Name changes in *Pelargonium*, section *Hoarea* (Geraniaceae)

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1. A new name, *Pelargonium reflexipetalum* E.M. Marais, is designated for *P.* *pulchellum* Salisb. (1807), non Sims (1801) and the status of *P.* *setosum* (Sweet) DC. is given. 2. *P.* *bubonifolium* (Andr.) Pers., based on *Geranium bubonifolium* Andr. (1803), is the correct name for *P.* *namaqueae* Knuth (1912) and *P.* *congestum* (Sweet) G. Don is also a synonym for *P.* *bubonifolium*. 3. *P.* *violiflorum* (Sweet) DC. is re-instated, as it was erroneously placed as a synonym for *P.* *longifolium* (Burm. f.) Jacq. var. *nivea* (Sweet) Knuth (1912). The delimitation of *P.* *violiflorum* is given.

**Keywords:** Geraniaceae, *Hoarea*, name changes, *Pelargonium*, taxonomy

**A new name for *Pelargonium pulchellum* Salisb.**

According to Knuth (1912) *Pelargonium pulchellum* Salisb. is of dubious origin, but the illustration of *P.* *pulchellum* in Salisbury’s *Paradisus Londinensis* (1807) corresponds perfectly well to a species of *Pelargonium* occurring in Pauhuis Pass near Clanwilliam. According to Salisbury (1807) the illustration was made of a plant collected by J. Niven in the Cape of Good Hope. A herbarium specimen, *Niven* 24, was found in the Natural History Museum in London which corresponds well with Salisbury’s illustration as well as with the plant growing in Pauhuis Pass, but the writing on this specimen concerning the locality of the collection is difficult to decipher. The name *P.* *pulchellum*, however, was first used in 1801 by J. Sims for a small half-shrub with a short and fleshy stem (Van der Walt 1977: 36 fig.), thus the name *P.* *pulchellum* Salisb. is a later homonym of *P.* *pulchellum* Sims and should be replaced.

Since Salisbury’s illustration (1807) of *P.* *pulchellum* resembles that of *Hoarea setosa* by Sweet (1820), a detailed comparison of the two illustrations was made, but the apparent resemblances seem not to be real similarities. The colour of the flowers of *H.* *setosa* seems to be an unusual shade of pale pink, unknown in any natural species of section *Hoarea* or the genus *Pelargonium*. The flowers of *H.* *setosa* are larger than, and the hypanthia are twice the length of those of *P.* *pulchellum* Salisb. The leaves of the two illustrations also do not correspond perfectly well. Sweet (1820) did not give a decisive statement on the origin of the species, thus I agree with Knuth (1912) that *H.* *setosa* and therefore *P.* *setosum* (Sweet) DC., is most probably of hybrid origin.

*Pelargonium reflexipetalum* E.M. Marais, nom. nov.

*Pelargonium pulchellum* Salisb., *Paradisus Londinensis* 1: t. 39 (1807); non Sims (1801). TYPE: *Niven* 24 (BM! lecto, here designated).

A small deciduous geophyte 50–120 (–150) mm tall when in flower. *Tuber*: a turnip-shaped, elongated or sometimes moniliform root covered with flaking dark brown periderms, 10–30 mm long and 8–15 mm in diameter. *Leaves*: radical, juvenile leaves simple, others pinnate, green, petiolate; lamina elliptic in outline, 15–35 mm long, pinnae obovate, often pinnatifid, 5–11 x 3–8 mm, apices obtuse, margins ciliate, adaxially covered with short glandular hairs and abaxially with glandular hairs and appressed stiff hairs along main veins; petiole 8–40 mm long and 0.5–1.2 mm in diameter, prostrate, densely hisrate with appressed curly hairs interspersed with short glandular hairs; stipules subulate, ciliate, adnate to petioles with only apices free, 5–8 x 1 mm. *Inflorescence*: scape 10–50 mm long, reddish green, densely covered with glandular hairs interspersed with appressed curly hairs, branched, bearing 2–3 pseudo-umbellets with 2–5(7) flowers each; peduncles 10–90 mm long, indumentum as on scape, reddish green; bracts lanceolate, 3–6 mm long, abaxially densely hisrate with distally appressed hairs interspersed with short glandular hairs. *Pedicel*: ca. 0.5 mm long. *Hypanthium* 7–12 mm long, 1.5–2 times the length of the sepals, green to greenish brown, indumentum as on peduncle. Sepals 5, lanceolate, apices acute, 5–8 x 1.5–3 mm, reflexed during anthesis, indumentum abaxially as on peduncle, green to reddish green, margins white. *Petales*: 5, bright pink: posterior two with wine-red feather-like markings or sometimes a wine-red blotch, spatulate, 12–16.5 x 3.2–5.5 mm, length/width ratio 2.5–5, claw 5–7 x 1.5–2 mm, apices rounded, truncate or emarginate, reflexed during anthesis; anterior three patent during anthesis, spatulate, 10–13 x 2–4 mm, bases attenuate, rounded apices. *Stamens*: staminal column 1.5–2.5 mm long, smooth, white; perfect stamens 5, posterior one 5–8 mm long, lateral two 6–10 mm long, anterior two 7–12 mm long, longer than the sepals, protruding from the flower, apices pink; staminodes 2–3 mm long; anthers dark pink, 1.5 mm long, pollen orange. *Gynoecium*: ovary 2.5–4.5 mm long; style 1–4 mm long, wine-red; stigma branches recurved, 0.5–2 mm long, wine-red. *Fruit*: bases of mericarps 4–5 mm long, with glandular hairs, tails 22–23 mm long (Figure 1).

