

Description of a new species of *Neuropeltis* (Convolvulaceae) with a synopsis and a key to all African species

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Background and aims – The paleotropical genus *Neuropeltis* of the Convolvulaceae is imperfectly known. The present paper aims to revise the genus for the Upper Guinea area in West Africa.

Methods – Normal practices of herbarium taxonomy have been applied to study all herbarium material available.

Key results – Three species are found in Upper Guinea. *Neuropeltis velutina* is not present in this area and its specimens hitherto assigned to it are classified in a new species *N. occidentalis*. A key to and a synopsis of all African species is provided. The new species is illustrated and its distribution is mapped. *Neuropeltis sanguinea* from Angola (Cabinda) is newly synonymised under *N. velutina*.

Keywords – Convolvulaceae, *Neuropeltis*, taxonomy, tropical Africa, Upper Guinea.

INTRODUCTION

The paleotropical genus *Neuropeltis* of the Convolvulaceae contains thirteen species (the new species included), four of which occur in Asia while the remaining nine species are restricted to the Guineo-Congolian region of Africa. *Neuropeltis* is characterized by relatively small flowers that are arranged in axillary to (sub-)terminal racemes of which the bracts are partly united with the pedicel and enlarged in fruit. In Upper Guinea, West Africa, the genus is represented by three species: *N. acuminata* (P.Beauv.) Benth., *N. prevosteoides* Mangenot, and *N. velutina* Hallier f. (Heine 1963, Aké Assi 2001, Hawthorne & Jongkind 2006). Of these *N. prevosteoides* is endemic to this subdivision of the Guineo-Congolian region (White 1979) whereas the other two species are reported to occur also in the subdivisions Lower Guinea and Congolia (Heine 1963, Lejoly & Lisowski 1984). The distribution of *N. velutina* is remarkable. It occurs in Sierra Leone and Liberia, is absent from Côte d'Ivoire to Benin and makes its reappearance in western Nigeria (Heine 1963), but Aké Assi (2001) reports its presence from Côte d'Ivoire. However, a large gap comprising Ghana, Togo, and Benin remains in its distribution. A detailed study of several specimens of *N. velutina* from Upper Guinea and Nigeria and comparison of these with the type and other specimens from Lower Guinea and Congolia revealed that *N. velutina* does not occur in Upper Guinea. Its western limit is found in SE Nigeria. The specimens from western Nigeria assigned to it (Heine 1963) belong to *N. alnifolia* Lejoly & Lisowski, and those from Upper Guinea to a new species *N. occidentalis*

which is described hereafter. The new species differs from *N. velutina* by its stamens which are longer than the corolla and its ovary with a hairy apex (exceptionally glabrous). *N. occidentalis* also lacks the minute, impressed scars of fallen hairs on the upper leaf surface, which are very often present in *N. velutina*.

SYNOPSIS OF THE AFRICAN SPECIES OF *NEUROPELTIS*

1. *Neuropeltis acuminata* (P.Beauv.) Benth. (Bentham 1849: 469); Heine (1963: 338); Lejoly & Lisowski (1984: 473). – *Porana acuminata* P.Beauv. (Palisot de Beauvois 1805: 66, t. 39). – Type: Nigeria, *Palisot de Beauvois* s.n. (holo-: G).

Neuropeltis vermoesenii De Wild. (De Wildeman 1922: 542) – Type: D.R.Congo, Temvo, *Vermoesen* 1531 (lecto-: BR, **designated here**).

Distribution – Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Nigeria, Cameroon, Central African Republic, Equatorial Guinea, Gabon, Republic of the Congo, D.R.Congo, Angola.

2. *Neuropeltis aenea* R.D.Good (Good 1929: 114); Lejoly & Lisowski (1984: 474). – Type: Angola, Cabinda, Caio, Hombe region, Lufo R., Mar. 1919, *Gossweiler* 8125 (lecto-: BM, designated by Lejoly & Lisowski 1984; isolecto-: COI, LISC, LISU, WAG).

Distribution – Equatorial Guinea, Gabon, Angola (Cabinda), D.R.Congo (Mayombe).

