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# Floristic diversity on the eastern slopes of the Peruvian Andes

KENNETH R. YOUNG

## ABSTRACT

YOUNG, K. R. (1991). Floristic diversity on the eastern slopes of the Peruvian Andes. *Candollea* 46: 125-143. In English, English and Spanish abstract.

An evaluation was made of the number of species of vascular plants in montane and lower montane humid forest life zones on the eastern slopes of the Peruvian Andes. Reliable records were found for 2342 species, with 1668 reported from 1500-2500 m elevation and 1043 from 2500-3500 m. The orchids formed the largest group, accounting for 12% of the species. Although only occupying 5% of the surface area of Peru, these ecological zones contain 14% of the country's plant species and thus warrant high priority for conservation efforts.

## RESUMEN

YOUNG, K. R. (1991). Diversidad florística en la vertiente oriental de los Andes peruanos. *Candollea* 46: 125-143. En inglés, resúmenes en inglés y en español.

Se realizó una evaluación del número de especies de plantas vasculares en zonas de vida del bosque húmedo montano y montano bajo en la vertiente oriental de los Andes del Perú. Se hallaron registros confiables para 2342 especies, de las cuales 1668 se conocen de 1500-2500 m de altitud y 1043 de 2500-3500 m. Las orquídeas constituyeron el grupo más grande con 12% de las especies. Aunque estas zonas ecológicas sólo ocupan el 5% de la superficie del Perú contienen 14% de las especies de plantas del país y por tanto merecen alta prioridad en los esfuerzos de conservación.

## Introduction

GENTRY (1977, 1988) and PRANCE & CAMPBELL (1988) granted a very high priority to preservation of humid forests on the eastern slopes of the central Andes, based on high floristic diversity, the presence of numerous endemics, and the encroachment of roads and associated deforestation. These authors have additionally noted the virtual absence of studies of the zone. As a first step in the process of assessing conservation priorities and strategies, I here ask how many species, genera, and families of vascular plants have been reliably reported from humid habitats between 1500 and 3500 m on the eastern slopes of Peru's Andes.

## Study area and methods

A map of the study zone (Fig. 1) was fabricated using a 1500 m contour estimated from the national map of Peru (e.g., PEÑAHERRERA DEL AGUILA, 1989) and a line representing the upper elevation of closed forest derived from study of 1:250,000 scale printed Landsat imagery (INSTITUTO GEOGRÁFICO NACIONAL, 1984). The latter line would generally approximate a 3500 m contour.

The delimited zone occupies approximately 5% of the surface area of Peru (that is, 5% of 1,285,216 km<sup>2</sup>, or roughly 64,260 km<sup>2</sup>). Functioning national parks (Rio Abiseo, Yanachaga-Chemillén, Manu; Fig. 1) only protect about 8% of the zone.

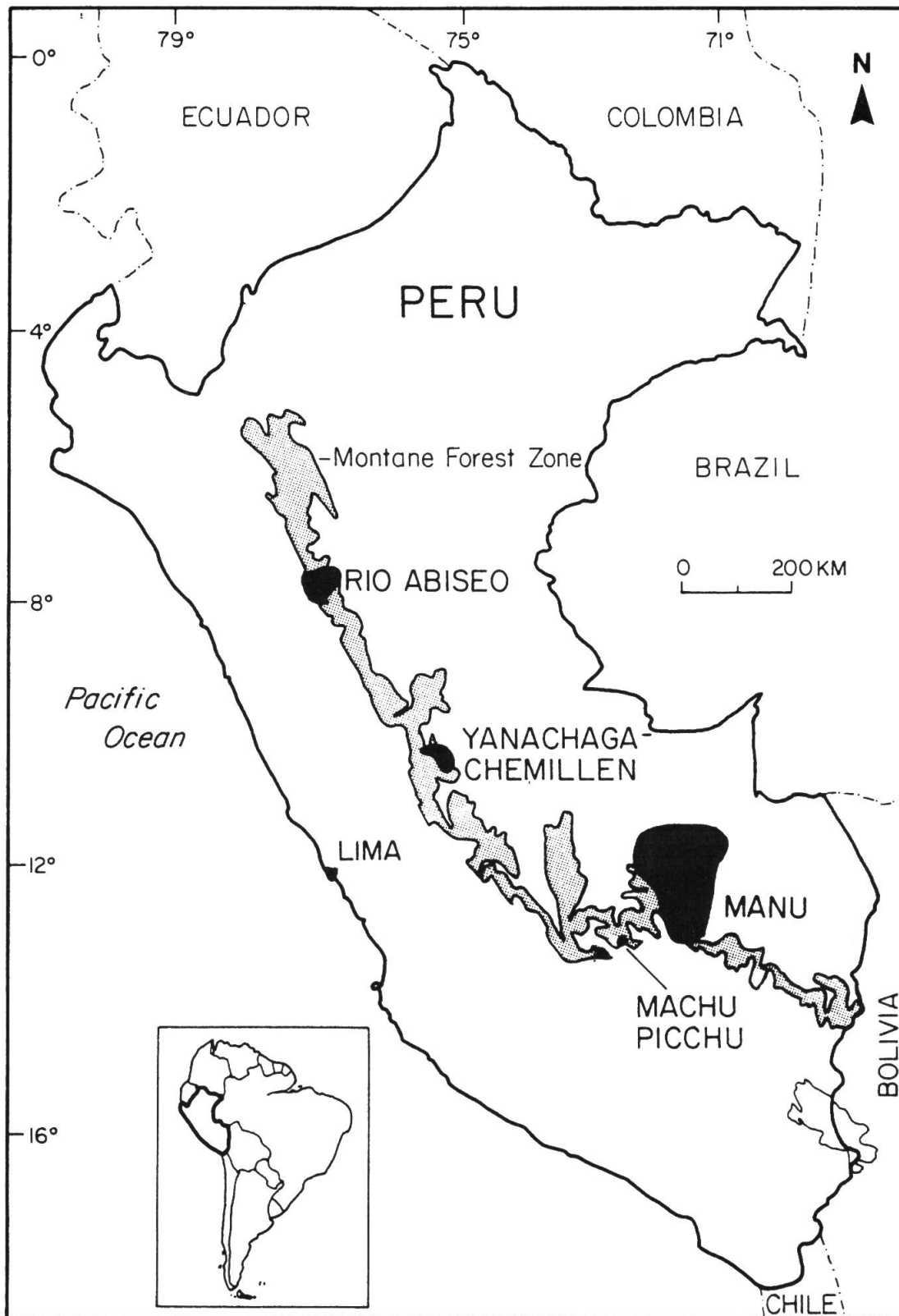


Fig. 1. — Map of the study zone in Peru as delimited to the east by a 1500 m contour and along the western boundary by the presence of timberline (approximately 3500 m elevation). The three national parks are indicated.

A conservative estimate of number of vascular plant species growing in humid montane and lower montane forest formations on the eastern slopes of the Peruvian Andes was made using the available literature, in addition to the examination of recently collected plants deposited in herbaria in Peru (HUT: Herbarium Truxillense, Trujillo; USM: Herbario de la Universidad Mayor de San Marcos, Lima) and the United States (F: Field Museum of Natural History, Chicago; MO: Missouri Botanical Garden, St. Louis). I counted species reported from all humid or very humid habitats from 1500 to 3500 m elevation, including wetlands and previously forested areas cleared for agriculture. This would correspond to the moist, wet, and rain humidity provinces of the lower montane and montane life zones of Holdridge (ONERN, 1976); I disregarded plants limited in distribution to dry forest life zones within the study area. I also distinguished among plants reported from the entire altitudinal range, and those from 1500-2500 m or from 2500-3500 m. No taxonomic decisions or evaluations were made except for an attempt to use the most recent and/or reliable sources of information. I omitted species for which only imprecise locality information was available.

