



Natural Resources & Comprehensive Planning in Harrison

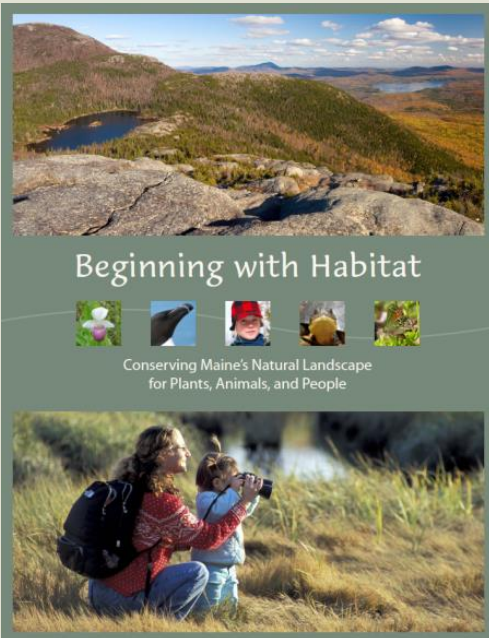
Greg LeClair, PhD

Beginning with Habitat Program Municipal Planning Biologist

Maine Department of Inland Fisheries and Wildlife



Beginning with Habitat (BwH)



- Equips Maine landowners, municipalities, and conservation partners with conservation tools
- BwH is non-regulatory – voluntary conservation actions



Beginning with Habitat Services



Our Services



Information



Spatial Data



Technical Assistance

- Customized Presentations & Workshops
- Library of ordinance tools, example plans, etc.
- Dedicated landowner biologist for site visits
- Assistance w/ and review of comprehensive plans

Our Users



Municipalities



Landowners

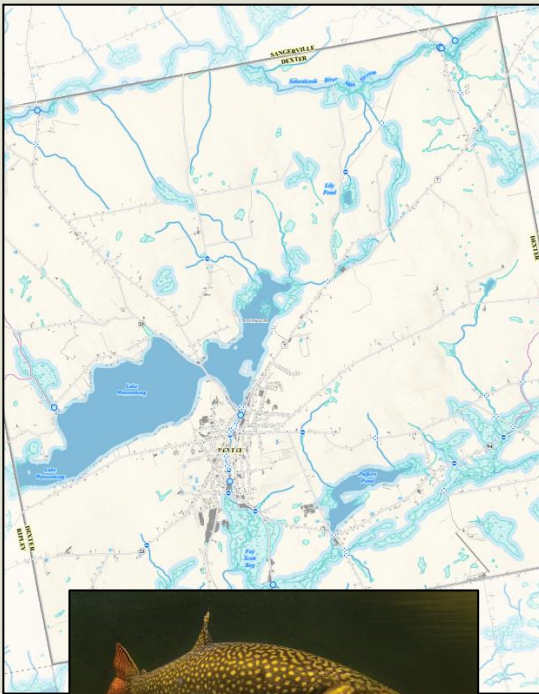


Land Trusts

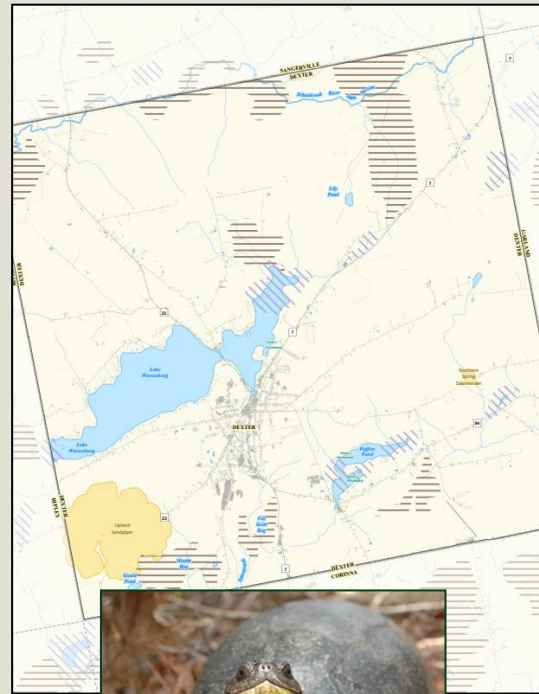
Beginning with Habitat Approach



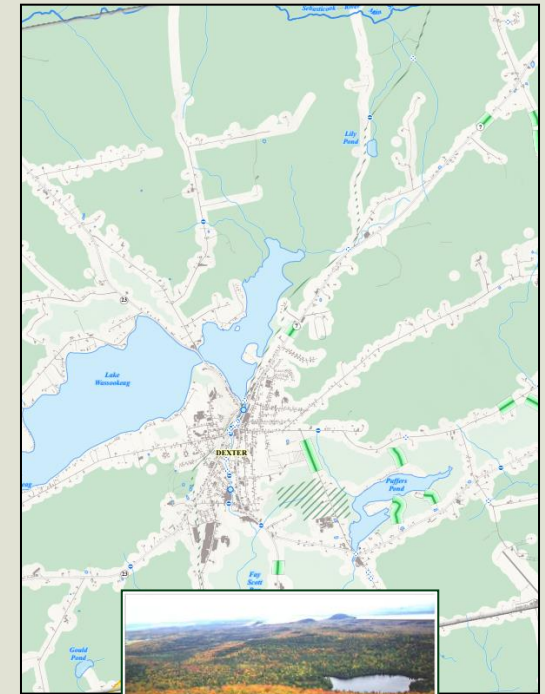
Map 1



Map 2



Map 3

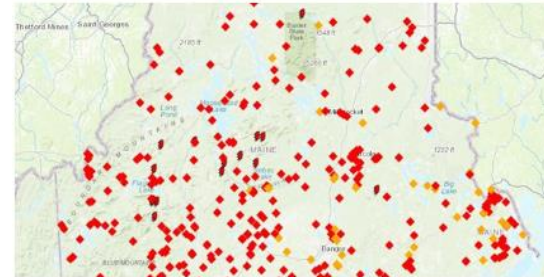


Beginning with Habitat Online Maps



Interactive Map Viewer

This option is the most popular way our users access BwH data. It is best for real-time desktop or mobile browsing. GIS files cannot be downloaded, but maps can be exported as PDFs and printed as 8.5x11 pages.



