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Notes on African plants

VARIOUS AUTHORS

FABACEAE

OPHRESTIA OBLONGIFOLIA (PHASEOLEAE) IN SOUTHERN AFRICA

INTRODUCTION

Ophrestia H.M.L.Forbes is a member of the subtribe Ophrestiinae in tribe Phaseoleae (Fabaceae). This sub-tribe was erected by Lackey (1977) to include three genera: the mostly African *Ophrestia*, the tropical African *Pseudoeriosema* Hauman (both previously in Glycininae) and the South-East Asian *Cruddasia* Prain (formerly in Galactiinae). Although the Ophrestiinae appear to have affinities with some Asian *Tephrosia* Pers. (*Tephrosia* is currently placed in the tribe Millettieae), Lackey (1977) decided to keep them within the Phaseoleae due to their twining habit. The Ophrestiinae can therefore be described as '*Tephrosia*-like Phaseoleae'. A cladogram generated from a combination of molecular datasets (including Kajita *et al*. 2001—*rbcL*; Hu *et al*. 2002—ITS; and Wojciechowski *et al*. 2004—*matK*) nonetheless points to a sister relationship of Ophrestiinae with the core-Millettieae (Schrire 2005). These datasets, however, included only two representatives of the Ophrestiinae, i.e. *Ophrestia hedysaroïdes* (Willd.) Verdc. and *O. radicosa* (A.Rich.) Verdc.

Ophrestia, an anagram of *Tephrosia*, was created by Forbes (1948) to accommodate *T. oblongifolia* E.Mey. and three other species, which she described as new at the time: *O. nervosa* H.M.L.Forbes, *O. retusa* H.M.L.Forbes and *O. swazica* H.M.L.Forbes. The latter three were all subsequently placed into the synonymy of *O. oblongifolia* (E.Mey.) H.M.L.Forbes by Verdcourt (1970), who argued that the leaf characters given by Forbes (1948) were "quite unusable and too variable". *Ophrestia* and *Tephrosia* (especially the Asian species) share a number of characters, including pentafoliolate leaves, silky petals and obscure stipels (Lackey 1981). *Ophrestia,* however, differs from *Tephrosia* in having leaflets with fewer, prominent and widely-spaced lateral veins, which loop back without forming a marginal vein, as opposed to the many, inconspicuous, and closely-spaced parallel veins that form a marginal vein in *Tephrosia* (Forbes 1948; Verdcourt 1970).

Verdcourt (1970) expanded the circumscription of *Ophrestia* by amalgamating it with *Paraglycine* F.J.Herm. and *Pseudoglycine* F.J.Herm. on the basis that Herman's (1962) characters were not adequate to separate these two genera from *Ophrestia*. *Paraglycine* is characterized by having 1–7 leaflets, pubescent exterior of corolla, and a swollen, cartilaginous, ariloid strophiole (Herman 1962). *Pseudoglycine* has 5–7 leaflets, sericeous standard on the outside towards the apex, and a hilum covered by a membranaceous collar; it can also be characterized by petaloid calyx lobes and a persistent style in the fruit (Hermann, 1962). *Ophrestia* can be characterized by lateral veins which loop back without forming a marginal vein on the leaflets, it has 1–11 leaflets, pubescent corolla on the outer surface, and a prominent aril. Some species of *Ophrestia* are superficially similar to certain species of *Glycine* Willd., which would explain why a number of the species transferred from *Paraglycine* to *Ophrestia* were originally placed in *Glycine* (e.g. Harms 1899; Baker 1929; Hauman 1955). *Ophrestia,* however, differs from *Glycine* in having short petioles, silky standard petals (glabrous in the latter), and prominent seed arils (Lackey 1977, 1981). In addition, *Glycine* is generally trifoliolate, while *Ophrestia* is 1–5-jugate (Forbes 1948). As currently circumscribed (Schrire 2005), *Ophrestia* comprises 16 species occurring mainly across Tropical Africa (8), and also in Madagascar (4), Asia (3), and thinly distributed in southern Africa (1). We describe and illustrate the southern African *O. oblongifolia* for the first time since its description, correct the typification, and also provide a distribution map.

