Biodiversity Express Survey

Savane-Roche Virginie
French Guiana

August 2008

Biodiversity Inventory for Conservation

Biodiversity Express Survey 1

Biodiversity Express Survey (BES) 1, Savane-Roche Virginie, French Guiana, 2008

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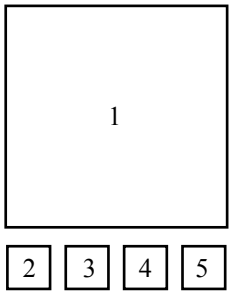
Publication date:
August 2015



Picture covers:
1. View on top of Savane-Roche Virginie 2. *Dendrobates tinctorius* 3. *Ipomoea leprieurii* 4. Libellulidae sp. 5. Passifloraceae sp.

Biodiversity Express Surveys (BES) are snapshot biodiversity studies of carefully selected regions. Expeditions typically target understudied and/or threatened areas with an urgent need for more information on the occurring fauna and flora. The results are presented in an Express Report (ER) that is made publicly available online for anybody to use and can be found at www.binco.eu. Teams consist of a small number of international specialists and local scientists. Results presented in Express Reports are dynamic and will be updated as new information on identifications from the survey and from observations in the area become available.

Suggested citation:

Casteels J., Fouret S., Janssens S. Jocque M.J., Merckx, V., Mertens J., and Van Roie M. (2015). Express Biodiversity Survey in Savane-Roche Virginie, French Guiana. BINCO Express Report 1. Biodiversity Inventory for Conservation. Glabbeek, Belgium, 15 pp.

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EXPEDITION FACT SHEET

Location

Savane-Roche Virginie (04°11.76'N, 052°09.11'W), Commune de Régina, Arondissement of Cayenne, Eastern French Guiana .

Date

16-24 August 2008 (9 days)

Expedition Members – Expertise

Vincent Merckx, Dr. – botanist (mycoheterotrophic plants)
Jeroen Casteels – entomologist
Samuel Fouret – botanist
Merlijn Jocqué – entomologist and herpetologist

Cooperation and financial support

Van Eeden-fonds – Le GEPOG

Acknowledgements

This expedition was made possible with help of:
Denise and Helene for Accomodation and all kinds of logistics.
Christian for assist with Guyanese
Filip Vandelook for the analysis of the soil samples.
Joep Moonen for field assistance

QUICK OVERVIEW OF RESULTS

Table 1. An overview of the taxa identified at this point and the survey and collecting techniques used: Opportunistic observations (OO), Active survey (AS), Light trapping (LT), Vegetation plots (VP).

Taxa	# Species	# Individuals	Survey Technique
Amphibians	9	108	OO / AS
Reptiles	4	21	OO
Birds	4	6	OO
Moths	49	?	LT
Plants	65	?	AS / VP

ABSTRACT

After the construction of Route National 1 from Régina to Saint George in 2003, the inselberg "Savane-Roche Virginie", became easily accessible by visitors on foot. A Biodiversity Express Survey (BES) was organized by BINCO in 2008 to evaluate biodiversity value and visitors impact. The communities of plants, amphibians, reptiles and selected invertebrates were recorded. Relatively low in species richness, a community of well adapted species occurred on the granite outcrop, with a high number of forest vagrants. Several new species to science were described, including a new amblypigid from *Achmea* sp. bromeliads and an oribatid mite from *Clusia* sp. leaf litter.

1 Introduction

In South America, classical whale-back and sugarloaf shaped inselbergs are scattered throughout the Guyana Highlands and the Brazilian Shields (up to East Bolivia) (Sarthou et al. 2003). These outcrops rise abruptly from the surrounding plain landscape and represent singular habitats in tropical rain forests functioning as terrestrial islands (Prance 1996). In French Guiana there are about 200 inselbergs (Richard-Hansen & Le Guen 2001). The expedition was to the inselberg "Savane-Roche Virginie", situated in the north-eastern part of French Guiana (4°11'48,66"N, 52°9'7,98"W). This is one of the most eastern inselbergs of the Guyana Highlands. The granite mountain is c. 130 m high and measures approximately 200 by 1000 meters. Near the inselberg are 2 smaller granite platforms, called "satellite 1" and "satellite 2" (Moonen 2003).

