

1           The cloud forest in the Dominican Republic: diversity and conservation status

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## 21 **Abstract**

22 The study of the forest in rainy environments of the Dominican Republic reveals the  
23 presence of four types of vegetation formations, clearly differentiated from each other in  
24 terms of their floristic and biogeographical composition, and also significantly different  
25 from the rainforests of Cuba. This leads us to propose two new alliances and four plant  
26 associations located in northern mountain areas exposed to moisture-laden winds from the  
27 Atlantic: All. *Rondeletio ochraceae-Clusia roseae* (Ass. *Cyathea furfuracei-Prestoetum*  
28 *montanae*; Ass. *Ormosio krugii-Prestoetum montanae*); and All. *Rondeletio ochraceae-*  
29 *Didymopanax tremuli* (Ass. *Hyeronimo montanae-Magnolietum pallescentis*; *Hyeronimo*  
30 *dominguensis-Magnolietum hamorii*). Due to human activity, some areas are very poorly  
31 conserved, as evidenced by the diversity index and the presence of endemic tree and plant  
32 elements. The worst conserved in terms of the relationship between characteristic plants  
33 vegetation (cloud forest) in areas with high rainfall in the Dominican Republic, along with  
34 its floristic diversity and state of conservation. Thanks to this study it has been possible to  
35 significantly increase the botanical knowledge of this important habitat.

36

## 37 **Introduction**

38 The territory of the Dominican Republic (DR), with an extension of 48,198 km<sup>2</sup> including  
39 the small adjacent islands, accounts for over two thirds of the territory of Hispaniola, an  
40 island located between parallels 17-19°N in the group of the Greater Antilles. Most  
41 previous botanical studies have concentrated predominantly on the flora –for example the  
42 work of [1] in the Sierra de Bahoruco– and highlight the abundant rainfall of up to 4,000  
43 mm and the very high rate of endemic species. There are also other studies by several  
44 authors on the cloud forest in the Cordillera Central, Septentrional and Oriental ranges [2-  
45 17]. All these works, together with previous studies carried out by ourselves [18-29] have  
46 enabled us to undertake the present work. All the aforementioned studies focus attention on  
47 the knowledge of the flora, with only passing references to the vegetation. The main aim of  
48 this work is to determine the forest vegetation (cloud forest) in areas with high rainfall in  
49 the Dominican Republic, along with its floristic diversity and conservation status.

## 50 **Material and methods**

51 The island of Hispaniola, with an area of 76,484 km<sup>2</sup>, and Cuba, Jamaica and Puerto Rico  
52 are the largest islands in the Caribbean region. The geological origin of the mountains on  
53 the island dates from the Cretaceous and Oligocene-Miocene era with the exception of the  
54 intramountain valleys formed during the Quaternary period due to the deposit of materials  
55 [30]. There is a predominance of calcareous materials with a karstic character, marbles,  
56 limestones and Quaternary deposit materials, and a large central nucleus of siliceous  
57 materials with serpentine outcrops [19-21]. The island has a mountainous relief with  
58 several mountain chains such as the Oriental, Central and Septentrional ranges, and sierras  
59 such as Bahoruco and Niebla. The northwest-southwest orientation of the mountains and  
60 the prevailing direction of the Atlantic winds explains the existence of a permanent sea of  
61 clouds, which gives rise to high rainfall on north-northeast-facing slopes.  
62 This study is focused on the humid-hyper-humid forests in the Dominican Republic (DR)  
63 on the island of Hispaniola. Vegetation samples were taken in areas of high rainfall such as  
64 the Cordillera Central and Oriental ranges and the Sierra de Bahoruco, selecting sampling  
65 plots with an area of 500-2000 m<sup>2</sup>. Due to the scarcity of vegetation studies, we analysed

66 the works of [31-35] in territories of Cuba. For the dynamic-catenal landscape study we  
 67 took into account the criteria of [36-37]. An Excel© table was created with 483 rows  
 68 (species) x 12 columns (tables containing 67 relevés) (Table 1). A statistical treatment  
 69 (clustering) was applied to separate the communities described for Cuba from those of  
 70 Hispaniola. The statistical treatment was done by adapting the Van der Maarel conversion  
 71 [38] and substituting the abundance-dominance indexes with synthetic indexes with the  
 72 following equivalence: I = 3, II = 4, III = 5, IV = 6, V = 7. Once the indexes were  
 73 converted, a cluster analysis was applied using the Jaccard distance marking the distance  
 74 between the associations studied. After separating the forests in the Dominican Republic  
 75 (DR) from those of Cuba based on the Jaccard distance, an Excel© table was created with  
 76 the vegetation relevés from the DR, and a Euclidean distance cluster analysis and a DCA  
 77 were applied to obtain the different types of forests present in the DR. A CCA was done to  
 78 determine the influence of environmental factors (temperature and rainfall) on the  
 79 distribution of these forests, followed by a study of the diversity and conservation status.

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81 **Table 1. Plant communities studied and number of relevés.**

	<b>Communities</b>	<b>Authors</b>	<b>No. of rel.</b>
C1	<i>Clethro-Pinetum maestrensis</i> Borhidi 1991 (Cuba)	Borhidi (1991). Phytogeography and vegetation ecology of Cuba, Table 139, page 624	5
C2	<i>Hyeronimo-Sloanetum curatellifoliae</i> Borhidi 1991 (Cuba)	Borhidi (1991). Phytogeography and vegetation ecology of Cuba, Table 140, page 627	5
C3	<i>Alchorneo-Calophylletum rivularis</i> Reyes 2005 (Cuba)	Reyes (2005). Synecological study of submontane rainforests on metamorphic complex rocks, Table 1	6
C4	<i>Pruno-Guareetum guidoniae</i> Reyes & Acosta 2011 (Cuba)	Reyes & Acosta (2011). Phytocoenosis in evergreen forests in eastern Cuba III, Table 2	4
C5	<i>Ocoteo-Phoebietum elongatae</i> Reyes & Acosta 2010 (Cuba)	Reyes & Acosta (2010). Phytocoenosis in evergreen forests in eastern Cuba I, Table 1	7
C6	<i>Guareo guidoniae-Zantoxyletum martinicensis</i> Reyes & Acosta 2010 (Cuba)	Reyes & Acosta (2010). Phytocoenosis in evergreen forests in eastern Cuba II, Table 1	8
			Total 35 relevés
DR7	<i>Hyeronimo montanae-Magnolietum pallescentis nova</i> (DR)	Own relevés	5
DR8	<i>Cyatheo furfuracei-Prestoetum montanae nova</i> (DR)	Own relevés	5

DR9	<i>Hyeronimo dominguensis-Magnolietum hamorii nova</i> (DR)	Own relevés	4
DR10	<i>Ormosio krugii-Prestoetum montanae nova</i> (DR)	Own relevés	3
DR11	Vegetation relevés (DR)	May & Peguero (2000). Vegetation and flora of the El Mogote ridge, Jarabacoa, Cordillera Central range, Dominican Republic; Table 1 page 23	3
DR12	Vegetation relevés (DR)	May (2007). Composition, structure and diversity in broadleaved cloud forests in the Ebano Verde scientific reserve (Cordillera Central range, Dominican Republic); Table 1 page 171	12
			Total 32 relevés

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## 83 Results

84 The results of the analysis of Jaccard distances (Fig 1) applied to six plant communities in  
85 Cuba and six in the DR, show that the six communities described in Cuba by [31-35], C1-  
86 C6 (Table 1, 35 relevés), can be broken down into the community C1 and the group G<sub>1</sub>  
87 (C2,C3,C4,C5,C6). C1 is differentiated from the rest in terms of its floristic, structural and  
88 ecological composition, as this is a pinewood of *Pinus maestrensis* Bise growing in rainy  
89 environments but on highly oligotrophic soils, in common with the other communities in  
90 group G<sub>1</sub>, which is floristically significantly different from group G<sub>2</sub>. There are very  
91 significant floristic differences between Cuba and the DR (Tables 2 and 3), with 173  
92 species present in the samplings in the DR but not in Cuba, whereas the samplings in Cuba  
93 reveal 139 plants that are absent from the DR. In group G<sub>2</sub>, which contains 32 of our own  
94 relevés and those one of [9-10], (DR7, DR8, DR9, DR10, DR11, DR12), the communities  
95 DR7, DR11 and DR12 can be seen to form a group for the DR representing different types  
96 of forests; these formations are a series of plant communities in very rainy environments in  
97 the Dominican Republic (DR) located in the Sierra de Bahoruco and the Cordillera Central  
98 and Oriental ranges, with rainfall of over 2,000 mm. Group G<sub>2</sub> is broken down into two  
99 subgroups of plant communities –DR7-DR11-DR12 and DR8-DR9-DR10– which is  
100 plausible, as the first three correspond to areas with acid substrates and rainy environments  
101 in the Cordillera Central range, whereas the second subgroup contains communities  
102 growing on different kinds of substrates and in hyper-humid environments. We therefore  
103 focus on the analysis of 17 of our own samplings to which we apply a Euclidean distance  
104 cluster analysis and an ordination analysis, both of which perfectly separate the sampling  
105 groups.

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108 **Fig 1. Jaccard distance cluster.** Cluster analysis for the associations of Cuba and the  
109 Dominican Republic.

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111 **Table 2. Plants from Cuba not present in the relevés from the DR**

<i>Ageratina paucibracteata</i> (Alain) King et Robins.	<i>Ocotea cuneata</i> (Griseb.) Urb.
<i>Alsophila aquilina</i> C. Chr.	<i>Oplismenus hirtellus</i> (L.) Beauv.
<i>Allophyllus cristalensis</i> Lippold	<i>Ossaea muricata</i> (Griseb.) Wr. ex Sam.
<i>Ascyrum hypericoides</i> L.	<i>Ouratea revoluta</i> (Wr ex Griseb.) Engl.
<i>Bactris cubensis</i> Burret	<i>Panicum boliviense</i> Hack.
<i>Buchenavia capitata</i> (Vahl.) Eichl.	<i>Panicum glutinosum</i> Sw.
<i>Byrsonima biflora</i> Griseb.	<i>Panicum scoparium</i> L.
<i>Byrsonima coriacea</i> R. Br.	<i>Pardisea maestrensis</i> Borhidi and Catassus
<i>Byrsonima orientensis</i> Bisse	<i>Pera ekmanii</i> Urb.
<i>Calophyllum utile</i> Bisse	<i>Phaius tankervilleae</i> (Banks) Blume
<i>Calycogonium grisebachii</i> Triana	<i>Pharus latifolius</i> L.
<i>Calycogonium lindenianum</i> Naud.	<i>Philodendron lacerum</i> (Jacq.) Schott
<i>Calyptantes punctata</i> Griseb.	<i>Phyllanthus pachystylus</i> Urb.
<i>Callicarpa ferruginea</i> Sw.	<i>Phyllanthus subcarnosus</i> Wr ex Muell. Arg.
<i>Cestrum laurifolium</i> L'Hérit	<i>Pilocarpus racemosus</i> Vahl.
<i>Clethra cubensis</i> A. Rich.	<i>Pinus maestrensis</i> Bisse
<i>Clidemia strigillosa</i> (Sw.) DC.	<i>Piper holguinianum</i> Trel.
<i>Clusia minor</i> L.	<i>Pithecellobium arboreum</i> (L.) Urb.
<i>Clusia tetrastigma</i> Vesque	<i>Platyginie triandra</i> Borhidi
<i>Coccocypselum x lanceolatum</i> (Urb.) Borhidi	<i>Pleurothalis tribuloides</i> (Sw.) Lindl.
<i>Coccoloba costata</i> Wr. Inn Sauv.	<i>Pleurothalis velaticaulis</i> Rchb.
<i>Coccoloba ekmanii</i> O. C. Schmidt	<i>Podocarpus ekmanii</i> Urb.
<i>Coccoloba retusa</i> Griseb.	<i>Polygala oblongata</i> (Britt.) Blake
<i>Coussarea urbaniana</i> Standl.	<i>Polypodium phyllitidis</i> L.
<i>Critonia dalea</i> (L.) DC.	<i>Polystachya cubensis</i> Schltr.
<i>Cyathea araneosa</i> (Sw.) Domin	<i>Protium cubense</i> (Rose) Urb.
<i>Cyrilla nipensis</i> Urb.	<i>Psidium baliu</i> Urb.
<i>Chrysophyllum argenteum</i> Jacq.	<i>Psychotria shaferi</i> Urb.
<i>Dalbergaria cubensis</i> (Urb.) Borhidi	<i>Pteridium caudatum</i> (L.) Max.
<i>Dendropanax nervosus</i> (Urb et Ekm.) A. C. Sm.	<i>Pteris rigida</i> Sw.
<i>Dennstaedtia adiantoides</i> (H. & B) Moore	<i>Pytiogramma sulphurea</i> (Sw.) Max.
<i>Desmodium herbaceum</i> (L.) Benth. & Oerst.	<i>Rajania nipensis</i> Howard
<i>Dicranopteris flexuosa</i> (Schrad.) Mett.	<i>Raudolfia salicifolia</i> Griseb.
<i>Dichaea hystricina</i> Rchb.	<i>Rhamnidium nipense</i> Urb.
<i>Dilomilis oligophylla</i> (Schltr.) Summerh.	<i>Rondeletia calophylla</i> Standl ex Britt.
<i>Dinema cubincola</i> (Borhidi) H. Dietr.	<i>Rondeletia naguensis</i> Britt and Wils
<i>Dipholis cubensis</i> (Griseb.) Pierre	<i>Rubus turquinensis</i> Rydb.
<i>Ditta myricoides</i> Griseb.	<i>Salacia nipensis</i> Britt.
<i>Elaphoglossum firmum</i> (Mett.) Urb.	<i>Sapium cubense</i> Britt ex Wils.
<i>Eugenia rigida</i> Berg.	<i>Sapium erythrospermum</i> (Griseb.) Muell. Arg.
<i>Garrya fadyenii</i> Hook.	<i>Sapium jamaicense</i> Sw.
<i>Gesneria pachyclada</i> Urb.	<i>Savia cuneifolia</i> Urb.
<i>Gesneria viridiflora</i> (Dcne) Kuntze	<i>Scleria pilosissima</i> Britt.
<i>Graffenrieda refescens</i> Britt. & Wils.	<i>Schradera cubensis</i> Steyerm.
<i>Guatteria moralesii</i> Urb.	<i>Simaruba laevis</i> Griseb.
<i>Guettarda lindeniana</i> A. Rich.	<i>Sloanea curatellifolia</i> Griseb.
<i>Habenaria monorrhiza</i> (Sw.) Rchb.	<i>Solanum cristalense</i> Amsh.
<i>Hedyosmum grisebachii</i> Solms	<i>Solanum pachyneurum</i> O.E. Schulz
<i>Heterotrichum umbellatum</i> (Mill.) Urb.	<i>Solanum virgatum</i> Lam.

