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AN UPDATED ACCOUNT OF THE VASCULAR FLORA OF THE ILES EPARSES (SOUTHWEST INDIAN OCEAN)

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ABSTRACT

The terrestrial vascular flora of the Iles Eparses (southwest Indian Ocean) was widely underestimated until the end of the 20th century. Thanks to recent field surveys and plant inventories conducted between 2004 and 2017 by the Conservatoire Botanique National de Mascarin (CBNM), a total of 250 taxa (120 native, 107 alien and 23 cryptogenic) belonging to 66 families and 178 genera, was recorded. This represents an increase of 42-313% for the four surveyed islands. While Bassas da India does not show any terrestrial flora, the flora of Europa includes 94 taxa (47 native, 39 alien and 8 cryptogenic), that of Juan de Nova 147 taxa (62 native, 69 alien and 16 cryptogenic), that of the Iles Glorieuses 137 taxa (67 native, 61 alien and 9 cryptogenic) and that of Tromelin only 21 taxa (7 native and 14 alien). The native plant species density is lower for Europa (1.56/km²) and Tromelin (7/km²) and highest for Juan de Nova and the Iles Glorieuses (12.4/km² and 15.3/km² respectively). The native vascular floras of Europa, Juan de Nova and the Iles Glorieuses are mainly characterized by pantropical (24-30%) and Indo-Pacific taxa (13-22%). In Juan de Nova and Europa, the Malagasy elements *sensu stricto* are strongly represented (13-15%), while taxa in the Iles Glorieuses are confined to the southwest of the Indian Ocean (30%). Europa, Juan de Nova and Tromelin seem to host local endemics species while one taxon found both on Juan de Nova and Grande Glorieuse is endemic to these two islands. The alien flora of Europa, Juan de Nova and the Iles Glorieuses comprise between 64% and 97% naturalized taxa while that of Tromelin hosts 50% of non-naturalized alien taxa. The higher percentages of cultivated alien taxa are found in Juan de Nova and Tromelin (56% and 71%, respectively).

INTRODUCTION

General Context

The Iles Eparses comprise five island territories located in the southwest Indian Ocean, close to Madagascar. Four are located in the Mozambique channel – from South to North: Europa, Bassas da India, Juan de Nova and the Iles Glorieuses – while the fifth, Tromelin, is located in the North of the Mascarene archipelago (Caceres, 2003) (Figure 1).

Each one culminates at a low altitude: about 12 meters for Europa, about 10 m for Juan de Nova, about 14 m for Iles Glorieuses and about 8 m for Tromelin. Located between 22° south for Europa and 11° south for the Iles Glorieuses (Figure 1), the Iles Eparses fall into a climatic gradient spanning from a sub-arid climate for the most southern island to a more humid climate for the most northern island (Figures 2-5).

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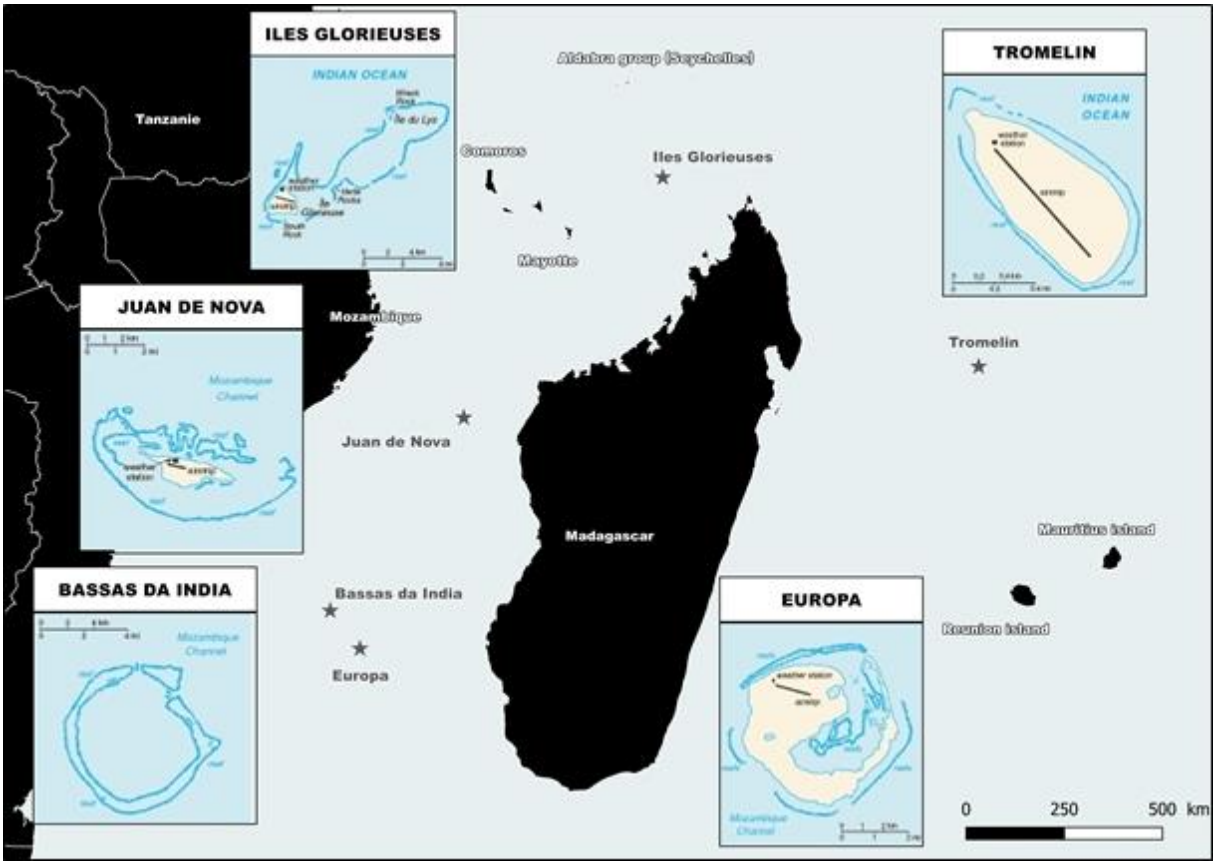

Figure 1. Location of the Iles Eparses in the southwest Indian Ocean.

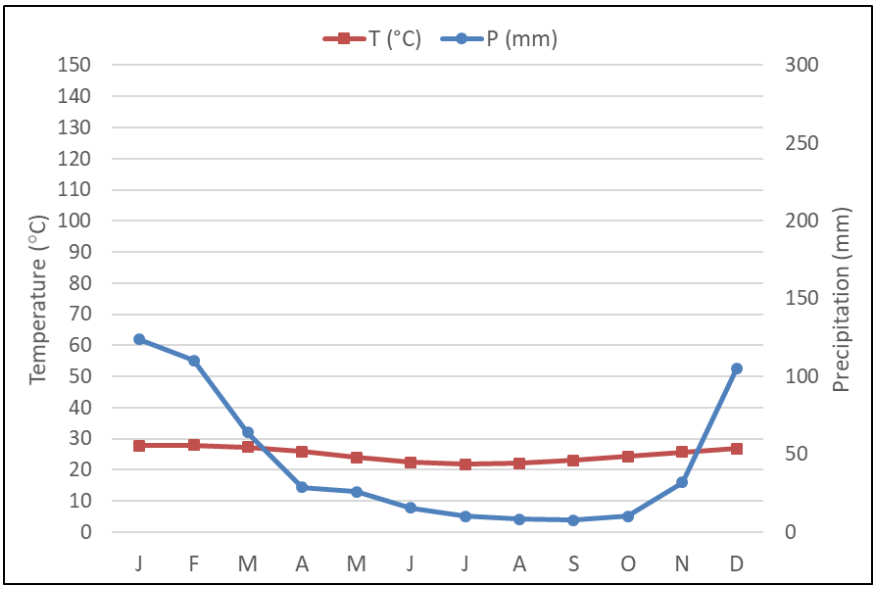

Figure 2. Gaussen ombrothermic diagram for Europa (average of 49 years [1951 - 1999]).

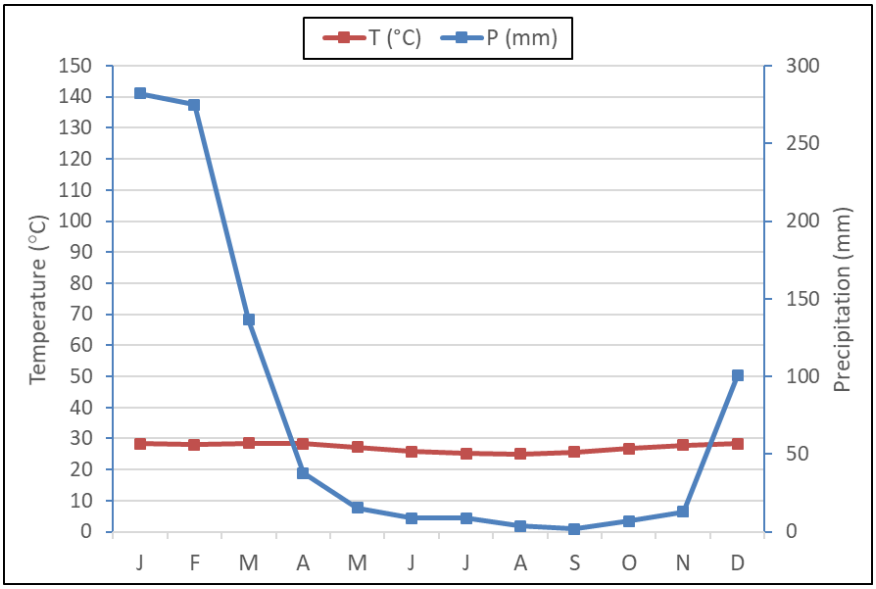

Figure 3. Gaussen ombrothermic diagram for Juan de Nova (average of 26 years [1974 - 1999]).

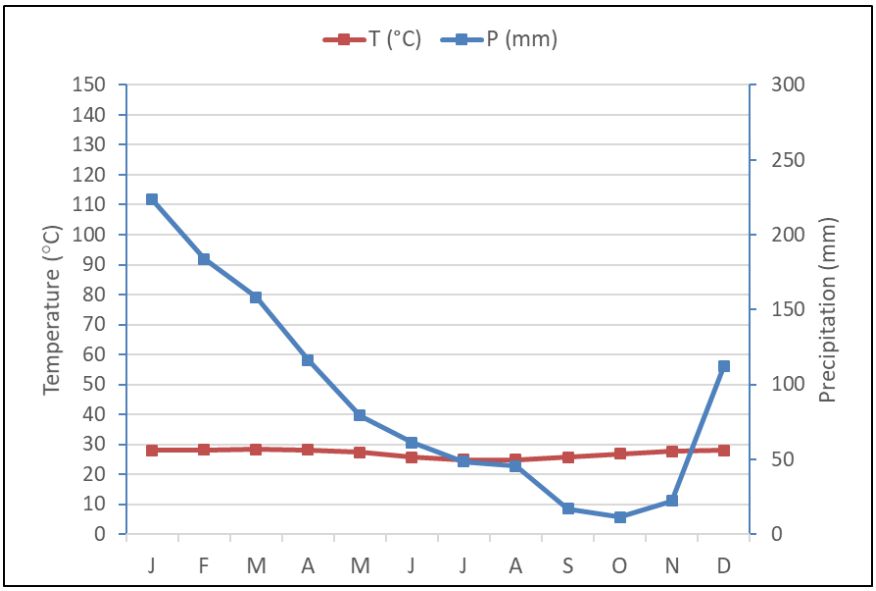

Figure 4. Gaussen ombrothermic diagram for Iles Glorieuses (average of 49 years [1951 - 1999]).

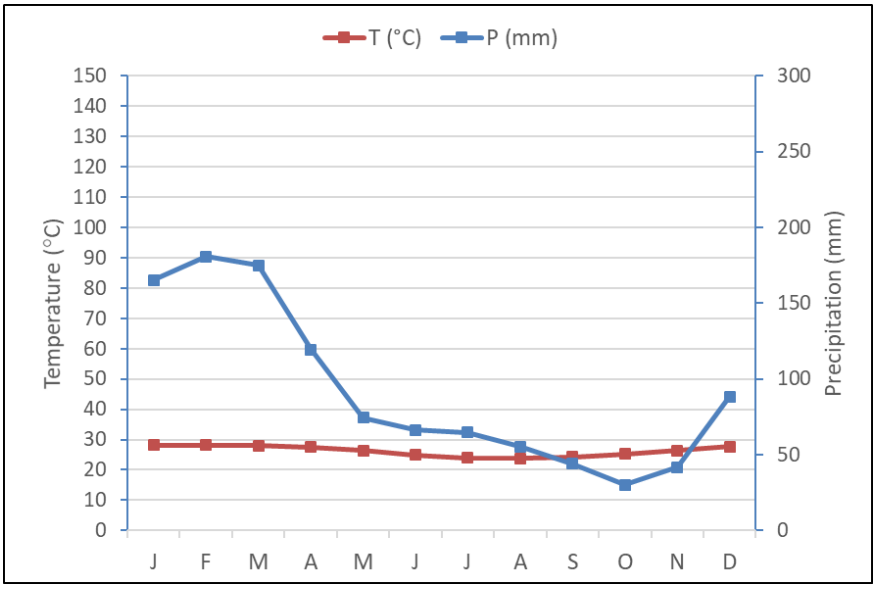

Figure 5. Gaussen ombrothermic diagram for Tromelin (average of 58 years [1955 - 2012]).

They are subjected to a regime of tropical influence, with two prevailing seasons: a dry and relatively fresh season (from May to November) and a warm and humid season (from December to April). All are located in the zone of formation and circulation of tropical depressions and cyclones (Delépine et al., 1976; Caceres, 2003). Europa, Bassas da India and the Iles Glorieuses each consist of a coral reef built on an ancient volcanic cone. They are remnants of old intra-plate volcanoes, nowadays morphologically present in the form of atolls (Goldberg, 2016) which is not the case for Juan de Nova and Tromelin. All these islands are relatively young, about 125,000 years old (Caceres, 2003). They administratively belong to the 5th district of the French Southern and Antarctic Land (Terres Australes et Antarctiques Françaises or TAAF), a French Oversea Territory, since 2007 (TAAF, 2011, 2016). In spite of their reduced terrestrial area (from 30 km^2 for Europa to 1 km^2 for Tromelin; absence of terrestrial area for Bassas da India), these islands share an exceptional natural heritage including many marine and terrestrial endemic species. At a regional scale the Iles Eparses are some of the most pristine ecosystems, largely preserved from anthropogenic impacts due to their geographical isolation and a historically very limited human occupation (Le Gall et al., 1985; Barré and Servan, 1988; Le Corre and Jouventin, 1997; Le Corre and Probst, 1997; Probst et al., 2000; Le Corre and Safford, 2001; Probst et al., 2001; Durville et al., 2003; Boullet, 2005; Chabanet and Durville, 2005; Boullet, 2006; Gravier-Bonnet and Bourmaud, 2006a; Gravier-Bonnet and Bourmaud, 2006b; Quod et al., 2007; Boullet, 2008a; Boullet, 2008b; Bourjea et al., 2011; Poupin et al., 2013a; Poupin et al., 2013b; Boullet, 2014; Dumeau et al. 2014; Chabanet et al., 2016; Conand et al., 2016; Poupin, 2016; Quétel et al., 2016). The Iles Eparses are among the last sanctuaries of marine and terrestrial tropical biodiversity in the southwest Indian Ocean (Quétel et al., 2016).

Limited to a few temporary occupations by fishermen for a long time, human impact on these islands mostly grew towards the end of the 19th century and during the first half of the 20th century with the development of agricultural (production of copra, sisal, etc.) and industrial (phosphate mines) activities, particularly on Grande Glorieuse and Juan de Nova, which were respectively exploited for 73 years (from 1885 to 1958) and 75 years (1900-1975). These activities, which proved unprofitable in an insular context, were abandoned during the second half of the 20th century (Hoareau, 1993; Caceres, 2003). Europa was relatively spared by human presence, due to the hostile living conditions (no fresh water, massive presence of mosquitoes, arid climate). A few rare attempts of settlement took place around 1860 and continued in the early 20th century, with the introduction of goats, sisal and green choca, but they did not last long and all ended in failures (Hoareau, 1993; Caceres, 2003). Finally, Tromelin, given its reduced dimensions, its isolation and its extreme living conditions, was never voluntarily colonized or exploited. We can nevertheless note the episode of the shipwrecked victims of

the Utile, a French boat, from which a hundred or so Malagasy slaves were abandoned on the island in 1761. Eight survivors were rescued by the Chevalier de Tromelin in 1774 (Frain, 2009; Hoareau, 1993). Meteorological stations were installed in the 1950's on each of these islands along with the presence of Météo-France agents for 6 month periods, followed in the 1970's by the settlement of military units on Europa, Juan de Nova and Grande Glorieuse, on rotation every 45 days. These periods are those of the first durable constructions on these islands: buildings and landing strips (Hoareau, 1993; Caceres, 2003).

Given their protected status that prohibits human disruption, and the strict regulations regarding their access (TAAF, 2011), although each island presents specific ecological characteristics and conservation stakes (linked to the impact of their past exploitation by men), they represent control areas for scientific studies in physical and life sciences (Cointat, 2010). However, the implementation of strategies and conservatory management actions seem necessary in order to reduce increasing anthropogenic disruption.

History of Botanic Studies

The first botanic notes go back to the second half of the 19th century with Speke's passing through in 1859 on Europa (Speke, 1863), Coppinger's (1882) then Abbott's (1893) on the Iles Glorieuses. During the 20th century, around twenty scientists made their contribution to the inventory of the vascular flora of the Iles Eparses (a « * » indicates a contribution based solely on the examination of herbarium material), especially Europa's (Voeltzkow, 1904; Perrier de La Bâthie, 1921; Poisson, 1923; Decary, 1937; Bosser*, 1952; Paulian, 1955; Capuron, 1966; Battistini, 1966; Delépine et al., 1976; Le Corre and Jouventin, 1997) and, to a lesser extent, Juan de Nova's (Perrier de La Bâthie, 1921; Decary, 1937; Bosser*, 1952), the Iles Glorieuses' (Battistini and Cremers, 1972; Cadet, 1984) and Tromelin's (Paulian, 1955; Staub, 1970). However, their stay was often short, not exceeding a few days, and most of them were naturalists or zoologists.

At the beginning of the 21st century, the botanical knowledge of these territories showed a significant increase particularly due to the Conservatoire Botanique National de Mascarin's involvement (thereafter CBNM) with several expeditions to study the flora and plant communities (Table 1).

