

How to distinguish Foamflower from Miterwort

Heart-leaved foamflower (*Tiarella cordifolia* [sensu lato](#)) and two-leaved miterwort (*Mitella diphylla*) have similar heart-shaped [basal leaves](#). In the absence of other identifying characteristics, the orientation of the hairs on the basal leaf stalk may be used to distinguish the species. *Tiarella cordifolia* has dense **spreading hairs** (outward-facing, angled 90 degrees) of various lengths while *Mitella diphylla* has long **retorse hairs** (backward-facing, angled 45 degrees or less) sparsely distributed along its basal leaf stalk. See the photos in the [Identification](#) section.

Taxonomy

As a result of a [new taxonomy](#) proposed in 2021, five species of [Tiarella](#) are now recognized in eastern North America: *T. austrina*, *T. cordifolia* [sensu stricto](#), *T. nautila*, *T. stolonifera*, and *T. wherryi*. As far as I know, all of them have dense spreading hairs along the basal leaf stalk, so in this document we refer to all of them (as a group) as *Tiarella cordifolia* sensu lato. In what follows, we drop the qualifier (sensu lato) if the context is understood.

Both *Tiarella* and *Mitella* are members of tribe [Heuchereae](#) in family Saxifragaceae. Other genera of the tribe include species with heart-shaped basal leaves, so if there is doubt, an ID at the tribal level might be appropriate.

Comparison

A comparison chart for *Tiarella cordifolia* sensu lato vs *Mitella diphylla*:

	<i>Tiarella cordifolia</i> sensu lato	<i>Mitella diphylla</i>
Basal leaves	Heart-shaped leaf blades with hairy stalks up to 20 cm long; dense spreading hairs (angled 90 degrees) along the leaf stalk	Heart-shaped leaf blades with hairy stalks up to 18 cm long; sparse retorse hairs (angled 45 degrees or less) along the leaf stalk
Flowering stem	<i>T. austrina</i> and <i>T. nautila</i> have 1–2 stem leaves but the others (<i>T. cordifolia</i> sensu stricto, <i>T. stolonifera</i> , and <i>T. wherryi</i> .) typically have no stem leaves	Two opposite, sessile stem leaves
Inflorescence	A raceme, 15–50 flowers in a terminal cluster ; pedicels up to 8 mm long	A raceme, 5–22(–27) flowers widely spaced along the stem; pedicels up to 3 mm long
Flowers	Five sepals, 5 petals, 10 stamens; long, slender stamens (longer than	Five sepals, 5 petals, 10 stamens; distinctive fringed petals

	the petals)	
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Identification

[Various species](#) in tribe [Heuchereae](#), especially in genera [Tiarella](#), [Mitella](#), and [Heuchera](#), have similar heart-shaped basal leaves. The following photos were taken in Vermont where there are two such species: [Tiarella stolonifera](#) and [Mitella diphylla](#). See the [Distribution](#) section for a list of provinces and states with varying levels of diversity.

Both *Tiarella stolonifera* and *Mitella diphylla* have heart-shaped basal leaves with hairy stalks.

Basal leaves	
	
<i>Tiarella stolonifera</i>	<i>Mitella diphylla</i>

Both *Tiarella stolonifera* and *Mitella diphylla* have separate flowering stems (i.e., separate from the basal leaves). The stem of *Tiarella stolonifera* has no stem leaves, while the stem of *Mitella diphylla* has a pair of opposite, sessile stem leaves (which gives the species its name).

Flowering stem



Tiarella stolonifera has no stem leaves



Mitella diphylla with two leaves per stem

Tiarella stolonifera has dense spreading hairs (outward-facing, angled 90 degrees) of various lengths while *Mitella diphylla* has long retrorse hairs (backward-facing, angled 45 degrees or less) sparsely distributed along its basal leaf stalk.

Basal leaf stalks	
	
<i>Tiarella stolonifera</i> with spreading hairs	<i>Mitella diphylla</i> with retrorse hairs

The [description of *Mitella diphylla* in Flora of North America](#) mentions the retrorse hairs on its basal leaf stalk, but as far as I know, @erthomson was the first iNaturalist user to show [how to use this character to distinguish *Mitella diphylla* from *Tiarella stolonifera*](#).

Distribution

The basal leaves of *Heuchera villosa* resemble those of *Tiarella cordifolia* and *Mitella diphylla*, and so the presence of *Heuchera villosa* in any given area further complicates identification. In that case, evidence of flowering may be required to distinguish the species.

Tiarella cordifolia sensu lato and *Mitella diphylla* are widely distributed across eastern North America. At least one species of *Tiarella* occurs in each of 26 provinces and states. Both *Tiarella* and *Mitella diphylla* occur in 17 provinces and states. Of those, *Heuchera villosa* occurs in 12 provinces and states.

	<i>Tiarella cordifolia</i> sensu lato	<i>Mitella diphylla</i>	<i>Heuchera villosa</i>
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Canada			
New Brunswick	Yes	No	No
Nova Scotia	Yes (S2S3)	No	No
Ontario	Yes	Yes	No
Quebec	Yes	Yes	No
United States			
Alabama	Yes	Yes (S1)	Yes
Connecticut	Yes	Yes	No
Georgia	Yes	Yes	Yes
Kentucky	Yes	Yes	Yes
Maine	Yes	No	No
Maryland	Yes	Yes	No
Massachusetts	Yes	Yes	No
Michigan	Yes	Yes	No
Mississippi	Yes (S2)	Yes	Yes (S1)
New Hampshire	Yes	Yes	No
New Jersey	Yes	Yes	No
New York	Yes	Yes	Yes
North Carolina	Yes	Yes (S3)	Yes
Ohio	Yes	Yes	Yes (S2)
Pennsylvania	Yes	Yes	Yes
Rhode Island	Yes	No	No
South Carolina	Yes	Yes (S1)	Yes
Tennessee	Yes	Yes	Yes
Vermont	Yes	Yes	No

Virginia	Yes	Yes	Yes
West Virginia	Yes	Yes	Yes
Wisconsin	Yes (S1)	Yes	No

(**S1** = Critically imperiled; **S2** = Imperiled; **S3** = Vulnerable)

References

Heartleaf Foamflower (*Tiarella cordifolia*)

- <https://www.inaturalist.org/taxa/53789-Tiarella-cordifolia>
- https://en.wikipedia.org/wiki/Tiarella_cordifolia
- http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=220013540
- <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:30175905-2>
- <http://bonap.net/MapGallery/State/Tiarella%20cordifolia.png>
- https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.160510/Tiarella_cordifolia

Twoleaf Miterwort (*Mitella diphylla*)

- <https://www.inaturalist.org/taxa/53793-Mitella-diphylla>
- https://en.wikipedia.org/wiki/Mitella_diphylla
- http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=220008661
- <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:791948-1>
- <http://bonap.net/MapGallery/State/Mitella%20diphylla.png>
- https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.159708/Mitella_diphylla

Hairy Alumroot (*Heuchera villosa*)

- <https://www.inaturalist.org/taxa/163746-Heuchera-villosa>
- https://en.wikipedia.org/wiki/Heuchera_villosa
- http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242416654
- <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:30062001-2>
- <http://bonap.net/MapGallery/State/Heuchera%20villosa.png>
- https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.130688/Heuchera_villosa

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