<i>Hyeronima nipensis</i> Urb.	<i>Solonia reflexa</i> Urb.
<i>Ichnanthus mayarensis</i> (Wr.) Hitchc.	<i>Stelis ophioglossoides</i> (Jacq.) Sw.
<i>Illicium cubense</i> A.C.Sm.	<i>Tabebuia hypoleuca</i> Griseb.
<i>Jacquiella globosa</i> (Jacq.) Schlechter	<i>Talauna minor</i> Urb. subsp. <i>oblongifolia</i> (León) Borhidi
<i>Lasiacis sloanei</i> (L.) Hitchc.	<i>Terminalia nipensis</i> Alain
<i>Leucocroton wrightii</i> Griseb.	<i>Trema cubensis</i> Urb.
<i>Litachne pauciflora</i> (Swartz) P. Beauverd	<i>Trichomanes crispum</i> L.
<i>Lobelia assurgens</i> L.	<i>Vaccinium leonis</i> Acuña & Roig
<i>Lophosoria quadripinnata</i> (Gmel.) C. Chr.	<i>Vandenboschia scandens</i> (L.) Copel
<i>Lycopodium dichotomum</i> Jacq.	<i>Vanilla phaeantha</i> Rchb.
<i>Lyonia calycosa</i> (Samll) Urb.	<i>Vanilla wrightii</i> Rchb.
<i>Lyonia maestrensis</i> Acuña and Roig	<i>Vernonia parvuliceps</i> Ekm.
<i>Magnolia cubensis</i> Urb.	<i>Viburnum villosum</i> Sw.
<i>Marcgravia evenia</i> Kr et Urb.	<i>Wallenia laurifolia</i> (A. Rich.) Wr in Sauv subsp. <i>pinetorum</i> (Britt.) Borhidi
<i>Mataiba domingensis</i> (DC.) Radlk.	<i>Wigandia reflexa</i> Brand
<i>Mecodium polyanthos</i> (Sw.) Copel	<i>Zanthoxylum cubense</i> P. Wils.
<i>Meriania leucantha</i> Sw. subsp. <i>nana</i> (Naud.) Borhidi	
<i>Meringium fucoides</i> (Sw.) Copel	
<i>Miconia acunae</i> Borhidi	
<i>Miconia alternifolia</i> Griseb.	
<i>Miconia dodecandra</i> (Desv.) Cogn.	
<i>Micropholis polita</i> (Griseb.) Pierre	
<i>Mozartia gundlachii</i> (Kr. & Urb.) Urb.	
<i>Myrica cacuminis</i> Britt and Wils.	
<i>Myrica punctata</i> Griseb.	

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113 **Table 3. Plants from the Dominican Republic (DR) not present in the relevés from**  
 114 **Cuba.**

<i>Alsophila minor</i> (D.C.Eaton) R.M.Tryon	<i>Magnolia hamorii</i> Howard
<i>Anacheilium cochleatum</i> (L.) Hoffm.	<i>Magnolia pallescens</i> Urb. & Ekm.
<i>Antrophyum lanceolatum</i> (L.) Kaulf.	<i>Malpighia macracantha</i> Ekm. & Nied.
<i>Arthrostylidium multispicatum</i> Pilger	<i>Marattia kaulfussii</i> J. Smith
<i>Arthrostylidium sarmentosum</i> Pilger	<i>Marcgravia rubra</i> A. Liogier
<i>Asplenium radicans</i> L.	<i>Maxillaria coccinea</i> (Jacq.) L.O. Wms.
<i>Baccharis myrsinites</i> (Lam.) Pers.	<i>Mecranium ovatum</i> Cog.
<i>Bactris plumeriana</i> Mart.	<i>Meriania involucrata</i> (Desv.) Naud.
<i>Beilschmiedia pendula</i> (Sw.) Hemsl.	<i>Miconia mirabilis</i> (Aubl.) L.O. Williams
<i>Blechnum fragile</i> (Liebm.) Morton & Lellinger	<i>Miconia prasina</i> (Sw.) DC.
<i>Blechnum tuerckheimii</i> A. Brause	<i>Miconia racemosa</i> (Aubl.) DC.
<i>Bocconia frutescens</i> L.	<i>Microgramma piloselloides</i> L.
<i>Buchenavia tetraphylla</i> (Aubl.) R. A. Howard	<i>Mikania cordifolia</i> (L.) Willd.
<i>Byrsonima lucida</i> (Mill.) L.c. rich.	<i>Mikania venosa</i> A. Liogier
<i>Byrsonima spicata</i> (Cav.) Kunth	<i>Mimosa pudica</i> L.
<i>Calyptantes selleanus</i> Urb. & Ekm.	<i>Mucuna urens</i> (L.) Fawc. & Rendle
<i>Camparettia falcata</i> Poepp. & Endl.	<i>Myrcia deflexa</i> (Poir) DC.
<i>Casearea arborea</i> (L.C.Rich.) Urb.	<i>Myrsine nubicola</i> A. Liogier
<i>Cecropia screberiana</i> Miq.	<i>Nephrolepis multiflora</i> (Roxb.) Jarret
<i>Cestrum coelophlebium</i> O. E. Schulz	<i>Nepsera aquatica</i> (Aubl.) Naud.
<i>Cestrum daphnoides</i> Griseb.	<i>Neurolaena lobata</i> (L.) Cass.
<i>Cestrum inclusum</i> Urb.	<i>Niphidium crassifolium</i> (L.) Lell.
<i>Cinnamomum alainii</i> (C.K. Allen) A. Liogier	<i>Ocotea acarina</i> C. K. allen

<i>Cissampelos pareira</i> L.	<i>Ocotea floribunda</i> (Sw.) Mez
<i>Cissus verticillata</i> (L.) Nicholson & Farris	<i>Ocotea foeniculacea</i> Mez
<i>Clidemia umbellata</i> (Miller) L.O. Wms.	<i>Ocotea globosa</i> (Aubl.) Schlecht. & Cham.
<i>Clusia clusioides</i> (Griseb.) D'arcy	<i>Ocotea nemodaphne</i> Mez
<i>Cnemidaria horrida</i> (L.) K. Presl	<i>Ocotea patens</i> (Sw.) Nees
<i>Coccoloba wrightii</i> Lindau	<i>Odontadenia polyneura</i> (Urb.) Wood.
<i>Columnea domingensis</i> (Urb.) Wiehler	<i>Olyra latifolia</i> L.
<i>Columnea sanguinea</i> Urb.	<i>Oncidium variegatum</i> (Sw.) Sw.
<i>Commelina elegans</i> Kunth	<i>Ophioglossum palmatum</i> L.
<i>Cordia dependens</i> Urb. & Ekm.	<i>Oreopanax capitatus</i> (Jacq.) Decne. & Planch.
<i>Cupania americana</i> L.	<i>Ormosia krugii</i> Urb.
<i>Cyathea fulgens</i> C. Chr.	<i>Palicourea crocea</i> (Sw.) Schultes
<i>Cyathea furfuracea</i> Baker	<i>Passiflora rubra</i> L.
<i>Chaetocarpus domingensis</i> Proctor	<i>Peperomia hernandifolia</i> (Vahl) A. Dietr.
<i>Daphnosis crassifolia</i> (Poir.) Meiss.	<i>Persea krugii</i> Mez
<i>Dendropanax arboreus</i> (L.) Dcne & Planch.	<i>Persea oblongifolia</i> Kopp.
<i>Dichaea glauca</i> (Sw.) Lindley	<i>Phlebodium aureum</i> (L.) J. Smith
<i>Didymopanax tremulus</i> Krug. & Urb.	<i>Pilea geminata</i> Urb.
<i>Dilomilis montana</i> (Sw.) Summerh.	<i>Pinguicula casabitoana</i> J. Jiménez
<i>Diplazium hostile</i> (Christ.) C. Chr.	<i>Piper adunculum</i> L.
<i>Diplazium hians</i> Kuntze	<i>Pleurothallis ruscifolia</i> (Jaq.) R. Br.
<i>Ditta maestrensis</i> Borhidi	<i>Pleurothallis domingensis</i> Cogn.
<i>Elaphoglossum crinitum</i> (L.) C. Chr.	<i>Polygala fuertesii</i> (Urb.) Blake
<i>Elaphoglossum latifolium</i> (Sw.) J. Sm.	<i>Polypodium angustifolium</i> Sw.
<i>Elleanthus cephalotus</i> Garay & Sweet	<i>Polypodium loriceum</i> L.
<i>Entada gigas</i> (L.) Fawc. & Rendle	<i>Pothomorphe peltata</i> (L.) Miquel
<i>Epidendrum anceps</i> Jacq.	<i>Pothuya nudicaulis</i> (L.) Regel
<i>Epidendrum carpophorum</i> Barb. Rodr.	<i>Prestoea montana</i> (Grah.) Nichol
<i>Epidendrum jamaicense</i> Lindl	<i>Psychotria domingensis</i> Jacq.
<i>Epidendrum ramosum</i> Jacq.	<i>Psychotria liogieri</i> Sateyerm
<i>Eupatorium odoratum</i> L.	<i>Psychotria uliginosa</i> Sw.
<i>Exostema elliptica</i> Griseb.	<i>Pytirogramma calomelanos</i> (L.) Link
<i>Glychenia bifida</i> (Willd.) Spreng.	<i>Renealmia jamaicensis</i> (Gaertn.) Horan var. <i>puberula</i> (Gagn.) Maas
<i>Gomedesia lindeniana</i> Berg.	<i>Rondeletia ochracea</i> Urb.
<i>Gonocalyx tetrapteris</i> A. Liogier	<i>Sagraea fuertesii</i> (Cogn.in Urb.) Alain
<i>Grammitis asplenifolia</i> (L.) Proctor	<i>Schlegelia brachyantha</i> Griseb.
<i>Guarea guidonea</i> Sleumer	<i>Schradera subsessilis</i> Steyermark
<i>Guatteria blainii</i> (Griseb.) Urb.	<i>Senecio lucens</i> (Poir.) Urb.
<i>Guzmania monostrachya</i> (Sw.) Rusby	<i>Sloanea berteriana</i> Choisy
<i>Gyrotaenia myriocarpa</i> Griseb.	<i>Smilax havanensis</i> Jacq.
<i>Hedychium coronarium</i> Koen.	<i>Smilax populnea</i> Kunt var. <i>horrida</i> O.E. Schulz
<i>Hedyosmum domingense</i> Urb.	<i>Solanum crotonoides</i> Lam.
<i>Hirtella triandra</i> Sw.	<i>Solanum jamaicense</i> Mill.
<i>Hyeronima domingensis</i> Urb.	<i>Solanum torvum</i> Sw.
<i>Hyeronima montana</i> A. Liogier	<i>Solanum virgatum</i> Lam.
<i>Hypolepis hispaniolica</i> Mason	<i>Stigmaphyllon emarginatum</i> (L.) A. Juss.
<i>Hyptis americana</i> (Poir.) Briq.	<i>Styrax ochraceus</i> Urb.
<i>Ichnanthus pallens</i> (Sw.) Munro	<i>Syngonium podophyllum</i> Schott
<i>Ilex tuerckheimii</i> Loes.	<i>Tabebuia bullata</i> A. Gentry
<i>Inga fagifolia</i> (L.) Willd. ex Benth.	<i>Tabebuia vinosa</i> A. Gentry
<i>Inga vera</i> Willd.	<i>Torralsbasia cuneifolia</i> (C. Wright) Krug. & Urb.

