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Contribution to the knowledge of the ecological profile of some Melastomataceae of the Lesser Antilles: the case of Martinique

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ABSTRACT

Melastomataceae are particularly diverse in the Neotropical realm. The study of the sylvatic formations of the Lesser Antilles made it possible to identify the dominant floristic corteges associated with the different bioclimates. Although there are many indications that Melastomataceae are not among the species structuring the climax formations of the forests of Martinique, their ecological chorology and profile within these formations can be specified. The analysis of the biodemographic data of eco-units of different bioclimates, obtained during floristic inventories, confirms the indications of the floras of the region. It also makes it possible to provide some specifications concerning the ecological profiles of certain Melastomataceae. *Conostegia calyptrata* and *Conostegia icosandra* display a temperament of a heliophilous species of the sylvatic gaps. *Clidemia umbrosa* is a species affinis of smaller gaps or of trails. *Miconia trichotoma* is a more forestal species.

Indexing terms/Keywords

Melastomataceae, Martinique, Lesser Antilles, *Conostegia calyptrata*, *Conostegia icosandra*, *Clidemia umbrosa*, *Miconia trichotoma*, ecological profile.

Academic Discipline And Sub-Disciplines

Ecology, Botany, Biogeography,Natural Geography

SUBJECT CLASSIFICATION

Ecology

TYPE (METHOD/APPROACH)

Experimental

INTRODUCTION

The Melastomataceae are the 7th largest family of Angiosperms and number 166 to 170 genera, including 4,200 to 5,105 species, according to the authors. They have a pantropical distribution but are particularly diversified in the Neotropical biome (107 genera, 2,950 to 3,000 species).[38, 48]. Consideration of the phylogenetic data has led to a revision of the limits of the family in order to make it a monophyletic group. This sister group of the Myrtaceae would from now on include the Memecyclaceae. [7, 47]. This research has also led to the repositioning of the limits of the differentiated tribes within the family.

Within the Neotropical realm, the Caribbean region is a grouping that encompasses the Bahamas and the Greater and Lesser Antilles. Recognised as a biodiversity hotspot [32, 34], the Caribbean region has 180 endemic genera divided into 47 families. [10, 11]. Its floristic richness is variously estimated as including 8,000 to 12,000 species, according to the authors [16, 9, 34, 40, 41]. Approximately 11,200 species are considered species indigenous to the Caribbean islands and 79% are endemic to this area. [10] In the Lesser Antilles, there are 28 genera of Melastomataceae of which 3 are endemic genera and 451 taxa (species and subspecies) of which 391 are endemic [1].

The Melastomataceae occupy a particular position within the Neotropical biodiversity due to the great diversity of this family. Members of the family can be herbaceous plants, shrubs, trees, lianas, epiphytes and hemi-epiphytes. In the Caribbean, Melastomataceae represent about 450 species split into 28 genera, among which are found amost 400 endemic species. [31]. The Lesser Antilles can be considered as a particular unit within the Neotropical realm [13].

Most of the Melastomataceae of the Lesser Antilles are recognisable quite easily thanks to their characteristic acrodomous venation organised in 3 to 5 basilar veins which converge forming arches from the base to the apex of the leaf. These veins are associated with a scalariform tertiary venation. (Exception: the genus Mouriri presents a pinnate venation). The leaves are opposite-decussate (more rarely pseudo-alternate). The presence of an indumentum is frequent. The flowers are bisexual, radially symmetrical, generally diplostemonous. The stamens have a poricidal dehiscence and present characteristic varied appendages, dorsal or ventral, which distinguish them from other Myrtales. The fruits are berries or capsules but always present a very large quantity of seeds. [9,40, 41, 48].

The biogeographic reconstructions of the history of the Melastomataceae are based on the analysis of molecular data and of the fossil record. Two scenarios are proposed to explain the arrival of the family in the Neotropical zone. Renner et al

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[39] propose, based primarily on molecular data and the fossil record, that a first phase of diversification, dated -30 Ma, took place on the shores of the Tethys in tropical Laurasia. [39]. The family would have colonised part of Gondwana (Eurasia + America) during the Eocene Epoch. Colonisation and diversification in the present African zone would be more recent, between -18 and -10 Ma. Long-range dispersal mechanisms would then have played a major role in the colonisation of new biogeographical realms. Another scenario suggests the presence of a Palaeogene diversification focus at Gondwana at a time when South America and Africa were still very close. The major event favourable to the substantial diversification in the Neotropical realm of the family would be the dislocation of Gondwana . [33]. The slim Neotropical fossil record does not constitute sufficient reason to dismiss this theory according to this other team (Raven and Axelrod, 1974; Morlay and Dick, 2003). In the Neotropical continental realm, two important centres of family diversification are identified: the Andes in northern South America and the mountain ranges in central and southern Brazil. [38] . The complex geological history and limited data (fossil record, absence of full floristic distribution patterns, phylogenetic studies) complicate the reconstruction of the biogeography of the family in the Caribbean even though some patterns emerge [42] .The flora of the Antilles would be a subset of the Neotropical flora which displays a mosaic of affinity with the surrounding continental realms. There is, however, a stronger affinity with Central and South America. The flora of the Lesser Antilles is very strongly linked to South America [1]. In the Caribbean, it is shown that most of the taxa of the Miconieae tribe are the product of some introductory events followed by evolutionary radiations, rather than numerous events of dispersal from the continent. The taxa of the Lesser Antilles originate from both the Greater Antilles (which could be the case of the Charianthus genus, endemic to the Lesser Antilles), and from northern South America (as in the case of certain species of Clidemia), but probably not from the Andes or from the Central American foci. [31].

The Melastomataceae are mainly species of montane forests and of heliophilous bushes of the pioneer stages of the successions. [27]. In the Indomalayan realm, Melastomataceae constitute a significant proportion of the communities of the undergrowth of the wet forests (lower montane zone forests of 1000-3000 m) of Papua New Guinea [28]. In the Amazonian forests, the Melastomataceae are not among the dominant families that make up the canopy. They are the species of the underlying strata where they combine with Lauraceae, Annonaceae and Rubiaceae. Most of these species constitute shrubs and small trees whose diameter does not exceed 10cm. [43].

While in the Pre-Columbian era, forests covered the whole of Martinique, colonisation initiated a regression of the sylvatic climax formations, their replacement by agrosystems and then sometimes by secondary forest units. The relictual climax formations were relegated to a few isolated eco-units. [21].The organisation of these formations suggests that the Melastomataceae are not part of the corteges of dominant species of the sylvatic climax formations of the Lesser Antilles [8, 23, 25].

Clidemia latifolia (Desr.) DC., a species endemic to Martinique, and *Tetrazygia angustifolia* (Sw.) DC. are listed on the Red List of Threatened Species with EN status ("Endangered") as their populations are estimated to as less than 250 mature individuals on this island. [46].

This paper is a continuation of the research into the flora of the Lesser Antilles in macroecology [1,2,9, 16, 17,18, 19, 21,23,24,25,26,36, 40, 41] .The aim is to contribute to the understanding of the chorology of the Melastomataceae within the forest ecosystems of Martinique.

Material

Overview of the island

The Lesser Antilles, a small volcanic arc made up of about 21 main islands, along with numerous islets and sandbanks, consists of a total area of about 8,320 km2 [1]. The geomorphology of this insular arc is mainly conditioned by a subduction geodynamic. Its volcanic activity has allowed, in a submarine and then aerial environment, the successive implementation of sets of volcanoes of varying ages which constitute the majority of the reliefs of the island. Calcerous formations can be present on the surface. These are generally volcano-sedimentary formations and reef and para-reef formations. [14, 47]. Martinique is an island of 1,128km2 whose highest point is Mount Pelée (1,397m). The reliefs are numerous but that contrasts with the southern part of the island where the majority of the reliefs are eroded and do not exceed 459 metres while all the recent massifs, which have a more substantial elevation, are gathered in the north. [14].

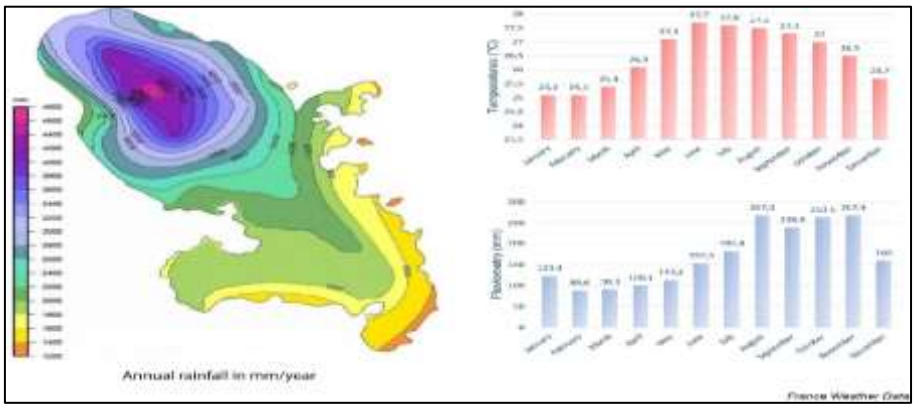

Figure 1: Climate of Martinique

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Bioclimate/topography relationship

The volcanic origin of Martinique explains the contrasting geomorphology, along with 122 soil facies [3,44]. This diversity of soils, the orographic rains, the phenomena of bioclimatic inversions [21] as well as a substantial anthropogenic activity contribute to the creation of a mosaic of physical conditions. This complex pattern of abiotic factors thus determines, through the intermediary of bioclimates, the ecosystemic potentialities. [19, 21, 23]. Despite significant differences in surface area between the mountainous islands of the Lesser Antilles, four main types of bioclimates can be distinguished, determined mainly by the abundance of precipitation. [21, 22].

Distribution of the main bioclimates and organisation of the large floristic complexes

Each sylvatic type is associated with a floristic potential that includes all the species that can be present according to the dynamic stage, the environmental conditions, their competitiveness within the phytocenosis and the history of the colonisation of the eco-unit looked at . [21].The different intra-successional stages are animated by an intra-stage dynamic. (See Figure 2). This plant dynamic is a pluri-directional phenomenon . [21, 23] which contributes to the establishment and maintenance of a mosaic of phytocenosis. The evolution may be blocked by disturbances of anthropogenic origin but also sometimes by intrinsic conditions of the environment such as the instabilities of the ground or the topography. Natural disturbances such as windthrow or cyclones also contribute to the maintenance of this mosaic of phytocenosis. [17, 18, 21].

Table 1: Correspondence between the bioclimates and the different forestal potentials in the Lesser Antilles [19, 21])

	Bioclimates	Potential forest types	Transition forest types
Lower stage	Dry subhumid	Tropical seasonal evergreen lower horizon and xeric facies forest	
Middle stage	Wet subhumid	Tropical evergreen seasonal forest type	Ombro-evergreen seasonal tropical forest
Upper stage	Wet	Tropical sub-montane rainforest	Tropical submontane ombro-ombrophilous forest
	Hyper-wet	Tropical montane rainforest	

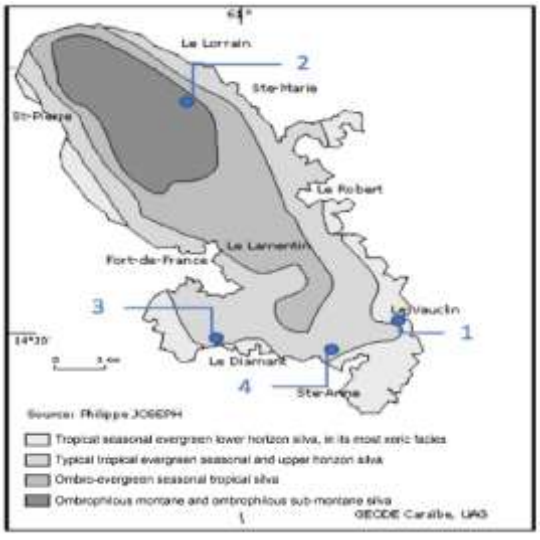

Figure 2: Map of the ecosystemic potentialities of Martinique, Modified after JOSEPH, [21]

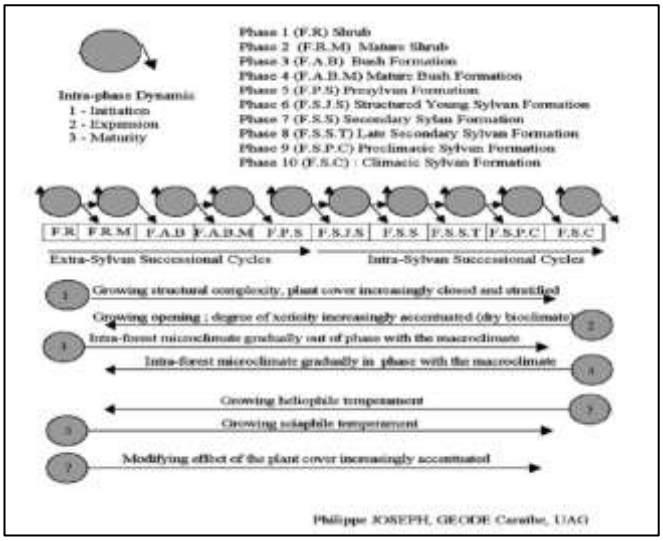

Figure 3: The dynamic gradient, JOSEPH, [21]

Method

The research presented in this article is based on an analysis of the data acquired from six inventories. (See Table 2):

- -two floristic inventories carried out at the Vauclin, a site called "Morne carrière" (position 1, figure 2)
- -two inventories carried out at Sainte Marie in the BEZAUDIN district (La Riche national forest) (position 2, figure 2)
- -two inventories named Gardier_Ph.J (position 3, figure 2) and ACA1_Ph.J (position 4, figure 4) which were carried out by Professor Philippe JOSEPH.

