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LISTS OF SPECIES

Magnoliophyta species of *restinga*, state of Pernambuco, Brazil.

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Abstract: *Restinga* vegetation occurs along the entire coast of Brazil. The 187 km of coastline of the state of Pernambuco demonstrates a diversity of habitats, such as beaches, dunes, and *restinga*s. The present study sought to elaborate a checklist of the phanerogamic species found there. The species listed were compiled from surveys undertaken between 1951 and 2007, as well as from herbaria collections in that state. A total of 477 species distributed among 303 genera and 95 families were encountered. The families with the greatest numbers of species were Poaceae (39 species), Fabaceae (34), Cyperaceae (26), Euphorbiaceae (25), Myrtaceae (24), Rubiaceae (20), Caesalpiniaceae (17), Mimosaceae (16), Asteraceae (14), Orchidaceae (14), Bromeliaceae (9), Boraginaceae (8), Malvaceae (8), Solanaceae (8), and Annonaceae, Araceae, Chrysobalanaceae, Malpighiaceae, and Melastomataceae (7 each). Approximately 60 % of the species were common to other *restinga* areas in northeastern Brazil, and 39.3 % were restricted to the coast of Pernambuco.

Introduction

*Restinga*s are composed of a mosaic of physiognomically distinct vegetation communities growing on recent marine sediments that are subject to both marine and freshwater influences and demonstrate significant ecological diversity (Sugiyama 1998).

*Restinga*s occur over most of the Brazilian coastline, and the state of Pernambuco, with 187 km of coast, possesses a diversity of habitats, such as beaches, dunes, and the *restinga*s strictly (Andrade-Lima 1960). However, very little of the original landscape is still intact, and these environments and their component biodiversity are fast disappearing as a result of anthropogenic influences, even though these areas are protected through federal laws (Araujo and Henriques 1984).

There is no currently published list of the *restinga* species for Pernambuco or any information concerning the physiognomic variations that exist there, only a number of spatially distinct studies of the local flora. Zickel et al. (2004), however, have published data concerning the floras of the *restinga* vegetation in that state, together with a short compilation of the principal studies undertaken in other coastal regions of northeastern Brazil. Due to the continual loss of habitat within the *restinga* ecosystems of Pernambuco, it becomes all the more important to study and document the remaining areas.

As such, the goal of the present study was to construct a checklist of the phanerogamic species recorded in the *restinga*s of the state of Pernambuco, Brazil.

Materials and methods

Pernambuco is one of nine states in the northeastern region of Brazil, and it occupies an area of approximately 98,281 km^2 (IBGE 2000) (Figure 1).

The species listed here were compiled from surveys made in diverse areas along the coast of the state of Pernambuco between 1951 and 2007, and includes information gathered from collections housed at the IPA, PEUFR, and UFP herbaria (see Holmgren and Holmgren 1998), in

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that state. The list of species was compiled of different municipalities of the *restinga* in Pernambuco (Table 1). However, the registration of the species in the *restinga* of Goiana, Itapissuma, Olinda, and São José da Coroa Grande are not defined by a unique collection point.

Figure 1. Map of Brazil; in detail the state of Pernambuco showing sites (black circle) surveys made along the Atlantic coast.

The checklist classifies the genera by order of their families, followed by a list of species. The classification system used was based on Cronquist (1988). Current species names and new synonyms were confirmed by consulting the MOBOT data base (2007) as well as the specialized literature for some groups.

Species distribution was considered ample when the species occurred in more than one *restinga* site, and restricted when they were listed for only a single area. The surveys consulted included: Andrade-Lima (1951; 1953; 1979), Cantarelli (2003), Lira (2004), Leite and Andrade (2004), Almeida Jr. (2006), Sacramento et al. (in press), for the state of Pernambuco; Silva (1972), Esteves (1980), Rocha (1984) for the state of Alagoas; Pinto et al. (1984), Britto et al. (1993), Meira-Neto et al. (2005), Viana et al. (2006) for the state of Bahia; Matias and Nunes (2001), Matias and Silva (2001) for the state of Ceará; Oliveira-Filho and Carvalho (1993), Oliveira-Filho (1993), Pontes (2000) for the state of Paraíba; Cabral-Freire and Monteiro (1993) for the state of Maranhão; and Tavares (1960), Freire (1990), Trindade (1991), Almeida et al. (2006) and Almeida Jr. and Zickel (unpublished data), for the state of Rio Grande do Norte. The states of Piauí and Sergipe do not own bibliographical data about their *restinga* flora.

