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Silene vlokii D. Masson sp. nov., new species of Caryophyllaceae for South Africa

DANIEL MASSON

RÉSUMÉ

MASSON, D. (1989). *Silene vlokii*, une nouvelle espèce de Caryophyllaceae d'Afrique du Sud. *Candollea* 44: 485-491. En anglais, résumés français et anglais.

Silene vlokii est une espèce nouvellement décrite des falaises rocheuses du littoral sud près de la ville de George. Son nombre chromosomique ($2n = 24$) et ses relations avec les autres espèces voisines de la section *Fruticosae* sont examinés.

ABSTRACT

MASSON, D. (1989). *Silene vlokii*, a new species of Caryophyllaceae from South Africa. *Candollea* 44: 485-491. In English, French and English abstracts.

Silene vlokii is a new species described from south cliffs above sea near George. Its chromosome number ($2n = 24$) and its relationships with the nearest species of the *Fruticosae* section are examined.

Introduction

During summer 1987, we have made a big trip around South Africa to collect the genus *Silene* (*Caryophyllaceae*).

Along the coast and near the town of George, we have had the opportunity of the discovery of a new species: *Silene vlokii* with the help of the south african botanist Jan Vlok.

Species description

Silene vlokii D. Masson, spec. nov., Section *Fruticosae* (Rohrb.) Chowdhuri.

S. crassifolia L. affine, sed folia ellipticiora, minus crassulescentia, caules tenuiores (1mm pro 2-3 mm), pili minus hirsuti; ab *S. primuliflora* E. & Z., amplitudo parvulus [15-20(-25) cm pro 25-35(-60)] cm, folia multo minora (10-15 mm pro 20-35 mm); ab *S. mundiana* E. & Z., folia elliptica etiam obovata et non linearia (5-7 mm pro 2-3 mm), pili densiores.

Holotypus: C. P., Herold's Bay, *Masson D. 1225* (G).

Isotypus: (BRI) (Fig. 1).

Herb perennial, up to 15-20 cm tall. *Root* tubercular. *Basis* branched and prostrated. *Stems* 10-15 cm high with internodes covered with many short (0.1-0.2 mm), erect and retrose hairs. *Leaves* narrowly elliptic to obtusely oblanceolate, mucronate, 7-8(-10) × (7-)10-15(-25) mm, thinly succulent, limb and margin hairy. *Raceme* 5-8 flowers in monochasium contracted. *Flowers* erected. *Bracts* and bracteoles linear or narrowly ovate (4-)5-7 mm with some hairs on leaves. *Pedicels* short 2-3(-7) mm. *Calyx* cylindric campanulate, thickened, hairy, 5-6 × 12-15 mm, 10-nerved, inflated only on fruit. *Corolla* whitish inside and greenish-brownish outside. *Petals* bifid, limb 3-4 × 4 mm,

