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article

Geographic distribution patterns of Leguminosae and their relevance for the conservation of the Itacolomi State Park, Minas Gerais, Brazil

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Abstract: This study identified patterns of geographic distribution of 102 Leguminosae taxa within the Park, based on literature data and herbarium specimens. Among the taxa, 38 grow exclusively in *Campos Rupestres* (rocky fields) and 49 in the Semideciduous Forest. Eleven patterns of geographic distribution were identified, of which the West-East- Central South America pattern was the most representative, with 27 taxa. Of the 102 sampled taxa of Leguminosae, five are endemic to the Espinhaço Range and ten are included in lists of endangered species of the flora of Brazil and Minas Gerais. Information on these taxa is crucial to provide conservation practices for conserving the vegetation formations of the PEIT.

Keywords: Atlantic Forest, Espinhaço Range, Fabaceae, rocky fields, Semideciduous Forest

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Resumo: Neste estudo foram identificados os padrões de distribuição geográfica dos 102 táxons de Leguminosae ocorrentes no PEIT, com base nos dados obtidos na literatura e em material de herbário, sendo 38 exclusivos dos Campos Rupestres e 49 das Florestas Estacionais. Foram reconhecidos 11 padrões de distribuição geográfica, dos quais o padrão América do Sul Ocidental- Centro-Oriental foi o mais representativo com 27 táxons. Dos 102 táxons amostrados de Leguminosae, cinco são endêmicos da Cadeia do Espinhaço e 10 constam nas listas de espécies ameaçadas da flora brasileira ou da Flora de Minas Gerais, sendo consideradas importantes para fornecer subsídios na conservação das formações vegetacionais do PEIT.

Palavras-chave: Cadeia do Espinhaço, campos rupestres, Fabaceae, Florestas Estacionais, Mata Atlântica

Introduction

Leguminosae is the third largest family of flowering plants, comprising 727 genera and 19.325 species (Lewis et al. 2005). The high ecological plasticity of the family allows its distribution in highly diverse habitats and this peculiar feature is determinant for its great diversity in neotropical vegetation types (Lima 2000). In Brazil, the family is represented by 212 genera and 2717 species (Lima et al. 2010a), distributed in almost all vegetation types (Barroso et al. 1991). Moreover, it has been identified as one of the most representative of flowering species in the *Campos Rupestres* (rocky fields), in the *Cerrado* (Brazilian savannas) and Tropical Forests (Giulietti & Pirani 1988, Mendonça et al. 1998, Ribeiro 1998, Pirani et al. 2003, Dutra et al. 2008a), highlighting its importance for the flora of Brazil.

In floristic surveys of biomes of the state of Minas Gerais, Leguminosae has also been considered one of the most representative flowering plant families, as reported for *Caatinga* (*e.g.* Brandão & Gavilanes 1994), *Cerrado* (*e.g.* Brandão & Gavilanes 1997), *Campos Rupestres* (Dutra et al. 2008a) and areas of Atlantic Forest (Oliveira-Filho et al. 1994). Information as this about the diversity of species, together with data on the presence of endemic, threatened and rare species, has been used to determine priority conservation areas in the State and to delimit areas which require the creation and implementation of Conservation Units (Drummond et al. 2005).

The Itacolomi State Park (PEIT) is located in the southern part of the Espinhaço Range, in the so-called *Quadrilátero Ferrífero* (Peron 1989), in a vegetation transition zone between the Atlantic Forest and the *Cerrado*, representing an important migratory corridor and consisting of gallery forests between the two formations (Oliveira-Filho & Ratter 1995).

The vegetation of the Espinhaço Range includes a series of altitudinal strata, with *Campos Rupestres* and cloud forests in the highest strata, *Cerrado* and Semideciduous Forests in the intermediary strata and a varied combination of vegetation types of the adjacent lowlands (Harley 1995). The geological antiquity, geographical position and climate fluctuations that occurred during the Quaternary and allowed a vertical migration of the flora from the lower regions, as well as the physiognomy variety are the main factors related to the high biodiversity of the Espinhaço Range (Giulietti et al . 2002, Gontijo 2008). The high species richness, high landscape diversity and high degree of endemism led to the recognition of the Espinhaço Range as one of the priority areas for conservation, with special biological importance, hence the area of the PEIT has great biological relevance (Drummond et al. 2005).

The aim of this study was to analyze the endemism and habitat preference of the Itacolomy State Park flora using the Leguminosae family as a model to characterize geographic distribution patterns of specific and/or infraspecific taxa. The patterns that emerged from the analysis were used to answer the following questions: (i) What is the influence of the surrounding vegetation on the flora of the PEIT? (ii) What are the implications of the findings for the conservation of the flora of the park?

Methods

The PEIT is located in the municipalities of Ouro Preto and Mariana, State of Minas Gerais, (between 20º22’30”and 20º30’00” S and 43°32’30”and 43º22’30” W) (Fig. 1), comprising the entire Itacolomi Range (Peron 1989). The Park encompasses an area of approximately 7000 ha. The relief is characterized by steep slopes and altitudes between 700 and 1772 m (Messias et al. 1997).

The regional climate is typically tropical, Cwa and Cwb, according to Koeppen’s classification, with two well-defined seasons: a dry season, from May to September, and a rainy season, from October to April. The annual rainfall is on average 2018 mm (Messias et al. 1997, Nalini Junior et al. 2006). Fog is frequent and the average annual temperature is 21 ºC (maximum 33 ºC, minimum 4 °C) (Messias et al. 1997).

The soils were formed by the weathering of parent material, mostly of quartzite and mica-schists of the Minas Supergroup, with latosols, where the topography is hilly, and lithosols where the relief is jagged (Messias et al. 1997).

The vegetation consists of Semideciduous Forest and *Campos Rupestres* (Messias & Sousa 2006, Fig. 2), varying with the soil, water availability, altitude and topography.

The Campos Rupestres practically cover the entire Park at elevations above 1000 m. They are characterized by the diversity of substrates formed by the exposure of various types of rocks, shallow, lithic, sandy, acidic and nutrient-poor soils with limited water and intense sun exposure (Giulietti & Pirani 1988, Meguro et al. 1994, Giulietti et al. 1997). The vegetation is formed by a well-developed herbaceous- shrub stratum and has a heterogeneous flora composed of many endemic species (Harley 1995, Mendonça et al. 1998).

The Semideciduous Forests that grow in highly seasonal parts of the tropics, with a severe and prolonged dry season, have mean annual precipitation below 1600 mm and 5–6 months of the year with less than 100 mm rainfall (Gentry 1995). Most species of these forests are deciduous, with 20-50% of the trees losing their leaves in the dry season (IBGE 2012). The Semideciduous Forest of the PEIT can be classified, by the altitudinal gradient, as submontane (300-700 m), lower highlands (700-1100m) and upper highlands (above 1100m) (Oliveira-Filho 2009).

The list of taxa used in this study was obtained from the floristic survey of the Leguminosae within the PEIT (Lima et al. 2007, Dutra et al. 2008b, 2008c, 2009, Lima et al. 2010c). The habit descriptions were according to Guedes-Bruni et al. (2002).

The mapping of the geographical distribution was based on the occurrence records of herbarium collections (BHCB, OUPR, RB, VIC) and specialized literature. The distribution patterns were adapted from Giulietti & Pirani (1988), Lima et al. (1997), Lima (2000) and Morim (2006): [1] Wide geographical distribution, which corresponds to the taxa that occur in Africa, Asia, Australasia, North America, Central America and South America; [2] South America, Central America and North America, taxa whose distribution is restricted to the Americas, from the United

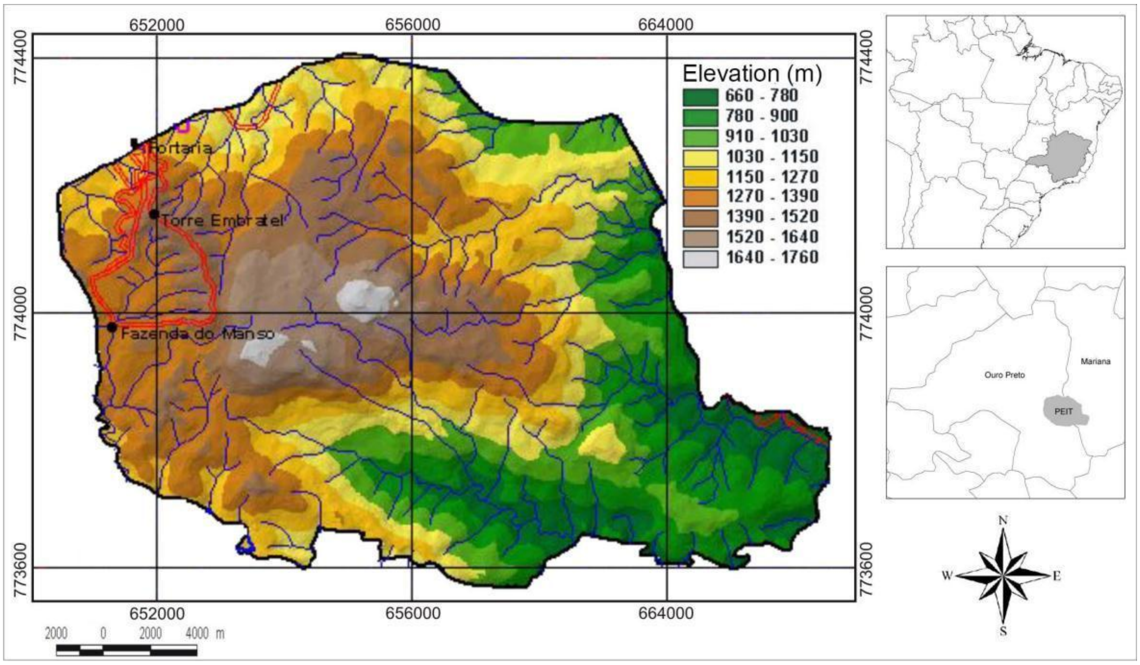

Figure 1. Location of the Itacolomi State Park.
Figura 1. Localização do Parque Estadual do Itacolomi.

States to southern Argentina; [3] Neotropical, taxa with a range of distribution in the tropics of South America, which can extend to Central America and Mexico; [4] West, Central and Eastern South America, taxa distributed across areas in the western, central and eastern South America, up to the far north of Venezuela, Suriname and Guyana; [5] Brazil-wide distribution, includes taxa widely distributed in all regions of Brazil; [6] Central-Eastern Brazil, taxa distributed in the midwest, northeast, southeast, and/or south of Brazil; [7] Atlantic-Northeast-Southeast-Southern Brazil, taxa that occur from the northeast to the south of Brazil; [8] Atlantic-Northeast-Southeastern Brazil, taxa with a range of distribution from northeast to southeastern Brazil; [9] Atlantic-Southeast- Southern Brazil, taxa distributed in the restricted range of the states of southeastern and southern Brazil; [10] Southeastern Brazil, taxa restricted to the states of Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo; and [11] Espinhaço Range, taxa restricted to the highlands of the mountain range, in the states of Minas Gerais and Bahia.

