

**GAMOCHAETA PENNSYLVANICA (ASTERACEAE)
IS ESTABLISHED IN THE NEW YORK FLORA**

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ABSTRACT

Recent field work and study of herbarium specimens document *Gamochaeta pensylvanica* as an established element in the spontaneous flora of New York State. The species was first collected in New York in 1938, but the sole specimen was misidentified as *Gamochaeta purpurea*. *Gamochaeta pensylvanica* is reported here with specimens from Bronx, Kings, and Queens counties and observations from Nassau County. A key based on living and preserved specimens distinguishing *G. purpurea* from *G. pensylvanica* is provided.

Of the 12 species of *Gamochaeta* recognized in North America (Nesom, 2006), only *G. purpurea* (L.) Cabrera has previously been reported for New York state (Nesom 2006; Weldy et al. 2015), where it has been considered rare (S3) (Weldy et al. 2015).

In the last several years, collections identified as *Gamochaeta purpurea* from ruderal habitats in New York City and Long Island (Lamont & Glenn 2009) have suggested that it was not rare. In December 2015, GIS analysis of under-collected areas for the Central Park Flora Project led us to investigate the region around Sheep Meadow in the southwestern section of the park, where a small population of *Gamochaeta* (Figure 1) was observed. Upon examination and comparison to herbarium material identified by Nesom, Peter Michael, and Jorge Arriagada and keyed using recent publications (Haines 2011; Nesom 2004a, 2004b, 2006; Weakley 2015), we determined the species as

Gamochaeta pensylvanica (Willd.) Cabr. This led to a re-examination of recent reports of the genus in the vicinity of New York City as well as herbarium material at NY and BKL. The specimens document two species of *Gamochaeta* collected in New York state.

Gamochaeta purpurea was collected near Albany and Penn Yan, New York during the 19th Century. It has been collected twice in New York state since then — from between Sag Harbor and East Hampton, Suffolk Co. (29 Jul 1932, *Svenson 5269*, BKL) and from Southold, Suffolk Co. (27 Sep 1984, *Zaremba 1250*, BKL). The species is more common south and westward from New Jersey to Texas.

Gamochaeta pensylvanica appears to be adventive and expanding in the New York City region, where the plants are most often encountered in sidewalk medians, lawns, and weedy areas with low vegetation. It is widespread in ruderal habitats worldwide and in North America occurs primarily along the Atlantic and Gulf Coasts (Nesom 2004, 2006). The species is thought to be native to South America, where the genus is most abundant (Nesom 2004).

Specimens examined (*Gamochaeta pensylvanica*): **New York.** **Bronx Co.:** New York Botanical Garden, 21 Aug 1940, *Gilly 385* (NY). **New York Co.:** New York City, Central Park, Sheep Meadow, E side, 40.770429, -73.973586 (WGS84, ± 25 m), ca 22 m elev., 16 Dec 2015, *Atha, Alvarez, and Feeser 15390* (NY). **Queens Co.:** New York City, Forest Hills, between 71st Ave and Tennis Pl and between Dartmouth and Burns Sts, 40.719137, -73.845750 (WGS84, ± 25 m), ca 22 m elev., 18 Dec 2015, *Feder s.n.* (NY); Kissena Park, 19 Jul 2005, *Bennett 050191a* (BKL); Queens Village, 12 Aug 1989, *Delendick s.n.* (BKL); *ibid*, 21 July 1990, *Delendick s.n.* (BKL). **Kings Co.:** New York City, East Flatbush, Kings County Hospital, 16 Sep 1990, *Delendick s.n.* (BKL); Park Slope, 27 Aug 1989, *Delendick s.n.* (BKL); *ibid*, 4 Jul 1992, *Delendick s.n.* (BKL); along Kings Highway, Flatlands, 17 Aug 1989, *Delendick s.n.* (BKL).

