adansonia

2024 • 46 • 22

Novitates neocaledonicae XVI: *Oxyrhynchus margueriteae* sp. nov. (Fabaceae), a new species endemic to New Caledonia, and the first record of the genus in the territory

Jérôme MUNZINGER &
Dominique FLEUROT

art. 46 (22) — Published on 20 December 2024
www.adansonia.com

PUBLICATIONS SCIENTIFIQUES

MUSÉUM NAL HIST NATURELLE

Adansonia est indexé dans / Adansonia *is indexed in:*
– Science Citation Index Expanded (SciSearch®)
– ISI Alerting Services®
– Current Contents® / Agriculture, Biology, and Environmental Sciences®
– Scopus®

Adansonia est distribué en version électronique par / Adansonia *is distributed electronically by:*
– BioOne® (http://www.bioone.org)

Adansonia est une revue en flux continu publiée par les Publications scientifiques du Muséum, Paris
Adansonia *is a fast track journal published by the Museum Science Press, Paris*

Les Publications scientifiques du Muséum publient aussi / *The Museum Science Press also publish:* ***Geodiversitas***, ***Zoosystema***, ***Anthropozoologica***, ***European Journal of Taxonomy***, ***Naturae***, ***Cryptogamie*** **sous-sections** ***Algologie***, ***Bryologie***, ***Mycologie, Comptes Rendus Palevol***

Diffusion – Publications scientifiques Muséum national d'Histoire naturelle
CP 41 – 57 rue Cuvier F-75231 Paris cedex 05 (France)
Tél.: 33 (0)1 40 79 48 05 / Fax: 33 (0)1 40 79 38 40
diff.pub@mnhn.fr / http://sciencepress.mnhn.fr

ISSN (imprimé / *print*): 1280-8571/ ISSN (électronique / *electronic*): 1639-4798

Novitates neocaledonicae XVI: *Oxyrhynchus margueriteae* sp. nov. (Fabaceae), a new species endemic to New Caledonia, and the first record of the genus in the territory

Jérôme MUNZINGER
AMAP, Univ. Montpellier, IRD, CIRAD, CNRS, INRAE, F-34398 Montpellier (France)
jerome.munzinger@ird.fr

Dominique FLEUROT
Naturaliste, Village de Voh, 98833 Voh (New Caledonia)
domendemic@gmail.com

Submitted on 20 June 2024 | accepted on 29 July 2024 | published on 20 December 2024

Munzinger J. & Fleurot D. 2024. — Novitates neocaledonicae XVI: *Oxyrhynchus margueriteae* sp. nov. (Fabaceae), a new species endemic to New Caledonia, and the first record of the genus in the territory. *Adansonia*, sér. 3, 46 (22): 239-246. https://doi.org/10.5252/adansonia2024v46a22. http://adansonia.com/46/22

ABSTRACT
A liana with a red exudate belonging to the Fabaceae family had been collected and attributed on a morphological basis to the genus *Oxyrhynchus*, which had never been reported in New Caledonia. The plant was sequenced (ITS) and its attribution to the genus *Oxyrhynchus* was confirmed. Morphological characters were then used to show that it differed from all previously known species, and that it was therefore a new species, which is described. The plant is known from just one locality and seven individuals; we assign it a preliminary status of Critically Endangered (CR).

KEY WORDS
Fabaceae,
molecular identification,
conservation,
new species.

RÉSUMÉ
Novitates neocaledonicae XVI : Oxyrhynchus margueriteae *sp. nov. (Fabaceae), une espèce nouvelle endémique de Nouvelle-Calédonie, et le premier enregistrrement du genre sur le territoire.*
Une liane à exsudat rouge appartenant à la famille des Fabaceae avait été récoltée et attribuée sur une base morphologique au genre *Oxyrhynchus* qui n'avait jamais été signalé en Nouvelle-Calédonie. La plante a été séquencée (ITS) et son attribution au genre *Oxyrhynchus* a été confirmée. Les caractères morphologiques ont ensuite permis de montrer qu'elle se différencie de toutes les espèces déjà connues, et donc qu'il s'agit d'une espèce nouvelle, qui est décrite. La plante n'est connue que d'une seule localité et de sept individus ; nous lui attribuons donc un statut préliminaire en danger critique d'extinction (CR).

MOTS CLÉS
Fabaceae,
identification
moléculaire,
conservation,
espèce nouvelle.

INTRODUCTION

The flora of New Caledonia is one of the most diverse and endemic in the world (Kier *et al.* 2009), with 3 422 species of native vascular plants, 74.7% of which are endemic (Munzinger *et al.* 2024). Within this flora, the Fabaceae represent the second most diverse liana family, with 26 species in 14 genera (Isnard & Bruy 2023).

In 2009, a lianescent Fabaceae with a red exudate was observed and collected by Jean-Pierre Butin. This characteristic had never before been observed in New Caledonia. The flowering material was identified on a morphological basis by Jean-Noël Labat in November 2009 as most likely belonging to the genus *Oxyrhynchus* Brandegee (1912). This genus had never been reported from New Caledonia. Following the death of Jean-Noël Labat (Deroin & Lowry II 2011), the plant remained unstudied for some time. More recent research has rediscovered the first population, and found other individuals of this liana.

