

## Labrador Tea

(*Ledum groenlandicum*)

Bloom time: June - July

### Identification

- Shrub up to 2 feet tall.
- Long, leathery leaves roll under at edges.
- Brown or white "fuzz" under leaves.
- Multiple white flowers form a round cluster.
- Each flower has 5 petals and protruding, thread-like stamens.
- The fruits are a cluster of brown capsules that harden, dry, and split along the sides.



### Determining Flowering Stages

**Before flowering** - Some of the large flower buds are not fully expanded (lower left inset) or some of the white flowers remain unopened.

**Flowering** - Some flowers are open enough to allow access to a pollinator, but petals have not wilted or fallen (upper image).

**Past flowering** - Some of the petals have begun to wilt or fall (lower right inset). Soon the ovaries will begin to swell, turn green, then reddish, and eventually develop into hard brown seed capsules.

**Mark all stages that apply and circle the dominant stage on your data sheet.**

### Habitat

Found in sheltered alpine areas, as well as low elevation bogs.

### Interesting Fact

*The leaves from this plant are used to make a bitter medicinal tea, said to treat asthma and other ailments*



# MOUNTAIN WATCH

*Hikers Tracking Environmental Trends*



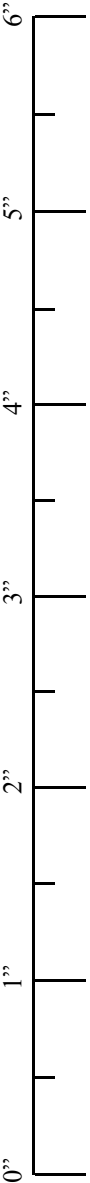
# ALPINE FLOWER GUIDE

### *The Mountains Need Hikers Like You*

Your data counts! Long-term studies of flowering times, correlated to climate data, will help us understand how mountain ecosystems respond to climate change.

With this guide, you can learn more about the local flora, while contributing to our understanding of these plant communities. Hikers like you are a great resource in sampling remote areas. Just follow the directions on the next page and you can be a Mountain Watcher!

[www.outdoors.org/mountainwatch](http://www.outdoors.org/mountainwatch)



## Why Monitor Flowering in our Mountains?

The mountains of the Northeast contain a diverse set of plants, from tundra species that are usually found much further north, to forest flower species that are found further south along the entire Appalachian Mountain chain. Here, warmth is a major trigger for many species flowering in the spring and early summer. Observations from researchers, amateur botanists and hikers report that plants are flowering earlier than they were 100 years ago. Citizen research shows spring garden plants like lilacs are blooming weeks earlier too. Scientists believe a warmer climate will cause communities to shift northward, or in the mountains, upward. As they move up-slope, available habitat shrinks. Species currently found in the uppermost reaches could disappear completely.



## Monitoring Instructions

- **Stop** at locations you can find on a map, like summits, trail intersections and large stream crossings.
- **Look** for one or more of the six target plant species in this guide book that are a few feet from the trail.
- **Record** your location, the date, which flowering stage(s) you observed for each of the target plant(s): “before flowering”, “flowering”, and “past flowering” and your certainty of plant identification on your data sheet.
- **Return** your data sheet to a NH AMC destination, or mail it to: AMC, Mountain Watch, PO 298, Gorham, NH 03851.
- **Visit** [www.outdoors.org/mountainwatch](http://www.outdoors.org/mountainwatch) to see results, or to download a data sheet for your next hike.

Photos: D. Weihrauch

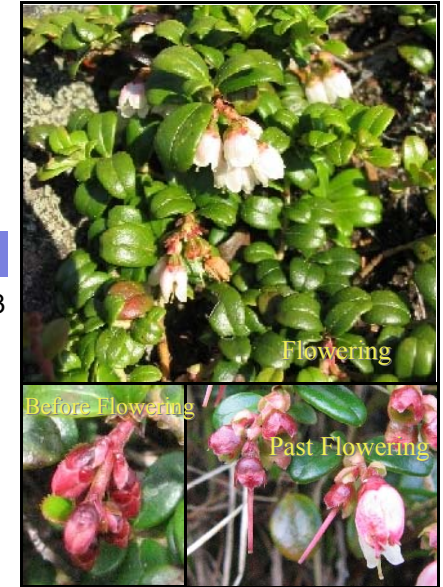
## Mountain Cranberry or Lingonberry

(*Vaccinium vitis-idaea*)

Bloom time: June - July

### Identification

- Evergreen, low growing (up to 3 inches tall).
- Rounded, thick, and waxy leaves have a prominent mid-vein.
- Leaves are rarely larger than your pinky fingernail.
- Light pink flowers grow in drooping clusters at stem tip.
- Red berries appear in late summer.



