

***Sylvichadsia*, a new genus of Leguminosae-Papilionoideae-Millettieae endemic to Madagascar**

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ABSTRACT

Sylvichadsia, a new genus in the tribe Millettieae (Leguminosae-Papilionoideae) is described. It includes four species, all endemic to Madagascar (*S. macrophylla* (R. Vig.) Du Puy & Labat, *S. grandifolia* (R. Vig.) Du Puy & Labat, *S. grandidieri* (Baill.) Du Puy & Labat, and *S. perrieri* (R. Vig.) Du Puy & Labat).

RÉSUMÉ

Sylvichadsia, un nouveau genre, de la tribu des Millettieae (Leguminosae-Papilionoideae) est décrit. Endémique de Madagascar, il renferme quatre espèces (*S. macrophylla* (R. Vig.) Du Puy & Labat, *S. grandifolia* (R. Vig.) Du Puy & Labat, *S. grandidieri* (Baill.) Du Puy & Labat, et *S. perrieri* (R. Vig.) Du Puy & Labat).

MOTS CLÉS

Leguminosae,
Papilionoideae,
Sylvichadsia,
Madagascar.

The tribe Millettieae is one of the largest tribes of Papilionoid legumes, along with the Phaseoleae and the Sophoreae (POLHILL 1981); it is diverse and contains numerous species in Madagascar. In order to produce a complete treatment of the Leguminosae-Papilionoideae for Madagascar and the Comoros, we have studied all of the collections of Millettieae from this region held in G, K, MO, P, TAN, TEF and WAG. This research has shown that Madagascar is an important and old centre of diversity for this tribe (LABAT 1996), with 77 specific or sub-specific taxa (68 of them endemic) in 10 genera (5 endemic). *Pyranthus* has already been revised for Madagascar (DU PUY & LABAT 1995) and new species and new combinations in *Millettia* Wight & Arnott and *Pongamiopsis* R. Vig. (LABAT & DU PUY 1995) have been published.

GEESINK (1981) isolated a large group of genera within the Millettieae (as "Tephrosieae") with assumed inter-relationships, centred around the large genus *Tephrosia* Pers. (with over 400 species). It included, in addition to *Tephrosia*, the genera *Mundulea* (DC.) Benth. and *Chadsia* Bojer, both of them confined to Madagascar with the exception of *Mundulea sericea* (Willd.) A. Chev. (which is a widespread subspecies occurring from Africa to southern Asia). GEESINK (1984) considered that the position of *Mundulea* needed revision, especially with regard to *Tephrosia*. It appears that *Mundulea* is heterogeneous, and we have described a new genus named *Pyranthus* Du Puy & Labat, which includes 5 species originally described in *Mundulea* or *Tephrosia*, and a single new species (DU PUY & LABAT 1995).

Similarly, *Mundulea macrophylla* R. Vig. must be excluded from the genus *Mundulea* as well as two species described in the genus *Chadsia*, *C. grandifolia* and *C. grandidieri*, since all three species exhibit characters differing from both of these genera: the presence of bracteoles, a distinct hypanthium, a truncate calyx and a cauliflorous habit. In his revision of the genus *Strongylodon*, HUANG (1991) excluded from this genus a very little known species described by VIGUIER (1952) as *Strongylodon perrieri*, on the basis of the leaves lacking stipels, the absence of a discoid nectary

and other floral and vegetative characters, without making any suggestion as to its correct classification. It appears that a new genus endemic to Madagascar can be recognised in this complex to accommodate these species: it is described here as *Sylwichadsia*.

Sylwichadsia is characterised by its cauliflorous habit, the presence of bracteoles on the pedicels, its truncate calyx, its wide and distinct hypanthium, its stipitate ovary and its pods which are dehiscent, splitting into 2 spiralling valves. The presence of a hypanthium and bracteoles are considered to be primitive features in the Millettieae, and studies of the evolution of this tribe should include this genus. It has already been demonstrated that the genera *Phylloxylon* and *Vaughania*, also endemic to Madagascar, exhibit some primitive characteristics within the tribe Indigofereae (DU PUY et al. 1994, 1995), and, in cladistic analyses of this tribe, these genera form basal branches of the cladogram (SCHRIRE 1995). *Sylwichadsia* may be similarly basal within the Millettieae. The form of the flowers (especially the strongly beaked keel and evenly curved androecium and gynoecium) and the pods of *Sylwichadsia grandifolia* and *S. grandidieri* closely resemble those of *Chadsia*, but they differ in the suberect standard petal and the other characters listed above. The resemblance between the flowers of these two species and those of *Chadsia* can be interpreted as a convergence or parallel evolution of the flowers linked with adaptations to a bird pollination syndrome.

