Getting to Know the Pussytoes of New York State
Genus: *Antennaria* (Asteraceae)
by Arieh Tal, 2016


Figure 1: Small colony of *Antennaria plantaginifolia* in flower. 9 May 2013

Pussytoes (*Antennaria* species) are low-growing, colony-forming, native plants that are among the first wildflowers to bloom in Spring, some starting as early as the first or second weeks of April. There are only four species of *Antennaria* found in New York, yet they are surprisingly difficult to distinguish from each other. They're closely related by ancestry, share many characteristics and all seem to prefer dry, open to open-wooded habitats. Some are commonly found on lawns. They all produce a solitary flowering stem from a tuft of basal leaves. The inflorescence, located at the summit of the stem, consists of a tight cluster of small, unisexual, flower heads. The flowers are rayless. Stems tend to be thin, densely hairy, and scarcely exceed 10 inches in height. And though the basal and stolon leaves come in two sizes, they all have more or less the same basic shape: like a spoon, with an ovate blade that tapers to a wedge-shaped petiole. The *Antennaria* species reproduce both by seed and by stolons, to form dense colonies.

Two subspecies have been described for *Antennaria parlinii*: subspecies *fallax* and ssp. *parlinii*. Four subspecies have been described for *Antennaria howellii*: subspecies *howellii*, ssp. *canadensis*, ssp. *neodioica*, and ssp. *petaloidea*. The latter three are found in New York.

When trying to identify pussytoes in the field, one has to note carefully certain details that differentiate the species.

**Basal and stolon leaves (part 1):** I always start with the basal leaves. *Antennaria neglecta* (Field pussytoes) and *A. howellii* (Howell's pussytoes) both have basal leaves with one prominent vein, and sometimes two additional less evident veins. Their basal leaves grow up to 2 cm in width, when fully expanded. By comparison, the basal leaves of *Antennaria plantaginifolia* (Plantain-leaved pussytoes) and *A. parlinii* (Parlin's pussytoes) have from three to five prominent veins, and their basal leaves may grow to as much as 3.5 cm in width, when fully expanded. It should be noted that basal and stolon

leaves may not attain their full size until somewhat later in the season. Thus, it is often helpful to look for basal leaves of the previous season, if still present.


Figure 2: Top row: basal leaves of *Antennaria plantaginfolia.* Bottom row: Basal leaves of *Antennaria howellii*.

**Sexual distribution:** The next attribute I observe is the sexual distribution of plants within a population. In many cases, several colonies may be present within a given population. *Antennaria* flower heads are unisexual, not just on each stem, but in an entire colony. Determine whether plants with staminate (i.e., male) flower heads are present in the population. In many instances, depending on the species, only pistillate (i.e., female) heads are present. Check the gender of all of the colonies.


Figure 3. Inflorescences of *Antennaria plantaginifolia.* Pistillate (L), Staminate (R).

If you find colonies with staminate flowers, you can suspect that you have either *Antennaria neglecta* or *A. plantaginifolia*. These two species are *dioecious*. Populations may include only pistillate or only staminate colonies, or they may include both types.

The other two species, *A. howellii* and *A. parlinii* are *gynoecious*. That is, they typically produce colonies with only pistillate (female) flower heads, and only rarely produce staminate (male) plants. These two species are capable of setting seed without fertilization from a second plant.

Caveat: The presence of staminate plants doesn't guarantee that you have found either *A. neglecta* or *A. plantaginifolia*, for more than one species may be present at the site. Similarly, the absence of staminate colonies doesn't mean you have found either *A. howellii* or *A. parlinii*. Make sure to check other characteristics as well, such as size of the basal leaves, to confirm identification.

| | Staminate (male) flowers present | Staminate (male) flowers absent |
|---|---|---|
| Basal leaves up to 2 cm wide | **(1) *A. neglecta*** | **(2) *A. neglecta*** or ***A. howellii*** |
| Basal leaves up to 3.5 cm wide | **(3) *A. plantaginifolia*** | **(4) *A. plantaginifolia*** or ***A. parlinii*** |

Table 1. Summary of outcomes using basal leaf size and sexual distribution. (Assume that only one species is present at the site.)

