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# A New Species of *Anacampseros* (Portulacaceae) from South Africa

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**ABSTRACT.** A new species of *Anacampseros* L., *A. decapitata* Burgoyne & J. van Thiel (Portulacaceae), a low-growing leaf succulent from the northwestern part of South Africa, is described. Morphological differences separate it from the two other species of the genus from the same region. Flower, fruit, and seed morphology together with distributional range are described in detail for the new species and compared to that of two associated species. The name *A. lubbersii* Bleck is neotypified.

**Key words:** *Anacampseros*, IUCN Red List, Portulacaceae, South Africa, succulent.

Ten years ago, the authors discovered independently that a tiny *Anacampseros* L. (Portulacaceae) growing in the Magaliesberg, west of Pretoria, South Africa, is a new species, belonging to a small group of related plants with seed belonging to the *Subnuda* type that includes *A. subnuda* Poelln. and *A. lubbersii* Bleck. The new species, *A. decapitata* Burgoyne & J. van Thiel, grows sympatrically with *A. subnuda*, but is distinguished from that taxon by its leaves. It more closely resembles *A. lubbersii*, which has a similar leaf shape but differs in its axillary bristles (cf. Table 1).

The genus *Anacampseros* comprises approximately 18 species, with the majority of these taxa found in the southern African subregion, from arid areas of Namibia in the west to higher rainfall areas of South Africa in the east. The genus is currently placed in the family Portulacaceae, which is paraphyletic according to Cuénoud et al. (2002). In her taxonomic treatment, Gerbaulet (1992) recognized two sections (section *Anacampseros* and section *Avonia* (E. Mey. ex Fenzl) Gerbaulet) within *Anacampseros*, which Rowley (1995) would later raise to the rank of genus. In the same treatment, Gerbaulet (1992) also reduced the rank of *A. lubbersii* to that of a subspecies of *A. subnuda*. It is our taxonomic preference to retain *A. lubbersii* at its original published rank.

Dyer and Verdoorn collected the first documented herbarium specimen of this new *Anacampseros* in 1939 (Dyer & Verdoorn 3925, PRE); this specimen was later identified by Gerbaulet as *A. subnuda* subsp. *subnuda* (Gerbaulet, 1992). Our examination of this specimen revealed characters that differ from *A. subnuda*, but that are similar to *A. decapitata*. *Anacampseros decapitata* differs morphologically from *A. subnuda* (Fig. 1A–E) by having leaves that are much more rounded (Fig. 1M), without the heavy verrucose surface seen in *A. subnuda*. The new taxon differs from *A. lubbersii* (Fig. 1F–I) by having numerous long flattened axillary bristles on the stems that protrude well beyond the leaf tips (cf. Fig. 1I, M). Further distinguishing characters for these three species are given in Table 1.

Closer examination of characters of *Anacampseros decapitata* has shown that this taxon also differs from its two closest allies by its flowering time, which is earlier in the day than either *A. subnuda* (Fig. 2A, D) or *A. lubbersii* (Fig. 2B, E) and of shorter duration. Flowers of *A. decapitata* (Fig. 2C, F) open only for approximately an hour and a half between 2:00 and 3:30 p.m. in northwestern Europe (van Thiel, pers. obs). They open only once, as for all *Anacampseros* species. Flowers of *A. subnuda* open in late afternoon for approximately three hours while those of *A. lubbersii* open from 1:00 to 3:00 p.m. for two hours (Burgoyne, pers. obs.). Pollination therefore is limited in *A. decapitata*, but self-pollination is ensured for most *Anacampseros* species with evidence of cleistogamy in many (Rowley, 1995). Having flowers that open only for a short while, however, contributes to effective water conservation in the dry habitat of the new species.

**1. *Anacampseros decapitata*** Burgoyne & J. van Thiel, sp. nov. TYPE: South Africa. North West Prov.: Rustenburg Distr., 2 Nov. 2006, P. M. Burgoyne & J. van Thiel 2 (holotype, PRE; isotypes, BOL, K, MO). Figure 1J–M.

