

NATURALIZED POPULATIONS OF *CENTIPEDA MINIMA* (ASTERACEAE) IN FLORIDA

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ABSTRACT

Centipeda minima (Asteraceae) is wetland herb native to Asia, Australia, and Oceania, where it is widely used in traditional medicine. There are no published records of this species outside of cultivation in North America. Here we report naturalized populations of *C. minima* at two wetland sites in St. Lucie Co., Florida, where they likely descend from plants grown in a local medicinal garden. Seeds of *C. minima* appear to disperse through sticking to the fur and feathers of animals and through rafting. Given its widespread use as a medicinal herb, broad latitudinal range in Asia, Australia, and New Zealand, and weedy tendencies, it is surprising that naturalized populations of *C. minima* only now have been discovered in North America.

Centipeda minima (L.) Braun & Asch. (spreading sneezeweed) is a wetland herb native to Asia, Australia, and Oceania. It has long been widely used in traditional medicine for a wide range of ailments (Jia et al. 2021). Numerous studies have examined the bioactive chemical composition of *C. minima* and the efficacy of *C. minima* extracts in medicinal and therapeutic applications (Taylor & Towers 1997; Huang et al. 2013; Jia et al. 2021; Kim et al. 2021; Tan et al. 2022; Liu et al. 2023). Extracts of *C. minima* have been found to have anti-bacterial, anti-inflammatory, and anti-cancer activity (Taylor & Towers 1997; Huang et al. 2013; Lee et al. 2020). In addition, Kim et al. (2021) reported that *C. minima* extract increased the proliferation of human hair follicle dermal papilla cells, and "could be used as a promising treatment for hair regeneration and minimization of hair loss." Because of its medicinal uses, *C. minima* is available for online purchase from many sources in China, India, and Australia.

There are no published records of *Centipeda minima* or any other species persisting outside of cultivation in North America. Here we report the first known naturalized populations of *C. minima* in North America.

Centipeda minima grows as a sprawling succulent herb (Fig. 1). This species is simple to identify in North America by its distinctive sessile, spherical green flower heads (Figs. 2–3). Nesom (2000) wrote this: "*Centipeda minima* apparently is the only species of the genus with weedy tendencies – it is native to southeast Asia (Japan, China, Taiwan, Okinawa and associated islands), and perhaps to Australia and New Zealand, and it has been naturalized in other areas of the world. It occurs in Afghanistan and 'throughout the plains of India and Ceylon' (Hooker 1882) and in open fields in Nepal (Malla et al. 1986). *Centipeda minima* has been reported as locally common on 'waste lands and roadsides,' 'wet soil in paddy field and on stream banks,' 'floodplains and damp areas,' 'roadsides,' 'margins of lakes, ponds, and streams, swamps and waste places.'"

Nesom (2000) reported: "*Centipeda* is represented in North America by one adventive species. *Centipeda minima* has been recorded in the northeastern USA in Massachusetts "among strawberry plants just outside the botany greenhouses of Wellesley College" (Ottley 1938) and in Pennsylvania (Fernald 1950). The species presumably has not persisted at these sites or spread. It was not recorded

for the Pennsylvania flora by Rhoads and Klein (1993); it was excluded from the Massachusetts flora by Sorrie (1989), who noted that “no specimen [was] seen.” In *Flora of North America*, Barkley et al. (2020) wrote that *C. minima* “has been recorded from Massachusetts and Pennsylvania as non-persistent introductions.”

North American vouchers of *Centipeda minima*

The Global Biodiversity Information Facility (Gbif) database lists voucher specimens from two populations of *Centipeda minima* growing outdoors in North America, in both cases, just outside of greenhouses:

District of Columbia: Washington: U.S. National Arboretum, western half of the Arboretum grounds.

Bonsai Pavilion, bed BON-STRL-C. Growing in coarse gravel footpaths, partly to mostly shaded areas along a wall. 38°54'N, 76°58'W. NAD27. Local weed in gravel, not appearing to have spread beyond this substrate. May have been escaped from use as a groundcover for bonsai, but not currently in use here for that purpose. Also found growing in a bonsai ponderosa pine, as a weed in that pot. Low prostrate plants, flowers greenish, tiny. Michael Chamberland 2387, 22 August 2005" (gbif.org/occurrence/4015893502).

