

An aerial photograph showing a winding river flowing through a vast, green landscape. The river meanders through a mix of open meadows and dense, dark green forests. In the background, rolling hills are visible under a clear sky. The overall scene is a natural, scenic view of a wildlife refuge area.

**Sunkhaze Meadows
National Wildlife Refuge
and
Carlton Pond Waterfowl
Production Area**



Department of the Interior

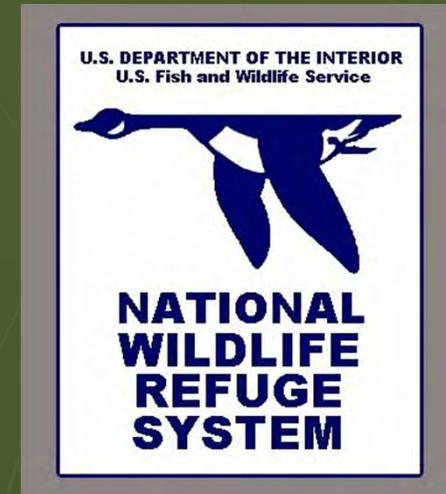


U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service is the principle federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people.

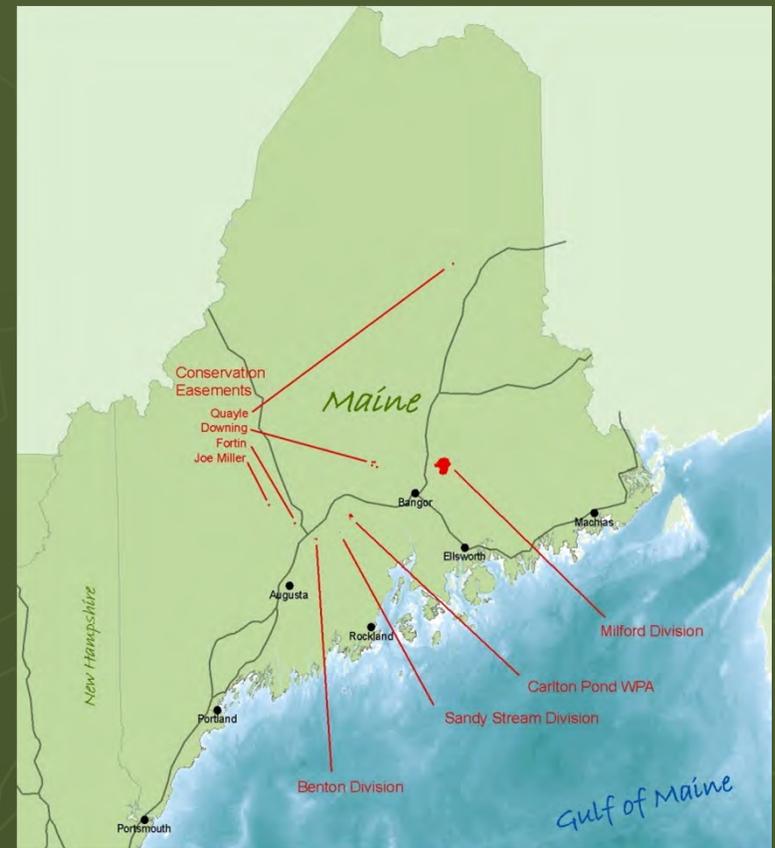
National Wildlife Refuges

- Migratory species
- Endangered species
- Habitat management
- Wildlife-oriented recreation
 - observation, photography, fishing, and hunting
- Public outreach
 - environmental education & interpretation

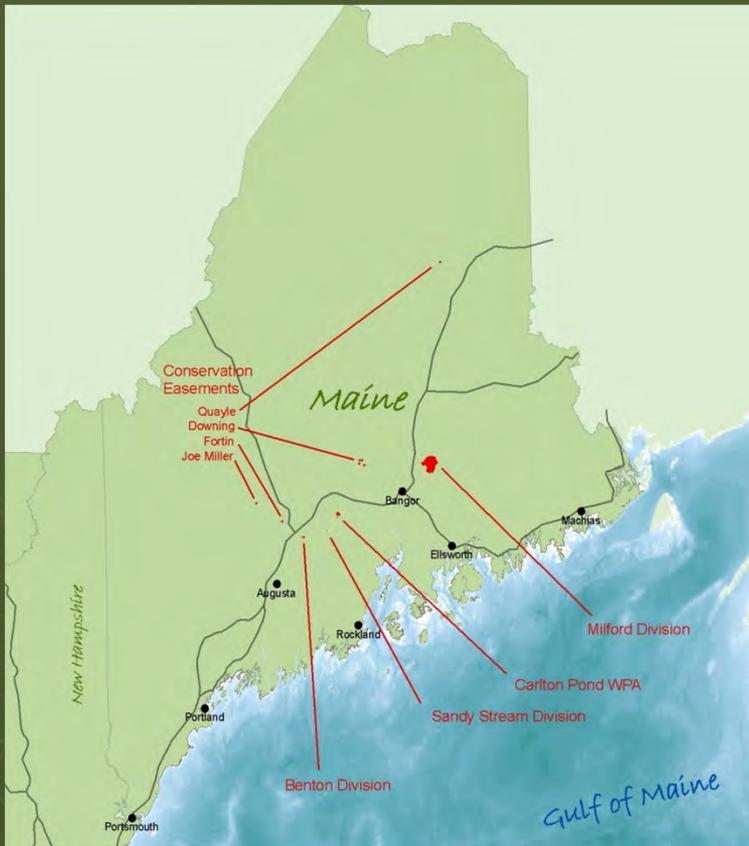


Background

- Refuge unit locations and descriptions
- Habitats and wildlife
- Public use
- Current management
- Other issues