Oxyrhynchus is a monophyletic genus included in the Phaseolinae (Delgado-Salinas *et al.* 1993, 1999; Doyle & Doyle 1993; Kajita *et al.* 2001), which was revised in the 1960s (Rudd 1967), then more recently (Delgado-Salinas & Estrada-Castillón 2011). This latest revision recognizes four species in the genus, three of which are restricted to the American continent, while the fourth, *O. papuanus* (Pulle) Verdc. is distributed from Indonesia to the Solomon Islands. Delgado-Salinas & Estrada-Castillón (2011) point out that it remains to be validated that this last, poorly known species does indeed belong to the genus *Oxyrhynchus*. In fact, the basionym had been described in the genus *Phaseolus* by Pulle (1910), before being combined in a monospecific genus *Peekelia* Harms (1920), endemic to Papua. Verdcourt (1978), again on a morphological basis, considers that geography alone distinguishes *Peekelia*, and finally combines *Phaseolus papuanus* Pulle in the genus *Oxyrhynchus*. The species has not been found or studied since.

Through a morphological and molecular approach (ITS sequence), the aim of this work is to validate the correct attribution of this taxon to the genus *Oxyrhynchus*, and then to verify whether it is a new species, and if so, to describe it.

MATERIAL AND METHODS

Molecular

Leaves of *Fleurot 912* were preserved in silica gel in the field, then it was sent for and sequencing at the large regional genotyping platform of the AGAP lab in Montpellier, France.

Total genomic DNA was extracted from dried leaf tissue using standard SDS/CTAB protocols. PCR followed Munzinger *et al.* (2022) using KAPA3G Plant PCR Kit (Roche). Sanger sequencing was performed by the DNA Sequencing Facility at UMR AGAP, INRAE, Montpelier, France using ABI BigDyeTM Terminator v3.1 chemistry (Thermo Fisher Scientific) on an Applied BiosystemsTM 3500 XL genetic analyzer. Sequence editing was performed using Sequencher v. 5.4.6 (GeneCodes, Ann Arbor, Michigan). Molecular identification of the ITS DNA sequence was performed using the NCBI database BLASTn search algorithm (Zhang *et al.* 2000; Morgulis *et al.* 2008). The sequence is deposited in genbank, under PQ763431 accession number.

Morphology

We used field observations and photographs, and examined all deposited specimens at MPU, NOU (Bruy *et al.* 2021) and P (Le Bras *et al.* 2017) (abbreviations follow Thiers 2024). We also studied the virtual collections of the Global Plants initiative (https://plants.jstor.org/) and used the RECOLNAT infrastructure (https://www.recolnat.org/fr/). Plant terminology follows Harris & Harris (2001), and Prenner (2013) for inflorescence terminology.

Coordinates not given on original labels of herbarium specimens were added post-facto using the georep website (https://georep.nc/). When citing material, any information not available on the original label is given between brackets. A preliminary conservation status following IUCN (2012) criteria is also given. We provided the consolidated species distribution dataset to the New Caledonian Red List authority (Endemia & RLA Flore NC 2022) who will officially assess the extinction risk of species according to IUCN criteria.

RESULTS

Molecular identification: using BLAST pairwise alignments and Fast Minimum Evolution tree, and among the 107 million sequences in the database, our target sequence was resolved as most similar to *Oxyrhynchus trinervius* (Donn.Sm.) Rudd (AF115135, Delgado-Salinas *et al.* 1999), with a percent identity of 96.59% (Table 1). These in turn were resolved as sister to two samples of *Oxyrhynchus volubilis* Brandegee (JN008329.1 Delgado-Salinas *et al.* 2011; AF069114.1, Delgado-Salinas *et al.* 1999), which in turn were sister to *Oxyrhynchus populneus* (Piper) Norvell ex A.Delgado & E.Estrada (syn. *Vigna populnea* Piper; AF115136.1, Delgado-Salinas *et al.* 1999) (Appendix 1).

So our sequence is more than 95% similar to the four sequences (from three species) of *Oxyrhynchus* present in genbank (Table 1). To date, no DNA sequence of *Oxyrhynchus papuanus* (Pulle) Verdc., the fourth and last known species of the genus, has been deposited to any public database. The next closest genera have lower values: *Mysanthus* G.P.Lewis & A.Delgado (*c.* 87%) and *Strophostyles* Elliott (*c.* 86%), so we conclude that the sequence belongs to the genus *Oxyrhynchus*.

Morphological identification: using the identification key provided by Delgado-Salinas & Estrada-Castillón (2011), our material from New Caledonia does not match with any species. Notably, it seems very different from the geographic closest species, *O. papuanus*, from which it can be distinguished, for example, by its calyx with rounded lobes, as long as the tube (versus oblong to lanceolate lobes, longer than the tube), or its broadly rounded-truncated, laterally flattened bud (versus fusiform).

TABLE 1. — The ten sequences most similar to our Blast-submitted ITS sequence of *Fleurot 912* provided by BLAST pairwise alignments, using the FAST Minimum Evolution Tree method (Core nucleotide BLAST database).

Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
Oxyrhynchus trinervius (Donn.Sm.) Rudd	1074	1074	88%	0.0	96.59%	646	AF115135.1
	1030	1030	88%	0.0	95.22%	643	JN008329.1
Oxyrhynchus volubilis Brandegee	1027	1027	88%	0.0	95.05%	642	AF069114.1
Oxyrhynchus volubilis Brandegee	1021	1021	88%	0.0	95.05%	639	AF115136.1
Vigna populnea Piper [= *Oxyrhynchus populneus* (Piper) Norvell ex A.Delgado & E.Estrada]	807	807	88%	0.0	87.56%	639	AF069125.1
Mysanthus uleanus (Harms) G.P.Lewis & A.Delgado	802	802	88%	0.0	86.84%	647	JN008330.1
Mysanthus uleanus var. *dolicopsoides* (Hoehne) G.P.Lewis & A.Delgado	789	789	88%	0.0	86.73%	650	AY508773.1
Strophostyles leiosperma (Torr. & A.Gray) Piper	787	787	88%	0.0	86.60%	651	AY508771.1
Strophostyles leiosperma (Torr. & A.Gray) Piper	785	785	88%	0.0	86.58%	650	AY508776.1
Strophostyles leiosperma (Torr. & A.Gray) Piper	784	784	88%	0.0	86.58%	650	AF115137.1

DISCUSSION

The molecular data confirm the morphological hypotheses, and this taxon is well placed in the genus *Oxyrhynchus*. The material deposited at P was identified in July 2018 by Ashley N. Egan as *Oxyrhynchus trinervius* (Donn.Sm.) Rudd. This determination is therefore consistent with the molecular identification. It is, however, rather surprising from a geographical point of view, but also morphologically, since according to the key of Delgado-Salinas & Estrada-Castillón (2011). *O. trinervius* has calyx with overlapping lower lip bases (vs non-overlapping), flower pedicels 8-15 mm long (vs 2-6 mm), fruit 7-11 × 3-4 cm (vs 3.75-5.75 × 1.4-2 cm); seeds (2)3-5, prismatic spherical, 13-16 × 11-15 mm, 12-14 mm thick (vs 1-3, 7-8 × 6-7 mm, 4.5-5 mm thick). This set of differences leads us to consider that it is indeed a distinct species, new to science, endemic to the Northern Province of New Caledonia, that is described here.

SYSTEMATICS

Family FABACEAE Lindl.
Genus *Oxyrhynchus* Brandegee

Oxyrhynchus margueriteae Munzinger & Fleurot, sp. nov.
(Figs 1; 2)

DIAGNOSIS. — Among species of *Oxyrhynchus*, the new species most closely resembles *O. trinervius* (Donn.Sm.) Rudd because of its calyx lateral lobes ovate to broadly ovate, its flowers 10-14 mm long and its (sub)glabrous fruit. However, in *Oxyrhynchus margueriteae* sp. nov., the bases of the lower lips are not overlapping (vs overlapping), the flower pedicels are shorter (2-6 mm vs 8-15 mm), the fruit is shorter and less wide (3.75-5.75 cm × 1.4-2 cm vs 7-11 × 3-4 cm), and the seeds fewer (1-3 vs [2]3-5) and smaller (7-8 × 6-7 mm, 4.5-5 mm thick versus 13-16 × 11-15 mm, 12-14 mm thick).

TYPE MATERIAL. — **New Caledonia** • Province Nord, Plateau de Tango; 20°56'30.5"S, 165°6'36"E; 6.VII.2010; fr.; J.-P. Butin leg.; *Munzinger 6047*; holo-, P[P02857426]!; iso-, NOU[NOU079486]!, P[P02857425]!).

PARATYPI. — **New Caledonia** • Poindimié, Hoeênè; 20°56'37.184"S, 165°06'43.541"E; alt. 150 m; 22.VIII.2021; *Fleurot 912*; j.fr.; para-, MPU[MPU313240], NOU[NOU091995, NOU107965], P[P01139479]) • *ibid.*; 20°56'36.893"S, 165°06'43.367"E; alt. 142 m; 12.VI.2022; fl. buds; *Fleurot 938*; para-, NOU[NOU092404, NOU108628] (alc.), P[P01139662] • Tango; [20°56'37"S, 165°06'42"E]; 15.VI.2009; fl.; J.-P. Butin leg.; *J. Fambart-Tinel 207*; para-, NOU[NOU050883].

PHENOLOGY. — Buds and open flowers observed in June, fruit in July and August.

HABITAT. — *Oxyrhynchus margueriteae* sp. nov. grows in low to medium-altitude dense rainforest (sensu Jaffré *et al.* 2012), on volcano-sedimentary substrate, between 115 and 150 m altitude. It was observed in a canopy around 25-30 m high, among other lianas, notably *Tetracera billardierei* Martelli (Dilleniaceae), *Hugonia jenkinsii* F.Muell. (Linaceae) and *Piper* sp. (Piperaceae). The tallest liana observed is growing on *Elaeocarpus angustifolius* Blume (Elaeocarpaceae).

DISTRIBUTION. — The plant appears to be endemic to the Northern Province of New Caledonia (Fig. 3). It is known only from a single forest in a small valley at the confluence of the Hoeênè river (Tango region, Bopope tribe).