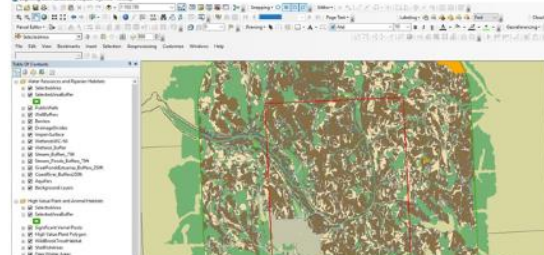
Stream Viewer

The interactive viewer was created to enhance statewide stream restoration and conservation efforts. The Viewer provides a starting point for towns, private landowners and others to learn more about stream habitats across the state.



Online Map Database

Search PDF maps (printable using a large-format printer/plotter) by town.

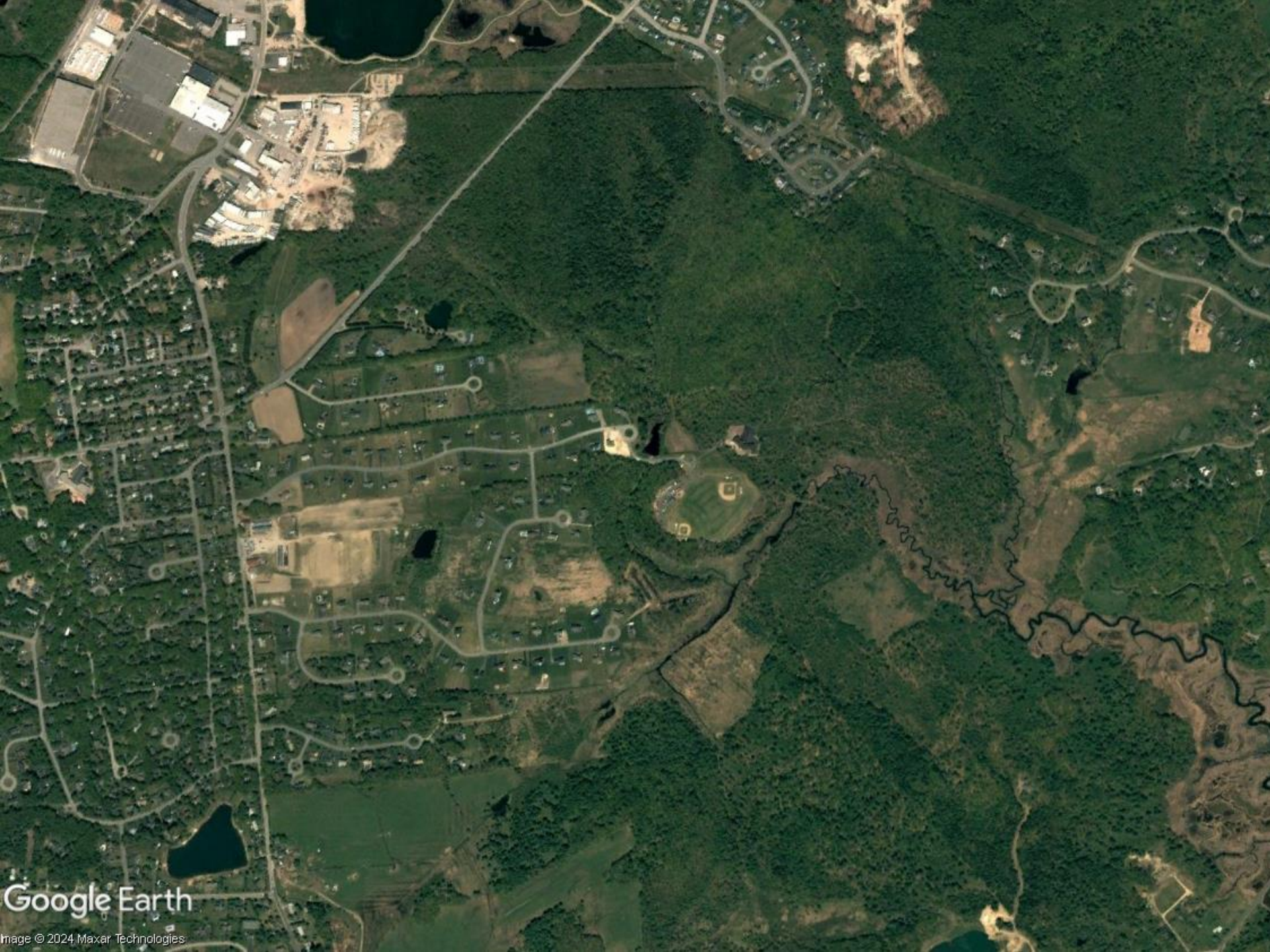


Digital Data

You can use our GIS data to create your own customized planning maps (GIS software required). [Simply let us know which town or region you'd like data from](#), and we will send you the data via OneDrive or on a CD.



What is the #1 cause of most wildlife population declines?