Table 1. Summary of vascular plant species diversity in humid and very humid habitats of the eastern slopes of the Peruvian Andes.

<i>Taxa</i>	Approximate number of species		
	1500-2500 m	2500-3500 m	1500-3500 m
<b>Pteridophytes</b>			
Cyatheaceae .....	25	8	28
Dennstaedtiaceae .....	22	7	25
Dryopteridaceae .....	43	27	65
Hymenophyllaceae .....	37	27	43
Lycopodiaceae .....	8	21	24
Polypodiaceae .....	35	20	47
Pteridaceae .....	50	35	59
All others .....	84	58	109
Subtotal .....	304	203	400
<b>Gymnosperms</b>			
Subtotal .....	1	4	5
<b>Monocots</b>			
Amaryllidaceae .....	20	17	31
Araceae .....	25	3	26
Bromeliaceae .....	55	26	72
Cyperaceae .....	20	4	22
Orchidaceae .....	202	126	291
Poaceae .....	35	27	57
All others .....	50	18	65
Subtotal .....	407	221	564
<b>Dicots</b>			
Araliaceae .....	10	12	21
Asteraceae .....	40	54	85
Campanulaceae .....	24	19	41
Chloranthaceae .....	11	8	13
Cunoniaceae .....	10	16	25
Ericaceae .....	23	45	61
Euphorbiaceae .....	21	3	22
Fabaceae .....	37	18	51
Lauraceae .....	37	7	40
Loranthaceae .....	22	10	28
Melastomataceae .....	67	29	92
Moraceae .....	27	1	28
Myrsinaceae .....	11	13	22
Piperaceae .....	44	8	52
Rosaceae .....	5	20	24
Rubiaceae .....	78	19	90
Sapindaceae .....	21	1	22
Scrophulariaceae .....	25	50	52
Solanaceae .....	36	21	51
Urticaceae .....	32	8	
All others .....	375	203	519
Subtotal .....	956	615	1373
<b>Total .....</b>	<b>1668</b>	<b>1043</b>	<b>2342</b>

## Results

Records of 2342 vascular plant species were found for the entire study area (Appendix; summarized in Table 1). These species constituted a total of 161 plant families and 659 genera. Pteridophytes made up 400 (17%) of the species, 24 of the families (15%), and 75 of the genera (11%). Gymnosperms, represented only by the family Podocarpaceae, accounted for five of the species (< 1%) and 3 of the genera (< 1%). There were 564 species of monocots (24%), 22 families (14%), and 152 genera (23%). Dicot species richness was 1373 (59%), with 114 families (71%) and 429 genera (65%).

Orchids (Orchidaceae) were by far the largest group, followed by the dicot families Melastomataceae, Rubiaceae, Asteraceae, and Ericaceae; the monocot family Bromeliaceae; and ferns of the family Dryopteridaceae (Table 1).

Much of the species richness (1668 species) was located in the lower elevational belt, 1500-2500 m, which usually corresponds to a lower montane moist, wet, or rain forest formation. Fewer species (1043) have been reported from the upper elevational belt, 2500-3500 m, which would usually contain montane moist, wet, or rain forest formations.

The greater diversity at lower elevations was due to large numbers of species of monocots, principally orchids, aroids (Araceae), sedges (Cyperaceae), and bromeliads (Bromeliaceae); and of certain dicots, especially in the Euphorbiaceae, Fabaceae, Lauraceae, Melastomataceae, Moraceae, Piperaceae, Rubiaceae, Sapindaceae, and Urticaceae (Table 1). Numerous plant groups have only been reported from 1500-2500 m (Appendix). These include 1 pteridophyte family and 18 genera; 1 gymnosperm genus, 8 monocot families and 81 genera, 24 dicot families and 211 genera. Far fewer are apparently restricted to the 2500-3500 m elevational belt (Appendix), including 1 pteridophyte family and 5 genera, 2 gymnosperm genera, 17 monocot genera, 9 dicot families and 66 genera. Note, however, that these results will undoubtedly need to be revised in the future because elevational range expansions are to be expected due to the low intensity of botanical exploration in the study zone.

## Discussion

Besides refinements to be expected in information about number of species and size of their ranges, this survey had obvious sources of error in groups for which published treatments do not yet exist (e.g., *Elaphoglossum*, most of the composites; see GENTRY (1980) for a list of groups treated to date in the Flora of Peru by MACBRIDE & al. (1936-present)), and in those for which exact locality information was not provided (e.g., many of the poorly known orchids in SCHWEINFURTH, 1958-1961, 1970). Generally, I have erred conservatively whenever possible. This means that total number of species for the study area is probably 2400-2800, with most of these probable additional species being orchids and dicots. Perhaps 1700-2000 vascular plant species should be expected to occur in the 1500-2500 m belt, and 1000-1200 species from 2500-3500 m.

Given that the number of vascular plant species in Peru is roughly 18,000-20,000 (GENTRY, 1980), and using mean values for the estimates made in this study, I conclude that approximately 14% of Peru's flora is found in the study zone. This contrasts with the 5% of the national territory that falls within the study zone. Much (9% of the country's total) of this species diversity is concentrated from 1500 to 2500 m, although taken on its own the 2500-3500 m belt provides habitat for about 6% of the vascular plants of Peru.

This study documented the often overlooked importance of pteridophytes in tropical montane floras. Ferns and fern allies accounted for almost a fifth of the species of the study zone. Forty percent of the 1000 pteridophyte species estimated for all of Peru (TRYON & STOLZE, 1989a) have been reported for the zone. YOUNG & LEÓN (1990) showed that only the upper elevations of Rio Abiseo National Park, in this case including also the tropical alpine zone, contained 169 species of pteridophytes, or 17% of the total number estimated for Peru.

The largest single contribution to floristic diversity, even though it was underestimated in this study, is that due to orchid species, which made up 12-13% of species richness for each of the two altitudinal belts considered separately and 12% of the number of species for the entire zone. Orchid

diversity was also high within the boundaries of Rio Abiseo National Park where YOUNG & LEÓN (1990) reported 72 species. GENTRY & DODSON (1987) discussed the dramatic speciation of orchids, especially among neotropical epiphytic groups and especially between 1000-2000 m in the Andes.

If the study zones were to be characterized simply in terms of groups with the most species it could be known as an orchid diversity zone, with mention also for the dryopterid ferns, Asteraceae, Bromeliaceae, Ericaceae, Melastomataceae (especially *Miconia*), and Rubiaceae.

Conservation strategies need to take these facts into consideration, although priorities and policies cannot be established solely on the basis of species diversity patterns. Other factors that now need to be evaluated for this study zone are the number of species with restricted elevational and/or latitudinal ranges, and the rate and nature of forest conversion. Needed are more detailed studies of the nature of human impact, which would clarify the types of plant species most at risk (e.g., timber species, ornamentals, endemics of certain regions). Given that < 10% of the study zone (see Fig. 1) is included within national parks, it is clear that the biotic diversity of this zone is highly threatened. Especially worrisome is the fact that these national parks protect flora more by virtue of their inaccessibility than by active control efforts. Urgently needed are more reserves in this zone and more funds with which to manage them.

