

APPENDIX F3. RARE, THREATENED, AND ENDANGERED SPECIES

The Maine Appalachian Trail Club contracted with Woodlot Alternatives, Inc., of Brunswick Maine in March, 1992, for a landscape analysis and inventory of NPS corridor lands around Nahmakanta Lake (1,820 acres). No rare, threatened, or endangered animals were discovered within the Nahmakanta Corridor. However, two rare plants were located, both within Pollywog Gorge. **Fragrant fern** (*Dryopteris fragrans*), a State-listed "Special Concern" species, was found in several locations in the gorge on acidic ledges. The rare **luminous moss** (*Schistostega pennata*) was found at one site in the gorge in a small horizontal crack on two large granitic slabs. A secondary-source study of natural and cultural resources of the Appalachian Trail corridor in Maine (Field et al., 1989) identified several plant and animal species of special interest that likely occur in the corridor. Volunteers are gradually inventorying vernal pools within the corridor. These studies, and especially the Maine Natural Areas Program's 1998 **A Natural Heritage Inventory of the Appalachian Trail in Maine**, are the basis for the regular monitoring of six natural heritage sites within the jurisdiction of the Maine Appalachian Trail Club: Baldpate Mt., the Saddleback Mt. Range, the west side of Sugarloaf Mt., Mt. Bigelow, Moxie Bald Mt., and Little Wilson Falls.

The Natural Heritage Inventory combined primary and secondary landscape analysis and field survey data to identify plant and animal species classified S1-S3, SH, or SX in Maine; rare natural community types (those ranked S1-S3); and exemplary occurrences of more common natural community types ("A"- "B" quality according to ranking standards of the Maine Natural Areas Program). Eighty-one areas identified during the landscape analysis were surveyed during 1995 and 1996. Data from these surveys were added to information from the Maine Forest Diversity Project, previous field surveys, published articles and land management plans. Distinct areas with rare, exemplary, or noteworthy features or areas with concentrations of features were identified as sites. Forty-seven distinct sites were grouped geographically from 150 elements along the Trail, including 60 rare plants, 48 rare or exemplary natural community occurrences, 10 rare animal occurrences, eight geological features, and 24 community occurrences of note. Eighty-four rare, exemplary, or noteworthy features along the AT were field-verified. Fifty-six of these were newly discovered, including seven rare plant populations, 31 rare or exemplary natural communities, 15 communities of note, and three newly documented rare animal populations. Within the Trail's corridor there are five globally rare species, each known to have fewer than 100 populations worldwide. In addition, 92 of the features presently or historically occurring along the Trail are significant due to their state-wide rarity.

Of special note, the **yellow-nosed vole** (*Microtus chrotorrhinus*), also known as the **rock vole**, is extremely rare in North America. It has been collected in only six locations in Maine, four of which lie in or near the corridor on Katahdin, Bigelow, Sugarloaf, and Mt. Abraham. The arctic-alpine zone of Katahdin, through which the AT passes, is the only known location on earth for the **Katahdin butterfly** (*Oeneis polixenes katahdin*).

Maine Natural Area Program Rarity Ranks

Maine Ranks

These are determined by the Maine Natural Areas Program.

S1. Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2. Imperiled in Maine because of its 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)

SH. Occurred historically in Maine, and could be rediscovered; not known to have been extirpated

SU. Possibly in peril in Maine, but status uncertain; need more information

SX. Apparently extirpated in Maine (historically occurring species for which habitat no longer exists in Maine)

Global Ranks

These are determined by the Nature Conservancy, but follow the above criteria for state ranks (substituting "global" for "Maine").

Status Classifications for Plants and Animals

Maine law requires maintenance of an official list of "endangered" and "threatened" plant species. Endangered (E) species are represented in Maine by one recent (within the last 20 years) documented occurrence, or federally listed as Endangered. Threatened (T) species are represented in Maine by two to four documented occurrence, or federally listed as Threatened. Exceptions to these numbers are made for small populations, confined to a small geographic area, when the taxon is clearly and imminently jeopardized.