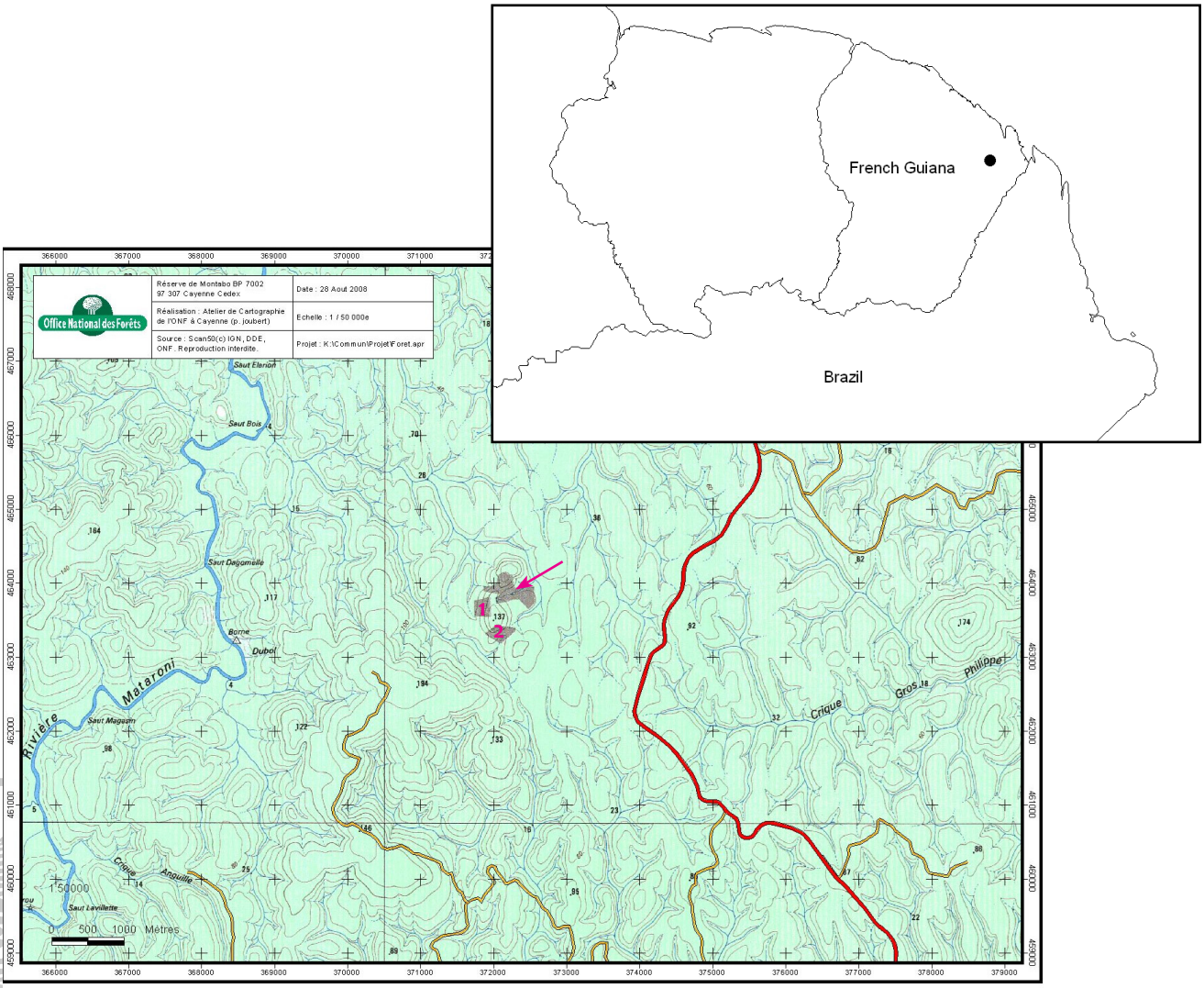

Fig. 1. Top: Overview map showing the location of the inselberg in French Guiana **Bottom:** Detailed topographical map of area around Savane-Roche Virginie (arrow) and the two granite platforms (1 & 2)