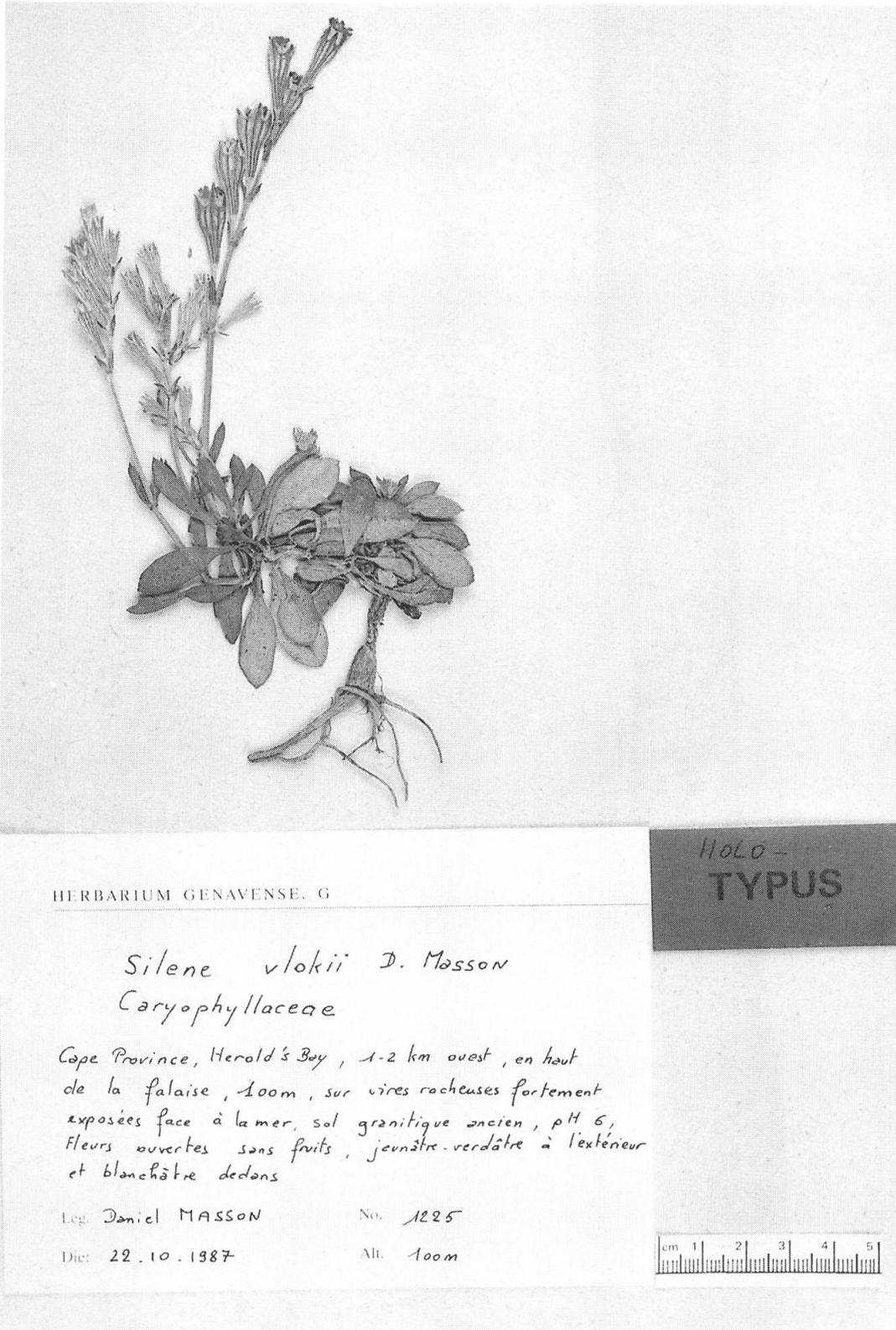