Appendix. — Genera and approximate number of vascular plant species reported from humid and very humid habitats of the eastern side of the Peruvian Andes. Source of information is given by referring to literature and/or the consultation of herbarium collections.

- |  |                               |
|--|-------------------------------|
| *1. MACBRIDE & COLLABORATORS (1936-present).                     | 15. HOLMES & MCDANIEL (1984). |
| 2. Observations made in the following herbaria: MO, HUT, USM, F. | 16. LUTEYN (1987).            |
| 3. TRYON & STOLZE (1989a, 1989b).                                | 17. LUTEYN (1984).            |
| 4. TRYON (1964).   | 18. LUTEYN (1978).            |
| 5. MORAN (1987).   | 19. BOHLIN (1988).            |
| 6. LELLINGER (1972).   | 20. SOLOMON (1982).           |
| 7. ALSTON & al. (1981).  | 21. CUATRECASAS (1970).       |
| 8. LEON (manuscript).  | 22. CUATRECASAS (1985).       |
| 9. YOUNG & LEON (1990).  | 23. TODZIA (1988).            |
| 10. SIMPSON (1979).  | 24. MOLOU (1988).             |
| 11. SAGASTEGUI-ALVA & DILLON (1988).                             | 25. SMITH & DOWNS (1974).     |
| 12. SCHWEINFURTH (1958-1961).                                    | 26. SMITH & DOWNS (1977).     |
| 13. SCHWEINFURTH (1970).   | 27. SMITH & DOWNS (1979).     |
| 14. DILLON (1984).   |                               |

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
PTERIDOPHYTA				
ASPLENIACEAE				
<i>Asplenium</i> .....	8	6	10	2
BLECHNACEAE				
<i>Blechnum</i> .....	6	7	13	2
CYATHEACEAE				
<i>Alsophila</i> .....	1		1	3
<i>Cnemidaria</i> .....	2		2	3
<i>Cyathea</i> .....	9	5	9	3
<i>Nephelea</i> .....	3		3	3
<i>Sphaeropteris</i> .....	3	1	4	3
<i>Trichipteris</i> .....	7	2	9	
DAVALLIACEAE				
<i>Nephrolepis</i> .....	3	2	3	4
DENNSTAEDTIACEAE				
<i>Blotiella</i> .....	1		1	3
<i>Dennstaedtia</i> .....	7	2	8	3
<i>Histiopteris</i> .....	1	1	1	3
<i>Hypolepis</i> .....	4	2	6	3
<i>Lindsaea</i> .....	4		4	3
<i>Lonchitis</i> .....	1		1	3
<i>Paesia</i> .....	1	1	1	3
<i>Pteridium</i> .....	1	1	1	3
<i>Saccoloma</i> .....	2		2	3

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<b>DICKSONIACEAE</b>				
<i>Culcita</i> .....	1	1	1	3
<i>Dicksonia</i> .....	2	1	2	3
<b>DRYOPTERIDACEAE</b>				
<i>Arachniodes</i> .....		1	1	2
<i>Athyrium</i> .....	1	1	2	2
<i>Ctenitis</i> .....	1		1	2
<i>Cyrtomium</i> .....		1	1	2
<i>Cystopteris</i> .....		1	1	2
<i>Diplazium</i> .....	19	3	20	2
<i>Dryopteris</i> .....	3	1	3	2
<i>Elaphoglossum</i> .....	7	11	17	2
<i>Hemidictyum</i> .....	1		1	2
<i>Meqalastrum</i> .....	4	1	5	2
<i>Polybotrya</i> .....	3		3	5
<i>Polystichum</i> .....	1	6	7	2
<i>Oleandra</i> .....	2		2	4
<i>Tectaria</i> .....	1		1	2
<b>EQUISETACEAE</b>				
<i>Equisetum</i> .....	3	2	3	2
<b>GLEICHENIACEAE</b>				
<i>Dicranopteris</i> .....	3	1	3	3
<i>Gleichenia</i> .....	10	7	12	3
<b>HYMENOPHYLLACEAE</b>				
<i>Hymenophyllum</i> .....	24	22	30	3
<i>Trichomanes</i> .....	13	5	13	3
<b>ISOETACEAE</b>				
<i>Isoetes</i> .....		3	3	2
<b>LOPHOSORIACEAE</b>				
<i>Lophosoria</i> .....	1	1	1	3
<b>LOXOMATAACEAE</b>				
<i>Loxomopsis</i> .....	1	1	1	3
<b>LYCOPODIACEAE</b>				
<i>Huperzia</i> .....	5	15	18	2
<i>Lycopodiella</i> .....	1	3	3	2
<i>Lycopodium</i> .....	2	3	3	2
<b>MARATTIACEAE</b>				
<i>Danaea</i> .....	3		3	3
<i>Marattia</i> .....	1		1	3
<b>OPHIOGLOSSACEAE</b>				
<i>Botrychium</i> .....	2	2	2	3
<i>Ophioglossum</i> .....	3	5	5	3
<b>OSMUNDACEAE</b>				
<i>Osmunda</i> .....	2	1	2	3
<b>PLAGIOGYRIACEAE</b>				
<i>Plagiogyria</i> .....	1	1	1	3
<b>POLYPODIACEAE</b>				
<i>Campyloneurum</i> .....	7	3	10	2
<i>Grammitis</i> .....	9	8	13	2
<i>Niphidium</i> .....	4	5	6	2, 6
<i>Pleopeltis</i> .....	2		2	2
<i>Polypodium</i> .....	12	4	15	2
<i>Solanopteris</i> .....	1		1	2
<b>PTERIDACEAE</b>				
<i>Adiantopsis</i> .....	1	1	1	3
<i>Adiantum</i> .....	11	4	11	3
<i>Anogramma</i> .....	1		1	3
<i>Cheilanthes</i> .....	7	7	8	3
<i>Doryopteris</i> .....	3	1	4	3
<i>Eriosorus</i> .....	6	6	8	3
<i>Jamesonia</i> .....		5	5	3
<i>Notholaena</i> .....	2	2	2	3
<i>Pellaea</i> .....	3	3	3	3
<i>Pityrogramma</i> .....	5	3	5	3
<i>Pteris</i> .....	10	3	10	3
<i>Pterozonium</i> .....	1		1	3



Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<b>SCHIZAEACEAE</b>				
<i>Anemia</i> .....	7	1	7	3
<i>Schizaea</i> .....	1	1	2	3
<b>SELAGINELLACEAE</b>				
<i>Selaginella</i> .....	15	4	16	7
<b>THELYPTERIDACEAE</b>				
<i>Thelypteris</i> .....	3	7	9	2
<b>VITTARIACEAE</b>				
<i>Antrophyum</i> .....	2	1	2	3
<i>Vittaria</i> .....	6	3	7	3
<b>GYMNOSPERMAE</b>				
<b>PODOCARPACEAE</b>				
<i>Decussocarpus</i> .....	1		1	2
<i>Podocarpus</i> .....		3	3	2
<i>Prumnopitys</i> .....		1	1	2
<b>ANGIOSPERMAE: MONCOTYLEDONEAE</b>				
<b>AMARYLLIDACEAE</b>				
<i>Bomarea</i> .....	15	15	26	1, 2
<i>Hippeastrum</i> .....	1		1	1
<i>Hypoxis</i> .....	1	1	1	1
<i>Urceolina</i> .....	3	1	3	1
<b>ARACEAE</b>				
<i>Anthurium</i> .....	19	3	20	1, 2
<i>Asterostigma</i> .....	1		1	1
<i>Philodendron</i> .....	2		2	1
<i>Rhodospata</i> .....	1		1	1
<i>Xanthosoma</i> .....	2		2	2, 9
<b>ARECACEAE</b>				
<i>Ceroxylon</i> .....	1	3	4	1, 2
<i>Chamaedorea</i> .....	3		3	2, 9
<i>Dictyocaryum</i> .....	1		1	2
<i>Euterpe</i> .....	1		1	1
<i>Geonoma</i> .....	5	1	6	1, 2
<i>Prestoea</i> .....	1	1	1	9
<b>BROMELIACEAE</b>				
<i>Aechmea</i> .....	1		1	1, 27
<i>Guzmania</i> .....	9	1	9	1, 26
<i>Pitcairnia</i> .....	14	5	18	1, 2, 25
<i>Puya</i> .....	6	5	11	1, 2, 25
<i>Tillandsia</i> .....	25	15	33	1, 2, 26
<b>BURMANNIACEAE</b>				
<i>Burmannia</i> .....	1		1	1
<b>CANNACEAE</b>				
<i>Canna</i> .....	2		2	2
<b>COMMELINACEAE</b>				
<i>Callisia</i> .....	2		2	2
<i>Cymbispatha</i> .....	1		1	2
<i>Dichorisandra</i> .....	1		1	2
<i>Tinantia</i> .....	2		2	1
<i>Tradescantia</i> .....	1		1	1
<b>CYCLANTHACEAE</b>				
<i>Asplundia</i> .....	1		1	2
<i>Carludovica</i> .....	2		2	1
<i>Sphaeradenia</i> .....			1	2
<b>CYPERACEAE</b>				
<i>Bulbostylis</i> .....	3		3	1
<i>Carex</i> .....	3		3	1, 2
<i>Cyperus</i> .....	2		2	1, 2
<i>Eleocharis</i> .....	1		1	2
<i>Kyllinga</i> .....	3		3	1, 2
<i>Oreobolus</i> .....	1		1	2
<i>Rhynchospora</i> .....	3	1	4	1, 2
<i>Scirpus</i> .....	1	1	2	1, 2
<i>Scleria</i> .....	2	1	2	1, 2
<i>Uncinia</i> .....	1		1	1



Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<b>DIOSCOREACEAE</b>				
<i>Dioscorea</i> .....	4	6	10	1
<b>ERIOCAULACEAE</b>				
<i>Paepalanthus</i> .....	5	1	5	1
<i>Syngonanthus</i> .....	1		1	2
<b>IRIDACEAE</b>				
<i>Orthrosanthus</i> .....		1	1	1
<i>Sisyrinchium</i> .....	2	1	3	1, 2
<b>JUNCACEAE</b>				
<i>Juncus</i> .....	2		2	2
<i>Luzula</i> .....		1	1	2
<b>LILIACEAE</b>				
<i>Excremis</i> .....		1	1	1
<i>Tofieldia</i> .....	1		1	1
<b>MAYACACEAE</b>				
<i>Mayaca</i> .....	1		1	8
<b>MUSACEAE</b>				
<i>Heliconia</i> .....	2		2	2
<b>ORCHIDACEAE</b>				
<i>Altensteinia</i> .....	1	1	1	12, 13
<i>Bletia</i> .....	1		1	12
<i>Brassia</i> .....	1		1	12
<i>Bulbophyllum</i> .....	1		1	12
<i>Centropetalum</i> .....		1	1	12
<i>Cranichis</i> .....	3	3	4	12, 13
<i>Cryptocentrum</i> .....	1		1	12
<i>Cryptophoranthus</i> .....	1		1	12
<i>Cyrtidium</i> .....		1	1	2
<i>Cyrtopodium</i> .....	1		1	12
<i>Dichaea</i> .....	3	1	3	12
<i>Diothonea</i> .....		1	1	12
<i>Elleanthus</i> .....	4	2	6	2, 12
<i>Encyclia</i> .....	1		1	2
<i>Epidendrum</i> .....	31	22	49	2, 12
<i>Epistephium</i> .....	1		1	12
<i>Eriopsis</i> .....	1		1	12
<i>Erythrodes</i> .....	1	1	2	12, 13
<i>Eulophidium</i> .....	1		1	12
<i>Eurystyles</i> .....		1	1	13
<i>Fernandezia</i> .....		1	1	2
<i>Gomphichis</i> .....	1	1	2	12
<i>Gongora</i> .....	1		1	13
<i>Govenia</i> .....	1		1	12
<i>Habenaria</i> .....	5		5	12
<i>Hexisea</i> .....	1		1	12
<i>Hofmeisterella</i> .....	1		1	12
<i>Lepanthes</i> .....		7	7	12
<i>Lepanthopsis</i> .....	1	1	2	12, 13
<i>Liparis</i> .....	2	3	4	12
<i>Lockhartia</i> .....	1		1	12
<i>Lycaste</i> .....	4	1	4	12
<i>Malaxis</i> .....	1		1	12
<i>Masdevallia</i> .....	4	3	5	2, 12, 13
<i>Maxillaria</i> .....	24	9	33	2, 12, 13
<i>Miltonia</i> .....	1		1	12
<i>Mitoniopsis</i> .....	1		1	2
<i>Neodryas</i> .....	1	2	2	12
<i>Neokoehleria</i> .....	1		1	13
<i>Odontoglossum</i> .....	5	8	12	2, 12
<i>Oncidium</i> .....	11	2	11	12, 13
<i>Pachyphyllum</i> .....		4	4	12, 13
<i>Phragmipedium</i> .....	1		1	12
<i>Pleurothallis</i> .....	32	21	44	2, 12, 13
<i>Pogonia</i> .....	1		1	12
<i>Polystachya</i> .....	1		1	12
<i>Ponthieva</i> .....	3	2	4	12, 13