**Stolon characteristics:** In order to help confirm whether a population of one of the small-leaved species is either *A. neglecta* or *A. howellii*, examine the stolons. *A. neglecta* produces long, relatively thin stolons that tend to lie flat on the ground, and bear leaves that don't quickly reach full size. *A. howellii* produces shorter, thicker stolons with tips that are slightly elevated off the ground, and have stolon leaves that are well-developed by the time of flowering. This characteristic won't be as useful in

distinguishing *A. plantaginifolia* from *A. parlinii*, for both have similar stolons. For that, you need to consider the following.

**Basal and stolon leaves (part 2):** The two dioecious species, *A. neglecta* and *A. plantaginifolia*, have basal and stolon leaves that are noticeably hairy on *both* upper and lower surfaces. The hairs on the lower surfaces are so thick and matted that they completely obscure the lower leaf surfaces. The hairs on the upper leaf surfaces are thinner, but still evident, causing the upper surfaces to appear gray-green. Note that by the end of the season, many of the hairs of the upper leaf surfaces for these species will tend to fall off, rendering the upper leaf surface glabrous. The basal and stolon leaves of *A. parlinii* ssp. *parlinii* quickly become glabrous, and appear bright green early on.

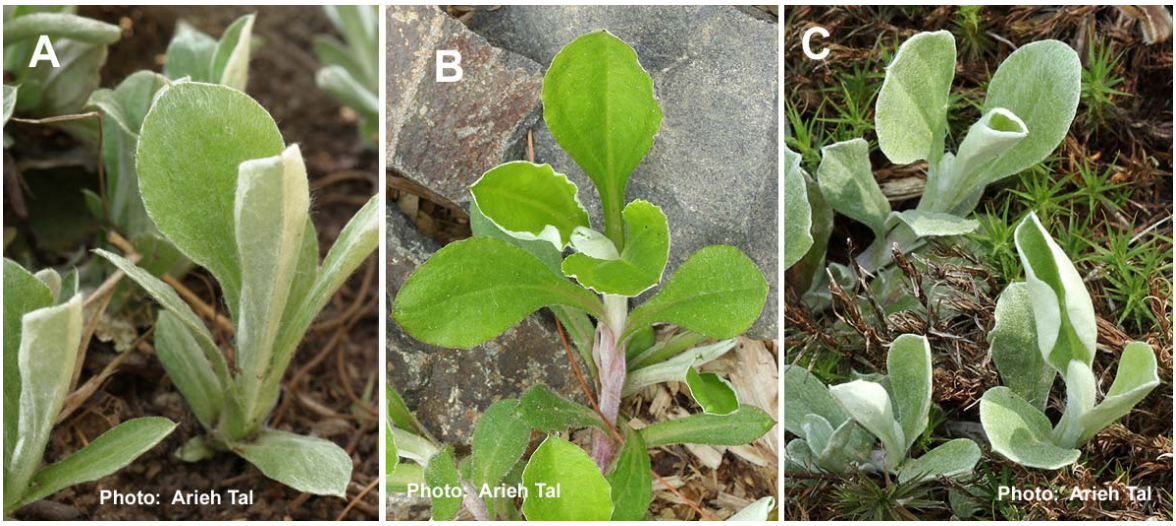

Figure 4: Comparison of basal leaves of (A) *Antennaria plantaginfolia,* (B) *A. parlinii* ssp. *parlinii,* (C) *A. parlinii ssp. fallax.*

Note: *Antennaria plantaginifolia* and *A. parlinii* ssp. *fallax* are extremely difficult to tell apart when plants with flowers and fruit are not present. Generally, the flower heads of *A. parlinii* ssp. *fallax* are larger than those of *A. plantaginifolia*. If flowering plants are present, but there are no staminate plants in the colony, it is necessary to measure the height of the involucres of the pistillate plants: *A. plantaginifolia*: 5-7 mm, *A. parlinii* ssp. *fallax*: 8-13 mm.

**Stem leaves:** Whereas the basal leaf blades of these species tend to be wide (ovate), the stem leaves tend to be narrower (lanceolate or linear). Moreover, the stem leaves of *A. neglecta* and *A. howellii* tend to be smaller and fewer (per stem) than those of *A. plantaginifolia* and *A. parlinii*, which have more conspicuous stem leaves.