The taxa were also classified as generalist or specialist species and according to habitat preference. The species exclusive to the Atlantic domain (which includes Rain Forest, Semideciduous and Deciduous Forests and Ombrophilous Mixed Forest) were considered specialist and those from other biomes, beyond the Atlantic area, such as the Amazon, *Cerrado* and/or *Caatinga*, were considered generalist. The classification of Veloso et al. (1991) modified by Oliveira-Filho (2009) was used for the determination of the taxon habitats. The term *domain* is used here according to Joly et al. (1999).

Maps of geographical taxa distribution representing each pattern were drawn based on information available in the literature and records from herbarium collections available at *species* (CRIA, 2013).

Results

The Leguminosae family in the Itacolomi State Park is represented by 102 specific and/or infraspecific taxa of 43 genera (Table 1). Papilionoideae was the subfamily with the largest number of taxa (48), followed by Mimosoideae (33) and Ceasalpinioideae (21) . One of the species found, *Trifolium repens*, is exotic and occurs sub-spontaneously in the PEIT.

The most representative genera were *Mimosa* L. (11 spp.), *Chamaecrista* Moench. (9 spp.) and *Inga* Mill. (9 spp.), the former two ones predominated in *Campos Rupestres* and the latter in the Semideciduous Forests of PEIT.

Of the sampled taxa, 38 were exclusive to the *Campos Rupestres* (elevation range of 1000−1540m), including *Andira surinamensis* (Bondt) Splitg. ex Pulle (Fig. 3a), *Chamaecrista dentata* (Vogel) H.S.Irwin & Barneby (Fig. 3b), *C. hedysaroides* (Vogel) H.S.Irwin & Barneby (Fig. 3b), *C. ochnacea* (Vogel) H.S.Irwin & Barneby var. *ochnacea* (Fig. 3c), *Mimosa montis-carasae* Barneby (Fig. 3c) and *M. ourobrancoënsis* Burkart (Fig. 3d).

Forty nine taxa were exclusive to Semideciduous Forests, including *Ormosia friburgensis* Taub. ex Harms (Fig. 3d), *Bionia bella* Mart. ex Benth. (Fig. 4a) and *Tachigali friburgensis* (Harms) L.G. Silva & H.C. Lima (Fig. 4a). Leguminosae were predominant in the submontane forests (elevation range of 620−700m) and less representative in lower highland and upper highland forests (elevation range of 700−1360m).

Fifteen taxa occurred in both vegetation types, such as *Crotalaria breviflora* DC. (Fig. 4b), *Abarema langsdorfii* (Benth.) Barneby & J.W.Grimes (Fig. 4c) and *Inga vulpina* Mart. ex Benth. (Fig. 4d).

Most of the identified taxa were trees (35%), followed by shrubs (31.5%), herbs (11.8%), lianas (9.9%) and vines

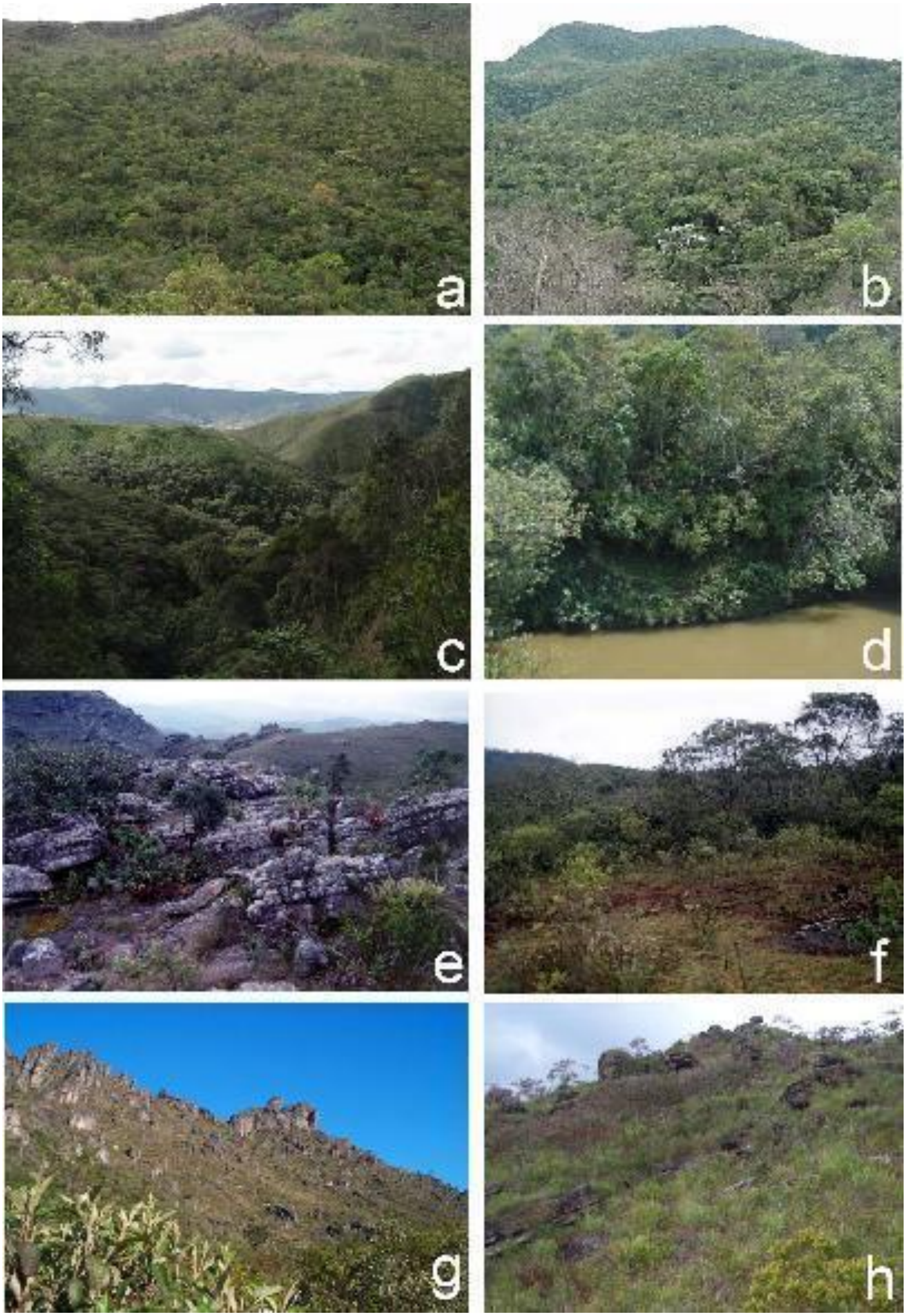

Figure 2. Semideciduous forest and *campos rupestres* of the Itacolomi State Park. a-d. semideciduous forest; e-h. *campos rupestres*.

Figura 2. Florestas Estacionais e campos rupestres do Parque Estadual do Itacolomi. a-d. Florestas Estacionais; e-h. campos rupestres.

(9%). The subshrub habit was the least represented, with 2.8% of the taxa. Trees, vines and lianas were prevalent in the forest areas of the Park, while the shrubs, herbs and subshrubs were most common in the *Campos Rupestres*.

The analysis of the geographical distribution of 102 specific and infraspecific Leguminosae taxa of the PEIT covered the five geographical macroregions (Table 2): Wide geographic distribution (7.8% of the taxa), South America, Central America and North America (4%), Neotropical (16.5%), West, Central and Easten South America (26.3%), and distribution restricted to Brazil (45.6% of the taxa).

Among the taxa of occurrence restricted to the Brazilian territory, seven geographic distribution patterns were defined (Table 2): Brazil-wide distribution (2.9%), Central-Eastern Brazil (11.6%), Atlantic-Northeast-Southeast-Southern Brazil 3.8%), Atlantic-Northeast-Southeastern Brazil (6.8%), Atlantic-Southeast- Southern Brazil (2.9%), Southeastern Brazil (12.7%) and endemic to the Espinhaço Range (4.9%).

The correlation between the patterns of geographic distribution and the number of species per habitat in the PEIT (Fig. 5) showed that in the Semideciduous Forests there is predominance of species of the patterns West, Central and Eastern South America (18 spp), Central-Eastern Brazil (9 spp) and Southeastern Brazil (9 spp.). Note also that 17 species are unique patterns of the Atlantic Forest domain. In *Campos Rupestres* there is predominance of species of the patterns Neotropical (09 spp), Wide geographic distribution (7 spp), South America, Central America and North America (4 spp) and Endemic to the Espinhaço Range (5 spp).

Discussion

The diversity of Leguminosae in PEIT can be considered high compared with other areas of the Espinhaço Range, losing in number of species only to the Serra do Cipó, where 104 species were listed according to Giulietti et al. (1987). Furthermore, it contains 15% of the Leguminosae diversity in the *Campos Rupestres* reported by Dutra et al. (2008a). Considering only the grassland vegetation, the PEI is the fifth richest area of *Campo Rupestre* in Leguminosae, while considering only the areas of the Iron Quadrangle, it is the first richest area in Leguminosae (Dutra et al . 2008a).

Besides this high diversity in *Campos Rupestres* of PEIT, the high percentage of taxons (43%) in Submontane Forests corroborates the results found in the National Park of Itatiaia (PARNA Itatiaia), by Morim (2006). Elevational gradients in species diversity are nearly as ubiquitous as latitudinal gradients, and they provide a number of characteristics that make them perhaps more suitable for uncovering the underlying cause(s) of spatial variation in diversity, as the decline in species richness with increasing altitude is a common pattern in Tropical Forests (Colwell et al. 2004, Sanders & Rabbeck 2012). This was recorded for Leguminosae in areas of *Campos Rupestres* by Dutra (2005), however, in these fields, as well as altitudinal variation, other factors such as topographic variation and heterogeneity of the substrate and microclimate are also determinants for the occurrence of species (Rapini et al. 2008)

Mimosa and *Chamaecrista* , the richest genera in number of species in the *Campos Rupestres* of the PEIT, are widely distributed in the Neotropics and characteristic of dry environments, such as the *Cerrado* (Schrire et al . 2005, Queiroz 2006). *Inga*, the most representative genus in the Semideciduous Forests of the PEIT, is prevalent in tropical and subtropical forests of Tropical America and has high diversity in the Atlantic Domain, with 22 species cited for secondary forests (León 1966, Garcia & Fernandes 2013). The genera *Lupinus* and *Calliandra*, cited as diverse in the *Campos Rupestres* by Giulietti et al. (1997), were not found in the *Campos Rupestres* of the PEIT. The low representation or absence of species of these genera in other *Campos Rupestres* within the Iron Quadrangle had already been recorded by Dutra et al . (2008a).

