

Agricultural

Threat - Housing and urban areas and commercial and industrial areas

- Actions:
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*
 - *Resource and habitat protection; Prepare site-specific management plans and determine proper management of grazing animals to protect nesting birds. Rank: 2*
 - *Policies and regulations; Prepare management plans. Rank: 2*

Threat - Nutrient loading from manure, etc.

- Actions:
- *Site/area management; Conduct field rotation of livestock to prevent buildup of manure, etc. Rank: 2*
 - *Policies and regulations; Prepare management plans. Rank: 2*

Threat - Grazing animals may encourage some invasives by diet selection. Example, barberry unpalatable to cows.

- Actions:
- *Invasive/problematic species control; Control invasives as needed. Rank: 2*

Threat - Loss of habitat from plant succession

- Actions:
- *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2*
 - *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2*
 - *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Lack of information from research to address habitat and taxonomic issues

- Actions:
- *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 2*

Threat - Housing and urban areas and commercial and industrial areas; Prime agricultural soils also highly developable

- Actions:
- *Site/area protection; Continue efforts to preserve farmland through purchase of development rights, Farm, Forest and Open Space, and other programs. Rank: 3*
 - *Resource and habitat protection; support conservation programs implemented by NRCS and other agencies. Rank: 3*
 - *Policies and regulations; Support policies that help farmers continue to farm their land. Rank: 2*

Threat - Fertilizers and pesticides used on non-organic operations

- Actions:
- *Site/area management; encourage farmers to utilize organic farming methodologies. Rank: 2*
 - *Policies and regulations; Provide expertise and research on the effects of pesticides and herbicides on wildlife. Rank: 2*

Threat - Loss of habitat from plant succession

- Actions:
- *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2*
 - *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2*
 - *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Lack of information from research to address habitat and taxonomic issues; Lack of research to guide threat assessment and prioritization of conservation planning

- Actions:
- *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 2*

Threat - Housing and urban areas and commercial and industrial areas

- Actions:
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
 - *Resource and habitat protection; Prepare site-specific management plans and determine proper times for mowing/haying that protect nesting birds. Rank: 3*
 - *Policies and regulations; Prepare management plans. Rank: 2*

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Threat - Fertilizers and pesticides

- Actions:
- Site/area management; Investigate organic methods for hay production. Rank: 2
 - Policies and regulations; Provide expertise and research on the effects of pesticides and herbicides on wildlife. Rank: 3

Threat - Invasion may be exacerbated by fertilizers. Habitat is largely introduced species by definition.; Some new invasives in these habitats include swallowworts.

- Actions:
- Invasive/problematic species control; Control invasives when problems arise. Rank: 2

Threat - Loss of habitat from plant succession

- Actions:
- Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2
 - Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2
 - Outreach; Expand public relations for fire management. Rank: 2

Threat - Lack of information from research to address habitat and taxonomic issues

- Actions:
- Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 2

Coastal Stream

Threat - All categories impact this habitat type

- Actions:
- Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:
- Land/water protection; protection, management, mitigate runoff. Rank: 3

Threat - Competition

- Actions:
- Education and awareness; educate the public. Rank: 10

Coniferous Woodlands & Forests

Threat - Highly developable habitat type; large portions already fragmented by housing

- Actions:
- Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3
 - Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3
 - Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5

Threat - Any alterations in groundwater, overland flow can impact this habitat

- Actions:
- Site/area protection; Identify any land acquisition needs that limit this threat. Rank: 2
 - Policies and regulations; limit changes in hydrology of wetlands. Rank: 2

Threat - Wetlands used for illegal dumping,

- Actions:
- Site/area protection; Identify and acquire problem sites. Rank: 2
 - Site/area management; control public access by vehicles. Rank: 2

Threat - Woolly adelgid

- Actions:
- Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc); (earthworms, may include an education component); increase funding for control programs. . Rank: 2.5
 - Data collection and analysis; Research into resistant hemlock ecotypes. Rank: 2

Threat - Demographic changes from excessive predation (animal)

- Actions:
- Invasive/problematic species control; encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2

Threat - Highly developable habitat type; large portions already fragmented by housing (e.g., Kingston

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Pine Barrens)

- Actions:
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

Threat - Fire-dependent community, there-fore fire suppression is threat.

- Actions:
- *Site/area management; Controlled burns, selective harvesting. Rank: 3*
 - *Habitat and natural process restoration; high, restore plants (e.g., lupine) for pollinators (frosted elfin, etc.). Rank: 2*

Threat - This community has not been prone to the spread of invasives

- Actions:
- *Invasive/problematic species control; Early detection; Provide control where needed. Rank: 2*

Threat - Demographic changes from excessive deer browsing

- Actions:
- *Invasive/problematic species control; Provide additional hunting opportunities in problem areas; Provide deer control where needed. Rank: 2*

Deciduous Woodlands & Forests

Threat - Housing and urban areas and commercial and industrial areas; Not as widespread as previous type, but also on highly developable soils

- Actions:
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

Threat - New road construction causes fragmentation of habitat.

- Actions:
- *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
 - *Policies and regulations; provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 2.5*

Threat - Causes fragmentation of habitat, but plans for new corridors have been limited

- Actions:
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
 - *Policies and regulations; restrict utility upgrades, lines/pipes to existing corridors; encourage underground placement of utility lines. Rank: 2*

Threat - Threat to mature forests primarily at habitat edges, some incursion by woody species into interiors.

- Actions:
- *Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc.). Rank: 2.5*
 - *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*
 - *Policies and regulations; develop nuisance plant list to limit sale and use of problematic species, firewood movement restrictions. Rank: 3*

Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives.

- Actions:
- *Habitat and natural process restoration. Rank: 2*
 - *Policies and regulations. Rank: 2*

Threat - Deer browsing

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Actions: • *Invasive/problematic species control; Encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2.5*

Threat - Habitat fragmentation and degradation from human disturbance

Actions: • *Outreach; Control public access at priority sites. Rank: 2*

Threat - Woody invasives primarily, but mature maritime woodlands are relatively invasive-free

Actions: • *Invasive/problematic species control; provide early detection and rapid response to problem situations. Rank: 1.5*

Threat - Considered a low level threat given the current extent and distribution of this habitat.

Actions: • *Site/area protection; Identify and acquire parcels. Rank: 2*
• *Resource and habitat protection; Provide opportunities for inland migration. Rank: 1.5*
• *Policies and regulations; Prepare management plans. Rank: 2.5*

Threat - Within highly developable parts of the state, but most examples of this habitat are protected at Trustom, Ninigret NWRs, and other sites

Actions: • *Site/area protection; Identify and acquire parcels. Rank: 2*

Threat - Demographic changes from excessive deer browsing

Actions: • *Invasive/problematic species control; Provide additional hunting opportunities in problem areas; Provide deer control where needed. Rank: 2*

Threat - Developable sites in NW part of state. Although much of this habitat protected, even small development projects can create significant fragmentation.

Actions: • *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
• *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
• *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*
• *Outreach; Educate local planners, developers, and residents. Rank: 2*

Threat - Although new primary roads unlikely, even access roads and driveways fragment habitat

Actions: • *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*
• *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
• *Policies and regulations; Provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 2.5*

Threat - New ROWs unlikely, but some existing ones have already created fragmentation.

Actions: • *Site/area protection; Identify and acquire problem sites. Rank: 2*
• *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
• *Site/area management. Rank: 2*
• *Policies and regulations; Provide comments for new road planning. Rank: 1.5*

Threat - Greatest threat along edges of roads, ROWs, etc. Threat to interior related to ATV and other vehicle use transporting seeds, etc. Also threats from insect pests to specific trees, etc.