Key to the African species of *Neuropeltis*

1. Inflorescence unbranched, at most as long as the subtending leaf, few-flowered; corolla 10–12(–16) mm long; calyx in fruit ≥ 6 mm long, often as long as the fruit; leaves glabrous or nearly so; Côte d'Ivoire, Liberia.....7 *N. prevosteoides*
1. Inflorescence often branched, usually longer than the subtending leaf, multi-flowered; corolla at most 7 mm long; calyx in fruit up to 4 mm long, at most half long as the fruit; leaves $\pm$ glabrous to variously hairy.....2
2. Ovary pubescent, at least apically (exceptionally glabrous) the indumentum remaining in fruit or not.....3
2. Ovary glabrous, fruit glabrous.....4
3. Leaves glabrous beneath or nearly so, when hairy the indumentum closely appressed; Liberia, Côte d'Ivoire, Ghana, Nigeria, Cameroon, Central African Republic, Equatorial Guinea, Gabon, D.R.Congo, Angola, Sierra Leone.....1 *N. acuminata*
3. Leaves velutinous beneath; Guinea, Sierra Leone, Liberia, Côte d'Ivoire.....6 *N. occidentalis*
4. Stamens shorter than the corolla.....5
4. Stamens longer than the corolla, well exerted or recurved inwards.....6
5. Leaves velutinous beneath, often minutely pitted above; inflorescence densely flowered, much shorter than 20 cm; corolla (5–)6–7 mm long; SE Nigeria to D.R.Congo.....9 *N. velutina*
5. Leaves glabrous or nearly so, not minutely pitted above; inflorescence large, up to c. 20 cm long, thinly flowered; corolla ≤ 5 mm long; Cameroon, Gabon.....5 *N. laxiflora*
6. Branches, petiole, midrib and main lateral nerves both sides as well as inflorescence brown-hispid, often densely so; leaves with a (5–)10–20(–30) mm long slender tip; from Cameroon to D.R.Congo.....4 *N. incompta*
6. Branches, petioles, midrib and main lateral nerves both sides as well as inflorescences brown-hairy or not, hairs $\pm$ erect (velutinous) or appressed, not hispid; leaves with a short, ≤ 5 mm long tip.....7
7. Plant very closely appressed-hairy, hairs uniform and finely combed in appearance; leaves 5–7(–9) $\times$ 2–3(–4) cm, tertiary nerves prominent above; Equatorial Guinea, Gabon, Angola (Cabinda), and D.R.Congo (Mayombe).....2 *N. aenea*
7. Plant $\pm$ appressed-hairy, hairs uniform or not, not appearing combed; leaves (4.5–)7–13(–15) $\times$ (3–) 3.5–7(–9) cm, tertiary nerves plane or impressed above.....8
8. Branches with numerous small lenticels; mature leaves pale-brown to greyish beneath; corolla 6–7 mm long; bracts (4.5–)5–6.5 cm in diameter in fruit; Nigeria, Cameroon, Equatorial Guinea, Gabon, Central African Republic.....3 *N. alnifolia*
8. Branches not with numerous small lenticels, if lenticellate sparsely so; mature leaves dark-brown beneath; corolla (4–)5–6(–7) mm long; bracts 3–4.5 cm in diameter in fruit; Cameroon.....8 *N. pseudovelutina*

3. *Neuropeltis alnifolia* Lejoly & Lisowski (Lejoly & Lisowski 1984: 476). – Type: Gabon, Diyecwa, 23 Dec. 1925, *Le Testu* 5849 (holo-: P; iso-: BR, WAG).

N. velutina sensu auct.: Heine (1963: 338), pro parte as regards *Symington* FHI 4117 and *Ahmed & Chizea* FHI 20008 from Nigeria.

Distribution – Nigeria, Cameroon, Central African Republic, Equatorial Guinea, Gabon.

4. *Neuropeltis incompta* R.D.Good (Good 1929: 114); Lejoly & Lisowski (1984: 476). – Type: Angola, Cabinda, Buco Zau, Jan. 1917, *Gossweiler* 6932 (lecto-: BM, designated by Lejoly & Lisowski 1984; isolecto-: COI, LISC, LISU, WAG).

Distribution – Cameroon, Equatorial Guinea, Gabon, Angola (Cabinda), D.R.Congo.

5. *Neuropeltis laxiflora* Lejoly & Lisowski (Lejoly & Lisowski 1984: 477). – Type: Gabon, near Libreville, 29 Oct. 1902, *Klaine* 3138 (holo-: P).

Distribution – Cameroon, Gabon.

6. *Neuropeltis occidentalis* Breteler sp. nov.