MATERIALS AND METHODS

Plant material was studied mainly from herbarium specimens loaned from PRE, which has a comprehensive collection of *Ophrestia* specimens. Habitat affinities are described according to Mucina & Rutherford (2006). Type specimens were viewed at www.plants.jstor.org.

TAXONOMIC TREATMENT

Ophrestia *H.M.L.Forbes* in Bothalia 4: 1003 (1948); Verdc. 24: 257 (1970); J.B. Gillett *et al*.: 670 (1971). Type species: *O. oblongifolia* (E.Mey.) H.M.L.Forbes

Paraglycine F.J.Herm.: 52 (1962); Hutch.: 448 (1964). Type species: *P. hedysaroïdes* (Willd.) F.J.Herm. (= *Ophrestia hedysaroïdes* (Willd.) Verdc.)

Pseudoglycine F.J.Herm.: 74 (1962); Hutch.: 448 (1964). Type species: *P. lyallii* (Benth.) F.J.Herm (= *Ophrestia lyallii* (Benth.) Verdc.)

Prostrate, climbing or erect perennial herbs or shrubs, arising from a woody rootstock. *Leaves* digitately or pinnately 3–11-foliolate or unifoliolate, leaflets elliptic-oblong, ovate-oblong or lanceolate-oblong,

with 5–7 prominent nerves above; stipules linear; stipels minute or absent. *Inflorescence* axillary racemes, slender, sometimes much longer than leaves, few- to many-flowered. *Bracts* persistent, linear-lanceolate; bracteoles persistent, linear or filiform. *Calyx* campanulate, sometimes cylindric-campanulate, 5-lobed, tube membranous; lobes subequal, all shorter than tube, upper two ± connate. *Corolla* longer than calyx, purple, purplish pink, violet, whitish pink or yellow; standard oblong-pandurate, lower part auriculate, silky on outer side, with well-developed, channelled claw; wings usually oblong, auriculate near base, with well-developed linear claw, silky outside; keel narrowly elliptic, with well-developed linear claw, auriculate near base, silky outside. *Stamens* diadelphous, vexillary stamen free or slightly joined to others, filaments alternatively long and short, anthers all uniform in size. *Ovary* subsessile, silky, ovules 2–8, style glabrous or hairy along one side, stigma small, capitate. *Fruit* oblong or linear-oblong, dehiscent, oblate, margins slightly thickened, glabrous or slightly hairy, 2–5-seeded. *Seeds* oblong-ovate, smooth, aril prominent.

16 spp.; southern Africa (South Africa and Swaziland), northwards into Tropical Africa, extending to Asia and also in Madagascar.

Diagnostic characters: *Ophrestia* shares a number of characters with *Tephrosia*, notably the pentafoliolate leaves, silky petals and obscure stipels, but is distinguished from it by the fewer, prominent and widely-spaced lateral veins which loop back without forming a marginal vein on the leaflets.

O. oblongifolia (*E.Mey*.) *H.M.L.Forbes* in Bothalia 4: 258 (1948); Verdc. 24: 258 (1970). *Tephrosia oblongifolia* E.Mey.: 108 (1836); Meisn.: 86 (1843); C.Krauss: 54 (1846); Harv.: 209 (1862); O.Kuntze: 175 (1891); Wood: 42 (1907); Burtt Davy: 377 (1932). Type: South Africa, [KwaZulu-Natal], *Drège s.n. P03453602* (P, lecto.!, here designated). [Syntypes: [Eastern Cape], 'ad Omsamcaba' [Msikaba River], *Drège s.n.* (syn., not located); 'prope Omtendo et' [Mtentu River], *Drège s.n.* (P!, K!, syn.)]. [*Note*: The fruiting specimen in P is chosen as lectotype because it was annotated by Meyer and because it is the only one with fruits (the fruits were described in the prognosis)].

Glycine? *wilmsii* Harms: 302 (1899). Type: South Africa, [Mpumalanga], "bei Lydenburg", *Wilms 383* (B†, holo.; K, lecto.!, here designated).