The highest percentage of shrub and herbaceous species found in *the Campos Rupestres* is mainly due to the presence of representatives of *Desmodium*, *Stylosanthes*, *Aeschynome* and *Zornia*, among others, which are among the genera with high species richness in tropical grasslands. The richness of these genera in the extensive herbaceous-shrub stratum prevalent in *Campos Rupestres* has been observed in other studies and is consistent with the percentage of habit variation in forest and grassland formations (Pirani et al. 2003, Zappi et al. 2003, Ferreira & Forzza 2009).

The analysis of the geographical distribution of Leguminosae taxa in the PEIT showed a high percentage of taxa distribution restricted to the Brazilian territory, with predominance, under the phytogeographical aspect, of components of the flora of areas of *Cerrado* and Atlantic Forest. Morim (2006) reported that 65% of the species recorded in the Itatiaia National Park (RJ) are restricted to Brazil. Filardi et al. (2007) and Nunes et al. (2007) found that 44% of the Leguminosae-Papilionoideae taxa growing in the National Park Serra da Canastra (MG) and 54% of the Leguminosae-Mimosoideae taxa in the State Park of Rio Doce (MG) are unique to the flora of Brazil.

The species with the widest distribution patterns (Wide Geographic Distribution, South America, Central America and North America and Neotropical), are mostly herbaceous plants and subshrubs of *Campos Rupestres* and correspond to ruderal species that occur in different types of vegetation, mainly as weeds in degraded areas, being considered generalists (Miotto 1987, Fortuna-Perez 2010, Lima et al. 2010b) and well represented in the *Campos Rupestres* of the Iron Quadrangle (Dutra et al. 2008a). The wide distribution can also be explained by the presence of neotropical species that have the riverbanks as preferred habitat, such as *Inga marginata* and *Inga vera* subsp. *affinis* that occur in Submontane and Upper Highland Forests, respectively, corroborating Pennington (1997), who explained the occurrence of the wide distribution of these species in the Neotropics by the dispersal of fruits through hydrochory or zoochory.

In the distribution pattern Western, Central and Eastern South America, 56 % of the species are restricted to semi-deciduous forests of the PEIT, among them, the specie *Anadenanthera colubrina* var. *colubrina* is referred as representative in the Semideciduous Forests of Brazil.

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Table 1. Specific and infraspecific Leguminosae taxa of the Itacolomi State Park, their geographic distribution patterns, habits and vegetation types. He = herbaceous; Li = lianas; Sb = subshrubs; Tr = trees; Sh = shrubs; Vi = vines. CRP = *campos rupestres*; SLF = Semideciduous lower highland forest; SMF = semideciduous submontane forest; SUF = Semideciduous upper highland forest.

Tabela 1 Táxons específicos e infra-específicos das Leguminosae do Parque Estadual do Itacolomi, seus padrões de distribuição geográfica, hábitos e formações vegetacionais. He = ervas; Li = lianas; Sb = subarbustos; Sh = arbustos; Tr = árvores; Vi = trepadeiras. CPR = campos rupestres; SLF = Floresta Estacional Montana; SMF = Floresta Estacional Submontana; SUF = Floresta Estacional Altimontana.

Distribution pattern	Specific and infraspecific taxa ✝*	Habit	Vegetation type
Wide geographic distribution	*Clitoria falcata* var. *falcata* Lam.[19, 43]	Vi	CRP/SMF
	Desmodium adscendens (Sw.) DC.[2, 26]	He	CRP/SUF/SLF/ SMF
	Desmodium barbatum (L.) Benth.	He	CRP
	Desmodium incanum DC.[2, 26]	He	CRP
	Desmodium uncinatum (Jacq.) DC.[2, 26]	Sb	CRP/SUF/SLF
	Mimosa pudica var. *hispida* Brenan[4]	Sb	CRP
	Zornia reticulata Sm[11]	He	CRP
	Trifolium repens L.[6, 26]	He	SUF
South America, Central America and North America	*Centrosema virginianum* (L.) Benth.[5, 45]	Vi	CRP
	Chamaecrista rotundifolia var. *rotundifolia* (Pers.) Greene[28]	He	CRP
	Indigofera suffruticosa Mill.	Ab	CRP/SMF
	Stylosanthes viscosa (L.) Sw.[12, 26]	He	CRP
Neotropical	*Aeschynomene elegans* var. *elegans* Schltdl. & Cham.[20]	He	CRP/SUF
	Anadenanthera peregrina L. (Speg.)[1, 10, 26]	Tr	SUF
	Andira surinamensis (Bondt) Splitg. ex Pulle[39, 47]	Ab	CRP
	Calopogonium mucunoides Desv.[15]	Vi	CRP
	Crotalaria micans Link[22]	Ab	CRP
	Desmodium affine Schltdl.[2, 26]	He	CRP
	Inga marginata Willd.[24, 46]	Tr	SMF
	Inga vera subsp. *affinis* (DC.) T.D.Penn[24, 46]	Tr	SUF/SMF
	Machaerium hirtum (Vell.) Stellfeld[38, 40, 52]	Tr	SMF
	Mimosa diplotricha var. *diplotricha* C.Wright ex Sauvalle[4]	Ab	CRP
	Platypodium elegans Vogel[29, 31, 36]	Tr	SMF
	Poiretia punctata (Willd.) Desv.[45]	Li	SMF
	Pterocarpus rohrii Vahl[29, 34]	Tr	SMF
	Rhynchosia reticulata (Sw.) DC.[46]	Vi	CRP
	Stylosanthes guianensis (Aubl.) Sw.[12, 26]	He	CRP
	Vigna peduncularis (Kunth) Fawc. & Rendle[36]	Vi	CRP/SUF
Western - Central-Eastern South America	*Anadenanthera colubrina* (Vell.) Brenan var. *colubrina*[1, 26]	Tr	SMF
	Bauhinia longifolia (Bong.) Steud.[57]	Tr	SMF
	Bauhinia ungulata var. *cuiabensis* (Bong.) Vaz	Ab	CRP/SLF/SMF
	Bowdichia virgilioides Kunth[26]	Tr	SMF
	Calliandra parvifolia (Hook. & Arn.) Speg.[5]	Tr, Ab	SMF
	Chaetocalyx longiflora Benth. ex A.Gray[50]	Vi	SMF
	Chamaecrista langsdorfii (Kunth ex Vogel) Britton ex Pittier[28]	Ab	CRP
	Chamaecrista trichopoda (Benth.) Britton & Rose ex Britton & Killip[28]	He	CRP
	Camptosema scarlatinum var. *pohlianum* (Mart. ex Benth.) Burkart[26]	Vi	CRP
	Copaifera reticulata Ducke[17]	Tr	SUF/SLF/SMF
	Crotalaria paulina Schrank[22]	Sb	SMF
	Dalbergia frutescens var. *frutescens* (Vell.) Britton[14]	Ab/Li	CRP/SUF
	Dalbergia revoluta Ducke[14]	Tr	SMF
	Desmodium subsericeum Malme[2, 26]	He	CRP
	Dioclea violacea Mart. ex Benth.[15]	Li	SMF
	Inga cylindrica (Vell.) Mart.[24, 46]	Tr	SUF/SLF/SMF
	Inga edulis Mart.[24, 46]	Tr	SMF
	Inga ingoides (Rich.) Willd.[24, 46]	Tr	SLF/SMF
	Machaerium aculeatum Raddi[40]	Li	CRP/SLF/SMF
	Machaerium brasiliense Vogel[40, 52]	Tr/Ab	CRP/SLF/SMF
	Machaerium nyctitans (Vell.) Benth.[42]	Tr	SUF/SLF
	Machaerium villosum Vogel[26]	Tr	SUF/SLF/SMF
	Mimosa pigra var. *dehiscens* (Barneby) Glazier & Mackinder[4]	Ab	CRP
	Periandra mediterranea (Vell.) Taub.[26]	Ab	CRP
	Piptadenia adiantoides (Spreng.) J.F.Macbr.[26]	Li	SUF/SMF
	Senna pendula var. *glabrata* (Humb. & Bonpl. ex Willd.) H.S.Irwin & Barneby[28]	Ab	CRP/SUF
	Sesbania virgata (Cav.) Pers.[26]	Ab	CRP
Brazil-wide distribution	*Crotalaria breviflora* DC.[25]	He/Ab	CRP/SUF
	Inga sessilis (Vell.) Mart.[25]	Tr	SUF
	Phanera radiata (Vell.) Vaz[36]	Li	SLF
Central-Eastern Brazil	*Andira fraxinifolia* Benth.[47]	Tr	SLF/SMF
	Cassia ferruginea (Schrad.) Schrad. ex DC. var. *ferruginea*[28]	Tr	SMF
	Centrosema coriaceum Benth.[5]	Vi	CRP
	Crotalaria velutina Benth.[22]	He	CRP
	Dalbergia villosa (Benth.) Benth. var. *villosa*[52]	Ab/Tr	CRP/SUF/SLF/SMF
	Machaerium oblongifolium Vogel[21]	Li	SUF/SMF
	Mimosa bimucronata (DC.) Kuntze var. *bimucronata*[4, 16]	Ab	SLF/SMF
	Mimosa dolens Vell. var. *dolens*[4,16]	Ab	CRP
	Piptadenia gonoachantha (Mart.) J.F.Macbr.[34, 41, 56]	Tr	SUF/SMF

	Senegalia martiusiana (Steud.) Seigler & Ebinger [44]	Li	SMF
	Senna macranthera var. *nervosa* (Vogel) H.S.Irwin & Barneby [28]	Tr	SUF/SMF
	Senna multijuga var. *lindleyana* (Gard.) H.S.Irwin & Barneby [28]	Tr	SUF
Atlantic - Northeast-Southeast-Southern Brazil	*Abarema langsdorfii* (Benth.) Barneby & J.W.Grimes [6]	Ab/Tr	CRP/SUF/SLF/SMF
	Dalbergia nigra (Vell.) Alemao ex Benth. ✚ [14]	Tr	SLF/SMF
	Inga vulpina Mart. ex Benth. ✚ [24, 46]	Tr/Ab	CRP/SUF
	Swartzia oblata R. S. Cowan [37]	Ab	CRP
Atlantic - Northeast-Southeastern Brazil	*Chamaecrista mucronata* (Spreng.) H.S.Irwin & Barneby ✚ [54]	Ab	CRP
	Melanoxylon brauna Schott ✚ [36, 40]	Tr	SMF
	Mimosa aurivillus Mart. var. *aurivillus* [4, 16]	Ab	CRP
	Mimosa sensitiva var. *malitiosa* Mart. [4, 16]	Vi	CRP
	Pseudopiptadenia contorta (DC.) G.P.Lewis & M.P.Lima [30]	Tr	SMF
Atlantic - Southeast-Southern Brazil	*Senna reniformis* (G.Don) H.S.Irwin & Barneby [55]	Tr/Ab	CRP/SUF/SLF/SMF
	Tachigali rugosa (Mart. ex Benth.) Zarucchi & Pipoly [33]	Tr	SUF
	Dalbergia brasiliensis Vogel [14]	Li	SLF/SMF
	Inga barbata Benth. [25]	Ab	CRP
	Mimosa scabrella Benth. [4, 16]	Tr	SUF
Southeastern Brazil	*Abarema obovata* (Benth.) Barneby & J.W.Grimes ✚ [6]	Tr	SUF/SLF/SMF
	Bionia bella Mart. ex Benth. ✚ [49]	Vi	SUF/SLF/SMF
	Chamaecrista multipennis (H.S.Irwin & Barneby) H.S.Irwin & Barneby [27]	Ab	CRP
	Inga schinifolia Benth. [24, 46]	Tr/Ab	SUF
	Mimosa aurivillus var. *calothamnos* (Mart ex. Benth.) Barneby [4, 16] [4]	Ab	CRP
	Mimosa ourobrancoënsis Burkart ✚ [35, 51]	Ab	CRP
	Ormosia friburgensis Taub. ex Harms ✚	Tr	SUF
	Piptadenia micracantha Benth. [7, 9, 56]	Li	SUF/SMF
	Senna neglecta var. *oligophylla* (Benth.) H.S.Irwin & Barneby [28]	Ab	CRP
	Senna pneumatica H.S.Irwin & Barneby ✚ [28]	Ab	SUF
	Stryphnodendron polyphyllum Mart. [53]	Tr	SLF/SMF
	Swartzia pilulifera Benth. [37]	Tr	SUF
	Tachigali friburgensis (Harms) L.G. Silva & H.C. Lima ✚ [33]	Tr	SUF/SLF
Endemic to the Espinhaço Range	*Chamaecrista dentata* (Vogel) H.S.Irwin & Barneby ✚ [27]	Ab	CRP
	Chamaecrista hedysaroides (Vogel) H.S.Irwin & Barneby [27]	Ab	CRP
	Chamaecrista ochnacea (Vogel) H.S.Irwin & Barneby var. *ochnacea* [28]	Ab	CRP
	Chamaecrista rotundata var. *grandistipula* (Vogel) H.S.Irwin & Barneby [28]	Ab	CRP
	Mimosa montis-carasae Barneby ✚ [16]	Ab	CRP