The flowers of *S. macrophylla* are white in colour and most closely resemble those of some *Millettia* species, with a straight androecium and gynoecium sharply upturned at the tip, and a blunt keel tip. However, this species shares all of the generic characteristics listed above (although the pods are not known); its flowers appear different from those of the three other species, but all the differences are linked with the biological specialisation of those other species to bird pollination, and *S. macrophylla* cannot be excluded from *Sylwichadsia*. Its hairy androecium is extremely unusual.

Sylwichadsia perrieri is a liane with trifoliolate

leaves, the flowers are produced in long pseudoracemes and the keel tip has a rather blunt apex. Its habit and leaves are very different from the other species, but the flowers resemble those of *S. grandifolia* and *S. grandidieri*, and they also retain the generic characteristics listed above. Although this species was originally described in the tribe Phaseoleae, it is included here in the genus *Sylvichadsia*. The trifoliolate leaves are very unusual in the Millettieae, although they can be considered as a reduction from imparipinnate leaves. This character occurs in many higher tribes of the Papilionoideae, but it also appears in the tribe Millettieae, in *Disynstemon* R. Vig., a monotypic genus endemic to Madagascar. The vine habit can also be considered as a parallelism appearing in many genera of the tribes Sophoreae and Millettieae, such as in the genera *Baphia* or *Millettia*.

The generic name is derived from "silva/sylva" meaning "forest" and *Chadsia*, another genus in the Millettieae endemic to Madagascar, which has similarly beaked and orange-coloured flowers (especially resembling those of *S. grandifolia* and *S. grandidieri*). *Sylvichadsia* occurs in the humid, eastern rainforests, while *Chadsia* occurs in the seasonally dry, deciduous vegetation of western and southern Madagascar.

SYLVICHADSIA Du Puy & Labat, **gen. nov.**

Arbor, frutex vel liana lignosa, semper cauliflora. Folia imparipinnata vel trifoliolata; stipellae 0. Inflorescentiae in trunco vel in ramis crassissimis dispositae, fasciculatae, racemosae, pseudoracemosae vel paniculatae; bracteolae persistentes in medio vel in ima parte pedicelli dispositae. Flores magnae vel mediocres, 17-45 mm longae, violaceae, rubrae vel albae. Calyx cupularis vel campanulatus, apice truncato edentato vel 4-5 prominentiis minutis proviso; hypanthium latum conspicuumque. Vexillum erectum vel suberectum. Antherae in longitudinem aequantes. Ovarium glabrum, breviter villosum vel pubescens, breve stipitatum, ovulis multis; stigmatum minutum obliquum.

TYPE.—*Sylvichadsia grandifolia* (R. Vig.) Du Puy & Labat (= *Chadsia grandifolia* R. Vig.).

Cauliflorous trees, shrubs or woody lianes (in *S. perrieri*); deciduous or evergreen. Leaves large,

usually clustered on the twig or stem tips, imparipinnate with paired leaflets or pinnately trifoliolate (in *S. perrieri*), glabrous or almost so, glabrescent; stipels absent. Inflorescences from warty growths on the trunk and main branches, the flowers in whorls, racemes, pseudoracemes or panicles; pedicels with a pair of small, persistent bracteoles usually near the middle or in the lower half. Flowers large or medium-sized, 17-45 mm long, purplish to reddish or white (in *S. macrophylla*), the standard with an irregular, whitish basal patch. Calyx cup-shaped to bell-shaped, sometimes narrowly so, not hooded, the apex truncate and without teeth or the teeth reduced to 5 minute points; hypanthium wide and distinct. Standard petal suberect to erect, glabrous or subglabrous behind; wing petals shorter than or as long as and appressed to the keel; keel either extended at the tip into a distinct, narrow beak, or blunt and not beaked (in *S. macrophylla*); androecium and gynoecium shallowly curved to the tip or strongly upcurved apically. Stamens fused into a curved or straight sheath, the outside rarely shortly hairy (in *S. macrophylla*); anthers equal. Ovary shortly stipitate, multi-ovular; style terete or flattened, short-hairy along the inner surface or glabrous (in *S. perrieri*); stigma minute. Pods stipitate, long and narrowly oblong, beaked, splitting into 2 spiralling valves, with several distantly spaced seeds. Seeds not known.

