Nesom, G.L. 2024. Typification of *Gnaphalium obtusifolium* L. (Asteraceae: Gnaphalieae). Phytoneuron 2024-01: 1–16.
Published 15 January 2024. ISSN 2153 733X

TYPIFICATION OF *GNAPHALIUM OBTUSIFOLIUM* L. (ASTERACEAE: GNAPHALIEAE)

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ABSTRACT

The lectotype of *Pseudognaphalium obtusifolium* (L.) Hilliard & Burtt selected by Reveal (1998) is a sheet (LINN 986.64) with two branches — one a plant of *Pseudognaphalium helleri*, the other of *Pseudognaphalium macounii*, each of which is unambiguously typified. To maintain the widely and persistently used concept of *P. obtusifolium*, the name is re-lectotypified here with *Clayton 203* (BM). Typification details of these three species and images (with details) of four historical specimens are provided: LINN 986.63, LINN 986.64, S 09-21085 (perhaps a duplicate of LINN 986.63), and BM-Clayton 203.

Pseudognaphalium (Gnaphalium) *obtusifolium* (L.) Hilliard & Burtt is a species of annual herbs that occurs through the eastern USA and southeastern Canada (Nesom 2006). Its circumscription has been focused through the segregation of *P. helleri* (Britton) Anderb., *P. micradenium* (Weatherby) Nesom, and *P. saxicola* (Fassett) Ballard & Feller. Populational and regional variants in *P. obtusifolium* have been discussed by Nesom (2001). Apart from early usage of *Gnaphalium polycephalum* Michx. (e.g., Torrey & Gray 1843, Gray 1884; see below), application of the name *G. obtusifolium* to the commonly and widely distributed species has been consistent through the history of North American botany.

Torrey and Gray (1843, p. 427) understood the typical expression of *Gnaphalium obtusifolium* (as *Gnaphalium poycephalum* Michx.) to be plants with eglandular stems and leaves — they referred to the glandular form as "*G. polycephalum β.* stem villous-pubescent with viscid hairs." In the description of *Gnaphalium helleri*, Britton (1893) cited "*G. polycephalum*, var. *β.*, T. and G. Fl. N. A. ii" in synonymy.

Typification of *Gnaphalium obtusifolium* L., however, was explicit only with that of Reveal (1998), who designated **LINN 989.64** as the lectotype (without comment). Traditional usage and implicit acceptance of the lectotype guided the Flora of North America treatment (Nesom 2006). Freire et al. (2022) explicitly accepted Reveal's lectotype. As noted by Jarvis (2007), "Blake (1918: 72) discussed this name, as did Hilliard & Burtt (1981: 205), who treated **989.63** and **989.64** (LINN) as syntypes. As these collections are neither syntypes nor part of a single gathering, Art. 9.15 [presumably = Art. 9.14 in the Melbourne Code] does not apply. Reveal's appears to be the first explicit type choice."

LINN 989.64 (Figs. 1, details in Figs. 2-5) holds two branches. On the left is *Pseudognaphalium macounii* (Greene) Kartesz, with stipitate-glandular stems and adaxial leaf surfaces, clasping and decurrent leaves, and tawny-hyaline phyllaries. On the right is *Pseudognaphalium helleri*, (with annotation of "K") with stipitate-glandular stems and adaxial leaf surfaces, non-clasping and non-decurrent leaves, and white-opaque phyllaries. *Pseudognaphalium obtusifolium* as traditionally understood has eglandular vestiture, non-clasping and non-decurrent leaves, and white-opaque phyllaries. Thus, acceptance of Reveal's choice (a) requires a further choice between the two plants of LINN 989.64 and (b) changes the traditional usage of the Linnaean name as well as that of either *P. macounii* or *P. helleri*.

LINN 989.63 (Figs. 6-9) has a single branch, which is unambiguously *Pseudognaphalium obtusifolium* of traditional application. A specimen in the Stockholm herbarium (S 09-21085, Fig. 10) is closely similar in morphology to LINN 989.63, pressed in the same manner, and has a "K" (i.e., Pehr Kalm) and an annotation by Linnaeus as 'obtusifolium" — it perhaps is a duplicate of LINN 989.63. The latter, however, has Linnaeus's annotation of "obtusifolium" but is not unambiguously part of the original material — "the sheet is not marked with the species number, '8', from Sp. Pl. (as is 989.64), nor is there any indication that it came from Kalm or Clayton" (fide Fred Barrie).

