



New Hampshire Natural Heritage Bureau

Division of Forests & Lands - DNCR
172 Pembroke Road, Concord, NH 03301
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To: Vail Resorts
Via: Commissioner Sarah L. Stewart
Via: Brad Simpkins, Director Forests & Lands
From: Sabrina Stanwood, Administrator
Date: May 29, 2019
Subject: Greater fringed gentian recommendations at Mount Sunapee State Park

Highlights of state threatened plant species Greater fringed gentian located at Mt. Sunapee State Park:

- Population of greater fringed-gentian (*Gentianopsis crinita*) is located on ski slopes at Mt. Sunapee State Park.
- This plant must disperse seeds in order for the population to persist at a given location.
- Gentian flowers in early October--seeds are typically not mature until mid-October.
- NHB recommends delaying mowing of a small area of the lower portion of the Jetstream trail until **after October 15** (see attached map of area to delay mowing).



Summary: The New Hampshire Natural Heritage Bureau (NHB) conducted surveys for greater fringed gentian plant in 2017 and 2018 to document the population on the ski slopes at Mt. Sunapee

State Park. This plant is listed as state-threatened and was first documented by a visitor in 2015, at the base of the Jetstream trail. Several plants were located in the middle of the Pipeline trail. Over 100 plants in an area roughly 0.4 acres in size at the base of the Jetstream trail were recorded in 2015.



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In 2017, in order to improve the information on the size and distribution of the population of this plant, NHB staff conducted surveys on September 8, 22, and 28. Over the course of these surveys, a total of 21 plants were observed in flower or bud. These plants were found primarily on the lowermost portion of the ski slope, although a few scattered individuals were located higher up on the mountain. The number of plants observed was considerably smaller than recorded in the original survey in 2015, and there was some concern that the population was in decline for unknown reasons. A June 18, 2018 memo with management recommendations for the fringed gentian was submitted by NHB to the Mount Sunapee resort based on the 2017 survey.

On October 3, 2018, NHB staff conducted a field survey of the greater fringed-gentian population and noted that there was an area at the base of the Jetstream trail that had not been mowed. Also, NHB found flowering plants (had not set seed yet) in adjacent areas that had been mowed. A count of plants identified approximately 200 flowering stems, which is a tenfold increase over the 2017 survey. This count included plants that had been mowed but could still be identified by flowers among the cut vegetation.

The reason for the large increase in flowering stems is uncertain, but is likely related to the plant's life cycle. Greater fringed-gentian is a biennial species, meaning that plants generally live for two years. In the first year after germination, the plants typically occur as a low rosette of leaves, inconspicuous among other vegetation. In the second year, the plant sends up a flowering stalk, producing one or more blooms (some stems had as many as 10-12 flowers). After the flowering period is complete, numerous tiny seeds are released, and the plant dies. Because of this two-year cycle, it is possible that large numbers of flowering plants are only visible every other year, but further surveys will need to be conducted to confirm this pattern.

As noted in the 2017 report, because greater fringed-gentian is not a perennial species, it requires that plants disperse seeds in order for the population to persist at a given location. This species flowers late in the season, with seeds typically mature around mid-October. Due to this life history, NHB recommends delaying mowing of a portion of the lower part of the Jetstream ski slope that supports the gentian population until after October 15.

To simplify the extent of the delayed-mowing zone, NHB recommends delineating the boundaries of this area as follows: the western half of the slope (west of the chair lift) up to lift pole #2, with an allowance along the western tree line for mowing equipment to proceed upslope past the gentian area (see attached map). This delayed mowing area would be continuous right up to the base of the chair lift, as flowering plants were seen throughout this portion of the slope.

NHB would like to meet on site with mowing staff to review the attached map and answer any questions. We look forward to working together to develop protocols that both benefit the rare plants and allow for the effective and efficient management of the ski area.

Thank you,

Sabrina



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