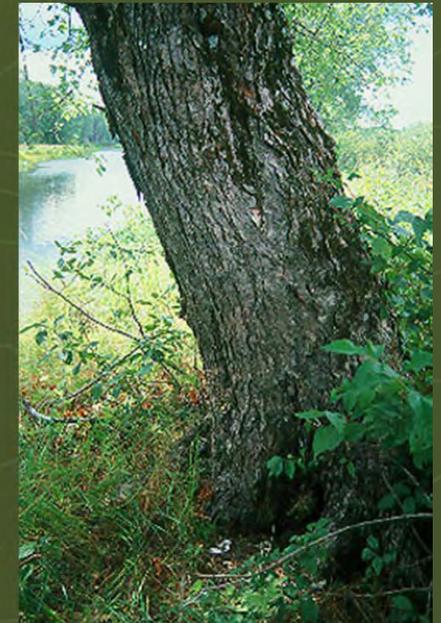


Unit Locations and Acreage Figures



Unit	Acres	Location
Sunkhaze Meadows Unit	11,485	Milford Penobscot Co.
Carlton Pond WPA	1,033	Troy Waldo Co.
Sandy Stream Unit	58	Unity Waldo Co.
Benton Unit	334	Benton Kennebec Co.

Habitats

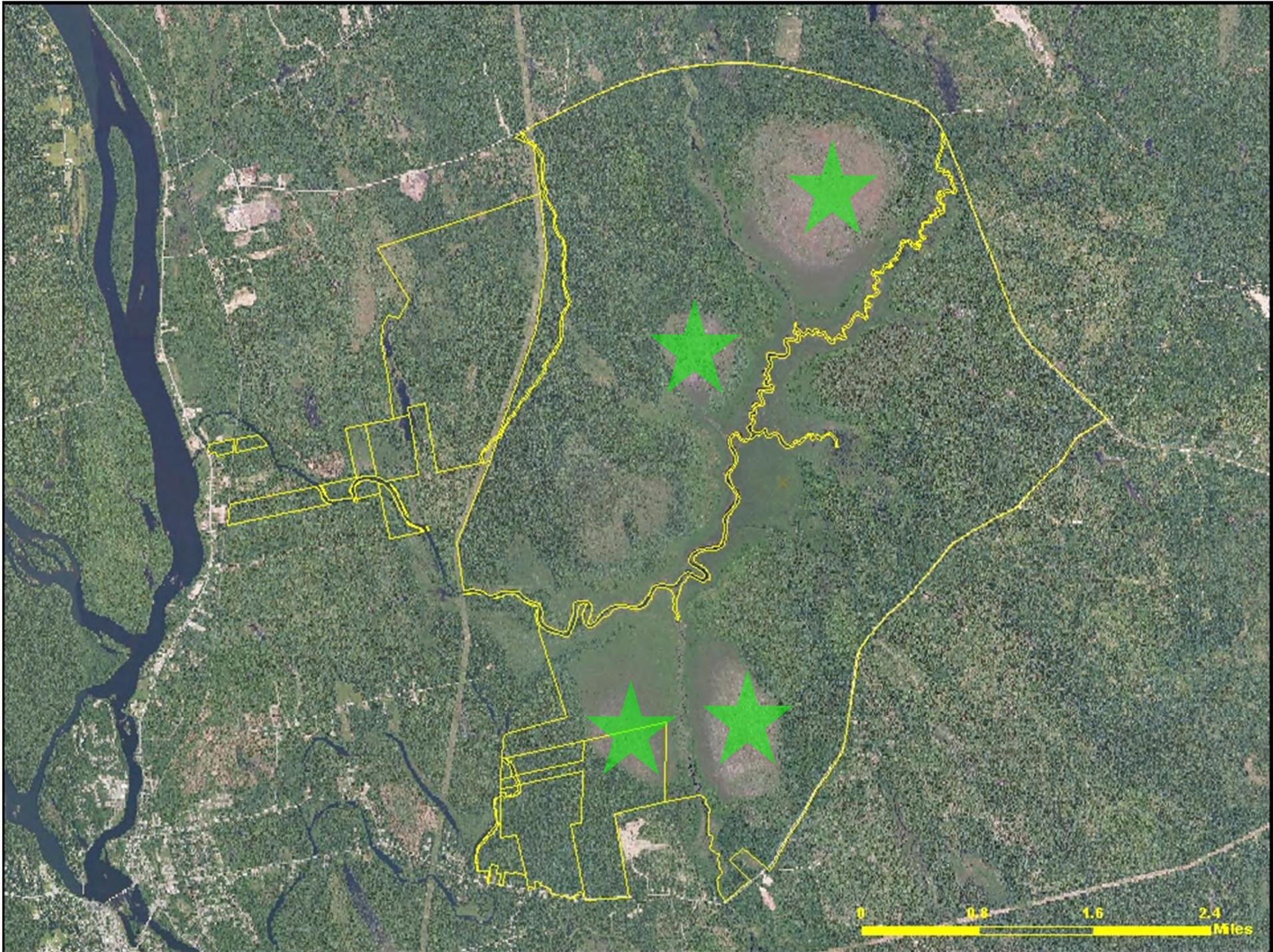


Vegetation Classification

- Aerial Photograph
- National Vegetation Classification System (NVCS)