Table 1. Municipalities list where were compiled the species of. the *restingas* of Pernambuco.

Municipalities	Coordinates
Cabo de Santo Agostinho	08°07'30" S, 35º00'55" W
Goiana	07º33'38" S, 35º00'09" W
Ipojuca	08º31'48" S, 35º01'05" W
Itamaracá	07º45'00" S, 34º49'30" W
Itapissuma	07º46'26" S, 34º53'27" W
Olinda	08º01'42" S, 34º51'42" W
Paulista	07º56'24" S, 34º52'46" W
Recife	08º06'02" S, 34º52'48" W
São José da Coroa Grande	08º53'52" S, 35º08'52" W
Sirinhaém	08º35'27" S, 35º06'58" W
Tamandaré	08º47'20" S, 35º06'45" W

Results and discussion

The list of phanerogamic species of the *restinga* areas of Pernambuco State included 477 species distributed among 303 genera and 94 families (Table 2). The most species rich families were Poaceae (39), Fabaceae (34), Cyperaceae (26), Euphorbiaceae (25), Myrtaceae (24), Rubiaceae (20), Caesalpiniaceae (17), Mimosaceae (16), Asteraceae (14), Orchidaceae (14), Bromeliaceae (9), Boraginaceae (8), Malvaceae (8), Solanaceae (8), and Annonaceae, Araceae, Chrysobalanaceae, Malpighiaceae and Melastomataceae (7 each), totaling 62 % of the total number of species encountered.

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Table 2. List of phanerogamic species of the *restinga* areas of the state of Pernambuco, from 1951 to february 2007. ▲ = Species with ample distribution within the *restinga*s of northeastern Brazil; ✱ = Species cited for Rio de Janeiro and Espírito Santo states (Pereira and Araujo 2000).

Families/ Species
Acanthaceae
Pseuderanthemum atropurpureum (W. Bull) Radlk.
Ruellia asperula (Mart. & Nees) Lindau
Ruellia geminiflora Kunth
Aizoaceae
Sesuvium portulacastrum (L.) L.*▲
Amaranthaceae
Alternanthera philoxeroides (Mart.) Griseb.▲
Iresine portulacoides (A. St.-Hil.) Moq.▲
Philoxerus vermicularis (L.) R. Br. ex Sm.▲
Anacardiaceae
Anacardium occidentale L.*▲
Schinus terebinthifolius Raddi.*▲
Spondias mombin L.
Tapirira guianensis Aubl.*▲
Annonaceae
Annona crassiflora Mart.
Annona glabra L.*▲
Annona aff. *montana* Macfad.
Duguetia gardneriana Mart.▲
Rollinia pickelli Diels
Xylopia frutescens Aubl.▲
Xylopia laevigata (Mart.) R. E. Fr.*▲
Apiaceae
Hydrocotyle umbellata L.
Apocynaceae
Catharanthus roseus (L.) G. Don▲
Hancornia speciosa Gomes*▲
Himatanthus phagedaenicus (Mart.) Woodson*▲
Lochnera rosea (L.) Rchb. ex Endl.
Mandevilla moricandiana (A.DC.) Woodson*▲
Mandevilla scabra (Hoffmanns. ex Roem. & Schult.) K. Schum.▲
Araceae
Anthurium affine Schott▲
Montrichardia linifera (Arruda) Schott*
Philodendron acutatum Schott
Philodendron imbe Schott▲
Pistia stratiotes L.
Rhodospatha latifolia Poepp.
Zomicarpa pythonium Schott
Araliaceae
Schefflera morototoni (Aubl.) Maguire, Steyerm. & Frodin*

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Table 2. Continuation.