**Diagnostic features and affinities**

*P.* *reflexipetalum* is a small geophyte with bright pink flowers with reflexed posterior petals, hence the specific epithet, and prostrate, pinnatisect to bipinnatifid leaves. Young plants usually have simple leaves. The anterior stamens are longer than the sepals and protrude from the flower during anthesis. The prostrate pinnatisect leaves of *P.* *reflexipetalum* resemble those of *P.* *glabrophyllum* E.M. Marais, although the latter has larger leaves (petiole: 30–85 mm long; lamina: 40–60 mm long; Marais 1996a) than *P.* *reflexipetalum*. *P.* *glabrophyllum* also has very large tubers (25–150 mm in diameter) and the stamens are shorter than the sepals and concealed within the floral sheath, whereas *P.* *reflexipetalum* has small tubers and anterior stamens longer than the sepals.

The bright pink flowers of *P.* *reflexipetalum* resemble those of *P.* *chelidonium* (Houtt.) DC., *P.* *petroselinifolium* G. Don and *P.* *triphyllum* Jacq. in respect of the colour and size of the flowers. Both *P.* *chelidonium* and *P.* *petroselinifolium* have spatulate petals as in *P.* *reflexipetalum*, but they have short stamens which are concealed within the floral sheath. *P.* *chelidonium* has prostrate simple to tripartite leaves (Marais 1990), and *P.* *petroselinifolium*
Figure 1  *Pelargonium reflexipetalum*. 1. Flowering plant x1; 2. petals x2; 3. androecium x3; 4. gynoecium x3.
has erecto-patent, irregularly bipinnatifid leaves (Marais 1995). In both *P. triplum* and *P. reflexipetala* the flowers have long protruding stamens, but they differ in respect of the auriculate claws of the posterior petals present in *P. triplum*, which are lacking in *P. reflexipetala*.

The way in which the petals of *P. reflexipetala* are presented during anthesis, as well as the long protruding stamens resemble *P. triplum* E.M. Marais (Marais 1996b). Both species have spatulate posterior petals (length/width ratio smaller than five) with reflexed apices and in both species the anterior stamens are longer than the sepals and protrude from the flower. The pollen morphology of the two species is identical. They differ, however, in that *P. triplum* has yellow flowers and large tripinnate leaves (Marais 1996b), whereas *P. reflexipetala* has bright pink flowers and small pinnatisect leaves.

Geographical distribution and ecology

Except for the type specimen, of which the locality is unknown, the latest collections of *P. reflexipetala* are only from Pakhuis Pass where dense populations occur in mountain fynbos (Figure 2). It is predominantly a winter-rainfall area with an average precipitation of 300–400 mm per annum. *P. reflexipetala* flowers from September to November with the peak of the flowering time in October. In nature the plants seldom have leaves at flowering time, but in the Botanic Garden at Stellenbosch leaves are often present when the flowers appear.

Material studied

---3219 (Wuppertal): Pakhuis Pass (-AA), Bolus 8943 (BOL); Compton 9004 (NBG); Esterhuyzen 3382 (BOL); Esterhuyzen 21936 (BOL, K); Galpin 11609 (K, PRE); Gibb & Crompton 24 (BM); Leighton 3158 (BOL); Marais 185, 203, 205, 302, 396 (STEU); Van der Walt s.n. (STEU) 805; Pakhuis Pass, 20 km from Clanwilliam (-AA), Fischer 112 (STEU).

Without locality: Niven 24 (BM).