Objective

The objective of this article is to provide an updated state of the terrestrial vascular flora (Tracheophytes) for the four island groups of the Iles Eparses supporting terrestrial vegetation, namely Europa, Juan de Nova, Iles Glorieuses and Tromelin (Bassas da India lacking terrestrial vegetation).

MATERIAL AND METHODS

Taxonomic Identification of Plant Material and Nomenclature

The determinations were made *in situ* from the observation of fresh material or, in the case of taxa requiring a more in-depth study, herbarium specimens – within the herbaria of the CBNM in La Réunion [CBNM], and/or in Paris within both the Missouri Botanical Garden [MO] and the Muséum National d'Histoire Naturelle [P] - and/or plants parts in alcohol (deposited at the CBNM). On a more anecdotal level and according to opportunities, information was also gathered from people who, in the past, had long stays on the Iles Eparses (Météo-France staff mostly). These interviews made it possible to corroborate alien taxa which benefited from an attempted plantation but didn't survive.

Table 1. List of the field trips of the CBNM on the Iles Eparses between 2004 and 2017.

Territory	Date	Duration (days)	Staff
Iles Glorieuses	March 2004	2	Boullet
Iles Glorieuses	August 2005	7	Boullet
Europa	May - June 2006	11	Boullet
Juan de Nova	October - November 2009	12	Boullet, Hivert, Lacoste
Europa	May 2011	4	Boullet, Gigord, Hivert
Juan de Nova	May 2011	4	Boullet, Gigord, Hivert
Iles Glorieuses	May 2011	4	Fontaine, Hivert
Tromelin	May 2011	1	Fontaine, Hivert
Europa	October - December 2011	52	Dumeau, Hivert
Europa	March 2012	2	Gigord, Hivert
Iles Glorieuses	May - June 2012	19	Beaurepaire, Férard, Gigord, Hivert
Europa	September 2012	2	Hivert
Europa	October 2012	2	Gigord, Lavergne
Europa	February 2013	2	Hivert
Juan de Nova	March 2013	24	Férard, Fontaine, Hivert
Tromelin	August - September 2013	14	Fontaine, Gigord
Europa	December 2013	2	Hivert
Iles Glorieuses	January - March 2014	48	Dufour, Hivert
Europa	July 2014	2	Hivert
Europa	December 2014	2	Hivert
Europa	April 2015	2	Chauvrat, Hivert
Europa	November 2015	2	Hivert
Iles Glorieuses	November 2015	3	Hivert
Europa	May - July 2016	61	Boullet, Hivert
Tromelin	December 2016	1	Gigord, Hivert
Tromelin	February 2017	1	Fossy, Hivert, Picot
Europa	June 2017	2	Hivert
Iles Glorieuses	August - September 2017	30	Anxionnaz, Boullet, Hivert
Tromelin	October 2017	1	Rochier
Tromelin	November 2017	10	Boullet, Gigord, Hivert

Taxonomic identification was based on standard flora related to the western Indian Ocean: Flore of Madagascar and the Comores (Humbert and Leroy, 1936-2001), Flora of Tropical East Africa (Polhill, 1948-2012), Flora Zambesiaca (Pope et al., 1960-2005), Flora of the Seychelles (Friedmann, 1994), Flora of Aldabra and neighboring islands (Fosberg and Renvoize, 1980), Flora of the Mascarenes (Bosser et al., 1976-2009), The Catalogue of the Vascular Plants of Madagascar (Madagascar Catalogue, 2017) and Flora of Somalia (Thulin, 1993-2006).

In general, for the whole flora, systematic treatment took most recent evolution of the phylogenetic nomenclatures into account. For angiosperms, the preferred treatment is the one proposed by The Angiosperm Phylogeny Group (2009) or by the 'Angiosperm Phylogeny Website' (Stevens, 2001-2015). For the Lycophytes and the Ferns, we followed Christenhusz et al. (2011), which relies in particular on the phylogenetic studies of Pryer et al. (2004), and Schuettpelz and Pryer (2007). Finally, in the case of taxa also present on Reunion Island and/or on Mayotte, indexes of vascular flora of Mayotte (CBNM, 2013b) and of vascular flora of Reunion Island (CBNM, 2017), the latter being included in TAXREF (French National Referential), serve as taxonomic and nomenclatural references. Regarding the citation of authorities, the nomenclature got homogenized according to the international standard author abbreviations by Brummit and Powell (1992) whose updating is on-going within the framework of IPNI (The International Plant Name Index, 2017).

All specimens collected were taxonomically identified to species or inferior ranking i.e. subspecies, varietas (variety) or form. By taxa we mean different taxonomic entities at species level or inferior

rank. In rare cases, some taxa were solely determined to the family or genus rank, adding « sp. » sometimes followed by a number of order (e.g. *Phyllanthus* sp.2).

Chorology and Origin of Taxa

Two types of data were compiled in order to quantify the floristic diversity of the Iles Eparses: older floristic reports coming from bibliography (before 2004, date of the first inventories of the CBNM) and recently confirmed reports (period 2004-2017, based on field surveys by the CBNM). Older floristic reports were evaluated according to the observer's competence field, date of observation and general coherence, and were compared with recently confirmed floristic reports. After this evaluation, all dubious literature records for taxa not found on the Iles Eparses during the period 2004-2017 were ignored.

Lists of taxa specific to each territory (Europa, Juan de Nova, Iles Glorieuses and Tromelin) will be presented according to the following fields: botanical name, family, general status (origin status on a given territory on the base of chorological, ecological and biological data defined in three statuses according to the terms defined by Pyšek et al. (2004), Mitić et al. (2008) and Carlton (1996): native [N] (taxa naturally found on the territory considered, independently of any human role); cryptogenic [K] (taxa without certainty of native or alien status to the region); alien [A] (species originating from a region located outside its natural distribution area and introduced deliberately or accidentally by humans or arriving naturally outside its natural distribution area), population status following the scale defined by Richardson et al. (2000) (not naturalized, naturalized [*sensu lato*, including naturalized and casual alien plants], invasive or native possibly supplemented by the mention ‘cultivated’ for cultivated taxa) and the distribution range reflecting the area of occupancy of the taxa on the Iles Eparses: locally naturalized (taxa still present on the territory but confined to a small geographical scale), widely naturalized (taxa still present on the territory on a large scale) and presumed extinct (taxa found with certainty but that have apparently disappeared because not found during recent inventories).

Comparative analyses between territories focused on floristic diversity and general status, then on the biogeography of taxa considered to be native. Altogether, 9 chorological categories were used: strict endemic (endemic in a single island); Madagascar (*sensu stricto*); western Indian Ocean (biogeographical areas corresponding to the territories located in the west of the Indian Ocean such as the Mascarenes, Madagascar, the Comoros and the Seychelles); Africa (African continent); Indo-Pacific (biogeographical area including the tropical and subtropical areas of the Indian Ocean and the occidental part of the Pacific Ocean); paleotropical (biogeographical intertropical area of the ancient world: Africa, Asia, Pacific); pantropical (biogeographical area corresponding to all the tropical areas of the globe); cosmopolitan (taxa with a very vast geographical distribution and spread almost worldwide); unknown (in the case of undetermined taxa).

RESULTS

Overall Assessment of the Terrestrial Vascular Flora of the Iles Eparses

Between 2004 and 2017 botanists of the CBNM spent a total of 706 days on field expeditions to the Iles Eparses (Table 1). These inventories made it possible to significantly improve the knowledge related to the floristic diversity, until then largely underestimated on all the territories (Figure 6 and Figure 7).

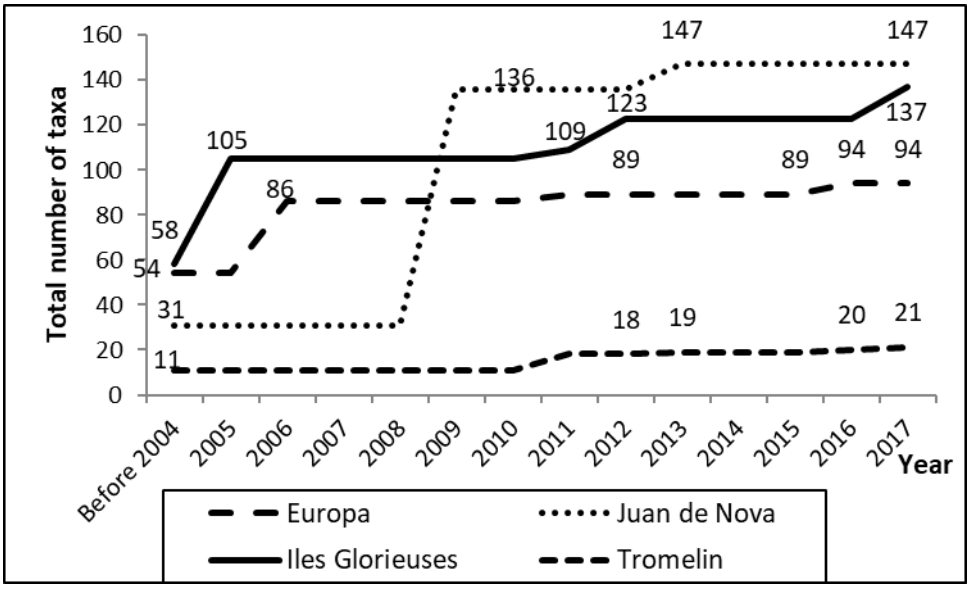

Figure 6. Cumulative number of taxa reported for the Iles Eparses through time.

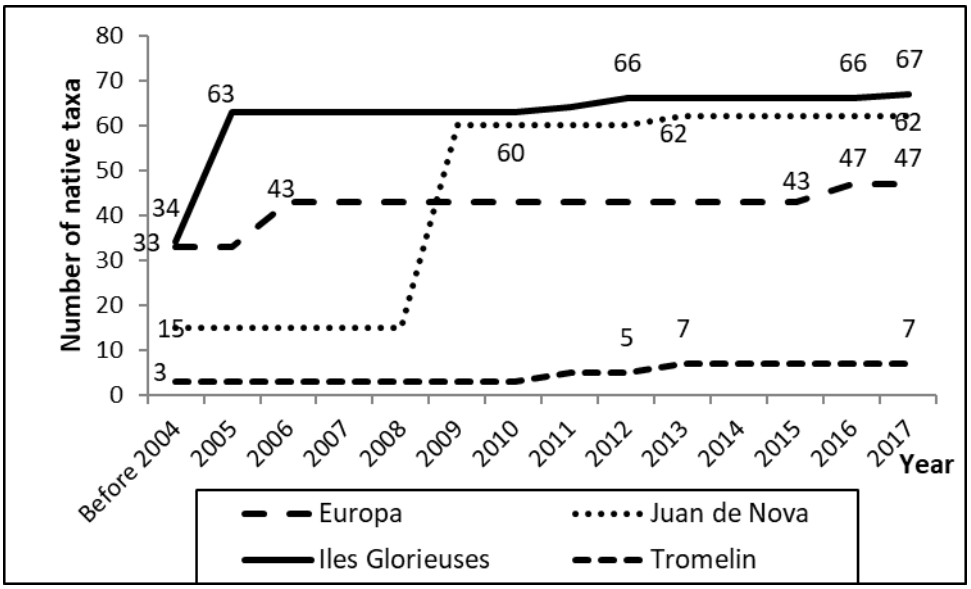

Figure 7. Cumulative number of native taxa reported for the Iles Eparses through time.

Figure 6 shows increases of approximately:

- +74% for Europa's flora (from 54 listed taxa before 2004 to 94 in 2016)
- +374% for Juan de Nova's flora (from 31 taxa to 147 in 2013)
- +136% for the Iles Glorieuses' flora (from 58 taxa to 137 in 2017)
- +91% for Tromelin's flora (from 11 taxa to 21 in 2017)

The same analyses made on strict native taxa for each territory (Figure 7) show similar patterns with increases of approximately:

- +42% for Europa's native flora (from 33 listed taxa before 2004 to 47 in 2016)
- +313% for Juan de Nova's native flora (from 15 taxa to 62 in 2013)
- +97% for the Iles Glorieuses' native flora (from 34 taxa to 67 in 2017)
- +133% for Tromelin's native flora (from 3 taxa to 7 in 2013)

As a consequence, these results are comparable whatever the status of the flora considered and allow us to rule out the hypothesis of a massive and recent introduction of alien taxa and possibly cryptogenic taxa that could have explained such a significant increase in floristic diversity.

The global list of all the taxa found on the Iles Eparses is presented in Table 2 (Appendix A). In the current state of knowledge, 250 taxa were listed on the whole of the Islands (120 native, 107 alien and 23 cryptogenic). They concern 66 botanical families, 178 genera, 250 species, 7 subspecies, 16 varieties and 1 form. The richest families in taxa are Poaceae (38 taxa), Fabaceae and Malvaceae (18 taxa), Amaranthaceae (15 taxa) and Euphorbiaceae (11 taxa). The richest genera in taxa are *Euphorbia* (8 taxa), *Achyranthes* and *Boerhavia* (6 taxa), *Dactyloctenium*, *Eragrostis*, *Phyllanthus* and *Portulaca* (5 taxa).

As shown in Figure 6, Figure 7 and Table 2 (Appendix A), most taxa were mentioned for the first time only after the start of fieldwork inventories by the botanists of the CBNM in 2004: among the 399 taxa mentioned, 157 (39%) have not been first mentioned by the CBNM (but verified in the field) and only 12 (3%) have never been observed by the CBNM (e.g., alien species formerly cultivated and extinct before 2004 but reported in the literature). Some old citations have required much effort, focused investigation and validation in the field given the uncertainty/imprecision of the data collected in the literature.

Assessments and Floristic Analyses per Territory

The detailed lists of taxa per territory are presented in Tables 3 to 6 (Appendix B).

Floristic Diversity and General Status

In Table 7, in terms of absolute value, all taxa combined, Tromelin has the lowest plant diversity while Juan de Nova has the largest diversity in terms of numbers of species.

Table 7. Assessment of the total number of taxa and their general status per territory and in the study area.

Iles Eparses (land area)	Total number of families	Total number of taxa	Number of native taxa (%)	Number of cryptogenic taxa (%)	Number of alien taxa (%)
Europa (30 km^2)	35	94	47 (50%)	8 (9%)	39 (41%)
Juan de Nova (5 km^2)	49	147	62 (42%)	16 (11%)	69 (47%)
Iles Glorieuses (4.37 km^2)	53	137	67 (49%)	9 (7%)	61 (44%)
Grande Glorieuse (4.2 km^2)	52	133	65 (49%)	8 (6%)	60 (45%)
Ile aux Crabes (0.005 km^2)	5	6	4 (67%)	1 (16.5%)	1 (16.5%)
Ile du Lys (0.14 km^2)	17	27	22 (82%)	2 (7%)	3 (11%)
Ile aux Roches Vertes (0.025 km^2)	4	4	4 (100%)	0	0
Tromelin (1 km^2)	18	21	7 (33%)	0	14 (67%)
TOTAL	**66**	**250**	**120 (48%)**	**23 (9%)**	**107 (43%)**

If we compare the floristic diversity specific to each of the Iles Glorieuses (Table 7), it is found that Grande Glorieuse has the greatest number of taxa (133) but one of the lowest percentages of native species (49%). The other islands composing the Iles Glorieuses have a smaller surface area and a low floristic diversity but a relatively high percentage of native species (67% to 100%).

By weighting the values of the native flora in relation to the terrestrial surface (in km^2) of each island, we see that Europa presents the lowest ratio of native taxa/km^2 (1.56/km^2), followed by Tromelin (7/km^2), while Juan de Nova and the Iles Glorieuses present the highest ratio of native taxa (12.4/km^2 and 15.3/km^2, respectively).

Origin of the Native Flora

In Table 8, the chorological analysis of the native vascular flora of Europa, Juan de Nova and the Iles Glorieuses reveals that between 24% and 30% of the taxa have a pantropical distribution. Their native flora is also characterized by a relatively important contribution of taxa with Indo-Pacific range (19% and 13% for Europa and Juan de Nova, respectively), in particular in the case of the Iles Glorieuses (22%). In the same way, the native flora of these three islands is clearly marked by the contribution of taxa which are confined to the western Indian Ocean (24% for Europa and Juan de Nova), a feature that is particularly true for the Iles Glorieuses (30%). On the other hand, it is clear that the native flora of Europa and to a lesser extent that of Juan de Nova are strongly influenced by the contribution of the Malagasy flora *sensu stricto* (respectively 15% and 13%), which is not the case for the Iles Glorieuses (1.5%).

The chorological analysis of Tromelin's flora provides less information due to the presence of only seven native taxa with a large geographical range (14.5% pantropical, 42% Indo-Pacific range, 14.5% western Indian Ocean).

Table 8. Chorology of the native vascular flora per territory of the Iles Eparses.

Chorological type	Europa		Juan de Nova		Iles Glorieuses		Tromelin	
	Number of taxa	%	Number of taxa	%	Number of taxa	%	Number of taxa	%
Strict endemic	2	4%	1	1.5%	0	0%	1	14.5%
Madagascar (sensu stricto)	7	15%	8	13%	1	1.5%	0	0%
Western Indian Ocean	11	24%	15	24%	20	30%	1	14.5%
Africa	1	2%	1	1.5%	0	0%	0	0%
Indo-Pacific	9	19%	8	13%	15	22%	3	42%
Paleotropical	3	6%	8	13%	8	12%	0	0%
Pantropical	11	24%	16	26%	20	30%	1	14.5%
Cosmopolitan	1	2%	2	3%	2	3%	1	14.5%
Unknown	2	4%	3	5%	1	1.5%	0	0%

Europa, Juan de Nova and Tromelin host possibly strict endemic species: morphotypes of the genera *Achyranthes* (*Achyranthes* sp. nov., Amaranthaceae) and *Euphorbia* (*Euphorbia* sp. nov., Euphorbiaceae), which are not reportable to species described and whose current study suggests that they are peculiar to Europa; *Hypoestes juanensis* Benoist (Acanthaceae) on Juan de Nova and *Boerhavia* sp. nov.2 on Tromelin. We also note the presence of an endemic taxon on the scale of the Mozambique channel, *Perrierophytum glomeratum* Hochr. (Malvaceae), which grows on Juan de Nova and on the Grande Glorieuse and another one called *Boerhavia* sp. nov.1 which is present on Juan de Nova and on the Iles Glorieuses.

Population Status, Distribution Range and Cultural Status of the Alien Flora

Europa, Juan de Nova and the Iles Glorieuses have a high proportion of naturalized (*sensu lato*) alien taxa, ranging from 58% (Juan de Nova) to 85% (Iles Glorieuses; Table 9). In contrast, the alien flora of Tromelin is made up of 50% of non-naturalized taxa. It should also be noted that each territory holds a significant proportion (between 6% and 36%) of invasive alien taxa.