CONSERVATION STATUS. — *Oxyrhynchus margueriteae* sp. nov. is only known from a small valley of just over 12 hectares, which contains in its talwegs a relic of dense rainforest covering 5.4 hectares, of which 2.4 ha were surveyed (*c.* 45%) (Fig. 4). In the western part of the valley, less than one hectare is covered by a former plantation of *Pinus caribaea* Morelet (Caribbean pine), while the other slopes and ridges are essentially covered by niaoulis savannah with many common ferns (genus *Lygodium* Sw.). These two secondary environments seem unfavorable to the presence of the liana, which has a forest ecology. As of June 12, 2022, the date of the *Fleurot 938* collection, six fertile adult lianas and 1 juvenile liana have been observed and mapped. The main threats to this population are the overabundance of pigs and deers, and anthropogenic fires. Thus, as there are fewer than 50 known mature individuals, we assign *O. margueriteae*, sp. nov. a preliminary status of "Critically Endangered" (CR) according to criterion D.

VERNACULAR NAME. — Unknown.

ETYMOLOGY. — The plant is dedicated to Marguerite Butin, wife of Jean-Pierre Butin, the plant's discoverer. She was very supportive of his hobby, letting him spend most of his free time scouring the territory for rare plants.

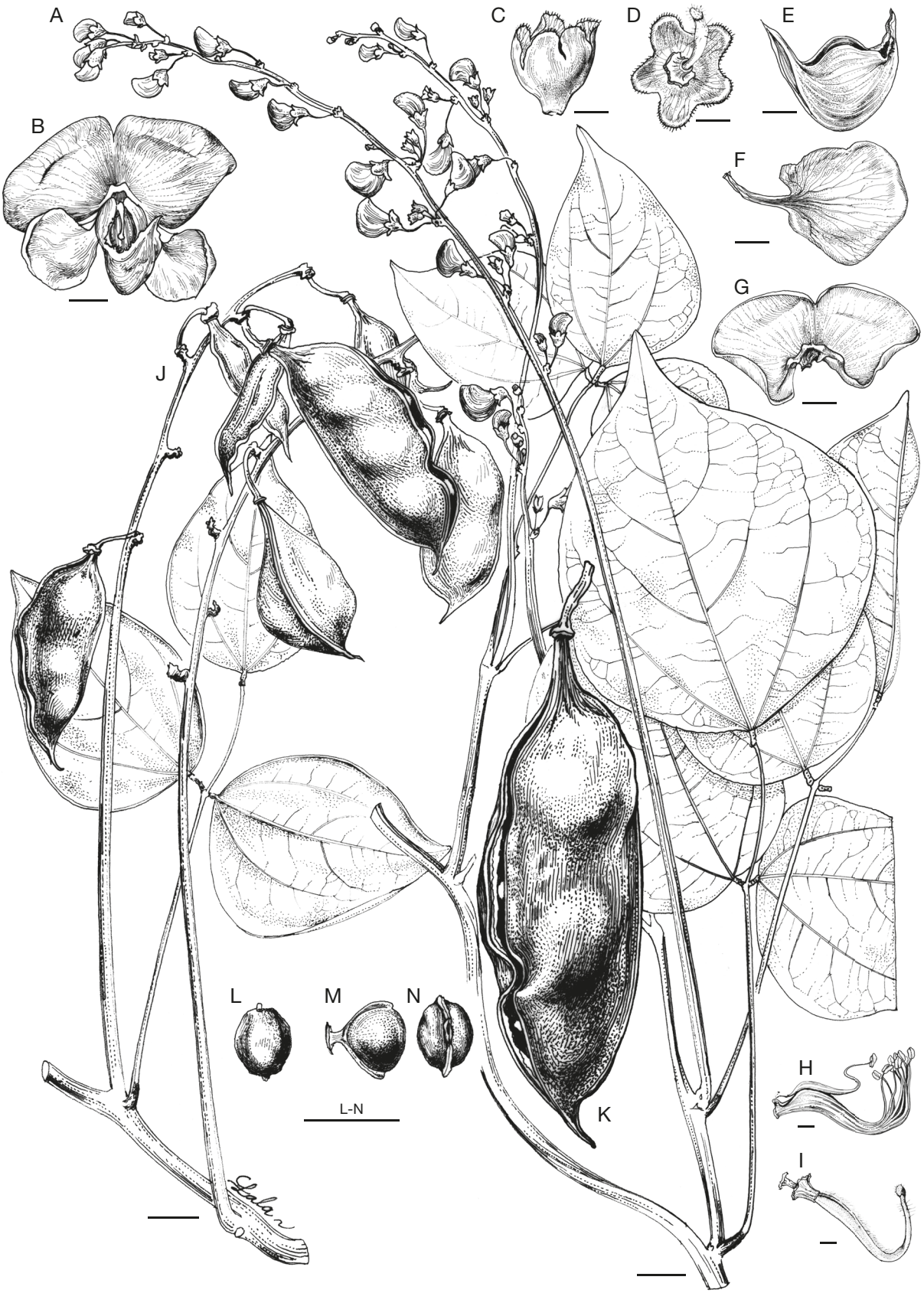

Fig. 1. — *Oxyrhynchus margueriteae* sp. nov.: **A**, flowering shoot; **B**, flower (front view); **C**, calyx (side view); **D**, calyx (top view); **E**, keel; **F**, wing; **G**, standard; **H**, androecium (side view); **I**, gynoecium (side view); **J**, fruiting shoot; **K**, legume; **L**, seed (dorsal view); **M**, seed (lateral view); **M**, seed (ventral view). Scale bars: A, J-N, 1 cm; B, 4 mm; C-I, 1 mm. Illustration by Roger Lala Andriamiarisoa.