Despite the reasonable accessibility of Savane-Roche Virginie the area is still relatively undisturbed. Nor is there considerable damage to the forest caused by illegal ore prospectors that use destructive methods to look for gold as these activities occur more to the South near the Brazilian border. The main reason for the expedition is the construction of a major road close to the Savane-Roche Virginie. Although this road greatly facilitated access to the inselberg, it probably also increased the disturbance to the occurring ecosystem. Before 2003, the most appropriate way to reach the inselberg was by helicopter or boat. After the construction of Route National 1 from Régina to Saint George in 2003, an easier access to the area resulted in an increase of visitors and campers and hence more pressure on the region. Only little is known about the impact of human influence on inselberg ecosystems. Since inselbergs resemble an island-like environment with highly adapted flora and fauna organisms in these ecosystems have a large dispersal cost. Therefore, the interchange between populations on different outcrops is probably very low. As a result, negative human interference such as fires can have a devastating influence as recolonization of the area occurs very slowly (Seine 2000).

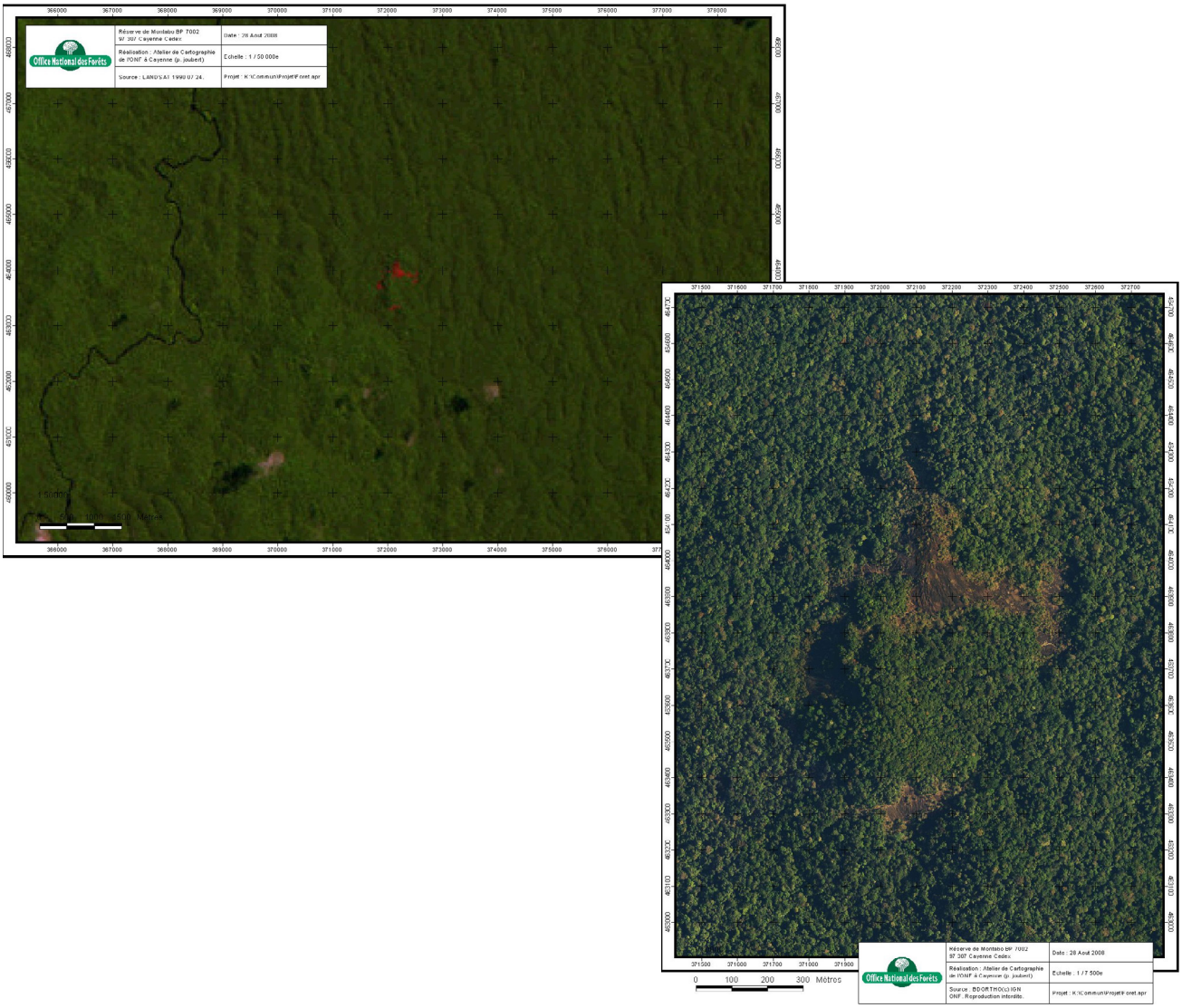

Fig. 2. Satellite imagery of the rock savanna on the inselberg

2 Goal

The goal of this survey was to evaluate the biodiversity value of the granite outcrop Savane-Roche Virginie and provide a baseline survey to evaluate in the future the impact of visitors on foot.

3 Biodiversity survey

A quantitative survey of selected invertebrate groups were conducted, including light trapping for moths, soil invertebrates with Winkler traps and observations of dragonflies. Plant communities were quantified with quadrants. Occasional observations of amphibians, reptiles and birds were recorded. New updates concerning further identifications will be uploaded online (**www.binco.eu**) when this information becomes available.

Amphibians and reptiles

Jocqué M.

The following table (**Table 1**) is a compilation of occasional observations of amphibians and reptiles on and in the immediate vicinity of the granite outcrop Savane-Roche Virginie. Additionally, the total number of observations is mentioned. The three most common amphibians, *Bufo marinus*, *Ranitomeya ventrimaculata* and *Leptodactylus myersi*, were mostly observed after rain at night. All species are mentioned as least concern (LC) in the Red List of 2011 (IUCN 2011).