Habitat Block Size Requirements for Wildlife in Maine: UNDEVELOPED

RACCOON

HARE

COYOTE

SMALL RODENT

PORCUPINE

BOBCAT

COTTONTAIL

BEAVER

BLACK BEAR

SQUIRREL

WEASEL

MINK

FISHER

WOODCHUCK

DEER

MUSKRAT

MOOSE

RED FOX

SONGBIRDS

SHARP-SHINNED HAWK

BALD EAGLE

SKUNK

COOPER'S HAWK

HARRIER

BROAD-WINGED HAWK

GOSHAWK

KESTREL

RED-TAIL HAWK

HORNED OWL

RAVEN

BARRED OWL

OSPREY

TURKEY VULTURE

TURKEY

MOST REPTILES

GARTER SNAKE

RING-NECK SNAKE

MOST AMPHIBIANS

WOOD FROG

Habitat Block Size Requirements for Wildlife in Maine: 100 -499 ACRES

RACCOON

HARE

SMALL RODENT

PORCUPINE

COTTONTAIL

BEAVER

SQUIRREL

WEASEL

MINK

WOODCHUCK

DEER

MUSKRAT

RED FOX

SONGBIRDS

SHARP-SHINNED HAWK

SKUNK

COOPER'S HAWK

HARRIER

BROAD-WINGED HAWK

KESTREL

HORNED OWL

BARRED OWL

OSPREY

TURKEY VULTURE

TURKEY

MOST REPTILES

GARTER SNAKE

RING-NECK SNAKE

MOST AMPHIBIANS

WOOD FROG



Habitat Block Size Requirements for Wildlife in Maine: **1-19 ACRES**

RACCOON

SMALL RODENT

COTTONTAIL

SQUIRREL

MUSKRAT

RED FOX

SONGBIRDS (SOME)

SKUNK

(SOME) REPTILES

(SOME) AMPHIBIANS



Plus, losses in services...



- Decreased flood resilience
- Increased erosion
- Increased runoff/pollution into waterways
- Increased air pollution/reduced air quality
- More heat radiation from sun (“parking lot” effect)
- Lost mental health benefits (just SEEING green improves mental health!)
- Reduced pollination
- Reduced nutrient cycling
- Reduced hunting/fishing opportunity (major economic drivers)
- Less other recreational opportunity
- Less agricultural production
- Greater contact with zoonotic diseases
- Greater wildlife conflict
- More susceptible to invasive species

Importance of Habitat Connectivity



- Wildlife needs to move!
 - Respond to change, find mates, food, etc.
- Many species are “stuck”
 - Migratory fishes – culverts and dams can block spawning habitat
 - Migratory amphibians – hit by vehicles in the thousands (for every 1 struck deer, ~2500 amphibians are hit!)
 - Turtles – vehicle strikes are a primary threat for our listed species
 - Large carnivores – easily spooked away from areas with traffic
 - Climate-impacted species – unable to move to more suitable climates



Importance of Habitat Connectivity



Culvert washout on Pushaw Rd in Glenburn, ME in October 2022 associated with a 25-year storm event. The washout resulted in a 5-mile detour and cost \$111,000 to repair.



Culvert washout on Route 1 in Cyr Plantation, ME in May 2022 associated with a 50- to 100-year storm event. The washout resulted in road closure and detour and cost \$2.8 M to repair.