Sunkhaze Peat

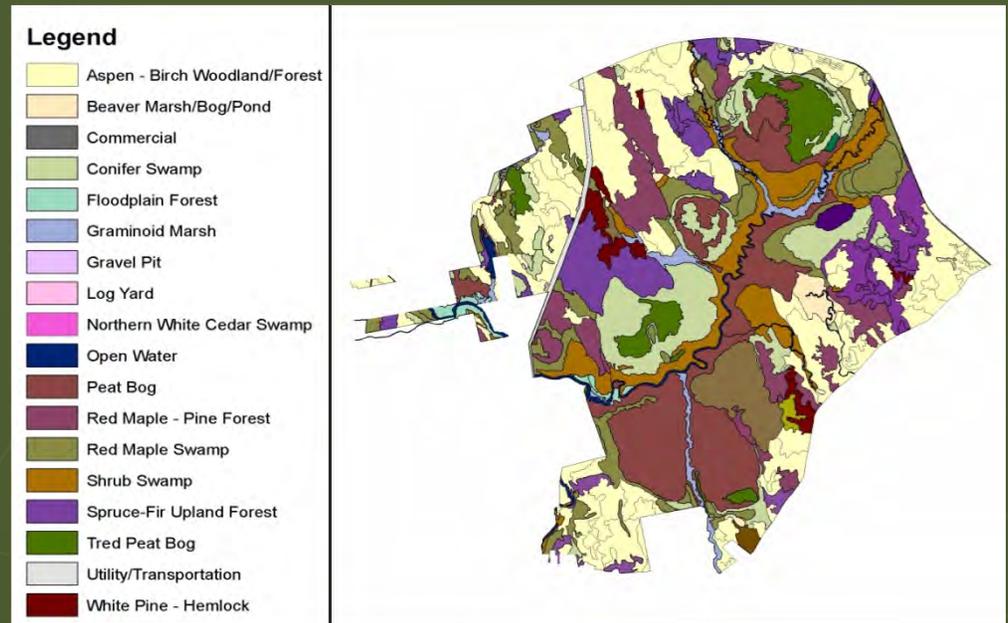
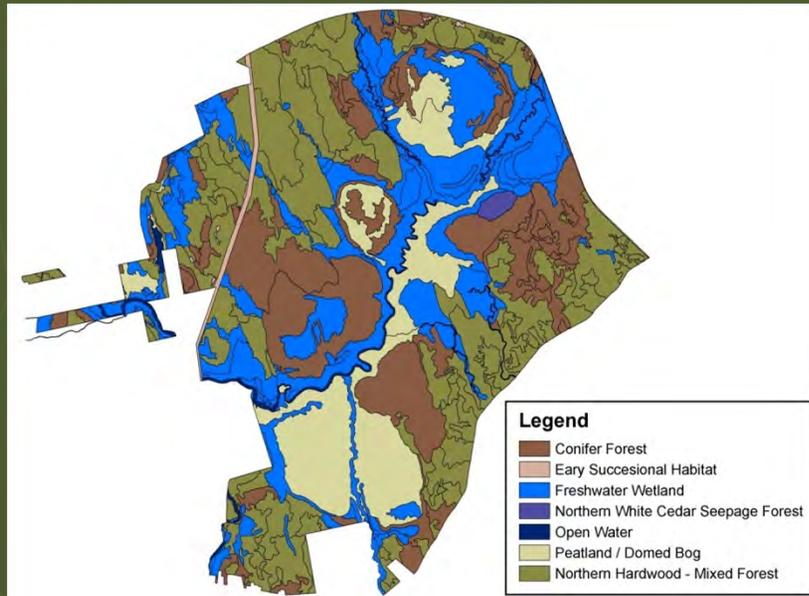
- 3,301 ac commercial quality peat
 - 661 ac = 15 ft thick
 - 785 ac = 13 ft thick
 - 1,115 ac = 10 ft thick



tao-dnd.blogspot.com



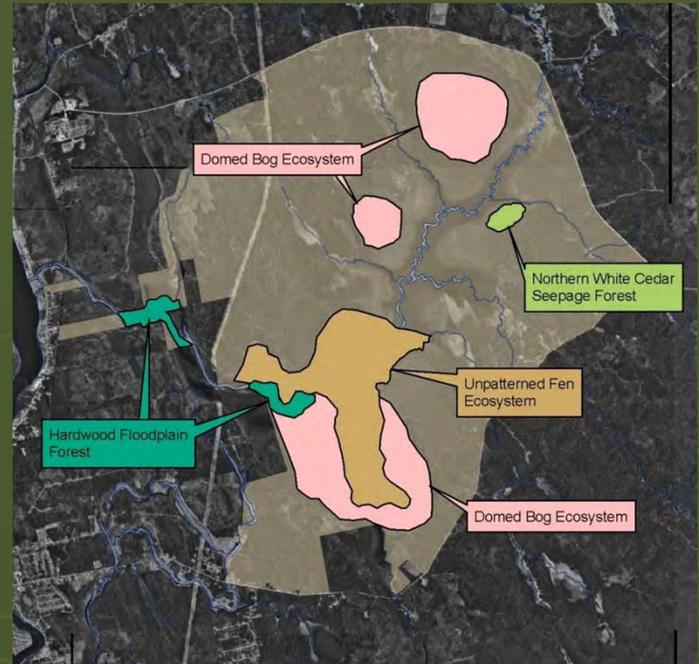
Farrell Grenan/Photo Researchers, Inc.