<i>Ipomoea furcyensis</i> Urb.	<i>Triunfetta semitriloba</i> Jacq.
<i>Ipomoea tiliacea</i> (Willd.) Choisy	<i>Turpinia occidentalis</i> (Sw.) G. Don
<i>Isachne rigidifolia</i> (Poir.) Urb.	<i>Uncinia hamata</i> (L.) Urb.
<i>Lasianthus bahorucanus</i> Zanoni	<i>Urena lobata</i> L.
<i>Leandra limoides</i> (Urb.) W. Judd & Skean	<i>Urera baccifera</i> (L.) Gaud.
<i>Lobelia robusta</i> Graham	<i>Vaccinium racemosum</i> (Vahl) Wilbur & Luteyn
<i>Lobelia rotundifolia</i> Juss.	<i>Vernonia buxifolia</i> (Cass.) Less.
<i>Lomariopsis sorbifolia</i> (L.) Fée	<i>Vitis tiliifolia</i> H. & B. ex Willd.
<i>Lycopodium cernuum</i> L.	<i>Vittaria lineata</i> (L.) Smith
<i>Lycopodium clavatum</i> L.	<i>Vriesea sintenisii</i> (Baker) L.B. Smith & Pitt.
<i>Lyonia alainii</i> W. Judd.	<i>Vriesea tuercheimii</i> (Mez.) L.B. Smith
<i>Macrocarpaea domingensis</i> Urb.	<i>Zanthoxylum martinicensis</i> (DC.) Lam.
<i>Machaerina cubensis</i> (Kük.) T. Koyama	

115

## 116 **Phytosociological study**

117 The statistical analysis of the samplings from the DR reveals the existence of four forest  
 118 plant associations (Fig 2): As1) *Hyeronimo montanae-Magnolietum pallescentis nova hoc*  
 119 *loco* (S1 Table rel. DR1, DR2, DR4, DR5, DR6; typus rel. DR4), growing at altitudes of  
 120 between 1,300 and 1,500 metres on siliceous substrates in the Cordillera Central range  
 121 (central biogeographical district), and in rainy environments with a humid ombrotype and a  
 122 mesotropical thermotype [16,23,39,40]. These forests contact in hyper-humid areas with  
 123 forests of *Prestoea montana* (Grah.) Nichol, and have a high floristic diversity with 21  
 124 trees, eight climbing species and five epiphytes, and a high rate of endemisms (14 species).  
 125 As2) *Cyatheo furfuracei-Prestoetum montanae nova hoc loco* (S2 Table rel. DR3, DR7,  
 126 DR8, DR9, DR10; typus rel. DR3), a plant community dominated by *Prestoea montana*,  
 127 always found in hyper-humid environments, generally in very rainy and shady gorges,  
 128 contacting with the previous association towards areas that are somewhat less rainy and  
 129 more exposed to sun and wind. It also has a high diversity, with 40 tree and 25 epiphyte  
 130 species. Due to the catenal contact between both associations, As1 and As2 present a series  
 131 of common species; they are therefore statistically close (Figs 3 and 4). As3) *Hyeronimo*  
 132 *dominguensis-Magnolietum hamorii nova hoc loco* (S3 Table rel. DR11, DR12, DR13,  
 133 DR14; typus rel. DR11) represents forests of *Magnolia* in the Sierra de Bahoruco, which  
 134 develop on calcareous substrates in humid environments at altitudes of around 1,200-1,300  
 135 metres in a humid ombrotype and a mesotropical thermotype, with a high number of tree  
 136 (25) and epiphyte (14) species. As4) *Ormosio krugii-Prestoetum montanae nova hoc loco*  
 137 (S4 Table rel. DR15, DR16, DR17; typus rel. DR16), an association characterised by a  
 138 high diversity of trees (27 species), and a lower number of endemic species than the  
 139 previous associations. The four associations present a clear floristic and biogeographical  
 140 differentiation (Fig 5, Table 4) [41,42].

141

142

143 **Fig 2. Cluster from the DR.** Euclidean distance using Ward's method.

144

145

146 **Fig 3. DCA ordination analysis.** Management analysis for inventories of the Dominican  
 147 Republic, separation between 4 associations.

148

149

150 **Fig 4. DCA ordination analysis.** DCA analysis confirming the separation of the 4  
 151 associations.



152

153

154 **Fig 5. Biogeographical distribution of the associations in the study.** As1. *Hyeronimo*  
 155 *montanae-Magnolietum pallescentis* (A16: central district). As2. *Cyatheo furfuracei-*  
 156 *Prestoetum montanae* (A16: central district). As3. *Hyeronimo domingensis-Magnolietum*  
 157 *hamorii* (A12: Bahoruco district). As4. *Ormosio krugii-Prestoetum montanae* (A5: eastern  
 158 district).

159

160 **Table 4. Synthetic table of the associations in the study.**

Synthetic table	As1	As2	As3	As4	P
<i>Myrsine coriacea</i> (Sw.) R. Br.	IV	III	V	III	4
<i>Ocotea leucoxylon</i> (Sw.) Mez	I	IV	III	III	4
<i>Prestoea montana</i> (Grah.) Nichol	I	V	V	V	4
<i>Psychotria domingensis</i> Jacq.	IV	IV	V	III	4
<i>Gleychenia bifida</i> (Willd.) Spreng.	II	I		I	3
<i>Clidemia umbellata</i> (Miller) L.O. Wms.	I	I	-	I	3
<i>Renealmia jamaicensis</i> (Gaertn.) Horan var. <i>puberula</i> (Gagn.) Maas	V	III	V	-	3
<i>Arthrostyidium multispicatum</i> Pilger	V	IV	III	-	3
<i>Rondeletia ochracea</i> Urb.	V	II	V	-	3
<i>Didymopanax tremulus</i> Krug. & Urb.	IV	I	V	-	3
<i>Psychotria guadalupensis</i> (DC.) Howard	III	III	V	-	3
<i>Mikania venosa</i> A. Liogier	II	IV	V	-	3
<i>Odontosoria uncinella</i> (Kunze) Fée	II	II	V	-	3
<i>Brunellia comocladifolia</i> H. & B.	II	III	III	-	3
<i>Lobelia rotundifolia</i> Juss.	III	I	I	-	3
<i>Alchornea latifolia</i> Sw.	-	III	I	V	3
<i>Miconia mirabilis</i> (Aubl.) L.O. Willians	-	II	I	V	3
<i>Mucuna urens</i> (L.) Fawc. & Rendle	-	II	I	V	3
<i>Nephrolepis multiflora</i> (Roxb.) Jarret	-	I	III	I	3
<i>Ilex macfadyenii</i> (Walp.) Rehder	V	-	I	-	2
<i>Chionanthus domingensis</i> Lam.	V	-	I	-	2
<i>Macrocarpaea domingensis</i> Urb.	IV	-	III	-	2
<i>Polygala fuertesii</i> (Urb.) Blake	IV	-	III	-	2
<i>Marcgravia rubra</i> A. Liogier	IV	-	I	-	2
<i>Alsophila minor</i> (D.C.Eaton) R.M.Tryon	V	III	-	-	2
<i>Palicourea alpina</i> (Sw.) DC.	V	II	-	-	2
<i>Blechnum occidentale</i> L.	III	III	-	-	2
<i>Cyrilla racemiflora</i> L.	IV	IV	-	-	2
<i>Ocotea nemodaphne</i> Mez	III	-	I	-	2
<i>Schradera subsessilis</i> Steyermark	II	-	I	-	2
<i>Lycopodium clavatum</i> L.	II	-	-	I	2
<i>Odontadenia polyneura</i> (urb.) Wood.	II	I	-	-	2
<i>Byrsonima lucida</i> (Mill.) DC.	I	II	-	-	2
<i>Weinmannia pinnata</i> L.	I	-	V	-	2

<i>Epidendrum carpophorum</i> Barb. Rodr.	I	-	I	-	2
<i>Epidendrum carpophorum</i> Barb. Rodr.	I	-	I	-	2
<i>Pleurothallis domingensis</i> Cogn.	I	II	-	-	2
<i>Cestrum coelophlebium</i> O. E. Schulz	I	II	-	-	2
<i>Olyra latifolia</i> L.	I	I	-	-	2
<i>Cecropia screberiana</i> Miq.	-	III	-	V	2
<i>Turpinia occidentalis</i> (Sw.) G. Don	-	III	-	V	2
<i>Mikania cordifolia</i> (L.) Willd.	-	I	-	V	2
<i>Pothomorphe peltata</i> (L.) Miquel	-	I	-	III	2
<i>Ichnanthus pallens</i> (Sw.) Munro	-	III	-	I	2
<i>Guzmania monostrachya</i> (Sw.) Rusby	-	II	-	I	2
<i>Dendropanax arboreus</i> (L.) Dcne & Planch.	-	IV	I	-	2
<i>Dichaea glauca</i> (Sw.) Lindley	-	III	III	-	2
<i>Epidendrum ramosum</i> Jacq.	-	III	I	-	2
<i>Gomedesia lindeniana</i> Berg.	-	II	V	-	2
<i>Myrcia deflexa</i> (Poir) DC.	-	II	V	-	2
<i>Peperomia hernandifolia</i> (Vahl) A. Dietr.	-	II	V	-	2
<i>Vriesea tuercheimii</i> (Mez.) L.B. Smith	-	I	V	-	2
<i>Cyathea fulgens</i> C. Chr.	-	I	V	-	2
<i>Magnolia hamorii</i> Howard	-	I	V	-	2
<i>Mecranium ovatum</i> Cog.	-	I	V	-	2
<i>Lasianthus bahorucanus</i> Zanoni	-	I	V	-	2
<i>Nephrolepis biserrata</i> (Sw.) Schott	-	I	V	-	2
<i>Columnnea domingensis</i> (Urb.) Wiehler	-	I	V	-	2
<i>Hedyosmum domingense</i> Urb.	-	I	III	-	2
<i>Lomariposis sorbifolia</i> (L.) Feé	-	I	III	-	2
<i>Beilschmiedia pendula</i> (Sw.) Hemsl.	-	I	III	-	2
<i>Vaccinium racemosum</i> (Vahl) Wilbur & Luteyn	IV	I	III	-	2
<i>Ocotea acarina</i> C.	-	I	I	-	2
<i>Hypolepis hispaniolica</i> Mason	-	I	I	-	2
<i>Schlegelia brachyantha</i> Griseb.	-	I	I	-	2
<i>Sagraea fuertesii</i> (Cogn.in Urb.) Alain	-	II	I	-	2
<i>Niphidium crassifolium</i> (L.) Lell.	-	I	I	-	2
<i>Phlebodium aureum</i> (L.) J. Smith	-	I	I	-	2
<i>Polypodium loriceum</i> L.	-	I	I	-	2
<i>Epidendrum jamaicense</i> Lindl	-	I	I	-	2
<i>Microgramma piloselloides</i> L.	-	I	-	I	2
<i>Miconia prasina</i> (Sw.) DC.	-	-	III	V	2
<i>Guarea guidonea</i> Sleumer	-	-	I	V	2
<i>Tibouchina longifolia</i> (Vahl) Baill.	-	-	I	III	2
<i>Smilax domingensis</i> Willd.	-	-	I	I	2
<i>Magnolia pallescens</i> Urb. & Ekm.	V	-	-	-	1
<i>Styrax ochraceus</i> Urb.	V	-	-	-	1
<i>Hyeronima montana</i> A. Liogier	V	-	-	-	1

<i>Cyathea furfuracea</i> Baker	V	-	-	-	1
<i>Clusia clusioides</i> (Griseb.) D'arcy	V	-	-	-	1
<i>Ditta maestrensis</i> Borhidi	V	-	-	-	1
<i>Persea oblongifolia</i> Kopp.	V	-	-	-	1
<i>Smilax populnea</i> Kunt var. <i>horrida</i> O.E. Schulz	V	-	-	-	1
<i>Tabebuia vinosa</i> A. Gentry	V	-	-	-	1
<i>Gonocalyx tetrapterus</i> A. Liogier	V	-	-	-	1
<i>Cinnamomum alainii</i> (C.K. Allen) A. Liogier	IV	-	-	-	1
<i>Vriesea sintenisii</i> (Baker) L.B. Smith & Pitt.	III	-	-	-	1
<i>Baccharis myrsinites</i> (Lam.) Pers.	III	-	-	-	1
<i>Pinguicula casabitoana</i> J. Jiménez	III	-	-	-	1
<i>Chaetocarpus domingensis</i> Proctor	II	-	-	-	1
<i>Odontosoria aculeata</i> (L.) J. Sm.	I	-	-	-	1
<i>Myrsine nubicola</i> A. Liogier	I	-	-	-	1
<i>Persea krugii</i> Mez	I	-	-	-	1
<i>Lycopodium cernuum</i> L.	I	-	-	-	1
<i>Isachne rigidifolia</i> (Poir.) Urb.	I	-	-	-	1
<i>Machaerina cubensis</i> (Kük.) T. Koyama	I	-	-	-	1
<i>Vernonia buxifolia</i> (Cass.) Less.	I	-	-	-	1
<i>Lyonia alainii</i> W. Judd.	I	-	-	-	1
<i>Clidemia hirta</i> (L.) D. don	I	-	-	-	1
<i>Bocconia frutescens</i> L.	I	-	-	-	1
<i>Dilomilis montana</i> (Sw.) Summerh.	I	-	-	-	1
<i>Myrcia splendens</i> (Sw.) DC.	-	IV	-	-	1
<i>Cissampelos pareira</i> L.	-	III	-	-	1
<i>Uncinia hamata</i> (L.) Urb.	-	III	-	-	1
<i>Tabebuia bullata</i> A. Gentry	-	III	-	-	1
<i>Blechnum tuerckheimii</i> A. Brause	-	III	-	-	1
<i>Senecio lucens</i> (Poir) Urb.	-	III	-	-	1
<i>Coccoloba wrightii</i> Lindau	-	III	-	-	1
<i>Guatteria blainii</i> (Griseb.) Urb.	-	II	-	-	1
<i>Solanum crotonoides</i> Lam.	-	II	-	-	1
<i>Vitis tiliifolia</i> H. & B. ex Willd.	-	I	-	-	1
<i>Anacheilium cochleatum</i> (L.) Hoffm.	-	I	-	-	1
<i>Antrophyum lanceolatum</i> (L.) Kaulf.	-	I	-	-	1
<i>Camparettia falcata</i> Poepp. & Endl.	-	I	-	-	1
<i>Passiflora rubra</i> L.	-	I	-	-	1
<i>Smilax havanensis</i> Jacq.	-	I	-	-	1
<i>Stigmaphyllon emarginatum</i> (L.) A. Juss.	-	I	-	-	1
<i>Commelina elegans</i> Kunth	-	I	-	-	1
<i>Diplazium hastile</i> (Christ.) C. Chr.	-	I	-	-	1
<i>Diplazium hians</i> Kuntze	-	I	-	-	1
<i>Epidendrum anceps</i> Jacq.	-	I	-	-	1
<i>Grammitis asplenifolia</i> (L.) Proctor	-	I	-	-	1