Fig. 2. — Field pictures of *Oxyrhynchus margueriteae* sp. nov.: **A**, trunk, partially necrotic (© C. Laudereau); **B**, slash (© D. Fleurot); **C**, shoot and Jean-Pierre Butin (© D. Fleurot); **D**, abaxial side of a leaf (© D. Fleurot); **E**, flower (© J.-P. Butin); **F**, petiole insertion with stipule (© C. Laudereau); **G**, fruits (© D. Fleurot).

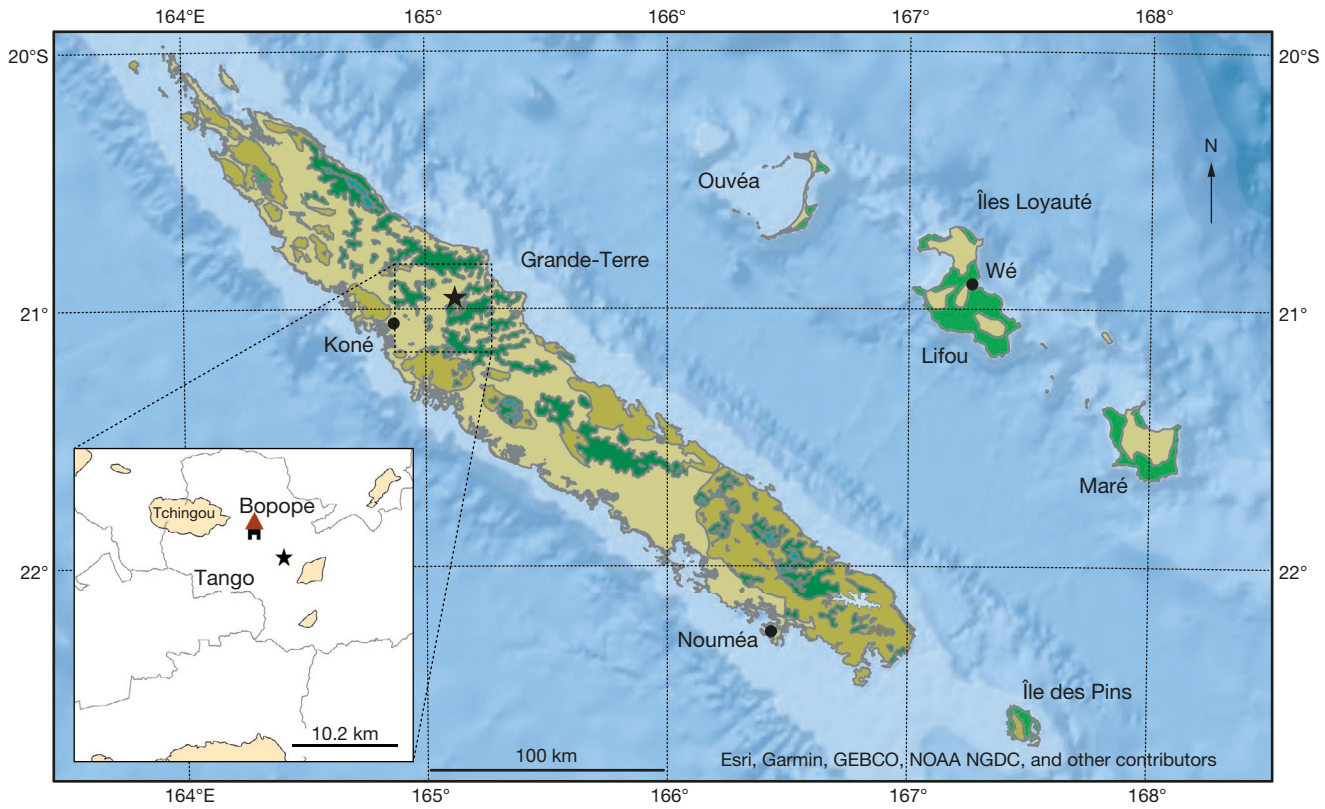

Fig. 3. — Distribution of *Oxyrhynchus margueriteae* sp. nov. in New Caledonia, with vegetation types (after Jaffré *et al.* 2012): **Grey**, sclerophyll forest, wetland and coastal vegetation; **dark green**, low and medium altitude humid dense forests; **light green**, high altitude maquis and forest; **brown**, maquis on ultramafic substrates; **beige**, Savannahs and secondary thickets. Zoom on Bopope area, with ultramafic substrates in **beige**.

Description

Liana measuring up to 12 cm in diameter at the base and reaching heights of over 20 m, with translucent latex when first bled, then oxidizing to red (a few tens of seconds), not very abundant, gray bark streaked with crevices. Leaves trifoliolate, stipulate, leaflets weakly acuminate, terminal leaflet ovate or broadly ovate, symmetrical (52-)57-70(-85) mm long, (40-)42-48(-67) mm wide, terminal petiolule 19-21 mm long, with a few appressed hairs directed towards the apex, apical pulvinus 4 mm long, hirsute, curved at 90°, stipels narrowly triangular, *c.* 1 mm long, lateral leaflets broadly oval, very asymmetrical (50-)54-67(-77) mm long, (35-)37-45(-55) mm wide, petiole reduced to a pulvinus 2.5-4 mm long, stipels oblong, 1-2 × 0.5-1 mm, primaries and secondaries veins beige, abaxially prominent, narrower and less prominent adaxially, 2-3 pairs of secondaries, inter-secondaries frequent. Petiole 40-80 mm long, triangular stipules 2 mm long, blackish in herbarium, glabrous or sparsely hairy.