In the protologue of *Gnaphalium obtusifolium*, Linnaeus referred to these precedents:

(a) **Gronovius**, Flora Virginica (1743), p. 95 — "Gnaphalium foliis lanceolatis, caule tomentoso, corymbis supradecompositis, floribus, sesilibus confertis" and citing ***Clayton 203*** (Figs. 11-12). *Gnaphalium obtusifolium* in the traditional sense.

(b) **Dillenius**, Hortus Elthamensis (1732), p. 130. t. 108, f. 131 — "Elichrysum obtusifolium, capitulis argenteis conglobatis." The line drawing shows a plant grown from seeds received from New England ("Septembri mense floruit, natum ex seminibus e Nova Anglia acceptis") — the hispid vestiture of leaves and stems and leaves with prominently pinnate venation present an aspect unlike that of *Pseudognaphalium obtusifolium* (or *P. helleri*), suggesting that either the provenance of the seeds was mistaken (and that it is some other species), or, as surmised by Michaux (1803) and Blake (1918), the cultivar was aberrant.

(c) **Morison**, Plantarum Historiae Universalis Oxoniensis (1699) 3: 88, s. 7, t. 10, f. 19 –- "Helichrysum Chrysocoma Gnaphaloides virginiana annua, foliis obtusioribus, capitulis argenteis conglobatis." The line drawing shows a plant with sessile, non-clasping, non-decurrent leaves and without evident vestiture, a reasonable representation of *Gnaphalium obtusifolium* in the traditional sense.

Proposed resolution

Lectotypification of *Gnaphalium obtusifolium* with LINN 989.64 changes the application of the name. To maintain its widely and persistently used concept, the name can be associated with *Clayton 203*, which is indirectly cited in the protologue, as lectotype.

The protologue, however, is so vague regarding diagnostic details that it could refer to any number of *Gnaphalium*/*Pseudognaphalium* species — thus neither plant of LINN 989.64 is in "serious conflict" with the protologue (International Code of Nomenclature-AFP 2018, Art. 9.19). But it is shown here that neither plant of LINN 989.64 is the same species as *Gnaphalium obtusifolium* in its long-accepted sense, thus there is conflict with the protologue as it has been understood historically and currently. This re-lectotypification perhaps will be seen as outside guidelines of the nomenclatural code (the name thus needing formal conservation with a conserved type), but it is a simple solution to a simple problem, following the intention of the earlier lectotypification by repairing an unintentional mistake.

Typification of relevant names

PSEUDOGNAPHALIUM OBTUSIFOLIUM (L.) Hilliard & Burtt, Bot. J. Linn. Soc. 82: 205. 1981. *Gnaphalium obtusifolium* L., Sp. Pl. 2: 851. 1753. *Gnaphalium polycephalum* Michx., Fl. Bor.-Amer. 2: 127. 1803. **LECTOTYPE** (designated here, superceding the earlier choice): **USA**. "Virginia, *Clayton 205*" (BM 000038874). Figures 11-12.

Michaux's *Gnaphalium polycephalum* was a replacement name for *Gnaphalium obtusifolium* — a concept to exclude the aberrant plant of Dillenius, i.e., "G. obtusifolium, Linn. omisso synonymo Dillenii; qui plantam cultura mutatam tradidit."

Gnaphalium obtusifolium var. *praecox* Fernald, Rhodora 38: 231 (t. 434, figs. 1-3). 1936. **TYPE**: **USA. South Carolina**. Colleton Co.: 2 mi E of Walterboro, sandy roadside by pine woods, 17 Jul 1927, *K.M. Wiegand & W.E. Manning 3301* (holotype: GH).

