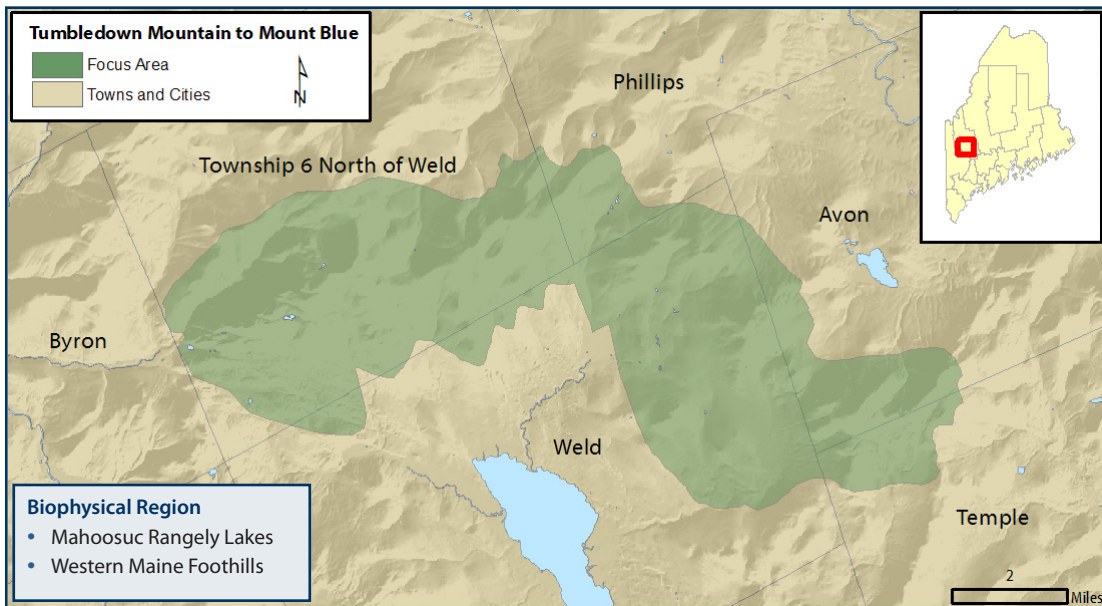
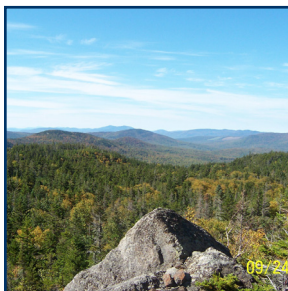
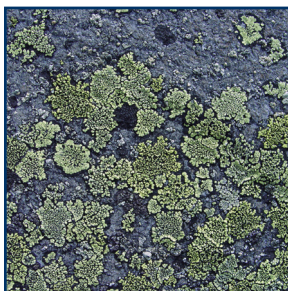


Tumbledown Mountain to Mount Blue



WHY IS THIS AREA SIGNIFICANT?

This focus area includes multiple peaks over 2700 feet, ridgelines, high elevation ponds, and the largest example of an Alpine Ecosystem that has been documented in the state. Four rare or exemplary quality natural communities, four rare plant species, two rare animal species, and over four hundred acres of Significant Wildlife Habitat have been documented within the focus area. The bald mountain summits and public state park land provide abundant wilderness recreation opportunities, including hiking, fishing, skiing, camping, and snowmobiling, all in this beautiful and scenic area.

OPPORTUNITIES FOR CONSERVATION

- » Minimize recreational impacts on sensitive alpine areas through hiker education and careful siting of trails, combined with monitoring for overuse.
- » Educate recreational users about the ecological and economic benefits provided by the focus area.
- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.
- » Maintain intact forested buffers along water bodies and wetlands to protect water quality and provide valuable riparian habitat for wildlife and fisheries.
- » Work with landowners to encourage sustainable forest management practices on remaining privately owned forest lands.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: www.beginningwithhabitat.org/toolbox/about_toolbox.html.