✚ Species threatened by extinction according to Biodiversitas (2005) and Brasil (2008).

* References of the geographic distributions: [1]Altshul (1964), [2] Azevedo (1981), [3] Barbosa -Fevereiro (1977), [4]Barneby (1991), [5]Barneby (1998), [6]Barneby & Grimes (1996), [7]Barroso (1965), [8]Bentham (1859), [9]Benham (1876), [10]Brandão (1992), [11]Brandão (1996), [12]Brandão & Costa (1979), [13]Burkart (1970), [14]Carvalho (1997), [15]Carvalho-Okano & Leitão-Filho (1985), [16]Dutra & Morim (2011), [17]Dwyer (1951), [18]Eisinger (1987), [19]Fantz (1980), [20]Fernandes (1996), [21]Filardi (2011), [22]Flores (2004), [23]Flores (2011), [24]Garcia (1998), [25] Garcia & Fernandes (2013), [26]ILDIS (2011), [27]Irwin & Barneby (1978), [28]Irwin & Barneby (1982), [29] Lewis (1987), [30]Lewis & Lima (1991), [31]Lima (2000), [32]Lima (2011a), [33]Lima (2011b), [34]Lima et al. (1994), [35]Lima et al. (2010c), [36]Lorenzi (1992), [37]Mansano et al. (2011), [38]Maréchal et al. (1978), [39]Mattos (1979), [40]Mendonça-Filho (1996), [41]Mendonça et al. (1998), [42]Mendonça-Filho et al. (2007), [43]Miotto (1987), [44]Morim & Barros (2011), [45]Muller (1984), [46]Pennington (1997), [47]Pennington (2003), [48]Poston (1980), [49] Queiroz (1999), [50]Rudd (1958), [51]Rudd (1965), [52]Sartori & Tozzi (1998), [53] Scalon (2007), [54]Souza & Bortoluzzi (2011a), [55]Souza & Bortoluzzi (2011b), [56]Tamashiro (1989), [57]Vaz & Tozzi (2003), [58]Vaz (2011).

It is also considered as a specialist species of the Atlantic domain by Lima (2000). However, this taxon is found in areas of *Caatinga* in northeastern Brazil and in part of Minas Gerais and Maranhão, in Seasonal Forests in the states of Mato Grosso do Sul and Parana, as well as in northeastern Argentina and southeastern Bolivia (Prado & Gibbs 1993); these vegetation types are currently recognized as Seasonally Dry Tropical Forests (SDTF), according to Pennington et al. (2000, 2004, 2006) and Miles et al. (2006).

In the pattern Central-Eastern Brazil there is also predominance of species of Semideciduous Forests of the PEIT, such as *Andira fraxinifolia* and *Piptadenia gonoacantha*, which are generalist species, corroborating Oliveira- Filho & Ratter (1995) that describe this area as an important migratory corridor, through the gallery forests of the *Cerrado* and Atlantic Forest. Although PEIT lies in a transition zone between the Atlantic Forest and areas of *Cerrado*, its legume species indicate that the Atlantic Forest domain has a greater number of taxa than the *Cerrado*.

In the pattern Southeastern Brazil, of the 13 taxa identified, nine were exclusive to the Semideciduous Forests. *Abarema obovata* and *Bionia bella* occur in upper highlands, lower highlands and submontane forests of the PEIT and are restricted to the Atlantic Forest domain, growing in submontane or seasonal forests and highland areas related mainly to the Mantiqueira Range, respectively (Barneby & Grimes 1996, Queiroz 1999, 2008). *Inga schinifolia*, *Ormosia friburgensis* and *Senna pneumatica* are specialist species and occur only in the upper highland forests of the PEIT, confirming reports by Rudd (1965), Garcia (1998) and Irwin & Barneby (1982).

Among the endemic species of the Espinhaço Range, all were exclusive to the *Campos Rupestres*, some can be considered microendemic because they occur only in two or three localities. *Chamaecrista dentata* is restricted to the Cipó Range and Itacolomi Range (Irwin & Barneby 1978); *C. hedysaroides* occurs in the region of Diamantina, Ouro Preto and Caraça Range (Irwin & Barneby 1978);

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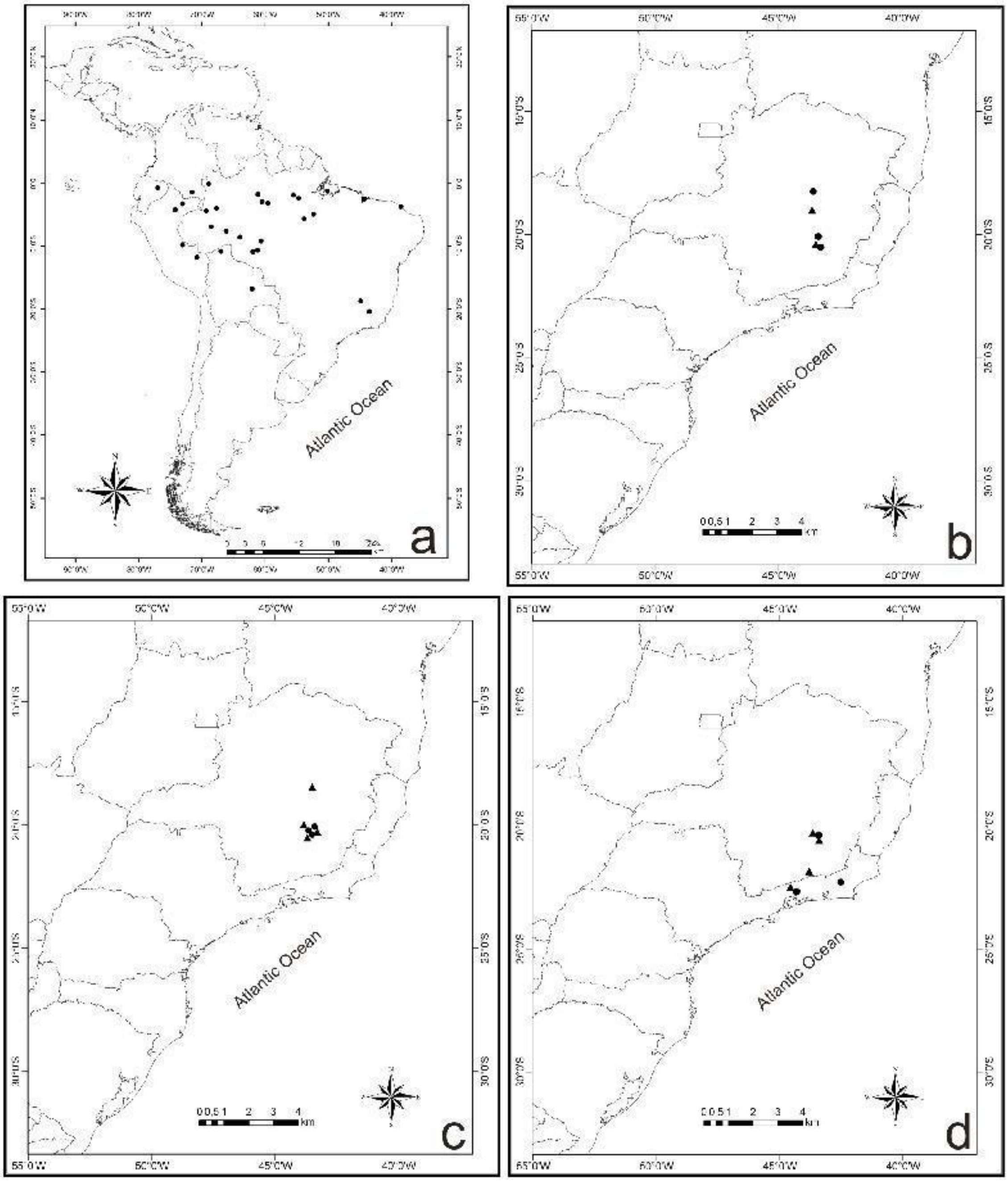

Figure 3. Distribution patterns a. Neotropical *Andira surinamensis* (Source: Pennington 2003, Mattos 1979); b. Endemic to the Espinhaço Range *Chamaecrista dentata* (▲) and *Chamaecrista hedysaroides* (●) (Source: Irwin & Barneby 1982); c. *Chamaecrista ochnacea* var. *ochnacea* (▲) and *Mimosa montis-carasae* (●) (Sources: Irwin & Barneby 1982, Dutra 2009); d. Southeastern Brazil *Mimosa ourobrancoënsis* (▲) and *Ormosia friburgensis* (●) (Sources: Dutra 2009, Rudd 1965).

Figura 3. Padrões de distribuição a. Neotropical *Andira surinamensis* (Fontes: Pennington 2003, Mattos 1979); b. Endêmicas da Cadeia do Espinhaço *Chamaecrista dentata* (▲) e *Chamaecrista hedysaroides* (●) (Fonte: Irwin & Barneby 1982); c. *Chamaecrista ochnacea* var. *ochnacea* (▲) e *Mimosa montis-carasae* (●) (Fontes: Irwin & Barneby 1982, Dutra 2009); d. Brasil Sudeste *Mimosa ourobrancoënsis* (▲) e *Ormosia friburgensis* (●) (Fontes: Dutra 2009, Rudd 1965).