PSEUDOGNAPHALIUM HELLERI (Britton) Anderb., Opera Bot. 104: 147. 1991. *Gnaphalium helleri* Britton, Bull. Torrey Bot. Club 20: 280. 1893. *Gnaphalium polycephalum* var. *helleri* (Britton) Fernald, Rhodora 10: 94. 1908. *Gnaphalium obtusifolium* var. *helleri* (Britton) Blake, Rhodora 20: 72. 1918. **LECTOTYPE** (Mahler 1974/Freire et al. 2022a): **USA**. **Virginia**. Norfolk Co. [now as Chesapeake Co.]: Northwest, 23 Sep 1892, *A.A. Heller s.n.* (NY 00169470; isolectotypes, E, GH, MO, NY, PH-3 sheets, US).

The lectotype lacks a collection number, but its printed label is identical to those of the duplicates, all of which have *Heller 741*. NY 169470 was annotated by Mahler in 1974 as "LECTOTYPE" but he did not distinguish it in publication from the other NY sheet (169472). Freire et al. (2022a) made the specification in a "second step."

PSEUDOGNAPHALIUM MACOUNII (Greene) Kartesz, Synth. N. Amer. Fl. nomencl. innov. 30. 1999. *Gnaphalium macounii* Greene, Ottawa Nat. 15: 278. 1902. **TYPE**: **CANADA**. **British Columbia**. Chilliwack Valley, between 49°–49° 10' and between 121° 25'–122°, 2500 ft, 29 Jul 1901, *J.M. Macoun 26847* (holotype: NDG 59133).

Gnaphalium decurrens Ives, Amer. J. Sci. (New York) 1(4): 381 and illustration. 1819 (not *Gnaphalium decurrens* L. 1759). *Gnaphalium ivesii* A. Nels. & Macbr., Bot. Gaz. 61: 46. 1916 (replacement name for *Gnaphalium decurrens* Ives). **TYPE**: **USA**. **New York**. [Oswego Co.]: Protologue: "Near New Haven … by the margin of a brook, a few rods north of Mr. E. Whitney's gun manufactory," Jul 1817, *E. Ives s.n.* (not located).

Freire et al. (2022a) designated the line drawing accompanying Ives's 1819 description as the **LECTOTYPE**.

Comments by Ives: "This plant was first observed by me, in company with Mr. C. Whitlow, in July, 1817, by the margin of the brook, a few rods north of Mr. E. Whitney's gun manufactory, near New Haven. It is also found on the margin on the Housatonick, about thirty miles from Long Island sound, where it was observed by Dr. Alfred Monson, the last summer. Specimens of this plant were sent to Z. Collins, Esq. of Philadelphia, for the purpose of comparing it with the species of gnaphalium in Muhlenberg's herbarium ... ."

A sheet at G-DC has two branches identified as *Gnaphalium decurrens* Ives — the left with "Mr. Torrey 1820," the right with "Mr. Torrey, 1828, Albany."

Gnaphalium decurrens var. *glandulosum* Osterh., Muhlenbergia 8: 45. 1912. **TYPE**: **USA**. **Colorado**. Larimer Co.: Estes Park, Aug 1895, *G.E. Osterhout 547* (holotype: RM). The RM sheet was accessioned from the Osterhout herbarium in 1938 and has a 'TYPE' label.