O. nervosa H.M.L.Forbes: 1006 (1948). Type: South Africa, [North-West], Marico district, *Thode A 1394* (NH, holo.!).

O. retusa H.M.L.Forbes: 1005 (1948). Type: South Africa, [North-West], N of Magaliesberg *Dyer & Verdoorn 3405* (PRE, holo.!).

O. swazica H.M.L.Forbes: 1005 (1948). Type: Swaziland, Dalriach at Forbes' Reef *H. Bolus 11845* (PRE, holo.!; GRA!, K!, NH!, iso.).

Scandent perennial herb with trailing stems, up to 1 m wide. *Leaves* 1–5-jugate, rarely unifoliolate; leaflets oblong, 40–75 × 20–30 mm, densely silky beneath, glabrescent above, petiole (25–)45–80 mm long; stipules linear-lanceolate, 5–7 × 1–2 mm; stipels absent. *Inflorescences* few- to many-flowered axillary racemes; peduncles 7–35 cm long. *Flowers* purple, purplish pink, violet, whitish pink, yellow or bluish-purple, (6–)11–15 mm long; bracts persistent, linear-lanceolate, 4–6 × ± 0.5 mm; bracteoles linear-lanceolate, 2–3 × ± 0.2 mm. *Calyx* bilabiate, densely silky hairy, two upper lobes fused up to two-thirds of their length, upper lip 6–8 mm long, lower lip 6–8 mm long. *Petals*: standard oblong, 10–12 × 4–6 mm, silky on outside, claw 2–4 mm long; wings oblong, 6–10 × 4–6 mm, silky on outside, claw ± 3 mm long; keel narrowly elliptic, 5–9 × 3–4 mm, claw 3–4 mm long. Stamens diadelphous, vexillary stamen slightly joined to others. *Ovary* 4–5 mm long, linear-oblong, 2–4-ovuled, style with few hairs along one side, curved upwards. *Fruit* linear, laterally compressed, 20–40 × 7–8 mm, glabrescent, 1–2-seeded. *Seeds* brown to black, oblong to ovoid, ±4 × ±3 mm, aril prominent. *Flowering time:* Nov.–Feb. (Figure 1).

Distribution: *Ophrestia oblongifolia* is the only species of the genus that occurs in southern Africa and is endemic to South Africa (Limpopo, North-West, Gauteng, Mpumalanga, and KwaZulu- Natal) and Swaziland (Figure 2).

Diagnostic characters: close to *O. hedysaroïdes* and *O. radicosa* in having generally oblong leaflets, however in these two species the petioles are shorter than in *O. oblongifolia* (the longest being up to 5.5 cm in *O. radicosa* vs. 7.5 cm in the latter). In all African species of *Ophrestia* (except *O. hedysaroïdes*), the leaflets are narrower than in *O. oblongifolia* (up to 18 mm in *O. unifoliolata* (Bak.f.) Verdc. compared to up to 2.5 cm). *O. oblongifolia* also lacks stipels.

Key to varieties of O. oblongifolia:

1a. Leaves 3–7-foliolate, sparsely to densely covered with whitish hairs . . . var. *oblongifolia*

1b. Leaves 3–11-foliolate; whole plant densely covered with brownish hairs . . . var. *velutinosa*

O. oblongifolia var. **oblongifolia**

Leaves with 3–7 leaflets. Whole plant sparsely to densely covered with whitish hairs.

Diagnostic characters: *Ophrestia oblongifolia* var. *oblongifolia* is less robust (with fewer leaflets than var. *velutinosa*) and is sparsely to densely covered with whitish hairs while in the latter the hairs are brownish.