Maine law requires maintenance of an official list of "endangered" and "threatened" animal species. Endangered (E) species include any species of fish or wildlife that has been determined to be in danger of extinction throughout all or a significant portion of its range. Threatened (T) species include any species of fish or wildlife that is likely to become an Endangered Species within the foreseeable future throughout all or a significant portion of its range. Special Concern (SC) species include any species of fish or wildlife that does not meet the E or T criteria but is particularly

vulnerable and could easily become a Threatened, Endangered, or Extirpated Species due to restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors; or is a species suspected to be Endangered or Threatened, or likely to become so, but for which insufficient data are available. Extirpated (X) species include any species that was at one time indigenous to Maine but has not been documented as occurring in Maine for the past 50 years.

"Element occurrence ranks" consist of a single letter, assigned on the basis of field work by a knowledgeable individual, that provides a comparative evaluation summarizing 1) quality (how representative an occurrence is), 2) condition (degree of damage or alteration from an optimal condition), 3) viability (long-term prospects for continued existence), and 4) defensibility (extent to which occurrence can be protected from human factors that might degrade or destroy it). The ranks are A (excellent), B (good), C (marginal), D (poor), X (extirpated), H (historical), and E (extant).

Rare Species and Community Types Along the AT in Maine

The Maine Natural Areas Program study identified a number of rare community types (Table 1), rare plant types (Table 2), and rare animal species (Table 3) along the AT in Maine north of Grafton Notch. In each table, the MNAP element rank is shown after the community or species location. The study discovered a plant (*Pinguicula vilgaris* -- butterwort) entirely new to Maine and known in New England only from one location in Vermont and two in New Hampshire. The survey also re-discovered a rare rush (*Juncus vaseyi* -- Vasey's rush), documented in Maine only twice before, in 1882 and 1890. "The discovery of a small population at Little Wilson Falls was an entirely new record for this rush.) Finally, the shrubby, bog-like vegetation on the slopes of Crocker Mt., which resembles a dwarf shrub bog peatland community but also a cold-air talus slope community appears to be "unique or at least very uncommon."

The lists exclude communities and species in Baxter State Park. While many rare species occur in the Park, especially on Katahdin, habitat management lies entirely within the jurisdiction of the Park.

Table 1. Rare community types within the Appalachian Trail corridor in Maine

| Community Type | State Rank | Exemplary Sites |
|---|-------------------|---|
| Boreal circumneutral outcrop | S1 | West ravine, Sugarloaf Mt. (E) |
| Alpine ridge | S2 | Baldpate Mt. (E), Saddleback Mt. (A), Sugarloaf Mt., Mt. Bigelow(B), White Cap Mt., Katahdin |
| Tarn | S2 | Horns Pond on Bigelow Mt. (A) |
| Dwarf shrub bog/cold air talus woodland | S4/S2 | Crocker Mt. (AB) |
| Hardwood floodplain forest | S3 | W. Branch Piscataquis River (B), confluence of Pollywog Stream and Bean Brook (E) |
| Northern white cedar seepage forest | S3 | Pollywog Gorge (E) |
| Subalpine spruce-fir forest | S3 | Baldpate Mt. (BC), Elephant Mt. (E), Bemis Mt. (E), Poplar Ridge (E), Sugarloaf Mt. west ravine (E), Crocker Mt. (AB), Mt. Bigelow(A/B), Little Bigelow Mt. (AB), Columbus Mt. (E), White Cap Mt. (E), Katahdin |
| Spruce woodland | S3 | Potaywadjo Ridge (AB) |
| Krummholz | S3 | Saddleback Mt. (A), Sugarloaf Mt., Mt. Bigelow, White Cap Mt. (E), Katahdin |
| Dimictic oligotrophic lake | SU | Crawford Pond |