Table 1. Morphological comparison of *Anacampseros decapitata*, *A. lubbersii*, and *A. subnuda*.

|                           | <i>A. decapitata</i>                                     | <i>A. lubbersii</i>  | <i>A. subnuda</i>  |
|---------------------------|--|--|--|
| Height of adult plant, cm | ca. 2  | ca. 2  | 3–8  |
| Leaf size, mm             | ca. 3 × 4  | ca. 4 × 6  | ca. 5 × 8  |
| Leaf surface              | lightly rugose sculpting of leaf surface                 | heavily rugose sculpting of leaf surface                   | intricate verrucose sculpting of leaf surface                |
| Axillary bristles         | white, flattened, curled, to 15 × 2 mm (width at base)   | absent   | white, flattened, curled, to 15 × ca. 0.5 mm (width at base) |
| Axillary trichomes        | white lanate clusters, 10 or more, exceeding leaf length | white lanate clusters, 3 to 4, never exceeding leaf length | white lanate clusters, 10 or more, exceeding leaf length     |
| Flowers                   | deep bright pink   | bright pink  | pale pink or off-white                                       |

Haec species *Anacampseroti subnuda* Poelln. et *A. lubbersii* Bleck affinis, sed a hac setis axillaribus praesentibus atque trichomatibus axillaribus apices foliorum excedentibus, ab illa foliis apice rotundatis utrinque leviter rugosis (non verrucosis) atque floribus cerasino-rubris (non pallide roseis), ab ambabus foliis minoribus atque floribus in spatio temporis brevioribus aperiens differt.

Perennial, monoecious; rootstock thickened, caudiciform, growing straight down with secondary roots radiating from central core as a result of the shallow soil conditions, side roots grow parallel to soil surface and may reach lengths of up to 150 mm, but never penetrate the soil deeper than 30 mm; stems borne above ground, short, thickened, succulent, branched to form short clumps or single plants only to 2 cm high; leaves obscuring internodes. Leaves spirally arranged, succulent; blades obovate, cuneate, rounded, ca. 3 × 4 mm, blade surfaces lightly rugose, stipules transformed into axillary trichomes and bristles, axillary trichomes 10 or more borne in a white lanate cluster, to 7 mm long, axillary bristles white, flattened, curly to 15 × 2 mm (width at base). Inflorescences 18–35 mm, with 1- to 5-flowered racemes, flowers developing acropetally, bracts 3–6 × ca. 2 mm (width at base), lanceolate, parchment-like, with a prominent midrib, white, 2 per node and opposite, with a basal tuft of fine, white trichomes < 1 mm. Flowers with pedicels 2–7 mm, basal pedicels longer; sepals 2, enveloping the unopened flower, dark coppery green, 3–8 mm, glabrous, shiny, deciduous after the seed basket has ripened (ca. 3 weeks), petals 5, 4–9 × 3–6 mm, apically rounded with a central fold, deep bright pink satiny appearance; stamens numerous; filaments white, capilla-ceous, 3–6 mm, shorter to slightly longer than the stigma; ovary superior, 1-celled; style pale yellow, 3–5 mm, stigma yellow, 3-fid, stigmatic surface minutely tuberculate; pollen yellow, pericarpate, polyaperturate. Fruits pale buff-colored, a hygroscopic capsule, 4–7 × 2–3 mm, with veins rarely subdividing, dehiscing along 3 of 5 sides; seeds ca. 20, colliculate, 0.6–0.9 mm, of *Subnuda* seed type (Gerbaulet, 1992).

*Distribution and phytogeography.* *Anacampseros decapitata* is known from two localities in the Magaliesberg, a prominent mountain range in the Rustenburg–Pretoria region of South Africa. The area falls within the Mesic Highveld Grassland Bioregion of the Grassland Biome and comprises Rand Highveld Grassland (Gm 11; Mucina et al., 2005). Plants were found in shallow soils derived from coarse quartzite and sandstone sediments of the Magaliesberg Formation of the Transvaal Sequence. They occurred at altitudes from 1688 to 1770 m in pockets of rough gravel with humus-rich soils. At these sites, drainage is very good as after rains the water seeps away through the porous strata. The full extent of the occurrence of *A. decapitata* is not yet known. Searches for it in the Magaliesberg in Gauteng Province have proved fruitless so far, but may yield specimens in the future.