Arecaceae
Acrocomia intumescens Drude▲
Bactris humilis (Wallace) Burret.*
Desmoncus orthacanthos Mart.*▲
Elaeis guineensis Jacq.▲
Syagrus schizophylla (Mart.) Glassman*▲
Aristolochiaceae
Howardia trilobata (L.) Klotzsch▲
Asclepiadaceae
Calotropis procera (Ailt.) W.T. Ailt.▲
Ditassa crassifolia Decne
Matelea maritima ssp. *ganglinosa* (Vell.) Font.*▲
Asteraceae
Acanthospermum hispidum DC.▲
Ambrosia microcephala DC.▲
Aspilia martii Baker▲
Bidens pilosa L.
Conocliniopsis prasiifolia (DC.) R.M. King & H. Rob.▲
Conyza bonariensis (L.) Cronquist▲
Elephantopus hirtiflorus DC.▲
Emilia sonchifolia (L.) DC.▲
Mikania obovata DC.▲
Platypodanthera melissaefolia (DC.) R. M. King & H. Rob.
Rolandra argentea Rottb.
Synedrella nodiflora (L.) Gaertn.
Wedelia paludosa DC.▲
Wedelia trilobata (L.) Hitchc.▲
Bignoniaceae
Arrabidaea conjugata (Vell.) Mart.*▲
Lundia cordata (Vell.) A. DC.*▲
Tabebuia chrysotricha (Mart. ex A. DC.) Standl.*▲
Tabebuia roseoalba (Ridl.) Sandwith*▲
Boraginaceae
Cordia multispicata Cham.▲
Cordia sellowiana Cham.*
Cordia superba Cham.▲
Cordia toqueve Aubl.
Heliotropium elongatum Hoffm. ex Roem. & Schult.
Tournefortia candidula (Miers) I.M. Johnst.▲
Tournefortia subsessilis Cham.
Varronia verbenacea (DC.) Borhidi▲
Bromeliaceae
Aechmea aquilega (Salisb.) Griseb.▲
Aechmea muricata (Arruda da Câmara) L.B. Sm.
Aechmea tomentosa Mez
Bromelia karatas L.
Cryptanthus burle-marxii Leme
Hohenbergia ramageana Mez

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Table 2. Continuation.

Hohenbergia ridleyi (Baker) Mez.▲
Portea leptanhta Harms
Portea petropolitana (Wawra) Mez.*
Burseraceae
Protium bahianum Daly▲
Protium heptaphyllum (Aubl.) Marchand*▲
Cactaceae
Cereus fernambucensis Lem.*▲
Cereus jamacaru DC.▲
Melocactus violaceus Pfeiff.*▲
Pilosocereus hapalacanthus (Werderm.) Byles & G.D. Rowley▲
Caesalpiniaceae
Apuleia leiocarpa (Vogel) J. F. Macbr.▲
Binaria rubiginosa (Bong.) Schmitz▲
Caesalpinia bonduc (L.) Roxb.
Cassia coluteoides Collad.
Cassia hoffmannseggii Mart. ex Benth.
Chamaecrista apoucouita (Aubl.) H.S. Irwin & Barneby▲
Chamaecrista ensiformis (Vell.) H.S. Irwin & Barneby*
Chamaecrista flexuosa (L.) Greene▲
Chamaecrista ramosa (Vogel) H.S.Irwin e Barneby*▲
Chamaecrista repens (Vogel) H. S. Irwin & Barneby
Chamaecrista rotundifolia (Pers.) Greene▲
Hymenaea martiana Hayne
Senna alata (L.) Roxb.▲
Senna macranthera (DC. ex Collad.) H.S. Irwin & Barneby
Senna obtusifolia (L.) H.S. Irwin & Barneby
Senna tora (L.) Roxb.▲
Sericeocassia uniflora (Mill.) Britton▲
Campanulaceae
Cephalostigma bahiense A. DC.
Capparaceae
Capparis flexuosa (L.) L.*▲
Cleome longicarpa Eltis
Cleome spinosa Jacq.▲
Hemiscola aculeata (L.) Raf.▲
Cecropiaceae
Cecropia pachystachya Trécul*▲
Celastraceae
Maytenus distichophylla Mart.*▲
Chrysobalanaceae
Chrysobalanus icaco L.*▲
Couepia impressa Prance▲
Couepia rufa Ducke.▲
Hirtella racemosa Lam.▲
Licania aff. *dealbata* Hook. F.
Licania rigida Benth.
Licania tomentosa (Benth.) Fritsch▲

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Table 2. Continuation.