Table 1. Amphibians and reptiles observed on the granite outcrop and total number of observations.

N°	Species	Common name	Obs.	IUCN
	Amphibians			
1	*Ameerega hahneli*		2	LC
2	*Dendrobates tinctorius*	Dyeing dart frog	2	LC
3	*Hypsiboas boans*	Rusty tree frog	1	LC
4	*Leptodactylus cfr. andreae*		1	LC
5	*Leptodactylus myersi*	Myers' Thin-toed Frog	>20	LC
6	*Ranitomeya ventrimaculata*	Reticulated poison frog	>30	LC
7	*Rhinella margaritifera* complex	South American Common Toad	8	LC
8	*Rhinella marina*	Cane toad	>20	LC
9	*Scinax boesemani*		5	LC
	Reptiles			
1	*Chironius multiventris*	Long-Tailed Machete Savane	1	
2	*Platemys platycephala*	Twist-necked turtle	12	LC
3	*Pseudogonatodes guinanensis?*		6	
4	*Rhinoclemmys punctularia*	Spot-legged wood turtle	2	LC

Moths

Casteels J., D'Hondt A., Mertens J., Van Roie M.

Moth diversity (Lepidoptera – Heterocera) was assessed by using a light trap (25 Watt actinid on car battery) on four sites. Specimens were collected and identified afterwards. Identification was based on the comparison between prepared specimens and online photographs (Passion-papillons, Papillons de Poitou-Charentes) as well as species descriptions as far as possible (Poole 1987, Pitkin 1993). Thus far, a total of 49 species have been identified, divided over 9 families and 39 genera (**Table 2**). Prolonged sampling seasons and stronger light bulbs (125 Watt or 150 Watt Mercury vapour light bulbs) may substantially increase the number of species on the list.

Table 2. List of identified species and the sites where they were found.

N°	Family	Species	Site 1.1 (18/08)	Site 1.2 (20/08)	Site 1.3 (22/08)	Site 2.1 (23/08)
1	Arrhenophanidae	*Arrhenophanes perspicilla*			x	
2	Bombycidae	*Apatelodes pandarioides*			x	
3	Crambidae	*Hositea gynaecia*			x	
4	Crambidae	*Maruca vitrata*	x			
5	Erebidae	*Apyre separata*				x
6	Erebidae	*Coiffaitarctia henrici*		x		
7	Erebidae	*Correbia sp.*		x		
8	Erebidae	*Cresera ilus*				x
9	Erebidae	*Ennomomima modesta*				x
10	Erebidae	*Eriostepta sanguinea*				
11	Erebidae	*Eucereon cf. latifascia*	x			
12	Erebidae	*Himerarctia docis*		x		
13	Erebidae	*Hypogrammodes balma*				x
14	Erebidae	*Letis herilia*			x	
15	Erebidae	*Psychophasma erosa*	x			x
16	Erebidae	*Sutonocrea lobifer*				x
17	Erebidae	*Trichromia androconiata*		x		
18	Erebidae	*Trichromia coccineata*	x			
19	Geometridae	*Lissochlora/Oospila sp.*	x			
20	Geometridae	*Oospila ciliaria*	x			
21	Geometridae	*Oospila sporadata*				
22	Geometridae	*Pero constrictifascia*				x
23	Noctuidae	*Eulepidotis crocoptera*			x	
24	Noctuidae	*Eulepidotis punctilinea (?)*				x