Table 9. Assessment of the population status, distribution range and cultural status of the alien vascular flora per territory of the Iles Eparses.

Iles Eparses	Population status			Distribution range			Cultural status		
	Not naturalized (%)	Naturalized *sensu lato* (%)	Invasive (%)	Supposed extinct (%)	Local (%)	Wide (%)	Not cultivated (%)	Cultivated on a small scale (%)	Cultivated on a large scale (%)
Europa	6 (15%)	30 (77%)	3 (8%)	7 (18%)	30 (77%)	2 (5%)	27 (69%)	9 (23%)	3 (8%)
Juan de Nova	25 (36%)	40 (58%)	4 (6%)	4 (6%)	56 (81%)	9 (13%)	30 (44%)	36 (52%)	3 (4%)
Iles Glorieuses	2 (3%)	52 (85%)	7 (12%)	4 (7%)	49 (80%)	8 (13%)	44 (72%)	15 (25%)	2 (3%)
Tromelin	7 (50%)	2 (14%)	5 (36%)	7 (50%)	7 (50%)	0	4 (29%)	10 (71%)	0

Analyses of 'distribution range' indicate that the majority of alien taxa are naturalized only locally on Europa, Juan de Nova and Iles Glorieuses (between 77% and 81%), while a small proportion of these taxa are naturalized on a large scale (between 5% and 13%). Some taxa mentioned in the past have not been recently confirmed for these territories (between 6% and 18%), and are considered as 'supposedly extinct'. The same analysis for Tromelin provides different results: a high proportion (50%) of alien taxa introduced by humans has not survived through time. Some of these taxa have, however, naturalized locally (50%).

The analysis of the cultural status of the alien flora shows two tendencies: while the alien flora of Europa and the Iles Glorieuses is mostly made up of non-cultivated taxa (69% and 72%, respectively), the flora of Juan de Nova and Tromelin contain a high proportion of cultivated taxa on small and/or large scales (56% and 71%, respectively). A more detailed analysis of the taxa that have been subject to plantations on a small scale reveals that the main motivation on Europa, Juan de Nova and Tromelin was the introduction of ornamental plants and, secondly, the introduction of food plants. On Grande Glorieuse, the only island of the atoll subject to plantations, the main intention was to introduce food plants and secondly ornamental plants. In the case of alien taxa cultivated on a large scale, which is the case for Europa, Juan de Nova and the Iles Glorieuses, the main objective was to introduce taxa that could provide agricultural products. Finally, some native species were cultivated on Juan de Nova for their ornamental value, and alien food species are cultivated in pots on Tromelin.

DISCUSSION

Overview of the Flora of the Iles Eparses

The knowledge of the terrestrial vascular flora of the Iles Eparses has considerably improved since 2004, thanks to the plant inventories led by the CBNM. This result clearly demonstrates knowledge gaps on these territories during the 19th and 20th centuries, especially on Juan de Nova, the Iles Glorieuses and Tromelin, which, unlike Europa, had until recently the reputation of being floristically poor and with little heritage value (Caceres, 2003).

The diversity of the Iles Eparses (120 native, 107 alien and 23 cryptogenic, 66 families altogether) can be compared to that listed for the Aldabra group (Aldabra, Cosmoledo, Assumption and Astove), located in the southwest of the Seychelles archipelago, where Fosberg and Renvoize (1980) and Friedmann (1994, 2012), excluding the seagrass taxa, reported 265 species, subspecies and varieties in 78 families (about 166 can be considered as native taxa). The Iles Eparses nevertheless have a total terrestrial surface area close to 40.37 km^2 (an average of 2.97 native taxa/km^2) while the Aldabra group comes to a terrestrial surface area close to 156 km^2 according to Gibson and Phillipson (1983) (an average of 1.06 native taxa/km^2). The diversity of species on the Iles Eparses could be due to the fact that the Iles Eparses are scattered across a larger latitudinal range, and thus encompass a wider range of ecological conditions. However, the rate of endemism on a regional scale is notably higher in the Aldabra island group, where it reaches 20 endemic taxa (12% of the global floristic diversity), than in the Iles Eparses where only 6 hypothetic endemic taxa have been reported (*Achyranthes* sp. nov. and *Euphorbia* sp. nov. on Europa, *Hypoestes juanensis* on Juan de Nova, *Boerhavia* sp. nov.1 and *Perrierophytum glomeratum* on Juan de Nova and Iles Glorieuses, *Boerhavia* sp. nov.2 on Tromelin).

The rate of endemism in the Aldabra group could be explained by the fact that Aldabra is by far the largest atoll, the group contains a higher number of islands in the region, and that such atolls are also relatively scarce in the southwest Indian Ocean (excluding the Seychelles).

If we compare the native floristic diversity of the Aldabra group with that of the Iles Glorieuses (Boullet, 2005), these two groups being closely related biogeographically, we note a strong floristic similarity (more than 90% of the native taxa found on Iles Glorieuses is also found on Aldabra). Both groups have common endemic species such as *Bulbostylis basalis* Fosberg, *Euphorbia stoddartii* Fosberg and *Portulaca mauritiensis* Poelln. var. *aldabradensis* Fosberg (this taxon being also found in Tromelin). The endemism of the Aldabra group can be explained by the number of atolls (four for the Aldabra group versus one for the Iles Glorieuses), as well as the type and the diversity of these atolls (3 raised atolls, among which Aldabra is one of the largest atoll known in the world (Goldberg, 2016; Hnatiuk, 1979), while Iles Glorieuses are an immersed atoll composed of a large sandy isle and few remnants of emerged coral reefs). In addition, the total surface area of emerged land is ~156 km² for the Aldabra group (Gibson and Phillipson, 1983) versus ~ 4 km² for the Iles Glorieuses, i.e., 39 times less, the diversity of habitats due to the morphology of the atolls and, on the Iles Glorieuses, the rarity or absence of specific habitats hosting a high number of endemic species such as tortoise pastures, and the xerophytic mixed scrub on reef limestone (Fosberg 1971) are factors in endemism.

Assessment of the Flora of the Iles Eparses

Floristic Diversity

Although the raw values of floristic diversity for each territory indicate that Juan de Nova possesses the largest number of taxa while Tromelin shelters the lowest number, when these values are weighted by the terrestrial surface area of each territory the following gradient of florisitic diversity (either for all taxa, or for native taxa) can be observed: Europa < Tromelin < Juan de Nova < the Iles Glorieuses, with the latter two being close.

This gradient can be explained by the climatic conditions and the edaphic constraints specific to each territory (Delépine et al., 1976; Caceres, 2003). Europa (Figure 2) has a subarid climate with a long and marked dry season (April to October), low precipitation (541.2 mm/year on average with a minimum close to 0 mm per month), strongly saline skeletal soils, as well as Tromelin (Figure 5) which, although subject to a tropical maritime climate with a less marked dry period (September to November) and moderate to high precipitation (1105.5 mm/year average; 30.2 mm/month minimum), is largely subjected to a strong influence of swell and salinity due to its very small dimensions and the absence of a protective coral reef barrier. The low floristic diversity of Tromelin is likely the consequence of several combined factors: the reduced surface area of the island, its flat morphology with a high exposure to salt and recurrent heavy swell, its isolation in the mid-west Indian Ocean, not much suitable for colonization by propagules or diaspores, and its position in the middle of most cyclone routes. In contrast, the Iles Glorieuses and Juan de Nova present more favorable situations for the development of vegetation. The Iles Glorieuses (Figure 4), located on the southern limit of low equatorial pressures, are subject to two distinct seasons, a fresh season from May to November marked by a short period of dryness (September to November) and a warm season from December to April marked by important precipitation (1078.3 mm/year average; 11.4 mm/month minimum) and high level of humidity (81% - 84%). The influence of salinity seems weaker compared with Europa and Tromelin (Delépine et al., 1976). On Juan de Nova (Figure 3), the climate is also characterized by two seasons: a fresh season from April to November during which rainfall is very low (1.9 to 37.6 mm/month) resulting in a marked period of dryness, and a rainy season from December to March during which total precipitation ranges from 100.5 mm to 282.1 mm. We also not that the average sunshine duration slowly increases from Tromelin (8.1 hours/ day) to the Iles Glorieuses (8.2 hours/day) and Europa (9 hours/day) (Delépine et al., 1976; Météo-France, 2016).

Apart from the particular case of the isolated Tromelin island , these results are in accordance with the principle of increasing floristic diversity with increasing precipitation, and to some extent, decreasing latitude, a principle also described in the “Fosberg zones” (Fosberg, 1956; Stoddart, 1992). These zones have been defined for the atolls of the Pacific for which the floristic diversity is positively

correlated with the mean annual rainfall but not with the size/surface area of the islands or with the distance between the island considered and other larger territories. Moreover, it has been proved that vegetation responds asymmetrically to extreme precipitation because vegetation is far more sensitive to dryness than to humidity (Mueller-Dombois and Fosberg, 1998), as it is for instance the case for Europa. Finally, another parameter that strongly influences floristic diversity is temperature, especially the actual quantity of heat received. It is therefore logical to observe an increase in biodiversity in the latitudinal gradient from Europa to the Iles Glorieuses.

On the other hand, we can't compare our results with those of Larrue et al. (2015) which support the view that the spatial pattern of native species richness observed on Eastern Polynesia's remote atolls was strongly influenced by (i) atoll area but also by (ii) the distance to the raised atoll of Makatea, and (iii) the distance to the volcanic island of Tahiti. Indeed, we don't think these Pacific considerations can be applied to the isolated atolls of the Mozambique Channel. While it is clear that the size of islands plays a role as well as their age, it is above all the bioclimatic context and the supply of habitats that influence the specific diversity.

Origin of the Native Flora

The chorological analysis showed that the native flora typical of Europa, Juan de Nova and the Iles Glorieuses is largely made of pantropical and indo-pacific taxa and taxa from islands of the western Indian Ocean. The latter influence is particularly marked for the Iles Glorieuses which, by their geographical position and the influence of a zone of weak currents (Ocean Surface Current Analyses, 2015), have been naturally colonized through time by taxa coming from nearby islands such as the Comoros or the islands of the Seychelles. The north-west tip of Madagascar may have little influence on the native flora of the Iles Glorieuses since a single Malagasy taxon (*Ficus grevei* Baillon), likely dispersed by birds, is common to the two territories.

In contrast, Europa and Juan de Nova are more influenced by the Malagasy flora *sensu stricto*, which can be explained by the relative geographic proximity of these territories, by their environmental conditions close to the sub-arid coastal regions of the South of Madagascar and by the strong influence of the sea currents in the Mozambique channel, North-flowing and reaching the occidental coast line of Madagascar (Ocean Surface Current Analyses, 2015). The analysis of dispersal modes of some native Malagasy taxa *sensu stricto* found on Europa and/or Juan de Nova (but not found on the Iles Glorieuses) allows us to implicate the role of the ocean (i.e., the main dispersal vector for *Salsola littoralis* Moq.), the role of the wind (the likely dispersal vector for *Cynanchum luteifluens* (Jum. & H. Perrier) Desc. and *Psiadia altissima* (DC.) Drake) and the role of bird-assisted dispersal (e.g., for *Cleome grandidieri* Baill., *Cheirolaena linearis* Benth, *Dactyloctenium capitatum* A. Camus, *Dombeya greveana* Baill. var. *metameropsis* (Hochr.) Arènes, *Eragrostis capuronii* A. Camus, *Euphorbia stenoclada* Baill., *Ficus marmorata* Bojer ex Baker, *Nesogenes madagascariensis* (Bonati) Marais, *Plumbago aphylla* Boj. ex Boiss. and *Salvadora angustifolia* Turrill) on the colonization of these two islands of the Mozambique channel to respective distances of 300 and 140 km west of Madagascar.

The chorological analysis of the native flora of Tromelin, although not very significant regarding the small number of native taxa (n=7), shows that it is mostly made of taxa with large ranges (cosmopolitan, pantropical and indo-pacific types). Indeed, located outside the Mozambique Channel, Tromelin is under the influence of the subequatorial current, very stable and west-flowing all through the year (Ocean Surface Current Analyses, 2015). The native flora of Tromelin is also marked by few taxa confined to the western Indian Ocean, demonstrating the significant influence of the nearby Seychelles islands.

The strict endemism rates are particularly low in the Iles Eparses. This result is explained by the fact that they are young oceanic islands, geographically close to huge biodiversity reservoirs with comparable physical and abiotical conditions. Moreover, according to the available data (Camoin et al., 1984; Camoin et al., 1997; Virah-Sawmy et al., 2009; Woodroffe and Horton, 2005) the sea level has changed considerably since the likely formation of the Iles Eparses during the peak of the last interglacial, Marine Isotope Stage 5 (MIS5, 120,000 years ago). The islands probably peaked at a height of 120-140 m above sea level at the Last Glacial Maximum (LGM, 25,000 years ago). Deglacial sea levels rose irregularly in stages to present, with a maximum oscillation at about 7000-

6000 years BP, to about 1-3 m higher than present sea level (Camoin et al., 1984; Camoin et al., 1997). At that time Europa, Juan de Nova and Grande Glorieuse were not entirely submerged, but Tromelin undoubtedly and the Ile du Lys probably were.

Yet some particular cases deserve to be noted. On Europa, two possibly new endemic species are being described by the CBNM. The first one, *Achyranthes* sp. nov., has been collected on Europa by Perrier de La Bâthie in 1921 but it has been reported erroneously as *Centrostachys aquatica* (R. Br.) Wall. (Cavaco, 1962). A further review of this woody and semi-lianescent shrub concludes that it doesn't refer to a known described taxon. This plant occurs in only one locality on Europa, in thickets of *Pemphis acidula* J.R. Forst. & G. Forst. surrounding the mangrove. The second one, *Euphorbia* sp. nov., has been collected on Europa by Perrier de La Bâthie in 1921 too and it has been reported erroneously as *Euphorbia glaucophylla* Poir. (Denis, 1921). This very common herbaceous plant shows a large morphological variability and grows in all types of vegetation except mangroves and salt marshes, from the coast to the interior. *Hypoestes juanensis* (Acanthaceae) is described as strictly endemic to Juan de Nova (Perrier de La Bâthie, 1921). This species, very common on Juan de Nova, is typically a forest fringe plant showing a preference for semi-sciaphilous to semi-heliophylous edges, clearings and ventilated undergrowth. The species often forms a herbaceous layer, sometimes monospecific, included within different types of vegetation inside the island (not on the coastline) such as the vegetation dominated by the non-native naturalized *Casuarina equisetifolia* L. and other semi-natural open vegetation, possibly resulting from recurrent and old fires. Another case concerns *Boerhavia* sp. nov.1, whose present characteristics include leaves with tangled margins and glandular hairs. It has been collected by Cremers (Battistini and Cremers, 1972) on the Iles Glorieuses and its originality has been raised by Boullet (2005). Reported to Juan de Nova in 2009, this species is common in the two territories where it occurs behind the coastline as a forest fringe. Another *Boerhavia*, sp. nov.2, is clearly distinct from the first one and seems to be strictly endemic of Tromelin where it is very common in the open. The last case concerns *Perrierophytum glomeratum* (Malvaceae) described in 2013 and considered as an exceptionally rare endemic species of Juan de Nova (Hivert et al., 2013). This species has been found in Juan de Nova in only three locations (5 individuals in total) in a *Pisonia grandis* R. Br. zone, a semi-natural *Euphorbia stenoclada* zone and a non-native *Casuarina equisetifolia* zone. The species was also recorded on Grande Glorieuse (Boullet, 2005; Hivert et al., 2014), where it is very abundant, occurring within natural and semi-natural vegetation units corresponding to an ancient dynamic dune system protected from direct oceanic influences, and to the limestone plateau formerly exploited by humans (Boullet, 2005). These taxa, therefore, cannot be considered as strictly endemic to Juan de Nova but rather as endemic to Juan de Nova and Grande Glorieuse.

Biogeographical Remarks

Although previously reported with a poor flora largely derived from South Madagascar's subarid coastal areas (Voeltzkow, 1904; Perrier De La Bâthie, 1921; Poisson, 1923; Decary, 1937; Bosser, 1952; Battistini, 1966; Capuron, 1966; Delépine et al., 1976; Le Corre and Jouventin, 1997; Caceres, 2003), Europa's native flora shows several remarkable features: the presence of possibly two strict endemic species (*Achyranthes* sp. nov. and *Euphorbia* sp. nov.); components of the halophilous flora of the salt marshes of the western Indian Ocean with five species (*Salicornia pachystachya* Bunge ex Ung.-Sternb., *Suaeda monoica* Forssk. ex J.F. Gmel., *Tecticornia indica* (Willd.) K.A. Sheph. & Paul G. Wilson, *Salsola littoralis*, *Sesuvium portulacastrum* (L.) L.); the presence of seven species formerly considered as endemic to Madagascar (*Cynanchum luteifluens*, *Dactyloctenium capitatum*, *Eragrostis capuronii*, *Euphorbia stenoclada*, *Ficus marmorata*, *Psiadia altissima*, *Salsola littoralis*); and the presence of an endemic species of the western Indian Ocean (*Panicum voeltzkowii* Mez *s. l.*).

On Juan de Nova, the native flora is characterized by the presence of a strictly endemic species (*Hypoestes juanensis)*, two endemic species restricted to the Mozambique channel, (*Boerhavia* sp. nov.1 and *Perrierophytum glomeratum*), 8 species formerly considered as endemic to Madagascar (*Cheirolaena linearis*, *Cleome grandidieri*, *Dombeya greveana* var. *metameropsis*, *Euphorbia stenoclada*, *Maerua baillonii* Hadj-Moust., *Nesogenes madagascariensis*, *Psiadia altissima* and *Salvadora angustifolia)*, a species considered as endemic to Coral Seychelles (Aldabra) and Madagascar (*Euphorbia mertonii* Fosberg), as well as the presence of *Panicum voeltzkowii* Mez *s. l.*

and *Celosia spicata* (Thouars) Spreng., two species endemic to the western Indian Ocean. The full taxonomic identification of distinct plant populations on Juan de Nova (*Achyranthes* spp. for example) could also reveal new interesting records.