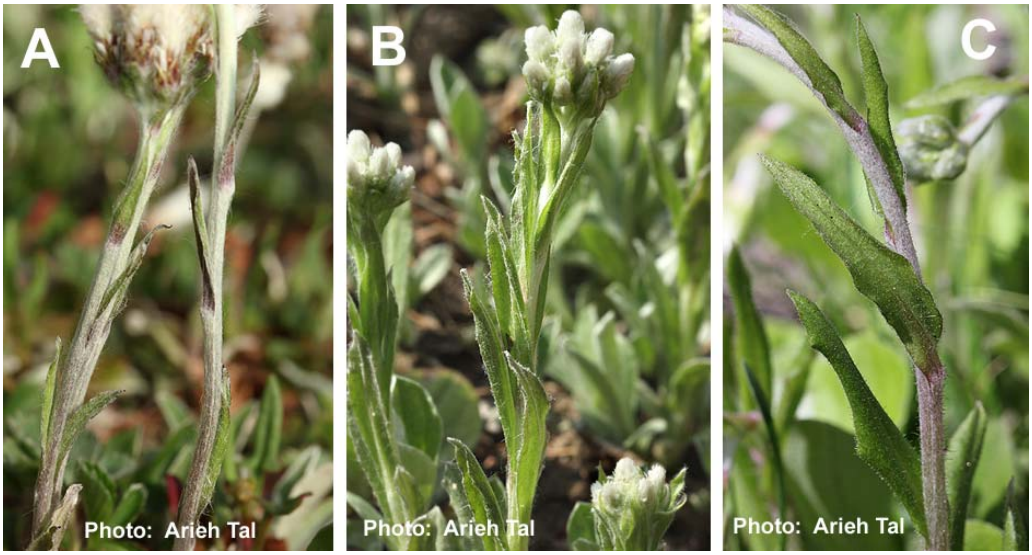


Figure 5. Stem leaves of (A) *Antennaria neglecta*, (B) *A. plantaginifolia*, and (C) *A. parlinii* ssp. *parlinii*. (Images are not at the same scale.)

**Glandular hairs:** The leaves, stems and involucres of *Antennaria parlinii* ssp. *parlinii* are often covered with minute, reddish, glandular hairs. The glandular hairs are so numerous that they provide the stems with a reddish hue. *A. parlinii* ssp. *fallax* tends not to be glandular, or may possess only a few scattered glandular hairs.


Figure 6. Stem section of Antennaria parlinii ssp. parlinii showing reddish, glandular hairs.

Additional notes:

**Primary reference:** Bayer, R. J. 2006. *Antennaria*. In: Flora of North America Editorial Committee, eds. 19+ vols. New York and Oxford. Vol. 19, pp. 388-415.

**Alternative common name:** Ladies' tobacco (in some texts). This vernacular name has also been applied to other species, particularly "Sweet everlasting" (*Pseudognaphalium obtusifolium*).

**Distribution of the genus:** Of the approx. 45 species of *Antennaria*, 34 are found in North America – in temperate and arctic/alpine regions. The remaining species are found in either Mexico, South America or Eurasia. The majority of North American species are located in the west coast and mountain states, and throughout much of Canada to the Arctic circle. Six species grow in the states east of the Mississippi River, of those, four are in the New York/New England region. *Antennaria virginica* and *Antennaria solitaria* are found elsewhere in the eastern part of the country, south and west of New York.

**Related genera:** Within the composite family of plants (Asteraceae), the pussytoes are most closely related to the "everlastings" (*Pseudognaphalium* and *Anaphalis*), and the "cudweeds" (*Gnaphalium*). All of these species have flower heads with rayless florets, alternate stem leaves, and a covering of more or less dense, matted and often stranded (cobweb-like) hairs. Because of the dense hairs, stems and leaves of most of these species appear variously gray-green or whitish.

**Faunal associations:** A large number of insect species visit Antennaria, whether for nectar or larval food. The butterfly species *Vanessa virginiensis* (American Painted Lady) is most often cited as a visitor to these species. An excellent reference for faunal associations has been created by Dr. John Hilty at: john@illinoiswildflowers.info. It can be found at his website at:

http://www.illinoiswildflowers.info/prairie/plantx/fld_pussytoesx.htm (and on other species pages there).

Additional related information can be found at:

The author's website at: http://botphoto.com/asteraceae.htm

http://wildones.org/download/nextgen/nextamerican/nextamerican.html

https://eyeonnature.wordpress.com/2012/05/15/american-ladies-and-pussytoes/

https://en.wikipedia.org/wiki/Antennaria