Actions: • *Invasive/problematic species control; Expand and fund early detection and response program; give towns tools to ID and manage invasives; Develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc). Rank: 3*
• *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*
• *Policies and regulations; develop nuisance plant list to limit sale and use of problematic species, firewood movement restrictions. Rank: 2.5*
• *Awareness and communications; Prepare materials to educate public about accidental transport of invasive species; Include outreach to municipalities and other road managers regarding transport of invasives. Rank: 3*

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Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives.

- Actions:
- *Site/area management; Allow natural processes to develop mature forest cores. Rank: 2.5*
 - *Habitat and natural process restoration; Conduct limited tree-cutting to simulate natural blowdowns and development of understory vegetation;. Restore populations of native plants. Rank: 1.5*
 - *Policies and regulations; Prepare management plans and guidelines for other agencies. Rank: 2.5*

Threat - Deer browsing of understory vegetation has caused declines in some plant populations

- Actions:
- *Invasive/problematic species control; Encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2.5*

Threat - Logging and wood harvesting; Clearing within core habitat creates fragmentation and inroads for invasive species; however, highly selective harvesting may be allowed to simulate natural blowdowns.

- Actions:
- *Site/area management; Provide management according to management plans. Rank: 1*
 - *Habitat and natural process restoration; Allow natural processes to manage habitat. Rank: 3*
 - *Policies and regulations; Prepare management plans. Rank: 2.5*

Threat - Acid rain, heavy metals at edges; Improvement in recent years.

- Actions:
- *Policies and regulations; support stronger rules to control air pollution. Rank: 1.5*

Threat - Climate impacts will affect individual species with replacement by others.

Actions:

Threat - Housing and urban areas and commercial and industrial areas; Best site can not be developed; other sites already heavily impacted by wide range of activities

- Actions:
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Habitat and natural process restoration; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

Threat - Invasive non-native/alien species; Impacted sites can be heavily infested with invasive plants.

- Actions:
- *Invasive/problematic species control. Rank: 2*
 - *Habitat and natural process restoration. Rank: 2*

Threat - Increased precipitation and flooding could alter disturbance regime that maintains this habitat

- Actions:
- *Site/area protection. Rank: 2*
 - *Data collection and analysis; Conduct monitoring of habitats. Rank: 2.5*

Threat - Lack of information from research to address habitat and taxonomic issues

- Actions:
- *Research, suvey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 3*

Threat - Housing and urban areas and commercial and industrial areas; Most widespread upland forest type on highly developable upland soils

- Actions:
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

Threat - New road construction causes fragmentation of habitat.

- Actions:
- *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*

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- *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
- *Policies and regulations; provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 2.5*

Threat - Causes fragmentation of habitat, but plans for new corridors have been limited

- Actions:*
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
 - *Policies and regulations; restrict utility upgrades, lines/pipes to existing corridors; encourage underground placement of utility lines. Rank: 2*

Threat - Threat to mature forests primarily at habitat edges, some incursion by woody species into interiors.

- Actions:*
- *Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc.). Rank: 2.5*
 - *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*
 - *Policies and regulations; develop nuisance plant list to limit sale and use of problematic species, firewood movement restrictions. Rank: 3*

Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives.

- Actions:*
- *Habitat and natural process restoration. Rank: 2*
 - *Policies and regulations. Rank: 2*

Threat - Deer browsing

- Actions:*
- *Invasive/problematic species control; Encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2.5*

Threat - Lack of information from research to address habitat and taxonomic issues; Lack of information about loss of habitat from plant succession

Actions:

Threat - Habitat fragmentation and degradation from human disturbance

- Actions:*
- *Outreach; Control public access at priority sites. Rank: 2*

Threat - Habitat loss of critical micro-features

- Actions:*
- *Research, survey, inventory, monitor populations; Evaluate existing significant hibernacula and nesting substrate; Identify priority sites for management. Rank: 2*

Threat - Tends to be on ridges and rocky soils with more limited development potential.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*
 - *Outreach; Educate local land owners. Rank: 2*

Threat - New road construction causes fragmentation of habitat.

- Actions:*
- *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
 - *Policies and regulations; provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 3*

Threat - Causes fragmentation of habitat, but plans for new corridors have been limited

- Actions:*
- *Site/area protection; Identify and acquire problem sites. Rank: 2*

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- *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
- *Policies and regulations; restrict utility upgrades, lines/pipes to existing corridors; encourage underground placement of utility lines. Rank: 2*

Threat - Threat to mature forests primarily at habitat edges, some incursion by woody species into interiors

- Actions:*
- *Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc.). Rank: 3*
 - *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*
 - *Policies and regulations; develop nuisance plant list to limit sale and use of problematic species, firewood movement restrictions. Rank: 3*

Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives.

- Actions:*
- *Habitat and natural process restoration. Rank: 3*
 - *Policies and regulations. Rank: 3*

Threat - Deer browsing

- Actions:*
- *Invasive/problematic species control; Encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2.5*

Threat - Habitat fragmentation and degradation from human disturbance

- Actions:*
- *Outreach; Control public access at priority sites. Rank: 2*
 - *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 2*

Threat - Habitat loss of critical micro-features

- Actions:*
- *Research, survey, inventory, monitor populations; Evaluate existing significant hibernacula and nesting substrate; Identify priority sites for management. Rank: 2*

Threat - Housing and urban areas and commercial and industrial areas; Most widespread upland forest type on highly developable upland soils

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

Threat - New road construction causes fragmentation of habitat.

- Actions:*
- *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
 - *Policies and regulations; provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 2.5*

Threat - Causes fragmentation of habitat, but plans for new corridors have been limited

- Actions:*
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
 - *Policies and regulations; restrict utility upgrades, lines/pipes to existing corridors; encourage underground placement of utility lines. Rank: 2*

Threat - Threat to mature forests primarily at habitat edges, some incursion by woody species into interiors.

- Actions:*
- *Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc.). Rank: 2.5*
 - *Habitat and natural process restoration; allow for natural mature, functioning forests that*

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will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5

- *Policies and regulations; develop nuisance plant list to limit sale and use of problematic species, firewood movement restrictions. Rank: 3*

Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives.

Actions: • *Habitat and natural process restoration. Rank: 2*

- *Policies and regulations. Rank: 2*

Threat - Deer browsing

Actions: • *Invasive/problematic species control; Encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2.5*

Threat - Habitat fragmentation and degradation from human disturbance

Actions: • *Outreach; Control public access at priority sites. Rank: 2*

Threat - This threat considered low as much of this habitat found on already protected sites.

Actions: • *Site/area protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*

- *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. . Rank: 3*
- *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

Threat - New road construction causes fragmentation of habitat.

Actions: • *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*

- *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
- *Policies and regulations; provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 2.5*

Threat - Causes fragmentation of habitat, but plans for new corridors have been limited

Actions: • *Site/area protection; Identify and acquire problem sites. Rank: 2*

- *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
- *Policies and regulations; restrict utility upgrades, lines/pipes to existing corridors; encourage underground placement of utility lines. Rank: 2*

Threat - Threat to mature forests primarily at habitat edges, some incursion by woody species into interiors.

Actions: • *Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc.). Rank: 2.5*

- *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*
- *Policies and regulations; develop nuisance plant list to limit sale and use of problematic species, firewood movement restrictions. Rank: 3*

Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives.