Distribution and habitat: This variety is much more widespread than var. *velutinosa*, occurring in South Africa (Limpopo, North-West, Gauteng, Mpumalanga, and KwaZulu-Natal) and the Mbabane area in Swaziland (Figure 2). It grows on sandy soil in the Savanna and Grassland Biomes in the following vegetation types: Zeerust Thornveld, Gold Reef Mountain Bushveld; Central Sandy Bushveld, Makhado Sweet Bushveld; Polokwane Plateau Bushveld, Legogote Sour Bushveld, Swaziland Sour Bushveld, Carletonville Dolomite Grassland, KaNgwane Montane Grassland, KwaZulu-

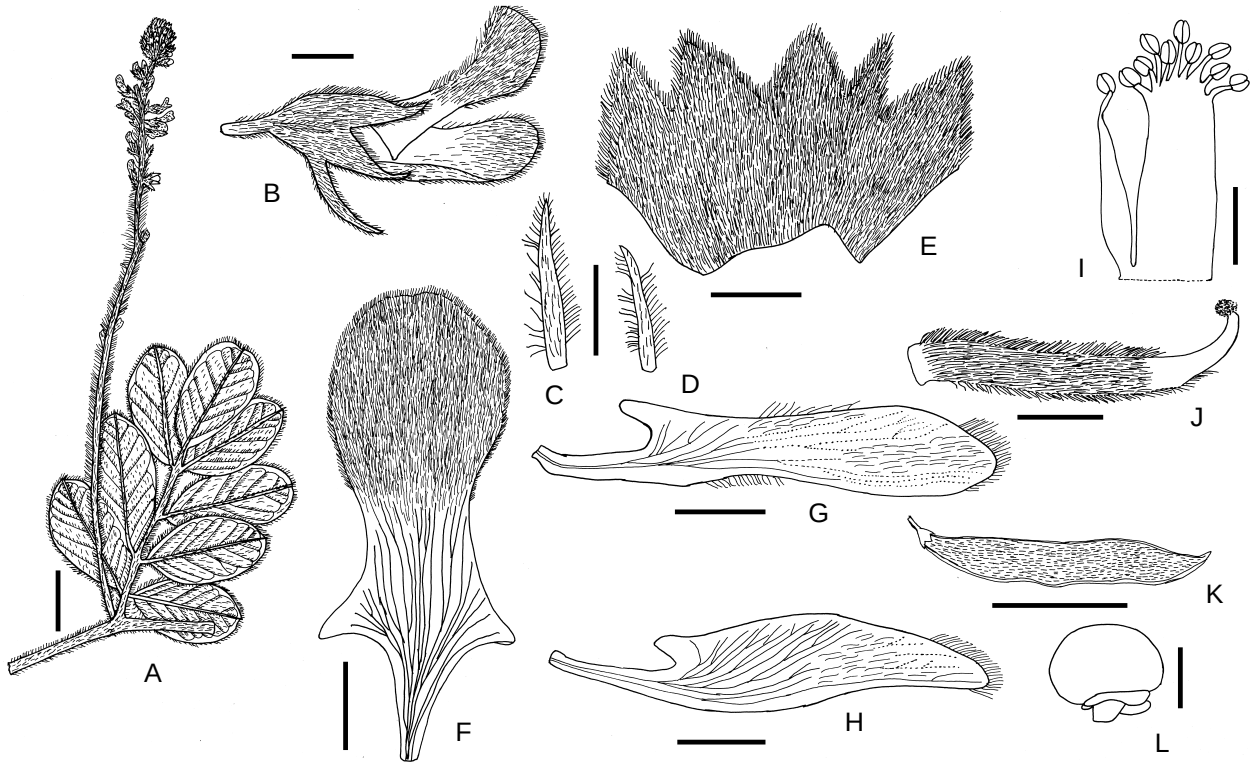

FIGURE 1.—Vegetative and reproductive morphology of *Ophrestia oblongifolia* (all from var. *oblongifolia*): A, flowering branch; B, flower in lateral view; C, abaxial view of bract; D, lateral view of bracteole; E, calyx opened out with upper lobes to the left; F, standard petal; G, wing petal; H, keel petal; I, stamens; J, pistil; K, lateral view of pod; L, lateral view of seed. Vouchers: A & B from *S. Venter 11304* (PRE); C–J from *G.K. Theron 1311* (PRE); K, L, from *B.J. Huntley 1551* (PRE). Scale bars: all 1 mm except K, 20 mm.