A genus of 4 rare to very rare species confined to the more humid forests of eastern and northern Madagascar. *Sylvichadsia* can be divided into 3 natural groups:

Group 1: Small trees or shrubs; leaves multifoliolate; flowers in fascicles, short racemes, or few-branched panicles; flowers large, 30-45 mm long, red or purplish; keel tip extended into an acute beak; staminal sheath glabrous; androecium and gynoecium evenly curved along their length.—1, *S. grandifolia*; 2, *S. grandidieri*.

Group 2: Shrub; leaves multifoliolate; pseudoracemes short and dense, with numerous flowers in closely spaced clusters along the inflorescence axis; flowers small, 17-20 mm long, white; keel tip rounded, not extended into a beak; staminal

sheath hairy; androecium and gynoecium straight and sharply upturned at the tip.—3, *S. macrophylla*.

Group 3: Liane; leaves 3-foliolate; flowers in

long and lax pseudoracemes; flowers medium sized, 22-24 mm long, bright scarlet red; keel tip obtuse, not extended into a long beak; staminal sheath glabrous; androecium and gynoecium evenly curved along their length.—4, *S. perrieri*.

Key to *Sylvichadsia*

1. Shrub or tree; leaves with 5-23 leaflets; flowers in fascicles or in short racemes, panicles or dense pseudoracemes up to 10 cm long; keel tip extended into an acute beak, or if more rounded then flower white (otherwise red or purplish) 2
- 1'. Liane; leaves with 3 leaflets only; flowers in pseudoracemes ca. 45 cm long; keel tip obtuse, not extended into a beak (flowers bright red) 4. ***S. perrieri***
2. Flowers smaller, 17-20 mm long, white; keel tip rounded, not extended into a beak; staminal sheath hairy; pseudoracemes dense, with numerous flowers in closely spaced clusters along the inflorescence axis 3. ***S. macrophylla***
- 2'. Flowers larger, 30-45 mm long, red or purplish; keel tip extended into an acute beak; staminal sheath glabrous; inflorescences not as above, the flowers in fascicles, short racemes or few-branched panicles 3
3. Calyx cup-shaped, as wide as long or wider; standard 17-30 mm wide; pedicels short, 5-10 mm long; leaves with 5-9 leaflets 1. ***S. grandifolia***
- 3'. Calyx tubular, almost twice as long as wide; standard 14-16 mm wide; pedicels 10-20 mm long; leaves with 9-23 leaflets 2. ***S. grandidieri***

1. *Sylvichadsia grandifolia* (R. Vig.) Du Puy & Labat, **comb. nov.**

Chadsia grandifolia R. Vig., Not. Syst., Paris 14: 70 (1950).—Type: *Perrier de la Bâthie 4110*, Sambirano: forêt du Sambirano, Oct. 1908, fl. (lecto-, P; isolecto-, P; chosen here).

Mundulea macrophylla R. Vig., Not. Syst., Paris 14: 67 (1950), pro parte lectotype excl.

A small, evergreen tree or large shrub 4-12 m tall, cauliflorous; trunk reaching 30 cm in diameter, with smooth, greyish bark, releasing a strong, acrid odour when damaged. Leaves in terminal clusters, large, 15-45 cm long, with 5-9 leaflets (2-4 pairs); leaflets large, elliptic to oblong-elliptic, 6-19 × 2.5-9 cm, the apex acuminate and finally obtuse, glabrous, subcoriaceous. Flowers in short racemes or few-branched panicles 0.5-6(-10) cm long with up to ca. 15(-20) flowers, produced from warty outgrowths mostly on the trunk or older branches; pedicels short, 5-10 mm long, with a pair of small bracteoles near the middle or towards the calyx. Flowers 33-45 mm long, deep red or purplish with an irregular, whitish patch at the base of the