Neuropeltis velutinae Hallier f. affinis sed ab ea differt in foliis absentia cicatricum pilorum impressarum et stamini-bus corolla longioribus; *Neuropeltis acuminatae* (P.Beauv.) Benth. affinis sed ab ea differt in foliis et ramunculis indu-mento erecto vice adpresso et fructibus glabris. – Type:

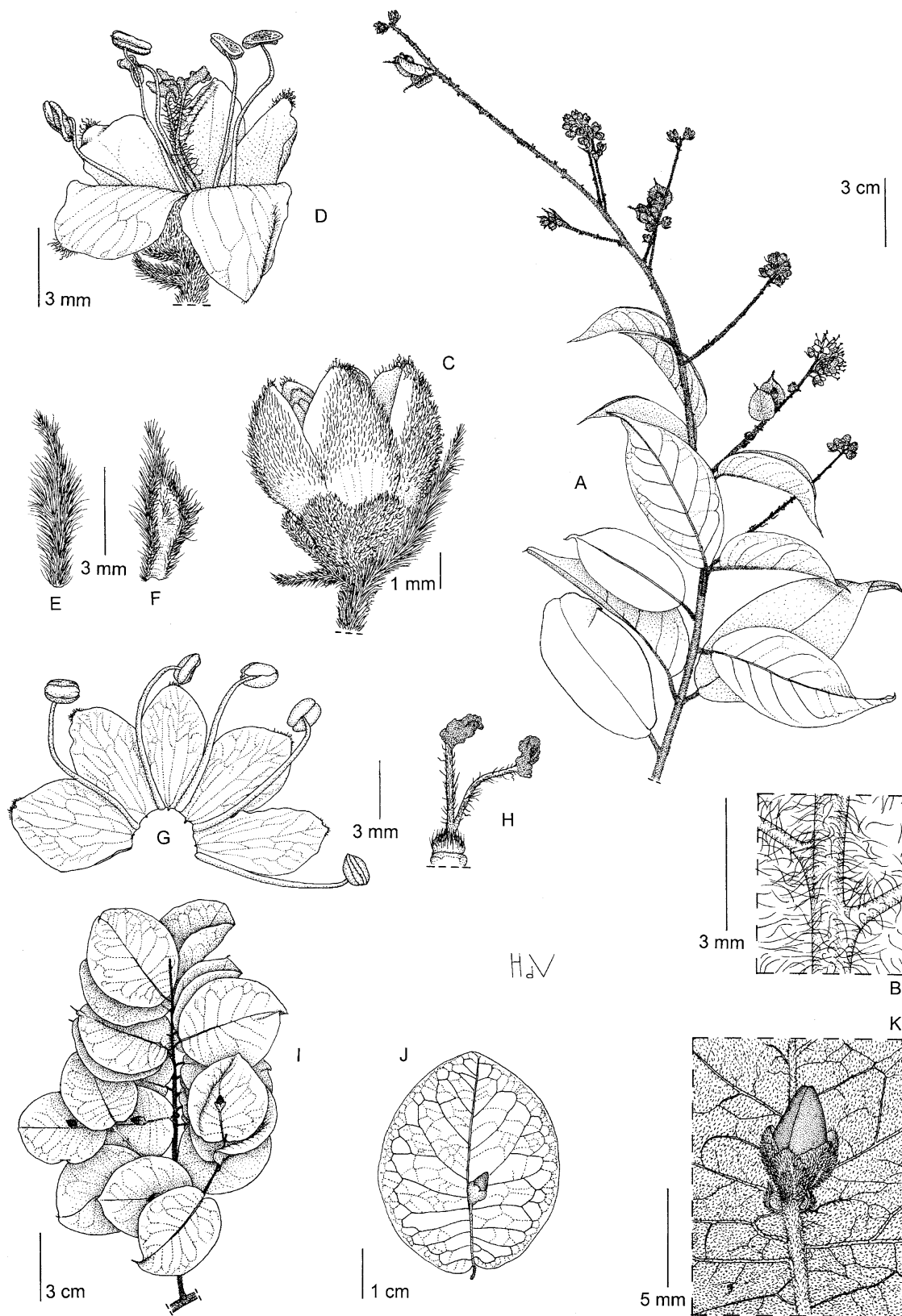


Figure 1 – *Neuropeltis occidentalis*: A, flowering branch; B, detail of leaf indumentum on lower surface; C, flower bud at anthesis; D, open flower; E–F, bract outside and inside; G, corolla with stamens; H, pistil; I, infructescence; J, enlarged bract with fruit; K, fruit with persistent calyx and bracteoles. A–H from Jongkind *et al.* 8025 (WAG); I–K from Bos 2724 (WAG). Drawn by H. de Vries.

Guinea, Nimba Mts, Nzérékoré, 16 Nov. 2007, *Jongkind et al.* 8025 (holo-: WAG; iso-: BR, K n.v., MO n.v., P).