Actions: • *Habitat and natural process restoration. Rank: 2*

- *Policies and regulations. Rank: 2*

Threat - Deer browsing

Actions: • *Invasive/problematic species control; Encourage the taking of more deer (special permits, etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2.5*

Threat - Habitat fragmentation and degradation from human disturbance

Actions: • *Outreach; Control public access at priority sites. Rank: 2*

Eutrophic

Threat - All categories impact this habitat type

- Actions: • *Land/water protection; mitigate runoff and nutrient input from defective septic systems. Rank: 3*

Threat - Increased nutrients, stimulate plant growth

- Actions: • *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions: • *Education and awareness; educate the public. Rank: 2*

Forested Mineral Soil Wetlands

Threat - Legal buffer not adequate to protect habitat; changes in understory documented: sources include siltation of streams, non-native vegetation in edge habitat

- Actions: • *Site/area protection; Identify and acquire as needed, focusing on upland buffers. Rank: 2.5*
- *Resource and habitat protection; Increase extent of undeveloped land in upland buffers. Rank: 2.5*
 - *Policies and regulations; increase protection and extent of upland buffers in wetlands regulations. Rank: 2.5*

Threat - Any alterations in groundwater, overland flow can impact this habitat

- Actions: • *Site/area protection; Identify any land acquisition needs that limit this threat. Rank: 2*
- *Policies and regulations; support restrictions on changes in hydrology of wetlands. Rank: 2*
 - *Site/area management. Rank: 2*

Threat - Hemlock woolly adelgid causing dieoff of hemlock, resulting openings may provide areas for spread of invasive plants.

- Actions: • *Invasive/problematic species control; Utilize current acceptable methods for controlling woolly adelgid. Rank: 2.5*
- *Habitat and natural process restoration; Allow natural succession of habitat in the event of loss of hemlock. Rank: 2*
 - *Policies and regulations. Rank: 2*

Threat - Wetlands used for illegal dumping,

- Actions: • *Site/area protection; Identify and acquire problem sites. Rank: 2*
- *Site/area management; control public access by vehicles. Rank: 2*

Threat - Loss of habitat from plant succession

- Actions: • *Research, survey, inventory, monitor habitats; Identify priority parcels to retain as core forest areas with minimal management. Rank: 3*

Threat - Legal buffer not adequate to protect habitat; changes in understory documented: sources include siltation of streams, non-native vegetation in edge habitat.

- Actions: • *Site/area protection; Identify and acquire as needed, focusing on upland buffers. Rank: 2.5*
- *Resource and habitat protection; Increase extent of undeveloped land in upland buffers. Rank: 2.5*
 - *Policies and regulations; increase protection and extent of upland buffers in wetlands regulations. Rank: 2.5*

Threat - Any alterations in groundwater, overland flow can impact this habitat

- Actions: • *Site/area protection; Identify any land acquisition needs that limit this threat. Rank: 2*
- *Policies and regulations; limit changes in hydrology of wetlands. Rank: 2*

Threat - Emerald ash borer in black ash subtype

- Actions: • *Invasive/problematic species control; Include early detection; Identify problem sites and conduct control as needed. Rank: 2*
- *Policies and regulations; support restrictions on nuisance organisms. Rank: 2*

Threat - Wetlands used for illegal dumping,

- Actions: • *Site/area protection; Identify and acquire problem sites. Rank: 2*
- *Site/area management; control public access by vehicles. Rank: 2*

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Threat - Loss of habitat from plant succession

- Actions:
- *Research, survey, inventory, monitor habitats; Identify priority parcels to retain as core forest areas with minimal management. Rank: 2*

Threat - Most of these habitats are too small to be afforded adequate protection under current wetlands regulations

- Actions:
- *Site/area protection; acquisition of clusters of pools when possible. Rank: 2.5*
 - *Resource and habitat protection; retain natural forest cover surrounding these wetlands. Rank: 3*
 - *Policies and regulations; amend wetlands regulations to support greater protection for small wetlands. Rank: 2.5*

Threat - Vernal pools often used for illegal dumping.

- Actions:
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Policies and regulations; support greater penalties for illegal dumping. Rank: 2*

Threat - Heavy equipment use during logging operations; opening of tree canopy may alter habitat

- Actions:
- *Training; foresters and loggers to avoid these habitats. Rank: 3*
 - *Awareness and communications; land owner education concerning values of vernal pools. Rank: 3*

Threat - Water table drawdowns

- Actions:
- *Site/area management; Manage sites to maintain natural hydrologies. Rank: 2.5*
 - *Policies and regulations; increase restrictions to alteration of natural hydrologies. Rank: 2*

Threat - This threat has been relatively minor in these habitats.

- Actions:
- *Invasive/problematic species control; Identify and control control of invasives as needed. Rank: 2*

Threat - Household sewage and urban waste water; Including salt and other road runoff.

- Actions:
- *Resource and habitat protection; greater protection of buffers. Rank: 2*
 - *Site/area management; management of adjacent land uses to prevent pollution. Rank: 2*
 - *Policies and regulations; increase restrictions in land use planning to prevent pollution. Rank: 2*

Threat - Impacts in buffer areas; little known about this community. Small distribution; more work needed.

- Actions:
- *Site/area protection; Identify and acquire as needed, focusing on upland buffers. Rank: 2.5*
 - *Resource and habitat protection; Increase extent of undeveloped land in upland buffers. Rank: 2.5*
 - *Policies and regulations; increase protection and extent of upland buffers in wetlands regulations. Rank: 2.5*

Threat - Any alterations in groundwater, overland flow can impact this habitat

- Actions:
- *Site/area protection; Identify any land acquisition needs that limit this threat. Rank: 2*
 - *Policies and regulations; support restrictions on changes in hydrology of wetlands. Rank: 2*

Threat - Threat from invasive plants is primarily along upland edges.

- Actions:
- *Invasive/problematic species control; Identify problem sites and conduct control as needed. Rank: 2*
 - *Policies and regulations; support restrictions on nuisance organisms. Rank: 2*

Threat - Wetlands used for illegal dumping,

- Actions:
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Site/area management; control public access by vehicles. Rank: 2*

Threat - Loss of habitat from plant succession

- Actions:
- *Research, survey, inventory, monitor habitats; Identify priority parcels to retain as core forest areas with minimal management. Rank: 2*

Threat - Historically, floodplains heavily developed for industrial and commercial uses, landfills, low income housing, recreational fields, etc.

- Actions:
- *Site/area protection; Identify and acquire habitats as needed. Rank: 2*
 - *Resource and habitat protection; Identify potential restoration sites. Rank: 3*

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- *Site/area management; Conduct restoration projects. Rank: 2.5*
- *Habitat and natural process restoration; allow natural flooding regimes to function. Rank: 3*

Threat - Situated along major rivers, sediments may contain variable levels of pollutants.

- Actions:*
- *Site/area management; Identify potential cleanup sites. Rank: 3*
 - *Habitat and natural process restoration; Let some areas remain undisturbed to prevent release of pollutants from sediments. Rank: 2*

Threat - These areas are often used for illegal dumping, and also capture large amounts of trash during flood events.

- Actions:*
- *Site/area management; control public access by vehicles. Rank: 2.5*
 - *Policies and regulations; support increases in fines for illegal dumping. Rank: 2*

Threat - Increased flooding may alter habitat

- Actions:*
- *Site/area protection; identify upland areas that may support this habitat type in future years. Rank: 2*
 - *Data collection and analysis; Monitor changes in habitat that may be caused by climate change. Rank: 2.5*

Threat - Increased flooding may alter habitat

- Actions:*
- *Site/area protection; identify upland areas that may support this habitat type in future years. Rank: 2*
 - *Data collection and analysis; Monitor changes in habitat that may be caused by climate change. Rank: 2.5*

Forested Peatlands

Threat - Water withdrawals; undersized/blocked culverts

- Actions:*
- *Habitat and natural process restoration; Restore natural hydrologic processes where needed. Rank: 2*
 - *Policies and regulations; incorporate hydrologic functioning in permitting process. Rank: 2*

Threat - This threat has been relatively minor in these habitats.