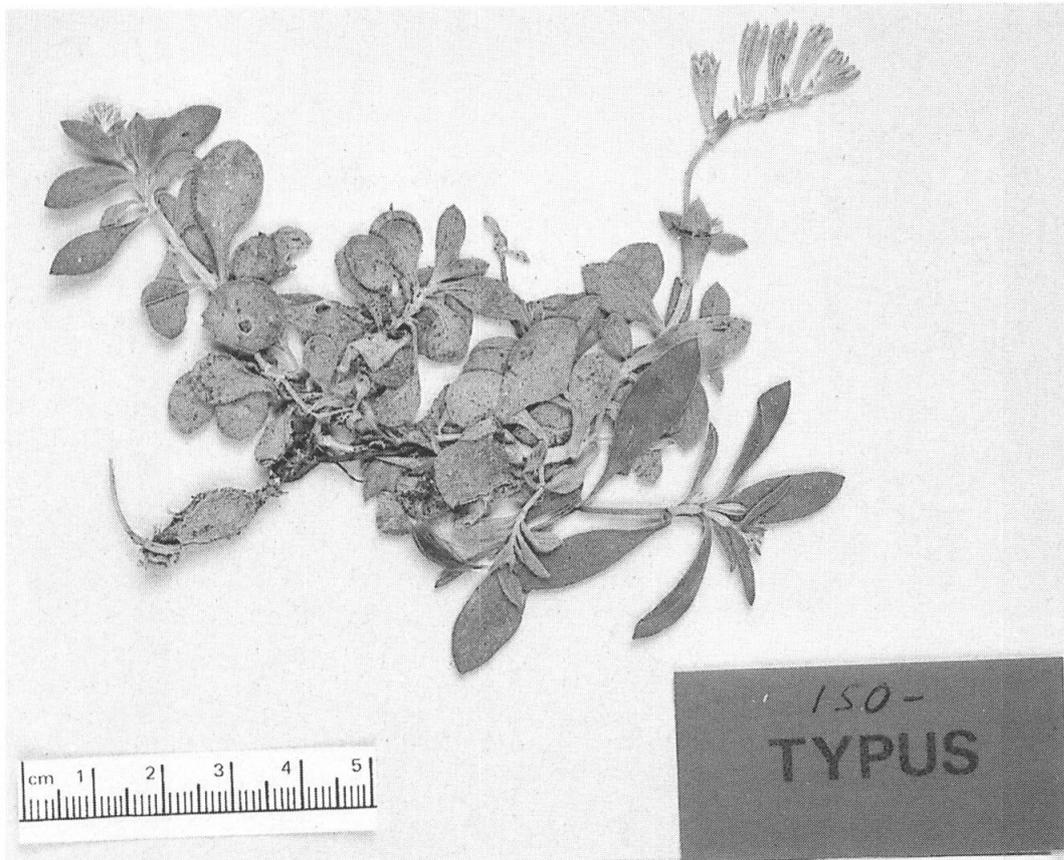