Axillary inflorescence about 11 cm long, up to 33 cm, with flattened inflorescence axis, up to 3 mm wide, hairy in terminal part with long white hairs up to 0.5 mm long, appressed towards apex, glabrescent in basal part, inflorescence a compound raceme with condensed partial inflorescences, with 3 to 20 flowers, irregularly spaced from 5 to 19 mm. Bracts lanceolate, 2 mm long, variegated with black.

Flower bud broadly rounded-truncated, laterally flattened, 6-8 mm long. Flower papilionaceous, 10-14 mm long, mauve with bluish tints, base of petals whitish (in vivo), pedicel 2-6 m long, with hirsute white hairs. Calycle with 0-2 oval bracts, rapidly caducous, veined, 1-1.5 mm long, with ciliated membranous margin, beige, adaxial side weakly tomentose, abaxial side glabrous; calyx campanulate with 5 subequal lobes, as long as the tube; lobes not overlapping, green, rounded, 1. 5 × 1.5 mm for the lower three, 1.5 × 2.0 mm for the upper two, inner surface sericeous, margin ciliate, outer surface subglabrous. The standard bilobed, 12.5-17 mm wide, 7-8.5 mm high, wings broadly obovate to suborbicular, 7-12 mm long × 5-8 mm wide, mitered 3.5-5 mm, petals of keel fused, at least apically, rostrate, with suborbicular central part *c.* 5 mm in diameter, and tips tapering 3-4 mm. Androecium diadelphous, 9 stamens 11-13 mm long, fused by their filaments, free filament over 3-5 mm of their length, 1 free stamen, *c.* 10 mm long. Anthers 0.7-1.0 mm long × 0.3-0.4 mm wide, basifixed. Gynoecium *c.* 15 mm, ovary *c.* 5 × 0.8 mm, with suture line covered by a line of sericeous hairs, ovary long attenuated into a glabrous style or with a few long hairs scattered at the apex, stigma punctiform.

Legume oblong 37.5-57.5 mm long (*in vivo*), 13.6-20 mm wide, sparsely pubescent towards apex, becoming glabrous, perianth caducous, pedicel 7-11.8 mm long × 1-1.4 mm diameter. Valves twisting at opening, brown on the outside, white and glabrous on the inside. Seeds 1-3 per legume, black (immature), prismatic spherical, 7-8 × 6-7 mm, 4.5-5 mm thick, with beige hilum forming a bead on one-half to one-third of the circumference.

