

# Powow River Conservation Area

Draft Land Stewardship Recommendations

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the COLLABORATIVE

# Acknowledgment of Land & History

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We acknowledge that Amesbury is located on the traditional, contemporary, and unceded territories of the Pentucket, a branch of the Pennacook-Abenaki people. These lands were taken from the Indigenous people, creating a legacy of injustice that persists to this day.



Indigenous stewardship of the land we now call Massachusetts kept its ecological and human communities vibrant, strong, and interconnected for thousands of years. To this day Indigenous peoples, including the 37,000 individuals who currently reside in Massachusetts, are at the forefront of climate action, ecological stewardship, and environmental justice.

We are committed to the work of learning, listening, and evolving so that someday soon we may live in right relationship with the people who have been stewards of this land for thousands of years. **How we care for the land will determine how well it will sustain us and our descendants.**



- **It is not enough to acknowledge, we need to be good stewards**
- Good land stewardship provides
  - The air we breathe
  - The water we drink
  - The food we eat
  - Sequestration and storage of carbon
  - Climate moderation
  - Protection from flooding
  - Re-creation that renews our spirits & helps maintain our health
  - The lumber we use to build our shelters
  - Filtration and decomposition of our wastes, &
  - Habitats for a diversity of plants and animals





Town of Amesbury  
Powow River Conservation A  
Trail Map

# Battis Farm Conservation Area

- Purchased by Town/Conservation Commission in 1985
- 85.3 acres
- Many popular uses
  - Nature observation
  - Community gardens
  - Birdwatching
  - Hiking
  - Dog-walking





# Natural Assets

- Fields
- Forests
- Wetlands
- Shore or Lake Gardner
- Views
- Varied topography
- Large areas
- Close to center of town
- Opportunities to experience nature



# Ecological Features

- Geology
  - Berwick Formation formed 420 million years ago
- Laurentide Ice Sheet (12,000 years ago)
  - Erratics, moraines,
  - Drumlins (like Whittier Hill & Powow Hill), &
  - Eskers (like along Kimball Road & in Town Forest)
- Soils
  - Prime agricultural soils
- Natural Communities



# Natural Communities

- Cultural Grasslands/Hayfields
- Shallow Marsh
- Shrub Swamp
- Red Maple Swamp
- Oak-hickory Forest
- White Pine Forest



# Grasslands

- Hayfields & Cultural Grasslands
- Maintained by mowing
- Of conservation interest for grassland birds & pollinators
- Important for
  - **American Kestrels**
  - **Northern Harriers**
  - Snowy Owls
  - **Bobolink**
  - **Eastern Meadowlark**
  - Snow Buntings, &
  - Short-eared Owls
- 36.7 acres



# Shallow Emergent Marsh

- Short grasses, sedges, & rushes with scattered forbs
- Often include **sensitive fern**, marsh fern, **St. John's-wort**, **Joe-Pye-weeds**, bonesets, & low shrubs such as **alder** & spiraea
- Excellent habitat for muskrats, leopard, pickerel, green, & bull frogs, & some vernal pool obligate species, such as **wood frogs**
- 1 acre



# Forested Wetlands

- **Red maple** is dominant
- **Yellow birch, black gum, white ash, white pine, eastern hemlock, & white oak**
- Common plants include **ferns, sweet pepperbush, swamp azalea, greenbriers, highbush blueberry, winterberry, skunk cabbage, & spicebush**
- Habitat for many wide-ranging wildlife species
- 4 acres



# Shrub Swamp

- Shrubs include **speckled alder**, smooth alder, **meadowsweet**, steeplebush, buttonbush, **maleberry**, swamp azalea, silky dogwood, etc.
- Other plants may include **arrowhead**, **skunk cabbage**, **cinnamon fern**, **sensitive fern**, royal fern, marsh fern, & sedges
- Migratory birds use dense thickets as nesting habitat, many rare & common moth species feed on the variety of shrubs
- 1.2 acres



# Oak-hickory Forest

- Deciduous & evergreen trees averaging about 30'- 60' high
- **Oaks, black cherry, & red cedar** are common
- Often include **greenbrier, poison ivy, Virginia creeper, & grape**
- Common birds include Eastern towhee, **gray catbird, common yellowthroat, ovenbird, & black-and-white warbler**
- 36.5 acres