The native flora of the Iles Glorieuses also presents some remarkable aspects. It is characterized by the presence of at least 13 regional endemic species: one endemic to the Mozambique channel cited in Juan de Nova and Grande Glorieuse (*Perrierophytum glomeratum*), one endemic to Iles Glorieuses and Juan de Nova (*Boerhavia* sp. nov.1), three species formerly considered as endemic to the Seychelles of the Aldabra group (*Bulbostylis basalis*, *Euphorbia stoddartii*, *Portulaca mauritiensis* var. *aldabrensis*), two species formerly considered as endemic to the Seychelles (*Eragrostis subaequiglumis* Renvoize and *Nesogenes prostrata* (Benth.) Hemsl.), one species formerly considered as endemic to Madagascar (*Ficus grevei*), and five species endemic to the western Indian Ocean (*Adiantum hirsutum* Bory, *Celosia spicata*, *Disperis tripetaloides* (Thouars) Lindl., *Panicum voeltzkowii s. l.* and *Secamone pachystigma* Jum. & H. Perrier *)*. We can finally emphasize the presence of distinct populations whose study is in progress: *Evolvulus alsinoides* (L.) L., *Ficus* sp., *Fimbristylis cymosa* R. Br. *s. l.* and *Solanum* sp..

The main remarkable aspects of the native flora of Tromelin is the presence of a strictly endemic species (*Boerhavia* sp. nov.2) and of *Portulaca mauritiensis* var. *aldabrensis*, (ex-) endemic to the Aldabra group.

Note that the biogeographical status of restricted range taxa could evolve in the near future with dedicated prospecting on lesser known islands or countries in the vicinity of the Mozambique channel.

Population Status, Distribution Range and Cultural Status of the Alien Flora

Just like the native flora, regardless of the study area, the alien flora appears more diversified than stated in previous studies (Caceres, 2003). The alien flora of Europa (including many locally naturalized taxa with a relatively small area of occupancy on the island), is almost exclusively linked to anthropogenic habitats such as old and recent plantations, pathways, airstrips, and old fiber cultivation of *Agave sisalana* Perrine and *Furcraea foetida* (L.) Haw. Few alien plants have been cultivated on Europa (the majority of them for ornamental purposes) due to short time occupancy by humans and extreme conditions (a limiting factor for most introduced and cultivated species). Nevertheless, some alien plants are invasive in the area, such as *Agave sisalana* and *Furcraea foetida* found in *Euphorbia stenoclada* bushes, and *Casuarina equisetifolia* close to the coastlines. While the first two were formerly cultivated on a large scale in order to produce vegetal fibers, the reasons leading to the cultivation of *C. equisetifolia* on Europa remain less obvious (timber production, soil erosion, shade, wind breaks or water tanks).

The alien flora of Juan de Nova includes many naturalized taxa colonizing natural and semi-natural habitats, many of which are only cultivated on a small scale. These old practices reflect a tendency to artificialize the island and should be associated with Hector Patureau (manager of a guano and copra exploitation from 1952 to 1967) and other settlers. However, these plantations suffer mostly from the rough ecological conditions of this territory, notably those on sand during the dry season. Some native species of Juan de Nova have been cultivated as ornamentals (*Dombeya greveana* and *Psiadia altissima*) or for forestry exploitation (*Cordia subcordata* Lam., *Salvadora angustifolia* and *Thespesia populneoides* (Roxb.) Kostel.). To date, alien invasive (or potentially invasive) plants on Juan de Nova include *Casuarina equisetifolia*, *Cocos nucifera* L., *Gossypium hirsutum* L. and *Lantana strigocamara* R.W. Sanders.

The alien flora of the Iles Glorieuses has a very high proportion of naturalized taxa (mostly locally distributed within small areas) and a low proportion of cultivated taxa. These alien plants have largely been favored by past disturbance regimes (especially during the period of the coconut grove exploitation from 1885 to 1958) and current human activities. Therefore, alien plants can to date be found both in disturbed areas (residential areas, pathways, surroundings of the airstrip) and in natural or semi-natural habitats. Invasive alien plants on the Iles Glorieuses include *Agave sisalana*, *Carica papaya* L., *Casuarina equisetifolia, Cocos nucifera*, *Flacourtia indica* (Burm. f.) Merr. and *Passiflora suberosa* L..

The alien flora of Tromelin mostly includes non-naturalized taxa and cultivated taxa for ornamental and/or alimentary purposes, mostly close to the meteorological station (plants in poor health

condition). This highlights a human will to modify this tiny island since the 1950's by introducing plants that can improve living conditions (ornamentals, shade) and human diet (*Ananas comosus* (L.) Merr., *Capsicum frutescens* L., *Carica papaya*, *Citrus* cf. *sinensis* (L.) Osbeck, *Curcuma amada* Roxb., *Piper nigrum* L. or even *Solanum lycopersicum* L.; taxa cultivated in pots, all excluded from analysis). Among the invasive aliens of Tromelin are included *Cocos nucifera*, *Consolea falcata* (Ekman & Werderm.) F.M. Knuth, *Euphorbia hirta* L. and *E. prostrata* Aiton.

CONCLUSION

This study has improved knowledge about the vascular flora of the Iles Eparses, which was poorly known until recently, and our understanding of the flora of the western part of the Indian Ocean. In the case of native taxa, their density per km² is far higher for the Iles Eparses than for the Aldabra group, given their small terrestrial surface area. The flora of each island is conditioned by the latitudinal gradient on the islands and by the climatic conditions specific to each territory. It is also conditioned by the proximity of nearby large source territories such as Madagascar, for the flora of Europa and Juan de Nova, and the Seychelles for the Iles Glorieuses. The rate of endemism observed on the Iles Eparses is very low, but will no doubt slightly increase as new species are described. Finally, with regard to threats to native flora by naturalized taxa, a management program for the eradication of *Agave sisalana* and *Furcraeae foetida* has been underway on Europa since 2011 in partnership with the TAAF and the FAZSOI while another program targeted against all (potential) invasive species has begun in 2016 on Tromelin in partnership with the TAAF.

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APPENDIX A

Table 2. List of all taxa found on the Iles Eparses. In the column 'Life forms' differents codes proposed by Ellenberg and Mueller-Dombois (1967) were used and applied to level 3: P scap = trees; P caesp = shrubs; P ros = tuft trees; P dol = bottle trees; P succ = tall succulents; P gram = phanerophytic grasses; P herb = phanerophytic forbs; Ch frut caesp = caespitose woody dwarf-shrubs; Ch frut rept = reptant woody dwarf-shrubs; Ch suff caesp = caespitose semi-woody dwarf-shrubs; Ch suff rept = reptant semi-woody dwarf-shrubs; Ch suff scap = scapose semi-woody dwarf-shrubs; Ch herb caesp = caespitose herbaceous chamaephytes; Ch herb rept = reptant herbaceous chamaephytes; Ch herb pulv = pulvinate herbaceous chamaephytes; Ch st succ = low succulents with stem-succulents; Ch l succ = low succulents with leaf-succulents; EL = hemi-epiphytes, pseudo-lianas , epiphytic lianas; H caesp = caespitose hemicryptophytes; H rept = reptant hemicryptophytes; H scap = scapose hemicryptophytes without rosette; c G bulb = rain-green bulbous geophytes; c G rhiz = rain-green rhizome-geophytes; T caesp = caespitose therophytes; T rept= reptant therophytes; T scap = therophytes without rosette; T ros = therophytes with rosette; T sem = therophytes with semi-rosette; T succ = succulent therophytes; st PL = phanerophytic and chamaephytic winding climbers; el PL = phanerophytic and chamaephytic tendril climbers; d PL = phanerophytic and chamaephytic spread-climbers; st HL = hemicryptophytic winding climbers; el HL = hemicryptophytic tendril climbers; el GL = geophytic tendril climbers; d TL = throphytic spread climbers. In the column 'Voucher herbarium specimens' differents acronyms were used to precise the name of the herbarium were herbarium specimens have been deposited : CBNM = CBNM herbarium ; MO = Missouri Botanical Garden herbarium ; P = Muséum National d'Histoire Naturelle de Paris herbarium

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Abutilon pseudocleistogamum Hochr.	Malvaceae	Ch frut caesp	Madagascar	X				Bibliography (EUR)	EUR: CBNM, MO, P
Acalypha indica L.	Euphorbiaceae	T scap	Supposed native from Asia and tropical Africa		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Acalypha indica L.	Cactaceae	P succ	Central America, from South of United States of America (Florida, Texas) to the Caribbean and Venezuela		X			Field work (JDN)	

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Achyranthes aspera L. var. *aspera*	Amaranthaceae	Ch suff scap	Native from tropical Asia, became almost pantropical	X	X			Bibliography (EUR); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Achyranthes aspera L. var. *fruticosa* (Lam.) Boerl.	Amaranthaceae	Ch suff caesp / d PL	Pantropical		X	X		Bibliography (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM, MO, P
Achyranthes *aspera* L. var.1	Amaranthaceae	Ch suff caesp	?		X			Field work (JDN)	JDN: CBNM, MO, P
Achyranthes *aspera* L. var.2	Amaranthaceae	Ch suff caesp	?		X			Field work (JDN)	JDN: CBNM, MO, P
Achyranthes sp.nov. ?	Amaranthaceae	P caesp	Europa (endemic ?)	X				Bibliography (EUR)	EUR: CBNM, MO, P
Achyranthes cf. *talbotii* Hutch. & Dalziel	Amaranthaceae	Ch suff caesp	Madagascar, West Africa	X				Bibliography (EUR)	EUR: CBNM, MO, P
Acrostichum aureum L.	Pteridaceae	Ch herb caesp / P herb	Pantropical		X			Field work (JDN)	JDN: CBNM, MO, P
Adansonia digitata L.	Malvaceae	P dol	Tropical Africa, mostly ornamental (sub-humid and semi-arid regions in the South of the Sahara), Comoros, South Saudi Arabia; probably introduced and naturalized in Madagascar; introduced and cultivated elsewhere in tropical regions		X			Bibliography (JDN)	

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Adiantum hirsutum Bory	Pteridaceae	Ch herb caesp / Ch herb rept	Madagascar, Mascarene islands (Reunion and Mauritius)			X		Field work (GLO)	GLO: CBNM, MO, P
Adiantum philippense L.	Pteridaceae	Ch herb caesp	Pantropical and pansubstropical			X		Field work (GLO)	GLO: CBNM, MO
Agave sisalana Perrine	Asparagaceae	Ch l succ	Eastern Mexico; mostly cultivated elsewhere	X	X	X		Bibliography (EUR); Field work (JDN, GLO)	GLO: CBNM
Ageratum conyzoides L.	Asteraceae	T caesp	Central and South America			X		Field work (GLO)	GLO: CBNM, MO, P
Albizia lebbeck (L.) Benth.	Fabaceae	P scap	Probably native from tropical Asia; became pantropical		X			Field work (JDN)	
Alocasia macrorrhizos (L.) G. Don var. *macrorrhizos*	Araceae	Ch herb caesp	Sri Lanka, India to Malaysia, introduced and cultivated in many areas			X		Field work (GLO)	GLO: CBNM, MO, P
Aloe vera (L.) Burm. f.	Xanthorrhoeaceae	Ch l succ	South West Saudi Arabia (often wrongly given as native to the Canary islands); cultivated as ornemental and medicinal plant from very long time and introduced from very long time in Mediterranean, Central and South America				X	Field work (TRO)	

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Alternanthera pungens Kunth	Amaranthaceae	Ch herb rept	South America, became pantropical	X				Bibliography (EUR)	EUR: CBNM, MO, P
Amaranthus graecizans L. subsp. *silvestris* (Vill.) Brenan	Amaranthaceae	T caesp	Cosmopolitan	X	X			Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Amaranthus spinosus L.	Amaranthaceae	T caesp	Pantropical			X		Field work (GLO)	GLO: CBNM
Amaranthus viridis L.	Amaranthaceae	T caesp	Obscure origin (supposed native from South America), became ± pantropical; naturalized in warm and temperate regions	X	X	X		Bibliography (EUR); Field work (JDN, GLO)	EUR: CBNM, MO, P
Annona muricata L.	Annonaceae	P caesp	Tropical Central America ; widely cultivated in tropical regions			X		Field work (GLO)	GLO: CBNM, MO, P
Annona squamosa L.	Annonaceae	P caesp	Supposed native from Antillas ; widely cultivated in tropical regions			X		Field work (GLO)	GLO: CBNM, MO, P
Antigonon leptopus Hook. & Arn.	Polygonaceae	el PL	Mexico and Central America (Guatemala); mostly cultivated and naturalized elsewhere in tropical and subtropical regions		X			Field work (JDN)	JDN: CBNM, MO
Asystasia sp.	Acanthaceae	Ch suff caesp	?		X	X		Field work (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM
Avicennia marina (Forssk.) Vierh.	Avicenniaceae	P scap	Indo-Pacific	X				Bibliography (EUR)	EUR: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Bambusa vulgaris Schrad. ex J.C. Wendl. var. *vittata* Rivière & C. Rivière	Poaceae	P gram	Tropical Asia; mostly cultivated and naturalized in tropical regions		X			Field work (JDN)	
Boerhavia coccinea Mill.	Nyctaginaceae	Ch herb rept	Pantropical	X	X			Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Boerhavia diffusa L.	Nyctaginaceae	Ch herb caesp	Pantropical			X		Bibliography (GLO)	GLO: CBNM
Boerhavia erecta L.	Nyctaginaceae	Ch herb caesp	Pantropical; probably native from tropical America	X	X	X		Field work (EUR, JDN, GLO)	JDN: CBNM, MO; GLO: CBNM, MO, P
Boerhavia repens L.	Nyctaginaceae	Ch herb rept	Pantropical	X				Bibliography (EUR)	EUR: CBNM, MO, P
Boerhavia sp. nov. 1 ?	Nyctaginaceae	Ch herb rept	West of the Indian Ocean		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Boerhavia sp. nov. 2 ?	Nyctaginaceae	Ch herb rept	Tromelin				X	Bibliography (TRO)	TRO: CBNM, MO, P
Bothriochloa pertusa (L.) A. Camus	Poaceae	H rept	Warm regions from Africa, India and China; introduced and naturalized elsewhere	X		X		Field work (EUR, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Bougainvillea x buttiana Holttum & Standl.	Nyctaginaceae	d PL	Hybrid of horticultural origin, cultivated in warm regions	X	X			Bibliography (EUR); Field work (JDN)	JDN: CBNM, MO
Bruguiera gymnorhiza (L.) Savigny	Rhizophoraceae	P scap	Indo-Pacific coastlines (from East Africa to Fiji)	X				Bibliography (EUR)	EUR: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Bulbostylis basalis Fosberg	Cyperaceae	H caesp	Seychelles (Aldabra)			X		Field work (GLO)	GLO: CBNM, MO, P
Bulbostylis hispidula (Vahl) R.W. Haines subsp. *hispidula*	Cyperaceae	T caesp	Africa, Northern America, Southern America, Madagascar, Seychelles		X			Field work (JDN)	JDN: CBNM, MO, P
Calophyllum inophyllum L.	Calophyllaceae	P scap	East Africa (coastlines), from Madagascar to Pacific		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO; GLO: CBNM, MO, P
Canavalia rosea (Sw.) DC.	Fabaceae	st PL	Tropical and subtropical costlines		X	X		Bibliography (JDN); Field work (GLO)	JDN: CBNM, MO, P
Capparis cartilaginea Decne.	Capparaceae	P caesp	Tropical and subtropical Africa (East and North Africa) and Asia (Middle East and South West Asia)	X	X			Bibliography (EUR); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Capsicum frutescens L.	Solanaceae	T caesp / P herb	America	X		X		Bibliography (EUR); Field work (GLO)	GLO: CBNM, MO, P
Carica papaya L.	Caricaceae	P scap	Tropical America (from Florida to Northern Argentina); mostly cultivated in tropical regions and often naturalized			X	X	Bibliography (GLO, TRO)	GLO: CBNM, MO, P
Cascabela thevetia (L.) Lippold	Apocynaceae	P caesp	Topical America; widely cultivated in tropical regions		X			Field work (JDN)	
Cassytha filiformis L.	Lauraceae	EL	Pantropical		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Casuarina equisetifolia L.	Casuarinaceae	P scap	Indo-Pacific, Australian and New Zealand coastlines; mostly cultivated in tropical regions and often naturalized	X	X	X	X	Bibliography (EUR, JDN, GLO, TRO)	EUR: CBNM, MO, P; JDN: CBNM, MO; GLO: CBNM, MO, P
Catharanthus roseus (L.) G. Don	Apocynaceae	Ch suff caesp	Madagascar		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Ceiba pentandra (L.) Gaertn.	Malvaceae	P scap	Tropical America		X			Field work (JDN)	JDN: CBNM, MO, P
Celosia spicata (Thouars) Spreng.	Amaranthaceae	d PL	Madagascar, Comoros and Seychelles (Aldabra)		X	X		Field work (JDN, GLO)	JDN: CBNM , MO, P; GLO: CBNM, MO, P
Cenchrus echinatus L.	Poaceae	T caesp	Tropical America, became pantropical		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO; GLO: CBNM, MO, P
Cenchrus polystachios (L.) Morrone	Poaceae	H caesp / T caesp / P gram	Pantropical			X		Field work (GLO)	GLO: CBNM, MO, P
Ceriops tagal (Perr.) C.B. Rob.	Rhizophoraceae	P scap	Indo-Pacific coastlines (from East Africa to Melanesia)	X				Bibliography (EUR)	EUR: CBNM, MO, P
Cheirolaena linearis Benth	Malvaceae	T scap	Madagascar		X			Field work (JDN)	JDN: CBNM, MO, P
Chloris barbata Sw.	Poaceae	T caesp / H caesp	Tropical cosmopolitan	X		X		Field work (EUR, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Christella cf. *dentata* (Forssk.) Brownsey & Jermy	Thelypteridaceae	Ch herb caesp	Paleotropical and paleosubtropical; introduced and naturalized elsewhere (America)			X		Field work (GLO)	GLO: CBNM

