EX BIBL UNIVERSITATIS EDINBURGENSIS

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Research Report:

Madagascar Expedition from October 18, 1998 to November 28, 1998

Regions observed:

1. Region around Moramanga, Distr. Ankay, Prov. Toamasina		
South, direction Lakato, Chutes de la Morte	24.10	1 day
South, direction Beparasy	08.11.	1 day
2. Forestry Station, Angavobe Mt, Distr. Angavoke, Prov. Antananarivo	25.10.	1 day
3. National Reserve No. 12 Marojejy, Prov. Antsiranana:		
3.1. Massif du Marojejy	26.10.-30.10.	5 days
3.2. Mt. Ambodilaitra	30.10.-31.10.	2 days
3.3. Maikampango Forest, east of Belaoka, south-east of the reserve	01.11.-03.11.	3 days
4. Massif de l'Itremo, Col d'Itremo, Prov. Fianarantsoa	10.11.-13.11.	4 days
	total	17 days

Result:

59 taxa collected as herbarium material
59 taxa sampled as leaf material dried in silica gel
18 taxa collected as living plants (rooted plants, cuttings)
18 taxa collected as seeds (1-3 samples/taxa)

Further notes on individual field trips:

1. Region around Moramanga, Distr. Ankay, Prov. Toamasina (RN 2, ~115 km east of Antananarivo). [coll. nos.: MM 9840 - MM 9848, MM 9889 - 9892; alt.: 980-1370m]
Three roads in the area of Moramanga heading south from RN 2 were followed in two one-day trips in order to relocate populations of *Didymocarpus vestitus* (Gesneriaceae) listed in Humbert's account of the 'Flore de Madagascar et des Comores' (HUMBERT, 1971).
(a) Along the road to Lakato the vegetation was dominated by *Eucalyptus*, *Lantana* and *Ageratum*, all appear as aggressive invaders of their respective niches, of an otherwise secondary vegetation up to km 25 towards the village. Further south, up to km 38, the vegetation changed to greatly disturbed primary drier evergreen forest.
(b) A further road south of Moramanga was investigated (up to km 30), leading to the Chutes de la Morte. Here, no primary forest was left at all and the vegetation consisted predominantly of *Eucalyptus*. Many of the hill sides were recently burnt or still burning to prepare the area for the plantation, probably of coffee (?).
(c) A third road heading south from the RN 2 was followed leading to Beparasy near the river Mangoro. *Pinus* in vast plantations and *Eucalyptus* dominated the vegetation, alongside with some *Lantana*. Here too, numerous hill sides were burnt down or still burning, some were already sown with upland rice. In many small valleys along the river Mangoro signs of past farming activities could be seen.
Didymocarpus vestitus was not found in any area visited. Farming activities and forest destruction are most likely the main reasons for its disappearance.

2. Forestry Station (DEF), Angavobe Mt., Distr. Angavoke, Prov. Antananarivo (RN 2, ~35 km east of Antananarivo). [coll. nos.: MM 9849 - 9863; alt.: 1740-1750m]
Along the access road to the forestry station light secondary forest with *Eucalyptus* and *Lantana* dominated. Inside the station up to an altitude of 1740m *Eucalyptus* in mono-cultures were the only larger trees, and intensive felling activities were apparent. On top of the Angavobe Mt. a huge granite boulder (~50m tall), forming a kind of small 'inselberg' was the only area with intact primary vegetation. At the base of the inselberg, some evergreen rain forest was left and an immense variation of mosses and bryophytes observed. This is to explain by the relative constant high moisture levels due to regular cloud cover of the mountain top. On top of the granite boulder a shrubby vegetation of succulent plants such as *Helichrysum*, *Senecio*, *Crassula* dominated.
Streptocarpus cf. *thompsonii* was found at the base and *S.* cf. *hilsenbergii* on top of the granite peak of Mt. Angavobe, but the latter only in very few numbers.