standard. Calyx wide, cup-shaped, truncate, as wide as long or wider, 7-10 mm long, pubescent to glabrous except for the rim; teeth absent or reduced to 5 very small points on the calyx rim. Standard limb suberect or pointing backwards, widely ovate, 30-40 × 17-30 mm, the apex acute, glabrous, the claw fleshy; wings 6-8 mm wide, slightly shorter than the keel; keel 8-11 mm wide, 45-60 mm long (measured from the base of the claw, around the lower margin to the tip of the beak), sickle-shaped, shallowly but evenly curved along its length, with a short, blunt, upcurved beak. Staminal sheath 25-35 mm long, evenly curved along its length, glabrous. Ovary shortly stipitate; style thinly pubescent along the inner surface. Fruit up to 20 cm long, 15-22 mm wide, flat, appressed-pubescent with short, rust-coloured hairs.—Fig. 1A-G.

VIGUIER cited *Perrier de la Bâthie 18176* and *18190* as syntypes of *Sylvichadsia macrophylla* (as *Mundulea macrophylla*). These two specimens were collected at almost the same locality. However, the inflorescences and flower shapes are very different, and *Perrier de la Bâthie 18190*

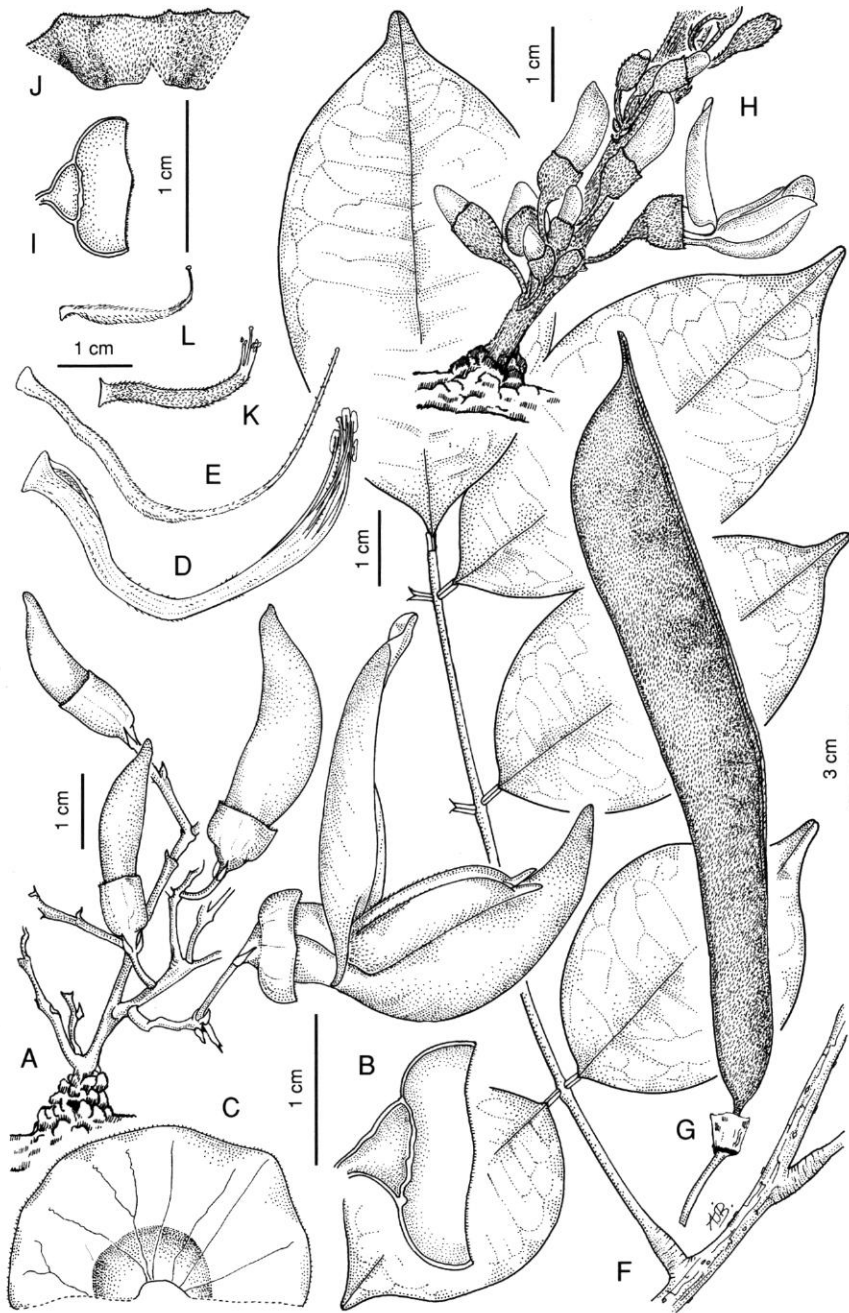


Fig. 1.—A-G, *Sylvichadsia grandifolia*: A, inflorescence (produced from the trunk); B, calyx (longitudinal section showing the hypanthium); C, calyx exterior; D, androecium and style; E, gynoecium; F, mature leaf; G, pod.—H-L, *Sylvichadsia macrophylla*: H, inflorescence (produced from the trunk); I, calyx (longitudinal section showing the hypanthium); J, calyx exterior; K, androecium and style (showing the pubescent staminal sheath); L, gynoecium. (A-G, *Service Forestier 9237-SF*; H-L, *Perrier de la Bâthie 18176*).—
 Drawn by Angela BEAUMONT.

most closely resembles *Sylvichadsia grandifolia* (inflorescence a short spur, flowers large with a beaked keel and wings shorter than the keel, style glabrous, staminal sheath 22-23 mm long and evenly curved along its length). Nevertheless, the whitish flower colour, the presence of a very few hairs on the staminal sheath and the more southerly locality in the same area as *Sylvichadsia macrophylla*, are anomalous and indicate that further collections from eastern Madagascar are needed to clarify the species delimitations and distributions in this genus.