Photo credits, top to bottom: Maine Natural Areas Program (all photos)

Rare Animals

Peregrine Falcon
Spring Salamander

Rare Plants

Acadian Quillwort
Appalachian Fir-clubmoss
Bigelow's Sedge
Silverling

Rare and Exemplary Natural Communities

Alpine Ecosystem
Mid-elevation Bald
Oak - Northern Hardwoods Forest
Rock Outcrop Ecosystem
Subalpine Fir Forest

Significant Wildlife Habitats

Inland Waterfowl and
Wading Bird Habitat
Deer Wintering Area

Public Access Opportunities

- » Mount Blue State Park, MBPL
- » Tumbledown Mountain Trail



North Peak Tumbledown Mountain, Maine Natural Areas Program

FOCUS AREA OVERVIEW

The Tumbledown Mountain to Mount Blue Focus Area stretches from Tumbledown Mountain in Township 6 North of Weld to Mount Blue near the Avon/Temple town boundary. The highest elevations in the focus area are concentrated in Township 6 North of Weld. An extensive Alpine Ecosystem with elevations of more than 2700 feet includes Tumbledown, Little Jackson, and Jackson Mountains and a couple of high elevation ponds. Out of two Alpine Ecosystems that have been documented in the state, the occurrence at Tumbledown Mountain, at just over 1000 acres, is the largest. Adding to its significance, the ecosystem on Tumbledown includes several high quality examples of common natural communities as well as rare natural communities and four different rare plant species.

Large mid-elevation balds, a rare natural community type found on open summits, are found on Tumbledown Mountain, Little Jackson Mountain, and Parker Ridge. Populations of the rare Appalachian fir-clubmoss (*Huperzia appalachiana*) are found near several of these open summit communities as are small populations of the rare silverling (*Paronychia argyrocoma*). Silverling is a state Threatened species that is found in drought stressed habitats, and has only been found in a handful of locations in Maine. A population of Bigelow's

sedge (*Carex bigelowii*) has been documented near the summit of Jackson Mountain. Tumbledown Pond, a beautiful alpine pond, supports the globally rare Acadian quillwort plant (*Isoetes acadensis*). This is one of only seven known locations of this species statewide.

The south side of Tumbledown Mountain is an impressive assemblage of vertical walls and steep talus slopes, which make up a Rock Outcrop Ecosystem; one of only three high quality examples of this type that have been documented in the state. These talus slopes are very steep and have enormous boulders covered with rock tripe (*Umbilicaria sp.*) and rock polypody (*Polypodium virginianum*). Stunted heart-leaved paper birch (*Betula cordifolia*) and red spruce (*Picea rubra*) are the dominant vegetation here, growing between the boulders and around the talus edges. The prominent cliffs at the edge of these talus slopes have been known to support nesting pairs of peregrine falcons, a rare species that is still making a recovery in Maine and the northeast.

The eastern portion of the focus area encompasses Mount Blue and the conservation lands of Mount Blue State Park. With the exception of recent cutting in the western part of the

Park, commercial timber harvesting has not occurred within Park boundaries in over 60 years. Many habitats within the Park, however, have been subjected to natural disturbances of varying scales -- such as beaver activity along Fran Brook, fire on the coniferous southeast slope of Mt. Blue, and moderate wind/ice storm damage on the deciduous and mixed upper slopes of Mt. Blue and Center Hill. Consequently, much of the Park serves as a good example of frequent natural disturbance and recovery regimes in different habitat types. Such examples are uncommon in a landscape where the dominant disturbance mechanisms are anthropogenic.