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The taxonomic and biocoenotic interpretation of the samples of the different species of Melastomataceae described on the island was carried out based on an extensive bibliographic study as well as the use of floristic inventories. The floras selected for this study are the floras of HOWARD [16], FOURNET [9] and ROLLET [40, 41]. Determinations were done with the flora of Fournet [13]. The taxonomic reference system: fauna, flora and fungi of metropolitan and overseas France (TAXREF V9.0), was used to account for possible synonymies [12].

Table 2: Presentation of the stations studied

Name of the station	Total area of the transect	Total number of species	Total number of individuals of a minimum of 1.3m	Bioclimate of the area
Vauclin_carrière_5b	500m2	45	468	Dry subhumid bioclimate
Vauclin_carrière_15	800m2	62	670	
Aca1_Ph.J.	750m2	50	630	Wet subhumid bioclimate
Morne_Gardier1_Ph.J.	500m2	53	541	
LaRicher1	800m2	59	384	Wet bioclimate
LaRicher2	900m2	59	409	

For each station (Table 2), transects 20 to 90 m long and 10 m wide were positioned. The size, diameter and height of the first branching of each ligneous species individual were recorded. The minimum surface area of the station was determined according to the Braun-Blanquet law [15, 35]. (See Figure 3). The minimum inventory areas of the forest formations of the Lesser Antilles are between 200 and 1000m². [21]. Populations of non-ligneous species and the regenerations of ligneous species (individuals measuring less than 1.30m) are identified and their abundance estimated qualitatively. For each of the stations, these raw data were processed in order to obtain descriptors to allow for the characterisation of the distribution of the different species and the level of stratification of the formation. As well as the data on the distribution of the sizes, the diameters and heights of the first branching, several indices are used to describe the distribution and ecological importance of the different species: index of distribution (I.d) and index of dominance (I.D) [19, 21].

I.d: index of distribution (**I .d = fr x density of the species studied**) **D**: density (**D = NI/SR**). **NI**: number of individuals (total number of individuals in the transect studied); f**a**: absolute frequency (number of quadrats where the species concerned is present); f**r**: relative frequency (**fr = fa/total number of quadrats of the stations**); **SR**: total survey area. **I.D**: index of dominance (**I.D = I.d x AB**); **AB**: basal area.

Based on the analysis of the floristic corteges of each stage [21, 25], the indications of the floras and the biodemographic analysis of the stations, it was possible to deduce correlations between the different species of Melastomataceae and the bioclimates. The comparison of the stations and the analysis of the intra-stational heterogeneities then allow us to deduce correlations between the different species of Melastomataceae and the stages of evolution of the formations. The diversity of the communities of the different stations was compared by calculating SÖRENSEN's index of similarity (S). (Figure 3) **S= (2c / (a + b))** (with **a** = number of species present in the first station, **b** = number of species present in the second station, and c = number of species common to both stations).

Figure 3: Area–species relationships (a1, a2 and a3) and indices of similarity between the stations (b)

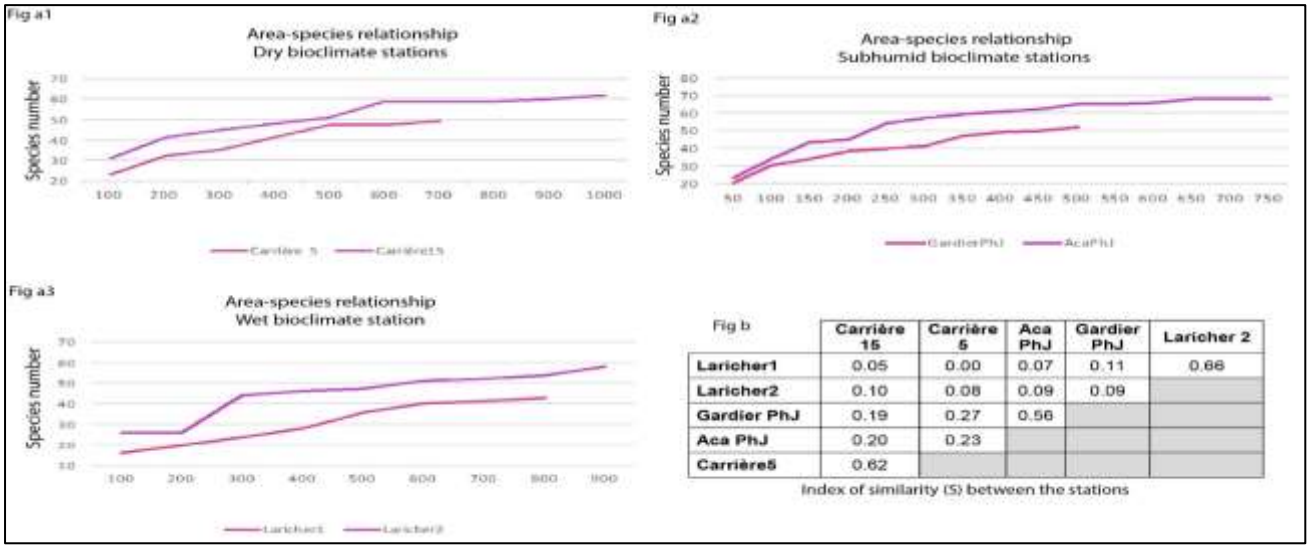

Fig b

	Carrière 15	Carrière 5	Aca PhJ	Gardier PhJ	Laricher 2
Laricher1	0.05	0.00	0.07	0.11	0.66
Laricher2	0.10	0.08	0.09	0.09	
Gardier PhJ	0.19	0.27	0.56		
Aca PhJ	0.20	0.23			
Carrière5	0.62				

Index of similarity (S) between the stations

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Results

Bibliographic data

Taking into account the synonymies, the compilation of the data of the floras shows the presence of 45 species of Melastomataceae in Martinique, divided into 16 genera. At least 3 cultivated genera are recorded. The genus Miconia is the most represented. The presence of at least three species endemic to Martinique is noted: *Miconia martinicensis*, *Clidemia latifolia*, *Charianthus nodosus* [9, 16, 40, 41].

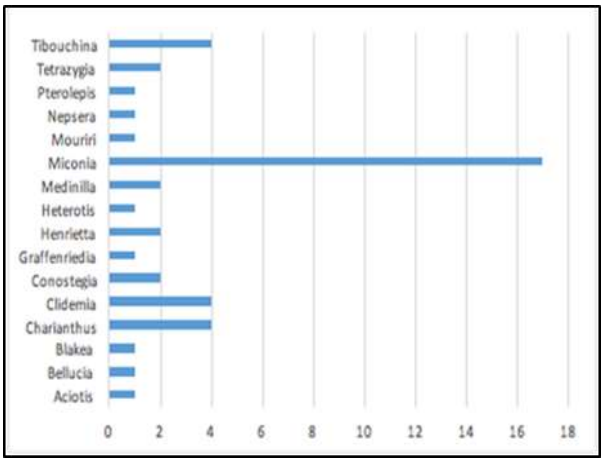

Figure 4: Frequency of the different genera of Melastomataceae of Martinique

Melastomataceae are present in each of the floristic corteges associated with each bioclimate. The data on the bioclimatic affinities show that 77% of the Melastomataceae present in Martinique develop in bioclimates where precipitation exceeds 1,500mm/year. (41% of the Melastomataceae species are presented in the floras as belonging to the floristic corteges of montane and submontane rainforests). However, there is little data found on the dynamic stages these species are associated with. (Table 3, 4 and 5).

Table 3: Melastomataceae of tropical seasonal evergreen type forests and lower horizon and xeric facies tropical seasonal evergreen (x= presence)

Species	Clidemia hirta	Mouriri domingensis	Tetrazygia angustifolia	Conostegia montana	Miconia cornifolia	Miconia impetiolaris	Miconia laevigata	Miconia prasina	Miconia striata	Tetrazygia angustifolia	Tetrazygia discolor
Minimum altitude	50	0	150	150	200	10	0	250	100	150	0
Maximum altitude	900	280	450	1250	500	450	600	650	900	450	680
Lower horizon tropical seasonal evergreen and xeric forest	X	X	X								
Typical seasonal evergreen forest type	X	X	X	X	X	X	X	X	X	X	X
Pioneer stage								X			
Post-pioneer stage											
Transition forest											X

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Table 4: Melastomataceae of tropical submontane rainforests (x = presence)

Species	Aciotis aequatorialis	Bellucia grossularioides	Blakea pulverulenta	Charianthus corymbosus	Clidemia hirta	Clidemia latifolia	Clidemia tetragona	Clidemia umbrosa	Conostegia icosandra	Conostegia montana	Henriettea lateriflora	Henriettea triflora	Miconia acinodendron	Miconia furfuracea	Miconia globuliflora	Miconia laevigata	Miconia mirabilis	Miconia striata	Miconia tetrandra	Miconia trichotoma	Tetrazygia discolor
Minimum altitude	400	50	200	500	50	400	700	200	200	150	500	400		200	800	0	100	100	150	200	0
Maximum altitude	600	350	950	900	900	1000	900	1100	1200	1250	1100	600		700	1400	600	1000	900	1250	1250	680
Pioneer stage																					
Post-pioneer stage																X	X				
Mature stage																					
Transition forest		X		X			X								X		X		X	X	

Table 5: Melastomataceae of tropical montane rainforests (x = presence)

Species	Aciotis aequatorialis	Bellucia grossularioides	Blakea pulverulenta	Charianthus alpinus	Charianthus corymbosus	Charianthus nodosus	Clidemia latifolia	Clidemia tetragona	Clidemia umbrosa	Graffenriedia latifolia	Henriettea lateriflora	Miconia acinodendron	Miconia coriaceae	Miconia globuliflora	Miconia martinicensis	Miconia mirabilis	Miconia tetrandra	Miconia trichotoma	Tibouchina chamaecistus
Minimum altitude	400	50	200	550	500	900	400	700	200	400	500		1000	800		100	150	200	950
Maximum altitude	600	350	950	1467	900	1300	1000	900	1100	800	1100		1467	1400		1000	1250	1250	1350
Altitude formation				X									X						X
Pioneer stage																			
Post-pioneer stage																			
Mature stage																			

No species of Melastomataceae is reported in the mature stages of the various types of sylvatic formation presented.

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Floristic inventories

The determinations are conducted based on the flora of Fournet [9]. The taxonomy used therefore takes the names used in this flora with the exception of Conostegia calyptrata which will be distinguished from Conostegia montana [19] and not considered as a synonymy.

A. Dry bioclimate stations

Carrière 5 and Carrière 15 stations are located in a dry bioclimate.

a.Carrière 5

The floristic cortege of the station is presented in Appendix 1.