C. ochnacea var. *ochnacea* grows in Nova Lima, Ouro Branco Range and Itacolomi Range (Irwin & Barneby 1978, Dutra et al. 2008b); *C. rotundata* var. *grandistipula* is limited to the region of Diamantina, Cipó Range and Itacolomi Range (Rando & Pirani 2011); and *Mimosa montis-carasae*, unique to Caraça Range and Itacolomi Range (Barneby 1991, Dutra et al. 2008c).

In the PEIT, 45% of the listed *Chamaecrista* species are endemic to the Espinhaço Range, confirming the high degree of endemism of the genus for the flora of this mountain system, showing a pattern already identified for mainly the families of Eriocaulaceae, Velloziaceae, Xyridaceae, and Lythraceae (Giulietti et al. 1987). The states of Bahia and Minas Gerais are cited as a center of diversity for *Chamecrista* , mainly the *Cerrado* and *Campos Rupestres*, especially the portion of the Espinhaço

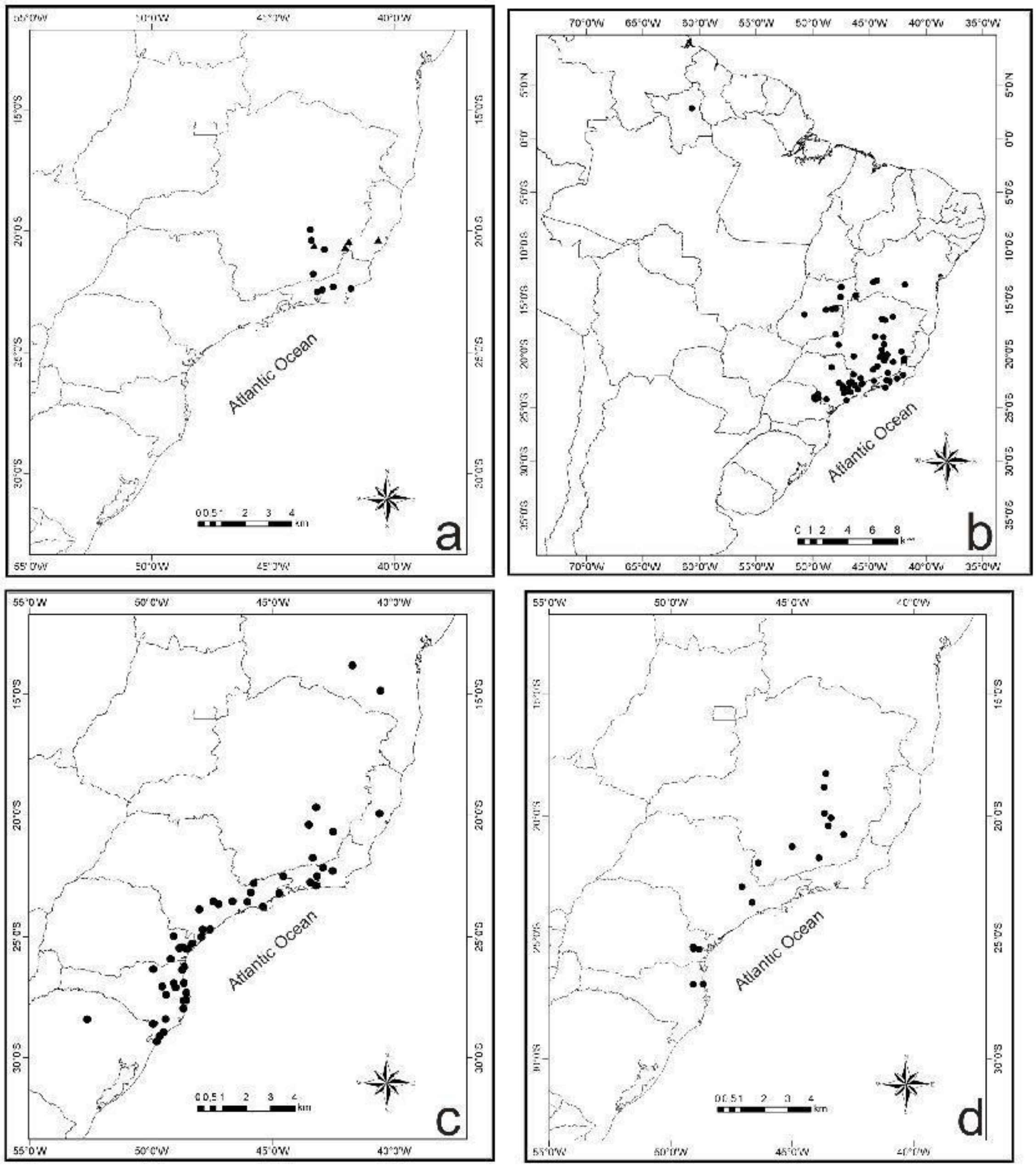

Figure 4. Distribution patterns a. Southeastern Brazil *Bionia bella* (▲) and *Tachigali friburgensis* (●) (Sources: Queiroz 1999, 2008, Silva 2007); b. Brazil-wide distribution *Crotalaria breviflora* (Source: Flores 2004, 2011); c. Atlantic-Northeast-Southeast-Southern Brazil *Abarema langsdorfii* (Source: Barneby & Grimes 1996); d. Atlantic-Northeast-Southeast-Southern Brazil *Inga vulpina* (Source: Garcia 1998).

Figura 4. Padrões de distribuição a. Brasil Sudeste *Bionia bella* (▲) e *Tachigali friburgensis* (●) (Fontes: Queiroz 1999, 2008, Silva 2007); b. Brasil ampla distribuição *Crotalaria breviflora* (Fontes: Flores 2004, 2011); c. Brazil Atlântico-Nordeste-Sudeste-Sul *Abarema langsdorfii* (Fonte: Barneby & Grimes 1996); d. Brazil Atlântico-Nordeste-Sudeste-Sul Brazil *Inga vulpina* (Fonte: Garcia 1998).

Table 2. Number of specific and infraspecific Leguminosae taxa in the Itacolomi State Park and percentage of geographic distribution patterns.

Tabela 2. Número de táxons específicos e infra-específicos de Leguminosae do Parque Estadual do Itacolomi e porcentagem dos padrões de distribuição geográfica.

Distribution pattern	Nr. of taxa	% of taxa
Wide geographic distribution	8	7.8
South America, Central America and North America	4	4.0
Neotropical	16	15.7
West, Central and Eastern South America	27	26.5
Restricted to Brazil	47	46.0
Brazil-wide distribution	3	2.9
Central-Eastern Brazil	12	11.6
Atlantic-Northeast-Southeast-Southern Brazil	4	3.8
Atlantic-Northeast-Southeastern Brazil	7	6.8
Atlantic-Southeast-Southern Brazil	3	2.9
Southeastern Brazil	13	12.7
Endemic to the Espinhaço Range	5	4.9

Range in Minas Gerais, which has several endemic species (Irwin & Barneby 1982, Lewis 1987, Giulietti & Pirani 1988, Harley 1988, Dutra et al. 2008a, Rando & Pirani 2011). In this region, some series of the genus had a significant diversification, which may have been caused by periods of climatic fluctuations that occurred in the Quaternary and resulted in the irregularity in the gene flow between populations and in the evolution of new species (Giulietti et al . 1997).

The distribution patterns of Leguminosae taxa in the Park show that its flora consists of floristic elements of both the Atlantic Forest and the *Cerrado*, the two Brazilian biomes considered hotspots (Mittermeier et al. 2005). The Semideciduous Forests of the PEIT receive the combined contribution of elements from different forest types, especially from those of the Atlantic Forest domain, since the distribution patterns of about 25% of the species were restricted to the Atlantic Forest. The *Campos Rupestres*, however, besides the high number of endemic taxa of the Espinhaço Range, receive the contribution of elements from the *Cerrado* and the Atlantic Forest, due to the presence of Semideciduous Forests that occur in the lower parts of the PEIT, corroborating Santos et al. (2011) that point out the geographical proximity as one of the factors influencing the

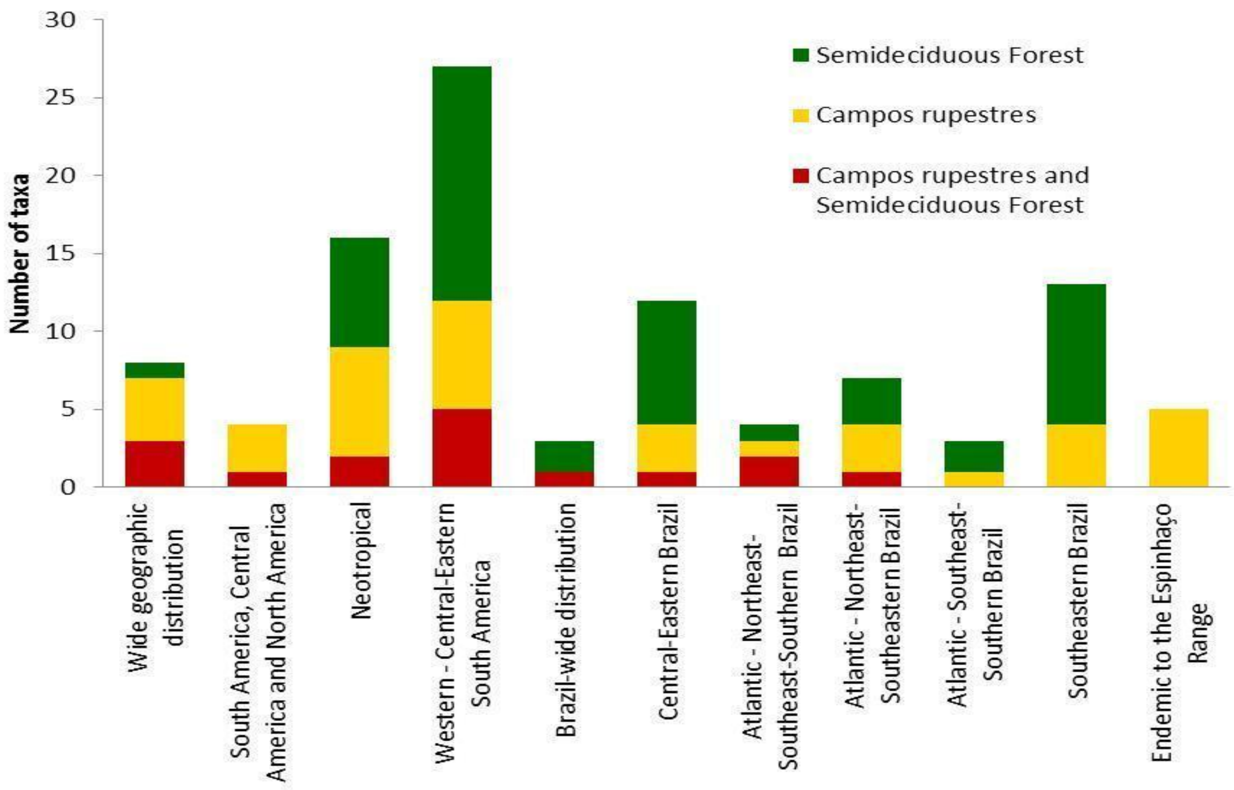

Figure 5. Correlation between geographic distribution patterns and number of taxa found in vegetation types of the Itacolomi State Park.