DISTRIBUTION.—NE & N Madagascar, near Antalaha, Andapa, Sambava and Antsirabe [du nord] (300-600 m), and on Montagne d'Ambre (600-1000 m).

HABITAT.—In shaded areas in humid evergreen forest, often near streams or rivers, on acidic (basaltic) soils, at 300-1000 m altitude.

FLOWERING TIME.—September-November.

LOCAL USES.—The wood is soft, brittle, white, with an acrid odour when fresh; all parts of the plant release potent fish toxins upon decomposition.

VERNACULAR NAME.—Fanamo (NE).

MATERIAL EXAMINED.—MADAGASCAR: *Homolle 198*, s.loc., s.d., fl. (P); *Humbert & Capuron 24218*, vallée de l'Andalany, affluent de l'Androranga (bassin de la Bemarivo du Nord-Est), 300-500 m, 12/14 Nov. 1950, j.fr. (G, K, MO, P, WAG); *Perrier de la Bâthie 18190*, Est: bassin inf. du Mangoro, Oct. 1927, fl., j.fr. (K, P); *Perrier de la Bâthie 18860*, Centre (Nord): Montagne d'Ambre, abondant surtout à la base Est du Pic Badens, ca. 1000 m, Nov. 1932, fl., fr. (K, MO, P); *Réserves Naturelles 8299 RN*, Doany, Andapa, 11 Oct. 1956, fl. (K, P, TEF); *Réserves Naturelles 9087 RN Sajo*, Antongondriha, Canton Ambohimitsinjo, Dt. Sambava, 18 Sep. 1957, fl. (P, TEF); *Service Forestier 203 R 152*, Roussette, JB 19, Joffreville, Diégo-Suarez, 630 m, 6 Apr. 1955, st. (K, P); *Service Forestier 811 SF*, bord d'affluent de l'Andalany (affluent de l'Androranga), Dt. de Sambava, 350-500 m, 12 Nov. 1950, fr. (G, K, MO, P, PRE, TEF); *Service Forestier 9237 SF Capuron*, Est: Forêt d'Andrakaraka (au S-SW d'Antalaha), 20/24 Sep. 1954, fl. (K, P, TEF); *Service Forestier 11283 SF Capuron*, Centre (Nord): massif de la Montagne d'Ambre, 800-900 m, 8/14 Oct. 1954, fl. (B, BR, G, K, MO, P, TEF, WAG); *Service Forestier 24906 SF Capuron*, Est (Nord): Analamanara, près du village de Tsaratana, entre Antsirabe-Nord et Sambava, 24