Massachusetts: "In strawberry bed outside of botany greenhouses, Wellesley College, Wellesley" (gbif.org/occurrence/1929564200).

In addition, Gbif lists three vouchers from 1) greenhouse specimens, 2) specimens purchased from an herbal medicine company, and 3) specimens intercepted in mail from China.

California, Sacramento: "grown to maturity in greenhouse. Originally from private bonsai collection in San Diego Region. Becoming dominant on greenhouse floor" (gbif.org/occurrence/2422435956, gbif.org/occurrence/4856705784, gbif.org/occurrence/3059677404).

California, Berkeley: "Spring Wind Herb Company. Wholesale distributor of Chinese herbs" (gbif.org/occurrence/1258601896).

California, Contra Costa: "Location remarks From Mrs. Yu Wan, Hong Kong, China to Mr. P. C. Lam. Determination checked at LA" (gbif.org/occurrence/3059670128).

Finally, GBIF lists three vouchers held by the Muhlenberg College herbarium that were clearly misidentified, probably *Cotula australis*:

Pennsylvania, Allentown (gbif.org/occurrence/4067784080, gbif.org/occurrence/4067784081, gbif.org/occurrence/4067784082).

METHODS

On 21 December 2024, JH posted to the iNaturalist website *Centipeda minima* photos from a small marsh next to Heatherwood Boulevard in the St. Lucie West neighborhood of Port St. Lucie, St. Lucie Co., Florida (27.300°N, 80.393°W). Starting 23 December 2024, JKW visited the site to document the status of this population. On 11 January 2025, JH posted photos to the iNaturalist of *C. minima* from a second site, along a small canal in the Whispering Pines neighborhood of Port St. Lucie (27.250°N, 80.372°W), 7 kilometers southeast of the first site. Starting 15 January 2025, JKW visited the site to document the status of this population.

Vouchers of *Centipeda minima* from this study have been deposited at the University of Florida Herbarium (FLAS), Gainesville.

RESULTS

We mapped 29 observations of *Centipeda minima* in Florida posted to iNaturalist (Figs. 4–5); four by JH and 25 by JKW. We found *C. minima* spread across a 50m x 60m area in St. Lucie West (Fig. 4) and for 450m along the canal in Whispering Pines (Fig. 5). In December 2024, the St. Lucie West population consisted of large mats of *C. minima* mostly in areas of soft mud, sometime in shallow water. By May 2025, the marsh had dried out considerably and the *C. minima* population was much more apparent, dominating much of the area in almost a monoculture (Fig. 1). At Whispering Pines,

we found small plants scattered along the banks of the canal, with little noticeable change between January and May 2025. The flat mud area in St. Lucie West may be more suitable habitat for this species than the steep banks of the canal in Whispering Pines.

In addition, one other observation of *Centipeda minima* in North America was posted to iNaturalist: plants growing indoors in a flowerpot in Raleigh, North Carolina ([inaturalist.org/observations/134329174](https://www.inaturalist.org/observations/134329174)).

DISCUSSION

The naturalized populations of *Centipeda minima* at two wetland sites in St. Lucie County are the only known records of this species persisting outside of cultivation in North America. It is possible that these populations descend from plants growing locally in a medicinal garden. How the plants dispersed to the two sites is unknown.

Concerning seed dispersal, Walsh (2001) "observed 'rafts' of seed of *Centipeda minima* and *C. pleiocephala* floating in backwaters and eddies of waterbodies where the level has recently risen to cover mature plants. The cypselas are subsequently deposited on sand or silt at or near the floodmark, giving rise to the characteristic zonality of populations of *Centipeda* around water-bodies. The presence of short, often apically inrolled hairs, and droplets of viscid resin from the vesicular trichomes, provide a means for long-distance dispersal via attachment to fur or feathers." Based on this, it is possible that *C. minima* seeds originally arrived at the two sites transported by animals and then spread through the sites by rafting. Seeds of this species are probably spreading by these means to other wetland areas in South Florida.

Given its distinctive appearance, widespread use as a medicinal herb, broad latitudinal range in Asia and Australia, and weedy tendencies, it is surprising that naturalized populations of *C. minima* only now have been discovered in North America.

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Figure 1. *Centipeda minima* in St. Lucie West (inaturalist.org/observations/282746698, J.K. Wetterer, 20 May 2025).