### Determining Flowering Stages

**Before flowering** - Some of the pink flower buds are unopened (lower left inset).

**Flowering** - Some of the pink to white flowers have opened enough to allow access to a pollinator (upper image). Look carefully to see if the bell-shaped flowers are open at the tip.

**Past flowering** - Some of the pink petal tubes have fallen off (lower right inset). Soon the ovaries will begin to swell, and eventually develop into bright red berries.

**Mark all stages that apply and circle the dominant stage on your data sheet.**

### Habitat

Found throughout alpine areas, rocky exposed sub-alpine slopes, acidic forests, and low elevation bogs.

### Interesting Fact

*In northern Europe the berries (known as lingonberries) are used to make jams, sauces and other edibles.*

## Diapensia

or Cushion-plant

(*Diapensia lapponica*)

Bloom time: May - June



### Identification

- Forms low-growing cushion-shaped mat; 2 inches or less.
- Evergreen leaves form tight rosettes that often surround a flower or leaf bud.
- White flowers with 5 petals fused at the base like a goblet.
- Flowers are large compared with leaves.
- Fruits are surrounded by numerous bracts (small leaves) and forms a hard brown capsule, which splits at the top to release the seeds.

### Determining Flowering Stages

**Before flowering** - Some of the flower buds are unopened (left side of upper image and in the corners of the lower left inset).

**Flowering** - Some of the flowers have opened enough to allow access to a pollinator (center of lower left inset).

**Past flowering** - Some of the petal tubes have fallen off, leaving a small green ovary surrounded by reddish-green sepals (lower right inset). The ovaries will begin to swell and eventually develop into a hard brown seed capsule.

**Mark all stages that apply and circle the dominant stage on your data sheet.**

### Habitat

Generally grows in exposed areas at tops of ridgelines at high elevations.

### Interesting Fact

*This slow-growing species survives in some of the harshest weather, but is slow to recover from footfall. A typical dinner-plate sized cushion could be hundreds of years old!*

## Alpine Bilberry

or Bog Bilberry

(*Vaccinium uliginosum*)

Bloom time: May - June



### Identification

- Deciduous, low shrub; 2-18 inches tall.
- Small, nearly circular leaves with a subtle blue-green hue.
- Whitish-pink bell-shaped flowers.
- Flowers grow along the stem in bunches of 1-3.
- Fruits are a dark purple-blue berry.

### Determining Flowering Stages

**Before flowering** - Some of the pink flower buds are unopened (lower left inset).

**Flowering** - Some of the pink to white bell-shaped flowers have opened enough to allow access to a pollinator (upper image). Look carefully to see if the bell-shaped flowers are open at the tip.

**Past flowering** - Some of the pink petal tubes have fallen off. Soon the ovaries will begin to swell, turning green, and eventually develop into deep-blue berries in late summer (lower right inset).

**Mark all stages that apply and circle the dominant stage on your data sheet.**

### Habitat

Found throughout the alpine areas and in low elevation bogs.

### Interesting Fact

*Further north this plant is a major food source for bears and other wildlife.*

## Bigelow's Sedge

(*Carex bigelowii*)

Bloom time: late May - early July



### Identification

- Grass-like leaf blades.
- Often forms a lawn or meadow.
- Last year's dead and dry leaf blades at base.
- Cylindrical floral spikes grow at tip of triangular stalk.
- Flowers have dark purplish-black scales, with cream-colored anthers (male) or white stigmas (female).
- Developing green seeds can be seen behind the scales.

### Determining Flowering Stages

**Before flowering** - Reproductive parts (anthers/stigmas) have not fully emerged from behind the scales of some of the dark flower spikes (lower left inset).

**Flowering** - Some of cream-colored anthers or white stigmas have emerged from behind the dark scales, but have not begun to wilt (upper image).

**Past flowering** - Some of the anthers or stigmas have begun to wilt, or developing green seeds are emerging from behind the dark purplish-black scales (lower right inset).

**Mark all stages that apply and circle the dominant stage on your data sheet.**

### Habitat

Common at higher alpine elevations, generally in flat areas.