Figura 5. Correlação entre os padrões de distribuição geográfica e o número de espécies encontradas nas fitofisionomias do Parque Estadual do Itacolomi.

phytogeographic patterns in the *Quadrilátero Ferrífero* and also, as proposed by Harley (1995), the sectorization of the Espinhaço Range. Harley (1995) referred the *Campos Rupestres* that are restricted to the higher and isolated areas and have more humid climate, with greater contact with the Semideciduous Forests than the *Cerrado*, to the southern sector of the Range, which comprises the south of Belo Horizonte and the Ouro Preto region.

Despite the presence of species endemic to the Espinhaço, the analysis of distribution patterns of the Leguminosae in the PEIT does not support the distribution patterns typically found in other areas of the Espinhaço Range, in which forest species are predominantly of wide distribution and the herbaceous-shrub species exhibit stricter standards (Giulietti & Pirani 1988) caused by the history of the region, such as migration routes and past climate changes occurred in southeastern Brazil during the Pleistocene, which promoted the isolation of species (Giulietti et al . 1997).

Among the species found in the Park, 15 are of interest for the conservation of PEIT, because five are endemic to the Espinhaço mountain range and ten appear in the lists of endangered species of the flora of Brazil and Minas Gerais (Table 2). In areas of *Campos Rupestres* within the Park, the species *Chamaecrista dentata*, with only two populations, and *Mimosa ourobrancoënsis*, with a single population, are noteworthy. In these forest formations, many species have a very restricted distribution or are rare.

Senna pneumatica and *Ormosia friburgensis* are restricted to the Upper Highland Forests, and *Melanoxylon brauna* occurs in Submontane Forests. So far, only one population of each of these species has been found. *Dalbergia nigra* occurs in Lower Highlands and Submontane Forests with two populations identified. *Bionia bella* grows in Lower Highlands, Submontane and Upper Highland Forests, with scarce populations scattered throughout the forest formations. It is worth mentioning that the occurrence of all these taxa is restricted to the Atlantic Forest domain.

The representatives of the genera *Abarema*, *Bionia*, *Chamaecrista*, *Inga*, and *Mimosa* have ornamental potential, whereas *Dalbergia nigra* and *Melanoxylon brauna* have timber potential. Therefore, these results do not only reinforce the important role of the PEIT in the conservation of the flora in the southern Espinhaço Range, but also highlight the existence of stocks of species threatened by extinction or with potential for sustainable use.

The presence of distinct and heterogeneous floras in vegetational gradients makes the PEIT an area with high biological diversity. Messias & Souza (2006) reported 80 species of Leguminosae for the PEIT. This study shows an increase of 27.5% in the number of species within the park, which demonstrates the importance of research involving knowledge of biodiversity at the local scale.

Despite being a fully protected conservation unit, difficulties of managing the park prevents effective species protection and the vegetation of the PEIT is still subject to different impacts by uncontrolled urban sprawl, frequent fires, invasion of exotic species and firewood extraction (Messias & Souza 2006). Within the park, it deserves attention, in the areas of *Campo Rupestre*, the trails Calais and the water catchment in Serrinha, home to endemic species of the Espinhaço, and in the Semideciduous Forests, the upper highlands forests, home to most of the forest species of the PEIT that are threatened with extinction.

The findings of this study on the Leguminosae family demonstrate the importance of conserving the vegetation of the Itacolomi Range and the need for studies on other plant families, with a view to the implementation of effective protection policies for the forests and fields of the PEIT.

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References

ALTSHUL, S. von R. 1964. A taxonomic study of the genus *Anadenanthera*. Contr. Gray Herb. 193:1-65.

AZEVEDO, A.M.G. 1981. O gênero *Desmodium* Desv. no Brasil-considerações taxonômicas. Dissertação de Mestrado, Universidade Estadual de Campinas, Campinas, 315 p.

BARBOSA-FEVEREIRO, V.P. 1977. *Centrosema* (A.P. de Candolle) Benthan do Brasil - Leguminosae-Faboideae. Rodriguésia 42:159-219.

BARNEBY, R.C. 1998. Silk tree, Guanacaste, Monkey's earring: a generic system for the synandrous Mimosaceae of the Americas. Mem. New York Bot. Gard. 74:1-223.

BARNEBY, R.C. 1991. Sensitivae Censitae. A description of the genus *Mimosa* Linnaeus (Mimosaceae). New World. Mem. New York Bot. Gard. 65:1-835.

BARNEBY, R.C. & GRIMES, J. 1996. Silk tree, Guanacaste, Monkey's earring: a generic system for the synandrous Mimosaceae of the Americas. Mem. New York Bot. Gard. 74:1-292.

BARROSO, G.M. 1965. Leguminosas da Guanabara. Arquivos do Jardim Botânico do Rio de Janeiro 18:109-177.

BARROSO, G.M., PEIXOTO, A.L., COSTA, C.G., ICHASSO, C.L.F., GUIMARÃES, E.F. & LIMA, H.C. 1991. Sistemática das Angiospermas do Brasil, vol. 2. Imprensa Universitária, Viçosa.

BENTHAM, G. 1859. Papilionaceae. In: Flora Brasiliensis. (C.F.P. Martius, S. Endlicher & I. Urban, eds.). F. Fleischer, Lipsiae, v. 15, p. 1-215.

BENTHAM, G. 1876. Mimoseae. In: Flora Brasiliensis. (C.F.P. Martius, S. Endlicher & I. Urban, eds.). F. Fleischer, Lipsiae, v. 15, p. 34-499.

BIODIVERSITAS. 2005. Lista da flora brasileira ameaçada de extinção segundo avaliação no workshop. http://www.biodiversitas.org.br/florabr/lista_florabr.pdf. (accessed em 14/02/2011)

BRANDÃO, M. 1992. Gênero *Aeschynomene* L.: espécies mineiras e sua distribuição no país. Daphne 2:27-46.

BRANDÃO, M. 1996. O gênero *Zornia* Gmell. no Estado de Minas Gerais. Daphne 6:21-39.

BRANDÃO, M. & COSTA, N.M.S. 1979. O gênero *Stylosanthes* Sw. no Brasil. EPAMIG, Belo Horizonte.

BRANDÃO, M. & GAVILANES, M.L. 1994. Composição Florística das áreas recobertas pela Caatinga na área mineira da SUDENE. Informe Agropecuário 17:20-33.

BRANDÃO, M. & GAVILANES, M.L. 1997. Cobertura vegetal do município de Pedro Leopoldo, MG: formações vegetais e composição florística. Daphne 7:32-50.

BRASIL. 2008. Instrução Normativa n° 6, de 23 de setembro de 2008. Anexo 1. Lista oficial das espécies da flora brasileira ameaçada de extinção. Brasília, Ministério do Meio Ambiente.

BURKART, A. 1970. Leguminosas-Faseóleas argentinas de los géneros *Mucuna*, *Dioclea* y *Camptosema*. Darwiniana 16:175-218.

CARVALHO, A.M. 1997. A synopsis of the genus *Dalbergia* (Fabaceae, Dalbergieae) in Brazil. Brittonia 49:87-109. http://dx.doi.org/10.2307/2807701

CARVALHO-OKANO, R. M. & LEITÃO-FILHO, H. F. 1985. Revisão do gênero C*alopogonium* Desv. (Leguminosae-Lotoideae) no Brasil. Revista Brasil. Bot. 8:31-46.

COLWELL, R.K., RAHBEK, C. & GOTELLI , N.C. 2004. The Mid-domain effect and species richness patterns: what have we learned so far? The American Naturalist 163(3): E1-23.

CRIA (Centro de Referência em Informação Ambiental). 2013. *species* Link. http://splink.cria.org.br/(accessed 13/02/2012)

DRUMMOND, G.M.; MARTINS, C.S.; MACHADO, A.B.M.; SEBAIO, F.A. & ANTONINI, Y. 2005. Biodiversidade em Minas Gerais: um atlas para sua conservação. Fundação Biodiversitas, Belo Horizonte.

DUTRA, V. F. 2005. Leguminosae Adans. nos campos rupestres do Parque Estadual do Itacolomi, Minas Gerais, Brasil: florística, preferência por habitat, aspectos reprodutivos e distribuição geográfica. Dissertação de Mestrado, Universidade Federal de Viçosa, Viçosa, 171p.

DUTRA, V.F. 2009. Diversidade de *Mimosa* L. (Leguminosae) nos campos rupestres de Minas Gerais: taxonomia, distribuição geográfica e filogeografia. Tese de doutorado, Universidade Federal de Viçosa, Viçosa, 280p.

DUTRA, V.F., GARCIA, F.C.P., LIMA, H. C. & QUEIROZ, L.P. 2008a. Diversidade florística de Leguminosae Adans. em áreas de campos rupestres. Megadiversidade 4: 105-113.

DUTRA, V.F., GARCIA, F.C.P., LIMA, H. C. 2008b. Caesalpinioideae (Leguminosae) nos Campos Rupestres do Parque Estadual do Itacolomi, MG, Brasil. Acta Bot. Brasil. 22:547-558. http://dx.doi.org/10.1590/S0102-33062008000200021

DUTRA, V.F., GARCIA, F.C.P., LIMA, H. C.2008c. Mimosoideae (Leguminosae) nos campos rupestres do Parque Estadual do Itacolomi, Minas Gerais, Brasil. Rodriguésia 59:573-585.

DUTRA, V.F., GARCIA, F.C.P., LIMA, H. 2009. Papilionoideae (Leguminosae) nos Campos Rupestres do Parque Estadual do Itacolomi, MG, Brasil. Acta Bot. Brasil. 23:145-159. http://dx.doi.org/10.1590/S0102-33062009000100018

DUTRA, V.F. & MORIM, M.P. 2011. *Mimosa*. In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB023084 (accessed 13/02/2012)

DWYER, J.D. 1951. The Central American, West Indian and South American species of *Copaifera* (Caesalpiniaceae). Brittonia 7:143-172. http://dx.doi.org/10.2307/2804703

EISINGER, S.M. 1987. O gênero *Indigofera* L. (Leguminosae-Papilionoideae-Indigofereae) no Rio Grande do Sul. Acta Bot. Brasil. 1:123-140.

FANTZ, P.R. 1980. Flora of Panama. Ann. Missouri Bot. Gard. 67:582-593.

FERNANDES, A. 1996. O táxon *Aeschynomene* no Brasil. Editora Universidade Federal do Ceará, Fortaleza.