<i>Jacquinilla globosa</i> (Jacq.) Schlechter	-	I	-	-	1
<i>Oncidium variegatum</i> (Sw.) Sw.	-	I	-	-	1
<i>Pothuya nudicaulis</i> (L.) Regel	-	I	-	-	1
<i>Vittaria lineata</i> (L.) Smith	-	I	-	-	1
<i>Cestrum inclusum</i> Urb.	-	I	-	-	1
<i>Cordia dependens</i> Urb. & Ekm.	-	I	-	-	1
<i>Daphnopsis crassifolia</i> (Poir.) Meiss.	-	I	-	-	1
<i>Eupatorium odoratum</i> L.	-	I	-	-	1
<i>Gyrotaenia myriocarpa</i> Griseb.	-	I	-	-	1
<i>Hyptis americana</i> (Poir.) Briq.	-	I	-	-	1
<i>Lasianthus lanceolatus</i> (Griseb.) Gómez Maza		I	-	-	1
<i>Lobelia robusta</i> Graham	-	I	-	-	1
<i>Psychotria liogieri</i> Sateyerm	-	I	-	-	1
<i>Solanum virgatum</i> Lam.	-	I	-	-	1
<i>Pilea geminata</i> Urb.	-	I	-	-	1
<i>Exostema elliptica</i> Griseb.	-	I	-	-	1
<i>Malpighia macracantha</i> Ekm. & Nied.	-	I	-	-	1
<i>Ocotea floribunda</i> (Sw.) Mez	-	I	-	-	1
<i>Ocotea patens</i> (Sw.) Nees	-	I	-	-	1
<i>Ipomoea furcensis</i> Urb.	-	I	-	-	1
<i>Columnea sanguinea</i> Urb.	-	-	V	-	1
<i>Elaphoglossum crinitum</i> (L.) C. Chr.	-	-	V	-	1
<i>Elaphoglossum latifolium</i> (Sw.) J. Sm.	-	-	V	-	1
<i>Elleanthus cephalotus</i> Garay & Sweet	-	-	V	-	1
<i>Pleurothallis ruscifolia</i> (Jaq.) R. Br.	-	-	V	-	1
<i>Hyeronima domingensis</i> Urb.	-	-	V	-	1
<i>Calyptantes selleanus</i> Urb. & Ekm.	-	-	V	-	1
<i>Torralbasia cuneifolia</i> (C. Wright) Krug. & Urb.	IV	-	III	-	1
<i>Meriania involucreta</i> (Desv.) Naud.	-	-	III	-	1
<i>Miconia punctata</i> (Desr.) D. Don	-	-	III	-	1
<i>Ophioglossum palmatum</i> L.	-	-	III	-	1
<i>Blechnum fragile</i> (Liebm.) Morton & Lellinger		-	III	-	1
<i>Arthrostylidium sarmentosum</i> Pilger	-	-	III	-	1
<i>Ilex tuerckheimii</i> Loes.	-	-	I	-	1
<i>Leandra limoides</i> (Urb.) W. Judd & Skean	-	-	I	-	1
<i>Maxillaria coccinea</i> (Jacq.) L.O. Wms.	-	-	I	-	1
<i>Asplenium radicans</i> L.	-	-	I	-	1
<i>Cestrum daphnoides</i> Griseb.	-	-	I	-	1
<i>Polypodium angustifolium</i> Sw.	-	-	I	-	1
<i>Ocotea foeniculacea</i> Mez	-	-	I	-	1
<i>Hillia parasitica</i> Jacq.	-	-	I	-	1
<i>Marattia kaulfussii</i> J. Smith	-	-	I	-	1
<i>Buchenavia tetraphylla</i> (Aubl.) R. A. Howard	-	-	-	V	1
<i>Byrsonima spicata</i> (Cav.) Kunth	-	-	-	V	1

<i>Casearea arborea</i> (L.C.Rich.) Urb.	-	-	-	V	1
<i>Clusia rosea</i> Jacq.	-	-	-	V	1
<i>Cyathea arborea</i> (L.) J.E. Smith	-	-	-	V	1
<i>Didymopanax morototoni</i> (Aubl.) Decne. & Planch	-	-	-	V	1
<i>Pytirogramma calomelanos</i> (L.) Link	-	-	-	V	1
<i>Miconia serrulata</i> (DC.) Naud.	-	-	-	V	1
<i>Ocotea globosa</i> (Aubl.) Schlecht. & Cham.	-	-	-	V	1
<i>Oreopanax capitatus</i> (Jacq.) Decne. & Planch.	-	-	-	V	1
<i>Ormosia krugii</i> Urb.	-	-	-	V	1
<i>Sloanea berteriana</i> Choisy	-	-	-	V	1
<i>Cnemidaria horrida</i> (L.) K. Presl	-	-	-	V	1
<i>Solanum torvum</i> Sw.	-	-	-	V	1
<i>Ipomoea tiliacea</i> (Willd.) Choisy	-	-	-	V	1
<i>Inga fagifolia</i> (L.) Willd. ex Benth.	-	-	-	III	1
<i>Inga vera</i> Willd.	-	-	-	III	1
<i>Bactris plumeriana</i> Mart.	-	-	-	III	1
<i>Nepsera aquatica</i> (Aubl.) Naud.	-	-	-	III	1
<i>Syngonium podophyllum</i> Schott	-	-	-	III	1
<i>Psychotria uliginosa</i> Sw.	-	-	-	III	1
<i>Urera baccifera</i> (L.) Gaud.	-	-	-	III	1
<i>Mimosa pudica</i> L.	-	-	-	I	1
<i>Neurolaena lobata</i> (L.) Cass.	-	-	-	I	1
<i>Triunfetta semitriloba</i> Jacq.	-	-	-	I	1
<i>Cupania americana</i> L.	-	-	-	I	1
<i>Hirtella triandra</i> Sw.	-	-	-	I	1
<i>Miconia racemosa</i> (Aubl.) DC.	-	-	-	I	1
<i>Zantoxylum martinicensis</i> (Lam.) DC.	-	-	-	I	1
<i>Cissus verticillata</i> (L.) Nicholson & Farris	-	-	-	I	1
<i>Entada gigas</i> (L.) Fawc. & Rendle	-	-	-	I	1
<i>Palicourea crocea</i> (Sw.) Schultes	-	-	-	I	1
<i>Piper adunculum</i> L.	-	-	-	I	1
<i>Coccocypselum herbaceum</i> Aubl.	-	-	-	I	1
<i>Hedychium coronarium</i> Koen.	-	-	-	I	1
<i>Solanum jamaicense</i> Mill.	-	-	-	I	1
<i>Urena lobata</i> L.	-	-	-	I	1

161 As1. *Hyeronimo montanae-Magnolietum pallescenti*. As2. *Cyathea furfuracei-*  
 162 *Prestoetum montanae*. As3. *Hyeronimo dominguensis-Magnolietum hamorii*. As4.  
 163 *Ormosia krugii-Prestoetum montanae*. P. Presences.  
 164

## 165 Conservation status of the associations

166 The analysis of the floristic diversity of the relevés shows a predominance of Shannon\_T  
 167 diversity (total diversity) over the diversity of non-endemic and endemic species, except in  
 168 the samplings DR15, DR16 and DR17, where there is a coincidence between Shannon\_T  
 169 and Shannon\_Ne due to the low rate of endemic species, with only two species: *Bactris*

170 *plumeriana* and *Clidemia umbellata*. The diversity rate for characteristic species  
 171 (Shannon\_Ca) tends to be high compared to companion species (Shannon\_Co), except in  
 172 DR3 which has a value for Shannon\_Co = 1.099 (Table 5).

173

174 **Table 5. Shannon diversity by relevé.**

	DR1	DR2	DR3	DR4	DR5	DR6	DR7	DR8	DR9	DR10	DR11	DR12	DR13	DR14	DR15	DR16	DR17
Shannon_T	3,612	3,443	2,451	3,566	3,464	3,557	3,557	3,458	3,424	3,389	3,786	3,972	3,781	3,702	3,917	3,496	3,499
Shannon_Ca	3,17	3,247	2,165	3,097	3,119	3,152	2,819	2,606	2,803	2,563	3,119	3,154	3,013	2,683	3,173	3,061	3,027
Shannon_Co	2,591	1,718	1,099	2,602	2,232	2,507	2,91	2,901	2,655	2,814	3,066	3,391	3,162	3,256	3,277	2,458	2,532
Shannon_Ne	3,178	2,947	2,16	3	2,997	3,119	3,347	3,244	3,104	2,998	3,561	3,601	3,388	3,458	3,897	3,435	3,438
Shannon_E	2,574	2,508	1,089	2,732	2,49	2,557	1,891	1,842	2,137	2,158	2,41	2,803	2,658	2,074	0	0	0

175

176 (Shannon\_T= total diversity; Shannon\_Ca= characteristic community species diversity;  
 177 Shannon\_Co= companion community species diversity; Shannon\_Ne= non-endemic  
 178 species diversity; Shannon\_E= endemic species diversity).

179

180 In the comparative analysis of the diversity between the four associations using the average  
 181 diversity values for each relevé, it can be seen that association As4 has a Shannon\_E =0  
 182 due to an almost total lack of endemic species. This association also has low values for  
 183 total diversity and non-endemic species, with 44.2% trees, 22.9% shrubs, 13.1% climbing  
 184 plants and 16.3% herbs; whereas the other associations have a greater diversity. The  
 185 Shannon\_Ca value is higher than Shannon\_Co in the four associations except for As3;  
 186 however, the values are similar due to a tendency to ingress by companion species from  
 187 neighbouring communities (Table 6, Fig 6).

188

189 **Table 6. Diversity analysis of each of the four plant associations.**

	As1	As2	As3	As4 <sup>190</sup>
Shannon_T	3,049	2,681	3,268	2,4 <sup>191</sup>
Shannon_Ca	2,743	2,533	3,105	2,921 <sup>192</sup>
Shannon_Co	2,33	2,475	3,218	2,755 <sup>193</sup>
Shannon_Ne	2,81	2,397	2,994	1,795 <sup>194</sup>
Shannon_E	2,572	1,823	2,486	0 <sup>195</sup>

196

197

198 **Fig 6. Shannon diversity value (T, Ca, Co, Ne, E).** As1. *Hyeronimo montanae-*  
 199 *Magnolietum pallescentis*. As2. *Cyatheo furfuracei-Prestoetum motanae*. As3. *Hyeronimo*  
 200 *dominguensis-Magnolietum hamorii*. As4. *Ormosio krugii-Prestoetum montanae*.

201

## 202 Discussion

203 In all cases there is a high diversity of trees, among which it is particularly worth noting  
 204 the endemics *Magnolia pallescens* Urb. & Ekm., *Hyeronima montana* A. Liogier,  
 205 *Magnolia hamorii* Howard, *Hyeronima domingensis* Urb., *Malpighia macracantha* Ekm.  
 206 & Nied., and *Bactris plumeriana* Mart. These are therefore plant communities with an  
 207 endemic character that require protection measures. Although all four associations are of  
 208 great interest to conservation, the two best conserved associations have the highest rate of  
 209 endemics, and are precisely the ones located in the Bahoruco-Hottense and central  
 210 biogeographical sectors [18,20] which concurs with the floristic studies of [1,3,11,43].

211 However, the areas exposed to greater environmental impact, as is the case of  
212 biogeographical sectors such as the Cordillera Oriental range which are subjected to  
213 significant human pressure, have less floristic diversity and a lower number of endemic  
214 species. No significant differences can be seen between the relevés in the Shannon  
215 diversity index, whose values range between DR3 with indexes of  $Sh = 2.451$ , and DR12  
216 with higher values of  $Sh = 3.972$  (Table 5); this does not imply that DR3 is poorly  
217 conserved [27], but simply that there is an almost complete predominance of the faithful  
218 species *Prestoea montana*, which has a high cover and very few companion species.  
219 However, relevé DR12 contains many individuals with low cover and a high rate of  
220 companion species. The low rate of endemisms in As4 represented by relevés DR15,  
221 DR16, DR17 in the Cordillera Oriental range is the result of significant anthropic action  
222 owing to population density.