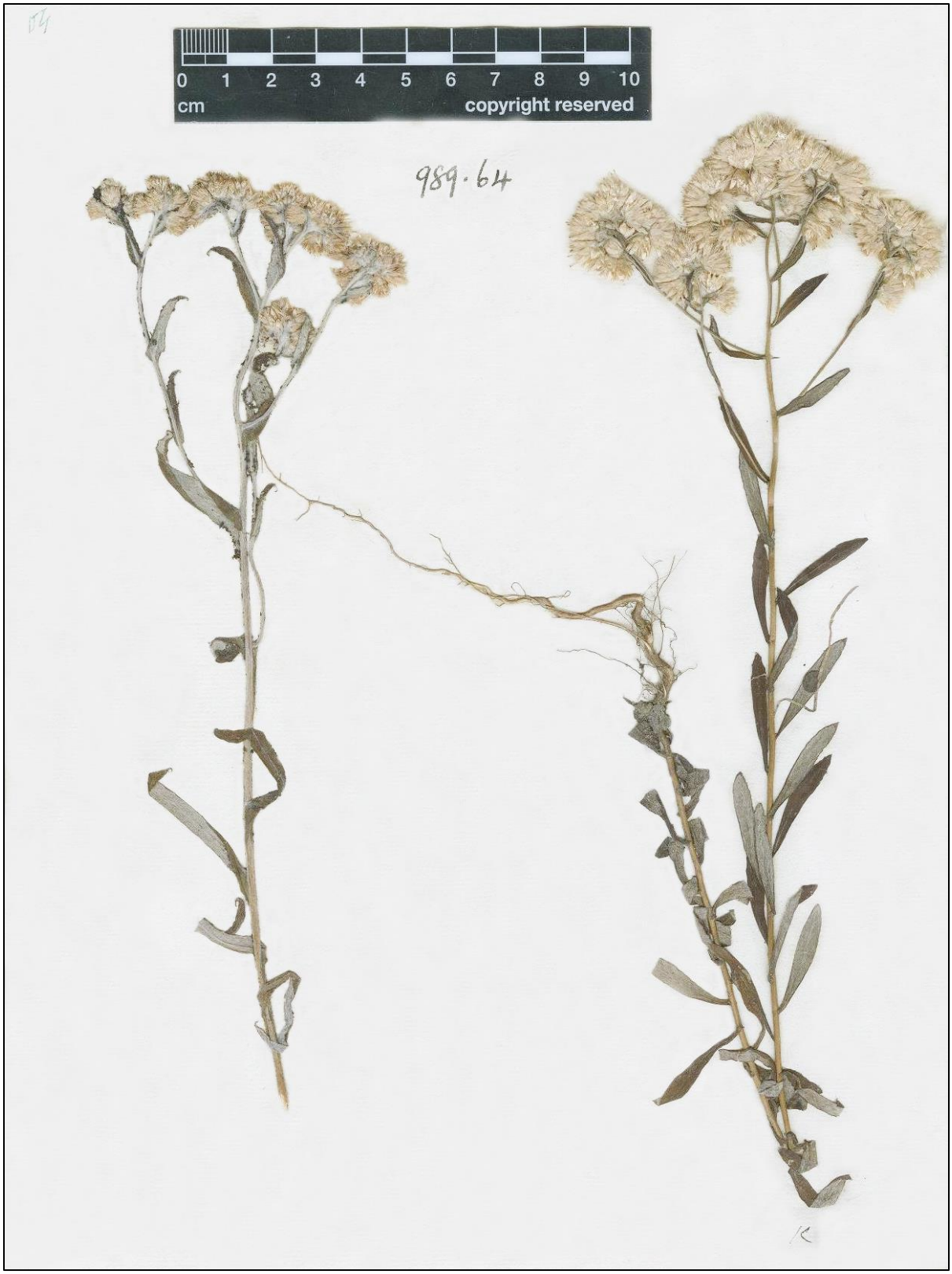

Figure 1. *Gnaphalium macounii* (left) and *Gnaphalium helleri* (right) — LINN 989.64, designated as lectotype of *Gnaphalium obtusifolium* L. (Reveal 1998). Collection made by P. Kalm ("K").

Figure 2. *Gnaphalium macounii* — detail from left-hand plant of LINN 989.64. Leaves subclasping and decurrent, surface stipitate-glandular. Stems glandular beneath the tomentum.

Figure 3. *Gnaphalium macounii* — detail from left-hand plant of LINN 989.64. Phyllaries tawny and hyaline.

Figure 4. *Gnaphalium helleri* — detail from right-hand plant of LINN 989.64. Leaves sessile, neither clasping nor decurrent, surface stipitate-glandular. Stems stipitate-glandular.

Figure 5. *Gnaphalium helleri* — detail from right-hand plant of LINN 989.64. Phyllaries white and opaque.