*IUCN Red List category.* *Anacampseros decapitata* is considered rare and is assessed as Vulnerable (VU) according to criterion D2 of the IUCN Red List (IUCN, 2001). Only two subpopulations have been found and, although individual plants are relatively plentiful where it occurs (ca. 12 plants per m<sup>2</sup> in two patches of 500 m<sup>2</sup> and 100 m<sup>2</sup>; Burgoyne, pers. obs.), it is potentially threatened by plant collecting and habitat disturbance/destruction as a result of sand and gravel mining.

*Phenology.* Inflorescences were produced from November to December (van Thiel & Burgoyne, pers. obs.). Flowers open only once for approximately an hour and a half between 2:00 and 3:30 p.m. under cultivation in northwestern Europe. Seeds ripen up to three weeks after flowering.

*Etymology.* The specific epithet is from the Latin “decapitare,” meaning “to behead.” During periods of drought stress, the tips of the stems become easily detached, roll away from the parent plant, and are spread by the wind, thus ensuring vegetative reproduction as cuttings of *Anacampseros* are easily rooted.



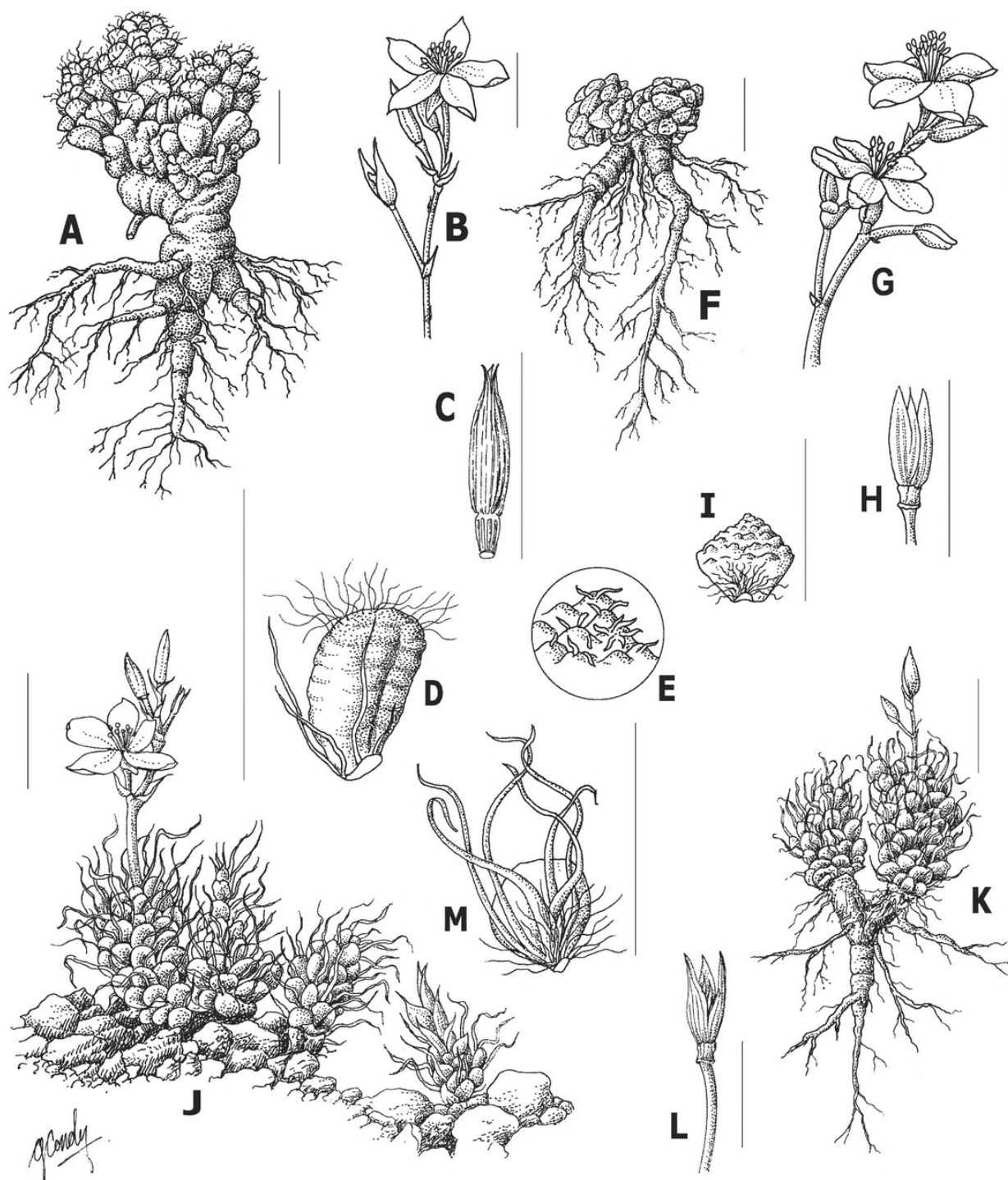