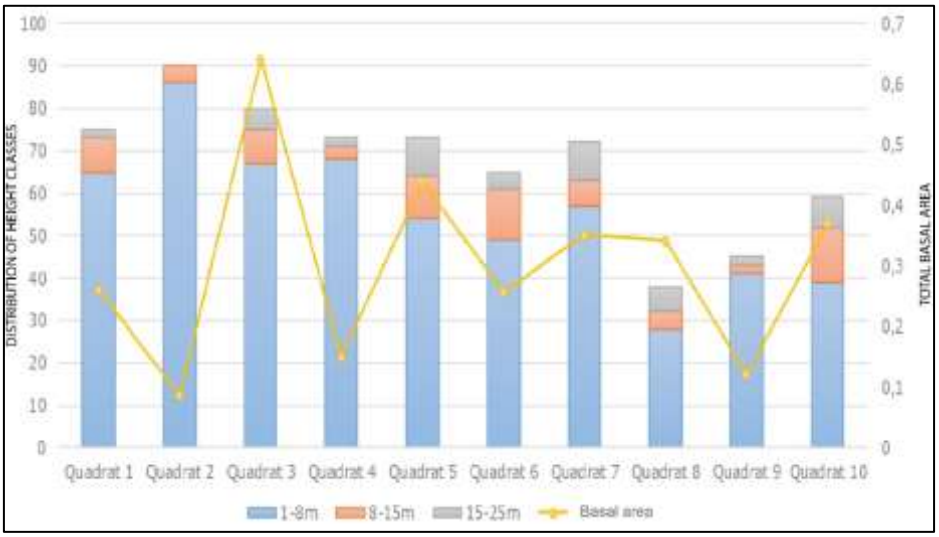

Figure 5: Distribution of height classes and basal areas - Carrière 5 Transect

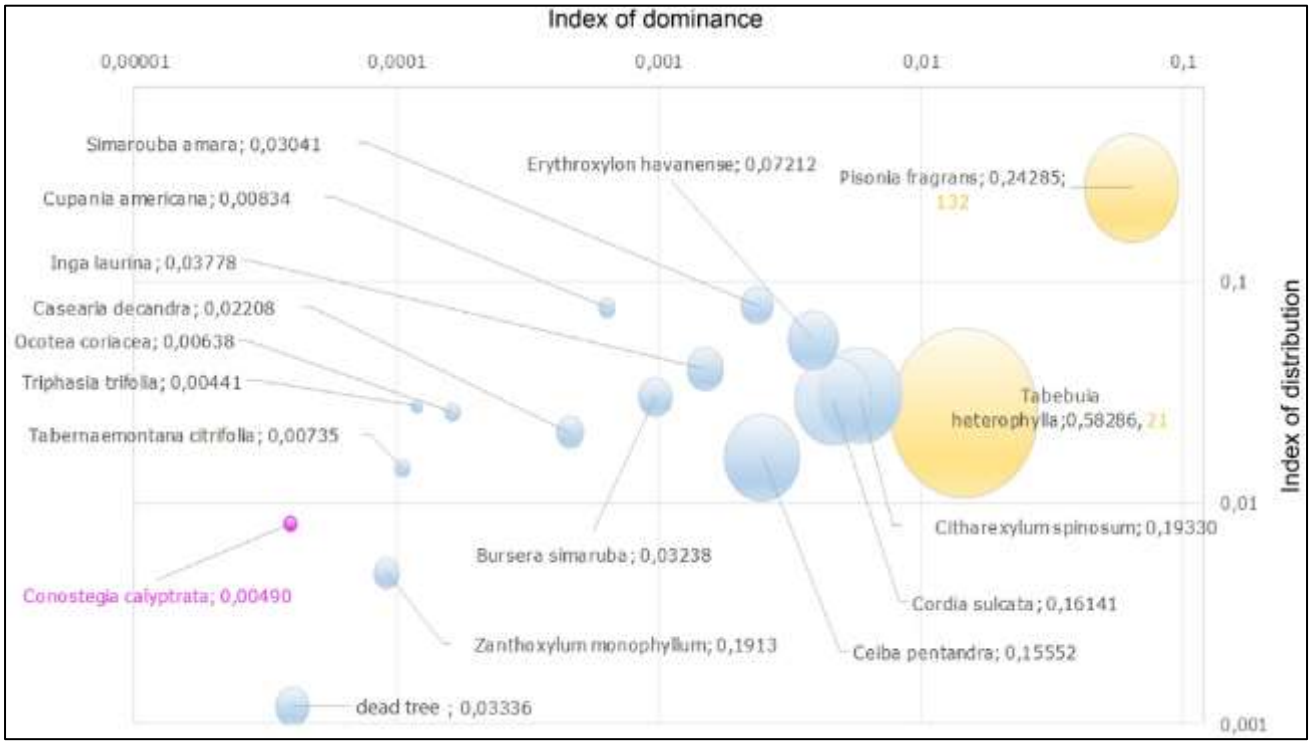

Figure 6: Representation of the dominant floristic cortege –Carrière 5 Transect. The area of the circles is proportional to the basal area of the species (value in m2 shown in the legend). The number of individuals of the species of the dominant cortege is in yellow.

Individuals less than 8m represent more than 81% of the individuals of the ligneous population. Three of the quadrats of this transect have less than 16% trees. 79% of the individuals over 1.3m recorded have diameters of less than 7.5cm. In the floristic cortege of this transect there are also *Caesaria decandra*, *Aegiphila martinicensis*, *Zanthoxylum monophyllum*.

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At this transect, the only species of Melastomataceae present is *Conostegia calyptrata*. These indices of dominance and density are low.

All the *C. calyptrata* individuals have diameters of class 2.5 and a height of less than 8m. They are in the two quadrats with the highest biomasses (quadrat 4: basal area: 0.4082, i.e. 25% of the total basal area, quadrat 5: basal area: 0.177115625 or 11% of the total basal area).

b. Vauclin Carrière 15

The floristic cortege of the station is presented in Appendix 2.

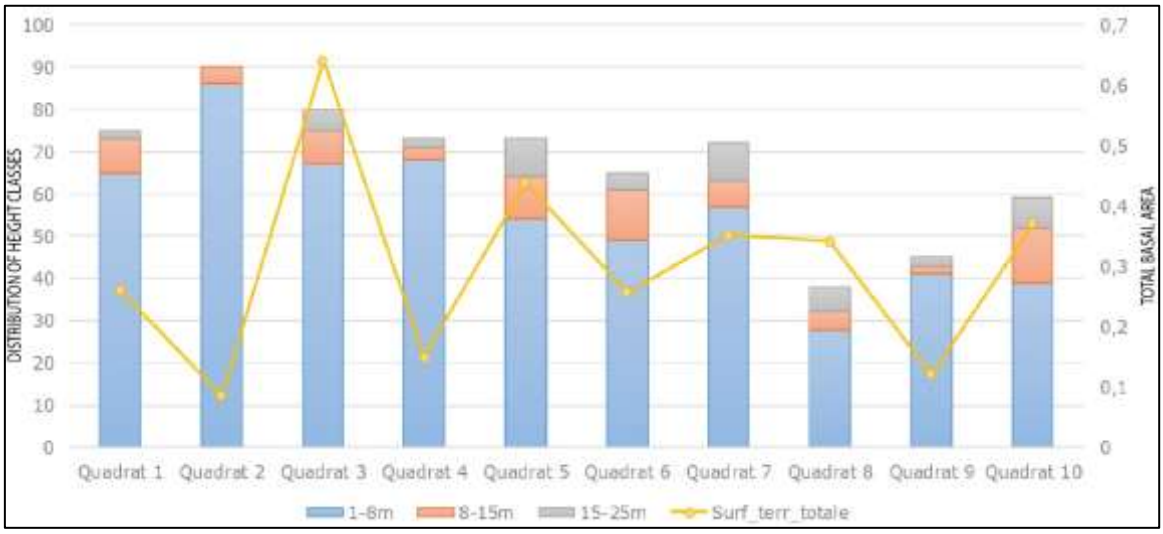

Figure 7: Distribution of height classes and basal areas - Carrière 15 Transect

Cordia sulcata, *Cecropia schreberiana* and *Inga laurina* are the species with the highest index of dominance. The individuals over 8m represent only 17% of the individuals recorded compared with 83% of individuals with sizes between 1.3 and 8m.

Two groups can be distinguished in this floristic cortege: on the one hand, *Chrysophyllum argenteum*, *Inga laurina*, *Simarouba amara*, *Caesaria decandra*, *Ceiba pentandra* and on the other hand, *Aegiphila martinicensis*, *Pisonia fragrans*, *Capparis indica*, *Bursera simarouba* and *Erythroxylon havanense*. We also note the presence of *C. scheberiana*, *Piper dilatatum* and *C. sulcata* and of one anthropophyte species: *Mangifera indica*.

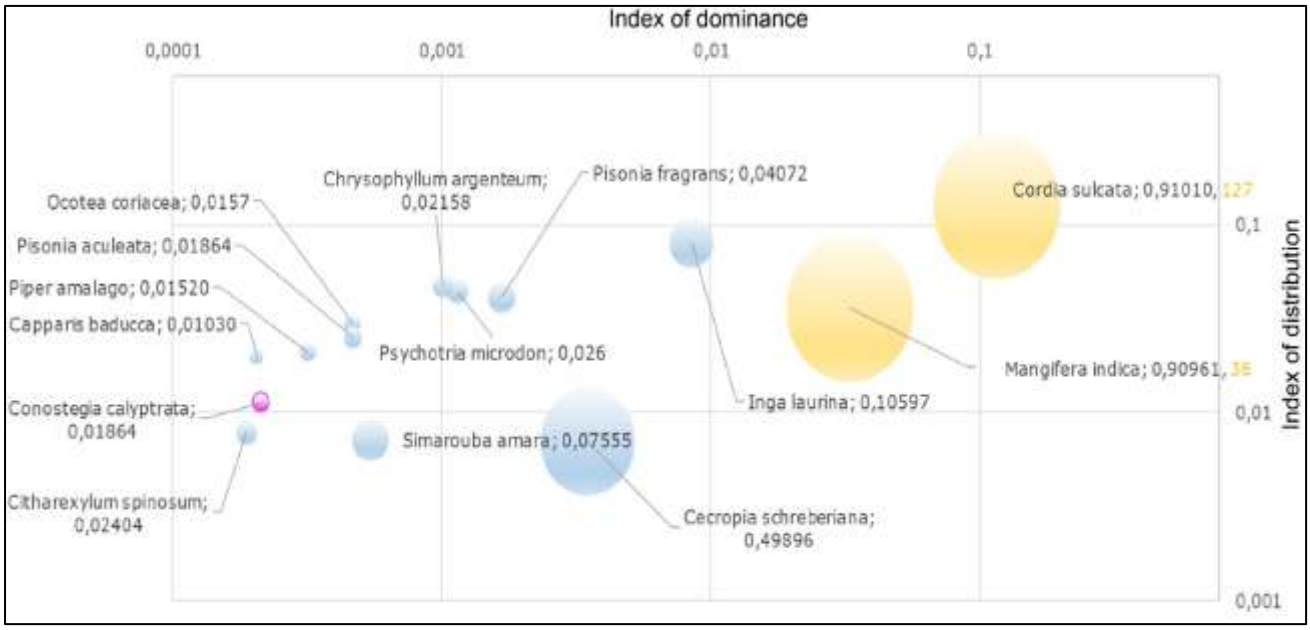

Figure 8: Representation of the dominant floristic cortege- Carrière 15 Transect. The area of the circles is proportional to the basal area of the species (value in m2 shown in the legend). The number of individuals of the species of the dominant cortege is in yellow.

A single species of Melastomataceae is present at this transect at quadrats 1, 2 and 10: *Conostegia calyptrata*; either in the form of regeneration or in the form of shrubs.

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The population of quadrat 1 is made up of 91% individuals with diameters of class 2.5 and 5. This population has 87% individuals less than 8m.

The population of quadrat 2 consists of 96% individuals of class 2.5 to 5 and 95% of less than 8m. 81.3% of the ligneous individuals in quadrat 10 have diameter classes between 2.5 and 5. 66.1% of the individuals have heights between 1.3 and 8m. In this quadrat, the individuals with the most substantial biomasses belong to the species *Mangifera indica* and *Cecropia schreberiana*

B. Wet subhumid bioclimate stations

a.Aca1_Ph.J.

The station's floristic cortege is presented in Appendix 3.

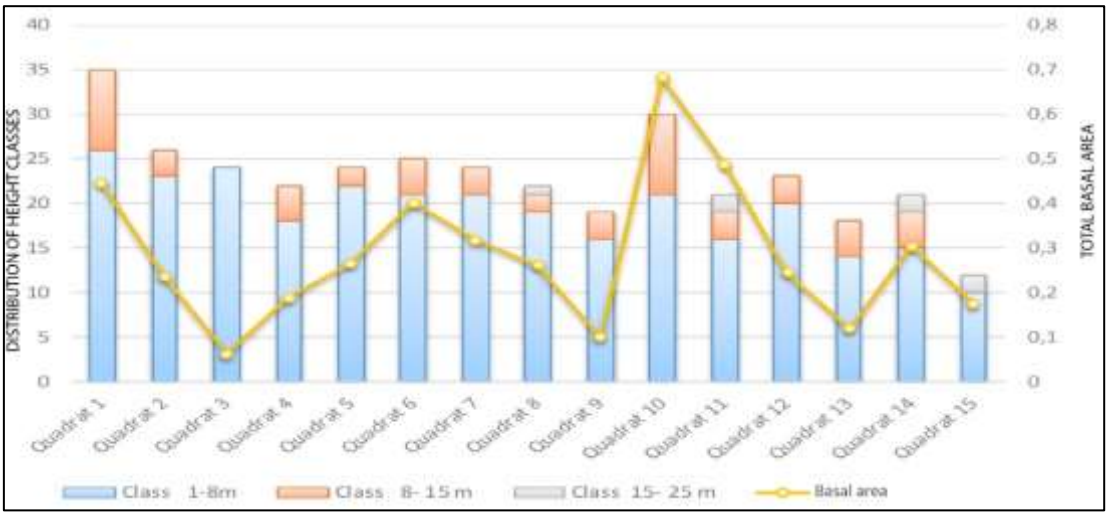

Figure 9: Distribution of height classes and basal areas - Aca_Ph.J Transect

The population of this transect is 18% trees of a height greater than 8m and 83% ligneous individuals culminating at less than 8m. 72.5% of the ligneous individuals of this transect have diameters belonging to classes 2.5 to 5. Dead and/or cut trees are found in all the quadrats. They represent 23% of the individuals belonging to the arborescent species recorded at the transect.

The species with the most significant indices of dominance are *C. guianensis, P. racemosa* and *I. laurina.* These dominant species are associated with a floristic cortege including *Coccoloba swartzii, Eugenia pseudopsidium, Myrcia fallax, Bourreria succulenta, Eugenia monticola, Guarea glabra*.

The Melastomataceae are represented in quadrats 1, 2, 3, 5, 6, 7, 8, 10 and 11 by a single species: *Conostegia calyptrata*.

