

Novitates Gabonenses 91: additions to the grass flora of Gabon

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Background – The number of vascular plant species known to occur in Gabon rises quickly due to renewed collecting and inventory activities, often in little-known or previously uncollected areas.

Methods - Herbarium material from BR, BRLU and WAG was studied.

Results – Two genera (*Alloteropsis*, *Entolasia*), eleven species and one variety of grasses are recorded from Gabon for the first time (*Alloteropsis paniculata*, *Cenchrus echinatus*, *Elionurus platypus*, *Entolasia olivacea*, *Eragrostis patens*, *Hyparrhenia diplandra* var. *mutica*, *Leersia triandra*, *Loudetia annua*, *Oryza longistaminata*, *Rottboellia purpurascens*, *Sacciolepis africana* and *Setaria geminata*), while information on two erroneous species reports is provided. This brings the total number of grass species known to occur in Gabon to 190. Finally, new records of four rare species (*Elionurus hensii*, *Guaduella macrostachys*, *Paratheria prostrata* and *Puelia schumanniana*) are discussed.

Key words - Botany, Central Africa, Gabon, Gramineae, inventory, Poaceae, taxonomy.

INTRODUCTION

Gabon has a very rich botanical diversity, with an estimated number of 6100–7000 vascular plant species (Sosef et al. 2006, 2017), of which 4710 were recorded in the 2006 national Checklist (Sosef et al. 2006). Meanwhile, this figure has increased to 5175 species, 650 of which are considered endemic (Lachenaud et al. 2018). The botanical exploration of Gabon continues and has seen an important increase in collecting activities in the past decade (Sosef 2016) with intensive botanical inventories, and an average of more than 3000 specimens collected each year (Lachenaud et al. 2018),

many of them in little-known or previously uncollected areas. This has led to the discovery of numerous species not recorded before in Gabon (Walters et al. 2011, Lachenaud et al. 2018), or even new to science (for example Wieringa & Mackinder 2012, Bissiengou et al. 2013, Jecmenica et al. 2017, Lachenaud et al. 2017, Damen et al. 2018). The present floristic contribution deals with grasses (Poaceae) newly recorded for Gabon and new records of rare grasses. Most of these new records result from recent inventories conducted to document the flora and vegetation of the savanna in the Bas Ogooué Ramsar site (Bidault et al. 2017, Boupoya et al. 2017) and in the Ndendé area.

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A fair number of grass species was recorded from Gabon as early as the mid-XIXth century (Jardin 1851), but the first taxonomic study specifically involving Gabonese grasses was that of Franchet (1896), who published a list of 134 species from the French Congo (then including most of present-day Gabon and the Republic of Congo), of which 67 are recorded for Gabon with certainty (due to border changes between the Republic of the Congo and Gabon, some collections cannot be placed with certainty in either of the present countries.) These 67 names relate to 61 presently accepted species. Koechlin (1962), in his treatment of the grasses in the series Flore du Gabon, recorded 124 species with certainty for Gabon, and several more that were to be expected there. An update to Koechlin's work (Sosef 1999) increased the number of actually observed species to 159. Then, the Checklist of Gabonese Vascular Plants (Sosef et al. 2006) brought the total to 174 species. Finally, Walters et al. (2011), Vande weghe et al. (2016) and Lachenaud et al. (2018) added another four species to arrive at a total of 178 grass species. The present article adds eleven species (and one variety), as well as two genera, reinstates a species previously treated as a synonym, and corrects two erroneous species reports. As a result, the grass flora of Gabon now counts 190 species.

The number of grass species in Gabon is comparatively low when compared to for example Cameroon (433 species, van der Zon 1992) and the Democratic Republic of the Congo (well over 700, Marc S.M. Sosef pers. data). This is to be expected given that the country has a limited surface, is covered for 80% with forest and has no montane open vegetation (highest peak is at 1024 m a.s.l.). The number of grasses reported from Equatorial Guinea (Velayos et al. 2015) is 135, with only 76 from the mainland (Rio Muni), which seems comparable to the species richness of Gabon, given the country's fair collecting density (Sosef et al. 2017) but much smaller surface area. Still, the rain forests of Gabon harbour a strikingly high number of forest grasses with broad, bamboolike leaves, often belonging to evolutionary basal grass lineages (genera Guaduella Franch., Leptaspis R.Br., Maltebrunia Kunth, Microcalamus Franch., Olyra L., Puellia Franch. and Streptogyna P.Beauv.). We observe the same situation in Cyperaceae, where Gabon harbours an exceptional diversity within the 'forest' genera Hypolytrum Persoon and Mapania Aublet. This could be related to the relatively stable past climatic conditions, and hence the continuous presence of rain forest, in this part of tropical Africa (Sosef 1996).