# White Pine Forest

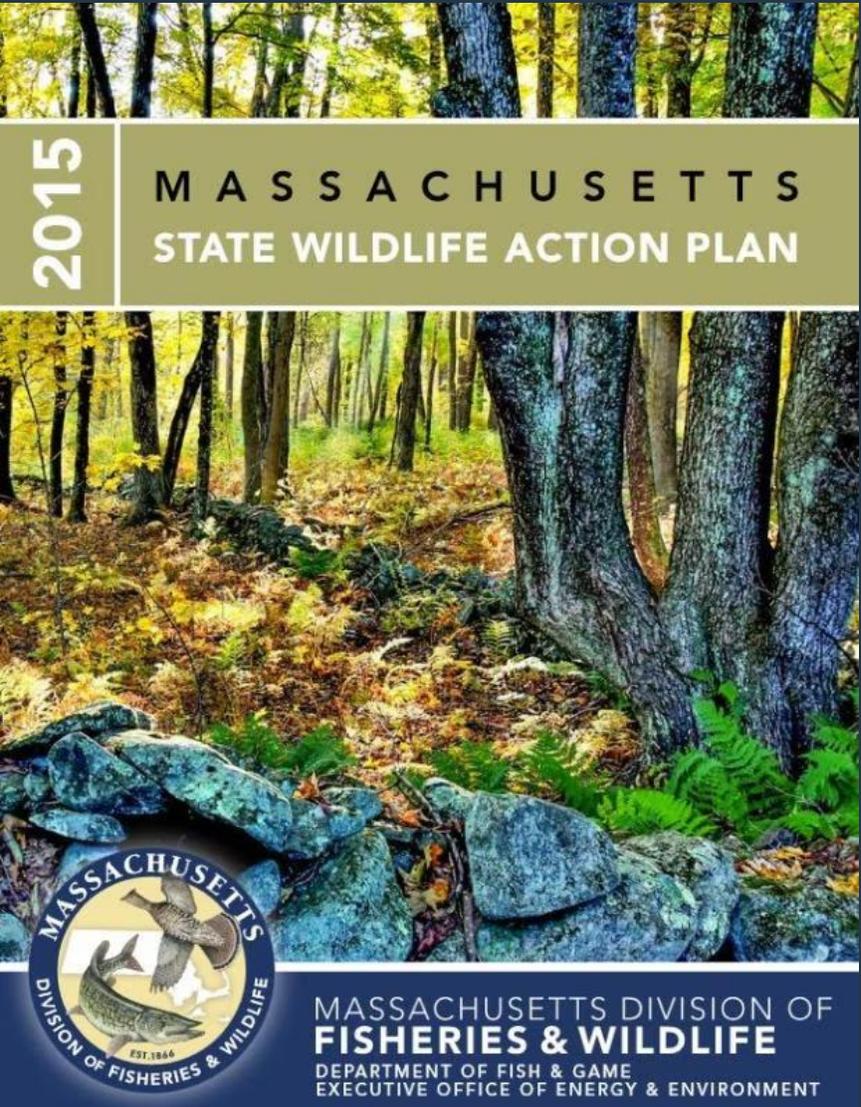
- **White pine (>75% cover)**
- **White oak, red oak, red maple, & early successional trees such as birches and aspens**
- **Black elderberry, black cherry, & maple-leaved viburnum**
- **Birds include Blackburnian warblers, ovenbird, yellow warbler, & Cooper's hawk**
- **23.2 acres**

# BioMap Areas

- Project of The Nature Conservancy & MassWildlife
- Identifies lands most important for maintaining biological diversity
- Core Habitat
- Critical Natural Landscape
- Both enhance connectivity and resilience



Core Habitat = dark green  
Critical Natural Landscape = light green



# State Wildlife Action Plan

- Required by Congress
- Identifies 570 Species of Greatest Conservation Need (**SGCNs**)
- 24 habitats that support these species – 6 occur at the Powow River Conservation Area
- Important information to guide conservation efforts