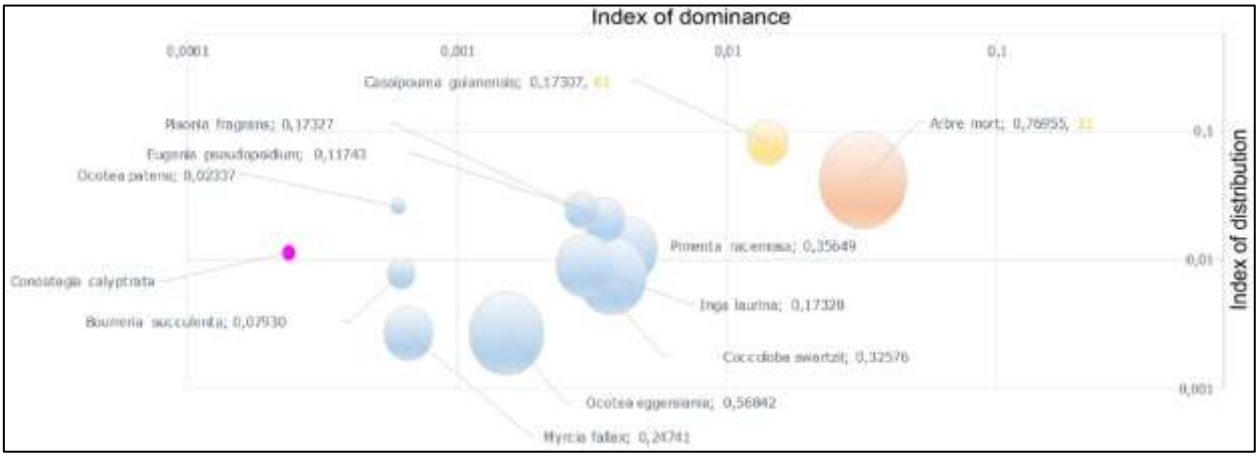

Figure 10: Representation of the dominant floistic cortege - Aca_Ph.J Transect. The area of the circles is proportional to the basal area of the species (value in m2 shown in the legend). The number of individuals of the species of the dominant cortege is in yellow.

Quadrat 3 has the lowest basal area and no individual has a height greater than 8m. This quadrat is composed of populations of *Bourreria succulenta, Myrcia fallax, Croton corilifolius, Pisonia fragrans, Ocotea coriaceae* and *Ocotea patens*. Several cut trees were recorded. Quadrat 9 has a basal area less than the average basal area of the transect. In

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the population of this quadrat there are individuals of *Myrcia fallax, Picramnia pentandra, Daphnopsis americana, Bourreria succulenta, Ocotea cernua* and *Ixora ferrea*. Quadrat 13 has a basal area less than the average basal area of the transect. In the population of this quadrat, we can see that there are numerous individuals of *Myrcia fallax* (31% of the living ligneous individuals recorded), to which are added in low density those of *Buchenavia tetraphylla* and *Ocotea cernua*. The dead, cut and senescent individuals have a basal area equivalent to 50% of the basal area of the living ligneous individuals recorded in quadrats 12 and 13. These quadrats do not present any individuals greater than 15m.

b.Morne_Gardier1_Ph.J.

The station's floristic cortege is presented in Appendix 4. The population of this transect is only 4.4% tree. In four of the ten quadrats of the transect, only ligneous individuals with a height of less than 8m were identified. The dominant species are *Plinia pinnata, Pimenta racemosa* and *Manilkara bidentata.* These dominant species are associated with *Croton corylifolius, Pisonia fragrans, Exothea paniculata, Inga laurina, Pilocarpus racemosus, Pouteria semecarpifolia, Daphnopsis americana* and *Anthirhea coriacea.*

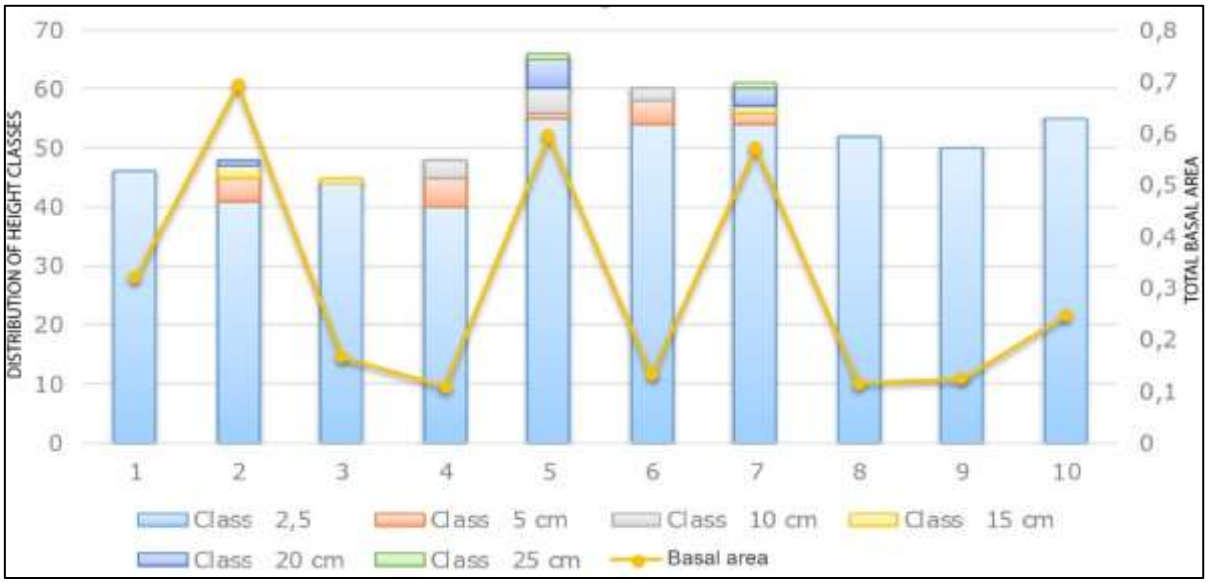

Figure 11: Distribution of height classes and basal area per quadrat - Morne Gardier Ph_J Transect

The basal area of the dead trees represents 3% of the biomass. They rank 4th in terms of the indices of dominance. Quadrats 1, 8, 9 and 10 have a low basal area and a population consisting only of individuals less than 8m in height. The basal area is also lower in quadrats 1, 3 and 4.

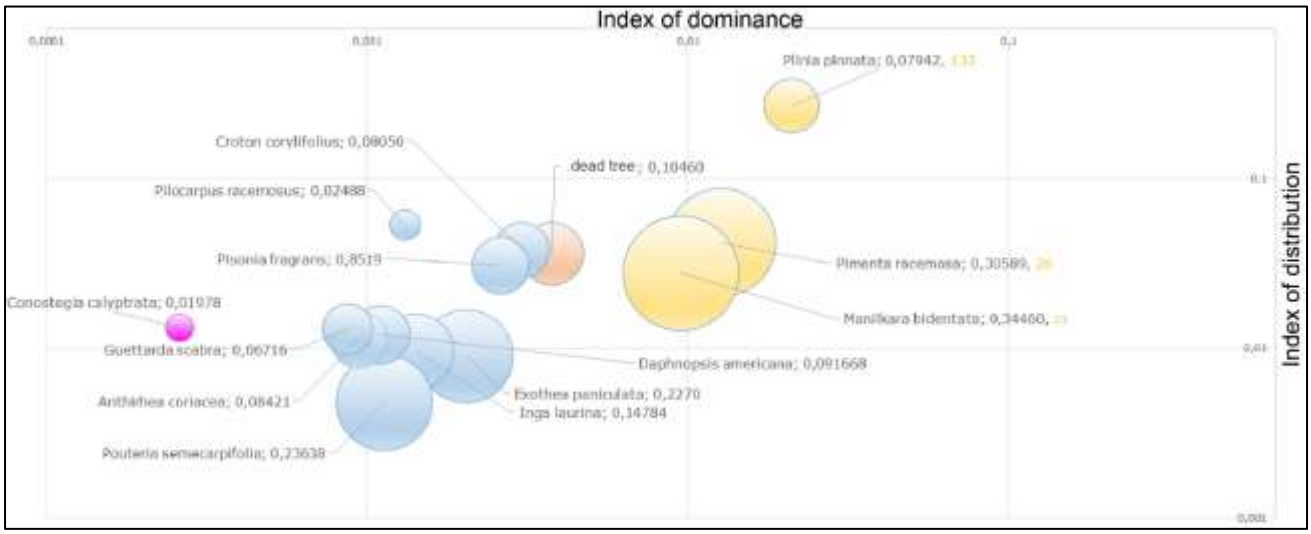

Figure 12: Representation of the dominant floral cortege- Morne Gardier Ph_J Transect.The area of the circles is proportional to the basal area of the species (value in m2 indicated in the legend.) Tthe number of individuals of the species of the dominant cortege is in yellow.

At quadrats 3 and 4, there was also a significant decrease in the total basal area (4 and 5% of the total basal area). The population of these quadrats consists mainly of individuals of less than 8m (98 and 94%). Among the 3% of trees present across these quadrats, we find in particular species with the heliophilous temperament, such as *Bursera simarouba*, and *hemisciaphilous* species. In the population of individuals of less than 8m, hemisciaphilous species (*Anthirhea coriacea,*

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Guarea glabra) and heliosciaphilous species such as *Pouteria semecarpifolia, Manilkara bidentata* and *Brosimum alicastrum* are found. [21].

In quadrat 6, we can see that the basal area is nearly four times lower than that of the adjacent quadrats. Only 2% of the population of this quadrat consists of trees. In the cortege of this quadrat we find species with a markedly heliophilous temperament, *Guettarda scabra,* as well as species characteristic of secondary stages of the middle stage such as *Pisonia fragrans* and *Faramea occidentalis*. Melastomataceae are present in quadrats 1, 3, 4, 6 and 7.

C. Wet bioclimate stations

a.La Richer1

The station's floristic cortege is presented in Appendix 5.

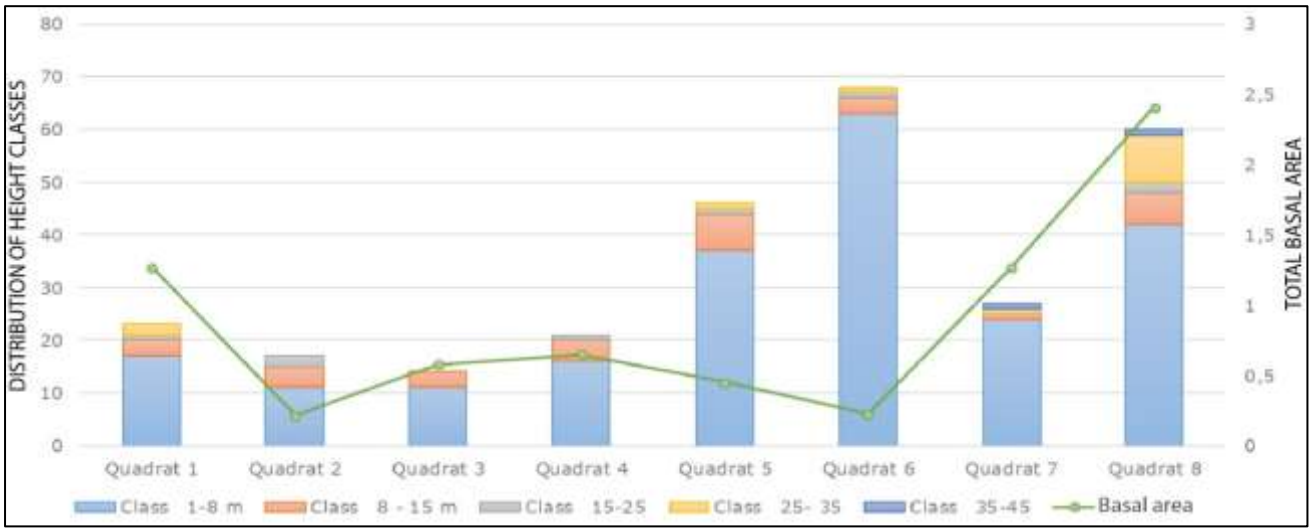

Figure 13: Distribution of height classes and basal areas per quadrat - La Richer1 Transect

The floristic survey carried out on this transect indicates that this population is 20% trees over 8m and 80% ligneous individuals with a height of between 1.3m and 8m. 10% of the individuals recorded are dead or lying ligneous individuals. The dominant species are: *S. mahagoni, T. latifolia* and *C. Cymosa*. These species are associated with *Dacryodes excelsa, Guarea kunthiana, Marcgravia umbellata, Pouteria multiflora, Pouteria pallida, Pouteria semecarpifolia* and *Prestoea montana.*

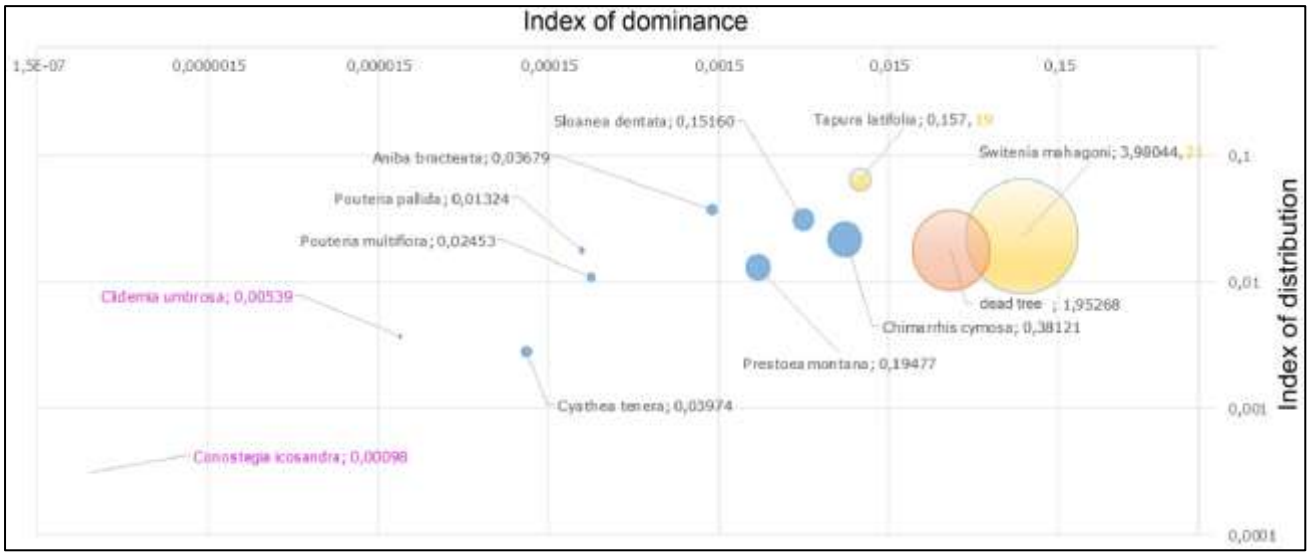

Figure 14: Representation of the dominant floral cortege- La Richer 1 Transect. The area of the circles is proportional to the basal area of the species (value in m2 indicated in the legend.) The number of individuals of the species of the dominant cortege is in yellow.