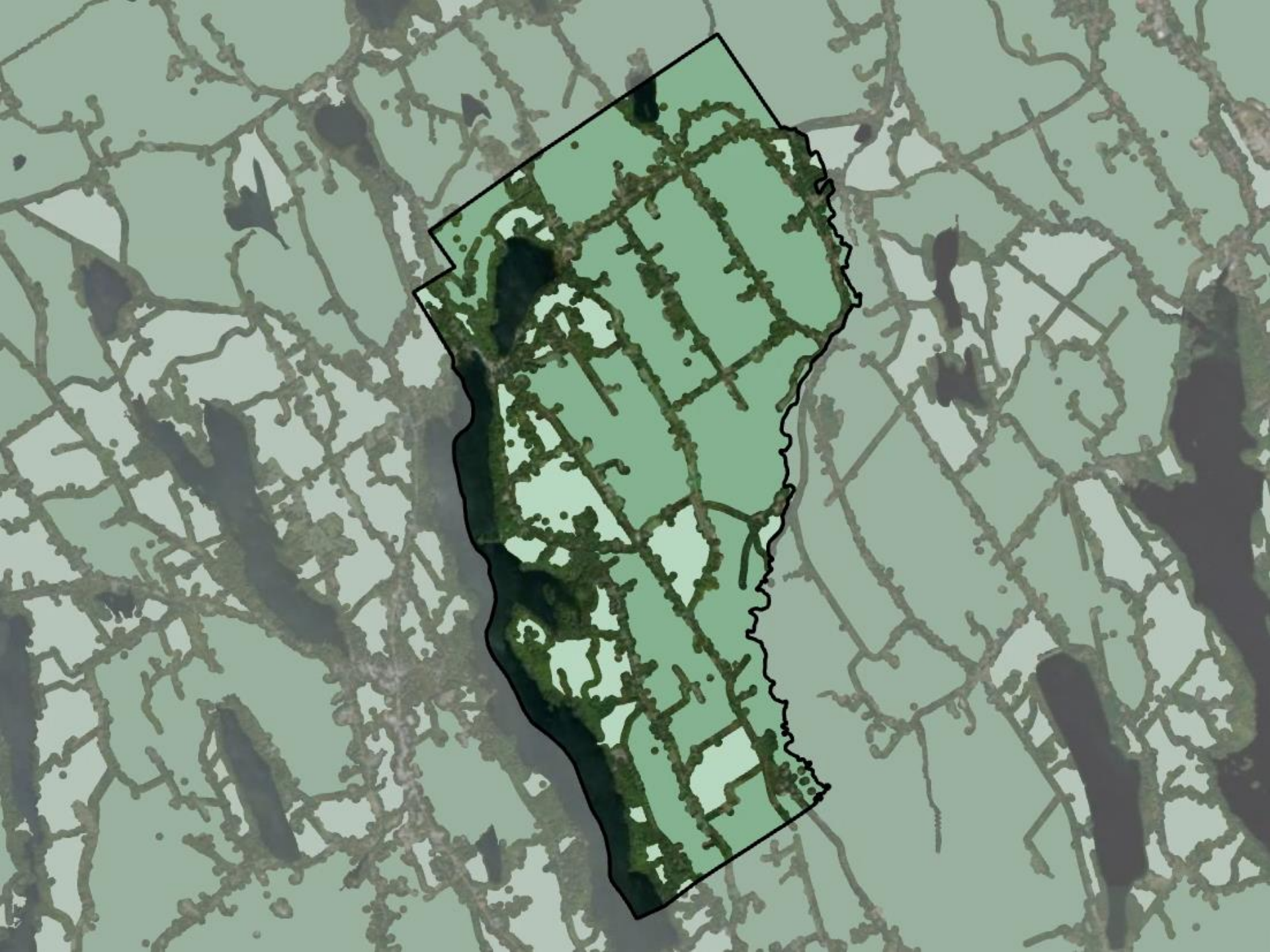
Importance of Habitat Connectivity

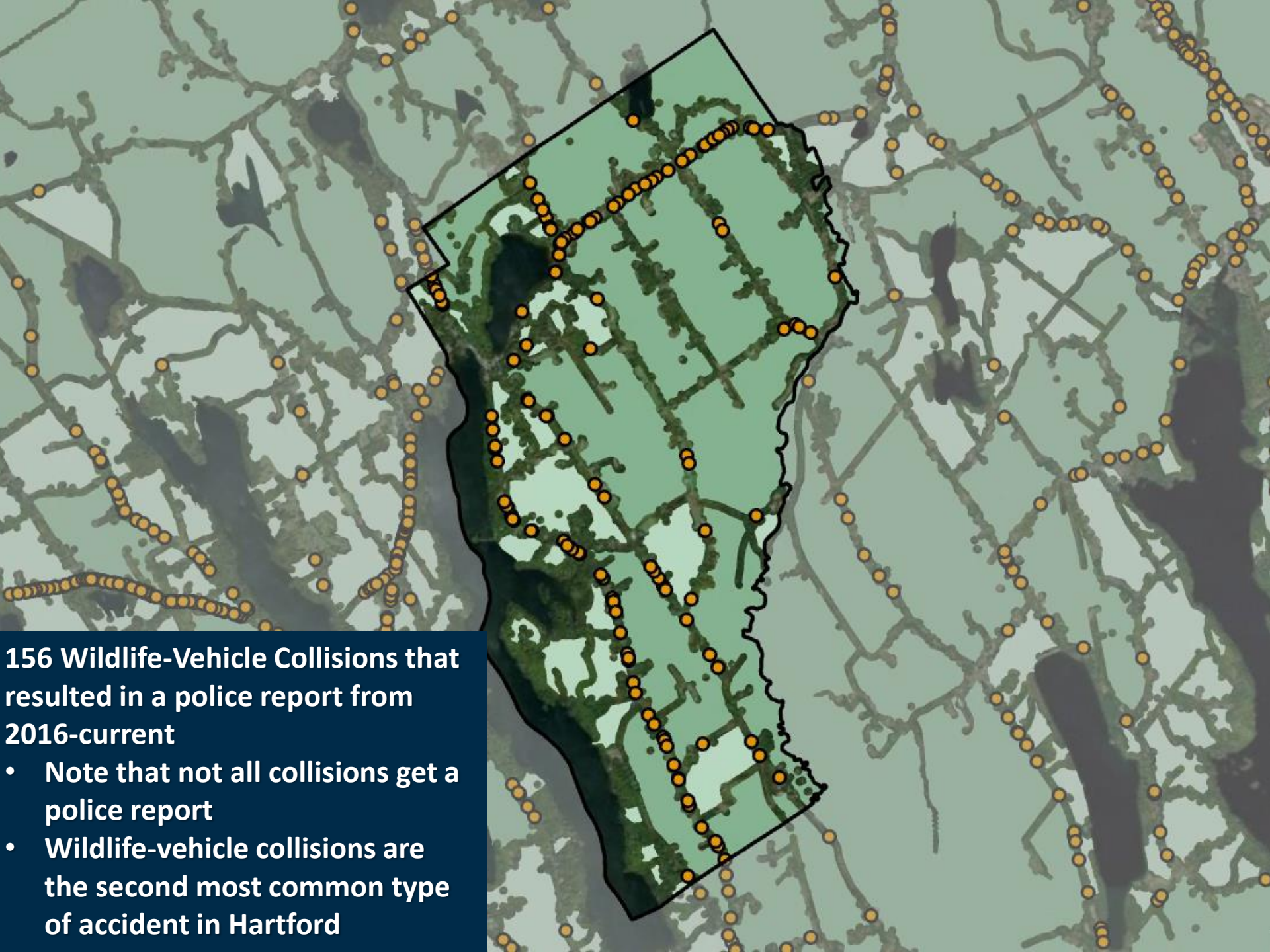


- Wildlife-vehicle collisions cost Mainers \$314 million per year*
- Federal cost of \$8 billion per year
- Plus uncalculated losses in ecosystem services, individual animal values, recreational value, etc.