- Actions:*
- *Invasive/problematic species control; Identify and control invasives as needed. Rank: 1.5*

Threat - Deer browsing, this threat has been relatively low in this habitat.

- Actions:*
- *Invasive/problematic species control; Increase hunting opportunities for deer in problem areas. Rank: 1.5*

Threat - Water withdrawals; undersized/blocked culverts

- Actions:*
- *Habitat and natural process restoration; Restore natural hydrologic processes where needed. Rank: 2*
 - *Policies and regulations; incorporate hydrologic functioning in permitting process. Rank: 2*

Threat - This threat has been relatively minor in these habitats.

- Actions:*
- *Invasive/problematic species control; Identify and control invasives as needed. Rank: 1.5*

Threat - Deer browsing, this threat has been relatively low in this habitat.

- Actions:*
- *Invasive/problematic species control; Increase hunting opportunities for deer in problem areas. Rank: 1.5*

Intertidal

Threat - Habitat shifting and alteration; Habitat considered the most vulnerable to impacts of sea level rise - increased salinity, storm damage, and limited migration opportunities.

- Actions:*
- *Site/area protection; Identify and protect areas for habitat migration. Rank: 2.5*
 - *Habitat and natural process restoration; insure natural processes continue in event of sea level rise. Rank: 2*
 - *Policies and regulations; strengthen existing regulations to protect potential sites for habitat migration. Rank: 3*
 - *Education and awareness; Outreach events to educate public about potential loss of biological resources from sea level rise and other climate change issues. Rank: 2.5*

Threat - Invasive non-native/alien species; Phragmites, Japanese knotweed, tall pepper weed, others

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Actions: • *Invasive/problematic species control; control spread of Phragmites using appropriate methods, control other invasives as needed. Rank: 2.5*

Threat - Household sewage and urban waste water; high, but improving with cesspool phase out and wastewater treatment improvements

Actions: • *Site/area protection; Identify and protect sites, especially upland buffers. Rank: 2.5*
• *Resource and habitat protection; maintain buffers. Rank: 2.5*
• *Policies and regulations; strengthen existing regulations to protect wider upland buffers. Rank: 2.5*

Threat - Industrial and military effluents

Actions: • *Site/area protection; Identify and protect sites, especially upland buffers. Rank: 2*
• *Resource and habitat protection; maintain adequate upland buffers. Rank: 2.5*
• *Policies and regulations; strengthen existing regulations to protect wider buffers. Rank: 2.5*

Threat - Other ecosystem modifications; invasives control by chemical means can impact these systems

Actions: • *Site/area management; control invasive species using mechanical methods. Rank: 2*
• *Policies and regulations; prohibit use of chemical controls in these wetland habitats. Rank: 2*

Threat - Lack of information from research to address habitat and taxonomic issues

Actions: • *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 3*

Threat - Habitat fragmentation and degradation from human disturbance

Actions: • *Outreach; Control public access at priority sites. Rank: 3*

Threat - Recreational activities; disturbance to feeding shorebirds from boaters, shellfishers, etc.

Actions: • *Site/area protection; Identify and protect uplands adjacent to mud flats to control public intrusion. Rank: 2*
• *Policies and regulations; establish regulations to control public intrusion on important feeding areas. Rank: 2*
• *Awareness and communications; include habitat sensitivities in boating instruction, shellfishing areas. Rank: 2*

Threat - Invasive non-native/alien species; Phragmites

Actions: • *Invasive/problematic species control; Control spread of Phragmites using appropriate methods. Rank: 2*

Threat - Habitat shifting and alteration.; A naturally shifting habitat, vulnerable to lack of habitat formation sites.

Actions: • *Site/area protection; provide opportunity for habitat migration. Rank: 2.5*
• *Resource and habitat protection; provide opportunity for shifting habitat. Rank: 2.5*
• *Other; Conduct monitoring to detect habitat changes caused by climate change. Rank: 2.5*

Threat - Household sewage and urban waste water; sediments prone to accumulation of pollutants

Actions: • *Site/area management; Maintain upland buffers to reduce pollution. Rank: 2.5*
• *Policies and regulations; provide for more extensive upland buffers in regulations to protect important sites. Rank: 2.5*

Threat - Lack of information from research to address habitat and taxonomic issues

Actions: • *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 3*

Threat - Habitat fragmentation and degradation from human disturbance

Actions: • *Outreach; Control public access at priority sites. Rank: 3*

Threat - Invasive non-native species; Marine invasives (algae and invertebrates)

Actions: • *Invasive/problematic species control; Control problematic species where feasible. Rank: 3*
• *Legislation; Strengthen regulations concerning container vessels bringing in invasive alien species. Rank: 2.5*

Threat - Habitat shifting and alteration; Potential issues with sea level rise

Actions: • *Site/area protection; Identify and protect areas for potential habitat migration. Rank: 3*
• *Data collection and analysis; Monitor changes in habitat caused by climate change. Rank: 2.5*

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Threat - Lack of information from research to address habitat and taxonomic issues

- Actions:*
- *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 3*

Threat - Habitat fragmentation and degradation from human disturbance

- Actions:*
- *Outreach; Control public access at priority sites. Rank: 3*

Threat - Habitat shifting and alteration; Threat considered greatest to high marsh type due to limited migration opportunities.

- Actions:*
- *Site/area protection; Identify areas for protection that could potentially provide habitat migration opportunities. Rank: 2.5*
 - *Policies and regulations; Incorporate potential migration areas into regulatory programs. Rank: 2.5*
 - *Habitat and natural process restoration; allow natural migration of habitat. Rank: 2*
 - *Research, survey, monitoring habitats; Monitor changes in habitat caused by climate change. Rank: 2.5*

Threat - Invasive non-native/alien species; Phragmites, Japanese knotweed, tall pepper weed, and potentially others

- Actions:*
- *Invasive/problematic species control; identify and conduct control of invasives as needed. Rank: 2.5*
 - *Training; Establish early detection and rapid response program for invasive species. Rank: 3*

Threat - Household sewage and urban waste water; Pollutants accumulate in sediments in urban areas, along tidal portions of major rivers.

- Actions:*
- *Site/area protection; Identify and acquire sites, especially upland buffers to these habitats. Rank: 2.5*
 - *Resource and habitat protection; maintain adequate upland buffers. Rank: 2.5*
 - *Policies and regulations; strengthen regulations to enhance protection of upland buffers. Rank: 2.5*

Threat - Housing and urban areas; Commercial and industrial areas; Tourism and recreation areas ; Historically, most of the 50% loss of this habitat type was due to filling for a variety of purposes. Today, threat curbed by regulation.

- Actions:*
- *Site/area protection; Identify sites for protection, especially upland buffers. Rank: 2*
 - *Resource and habitat protection; maintain upland buffers. Rank: 2*
 - *Policies and regulations; strengthen regulations to protect upland buffers. Rank: 2.5*

Threat - Recreational activities; Boating, shellfishing

- Actions:*
- *Site/area management; control public access to reduce impacts from intrusion. Rank: 2*
 - *Policies and regulations; strengthen existing regulations regarding boat motor size, no wake zone, etc. Rank: 1.5*

Threat - Lack of information from research to address habitat and taxonomic issues

- Actions:*
- *Research, survey, inventory, monitor populations. Rank: 3*

Threat - Habitat fragmentation and degradation from human disturbance

- Actions:*
- *Outreach; Control public access at priority sites. Rank: 3*

Threat - Recreational activities; disturbance to feeding shorebirds from boaters, shellfishers, etc.