S. mahagoni are dominant in the upper stratum, the majority of the individuals having a height of greater than 25m (93%). Almost all of the other arborescent species have heights less than 25m. Among the latter are *D. excelsa, Pouteria multiflora* and *Pouteria pallida.* At this transect we find *Miconia trichotoma* in quadrat 1, *Clidemia umbrosa* in quadrats 3, 5 and 8, and *Conostegia icosandra* in quadrat 7. Some regenerations of *Clidemia hirta* were observed in quadrat 8.

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Quadrat 1 has a low density of ligneous individuals. A dead tree has the most substantial basal area. The latter is the highest in the quadrat. *M. trichotoma* is represented by a young individual of diameter 2, 5, 5m in height with a first branching at 2m.

Quadrat 3 also has a low density of ligneous individuals of a height greater than 1.3m. It is marked by the presence of a dead tree of diameter class 30. There are also a significant number of regenerations of *S. mahagoni* and *Heliconia caribea*.

The population of quadrat 5 is made up of 19% individuals of a height greater than 8m. The presence of a dead tree of diameter 40 is also noted in this quadrat.

94% of the biomass of quadrat 7 consists of a mature individual of *S. Mahagoni* with a diameter of 110cm and a height of 40m. In this quadrat, *Conostegia icosandra* is represented only by young individuals of diameter class 2, 5cm in diameter and not exceeding 4.5m.

In quadrat 8, the most significant biomass is represented by a *S.mahagoni* of 25m and 40cm in diameter, under which young trees of dominant species of climax formations are developing.

b.La Richer2

The station's floristic cortege is presented in Appendix 6.

Figure 2: Distribution of height classes and basal area per quadrat - La Richer2 Transect

The population of this station consists of 25% trees over 8m high. The species with the highest indices of dominance are the arborescent species *Swietenia x aubrevilleana, Sloanea mansoni* and *Chimarrhis cymosa* as well as shrub species such as *Piper dilatatum* and *Cestrum laurifolium*.

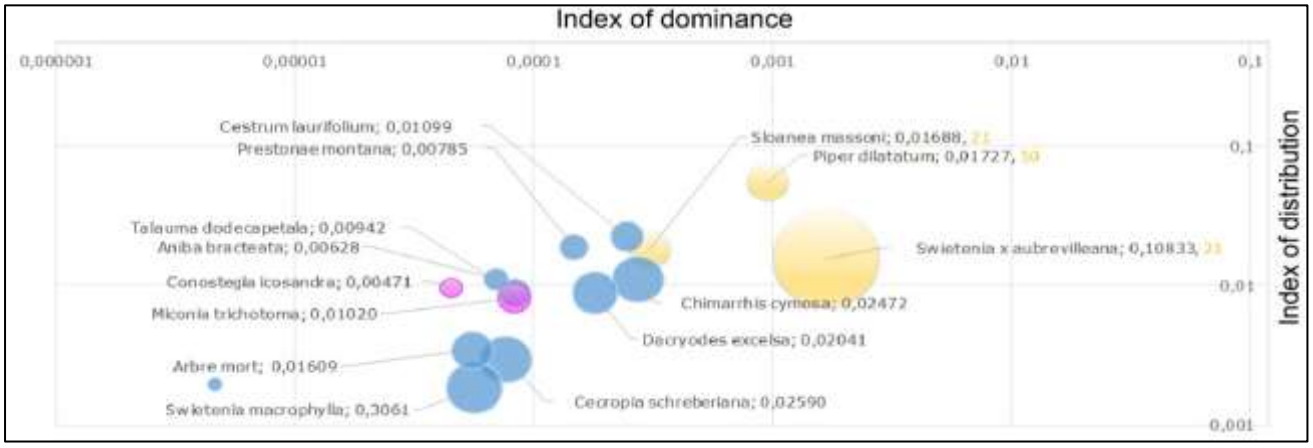

Figure 16: Representation of the dominant floral cortege- La Richer 2 Transect. The area of the circles is proportional to the basal area of the species (value in m2 indicated in the legend). The number of individuals of the species of the dominant cortege is in yellow.

Talauma dodecapetala, Tapura latifolia, Sterculia caribea, Prestonae montana and *Tovomita plumieri* are also present in this floristic cortege. These species are described mainly in the hygrophilous forests and in the upper horizon of the mesophilous forest. [9, 21; 8].These species are young in this station and can reach more than 20m. They form the upper strata of the formations of the final successional stages of the upper stage [21].We also note the presence of species

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associated with the secondary successional stages of the upper stage such as *Aniba bracteata, Cyathea arborea, Inga laurina, Psychotria mapourioides* and *Psychotria berteriana* [21].

Three species of Melastomataceae are present at this transect, *Conostegia icosandra* (quadrats 1, 2, 4, 8 and 9), *Clidemia umbrosa* (quadrats 1 and 2) and *Miconia trichotoma* (1, 2, 3, 4 and 9).

In quadrat 1, the ligneous individuals over 8m represent only 15% of the individuals. The basal areas of the dead trees account for about 22% of the biomass of the quadrat. We note the presence in this quadrat of *Cecropia schreberiana, Piper dilatatum, Besleria luthea* and *Clematis dioica*.

Trees larger than 8m represent 25% of the ligneous population of quadrat 2. The mahoganies (*Swietenia macrophylla* and *Swietenia x aubrevilleana*) with a height of 18 to 40m form the upper arborescent stratum. We note the presence in this quadrat of *Heliconia caribea* and *Piper dilatatum*.

Quadrat 3 has an upper stratum consisting mainly of mahoganies (*Swietenia macrophylla* and *Swietenia x aubrevilleana*) with a height of 15 to 45m. Only 35% of the ligneous individuals measure more than 8m. Quadrat 4 consists of 32% tree. *Cestrum laurifolium* and *Piper dilatatum* represent 25% of the ligneous individuals recorded.

Trees represent only 9.3% of the recorded ligneous individuals of quadrat 8. *Piper dilatatum, Cecropia schreberiana* and *Cestrum laurifolium* correspond to 53% of ligneous individuals over 1.3m high. Ligneous individuals over 8m represent 30% of the individuals in the quadrat. *Swietenia x aubrevilleanas* of 45 to 37m form the upper stratum. We note the presence across quadrat 8 of a dead tree, of *Piper dilatatum* and *of Cestrum laurifolium. Clematis dioica*, inventoried in quadrats 1 and 8, is a species affinis of shady gullies [9].

Discussion

A. Dry bioclimate stations

a.Vauclin Carrière 5

The dominant species belong to the upper and lower strata of the formations of the secondary successional stages of the floristic potential of the lower vegetative stage. (Joseph, 2009). It is possible to think that this eco-unit is a late secondary sylvatic formation of evergreen seasonal tropical lower horizon and xeric forests. The only Melastomataceae present, *Conostegia calyptrata*, has very low ecological dominance in this transect. In the floristic cortege there are quadrats where it is associated with *A. martinicenis* and *C. martinicensis*, which are ruderal species, found mainly in open environments, as well as *P. fragrans* and *B .simarouba*, degraded lower horizon species [9, 21]. *C. Calyptrata* found in the quadrats testifies to biocenotic perturbations.

b.Vauclin Carrière 15

The floristic cortege and the distribution of the classes of height and diameter suggest that this eco-unit is a young structured presylvatic to sylvatic formation of tropical evergreen seasonal lower horizon and xeric facies forest. The floristic cortege combines on the one hand species of secondary stages of the middle stage *Chrysophyllum argenteum, Inga laurina, Simaba amara* and *Caesaria decandra, Ceiba pentandra* and on the other hand species such as *Aegiphila martinicensis, Pisonia fragrans, Capparis indica, Bursera simarouba* or *Erythroxylon havanense,* which are more representative of the secondary stages of the lower stage. [21].This allows us think that this eco-unit develops in an area where the topograpy conditions wetter biotopes with regard to the macroclimate (dry subhumid bioclimate). *C. schreberiana* and *C. sulcata* are species which are rather mesophilous and are associated with degraded areas and with secondary forest formations. [9, 21].

Their presence in combination with an anthropophyte species (*Mangifera indica*) which represents the largest biomass can be interpreted as the scar of a previous environmental degradation mainly associated with human activities. *C. calyptrata* is therefore associated with a perturbation in this station.

B. Wet subhumid bioclimate stations

a.Aca1_P.J.

The dominant species are unique to the middle stage of formation and are associated with species of secondary stages of floristic potential of the lower plant stage[21]. This eco-unit can therefore be considered as a late secondary sylvatic formation with some intra-stational heterogeneity linked to perturbations. We note high tree mortality. Quadrats 3 and 9 are composed of heliophilous species *(Bourreria succulenta, Myrcia fallax, Croton corilifolius, Bourreria succulenta* and *Pisonia fragrans*) and hemi-heliophilous species or hemi-sciaphilous characteristic of sylvatic gaps (*Ocotea coriaceae, Ocotea patens, Ocotea Cernua* and *Ixora ferrea*) [21]. Quadrat 3 would be located in the centre of a large gap extending from quadrat 1 to quadrat 6. Quadrat 9 is also the most perturbed area with a gap which extends from quadrat 7 to quadrat 9.

Quadrat 13 also appears to have undergone an earlier or less significant perturbance because hemi-sciaphilous species such as *Cassipourea guyanensis* were inventoried. The sylvatic gaps observed appear to be mainly related to samplings and human activity. *Conostegia calyptrata* therefore appears to be a competitive species in perturbed areas.

b.Morne GARDIER1_J.Ph

M. bidentata is a species characteristic of the climax formations of the mesophilous forest [19,21]. *Pimenta racemosa* is a species of the final successional stages of the lower stage [21]. *Guarea glabra* is a hemi-sciaphilous species and

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indicative of mesophilous mesological conditions. [21]. The presence of *Manilkara bidentata Pouteria semecarpifolia, Brosimum alicastrum, Chrysophyllum argenteum, Coccoloba swartzii* and *Maytenus laevigata* suggests that there is installation in this formation of the first individuals that shape the architecture of a final stage sylvatic formation. This eco-unit would belong to a tropical evergreen forest typical of the lower horizon. The presence of *Pimenta racemosa,* a species characteristic of the final stages of the formations of the dry subhumid bioclimate indicates that this station is located at the lower horizon. *Bursera simarouba*, a heliophilous species). In the population of individuals under 8m, one finds hemisciaphilous species (*Bursera simarouba, Anthirhea coriacea*) as well as heliosciaphilous species [19, 21] such as *Pouteria semecarpifolia, Manilkara bidentata* and *Brosimum alicastrum.*

The characteristics of the population indicate this would be a late secondary to pre-climax sylvatic formation within which there are gaps. The size and the organisation of the regenerations within these gaps are different.

In quadrants 8, 9 and 10 there are forest environment gap species (*Guazuma ulmifolia, Chrysophyllum argenteum, Eugenia pseudopsidium*) and secondary heliophilous species (*Eugenia monticola, Croton corylifolius, Myrciaria floribunda*) [21] . These associations would indicate that at the level of these quadrats, the transect crosses a gap of a significant size colonised only by young individuals. The organisation of the vegetation in this zone indicates that this is a gap recolonised by heliophilous species. Under the cover of these heliophilous species, secondary stages species of the middle stage are being established (*Pisonia fragrans, Daphnopsis americana*), but also the regenerations of final stage species of the middle stage the seeds of which are present in the adjacent quadrats.

Quadrats 3, 4 and 6 are located in an area with less substantial stratification than that of the two adjacent quadrats. This organisation may be indicative of less significant or older perturbations.

The distribution of the Melastomataceae across this station indicates that they are associated with areas which have undergone perturbations. *Conostegia calyptrata* is a competitive species in perturbed areas. *Conostegia calyptrata* would therefore also be competitive around the edges of sylvatic gaps.

C. Wet bioclimate stations

a.Laricher1

The floristic cortege recorded indicates that this transect is located in a tropical submontane rainforest. It is a secondary (F.S.S) to late secondary (F.S.S.T) sylvatic formation.

D. excelsa, Pouteria multiflora and *Pouteria pallida* are characteristic species of the climax formations of the hygrophilous formations of the middle and upper stages [21] . *S. mahagony* is an introduced species, planted in this area as part of a silvicultural project. Under the cover of this plantation, indigenous species characteristic of climax formations are developing [19, 21, 25].

Significant variations in basal area are found across this station. Herbaceous undergrowth species such as *H. caribeae* are very common in large scale perturbations [29].The presence of this species of undergrowth [9, 21], of regeneration of *Piper dilatatum* and the biodemographical data of this quadrat suggest that this quadrat is strongly influenced by an intra-forest perturbation. This heterogeneity can often be related to the presence of dead trees and intra-forest perturbation related to windthrows and the associated windfalls. The distribution of the different species within this transect indicates that *Miconia trichotoma* settles in the most open areas of the forest gaps. The conditions in which the individuals of the species *Conostegia icosandra* and *Clidemia umbrosa* are found suggest that they are species with a more sciaphilous character and which will therefore be found instead around the edges of intra-forest gaps.

b.Laricher2

The data from the survey would indicate that the transect is in a tropical submontane rainforest. We note the installation of climax species under the cover of the *S. mahagoni*. It may therefore be thought to be a late secondary formation. A gully is present at the transect. It constitutes a perturbation responsible for the low biomass present in quadrat 5.