# Wildlife

- Powow River corridor is a BioMap Core Habitat & almost all of this area is Critical Natural Landscape
- State Wildlife Action Plan (SWAP) lists many of the species recorded at these sites as Species of Greatest Conservation Need (SGCN)
- Birdwatchers have reported 101 species of birds – 11 are SGCNs
- Habitats for many other species of plants and animals

# Bobolinks



- Declining
- Breed only in unforested areas across northern US and southern Canada
- 99% of original prairie has been converted to farmland
- Prefer **large** fields with a mixture of
  - Grasses
  - Legumes
  - Wildflowers
  - Insects & seeds to feed their young
- Migrate 10,000 miles per year



# Amphibians & Reptiles

- 23 species likely in Amesbury vicinity
- **Spring peeper**, and **wood frog** have been recorded for these properties
- Likely to occur
  - American toad, bullfrog, common snapping turtle, Eastern garter snake, Eastern milk snake, four-toed salamander, Fowler's toad, green frog, & several other species
- An inventory would be a good community science project



# Mammals

- Habitat for variety of species
  - American beaver
  - White-tailed deer
  - Common racoon, &
  - **Bobcat** (nearby)



# Invertebrates

- Butterflies, bees, & other insects pollinate wildflowers & are important sources of food for many mammals & birds
- Forty-nine species of insects reported
- 80% of world's crop species require pollination to set seed



# Past Management

- Four fields on a 4-year rotation – 3 managed for hay & 1 used for disposal of water treatment sediment
- Hay harvest generally follows Mass Audubon recommendations
  - Mow fields before May 15 and after Aug. 15 at the earliest & before Sept. 15
- Mowing & tilling of sediment done by contract farmer

