

I. NATURAL RESOURCES

1. Introduction

A comprehensive plan should provide an overview of a town's natural resources. These resources are important to the town in several ways. First, they provide critical wildlife and fisheries habitats. Second, inappropriate development in environmentally fragile areas could be costly to the entire town. For example, disruption of natural drainage patterns could increase the chances of flooding. Finally, these resources are an essential part of the town's rural character and help sustain Orland's quality of life.

Specifically, this chapter will:

- a. describe Orland's critical natural and scenic resources;
- b. predict whether these resources will be threatened by the impacts of future growth and development; and
- c. assess the effectiveness of existing efforts to protect and preserve these resources.

2. Key Findings and Issues

Orland has one bald eagle nest site, according to state records, and one of the few known locations in Maine for the ram's-head lady slipper plant, a member of the orchid family. There are also several high value waterfowl and wading bird habitats in town. Game species such as deer, black bear, and moose can be found in upland areas. Orland's varied landscape of lakes, river valleys, and ridges means that there are many scenic views. While there are no immediate threats to Orland's natural resources, there are also few measures in place to protect these resources over the long run.

3. Public Opinion Survey and Community Workshop Results

About 71 percent of survey respondents said that they favored measures to protect open space and wildlife habitat. Sixty-two percent supported the protection of scenic views. Participants in the first citizen workshop identified several natural resources as "community assets." These included Great Pond Mountain, fisheries and wildlife resources and black flies.

4. A Summary of Critical Natural Resources

Orland's major natural resources are discussed below. There is also further discussion of marine-related resources in the *Marine Resource* chapter and of farm and forest land in the *Agricultural and Forest Resources* chapter.

a. Wetlands

Wetlands are one of the most critical natural resources. They often serve as aquifer recharge areas, allowing underground water supplies to be recharged. They are also critical wildlife and bird habitats. Wetlands are an important part of nature's drainage system since they hold storm water. Areas that have experienced extensive filling of wetlands often face increased flooding problems. Wetlands are also important as breeding areas for waterfowl and habitat for other wildlife.

The two largest wetlands in town are Hell Bottom Swamp and the one between Dead River and Hothole Pond. Other wetlands in town are located to the southeast of Hothole Pond along Hothole Brook, at the headwaters of Meadow Brook in southeast section of town, and to the south east of Rocky Pond (see Map 3). There are also several other small, isolated wetlands.

b. Wildlife Habitats

According to Maine Department of Inland Fisheries and Wildlife (MDIFW) records, the only known bald eagle nesting site in Orland is on Eastern Channel Point (see Map 3). The MDIFW rates this site as "essential habitat," a term used to define areas that provide physical or biological features essential to the conservation of an endangered or threatened species in Maine.

State regulations require that any project that is wholly or partly within an essential habitat and is permitted, licensed, funded, or carried out by a state agency or municipal government be approved by the MDIFW. Examples of projects requiring MDIFW review and approval include: subdivision of land, construction or alteration of buildings, mineral extraction, forest management, and installation of docks and aquaculture facilities.

According to state records, there are no MDIFW-recognized significant wildlife habitats in Orland. This term refers to habitats protected by the Natural Resource Protection Act (NRPA, 38 MRSA 480-A-S). Orland, however, has several waterfowl and wading bird habitats and one shorebird nesting, feeding, and staging area (see Table I.1). The NRPA requires that permits be granted for construction, dredging, and related activities in these areas that have "high" and "moderate" ratings. The MDIFW urges towns to contact their regional wildlife biologist for assistance if a development application is proposed in or near these sites.

Table I.1 Waterfowl and Wading Bird Habitat, Including Nesting & Feeding Areas		
Location	MDIFW ID#	Rating
East Branch Meadow Brook	050224	High
Jesse Bog	050233	Moderate
Hothole Stream & Pond	050228	High
Hothole Brook	050229	Moderate
Atkinson Brook Pond	050259	Moderate
Shorebird Nesting, Feeding & Staging Areas		
Location	MDIFW ID#	Rating
Orland River	465, 467	not rated
Source: MDIFW: Conservation of Inland Fisheries and Wildlife Habitat		

MDIFW records also show two Class "A" Coastal Wildlife Concentration Areas (CWCA). Class "A" habitats are those that, while not directly regulated by the state, are important because of the "very high" abundance and diversity of wildlife they support and their state or national importance to rare species. The two areas in Orland are the Orland River and Upper Eastern Channel (see Map 3). There is also one Class "C" area on the Lower Eastern Channel. Such areas are ranked by the MDIFW as important on a local level. They have a "moderate" species abundance or diversity.

The MDIFW has an inventory of "areas of special concern" for local wildlife. While not subject to direct legal protection, they are important to local wildlife. The only identified area in Orland, however, is an historic bald eagle nest site on Great Pond mountain. There are no state-recognized bald eagle feeding or wintering areas, historic peregrine falcon nest sites, or seal haul-out areas in Orland. Nor have any other "areas of special concern" or deer wintering areas been identified. Orland thus has relatively few rare wildlife areas that have been recognized by the MDIFW.

There are, however, many other species in town. For example, there are beaver and muskrat in the town's wetlands. Birds found along the tidal flats in winter include Bufflehead, Goldeneye, Black Duck, and Scaup. There are deer, black bear, and an occasional moose in upland areas. There are also small game such as ruffed grouse, pheasant, woodchuck, hare, and squirrel.

There has been an increase in the coyote population in recent years. While no firm numbers are available, many coyotes have been observed (and heard) by local residents. Some residents have expressed concern due to predation of domestic pets such as cats.

c. Fishery Resources

The Verona Channel of the Penobscot River and the Orland River are major fish runs for species such as salmon, alewives, smelts, striped bass, and eels. There is also an abundant fish population of both warm and cold water species in the lakes and streams of the town.