Sunkhaze Meadows Unit habitat cover types

Cover Type	Acres (GIS)	Percent (%)
Conifer Forest	2,298	20
Early Successional Habitat	117	<1
Freshwater Wetlands and Swamps	4,785	42
Northern White Cedar Woodland Fen	391	1
Open Water	157	<1
Peatland / Domed Bog	1,208	11
Northern Hardwood – Mixed Forest	2,828	25
Total		100

Rare Plants and Plant Communities



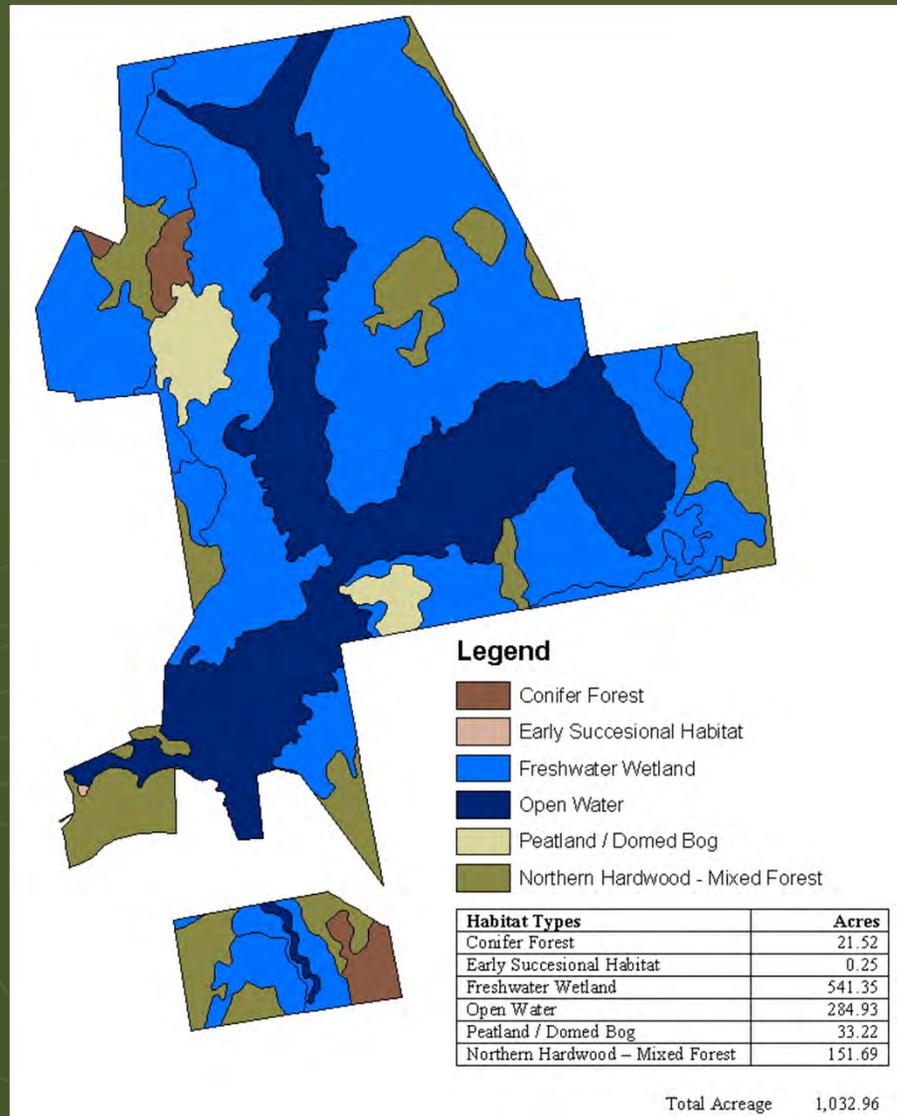
Rare Plants of Sunhaze Meadows NWR

Location	Common Name	Scientific Name	State Listing	State / Global Rarity Rank ^B
Sunhaze Unit	Bog bedstraw	<i>Galium labradoricum</i>	species of concern	S2? / G5
Sunhaze Unit	Showy lady's-slipper	<i>Cypripedium reginae</i>	threatened	S3 / G4
Sunhaze Unit	Slender blue flag	<i>Iris prismatica</i>	threatened	S2 / G4G5
Sunhaze Unit	Wild garlic	<i>Allium canadense</i>	species of concern	S2 / G5