These data suggest that while *Miconia trichotoma* appears to be present in areas where the forest cover is structured, *Conostegia icosandra* and *Clidemia umbrosa* appear to have a secondary heliophilous sylvatic gap temperament.

Conclusion

The first inventories and the field observations confirm the indications found in the floras. They also make it possible to posit some tendencies regarding the temperament of the Melastomataceae recorded. Representatives of this family are more abundant in wet and hyper-humid bioclimates. Some species such as *Miconia mirabilis* and *Conostegia icosandra* have been observed mainly at the edges and at forest roads. *Conostegia calyptrata* and *Conostegia icosandra* seem to present a temperament of heliophilous species of the sylvatic gaps. *Clidemia umbrosa* would also be competitive in the smaller-scale perturbations related to small windthrows or to the route of a path. *Miconia trichotoma* appears to have a more forestal character with an affinity for formations with poorly evolved stratification.

All the Melastomataceae of the studied stations have a low index of dominance as well as of distribution. These species show an aggregate distribution and a low competitiveness compared to the other species of the dominant floristic cortege. They thus represent a small proportion of the biomass of these eco-units.

Given the possible affinity of representatives of the family for perturbed environments, it seems essential to better characterise the organisation and the plant communities of sylvatic gaps but also of the edges of woodlands. The approach chosen in this study is based on an analysis of the biodemography of this population and using the known

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ecological profiles of some species as an indicator. By increasing the number of surveys, exploratory analyses could be used to refine the chorology and ecological profiles of the Melastomataceae present at these stations.

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Appendix

Appendix 1: Floristic cortege station Vauclin Carrière 5

Species	Family	Total basal area	Absolute frequency	Relative frequecy	Number of individuals	Density	Desnsity index	Dominance index
Pisonia fragrans	Nyctaginaceae	2.43E-01	5	1	132	2.64E-01	2.64E-01	6.41E-02
Tabebuia heterophylla	Bignonaceae	5.83E-01	3	0.6	21	4.20E-02	2.52E-02	1.47E-02
Citharexylum spinosum	Verbenaceae	1.93E-01	4	0.8	19	3.80E-02	3.04E-02	5.88E-03
Cordia sulcata	Boraginaceae	1.61E-01	4	0.8	18	3.60E-02	2.88E-02	4.65E-03
Erythroxylon havanense	Erythroxylaceae	7.21E-02	5	1	27	5.40E-02	5.40E-02	3.89E-03
Ceiba pentandra	Bombacaceae	1.56E-01	4	0.8	10	2.00E-02	1.60E-02	2.49E-03
Simarouba amara	Simaroubaceae	3.04E-02	5	1	39	7.80E-02	7.80E-02	2.37E-03
Inga laurina	Mimosaceae	3.78E-02	4	0.8	25	5.00E-02	4.00E-02	1.51E-03
Bursera simaruba	Burseraceae	3.24E-02	5	1	15	3.00E-02	3.00E-02	9.71E-04
Cupania americana	Sapindaceae	8.34E-03	5	1	38	7.60E-02	7.60E-02	6.34E-04
Casearia decandra	Flacoutiaceae	2.21E-02	4	0.8	13	2.60E-02	2.08E-02	4.59E-04
Ocotea coriacea	Lauraceae	6.38E-03	4	0.8	16	3.20E-02	2.56E-02	1.63E-04
Triphasia trifolia	Rutaceae	4.42E-03	4	0.8	17	3.40E-02	2.72E-02	1.20E-04
Tabernaemontana citrifolia	Apocynaceae	7.36E-03	3	0.6	12	2.40E-02	1.44E-02	1.06E-04
Zanthoxylum monophyllum	Rutaceae	1.91E-02	2	0.4	6	1.20E-02	4.80E-03	9.18E-05
Dead tree		3.34E-02	1	0.2	3	6.00E-03	1.20E-03	4.00E-05
Conostegia calyptrata	Melastomataceae	4.91E-03	2	0.4	10	2.00E-02	8.00E-03	3.93E-05
Psychotria nervosa	Rubiaceae	2.45E-03	5	1	8	1.60E-02	1.60E-02	3.93E-05
Cordia martinicensis	Boraginaceae	4.42E-03	2	0.4	6	1.20E-02	4.80E-03	2.12E-05
Chrysophyllum argenteum	Sapotaceae	2.45E-03	4	0.8	5	1.00E-02	8.00E-03	1.96E-05
Paullinia cururu	Sapindaceae	1.96E-03	4	0.8	6	1.20E-02	9.60E-03	1.88E-05
Croton bixoides	Euphorbiaceae	2.45E-03	1	0.2	2	4.00E-03	8.00E-04	1.96E-06
Aegiphila martinicensis	Verbenaceae	9.81E-04	2	0.4	2	4.00E-03	1.60E-03	1.57E-06
Pisonia aculeata	Nyctaginaceae	9.81E-04	2	0.4	2	4.00E-03	1.60E-03	1.57E-06
Bourreria succulenta	Boraginaceae	9.81E-04	1	0.2	2	4.00E-03	8.00E-04	7.85E-07
Randia aculeata	Rubiaceae	1.96E-03	1	0.2	1	2.00E-03	4.00E-04	7.85E-07
Annona muricata	Annonaceae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07

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Capparis baducca	Capparaceae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07
Chiococca alba0	Rubicaeae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07
Eugenia ligustrina	Myrtaceae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07
Lonchocarpus punctatus	Fabaceae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07
Morinda citrifolia	Rubiaceae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07
Pavonia spinifex	Malvaceae	4.91E-04	1	0.2	1	2.00E-03	4.00E-04	1.96E-07
Abrus precatorius	Fabaceae	0	1	0.2	1	2.00E-03	4.00E-04	0
Acacia tenuifolia	Mimosaceae	0	1	0.2	1	2.00E-03	4.00E-04	0
Bambusa multiplex	Poaceae	0	4	0.8	4	8.00E-03	6.40E-03	0
Capparis flexuosa	Capparaceae	0	2	0.4	2	4.00E-03	1.60E-03	0
Coccothrinax barbadensis	Arecaceae	0	2	0.4	2	4.00E-03	1.60E-03	0
Heteropteris purpurea	Malpighiaceae	0	2	0.4	2	4.00E-03	1.60E-03	0
Myrcia citrifolia	Myrtaceae	0	1	0.2	1	2.00E-03	4.00E-04	0
Phoradendron trinervium	Viscaceae	0	1	0.2	1	2.00E-03	4.00E-04	0
Pithecellobium unguis-cati	Mimosaceae	0	1	0.2	1	2.00E-03	4.00E-04	0
Tragia volubilis	Euphobiaceae	0	2	0.4	2	4.00E-03	1.60E-03	0
Urvillea ulmacea	Sapindaceae	0	1	0.2	1	2.00E-03	4.00E-04	0
Zanthoxylum caribaeum	Rutaceae	0	1	0.2	1	2.00E-03	4.00E-04	0

Appendix 2: Floristic cortege station Vauclin Carrière 15

Species	Families	Basal area per species	Absolute frequency	Relative frequency	Total no. of individuals	Density	Density index	Dominance index
Cordia sulcata	Boraginaceae	9.10E-01	10	1	127	1.27E-01	1.27E-01	1.16E-01
Mangifera indica	Anacardiaceae	9.10E-01	10	1	36	3.60E-02	3.60E-02	3.27E-02
Inga laurina	Mimosaceae	1.06E-01	10	1	80	8.00E-02	8.00E-02	8.48E-03
Cecropia schreberiana	Moraceae	4.99E-01	5	0.5	14	1.40E-02	7.00E-03	3.49E-03
Pisonia fragrans	Nyctaginaceae	4.07E-02	10	1	41	4.10E-02	4.10E-02	1.67E-03
Psychotria microdon	Rubiaceae	2.60E-02	8	0.8	55	5.50E-02	4.40E-02	1.14E-03
Chrysophyllum argenteum	Sapotaceae	2.16E-02	9	0.9	52	5.20E-02	4.68E-02	1.01E-03
Simarouba amara	Simaroubaceae	7.56E-02	6	0.6	12	1.20E-02	7.20E-03	5.44E-04
Ocotea coriacea	Lauraceae	1.57E-02	9	0.9	33	3.30E-02	2.97E-02	4.66E-04
Pisonia aculeata	Nyctaginaceae	1.86E-02	10	1	25	2.50E-02	2.50E-02	4.66E-04
Piper amalago	Piperaceae	1.52E-02	6	0.6	35	3.50E-02	2.10E-02	3.19E-04
Conostegia calyptrata	Melastomataceae	1.86E-02	3	0.3	38	3.80E-02	1.14E-02	2.13E-04
Capparis baducca	Capparaceae	1.03E-02	8	0.8	25	2.50E-02	2.00E-02	2.06E-04
Citharexylum spinosum	Verbenaceae	2.40E-02	6	0.6	13	1.30E-02	7.80E-03	1.88E-04
Erythroxylon havanense	Erythroxylaceae	2.65E-02	6	0.6	11	1.10E-02	6.60E-03	1.75E-04
Dead tree		3.83E-02	5	0.5	9	9.00E-03	4.50E-03	1.72E-04
Bourreria succulenta	Boraginaceae	7.36E-03	9	0.9	18	1.80E-02	1.62E-02	1.19E-04
Casearia decandra	Flacourtiaceae	8.83E-03	8	0.8	10	1.00E-02	8.00E-03	7.07E-05
Macfadyena unguis-cati	Bignoniaceae	9.81E-03	6	0.6	11	1.10E-02	6.60E-03	6.48E-05
Morinda citrifolia	Rubiaceae	8.83E-03	5	0.5	12	1.20E-02	6.00E-03	5.30E-05
Tabernaemontana citrifolia	Apocynaceae	9.81E-03	5	0.5	8	8.00E-03	4.00E-03	3.93E-05

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Randia formosa	Rubiaceae	6.38E-03	5	0.5	12	1.20E-02	6.00E-03	3.83E-05
Odontonema nitidum	Acanthaceae	7.36E-03	3	0.3	17	1.70E-02	5.10E-03	3.75E-05
Cordia collococca	Boraginaceae	7.85E-03	4	0.4	10	1.00E-02	4.00E-03	3.14E-05
Guazuma ulmifolia	Sterculiaceae	5.89E-03	4	0.4	13	1.30E-02	5.20E-03	3.06E-05
Bursera simaruba	Burseraceae	4.91E-03	5	0.5	9	9.00E-03	4.50E-03	2.21E-05
Cupania americana	Sapindaceae	3.43E-03	6	0.6	8	8.00E-03	4.80E-03	1.65E-05
Aegiphila martinicensis	Verbenaceae	3.93E-03	4	0.4	10	1.00E-02	4.00E-03	1.57E-05
Piper dilatatum	Piperaceae	5.40E-03	2	0.2	12	1.20E-02	2.40E-03	1.30E-05
Annona muricata	Annonaceae	2.94E-03	5	0.5	8	8.00E-03	4.00E-03	1.18E-05
Zanthoxylum monophyllum	Rutaceae	3.93E-03	3	0.3	10	1.00E-02	3.00E-03	1.18E-05
Ceiba pentandra	Bombacaceae	1.82E-02	2	0.2	2	2.00E-03	4.00E-04	7.26E-06
Triphasia trifolia	Rutaceae	9.81E-04	6	0.6	8	8.00E-03	4.80E-03	4.71E-06
Capparis indica	Capparaceae	9.81E-04	6	0.6	7	7.00E-03	4.20E-03	4.12E-06
Chiococca alba	Rubiaceae	2.45E-03	2	0.2	5	5.00E-03	1.00E-03	2.45E-06
Trichostigma octandrum	Phytolaccaceae	1.47E-03	3	0.3	4	4.00E-03	1.20E-03	1.77E-06
Gonzalagunia spicata	Rubiaceae	4.91E-04	5	0.5	6	6.00E-03	3.00E-03	1.47E-06
Capparis flexuosa	Capparaceae	4.91E-04	5	0.5	5	5.00E-03	2.50E-03	1.23E-06
Croton coryfolius	Euphorbiaceae	9.81E-04	1	0.1	2	2.00E-03	2.00E-04	1.96E-07
Schaefferia frutescens	Celastraceae	9.81E-04	1	0.1	2	2.00E-03	2.00E-04	1.96E-07
Bambusa multiplex	Poaceae	0.00E+00	10	1	10	1.00E-02	1.00E-02	0
Paullinia cururu	Sapindaceae	0.00E+00	7	0.7	9	9.00E-03	6.30E-03	0
Heteropterys purpurea	Malpighiaceae	0.00E+00	6	0.6	7	7.00E-03	4.20E-03	0
Pharus latifolia	Poaceae	0.00E+00	5	0.5	5	5.00E-03	2.50E-03	0
Securidaca diversifolia	Polygalaceae	0.00E+00	5	0.5	5	5.00E-03	2.50E-03	0
Acacia retusa	Mimosaceae	0.00E+00	3	0.3	3	3.00E-03	9.00E-04	0
Psychotria nervosa	Rubiaceae	0.00E+00	3	0.3	3	3.00E-03	9.00E-04	0
Urvillea ulmacea	Sapindaceae	0.00E+00	3	0.3	3	3.00E-03	9.00E-04	0
Melicoccus bijugatus	Sapindaceae	0.00E+00	4	0.4	1	1.00E-03	4.00E-04	0
Abrus precatorius	Fabaceae	0.00E+00	2	0.2	2	2.00E-03	4.00E-04	0
Cissampelos pareira	Menispermaceae	0.00E+00	2	0.2	2	2.00E-03	4.00E-04	0
Tabebuia heterophylla	Bignoniaceae	0.00E+00	2	0.2	2	2.00E-03	4.00E-04	0
Acacia tenuifolia	Mimosaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Caesalpinia bonduc	Caesalpiniaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Commelina diffusa	Commelinaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Inga ingoides	Mimosaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Lonchocarpus punctatus	Fabaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Momordica charantia	Curcurbitaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Morisonia americana	Capparaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Passiflora rubra	Passifloraceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Passiflora suberosa	Passifloraceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0
Priva lappulacea	Verbenaceae	0.00E+00	1	0.1	1	1.00E-03	1.00E-04	0