Figure 1. A–E. *Anacampseros subnuda*. —A. Habit of plant. —B. Inflorescence. —C. Seed basket. —D. Leaf. —E. Leaf surface enlarged by 100×. F–I. *Anacampseros lubbersii*. —F. Habitat of plant. —G. Inflorescence. —H. Seed basket. —I. Leaf. J–M. *Anacampseros decapitata*. —J. Habit of plant with flowers. —K. Habit of plant with buds. —L. Seed basket. —M. Leaf with long curly axillary bristles. A–E from Bester 7313 (PRE); F–I from Burgoyne & Burgoyne 25 (PRE); J–M from the type Burgoyne & van Thiel 2. All scale bars = 1 cm.

**Paratypes.** SOUTH AFRICA. **North West Prov.:** Rustenburg Distr., Magaliesberg, A. Hankey 394 (PRE), R. A. Dyer & I. Verdoorn 3925 (PRE).

#### NOTES ON ASSOCIATED SPECIES

*Anacampseros lubbersii* was first discovered by George Lubbers in 1954 from South Africa; it was

later collected by McMurtry in 1983 (McMurtry 4330) and described by Bleck in 1984. Gerbaulet has since placed it as a subspecies of *A. subnuda* (Gerbaulet, 1992). We, however, believe that this taxon is sufficiently unique to warrant species status and thus recognize the taxon at species rank. Both the PRE holotype and the MO isotype cannot be traced, and it