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<i>Prescottia</i> . . . . .	2	1	2	12
<i>Psilochilus</i> . . . . .	1		1	13
<i>Pterichis</i> . . . . .	1	1	1	12
<i>Restrepiella</i> . . . . .	1		1	13
<i>Scaphyglottis</i> . . . . .	1	1	1	12
<i>Scelochilus</i> . . . . .	1		1	13
<i>Sobralia</i> . . . . .	5	4	7	12
<i>Spiranthes</i> . . . . .	2	2	4	12
<i>Stanhopea</i> . . . . .	1		1	12
<i>Stelis</i> . . . . .	16	13	26	12, 13
<i>Stellilabium</i> . . . . .	1		1	13
<i>Stenia</i> . . . . .	1		1	13
<i>Stenoptera</i> . . . . .	1		1	12
<i>Telipogon</i> . . . . .	2	3	4	12
<i>Trichopilia</i> . . . . .	1		1	12
<i>Trichoceros</i> . . . . .	1	1	1	12
<i>Vargasiella</i> . . . . .	1	1	1	12
<i>Xylobium</i> . . . . .	4		4	12, 13
<i>Zygopetalum</i> . . . . .	1		1	12
POACEAE				
<i>Aegopogon</i> . . . . .	1	1	1	1
<i>Andropogon</i> . . . . .	2		2	1
<i>Arthrostylidium</i> . . . . .	1	1	2	1
<i>Arundinaria</i> . . . . .	1	2	3	1, 2
<i>Arundinella</i> . . . . .	1		1	1
<i>Aulonemia</i> . . . . .		2	2	2
<i>Axonopus</i> . . . . .	1	1	2	1
<i>Briza</i> . . . . .		2	2	1
<i>Chusquea</i> . . . . .	3	7	9	1, 2
<i>Cinna</i> . . . . .		1	1	1
<i>Cortaderia</i> . . . . .	1	3	3	1, 2
<i>Eragrostis</i> . . . . .		1	1	2
<i>Homolepis</i> . . . . .	1		1	2
<i>Ichnanthus</i> . . . . .	1		1	1
<i>Lasiacis</i> . . . . .	2		2	1, 2
<i>Melinis</i> . . . . .	1		1	2
<i>Muhlenbergia</i> . . . . .		1	1	2
<i>Nassella</i> . . . . .		1	1	2
<i>Neurolepis</i> . . . . .	1	2	3	1, 2
<i>Olyra</i> . . . . .	2		2	1, 2
<i>Oplismenus</i> . . . . .	1		1	1
<i>Pariana</i> . . . . .	1		1	1
<i>Paspalum</i> . . . . .	4	1	4	1
<i>Pennisetum</i> . . . . .	2		2	1, 2
<i>Poa</i> . . . . .	1		1	2
<i>Polypogon</i> . . . . .	2		2	2
<i>Pseudechinolaena</i> . . . . .	1		1	1
<i>Setaria</i> . . . . .	1		1	2
<i>Sporobolus</i> . . . . .	2		2	2
<i>Zeugites</i> . . . . .	1	1	1	1, 2
SMILACACEAE				
<i>Smilax</i> . . . . .	1		1	2
TYPHACEAE				
<i>Typha</i> . . . . .	1		1	2, 8
XYRIDACEAE				
<i>Xyris</i> . . . . .	3	1	3	1, 2
ZINGIBERACEAE				
<i>Dimerocostus</i> . . . . .	1		1	2
<i>Renealmia</i> . . . . .	1		1	2
ANGIOSPERMAE: DICOTYLEDONEAE				
ACANTHACEAE				
<i>Aphelandra</i> . . . . .	2	1	3	2, 9
<i>Habracanthus</i> . . . . .	1		1	2
<i>Hansteinia</i> . . . . .	1		1	2
<i>Justicia</i> . . . . .	1		1	2
<i>Mendoncia</i> . . . . .	1		1	2

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<i>Ruellia</i> .....	1		1	2
<i>Sanchezia</i> .....	1		1	2
ACTINIDIACEAE				
<i>Saurauia</i> .....	5	4	9	1, 2
AMARANTHACEAE				
<i>Alternanthera</i> .....	2	1	2	1
<i>Iresine</i> .....	2		2	1
ANACARDIACEAE				
<i>Mauria</i> .....	4	1	5	1, 2
<i>Tapirira</i> .....	3		3	1, 2
<i>Toxicodendron</i> .....	1		1	1
ANNONACEAE				
<i>Cre mastosperma</i> .....	1		1	2
<i>Guatteria</i> .....	1		1	2
<i>Porcelia</i> .....	1		1	2
<i>Unonopsis</i> .....	1		1	2
APIACEAE				
<i>Arracacia</i> .....	2	1	2	2
<i>Hydrocotyle</i> .....	7	5	10	2
<i>Neonelsonia</i> .....	1	1	1	2
<i>Sanicula</i> .....	1		1	2
APOCYNACEAE				
<i>Allamanda</i> .....	1		1	1
<i>Mandevilla</i> .....	3		3	1, 2
<i>Peltastes</i> .....	2		2	1, 2
AQUIFOLIACEAE				
<i>Ilex</i> .....	7	8	13	1
ARALIACEAE				
<i>Oreopanax</i> .....	2	6	8	1, 9
<i>Schefflera</i> .....	8	6	13	1, 2, 9
ARISTOLOCHIACEAE				
<i>Aristolochia</i> .....	1		1	1
ASCLEPIADACEAE				
<i>Cynanchum</i> .....		3	3	2
ASTERACEAE				
<i>Achyrocline</i> .....		1	1	9
<i>Acmella</i> .....	1		1	2
<i>Ageratina</i> .....		1	1	9
<i>Ageratum</i> .....	1		1	2
<i>Baccharis</i> .....	4	4	5	2, 9
<i>Barnadesia</i> .....	1	1	2	9
<i>Bidens</i> .....	1	1	2	2
<i>Chromolaena</i> .....	1		1	2
<i>Chrysactinium</i> .....	1		1	2
<i>Clibadium</i> .....	1		1	2
<i>Conyza</i> .....	1	1	1	9
<i>Diplostegium</i> .....		2	2	9
<i>Elephantopus</i> .....	1		1	2
<i>Erato</i> .....	2	1	3	9
<i>Erechtites</i> .....	2		2	2
<i>Eupatorium</i> .....	1	4	4	9
<i>Gamochaeta</i> .....	1	1	1	2, 9
<i>Gnaphalium</i> .....	1	1	1	9
<i>Gynoxys</i> .....		5	5	2, 9
<i>Heliopsis</i> .....	1		1	2
<i>Hieracium</i> .....		1	1	9
<i>Jaegeria</i> .....	1		1	2
<i>Jungia</i> .....		2	2	9
<i>Liabum</i> .....	1		1	9
<i>Llerasia</i> .....		2	2	11
<i>Mikania</i> .....	4	4	7	2, 9, 15
<i>Munnozia</i> .....	2	4	6	2, 9
<i>Mutisia</i> .....	1		1	2
<i>Oyedaea</i> .....	1		1	2
<i>Pentacalia</i> .....		7	7	2, 9
<i>Perezia</i> .....		1	1	2

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<i>Polyanthina</i> .....	1	1	1	9
<i>Pseudogynoxys</i> .....		1	1	9
<i>Pseudonosseris</i> .....	1		1	2
<i>Schistocarpha</i> .....		1	1	9
<i>Senecio</i> .....		3	3	2, 9
<i>Stevia</i> .....		1	1	9
<i>Tessaria</i> .....	1		1	2
<i>Verbesina</i> .....	2	1	3	9
<i>Vernonia</i> .....	3	2	5	2, 9, 14
<i>Wulffia</i> .....	1		1	2
<b>BALANOPHORACEAE</b>				
<i>Corynaea</i> .....		1	1	2, 9
<i>Helosis</i> .....		1	1	2, 9
<i>Langsdorffia</i> .....	1		1	2
<b>BEGONIACEAE</b>				
<i>Begonia</i> .....	8	6	11	1, 2, 9
<b>BERBERIDACEAE</b>				
<i>Berberis</i> .....		5	5	1
<b>BETULACEAE</b>				
<i>Alnus</i> .....		1	1	1
<b>BIGNONIACEAE</b>				
<i>Amphilophium</i> .....	2		2	2
<i>Arrabidaea</i> .....	1		1	2
<i>Delostoma</i> .....	1	1	1	1
<i>Tabebuia</i> .....	1		1	1
<i>Xylophragma</i> .....	1		1	2
<b>BOMBACACEAE</b>				
<i>Ceiba</i> .....	1		1	1, 2
<i>Spirotheca</i> .....	1		1	2
<b>BORAGINACEAE</b>				
<i>Amsinckia</i> .....		1	1	1, 9
<i>Cordia</i> .....	3		3	2
<i>Cynoglossum</i> .....	1		1	2
<i>Hackelia</i> .....		1	1	1, 9
<i>Heliotropium</i> .....	1		1	1
<i>Tournefortia</i> .....	3	1	3	1, 2, 9
<b>BRASSICACEAE</b>				
<i>Brassica</i> .....	1		1	1
<i>Cardamine</i> .....		1	1	1
<i>Rorippa</i> .....	1		1	2
<b>BRUNELLIACEAE</b>				
<i>Brunellia</i> .....	4	6	9	21, 22
<b>BUXACEAE</b>				
<i>Styloceras</i> .....	1	1	1	1, 9
<b>CACTACEAE</b>				
<i>Rhipsalis</i> .....	1		1	2
<b>CAMPANULACEAE</b>				
<i>Centropogon</i> .....	12	9	21	1, 2, 9
<i>Lobelia</i> .....		1	1	2
<i>Siphocampylus</i> .....	12	9	19	1, 2
<b>CAPPARIDACEAE</b>				
<i>Capparis</i> .....		1	1	2
<i>Cleome</i> .....	2	1	3	1
<i>Podandroyne</i> .....	6		6	1, 2
<b>CAPRIFOLIACEAE</b>				
<i>Sambucus</i> .....		1	1	1, 2
<i>Viburnum</i> .....	3	5	7	1, 2
<b>CARICACEAE</b>				
<i>Carica</i> .....	1		1	1
<b>CARYOPHYLLACEAE</b>				
<i>Arenaria</i> .....	2	1	2	1, 2
<i>Drymaria</i> .....	2		2	2
<i>Stellaria</i> .....		2	2	1, 9
<b>CELASTRACEAE</b>				
<i>Maytenus</i> .....	4	2	5	1, 9
<i>Perrottetia</i> .....	2		2	2, 9