223 The four associations described are included in the phytosociological classes *Weinmannio-*  
224 *Cyrilletea* Knapp 1964 and *Ocoteo-Magnolietea* Borhidi and Muñiz, in Borhidi et al. 1979.  
225 Due to the high floristic and biogeographical differentiation between Hispaniola and Cuba  
226 (Tables 2 and 3), these associations cannot be included in any of the alliances described for  
227 the island of Cuba. We therefore propose two new alliances: all. *Rondeletio ochraceae-*  
228 *Clusion roseae*, in which the alliance species are *Rondeletia ochracea*, *Turpinia*  
229 *occidentalis*, *Clusia rosea*, *Mikania cordifolia*, *Alchornea latifolia*, and *Cyathea*  
230 *furfuracei-Prestoetum motanae* is the type association; and all. *Rondeletio ochraceae-*  
231 *Didymopanax tremuli*, with the species *Rondeletia ochracea*, *Didymopanax tremulus*,  
232 *Psychotria guadalupensis*, and *Hyeronimo montanae-Magnolietum pallescentis* as the type  
233 association. All these results are according to [44]

## 234 **Conclusions**

235 This study in the Dominican Republic reveals the existence of different types of rainforest  
236 that are clearly differentiated by their floristic, biogeographical and bioclimatic  
237 composition. This broadleaved forest or rainforest is frequent in the Sierra de Bahoruco  
238 and the Cordillera Central, Septentrional and Oriental ranges due to the increased rainfall  
239 in these areas caused by the impact of moisture-laden Atlantic winds. Differences in soil  
240 and biogeography have conditioned a rich and different flora. The Cordillera Central range  
241 –geologically the oldest, and with a siliceous character– is home to rainforests of *Magnolia*  
242 *pallescens* and forests of *Prestoea montana* (As1 and As2) in humid-hyper-humid areas;  
243 whereas the associations As3 in Bahoruco and As4 in the Cordillera Oriental range also  
244 develop in humid environments but on soil substrates. This leads us to propose four new  
245 syntaxa with the rank of association and two new alliances.  
246

## 247 **Syntaxonomical checklist for the cloud forest of** 248 **Hispaniola**

249 *Weinmannio-Cyrilletea* Knapp 1964

250 *Weinmannio-Cyrilletalia* Knapp 1964

251 *Rondeletio ochraceae-Clusion roseae* Cano, Cano-Ortiz & Veloz all. nova hoc loco

252 *Cyathea furfuracei-Prestoetum motanae* Cano, Cano-Ortiz & Veloz ass. nova

253 hoc loco

254 *Ormosio krugii-Prestoetum montanae* Cano, Cano-Ortiz & Veloz ass. nova

255 hoc loco

256 *Ocoteo-Magnolietea* Borhidi and Muñiz in Borhidi et al. 1979

- 257 *Ocoteo-Magnolietalia* Muñiz in Borhdi et al. 1979  
258 *Rondeletia ochraceae-Didymopanon tremuli* Cano, Cano-Ortiz & Veloz all. nova  
259 hoc loco  
260 *Hyeronimo montanae-Magnolietum pallescentis* Cano, Cano-Ortiz & Veloz ass.  
261 nova hoc loco  
262 *Hyeronimo dominguensis-Magnolietum hamorii* Cano, Cano-Ortiz & Veloz ass.  
263 nova hoc loco  
264

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269

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388 543892; doi: <https://doi.org/10.1101/543892> 2019.

389  
390**S1 Table 1. Ass. *Hyeronimo montanae*-*Magnolietum pallescentis*.**

	Family	Biotype	Status					
Altitude				1481	1474	1473	1441	1465
Area in m <sup>2</sup> x 10				200	100	200	50	200
Cover ratio In %				100	90	100	100	100
Xn in m.				15	15	10	4	20
Nº rel.				4	5	10	11	12
Nº order				DR1	DR2	DR4	DR5	DR6
<b>Characteristics of the association and higher units</b>								
<i>Magnolia pallescens</i> Urb. & Ekm.	<i>Magnoliaceae</i>	A	E	3	3	5	1	4
<i>Cyathea furfuracea</i> Baker	<i>Cyatheaceae</i>	A	N	2	3	2	4	2
<i>Chionanthus domingensis</i> Lam.	<i>Oleaceae</i>	A	N	2	3	3	1	2
<i>Gonocalyx tetrapterus</i> A. Liogier	<i>Ericaceae</i>	Tr	E	1	2	3	1	2
<i>Hyeronima montana</i> A. Liogier	<i>Euphorbiaceae</i>	A	E	+	3	2	4	4
<i>Didymopanax tremulus</i> Krug. & Urb.	<i>Araliaceae</i>	A	E	5	2	3		5
<i>Persea oblongifolia</i> Kopp.	<i>Lauraceae</i>	A	E	2	2	3	1	3
<i>Arthrostylidium multispicatum</i> Pilger	<i>Poaceae</i>	Tr	E	2	3	2	1	2
<i>Rondeletia ochracea</i> Urb.	<i>Rubiaceae</i>	A	E	1	1	2	3	3
<i>Alsophila minor</i> (D.C.Eaton) R.M.Tryon	<i>Cyatheaceae</i>	A	N	2	2	2	2	2
<i>Tabebuia vinosa</i> A. Gentry	<i>Bignoniaceae</i>	A	E	1	+	1	1	+
<i>Dittha maestrensis</i> Borhidi	<i>Euphorbiaceae</i>	A	N	1	2	3	2	2
<i>Smilax populnea</i> Kunt var. <i>horrida</i> O.E. Schulz	<i>Smilacaceae</i>	Tr	N	1	3	1	1	+
<i>Ilex macfadyenii</i> (Walp.) Rehder	<i>Aquifoliaceae</i>	A	N	1	3	+	+	+
<i>Clusia clusioides</i> (Griseb.) D´arcy	<i>Clusiaceae</i>	A	N	+	1	1	1	2
<i>Cyrilla racemiflora</i> L.	<i>Cyrillaceae</i>	A	N	2	2	3		2
<i>Vaccinium racemosum</i> (Vahl) Wilbur & Luteyn	<i>Ericaceae</i>	Tr	N	2	3		1	1
<i>Cinnamomum alainii</i> (C.K. Allen) A. Liogier	<i>Lauraceae</i>	A	E		+	2	1	2
<i>Marcgravia rubra</i> A. Liogier	<i>Marcgraviaceae</i>	Tr	E	1	1	2		2
<i>Myrsine coriacea</i> (Sw.) R. Br.	<i>Myrsinaceae</i>	A	N	1	2	+	+	
<i>Pinguicula casabitoana</i> J. Jiménez	<i>Lentibulariaceae</i>	Ep	E	+	+	1		
<i>Vriesea sintenisii</i> (Baker) L.B. Smith & Pitt.	<i>Bromeliaceae</i>	Ep	N			2	1	2
<i>Ocotea nemodaphne</i> Mez	<i>Lauraceae</i>	A	N	+	1			2

<i>Brunellia comocladifolia</i> H. & B.	<i>Brunelliaceae</i>	A	N		1	+			
<i>Ocotea leucoxylon</i> (Sw.) Mez	<i>Lauraceae</i>	A	N		1				+
<i>Schradera subsessilis</i> Steyermark	<i>Rubiaceae</i>	Tr	N		1		2		
<i>Mikania venosa</i> A. Liogier	<i>Asteraceae</i>	Tr	E			2			+
<i>Chaetocarpus domingensis</i> Proctor	<i>Euphorbiaceae</i>	A	E				1		+
<i>Odontadenia polyneura</i> (urb.) Wood.	<i>Apocynaceae</i>	Tr	E					+	+
<i>Myrsine nubicola</i> A. Liogier	<i>Myrsinaceae</i>	A	E		+				
<i>Prestoea montana</i> (Grah.) Nichol	<i>Arecaceae</i>	A	N			2			
<i>Weinmannia pinnata</i> L.	<i>Cunoniaceae</i>	A	N			+			
<i>Odontosoria uncinella</i> (Kunze) Fée	<i>Polypodiaceae</i>	Tr	N			+			
<i>Persea krugii</i> Mez	<i>Lauraceae</i>	A	N					1	
<i>Epidendrum carpophorum</i> Barb. Rodr.	<i>Orchidaceae</i>	Ep.	N					+	
<i>Pleurothallis domingensis</i> Cogn.	<i>Orchidaceae</i>	Ep	E					+	
<i>Byrsonima lucida</i> (Mill.) L.c. rich.	<i>Malpighiaceae</i>	A	N					+	
<i>Dilomilis montana</i> (Sw.) Summerh.	<i>Orchidaceae</i>	Ep	N					+	
<b>Companions species</b>									
<i>Styrax ochraceus</i> Urb.	<i>Styracaceae</i>	Ar	E		1	1	1	1	1
<i>Palicourea alpina</i> (Sw.) DC.	<i>Rubiaceae</i>	Ar	N		1	3	1	1	+
<i>Torralbasia cuneifolia</i> (C. Wright) Krug. & Urb.	<i>Celastraceae</i>	Ar	N			+	4	2	3
<i>Macrocarpaea domingensis</i> Urb.	<i>Gentianaceae</i>	Ar	E		1		+	1	2
<i>Psychotria domingensis</i> Jacq.	<i>Rubiaceae</i>	Ar	N		3		1	1	+
<i>Polygala fuertesii</i> (Urb.) Blake	<i>Polygalaceae</i>	Ar	E		1		2	5	
<i>Psychotria guadalupensis</i> (DC.) Howard	<i>Rubiaceae</i>	Ar	N		+	3			+
<i>Baccharis myrsinites</i> (Lam.) Pers.	<i>Asteraceae</i>	Ar	N				1	1	+
<i>Bocconia frutescens</i> L.	<i>Papaveraceae</i>	Ar	N		+				
<i>Clidemia umbellata</i> (Miller) L.O. Wms.	<i>Melastomataceae</i>	Ar	N		+				
<i>Vernonia buxifolia</i> (Cass.) Less.	<i>Asteraceae</i>	Ar	N		+				
<i>Cestrum coelophlebium</i> O. E. Schulz	<i>Solanaceae</i>	Ar	E			+			
<i>Lyonia alainii</i> W. Judd.	<i>Ericaceae</i>	Ar	E				1		
<i>Clidemia hirta</i> (L.) D. don	<i>Melastomataceae</i>	Ar	N				+		
<i>Renealmia jamaicensis</i> (Gaertn.) Horan var. <i>puberula</i> (Gagn.) Maas	<i>Zingiberaceae</i>	H	N		+	3	1	1	+
<i>Lobelia rotundifolia</i> Juss.	<i>Campanulaceae</i>	H	E		1		1		+

<i>Glychenia bifida</i> (Willd.) Spreng.	<i>Gleycheniaceae</i>	H	N		2		1		
<i>Blechnum occidentale</i> L.	<i>Blechnaceae</i>	H	N		+		1		+
<i>Lycopodium clavatum</i> L.	<i>Lycopodiaceae</i>	H	N				1		+
<i>Peperomia hernandifolia</i> (Vahl) A. Dietr.	<i>Piperaceae</i>	H	N					+	
<i>Lycopodium cernuum</i> L.	<i>Lycopodiaceae</i>	H	N		2				
<i>Odontosoria aculeata</i> (L.) J. Sm.	<i>Polypodiaceae</i>	H	N					+	
<i>Isachne rigidifolia</i> (Poir.) Urb.	<i>Poaceae</i>	H	N						1
<i>Machaerina cubensis</i> (Kük.) T. Koyama	<i>Cyperaceae</i>	H	N						+

391 Sites sampled. DR1.- Casabito. Ébano Verde (19340280E/2105321N). DR2.- Casabito (19340299E/2105967N). DR4.- Casabito. Ébano Verde  
392 (19340283N/2106095N). DR5.- Casabito. Ébano Verde (19340288E/2106283N). DR6.- Palmerito. Ébano Verde (19340165E/2106429N).

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**S2 Table 2.- Ass. *Cyathea furfuracei*-*Prestoetum motanae***

	Family	Biotype	Status					
<b>Altitude</b>				1097	1373	1377	1251	1200
<b>Area in m<sup>2</sup> x 10</b>				200	50	100	100	50
<b>Cover ratio In %</b>				100	100	100	100	100
<b>Xn in m.</b>				20	9	9	15	7
<b>Nº rel.</b>				6	13	14	15	17
<b>Nº order</b>				DR3	DR7	DR8	DR9	DR10
<b>Characteristics of the association and higher units</b>								
<i>Prestoea montana</i> (Grah.) Nichol	<i>Arecaceae</i>	A	N	5	4	5	5	4
<i>Arthrostylidium multispicatum</i> Pilger	<i>Poaceae</i>	Tr	E	2	3	2	1	2
<i>Cyathea furfuracea</i> Baker	<i>Cyatheaceae</i>	A	N	2	1	2	2	+
<i>Dendropanax arboreus</i> (L.) Dcne & Planch.	<i>Araliaceae</i>	A	N	2		+	+	+
<i>Alsophila minor</i> (D.C.Eaton) R.M.Tryon	<i>Cyatheaceae</i>	A	N	1	1	2	1	
<i>Ocotea leucoxydon</i> (Sw.) Mez	<i>Lauraceae</i>	A	N		+	+	+	+
<i>Coccoloba wrightii</i> Lindau	<i>Polygonaceae</i>	A	N		1	+	2	+
<i>Alchornea latifolia</i> Sw.	<i>Euphorbiaceae</i>	A	N	2	+		1	
<i>Turpinia occidentalis</i> (Sw.) G. Don	<i>Staphyleaceae</i>	A	N			+	2	1
<i>Brunellia comocladifolia</i> H. & B.	<i>Brunelliaceae</i>	A	N	2				+
<i>Byrsonima lucida</i> (Mill.) L.c. Rich.	<i>Malpighiaceae</i>	A	N		1			+
<i>Calyptantes selleanus</i> Urb. & Ekm.	<i>Myrtaceae</i>	A	E					+
<i>Cecropia scrobeberiana</i> Miq.	<i>Moraceae</i>	A	N	2		2		
<i>Dichaea glauca</i> (Sw.) Lindley	<i>Orchidaceae</i>	Ep	N		+		+	1
<i>Epidendrum anceps</i> Jacq.	<i>Orchidaceae</i>	Ep	N		1			
<i>Epidendrum jamaicense</i> Lindl	<i>Orchidaceae</i>	Ep	N				+	
<i>Epidendrum ramosum</i> Jacq.	<i>Orchidaceae</i>	Ep	N			+	+	
<i>Epidendrum ramosum</i> Jacq.	<i>Orchidaceae</i>	Ep	N					
<i>Grammitis asplenifolia</i> (L.) Proctor	<i>Grammitidaceae</i>	Ep	N		+			