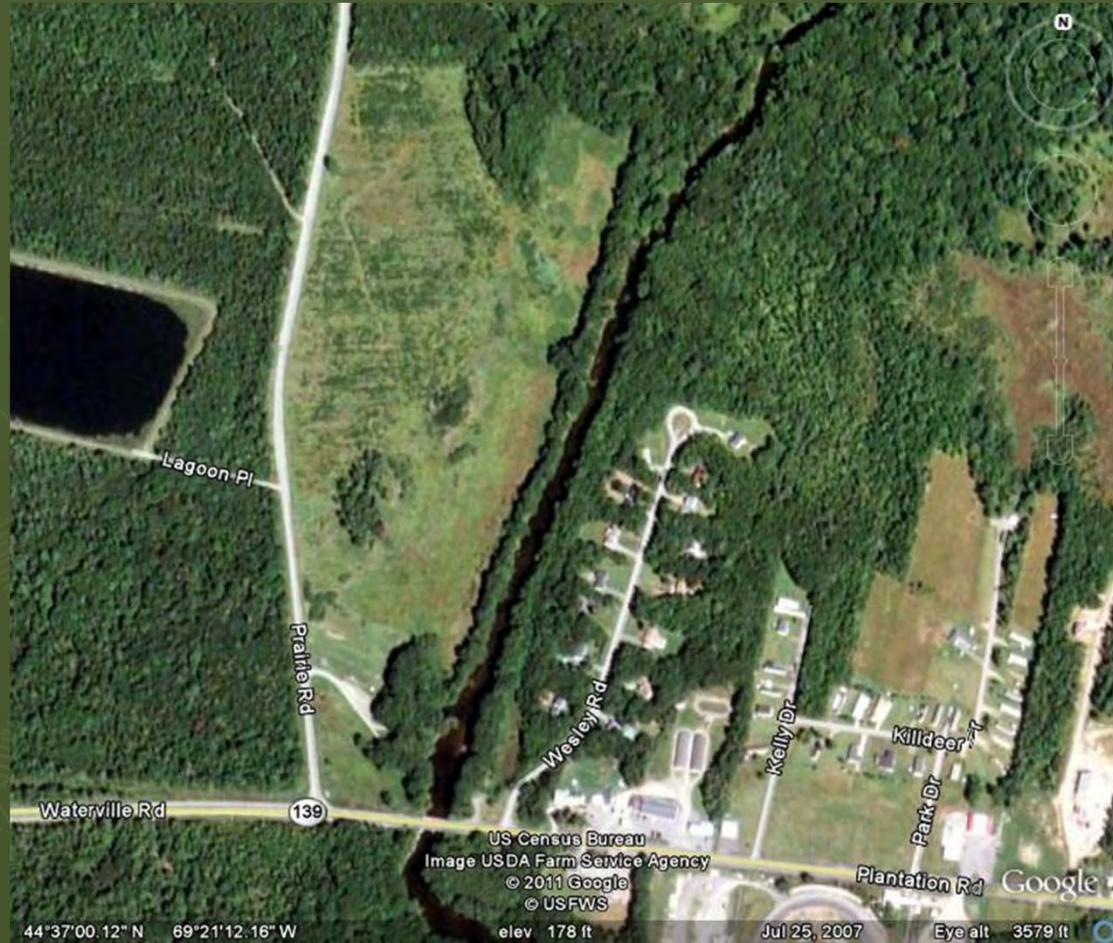
Carlton Pond WPA



Carlton Pond WPA



Sandy Stream Unit



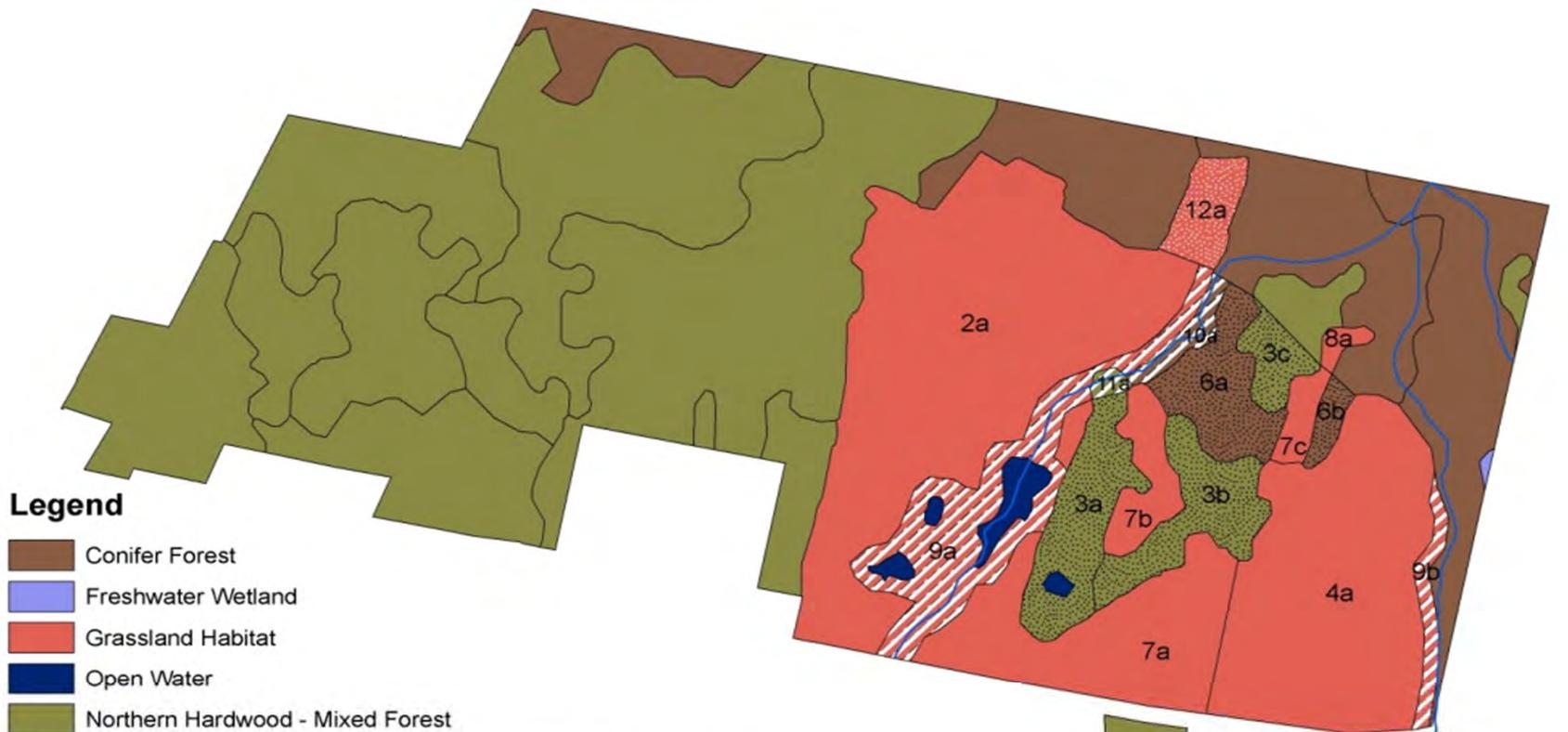
Sandy Stream Unit



Benton Unit



Benton Unit



Legend

- Conifer Forest
- Freshwater Wetland
- Grassland Habitat
- Open Water
- Northern Hardwood - Mixed Forest

Treatment Units	Habitat Types	Acreage Totals	Management action
2a, 4a, 5a	Grassland	72.4	special use permit for agricultural harvest (hay)
3a, 3b, 3c	Northern Hardwood – Mixed Forest	14.5	cut / increase grassland habitat
6a, 6b	Conifer Forest	6.5	cut / increase grassland habitat
7a, 7b, 7c	Grassland	19.1	maintain grassland habitat (3-5year burning rotation)
8a	Grassland	0.6	revert back to northern hardwood – mixed forest
9a, 9b, 9c	Grassland / Open Water	13.1	increase riparian buffer to 75 feet (ponds & streams)
10a	Conifer Forest	1.3	maintain riparian buffer to 75 feet (ponds & streams)
11a	Northern Hardwood – Mixed Forest	0.4	maintain riparian buffer to 75 feet (ponds & streams)
12a	Grassland	2.8	revert back to scrub shrub habitat

Wildlife: First!



Species Detected on Refuge Lands, 1990-2005

	Sunkhaze Meadows	Sandy Stream	Benton Unit	Carlton Pond WPA
Amphibians	17	12	16	11
Birds	199	65	97	94
Fish	21	19	1	28
Fungi	20	1	2	6
Invertebrates	111	10	20	48
Mammals	45	17	23	12
Mollusks	5	4	1	4
Plants	339	71	209	188
Reptiles	9	1	4	4

Notable Wildlife

- ▶ Sunkhaze Meadows Unit

~200 spp. of birds; lots of species of waterfowl; bitterns and rails; osprey, harriers, and owls; many warblers, woodpeckers, vireos, and flycatchers

- ▶ Carlton Pond Unit

American black duck, hooded merganser, common goldeneye, Canada goose, black tern (state-listed endangered), osprey

Notable Wildlife

- ▶ Sandy Stream Unit

