Endemic Families of Madagascar. IX.
A new littoral forest species of *Schizolaena* (Sarcolaenaceae)

**Porter P. LOWRY II**
Missouri Botanical Garden, P.O. Box 299, St. Louis, MO, 63166-0299 (USA)
pete.lowry@mobot.org
and Département Systématique et Évolution (USM 602),
Muséum national d’Histoire naturelle,
case postale 39, 57 rue Cuvier, F-75231 Paris cedex 05 (France)
lowry@mnhn.fr

**David RABEHEVITRA**
Missouri Botanical Garden, Madagascar Research and Conservation Program,
B.P. 3391, Antananarivo 101 (Madagascar)
david.rabehevitra@mobot-mg.org

**KEY WORDS**

**ABSTRACT**
*Schizolaena raymondii* is described from a single stand of low-elevation littoral forest in NE Madagascar, one of the island’s floristically richest and most highly threatened ecosystems. The new species is illustrated and compared to other members of the genus; it most closely resembles three congeners with which it shares thick leaves with a rounded to acute apex, but is distinguished by having longer petals and a unique combination of leaf blade and peduncle lengths. *Schizolaena raymondii* is assigned a preliminary conservation status of Critically Endangered using the IUCN Red List criteria.

INTRODUCTION

The east coast of Madagascar is dotted with a series of small, isolated remnant patches of humid evergreen forest growing on unconsolidated sand. Restricted to a narrow strip that averages only a few kilometers in width, these littoral forests are estimated to contain 1550 species of vascular plants (Consiglio et al. in press; see also http://www.mobot.org/MOBOT/research/littoral), representing well over 10% of the entire Malagasy flora, currently estimated to comprise c. 12000-13000 species (Schatz 2001; Goodman & Benstead 2005) or perhaps as many as 14000 species (Phillipson et al. 2006). In the past, littoral forest probably stretched almost continuously for nearly 1600 km, from SE of Antsiranana in the north to just beyond Tolagnaro in the south, spanning nearly 12° of latitude. Today, however, this distinctive, specialized vegetation has been dramatically reduced in extent, and now totals an estimated 47900 ha (0.8% of the total land area of Madagascar, and just 10% of the formation’s original extent), of which the largest stand covers only about 2650 ha.

During the last four years, we have collaborated with a team of colleagues to conduct an extensive inventory of the plants occurring in nine of the largest and best-preserved stands of littoral forest. The project aims to compile a comprehensive checklist of the vascular plant species in this highly threatened ecosystem, document the current extent of littoral forests, and formulate recommendations for conservation measures. To date our team has made about 9000 collections, including many that appear to represent new taxa. Here we describe a distinctive new species of Schizolaena Thouars, the largest genus of Sarcolaenaceae, Madagascar’s most speciose endemic family. Our novelty adds to the 18 species of Schizolaena recently recognized by Lowry et al. (1999), six of which also occur in eastern littoral forest.

SYSTEMATICS

Schizolaena raymondii
Lowry & Rabehevitra, sp. nov.
(Fig. 1)

Differt a Schizolaena elongata, S. hystrice et S. tampoketsana petalis longioribus (7-8 mm) et combinatione foliorum 7-7.5 cm longorum cum pedunculis (4-)7-11 mm longis.

New species of *Schizolaena* (Sarcoenaeeae)


**DESCRIPTION**

Trees c. 8-14 m tall. Twigs with scattered stellate indumentum. Leaves evenly distributed along branchlets, blades elliptic to slightly obovate, greenish-brown above, khaki green below (in dry material), subcoriaceous, 3-7.5 × 2-4.4 cm, with minute stellate indumentum below, more prominent on the midrib,

**FIG. 1.** — *Schizolaena raymondii* Lowry & Rabehevitra, sp. nov.: **A**, fruiting branch; **B**, flower buds; **C**, flower; **D**, mature fruit surrounded by involucre. A, B, D, Rabehevitra et al. 4217; C, Rabehevitra et al. 319. Scale bars: A, 1 cm; B, C, 8 mm; D, 5 mm.

ADANSONIA, sér. 3 • 2006 • 28 (1)
TABLE 1. — Characters distinguishing Schizolaena raymondii Lowry & Rabehevitra from the three species it most closely resembles.

<table>
<thead>
<tr>
<th></th>
<th>S. raymondii</th>
<th>S. elongata</th>
<th>S. hystrix</th>
<th>S. tampoketsana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petal length (mm)</td>
<td>7(-8)</td>
<td>5-6</td>
<td>4</td>
<td>5-6</td>
</tr>
<tr>
<td>Length of largest leaf blade (cm)</td>
<td>7-7.5</td>
<td>(3.5)-4-5.5</td>
<td>8.5-10.5</td>
<td>5-6-6.5</td>
</tr>
<tr>
<td>Peduncle length (mm)</td>
<td>(4-)7-11</td>
<td>4-12</td>
<td>1-3(-5)</td>
<td>1-2</td>
</tr>
<tr>
<td>Calyx indumentum (abaxial surface)</td>
<td>short stellate-villus</td>
<td>tufted papillose stellate</td>
<td>evenly sericeous stellate</td>
<td>evenly sericeous stellate</td>
</tr>
<tr>
<td>Distribution</td>
<td>Manakana</td>
<td>Masoala National Park to Fort Dauphin</td>
<td>Marojejy National Park to Tsianivoho</td>
<td>Andranofeno Sud</td>
</tr>
</tbody>
</table>

Schizolaena raymondii is locally abundant but restricted to a single locality in NE Madagascar, the Ambondrobe littoral forest, a well preserved 2650 ha stand situated c. 40 km S of the town of Vohemar. Using the key provided by Lowry et al. (1999), both flowering and fruiting material of our new species would be identified as belonging to a group that includes S. elongata, S. hystrix and S. tampoketsana, all of which share coriaceous or subcoriaceous leaves with a rounded to acute (but not acuminate) apex and revolute margins, glabrous petals, and an involucre that is divided at least half way to the base. However, S. raymondii is easily distinguished from each of these, as summarized in the Table 1.
New species of Schizolaena (Sarcolaenaceae)

VERNACULAR NAME
Voandrozana.

CONSERVATION STATUS
Application of the IUCN (2001) threat criteria suggests that *Schizolaena raymondii* should be assigned a preliminary status of Critically Endangered (CR B1ab2ab) because its Extent of Occurrence is less than 100 km², its Area of Occupancy is less than 10 km², and it occurs at a single unprotected site where human pressures will likely lead to continued decline of the only known population.

ETYMOLOGY
The species epithet honors our good friend and colleague Raymond Rabevohipitra, curator of the TEF herbarium in Antananarivo, who has contributed greatly to our knowledge of Madagascar’s woody flora, and who played a key role in our study of the island’s fascinating eastern littoral forests.

Acknowledgements
We wish to thank G. McPherson and H. Van der Werff for helpful comments and assistance with the Latin diagnosis, and R. Lala for the fine illustration. Field work was conducted under collaborative agreements between the Missouri Botanical Garden and the Parc botanique et zoologique de Tsimbazaza and the Direction de la Recherche forestière et piscicole, FOFIFA, Antananarivo, Madagascar. We gratefully acknowledge courtesies extended by the Government of Madagascar (Direction générale de la Gestion des Ressources forestières). This research was conducted with support from U.S. National Science Foundation grant DEB-0102727 (PPL as Co-PI) and from the John D. and Catherine T. MacArthur Foundation, LWO Inc., and the National Geographic Society.

REFERENCES


Submitted on 19 July 2005; accepted on 21 October 2005.