Craig and Heart Ponds are used extensively for bait fishing. There is some concern over the long term effects this may have on health of these lakes. Other residents have expressed interest in improving the overall health of the town's fishery resources.

An analysis by the Maine Department of Inland Fisheries and Wildlife (MDIFW) indicates that Orland has several high value fisheries habitats. The department rates Craig Pond as an "extremely high" value habitat providing sport fisheries for wild togue and smelt. Hothole, Toddy and Heart Ponds are rated as "high value" as is Alamoosook Lake. Fish in these ponds include smallmouth bass, white perch pickerel and wild brown trout.

The MDIFW has also rated major brooks and streams for their wildlife values. Winkumpaugh Brook has an extremely high rating due to its abundant population of wild juvenile brown trout and lesser numbers of brook trout and salmon. It supports one of the highest densities of brown trout in the region.

Gulch Brook is a high value habitat supporting numerous juvenile wild brown and brook trout. The MDIFW maintains that it has one of the highest densities of brown trout in the region. Thompson Brook is a high value habitat supporting an abundant population of juvenile brook trout along with some brown trout.

d. Rare Plants and Natural Areas

Under the Natural Areas Program, the state Department of Conservation's Natural Resources Information and Mapping Center maintains records of rare plants and other natural features of special concern. Two plants were listed for Orland as of 1996. These are ram's-head lady's slipper (*Cypripedium arietinum*) and smooth sandwort (*Minuartia glabra*).

The ram's-head lady's slipper has a S-1 and G-3 ranking under the Maine Natural Areas Program criteria. S-1 refers to species that are critically imperilled in Maine because of five or fewer occurrences or because some aspect of its biology makes it especially vulnerable. The G-3 rating refers to its status throughout its entire range. This ranking means that the species is rare globally with between 20 and 100 occurrences. It is listed as a threatened species in Maine, but is not considered threatened nationally.

The ram's-head lady's slipper is the smallest and rarest Lady Slipper growing in Maine. They are typically found in damp woods and bogs and have a range from southeastern Canada south to New England and west to Minnesota. They are a member of the Orchid family and produce flowers from late May to early June.

The smooth sandwort has a S-1-S-2 rating. This rating refers to the fact that while there are ten historic sites for this plant in Maine, it is not certain that plants are still at all of these sites since survey data pre-date 1977. It is thus possible that this plant is critically imperilled in Maine. The plant also has a G-4 rating, which means that is apparently secure throughout its entire range. Its primary habitat is granitic ledges in open areas.

The exact location of these plants is kept confidential, but information can be obtained from the Department of Conservation. If the planning board believes that a rare plant might be threatened by a proposed development, it can send a map of the area to the department. It could also have the applicant hire a botanist to do a survey of the area.

Since there is no record of a systematic inventory having been conducted of the town's natural features, it is possible that there are some environmentally valuable areas that have not been identified. Such an inventory could be conducted by interested citizens under the guidance of the Natural Areas Program.

5. Scenic Resources

Orland has many scenic views. The combination hills, lakes, river valleys and blueberry fields assures a rich variety of views. Such views are an integral part of the town's rural character. Table I.2 lists some of the key views in town. Since this list is based on an informal discussion rather than a detailed inventory, it should be seen as merely representative.

Table I.2 Summary of Scenic Views	
Number	Description
1	View of Orland village church from intersection of Route 176 and Gray Meadow Road.
2	Upper Falls Road toward Front Ridge (Route 15)
3	Route 1 by Toddy Pond Bridge toward Mason Mountain
4	Narramistic Ridge on Route 1
5	East on Route 1 toward Toddy Pond
6	Great Pond Mountain
Source: Orland Comprehensive Plan Committee	

6. Assessment of Threats to Orland's Natural and Scenic Resources

While there are no immediate threats to Orland's natural and scenic resources, there is the risk of longer-term damage through future development. This is particularly the case in those areas not protected by shoreland zoning or by state essential habitat designation. A poorly planned subdivision development could disrupt views from an adjoining property or disrupt an important wildlife area.

7. Assessment of Existing Efforts to Protect and Preserve Orland's Natural and Scenic Resources

Orland's shoreland zoning ordinance meets all state requirements. This means that some protection is offered to resources along the shore. There is, however, only incidental protection to resources outside of the shoreland zone since there is no town-wide zoning. The town may want to consider other measures to protect natural resources if it enacts town-wide zoning. These could include larger minimum lot sizes and stricter setback standards in areas where high-value natural resources are present.

Greater protection would also be possible through revisions to the subdivision ordinance. These could involve creative lot-layout schemes such as clustering. Often, it is possible to make minor changes in the location of lots in a subdivision to minimize the disruption or views from a neighboring property or public road.

The Great Pond Mountain Trust and other land conservation groups have placed some parcels under conservation easement. This is discussed further in the *Existing Land Use* chapter. Such easements are a way for landowners to voluntarily protect their property from types of development that might threaten natural resources.

8. Regional Issues

Many of Orland's natural resources cross town boundaries. For example, the Route 15 corridor between Blue Hill and Orland has many scenic views and valuable agricultural land (see the *Agricultural and Forest Resources* chapter). A multi-town approach to protecting such resources could be considered.

The town also may want to solicit comments from adjoining towns if there were a major subdivision or other land development activity adjacent to the town line that could affect a rare natural resource. Similarly, the planning board could ask for an opportunity to comment on major development proposals in adjoining towns. This would give both towns an opportunity for a more thorough assessment of potentially adverse environmental impacts on natural resources.