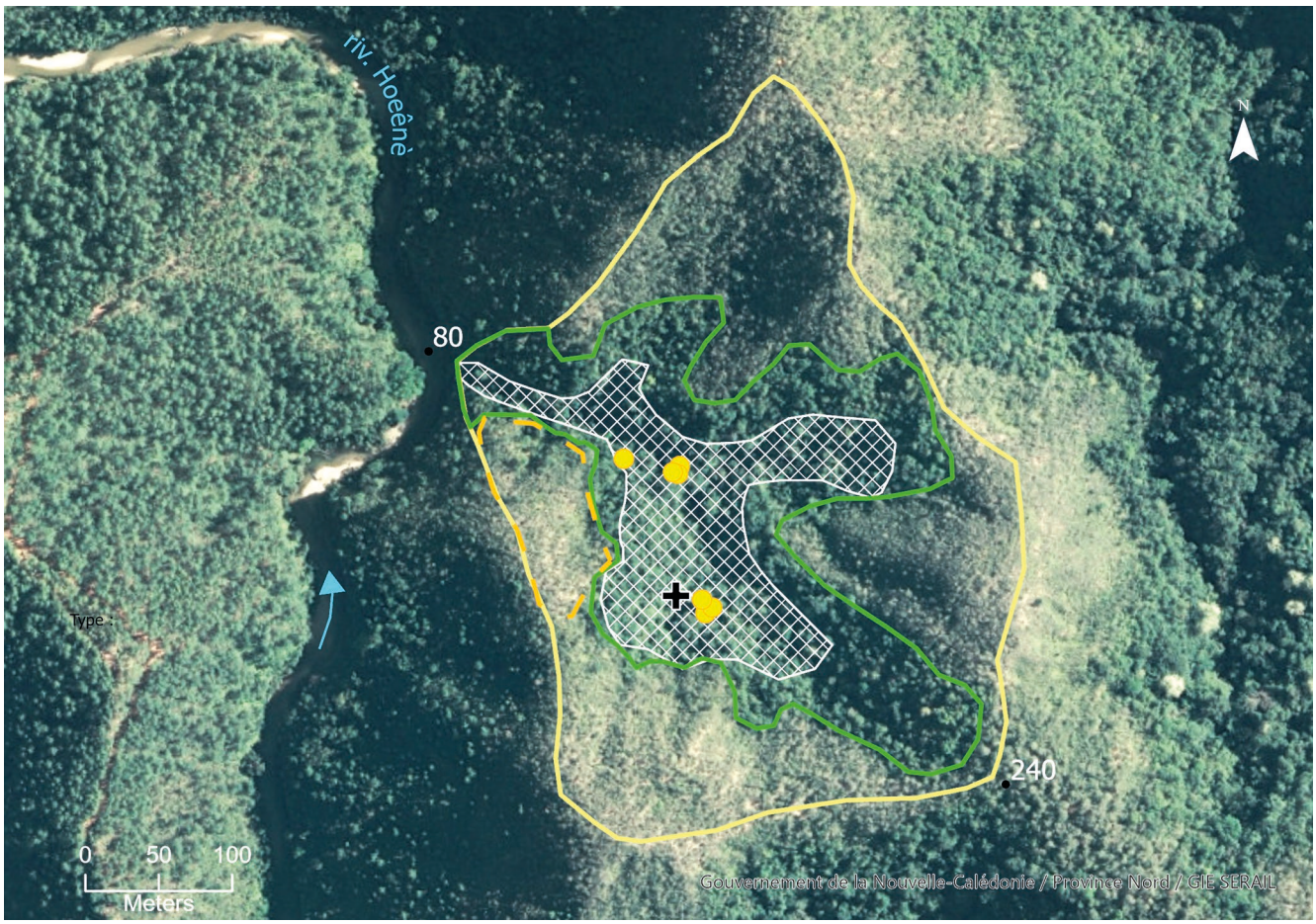

FIG. 4. — Presence map of known living individuals (**yellow dots**), and the type that has not been relocated, probably dead (**black cross**) of *Oxyrhynchus margueriteae* sp. nov. In yellow, the total watershed of the small valley, in green, the surface area of the rainforest, in white, the surveyed area, in dashed orange, an area planted with *Pinus caribaea* Morelet.

Acknowledgements

This paper is dedicated to our late colleague and friend Jean-Noël Labat. We would like to thank all the people who accompanied DF in the field: Loïc Bonnetain, Jean-Pierre Butin, Sophie Collin, Patrick Dayé, Jérémie Estèbe, Darren Forcin, Keneth Kela, Yurgen Kela, Christian Laudereau, Lydwine Laudereau, Cheyenne Lolopo, Ensone Welet, Françis Welet, Francisca Welet, Yorick Welet. We thank Jean-Pierre Butin & Christian Laudereau for photographs, and the MPU, NOU and P herbaria for loaning or providing access to our collections and facilities. We deeply thank Sylvain Santoni (INRAe) for sequencing, Chrissen Gemmill for help with BLAST analysis. We thank Matthew Lavin and Alfonso Delgado Salinas for discussions. Our gratitude goes to Roger Lala Andriamiarisoa for his beautiful illustration. An anonymous reviewer and Thierry Deroin (MNHN) helped to improve a previous version of the manuscript. The Muséum national d'Histoire naturelle (MNHN) and the Institut de Recherche pour le Développement (IRD) provided access to the collections in the framework of the Récolnat National Research Infrastructure (ANR-11-INBS-0004). We thank the Environmental Service of the North Province of New Caledonia for providing collection permits.

REFERENCES

BRANDEGEE T. S. 1912. — Plantae Mexicanae Purpusinae, IV. *University of California Publications in Botany* 4: 269-281.

BRUY D., BARRABÉ L., BIRNBAUM P., DAGOSTINI G., DONNAT M., FAMBART-TINEL J., GIRARDI J., HEQUET V., ISNARD S., JAFFRÉ T., MUNZINGER J., NIGOTE W., PILLON Y., RIGAULT F., VANDROT H., VEILLON J.-M. & ZAISS R. 2021. — *L'Herbier de Nouvelle-Calédonie*. UMR AMAP. IRD, CIRAD, CNRS, INRAE, Univ. Montpellier, Nouméa. https://doi.org/10.23708/HERBIER-NOUVELLE-CALEDONIE

DELGADO-SALINAS A. & ESTRADA-CASTILLÓN E. 2011. — A new combination in the genus *Oxyrhynchus* (Leguminosae: Phaseolinae). *Brittonia* 62: 239-242. https://doi.org/10.1007/s12228-009-9114-8

DELGADO-SALINAS A., BRUNEAU A. & DOYLE J. J. 1993. — Chloroplast DNA phylogenetic studies in New World Phaseolinae (Leguminosae: Papilionoidae: Phaseoleae). *Systematic Botany* 18: 6-17. https://doi.org/10.2307/2419784

DELGADO-SALINAS A., TURLEY T., RICHMAN A. & LAVIN M. 1999. — Phylogenetic analysis of the cultivated and wild species of *Phaseolus* (Fabaceae). *Systematic Botany* 24: 438-460. http://www.jstor.org/stable/2419699

DELGADO-SALINAS A., THULIN M., PASQUET R., WEEDEN N. & LAVIN M. 2011. — *Vigna* (Leguminosae) *sensu lato*: The names and identities of the American segregate genera. *American Journal of Botany* 98: 1694-1715. https://doi.org/10.3732/ajb.1100069

Deroin T. & Lowry II P. P. 2011. — Jean-Noël Labat (1959-2011). *Adansonia,* sér. 3, 33: 169-181. https://sciencepress.mnhn.fr/fr/periodiques/adansonia/33/2/jean-noel-labat-1959-2011. https://doi.org/10.5252/a2011n2a1

Doyle J. J. & Doyle J. L. 1993. — Chloroplast DNA phylogeny of the papilionoid legume tribe *Phaseoleae*. *Systematic Botany* 18: 309-327. https://www.jstor.org/stable/2419406

Endemia & RLA Flore NC. 2022. — *La liste rouge de la flore menacée de Nouvelle-Calédonie*, synthèse 2014-2021. Endemia, Nouméa, 4 p.