*Based on data from Maine DOT 2018-2022 "Collisions Between Wildlife Species and Motor Vehicles" Report





156 Wildlife-Vehicle Collisions that resulted in a police report from 2016-current

- **Note that not all collisions get a police report**
- **Wildlife-vehicle collisions are the second most common type of accident in Hartford**



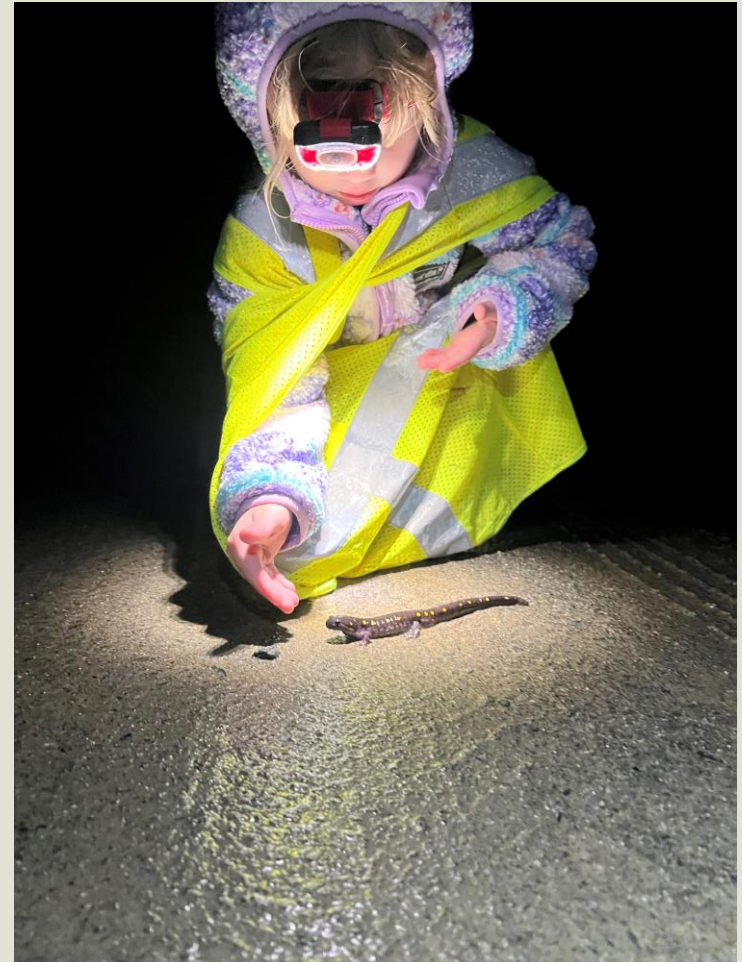
Comprehensive Planning

How do wildlife & comp plans connect?



Comp plans:

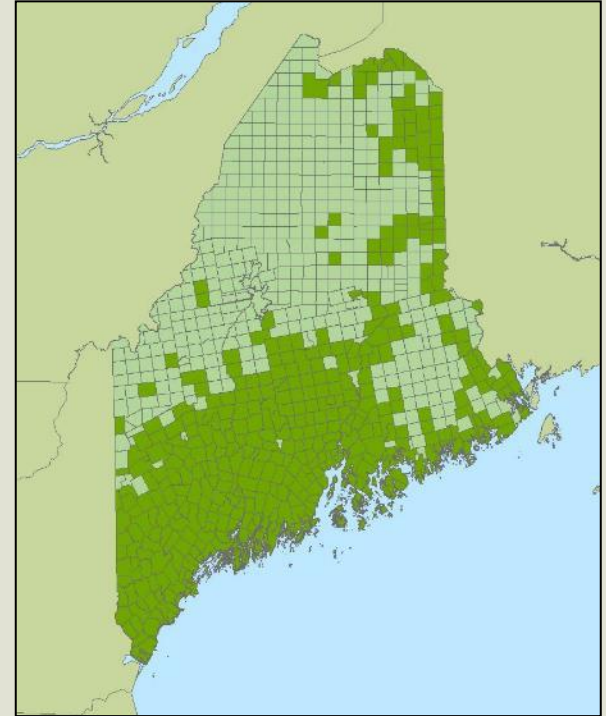
- Direct growth/land use planning
- Identify locally important conservation targets
- Answers “What do we have and what do we do with it?”



Why are comprehensive plans important?



- *Habitat loss is the #1 issue for wildlife*
 - 492 towns, cities, and plantations
 - Home rule – most land use decisions made at the town level
 - **Most local development does not trigger state agency review**
 - **Many decisions being made by volunteer boards & code enforcement officers**
- = Uncoordinated growth and development visions



What does IFW Review?