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Citrus aurantiifolia (Christm.) Swingle	Rutaceae	P caesp	South East of Asia (or Indonesia), mostly cultivated in tropical and subtropical regions		X			Field work (JDN)	JDN: CBNM
Cleome grandidieri Baill.	Cleomaceae	T caesp	Madagascar		X			Field work (JDN)	JDN: CBNM, MO, P
Cleome strigosa (Boj.) Oliv.	Cleomaceae	T caesp	East African coastlines, coral Seychelles, Zanzibar, Pemba		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO; GLO: CBNM, MO, P
Cocos nucifera L.	Arecaceae	P ros	Supposed native from central Malaysia; widespread in tropical regions (became pantropical); cultivated in tropical regions and naturalised	X	X	X	X	Bibliography (EUR, JDN, GLO, TRO)	
Colubrina asiatica (L.) Brongn.	Rhamnaceae	P caesp	Asia, Malaysia, Pacific and East Africa coastlines, Madagascar		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Commelina benghalensis L.	Commelinaceae	Ch herb rept	Tropical Africa, South Africa, Madagascar, India and South East Asia			X		Field work (GLO)	GLO: CBNM, MO, P
Commelina forskalaei Vahl	Commelinaceae	Ch herb rept	Africa, Arabian peninsula, South India, China		X			Bibliography (JDN)	JDN: CBNM, MO, P
Commicarpus plumbagineus (Cav.) Standl.	Nyctaginaceae	d PL	South and tropical Africa, Asia		X	X		Field work (JDN, GLO)	JDN: CBNM; GLO: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Consolea falcata (Ekman & Werderm.) F.M. Knuth	Cactaceae	P succ	North West Haiti		X		X	Field work (JDN, TRO)	
Corchorus aestuans L.	Malvaceae	T caesp	Pantropical		X	X		Field work (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM
Corchorus trilocularis L.	Malvaceae	T scap	Paleotropical to paleosubtropical, became a pantropical weed	X				Field work (EUR)	EUR: CBNM, MO, P
Cordia subcordata Lam.	Boraginaceae	P scap	Indo-Pacific coastlines	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO; GLO: CBNM, MO, P
Crotalaria edmundi-bakeri R. Vig.	Fabaceae	T caesp / Ch suff caesp	East African coastlines, from Mozambique to Somalia, Comoros, Aldabra		X			Field work (JDN)	JDN: CBNM, MO, P
Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo var. *agrestis*	Cucurbitaceae	el TL	Africa	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO; GLO: CBNM, MO
Cyanthillium cinereum (L.) H. Rob.	Asteraceae	T sem	Tropical Africa and Asia			X		Field work (GLO)	GLO: CBNM, MO, P
Cynanchum luteifluens (Jum. & H. Perrier) Desc.	Apocynaceae	st PL	Madagascar	X				Bibliography (EUR)	EUR: CBNM, MO, P
Cynodon dactylon (L.) Pers.	Poaceae	H rept / c G rhiz	Cosmopolitan	X	X			Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Cynodon sp.	Poaceae	H rept / c G rhiz	?		X			Field work (JDN)	JDN: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Cyperus dubius Rottb.	Cyperaceae	H caesp	Paleotropical and subtropical (from West Africa to Asia and Philippines)			X		Field work (GLO)	GLO: CBNM, MO, P
Cyperus ligularis L.	Cyperaceae	H caesp	Pantropical			X		Field work (GLO)	GLO: CBNM, MO, P
Cyperus rotundus L.	Cyperaceae	H caesp / c G rhiz / Ch herb caesp	Pantropical and pansubtropical	X	X	X		Bibliography (JDN, GLO); Field work (EUR)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Dactyloctenium aegyptium (L.) Willd.	Poaceae	T caesp	Pantropical and pansubtropical	X	X			Bibliography (JDN); Field work (EUR)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Dactyloctenium aristatum Link	Poaceae	T caesp	Pakistan, Kenya to Sudan, Egypt, Arabia to India				X	Field work (TRO)	TRO: CBNM, MO, P
Dactyloctenium capitatum A. Camus	Poaceae	T caesp / H rept	Madagascar	X				Bibliography (EUR)	EUR: CBNM, MO, P
Dactyloctenium ctenioides (Steud.) Lorch ex Bosser	Poaceae	T caesp	East African, Madagascarn Mascarene islands and Seychelles coastlines	X	X	X		Bibliography (GLO); Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Dactyloctenium geminatum Hack.	Poaceae	H rept	East and South East Africa		X			Field work (JDN)	JDN: CBNM, MO, P
Daknopholis boivinii (A. Camus) Clayton	Poaceae	T rept	East Africa, Madagascar, coral Seychelles (Aldabra, Cosmoledo); introduced elsewhere (Reunion)	X	X	X		Field work (EUR, JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Datura innoxia Mill.	Solanaceae	T caesp	Central America; naturalized in tropical and subtropical regions		X	X		Field work (JDN, GLO)	JDN: CBNM, MO, P
Delonix regia (Bojer) Raf.	Fabaceae	P scap	Madagascar	X	X			Bibliography (EUR); Field work (JDN)	EUR: CBNM, MO, P
Digitaria ciliaris (Retz.) Koeler var. *chrysoblephara* (Fig. & De Not.)	Poaceae	T caesp	China, United-States of America, Pakistan, Madagascar, Southern Africa	X				Field work (EUR)	EUR: CBNM, MO, P
Digitaria horizontalis Willd.	Poaceae	T caesp	West tropical Africa and tropical America; introduced and naturalized elsewhere			X		Field work (GLO)	GLO: CBNM, MO, P
Digitaria setigera Roth	Poaceae	T caesp	Paleotropical		X			Field work (JDN)	JDN: CBNM, MO, P
Digitaria sp.	Poaceae	T caesp	?			X		Field work (GLO)	GLO: CBNM
Disperis tripetaloides (Thouars) Lindl.	Orchidaceae	c G bulb	Madagascar, Comoros (Mayotte), Mascarene islands (Reunion, Mauritius and Rodrigue), Seychelles			X		Field work (GLO)	GLO: CBNM, MO, P
Dodonaea viscosa (L.) Jacq.	Sapindaceae	P caesp	Pantropical		X	X		Field work (JDN, GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO
Dombeya greveana Baill. var. *metameropsis* (Hochr.) Arènes	Malvaceae	P caesp	Madagascar		X			Bibliography (JDN)	JDN: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Eleusine indica (L.) Gaertn.	Poaceae	H caesp / Ch herb caesp	Subcosmopolitan tropical and subtropical (introduced in America)			X		Field work (GLO)	GLO: CBNM, MO, P
Enteropogon sechellensis (Baker) Benth. ex T. Durand & Schinz	Poaceae	H caesp	East Africa, Madagascar, Comoros, Seychelles			X		Field work (GLO)	GLO: CBNM, MO, P
Eragrostis capuronii A. Camus	Poaceae	T caesp	Madagascar	X				Field work (EUR)	EUR: CBNM, MO, P
Eragrostis cilianensis (All.) Vignolo ex Janch.	Poaceae	T caesp	Subcosmopolitan		X			Field work (JDN)	JDN: CBNM, MO, P
Eragrostis ciliaris (L.) R. Br.	Poaceae	T caesp	Pantropical (supposed introduced in America)	X	X	X		Bibliography (EUR); Field work (JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Eragrostis minor Host	Poaceae	T caesp	Subcosmopolitan		X			Field work (JDN)	JDN: CBNM, MO, P
Eragrostis subaequiglumis Renvoize	Poaceae	T caesp	Seychelles			X		Field work (GLO)	GLO: CBNM, MO, P
Eriochloa fatmensis (Hochst. & Steud.) Clayton	Poaceae	T caesp	Tropical Africa, Southern Africa and Asia temperate		X			Field work (JDN)	JDN: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Erythrina variegata L.	Fabaceae	P scap	Indo-Pacific		X	X		Field work (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM
Euphorbia hirta L.	Euphorbiaceae	T caesp / Ch herb caesp	Tropical America; widespread in tropical and subtropical regions	X	X	X	X	Bibliography (EUR, JDN, GLO) ; Field work (TRO)	EUR: CBNM, MO, P; JDN: CBNM; GLO: CBNM, MO, P; TRO: CBNM, MO, P
Euphorbia mertonii Fosberg	Euphorbiaceae	Ch herb rept	Coral Seychelles (Aldabra) and Madagascar		X			Field work (JDN)	JDN: CBNM
Euphorbia prostrata Aiton	Euphorbiaceae	T rept	Tropical and subtropical America; widespread in tropical, subtropical and warm temperate regions	X	X	X	X	Bibliography (GLO); Field work (EUR, JDN, TRO)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P; TRO: CBNM, MO, P
Euphorbia sp. nov. ?	Euphorbiaceae	Ch herb caesp	Europa (endemic ?)	X				Bibliography (EUR)	EUR: CBNM, MO, P
Euphorbia stenoclada Baill.	Euphorbiaceae	P scap / P succ	Madagascar	X	X			Bibliography (EUR, JDN)	
Euphorbia stoddartii Fosberg	Euphorbiaceae	Ch herb rept	Coral Seychelles			X		Bibliography (GLO)	GLO: CBNM, MO, P
Euphorbia thymifolia L.	Euphorbiaceae	T rept / Ch herb rept	Supposed native from Asia; widespread in tropical regions		X			Field work (JDN)	JDN: CBNM, MO, P
Euphorbia tithymaloides L.	Euphorbiaceae	Ch st succ	Florida to South America		X	X		Field work (JDN, GLO)	GLO: CBNM, MO, P
Evolvulus alsinoides (L.) L.	Convolvulaceae	Ch herb rept / Ch herb caesp	Pantropical (often considered native to America)			X		Field work (GLO)	GLO: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Ficus benghalensis L.	Moraceae	P scap	Asia		X			Field work (JDN)	JDN: CBNM
Ficus grevei Baillon	Moraceae	P scap	Madagascar			X		Bibliography (GLO)	GLO: CBNM, MO, P
Ficus marmorata Bojer ex Baker	Moraceae	P scap	Madagascar	X				Bibliography (EUR)	EUR: CBNM, MO, P
Ficus sp.	Moraceae	P scap	?			X		Field work (GLO)	GLO: CBNM, MO, P
Fimbristylis cymosa R. Br. *s. l.*	Cyperaceae	Ch herb caesp	Pantropical	X		X		Bibliography (EUR, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Flacourtia indica (Burm. f.) Merr.	Salicaceae	P caesp	Africa, Madagascar, Malaysia, Asia (tropical and subtropical regions)			X		Bibliography (GLO)	GLO: CBNM, MO, P
Flueggea virosa (Roxb. ex Willd.) Royle	Phyllanthaceae	P caesp	Southern and tropical Africa, Southern Saudi Arabia, Socotra, Madagascar, Comoros, Mascarene islands (Reunion), Pakistan to Japan and Australia			X		Bibliography (GLO)	GLO: CBNM, MO, P
Furcraea foetida (L.) Haw.	Asparagaceae	Ch l succ	Central America, Greater Antilles, Trinidad, South America	X		X		Bibliography (EUR); Field work (GLO)	
Furcraea selloa K. Koch var. *marginata* Trel.	Asparagaceae	Ch l succ	Horticultural origin		X			Field work (JDN)	
Gossypium hirsutum L.	Malvaceae	P caesp	Cosmopolitan tropical; widely cultivated in tropical and subtropical regions		X	X		Bibliography (JDN, GLO)	JDN: CBNM; GLO; CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Guettarda speciosa L.	Rubiaceae	P caesp	Indo-Pacific	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Guilandina bonduc L.	Fabaceae	d PL / P caesp	Pantropical	X	X	X		Bibliography (EUR, JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM; GLO: CBNM, MO, P
Gynandropsis gynandra (L.) Briq.	Cleomaceae	T caesp	Pantropical (native from Africa or most widely paleotropical and paleosubtropical)			X		Field work (GLO)	GLO: CBNM, MO, P
Heliotropium foertherianum Diane & Hilger	Boraginaceae	P caesp	Indo-Pacific coastlines (Eastern Africa and Indian Ocean to Polynesia)		X	X	X	Bibliography (JDN, GLO, TRO)	JDN: CBNM; GLO: CBNM, MO, P; TRO: CBNM, MO, P
Hernandia nymphaeifolia (C. Presl) Kubitzki	Hernandiaceae	P scap	Indo-Pacific coastlines			X		Bibliography (GLO)	GLO: CBNM, MO, P
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	Poaceae	H caesp	Pantropical		X	X		Field work (JDN, GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Hibiscus physaloides Guill. & Perr.	Malvaceae	T scap	Tropical and Southern Africa, Madagascar, Comoros, Seychelles		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Hibiscus tiliaceus L.	Malvaceae	P scap	Tropical and subtropical regions, especially in coastal areas	X		X		Field work (EUR, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Hyphaene coriacea Gaertn.	Arecaceae	P ros	Eastern and southern Africa, Madagascar, Comoros		X			Bibliography (JDN)	
Hypoestes juanensis Benoist	Acanthaceae	Ch suff caesp	Juan de Nova (endemic)		X			Field work (JDN)	JDN: CBNM, MO, P
Imperata cylindrica (L.) P. Beauv.	Poaceae	c G rhiz	Paleotropical, from mediterranean region to South West Asia, Chili		X	X		Field work (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM, MO, P
Indigofera tinctoria L.	Fabaceae	Ch suff caesp	Tropical Africa and tropical Asia		X			Field work (JDN)	JDN: CBNM, MO, P
Ipomoea coptica (L.) Roth	Convolvulaceae	T rept / d TL	Tropical Africa and South West Asia	X				Field work (EUR)	EUR: CBNM
Ipomoea pes-caprae (L.) R. Br. subsp. *brasiliensis* (L.) Ooststr.	Convolvulaceae	Ch suff rept / st PL	Pantropical	X	X	X	X	Bibliography (EUR, JDN, GLO, TRO)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Ipomoea violacea L.	Convolvulaceae	st PL	Pantropical (except West Africa), mainly on coastlines	X	X	X		Bibliography (GLO); Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM; GLO: CBNM, MO, P
Lantana strigocamara R.W. Sanders	Verbenaceae	P caesp	North America, central and south America, West Indies; cultivated as ornemental on tropical regions, naturalized and invasive		X			Field work (JDN)	JDN: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Launaea intybacea (Jacq.) Beauverd	Asteraceae	T sem	Dry regions of the New and the Old tropic (islands included), sometimes considered native from tropical America and became pantropical		X	X		Field work (JDN, GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Launaea sarmentosa (Willd.) Schultz	Asteraceae	Ch herb rept	Africa, Madagascar, Seychelles, Mascarene islands (Reunion and Mauritius) to tropical Asia		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Lepidium englerianum (Muschl.) Al-Shehbaz	Brassicaceae	T caesp	Southern and Eastern Africa, Madagascar	X		X	X	Bibliography (EUR); Field work (GLO, TRO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P; TRO: CBNM, MO, P
Leptadenia madagascariensis Decne.	Apocynaceae	st PL	Madagascar and Comoros		X			Bibliography (JDN)	JDN: CBNM, MO
Lepturus repens (G. Forst.) R. Br.	Poaceae	H rept	Coast of Southern Africa, eastern tropical, Madagascar, Mascarene island (Reunion and Mauritius), West of the Indian Ocean, Sri Lanka, Malaysia, Northern Australia and Polynesia		X	X		Field work (JDN, GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO, P

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Leucaena leucocephala (Lam.) de Wit	Fabaceae	P caesp / P scap	Supposed native from Mexico and Central America; became pantropical and pansubtropical			X		Field work (GLO)	GLO: CBNM, MO, P
Lumnitzera racemosa Willd.	Combretaceae	P scap	Indo-Pacific coastlines		X			Field work (JDN)	JDN: CBNM, MO, P
Lycium elliotii Dammer *s. l.*	Solanaceae	Ch frut caesp / P caesp / Ch l succ	Mascarene islands,South and South-East Africa , Madagascar	X				Field work (EUR)	EUR: CBNM, MO, P
Lygodium kerstenii Kuhn	Lygodiaceae	Ch herb rept	East Africa, Madagascar, Comoros			X		Field work (GLO)	GLO: CBNM, MO, P
Maerua baillonii Hadj-Moust.	Capparaceae	P caesp	Madagascar		X			Field work (JDN)	JDN: CBNM, MO, P
Malvastrum coromandelianum (L.) Garcke	Malvaceae	Ch suff caesp / T caesp	Central and South America; became pantropical	X		X		Bibliography (GLO); Field work (EUR)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Manihot esculenta Crantz	Euphorbiaceae	P caesp	South America; widely cultivated in tropical regions		X			Bibliography (JDN)	
Marsdenia verrucosa Decne.	Apocynaceae	P caesp	Madagascar		X			Field work (JDN)	JDN: CBNM
Mimusops caffra E. Mey. ex A. DC.	Sapotaceae	P scap	South East and Southern african coastlines, from Mozambique to the East of The Cap	X				Field work (EUR)	