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
CHLORANTHACEAE				
<i>Hedyosmum</i> .....	11	8	13	23
CLETHRACEAE				
<i>Clethra</i> .....	1	3	4	1
CLUSIACEAE				
<i>Chrysochlamys</i> .....	1		1	2
<i>Clusia</i> .....	3	6	9	2, 9
<i>Havetiopsis</i> .....	1		1	2
<i>Hypericum</i> .....		2	2	2
<i>Oedematopus</i> .....	2		2	2
<i>Tovomitopsis</i> .....	1		1	2
COLUMELLIACEAE				
<i>Columellia</i> .....			1	1
CONVOLVULACEAE				
<i>Convolvulus</i> .....	1		1	1
<i>Dicranostyles</i> .....	1		1	2
<i>Ipomoea</i> .....	5		5	1, 2
<i>Merremia</i> .....	1		1	2
CORIARIACEAE				
<i>Coriaria</i> .....	1		1	1
CORNACEAE				
<i>Cornus</i> .....	1		1	1, 9
CRYPTERONIACEAE				
<i>Alzatea</i> .....	1		1	1
CUCURBITACEAE				
<i>Cayaponia</i> .....	2		2	1, 9
<i>Cyclanthera</i> .....	3	1	3	1
<i>Gurania</i> .....	3		3	1, 2
<i>Psiguria</i> .....	1		1	2
CUNONIACEAE				
<i>Weinmannia</i> .....	10	16	25	1, 2
CYRILLACEAE				
<i>Purdiaea</i> .....	1		1	1
LELAEOCARPACEAE				
<i>Vallea</i> .....		1	1	1, 2
KERICACEAE				
<i>Bejaria</i> .....	2	2	4	1, 2
<i>Cavendishia</i> .....	6	5	7	25
<i>Demosthenesia</i> .....	1	5	5	1, 2, 18
<i>Disterigma</i> .....		4	4	1, 9
<i>Gaultheria</i> .....	2	9	11	1, 9
<i>Gaylussacia</i> .....		1	1	1
<i>Macleania</i> .....		1	1	2
<i>Orthaea</i> .....	3	2	4	1, 2
<i>Pellegrinia</i> .....		2	2	1
<i>Pernettya</i> .....		1	1	1
<i>Psammisia</i> .....	2		2	1
<i>Semiramisia</i> .....	1		1	1, 17
<i>Sphyrospermum</i> .....	1	2	3	1
<i>Thibaudia</i> .....	4	6	9	1, 18
<i>Vaccinium</i> .....	1	5	6	1, 2, 16
ERYTHROXYLACEAE				
<i>Erythroxylum</i> .....	2		2	1, 2
EUPHORBIACEAE				
<i>Acalypha</i> .....	8	1	8	1, 2
<i>Alchornea</i> .....	3	1	4	1, 2
<i>Aparisthmium</i> .....	1		1	2
<i>Croton</i> .....	2		2	1
<i>Dalechampia</i> .....	1		1	2
<i>Hieronima</i> .....	3	1	3	1, 2
<i>Phyllanthus</i> .....	1		1	1
<i>Sapium</i> .....	1		1	2
<i>Tetrorchidium</i> .....	1		1	2
FABACEAE				
<i>Bauhinia</i> .....	1		1	2
<i>Cassia</i> .....	1		1	1

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<i>Collaea</i> .....	1		1	1
<i>Crotalaria</i> .....			1	1
<i>Dalea</i> .....		4	4	1
<i>Desmodium</i> .....	6	3	6	1
<i>Dolichos</i> .....	1		1	1
<i>Erythrina</i> .....	3	1	4	1, 2
<i>Inga</i> .....	12		12	1, 2
<i>Lathyrus</i> .....	1	1	2	1, 9
<i>Machaerium</i> .....	1		1	2
<i>Mimosa</i> .....	3		3	1
<i>Mucuna</i> .....	1		1	2
<i>Otholobium</i> .....	1	3	4	1, 9
<i>Phaseolus</i> .....	1	1	2	1
<i>Senna</i> .....	2	1	3	2
<i>Tephrosia</i> .....	2		2	1
<i>Vicia</i> .....		2	2	1, 9
<b>FLACOURTIACEAE</b>				
<i>Abatia</i> .....		2	2	1
<i>Banara</i> .....	1		1	2
<i>Casearia</i> .....	5		5	1, 2, 9
<i>Hasseltia</i> .....	1		1	2
<i>Neosprucea</i> .....	2		2	1
<i>Prockia</i> .....	1		1	1
<b>GENTIANACEAE</b>				
<i>Gentianella</i> .....	1	1	1	2
<i>Halenia</i> .....	1		1	1
<i>Irlbachia</i> .....	1		1	2
<i>Lisianthus</i> .....	1	2	2	1
<i>Macrocarpaea</i> .....	2	1	3	1
<i>Symbolanthus</i> .....	1		1	2
<b>GERANIACEAE</b>				
<i>Geranium</i> .....	1	1	2	1, 2
<b>GESNERIACEAE</b>				
<i>Alloplectus</i> .....	1	1	2	2, 9
<i>Anodiscus</i> .....	1		1	2
<i>Besleria</i> .....	1	1	2	2, 9
<i>Columnnea</i> .....	3		3	2
<i>Drymonia</i> .....	1		1	2
<i>Gasteranthus</i> .....	1		1	2
<i>Gloxinia</i> .....	1		1	2
<i>Paradrymonia</i> .....	1		1	2
<b>HIPPOCRATEACEAE</b>				
<i>Cheiloclinium</i> .....	1		1	2
<i>Salacia</i> .....	4		4	1, 2
<b>ICACINACEAE</b>				
<i>Calatola</i> .....	2		2	2
<i>Citronella</i> .....	2	1	2	1, 9
<b>JUGLANDACEAE</b>				
<i>Juglans</i> .....	1	1	1	1
<b>LACISTEMMACEAE</b>				
<i>Lacistema</i> .....	2		2	1
<b>LAMIACEAE</b>				
<i>Hyptis</i> .....	6		6	1, 2
<i>Lepechinia</i> .....	2	2	3	1, 9
<i>Salvia</i> .....	6	1	7	1, 2, 9
<b>LAURACEAE</b>				
<i>Aniba</i> .....	1		1	2
<i>Beilschmiedia</i> .....	1		1	1
<i>Cryptocarya</i> .....	1		1	2
<i>Nectandra</i> .....	10	2	11	1, 2
<i>Ocotea</i> .....	13	3	15	1, 2
<i>Persea</i> .....	6	2	6	1, 2, 9
<i>Phoebe</i> .....	2		2	1, 2
<i>Pleurothyrium</i> .....	2		2	2
<i>Rhodostemonodaphne</i> .....	1		1	2