### Interesting Fact

*If alpine areas shrink in response to climate change, suitable habitat for Bigelow's sedge may be eliminated. The White Mountain Butterfly would most likely disappear along with it, as they are closely associated with the alpine sedge meadows of the White Mountains.*

## Mountain Avens

(*Geum peckii*)

Bloom time: June - July



### Identification

- Large round or kidney-shaped leaves have a toothed edge.
- Leaves and flower stems grow directly out of the ground.
- Quarter-sized yellow flowers.
- 5 separate petals, with 5 pointed sepals (small leaves directly beneath petals).
- Each flower stem carries 1-5 large flowers.

### Determining Flowering Stages

**Before flowering** - Some of the flower buds along the reddish flower stem are unopened (lower left inset).

**Flowering** - Some flowers are open enough to allow access to a pollinator, but petals have not fallen (upper image).

**Past flowering** - Some of the petals have begun to fall, leaving 5 pointed sepals (lower right inset).

**Mark all stages that apply and circle the dominant stage on your data sheet.**

### Habitat

Grows only in the White Mountains of New Hampshire and one location in Canada. Found in moist alpine and cool, sub-alpine meadows, stream sides, bogs and cliff seeps.

### Interesting Fact

*Although this flower is often mistaken for a buttercup, it is actually a member of the rose family.*

**PLEASE MAKE ALL OBSERVATIONS FROM THE TRAIL**

**ALPINE FLOWER DATA SHEET**

Date: \_\_\_\_\_

Name: \_\_\_\_\_

No of people on hike: \_\_\_\_\_

To receive updates  
provide email address: \_\_\_\_\_

- 1- **Stop** at a place you can find on a map, like trail junctions, summits or large stream crossings and **look** to see if there is one or more target species growing near that spot. It is unlikely to find all 6 target species at one site but many occur together.
- 2- **Record** your location by describing and marking stop # on a map (see reverse side), estimate stop elevation, and record flowering status of the target plant(s) and your certainty of identification (ID) on a scale of 1-3 (1 = uncertain, 2 = somewhat certain, and 3 = most certain). The target plant(s) at your stop may exhibit more than one flowering stage; use the field guide for guidance. Mark ALL stages that apply with an "X" and CIRCLE the stage that appears to be dominant.
- 3- **Return** this sheet to a NH AMC destination, or mail it to: *AMC, Mtn. Watch, P.O. 298, Gorham NH 03581*



**Where are you?** We need to know to validate your data! Fill in below & follow directions describing each stop along trail.

Nearest Major Highway: \_\_\_\_\_ Nearest Township, State: \_\_\_\_\_

Route: \_\_\_\_\_

Starting Trailhead location.....Summit Peak or Destination..... Finishing Trailhead location

	Species	Before Flowering	Flowering	After Flowering	Certainty of ID (1-3)		Species	Before Flowering	Flowering	After Flowering	Certainty of ID (1-3)
<b>Stop 1.</b>  <b>Estimated Elevation</b> _____ ft.	Alpine Bilberry					<b>Stop 4.</b>  <b>Estimated Elevation</b> _____ ft.	Alpine Bilberry				
	Bigelow's sedge						Bigelow's sedge				
	Mtn. avens						Mtn. avens				
	Diapensia						Diapensia				
	Mtn. cranberry						Mtn. cranberry				
	Labrador tea						Labrador tea				
<b>Stop 2.</b>  <b>Estimated Elevation</b> _____ ft.	Alpine Bilberry					<b>Stop 5.</b>  <b>Estimated Elevation</b> _____ ft.	Alpine Bilberry				
	Bigelow's sedge						Bigelow's sedge				
	Mtn. avens						Mtn. avens				
	Diapensia						Diapensia				
	Mtn. cranberry						Mtn. cranberry				
	Labrador tea						Labrador tea				
<b>Stop 3.</b>  <b>Estimated Elevation</b> _____ ft.	Alpine Bilberry					<b>Stop 6.</b>  <b>Estimated Elevation</b> _____ ft.	Alpine Bilberry				
	Bigelow's sedge						Bigelow's sedge				
	Mtn. avens						Mtn. avens				
	Diapensia						Diapensia				
	Mtn. cranberry						Mtn. cranberry				
	Labrador tea						Labrador tea				

**Please describe your location for each stop** using the nearest trail intersections, summit, or other feature identifiable from a map. MARK the location using the corresponding stop number on the map.

**1**

**2**

**3**

**4**

**5**

**6**

**Sketch a map** here of hiking route or include a copy of a trail map with data. Draw North arrow on map.  
**Mark observation stops** (from 1 up to 6) on map.