Oct. 1966, fr. (K, P, TEF); *Service Forestier 24962 SF Capuron*, Est (Nord): table basaltique d'Ambanitazana, près d'Andrapengy, au N d'Antalaha, 22 Oct. 1966, fl. (K, P, TEF); *Service Forestier 29191 SF Capuron*, Centre (Nord) jusqu'aux confins de l'Ouest (Nord): massif de la Montagne d'Ambre, crête entre les bassins de la rivière des Makis et de la rivière d'Amkazobe, 600-800 m, 26/27 May 1970, fr. (P, TEF); *Ursch 204*, Forêt d'Ambre, Diégo-Suarez, s.d., fl. (K, P).

2. *Sylvichadsia grandidieri* (Baill.) Du Puy & Labat, **comb. nov.**

Chadsia grandidieri Baill., Bull. Mens. Soc. Linn. Paris 1: 391 (1883), pro parte lectotype incl. (*Grandidieri* 5, also cited by BAILLON, is a specimen of *Chadsia flammea*).—Type: *Lantz 22*, Ambakoubé [Ambakobe], 960-1000 m, 16 June (reçu le 22 Feb. 1882), fl. (lecto-, P, chosen here).

A small, evergreen tree or shrub 2.5-3 m tall, cauliflorous. Leaves in terminal clusters, large, 35-52 cm long, with 9-23 leaflets (4-11 pairs); leaflets narrowly elliptic, 6-16 × 1.5-4 cm, the apex acuminate and finally obtuse, completely glabrous. Flowers in fascicles or on very short spurs up to 5 mm long from warty outgrowths on the trunk or older branches; pedicels 10-20 mm long with a pair of minute bracteoles near the middle. Flowers 30-35 mm long, red. Calyx tubular, truncate, almost twice as long as wide, 7-9 mm long, very sparsely appressed-pubescent; teeth almost absent. Standard limb suberect or pointing backwards (folded ca. 5 mm in front of the calyx tip), ovate, ca. 30 × 14-16 mm, the apex acute, glabrous except for a few short hairs near the tip; wings 4-6 mm wide, slightly shorter than the keel; keel narrow, 5-8 mm wide, 42-48 mm long (measured from the base of the claw and around the lower margin to the tip of the keel), sickle-shaped, shallowly and evenly curved, with a short, acute, upturned beak. Staminal sheath ca. 30 mm long, evenly curved, glabrous. Ovary shortly stipitate; style thinly pubescent along the inner surface. Fruit not known.—Fig. 2H-M.

DISTRIBUTION.—SE Madagascar, only known from 2 localities (20-21 km S of Farafangana on the route to Réserve Spéciale de Manombo [0-