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Appendix 3: Floristic cortege station ACA1_Ph.J

Species	Family	Basal area	Absolute frequency	Relative frequency	No. of individuals	Density	Density index	Dominance index
Arbre mort		7.70E-01	15	1.0	31	4.13E-02	4.13E-02	3.18E-02
Cassipourea guianensis	Rhizophoraceae	1.73E-01	15	1.0	61	8.13E-02	8.13E-02	1.41E-02
Pimenta racemosa	Myrtaceae	3.56E-01	9	0.6	15	2.00E-02	1.20E-02	4.28E-03
Inga laurina	Mimosaceae	4.93E-01	5	0.3	17	2.27E-02	7.56E-03	3.72E-03
Pisonia fragrans	Nyctagynaceae	1.73E-01	12	0.8	19	2.53E-02	2.03E-02	3.51E-03
Coccoloba swartzii	Polygonaceae	3.26E-01	6	0.4	17	2.27E-02	9.07E-03	2.95E-03
Eugenia pseudopsidium	Myrtaceae	1.17E-01	12	0.8	23	3.07E-02	2.45E-02	2.88E-03
Ocotea eggersiania	Lauraceae	5.68E-01	10	0.7	3	4.00E-03	2.67E-03	1.52E-03
Myrcia fallax	Myrtaceae	2.47E-01	15	1.0	2	2.67E-03	2.67E-03	6.60E-04
Bourreria succulenta	Boragniaceae	7.93E-02	8	0.5	11	1.47E-02	7.82E-03	6.20E-04
Ocotea patens	Lauraceae	2.34E-02	10	0.7	29	3.87E-02	2.58E-02	6.03E-04
Eugenia monticola	Myrtaceae	2.66E-02	8	0.5	15	2.00E-02	1.07E-02	2.83E-04
Guarea glabra	Meliaceae	1.90E-02	9	0.6	18	2.40E-02	1.44E-02	2.73E-04
Ilex nitida	Aquifoliaceae	1.18E-01	4	0.3	6	8.00E-03	2.13E-03	2.51E-04
Conostegia calyptrata	Melastomataceae	2.09E-02	8	0.5	16	2.13E-02	1.14E-02	2.37E-04
Ocotea cernua	Lauraceae	6.10E-02	13	0.9	3	4.00E-03	3.47E-03	2.12E-04
Lonchocarpus heptaphyllus	Fabaceae	1.02E-01	3	0.2	6	8.00E-03	1.60E-03	1.63E-04
Buchenavia tetraphylla	Combretaceae	1.96E-01	3	0.2	3	4.00E-03	8.00E-04	1.57E-04
Picramnia pentandra	Simaroubaceae	1.25E-02	9	0.6	12	1.60E-02	9.60E-03	1.20E-04
Exothea paniculata	Sapindaceae	4.14E-02	5	0.3	6	8.00E-03	2.67E-03	1.10E-04
Cut tree		2.75E-02	5	0.3	8	1.07E-02	3.56E-03	9.77E-05
Myrciaria floribunda	Myrtaceae	3.38E-03	3	0.2	99	1.32E-01	2.64E-02	8.91E-05
Chrysophyllum argenteum	Sapotaceae	1.64E-02	5	0.3	8	1.07E-02	3.56E-03	5.82E-05
Maytenus laevigata	Lauraceae	1.77E-02	3	0.2	9	1.20E-02	2.40E-03	4.24E-05
Bursera simaruba	Burseraceae	6.67E-02	2	0.1	2	2.67E-03	3.56E-04	2.37E-05
Coccoloba pubescens	Polygonaceae	1.99E-02	2	0.1	6	8.00E-03	1.07E-03	2.13E-05
Simaruba amara	Simaroubaceae	5.10E-02	4	0.3	1	1.33E-03	3.56E-04	1.81E-05
Mimosa ceratonia	Mimosaceae	1.05E-02	4	0.3	4	5.33E-03	1.42E-03	1.50E-05
Tabernaemontana citrifolia	Apocynaceae	2.98E-02	5	0.3	1	1.33E-03	4.44E-04	1.32E-05
Daphnopsis americana	Thymelaceae	4.20E-03	5	0.3	7	9.33E-03	3.11E-03	1.31E-05
Chiococca alba	Rubiaceae	2.98E-03	6	0.4	8	1.07E-02	4.27E-03	1.27E-05
Palicourea crocea	Rubiaceae	5.89E-03	6	0.4	4	5.33E-03	2.13E-03	1.26E-05
Chionanthus compacta	Oleaceae	3.34E-02	1	0.1	3	4.00E-03	2.67E-04	8.90E-06
Petrea kohautiana	Verbenaceae	3.57E-03	10	0.7	2	2.67E-03	1.78E-03	6.35E-06
Croton corylifolius	Euphorbiaceae	4.10E-03	4	0.3	4	5.33E-03	1.42E-03	5.83E-06
Macfadyena inguis-cati	Bignoniaceae	5.89E-03	9	0.6	1	1.33E-03	8.00E-04	4.71E-06
Ormosia monosperma	Fabaceae	3.16E-03	4	0.3	3	4.00E-03	1.07E-03	3.37E-06
Lonchocarpus violaceus	Fabaceae	7.85E-03	1	0.1	4	5.33E-03	3.56E-04	2.79E-06
Exostema sanctae-luciae	Rubiaceae	3.14E-02	1	0.1	1	1.33E-03	8.89E-05	2.79E-06
Ocotea coriacea	Lauraceae	3.53E-04	2	0.1	32	4.27E-02	5.69E-03	2.01E-06

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Licaria sericea	Lauraceae	2.43E-03	7	0.5	1	1.33E-03	6.22E-04	1.51E-06
Eugenia confusa	Myrtaceae	3.93E-03	2	0.1	2	2.67E-03	3.56E-04	1.40E-06
Ixora ferrea	Rubiaceae	4.91E-04	5	0.3	5	6.67E-03	2.22E-03	1.09E-06
Acacia retusa	Mimosaceae	4.91E-04	4	0.3	4	5.33E-03	1.42E-03	6.98E-07
Myrcia citrifolia	Myrtaceae	3.14E-04	2	0.1	5	6.67E-03	8.89E-04	2.79E-07
Clusia alba	Clusiaceae	1.96E-03	1	0.1	1	1.33E-03	8.89E-05	1.74E-07
Zanthoxylum punctatum	Rutaceae	1.96E-03	1	0.1	1	1.33E-03	8.89E-05	1.74E-07
Eugenia tapacumensis	Myrtaceae	1.77E-04	5	0.3	2	2.67E-03	8.89E-04	1.57E-07
Swietenia macrophylla	Meliaceae	3.14E-04	1	0.1	4	5.33E-03	3.56E-04	1.12E-07
Clusia major	Clusiaceae	7.07E-04	1	0.1	1	1.33E-03	8.89E-05	6.28E-08

Appendix 4: Floristic cortege station Morne_Gardier1_Ph.J.

Species	**Family**	**Total basal area per species**	**Absolute frequency**	**Relative frequency**	**Total number of individuals**	**Density**	**Density index**	**Dominance index**
Plinia pinnata	Myrtaceae	7.942E-02	10	1	133	2.66E-01	2.66E-01	0.021126352
Pimenta racemosa	Myrtaceae	3.059E-01	8	0.8	26	5.20E-02	4.16E-02	0.012725227
Manilkara bidentata	Sapotaceae	3.446E-01	6	0.6	23	4.60E-02	2.76E-02	0.009510832
Dead tree		1.046E-01	10	1	18	3.60E-02	3.60E-02	0.003765645
Croton corylifolius	Euphorbiaceae	8.050E-02	7	0.7	27	5.40E-02	3.78E-02	0.003042966
Pisonia fragrans	Nyctagynaceae	8.519E-02	9	0.9	17	3.40E-02	3.06E-02	0.002606879
Exothea paniculata	Sapindaceae	2.270E-01	5	0.5	9	1.80E-02	9.00E-03	0.002042668
Inga laurina	Mimosaceae	1.478E-01	6	0.6	8	1.60E-02	9.60E-03	0.001419217
Pilocarpus racemosus	Rutaceae	2.488E-02	8	0.8	33	6.60E-02	5.28E-02	0.001313902
Pouteria semecarpifolia	Sapotaceae	2.364E-01	4	0.4	6	1.20E-02	4.80E-03	0.001134639
Daphnopsis americana	Thymelaceae	9.167E-02	6	0.6	10	2.00E-02	1.20E-02	0.001100021
Anthirhea coriacea	Rubiaceae	8.421E-02	4	0.4	14	2.80E-02	1.12E-02	0.000943162
Guettarda scabra	Rubiaceae	6.716E-02	5	0.5	13	2.60E-02	1.30E-02	0.000873038
Ocotea patens	Lauraceae	2.887E-02	7	0.7	20	4.00E-02	2.80E-02	0.000808315
Byrsonima spicata	Malpighiaceae	2.009E-01	4	0.4	4	8.00E-03	3.20E-03	0.000642884
Chionanthus compacta	Oleaceae	2.459E-02	8	0.8	16	3.20E-02	2.56E-02	0.000629507
Ormosia monosperma	Fabaceae	1.660E-01	2	0.2	6	1.20E-02	2.40E-03	0.000398466
Guazuma ulmifolia	Meliaceae	1.388E-01	2	0.2	6	1.20E-02	2.40E-03	0.000333138
Conostegia calyptrata	Melastomataceae	1.978E-02	6	0.6	11	2.20E-02	1.32E-02	0.000261122
Guarea glabra	Meliaceae	1.535E-02	5	0.5	17	3.40E-02	1.70E-02	0.000260895
Chrysophyllum argenteum	Sapotaceae	8.400E-03	7	0.7	18	3.60E-02	2.52E-02	0.000211667
Coccoloba pubescens	Polygonaceae	1.183E-01	1	0.1	6	1.20E-02	1.20E-03	0.000141959
Coccoloba swartzii	Polygonaceae	3.156E-02	4	0.4	5	1.00E-02	4.00E-03	0.000126228
Eugenia monticola	Myrtaceae	1.458E-02	6	0.6	7	1.40E-02	8.40E-03	0.000122484
Eugenia pseudopsidium	Myrtaceae	1.054E-02	5	0.5	9	1.80E-02	9.00E-03	9.48476E-05
Eugenia gregii	Myrtaceae	6.751E-03	6	0.6	10	2.00E-02	1.20E-02	0.000081012
Ficus nymphaeifolia	Moraceae	2.826E-01	1	0.1	1	2.00E-03	2.00E-04	0.00005652
Calyptranthes elegans	Myrtaceae	9.852E-03	3	0.3	8	1.60E-02	4.80E-03	4.72884E-05

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Faramea occidentalis	Rubiaceae	6.359E-03	5	0.5	7	1.40E-02	7.00E-03	4.45095E-05
Acacia tenuifolia	Mimosaceae	8.596E-03	3	0.3	5	1.00E-02	3.00E-03	2.57873E-05
Picramnia pentandra	Simaroubaceae	3.925E-03	4	0.4	7	1.40E-02	5.60E-03	0.00002198
Bursera simaruba	Burseraceae	1.399E-02	2	0.2	3	6.00E-03	1.20E-03	1.67912E-05
Bourreria succulenta	Boraginaceae	6.535E-03	3	0.3	4	8.00E-03	2.40E-03	1.56843E-05
Ocotea coriacea	Lauraceae	5.652E-03	2	0.2	4	8.00E-03	1.60E-03	9.0432E-06
Zanthoxylum caribaeum	Rutaceae	4.522E-02	1	0.1	1	2.00E-03	2.00E-04	9.0432E-06
Brosimum alicastrum	Moraceae	3.238E-03	2	0.2	3	6.00E-03	1.20E-03	3.88575E-06
Ficus citrifolia	Moraceae	9.499E-03	1	0.1	1	2.00E-03	2.00E-04	1.8997E-06
Casearia decandra	Flacourtiaceae	2.277E-03	2	0.2	2	4.00E-03	8.00E-04	1.8212E-06
Maytenus laevigata	Lauraceae	9.420E-04	3	0.3	3	6.00E-03	1.80E-03	1.6956E-06
Mangifera indica	Anacardiaceae	3.317E-03	1	0.1	1	2.00E-03	2.00E-04	6.63325E-07
Eugenia hodgeri	Myrtaceae	1.021E-03	1	0.1	2	4.00E-03	4.00E-04	4.082E-07
Myrcia citrifolia	Myrtaceae	1.021E-03	1	0.1	2	4.00E-03	4.00E-04	4.082E-07
Smilax guianensis	Smilacaceae	4.906E-04	2	0.2	2	4.00E-03	8.00E-04	3.925E-07
Allophyllus racemosus	Sapindaceae	1.256E-03	1	0.1	1	2.00E-03	2.00E-04	2.512E-07
Tabernaemontana citrifolia	Apocynaceae	9.616E-04	1	0.1	1	2.00E-03	2.00E-04	1.92325E-07
Myrciaria floribunda	Myrtaceae	7.065E-04	1	0.1	1	2.00E-03	2.00E-04	1.413E-07
Eugenia confusa	Myrtaceae	3.140E-04	1	0.1	1	2.00E-03	2.00E-04	6.28E-08
Ixora ferrea	Rubiaceae	3.140E-04	1	0.1	1	2.00E-03	2.00E-04	6.28E-08
Clusia major	Clusiaceae	0.000E+00	1	0.1	1	2.00E-03	2.00E-04	0
Guzmania lingulata	Bromeliaceae	0.000E+00	1	0.1	1	2.00E-03	2.00E-04	0
Odontonema nitidum	Acanthaceae	0.000E+00	3	0.3	3	6.00E-03	1.80E-03	0
Oreopanax capitatus	Araliaceae	0.000E+00	1	0.1	1	2.00E-03	2.00E-04	0
Petrea kohautiana	Verbenaceae	0.000E+00	2	0.2	2	4.00E-03	8.00E-04	0