- Actions:*
- *Site/area protection; Identify and protect uplands adjacent to sand flats to control public intrusion. Rank: 2*
 - *Policies and regulations; establish regulations to control public intrusion on important feeding areas. Rank: 2*
 - *Awareness and communications; include habitat sensitivities in boating instruction, shellfishing areas. Rank: 2*

Threat - Invasive non-native/alien species; Phragmites

- Actions:*
- *Invasive/problematic species control; Control spread of Phragmites using appropriate methods. . Rank: 2*

Threat - Habitat shifting and alteration.; A naturally shifting habitat, vulnerable to lack of habitat formation sites.

- Actions:*
- *Site/area protection; provide opportunity for habitat migration. Rank: 2.5*

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- *Resource and habitat protection; provide opportunity for shifting habitat. Rank: 2.5*
- *Other; Conduct monitoring to detect habitat changes caused by climate change. Rank: 2.5*

Threat - Household sewage and urban waste water; sediments prone to accumulation of pollutants

- Actions:*
- *Site/area management; Maintain upland buffers to reduce pollution. Rank: 2.5*
 - *Policies and regulations; provide for more extensive upland buffers in regulations to protect important sites. Rank: 2.5*

Threat - Lack of information from research to address habitat and taxonomic issues

- Actions:*
- *Research, survey, inventory, monitor populations; Evaluate use of migratory stopover/winter habitat. Rank: 3*

Threat - Habitat fragmentation and degradation from human disturbance

- Actions:*
- *Outreach; Control public access at priority sites. Rank: 3*

Lower Perennial

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 5*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 2*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 3*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 4*

Mixed Deciduous/Coniferous Forests

Threat - Highly developable habitat type; large portions already fragmented by housing.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*

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- *Outreach; Educate private landowners and general public about the threat of 'overmanagement' of forest lands (removal of understory, ground cover, and leaf litter for control of ticks). Rank: 2*
- *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*
- *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
- *Policies and regulations; Provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 3*

Threat - Utility and service lines

- Actions:*
- *Site/area protection; Identify and acquire problem sites. Rank: 3*
 - *Resource and habitat protection; control human access by fencing, patrols, etc. Rank: 2*
 - *Habitat and natural process restoration. Rank: 2*
 - *Site/area management. Rank: 2*
 - *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*

Threat - A widespread upland forest type on highly developable upland soils.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
 - *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*
 - *Outreach; Educate private landowners and general public about the threat of 'overmanagement' of forest lands (removal of understory, ground cover, and leaf litter for control of ticks). Rank: 2*

Threat - New road construction causes fragmentation of habitat.

- Actions:*
- *Site/area protection; Identify and acquire parcels; Identify any land acquisition needs that limit this threat. Rank: 3*
 - *Resource and habitat protection; Provide opportunities for inland migration. Rank: 3*
 - *Policies and regulations; Provide local municipalities and state with the information to locate transportation corridors in appropriate places; locate roads for potential abandonment; incorporate sufficient natural buffer widths into local subdivision regulations. Rank: 2.5*

Threat - Utility and service lines; Causes fragmentation of habitat, but plans for new corridors have been limited

- Actions:*
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Resource and habitat protection; control human access by fencing, patrols, etc. Rank: 2*
 - *Policies and regulations; restrict utility upgrades, lines/pipes to existing corridors; encourage underground placement of utility lines. Rank: 2*

Threat - Threat to mature forests primarily at habitat edges, some incursion by woody species into interiors.

- Actions:*
- *Invasive/problematic species control; expand and fund early detection and response program; give towns tools to ID and manage invasives; develop BMPs for state and local transportation depts. (disposal sites, equipment cleaning etc); (earthworms, may include an education component); increase funding for control programs. . Rank: 3*
 - *Habitat and natural process restoration; allow for natural mature, functioning forests that will be resistant to invasives. (limit cutting of snags, limit clearing, etc). Rank: 2.5*

Threat - Clearing within forest core areas prevents forest maturation and increases threat from invasives

- Actions:*
- *Habitat and natural process restoration. Rank: 2*
 - *Policies and regulations. Rank: 2*

Threat - Deer browsing

- Actions:*
- *Invasive/problematic species control; Encourage the taking of more deer (special permits,*

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etc, allow hunters to take more, introduce more hunting capacity if existing hunter population insufficient, get more people into hunting (women etc); temporary regulations to reduce the population and then maintain it. Rank: 2

Nearshore

Threat - All categories impact this habitat type

Actions: • *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

Actions: • *Land/water protection; Best management practices for agriculture will mitigate impacts. Rank: 2.5*

Threat - Structure can be targeted by fishing and overexploited

Actions: • *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2.5*

Threat - All categories impact this habitat type

Actions: • *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

Actions: • *Land/water protection; Best management practices for agriculture and aquaculture will mitigate impacts. Rank: 2.5*

Threat - Fishing techniques can impact habitats (i.e. trawling, dredging)

Actions: • *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2*

Threat - Loss of riparian vegetation, fringe wetlands due to shore line development, bulkheads, and poor urban development

- Actions:* • *Site/area management; Minimize the loss of riparian habitats as much as possible; Avoid locating roads near wetlands and fish bearing streams; Roads should be sited to avoid sensitive areas such as wetlands, streams, and steep slopes; Where ever possible, "soft" approaches (such as beach nourishment, vegetative plantings, and placement of large woody debris) to shoreline modification should be used. Rank: 2*
- *Site/area management; Avoid placing pipelines and accessory equipment used in conjunction with construction or dredging operations close to kelp beds, eelgrass beds, estuarine/salt marshes and any other high value habitat. Rank: 2*
 - *Law and policy*
 - *The diking and draining of tidal marshlands and estuaries should not be undertaken unless a satisfactory compensatory mitigation plan is in effect and monitored. Rank: 2*

Threat - Dredging, dredge disposal and other benthic disturbances such as trawling

- Actions:* • *Data collection and analysis; Undertake multi season, pre- and post- dredging biological surveys to assess impacts to animal and submerged aquatic vegetation communities. Rank: 2*
- *Data collection and analysis; Identify and characterize fisher habitat functions and service in the project area. Rank: 2*

Threat - All categories impact this habitat type

Actions: • *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

Actions: • *Land/water protection; Best management practices for agriculture will mitigate impacts. Rank: 2.5*

Threat - Structure can be targeted by fishing and overexploited for certain species impacting biodiversity

Actions: • *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2*

Threat - Loss of riparian vegetation, fringe wetlands due to shore line development, bulkheads, and poor urban development

- Actions:* • *Site/area management; Minimize the loss of riparian habitats as much as possible; Avoid locating roads near wetlands and fish bearing streams; Roads should be sited to avoid sensitive areas such as wetlands, streams, and steep slopes; Where ever possible, "soft" approaches (such as beach nourishment, vegetative plantings, and placement of large*

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woody debris) to shoreline modification should be used. Rank: 2

- *Site/area management; Avoid placing pipelines and accessory equipment used in conjunction with construction or dredging operations close to kelp beds, eelgrass beds, estuarine/salt marshes and any other high value habitat. Rank: 2*
- *Law and policy*
- *The diking and draining of tidal marshlands and estuaries should not be undertaken unless a satisfactory compensatory mitigation plan is in effect and monitored. Rank: 2*

Threat - Dredging, dredge disposal and other benthic disturbances such as trawling