Clusiaceae
Calophyllum brasiliense Cambess.*▲
Clusia nemorosa G. Mey.*▲
Clusia paralicola G. Mariz
Rheedia macrophylla (Mart.) Planch. & Triana
Symphonia globulifera L. f. *▲
Vismia guianensis (Aubl.) Pers.▲
Combretaceae
Buchenavia capitata (Vahl) Eichler*▲
Conocarpus erectus L.▲
Commelinaceae
Commelina erecta L.▲
Commelina obliqua Vahl.▲
Dichorisandra albo-marginata Linden
Dichorisandra glaziovii Taub.
Convolvulaceae
Convolvulus littoralis L.▲
Ipomoea asarifolia (Desr.) Roem. & Schult.▲
Ipomoea imperati (Vahl) Griseb.*
Ipomoea marcellia Meisn.
Ipomoea pes-caprae (L.) R. Br.*▲
Merremia umbellata (L.) Hallier f.
Costaceae
Costus spiralis Jack*▲
Crassulaceae
Kalanchoe pinnata (Lam.) Pers
Cyperaceae
Abildgaardia scirpoides Nees*▲
Bulbostylis capillaris (L.) C.B.Clarke▲
Cyperus aggregatus (Willd.) Endl.▲
Cyperus articulatus L.*
Cyperus flavus J. Presl & C. Presl
Cyperus hermaphroditus (Jacq.) Standl.
Cyperus laxus Lam.
Cyperus ligularis L.▲
Cyperus marginatus Thunb.
Cyperus meyenianus Kunth▲
Cyperus sphacelatus Rottb.
Cyperus surinamensis Rottb.▲
Eleocharis geniculata (L.) Roem. & Schult.*▲
Eleocharis interstincta (Vahl.) R. et Schult.*▲
Fimbristylis cymosa (Lam.) R.Br.*▲
Fimbristylis cymosa subsp. *spathacea* (Roth) T. Koyama*▲
Fimbristylis diphylla (Retz.) Vahl
Fimbristylis glomerata Boeck.▲
Fuirena umbellata Rottb.*
Pycreus pelophylus (Ridl.) C.B. Clarke
Pycreus polystachyos (Rottb.) P. Beauv.*▲

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Remirea maritima Aubl.*▲
Rhynchospora barbata (Vahl.) Kunth.▲
Rhynchospora riparia (Nees) Boeck.▲
Rhynchospora tenuis Willd. ex Link*▲
Scleria bracteata Cav.▲
Dilleniaceae
Curatella americana L.▲
Doliocarpus dentatus (Aubl.) Standl.
Tetracera breyniana Schltdl.*▲
Dioscoreaceae
Dioscorea leptostachya Gardner*
Dioscorea polygonoides Humb. & Bonpl. ex Willd.*
Elaeocarpaceae
Sloanea guianensis (Aubl.) Benth.*
Ericaceae
Gaylussacia brasiliensis (Spreng.) Meisn.*▲
Eriocaulaceae
Eriocaulon palustre Salzm. ex. Steud.
Paepalanthus bifidus (Schrader) Kunth*▲
Paepalanthus tortilis (Bong.) Koern.*
Erythroxyllaceae
Erythroxylum citrifolium A. St.-Hill
Erythroxylum columbinum Mart.
Erythroxylum passerinum Mart.*▲
Erythroxylum pungens O.E. Schulz
Erythroxylum suberosum A. St.-Hil.
Erythroxylum vacciniifolium Mart.
Euphorbiaceae
Caperonia castaneifolia (L.) A. St.-Hil.
Chaetocarpus myrsinites Baill.*▲
Chamaesyce brasiliensis (Lam.) Small▲
Chamaesyce hyssopifolia (L.) Small▲
Chamaesyce prostrata (Aiton) Small▲
Chamaesyce thymifolia (L.) Millsp.▲
Cnidoscolus urens (L.) Arthur▲
Croton brasiliensis Mart. ex Klotzsch*▲
Croton hirtus L'Hér.
Croton klotzschii (Didr.) Baill.*▲
Croton lobatus L.▲
Croton sellowii Baill.▲
Dalechampia scandens L.▲
Dalechampia tiliifolia var. *ficifolia* (Lam.) Kuntze*▲
Euphorbia pilulifera var. *discolor* Engelm.▲
Jatropha mollissima (Pohl) Baill.▲
Mycrostachys corniculata (Vahl.) Griseb.*▲
Pera ferruginea (Schott) Müll. Arg.▲
Pera glabrata (Schott) Poepp. ex Baill.*▲
Phyllanthus acidus (L.) Skeels

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Table 2. Continuation.