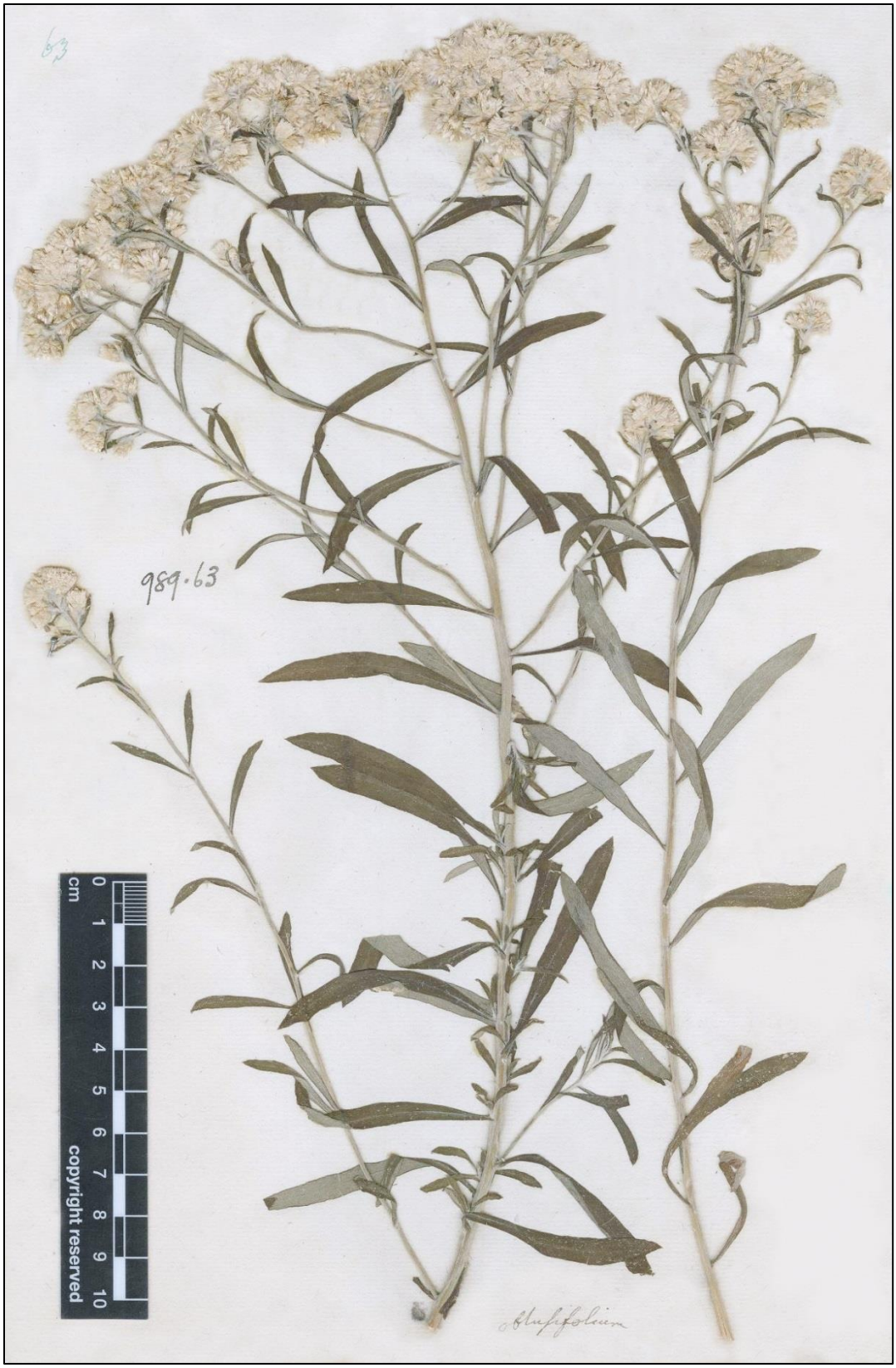

Figure 6. *Gnaphalium obtusifolium* in the traditional sense — LINN 989.63. The "obtusifolium" is in the handwriting of Linnaeus, but the sheets lack the "K" (= Kalm) of LINN 989.63.

Figure 7. *Gnaphalium obtusifolium* in the traditional sense — detail from LINN 989.63. Leaves sessile, neither clasping nor decurrent. Stems eglandular.

Figure 8. *Gnaphalium obtusifolium* in the traditional sense — detail from LINN 989.63. Leaves sessile, neither clasping nor decurrent. Stems eglandular.

Figure 9. *Gnaphalium obtusifolium* in the traditional sense — detail from LINN 989.63. Phyllaries white and opaque.