- Multiple chapters
 - Water Resources
 - Natural Resources
 - Recreation
 - Future Land Use Plan
 - Existing Land Use
 - Transportation (occasional)

Note that we do not currently comment on agriculture, forestry, and soils/geology



Comprehensive Plan Rule



- Required to include, discuss, and address *critical* and *important* natural resources
 - Critical resources = protected from development at some level
 - Important = not necessarily protected from development, but still strategically important to conservation efforts
- Note that requirements may be changing

Critical Natural Resources

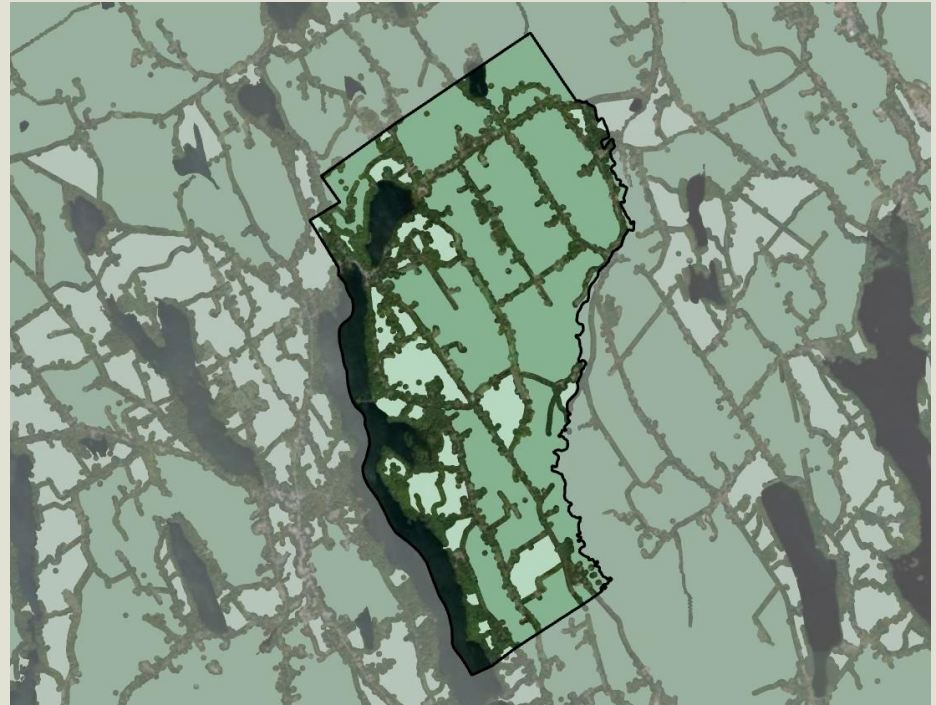


- Include:
 - Resource protection districts (DEP shoreland zoning)
 - Wetlands of special significance (DEP)
 - **Significant Wildlife Habitats**
 - **Threatened, Endangered, and Special Concern Species locations**
 - **Significant fisheries spawning habitat**
 - **Critically imperiled, imperiled, or rare natural communities**
 - **Threatened or endangered plants**
 - **Coastal sand dune ecosystems and fragile mountain areas**
 - National Natural Landmarks

Important Natural Resources



- Include:
 - 500+ acre habitat blocks
 - Focus Areas
 - Exemplary natural communities
 - Habitat block connections





Harrison's Critical Natural Resources

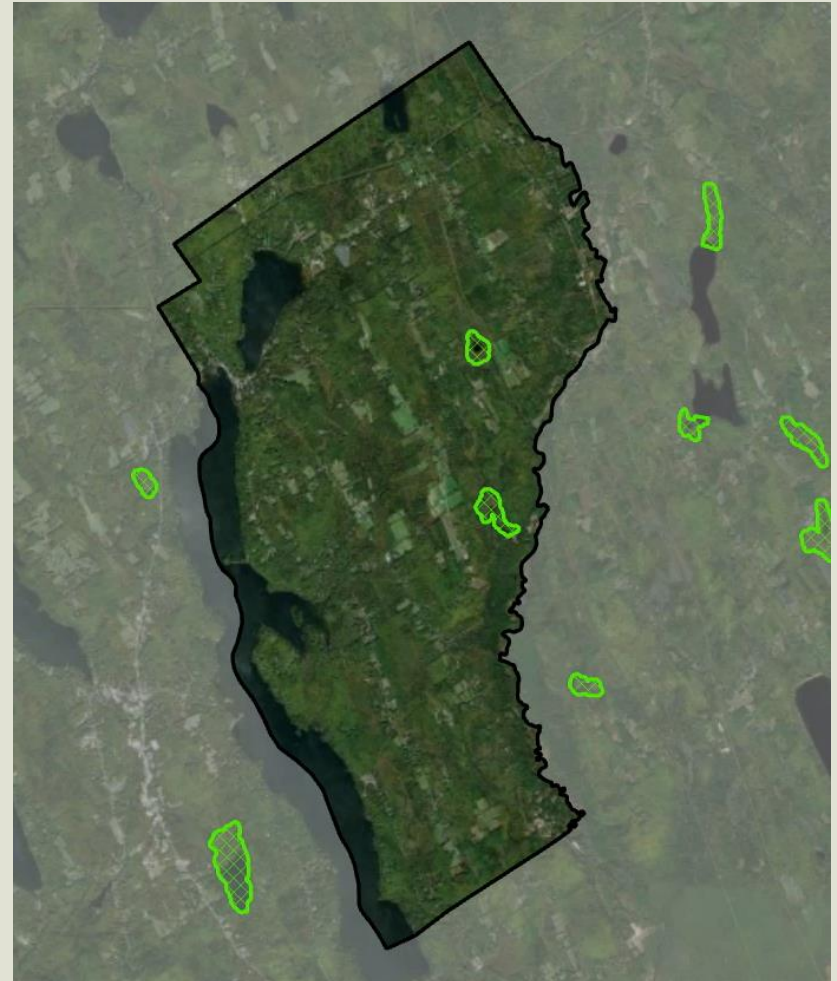


Significant Wildlife Habitat

- Inland waterfowl/wading bird habitat (IWWH; 2 in Harrison)
- Wetlands with high wildlife value
- Productive for a variety of wetland birds (ducks, herons, bitterns, etc.)