Phyllanthus minutulus Müll. Arg.
Phyllanthus niruri L.▲
Pogonophora schomburgkiana Miers ex Benth.▲
Poinsettia heterophylla (L.) Klotzsch & Garcke
Ricinus communis L.▲
Fabaceae
Abrus precatorius L.▲
Aeschynomene sensitiva Sw.*
Andira fraxinifolia Benth.*▲
Andira nitida Mart. ex Benth.*▲
Canavalia brasiliensis Mart. ex Benth.▲
Canavalia obtusifolia DC.▲
Canavalia rosea (Sw.) DC.*▲
Centrosema brasilianum (L.) Benth.▲
Clitoria cajanifolia (C. Presl) Benth.
Clitoria laurifolia Poir.▲
Crotalaria pallida Aiton▲
Crotalaria retusa L.▲
Dalbergia ecastaphyllum (L.) Taub.*▲
Dalbergia heptaphylla Poir.
Desmodium barbatum (L.) Benth.▲
Desmodium incanum DC.▲
Dioclea bicolor Benth.
Erythrina velutina Willd.▲
Hymenolobium alagoanum Ducke.▲
Indigofera campestris Bong.ex Benth.
Indigofera suffruticosa Mill.▲
Machaerium angustifolium Vog.
Macroptilium gracile (Poepp. Ex. Benth.) Urb.▲
Periandra mediterranea (Vell.) Taub.▲
Rhynchosia phaseoloides (Sw.) DC.*▲
Sesbania exasperatus (Kunth) Rydb.
Sophora tomentosa L.*▲
Swartzia pickelii Killip ex Ducke▲
Stylosanthes angustifolia Vogel
Stylosanthes gracilis Kunth
Stylosanthes guianensis (Subl.) Sw.▲
Stylosanthes viscosa (L.) Sw.▲
Vigna candida (Vell.) Maréchal, Mascherpa & Stainier*
Zornia diphylla (L.) Pers.▲
Flacourtiaceae
Casearia javitensis Kunth
Casearia ramiflora Vahl.
Casearia sylvestris Sw.▲
Gentianaceae
Schultesia guianensis (Aubl.) Malme*

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Heliconiaceae
Heliconia angustifolia Hook.
Heliconia psittacorum L. F.*▲
Heliconia rostrata Ruiz & Pav.
Humiriaceae
Humiria balsamifera Aubl.*▲
Sacoglottis mattogrossensis Malme*▲
Icacinaceae
Emmotum fagifolium Desv. ex Ham.
Iridaceae
Cipura paludosa Aubl.
Neomarica caerulea (Ker Gawl.) Sprague▲
Lamiaceae
Hyptis fruticosa Salzm. ex Benth.▲
Hyptis lanceolata Poir.
Hyptis suaveolens (L.) Poit.
Ocimum gratissimum L.
Lauraceae
Cassytha americana Ness.▲
Cassytha filiformis L.*▲
Nectandra cuspidata Nees & Mart.
Ocotea duckei Vattimo▲
Ocotea gardneri (Meisn.) Mez▲
Ocotea glomerata (Ness) Mez
Lecythidaceae
Eschweilera ovata (Cambess.) Miers*▲
Eschweilera luschnathii (O. Berg) Miers▲
Gustavia augusta L.▲
Lentibulariaceae
Utricularia pusilla Vahl.▲
Liliaceae
Crinum procerum Carey
Hippeastrum aulicum Herb.
Hippeastrum stylosum Herb.
Loganiaceae
Spigelia anthelmia L.▲
Loranthaceae
Psittacanthus dichrous (Mart.) Mart.*▲
Lythraceae
Cuphea flava Spreng.▲
Malpighiaceae
Byrsonima cydoniifolia A. Juss.▲
Byrsonima gardneriana A.Juss.▲
Byrsonima riparia W. R. Anderson
Byrsonima sericea DC.*▲
Byrsonima verbascifolia (L.) DC.*▲
Galphimia brasiliensis (L.) A. Juss.
Stigmaphyllon paralias A. Juss.*▲