FERREIRA, F.M. & FORZZA, R. 2009. Florística e caracterização da vegetação da Toca dos Urubus, Baependi, Minas Gerais, Brasil. Biota Neotrop. 9(4):1-18. http://dx.doi.org/10.1590/S1676-06032009000400014

FILARDI, F.L.R. 2011. *Machaerium*. In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB23055 (accessed 13/02/2012)

FILARDI, F.L.R., GARCIA, F.C.P., DUTRA, V.F. & SÃO-THIAGO, P.S. 2007. Papilionoideae (Leguminosae) do Parque Nacional da Serra da Canastra, Minas Gerais, Brasil. Hoehnea 34:383-408.

FLORES, A.S. 2011. *Crotalaria*. In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB22902 (accessed 13/02/2012)

FLORES, A.S. 2004. Taxonomia, números cromossômicos e química de espécies de *Crotalaria* L. (Leguminosae-Papilionoideae) no Brasil. Tese de doutorado, Universidade Estadual de Campinas, Campinas, 201 p.

FORTUNA-PEREZ, A.P. 2010. *Zornia*. In Catálogo de Plantas e fungos do Brasil vol. 2. (R.C. Forzza et al., eds.). Andrea Jakobsson Estudio: Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro, pp. 1100-1101.

GARCIA, F.C.P. 1998. Relações sistemáticas e fitogeografia do gênero *Inga* Miller (Leguminosae, Mimosoideae, Ingeae) nas florestas da costa sul e sudeste do Brasil. Tese de doutorado, Universidade Estadual Paulista, Rio Claro, 248 p.

GARCIA, F.C.P. & FERNANDES, J.M. 2013. *Inga*. In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB22803 (accessed 13/02/2012)

GENTRY, A.H. 1995. Patterns of diversity and floristic composition in neotropical montane forests. In Biodiversity and Conservation of Neotropical Montane Forests. Proceedings of the Neotropical Montane Forests Biodiversity and Conservation Symposium. (S.P. Churchill et al., eds.). The New York Botanical Garden, New York, p. 103-26.

GIULIETTI, A. M.; HARLEY, R. M.; QUEIROZ, L. P.; WANDERLEY, M. G. L. & PIRANI, J. R. 2002. Caracterização e endemismos nos Campos rupestres da Cadeia do Espinhaço. In Tópicos atuais em Botânica (T. B. Cavalcanti & B. M. T. Walter, eds.). Brasília, SBB/ Embrapa, p. 311-318.

GIULIETTI, A.M., MENEZES, N.L., PIRANI, J.R., MEGURO, M. & WANDERLEY, M.G.L. 1987. Flora da Serra do Cipó: caracterização e lista das espécies. Bol. Bot. Univ. São Paulo 9:1-151.

GIULIETTI, A. M. & PIRANI, J.R. 1988. Patterns of geographic distribution of some plant species from the Espinhaço Range, Minas Gerais and Bahia, Brazil. In Proceedings of a Workshop on Neotropical Distribution Patterns (W.R. Heyer & P.E. Vanzolini, eds.). Academia Brasileira de Ciências, Rio de Janeiro, p.39-67.

GIULIETTI, A.M.; PIRANI, J.R. & HARLEY, R.M. 1997. Espinhaço Range region, Eastern Brazil. In Centres of plants diversity 3 (S.D. Davis et al., eds). Information Press, Oxford, p. 397-404.

GONTIJO, B.M. 2008. Uma geografia para a Cadeia do Espinhaço. Megadiversidade 4:7-15. GUEDES-BRUNI, R.R., MORIM, M.P., LIMA, H.C., SYLVESTRE, L. da S. 2002. Inventário Florístico. In Manual Metodológico para estudos botânicos na Mata Atlântica (L. da S. Sylvestre & M.M.T., Rosa, orgs.). Seropédica, Rio de Janeiro, p. 24-49.

HARLEY, R.M. 1995. Introduction. In Flora of the Pico das Almas, Chapada Diamantina, Bahia, Brazil (B.L. Stannard, ed). Royal Botanical Gardens, Kew, p. 1-40.

HARLEY, R.M. 1988. Evolution and distribution of *Eriope* (Labiatae), and its relatives in Brazil. In Proceedings of a Workshop on Neotropical Distribution Patterns (W.R. Heyer & P.E. Vanzolini, eds.). Academia Brasileira de Ciências, Rio de Janeiro, p.71-119.

IBGE (Instituto Brasileiro de Geografia e Estatística). 2012. Manual técnico da vegetação brasileira. Rio de Janeiro.

ILDIS. 2011. International Legumes Database & Information Service. http://www.ildis.org/ (accessed 13/02/2012) IRWIN, H.S. & BARNEBY, R.C. 1978. Monographic studies in *Cassia* (Leguminosae-Caesalpinioideae) III. Sections *Absus* and *Grimaldia*. Mem. New York Bot. Gard. 30:1-300.

IRWIN, H.S. & BARNEBY, R.C. 1982. The American Cassiinae – A synoptical revision of Leguminosae – Tribe Cassieae subtribe Cassiinae in the New World. Mem. New York Bot. Gard. 35:1-918.

JOLY, C.A., AIDAR, M.P.M., KLINK, C.A., McGRATH, D.G., MOREIRA, A.G., MOUTINHO, P., NEPSTAD, D.C., OLIVEIRA, A. A., POTT, A., RODAL, M.J.N. & SAMPAIO, E.V.S.B. 1999. Evolution of the Brazilian phytogeography classification systems: implications for biodiversity conservation. Ciência e Cultura 51(5/6):331-368.

LÉON, J. 1966. Central American and West Indian species of *Inga* (Leguminosae). Annals of the Missouri Botanical Garden 53:265-359.

LEWIS, G.P. 1987. Legumes of Bahia. Royal Botanic Gardens, Kew.

LEWIS, G.P. & LIMA, M.P.M. 1991. *Pseudopiptadenia* Rauschert no Brasil (Leguminosae- Mimosoideae). Arquivos do Jardim Botânico do Rio de Janeiro 30:43-67.

LEWIS, G.P., SCHRIRE, B.D., MACKINDER, B.A. & LOCK, J.M. 2005. Legumes of the World. Kew, Royal Botanic Gardens.

LIMA, H.C. 2000. Leguminosas arbóreas da Mata Atlântica: uma análise da riqueza, padrões de distribuição geográfica e similaridades florísticas em remanescentes florestais do estado do Rio de Janeiro. Tese de doutorado, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 156 p.

LIMA, H.C. 2011a. *Dalbergia*. In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB22908 (accessed 13/02/2012)

LIMA, H.C. 2011b. *Tachigali*. In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB23195 (accessed 13/02/2012)

LIMA, H.C., CORREIA, C.M.B. & FARIAS, D.S. 1994. Leguminosae. In Reserva Ecológica de Macaé de Cima, Nova Friburgo, RJ: Aspectos florísticos das espécies vasculares, v.1 (M.P.M. Lima & R.R. Guedes-Bruni, orgs.). Jardim Botânico do Rio de Janeiro, Rio de Janeiro, p.167-228.

LIMA, H.C., QUEIROZ, L.P., MORIM, M.P., SOUZA, V.C., DUTRA, V.F., BORTOLUZZI, R.L.C., IGANCI, J.R.V., FORTUNATO, R.H., VAZ, A.M.S.F., SOUZA, E.R., FILARDI, F.L.R., VALLS, J.F.M., GARCIA, F.C.P., FERNANDES, J.M., MARTINS-DA-SILVA, R.C.V., PEREZ, A.P.F., MANSANO, V.F., MIOTTO, S.T.S., TOZZI, A.M.G.A., MEIRELES, J.E., LIMA, L.C.P., OLIVEIRA, M.L.A.A., FLORES, A.S., TORKE, B.M., PINTO, R.B., LEWIS, G.P., BARROS, M.J.F., RIBEIRO, R.D., SCHÜTZ, R., PENNINGTON, T., KLITGAARD, B.B., RANDO, J.G., SCALON, V.R., CARDOSO, D.B.O.S., COSTA, L.C., SILVA, M.J., MOURA, T.M., BARROS, L.A.V., SILVA, M.C.R., QUEIROZ, R.T., SARTORI, A.L.B. & CAMARGO, R. 2010a. Fabaceae. In Catálogo de Plantas e fungos do Brasil vol. 2. (R.C. Forzza et al., eds.). Andrea Jakobsson Estudio: Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro, p. 989-1102.

LIMA, L.C.P., GARCIA, F.C.P. & SARTORI, A.L.B. 2007. Leguminosae nas florestas estacionais do Parque Estadual do Itacolomi, Minas Gerais, Brasil: ervas, arbustos, subarbustos, lianas e trepadeiras. Rodriguésia 58: 331-358.

LIMA, L.C.P., OLIVEIRA, M.L.A.A. & TOZZI, A.M.G. 2010b. *Desmodium* . In Catálogo de Plantas e fungos do Brasil vol. 2. (R.C. Forzza et al., eds.). Andrea Jakobsson Estudio: Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro, p. 1029-1030.

LIMA, L.C.P., GARCIA, F.C.P. & SARTORI, A.L.B. 2010c. As Leguminosas arbóreas das florestas estacionais do Parque Estadual do Itacolomi, Minas Gerais, Brasil. Rodriguésia 61:441-466.

LIMA, M.P.M., GUEDES-BRUNI, R.R., SYLVESTRE, L.S., PESSOA, S.V.A. & ANDREATA, R.H.P. 1997. Padrões de distribuição geográfica das espécies vasculares da Reserva Ecológica de Macaé de Cima. In Serra de Macaé de Cima: diversidade florística e conservação em Mata Atlântica (H.C. Lima & R.R. Guedes-Bruni, eds.). Jardim Botânico, Rio de Janeiro, p.103-123.

LORENZI, H. 1992. Árvores brasileiras: manual de identificação e cultivo de plantas arbóreas nativas do Brasil v1. Plantarum, Nova Odessa.

MANSANO, V.F., PINTO, R.B. & TORKE, B.M. 2011. *Swartzia*. In Lista de Espécies da Flora do Brasil. http:/floradobrasil.jbrj.gov.br/2011/FB23178 (accessed 13/02/2012)

MARÉCHAL, R., MASCHERPA, J. M. & STAINER, F. 1978. Étude taxonomique d'un groupe complex d'espéces des genres *Phaseolus* et *Vigna* (Papilionaceae) sur la base de données morphologiques et polliniques, traitées par l'analyse informatique. Boissiera 28:1-273.

MATTOS, N.F. 1979. O gênero *Andira* Lam. (Leguminosae-Papilionoideae) no Brasil. Acta Amazônica 9:241-266.

MEGURO, M.; PIRANI, J. R.; GIULIETTI, A. M. & MELLO-SILVA, R. 1994. Phytophysiognomy and composition of the vegetation of Serra do Ambrósio, Minas Gerais, Brazil. Revista Brasil. Bot. 17:149-166.

MENDONÇA-FILHO, C.V. 1996. Braúna, angico, jacarandá e outras leguminosas de Mata Atlântica: Estação Biológica de Caratinga, Minas Gerais. Fundação Botânica Margaret Mee; Fundação Biodiversitas, Belo Horizonte.