Fig. 1. — *Silene vlokii* D. Masson



HERBARIUM GENAVENSE. G

Silene vlokii D. MASSON

Caryophyllaceae

Cape Province, Herold's Bay, 1-2 km West,
at the top of the cliff, 100m, on old crags
in front of sea. Granitic soil, pH 6.
Open flowers without fruits, yellowish outside
and whitish inside

Leg. Daniel MASSON

No. 1225

Die: 22.10.1987

Alt. 100m



Fig. 2. — Holotypus of *S. vlokii* D. Masson, spec. nov. in locus classicus: Herold's Bay near George.

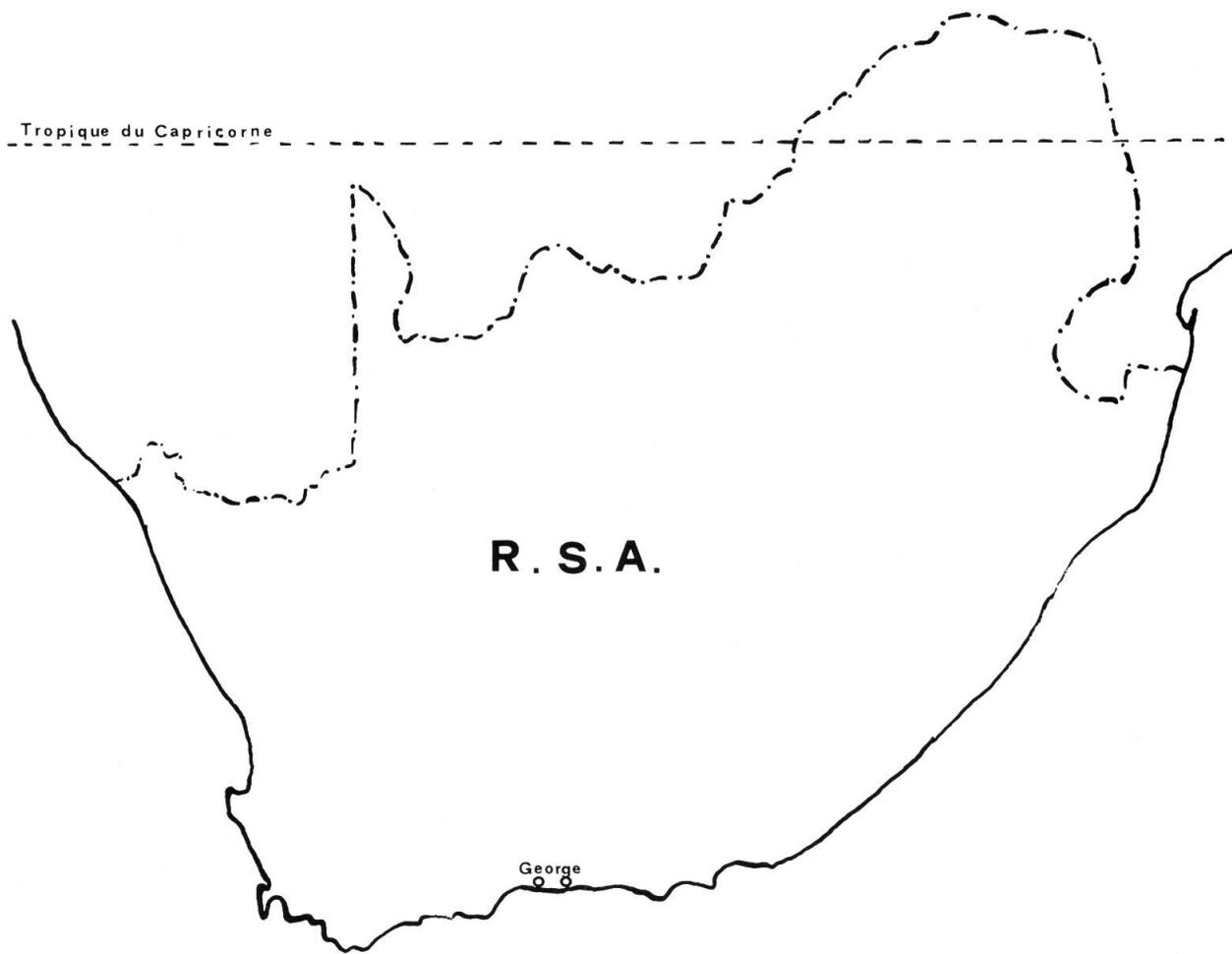


Fig. 3. — Localities for *S. vlokii*, spec. nov.

shortly emarginate (1.5-2 mm), forming a tube on 1/3 at base. *Stamens* 10 fused to petals at base. *Gynophore* 5-6(-7) mm. *Ovary* ovoid overcome with 3 styles. *Capsule* yellowish, ovoid 5-6 X 6-7 mm, opening with 6 teeth outside. *Seeds* dark blackish brown, kidney-shaped, small (1 mm diameter), flattened with 2 undulated wings on the external side.

Typical localities (Fig. 3)

Cape Province: Herold's Bay, 1-2 km ouest, en haut de la falaise, 100 m, sur vires rocheuses fortement exposées face à la mer, sol granitique ancien, pH 6, fleurs ouvertes sans fruit, jaunâtre-verdâtre à l'extérieur et blanchâtre dedans, 22.10.1987 *D. Masson 1225* (holo-G, BRI); George, Glantana Beach, flanc de falaise, 8-10 m au-dessus du niveau de la mer, très exposé aux embruns, exposition sud, localement abondant, 22.10.1987 *D. Masson 1226* (G); George, 1 km east of Glantana Beach, in moist, loamy soil on steep south facing slope on outcrop of weathered granite, 50 m, occasional, light pink inside and dull yellowish-brown outside, 5.12.1987, *JHJ Vlok 1893* (G, BRI).

Ecology

On south-facing cliffs on sea near George (CP) (Fig. 2). Immediately in the rocks. Often hanged up in cracks with roots strongly wedged in rocks. Acid ground on old crags.

