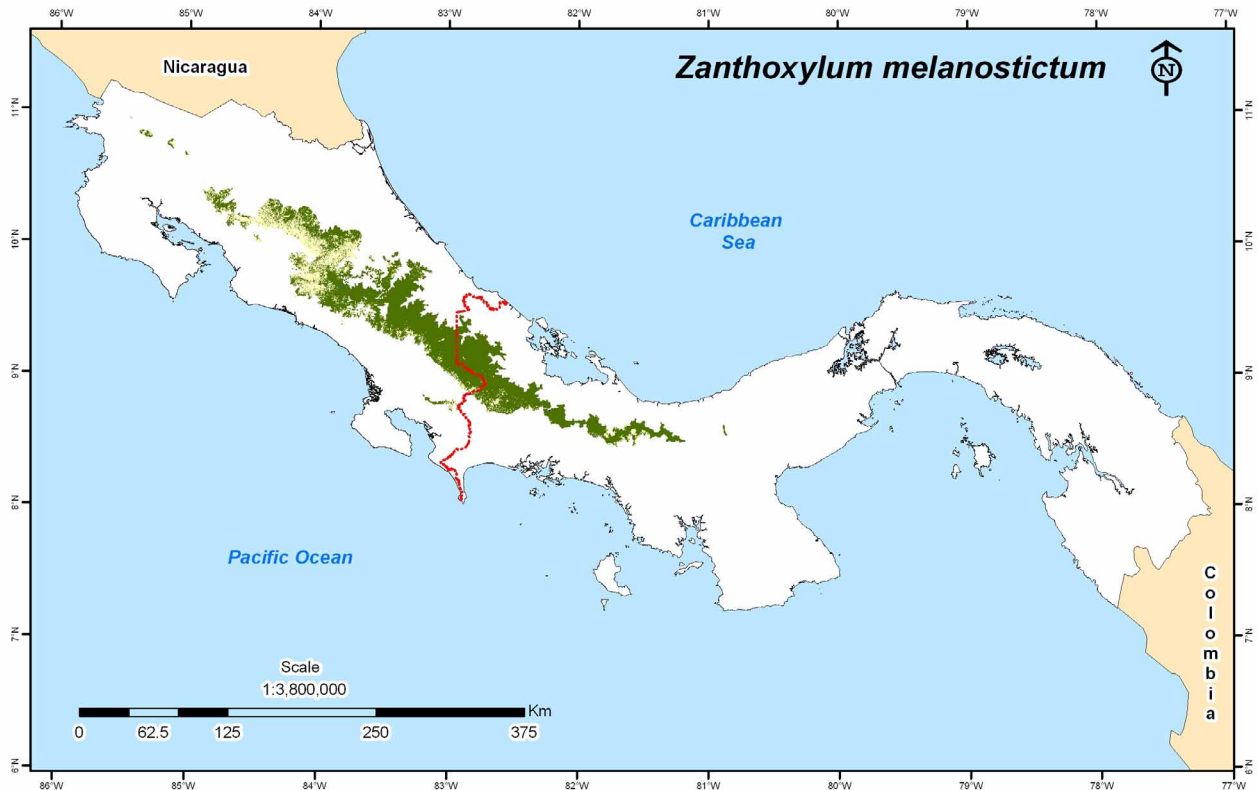
Zanthoxylum melanostictum Schlttdl. & Cham. (Rutaceae)

Local names: *Arcabú*, *Lagartillo*, *Lagarto colorado*, *Lagarto*, *Lagartillo colorado*.

Terrestrial shrubs or trees, flowers unisexual, dioecious. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 121 herbarium collections. Elevational range for Costa Rica and Panama 1100–3000 m, and the proportion of the regional Extension of Occurrence in protected areas: 57%.

- Regional threat category: **Near Threatened (NT)**

Fig. 199



In Costa Rica and Panama the Extension of Occurrence was calculated to be 12337 km², the Area of Occupancy 9395 km² and loss of Extension of Occurrence 24%. Using the above data and IUCN (2001, version 3.1) criteria, *Zanthoxylum melanostictum* is classified as Vulnerable (VU) in relation to criteria B1ab(i,iii). This classification is supported by the severe fragmentation of its Area of occupancy. Countering this, however, is the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution, a high proportion of its Area of Occupancy is located in a protected area and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