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				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Mimusops coriacea (A. DC.) Miq.	Sapotaceae	P scap	Madagascar, Comoros (Anjouan and Mayotte); introduced and naturalized elsewhere in tropical regions		X			Field work (JDN)	JDN: CBNM, MO, P
Mollugo nudicaulis Lam.	Molluginaceae	T ros	Pantropical	X	X	X		Bibliography (EUR); Field work (JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM; GLO: CBNM, MO
Morinda citrifolia L.	Rubiaceae	P caesp	India and Ceylan to Malaysia, Northern Australia, Pacific			X		Field work (GLO)	GLO : CBNM, MO, P
Moringa oleifera Lam.	Moringaceae	P scap	Probably native from the North West of India and Pakistan; introduced and cultivated in tropical and subtropical regions, sometimes naturalized	X	X	X		Bibliography (EUR); Field work (JDN, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Morus alba L.	Moraceae	P scap	Central and Eastern China; widely cultivated in temperates regions and often naturalized (South and tropical Africca, America)		X			Field work (JDN)	
Mucuna gigantea (Willd.) DC.	Fabaceae	st PL	Tropical Africa to French Polynesia		X	X		Field work (JDN, GLO)	GLO : CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Musa sp.	Musaceae	P herb	?		X	X	X	Bibliography (JDN, GLO, TRO)	
Nephrolepis biserrata (Sw.) Schott	Nephrolepidaceae	Ch herb rept	Pantropical			X		Field work (GLO)	GLO : CBNM, MO, P
Nervilia bicarinata (Blume) Schltr.	Orchidaceae	c G bulb	Tropical Africa, Eastern Africa, Saudi Arabia, Madagascar, Comoros (Grande Comore, Mayotte), Mascarene islands (Reunion and Mauritius)		X	X		Field work (JDN, GLO)	JDN: CBNM; GLO: CBNM, MO, P
Nesogenes madagascariensis (Bonati) Marais	Orobanchaceae	T caesp	Madagascar		X			Field work (JDN)	JDN: CBNM, MO, P
Nesogenes prostrata (Benth.) Hemsl.	Orobanchaceae	T rept	Coral Seychelles			X		Field work (GLO)	GLO: CBNM, MO, P
Ochrosia oppositifolia (Lam.) K. Schum.	Apocynaceae	P scap	Indo-Pacific (Seychelles to Polynesia)			X		Bibliography (GLO)	GLO: CBNM, MO, P
Oldenlandia corymbosa L. var. *caespitosa* (Benth.) Verdc.	Rubiaceae	T caesp	Tropical Africa	X	X			Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Oldenlandia corymbosa L. var. *corymbosa*	Rubiaceae	T scap	Native from Africa and India; now widespread throughout tropical and subtropical regions	X		X		Field work (EUR, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Oldenlandia fastigiata Bremek. var. *fastigiata*	Rubiaceae	T scap	Africa, Madagascar		X			Field work (JDN)	JDN: CBNM, MO, P
Oldenlandia fastigiata Bremek. var. *somala* (Bremek.) Verdc.	Rubiaceae	T scap	Africa		X			Field work (JDN)	JDN: CBNM, MO, P
Ophioglossum lancifolium C. Presl	Ophioglossaceae	c G rhiz	Southern and Eastern Africa, Congo, Madagascar, Comoros, Mascarene islands (Reunion and Mauritius)	X	X			Field work (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO
Ophioglossum polyphyllum A. Braun	Ophioglossaceae	c G rhiz	Africa, India, Hawai, Central America	X				Field work (EUR)	EUR: CBNM, MO, P
Opuntia stricta (Haw.) Haw.	Cactaceae	P succ	North America, India, China, Africa, Madagascar		X			Field work (JDN)	
Pandanus utilis Bory	Pandanaceae	P scap	Supposed native from Mascarene islands; introduced elsewhere				X	Bibliography (TRO)	
Panicum pseudowoeltzkowii A. Camus	Poaceae	H rept	Madagascar; also present in Mascarene islands (Reunion), but indigeneous status doubtful	X				Field work (EUR)	EUR: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Panicum voeltzkowii Mez *s. l.*	Poaceae	H caesp / Ch herb caesp	Madagascar, coral Seychelles	X	X	X		Field work (EUR, JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Paspalum vaginatum Sw.	Poaceae	Ch herb rept	Tropical and warm temperate regions			X		Field work (GLO)	GLO: CBNM, MO, P
Passiflora suberosa L.	Passifloraceae	el PL	Tropical America; naturalized elsewhere in tropical regions			X		Bibliography (GLO)	GLO: CBNM, MO, P
Pemphis acidula J.R. Forst. & G. Forst.	Lythraceae	P caesp	Indo-Pacific	X	X	X		Bibliography (EUR, JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM, MO; GLO: CBNM, MO, P
Perrierophytum glomeratum Hochr.	Malvaceae	P caesp	Iles Eparses (Juan de Nova, Grande Glorieuse)		X	X		Bibliography (JDN); Field work (GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Persea americana Mill.	Lauraceae	P scap	Supposed native from Central America				X	Bibliography (TRO)	
Phoenix dactylifera L.	Arecaceae	P ros	Supposed native from North East Sahara and Saudi Arabia (form with small inedible fruit); edible form of horticultural origin probably in Middle East	X				Bibliography (EUR)	

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Phyllanthus amarus Schumach.	Phyllanthaceae	T scap	Supposed native from tropical America; became pantropical		X	X		Bibliography (GLO); Field work (JDN)	GLO: CBNM, MO, P
Phyllanthus coluteoides Baill. ex Müll.Arg.	Phyllanthaceae	P caesp	Madagascar		X			Bibliography (JDN)	JDN: CBNM
Phyllanthus maderaspatensis L. *s. l.*	Phyllanthaceae	T caesp	India, West of the Indian Ocean	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Phyllanthus sp.1	Phyllanthaceae	T caesp	?	X				Field work (EUR)	EUR: CBNM, MO, P
Phyllanthus sp.2	Phyllanthaceae	T scap	?	X				Field work (EUR)	EUR: CBNM, MO, P
Phymatosorus scolopendria (Burm. f.) Pic. Serm.	Polypodiaceae	Ch herb rept	Tropical Africa and Asia			X		Field work (GLO)	GLO: CBNM, MO, P
Physalis lagascae Roem. & Schult.	Solanaceae	T caesp	Native to tropical America; now almost cosmopolitan, widely naturalized in the tropical and subtropical regions in Africa and Asia		X	X		Field work (JDN, GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Pisonia grandis R. Br.	Nyctaginaceae	P scap	Pacific to Madagascar	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM; GLO: CBNM, MO, P
Pithecellobium dulce (Roxb.) Benth.	Fabaceae	P scap	Central America		X			Field work (JDN)	JDN: CBNM, MO

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Pleurostelma cernuum (Decne.) Bullock	Apocynaceae	st PL	Eastern Africa, Comoros		X			Field work (JDN)	JDN: CBNM, MO, P
Plumbago aphylla Boj. ex Boiss.	Plumbaginaceae	Ch herb caesp	Eastern Africa, West of the Indian Ocean	X				Bibliography (EUR)	EUR: CBNM, MO, P
Plumeria rubra L. f. *tricolor* (Ruiz & Pav.) Woodson	Apocynaceae	P caesp	Unknown origin; widely cultivated in tropical regions		X			Field work (JDN)	
Pongamia pinnata (L.) Pierre	Fabaceae	P scap	Tropical Asia, Australia, Pacific islands		X			Field work (JDN)	
Portulaca granulatostellulata (Poelln.) Ricceri & Arrigoni	Portulacaceae	T succ	Seychelles, East Africa, Mascarene islands, Europe, Asia, Egypt (world wide distribution)	X	X	X		Bibliography (EUR, JDN, GLO)	EUR: CBNM; JDN: CBNM; GLO: CBNM, MO
Portulaca mauritiensis Poelln. var. *aldabrensis* Fosberg	Portulacaceae	T succ	Endemic Seychelles (Aldabra, Assumption, Cosmoledo, Farquhar)			X	X	Bibliography (GLO); Field work (TRO)	GLO: CBNM, MO, P; TRO: CBNM, MO, P
Portulaca nitida (Danin et H.G. Baker) Ricceri et Arrigoni	Portulacaceae	T succ	Aldabara Island, Ascension Island, Azores, Egypt, England, France, Israel, Tanzania, USA	X	X	X		Field work (EUR, JDN, GLO)	EUR: CBNM; JDN: CBNM; GLO: CBNM
Portulaca gr. *oleracea* L.	Portulacaceae	T succ	Cosmopolitan				X	Bibliography (TRO)	TRO: CBNM, MO, P
Portulaca aff. *tuberosa* Roxb.	Portulacaceae	T succ	Maldives, Sri Lanka, Pakistan, India, Australia, Pacific islands	X				Bibliography (EUR)	EUR: CBNM
Premna serratifolia L.	Lamiaceae	P caesp / d PL	Indo-Pacific			X		Field work (GLO)	GLO: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Pseuderanthemum carruthersii (Seem.) Guill. var. *atropurpureum* (W. Bull) Fosberg	Acanthaceae	P caesp	Supposed native from New Hebrides; widely cultivated in tropical regions		X			Field work (JDN)	JDN: CBNM, MO, P
Pseudoconyza viscosa (Mill.) D'Arcy	Asteraceae	T scap	Tropical Africa and Asia		X	X		Field work (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM, MO, P
Psiadia altissima (DC.) Drake	Asteraceae	P caesp	Madagascar	X	X			Bibliography (EUR, JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P
Psilotum nudum (L.) P. Beauv.	Psilotaceae	Ch herb caesp	Tropical and subtropical regions			X		Field work (GLO)	GLO: CBNM, MO, P
Pteris linearis Poir.	Pteridaceae	Ch herb caesp	Tropical Africa, Madagascar, Comoros, tropical Asia Mascarene islands (Reunion and Mauritius)			X		Field work (GLO)	GLO: CBNM, MO
Rhizophora mucronata Lam.	Rhizophoraceae	P scap	Indo-Pacific coastlines (Eastern Africac to Vanuatu)	X	X			Bibliography (EUR); Field work (JDN)	EUR: CBNM, MO, P
Ricinus communis L.	Euphorbiaceae	P caesp	Supposed native from tropical North East Africa; cultivated in tropical regions		X	X		Bibliography (GLO); Field work (JDN)	GLO: CBNM, MO, P
Salicornia pachystachya Bunge ex Ung.-Sternb.	Amaranthaceae	T succ	Eastern Africa coastlines (South Kenya to Natal), Madagascar	X				Field work (EUR)	EUR: CBNM, MO
Salsola littoralis Moq.	Amaranthaceae	Ch l succ	Madagascar	X				Bibliography (EUR)	EUR: CBNM, MO, P
Salvadora angustifolia Turrill	Salvadoraceae	P caesp	Madagascar		X			Field work (JDN)	JDN: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Scaevola taccada (Gaertn.) Roxb.	Goodeniaceae	P caesp	Indo-Pacific (Hawai to Africa coastlines); introduced and cultivated elsewhere		X	X		Bibliography (JDN, GLO)	JDN: CBNM; GLO: CBNM, MO, P
Sclerodactylon macrostachyum (Benth.) A. Camus	Poaceae	Ch herb caesp	South Tanzania, Madagascar, coral Seychelles	X	X	X		Bibliography (EUR, JDN, GLO)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Secamone pachystigma Jum. & H. Perrier	Apocynaceae	st PL	Madagascar, Comoros, coral Seychelles			X		Field work (GLO)	GLO: CBNM, MO, P
Senna occidentalis (L.) Link	Fabaceae	T scap	Supposed native from South America; became pantropical		X	X		Field work (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM, MO, P
Senna sp.	Fabaceae	P caesp	?		X			Field work (JDN)	JDN: CBNM
Sesuvium portulacastrum (L.) L.	Aizoaceae	Ch l succ	Pantropical coastlines	X		X		Bibliography (EUR, GLO)	EUR: CBNM
Sida acuta Burm. f.	Malvaceae	Ch suff caesp / T caesp	Pantropical, extended to South West and South East Africa	X		X		Field work (EUR, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Sida cordifolia L. subsp. *cordifolia*	Malvaceae	Ch suff caesp / T caesp	Asia tropical; considered introduced elsewhere, but probably native to Seychelles	X				Field work (EUR)	EUR: CBNM, MO, P
Sida pusilla Cav. *s. l.*	Malvaceae	Ch frut rept	Indo-Pacific	X	X	X	X	Bibliography (EUR, GLO, TRO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO; GLO: CBNM, MO, P; TRO: CBNM, MO, P
Sida rhombifolia L.	Malvaceae	Ch suff caesp / P caesp	Pantropical			X		Bibliography (GLO)	

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Sideroxylon inerme L.	Sapotaceae	P scap	Eastern and Southern Africa, Comoros, Seychelles		X			Bibliography (JDN)	JDN: CBNM, MO, P
Solanum americanum Mill.	Solanaceae	T caesp	Cosmopolitan tropical and subtropical	X	X	X		Field work (EUR, JDN, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Solanum lycopersicum L.	Solanaceae	T caesp	Central and South America; widely cultivated in temperates and warm regions, often escaped and naturalized	X		X		Field work (EUR, GLO)	EUR: CBNM
Solanum sp.	Solanaceae	T caesp	?			X		Field work (GLO)	GLO: CBNM, MO, P
Sonchus oleraceus L.	Asteraceae	T sem	Eurasia, North Africa, North and West Asia	X				Field work (EUR)	
Sophora tomentosa L. subsp. *tomentosa*	Fabaceae	P caesp	Indo-Pacific			X		Bibliography (GLO)	GLO: CBNM, MO, P
Sporobolus virginicus (L.) Kunth	Poaceae	Ch herb caesp / c G rhiz	Pantropical to pansubtropical		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Stachytarpheta jamaicensis (L.) Vahl	Verbenaceae	Ch suff caesp	America (West Indies and South of the United-States of America to Mexico, Ecuador and Brazil); became pantropical			X		Bibliography (GLO)	GLO: CBNM, MO, P
Stachytarpheta urticifolia Sims	Verbenaceae	Ch suff caesp	Supposed native from South-East Asia ; introduced and naturalized elsewhere			X		Field work (GLO)	GLO: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Stenotaphrum micranthum (Desv.) C.E. Hubb.,	Poaceae	H rept	Indo-Pacific coastlines, Seychelles, Mascarene islands			X		Field work (GLO)	GLO: CBNM, MO, P
Striga asiatica (L.) Kuntze	Orobanchaceae	T scap	Warm regions of the Old World and United-States of America	X		X		Bibliography (EUR); Field work (GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Suaeda monoica Forssk. ex J.F. Gmel.	Amaranthaceae	Ch l succ	Eastern Africa to Egypt, Saudi Arabia, Sri Lanka, India (Madras), Madagascar, Israel, Syria	X				Field work (EUR)	
Suriana maritima L.	Surianaceae	P caesp	Pantropical discontinuous distribution	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO; GLO: CBNM, MO, P
Tabebuia pallida (Lindl.) Miers	Bignoniaceae	P scap	West Indies		X			Field work (JDN)	
Tamarindus indica L.	Fabaceae	P scap	Indigeneous incertain area (tropical Africa, Madagascar, India); became paleotropical; widely culivated in tropical regions	X	X		X	Bibliography (EUR); Field work (JDN, TRO)	
Tecticornia indica (Willd.) K.A. Sheph. & Paul G. Wilson	Amaranthaceae	Ch l succ	Tropical coastlines of the Indian Ocean	X				Bibliography (EUR)	EUR: CBNM, MO, P
Tephrosia purpurea (L.) Pers. subsp. *dunensis* Brummitt	Fabaceae	Ch suff caesp / T caesp	Eastern Africa, Madagascar, Comoros		X			Field work (JDN)	JDN: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Terminalia catappa L.	Combretaceae	P scap	Indo-Pacific coastlines (indigeneous area discussed for the western part of the Indian Ocean); widely cultivated in tropical regions		X	X	X	Bibliography (GLO); Field work (JDN, TRO)	GLO: CBNM, MO, P; TRO: CBNM,MO, P
Thespesia populneoides (Roxb.) Kostel.	Malvaceae	P scap	Indian Ocean coastlines (Mozambique, Zanzibar to Malaysia and Australia)	X	X	X		Bibliography (EUR, GLO); Field work (JDN)	EUR: CBNM, MO, P; JDN: CBNM, MO, P; GLO: CBNM, MO, P
Tradescantia spathacea Sw.	Commelinaceae	Ch herb caesp	Central America; cultivated and naturalized in tropical regions	X	X			Field work (EUR, JDN)	
Trianthema portulacastrum L.	Aizoaceae	T rept	America; became pantropical	X	X			Field work (EUR, JDN)	EUR: CBNM, MO, P
Tribulus cistoides L.	Zygophyllaceae	T rept	East and North East of Africa, Madagascar, Comoros, Mascarene islands (Reunion and Mauritius), Cape Verde, warm regions of America		X	X		Bibliography (JDN, GLO)	JDN: CBNM, MO; GLO: CBNM, MO, P
Tribulus parvispinus C. Presl	Zygophyllaceae	T rept	Coastlines regions from South Africa to Saudi Arabia and Pakistan, Madagascar	X				Bibliography (EUR)	EUR: CBNM, MO, P
Tricholaena monachne (Trin.) Stapf & C.E. Hubb.	Poaceae	H caesp	Southern and tropical Africa, Madagascar, Mascarene islands (Reunion and Mauritius)	X	X			Bibliography (JDN); Field work (EUR)	EUR: CBNM, MO, P; JDN: CBNM, MO, P

Scientific name	Family	Life forms	General status and distribution range	Presence				First record source from (name of the territory)	Voucher herbarium specimens (name of the territory and acronym of the herbarium)
				Europa (EUR)	Juan de Nova (JDN)	Iles Glorieuses (GLO)	Tromelin (TRO)		
Tridax procumbens L.	Asteraceae	Ch herb rept	Central America; became pantropical		X	X		Bibliography (GLO); Field work (JDN)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Triumfetta procumbens G. Forst.	Malvaceae	Ch suff rept	Seychelles, Tropical Asia, Pacific				X	Field work (TRO)	TRO: CBNM, MO, P
Urochloa deflexa (Schumach.) H. Scholz	Poaceae	T caesp	Tropical and southern Africa, tropical Arabia, India		X			Field work (JDN)	JDN: CBNM, MO, P
Urochloa maxima (Jacq.) R.D. Webster	Poaceae	H caesp / Ch herb caesp	Tropical Africa; widely introduced and naturalized in warm regions	X	X	X		Bibliography (EUR); Field work (JDN, GLO)	EUR: CBNM, MO, P; GLO: CBNM, MO, P
Vachellia farnesiana (L.) Wight & Arn.	Fabaceae	P caesp	Native from tropical America; introduced and naturalized in all the tropics, now pantropical		X			Field work (JDN)	
Vigna marina (Burm.) Merr.	Fabaceae	Ch herb rept / st PL	Pantropical (coastlines)		X	X		Field work (JDN, GLO)	JDN: CBNM; GLO: CBNM, MO, P
Wollastonia biflora (L.) DC.	Asteraceae	Ch herb rept / Ch herb caesp	Indian Ocean coastlines (Eastern Africa to India and Australia)		X	X		Bibliography (JDN, GLO)	JDN: CBNM, MO, P; GLO: CBNM, MO, P
Zaleya cf. *camillei* (Cordem.) H.E.K. Hartmann	Aizoaceae	T rept	Madagascar, Mascarene islands (Reunion)	X				Bibliography (EUR)	EUR: CBNM, MO, P
Zea mays L.	Poaceae	T caesp	Central America (artificial origin); cosmopolitan culture		X	X		Bibliography (JDN, GLO)	

APPENDIX B

Table 3. List of taxa found on Europa. In the column 'General status on Europa' differents codes were used : A = alien ; N = native ; K = cryptogenic.