tidewater mucket, yellow lampmussel
(both state-listed as threatened)

- ▶ Benton Unit

woodcock, red-winged blackbird,
bobolink

Resources of Concern

- Bird species of concern based on national and regional plans
- Developed a subset of species to reflect regional contribution to the NWR System
- Habitat the Refuge can contribute to regional and national conservation efforts
- Protection of freshwater wetlands and wetland - dependent species
- Identification of non-bird taxa priorities
- Mapped current Refuge vegetation and surrounding landscape conditions
- Draft objectives so that future habitat conditions will support focal species

► Priority Habitats and Associated Focal Species of Concern for Sunhaze Meadows NWR and Carlton Pond WPA

High Priority Habitat Types	Associated Focal Species
Spruce- fir forest	Bald eagles, bay-breasted , chestnut-sided, and blackburnian warblers, Northern parula and spruce grouse
Open water / emergent marsh	Black tern, American black duck, mallard, pintail, green-winged teal, and migratory shorebirds
Peatlands (bogs/fens)	American black duck, rusty blackbird, and migratory waterfowl
Early successional forest habitat	American woodcock, chestnut-sided warbler, olive-sided flycatcher, rose-breasted grosbeak
Streams, brooks, and riparian habitats	Brook trout, tidewater mucket, yellow lampmussel
Sedge meadow / freshwater wetland	Sedge wren, American bittern, yellow rail
Moderate Priority Habitat Types	Associated Focal Species
Northern Hardwood / mixed forest	Black-throated-blue warbler and Canada warbler
Grassland	American woodcock, bobolink, and northern harrier
Northern white cedar seepage forest	White-tailed deer wintering areas
Vernal pool	Spotted salamander and wood frog