MENDONÇA-FILHO, C.V., TOZZI, A.M.G.A. & MARTINS, E.R.F. 2007. Revisão taxonômica de *Machaerium* sect. *Oblonga* (Benth.) Taub. (Leguminosae, Papilionoideae, Dalbergieae). Rodriguésia 58:283-312.

MENDONÇA, R.C., FELFILI, J.M., WALTER, B.M.T., SILVA JR., M.C., REZENDE, A.V., FILGUEIRAS, T.S. & NOGUEIRA, P.E. 1998. Flora vascular do cerrado. In Cerrado: Ambiente e Flora. (S.M. Sano & S.P. Almeida, eds.). Embrapa-CPAC, Planaltina, p.289-539.

MESSIAS, M.C.T.B.; DIAS, S.J.; ROSCHEL, M.B.; SOUSA, H.C. & MATOS, A.M. 1997. Levantamento florístico das matas e distribuição de algumas espécies endêmicas da área do Parque Estadual do Itacolomi. UFOP/BIRD/IEF-PROFLORESTA. Relatório Técnico, Ouro Preto.

MESSIAS, M.C.T.B. & SOUZA, H.C. 2006. Plano de Manejo do parque Estadual do Itacolomi - Flora. Relatório Final, Ouro Preto.

MILES, L., NEWTON, A.C., DEFRIES, R..S., RAVILIOUS, C., MAY, I., BLYTH, S., KAPOS, V. & GORDON, J. E. 2006. A global overview of the conservation status of tropical dry forests. Journal of Biogeography 33:491-505. http://dx.doi.org/10.1111/j.1365-2699.2005.01424.

MIOTTO, S.T.S. 1987. Os gêneros *Centrosema* (DC.) Benth. e *Clitoria* L. (Leguminosae, Faboideae) no Rio Grande do Sul. Iheringia, série Botânica 36:15-39.

MITTERMEIER, R.A., GIL, P.R., HOFFMANN, M., PILGRIM, J., BROOKS, T., MITTERMEIER, C.G., LAMOREUX, J. & FONSECA, G.A.B. 2005. Hotspots Revisited: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions. CEMEX; Agrupación Sierra Madre, Washington.

MORIM, M.P. 2006. Leguminosae arbustivas e arbóreas da floresta atlântica do Parque Nacional do Itatiaia, sudeste do Brasil: padrões de distribuição. Rodriguésia 57:27-45.

MORIM, M.P. & BARROS, M.J.F. 2011. *Senegalia.* In Lista de Espécies da Flora do Brasil. Jardim http://floradobrasil.jbrj.gov.br/2011/FB100997 (accessed 13/02/2012)

MULLER, C. 1984. Revisão Taxonômica do gênero *Poiretia* Vent. (Leguminosae) para o Brasil. Dissertação de Mestrado, Universidade Estadual de Campinas, Campinas, 150p.

NALINI JUNIOR, H.A., GARCIA, M.P.L & CASTRO, P.T.A. 2006. Plano de Manejo do parque Estadual do Itacolomi – Meio físico. Relatório Final, Ouro Preto.

NUNES, S.R.D.F.S., GARCIA, F.C.P., LIMA, H.C. & CARVALHO-OKANO, R.M. 2007. Mimosoideae (Leguminosae) arbóreas do Parque Estadual do Rio Doce, Minas Gerais, Brasil: distribuição geográfica e similaridade florística na Floresta Atlântica no Sudeste do Brasil. Rodriguésia 58:403-421.

OLIVEIRA-FILHO, A. T. 2009. Classificação das fitofisionomias da América do Sul cisandina tropical e subtropical: proposta de um novo sistema – prático e flexível – ou uma injeção a mais de caos? Rodriguésia 60(2):237-258.

OLIVEIRA-FILHO, A.T. & RATTER, J.A. 1995. A study of the origin of central Brazilian forests by the analysis of plant species distribution patterns. Edinburgh J. Bot. 52:141-194.

OLIVEIRA-FILHO, A.T.; VILELAS, E.A.; GAVILANES, M.L.; CARVALHO, D.A. 1994. Comparison of the flora and soils of six areas of Montane Semideciduous Forest in southern Minas Gerais, Brazil. Edinburgh J. Bot. 51:355-389.

PENNINGTON, R.T. 2003. Monograph of *Andira* (Leguminosae-Papilionoideae). Syst. Bot. Monogr. 64: 1-143.

PENNINGTON, R.T., PRADO, D.A. & PENDRY, C. 2000 Neotropical seasonally dry forests and Pleistocene vegetation changes. Journal of Biogeography 27:261–273.

PENNINGTON, R.T., LAVIN, M., PRADO, D.E., PENDRY, C.A., PELL, S.K. & BUTTERWORTH, C.A. 2004. Historical climate change and speciation: neotropical seasonally dry forest plants show patterns of both Tertiary and Quaternary diversification. Philosophical Transactions of the Royal Society of London Series B-Biological Sciences 359: 515–538.

PENNINGTON, R.T., RICHARDSON, J.E. & LAVIN, M. 2006. Insights into the historical construction of species-rich biomes from dated plant phylogenies, neutral ecological theory and phylogenetic community structure. New Phytologist 172: 605–616.

PENNINGTON, T.D. 1997. The genus *Inga*: Botany. Royal Botanic Gardens, Kew.

PERON, M.V. 1989. Listagem preliminar da flora fanerogâmica dos Campos Rupestres do Parque Estadual do Itacolomi, Ouro Preto/Mariana, MG. Rodriguésia 41:63-69.

PIRANI, J.R., MELLO-SILVA, R. & GIULIETTI, A.M. 2003. Flora de Grão-Mogol, Minas Gerais, Brasil. Bol. Bot. Univ. São Paulo 21:1-24.

POSTON, M. E. 1980. Flora of Panama. Ann. Missouri Bot. Gard. 67:582-593.

PRADO, D.E. & GIBBS, P.E. 1993. Patterns of species distributions in the dry seasonal forests of South America. Ann. Missouri Bot. Gard. 80:902-927.

QUEIROZ, L.P. 1999. Sistemática e filogenia do gênero *Camptosema* W.J.Hook. & Arn. (Leguminosae: Papilionoideae: Phaseoleae). Tese de Doutorado, Universidade de São Paulo, São Paulo, 259p.

QUEIROZ, L.P. 2006. The Brazilian Caatinga: phytogeographical patterns inferred from distribution data of the Leguminosae. In Neotropical Savannas and Seasonally Dry Forests: plant diversity, biogeography, and conservation (R.T. Pennington, G.P. Lewis & J.A Ratter, eds.). Taylor & Francis Boca Raton, p.122 -157.

QUEIROZ, L.P. 2008. Re-Establishment, synopsis and new combinations in the genus *Bionia* Mart. ex Benth. (Leguminosae: Papilionoideae). Neodiversity 3: 13-18.

RANDO,J.G&PIRANI,J.R.2011.Padrões de distribuição geográfica das espécies de *Chamaecrista* sect. *Chamaecrista* ser. *Coriaceae* (Benth.) H. S. Irwin & Barneby, Leguminosae – Caesalpinioideae. Revista Brasil. Bot. 34:499-513. http://dx.doi.org/10.1590/S0100-84042011000400004

RAPINI, A; RIBEIRO, P.L.; LAMBERT, S. & PIRANI, J.R. 2008. A flora dos campos rupestres da Cadeia do Espinhaço. Megadiversidade 4:16-24.

RIBEIRO, J.F. 1998. Cerrado: Matas de galeria. Embrapa-CPAC, Planaltina.

RUDD, V.E. 1958. A revision of the genus *Chaetocalyx*. Contributions from the National Herbarium 32:207-245.

RUDD, V.E. 1965. The American species of *Ormosia* (Leguminosae). Contributions from the National Herbarium 32:278-384.

SANDERS, N.J. & RAHBEK, C. 2012. The patterns and causes of elevational diversity gradients. Ecography 35: 1–3.

SANTOS, M.F.; SERAFIM, H. & SANTO, P.T. 2011. An analysis of species distribution patterns in the Atlantic Forests of Southeastern Brazil. Edinburgh J. Bot. 68:373-400.

SARTORI, A.L.B. & TOZZI, A.M.G.A. 1998. As espécies de *Machaerium* Pers. (Leguminosae-Papilioinoideae-Dalbergieae) ocorrentes no Estado de São Paulo. Revista Brasil. Bot. 21:211-246. http://dx.doi.org/10.1590/S0100-84041998000300001

SCALON, V.R. 2007. Revisão Taxonômica do gênero *Stryphnodendron* Mart. (Leguminosae-Mimosoideae). Tese de doutorado, Universidade de São Paulo, São Paulo, 264p.

SCHRIRE, B.D.; LEWIS, G.P. & LAVIN, M. 2005. Biogeography of the Leguminosae. In Leguminosae of the world (G.P. Lewis, B. D. Schrire, B. A. Mackinder & J. M. Lock, eds.). Royal Botanic Gardens, Kew, p. 21-54.

SILVA, L.F.G. 2007. Taxonomia das espécies dos gêneros *Tachigali* Aubl. e *Sclerolobium* Vogel (Leguminosae - Caesalpinioideae) da Mata Atlântica. Dissertação de Mestrado, Jardim Botânico do Rio de Janeiro, Rio de Janeiro, 65p .

SOUZA, V.C. & BORTOLUZZI, R.L.C. 2011a. *Chamaecrista.* In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB22876 (accessed 13/02/2012)

SOUZA, V.C. & BORTOLUZZI, R.L.C. 2011b. *Senna.* In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB23149 (accessed 13/02/2012)

TAMASHIRO, J.Y. 1989. Estudos taxonômicos morfológicos do gênero *Piptadenia*, sensu Bentham no sudeste do Brasil. Avaliação das modificações taxonômicas recentemente propostas. Dissertação de Mestrado, Universidade Estadual de Campinas, Campinas, 99p.

VAZ, A.M.S.F. 2011. *Phanera.* In Lista de Espécies da Flora do Brasil. http://floradobrasil.jbrj.gov.br/2011/FB25673 (accessed 13/02/2012)

VAZ, A.M.S.F. & TOZZI, A.M.G.A. 2003. *Bauhinia* ser. *Cansenia* (Leguminosae: Caesalpinioideae) no Brasil. Rodriguésia 54:55-143.

VELOSO, H.P., RANGEL FILHO, A.L. & LIMA, J.C.A. 1991. Classificação da vegetação brasileira, adaptada a um sistema universal. IBGE, Rio de Janeiro.

ZAPPI, D.C., LUCAS, E., STANNARD, B.L., LUGHADHA, E.N., PIRANI, J.R., QUEIROZ, L.P., ATKINS, S., HIND, D.J.N., GIULIETTI, A.M., HARLEY, R.M. & CARVALHO, A.M. 2003. Lista das plantas vasculares de Catolés, Chapada Diamantina, Bahia, Brasil**.** Bol. Bot. Univ. São Paulo 21:345-398.

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