MATERIAL AND METHODS

The study was conducted partly in WAG and partly in BR and is based upon the examination of recently collected grass specimens in BR, BRLU and WAG, while MO material has been consulted at BR before it was sent to Saint Louis. Herbarium acronyms are according to Thiers, (continuously updated). The nomenclature of accepted species names follows the African Plant Database (African Plant Database 2018, version 3.4.0). The two Congos are distinguished as R. Congo (Republic of Congo) and D.R. Congo (Democratic Republic of the Congo).

RESULTS

New records for Gabon are documented below. These comprise eleven new species records (two of which also represent new genera for the country) and one new variety from Gabon. The presence of two species previously recorded from Gabon turned out to be erroneous and is corrected. Finally, additional records of four rare or little-known species are discussed, one of which represents a species previously regarded as a synonym and which is reinstated here.

All taxa are treated alphabetically. Specimens are cited by alphabetical order of provinces, collector, and number. The records presented in this paper fall in three marked categories:

- * Additions to the flora of Gabon.
- ! New records of rare or poorly known species.
- [..] Species reported by Sosef et al. (2006) but based on misidentifications, and which should be deleted from the Gabonese flora.

* Alloteropsis paniculata (Benth.) Stapf

Distribution – From Senegal and Mali to the North of Cameroon, Chad, Central African Republic, south to the R. Congo, Angola, D.R. Congo, Burundi, Tanzania, Malawi, Mozambique and Madagascar.

Habitat – Banks of rivers, lake shores, marshes, fallow land, in clayey or sandy soil, at up to 1350 m a.s.l.

Notes – This represents a new species and a new genus for the flora of Gabon. The species prefers open, moist to wet places and is more common in the drier regions of tropical Africa. Looking at its wide distribution, its presence in Gabon is not surprising; it was discovered in 2014, during fieldwork in the Ogooué Delta, in a humid savanna on white sand.

Specimens examined – Gabon: Ogooué-Maritime: environs de Mpaga village, 0.84'S, 9.39'E, 13 m a.s.l., 20 Oct. 2014, *Boupoya et al.* 1092 (BRLU, LBV, MO).

Bibliography – Clayton (1972, 1989), Clayton & Renvoize (1982), Kami (1997), Poilecot (1995), van der Zon (1992).

[Cenchrus biflorus Roxb.]

See Notes under Cenchrus echinatus.

* Cenchrus echinatus L.

Distribution – Originally from North and Central America, but a pantropical weed and today becoming widespread also in tropical Africa. It was collected in Equatorial Guinea in 1990 from a site similar to the one in Gabon (Velayos et al. 2015).

Habitat – Roadsides, waste places, often in coastal vegetation, in Africa at up to 900 m a.s.l. According to the collector's notes, the species was common in its only known Gabonese locality.

Notes – The collection on which this new record is based, *Wieringa* 974, was first erroneously identified as *Cenchrus biflorus* Roxb., a more common African species, and as such incorporated into Sosef (1999) and Sosef et al. (2006) as the

only specimen for that species. Hence, there is no formal record yet of C. biflorus in Gabon, although its presence is likely. It was reported from nearby Equatorial Guinea (Rio Muni) by Velayos et al. (2015). It differs from C. echinatus by the inner bristles of the involucrum being connate only at their base, ciliate only at their margins, and having 1 to 3 grooves (fused for \pm half their length, pubescent all over, and without grooves in C. echinatus).

Specimens examined – **Gabon**: **Estuaire**: Owendo, near Baracuda restaurant, industrial zone near seashore, 0°19′N, 9°29′E, 2 m a.s.l., 19 May 1990, *Wieringa* 974 (BR, C, E, K, LBV, MO, PRE, WAG).

Bibliography – Clayton (1972), Clayton & Renvoize (1982), Velayos et al. (2015).

! Elionurus hensii K.Schum.

Distribution – Gabon, R. Congo, D.R. Congo, and Angola.