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Malvaceae
Gossypium arboreum L.
Gossypium hirsutum L.
Pavonia cancellata (L.) Cav.▲
Pseudomalachra ciliaris (L.) H.C. Monteiro▲
Pseudomalachra plumosa (Cav.) H. Monteiro▲
Sida linifolia Cav.▲
Malva rhombifolia (L.) Krause▲
Urena lobata L.▲
Maranthaceae
Stromanthe tonckat (Aubl.) Eichler
Marcgraviaceae
Norantea brasiliensis Choisy*▲
Melastomaceae
Clidemia biserrata DC.*
Clidemia hirta (L.) D. Don*▲
Miconia albicans (Sw.) Triana.*▲
Miconia cf. *amoena* Triana*▲
Miconia ciliata (Rich.) DC.*▲
Pterolepis herincqniana Cogn.
Pterolepis polygonoides (DC.) Triana
Mimosaceae
Abarema cochliacarpos (Gomes) Barneby & J.W. Grimes*
Abarema filamentosa (Benth.) Pittier*▲
Acacia farnesiana (L.) Willd.
Chloroleucon foliolosum (Benth.) G.P. Lewis▲
Inga bahiensis Benth.▲
Inga capitata Desv.*▲
Inga edulis Mart.
Inga fagifolia G. Don▲
Inga flagelliformis (Vell.) Mart.
Inga marginata Willd.
Mimosa bimucronata (DC.) Kuntze*
Mimosa pigra L.▲
Mimosa pudica L.▲
Mimosa somnians Humb. & Bonpl. Ex Willd.▲
Pithecellobium dulce (Roxb.) Benth.
Pithecellobium saman (Jacq.) Benth.▲
Molluginaceae
Mollugo verticillata L.▲
Moraceae
Ficus guianensis Desv. ex Ham.▲
Myrsinaceae
Rapanea guianensis Aubl.▲
Myrtaceae
Calyptranthes brasiliensis Spreng.*
Calyptranthes dardanoi Mattos
Campomanesia dichotoma (O. Berg) Mattos▲

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Eugenia excelsa O. Berg*
Eugenia ferreiraeana O. Berg
Eugenia hirta O. Berg*▲
Eugenia punicifolia (Kunth) DC.*▲
Eugenia uniflora L.*▲
Marlierea parviflora O. Berg
Marlierea regeliana O. Berg
Marlierea aff. *schottii* (O. Berg) D. Legrand*
Marlierea strigipes O. Berg
Myrcia bergiana O. Berg*
Myrcia guianensis (Aubl.) DC.*▲
Myrcia hirtiflora DC.
Myrcia aff. *laroutteana* Cambess.
Myrcia multipla D. Legrand
Myrcia rotundifolia (O. Berg) Kiaersk.▲
Myrcia sylvatica (G. Mey.) DC.▲
Myrcia tomentosa (Aubl.) DC.
Myrciaria floribunda (H. West ex Willd.) O. Berg*▲
Psidium araca Raddi▲
Psidium cattleyanum Sabine*
Psidium guineense Sw.*▲
Nyctaginaceae
Boerhavia coccinea Mill.▲
Guapira nitida (Schmidt) Lundell
Guapira pernambucensis (Casar.) Lundell*▲
Pisonia cordifolia Mart.▲
Pisonia subcordata Sw.
Ochnaceae
Ouratea crassa Tiegh▲
Ouratea cuspidata Tiegh.*▲
Ouratea fieldingiana (Gardner) Engl.▲
Sauvagesia tenella Lam.
Olacaceae
Ximenia americana L.*▲
Oleaceae
Jasminum azoricum L.
Onagraceae
Ludwigia linifolia Poir.▲
Ludwigia suffruticosa Walter*▲
Orchidaceae
Catasetum discolor (Lindl.) Lindl.*▲
Catasetum macrocarpum Rich. ex Kunth*
Cyrtopodium intermedium Brade*
Cyrtopodium paranaense Schltr.▲
Dimerandra emarginata (G. Mey.) Hoehne
Encyclia acuta Schltr.
Epidendrum cinnabarinum Salzm. ex Lindl.▲
Epidendrum schomburgkii Lindl.

