



swamp lousewort

Pedicularis lanceolata Michx.

Alternate Common Names

swamp betony

Scientific Synonym(s)

Pedicularis auriculata Sm., *Pedicularis pallida* Nutt.,
Pedicularis virginica Poir.

Functional Group

forbs (wildflowers)

Family

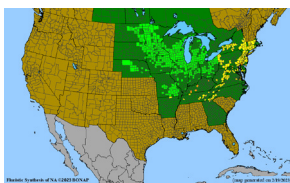
broomrape family (Orobanchaceae)

Description

- » **Life cycle/growth form:** Fibrous-rooted perennial, hemiparasitic, connects to the root systems of neighboring plants through structures called haustoria to obtain mineral nutrients.
- » **Height:** 1 - 3 ft
- » **Leaves and stem:** Leaves up to 4 in long with coarsely textured surface, “fernlike” margins, opposite arrangement; sturdy stems are short-hairy to hairless and sparingly branched.
- » **Flower:** Cream colored flowers, about 1 in long, tubular and 2-lipped, with top lip that overhangs and curves over lower lip; arranged in dense spikes up to 4 in long.
- » **Fruit/seed head:** A many-seeded capsule that splits open at maturity to release seeds.



Habitat and Range



Moist to wet soil; partial to full sun; wet sand prairies, fens, swamps, sandy ditches, shorelines; Wetland Indicator Status is Obligate Wetland (OBL) for the Midwest.

Conservation Status

Global- G5, secure; Kentucky- SX, presumably extirpated; Delaware- SH, possibly extirpated; Arkansas, Georgia, Maryland, Massachusetts, and North Carolina- S1, critically imperiled; Pennsylvania and Tennessee- S1/S2, critically imperiled to imperiled; Connecticut and West Virginia- S2, imperiled; New York- S2/S3, imperiled to vulnerable; Nebraska, New Jersey, and Virginia- S3, vulnerable (NatureServe)

General Comments

Swamp lousewort is a hemiparasitic plant. This species is capable of photosynthesis but taps into the root systems of neighboring plants to obtain some of the mineral nutrients it needs for growth. Hemiparasitic plants may reduce the competitive dominance of their hosts, thereby promoting greater diversity in their plant communities. Swamp lousewort likely uses sedges, grasses, and composites as hosts in its wetland or wet prairie habitats. To establish plugs for seed production, we seeded stratified seed of swamp lousewort into plugs of two sedge species that could co-occur with it in nature. The seedlings transplanted well into irrigated production rows and produced abundant seed in the second year. The flowers are visited by worker bumble bees that can learn to twist open the flowers to access the pollen.

Establishment for Seed Production (Appendix A)

Direct seeding:

Not recommended for this species.

Greenhouse:

- » **Seed pre-treatment:** Benefits from 60-day cold/moist stratification. Check seed frequently in later weeks of stratification period as some seeds may germinate in the cold.
- » **Sowing:** Start sedge host plants about one month before the lousewort stratification period is over. Sow two-three lousewort seeds into a shallow slit or divot made near the base of a host sedge in a plug. For this species we used trays of 50-cell plugs that are 4 in deep. As sedge host plants grow, trim them as often as necessary to keep light available to the lousewort seedlings. We found that trimming was needed more often with *Carex bebbii* hosts than with *C. hystericina*.
- » **Transplanting:** Transplant into prepared plasticulture beds with drip tape irrigation after danger of frost is past and plugs are sturdy with well-developed root systems. Move trays outside to “harden off” a week or more before transplanting.

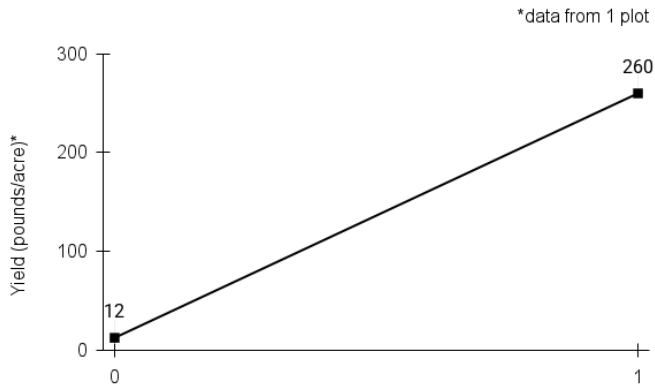
Stand Management

- » **Weeds:** Plastic mulch suppresses weeds in the planting year, and dense growth of host sedges is competitive with many weeds. We mow between rows to further suppress weeds. Small seeded weeds such as amaranth and lambsquarters would be a concern for seed cleaning.
- » **Pests:** None noted.
- » **Diseases:** None noted.
- » **Soil moisture:** Irrigation is recommended. Drip tape can be installed at the same time the plastic mulch is laid.

Seed Production (Appendix B)

- » **First harvest:** A few plants flower and set seed in the planting year, but the first sizable harvest is in the year after transplanting.
- » **Yield:** 260 lbs/acre (extrapolated from yield of one TPC production plot in the year after transplanting)
- » **Stand life:** Unknown at this time.
- » **Flowering date:** August - September in northeast Iowa
- » **Seed maturity/Harvest date:** mid-September to mid-October
- » **Seed retention:** Some seed is lost from open capsules, especially in high wind.

- » **Harvest date range at TPC (2023-2024):** September 7 - October 26
- » **Recommended harvest method:** We harvested the stems as the capsules matured, dried them, and passed them through the stationary combine. Combining in the field should also be effective, though some shattering may occur once capsules open.



Seed Cleaning Process (Appendix C)

Seed that has been threshed through a combine may be passed through a coarse screen (1/4 in mesh) to remove remaining stemmy material, then airscreened. Hand collected material may need to be run through a brush machine to break up capsules and release seed.

Seed Characteristics (Appendix D)



- » **Seeds per ounce:** 44,000 (IA NRCS)
- » **1000 seed weight:** 0.57 g (weighed 10 samples of 100 seeds from TPC plot)
- » **Description:** Wrinkled, oval, brown seeds are winged along one side, approx. 1.5 by 2.5 mm with

the wing; the shape is reminiscent of Chinese dumplings (pot stickers)

- » **Seed storage:** cool/dry (33-50° F, 30-50% RH)
- » **Typical seed test:**
 - PLS: 87.5%
 - Purity: 94.3%
 - Germination: 2%
 - Dormant: 90.8%
 - (averages obtained from 6 tests)

Released Germplasm

- » **Source Identified material:** Natural Selections/Iowa Ecotype Zone NI

References

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Species Updated: 2/19/2025

Notes
