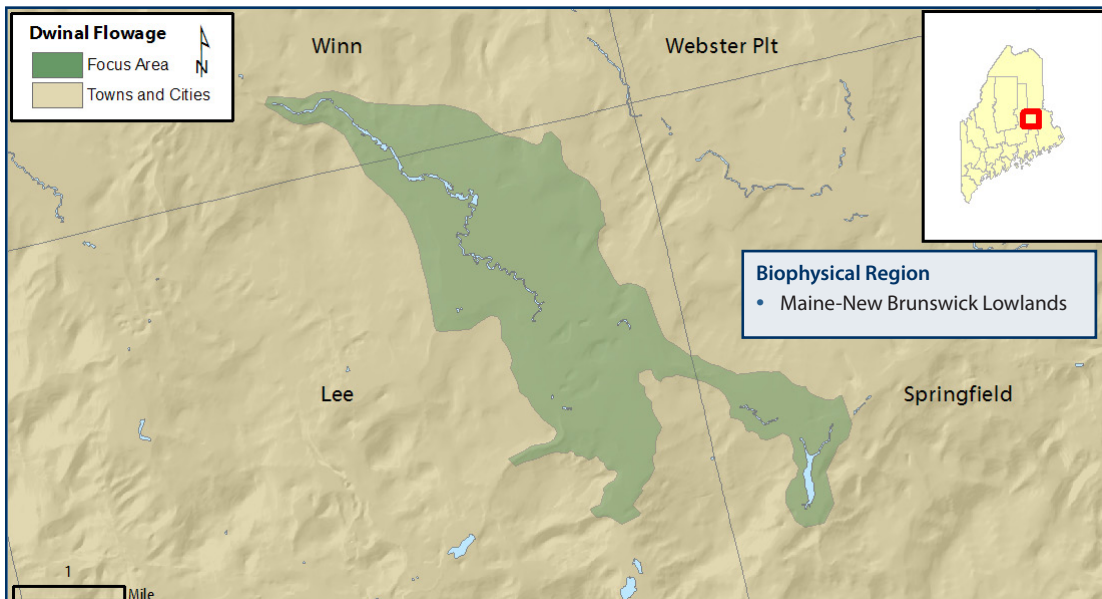
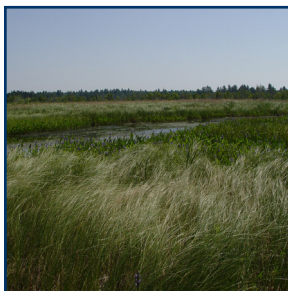


**Dwinal Flowage**



**WHY IS THIS AREA SIGNIFICANT?**

The Dwinal Flowage Focus Area includes an extensive Unpatterned Fen Ecosystem occurring in a broad level basin along the Mattakeunk Stream drainage. While the size of this focus area is not as extensive as other focus areas in this part of the state, the relatively dense concentration of rare plants and animals in a high quality wetland complex make it deserving of conservation attention.

**OPPORTUNITIES FOR CONSERVATION**

- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.
- » Maintain intact forested buffers along water bodies and wetlands.
- » Maintain natural hydrologic regime by avoiding drainage or impoundment of the wetlands, streams or adjacent water bodies.
- » Protect sensitive natural features through careful management planning on conserved lands.
- » Work with landowners to encourage sustainable forest management practices on remaining privately owned forest lands in and around the focus area.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: [www.beginning-withhabitat.org/toolbox/about\\_toolbox.html](http://www.beginning-withhabitat.org/toolbox/about_toolbox.html).

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

**Rare Animals**

- Brook Floater
- Sedge Wren
- Clayton's Copper

**Rare Plants**

- Northern Bog Sedge
- Orono Sedge
- Sparse-flowered Sedge
- Showy Lady's-slipper
- Swamp Fly-honeysuckle
- Small Yellow Water Crowfoot

**Rare and Exemplary Natural Communities**

- Tall Sedge Fen
- Northern White Cedar Swamp
- Open Cedar Fen
- Dwarf Shrub Bog
- Circumneutral Fen
- Unpatterned Fen Ecosystem

**Significant Wildlife Habitats**

- Inland Wading Bird and Waterfowl
- Deer Wintering Area

**Public Access Opportunities**

- Dwinal Pond Wildlife Management Area, MDIFW



Dwinal Pond Sedge Meadow, Maine Natural Areas Program

## FOCUS AREA OVERVIEW

The Dwinal Flowage Focus Area encompasses the extensive wetlands and adjacent uplands along Gott Brook, Mattakeunk Stream and Dwinal Pond. With close to 1600 acres of mapped Waterfowl and Wading Bird Habitat, six documented rare plant species, six rare or significant natural communities, and three rare animal populations, the Dwinal Flowage Focus Area represents an area of rich biological diversity. Much of the focus area is owned by the state of Maine and managed by the Maine Department of Inland Fisheries and Wildlife as the Dwinal Flowage (David Priest) Wildlife Management Area.