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Habenaria petalodes Lindl.
Oeceoclades maculata (Lindl.) Lindl.*▲
Polystachya concreta (Jacq.) Garay & H.R. Sweet*▲
Prescottia stachyodes (Sw.) Lindl. *
Prosthechea fragrans (Sw.) W.E. Higgins
Vanilla chamissonis Klotzch.*▲
Passifloraceae
Passiflora cincinnata Mart.▲
Passiflora foetida L.▲
Passiflora galbana Mast.*▲
Passiflora mucronata Lam.*▲
Passiflora quadrangularis L.
Phytolacaceae
Microtea paniculata Moq.*▲
Poaceae
Andropogon bicornis L.▲
Andropogon selloanus (Hack.) Hack.*▲
Aristida longifolia Trin.
Cenchrus echinatus L.▲
Chloris dandyana C.D. Adams
Cynodon dactylon (L.) Pers.▲
Cynodon dactylon var. *maritimus* (Kunth) Hack.
Dactyloctenium aegyptium (L.) Willd.▲
Digitaria ciliaris (Retz.) Koeler▲
Digitaria sanguinalis (L.) Scop.▲
Echinochloa colonum (L.) Link.▲
Echinochloa crus-pavonis (Kunth) Schult.
Eleusine indica (L.) Gaertn.▲
Eragrostis ciliaris (L.) R. Br.▲
Eragrostis prolifera (Sw.) Steud.
Eragrostis rufescens Schrad. ex Schult.▲
Eustachys caribaea (Spreng.) Herter
Gymnopogon foliosus (Willd.) Ness*▲
Hymenachne amplexicaulis (Rudge) Nees▲
Hyparrhenia diplandra (Hack.) Stapf
Leptochloa scabra Nees
Panicum aquaticum Poir.▲
Panicum asperifolium (Desv.) Hitchc.▲
Panicum laxum Sw.*▲
Panicum pilosum Sw.▲
Panicum repens L.
Pappophorum mucronulatum Ness
Paspalidium geminatum (Forssk.) Stapf▲
Paspalum arundinaceum Poir.
Paspalum conjugatum P.J. Bergius
Paspalum maritimum Trin.*▲
Paspalum vaginatum Sw.*▲
Raddia biformis Hitchc. & Chase

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Table 2. Continuation.

Setaria tenax (Rich.) Desv.▲
Setaria vulpiseta (Lam.) Roem.& Schult.▲
Sporobolus tenacissimus (L. f.) P. Beauv.
Sporobolus virginicus (L.) Kunth*▲
Trichachne insularis (L.) Nees
Urochloa decumbens (Stapf) R.D. Webster
Polygalaceae
Polygala cyparissias A.St.-Hil. & Moq.*▲
Polygala violacea Aubl. ▲
Securidaca volubilis L.
Polygonaceae
Coccoloba confusa How*
Coccoloba laevis Casar.*▲
Coccoloba scandens Casar.
Polygonum acre Lam.
Portulacaceae
Portulaca oleracea L.▲
Rhamnaceae
Ziziphus joazeiro Mart.▲
Rubiaceae
Alibertia sessilis (Vell.) K. Schum.
Anisomeris gracilipes K. Schum.
Borreria scabiosoides Cham. & Schltdl.*
Borreria verticillata (L.) G. Mey.▲
Borreria virgata Cham. & Schltdl.
Chiococca alba (L.) Hitchc.*▲
Diodia apiculata (Willd. ex Roem. & Schult.) K. Schum.*▲
Diodia setigera DC.
Genipa americana L.*▲
Guettarda platypoda DC.▲
Mitracarpus frigidus (Willd. ex Roem. & Schult.) K. Schum.*▲
Palicourea crocea (Sw.) Roem. & Schult.
Psychotria bahiensis DC.▲
Richardia grandiflora (Cham. et Schltdl.) Steud.▲
Salzmannia nitida DC.*▲
Staelia galioides DC.
Staelia virgata (Link ex Roem. & Schult.) K. Schum.
Tocoyena brasiliensis Mart.▲
Tocoyena formosa (Cham. & Schltdl.) K. Schum.▲
Tocoyena sellowiana (Cham. & Schltdl.) K.Schum.▲
Rutaceae
Esenbeckia grandiflora Mart.*▲
Pilocarpus pauciflorus A. St.-Hil.
Sapindaceae
Cupania aff. *racemosa* (Vell.) Radlk.*
Dodonaea viscosa Jacq.
Paullinia pinnata L.
Paullinia trigonia Vell.▲
Serjania salzmanniana Schltr.*▲

LISTS OF SPECIES

Table 2. Continuation.