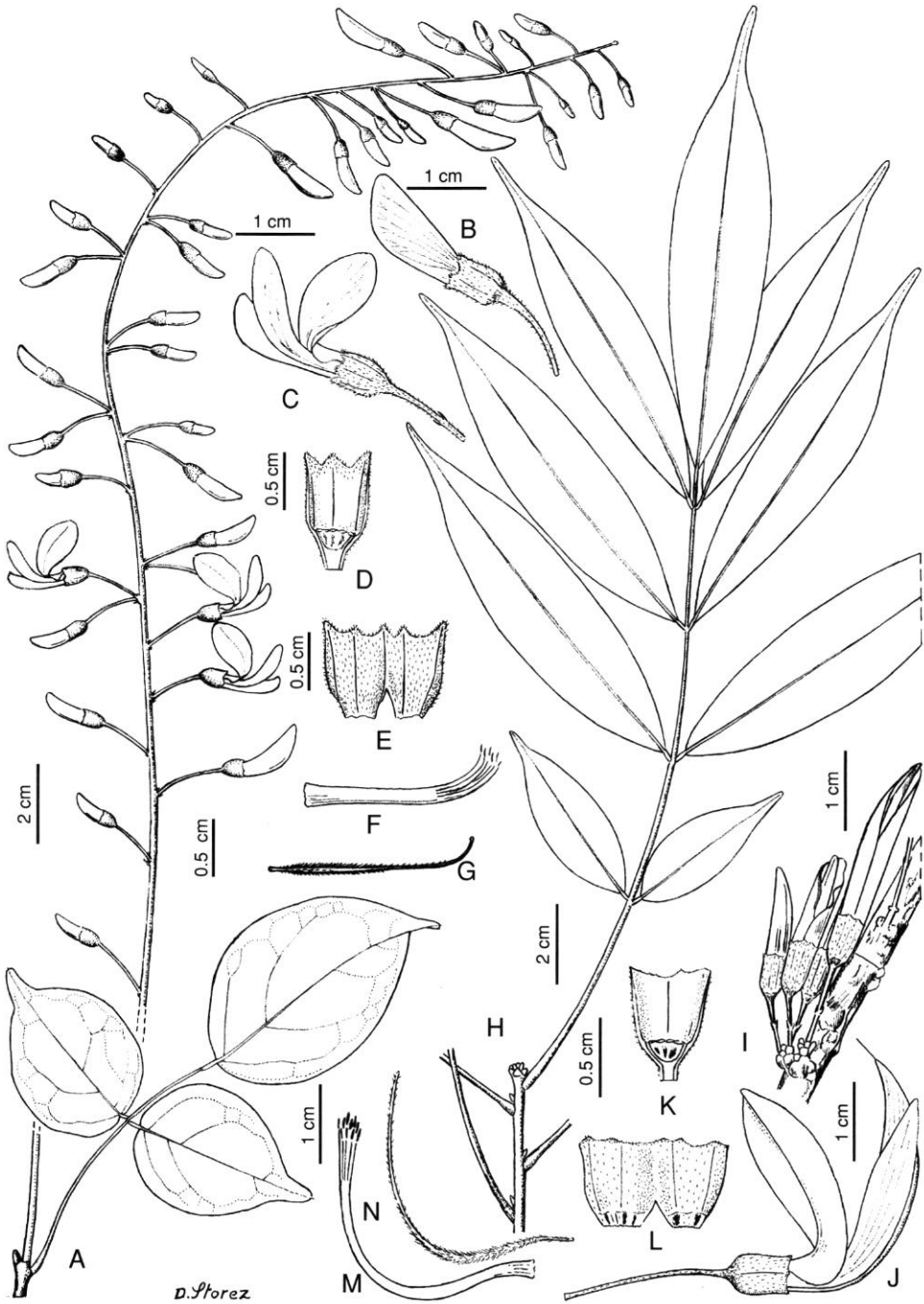


Fig. 2.—A-G, *Sylvichadsia perrieri*: A, mature leaf and inflorescence; B, floral bud; C, mature flower; D, calyx (longitudinal section showing the hypanthium); E, calyx exterior; F, androecium; G, gynoeceum.—H-M, *Sylvichadsia grandidieri*: H, mature leaf; I, inflorescence (produced from older branches); J, mature flower; K, calyx (longitudinal section showing the hypanthium); L, calyx exterior; M, androecium; N, gynoeceum. (A-G, Perrier de la Bâthie 18194; H-J, Lantz 22; K-N, Service Forestier 9207-SF).—Drawn by Dominique STOREZ.

130 m altitude], and "Ambakobe" [perhaps Ambatobe near Farafangana?] at 900-1000 m).

HABITAT.—In humid, evergreen forest on late-ritic (basaltic) soil or sand, at sea level to 1000 m altitude.

FLOWERING TIME.—Only recorded in June.

MATERIAL EXAMINED.—MADAGASCAR: *Service Forestier 9207 SF Capuron*, Forêt de Manombo, au S de Farafangana, 26 June 1954, fl. (K, P); *Service Forestier 23620 SF Capuron*, Est: au sud de Farafangana, route de Manombo, aux P.K. 20-21, 14/17 Oct. 1964, fl. (P, TEF).

3. *Sylwichadsia macrophylla* (R. Vig.) Du Puy & Labat, comb. nov.

Mundulea macrophylla R. Vig., Not. Syst., Paris 14: 67 (1950), pro parte lectotype incl. (see also *Sylwichadsia grandifolia*).—Type: *Perrier de la Bâthie 18176*, Est: Bassin inf. du Mangoro, ca. 200 m, Oct. 1927, fl. (lecto-, P; isolecto-, K, P; chosen here).