Habitat – Savanna, in palm plantations, in annually burned savanna, locally abundant on dry sandy, lateritic or clayey soil, at up to 600 m a.s.l.

Notes - This species was recorded for Gabon (near Tchibanga) by Koechlin (1962) but only as an observation without citing an herbarium specimen. Then, Sosef (1999) treated the name as a synonym of the much commoner Elionurus muticus (Spreng.) Kuntze, a view repeated in Sosef et al. (2006). Upon studying the ample material of E. hensii at BR, we now conclude that this decision was incorrect. Elionurus hensii is an annual and delicate species with some 3 to 7 racemes along each culm, a lower glume that is glabrous on the back and only 3–4 mm long (excluding the apical teeth). Elionurus muticus is a caespitose perennial, with 1 or 2(-3)racemes on a culm and a lower glume that is villous on the back, at least at base, and 4-6 mm long. One may wonder whether the plant depicted in plate XXI of Koechlin (1962), the legend of which indicates it concerns E. argenteus Nees (= E. muticus), might actually represent E. hensii since it shows glabrous lower glumes and at least three racemes along a culm. Possibly the fact that E. argenteus Nees is a synonym of E. muticus while E. argenteus Durand & Schinz is a synonym of *E. hensii* has contributed to the confusion.

Specimens examined – **Gabon: Haut-Ogooué**: Plateau d'Okouma, Moanda, 1.4590°S, 13.2046°E, 575 m a.s.l., 25 Oct. 2018, *Boupoya & Kaparidi* 1847 (LBV, MO).

Bibliography – Clayton & Renvoize (1982), Kami (1997), Koechlin (1962), Robyns (1929).

* Elionurus platypus (Trin.) Hack.

Distribution – Disjunct, from Guinea east to Ivory Coast and then in Gabon, R. Congo, throughout D.R. Congo into Zambia.

Habitat: – Dry savannas, secondary vegetation, on sandy or sandy-clayey or even gravelly soils, at up to 1100 m a.s.l.

Notes – The new record from Gabon represents a fair extension of the eastern part of the disjunct distribution. The species was not mentioned by Kami (1997) although the type of *E. brazzae* Franch., a synonym of *E. platypus*, originates from the Republic of Congo (near Brazzaville).

Specimens examined – **Gabon: Ogooué-Maritime:** Sud de la Réserve de Wonga Wongué, 00°37′35″S, 09°28′53″E, 157 m a.s.l., 16 Oct. 2014, *Boupoya et al.* 1059 (BR, LBV, MO).

Bibliography – Clayton (1972), Cope (2002), Poilecot (1995), Robyns (1929).

* Entolasia olivacea Stapf

Distribution – Cameroun and Equatorial Guinea, east towards Chad, Central African Republic, R. Congo, D.R. Congo, Uganda, and Tanzania, with a western outlier in Guinea.

Habitat – Riverbanks, swampy places, in light shade, at up to 1700 m a.s.l.

Notes – This represents a new genus for the flora of Gabon. The species was recorded from neighbouring Equatorial Guinea (Rio Muni) in 2015 (Velayos et al. 2015), and its occurrence in Gabon was expected. The two Gabonese records are from hydromorphic open spots in the inland Ivindo National Park, similar to its habitat in Cameroun (van der Zon 1992). It still needs to be looked for in Gabon's coastal regions, which would link up with its more coastal occurrence in Equatorial Guinea.

Specimens examined – **Gabon: Ogooué-Ivindo:** PN Ivindo Djidji, 00°30′41″N, 12°46′06″E, 480 m a.s.l., 17 Apr. 2006, *Boupoya et al.* 222 (BRLU); PN Ivindo-Méko, 00°20′38″N, 12°39′01″E, 490 m a.s.l., 11 Sep. 2006, *Boupoya et al.* 362 (BRLU).

Bibliography – Clayton & Renvoize (1982), Kami (1997), Lisowski (2009), Sosef & Zuloaga (in prep.), van der Zon (1992).

* Eragrostis patens Oliv.

Distribution – From south-western Gabon, R. Congo and Angola, east to Kenya and Tanzania, and south to South Africa

Habitat – Herbaceous savanna, roadsides, disturbed places, at up to 2000 m a.s.l.

Notes – The new record for Gabon relates to a specimen collected on a savanna in the south-west of the country, which nicely links up with known occurrences in R. Congo (Kami 1997).