<i>Guatteria blainii</i> (Griseb.) Urb.	<i>Annonaceae</i>	A	N		+			+
<i>Guzmania monostrachya</i> (Sw.) Rusby	<i>Bromeliaceae</i>	Ep	N		+	+		
<i>Malpighia macracantha</i> Ekm. & Nied.	<i>Malpighiaceae</i>	A	E				2	
<i>Jacquiella globosa</i> (Jacq.) Schlechter	<i>Orchidaceae</i>	Ep	N		+			
<i>Didymopanax tremulus</i> Krug. & Urb.	<i>Araliaceae</i>	A	E	1				
<i>Miconia mirabilis</i> (Aubl.) L.O. Willians	<i>Melastomataceae</i>	A	N		+			
<i>Exostema elliptica</i> Griseb.	<i>Rubiaceae</i>	A	N			+		
<i>Microgramma piloselloides</i> L.	<i>Polypodiaceae</i>	Ep	N			+		
<i>Camparettia falcata</i> Poepp. & Endl.	<i>Orchidaceae</i>	Ep	N				+	
<i>Antrophyum lanceolatum</i> (L.) Kaulf.	<i>Adiantaceae</i>	Ep	N			+		
<i>Myrsine coriacea</i> (Sw.) R. Br.	<i>Myrsinaceae</i>	A	N		+			+
<i>Niphidium crassifolium</i> (L.) Lell.	<i>Polypodiaceae</i>	Ep	N			+		
<i>Oncidium variegatum</i> (Sw.) Sw.	<i>Orchidaceae</i>	Ep	N				+	
<i>Ophioglossum palmatum</i> L.	<i>Ophioglossaceae</i>	Ep	N					
<i>Phlebodium aureum</i> (L.) J. Smith	<i>Polypodiaceae</i>	Ep	N				+	
<i>Pleurothallis domingensis</i> Cogn.	<i>Orchidaceae</i>	Ep	E		+			+
<i>Pothuya nudicaulis</i> (L.) Regel	<i>Bromeliaceae</i>	Ep	N				+	
<i>Rondeletia ochracea</i> Urb.	<i>Rubiaceae</i>	A	E		+		3	
<b>Companions species</b>								
<i>Myrcia splendens</i> (Sw.) DC.	<i>Myrtaceae</i>	Ar	N		5	2	2	5
<i>Psychotria domingensis</i> Jacq.	<i>Rubiaceae</i>	Ar	N		3	3	1	1
<i>Tabebuia bullata</i> A. Gentry	<i>Bignoniaceae</i>	Ar	E	1		+	+	+
<i>Blechnum tuerckheimii</i> A. Brause	<i>Blechnaceae</i>	H	E		1	2	3	
<i>Psychotria guadalupensis</i> (DC.) Howard	<i>Rubiaceae</i>	Ar	N		3		1	1
<i>Renalmia jamaicensis</i> (Gaertn.) Horan var. <i>puberula</i> (Gagn.) Maas	<i>Zingiberaceae</i>	H	N		2	2		+
<i>Mikania venosa</i> A. Liogier	<i>Asteraceae</i>	Tr	E			+	+	2
<i>Sagraea fuertesii</i> (Cogn.in Urb.) Alain	<i>Melastomataceae</i>	Ar	E		1			1

<i>Senecio lucens</i> (Poir) Urb.	<i>Asteraceae</i>	Tr	E			+	2	1
<i>Smilax havanensis</i> Jacq.	<i>Smilacaceae</i>	Tr	N		+			
<i>Solanum crotonoides</i> Lam.	<i>Solanaceae</i>	Ar	N		1			+
<i>Solanum virgatum</i> Lam.	<i>Solanaceae</i>	Ar	N			+		
<i>Stigmaphyllon emarginatum</i> (L.) A. Juss.	<i>Malpighiaceae</i>	Tr	N					+
<i>Uncinia hamata</i> (L.) Urb.	<i>Cyperaceae</i>	H	N		+	+	+	
<i>Vaccinium racemosum</i> (Vahl) Wilbur & Luteyn	<i>Ericaceae</i>	Tr	N		+			
<i>Vitis tiliifolia</i> H. & B. ex Willd.	<i>Vitaceae</i>	Tr	N					+
<i>Vittaria lineata</i> (L.) Smith	<i>Pteridaceae</i>	Ep	N			+		
<i>Blechnum occidentale</i> L.	<i>Blechnaceae</i>	H	N		1	2		+
<i>Cestrum coelophlebium</i> O. E. Schulz	<i>Solanaceae</i>	Ar	E				1	+
<i>Cestrum inclusum</i> Urb.	<i>Solanaceae</i>	Ar	E			5		
<i>Cissampelos pareira</i> L.	<i>Menispermaceae</i>	Tr	N	1		+		
<i>Commelina elegans</i> Kunth	<i>Commelinaceae</i>	H	N			+		
<i>Daphnopsis crassifolia</i> (Poir.) Meiss.	<i>Thymelaeaceae</i>	Ar	N		+			
<i>Diplazium hastile</i> (Christ.) C. Chr.	<i>Athyriaceae</i>	H	N			2		
<i>Diplazium hians</i> Kuntze	<i>Athyriaceae</i>	H	N				2	
<i>Gleychenia bifida</i> (Willd.) Spreng.	<i>Gleycheniaceae</i>	H	N	1				+
<i>Gomedesia lindeniana</i> Berg.	<i>Myrtaceae</i>	Ar	N					1
<i>Gyrotaenia myriocarpa</i> Griseb.	<i>Urticaceae</i>	Ar	N			+		
<i>Hyptis americana</i> (Poir.) Briq.	<i>Lamiaceae</i>	Ar	N		+			
<i>Ichnanthus pallens</i> (Sw.) Munro	<i>Poaceae</i>	H	N		1	+	+	
<i>Ipomoea furcyensis</i> Urb.	<i>Convolvulaceae</i>	Tr	E				+	
<i>Lasianthus lanceolatus</i> (Griseb.) Gómez Maza	<i>Rubiaceae</i>	Ar	N		1			
<i>Lobelia robusta</i> Graham	<i>Campanulaceae</i>	Ar	E			+		
<i>Lobelia rotundifolia</i> Juss.	<i>Campanulaceae</i>	H	E		+			
<i>Odontadenia polyneura</i> (urb.) Wood.	<i>Apocynaceae</i>	Tr	E					1
<i>Odontosoria uncinella</i> (Kunze) Fée	<i>Polypodiaceae</i>	Tr	N		+			



<i>Olyra latifolia</i> L.	<i>Poaceae</i>	H	N				+	
<i>Palicourea alpina</i> (Sw.) DC.	<i>Rubiaceae</i>	Ar	N		+			+
<i>Peperomia hernandifolia</i> (Vahl) A. Dietr.	<i>Piperaceae</i>	H	N		+			
<i>Pilea geminata</i> Urb.	<i>Urticaceae</i>	H	E			2		
<i>Polypodium loriceum</i> L.	<i>Polypodiaceae</i>	Ep	N				+	
<i>Pothomorphe peltata</i> (L.) Miquel	<i>Piperaceae</i>	Ar	N			+		
<i>Mucuna urens</i> (L.) Fawc. & Rendle	<i>Fabaceae</i>	Tr	N		+			
<i>Myrcia deflexa</i> (Poir) DC.	<i>Myrtaceae</i>	Ar	N				1	+

394 Sites sampled. DR3.- Río Jatubei (19341984E/2105891N). DR7.- Camino Casabito al Arroyazo (10339971E/2105962N). DR8.- Bajada Casabito al Centro  
395 Fernando Domínguez (19339590E/2105699N). DR9.- Casabito-Arroyazo (Ébano Verde) (19339203E/2105784N). DR10.- Near Arroyazo  
396 (19339203E/2105785N).

397 S3 Table 3. *Ass. Hyeronimo domingensis-Magnolietum hamorii*.

	Family	Biotype	Status				
Altitude				1207	1239	1233	1140
Area in m <sup>2</sup> x 10				200	200	200	200
Cover ratio ln %				100	100	100	100
Xn in m.				25	15	20	15
Nº rel.				23	24	25	26
Nº order				DR11	DR12	DR13	DR14
<b>Characteristics of the association and higher units</b>							
<i>Magnolia hamorii</i> Howard	Magnoliaceae	A	E	5	2	2	5
<i>Hyeronima domingensis</i> Urb.	Euphorbiaceae	A	E	5	2	5	+
<i>Cyathea fulgens</i> C. Chr.	Cyatheaceae	A	N	2	2	2	1
<i>Myrsine coriacea</i> (Sw.) R. Br.	Myrsinaceae	A	N	1	1	1	2
<i>Didymopanax tremulus</i> Krug. & Urb.	Araliaceae	A	E	+	5	2	3
<i>Brunellia comocladifolia</i> H. & B.	Brunelliaceae	A	N	2	1		
<i>Prestoea montana</i> (Grah.) Nichol	Arecaceae	A	N	+	2	2	3
<i>Beilschmiedia pendula</i> (Sw.) Hemsl.	Lauraceae	A	N	2		1	
<i>Ocotea leucoxydon</i> (Sw.) Mez	Lauraceae	A	N		1	1	+
<i>Calyptantes selleanus</i> Urb. & Ekm.	Myrtaceae	A	E	+	1	1	
<i>Weinmannia pinnata</i> L.	Cunoniaceae	A	N	2	2	2	
<i>Pleurothallis ruscifolia</i> (Jaq.) R. Br.	Orchidaceae	Ep	N	1	2	2	
<i>Elleanthus cephalotus</i> Garay & Sweet	Orchidaceae	Ep	N	2	2	1	
<i>Elaphoglossum crinitum</i> (L.) C. Chr.	Lomariopsidaceae	Ep	N	1	1	+	
<i>Columnea sanguinea</i> Urb.	Gesneriaceae	ArEp	N	1	2	1	
<i>Elaphoglossum latifolium</i> (Sw.) J. Sm.	Lomariopsidaceae	Ep	N	2	2	2	
<i>Miconia prasina</i> (Sw.) DC.	Melastomataceae	A	N	1		1	
<i>Rondeletia ochracea</i> Urb.	Rubiaceae	A	E	1	1	1	
<i>Alchornea latifolia</i> Sw.	Euphorbiaceae	A	N	1			+
<i>Dendropanax arboreus</i> (L.) Dcne & Planch.	Araliaceae	A	N	1			
<i>Miconia mirabilis</i> (Aubl.) L.O. Willians	Melastomataceae	A	N		1		+
<i>Epidendrum ramosum</i> Jacq.	Orchidaceae	Ep	N			2	+
<i>Ophioglossum palmatum</i> L.	Ophioglossaceae	Ep	N	+	1		

<i>Ocotea acarina</i> C.K. Allen	Lauraceae	A	E			2	1
<i>Chionanthus domingensis</i> Lam.	Oleaceae	A	N			2	
<i>Ocotea nemodaphne</i> Mez	Lauraceae	A	N		1		
<i>Ilex macfadyenii</i> (Walp.) Rehder	Aquifoliaceae	A	N		1		
<i>Niphidium crassifolium</i> (L.) Lell.	Polypodiaceae	Ep	N	2			
<i>Polypodium loriceum</i> L.	Polypodiaceae	Ep	N	1			
<i>Epidendrum jamaicense</i> Lindl	Orchidaceae	Ep	N		2		
<i>Phlebodium aureum</i> (L.) J. Smith	Polypodiaceae	Ep	N	1			
<i>Dichaea glauca</i> (Sw.) Lindley	Orchidaceae	Ep	N		2		
<i>Epidendrum carpophorum</i> Barb. Rodr.	Orchidaceae	Ep.	N			1	
<i>Ocotea floribunda</i> (Sw.) Mez	Lauraceae	A	N				1
<i>Anacheilium cochleatum</i> (L.) Hoffm.	Orchidaceae	Ep	N				+
<i>Ocotea patens</i> (Sw.) Nees	Lauraceae	A	N				+
<i>Guarea guidonea</i> Sleumer	Meliaceae	A	N	1			
<i>Maxillaria coccinea</i> (Jacq.) L.O. Wms.	Orchidaceae	Ep	N		2		
<i>Ocotea foeniculacea</i> Mez	Lauraceae	A	N		1		
<i>Cecropia scrobeberiana</i> Miq.	Moraceae	A	N				1
<i>Beilschmiedia pendula</i> (Sw.) Hemsl.	Lauraceae	A	N				1
<b>Companions species</b>							
<i>Psychotria domingensis</i> Jacq.	Rubiaceae	Ar	N	2	2	2	1
<i>Mikania venosa</i> A. Liogier	Asteraceae	Tr	E	1	2	1	2
<i>Gomedesia lindeniana</i> Berg.	Myrtaceae	Ar	N	1	1	1	2
<i>Lasianthus bahorucanus</i> Zanoni	Rubiaceae	H	E	2	2	1	1
<i>Columnea domingensis</i> (Urb.) Wiehler	Gesneriaceae	Ar	E	2	1	+	1
<i>Odontosoria uncinella</i> (Kunze) Fée	Polypodiaceae	Tr	N	3	2	2	2
<i>Mecranium ovatum</i> Cog.	Melastomataceae	Ar	E	2	1	1	1
<i>Vriesea tuercheimii</i> (Mez.) L.B. Smith	Bromeliaceae	H	E	2	2	2	1
<i>Nephrolepis biserrata</i> (Sw.) Schott	Lomariopsidaceae	H	N	2	2	2	2
<i>Peperomia hernandifolia</i> (Vahl) A. Dietr.	Piperaceae	H	N	+	1	1	1
<i>Psychotria guadalupensis</i> (DC.) Howard	Rubiaceae	Ar	N	2	2	1	
<i>Myrcia deflexa</i> (Poir) DC.	Myrtaceae	Ar	N	2	1	1	2
<i>Lomariposis sorbifolia</i> (L.) Feé	Lomariopsidaceae	H	N	1		1	1
<i>Hedyosmum domingense</i> Urb.	Chloranthaceae	Ar	E		1	1	+