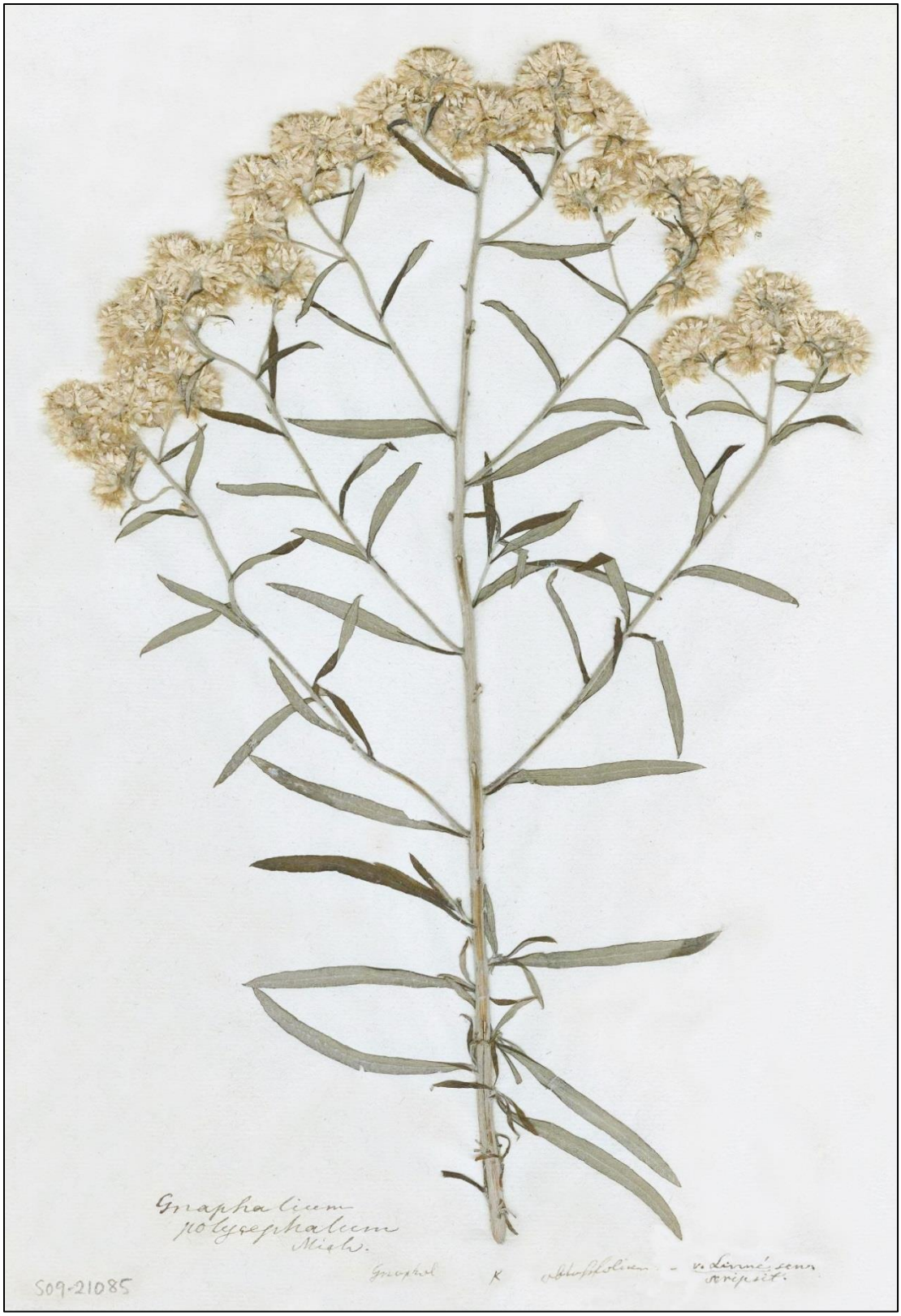

Figure 10. *Gnaphalium obtusifolium* in the traditional sense — S 09-21085. Perhaps a duplicate of LINN 989.63 (Fig. 6). The "obtusifolium" and "v. Linné sen. scripsit" (lower right) are in the handwriting of Linnaeus.