The forests of Mount Blue State Park roughly sort themselves by elevation. Northern hardwood forests dominated by beech, birch, and maple are prevalent at mid-elevations. These forests host several uncommon rich woods species including spring beauty (*Claytonia caroliniana*), rattlesnake fern (*Botrychium virginianum*), early saxifrage (*Saxifraga virginensis*), and maidenhair fern (*Adiantum pedatum*). Spruce-fir forests dominate at higher elevations and occupy most of the steep slopes of Mt. Blue. In addition to the dominant forest types, the State Park includes several high quality examples of common natural community types.

A 50-acre Subalpine Fir Forest surrounds the summit of Mt. Blue. This forest type is rare in the state and is generally restricted to the larger peaks in western Maine. The forest is low-growing and dense near the summit, consisting of balsam fir (*Abies balsamea*), mountain ash (*Sorbus americana*), black and red spruce (*Picea spp*), and heart-leaved paper birch (*Betula cordifolia*). There is little understory, but notably the substantial moss cover has been found to include at least 17 different species.

At a lower elevation on the southern slope of Center Hill, there is a high quality example of a mature Oak Northern Hardwood Forest. This site has a limited harvest history, likely due to the steep slopes where it occurs. As a result the larger red oak trees in this community are between 125 and 150 years old. This 120 acre forest is one of only roughly a dozen high quality examples that have been documented in the state.

RARE AND EXEMPLARY NATURAL COMMUNITIES

Alpine ecosystems such as those on Tumbledown Mountain occur in Maine on mountains above 3500', in areas where growing conditions are extremely harsh or exposed. These systems include the low, often sparse vegetation found above treeline. Trees in these systems are stunted from exposure to ice, wind, and cold temperatures. Alpine ecosystems and their component natural communities are rare in Maine because Maine has only a handful of mountains high enough to support these systems. The summit and ridgelines of Tumbledown, Little Jackson, and Jackson Mountains support an extensive alpine ecosystem that includes two rare or exemplary natural communities, four rare plant species, and the rare peregrine falcon.



Top: Alpine Vegetation, Maine Natural Areas Program;
Bottom: Mid-elevation Bald Natural Community, Maine Natural Areas Program

The **mid-elevation bald** community is also found on mountain summits, where windswept bare rock is interspersed with thin pockets of soil, which occur in depressions in the bedrock, and stunted shrubs and other vegetation. With around a dozen known occurrences in the state, management and protection of this community are very important. These fragile summit balds are easily damaged by overuse, particularly by motorized vehicles including ATV's and snowmobiles, but they may also be impacted by excessive trampling by hikers.

Rock outcrop ecosystems such as that found on the steep southern slopes of Tumbledown Mountain are areas where bedrock, with thin soil pockets in places, makes up the ground surface and vegetation is consequently sparse, with few if any trees. Vegetation is dominated by low shrubs and herbs which can tolerate the exposed, usually dry, and low nutrient conditions. Scattered trees may be present, but will often be stunted or wind-flagged. On Tumbledown these include red spruce and heart leaved birch. Rock outcrop ecosystems generally grade into woodlands (rocky areas with tree canopies covering > 30-60%) or forests (tree canopies covering > 60%).



View from Tumbledown Mountain, Jennifer Soule

CHARACTERISTIC SPECIES

Breeding pairs of **peregrine falcons** (*Falco peregrinus*) have been documented nesting on the south face of Tumbledown Mountain. They nest on ledges or overhangs that are inaccessible to mammalian predators and provide protection from the elements. Increased use of pesticides, especially DDT after World War II, caused drastic declines in peregrine populations worldwide. Although once broadly distributed in North America, they were extirpated throughout much of their historic range including the eastern United States.

Maine has joined other states in a large-scale peregrine falcon reintroduction program. Young, captive-reared peregrines were slowly released at former nest sites in a process called “hacking.” A total of 144 birds were successfully released at eight different locations in Maine from 1984-1997, including Tumbledown Mountain. Peregrines began to nest in Maine again in 1987 and the population has dramatically increased. Reintroduced peregrines have been successful in New Hampshire, Vermont, and New York as well. With recovery of the species nationwide, the peregrine falcon was taken off the federal Endangered species list in 1999, but its breeding population remains listed as Endangered on the Maine list, as its numbers here are still low.