The Gilly label from the Bronx County population does not include a description of the plant, local abundance or habitat information and the species is no longer extant at the New York Botanical Garden (Atha et al. 2016). The Central Park population consisted of about seven plants growing along the base of a chain-link fence between an asphalt path on the west side of The Mall and the lawn of Sheep Meadow (Figure 1). The plants varied in height from about 10 to about 25 centimeters tall and were a uniform pale green color with little or no color contrast between the upper and lower leaf surfaces. The plants were distinctive because on December 16 the plants were still quite green and fertile, despite the advanced season. In Queens County the plant is locally common in Rego Park and Forest Hills, where it occurs in small colonies of a few individuals. At Saint John's Cemetery in Middle Village, Queens Co. (40.718056, -73.863612), thousands of plants were observed growing together. The species was also seen growing in at least thirty separate localities, mostly in the vicinity of Forest Hills, but also in Flushing and Sunnyside, Queens County (Lamont & Glenn 2009). The species was observed and photographed in Fort Greene Park, Kings Co. on 10 September 2015. Scattered individuals were also observed spontaneously occurring in flower beds in New Hyde Park, Nassau County.

The Bronx specimen was originally identified as *Gnaphalium purpureum* by the collector in 1938 and was re-identified as *Gnaphalium pensylvanicum* by Peter Michael in 1978. *Gamochaeta purpurea* was reported from Central Park (Lamont & Glenn 2009), but no specimens were collected. Based on what we know from extant specimens, we believe the species seen in Central Park was *Gamochaeta pensylvanica*.



Figure 1. *Gamochaeta pensylvanica* in Central Park, New York Co., New York. The large lawn in the background is Sheep Meadow. Photo by Daniel Atha, 16 December 2015.

Key to *Gamochaeta* species in New York state

- 1. Basal leaves withering at anthesis; cauline leaves concolorous to weakly bicolorous, obovate, the bases cuneate, the adaxials arachnose; involucre 3–4 mm long; receptacles deeply crateriform; cypselae ellipsoid, 0.6–0.7 × 0.3 mm, minutely and sparsely papillose ***Gamochaeta pensylvanica***
- 1. Basal leaves persistent at anthesis; cauline leaves strongly discolorous, spatulate, the bases long-attenuate, the adaxials sparsely arachnose to glabrous; involucre 4–5 mm long; receptacles flat to concave; cypselae oblong, 0.6–0.7 × 0.1–0.2 mm, papillose ***Gamochaeta purpurea***

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LITERATURE CITED

- Atha, D., T. Forest, R.F.C. Naczi, M.C. Pace, M. Rubin, J. Schuler, and M.H. Nee. In press. The historic and extant spontaneous vascular flora of the New York Botanical Garden. *Brittonia* 68.
- Haines, A. 2011. *Flora Novae Angliae: A Manual for the Identification of Native and Naturalized Higher Vascular Plants of New England*. Yale Univ. Press, New Haven, Connecticut.
- Lamont, E. and S.D. Glenn. 2009. Noteworthy plants reported from the Torrey Range —2007 and 2008. *J. Torrey Bot. Soc.* 136: 541–550.
- Nesom, G.L. 1990. The taxonomic status of *Gamochaeta* (Asteraceae: Inulae) and the species of the United States. *Phytologia* 68: 186–198.
- Nesom, G.L. 2004a. New species of *Gamochaeta* (Asteraceae: Gnaphalieae) in the eastern United States and comments on similar species. *Sida* 21: 717–741.
- Nesom, G.L. 2004b. New distribution records for *Gamochaeta* (Asteraceae: Gnaphalieae) in the United States. *Sida* 21: 1175–1185.
- Nesom, G.L. 2006. *Anaphalis*, *Euchiton*, *Facelis*, *Gamochaeta*, *Gnaphalium*, *Omalotheca*, *Pseudognaphalium*, *Xerochrysum* (Gnaphalieae). *Flora of North America North of Mexico*. Vol. 19. Oxford Univ. Press, New York and Oxford.
- Weakley, A. 2015. *Flora of the Southern and Mid-Atlantic States*, working draft of 21 May 2015. Univ. of North Carolina Herbarium, Chapel Hill.
- Weldy, T., D. Werier, and A. Nelson. 2015. *New York Flora Atlas*. [S.M. Landry and K.N. Campbell (original application development), USF Water Institute, Univ. of South Florida]. New York Flora Association, Albany. Accessed 29 February 2016.