3. National Reserve No. 12 Marojejy, Prov. Antsiranana

3.1. Massif du Marojejy (~80 km west of Sambava, north-west of Manantenina). [coll. nos.: MM 9864 - 9881; alt.: 85 - 2050m]

Halfway between Manantenina and camp 0 the reserve begins. Here, *Aframomum* was very abundant and threatened to invade the reserve. In the reserve undisturbed evergreen rain forest prevailed, and the species diversity was high. This diversity increased even with altitude, and various species of *Begonia*, *Impatiens* and *Exacum* were particularly conspicuous. Above ~1800m an ericaceous shrub vegetation steadily replaced the rain forest, and on top of the massif (2050m) Gramineae and small shrubs prevailed. However, some invading plants, especially certain bamboo species, were present in larger numbers in the transition zone. This is of some concern, as they are capable to completely replace primary rain forest vegetation, as could be observed on slopes of several nearby mountains outside the reserve.

Various *Streptocarpus* species were found, from camp 0 (*S.* cf. *oliganthus*; alt.: 340m) onwards, near camp 1 (*S.* cf. *capuronii*; alt.: 500m) up to camp 3 (*S. suffruticosus*; alt.: 1200m). *S. coursii*, described from the summit of Mt. Marojejy, could not be found. All along the path from camp 2 to camp 3 *Didymocarpus madagascaricus* was seen in abundance.

3.2. Mt. Ambodilaitra (~7 km west of Manantenina, north of Andranomifototra). [coll. nos.: MM 9882 - 9886; alt.: 350 - 800m]

Mt. Ambodilaitra lies in the south-east of the Marojejy Nature Reserve. At the foot of the Mountain agricultural activities completely destroyed the vegetation cover up to the border of the reserve, whose outline can be clearly determined by the abrupt begin of rainforest. Along a substantial part of the reserve *Aframomum* grew invasively. The rainforest on the upper slopes was untouched, drier on top of the mountain but of lower plant diversity compared to the Massif du Marojejy.

Few individuals of *Streptocarpus* were found at 350m (*S.* cf. *oliganthus*) and 500m (*S.* cf. *capuronii*). A substantial population (~500 individuals) of *S. lokohensis* was found growing on a vertical cliff. *S. tsimihetorum* was not found, most likely due to the time of year; it is reported to flower in March.

3.3. Maikampango Forest, east of Belaoka, south-east outside the reserve (~5 km west of Andranomifototra, east of Belaoka). [coll. nos.: MM 9887 - 9888; alt.: 80m]

To reach the Maikampango Forest ca. 4 km heavily disturbed secondary forest had to be crossed. *Aframomum* and diverse bamboo species were abundant. The latter is valued by the local people as good building material. The Maikampango Forest, lying outside the reserve, has no protection status. Thus, it was not surprising to find irrigation canals cut across slopes for the irrigation of rice fields in distant valleys. Further, complete hillside of primary forest were seen cut down for building material. The first incident most likely resulted in the loss of a

Résumé:

Similarly to the first Madagascan expedition in 1997, a total of 18 accessions of *Streptocarpus* were collected, found growing in very different climatic environments, from wet locations on rocks amongst moss in rivers (National Reserve Marojejy), to dry sandy conditions on hill tops (Mount Itremo). The three distinct growth forms of this genus (unifoliate, rosulate, caulescent) and a woody shrub (*S. suffruticosus*) could be sampled.

The samples included nine *Streptocarpus* species (five of which would represent first collections at RBGE). Additionally, specimens of the two other remaining Gesneriaceae genera occurring on Madagascar, *Colpogyne* and *Didymocarpus*, were collected. It was possible to prepare herbarium material, DNA-samples and collect seeds and living plants of all Gesneriaceae taxa sampled.

Whereas most populations found were of considerable size, comprising several hundred individuals, the number of plants of *S. brevistamineus* found was alarmingly low, and the state of the few populations poor. Should the survival of this species be of concern, a proper survey of the total population distribution in that area is needed, and an action plan to protect the remaining plants required. The location of those populations outside the reserve and their close proximity to a village makes them most vulnerable.

References:

Humbert, H. (1971). Gesnériacées, famille 180. In J.F. Leroy [ed.], Flore de Madagascar et des Comores, 47-163. Muséum National d'Histoire Naturelle, Paris.