Spring salamanders (*Gyrinophilus porphyriticus*) have also been documented in this focus area along Tumbledown Stream. Spring salamanders, a species of Special Concern in Maine, live in or around clear, cool waters that are high in oxygen, such as streams or springs in wooded areas. Adults are found both in water and on land, and they seek refuge in cavities along stream banks, or under rocks. They are highly sensitive to environmental stresses such as temperature change or stream siltation. Deforestation is the leading cause of population declines for the Spring salamander.

Two **Deer Wintering Areas** occur on the edges of Mount Blue State Park in the lower elevations near East Brook and Houghton Brook. Small pockets of **Inland Waterfowl and Wading Bird Habitat** also occur throughout the eastern portion of the focus area, along the many segments of streams and open wetlands that are scattered throughout the lowlands and valleys. The unfragmented condition of the focus area supports a diversity of habitat types and, importantly, connections between those habitats, which makes this region significant for wildlife.

Acadian quillwort (*Isoetes acadensis*) is an aquatic plant

that lives submerged in shallow ponds and lakes. This species grows as a rosette of linear leaves and is generally found rooted in gravelly, sandy, or muddy substrates. Threats to this species may include any activities that alter the natural hydrology or water quality of the water body where it is located. Soil disturbance, especially from activities such as fishing, wading, swimming, or boat-launching may also threaten the habitat of this species. Only three populations of this species have been documented in Maine, making its occurrence on a protected, remote alpine pond an important feature of this focus area.

Silverling (*Paronychia argyrocoma*) is a low-growing, tufted plant with white flowers. It grows on ledges on bare gravel with little or no organic matter or soil, such as is found around the higher elevations of this focus area. Its habitat on exposed mountain tops is frequently traversed by hiking trails. Plants in such sites show evidence of damage by trampling and are also particularly subject to collecting. A single Massachusetts population has fluctuated from 196 colonies in 1945, to 56 in 1978, back to 104 colonies in 1980. The cause of this fluctuation is unknown. Many Maine populations are extremely small, down to single individuals at a few sites, which increases its vulnerability.

Appalachian Fir-clubmoss (*Huperzia appalachiana*) is restricted to the harsh, exposed conditions of Maine's highest mountains and a few coastal islands. There are less than a dozen known occurrences of this species statewide, and though the occurrence on the peaks around Tumbledown is within conserved land, care should be taken to monitor the fragile alpine habitat where it is found.

Bigelow's Sedge (*Carex bigelowii*) is an alpine plant that can be locally common above treeline, along with other plants such as alpine bilberry (*Vaccinium uliginosum*). This sedge is the only *Carex* found commonly in alpine ridge communities and is often the dominant plant in certain patches. However with less than a dozen known occurrences this species is still rare in Maine, where it is at the southern extent of its range, and can be threatened by hiker traffic.

CONSERVATION CONSIDERATIONS

» An adequate buffer should be retained between timber harvest areas and the wetlands. Because different species can have different buffering requirements, better protection will be afforded to the collective wetland plants and animals when larger buffers are used. Any timber harvesting within and adjacent to wetlands should be implemented with strict adherence to state or local Shoreland Zoning guidelines, the Maine Natural Resources Protection Act, and Maine Forest Service Best Management Practices.

Ecological Services of the Focus Area

- Alpine areas are an important component of regional and statewide biodiversity.
- Contributes to water quality and ecological integrity.
- High quality habitat for waterfowl, wading birds, moose, bear, deer, and other wildlife.
- Provides ecological connectivity and a large block of undeveloped habitat for area-sensitive and wide ranging wildlife species.