N. velutina sensu auct.: Heine (1963: 338) pro parte, as regards material from Sierra Leone and Liberia; Aké Assi (2001: 205); Hawthorne & Jongkind (2006: 394), pro parte, as regards material from Upper Guinea.

Liana up to 25 m high. Branches brown-velutinous, hairs erect to somewhat appressed. **Leaf:** petiole slender, $\pm$ terete, grooved above, (5–)7–15(–18) mm long, brown-velutinous; lamina papery to coriaceous, obovate-elliptic, 1.5–2 times as long as wide, (3–)4–10 $\times$ 2–5.5 cm, rounded to (sub-)cordate at base, (3–)5–10 mm long, acuminate, 1–4 (–10) mm long, mucronate at apex, pale brown to $\pm$ white soft-hairy above, soon glabrescent, longer persistent on the impressed midrib, sparsely to densely brown-velutinous beneath, more densely so on the prominent midrib and the (4–)6–8(–11) pairs of main lateral nerves. **Inflorescence** an axillary, usually unbranched raceme, up to c. 10 cm long, subappressed brown-velutinous, appearing compound at branch apex when supporting leaves of individual racemes are not developed or remain bract-like, peduncle 2–5 cm long. **Bracts** elliptic, (2–)3–5(–6) mm long, including the 1–2 mm long acumen. **Pedicel** 2–3 mm long. **Bracteoles** (see also note) present or not, narrowly triangular, $\leq$ 0.5 mm long, velutinous. **Sepals** $\pm$ free, broadly ovate-elliptic, 1.5–3 $\times$ 1.5–2(–3) mm, brown-pubescent outside, glabrous inside. **Corolla** 5–6 mm long; tube 2–4 mm long, glabrous; lobes ovate-triangular, pubescent outside, glabrous inside. **Stamens** 8–10 mm long, glabrous; anthers exserted, c. 1.5 mm long; filaments 0.5–1 mm long united with the corolla tube. **Pistil** $\pm$ as long as corolla; ovary c. 1 mm long, $\pm$ appressed-pubescent on apical part, rarely glabrous; style villous to glabrous; stigmas subpeltate. Disc distinct or not, glabrous, up to 1.5 mm thick. **Fruit** ovoid, up to c. 0.5 cm long, glabrous, rarely with a few hairs apically; enlarged bract circular to broadly elliptic, 3–5 $\times$ 3–4 cm, up to c. 5 mm long, mucronate, sparsely golden-brown pubescent. Fig. 1.

Habitat and distribution – Tropical rain forest and semi-deciduous forest in Upper Guinea: Guinea, Sierra Leone, Liberia, Côte d'Ivoire. Altitude up to c. 700 m. Fig. 2 (see note).

Additional specimens studied – **Guinea:** Nzérékore, 23 Feb. 1949, *Adam* 3820 (P).

Sierra Leone: Loma Mt., Kabala, 4 Feb. 1966, *Adam* 23535 (BR, P, WAG); Mamboma (Bongre), 4 Nov. 1939, *Deighton* 3772 (K); Mabould, 20 Oct. 1914, *N.W. Thomas* 3575 (K).

Liberia: Nimba Mt., 2 Mar. 1965, *Adam* 21051 (K); Nimba Mt., 26 Nov. 1964, *Adames* 787 (K, WAG); Kolahun District, Genne Loffa, 2 Nov. 1947, *Baldwin* 10096 (K); Boporo District, Kondessu, 14 Dec. 1947, *Baldwin* 10674 (K, WAG); Sanokwele District, Ganta, 26 Jan. 1950, *Baldwin* 14049 (K, WAG); Grand Gedeh, Zwedru, 23 Oct. 1972, *Blyden* 2107 (WAG); Tapeta, 12 Jan. 1967, *Bos* 2724 (BR, K, WAG); Ganta, 18 Mar. 1935, *Harley* 492 (K); 14 May 1946, *Harley* 1414 A (K).