Harms H. 1920. — Eine neue Gattung der Leguminosae-Papilionatae aus Papuasien. *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 7: 370-371. https://www.biodiversitylibrary.org/bibliography/41365

Harris G. J. & Harris M. W. 2001. — *Plant Identification Terminology: an Illustrated Glossary*. Spring Lake Publishing, Utah, United States, 206 p.

Isnard S. & Bruy D. 2023. — The climbing flora of New Caledonia: a comprehensive checklist. *Botany Letters* 170: 439-448. https://doi.org/10.1080/23818107.2023.2234442

IUCN 2012. — IUCN Red List Categories and Criteria: Version 3.1. Second edition. IUCN Species Survival Commission, IUCN, Gland, Switzerland and Cambridge, United Kingdom.

Jaffré T., Rigault F. & Munzinger J. 2012. — La végétation, *in* Bonvallot J., Gay J.-C., & Habert É. (eds), *Atlas de la Nouvelle-Calédonie*. IRD-Congrès de la Nouvelle-Calédonie, Marseille-Nouméa: 77-80 [retrieved from http://www.cartographie.ird.fr/images/nvCl/atl/pages/atlNCl.pdf].

Kajita T., Ohashi H., Tateishi Y., Bailey C. D. & Doyle J. J. 2001. — rbcL and Legume Phylogeny, with Particular Reference to Phaseoleae, Millettieae, and Allies. *Systematic Botany* 26: 515-536. http://www.jstor.org/stable/3093979

Kier G., Kreft H., Lee T. M., Jetz W., Ibisch P. L., Nowicki C., Mutke J. & Barthlott W. 2009. — A global assessment of endemism and species richness across island and mainland regions. *Proceedings of the National Academy of Sciences* 106: 9322-9327. https://doi.org/10.1073/pnas.0810306106

Le Bras G., Pignal M., Jeanson M., Muller S., Aupic C., Carré B., Flament G., Gaudeul M., Gonçalves C., Invernón V., Jabbour F., Lerat E., Lowry II P. P., Offroy B., Pimparé E., Poncy O., Rouhan G. & Haevermans T. 2017. — The French Muséum national d'histoire naturelle vascular plant herbarium collection dataset. *Scientific Data* 4: 170016. https://doi.org/10.1038/sdata.2017.16

Morgulis A., Coulouris G., Raytselis Y., Madden T. L., Agarwala R. & Schäffer A. A. 2008. — Database indexing for production MegaBLAST searches. *Bioinformatics* 24: 1757-1764. https://doi.org/10.1093/bioinformatics/btn322

Munzinger J., Mcpherson G., Meyer S. & Gemmill C. E. 2022. — Phylogenetic study of the New Caledonian endemic genus *Adenodaphne* (Lauraceae) confirms its synonymy with *Litsea*. *Botany Letters* 170: 479-487. https://doi.org/10.1080/23818107.2022.2088613

Munzinger J., Morat P., Jaffré T., Gâteblé G., Pillon Y., Rouhan G., Bruy D., Tronchet F., Veillon J.-M. & Chalopin M. 2024 [continuously updated]. — FLORICAL: Checklist of the vascular indigenous Flora of New Caledonia. http://publish.plantnet-project.org/project/floricalPrenner G. 2013. — Papilionoid inflorescences revisited (Leguminosae-Papilionoideae). *Annals of Botany* 112: 1567-1576. https://doi.org/10.1093/aob/mcs258

Pulle A. 1910. — Leguminosae, III. Papilionatae. *Nova Guinea : résultats de l'expédition scientifique néerlandaise à la Nouvelle-Guinée en 1907 et 1909,* 8: 375-387. https://www.biodiversitylibrary.org/item/42443

Rudd V. E. 1967. — *Oxyrhynchus* and *Monoplegma* (Leguminosae). *Phytologia* 15: 289-294. https://doi.org/10.5962/bhl.part.21070

Thiers B. 2024 [continuously updated]. — *Index Herbariorum: a Global Directory of Public Herbaria and Associated Staff*. New York Botanical Garden's Virtual Herbarium [http://sweetgum.nybg.org/ih/].

Verdcourt B. 1978. — A New Combination in *Oxyrhynchus* (Leguminosae: Phaseoleae). *Kew Bulletin* 32: 779-780. https://doi.org/10.2307/4109773

Zhang Z., Schwartz S., Wagner L. & Miller W. 2000. — A greedy algorithm for aligning DNA sequences. *Journal of Computational Biology* 7: 203-214. https://doi.org/10.1089/10665270050081478

Submitted on 20 June 2024;
accepted on 29 July 2024;
published on 20 December 2024.

Appendix 1. — Distance Tree provided by BLAST pairwise alignments, with FAST Minimum Evolution Tree Method.