May

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

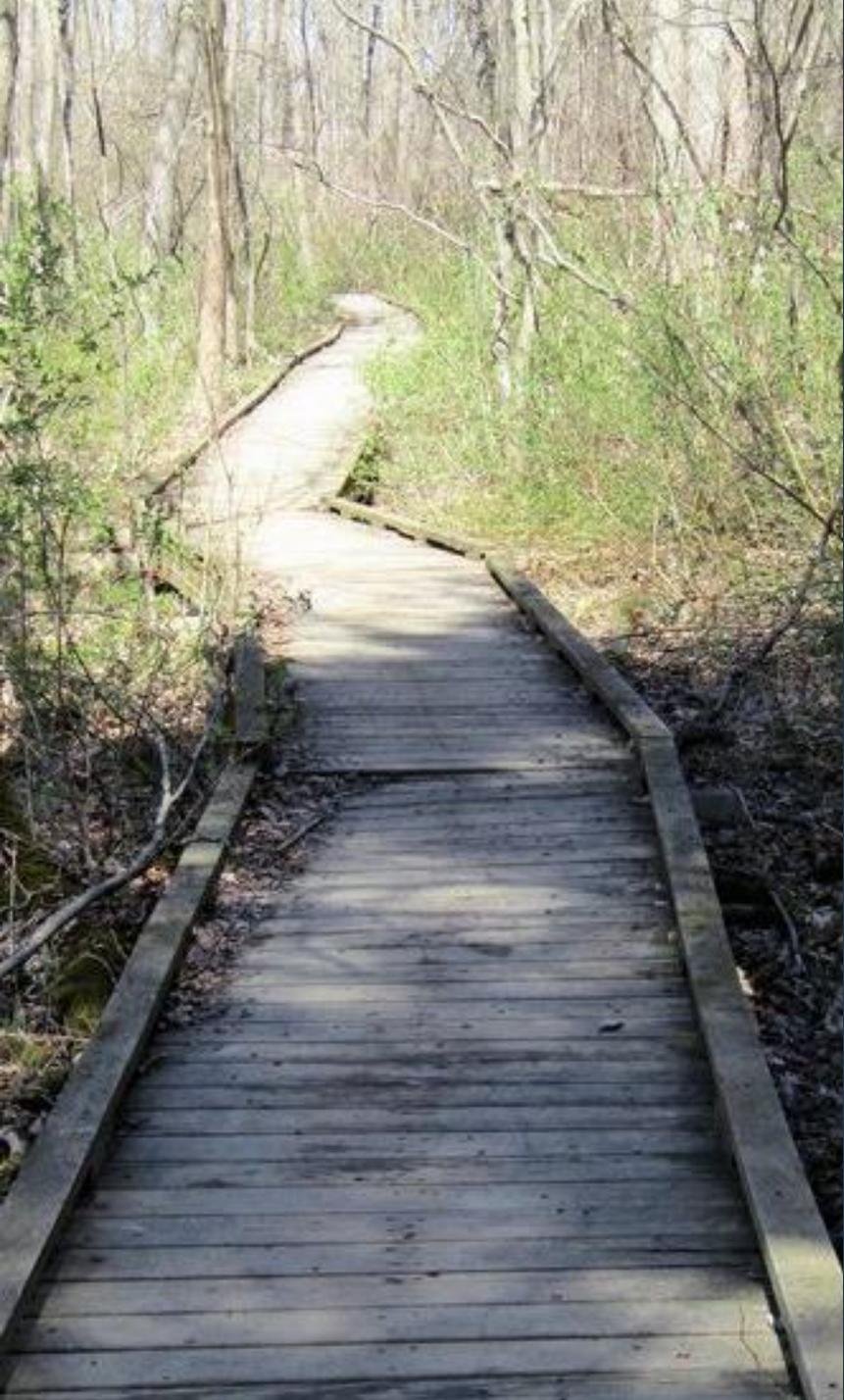
August

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



# Past Management

- Disposal of water treatment sediment (570 tons in 2024)
  - Permitted by Dept. of Environmental Protection (DEP)
  - Recommendations to store sediment no more than 48 hours or store covered to prevent run-off (not currently done)
  - Sediment tilled into soil of 1 field & then seeded



# Past Management

- Lake Gardner Improvement Association
  - Stagecoach trail boardwalk construction & trail improvements
- Amesbury Open Space, Natural Resources, & Trails Committee
  - Trail assessment & recommendations



# Stewardship Recommendations

- Goals & objectives (2020-2027 OS&RP)
  - Preserve & enhance natural resources
    - Increase resilience to effects of climate change
    - Protect water supply
    - Expand opportunities for passive & active recreation
  - Maintain & enhance recreational facilities
  - Improve access & connectivity
  - Improve collaboration to improve stewardship



# Stewardship Recommendations

- Goals & objectives (2023 Principles & Policies for Stewardship of Conservation Land)
  - Identify & protect sensitive habitats & species (e.g. BioMap areas)
  - Minimize spread of invasive species
  - Increase public education about natural & cultural resources
  - Create use regulations consistent with goals



# Stewardship Recommendations

- Special attributes of Powow River Conservation Area
  - Large size
  - Treasured agricultural landscape
  - Use for community gardens
  - Use for disposal of water treatment sediment (saves the city the cost of more expensive disposal)
  - Ecologically sensitive areas
    - State-wide importance



# Climate Change Effects

- More hot days & days with degraded air quality
- More erosion, blowdowns, & flooding impacts on trails
- More storm associated risks
- Effects on species composition
- Increase in non-native invasive pests
- Increase in vector-borne illnesses



# Steps to Increase Resilience

- Reduce non-climate stressors
  - Control invasive plants
- Restore form & function
  - Remove a dam to promote fish spawning
- Increase complexity
  - Increase diversity & micro-climates
- Create linkages
  - Connect to nearby lands & create corridors

# Grassland Stewardship

- Continue to have farmer mow on current rotation (should be low cost to DPW)
  - Mow only before May 15 & after Aug. 15 & before Sept. 15 to protect grassland birds
  - Build covered storage area for water treatment sediment
  - Public education program



# Public Education

- Include signs to describe city's stewardship to protect grassland bird habitat
- Install “symbolic fencing” to keep dogs on leash during nesting season
- Include signs to explain water treatment sediment disposal program
- Apply for MassWildlife Habitat Management Grant Program



# Public Education

- Dogs Effect on wildlife
  - Chasing/killing wildlife
  - Disrupting nesting or foraging
  - Scent marking
  - Diseases
  - Dog waste
  - People see more wildlife when dogs are not allowed





# Forest Stewardship

- Passive Forest Management
  - Encourages “old growth” forests
    - Sequestering carbon (NE forests off-set 14% of region’s annual emissions)
  - 200 years or more
- Active Forest Management
  - Can be used to increase forest habitat diversity
  - “Foresters For The Birds” program
  - “Climate Smart Forestry” program
- Develop a Forest Management Plan