<i>Lomariposis sorbifolia</i> (L.) Feé	<i>Lomariopsidaceae</i>	H	N	2	2		1
<i>Renealmia jamaicensis</i> (Gaertn.) Horan var. <i>puberula</i> (Gagn.) Maas	<i>Zingiberaceae</i>	H	N	2	1	2	
<i>Vaccinium racemosum</i> (Vahl) Wilbur & Luteyn	<i>Ericaceae</i>	Tr	N		1	1	
<i>Macrocarpaea domingensis</i> Urb.	<i>Gentianaceae</i>	Ar	E		2	1	
<i>Polygala fuertesii</i> (Urb.) Blake	<i>Polygalaceae</i>	Ar	E		1	1	
<i>Arthrostylidium multispicatum</i> Pilger	<i>Poaceae</i>	Tr	E	3	2		
<i>Torralfasia cuneifolia</i> (C. Wright) Krug. & Urb.	<i>Celastraceae</i>	Ar	N		1	1	
<i>Mucuna urens</i> (L.) Fawc. & Rendle	<i>Fabaceae</i>	Tr	N	1			2
<i>Schlegelia brachyantha</i> Griseb.	<i>Schlegeliaceae</i>	Tr	N	1			+
<i>Meriania involucrata</i> (Desv.) Naud.	<i>Melastomataceae</i>	Ar	E		1	1	
<i>Hypolepis hispaniolica</i> Mason	<i>Polypodiaceae</i>	Tr	E		2		1
<i>Arthrostylidium sarmentosum</i> Pilger	<i>Poaceae</i>	Tr	N		2	2	
<i>Blechnum fragile</i> (Liebm.) Morton & Lellinger	<i>Blechnaceae</i>	H	N		2	2	
<i>Ilex tuerckheimii</i> Loes.	<i>Aquifoliaceae</i>	Ar	E			+	
<i>Cordia dependens</i> Urb. & Ekm.	<i>Boraginaceae</i>	Ar	E				+
<i>Passiflora rubra</i> L.	<i>Passifloraceae</i>	Tr	N				+
<i>Eupatorium odoratum</i> L.	<i>Asteraceae</i>	Ar	N				+
<i>Mikania cordifolia</i> (L.) Willd.	<i>Asteraceae</i>	Tr	N				1
<i>Psychotria liogieri</i> Sateyerm	<i>Rubiaceae</i>	Ar	N				+
<i>Marattia kaulfussii</i> J. Smith	<i>Marattiaceae</i>	H	N	1			
<i>Asplenium radicans</i> L.	<i>Aspleniaceae</i>	H	N	1			
<i>Smilax domingensis</i> Willd.	<i>Smilacaceae</i>	Tr	N	+			
<i>Leandra limoides</i> (Urb.) W. Judd & Skee	<i>Melastomataceae</i>	Ar	E		1		
<i>Hillia parasitica</i> Jacq.	<i>Rubiaceae</i>	Tr	N		2		
<i>Cestrum daphnoides</i> Griseb.	<i>Solanaceae</i>	Ar	E		1		
<i>Tibouchina longifolia</i> (Vahl) Baill.	<i>Melastomataceae</i>	Ar	N		1		
<i>Clidemia umbellata</i> (Miller) L.O. Wms.	<i>Melastomataceae</i>	Ar	N				+
<i>Schradera subsessilis</i> Steyermark	<i>Rubiaceae</i>	Tr	E	1			
<i>Marcgravia rubra</i> A. Liogier	<i>Marcgraviaceae</i>	Tr	E			1	
<i>Lobelia rotundifolia</i> Juss.	<i>Campanulaceae</i>	H	E		1		
<i>Blechnum occidentale</i> L.	<i>Blechnaceae</i>	H	N				+
<i>Cissampelos pareira</i> L.	<i>Menispermaceae</i>	Tr	N				+

<i>Myrcia splendens</i> (Sw.) DC.	<i>Myrtaceae</i>	Ar	N				3
<i>Ichnanthus pallens</i> (Sw.) Munro	<i>Poaceae</i>	H	N				1
<i>Sagraea fuertesii</i> (Cogn.in Urb.) Alain	<i>Melastomataceae</i>	Ar	E		1		

398 Sites sampled. DR11.- Sierra Bahoruco. El Cachote (19267592E/2002124N). DR12.- Sierra Bahoruco. El Cachote (19268161E/2002764N). DR13.- Sierra  
399 Bahoruco. Prox. el Cachote (19268152E/2002964N). DR14.- Km. 3 del poblado Cachote (19268736E/2000217N).

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**S4 Table 4.- Ass. *Ormosia krugii*-*Prestoetum montanae*.**

	Family	Biotype	Status				
Altitude				519	541	530	
Area in m <sup>2</sup> x 10				200	200	200	
Cover ratio In %				75	100	100	
Xn in m.				15	12	15	
Nº rel.				13	15	15b	
Nº order				DR15	DR16	DR17	
<b>Characteristics of the association and higher units</b>							
<i>Prestoea montana</i> (Grah.) Nichol	<i>Arecaceae</i>	A	N	3	4	4	
<i>Cecropia scrobeberiana</i> Miq.	<i>Moraceae</i>	A	N	3	2	3	
<i>Alchornea latifolia</i> Sw.	<i>Euphorbiaceae</i>	A	N	2	5	4	
<i>Miconia mirabilis</i> (Aubl.) L.O. Willians	<i>Melastomataceae</i>	A	N	3	2	2	
<i>Miconia prasina</i> (Sw.) DC.	<i>Melastomataceae</i>	A	N	1	1	1	
<i>Guarea guidonea</i> Sleumer	<i>Meliaceae</i>	A	N	+	4	4	
<i>Cyathea arborea</i> (L.) J.E. Smith	<i>Cyatheaceae</i>	A	N	3	4	4	
<i>Turpinia occidentalis</i> (Sw.) G. Don	<i>Staphyleaceae</i>	A	N	1	+	1	
<i>Clusia rosea</i> Jacq.	<i>Clusiaceae</i>	A	N	1	+	+	
<i>Ocotea globosa</i> (Aubl.) Schlecht. & Cham.	<i>Lauraceae</i>	A	N	2	1	1	
<i>Casearea arborea</i> (L.C.Rich.) Urb.	<i>Flacourtiaceae</i>	A	N	1	1	+	
<i>Oreopanax capitatus</i> (Jacq.) Decne. & Planch.	<i>Araliaceae</i>	A	N	2	3	3	
<i>Didymopanax morototoni</i> (Aubl.) Decne. & Planch	<i>Araliaceae</i>	A	N	2	3	3	
<i>Byrsonima spicata</i> (Cav.) Kunth	<i>Malpighiaceae</i>	A	N	+	1	1	
<i>Buchenavia tetraphylla</i> (Aubl.) R. A. Howard	<i>Combretaceae</i>	A	N	1	1	1	
<i>Sloanea berteriana</i> Choisy	<i>Elaeocarpaceae</i>	A	N	1	1	2	
<i>Ormosia krugii</i> Urb.	<i>Fabaceae</i>	A	N	2	2	2	
<i>Miconia serrulata</i> (DC.) Naud.	<i>Melastomataceae</i>	A	N	+	+	1	
<i>Bactris plumeriana</i> Mart.	<i>Arecaceae</i>	A	E		1	1	
<i>Myrsine coriacea</i> (Sw.) R. Br.	<i>Myrsinaceae</i>	A	N	1	1		
<i>Ocotea leucoxydon</i> (Sw.) Mez	<i>Lauraceae</i>	A	N		2	2	
<i>Inga fagifolia</i> (L.) Willd. ex Benth.	<i>Mimosaceae</i>	A	N		+	+	
<i>Inga vera</i> Willd.	<i>Mimosaceae</i>	A	N		+	+	

<i>Cupania americana</i> L.	<i>Sapindaceae</i>	A	N	2			
<i>Hirtella triandra</i> Sw.	<i>Chrysobalanaceae</i>	A	N	+			
<i>Miconia racemosa</i> (Aubl.) DC.	<i>Melastomataceae</i>	A	N	1			
<i>Zantoxylum martinicensis</i> (Lam.) DC.	<i>Rutaceae</i>	A	N	1			
<i>Guzmania monostrachya</i> (Sw.) Rusby	<i>Bromeliaceae</i>	Ep	N	+			
<i>Microgramma piloselloides</i> L.	<i>Polypodiaceae</i>	Ep	N	+			
<b>Companions species</b>							
<i>Cnemidaria horrida</i> (L.) K. Presl	<i>Cyatheaceae</i>	Ar	N	2	2	2	
<i>Cnemidaria horrida</i> (L.) K. Presl	<i>Cyatheaceae</i>	Ar	N	2	2	2	
<i>Pytirogramma calomelanos</i> (L.) Link	<i>Polypodiaceae</i>	H	N	1	+	+	
<i>Ipomoea tiliacea</i> (Willd.) Choisy	<i>Convolvulaceae</i>	Tr	N	+	2	2	
<i>Mucuna urens</i> (L.) Fawc. & Rendle	<i>Fabaceae</i>	Tr	N	1	2	2	
<i>Solanum torvum</i> Sw.	<i>Solanaceae</i>	Ar	N	1	1	1	
<i>Mikania cordifolia</i> (L.) Willd.	<i>Asteraceae</i>	Tr	N	2	1	1	
<i>Psychotria domingensis</i> Jacq.	<i>Rubiaceae</i>	Ar	N		2	1	
<i>Pothomorphe peltata</i> (L.) Miquel	<i>Piperaceae</i>	Ar	N		2	2	
<i>Tibouchina longifolia</i> (Vahl) Baill.	<i>Melastomataceae</i>	Ar	N	1		+	
<i>Nepsera aquatica</i> (Aubl.) Naud.	<i>Melastomataceae</i>	Ar	N	1		+	
<i>Syngonium podophyllum</i> Schott	<i>Araceae</i>	Tr	N	2	+		
<i>Urea baccifera</i> (L.) Gaud.	<i>Urticaceae</i>	Ar	N		2	2	
<i>Psychotria uliginosa</i> Sw.	<i>Rubiaceae</i>	Ar	N		2	2	
<i>Coccocypselum herbaceum</i> Aubl.	<i>Rubiaceae</i>	H	N	+			
<i>Piper adunculum</i> L.	<i>Piperaceae</i>	Ar	N	1			
<i>Cissus verticillata</i> (L.) Nicholson & Farris	<i>Vitaceae</i>	Tr	N	1			
<i>Neurolaena lobata</i> (L.) Cass.	<i>Asteraceae</i>	H	N	+			
<i>Triunfetta semitriloba</i> Jacq.	<i>Tiliaceae</i>	H	N	1			
<i>Clidemia umbellata</i> (Miller) L.O. Wms.	<i>Melastomataceae</i>	Ar	E	1			
<i>Gleychenia bifida</i> (Willd.) Spreng.	<i>Gleycheniaceae</i>	H	N	1			
<i>Lycopodium clavatum</i> L.	<i>Lycopodiaceae</i>	H	N	1			
<i>Ichnanthus pallens</i> (Sw.) Munro	<i>Poaceae</i>	H	N	1			
<i>Nephrolepis multiflora</i> (Roxb.) Jarret	<i>Lomariopsidaceae</i>	H	N	1			
<i>Smilax domingensis</i> Willd.	<i>Smilacaceae</i>	Tr	N	+			
<i>Mimosa pudica</i> L.	<i>Mimosaceae</i>	H	N	1			

<i>Palicourea crocea</i> (Sw.) Schultes	<i>Rubiaceae</i>	Ar	N	1			
<i>Urena lobata</i> L.	<i>Malvaceae</i>	Ar	N	1			
<i>Hedychium coronarium</i> Koen.	<i>Zingiberaceae</i>	H	I	1			
<i>Solanum jamaicense</i> Mill.	<i>Solanaceae</i>	Ar	N	1			
<i>Entada gigas</i> (L.) Fawc. & Rendle	<i>Fabaceae</i>	Tr	N	+			

401 Sites sampled: DR15.- El Trece (eastern range) (19Q0489524/2092418). DR16.- Dieciseis de Mitche (19Q0486735/2092513). DR17.- Near Dieciseis de  
402 Mitche (19Q0486736/2092514).