## RARE PLANTS AND RARE AND EXEMPLARY NATURAL COMMUNITIES

The focus area includes an extensive **Unpatterned Fen Ecosystem** occurring in a broad level basin along the Mattakeunk Stream drainage. The upstream end of the ecosystem (south end) includes areas upstream of the confluence of Gott Brook and Mattakeunk Stream. The south and southeast parts of the ecosystem include areas of **Northern White Cedar Swamp** and **Northern White Cedar Woodland Fen** along with some small scattered forested upland ridges. Further to the north the ecosystem becomes more open and includes large areas of

**Mixed Tall Sedge Fen, Shrubby Cinquefoil - Sedge Circumneutral Fen, Sheep Laurel - Dwarf Shrub Bog**, and submerged aquatic beds.

Calcareous bedrock in the region is the source for high-pH groundwater that feeds several rare and significant plant habitats. An excellent example of a **Northern White Cedar Swamp**, located along Gott Brook, provides ideal habitat for the rare **swamp-fly honeysuckle** (*Lonicera oblongifolia*), which only grows in slightly rich conditions. Another high quality **Northern White Cedar Woodland Fen** and the rare **Shrubby Cinquefoil-Sedge Circumneutral Fen** natural community are also found within the larger fen ecosystem. These calcareous fens provide ideal habitat for rare plants that are restricted to calcareous peatlands such as this, including the **showy lady's slipper** (*Cyperipedium reginae*) and **sparse-flowered sedge** (*Carex tenuiflora*).

As the trees diminish in stature and eventually drop out almost completely, the transition zone gives way to a large open **Shrubby Cinquefoil - Sedge Circumneutral Fen**, with abundant clumps of the characteristic shrubby cinquefoil (*Pentaphylloides floribunda*). The Shrubby Cinquefoil - Sedge

Circumneutral Fen on the west side of the stream is a somewhat unusual variant of this community type for Maine. The species composition of this fen has significant amounts of both common cat-tail (*Typha latifolia*) and river horsetail (*Equisetum fluviatile*), and has numerous small shallow pools. The nearby **Sheep Laurel - Dwarf Shrub Bog** is also somewhat unusual for its type with larch (*Larix laricina*) and bog rosemary (*Andromeda polifolia*) being the most common species in their respective layers rather than the characteristic sheep laurel (*Kalmia angustifolia*) and black spruce (*Picea mariana*).

The site is relatively large and some areas are yet to be surveyed. Because the site supports a number of rare plants associated with higher pH soil conditions, it is possible that additional features will be discovered.

### CHARACTERISTIC ANIMAL SPECIES

The diversity of wetlands in the Dwinal Flowage Focus Area provides an abundance of **inland waterfowl and wading bird habitat**. Over four miles of habitat is mapped along either side of Mattakeunk Stream, spreading out over the Unpatterned Fen Ecosystem.

The southern half of this area supports another Significant Wildlife Habitat, about 900 acres of mapped, **Deer Wintering Area** occurs within this focus area. These areas are essential to deer during moderate to severe winter conditions.

A significant feature of the fen at Dwinal Flowage is a population of the endangered **Clayton's copper butterfly** (*Lycæna dorcas claytoni*). Biologists started formally tracking the population here in the late 1980's, and since then have identified the Dwinal Flowage population as the largest and best occurrence in the state. Clayton's copper is found only in association with its sole larval host plant, the shrubby cinquefoil (*Pentaphylloides fruticosa*). This uncommon shrub requires limestone soils and has a scattered distribution throughout Maine. Although not considered rare, there are relatively few cinquefoil stands large enough to support viable Clayton's copper populations. Clayton's copper is currently known from only eleven sites worldwide - nine in Maine centered in and around northeastern Penobscot county and two sites just over the border in New Brunswick. With the majority of the population located in Maine, the state has an important role in conserving this rare species.

Another endangered species, the **sedge wren** (*Cistothorus platensis*) also breeds in this fen. The northeastern limit of the sedge wren's range is in Maine. Sedge wrens breed in freshwater meadows dominated by grasses and sedges, and in grassy, upland borders of freshwater marshes dominated by sedges. Because of wetland loss, reforestation of farmlands, and a shift to high-intensity agriculture, sedge wren populations have declined throughout the region. The sedge wren is listed as endangered in Maine because of low population size, a declining population trend, and a population distributed across a

### Ecological Services of the Focus Area

- Provides high quality habitat for waterfowl, wading birds, deer, moose, and other wildlife.
- Supports regional biodiversity by providing habitat for rare plants, animals, and natural communities.
- Retains floodwaters.

### Economic Contributions of the Focus Area

- Recharges groundwater.
- Provides wildlife habitat for a number of game species that are seasonally important to Maine's rural economy.
- Provides an location for outdoor recreation.

small number of sites. It is also listed as a species of management concern by the U.S. Fish and Wildlife Service. Conservation of potential breeding habitat is essential to the recovery of this species.