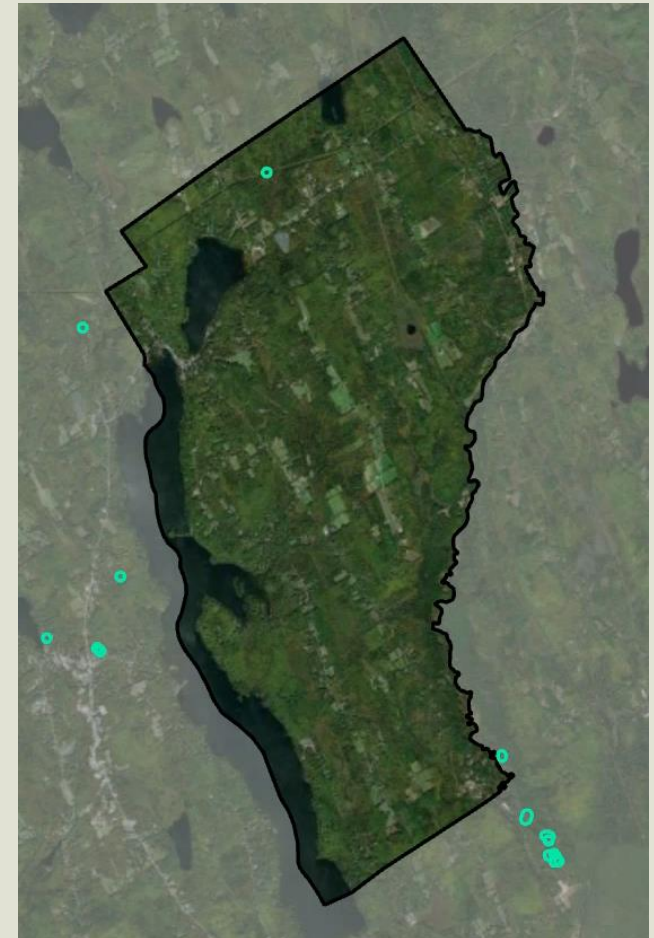
Photo: Kelly Colgan Azar





Significant Wildlife Habitat

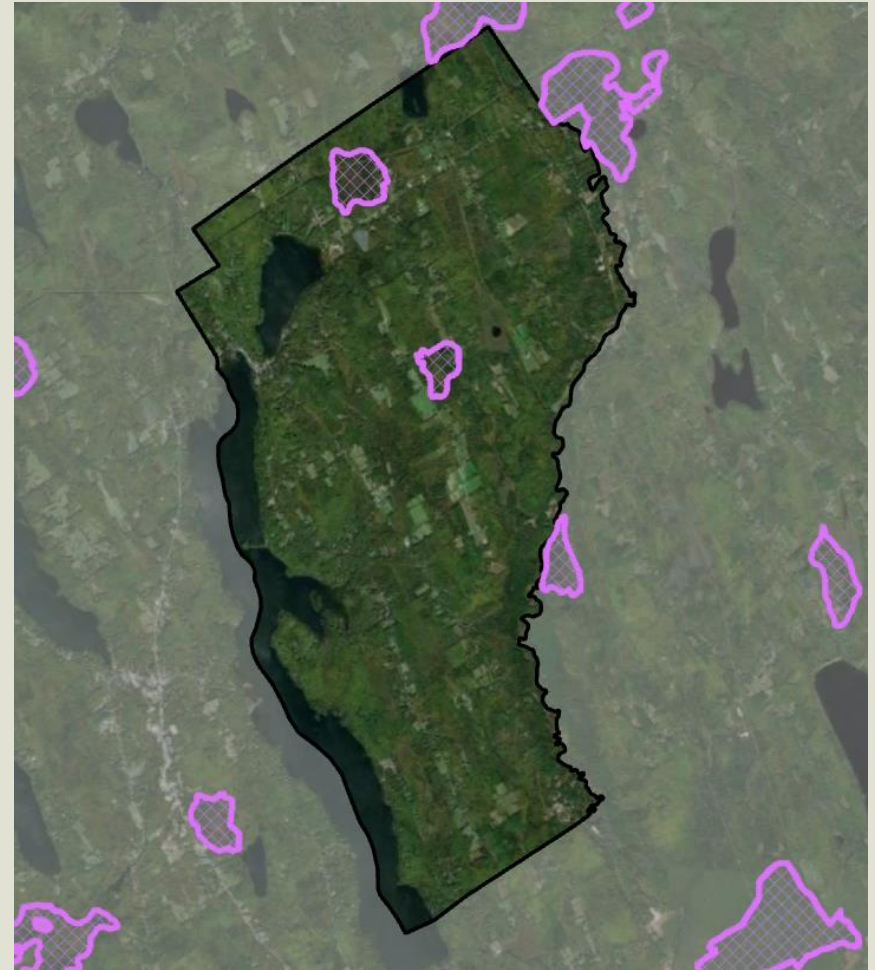
- Significant Vernal Pools (SVPs; one known in Harrison)
- Biodiversity hotspots
- Breeding habitat for amphibians, required habitat for fairy shrimp, used by various rare species, etc.
- Others may be present





Other Wildlife Habitat

- Deer Wintering Areas (DWAs; 2 in Harrison)
- Deer are impacted by heavy snow
- DWAs provide reduced snow depth and forage due to coniferous trees (hemlock, cedar, etc.)
- Note: proposed as Significant Wildlife Habitat but not regulated as such



Endangered, Threatened, & Special Concern Species



- Blanding's Turtle – State Endangered
- Heavily impacted by development patterns, roadways, and even poaching
- Populations fragmented
- Require large complexes of wetlands, forests, and nesting habitat
- Can live at least 96 years!