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<b>LENTIBULARIACEAE</b>				
<i>Utricularia</i> .....	1		1	2
<b>LOASACEAE</b>				
<i>Cajophora</i> .....		2	2	1
<i>Klaprothia</i> .....	1		1	1
<i>Loasa</i> .....	3	1	3	1
<b>LOGANIACEAE</b>				
<i>Buddleja</i> .....	1	1	1	1
<i>Desfontainia</i> .....		2	2	1
<i>Strychnos</i> .....	1		1	2
<b>LORANTHACEAE</b>				
<i>Aetanthus</i> .....	1	2	3	1, 2
<i>Antidaphne</i> .....	1		1	1
<i>Dendrophthora</i> .....	4	1	5	1, 2
<i>Gaiadendron</i> .....	1	2	3	1
<i>Oryctanthus</i> .....	2		2	1
<i>Phoradendron</i> .....	6	1	6	1, 2
<i>Phrygilanthus</i> .....	2	2	2	1
<i>Phthirusa</i> .....	1		1	2
<i>Psittacanthus</i> .....		1	1	2
<i>Struthanthus</i> .....	2		2	1
<i>Tripodanthus</i> .....	1		1	2
<i>Tristerix</i> .....	1	1	1	2
<b>LYTHRACEAE</b>				
<i>Adenaria</i> .....	1	1	1	1
<i>Cuphea</i> .....	2	1	2	1
<b>MALPIGHIACEAE</b>				
<i>Banisteriopsis</i> .....	1		1	1
<i>Bunchosia</i> .....	1		1	2
<i>Stigmaphyllon</i> .....	3		3	1
<i>Tetrapterys</i> .....	2		2	1
<b>MALVACEAE</b>				
<i>Abutilon</i> .....	2		2	1, 2
<i>Pavonia</i> .....	3		3	1
<i>Malvastrum</i> .....	1		1	1
<i>Sida</i> .....	1		1	1
<b>MARCGRAVIACEAE</b>				
<i>Marcgravia</i> .....	1		1	1, 9
<i>Marcgraviastrum</i> .....	1		1	2
<i>Norantea</i> .....	2		2	1
<b>MELASTOMATACEAE</b>				
<i>Axinaea</i> .....	3	3	5	1, 2, 9
<i>Blakea</i> .....	1		1	2
<i>Brachyotum</i> .....	7	5	11	1, 2
<i>Centronia</i> .....		1	1	1
<i>Clidemia</i> .....	2		2	1
<i>Graffenrieda</i> .....	1		1	2
<i>Leandra</i> .....		2	2	1
<i>Meriania</i> .....	3	2	5	1, 2
<i>Miconia</i> .....	33	14	46	1, 2, 9
<i>Microlicia</i> .....	1		1	1
<i>Monochaetum</i> .....	3	1	3	1, 2
<i>Ossaea</i> .....	1		1	2
<i>Rhynchanthera</i> .....	1		1	2
<i>Tibouchina</i> .....	9	1	10	1, 2
<i>Topobea</i> .....	2		2	2
<b>MELIACEAE</b>				
<i>Cedrela</i> .....	1	1	1	9
<i>Guarea</i> .....	4	2	5	1, 2, 9
<i>Ruagea</i> .....	2	2	3	2, 9
<i>Trichilia</i> .....	4		4	2
<b>MENISPERMACEAE</b>				
<i>Cissampelos</i> .....	2		2	1
<i>Odontocarya</i> .....	1		1	2



Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<b>MONIMIACEAE</b>				
<i>Mollinedia</i> .....	1		1	1
<i>Siparuna</i> .....	7	2	9	1
<b>MORACEAE</b>				
<i>Cecropia</i> .....	5		5	1, 2
<i>Clarisia</i> .....	1		1	2
<i>Coussapoa</i> .....	1		1	2
<i>Ficus</i> .....	12	1	13	1, 2
<i>Morus</i> .....	1		1	2, 9
<i>Olmedia</i> .....	1		1	1, 2
<i>Pourouma</i> .....	1		1	1
<i>Poulsenia</i> .....	1		1	2
<i>Pseudolmedia</i> .....	2		2	2
<i>Sorocea</i> .....	2		2	1, 2
<b>MYRICACEAE</b>				
<i>Myrica</i> .....		1	1	1
<b>MYRISTICACEAE</b>				
<i>Otoba</i> .....	1		1	2
<b>MYRSINACEAE</b>				
<i>Cybianthus</i> .....	2	5	7	1, 2, 9
<i>Geissanthus</i> .....	2	1	3	2
<i>Gentlea</i> .....		1	1	9
<i>Grammadenia</i> .....		1	1	1
<i>Myrsine</i> .....	6	5	9	1, 2
<i>Stylogyne</i> .....	1		1	1, 9
<b>MYRTACEAE</b>				
<i>Acca</i> .....		1	1	1
<i>Myrcia</i> .....	3	1	3	1
<i>Myrcianthes</i> .....		2	2	1
<i>Myrteola</i> .....	1	3	4	1, 2
<b>NYCTAGINACEAE</b>				
<i>Colignonia</i> .....	1	2	2	19
<i>Mirabilis</i> .....	1	1	1	1
<b>OLACACEAE</b>				
<i>Heisteria</i> .....	2		2	2
<i>Schoepfia</i> .....	1		1	1
<b>ONAGRACEAE</b>				
<i>Epilobium</i> .....		1	1	2, 20
<i>Fuchsia</i> .....	9	4	13	2
<i>Ludwigia</i> .....	2		2	1, 2
<b>OXALIDACEAE</b>				
<i>Oxalis</i> .....	11	9	17	1, 2
<b>PAPAVERACEAE</b>				
<i>Bocconia</i> .....	2	1	3	1, 2
<b>PASSIFLORACEAE</b>				
<i>Passiflora</i> .....	12	4	14	1, 2
<b>PHYTOLACCACEAE</b>				
<i>Phytolacca</i> .....	1	1	2	1, 2, 9
<i>Trichostigma</i> .....	1		1	2
<b>PIPERACEAE</b>				
<i>Peperomia</i> .....	23	4	27	1, 2
<i>Piper</i> .....	21	4	25	1, 2
<b>PLANTAGINACEAE</b>				
<i>Plantago</i> .....	1	1	1	1
<b>POLEMONIACEAE</b>				
<i>Cantua</i> .....	1		1	2
<i>Cobaea</i> .....	1		1	2
<b>POLYGALACEAE</b>				
<i>Monnina</i> .....	9	9	14	1, 2, 9
<i>Polygala</i> .....	1		1	1
<b>POLYGONACEAE</b>				
<i>Muehlenbeckia</i> .....		2	2	1
<i>Polygonum</i> .....	1		1	2
<i>Rumex</i> .....	1	1	1	1
<b>PRIMULACEAE</b>				
<i>Anagallis</i> .....		1	1	1