Figure 2. *Centipeda minima* growing across soft mud in St. Lucie West (inaturalist.org/observations/256001549, J.K. Wetterer, 23 December 2024).



Figure 3. *Centipeda minima* in soft mud in St. Lucie West (inaturalist.org/observations/256110869, J.K. Wetterer, 24 December 2024).



Figure 4. Observations of *Centipeda minima* in wetlands in St. Lucie West.

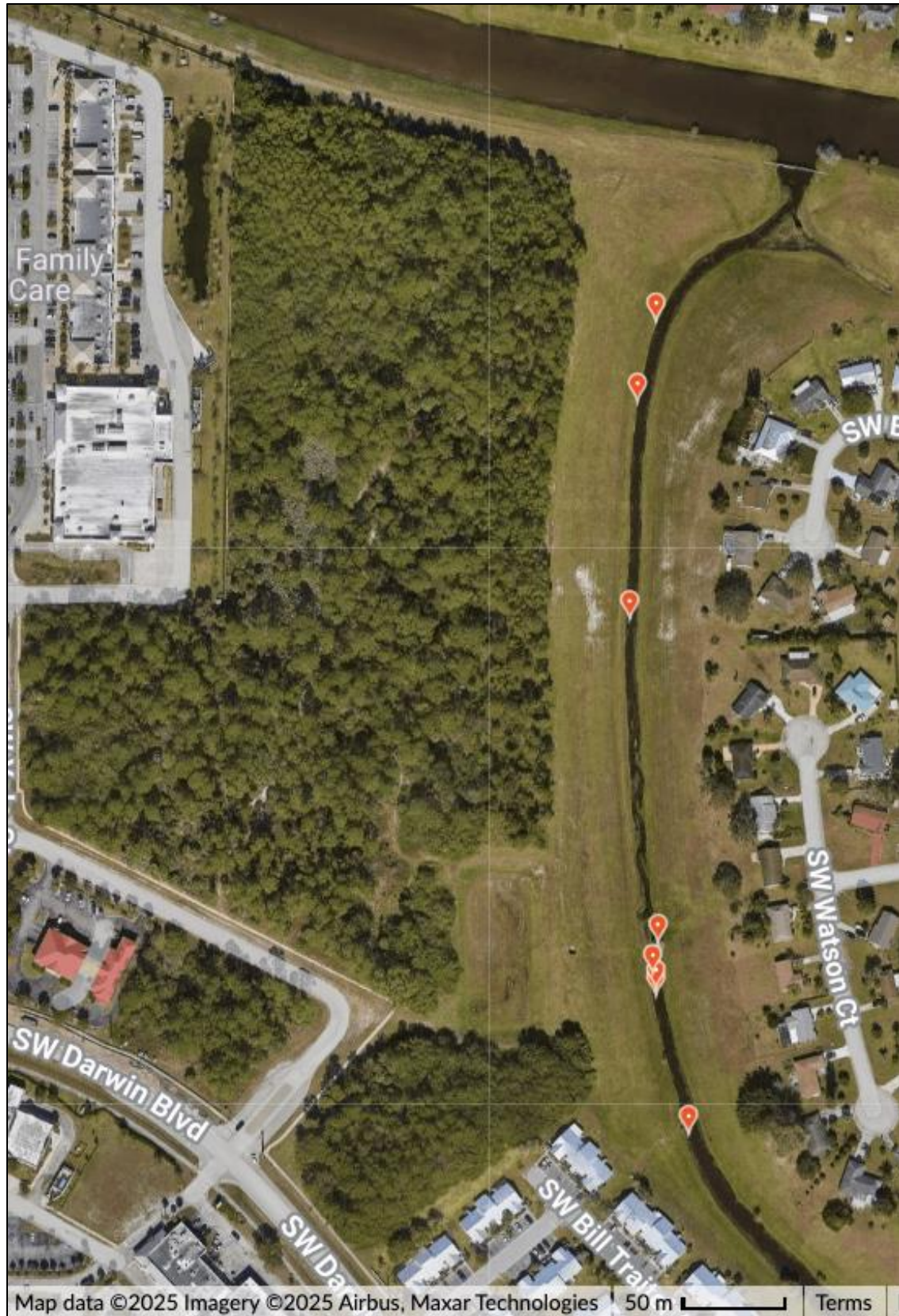


Figure 5. Observations of *Centipeda minima* in wetlands in Whispering Pines.