



## New Hampshire Natural Heritage Bureau, Division of Forests & Lands – DRED Field Surveys of the Nonis Property, Franconia, NH

The Department of Resources and Economic Development (DRED) is considering acquisition of a 400-acre privately owned parcel in the town of Franconia known currently as the Nonis Lot. Located on the gentle, north-facing slopes of Bald Mountain, the property features over 6,000 feet of frontage along Lafayette Brook on the northern boundary of the parcel. As part of the assessment of this potential acquisition, staff from the NH Natural Heritage Bureau (NHB) conducted site visits to the property on August 5 and 13, 2015, to search for rare plant species and assess the condition of the natural communities on the site.

### Survey Results

The most noteworthy ecological feature on the property is an exemplary **forest seep/seepage forest system**, which occupies approximately 28 acres on lower slopes above Lafayette Brook. This system occurs where extensive groundwater seepage creates permanently saturated soil conditions on gentle slopes and flat terraces. The system is comprised of three different natural communities: ***northern hardwood seepage forest***, ***subacid forest seep***, and ***northern hardwood - black ash - conifer swamp***.

The vast majority of the acreage on the Nonis Lot is upland forest, with the only significant wetland features occurring on the lower slopes along Lafayette Brook. These forests are actively managed, with small-scale selective harvesting occurring at present, and evidence of more intensive harvesting in the past. There is also an active sugarbush at the higher elevations in the southern portion of the property.

The largest component community, the ***northern hardwood seepage forest***, is a forested wetland that occurs on slopes, and has a canopy composed of a variable mix of tree species, including yellow birch (*Betula alleghaniensis*), balsam fir (*Abies balsamea*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), and white ash (*Fraxinus americana*). Below the canopy is a lush herbaceous layer, typically dominated by graminoid species such as northeastern mannagrass (*Glyceria melicaria*), eastern rough sedge (*Carex scabrata*), and bristly-stalk sedge (*Carex leptalea*). Other characteristic herbs include foam-flower (*Tiarella cordifolia*), dwarf raspberry (*Rubus pubescens*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmundastrum cinnamomeum*), and lady fern (*Athyrium angustum*).

***Subacid forest seeps*** are frequent throughout the system, where small openings support a dense herbaceous layer. Characteristic species include eastern rough sedge (*Carex scabrata*), dwarf raspberry (*Rubus pubescens*), spotted touch-me-not (*Impatiens capensis*), small enchanter's-nightshade (*Circaea alpina*), foam-flower (*Tiarella cordifolia*), lady fern (*Athyrium angustum*), and long beech fern (*Phegopteris connectilis*), among many others.

The ***northern hardwood - black ash - conifer swamp*** occupies a small portion of the system on a flat terrace. The thin canopy is comprised of balsam fir (*Abies balsamea*), yellow birch (*Betula alleghaniensis*), and red spruce (*Picea rubens*). The herbaceous layer is lush, and characterized by bristly-stalk sedge (*Carex leptalea*), wood horsetail (*Equisetum sylvaticum*), northeastern mannagrass (*Glyceria melicaria*), sensitive fern (*Onoclea sensibilis*), woodland strawberry (*Fragaria vesca* ssp. *americana*), dwarf raspberry (*Rubus pubescens*), and foam-flower (*Tiarella cordifolia*).



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The exemplary **forest seep/seepage forest system** is the first exemplary system occurrence documented in the NHB database. However, this is due primarily to the fact that the system type was described relatively recently. While there are no other exemplary **forest seep/seepage forest systems** in the database, there are a number of occurrences of the exemplary natural communities called ***northern hardwood seepage forest*** (13) and the ***subacid forest seep*** (9) communities.

Regardless of the distinction between the system and community level, at 28 acres, the exemplary **forest seep/seepage forest** system on the Nonis Lot is larger than all but one of these comparable natural community occurrences, making it an exceptional find, and worthy of significant consideration in the development of a management plan for the property.