<i>Taxa</i>	Approximate number of species			<i>Source(s)*</i>
	1500-2500 m	2500-3500 m	1500-3500 m	
<b>PROTEACEAE</b>				
<i>Oreocallis</i> .....		2	2	1
<i>Panopsis</i> .....	1		1	2
<i>Roupala</i> .....	2	1	3	1
<b>RANUCULACEAE</b>				
<i>Clematis</i> .....	2	2	2	1
<i>Ranunculus</i> .....	2		2	1
<i>Thalictrum</i> .....	2		2	1, 2
<b>RHAMNACEAE</b>				
<i>Gouania</i> .....	1		1	2
<i>Rhamnus</i> .....		1	1	1
<b>ROSACEAE</b>				
<i>Acaena</i> .....		2	2	1, 9
<i>Alchemilla</i> .....		1	1	1
<i>Geum</i> .....		1	1	1, 9
<i>Hesperomeles</i> .....	2	5	6	1, 2
<i>Polylepis</i> .....		2	2	10
<i>Prunus</i> .....	2	2	4	1
<i>Rubus</i> .....	1	6	7	1
<i>Tetraglochin</i> .....		1	1	2
<b>RUBIACEAE</b>				
<i>Borreria</i> .....	4		4	1, 2
<i>Cephaelis</i> .....	3		3	1
<i>Chiococca</i> .....	1		1	1
<i>Cinchona</i> .....	2	2	2	1, 2
<i>Coccocypselum</i> .....	4		4	1, 2
<i>Condaminea</i> .....	1		1	1
<i>Coussarea</i> .....	1		1	2
<i>Elaeagia</i> .....	3	1	4	2
<i>Emmeorhiza</i> .....	1		1	1
<i>Faramea</i> .....	3		3	2
<i>Galium</i> .....	1	1	1	1
<i>Genipa</i> .....	1		1	2
<i>Gomozia</i> .....	1	1	1	1
<i>Gonzalagunia</i> .....	3		3	1, 2
<i>Guettarda</i> .....	1	1	2	1, 2
<i>Hillia</i> .....	2		2	1, 2
<i>Hippotis</i> .....	1		1	2
<i>Hoffmannia</i> .....	4		4	1, 2
<i>Isertia</i> .....	2		2	1
<i>Ladenbergia</i> .....	3		3	1
<i>Manettia</i> .....	4	3	5	1
<i>Nertera</i> .....	1	1	1	2, 9
<i>Paederia</i> .....	1		1	1
<i>Palicourea</i> .....	9	3	13	1, 9
<i>Phitopsis</i> .....	1		1	1
<i>Posoqueria</i> .....	2		2	2
<i>Psychotria</i> .....	14	2	15	1, 2
<i>Randia</i> .....	2	1	3	1
<i>Relbunium</i> .....		2	2	1
<i>Rhynchanthera</i> .....	1		1	2
<i>Rudgea</i> .....	1		1	1
<i>Tricalysia</i> .....		1	1	2
<b>RUTACEAE</b>				
<i>Esenbeckia</i> .....	1		1	2
<i>Zanthoxylum</i> .....	3		3	2
<b>SABIACEAE</b>				
<i>Meliosma</i> .....	3	3	5	2, 9
<b>SANTALACEAE</b>				
<i>Cervantesia</i> .....		1	1	1
<b>SAPINDACEAE</b>				
<i>Allophylus</i> .....	6	1	7	1, 2, 9
<i>Cupania</i> .....	1		1	1
<i>Matayba</i> .....	1		1	2
<i>Paullinia</i> .....	5		5	1, 2, 9

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
<i>Serjania</i> .....	6		6	1, 2
<i>Talisia</i> .....	2		2	2
SAPOTACEAE				
<i>Pouteria</i> .....	1		1	9
SAXIFRAGACEAE				
<i>Escallonia</i> .....	1	2	3	1, 2, 9
<i>Hydrangea</i> .....	4	2	4	1, 9
<i>Ribes</i> .....		2	2	1
SCROPHULARIACEAE				
<i>Alonsoa</i> .....		3	3	2
<i>Calceolaria</i> .....	24	45	47	24
<i>Leucocarpus</i> .....	1	1	1	2, 9
<i>Sibthorpia</i> .....		1	1	2
SIMAROUBACEAE				
<i>Picramnia</i> .....	1	1	1	1, 9
SOLANACEAE				
<i>Browallia</i> .....	2		2	2
<i>Brugmansia</i> .....	1		1	2
<i>Cestrum</i> .....	5	1	6	1, 2
<i>Cyphomandra</i> .....	1		1	2
<i>Datura</i> .....	1		1	2
<i>Deprea</i> .....	1		1	2
<i>Lycianthes</i> .....	1	2	2	1, 9
<i>Nicandra</i> .....		1	1	2
<i>Nicotiana</i> .....	2		2	1
<i>Physalis</i> .....	1		1	1
<i>Salpichroa</i> .....		1	1	2
<i>Saracha</i> .....		3	3	1, 2, 9
<i>Solanum</i> .....	20	13	28	1, 2, 9
<i>Sassobia</i> .....	1		1	2
STAPHYLEACEAE				
<i>Hurtea</i> .....	1		1	1
<i>Turpinia</i> .....	1	1	2	1, 2
STERCULIACEAE				
<i>Byttneria</i> .....	3		3	2
<i>Guazuma</i> .....	1		1	2
STYRACACEAE				
<i>Styrax</i> .....	2	3	4	1, 9
SYMPLOCACEAE				
<i>Symplocos</i> .....		5	5	1
THEACEAE				
<i>Freziera</i> .....	2	2	4	1, 9
<i>Laplacea</i> .....	1	1	2	2
<i>Ternstroemia</i> .....	1	3	4	1, 2, 9
TILIACEAE				
<i>Heliocarpus</i> .....	2		2	1, 2
<i>Triumfetta</i> .....	2		2	1
TOVARIACEAE				
<i>Tovaria</i> .....	1	1	1	1, 9
TROPAEOLACEAE				
<i>Tropaeolum</i> .....	2	3	5	1, 9
ULMACEAE				
<i>Lozanella</i> .....	1	1	1	1
<i>Trema</i> .....	1		1	1
URTICACEAE				
<i>Boehmeria</i> .....	5		5	1, 2
<i>Myriocarpa</i> .....	2		2	1, 2
<i>Phenax</i> .....	3	2	4	1, 2
<i>Pilea</i> .....	17	5	19	1, 2
<i>Pouzolzia</i> .....	1		1	1
<i>Urera</i> .....	3		3	1, 2
<i>Urtica</i> .....	1	1	1	1
VALERIANACEAE				
<i>Astrephia</i> .....	1		1	1
<i>Valeriana</i> .....	3	1	3	1

Taxa	Approximate number of species			Source(s)*
	1500-2500 m	2500-3500 m	1500-3500 m	
VERBENACEAE				
<i>Aegiphila</i> .....	2	1	3	1, 2
<i>Citharexylum</i> .....	1		1	1
<i>Duranta</i> .....	1	2	3	1
<i>Lantana</i> .....	5		5	1, 2
<i>Lippia</i> .....	1		1	1
<i>Verbena</i> .....	1		1	1, 2
VIOLACEAE				
<i>Anchiesta</i> .....	1		1	1, 9
<i>Viola</i> .....	2	4	6	1
VITACEAE				
<i>Cissus</i> .....	3	1	4	1, 2
WINTERACEAE				
<i>Drimys</i> .....		1	1	1

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