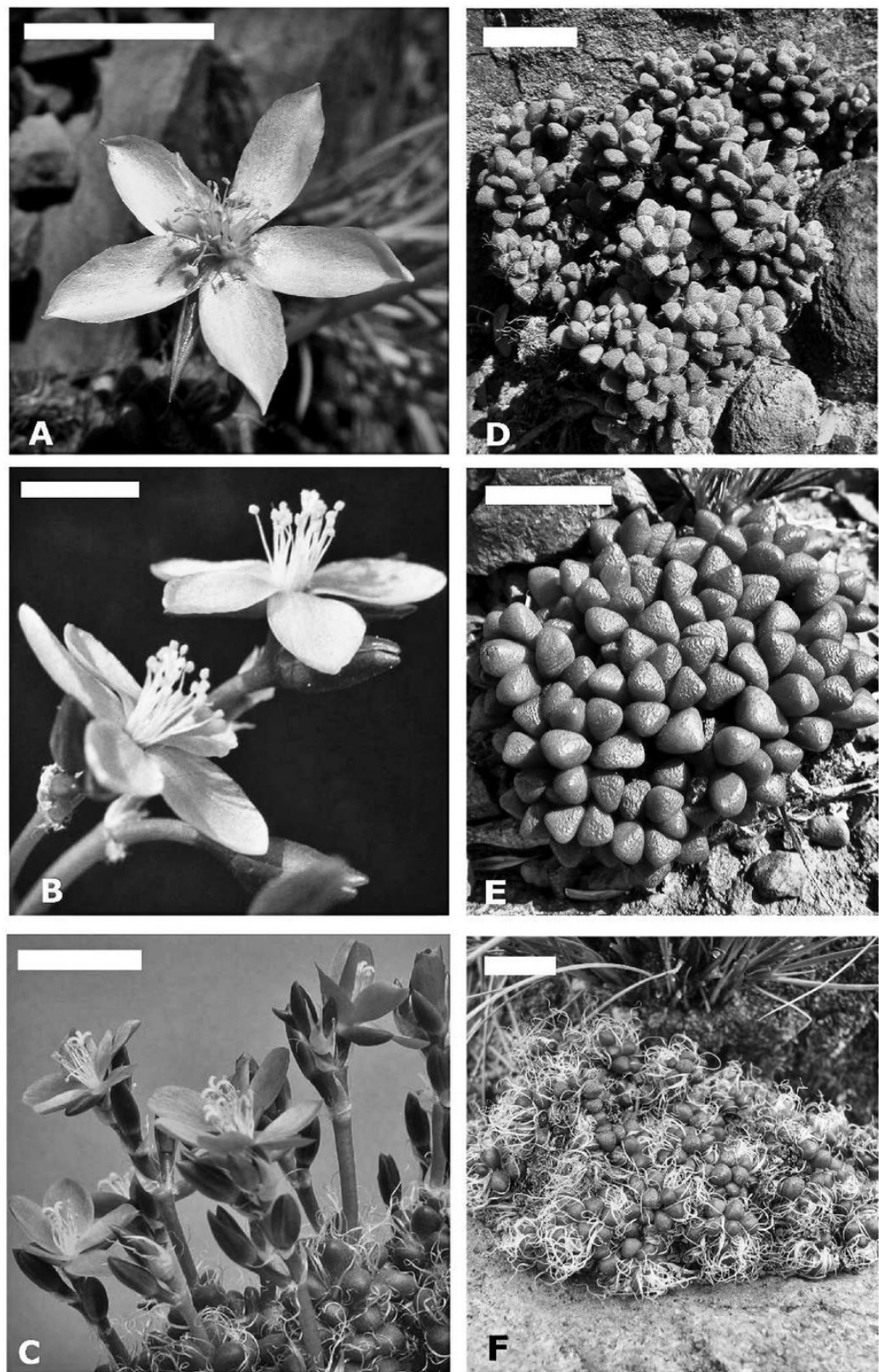


Figure 2. —A. *Anacampseros subnuda* flowers. —B. *Anacampseros lubbersii* flowers. —C. *Anacampseros decapitata* flowers. —D. *Anacampseros subnuda* habit. —E. *Anacampseros lubbersii* habit. —F. *Anacampseros decapitata* habit. A, D from Burgoyne & Burgoyne 26 (PRE); B, E from Burgoyne & Burgoyne 25 (PRE); C photo from live specimen; F from the type Burgoyne & van Thiel 2 (PRE). All photos by P. M. Burgoyne, except C by J. van Thiel. Scale bars = 1 cm.



would appear that the type of this taxon was never incorporated in the National Herbarium (PRE), as it has never appeared on PRECIS computer records. Inquiries at the Missouri Botanical Garden also indicated that the isotype was not incorporated there. It may have been that live plants were studied by Gerbaulet, but never pressed by Bleck as Gerbaulet states that the type was seen (!) for the revision. Because Bleck did not cite any paratypes or other original material, we made efforts to locate specimens from the herbarium of the Johannesburg Botanic Garden, Emmarentia (JBG), where Bleck was stationed when she described the species, in order to select a lectotype from material that Bleck saw as required by the *International Code of Botanical Nomenclature* (McNeill et al., 2006: Art. 9.2, 9.9, 9.10). However, no specimens were deposited there and thus a neotype is designated here in accordance with the Code.

- 2. *Anacampseros lubbersii*** Bleck, Cact. Succ. J. (Los Angeles) 56: 266. 1984. *Anacampseros subnuda* Poelln. subsp. *lubbersii* (Bleck) Gerbaulet, Bot. Jahrb. Syst. 113(4): 543. 1992. TYPE: South Africa. Mpumalanga Prov.: Middelburg Distr., 14 Nov. 2007, *P. M. Burgoyne 10,881* (neotype, PRE; duplicates, BOL, K, MO).

*Specimens examined.* SOUTH AFRICA. **Mpumalanga Prov.:** Middelburg Distr., slopes E of Middelburg Dam, *P. M. Burgoyne & E. J. Burgoyne 25* (PRE), *M. Jordaan 2951* (PRE).

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