Natal Coastal Belt, Thukela Thornveld, and Ngongoni Veld (Mucina & Rutherford, 2006).

Additional specimens

LIMPOPO.—**2329** (Polokwane): Polokwane, Hillside plot, Duvenhageskraal Farm 686 LS, (–CD), 3 Dec. 1985, *S. Venter 11304* (PRE). **2428** (Nylstroom): near Loubadspruit Bridge on road between Nylstroom and Alma, (–CA), 4 Mar. 1985, *M. Welman 504* (PRE). **2429** (Zebediela): Percy Fyfe Nature Reserve (–AA), 22 Feb. 1968, *B.J. Huntley 1551* (PRE). **2430** (Pilgrim's Rest): Graskop (–DB), 27 Nov. 1981, *A.-E. van Wyk 5204* (PRE).

NORTH-WEST.—**2526** (Zeerust): Zeerust, (–CA), Mar. 1912, *T.J. Jenkins 11679* (PRE); Grasfontein, Lichtenburg, (–CC), 8 Dec. 1929, *J.D. Sutton 302* (PRE). **2527** (Rustenburg): Rustenburg Nature Reserve, (–CA), 28 Dec. 1970, *N. Jacobsen 1598* (PRE); Wolhuters Kop (–DA), Dec. 1916, *T. Nunns 9* (PRE). **2626** (Klerksdorp): NNE of Lichtenburg, near side of the road to Koster, (–AA), 9 Mar. 1967, *J.C. Scheepers 1491* (PRE); 42 miles [68 km] from Koster on Lichtenburg road, (–AB), 13 Oct. 1971, *B. Clarke 249* (PRE); road to Ventersdorp, 22 km from turn-off of Koster/Lichtenburg road, (–BA), 8 Mar. 1985, *M. Welman 590* (PRE); 8 miles [13 km] NW of Ventersdorp, (–BD), 1 Feb. 1946, *J.P.H. Acocks 12400* (PRE).

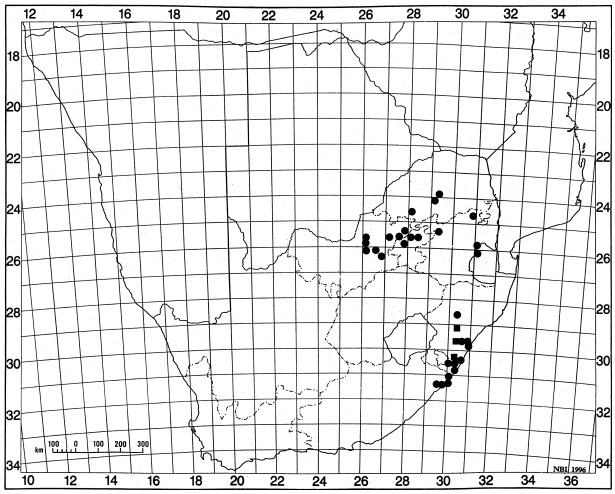

FIGURE 2.—Distribution of *Ophrestia oblongifolia* var. *oblongifolia*, ●; *O. oblongifolia* var. *velutinosa*, ■.

GAUTENG.—**2528** (Pretoria): camp adjoining govt house, Bryntirion, (–CA), 14 Nov. 1926, *C.A. Smith 3353* (PRE); Botanical Reserve, Silverton, (–CB), 16 Dec. 1946, *R. Story 1420* (PRE).

MPUMALANGA.—**2529** (Witbank): Loskopdam, Nooitgedacht, (–AD), 12 Jan. 1967, *G.K. Theron 1131* (PRE). **2531** (Komatipoort): Kangwane, Songimvelo Game Reserve, Mlembe Mountain, (–CC), 7 Dec. 1992, *G. Germishuizen 5683* (PRE).

SWAZILAND.—**2631** (Mbabane): Dalriach at Forbes Reef, (–AA), *H. Bolus 11845* (GRA, K, NH, PRE); Malolotja Nature Reserve, (–AA), 18 Nov. 1985, *L.M. Heath 418* (PRE).