Specimens examined – **Gabon: Nyanga:** Pélé Mountains, c. 27 km on the road Tchibanga - Moulengui Binza, village Birougou, and then 16 km on a track in SW direction, 03°15′39″S, 11°11′08″E, 250 m a.s.l., 8 Apr. 2009, *Sosef et al.* 2700 (BR, LBV, MO, WAG).

Bibliography – Clayton et al. (1974), Cope (1999), Fish et al. (2015), Kami (1997), Leistner (2008).

! Guaduella macrostachys (K.Schum.) Pilg.

Distribution – South-western Ghana, south-eastern Nigeria, Cameroon, Equatorial Guinea (Rio Muni), Gabon, and D.R. Congo.

Habitat – A broad-leaved lowland evergreen rain forest grass, locally abundant along streams, occurring at 0–420 m a.s.l.

Notes – The species has been collected three times in Gabon. The first collection was made in 1991 (*Reitsma* 3755), but was not recognized immediately as belonging to this species and was therefore not incorporated in Sosef (1999). The specimen was cited below *Guaduella macrostachys* in Sosef et al. (2006), and hence the presence of this species in Gabon was first mentioned there. The other two collections are much more recent, and thus confirm its presence in the country. Recent records from Equatorial Guinea (Velayos et al. 2015), D.R. Congo (Sosef & De Roeck 2017) and now Gabon represent a large south-eastern extension to its formerly known distribution.

Specimens examined – Gabon: Estuaire: Cap Estérias, 00°36.02′N, 09°20.18′E, alt. 20 m, 1 Nov. 2015, Wieringa, Hoekstra & Mackinder 8195 (LBV, WAG). Ngounié: 30 km W of Mandji, 01°45′S, 10°06′E, 3 Jul. 1991, Reitsma 3755 (LBV, WAG); IFL logging concession, along Waka River, Transect TS2, 01°22′29″S, 10°52′32″E, 180 m a.s.l., 10 Nov. 2009, Stévart et al. 3289 (LBV, MO).

Bibliography – Clayton (1972), Sosef & De Roeck (2017), Stanfield (1970), Velayos et al. (2015), van der Zon (1992).

* Hyparrhenia diplandra (Hack.) Stapf var. mutica (Clayton) Cope

Distribution – Widespread in tropical Africa, from Mali east to Kenya, and south to Angola, Zimbabwe and Mozambique, also in Madagascar and South-East Asia.

Habitat – Marshes, inundated savanna, moist shrub savanna, at up to 2000 m a.s.l.

Notes – Cope (2002) downgraded the species *Hyparrhenia mutica* Clayton to a mere variety of *H. diplandra*, differing only in its awnless spikelets. Although *H. diplandra* is fairly common in Gabon, this variety was never recorded in the country before.

Specimens examined – **Gabon: Ngounié**: Entre Mouila et Ndendé, au nord de Ferra, 02°17′57″S, 11°17′31″E, 120 m a.s.l., 9 Dec. 2016, *Bidault et al.* 2959 (BR, BRLU, LBV, MO, P, WAG).

Bibliography – Clayton (1969, 1972), Clayton & Renvoize (1982), Cope (2002), Poilecot (1995), van der Zon (1992).

* Leersia triandra C.E.Hubb.

Distribution – Disjunct, Guinea, Sierra Leone, Cameroon and Gabon.

Habitat – Moist savanna, temporary marshes, along streams, at 465–1770 m a.s.l.

Notes – This species was first (for example Clayton 1972) thought to occur only in the Upper Guinea phytogeographical subregion (Droissart et al. 2018), but subsequently also reported from Cameroon (van der Zon 1992). The new records from Gabon, both specimens from a humid forest clearing, thus represent a nice extension of the eastern part of the disjunct distribution.

Specimens examined – **Gabon: Ogooué-Ivindo:** PN Ivindo, Bazôkou, 00°29'49"N, 12°44'47"E, 475 m a.s.l., 9 Jul. 2006, *Boupoya et al.* 279 (BRLU); PN Ivindo, Ngoulamé-

yong, 00°28′42″N, 12°48′04″E, 465 m a.s.l., 25 Jul. 2006, *Boupova et al.* 309 (BRLU).

Bibliography – Clayton (1972), Launert (1965), van der Zon (1992).

* Loudetia annua (Stapf) C.E.Hubb.