The upland forests of the property can be divided into two primary natural community types: ***sugar maple - beech - yellow birch forest*** and ***hemlock - spruce - northern hardwood forest***. The ***sugar maple - beech - yellow birch forest*** is the common “northern hardwood” matrix forest type of mid-elevations in central and northern New Hampshire, dominated by a mix of sugar maple, American beech (*Fagus grandifolia*), and yellow birch. This community occupies the majority of the Nonis Lot, particularly the higher elevations in the southern and central portions of the property. This includes a large area (approximately 60 acres) of younger forest dominated by paper birch (*Betula papyrifera*) and balsam fir, which would likely succeed to the typical northern hardwood composition given time. At the southernmost portion of the property, a portion of the ***sugar maple - beech - yellow birch forest*** is maintained as a sugarbush. The forest in this area is fairly mature, with canopy trees ranging from 16-24” in diameter, and a moderate amount of coarse woody debris on the forest floor.

In the northwest corner of the property is an approximately 85-acre stand characterized by very large, mature white pine (*Pinus strobus*). The majority of the canopy white pines are between 16 and 24” in diameter, with quite a few even larger (30+”). The understory in this stand is characterized by a mixture of red spruce and balsam fir. This stand is on a relatively flat terrace underlain by soils in the Colton and Becket series. These soils are loamy sands and sandy loams, and provide very good growing conditions for white pine. At the northern edge of the stand, the terrace drops away steeply to Lafayette Brook, and this steep slope is dominated by hemlock (*Tsuga canadensis*). The understory of spruce and fir on the terrace, and the presence of hemlock on the slope, suggests that, absent management, this site would most likely revert to a ***hemlock - spruce - northern hardwood forest***. White pine is an unusual component in this community, but its dominance is most likely due to land use history.

From a wildlife perspective, there are no known records of rare animal species on the property. However, the NHFG Wildlife Action Plan maps rank approximately one third of the parcel (approx. 130 acres), on the eastern end, as Tier 2, or having the highest ranked habitat within the biological region. This ranking is likely due to Lafayette Brook and its associated wetlands. The WAP’s Highest Ranked Habitat in Biological Region includes the top 30 % of all terrestrial and wetland habitats in New Hampshire with a few exceptions. The remainder of the Nonis property is ranked Tier 3, as supporting landscape for wildlife. By identifying and protecting high quality examples of all of New Hampshire’s natural communities, all of the state’s native wildlife species will have access to intact habitats.



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### Management Considerations and Recommendations

Adding the Nonis Lot to Franconia Notch State Park would present a variety of opportunities for forest management and recreation development. The lengthy road frontage and relatively gentle terrain make the site highly valuable for the development of a new campground. A new campground would also benefit from proximity to Bald Mountain and Artists Bluff and opportunities for recreational trail development.

From an NHB perspective, the foremost consideration is the protection of the exemplary **forest seep/seepage forest system** along Lafayette Brook. This area would likely be excluded from timber management activities regardless, due to steep slopes and the proximity to the brook, but it would be useful to formally delineate this as a natural area in the DRED zoning map for the property. Additionally, recreational trails should be excluded in this area due to permanently saturated soils that are fragile and highly susceptible to erosion. It may be possible to access the brook with a trail, but great care would be needed in determining an alignment that would minimize impacts to the exemplary system.

As noted above, the property's location and terrain provide an ideal site for a new campground associated with Franconia Notch State Park. Based on the data from the field surveys, NHB recommends locating the campground location in the western portion of the property along Route 18. This area encompasses roughly 55 acres, which is significantly larger than the current Lafayette campground and has been heavily managed in the past. The forest is relatively young, with trees in the 8-10" dbh range, and dominated by early successional species such as paper birch, balsam fir, and red maple.

In addition to recreation, the property has significant value for timber management. The area that will probably be of greatest interest to the Forest Management Bureau is the area of very large white pine in the northwest portion of the parcel. While these large trees obviously have a high value for their wood, they have an equally high aesthetic value for visitors. Walking among these huge trees provides exposure to a very unusual experience, one that is only available at perhaps one other state property: the Big Pines Natural Area at Hemenway State Forest in Tamworth. A hiking trail could include interpretive materials on the land use history and site conditions that allowed for this stand to develop, and would offer a unique amenity to visitors that can't be found at any other campground in the state, public or private.

To the south and east of the proposed campground area is a high-quality stand of mature northern hardwoods, a portion of which is maintained as a sugarbush. NHB supports maintaining this stand in its current condition, including the sugarbush operation. The development of another hiking trail through this stand to connect with the loop trail over Bald Mountain and Artists Bluff could include interpretive materials on maple sugar management on public lands.

The Nonis property would be an exceptional addition to DRED's reservations.