- Actions:*
- *Data collection and analysis; Undertake multi season, pre- and post- dredging biological surveys to assess impacts to animal and submerged aquatic vegetation communities. Rank: 2*
 - *Data collection and analysis; Identify and characterize fisher habitat functions and service in the project area. Rank: 2*

Threat - Sewage pollution: combined sewage overflow, failing and inadequate systems, boat waste

- Actions:*
- *Data collection and analysis; Identify areas in greatest need of storm and waste water infrastructure improvements. Rank: 2*
 - *Compliance and enforcement; Enforce marine waste water disposal regulations. Rank: 2*
 - *Outreach; Provide educational opportunities and video advertisement that explains effects of storm water runoff and importance of proper boat waste disposal. Rank: 2*

Threat - Fishing techniques can impact habitats (i.e. trawling, dredging)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2*

Threat - These areas are often seen as viable for offshore dumping of waste (i.e. dredge materials)

- Actions:*
- *Land/water protection; perform bio-assessments of areas before dumping can take place. Rank: 2.5*

Threat - Fishing techniques can impact habitats (i.e. trawling with rockhopper gear)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2*

Threat - Overexploitation can impact biodiversity in these habitats

- Actions:*
- *Species management; careful management can mitigate the impacts of this threat. Rank: 2*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

- Actions:*
- *Land/water protection; Best management practices for agriculture and aquaculture will mitigate impacts. Rank: 2.5*

Threat - Fishing techniques can impact habitats (i.e. trawling, dredging)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2.5*

Offshore

Threat - Fishing techniques can impact habitats (i.e. trawling with rockhopper gear, fish pots)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas and regulations can help maintain biodiversity in areas. Rank: 2.5*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

- Actions:*
- *Land/water protection; Best management practices for agriculture and aquaculture will mitigate impacts. Rank: 2.5*

Threat - Structure can be targeted by fishing and overexploited for certain species impacting biodiversity

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2.5*

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Threat - Dredging, dredge disposal and other benthic disturbances such as trawling

- Actions:*
- *Data collection and analysis; Undertake multi season, pre- and post- dredging biological surveys to assess impacts to animal and submerged aquatic vegetation communities; Address cumulative impacts of past and current dredging operations on fishery resources by considering them as part of the permitting process; identify and characterize fishery habitat functions and service in the project area. Rank: 2*
 - *Site/area management; Adequate compensatory mitigations should be provided for unavoidable impacts; Study all options for disposal of dredged materials, including disposal sites and methods used, upland disposal sites should be considered as an alternative to offshore disposal sites. Rank: 2*
 - *Law and policy; Avoid new dredging to the maximum extent possible; Projects should be permitted only for water dependant purposes and only when no feasible alternatives are available. Rank: 2*

Threat - Oil spills, marine accidents, ocean dumping

- Actions:*
- *Data collection and analysis; Increase data bank on species habitat preferences and use in oil spill response planning and mapping. Rank: 2*
 - *Law and policy; Increase number and training of response teams in the event of an accident. Rank: 2*

Threat - These areas are often seen as viable for offshore dumping of waste (i.e. dredge materials)

- Actions:*
- *Land/water protection; perform bio-assessments of areas before dumping can take place. Rank: 2*

Threat - Fishing techniques can impact habitats (i.e. trawling, dredging)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2.5*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

- Actions:*
- *Land/water protection; Best management practices for agriculture and aquaculture will mitigate impacts. Rank: 2.5*

Threat - Fishing techniques can impact habitats (i.e. trawling, dredging)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2.5*

Threat - These areas are often seen as viable for offshore dumping of waste (i.e. dredge materials)

- Actions:*
- *Land/water protection; perform bio-assessments of areas before dumping can take place. Rank: 2.5*

Threat - Fishing techniques can impact habitats (i.e. trawling, dredging)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas. Rank: 2.5*

Threat - Fishing techniques can impact habitats (i.e. trawling with rockhopper gear, fish pots)

- Actions:*
- *Site/area protection; Marine protected areas can be created to protect particularly sensitive areas and regulations can help maintain biodiversity in areas. Rank: 2*

Threat - Overexploitation can impact biodiversity in these habitats

- Actions:*
- *Species management; Regulations can help maintain biodiversity in areas. Rank: 2*

Threat - Dredging, dredge disposal and other benthic disturbances

- Actions:*
- *Data collection and analysis; Undertake multi season, pre- and post- dredging biological surveys to assess impacts to animal and submerged aquatic vegetation communities. Rank: 2*
 - *Data collection and analysis; Address cumulative impacts of past and current dredging operations on fishery resources by considering them as part of the permitting process; Identify and characterize fishery habitat functions and service in the project area. Rank: 2*
 - *Site/area management; Adequate compensatory mitigation should be provided for unavoidable impacts; Study all options for disposal of dredged materials, including disposal sites and methods used, upland disposal sites should be considered as an alternative to*

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offshore disposal sites. Rank: 2

- *Law and policy; Avoid new dredging to the maximum extent possible; Projects should be permitted only for water dependant purposes and only when no feasible alternatives are available. Rank: 2*

Threat - Oil spills, marine accidents, ocean dumping

- Actions:*
- *Data collection and analysis; Increase data bank on species habitat preferences and use in oil spill response planning and mapping. Rank: 2*
 - *Law and policy; Increase number and training of response teams in the event of an accident. Rank: 2*

Oligatrophic

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; mitigate runoff and nutrient input from defective septic systems. Rank: 3*

Threat - Increased nutrients, stimulate plant growth

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 2*

Open Mineral Soil Wetlands

Threat - Any alteration of hydrology; groundwater flow; water table fluctuation.

- Actions:*
- *Site/area protection; Identify and acquire sites, focusing on extending upland buffers. Rank: 2*
 - *Resource and habitat protection; insure natural regulation of water levels in wetlands. Rank: 2*
 - *Policies and regulations; support strengthening of wetlands regulations regarding minimal size of wetlands and extending buffer limits. Rank: 2*

Threat - Phragmites, purple loosestrife, other aquatics.

- Actions:*
- *Invasive/problematic species control; identify problem areas and conduct control measures. Several loosestrife infestations are using insect control. Rank: 2*

Threat - A chronic background problem varying by location.

- Actions:*
- *Site/area management; conduct management practices that do not impact wetland hydrology or introduce chemicals into wetland systems. Rank: 2*
 - *Policies and regulations; adopt best management practices that limit wetland pollution. Rank: 2*

Threat - Habitat shifting and alteration and storms and flooding; Could be issues with increased precipitation, flooding, etc.

- Actions:*
- *Data collection and analysis; Monitor sites and document any changes in wetland systems caused by climate change. Rank: 2*
 - *Site/area management; conduct management necessary based on monitoring information. Rank: 2*

Threat - Habitat degradation from impairment of water quality

- Actions:*
- *Research, survey, inventory, monitor populations; Evaluate water quality effects on priority species. Rank: 3*
 - *Planning; Develop strategies to mitigate aquatic degradation. Rank: 3*

Threat - Lack of research to guide threat assessment and prioritization of conservation planning; Lack of information from research to address habitat and taxonomic issues

- Actions:*
- *Research, survey, inventory, monitor populations; Identify concentration areas for non-breeding populations. Rank: 2*

Threat - Phragmites, purple loosestrife, other aquatics.

- Actions:*
- *Invasive/problematic species control; Identify and control problem situations. Rank: 2*
 - *Site/area management; maintain water levels as deterrent to invasion; conduct early detection. Rank: 2*

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Threat - Primarily runoff from roads and other impervious surfaces.