Economic Contributions of the Focus Area

- Attracts tourism for recreation.
- Protects water quality of downstream resources including Webb Lake.
- Provides high value forest products that support the regional economy.
- Provides scenic vistas that contribute to Maine's natural character.
- Provides wildlife habitat for a number of game species that are seasonally important to Maine's rural economy, including local sporting camps.
- Provides a valuable recreational resource and open space for local residents.

- » Human disturbance near peregrine falcon nest sites during the breeding season can cause nest failure. Peregrines are especially sensitive to human activity on the nest cliff or on trails that are within line-of-sight from the nest or perches. Hiking on these trails and climbing on the cliff should be prohibited within ¼ mile of nest sites during the breeding season (March to August). Forestry activities in areas used by falcons should maintain some large trees and snags as perches for roosting and hunting.
- » Intact forest buffers of 250 feet or more should be maintained around known concentrations of rare plants.
- » Preserving the natural communities and other sensitive features within the focus area will be best achieved by working to conserve the integrity of the larger natural systems in which these features occur. This can be accomplished through management planning on conserved lands and encouraging sustainable forest management

Focus Areas of Statewide Ecological Significance: **Tumbledown Mountain to Mount Blue**

- on remaining actively managed private lands. Where late successional and old growth stands remain, these should be conserved when possible. Additional areas should also be aside from timber harvests to allow for the development of some unmanaged forests.
- » Recreational use of this focus area should be managed to prevent potential negative impacts on important resources and recreational values. Education of users can help to limit any damage from recreational activities, especially in sensitive areas such as lake and pond shores, ridge lines, and summits. Both motorized and non-motorized users should be encouraged to minimize off-trail use and practice minimum impact camping. ATV use should be excluded from the summits and upper slopes of the mountains, as well as from wetlands.
 - » With expected changes in climate over the next century, plant and wildlife species will shift their ranges. Maintaining landscape connections between undeveloped habitats will provide an important safety net for biodiversity as species adjust their ranges to future climate conditions.
 - » Improperly sized culverts and other stream crossing structures can impede movement of fish and aquatic invertebrates effectively fragmenting local aquatic ecosystems and ultimately leading to local extirpation of some species. Future management should maintain or restore the sites natural hydrology.



View from Tumbledown Mountain, Maine Natural Areas Program

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Peregrine Falcon	<i>Falco peregrinus</i>	E	S1S2N,S2B	G4
	Spring Salamander	<i>Gyrinophilus porphyriticus</i>	SC	S3	G5
Plants	Acadian Quillwort	<i>Isoetes acadensis</i>	SC	S2	G3Q
	Appalachian Fir-clubmoss	<i>Huperzia appalachiana</i>	SC	S2	G4G5
	Bigelow's Sedge	<i>Carex bigelowii</i>	SC	S2	G5
	Silverling	<i>Paronychia argyrocoma</i>	T	S1	G4
Natural Communities	Alpine Ecosystem	Alpine ecosystem		S2	GNR
	Mid-elevation Bald	Crowberry - bilberry summit bald		S3	G2G3
	Oak - Northern Hardwoods Forest	Red oak - northern hardwoods - white pine forest		S4	GNR
	Rock Outcrop Ecosystem	Rock outcrop ecosystem		S4	GNR
	Subalpine Fir Forest	Fir - heart-leaved birch subalpine forest		S3	GNR

State Status*

- E** Endangered: Rare and in danger of being lost from the state in the foreseeable future, or federally listed as Endangered.
- T** Threatened: Rare and, with further decline, could become endangered; or federally listed as Threatened.
- SC** Special Concern: Rare in Maine, based on available information, but not sufficiently rare to be Threatened or Endangered.

*State status rankings are not assigned to natural communities.

State Rarity Rank

- S1** Critically imperiled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
- S2** Imperiled in Maine because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (on the order of 20–100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.

Global Rarity Rank

- G1** Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation.
- G2** Globally imperiled because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (on the order of 20–100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.