# Forest Stewardship

- Avoid steep trails & design trails for erosion control
- Enhance species diversity & structural complexity
- Standing dead trees & downed logs
  - Protect soils
  - Help retain water & cycle nutrients
  - Provide habitats for wildlife
- Manage stressors
  - Control invasive species & deer populations



# Wetlands Stewardship

- Some shrub swamp may transition to forested wetlands
- Monitor for non-native invasives
- Control invasives if necessary



# Non-native Invasive Plants

- Seventy-two introduced plant species categorized as “invasive”, “likely invasive”, or “potentially invasive”
- Why are invasive plants a problem?
  - Can out-compete, displace, & kill native species
  - Grow fast & produce a lot of seeds
  - Often first to leaf out in spring, & last to lose leaves in fall
  - Use up moisture & nutrients that are then not available for native plants
  - Lack insects or diseases of their place of origin that might keep them in check



# Non-native Invasive Plants

- Non-native invasive plants at Powow River Conservation Area
  - Oriental bittersweet
  - Autumn olive
  - Winged euonymus
  - Garlic mustard
  - Multi-flora rose,
  - Honeysuckles, &
  - Buckthorns

# Wildlife Enhancement

- Brush piles
- Snags
- Nest boxes
- Pollinator plantings



# Stewardship Activities

	Winter	Spring	Summer	Fall
	Dec-Feb	Mar-May	Jun-Aug	Sep-Nov
<b>Permitting for Planned Projects</b>				
<b>Monthly Property Visits</b>				
<b>Annual Work Plan with Staff and Stewards</b>				
<b>Safety Meeting with Staff, Stewards, Police &amp; Fire</b>				
<b>Trail Walk/Clean Up (downed limbs, drainage issues, signage needs)</b>				
<b>Repair Equipment and tools</b>				
<b>Building Projects (kiosks, signposts, etc.)</b>				
<b>Invasive Plant Management</b>				
<b>Mowing of Grassland (After August 15<sup>th</sup>)</b>				
<b>Expand grassland by cutting back along edges</b>				
<b>Trail mowing/maintenance</b>				
<b>Boundary Walk (monitoring for encroachments, signage, etc.)</b>				

# Short-term Projects

- Continue mowing fields (Aug. 15 to Sept. 15)
- Work with volunteers to do invasive plant management
- Obtain herbicide applicator's license if use of herbicides is intended
- Wildlife enhancement – dependent on volunteer/staff resources
- Implement dogs on leash policy
  - Signs & symbolic fencing



# Long-term Projects

- Continue mowing fields (Aug. 15 to Sept. 15)
- Strategically treat invasives
  - Treat along trails
  - Treat along edges of fields
  - Treat within forested areas working from trail edges
- Wildlife enhancement – dependent on volunteer/staff resources
- Clear hazards & repair structures (boardwalks, etc.)





Total = \$10,000 to \$15,000/yr.  
Signs = \$2,500

Estimated Costs/Time	Quantity	Cost
Permitting for Planned Projects	Varies	Staff/Volunteer Time
Monthly Property Visits	2 hours/ month	Staff/Volunteer Time
Annual Work Plan with Staff and Stewards	4 to 8 hours	Staff/Volunteer Time
Safety Meeting with Staff, Stewards, Police and Fire Dept.	2 hours	Staff/Volunteer Time
Trail Walk/Clean Up (downed limbs, drainage issues, signage needs)	Varies	Staff/Volunteer Time
Repair Equipment and tools	Varies	Staff/Volunteer Time Materials
Building Projects (kiosks, signposts, etc.)	Varies	Staff/Volunteer Time
Invasive Plant Management	16 hours/ year	Staff/Volunteer Time Materials & Tools
Mowing of Grassland (August 15 to Sept. 15)	30 hours/ year	Staff/Farmer Time Equipment, fuel
Expand grassland by cutting back shrubs and overhanging limbs	4 hours/year	Staff/Volunteer Time
Trail maintenance	20 hours/ year	Staff/Volunteer Time
Boundary Walk (monitoring for encroachments, signage, etc.)	4 hours/ year	Staff/Volunteer Time



Questions & Discussion

Thank you!