- Actions:*
- *Site/area management; install drainage areas and other controls of road runoff. Rank: 2*
 - *Policies and regulations; increase penalties for illegal dumping. Rank: 1*

Threat - Lack of research to guide threat assessment and prioritization of conservation plan; Lack of information from research to address habitat and taxonomic issues

- Actions:*
- *Data collection and analysis. Rank: 2*

Threat - Phragmites, purple loosestrife, other aquatics.

- Actions:*
- *Invasive/problematic species control; Identify and control problem situations. Rank: 2*
 - *Site/area management; maintain water levels as deterrent to invasion; conduct early detection. Rank: 2*

Threat - Loss of habitat from plant succession

- Actions:*
- *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2*
 - *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2*
 - *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Larger examples are in impounded areas along major rivers where sediments may contain sizable amounts of chemicals, heavy metals, and other effluents.

- Actions:*
- *Site/area management; clean up, remove contaminated sediments; identify marsh habitats within existing clean-up sites. Rank: 1.5*
 - *Policies and regulations; consider reducing existing discharge limits. Rank: 1*

Threat - Primarily Phragmites, water chestnut, and purple loosestrife.

- Actions:*
- *Invasive/problematic species control; identify problem areas and conduct control measures. Several loosestrife infestations are using insect control. Rank: 2.5*
 - *Policies and regulations; support regulated buffers of small wetlands to reduce spread of invasives from surrounding uplands. Rank: 2*
 - *Education and awareness; guidelines to limit unintended transport of invasives (boater guides, boot cleaning, aquaria draining, etc). Rank: 3*

Threat - Primarily chemicals from croplands. A chronic background problem varying by location.

- Actions:*
- *Site/area management; establishment of vegetative setbacks and/or livestock excluders between marsh and development area by landowner. Rank: 3*
 - *Policies and regulations; support the promulgation of buffer zones around small marshes; develop and enforce BMPs. Rank: 2*

Threat - Habitat shifting and alteration and storms and flooding; Increased flooding may alter riverine habitats

- Actions:*
- *Site/area protection; protect upland habitats to provide migration opportunities. Rank: 2*
 - *Data collection and analysis; Monitoring for community changes due to changing water regime. Rank: 3*
 - *Site/area management; road salt control; sediment management; stormwater system improvements and maintenance; septic system upgrades and maintenance; cesspool phase out (esp. in lake communities);. Rank: 3*
 - *Policies and regulations; support and enforce existing regulations and ordinances and BMPs. Rank: 2.5*

Threat - Loss of habitat from plant succession

- Actions:*
- *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2*
 - *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2*
 - *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Larger examples are in impounded areas along major rivers where sediments may contain sizable amounts of chemicals, heavy metals, and other effluents.

- Actions:*
- *Site/area management; clean up, remove contaminated sediments; identify marsh habitats within existing clean-up sites. Rank: 1.5*

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- *Policies and regulations; consider reducing existing discharge limits. Rank: 1*

Threat - Primarily Phragmites, water chestnut, and purple loosestrife

- Actions:*
- *Invasive/problematic species control; identify problem areas and conduct control measures. Several loosestrife infestations are using insect control. Rank: 2.5*
 - *Policies and regulations; Support regulated buffers of small wetlands to reduce spread of invasives from surrounding uplands; Implement and enforce 2010 stormwater regulations. Rank: 2*
 - *Education and awareness; Guidelines to limit unintended transport of invasives (boater guides, boot cleaning, aquaria draining, etc). Rank: 3*

Threat - Primarily chemicals from croplands. A chronic background problem varying by location.

- Actions:*
- *Site/area management; Establishment of vegetative setbacks and/or livestock excluders between marsh and development area by landowner. Rank: 3*
 - *Policies and regulations; support the promulgation of buffer zones around small marshes; develop and enforce BMPs. Rank: 2*

Threat - Habitat shifting and alteration and storms and flooding; Increased flooding may alter riverine habitats

- Actions:*
- *Site/area management; protect upland habitats to provide migration opportunities. Rank: 2*
 - *Data collection and analysis; Monitoring for community changes due to changing water regime. Rank: 3*
 - *Site/area management; road salt control; sediment management; stormwater system improvements and maintenance; septic system upgrades and maintenance; cesspool phase out (esp. in lake communities). Rank: 3*
 - *Policies and regulations; support and enforce existing regulations and ordinances and BMPs. Rank: 2.5*

Threat - The historic elimination of this community type was caused by construction of dams that impeded tidal flow in rivers.

- Actions:*
- *Habitat and natural process restoration; Dam removals. Rank: 2.5*
 - *Policies and regulations; Assistance to permitting agencies regarding dam removal projects. Rank: 2.5*

Threat - Primarily Phragmites and purple loosestrife.

- Actions:*
- *Invasive/problematic species control; identify problem areas and conduct control measures. Several loosestrife infestations are using insect control. Rank: 2.5*

Threat - As these habitats were formally at the mouths of major rivers, sediments likely contain high levels of pollutants.

- Actions:*
- *Site/area management; Determine best methods for conducting cleanup of sites, current best option is allowing sediments to remain undisturbed. Rank: 2*
 - *Policies and regulations; Strengthening of current regulations and discharge limits. Rank: 2*

Threat - Habitat shifting and alteration and storms and flooding; Increased flooding may alter riverine habitats

- Actions:*
- *Resource and habitat protection; Currently there is limited potential for migration of this type with sea level rise. Dam removals are needed for this type to persist in RI. Rank: 2.5*
 - *Habitat and natural process restoration; Dam removal to permit tidal flow to its natural inland extent. Rank: 2.5*

Threat - Loss of habitat from plant succession

- Actions:*
- *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2*
 - *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2*
 - *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Although some smaller isolated sites still threatened by development, most of the better examples are protected; Threat primarily runoff from developed land

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*
 - *Resource and habitat protection; Identify any negative impacts to ponds, i.e., chemical and*

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other effluents in runoff, docks, etc. intruding on shorelines. Rank: 2

- *Invasive/problematic species control; Currently, Phragmites has intruded at two sites - Worden and Tuckers Pond; European Gray Willow has been found on several ponds; Early detection and rapid response needed to detect both new populations of Phragmites, and new species. Rank: 2.5*
- *Site/area management; Currently, Phragmites has intruded at two sites - Worden and Tuckers Pond; European Gray Willow has been found on several ponds; Early detection and rapid response needed to detect both new populations of Phragmites, and new species. Rank: 2.5*
- *Policies and regulations; This type is protected as a special feature under wetlands regulations, but additional protection is needed by expanding buffer zone requirements, etc. Rank: 2*

Threat - Canada goose browsing of aquatic plants.

Actions: • *Invasive/problematic species control; Investigate methods for reducing goose use. Rank: 2*

Threat - Boating on larger ponds and ATV traffic on beaches/shorelines.

Actions: • *Policies and regulations; Some regulation may be needed to limit boat motor size and access by ATVs. Rank: 2*

Threat - Alteration of hydrologic cycle may affect regular fluctuation of pond water levels on which this community depends

Actions: • *Data collection and analysis; Develop an appropriate monitoring scheme to detect changes in the physical and biological characteristics of the ponds caused by climate change. Rank: 3*

Threat - Any alteration of hydrology; groundwater flow; water table fluctuation.

- Actions:*
- *Site/area protection; Identify and acquire sites, focusing on extending upland buffers. Rank: 2*
 - *Resource and habitat protection; insure natural regulation of water levels in wetlands. Rank: 2*
 - *Policies and regulations; Support strengthening of wetlands regulations regarding minimal size of wetlands and extending buffer limits; Implement and enforce 2010 stormwater regulations. Rank: 2*

Threat - Phragmites, purple loosestrife, other aquatics.