Sapotaceae
Manilkara salzmannii (A. DC.) H.J.Lam▲
Manilkara zapota (L.) P. Royen▲
Pouteria grandiflora (A. DC.) Baehni*▲
Scrophulariaceae
Capraria biflora L.
Scoparia dulcis L.▲
Stemodia foliosa Benth.▲
Stemodia pratensis (Aubl.) C.P. Cowan
Simaroubaceae
Simaba cuneata A.St.-Hil & Tul.*▲
Solanaceae
Cestrum parqui L'Hér.
Cyphomandra fragrans (Hook.) Sendtn.
Lycopersicon esculentum Mill.
Schwenckia americana L.*▲
Solanum americanum Mill.▲
Solanum paludosum Moric.▲
Solanum paniculatum L.▲
Solanum stipulaceum Roem. & Schult.▲
Sterculiaceae
Guazuma ulmifolia Lam▲
Waltheria indica L.▲
Waltheria viscosissima A. St.-Hil.▲
Theophrastaceae
Jacquinia armillaris Jacq.▲
Tiliaceae
Luehea paniculata Mart.
Trigoniaceae
Trigonia nivea Cambess*▲
Turneraceae
Turnera ulmifolia L.▲
Ulmaceae
Trema micrantha (L.) Blume*▲
Verbenaceae
Lantana camara L.▲
Lantana rugulosa Kunth
Lippia alba (Mill.) N.E. Br
Stachytarpheta cayennensis (Rich) Vahl
Stachytarpheta elatior Schrad. ex Schult.▲
Vitex rufescens A. Juss.▲
Violaceae
Hybanthus ipecacuanha (L.) Baill.▲
Rinorea aff. *bahiensis* (Moric.) Kuntze
Vitacea
Cissus erosa Rich.*▲
Vochysiaceae
Qualea cryptantha (Spreng.) Warm.*
Xyridaceae
Xyris jupicai Rich.*▲

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The families with the greatest numbers of species had predominately herbaceous habits, followed by shrub-arboreal families (Myrtaceae and Fabaceae) that are common in the Atlantic Forests and of generally wide distribution (Peixoto and Gentry 1990; Silva and Britez 2005).

Pereira and Araujo (2000) compiled a species list for the *restinga*s of Espírito Santo and Rio de Janeiro and encountered 1,378 species, 13 % of which were endemic to Rio de Janeiro. A comparison of this study with that presented here reveals that the *restinga*s of Pernambuco contain ca. 34 % of the species listed for Espirito Santo and Rio de Janeiro, and only 10 % (140 species) were held in common. Of the 477 species recorded from Pernambuco, 289 (60.71 %) were found in other *restinga*s of northeastern Brazil.

Among the shrub and arboreal species with ample distribution within the *restinga*s of Pernambuco were: *Andira nitida*, *Buchenavia capitata*, *Byrsonima gardneriana*, *Byrsonima sericea*, *Coccoloba laevis*, *Curatella americana*, *Guettarda platypoda*, *Hancornia speciosa*, *Himatanthus phagedaenicus*, *Inga capitata*, *Manilkara salzmannii*, *Maytenus distichophylla*, *Pera glabrata*, *Protium heptaphyllum*, *Sacoglottis matogrossensis*, *Tapirira guianensis*, and *Vismia guianensis*, among others. According to Zickel et al. (2004), these species are also found in other *restinga* areas in northeastern Brazil.

The species with restricted distributions in Pernambuco and not cited for *restingas* of other northeastern states represent 39.29 % (188 species) of all the species encountered, and include: *Abarema filamentosa* (Figure 2), *Annona crassiflora* (Figure 3), *Byrsonima riparia* (Figure 4), *Calyptranthes dardanoi*, *Coccoloba confusa*, *Cyphomandra fragrans*, *Guapira* cf. *nitida*, *Inga flagelliformis*, *Cipura paludosa*, *Myrcia bergiana*, *Myrcia guianensis*, *Paullinia pinnata*, *Pilocarpus pauciflorus*, *Protium bahianum*, *Rollinia pickelli*, *Ruellia geminiflora*, *Staelia galioides*, *Schultesia guianensis*, *Sloanea guianensis*, *Stachytarpheta cayennensis*, *Stylosanthes angustifolia*, and *Urochloa decumbens*.

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Figure 2. Flower and fruit of *Abarema filamentosa* (Benth.) Pittier; municipality of Ipojuca, Pernambuco.

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Figure 3. Lateral view, flower of *Annona crassiflora* Mart.; municipality of Ipojuca, Pernambuco.

Figure 4. Frontal view, inflorescence of *Byrsonima riparia* W. R. Anderson; municipality of Ipojuca, Pernambuco.

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