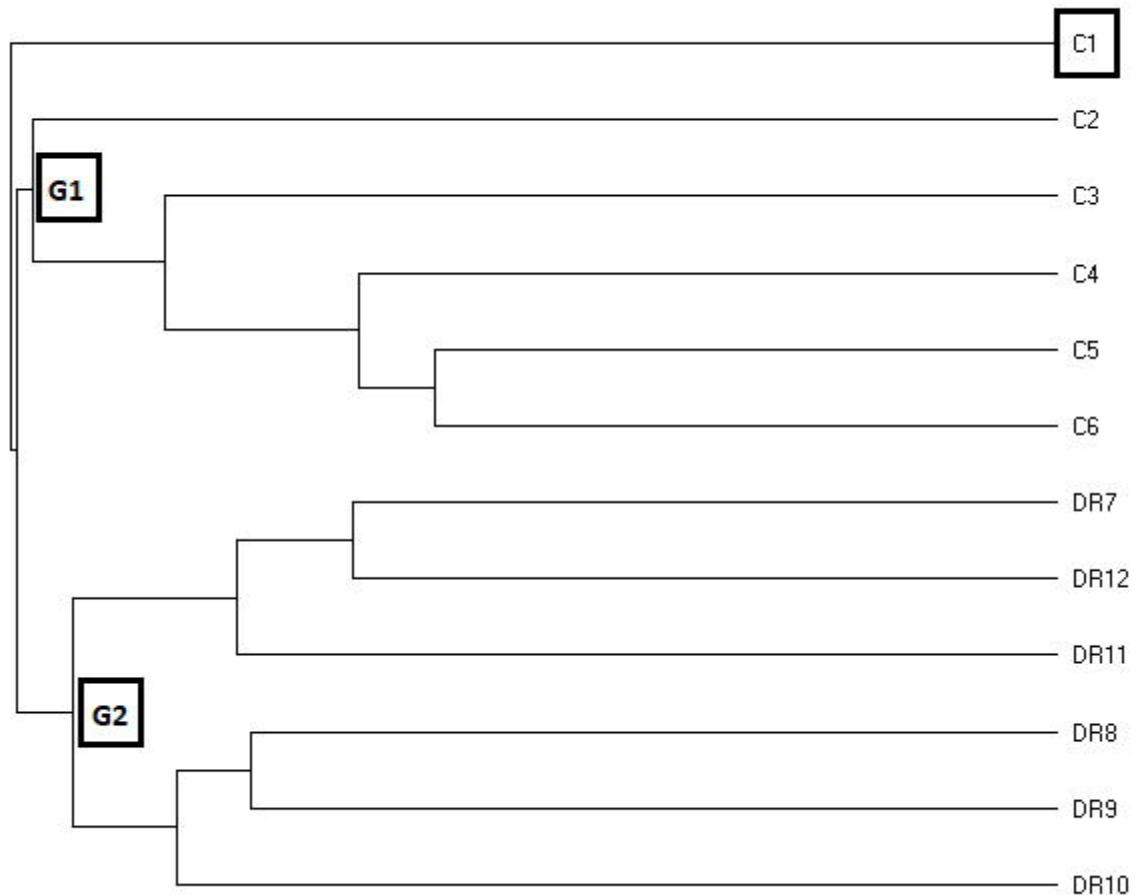
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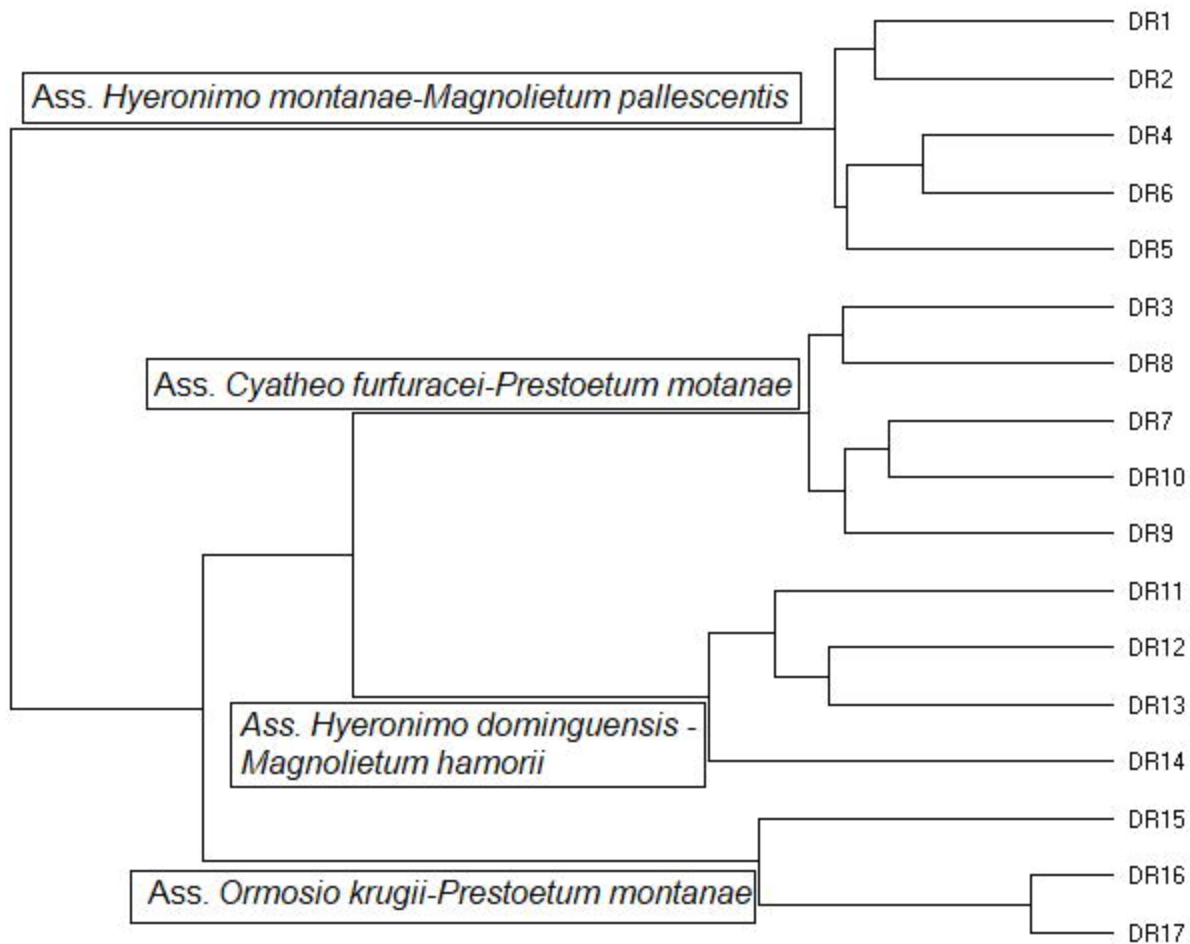
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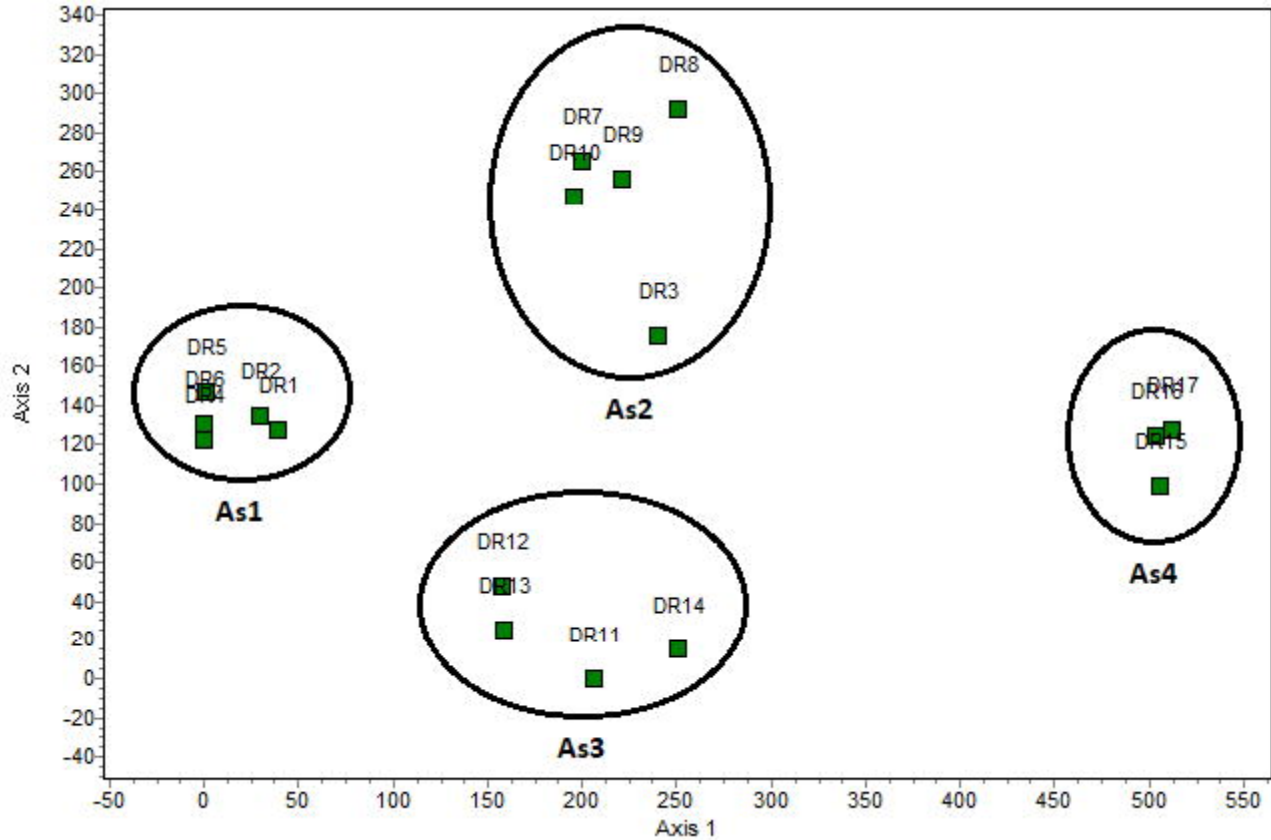
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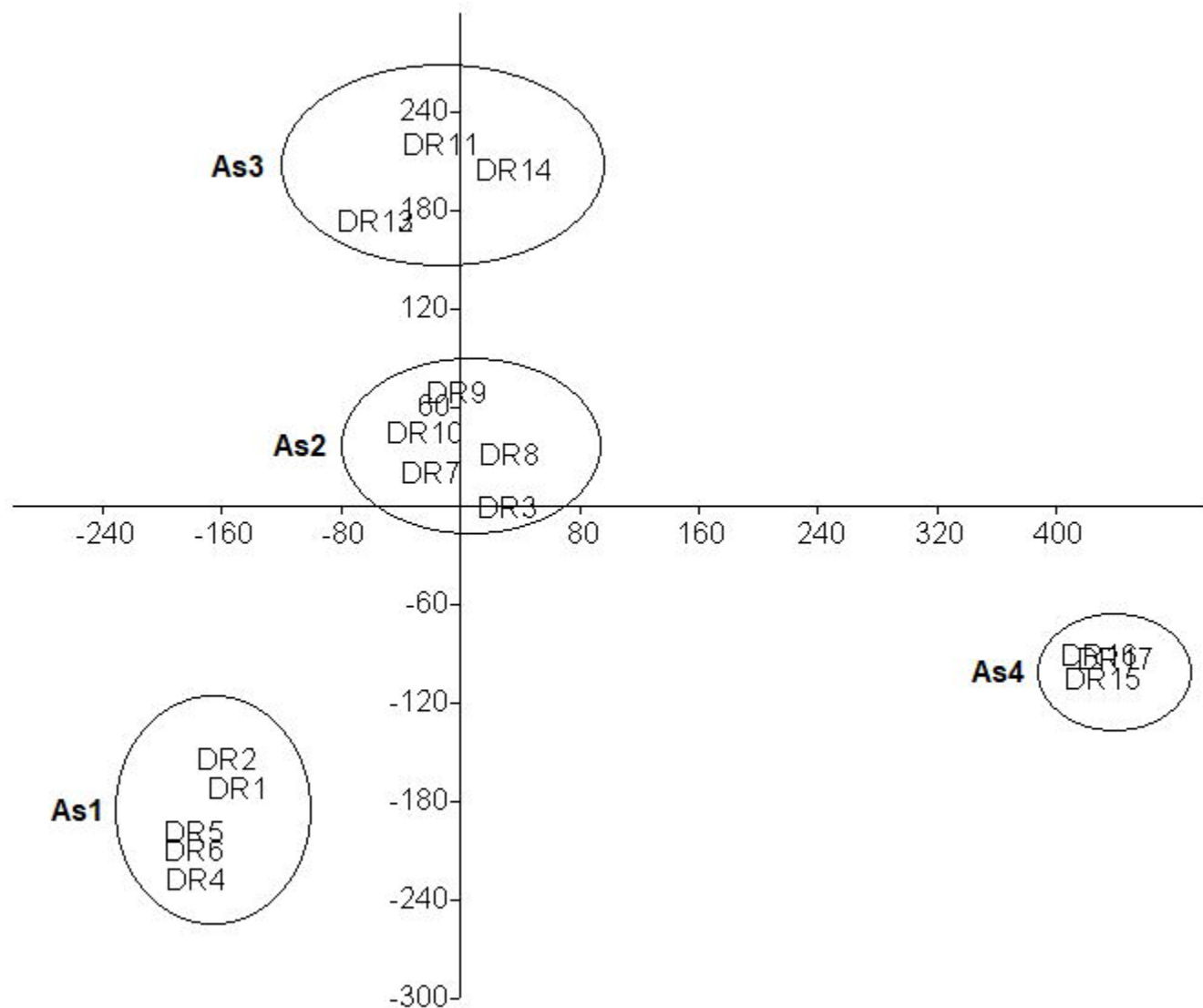


70,5                      52,9                      35,3                      17,6                      0





Axis 2



Axis 1