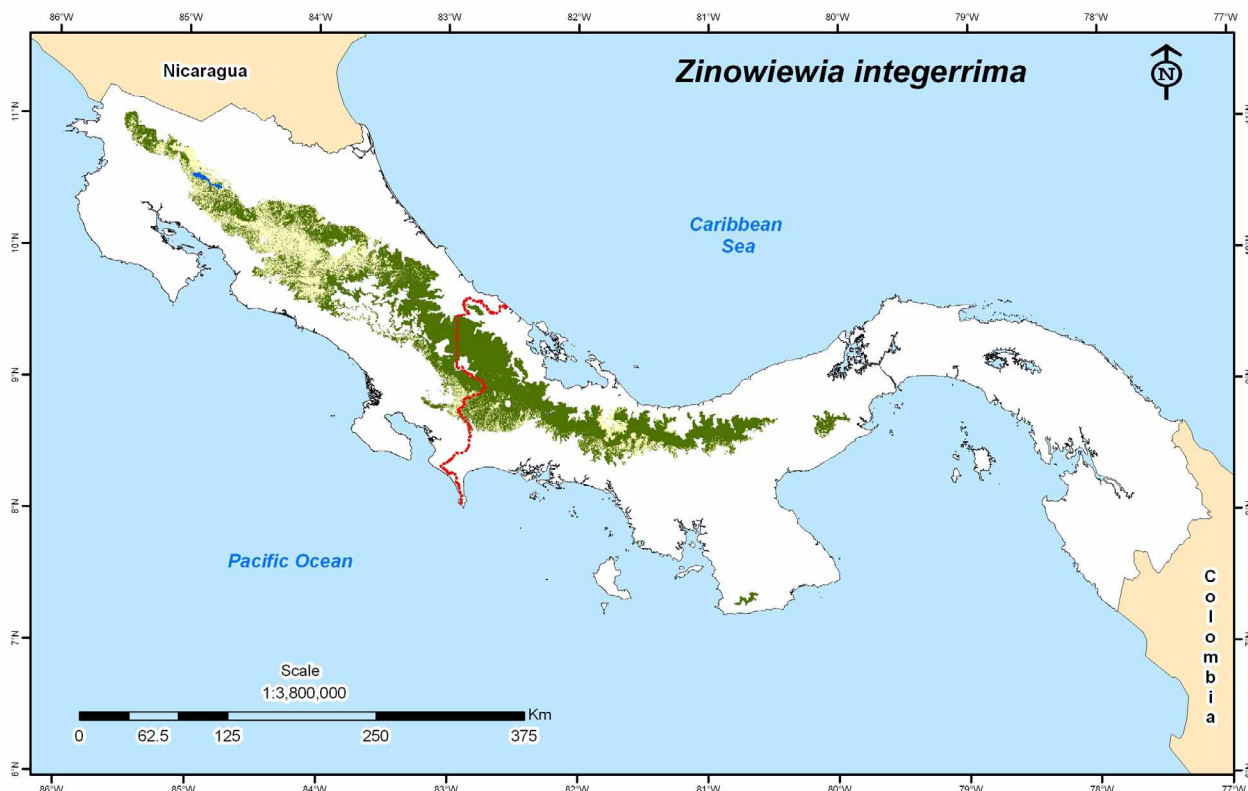
Zinowiewia integerrima (Turcz.) Turcz. (Celastraceae)

Local name: *Corroncho*.

Terrestrial shrubs or trees, flowers bisexual. Global distribution: Mexico, Guatemala to Panama. Known in Costa Rica and Panama from 99 herbarium collections. Elevational range for Costa Rica and Panama 600–2500 m, and the proportion of the regional Extension of Occurrence in protected areas: 40%.

- Regional threat category: **Near Threatened (NT)**

Fig. 200



In Costa Rica and Panama the Extension of Occurrence was calculated to be 23155 km², the Area of Occupancy 16044 km² and loss of Extension of Occurrence 31%. Using the above data and IUCN (2001, version 3.1) criteria, *Zinowiewia integerrima* is classified as Vulnerable (VU) in relation to criteria A2c. This classification is countered by the fact that this regional assessment does not include the species entire range and that populations in neighbouring regions will serve to buffer some of the criteria identified above. In addition, the species has a relatively broad regional and elevational distribution and observations by the authors in the field suggest that this species is abundant in its Area of Occupancy. The inclusion of secondary/successional vegetation as a habitat implies that this species will be more resilient to future human disturbance. For the above reasons the classification was revised from Vulnerable (VU) to Near Threatened (NT).

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