KWAZULU-NATAL.—**2830** (Dundee): Hamewith, Mtunzini District, (–CB), 18 Nov. 1919, *A.O.D. Mogg 5978* (PRE). **2930** (Pietermaritzburg): Key Ridge, (–DA), 18 Jan. 1987, *P. Goldblatt & J. Manning 8395* (PRE); Inanda, Natal, (–DB), Jun. 1879, *J.M. Medley-Wood 402* (PRE). **2931** (Stanger): Port Natal [Durban], (–CC), *Drége s.n. c* (P). **3030** (Port Shepstone): Mgayi, (–BC), 27 Jan. 1968, *C.J. Ward 6351* (PRE); Uvongo Beach, (–CD), Mar. 1967, *L.C.C. Liebenberg 7995* (PRE); Hibberdene, (–DA), 1 Jan. 1964, *N. Grobbelaar 60* (PRE).

EASTERN CAPE.—**3129** (Port St. Johns): Lusikisiki, Umsikaba River mouth, (–BC), 20 Jan. 1937, *A.O.D. Mogg 13325* (PRE); Mkambati Game Reserve, (–BD), 10 Dec. 1985, *C. Shackleton 368* (PRE). **3130** (Port Edward): Port Edward, (–AA), 5 Jan. 1981, *G. Germishuizen 1727* (PRE).

O. oblongifolia var. **velutinosa** *H.M.L.Forbes* in Bothalia 4: 1004 (1948). Type: South Africa, [KwaZulu-

Natal], 'Zululand', *Gerrard 1082* (NH, holo.!; BM!, K!, P!, iso.).

Leaves with 3–11 leaflets. Whole plant densely covered with brownish hairs.

Diagnostic characters: this variety appears to be more robust (with 3–11 leaflets as opposed to 3–7 leaflets) than the typical variety, and much more hairy, with brown rather than white hairs.

Distribution and habitat: var. *velutinosa* appears to be restricted to the KwaZulu-Natal coastal belt, from Port Shepstone to north of Durban. It occurs on sandy soil in Midlands Mistbelt, Thukela Valley Bushveld and Eastern Valley Bushveld (Mucina & Rutherford 2006).

Additional specimens seen

KWAZULU-NATAL.—**2931** (Stanger): Halfway between Tugela Bridge and turn-off to Ultimatum Tree, (–AB), 14 Dec. 1972, *N. Grobbelaar1661* (PRE). **3030** (Port Shepstone): District Alexandria, Station Dumisa, Farm Friedenau, (–AD), 5 Dec. 1908, *H. Rudatis 520* (PRE); Dududu, Umkomaas, 2 km W of the Cedars Farm, (–BA), 5 Nov. 1992, *A.M. Ngwenya 1051* (PRE); St. Michael-on-Sea, (–CB), 25 Dec. 1966, *R.G. Strey 7090* (PRE).

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CYPERACEAE

IDENTITY AND TYPIFICATION OF *CAREX COGNATA* AND STATUS OF *C. DRAKENSBERGENSIS*

In a useful synopsis of sub-Saharan and Madagascan species of *Carex*, Gehrke (2011: 73) lectotypified the name *Carex cognata* Kunth on 'South Africa, Western Cape Province, Swellendam and George District, *W. Mundt s.n.*' (S) (more correctly it was a neotypification) and since that particular specimen is (in our opinion) part of the same collection cited by Nees (1836) as *C. clavata* Thunb. and currently identified by Gehrke (2011) as such, the action resulted in Gehrke placing *C. cognata* in the synonymy of *C. clavata*. *Carex cognata*, in the sense of recent authors, e.g. Clarke (1898), Kükenthal (1909), Haines & Lye (1983), Gordon-Gray (1995), and Verdcourt (2010) was treated by Gehrke (2011: 75) as *C. congolensis* Turrill, citing several specimens from southern Africa as this species. In the same article, Gehrke (2011: 74) treated the evidently closely related *C. drakensbergensis* C.B.Clarke as a separate species. The aim of this brief note is to discuss and clarify some of the issues of typification and synonymy within this African species complex, mainly with reference to southern Africa.