Danielle D'Auria

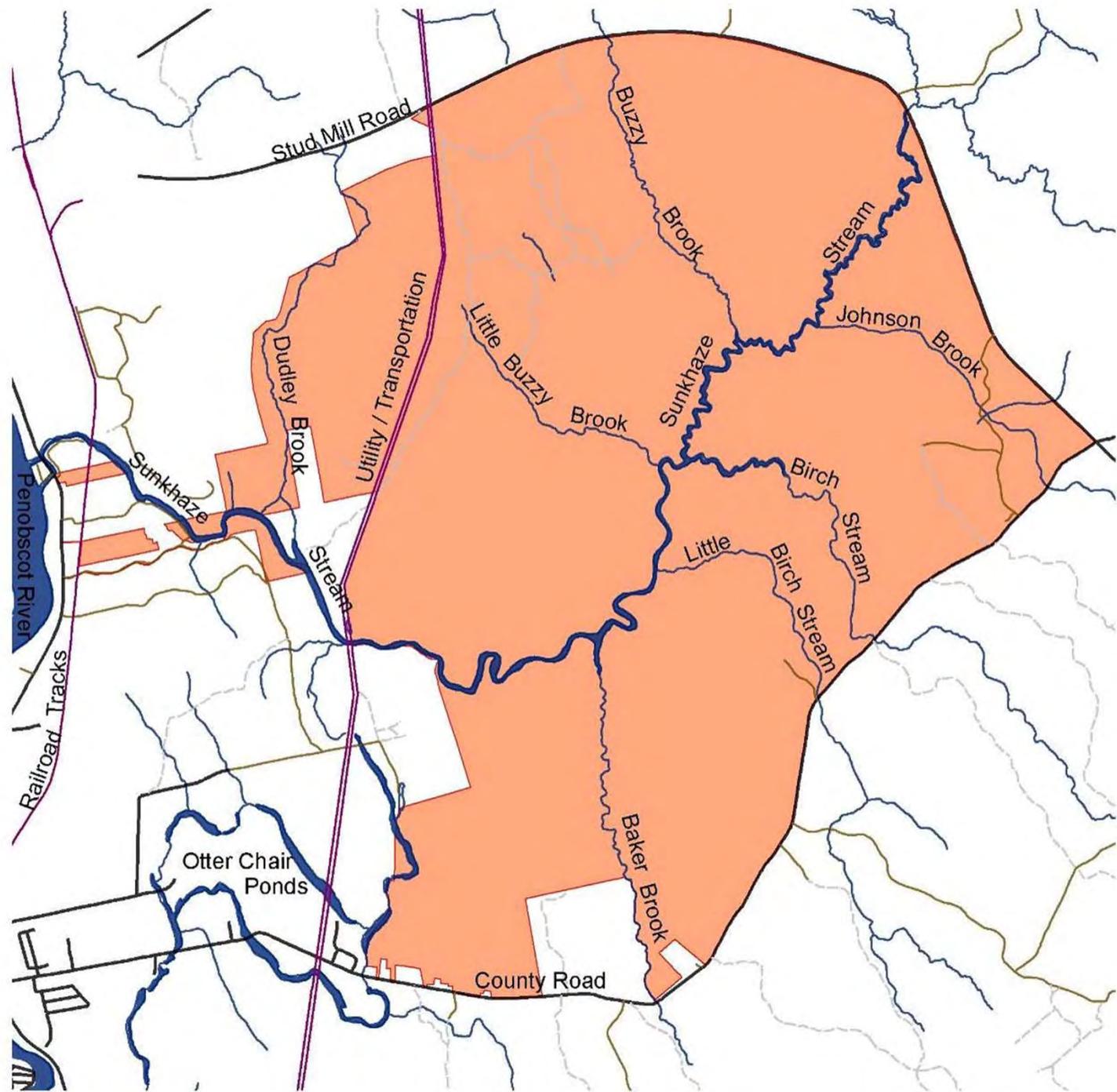




Danielle D'Auria



Jonathan Mays



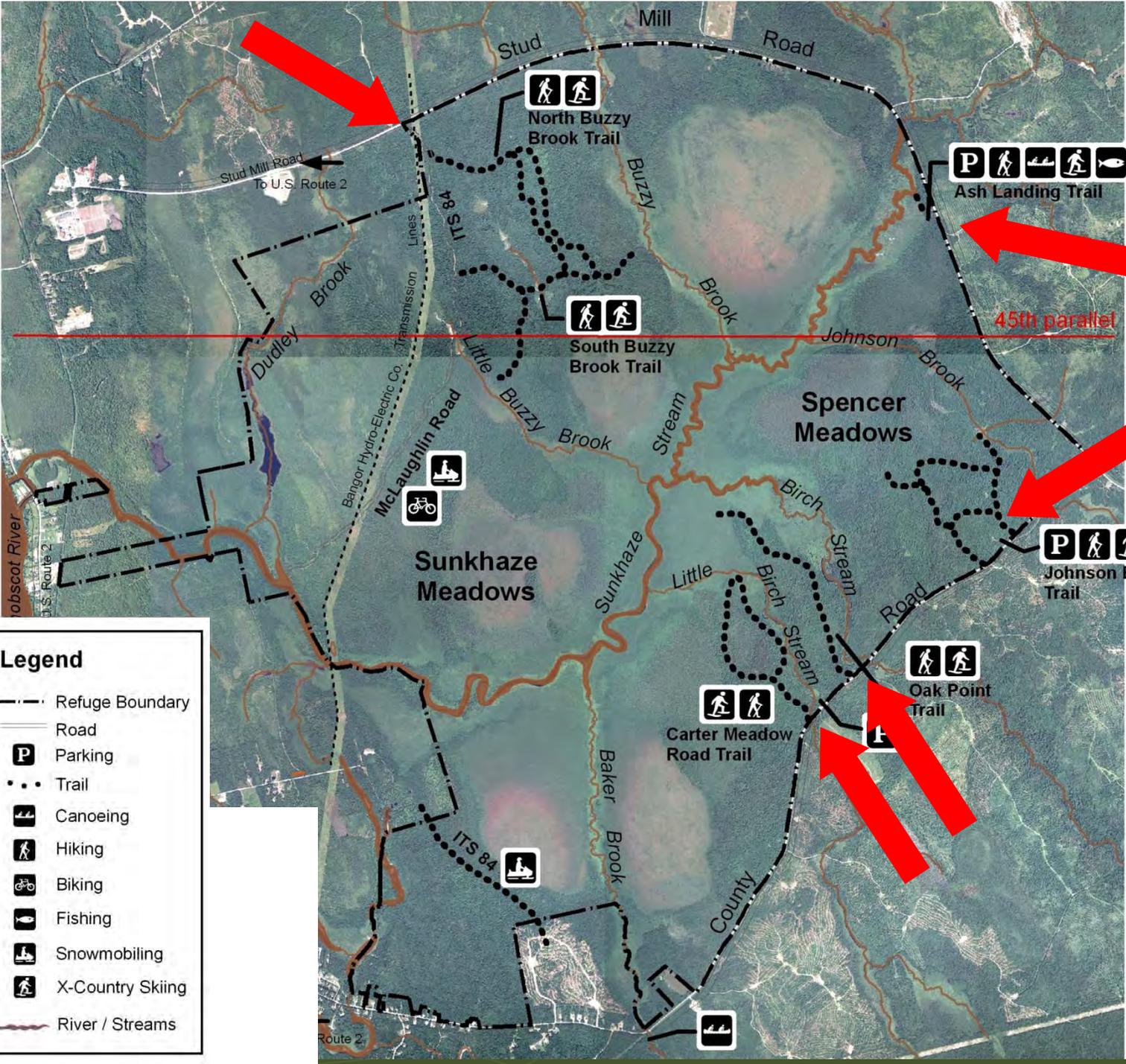




Leigh Osgood



Danielle D'Auria



- Legend**
- Refuge Boundary
 - Road
 - Parking
 - Trail
 - Canoeing
 - Hiking
 - Biking
 - Fishing
 - Snowmobiling
 - X-Country Skiing
 - River / Streams



P

Ash Landing Trail

45th parallel

P

Johnson Brook Trail

Oak Point Trail

Carter Meadow Road Trail

North Buzzy Brook Trail

South Buzzy Brook Trail

McLaughlin Road

Sunkhaze Meadows

Spencer Meadows

ITS 84

Route 2

Stud Mill Road
To U.S. Route 2

Jobsco River
U.S. Route 2

Bangor Hydro-Electric Co. Transmission Lines

Dudley Brook

Little Buzzy Brook

Sunkhaze Stream

Baker Brook

Little Buzzy Brook

Little Birch Stream

Birch Stream

Johnson Brook

County

ITS 84

Hunting & Trapping



Management

- ▶ in recent downsizing, was de-staffed
- ▶ now managed by Maine Coastal Islands NWR
- ▶ 8 staff people
 - 2 biologists, 1 law enforcement, 1 office manager, 1 boat operator/maintenance position) in Milbridge
 - 1 biologist, 2 managers in Rockland
 - 2 hours away, also manage active biological program, 54 islands and 4 mainland units

= problems!

- Friends and volunteers extremely **IMPORTANT!**



Invasives



Wilderness?

- ▶ 5,000+ acres
- ▶ Affected primarily by nature; man's touch unnoticeable
- ▶ Opportunities for solitude or primitive recreation
- ▶ No motorized vehicles allowed within a Wilderness

Wild and Scenic River Designation?

Sunkhaze Stream on National Park Service's
inventory of potentially eligible rivers



Goals and Objectives Within the Planning Process

Fish and Wildlife Service Mission



Refuge System Mission



Refuge Purpose(s)



**National/Regional Goals and
Priorities**



Ecosystem Goals and Objectives



Refuge Vision



Goals



Objectives



Strategies



**Monitoring and Feedback
(Adaptive Management)**

The End

- ▶ Special thanks to Danielle D'Auria and Michael Langlois for letting me use their slides and images in this presentation.