The **brook floater** (*Alasmidonta varicosa*), a threatened mussel, has been documented in the Dwinal Flowage downstream from the circumneutral fen. Brook floater mussels have experienced significant declines throughout their range, with many populations being extirpated. Even where it is found, the population often consists of just a small number of individuals. Maine has more populations of this rare species than the remainder of the Northeast combined and is, therefore, important for this species' conservation.

### CONSERVATION CONSIDERATIONS

- » The integrity of wetlands and the processes and life forms they support including rare plants and animals are dependent on the maintenance of the current hydrology and water quality of the site. Intensive timber harvesting, vegetation clearing, soil disturbance, new roads, and development on buffering uplands can result in greater runoff, sedimentation, and other non-point sources of pollution that can degrade the high quality natural systems that occur here.
- » In general, threats to peatlands include peat mining, cranberry harvesting, timber harvest around the forest perimeters, and development.
- » Freshwater mussels are sensitive to contaminants and changes in habitat. Maintenance and/or improvement of water quality and habitat integrity via protection of riparian buffers is essential. Any activities that may potentially degrade water quality or negatively alter habitat type (including substrate, flow rate, water levels) should be avoided. A minimum of 250-foot contiguous, forested buffer is recommended on waterways that provide habitat for rare, threat-

ened, and endangered mussel species. Likewise, because larval freshwater mussels require a specific fish host, activities that may result in changes to the fish community or prevent access by fish should be avoided. When designing projects near known mussel habitat consult with a MDIFW biologist to assist with planning, and refer to the Maine Forest Service's forestry Best Management Practices handbook or the Maine Department of Environmental Protection's Maine Erosion and Sediment Control Recommendations.

- » 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. Conserving the larger systems will help ensure that both common and rare natural features will persist on the landscape in this part of the state.
- » The wetland systems in this focus area will benefit from establishing and/or maintaining upland buffers around their perimeter wherever possible. A buffer of 250 feet or more will serve to limit impacts from adjacent development, help prevent erosion, limit colonization by invasive species, provide habitat for wildlife species, and prevent potential impacts from off road vehicle use.
- » 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.

- » Invasive plants and aquatic organisms have become an increasing problem in Maine and a threat to the state's natural communities. Disturbances to soils and natural vegetation and introductions of non-native species to terrestrial and aquatic habitats can create opportunities for colonization. Landowners and local conservation groups should be made aware of the potential threat of invasive species, of methods to limit establishment, and/or of appropriate techniques for removal. For more information on invasive plants visit: <http://www.maine.gov/doc/nrimc/mnap/features/invasives.htm>.
- » This area includes Significant Wildlife Habitat. Land managers should follow best management practices with respect to forestry activities in and around wetlands, shoreland areas, and Significant Wildlife Habitat. Vegetation removal, soil disturbance and construction activities may require a permit under the Natural Resources Protection Act. Contact the Maine Department of Inland Fisheries and Wildlife (MDIFW) for more information. Towns should also strive to protect inland waterfowl and wading bird habitat (IWWH) and deer wintering areas identified by MDIFW in low density, rural settings by identifying IWWH and DWA areas in comprehensive plans and zoning accordingly.



*Dwinal Pond Stream, Maine Natural Areas Program*

For more information about Focus Areas of Statewide Ecological Significance, including a list of Focus Areas and an explanation of selection criteria, visit [www.beginningwithhabitat.org](http://www.beginningwithhabitat.org)

**RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA**

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Brook Floater	<i>Alasmidonta varicosa</i>	SC	S3	G3
	Sedge Wren	<i>Cistothorus platensis</i>	E	S1B	G5
	Clayton's Copper	<i>Lycaena dorcas claytoni</i>	E	S1	G5T1
Plants	Northern Bog Sedge	<i>Carex gynocrates</i>	SC	S2	G5
	Orono Sedge	<i>Carex oronensis</i>	T	S3	G3
	Sparse-flowered Sedge	<i>Carex tenuiflora</i>	SC	S3	G5
	Showy Lady's-slipper	<i>Cypripedium reginae</i>	T	S3	G4
	Swamp Fly-honeysuckle	<i>Lonicera oblongifolia</i>	SC	S3	G4
	Small Yellow Water Crowfoot	<i>Ranunculus gmelinii</i> var. <i>purshii</i>	T	S2	G5T5
	Tall Sedge Fen	Mixed tall sedge fen		S4	G4G5
Natural Communities	Northern White Cedar Swamp	Northern white cedar swamp		S4	GNR
	Open Cedar Fen	Northern white cedar woodland fen		S4	GNR
	Dwarf Shrub Bog	Sheep laurel dwarf shrub bog		S4	G5
	Circumneutral Fen	Shrubby cinquefoil - sedge circumneutral fen		S2	G2G3
	Unpatterned Fen Ecosystem	Unpatterned fen ecosystem		S4	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) or because some aspect of its biology makes it especially vulnerable to extirpation.
- 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.