N°	Family	Species	Site 1.1 (18/08)	Site 1.2 (20/08)	Site 1.3 (22/08)	Site 2.1 (23/08)
25	Noctuidae	*Eulepidotis viridissima*				x
26	Noctuidae	*Neotuerta lycaon*	x			x
27	Noctuidae	*Parachaea macaria*				x
28	Notodontidae	*Arhacia combusta*			x	
29	Notodontidae	*Draudtargia merita*				x
30	Notodontidae	*Hapigia rufescens (?)*		x		
31	Notodontidae	*Hemiceras sp.*				x
32	Notodontidae	*Notoplusia clara (?)*				
33	Notodontidae	*Rifargira distinguenda*				
34	Notodontidae	*Rifargira myconos*				x
35	Notodontidae	*Rosema apollinairei*				
36	Notodontidae	*Strophocerus cossoides*			x	
37	Saturniidae	*Adeloneivaia boisduvallii*				
38	Saturniidae	*Adeloneivaia pelias*				x
39	Saturniidae	*Adeloneivaia sp.*	x			
40	Saturniidae	*Adeloneivaia subangulata*		x		
41	Saturniidae	*Automeris orentes*				
42	Saturniidae	*Cicia pelota*				x
43	Saturniidae	*Ptiloscola photophila*				
44	Sphyngidae	*Eumorpha obliqua* or *E. anchemolus*			x	
45	Sphyngidae	*Manduca florestan*	x		x	
46	Sphyngidae	*Manduca lucetius*				x
47	Sphyngidae	*Protambulyx eurycles*			x	
48	Sphyngidae	*Xylophanes amadis*			x	
49	Sphyngidae	*Xylophanes thyelia*	x			

Plants

Merckx V., Janssens S., Fouret S.

Collection of plants was mainly focused on mycoheterotrophic species. In total 15 mycoheterotrophic plants were observed. Of those, eight species belong to the Burmanniaceae, five species to the Gentianaceae and one to the Orchidaceae and Triuridaceae (**Table 3**). Besides mycoheterotrophic species, 50 additional species of flowering plants were also collected of which the majority belongs to the Bromeliaceae family (**Table 4**).

Table 3. List of mycoheterotrophic plan species found on the inselberg.

N°	Family	Species	Habitat
1	Burmanniaceae	*Apteria aphylla*	Abundantly present in shrub vegetation on plateau. Often occurring with Voyria aphylla.
2	Burmanniaceae	*Burmannia capitata*	In grass vegetation on very wet soil on inselberg plateau. This plant is in fact a 'mixotrophic plant', which still contains chlorophyll.
3	Burmanniaceae	*Campylosiphon purpurascens*	Only one specimen found at the border between the plateau and the rainforest.
4	Burmanniaceae	*Gymnosiphon capitatus*	Abundant in the transition zone from forest towards granite plateau (on steep slope).
5	Burmanniaceae	*Gymnosiphon divaricatus*	Two specimens in the forest near the rocky outcrop.
6	Burmanniaceae	*Gymnosiphon breviflorus*	Few specimens in the forest near transition zone towards granite outcrop.
7	Burmanniaceae	*Dictyostega orobanchoides*	Abundantly present in the forest around the inselberg.
8	Burmanniaceae	*Hexapterella gentianoides*	Three specimens in the forest near transition zone towards granite outcrop.
9	Gentianaceae	*Voyria aphylla*	Abundantly present in shrub vegetation on grantite plateau. Often occurring with Apteria aphylla.
10	Gentianaceae	*Voyria clavata*	Few specimens in the forest near transition zone towards rocky outcrop.
11	Gentianaceae	*Voyria corymbosa*	Two individuals in the forest close to the transition zone towards granite outcrop.
12	Gentianaceae	*Voyria tenella*	Two specimens in the forest near transition zone towards granite outcrop.
13	Gentianaceae	*Voyria caerulea*	One individual in the forest near transition zone towards rocky outcrop.
14	Orchidaceae	*Wullschleagelia calcarata*	Two specimens in the forest close to transition zone towards granite plateau.
15	Triuridaceae	*Sciaphila albescens*	One specimen in the forest close to transition zone towards inselberg.