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Appendix 5: Floristic cortege station Laricher 1

Species	Family	Total basal area per species	Absolute frequency	Relative frequency	Total no. of individuals	Density	Density index	Dominance index
Switenia mahagoni	Meliaceae	3.980E+00	7	0.875	21	0.02625	2.297E-02	9.143E-02
Dead tree		1.953E+00	6	0.75	19	0.02375	1.781E-02	3.478E-02
Tapura latifolia	Dichapetalaceae	1.570E-01	7	0.875	59	0.07375	6.453E-02	1.013E-02
Chimarrhis cymosa	Rubiaceae	3.812E-01	7	0.875	20	0.025	2.188E-02	8.339E-03
Sloanea dentata	Elaeocarpaceae	1.516E-01	8	1	25	0.03125	3.125E-02	4.738E-03
Prestoea montana	Arecaceae	1.948E-01	7	0.875	12	0.015	1.313E-02	2.556E-03
Aniba bracteata	Lauraceae	3.680E-02	8	1	30	0.0375	3.750E-02	1.380E-03
Pouteria multiflora	Sapotaceae	2.453E-02	5	0.625	14	0.0175	1.094E-02	2.683E-04
Pouteria pallida	Sapotaceae	1.325E-02	6	0.75	19	0.02375	1.781E-02	2.360E-04
Cyathea tenera	Cyatheaceae	3.974E-02	3	0.375	6	0.0075	2.813E-03	1.118E-04
Piper dilatatum	Piperaceae	5.888E-03	6	0.75	11	0.01375	1.031E-02	6.071E-05
Ocotea leucoxylon	Lauraceae	1.079E-02	4	0.5	7	0.00875	4.375E-03	4.722E-05
Palicourea crocea	Rubiaceae	5.888E-03	4	0.5	9	0.01125	5.625E-03	3.312E-05
Trichilia pallida	Meliaceae	3.925E-03	6	0.75	7	0.00875	6.563E-03	2.576E-05
Cyathea arborea	Cyatheaceae	4.710E-02	1	0.125	3	0.00375	4.688E-04	2.208E-05
Clidemia umbrosa	Melastomataceae	5.397E-03	3	0.375	8	0.01	3.750E-03	2.024E-05
Talauma dodecapetala	Magniolaceae	1.864E-02	2	0.25	3	0.00375	9.375E-04	1.748E-05
Marcgravia umbellata	Marcgraviaceae	4.416E-03	5	0.625	3	0.00375	2.344E-03	1.035E-05
Pouteria semecarpifolia	Sapotaceae	2.453E-03	3	0.375	5	0.00625	2.344E-03	5.750E-06
Myrcia fallax	Myrtaceae	1.963E-03	3	0.375	4	0.005	1.875E-03	3.680E-06
Cyathea muricata	Cyatheaceae	1.766E-02	1	0.125	1	0.00125	1.563E-04	2.760E-06
Asplundia rigida	Cyclanthaceae	9.813E-04	4	0.5	2	0.0025	1.250E-03	1.227E-06
Conostegia icosandra	Melastomataceae	9.813E-04	1	0.125	2	0.0025	3.125E-04	3.066E-07
Piper amalago	Piperaceae	9.813E-04	1	0.125	2	0.0025	3.125E-04	3.066E-07
Asplundia insignis	Cyclanthaceae	4.906E-04	3	0.375	1	0.00125	4.688E-04	2.300E-07
Dacryodes excelsa	Burseraceae	4.906E-04	2	0.25	1	0.00125	3.125E-04	1.533E-07
Guarea kunthiana	Meliaceae	4.906E-04	1	0.125	1	0.00125	1.563E-04	7.666E-08
Miconia trichotoma	Melastomataceae	4.906E-04	1	0.125	1	0.00125	1.563E-04	7.666E-08
Guzmania lingulata	Bromeliaceae	0	3	0.375	2	0.0025	9.375E-04	0.000E+00
Clidemia hirta	Melastomataceae	0	1	0.125		0	0	0
Eugenia domingensis	Myrtaceae	0	2	0.25		0	0	0
Heliconia caribeae	Heliconiaceae	0	4	0.5		0	0	0
Ipomea phyllomega	Convolvulaceae	0	1	0.125		0	0	0
Ormosia monosperma	Fabaceae	0	1	0.125		0	0	0
Peperomia nigropunctata	Piperaceae	0	3	0.375		0	0	0
Peperomia rontundifolia	Piperaceae	0	3	0.375		0	0	0
Pharus latifolius	Poaceae	0	4	0.5		0	0	0
Psychotria uliginosa	Rubiaceae	0	2	0.25		0	0	0
Quararibea turbinata	Bombacaceae	0	1	0.125		0	0	0
Selaginella sp.		0	2	0.25		0	0	0

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Appendix 6: Floristic cortege station Laricher 2

Species	Family	Total basal area per species	Absolute frequency	Relative frequency	Total number of individuals	Density	Density index	Dominance index
Swietenia x aubrevilleana	Meliaceae	1.08E-01	6	6.67E-01	21	2.33E-02	1.56E-02	0.001685133
Piper dilatatum	Piperaceae	1.73E-02	9	1.00E+00	50	5.56E-02	5.56E-02	0.000959444
Sloanea massoni	Sterculiaceae	1.69E-02	7	7.78E-01	21	2.33E-02	1.81E-02	0.000306295
Chimarrhis cymosa	Rubiaceae	2.47E-02	5	5.56E-01	18	2.00E-02	1.11E-02	0.00027475
Cestrum laurifolium	Solanaceae	1.10E-02	7	7.78E-01	26	2.89E-02	2.25E-02	0.000246936
Dacryodes excelsa	Burseraceae	2.04E-02	6	6.67E-01	12	1.33E-02	8.89E-03	0.000181422
Prestonae montana	Arecaceae	7.85E-03	9	1.00E+00	17	1.89E-02	1.89E-02	0.000148278
Talauma dodecapetala	Magnioliceae	9.42E-03	6	6.67E-01	12	1.33E-02	8.89E-03	8.37333E-05
Miconia trichotoma	Melastomataceae	1.02E-02	6	6.67E-01	11	1.22E-02	8.15E-03	8.31519E-05
Cecropia schreberiana	Cecropiaceae	2.59E-02	3	3.33E-01	8	8.89E-03	2.96E-03	7.67556E-05
Aniba bracteata	Lauraceae	6.28E-03	5	5.56E-01	18	2.00E-02	1.11E-02	6.97778E-05
Swietenia macrophylla	Meliaceae	3.06E-02	3	3.33E-01	5	5.56E-03	1.85E-03	5.66944E-05
Dead tree		1.61E-02	4	4.44E-01	7	7.78E-03	3.46E-03	5.56284E-05
Conostegia icosandra	Melastomataceae	4.71E-03	6	6.67E-01	13	1.44E-02	9.63E-03	4.53556E-05
Palicoureae crocea	Rubiaceae	3.14E-03	6	6.67E-01	12	1.33E-02	8.89E-03	2.79111E-05
Cyathea arborea	Cyatheaceae	8.64E-03	4	4.44E-01	5	5.56E-03	2.47E-03	2.1321E-05
Cordia sulcata	Boraginaceae	1.18E-02	3	3.33E-01	3	3.33E-03	1.11E-03	1.30833E-05
Eugenia trinervia	Myrtaceae	3.53E-03	4	4.44E-01	7	7.78E-03	3.46E-03	1.22111E-05
Simarouba amara	Simaroubaceae	3.14E-03	4	4.44E-01	4	4.44E-03	1.98E-03	6.20247E-06
Clidemia umbrosa	Melastomataceae	2.36E-03	2	2.22E-01	8	8.89E-03	1.98E-03	4.65185E-06
Myrcia fallax	Myrtaceae	1.18E-03	4	4.44E-01	6	6.67E-03	2.96E-03	3.48889E-06
Psychotria berteriana	Rubiaceae	2.36E-03	3	3.33E-01	4	4.44E-03	1.48E-03	3.48889E-06
Asplundia rigida	Cyclanthaceae	3.93E-04	7	7.78E-01	9	1.00E-02	7.78E-03	3.05278E-06
Tapura latifolia	Dichapetalaceae	1.18E-03	3	3.33E-01	6	6.67E-03	2.22E-03	2.61667E-06
Picramnia pentandra	Simaroubaceae	2.36E-03	2	2.22E-01	4	4.44E-03	9.88E-04	2.32593E-06
Besleria luthea	Gesneriaceae	2.36E-03	1	1.11E-01	6	6.67E-03	7.41E-04	1.74444E-06
Pouteria pallida	Sapotaceae	1.18E-03	3	3.33E-01	3	3.33E-03	1.11E-03	1.30833E-06
Ocotea leucoxylon	Lauraceae	7.85E-04	2	2.22E-01	2	2.22E-03	4.94E-04	3.87654E-07
Xylostema martinicensis	Flacourtiaceae	3.93E-04	4	4.44E-01	2	2.22E-03	9.88E-04	3.87654E-07
Artocarpus altilis	Moraceae	1.18E-03	1	1.11E-01	2	2.22E-03	2.47E-04	2.90741E-07
Aiphanes minima	Arecaceae	1.57E-03	1	1.11E-01	1	1.11E-03	1.23E-04	1.93827E-07
Marila racemosa	Gesneriaceae	7.85E-04	1	1.11E-01	1	1.11E-03	1.23E-04	9.69136E-08
Pouteria semecarpefolia	Sapotaceae	7.85E-04	1	1.11E-01	1	1.11E-03	1.23E-04	9.69136E-08
Sarchorachis incurva	Gesneriaceae	3.93E-04	1	1.11E-01	2	2.22E-03	2.47E-04	9.69136E-08
Inga laurina	Fabaceae	3.93E-04	1	1.11E-01	1	1.11E-03	1.23E-04	4.84568E-08
Sterculia caribeae	Sterculiaceae	3.93E-04	1	1.11E-01	1	1.11E-03	1.23E-04	4.84568E-08
Adiantum sp.	Polypodiaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Alloplectus cristatus	Gesneriaceae	0	9	1.00E+00	13	1.44E-02	1.44E-02	0
Anthurium grandifolium	Araceae	0	5	5.56E-01	6	6.67E-03	3.70E-03	0
Clematis dioica	Ranunculaceae	0	2	2.22E-01	2	2.22E-03	4.94E-04	0

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Cyathea muricata	Cyatheaceae	0	3	3.33E-01	3	3.33E-03	1.11E-03	0
Guzmania lingulata	Bromeliceae	0	2	2.22E-01	4	4.44E-03	9.88E-04	0
Heliconia caribea	Heliconiaceae	0	7	7.78E-01	12	1.33E-02	1.04E-02	0
Ipomea megaphylla	Convolvulaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Marcgravia umbellata	Marcgraviaceae	0	4	4.44E-01	5	5.56E-03	2.47E-03	0
Oreopanax capitatus	Araliaceae	0	3	3.33E-01	3	3.33E-03	1.11E-03	0
Paullinia pinnata	Sapindaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Peperomia nigropunctatum	Piperaceae	0	3	3.33E-01	5	5.56E-03	1.85E-03	0
Peperomia rotundifolia	Piperaceae	0	2	2.22E-01	2	2.22E-03	4.94E-04	0
Pharus sp.	Poaceae	0	2	2.22E-01	2	2.22E-03	4.94E-04	0
Piper aequale	Piperaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Piper dussii	Piperaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Psychotria discolor	Rubiaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Psychotria mapouroïdes	Rubiaceae	0	1	1.11E-01	1	1.11E-03	1.23E-04	0
Psychotria uliginosa	Rubiaceae	0	6	6.67E-01	1	1.11E-03	7.41E-04	0
Selaginella sp.	Selaginellaceae	0	5	5.56E-01	5	5.56E-03	3.09E-03	0
Synchorachis incurva	Gesneriaceae	0	2	2.22E-01	2	2.22E-03	4.94E-04	0
Thelypteris sp.	Polypodiaceae	0	4	4.44E-01	5	5.56E-03	2.47E-03	0
Tovomita plumieri	Clusiaceae	0	2	2.22E-01	2	2.22E-03	4.94E-04	0

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