Scientific name	Family	General status on Europa	Population and cultural status on Europa	Distribution range on Europa
Abutilon pseudocleistogamum Hochr.	Malvaceae	A	naturalized	local
Achyranthes aspera L. var. *aspera*	Amaranthaceae	K	native or naturalized	local
Achyranthes sp.nov. ?	Amaranthaceae	N	native	local
Achyranthes cf. *talbotii* Hutch. & Dalziel	Amaranthaceae	N	native	local
Agave sisalana Perrine	Asparagaceae	A	invasive, cultivated	local
Alternanthera pungens Kunth	Amaranthaceae	A	naturalized	local
Amaranthus graecizans L. subsp. *silvestris* (Vill.) Brenan	Amaranthaceae	A	naturalized	local
Amaranthus viridis L.	Amaranthaceae	A	naturalized	local
Avicennia marina (Forssk.) Vierh.	Avicenniaceae	N	native	local
Boerhavia coccinea Mill.	Nyctaginaceae	K	native or naturalized	wide
Boerhavia erecta L.	Nyctaginaceae	A	naturalized	supposed extinct
Boerhavia repens L.	Nyctaginaceae	N	native	local
Bothriochloa pertusa (L.) A. Camus	Poaceae	A	naturalized	local
Bougainvillea x buttiana Holttum & Standl.	Nyctaginaceae	A	not naturalized, cultivated	supposed extinct
Bruguiera gymnorhiza (L.) Savigny	Rhizophoraceae	N	native	local
Capparis cartilaginea Decne.	Capparaceae	N	native	wide
Capsicum frutescens L.	Solanaceae	A	naturalized, cultivated	supposed extinct
Casuarina equisetifolia L.	Casuarinaceae	A	invasive, cultivated	wide
Ceriops tagal (Perr.) C.B. Rob.	Rhizophoraceae	N	native	local
Chloris barbata Sw.	Poaceae	A	naturalized	local
Cocos nucifera L.	Arecaceae	A	not naturalized, cultivated	local
Corchorus trilocularis L.	Malvaceae	A	naturalized	local
Cordia subcordata Lam.	Boraginaceae	N	native	local
Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo var. *agrestis*	Cucurbitaceae	K	native or naturalized	local
Cynanchum luteifluens (Jum. & H. Perrier) Desc.	Apocynaceae	N	native	wide
Cynodon dactylon (L.) Pers.	Poaceae	A	naturalized	local
Cyperus rotundus L.	Cyperaceae	A	naturalized	local
Dactyloctenium aegyptium (L.) Willd.	Poaceae	A	naturalized	local
Dactyloctenium capitatum A. Camus	Poaceae	N	native	wide

Scientific name	Family	General status on Europa	Population and cultural status on Europa	Distribution range on Europa
Dactyloctenium ctenioides (Steud.) Lorch ex Bosser	Poaceae	K	native or naturalized	local
Daknopholis boivinii (A. Camus) Clayton	Poaceae	N	native	wide
Delonix regia (Bojer) Raf.	Fabaceae	A	naturalized, cultivated	local
Digitaria ciliaris (Retz.) Koeler var. *chrysoblephara* (Fig. & De Not.)	Poaceae	A	naturalized	local
Eragrostis capuronii A. Camus	Poaceae	N	native	wide
Eragrostis ciliaris (L.) R. Br.	Poaceae	N	native	wide
Euphorbia hirta L.	Euphorbiaceae	A	naturalized	local
Euphorbia prostrata Aiton	Euphorbiaceae	A	naturalized	wide
Euphorbia sp. nov. ?	Euphorbiaceae	N	native	wide
Euphorbia stenoclada Baill.	Euphorbiaceae	N	native	wide
Ficus marmorata Bojer ex Baker	Moraceae	N	native	wide
Fimbristylis cymosa R. Br. *s. l.*	Cyperaceae	N	native	local
Furcraea foetida (L.) Haw.	Asparagaceae	A	invasive, cultivated	local
Guettarda speciosa L.	Rubiaceae	N	native	local
Guilandina bonduc L.	Fabaceae	N	native	local
Hibiscus tiliaceus L.	Malvaceae	N	native	local
Ipomoea coptica (L.) Roth	Convolvulaceae	A	naturalized	local
Ipomoea pes-caprae (L.) R. Br. subsp. *brasiliensis* (L.) Ooststr.	Convolvulaceae	N	native	local
Ipomoea violacea L.	Convolvulaceae	N	native	local
Lepidium englerianum (Muschl.) Al-Shehbaz	Brassicaceae	N	native	wide
Lycium elliotii Dammer *s. l.*	Solanaceae	N	native	local
Malvastrum coromandelianum (L.) Garcke	Malvaceae	A	naturalized	local
Mimusops caffra E. Mey. ex A. DC.	Sapotaceae	A	not naturalized, cultivated	supposed extinct
Mollugo nudicaulis Lam.	Molluginaceae	N	native	local
Moringa oleifera Lam.	Moringaceae	A	naturalized, cultivated	local
Oldenlandia corymbosa L. var. *caespitosa* (Benth.) Verdc.	Rubiaceae	A	naturalized	local
Oldenlandia corymbosa L. var. *corymbosa*	Rubiaceae	A	naturalized	local
Ophioglossum lancifolium C. Presl	Ophioglossaceae	N	native	local
Ophioglossum polyphyllum A. Braun	Ophioglossaceae	N	native	local
Panicum pseudowoeltzkowii A. Camus	Poaceae	K	native or naturalized	local
Panicum voeltzkowii Mez *s. l.*	Poaceae	N	native	wide
Pemphis acidula J.R. Forst. & G. Forst.	Lythraceae	N	native	wide

Scientific name	Family	General status on Europa	Population and cultural status on Europa	Distribution range on Europa
Phoenix dactylifera L.	Arecaceae	A	not naturalized, cultivated	local
Phyllanthus maderaspatensis L. *s. l.*	Phyllanthaceae	N	native	wide
Phyllanthus sp.1	Phyllanthaceae	N	native	local
Phyllanthus sp.2	Phyllanthaceae	N	native	local
Pisonia grandis R. Br.	Nyctaginaceae	N	native	local
Plumbago aphylla Boj. ex Boiss.	Plumbaginaceae	N	native	wide
Portulaca granulatostellulata (Poelln.) Ricceri & Arrigoni	Portulacaceae	K	native or naturalized	local
Portulaca nitida (Danin et H.G. Baker) Ricceri et Arrigoni	Portulacaceae	N	native	local
Portulaca aff. *tuberosa* Roxb.	Portulacaceae	N	native	local
Psiadia altissima (DC.) Drake	Asteraceae	N	native	wide
Rhizophora mucronata Lam.	Rhizophoraceae	N	native	local
Salicornia pachystachya Bunge ex Ung.-Sternb.	Amaranthaceae	N	native	local
Salsola littoralis Moq.	Amaranthaceae	N	native	wide
Sclerodactylon macrostachyum (Benth.) A. Camus	Poaceae	N	native	wide
Sesuvium portulacastrum (L.) L.	Aizoaceae	N	native	local
Sida acuta Burm. f.	Malvaceae	A	naturalized	local
Sida cordifolia L. subsp. *cordifolia*	Malvaceae	A	naturalized	local
Sida pusilla Cav. *s. l.*	Malvaceae	A	naturalized	local
Solanum americanum Mill.	Solanaceae	A	naturalized	local
Solanum lycopersicum L.	Solanaceae	A	naturalized	local
Sonchus oleraceus L.	Asteraceae	A	naturalized	supposed extinct
Striga asiatica (L.) Kuntze	Orobanchaceae	A	naturalized	local
Suaeda monoica Forssk. ex J.F. Gmel.	Amaranthaceae	N	native	local
Suriana maritima L.	Surianaceae	N	native	wide
Tamarindus indica L.	Fabaceae	A	not naturalized, cultivated	supposed extinct
Tecticornia indica (Willd.) K.A. Sheph. & Paul G. Wilson	Amaranthaceae	N	native	local
Thespesia populneoides (Roxb.) Kostel.	Malvaceae	N	native	local
Tradescantia spathacea Sw.	Commelinaceae	A	not naturalized, cultivated	supposed extinct
Trianthema portulacastrum L.	Aizoaceae	A	naturalized	local
Tribulus parvispinus C. Presl	Zygophyllaceae	K	native or naturalized	local
Tricholaena monachne (Trin.) Stapf & C.E. Hubb.	Poaceae	N	native	local
Urochloa maxima (Jacq.) R.D. Webster	Poaceae	A	naturalized	local
Zaleya cf. *camillei* (Cordem.) H.E.K. Hartmann	Aizoaceae	K	native or naturalized	local

Table 4. List of taxa found on Juan de Nova. In the column 'General status on Europa' differents codes were used : A = alien ; N = native ; K = cryptogenic.

Scientific name	Family	General status on Juan de Nova	Population and cultural status on Juan de Nova	Distribution range on Juan de Nova
Acalypha indica L.	Euphorbiaceae	A	naturalized	local
Acanthocereus tetragonus (L.) Hummelinck	Cactaceae	A	naturalized, cultivated	local
Achyranthes aspera L. var. *aspera*	Amaranthaceae	N	native	local
Achyranthes aspera L. var. *fruticosa* (Lam.) Boerl.	Amaranthaceae	N	native	local
Achyranthes aspera L. var.1	Amaranthaceae	N	native	wide
Achyranthes aspera L. var.2	Amaranthaceae	N	native	local
Acrostichum aureum L.	Pteridaceae	N	native	local
Adansonia digitata L.	Malvaceae	A	not naturalized, cultivated	supposed extinct
Agave sisalana Perrine	Asparagaceae	A	naturalized, cultivated	local
Albizia lebbeck (L.) Benth.	Fabaceae	A	not naturalized, cultivated	local
Amaranthus graecizans L. subsp. *silvestris* (Vill.) Brenan	Amaranthaceae	A	naturalized	local
Amaranthus viridis L.	Amaranthaceae	A	naturalized	local
Antigonon leptopus Hook. & Arn.	Polygonaceae	A	naturalized, cultivated	local
Asystasia sp.	Acanthaceae	N	native	local
Bambusa vulgaris Schrad. ex J.C. Wendl. var. *vittata* Rivière & C. Rivière	Poaceae	A	not naturalized, cultivated	local
Boerhavia coccinea Mill.	Nyctaginaceae	N	native	wide
Boerhavia erecta L.	Nyctaginaceae	A	naturalized	local
Boerhavia sp. nov. 1 ?	Nyctaginaceae	N	native	wide
Bougainvillea x buttiana Holttum & Standl.	Nyctaginaceae	A	not naturalized, cultivated	local
Bulbostylis hispidula (Vahl) R.W. Haines subsp. *hispidula*	Cyperaceae	N	native	local
Calophyllum inophyllum L.	Calophyllaceae	A	not naturalized, cultivated	local
Canavalia rosea (Sw.) DC.	Fabaceae	N	native	local
Capparis cartilaginea Decne.	Capparaceae	N	native	local
Cascabela thevetia (L.) Lippold	Apocynaceae	A	not naturalized, cultivated	local
Cassytha filiformis L.	Lauraceae	N	native	wide
Casuarina equisetifolia L.	Casuarinaceae	A	invasive, cultivated	wide
Catharanthus roseus (L.) G. Don	Apocynaceae	A	naturalized, cultivated	local
Ceiba pentandra (L.) Gaertn.	Malvaceae	A	not naturalized, cultivated	local
Celosia spicata (Thouars) Spreng.	Amaranthaceae	N	native	local
Cenchrus echinatus L.	Poaceae	A	naturalized	local
Cheirolaena linearis Benth	Malvaceae	N	native	local

Scientific name	Family	General status on Juan de Nova	Population and cultural status on Juan de Nova	Distribution range on Juan de Nova
Citrus aurantiifolia (Christm.) Swingle	Rutaceae	A	not naturalized, cultivated	local
Cleome grandidieri Baill.	Cleomaceae	N	native	local
Cleome strigosa (Boj.) Oliv.	Cleomaceae	N	native	wide
Cocos nucifera L.	Arecaceae	A	invasive, cultivated	wide
Colubrina asiatica (L.) Brongn.	Rhamnaceae	N	native	local
Commelina forskalaei Vahl	Commelinaceae	A	naturalized	local
Commicarpus plumbagineus (Cav.) Standl.	Nyctaginaceae	N	native	local
Consolea falcata (Ekman & Werderm.) F.M. Knuth	Cactaceae	A	naturalized, cultivated	local
Corchorus aestuans L.	Malvaceae	A	naturalized	local
Cordia subcordata Lam.	Boraginaceae	N	native, cultivated	local
Crotalaria edmundi-bakeri R. Vig.	Fabaceae	K	native or naturalized	local
Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo var. *agrestis*	Cucurbitaceae	K	native or naturalized	local
Cynodon dactylon (L.) Pers.	Poaceae	N	native	local
Cynodon sp.	Poaceae	A	naturalized	local
Cyperus rotundus L.	Cyperaceae	A	naturalized	local
Dactyloctenium aegyptium (L.) Willd.	Poaceae	A	naturalized	local
Dactyloctenium ctenioides (Steud.) Lorch ex Bosser	Poaceae	N	native	wide
Dactyloctenium geminatum Hack.	Poaceae	N	native	local
Daknopholis boivinii (A. Camus) Clayton	Poaceae	N	native	local
Datura innoxia Mill.	Solanaceae	A	naturalized	local
Delonix regia (Bojer) Raf.	Fabaceae	A	not naturalized, cultivated	local
Digitaria setigera Roth	Poaceae	K	native or naturalized	local
Dodonaea viscosa (L.) Jacq.	Sapindaceae	K	native or naturalized	local
Dombeya greveana Baill. var. *metameropsis* (Hochr.) Arènes	Malvaceae	N	native, cultivated	wide
Eragrostis cilianensis (All.) Vignolo ex Janch.	Poaceae	A	naturalized	local
Eragrostis ciliaris (L.) R. Br.	Poaceae	N	native	wide
Eragrostis minor Host	Poaceae	A	naturalized	local
Eriochloa fatmensis (Hochst. & Steud.) Clayton	Poaceae	A	naturalized	local
Erythrina variegata L.	Fabaceae	A	not naturalized, cultivated	local
Euphorbia hirta L.	Euphorbiaceae	A	naturalized	wide
Euphorbia mertonii Fosberg	Euphorbiaceae	N	native	local
Euphorbia prostrata Aiton	Euphorbiaceae	A	naturalized	wide
Euphorbia stenoclada Baill.	Euphorbiaceae	N	native	local

Scientific name	Family	General status on Juan de Nova	Population and cultural status on Juan de Nova	Distribution range on Juan de Nova
Euphorbia thymifolia L.	Euphorbiaceae	A	naturalized	local
Euphorbia tithymaloides L.	Euphorbiaceae	A	naturalized, cultivated	local
Ficus benghalensis L.	Moraceae	A	not naturalized, cultivated	local
Furcraea selloa K. Koch var. *marginata* Trel.	Asparagaceae	A	not naturalized, cultivated	local
Gossypium hirsutum L.	Malvaceae	A	invasive, cultivated	wide
Guettarda speciosa L.	Rubiaceae	N	native	local
Guilandina bonduc L.	Fabaceae	N	native	wide
Heliotropium foertherianum Diane & Hilger	Boraginaceae	N	native	wide
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	Poaceae	K	native or naturalized	local
Hibiscus physaloides Guill. & Perr.	Malvaceae	K	native or naturalized	local
Hyphaene coriacea Gaertn.	Arecaceae	K	not naturalized, cultivated	local
Hypoestes juanensis Benoist	Acanthaceae	N	native	wide
Imperata cylindrica (L.) P. Beauv.	Poaceae	A	naturalized, cultivated	local
Indigofera tinctoria L.	Fabaceae	A	naturalized	local
Ipomoea pes-caprae (L.) R. Br. subsp. *brasiliensis* (L.) Ooststr.	Convolvulaceae	N	native	local
Ipomoea violacea L.	Convolvulaceae	N	native	wide
Lantana strigocamara R.W. Sanders	Verbenaceae	A	invasive	wide
Launaea intybacea (Jacq.) Beauverd	Asteraceae	N	native	local
Launaea sarmentosa (Willd.) Schultz	Asteraceae	N	native	local
Leptadenia madagascariensis Decne.	Apocynaceae	N	native	wide
Lepturus repens (G. Forst.) R. Br.	Poaceae	N	native	local
Lumnitzera racemosa Willd.	Combretaceae	N	native	local
Maerua baillonii Hadj-Moust.	Capparaceae	N	native	local
Manihot esculenta Crantz	Euphorbiaceae	A	not naturalized, cultivated	supposed extinct
Marsdenia verrucosa Decne.	Apocynaceae	K	native or naturalized	wide
Mimusops coriacea (A. DC.) Miq.	Sapotaceae	A	not naturalized, cultivated	local
Mollugo nudicaulis Lam.	Molluginaceae	N	native	local
Moringa oleifera Lam.	Moringaceae	A	not naturalized, cultivated	local
Morus alba L.	Moraceae	A	not naturalized, cultivated	local
Mucuna gigantea (Willd.) DC.	Fabaceae	N	native	local
Musa sp.	Musaceae	A	not naturalized, cultivated	supposed extinct
Nervilia bicarinata (Blume) Schltr.	Orchidaceae	N	native	local
Nesogenes madagascariensis (Bonati) Marais	Orobanchaceae	N	native	local

Scientific name	Family	General status on Juan de Nova	Population and cultural status on Juan de Nova	Distribution range on Juan de Nova
Oldenlandia corymbosa L. var. *caespitosa* (Benth.) Verdc.	Rubiaceae	A	naturalized	wide
Oldenlandia fastigiata Bremek. var. *fastigiata*	Rubiaceae	K	native or naturalized	local
Oldenlandia fastigiata Bremek. var. *somala* (Bremek.) Verdc.	Rubiaceae	K	native or naturalized	local
Ophioglossum lancifolium C. Presl	Ophioglossaceae	N	native	local
Opuntia stricta (Haw.) Haw.	Cactaceae	A	not naturalized, cultivated	local
Panicum cf. *voeltzkowii* Mez	Poaceae	K	native or naturalized	wide
Pemphis acidula J.R. Forst. & G. Forst.	Lythraceae	N	native	local
Perrierophytum glomeratum Hochr.	Malvaceae	N	native	local
Phyllanthus amarus Schumach.	Phyllanthaceae	A	naturalized	local
Phyllanthus coluteoides Baill. ex Müll.Arg.	Phyllanthaceae	K	native or naturalized, cultivated	wide
Phyllanthus maderaspatensis L. *s. l.*	Phyllanthaceae	N	native	local
Physalis lagascae Roem. & Schult.	Solanaceae	A	naturalized	local
Pisonia grandis R. Br.	Nyctaginaceae	N	native	wide
Pithecellobium dulce (Roxb.) Benth.	Fabaceae	A	naturalized, cultivated	local
Pleurostelma cernuum (Decne.) Bullock	Apocynaceae	N	native	wide
Plumeria rubra L. f. *tricolor* (Ruiz & Pav.) Woodson	Apocynaceae	A	not naturalized, cultivated	local
Pongamia pinnata (L.) Pierre	Fabaceae	A	not naturalized, cultivated	local
Portulaca granulatostellulata (Poelln.) Ricceri & Arrigoni	Portulacaceae	K	native or naturalized	local
Portulaca nitida (Danin et H.G. Baker) Ricceri et Arrigoni	Portulacaceae	N	native	local
Pseuderanthemum carruthersii (Seem.) Guill. var. *atropurpureum* (W. Bull) Fosberg	Acanthaceae	A	not naturalized, cultivated	local
Pseudoconyza viscosa (Mill.) D'Arcy	Asteraceae	K	native or naturalized	local
Psiadia altissima (DC.) Drake	Asteraceae	N	native, cultivated	wide
Rhizophora mucronata Lam.	Rhizophoraceae	N	native	local
Ricinus communis L.	Euphorbiaceae	A	naturalized	local
Salvadora angustifolia Turrill	Salvadoraceae	N	native, cultivated	wide
Scaevola taccada (Gaertn.) Roxb.	Goodeniaceae	N	native	wide
Sclerodactylon macrostachyum (Benth.) A. Camus	Poaceae	N	native	wide
Senna occidentalis (L.) Link	Fabaceae	A	naturalized	local
Senna sp.	Fabaceae	A	naturalized, cultivated	local
Sida pusilla Cav. *s. l.*	Malvaceae	A	naturalized	wide
Sideroxylon inerme L.	Sapotaceae	N	native	local
Solanum americanum Mill.	Solanaceae	A	naturalized	local

Scientific name	Family	General status on Juan de Nova	Population and cultural status on Juan de Nova	Distribution range on Juan de Nova
Sporobolus virginicus (L.) Kunth	Poaceae	N	native	wide
Suriana maritima L.	Surianaceae	N	native	wide
Tabebuia pallida (Lindl.) Miers	Bignoniaceae	A	not naturalized, cultivated	local
Tamarindus indica L.	Fabaceae	A	naturalized, cultivated	local
Tephrosia purpurea (L.) Pers. subsp. *dunensis* Brummitt	Fabaceae	N	native	local
Terminalia catappa L.	Combretaceae	A	not naturalized, cultivated	local
Thespesia populneoides (Roxb.) Kostel.	Malvaceae	N	native, cultivated	local
Tradescantia spathacea Sw.	Commelinaceae	A	not naturalized, cultivated	local
Trianthema portulacastrum L.	Aizoaceae	A	naturalized	local
Tribulus cistoides L.	Zygophyllaceae	A	naturalized	local
Tricholaena monachne (Trin.) Stapf & C.E. Hubb.	Poaceae	K	native or naturalized	local
Tridax procumbens L.	Asteraceae	A	naturalized	wide
Urochloa deflexa (Schumach.) H. Scholz	Poaceae	K	native or naturalized	local
Urochloa maxima (Jacq.) R.D. Webster	Poaceae	A	naturalized	local
Vachellia farnesiana (L.) Wight & Arn.	Fabaceae	A	naturalized, cultivated	local
Vigna marina (Burm.) Merr.	Fabaceae	N	native	local
Wollastonia biflora (L.) DC.	Asteraceae	N	native	wide
Zea mays L.	Poaceae	A	not naturalized, cultivated	supposed extinct

Table 5. List of taxa found on the Iles Glorieuses. In the column 'General status on Europa' differents codes were used : A = alien ; N = native ; K = cryptogenic.