Table 4. Non-mycoheterotrophic flowering plants found on the inselberg.

N°	Family	Species	N°	Family	Species
1	Araceae	*Philodendron sp.*	26	Ericaceae	*Satyria cerander*
2	Araceae	*Monstera adansonia*	27	Erythroxylaceae	*Erythroxylum sp.*
3	Araliaceae	*Schefflera morototonii*	28	Euphorbiaceae	*Croton guianensis*
4	Asteraceae	*Unxia camphorata*	29	Fabaceae	*Chamaecrista diphylla*
5	Asteraceae	*Clibadium surinamense*	30	Fabaceae	*Stylosanthes guianensis*
6	Bromeliaceae	*Aechmea melinonii*	31	Gentianaceae	*Chelonanthus purpura-scens*
7	Bromeliaceae	*Guzmania lingulata*	32	Lentibulariaceae	*Utricularia subulata*
8	Bromeliaceae	*Aechmea melinonii*	33	Lentibulariaceae	*Utricularia hispida*
9	Bromeliaceae	*Aechmea aquilega*	34	Melastomataceae	*Rynchanthera sp.*
10	Bromeliaceae	*Tillandsia flexuosa*	35	Melastomataceae	*Appendicularia thymifo-lia*
11	Bromeliaceae	*Tillandsia bulbosa*	36	Mimosaceae	*Calliandra surinamensis*
12	Bromeliaceae	*Aechmea moonenii*	37	Myrtaceae	*Myrtia saxatilis*
13	Bromeliaceae	*Aechmea aquilega*	38	Orchidaceae	*Encyclia granitica*
14	Bromeliaceae	*Vriesea splendens*	39	Orchidaceae	*Habenaria sp.*
15	Bromeliaceae	*Tillandsia anceps*	40	Orchidaceae	*Scaphyglottis stellata*
16	Burseraceae	*Dacryodes cuspidata*	41	Orchidaceae	*Campylocentrum fasciola*
17	Burseraceae	*Proteum giganteum*	42	Orobanchaceae	*Buchnera longifolia*
18	Clusiaceae	*Clusia sp.*	43	Poaceae	*Panicum rivale*
19	Clusiaceae	*Clusia grandiflora*	44	Poaceae	*Paspalum multinervum*
20	Clusiaceae	*Clusia panapanari*	45	Rapateaceae	*Saxofriderisia aculeata*
21	Convolvulaceae	*Ipomoea leprieurii*	46	Rubiaceae	*Palicourea crulea*
22	Cyclanthaceae	*Ludovia lancifolia*	47	Rubiaceae	*Sabicea vilosa*
23	Cyperaceae	*Rhynchospora sp.*	48	Urticaceae	*Cecropia sp.*
24	Cyperaceae	*Scleria sp.*	49	Verbenaceae	*Amazonia campestris*
25	Cyperaceae	*Scleria cyperina*	50	Zingiberaceae	*Costus spiralis* var. *spi-ralis*

4 Results and Discussion

Savane-Roche Virginie is characterized by the typical fauna and flora for inselbergs with a vegetation adapted to survive in this particluar environment. While there are many more inselbergs occuring in Guiane, with the most famous probably Nouragues, Savane-Roche Virginie is of particular interest due to its unique north-western orientation, close to the border of the continent. The opportunistic observations of large vertebrates revealed a diverse fauna of common species. The brief invertebrate surveys revealed the existence of many species inhabiting this habitat many of which were unknown to science before this expedition. For instance a whipspider that was found in the Aechmea (Jocqué and Giupponi 2012) and a cyphoptalmid occuring in the litter of the Clusia vegetation (Jocqué and Jocqué 2011).

A protected status of Savane-Roche Virginie and all granite outcrops in Guiane would help to keep this unique ecosystem intact.

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