A shrub 3-4 m tall, cauliflorous. Leaves in terminal clusters, large, 15-25 cm long, with (5-)7-9 leaflets (usually 3 or 4 pairs); leaflets large, elliptic, 5-11 × 2-4.5 cm, the apex shortly acuminate and finally obtuse, thinly appressed-hairy above and beneath at first, glabrescent, becoming coriaceous. Inflorescences dense pseudoracemes up to ca. 10 cm or more long (perhaps longer as the inflorescence matures) produced from the main woody branches, the flowers numerous in dense, closely spaced clusters on short spurs along the main axis; pedicels ca. 8 mm long, with 2 small bracteoles near the middle. Flowers ca. 17-20 mm long, white. Calyx wide, cup-shaped, truncate, as wide as long or wider when mature, ca. 6 mm long, thinly pubescent; teeth reduced to 5 very small points. Standard limb erect, widely elliptic, ca. 15-18 × 12-17 mm, glabrous; wings ca. 4.5 mm wide, as long as the keel; keel ca. 5.5 mm wide, ca. 20 mm long, slightly curved, the apex rounded (not beaked). Staminal sheath straight, ca. 14-16 mm long, the exterior covered in short, appressed hairs, the apex and the free portion of the filaments upcurved. Ovary shortly stipitate; style short-hairy. Fruit not known.—Fig. 1H-L.

The flowers of this species resemble those of *Millettia* or *Mundulea* (keel short, blunt, not extended into a sharp beak, the ovary and staminal tube straight, with the style and free portion of the filaments strongly upcurved). Nevertheless, the cauliflorous habit, the leaf and leaflet size, the presence of bracteoles and an hypanthium, the truncate calyx and the stipitate ovary closely resemble *Sylwichadsia grandifolia*, and there can be no doubt that they are closely related.

DISTRIBUTION.—E Madagascar, known only from the type locality in the lower Mangoro River basin (ca. 20°S-48°30'E).

HABITAT.—Remnants of humid, evergreen, eastern forest, at ca. 200 m altitude.

FLOWERING TIME.—October.

4. *Sylwichadsia perrieri* (R. Vig.) Du Puy & Labat, comb. nov.

Strongylodon perrieri R. Vig., Not. Syst., Paris 14: 175 (1952).—Type: *Perrier de la Bâthie 18194*, Est: Bassin inf. du Mangoro, ca. 200 m, Oct. 1927, fl. (holo-, P; iso-, P).

A woody liane; stems short-hairy when young, soon glabrescent; stipels absent. Leaves pinnately 3-foliolate; leaflets (25-)45-90 × (15-)25-55 mm, rounded at the base, shortly tapering apically, glabrous and glossy above, with a few hairs especially on the veins beneath, becoming entirely glabrous, coriaceous; stipules narrowly triangular, becoming rigid. Pseudoracemes ca. 45 cm long, the axes finely hairy with short, erect, rusty or red-brown hairs, the flowers numerous mostly in clusters of 3 on swollen nodes along the axis; pedicels 10-15 mm long, hairy with a pair of minute bracteoles inserted in the lower half. Flowers 22-24 mm long, bright scarlet-red including the calyx. Calyx bell-shaped, 5-6 mm long, thinly pubescent outside, pubescent within, with a distinct hypanthium; teeth 4, very small, triangular, the upper tooth notched. Standard limb erect, oblong-elliptic ca. 19-20 × 12-13 mm, notched apically, glabrous, auriculate but without basal appendages, with a claw ca. 6 mm long; wings as long as the keel, the limb narrowly

oblong, ca. 18×4.5 mm, auriculate basally, with pubescent margins towards the base; keel curved, ca. 19×6 mm, obtuse (not beaked), auriculate and pubescent towards the base. Staminal sheath curved, ca. 17 mm long, glabrous. Ovary shortly stipitate, hairy, with ca. 12 ovules; style slender, flattened, glabrous except near the base. Pods not known.—Fig. 2A-G.

DISTRIBUTION.—Only known from the lower Mangoro River valley in E Madagascar.

HABITAT.—In remnants of humid, eastern, lowland forest, at ca. 200 m altitude.

FLOWERING TIME.—Only recorded in October.

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