Table 2. Rare plant species documented within the Appalachian Trail corridor in Maine

| Scientific Name | Common Name | Rarity Rank | Habitat Category | Locations Found |
|----------------------------|---------------------|--------------------|-------------------------|---|
| <i>Agrostis mertensii</i> | Boreal bentgrass | S2 | Alpine | |
| <i>Carex atratiformis</i> | Black sedge | S2 | Boreal circumneutral | West Sugarloaf Mt. (BC) |
| <i>Carex bigelowii</i> | Bigelow's sedge | S2 | Alpine | Baldpate Mt. (E), Saddleback Mt. (A), Mt. Bigelow (E) |
| <i>Carex scirpoidea</i> | Bulrush sedge | S1 | Boreal circumneutral | West Sugarloaf Mt. (A) |
| <i>Diapensia lapponica</i> | Lapland Diapensia | S2 | Alpine | Baldpate Mt. (E), Saddleback Mt. (A), Mt. Bigelow (E) |
| <i>Dryopteris fragrans</i> | Fragrant cliff-fern | S3 | Gorges/cliffs | Dunn Falls (H), Gulf Hags (H), Pollywog Gorge (AB) |

Table 2. (Continued)

| | | | | |
|---------------------------------|--------------------------|---------|----------------------|--|
| <i>Geocaulon lividum</i> | Northern comandra | S2 | Subalpine | Saddleback Mt. (E) |
| <i>Hierochloe alpina</i> | Alpine sweet-grass | S1 | Alpine | Saddleback Mt. (A), Bigelow Mt. (E) |
| <i>Huperzia appalachiana</i> | Appalachian fir-clubmoss | G3/S2 | Alpine | West Sugarloaf Mt. (AB) |
| <i>Juncus vaseyi</i> | Vasey's rush | G3G5/S1 | Aquatic | Little Wilson Falls (E) |
| <i>Minuartia glabra</i> | Smooth sandwort | S1S2 | Subalpine | Moxie Bald Mt. (E) |
| <i>Minuartia groenlandica</i> | Mountain sandwort | S3 | Alpine/Subalpine | Baldpate Mt. (E), Saddleback Mt. (A), Mt. Bigelow (E) |
| <i>Paronychia argyrocoma</i> | Silverling | S1S2 | Subalpine | |
| <i>Pinguicula vulgaris</i> | Butterwort | S1 | Boreal circumneutral | West Sugarloaf Mt. (A) |
| <i>Potamogeton confervoides</i> | Alga-like pondwood | G3G4/S2 | Aquatic | Mt. Bigelow (E) |
| <i>Prenanthes bootii</i> | Boott's rattlesnake root | G2/S1 | Alpine | Mt. Bigelow (C) |
| <i>Prenanthes nana</i> | Dwarf rattlesnake root | S1 | Alpine | Mt. Bigelow (H) |
| <i>Schistostega pennata</i> | Luminous moss | | | Pollywog Gorge |
| <i>Solidago multiradiata</i> | Cutler's goldenrod | S1S2 | Alpine | Baldpate (X) |
| <i>Vaccinium boreale</i> | Northern blueberry | G3/S1 | Alpine | Saddleback Mt. (A), Mt. Bigelow (H) |
| <i>Vahioidea atropurpurea</i> | Mountain hairgrass | SH | Alpine | Mt. Bigelow (H) |
| <i>Viburnum edule</i> | Squashberry | S2 | Subalpine | Black Brook Notch (H), Saddleback Mt. (E), West Sugarloaf Mt. (A), Mt. Bigelow (E) |

Table 3. Rare animal species within the Appalachian Trail corridor in Maine

| Scientific Name | Common Name | Rarity Rank | Location(s)* |
|-----------------------------------|-------------------------------------|--------------------|------------------------|
| <i>Microtus chrotorrhinus</i> | Yellow-nosed vole | S3 | West Sugarloaf Mt. (H) |
| <i>Aquila chrysaetos</i> | Golden Eagle | S1 | Mt. Bigelow |
| <i>Catharus bicknelli</i> | Bicknell's thrush | G3G4/S? | Mt. Bigelow (E) |
| <i>Falco columbarius</i> | Merlin | S2 | Mt. Bigelow (E) |
| <i>Falco peregrinus</i> | Peregrine Falcon | S1 | Mt. Bigelow (E) |
| <i>Microtus chrotorrhinus</i> | Yellow-nosed vole | S3 | Mt. Bigelow |
| <i>Salvelinus alpinus oquassa</i> | Arctic char (a.k.a. blueback trout) | S2 | Bald Mt. Pond (A) |
| <i>Salvelinus alpinus oquassa</i> | Arctic char (a.k.a. blueback trout) | S2 | Rainbow Lake (E) |