Côte d'Ivoire: Between Guiglo and Taï, 22 Oct. 1961, *Aké Assi* 6822 (G, K, P); Boudépé, 25 Oct. 1980, *Aké Assi* 15715 (G); Agboville, 12 Apr. 2004, *Bosma* 1 (WAG); Marahoue Nat. Park, near western border, 18 May 1999, *Jongkind &*

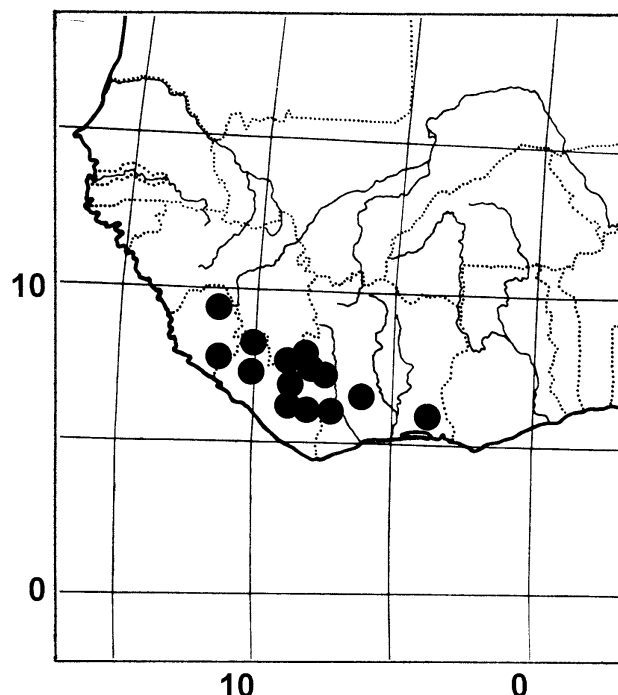


Figure 2 – Distribution of *Neuropeltis occidentalis*.

Diomaudé 4604 (WAG); Man, Fôret Classée du Mt. Glo, 1 Apr. 2000, *Jongkind et al.* 4912 (WAG); km 32 Man–Danané, 16 Oct. 1949, *Mangenot* 3430 (BR, K, P, WAG).

Conservation status – *Neuropeltis occidentalis*, following the IUCN (2001) guidelines, may be classified as 'least concern' as all the other species mentioned in the synopsis.

Notes – Bracteoles are present in some specimens of some species, notably in *Neuropeltis occidentalis* (see fig. 1K). Their presence or absence is difficult to establish as they may be very small and hidden by the indumentum or not developed at all.

Lejoly & Lisowski (1984) described the bract that enlarges in fruit as a bracteole which is not correct.

The sterile specimen *Berhaut* 6915 (P), collected at Boukitingo in the Oussoye region of Senegal on 13 Feb. 1964, possibly represents *Neuropeltis occidentalis* as well.

7. *Neuropeltis prevosteoides* *Mangenot* (*Mangenot* 1951: 521); Heine (1963: 338); Aké Assi (2001: 205); Hawthorne & Jongkind (2006: 396). – Type: Côte d'Ivoire, Adiopodoumé, 23 Dec. 1947, *Mangenot* s.n. (holo-: P; iso-: BR).

Distribution – Liberia, Côte d'Ivoire.

8. *Neuropeltis pseudovelutina* *Lejoly & Lisowski* (1984: 478). – Type: Cameroon, 8 km NE of Doumé, near Bertoua Rd., 28 Jul. 1961, *Breteler* 1703 (holo-: P; iso-: BR, WAG).

Distribution – Cameroon.

9. *Neuropeltis velutina* *Hallier f.* (*Hallier* 1897: 374); Heine (1963: 338), pro parte, excluding material from Upper Guinea and *Symington* FHI 4117 and *Ahmed & Chizea* FHI 20008

from Nigeria (see also note); Lejoly & Lisowski (1984: 479), pro parte, except references from Upper Guinea. – Type: Cameroon, Grand Batanga, 17 Dec. 1890, *Dinklage* 1009 (holo-: B†; lecto-: WAG, **designated here** (see note); isolecto: G, M n.v., P).

N. sanguinea R.D.Good (Good 1929: 115), **syn. nov.** – Type: Angola, Cabinda, Lufo river, 6 Mar. 1919, *Gossweiler* 7899 (lecto-: BM, **designated here**; isolecto-: LISC, LISU, WAG).

Distribution – S.E. Nigeria, Cameroon, Central African Republic, Gabon, Republic of the Congo, D.R.Congo, Angola (Cabinda).

Note – Hallier (1897) based his new species *Neuropeltis velutina* on two syntypes, *Dinklage* 786 and 1009, both collected at Grand Batanga in Cameroon. The Berlin originals were lost in the partly destruction of the Berlin herbarium. The WAG duplicate of *Dinklage* 1009 has been chosen as lectotype.

I have not seen the *Talbot* s.n. collection from Eket in SE Nigeria, which has been cited by Heine (1963) under this species. The most western collection of *Neuropeltis velutina* seen is from 20 miles NE of Port Harcourt (Nigeria), Aba road: *Okafor* FHI 60329 (K).

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