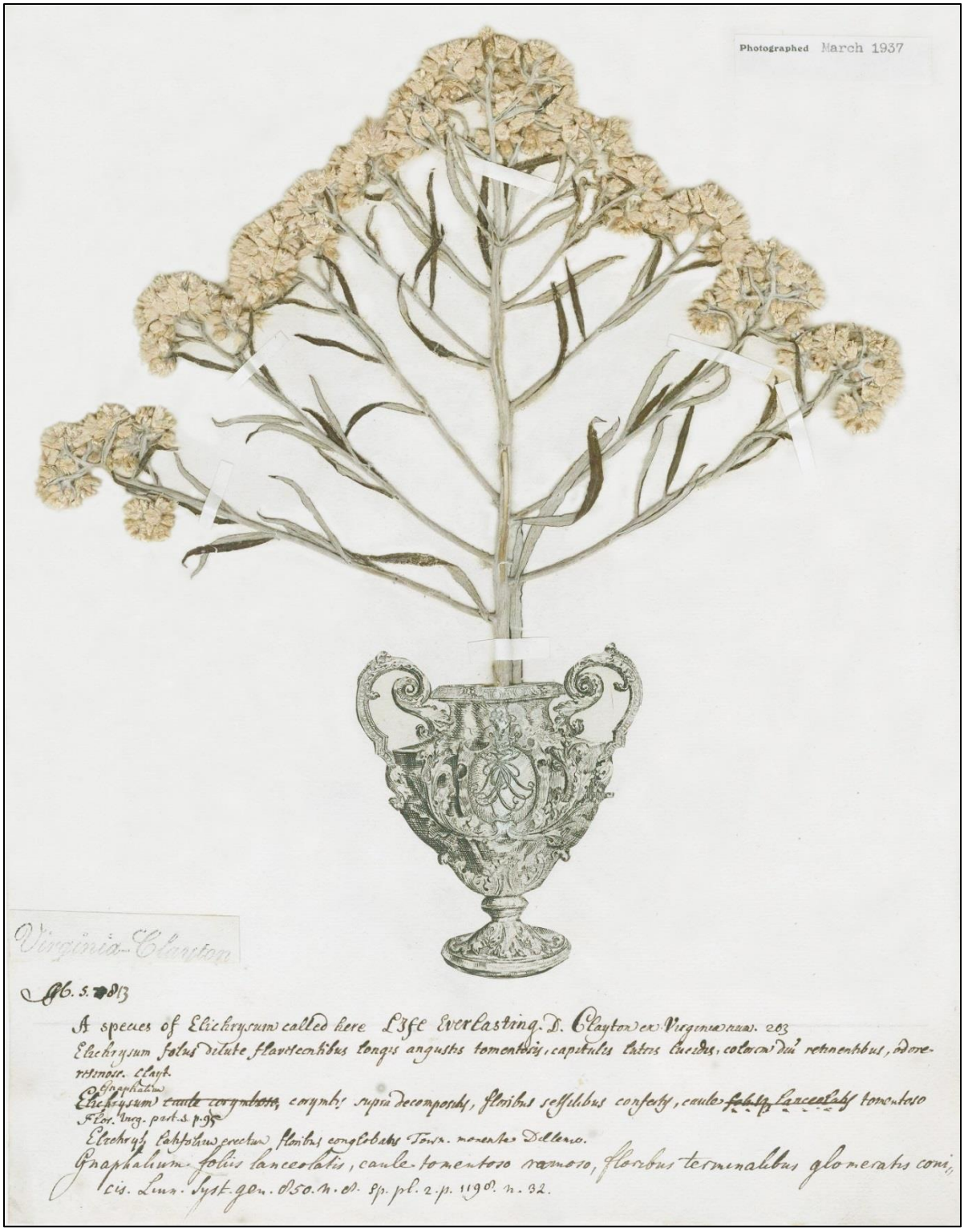

Figure 11. *Gnaphalium obtusifolium*. *Clayton 203* (BM), indirectly cited in the protologue of the species — Linnaeus cited "Gron. virg. 95," Gronovius cited *Clayton 203*. Leaves sessile, neither clasping nor decurrent. Stems eglandular.