Endangered, Threatened, & Special Concern Species



- Wood Turtle (Special Concern)
- Similar to Blanding's turtle, declining due to loss of habitat
- Maine is the last stronghold for this species
- Inhabits slow-moving, sinuous streams with mixes of forests and meadows nearby
- Spends about 2/3 of the year in the water and 1/3 foraging in the uplands
- Pretty smart for a reptile!



Endangered, Threatened, & Special Concern Species



- Small-whorled Pogonia - State Endangered, Federally Threatened
- Often referred to as the rarest orchid in the eastern US
- Prefers mixed forests in mid-succession
- Vulnerable to collection and habitat loss



Significant Fisheries Spawning Habitat



- The Crooked River – one of only four places where Landlocked Salmon are native & naturally reproducing!
- Essentially the whole river is used - ~60mi
- Provides ~3/4 of Sebago Lake's salmon
- Also supports priority wild brook trout locations



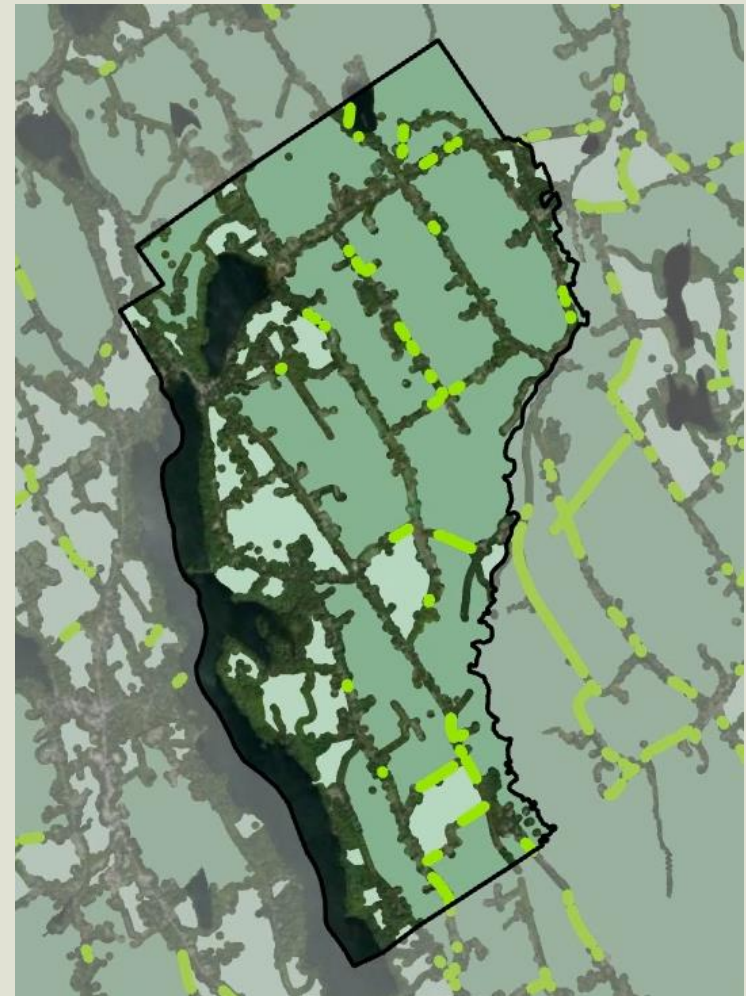


Harrison's Important Natural Resources



Habitat Blocks & Connections

- Fragmentation occurring around water bodies, but otherwise large habitat blocks still in relative abundance
- Largest block at least partially within Harrison is over 8200 acres in size





Focus Areas of Statewide Ecological Significance

- Focus Areas represent large concentrations of critical resources - useful for digesting the variety of information out there and identifying the most critical areas in the state
- Jugtown Plains – partially within Harrison
- Also within Jugtown Plains – Otisfield, Naples, Casco
 - Great opportunity for collaborative conservation!



Could there be more that we don't know about?



- Definitely – vernal pools, rare plants, rare wildlife, etc.
- Recognize the uncertainty – make it clear that no comprehensive surveys have been done (the “precautionary principle”)
- Contemplate features in neighboring towns



Do other things matter?

- Of course – e.g., small habitat blocks can still provide ecosystem services, common/non-listed species still important to ecosystems, etc.
- “Keep common species common”
 - Cheaper to do than letting something become endangered!
 - Voluntary actions make the difference





Frequent Mistakes

Greg's List of Frequent Mistakes in Comprehensive Plans



1. Inaccurate/missing information about natural resources
 - Using out of date data, missed things, etc.



Solution: Work with BwH to make sure your data is up-to-date (request a data packet/maps) and ask us questions! Also, make a table in your plan.

Greg's List of Frequent Mistakes in Comprehensive Plans



2. Future Land Use Plan flaws

- E.g., indicates growth areas in critical natural resources with no explanation



Solution: Make sure growth zones are in appropriate areas – near village centers, near current development, not in critical areas. If critical natural resources are overlapped, indicate how they will be accommodated.

Greg's List of Frequent Mistakes in Comprehensive Plans



3. Missing or inaccurate recreation/conserved lands information
 - E.g., did not list water bodies with or without public access



Solution: Review your conserved lands and recreational needs – check with appropriate agencies for accuracy of information

Greg's List of Frequent Mistakes in Comprehensive Plans



4. Thinking of natural resources as impediments to growth

- E.g., discussing natural resources only in the context of how they might impede development



Solution: Also discuss the ecological, economic, and cultural values of these features

Questions?



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More Assistance:
Maine Municipal Association
Grow Smart Maine
Greater Portland Council of Governments
Municipal Planning Assistance Program

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