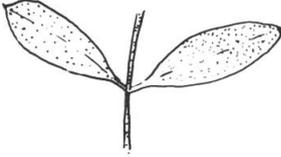
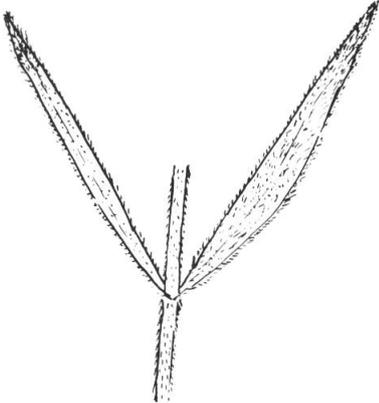
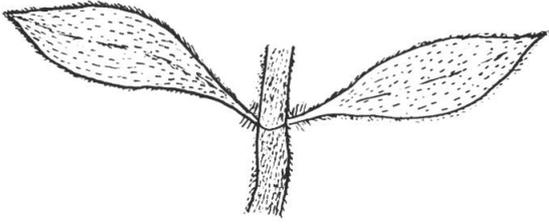
| | |
|---|---|
|  | <p><i>S. mundiana</i></p> <ul style="list-style-type: none"> — stems narrow (1 mm) — leaves linear, short — without hairs or some small ones |
|  | <p><i>S. vlokii</i></p> <ul style="list-style-type: none"> — stems narrow (1 mm) — leaves narrowly elliptic to obovately oblanceolate, short — many small hairs |
|  | <p><i>S. burchellii</i> (group s.l.)</p> <ul style="list-style-type: none"> — stems medium (2-3 mm) — leaves linear to narrowly obovately oblanceolate, long — many small hairs |
|  | <p><i>S. primuliflora</i></p> <ul style="list-style-type: none"> — stems thick (3-5 mm) — leaves obovate, obtuse or acute, long — more or less hairs on limb, with long hairs on petiole |
|  | <p><i>S. crassifolia</i></p> <ul style="list-style-type: none"> — stems thick (3-5 mm) — leaves spatulate or obovate truncate, very short — many long hairs, hirsute |

Fig. 4. — Comparative characters between local species of section *Fruticulosae*, genus *Silene* (*Caryophyllaceae*).

Remarks. — *S. vlokii* seems to grow:

1. Only around George on the coast.
2. Only on cliffs, south facing escarpments.

Caryology

The chromosome number of *S. vlokii* is $2n = 24$. The count was made on root-tips of specimens coming from Glantana Beach (near George) and cultivated from seeds in the Botanical Garden of Geneva. The material was prepared on very young plants, pretreated with bromonaphtalene, fixed with Carnoy and colored with carmin acetic. The chromosomes are short and similar to the others species of this section.

Relationships

S. vlokii is well differentiated from the others taxa of the section *Fruticulosae* by many characters. Some of them are evidents and we discuss them now, more details will be published latter in our systematic revision of all the taxa of this genus for South Africa (see Fig. 4).

- 1) Localitat — *S. vlokii* is the only one species of this section growing on cliffs. *S. crassifolia*, *S. primuliflora* are found only on sand dunes of beach. The locus classicus of *S. mundiana* is unknown but in this same country, and since its description, we have no news of this species. All the others species belonging the *S. burchellii* group grow on mountain or in the veld flora. The two others annuals species *S. clandestina* and *S. dewinteri* are seen on open field for the first and in front of sand dunes for the second.
- 2) Habit — It is a perennial herb, prostrate chamaephyte more or less branched with tubercular root like all the species of this section. It is the smallest of this section.
- 3) Leaf — The variability of the leaves in the genus *Silene* is well-known. However, we can see several specific tendencies in this section where *S. vlokii* is intermediate.
- 4) Stems — This new species seems to be nearer *S. mundiana* with very narrowed stems (1-2 mm) than *S. crassifolia* and *S. primuliflora* which have large stems (3-4 mm). The *S. burchellii* group has the same stems but with a many more length (50-60 cm) and a more erected habit.
- 5) Hairs — Covered by many short hairs like *S. burchellii* group (0.1-0.2 mm). *S. mundiana* is glabrescent, *S. crassifolia* is hirsute with big hairs (0.5-1 mm) and *S. primuliflora* has an irregular pilosity.

The original habitat, the specifics morphological characters give an independant taxonomical status for this taxon. It's not a surprise in this country where we have a continental adaptive radiation.

ACKNOWLEDGEMENTS

We have named this species in the honour of our friend Jan Vlok, south african botanist, who attract our attention on this special taxon. We thank him very much.

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We wish to express our gratitude to Mrs. H. Geser for her help during the chromosomal count and Mr. C. Defferrard for his help on the field and for the photographs.