Scientific name	Family	General status on Iles Glorieuses	Population and cultural status on Iles Glorieuses	Distribution range on Iles Glorieuses	Presence on Grande Glorieuse	Presence on Ile aux Crabes	Presence on Ile du Lys	Presence on Ile aux Roches Vertes
Acalypha indica L.	Euphorbiaceae	A	naturalized	local	x			
Achyranthes aspera L. var. *fruticosa* (Lam.) Boerl.	Amaranthaceae	N	native	wide	x	x	x	
Adiantum hirsutum Bory	Pteridaceae	N	native	local	x			
Adiantum philippense L.	Pteridaceae	N	native	local	x			
Agave sisalana Perrine	Asparagaceae	A	invasive, cultivated	local	x			
Ageratum conyzoides L.	Asteraceae	A	naturalized	local	x			
Alocasia macrorrhizos (L.) G. Don var. *macrorrhizos*	Araceae	A	naturalized, cultivated	local	x			
Amaranthus spinosus L.	Amaranthaceae	A	naturalized	local	x			
Amaranthus viridis L.	Amaranthaceae	A	naturalized	local	x			
Annona muricata L.	Annonaceae	A	naturalized, cultivated	local	x			
Annona squamosa L.	Annonaceae	A	naturalized, cultivated	local	x			
Asystasia sp.	Acanthaceae	N	native	local	x			
Boerhavia diffusa L.	Nyctaginaceae	A	naturalized	local	x			
Boerhavia erecta L.	Nyctaginaceae	A	naturalized	local	x			
Boerhavia sp. nov. 1 ?	Nyctaginaceae	N	native	wide	x		x	
Bothriochloa pertusa (L.) A. Camus	Poaceae	A	naturalized	local	x			
Bulbostylis basalis Fosberg	Cyperaceae	N	native	local	x			
Calophyllum inophyllum L.	Calophyllaceae	N	native	local	x			
Canavalia rosea (Sw.) DC.	Fabaceae	N	native	local	x			
Capsicum frutescens L.	Solanaceae	A	naturalized, cultivated	local	x			
Carica papaya L.	Caricaceae	A	invasive, cultivated	local	x			
Cassytha filiformis L.	Lauraceae	N	native	wide	x			
Casuarina equisetifolia L.	Casuarinaceae	A	invasive, cultivated	wide	x			
Catharanthus roseus (L.) G. Don	Apocynaceae	A	naturalized	local	x			
Celosia spicata (Thouars) Spreng.	Amaranthaceae	N	native	local	x			
Cenchrus echinatus L.	Poaceae	A	naturalized	local	x			
Cenchrus polystachios (L.) Morrone	Poaceae	A	invasive	local	x			
Chloris barbata Sw.	Poaceae	A	naturalized	local	x			

Scientific name	Family	General status on Iles Glorieuses	Population and cultural status on Iles Glorieuses	Distribution range on Iles Glorieuses	Presence on Grande Glorieuse	Presence on Ile aux Crabes	Presence on Ile du Lys	Presence on Ile aux Roches Vertes
Christella cf. *dentata* (Forssk.) Brownsey & Jermy	Thelypteridaceae	A	naturalized	supposed extinct	x			
Cleome strigosa (Boj.) Oliv.	Cleomaceae	N	native	local	x			
Cocos nucifera L.	Arecaceae	A	invasive, cultivated	wide	x	x	x	
Colubrina asiatica (L.) Brongn.	Rhamnaceae	N	native	wide	x			
Commelina benghalensis L.	Commelinaceae	A	naturalized	local	x			
Commicarpus plumbagineus (Cav.) Standl.	Nyctaginaceae	N	native	local	x			
Corchorus aestuans L.	Malvaceae	A	naturalized	local	x			
Cordia subcordata Lam.	Boraginaceae	N	native	wide	x		x	
Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo var. *agrestis*	Cucurbitaceae	A	naturalized	local	x			
Cyanthillium cinereum (L.) H. Rob.	Asteraceae	A	naturalized	wide	x			
Cyperus dubius Rottb.	Cyperaceae	K	native or naturalized	local	x			
Cyperus ligularis L.	Cyperaceae	N	native	local	x		x	
Cyperus rotundus L.	Cyperaceae	A	naturalized	local	x			
Dactyloctenium ctenioides (Steud.) Lorch ex Bosser	Poaceae	N	native	wide	x		x	
Daknopholis boivinii (A. Camus) Clayton	Poaceae	N	native	wide	x			
Datura innoxia Mill.	Solanaceae	A	naturalized	local	x			
Digitaria horizontalis Willd.	Poaceae	A	naturalized	local	x			
Digitaria sp.	Poaceae	A	naturalized	local	x			
Disperis tripetaloides (Thouars) Lindl.	Orchidaceae	N	native	local	x			
Dodonaea viscosa (L.) Jacq.	Sapindaceae	N	naturalized	supposed extinct	x			
Eleusine indica (L.) Gaertn.	Poaceae	A	naturalized	local	x			
Enteropogon sechellensis (Baker) Benth. ex T. Durand & Schinz	Poaceae	K	native or naturalized	local	x			
Eragrostis ciliaris (L.) R. Br.	Poaceae	K	native or naturalized	wide	x			
Eragrostis subaequiglumis Renvoize	Poaceae	N	native	local	x		x	
Erythrina variegata L.	Fabaceae	N	native	supposed extinct	x			
Euphorbia hirta L.	Euphorbiaceae	A	naturalized	wide	x			

Scientific name	Family	General status on Iles Glorieuses	Population and cultural status on Iles Glorieuses	Distribution range on Iles Glorieuses	Presence on Grande Glorieuse	Presence on Ile aux Crabes	Presence on Ile du Lys	Presence on Ile aux Roches Vertes
Euphorbia prostrata Aiton	Euphorbiaceae	A	naturalized	local	x			
Euphorbia stoddartii Fosberg	Euphorbiaceae	N	native	wide	x		x	x
Euphorbia tithymaloides L.	Euphorbiaceae	A	naturalized, cultivated	local	x			
Evolvulus alsinoides (L.) L.	Convolvulaceae	N	native	local	x			
Ficus grevei Baillon	Moraceae	N	native	wide	x			
Ficus sp.	Moraceae	K	native or naturalized	local	x			
Fimbristylis cymosa R. Br. *s. l.*	Cyperaceae	N	native	wide	x			
Flacourtia indica (Burm. f.) Merr.	Salicaceae	A	invasive	wide	x			
Flueggea virosa (Roxb. ex Willd.) Royle	Phyllanthaceae	K	native or naturalized	wide	x			
Furcraea foetida (L.) Haw.	Asparagaceae	A	naturalized, cultivated	local	x			
Gossypium hirsutum L.	Malvaceae	A	naturalized, cultivated	local	x			
Guettarda speciosa L.	Rubiaceae	N	native	wide	x		x	
Guilandina bonduc L.	Fabaceae	N	native	wide	x		x	
Gynandropsis gynandra (L.) Briq.	Cleomaceae	K	native or naturalized	local			x	
Heliotropium foertherianum Diane & Hilger	Boraginaceae	N	native	wide	x		x	
Hernandia nymphaeifolia (C. Presl) Kubitzki	Hernandiaceae	N	native	local	x			
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	Poaceae	A	naturalized	local	x			
Hibiscus physaloides Guill. & Perr.	Malvaceae	N	native	local	x		x	
Hibiscus tiliaceus L.	Malvaceae	N	native	local	x		x	
Imperata cylindrica (L.) P. Beauv.	Poaceae	A	naturalized, cultivated	local	x			
Ipomoea pes-caprae (L.) R. Br. subsp. *brasiliensis* (L.) Ooststr.	Convolvulaceae	N	native	wide	x		x	
Ipomoea violacea L.	Convolvulaceae	N	native	wide	x		x	
Launaea intybacea (Jacq.) Beauverd	Asteraceae	A	naturalized	local	x			
Launaea sarmentosa (Willd.) Schultz	Asteraceae	N	native	wide	x			
Lepidium englerianum (Muschl.) Al-Shehbaz	Brassicaceae	A	naturalized	local	x			
Lepturus repens (G. Forst.) R. Br.	Poaceae	N	native	local	x			
Leucaena leucocephala (Lam.) de Wit	Fabaceae	A	naturalized, cultivated	local	x			
Lygodium kerstenii Kuhn	Lygodiaceae	N	native	local	x			
Malvastrum coromandelianum (L.) Garcke	Malvaceae	A	naturalized	local	x			

Scientific name	Family	General status on Iles Glorieuses	Population and cultural status on Iles Glorieuses	Distribution range on Iles Glorieuses	Presence on Grande Glorieuse	Presence on Ile aux Crabes	Presence on Ile du Lys	Presence on Ile aux Roches Vertes
Mollugo nudicaulis Lam.	Molluginaceae	N	native	wide	x			
Morinda citrifolia L.	Rubiaceae	N	native	local	x			
Moringa oleifera Lam.	Moringaceae	A	naturalized, cultivated	local	x			
Mucuna gigantea (Willd.) DC.	Fabaceae	N	native	local	x			
Musa sp.	Musaceae	A	not naturalized, cultivated	supposed extinct	x			
Nephrolepis biserrata (Sw.) Schott	Nephrolepidaceae	N	native	local	x			
Nervilia bicarinata (Blume) Schltr.	Orchidaceae	N	native	local	x			
Nesogenes prostrata (Benth.) Hemsl.	Orobanchaceae	N	native	local	x			
Ochrosia oppositifolia (Lam.) K. Schum.	Apocynaceae	N	native	local	x			
Oldenlandia corymbosa L. var. *corymbosa*	Rubiaceae	A	naturalized	local	x			
Panicum voeltzkowii Mez	Poaceae	N	native	local	x			
Paspalum vaginatum Sw.	Poaceae	N	native	local			x	
Passiflora suberosa L.	Passifloraceae	A	invasive	wide	x			
Pemphis acidula J.R. Forst. & G. Forst.	Lythraceae	N	native	local	x		x	
Perrierophytum glomeratum Hochr.	Malvaceae	N	native	wide	x			
Phyllanthus amarus Schumach.	Phyllanthaceae	A	naturalized	local	x			
Phyllanthus maderaspatensis L. *s. l.*	Phyllanthaceae	N	native	wide	x			
Phymatosorus scolopendria (Burm. f.) Pic. Serm.	Polypodiaceae	N	native	local	x			
Physalis lagascae Roem. & Schult.	Solanaceae	A	naturalized	local	x			
Pisonia grandis R. Br.	Nyctaginaceae	N	native	wide	x		x	
Portulaca granulatostellulata (Poelln.) Ricceri & Arrigoni	Portulacaceae	K	native or naturalized	local	x	x	x	
Portulaca mauritiensis Poelln. var. *aldabrensis* Fosberg	Portulacaceae	N	native	local	x	x		
Portulaca nitida (Danin et H.G. Baker) Ricceri et Arrigoni	Portulacaceae	N	native	local	x		x	x
Premna serratifolia L.	Lamiaceae	N	native	local	x			
Pseudoconyza viscosa (Mill.) D'Arcy	Asteraceae	A	naturalized	local	x		x	
Psilotum nudum (L.) P. Beauv.	Psilotaceae	N	native	local	x			

Scientific name	Family	General status on Iles Glorieuses	Population and cultural status on Iles Glorieuses	Distribution range on Iles Glorieuses	Presence on Grande Glorieuse	Presence on Ile aux Crabes	Presence on Ile du Lys	Presence on Ile aux Roches Vertes
Pteris linearis Poir.	Pteridaceae	A	naturalized	supposed extinct	x			
Ricinus communis L.	Euphorbiaceae	A	naturalized	local	x			
Scaevola taccada (Gaertn.) Roxb.	Goodeniaceae	N	native	wide	x		x	
Sclerodactylon macrostachyum (Benth.) A. Camus	Poaceae	N	native	local	x		x	
Secamone pachystigma Jum. & H. Perrier	Apocynaceae	N	native	local	x			
Senna occidentalis (L.) Link	Fabaceae	A	naturalized	local	x			
Sesuvium portulacastrum (L.) L.	Aizoaceae	N	native	local		x		x
Sida acuta Burm. f.	Malvaceae	A	naturalized	local	x			
Sida pusilla Cav. *s. l.*	Malvaceae	N	native	wide	x		x	
Sida rhombifolia L.	Malvaceae	A	naturalized	local	x			
Solanum americanum Mill.	Solanaceae	A	naturalized	local	x			
Solanum lycopersicum L.	Solanaceae	A	naturalized, cultivated	local	x			
Solanum sp.	Solanaceae	A	naturalized	local			x	
Sophora tomentosa L. subsp. *tomentosa*	Fabaceae	N	native	local	x			
Sporobolus virginicus (L.) Kunth	Poaceae	N	native	wide	x			x
Stachytarpheta jamaicensis (L.) Vahl	Verbenaceae	A	naturalized	wide	x			
Stachytarpheta urticifolia Sims	Verbenaceae	A	naturalized	local	x			
Stenotaphrum micranthum (Desv.) C.E. Hubb.,	Poaceae	K	native or naturalized	local	x			
Striga asiatica (L.) Kuntze	Orobanchaceae	N	native	local	x			
Suriana maritima L.	Surianaceae	N	native	wide	x	x		
Terminalia catappa L.	Combretaceae	N	native	local	x			
Thespesia populneoides (Roxb.) Kostel.	Malvaceae	N	native	local	x		x	
Tribulus cistoides L.	Zygophyllaceae	K	native or naturalized	local	x			
Tridax procumbens L.	Asteraceae	A	naturalized	wide	x			
Urochloa maxima (Jacq.) R.D. Webster	Poaceae	A	naturalized	local	x			
Vigna marina (Burm.) Merr.	Fabaceae	N	native	local	x			
Wollastonia biflora (L.) DC.	Asteraceae	N	native	local	x			
Zea mays L.	Poaceae	A	not naturalized, cultivated	supposed extinct	x			

Table 6. List of taxa found on Tromelin. In the column 'General status on Europa' differents codes were used : A = alien ; N = native ; K = cryptogenic.

Scientific name	Family	General status on Tromelin	Population and cultural status on Tromelin	Distribution range on Tromelin
Aloe vera (L.) Burm. f.	Xanthorrhoeaceae	A	naturalized, cultivated	supposed extinct
Boerhavia sp. nov. 2 ?	Nyctaginaceae	N	native	wide
Carica papaya L.	Caricaceae	A	not naturalized, cultivated	supposed extinct
Casuarina equisetifolia L.	Casuarinaceae	A	not naturalized, cultivated	supposed extinct
Cocos nucifera L.	Arecaceae	A	invasive, cultivated	local
Consolea falcata (Ekman & Werderm.) F.M. Knuth	Cactaceae	A	invasive, cultivated	local
Dactyloctenium aristatum Link	Poaceae	A	naturalized	local
Euphorbia hirta L.	Euphorbiaceae	A	invasive	local
Euphorbia prostrata Aiton	Euphorbiaceae	A	invasive	local
Heliotropium foertherianum Diane & Hilger	Boraginaceae	N	native	wide
Ipomoea pes-caprae (L.) R. Br. subsp. *brasiliensis* (L.) Ooststr.	Convolvulaceae	N	native	supposed extinct
Lepidium englerianum (Muschl.) Al-Shehbaz	Brassicaceae	A	invasive	local
Musa sp.	Musaceae	A	not naturalized, cultivated	supposed extinct
Pandanus utilis Bory	Pandanaceae	A	not naturalized, cultivated	supposed extinct
Persea americana Mill.	Lauraceae	A	not naturalized, cultivated	supposed extinct
Portulaca mauritiensis Poelln. var. *aldabrensis* Fosberg	Portulacaceae	N	native	local
Portulaca gr. *oleracea* L.	Portulacaceae	N	native	wide
Sida pusilla Cav. *s. l.*	Malvaceae	N	native	wide
Tamarindus indica L.	Fabaceae	A	not naturalized, cultivated	supposed extinct
Terminalia catappa L.	Combretaceae	A	not naturalized, cultivated	local
Triumfetta procumbens G. Forst.	Malvaceae	N	native	local