Distribution – Northern half of tropical Africa, from Senegal to Sudan and Uganda.

Habitat – Dry places, dry savanna, on shallow soil, on ironrich soil, at up to 1300 m in elevation.

Notes – The occurrence of this species in Gabon is surprising. It seems to prefer dry places and is clearly distributed in the forest-savanna belt north of the tropical forests of the Upper and Lower Guinean phytogeographical subregions (Droissart et al. 2018). Its nearest record is from central-east Cameroon (van der Zon 1992: 372), and thus this record from central-west Gabon, where it occurs on a dry savanna near the coast, represents a major range extension southward.

Specimens examined – **Gabon: Ogooué-Maritime**: Delta de l'Ogooué à Port Gentil, 00°44′51″S, 08°58′22″E, 3 m a.s.l., 11 Jun. 2016, *Boupoya et al.* 1300 (BR, BRLU, LBV, MO, P).

Bibliography – Clayton (1972) Clayton et al. (1974), Poilecot (1995), van der Zon (1992).

[Oryza barthii A.Chev.]

See Notes under Oryza longistaminata.

* Oryza longistaminata A.Chev. & Roehr.

Distribution — Widely distributed in tropical Africa, sometimes cultivated, from Senegal to Ethiopia and south to South Africa, also in Madagascar.

Habitat – Shallow to deep water, marshes, inundated flats, banks of rivers and streams, at up to 1800 m a.s.l.

Notes – The material cited and described by Koechlin (1962) in *Flore du Gabon (Koechlin* 5974) as *Oryza barthii* A.Chev. actually represents *O. longistaminata*, which is apparent from the description of the ligule (15–45 mm long). This confusion has occurred in other works as well (see also Sosef & De Roeck 2017). The species is rare in Gabon, hitherto only known from *Koechlin* 5974 collected at Pointe Denis (Estuaire province, opposite to Libreville). Recently, it was discovered near Port-Gentil and in the Ogooué delta west of Lambaréné.

Specimens examined – Gabon: Ogooué-Maritime: Ile Mandji, south of Port Gentil, 00°54′26″S, 08°51′55″E, 8 m a.s.l., 10 Jun. 2016, *Stévart et al.* 4906 (BRLU, LBV, MO, P, WAG). **Moyen-Ogooué**: Environ village Olamba, 00°50′06″S 09°59′27″E, 10 m a.s.l., 9 Aug. 2011, *Boupoya et al.* 449 (BRLU, LBV, MO).

Bibliography – Clayton (1970), Koechlin (1962), Poilecot (1995), Sosef & De Roeck (2017), van der Zon (1992).

! Paratheria prostrata Griseb.

Distribution – From Senegal to Nigeria and in Ethiopia, Gabon, R. Congo, D.R. Congo, Angola, Zambia and Namibia, also in Madagascar and South America.

Habitat – Marshes, inundated savannas on sandy soil, beaches, at up to 1200 m a.s.l.

Notes – The species was first mentioned for Gabon by Sosef et al. (2006) from the Estuaire province. Here it is now also reported from Ogooué-Maritime and Ngounié. Although fairly widespread in Africa, it seems to be rare everywhere.

Specimens examined — Gabon: Haut Ogooué: Plateau d'Okouma, Moanda, 1.4807°S, 13.2204°E, 511 m a.s.l., 27 Oct. 2018, *Boupoya & Kaparidi* 1893 (BR, BRLU, LBV, MO). Ngounié: Au nord-est de Ndendé, rive est de la Dolla, 02°19′06″S, 11°20′22″E, 130 m a.s.l., 7 Dec. 2016, *Bidault et al.* 2918 (BR, BRLU, LBV, MO, P, WAG). Ogooué-Maritime: Sud de la réserve de Wonga Wongué, 00°43′37″S, 09°29′41″E, 46 m a.s.l., 19 Oct. 2014, *Boupoya et al.* 1080 (BRLU, LBV, MO).

Bibliography – Clayton (1972, 1989), Kami (1997), Leistner (2008), Phillips (1995).

! Puelia schumanniana Pilger

Distribution – Endemic to southern Cameroon, Equatorial Guinea (Rio Muni) and north-western Gabon.

Habitat – Undergrowth of evergreen and semi-deciduous forest, at 40–1000 m a.s.l.