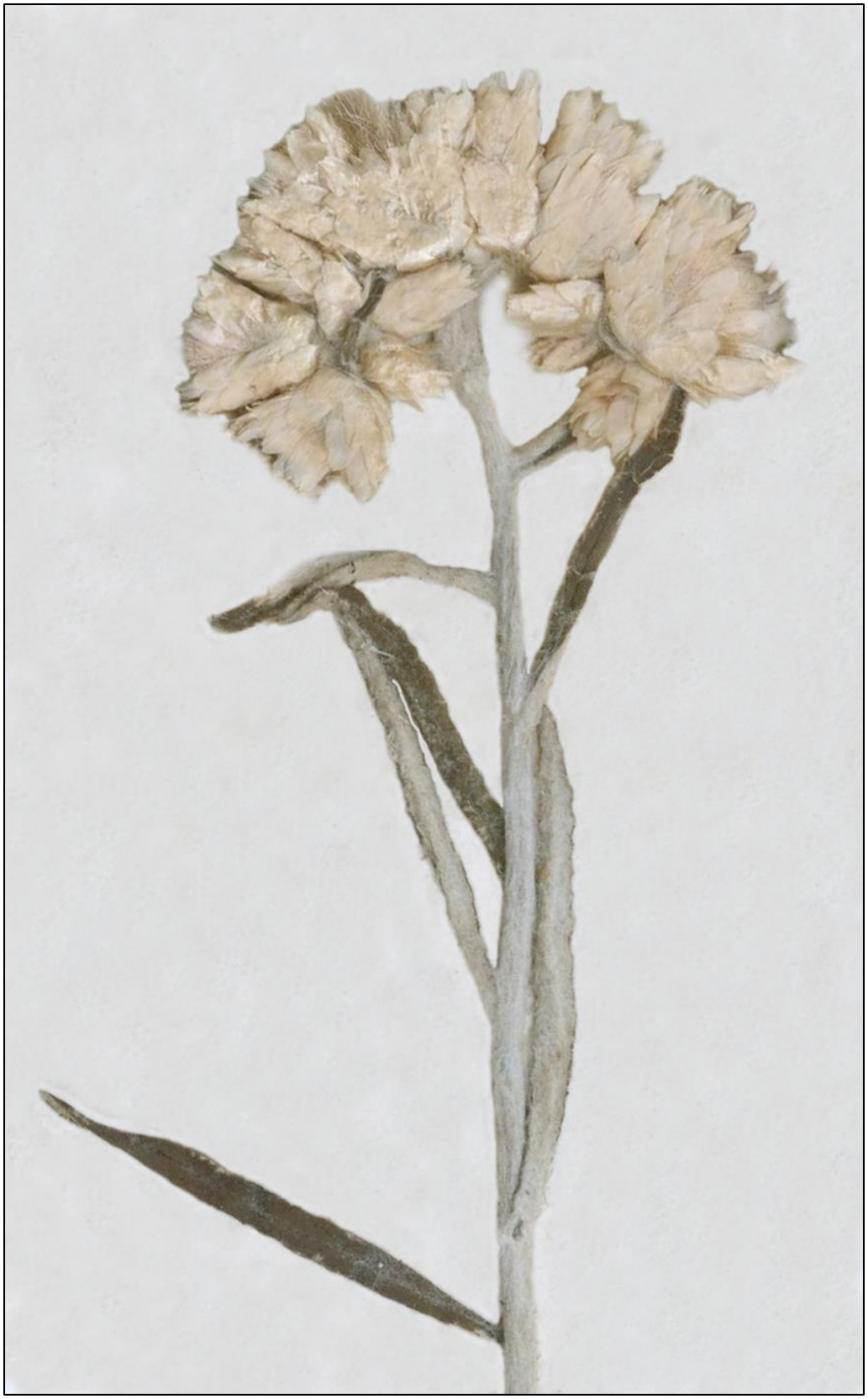

Figure 12. *Gnaphalium obtusifolium*. *Clayton 203* (BM), detail from Figure 11.

ACKNOWLEDGEMENTS

Many thanks to Fred Barrie for comments on the distinctions of Linnaean original material.

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