Correct name for *Pelargonium namaquaense* Knuth

By comparing living specimens of *P. namaquaense* from different localities with the illustrations of *Pelargonium babinfolium* in Andrews' Botanist's Repository (1803) and *Hoearei congerri* by Sweet (1826a) I am convinced that *G. babonfolium* Andr., *H. congerri* Sweet and *P. namaquaense* are conspecific, with *G. babonfolium* as the oldest name. The correct name therefore for

*P. namaquaense* is *P. babonfolium* (Andr.) Pers. Although Knuth had a fine set of herbarium specimens at his disposal when he described *P. namaquaense* in 1912, he never visited South Africa and did not have the opportunity to compare the illustrations of Andrews and Sweet with living material. In studying section *Hoearei* it is of great importance that the illustrations of species originally described in illustrated books without existing type specimens, should be compared with both living and herbarium specimens. Since *P. babonfolium* is well documented and illustrated in Van der Walt & Vorster (1988) as *P. namaquaense*, only the nomenclature, diagnostic features, affinities and distribution are given here.

*Pelargonium babonfolium* (Andr.) Pers., Synopsis plantarum 2: 227 (1806); Ait. f.: 163 (1812); DC.: 652 (1824); Spreng.: 53 (1826); Loudon: 707 (1829); G. Don: 727 (1831); Loudon: 271 (1832); Steud.: 677 (1840); Steud.: 284 (1841); Harv.: 270 (1860); Knuth: 347 (1912). TYPE: Andrews, The Botanist's Repository 5: t. 328 (1803).

*Geranium babonfolium* Andr.: t. 328 (1803); Poir.: 758 (1812).

*Hoearei babonfolia* (Andr.) Sweet: 75 (1826b).


*Pelargonium congestum* (Sweet): G. Don: 727 (1831); Loudon: 271 (1832).


Diagnostic features and affinities

*P. babonfolium* is a geophyte with small tubers and regularly pinnatisect erect leaves with irregularly incised sinuses. The white or pink petals are larger than the sepals. The androecium of *P. babonfolium* resembles that of *P. aurantium* (L.) Willd., *P. leipoldtii* Knuth and all the other two-petalled species of section *Hoearei*. In all these species the five fertile stamens are almost of the same length, and are longer than the sepals, and protrude from the flower. The staminal columns of all of them are papillate, a characteristic that delimits these species as a group within section *Hoearei*. The epithet *babonfolium* refers to the resemblance between the leaves of this species and those of the genus *Babon* L., a synonym for *Athamania L.*, which are carrot-like plants of the Apiaceae.

Geographical distribution and ecology

*P. babonfolium* is known from Witputs in the extreme southern part of Namibia, and from Steinkopf and Okiep in Namaqualand. This is a semi-desert area with an annual rainfall of less than 100 mm. It grows in stony places in clay in low succulent vegetation, where it appears to be locally abundant. Flowering time is from August to October with the peak in September. This is also an early-flowering species of section *Hoearei* and leaves are still alive when flowers appear.

Material studied

---2716 (Witputs): S. of Witputs (-DA), Larransos & Pehlemann 21693 (STEU).

---2917 (Springsbok): Near Klipfontein, Namaqualand (-BA), Bolus 448 (BM, BOL, E, Gx2, K, NH, P, PRE, SAM, UPS, WZ); Hall 840 (NBG); Herre 12177 (STEU); between Klipfontein and Koekfontein (-BA), Bolus 6530 (BOL, K); Gunhill, Steinkopf (-BA), Driftfont 2970 (STEU); Word-Hilhorst 264a (NBG); 8 km W.
Figure 3  Pelargonium violiflorum. 1. flowering plant x1; 2. gynoeicum x7; 3. androecium x5; 4. petals x3.
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mm tall when i n tlo we r.

Tuher:

turnip-shaped or elongated root 20-40 mm long and 10-30 mm in
diameter. Leaves: juvenile leaves simple, others trifoliate, pin­
nate to irregularly bipinnatisect, dark green, petiolate; laminae of
simple leaves spathulate, 20-70 x 8-20 mm; laminae of compound
leaves elliptic or trullate in outline, 25-120 x 40-100 mm,

pinnae spathulate or linear to lanciuate, 20-60 mm long, 3-12 mm
wide, apices acuminate, margins entire, adaxially glabrous, cili­
tate, abaxially hirsute with long stiff appressed hairs; petiole
10-110 mm long and 1.3-3 mm in diameter, rigid, crenet, densely hirsu­
tate with appressed hairs interspersed with short glandular hairs;

stipules subulate, adnate to petioles for one to two thirds of
their length, 12-27 x 2 mm, ciliate. Inflorescence: scape 70-200 mm
long, 1.5-3 mm in diameter, branched, bearing 3-6 pseudo­umbrellars with 7-14 flowers each; peduncles 30-80 mm long, 1-2 mm in diameter, covered with very long soft hairs interspersed with short glandular hairs; bracts subulate, 4-7 x 1-2 mm, adaxially and abaxially hirsute. Pedicel ca. 0.5 mm long. Hypan­

thium 8-11 mm long, densely covered with glandular hairs.

Sepals 5, lanceolate, apices acute, 5-7.5 x 1-2.5 mm, patent,