Notes – Although van der Zon (1992) mentioned the presence of this species in Gabon, to date no collection was traced to back up this observation. Koechlin (1962) expected it to be present in Gabon and incorporated the species in his key. It was first recorded for Gabon by Vande weghe et al. (2016), with a photo, and reference to the specimen below.

Specimens examined – **Gabon: Woleu-Ntem:** Monts de Cristal, inselberg Milobo, 10 km N Mbé Akélayong, 00°55′N, 10°31′E, 3 Dec. 2001, *Degreef* 240 (BR).

Bibliography – Koechlin (1962), Vande weghe et al. (2016), Velayos et al. (2015), van der Zon (1992).

* Rottboellia purpurascens Robyns

Synonyms – *Robynsiochloa purpurascens* (Robyns) Jacq.-Fél., *Chasmopodium purpurascens* (Robyns) Clayton.

Distribution – Disjunct, Guinea, Mali, Sierra Leone and Togo, and then in Cameroon, Gabon, R. Congo, Central African Republic, D.R. Congo, Burundi and Zambia.

Habitat – A hydrophilous species of marshes, dolines, river banks and other humid environments, in water of up to 2 m deep, at up to 1100 m a.s.l.

Notes – A species rare in its whole range. Its presence in Gabon nicely fits its known distribution.

Specimens examined — Gabon: Haut Ogooué: Plateau d'Okouma, Moanda, 1.4807°S, 13.2204°E, 511 m a.s.l., 27 Oct. 2018, *Boupoya & Kaparidi* 1892 (BR, BRLU, LBV, MO). Ngounié: est de la Dola, à l'ouest de la route Ndendé - Lébamba, 2°16′49.5″S, 11°20′36.2″E, 8 Dec. 2016,

Lachenaud, Akouangou & Boupoya 2533 (BR, BRLU, LBV, MO, WAG).

Bibliography – Clayton (1972), Cope (2002), Kami (1997), Ndabaneze (1989), Robyns (1929), van der Zon (1992).

* Sacciolepis africana C.E.Hubb. & Snowden

Distribution – Throughout tropical Africa, south to Botswana, Mozambique and Madagascar.

Habitat – Humid and swampy places, open places, shallow water, river banks and flood plains, at up to 1850 m a.s.l.

Notes – A common species throughout Africa, but apparently rare in Gabon. Here recorded for the first time for Gabon, from the south-western and south-eastern part of the country.

Specimens examined — Gabon: Haut Ogooué: Plateau d'Okouma, Moanda, 1.4807°S, 13.2204°E, 511 m a.s.l., 27 Oct. 2018, *Boupoya & Kaparidi* 1891 (BR, BRLU, LBV, MO). Nyanga: c. 25 km on the road Tchibanga - Mayumba (after the bifurcation to Moulengui - Binza), 03°15′40″S, 11°11′09″E, 250 m a.s.l., 9 Apr. 2009, *Sosef et al.* 2722 (BR, LBV, MEL, MO, WAG).

Bibliography – Clayton (1972, 1989), Clayton & Renvoize (1982), Kami (1997), van der Zon (1992).

* Setaria geminata (Forssk.) Veldk.

Synonym – *Paspalidium geminatum* (Forssk.) Stapf.

Distribution – Originally from and widespread in tropical Africa, introduced to most other tropical regions of the world except for the Malesian archipelago and Australia.

Habitat – In marshes, river banks, ditches and in shallow water, at up to 1700 m a.s.l..

Notes – Although a widespread species, it is apparently rare in Gabon.

This species was cited by Franchet (1896), under its synonym *Panicum fluitans* Retz, with a specimen collected by Jardin at "Gabon, à Loango". Although the former Loango kingdom stretched into the southern part of present-day Gabon, it is clear from Jardin (1851) that this locality lies near Loango and Pointe-Noire in the present-day R. Congo. The species is thus here recorded from Gabon for the first time; it was recently collected in the Ogooué-Maritime province.

Specimens examined – **Gabon: Ogooué-Maritime**: Île au sud de l'île Mandji, 01°07′10″S, 08°57′38″E, 25 m a.s.l., 26 Nov. 2016, *Bidault et al.* 2811 (BR, BRLU, LBV, MO, WAG).

Bibliography – Clayton (1972, 1989), Clayton & Renvoize (1982), Morrone et al. (2014), Robyns (1934), van der Zon (1992).

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