Actions: • *Invasive/problematic species control; identify problem areas and conduct control measures. Several loosestrife infestations are using insect control. Rank: 2*

Threat - A chronic background problem varying by location.

- Actions:*
- *Site/area management; conduct management practices that do not impact wetland hydrology or introduce chemicals into wetland systems. Rank: 2*
 - *Policies and regulations; adopt best management practices that limit wetland pollution. Rank: 2*

Threat - Habitat shifting and alteration and storms and flooding; Could be issues with increased precipitation, flooding, etc.

- Actions:*
- *Data collection and analysis; Monitor sites and document any changes in wetland systems caused by climate change. Rank: 2*
 - *Site/area management; conduct management necessary based on monitoring information. Rank: 2*

Open Peatlands

Threat - Phragmites a dominant feature at one location.

Actions: • *Invasive/problematic species control; Control Phragmites using mechanical (non-chemical) methods. Rank: 2.5*

Threat - May not be able to shift landward with rising sea level

- Actions:*
- *Site/area protection; identify opportunities for habitat migration. Rank: 3*
 - *Data collection and analysis; monitor habitats for changes caused by climate change. Rank: 3*

Threat - Groundwater seepage from uplands is key element of this community; disruption of flow is

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threat.

- Actions:*
- *Site/area protection; identify and protect upland sources of groundwater. Rank: 2.5*
 - *Resource and habitat protection; maintain adequate buffers for upland freshwater sources. Rank: 2.5*

Threat - May result in loss of plants with northern affinities, including black spruce.

- Actions:*
- *Data collection and analysis; monitor site for changes in physical and biological characteristics caused by climate change. Rank: 3*

Threat - Development in adjacent uplands causing siltation and other impacts.

- Actions:*
- *Site/area protection; Identify and acquire habitats as needed. Rank: 2.5*
 - *Policies and regulations; Increase size of upland buffers. Rank: 2.5*

Threat - Groundwater pumping

- Actions:*
- *Site/area protection; Identify and acquire sites that provide additional protection to water sources. Rank: 2*
 - *Policies and regulations; increase extent of upland buffers. Rank: 2.5*

Threat - This threat has been relatively minor in these habitats.

- Actions:*
- *Invasive/problematic species control; Identify and conduct control of invasives as needed. Rank: 2*

Threat - Some potential for this threat in conjunction with nearby development.

- Actions:*
- *Site/area protection; Identify and acquire sites that increase protection for these wetlands. Rank: 2*
 - *Resource and habitat protection; manage upland areas to reduce effluent flow to wetlands. Rank: 2*
 - *Habitat and natural process restoration; allow natural processes to restore impacted habitats. Rank: 1.5*
 - *Policies and regulations; strengthen regulations regarding septic systems. Rank: 2*

Threat - Nutrients and pesticides/herbicides

- Actions:*
- *Site/area protection; Identify and acquire problem sites. Rank: 2*
 - *Policies and regulations; strengthen regulations regarding runoff. Rank: 1.5*

Threat - Development in adjacent uplands causing siltation and other impacts.

- Actions:*
- *Site/area protection; Identify and acquire sites, focusing on extending upland buffers. Rank: 2.5*
 - *Policies and regulations; increase protection of buffer areas by wetlands regulations. Rank: 2.5*

Threat - Groundwater pumping

- Actions:*
- *Site/area protection; Identify and acquire sites that provide additional protection to water sources. Rank: 3*
 - *Policies and regulations; strengthen regulations to restrict impacts to water resources. Rank: 2*

Threat - This threat has been relatively minor in these habitats.

- Actions:*
- *Invasive/problematic species control; Identify and control invasives as needed. Rank: 1.5*

Threat - Some potential for this threat in conjunction with nearby development.

- Actions:*
- *Site/area protection; Identify and acquire sites as needed, focusing on upland buffers. Rank: 2*
 - *Resource and habitat protection; maintain natural buffers. Rank: 2*
 - *Habitat and natural process restoration; allow natural processes to restore degraded sites. Rank: 1.5*
 - *Policies and regulations; strengthen regulations to prevent pollution. Rank: 2*

Threat - Nutrients and pesticides/herbicides

- Actions:*
- *Site/area protection; Identify and acquire sites as needed, focusing on upland buffers. Rank: 2*
 - *Policies and regulations; strengthen regulations to control runoff. Rank: 2*

Threat - Loss of habitat from plant succession

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Actions: • *Habitat and natural process restoration; Develop fire prescriptions for priority parcels.*

Rank: 2

• *Habitat and natural process restoration; Implement burn management on priority parcels.*

Rank: 2

• *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Development in adjacent uplands causing siltation and other impacts.

Actions: • *Site/area protection; Identify and acquire sites, focusing on extending upland buffers.*

Rank: 3

• *Policies and regulations; increase protection of buffer areas by wetlands regulations. Rank:*

3

Threat - Groundwater pumping

Actions: • *Site/area protection; Identify and acquire sites that provide additional protection to water sources. Rank: 3*

• *Policies and regulations; strengthen regulations to restrict impacts to water resources.*

Rank: 2

Threat - This threat has been relatively minor in these habitats.

Actions: • *Invasive/problematic species control; Identify and control invasives as needed. Rank: 1.5*

Threat - Some potential for this threat in conjunction with nearby development.

Actions: • *Site/area protection; Identify and acquire sites as needed, focusing on upland buffers.*

Rank: 2

• *Resource and habitat protection; maintain natural buffers. Rank: 2*

• *Habitat and natural process restoration; allow natural processes to restore degraded sites.*

Rank: 1.5

• *Policies and regulations; strengthen regulations to prevent pollution. Rank: 2*

Threat - Nutrients and pesticides/herbicides

Actions: • *Site/area protection; Identify and acquire sites as needed, focusing on upland buffers.*

Rank: 2

• *Policies and regulations; strengthen regulations to control runoff. Rank: 2*

Threat - Loss of habitat from plant succession

Actions: • *Habitat and natural process restoration; Develop fire prescriptions for priority parcels.*

Rank: 2

• *Habitat and natural process restoration; Implement burn management on priority parcels.*

Rank: 2

• *Outreach; Expand public relations for fire management. Rank: 2*

Open Uplands (Grassland & Shrubland)

Threat - Habitat shifting and alteration and storms and flooding; Rapid sea level rise reduces habitat and limits reestablishment; increases in storm severity

Actions: • *Site/area protection; insure opportunities for inland migration with sea level rise. Rank: 2.5*

• *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*

• *Site/area management; insure opportunities for inland migration with sea level rise. Rank: 2.5*

• *Invasive/problematic species control; Early detection and rapid response to control spread of invasives into habitat. Rank: 3*

• *Habitat and natural process restoration; Allow natural processes to restore habitats if needed. Rank: 2.5*

Threat - Beachgoers and dogs trampling habitat

Actions: • *Site/area protection; Habitat already protected as conservation land but infill sites may still be available. Rank: 2*

• *Resource and habitat protection; Habitat already protected as conservation land but infill sites may still be available. Rank: 2*

• *Site/area management; Identification and eventual protection of areas for inland migration of this habitat. Rank: 2*

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- *Awareness and communications; Public awareness can be effective in controlling overuse. Rank: 2*

Threat - Although potential for new development is low, a large amount of this habitat is already built on.

- Actions:*
- *Site/area protection; This habitat already protected by regulation, but many homes are currently present; Opportunities exist for more inland locations where this habitat may eventually extend. Rank: 2.5*
 - *Resource and habitat protection; This habitat already protected by regulation, but many homes are currently present. Opportunities exist for more inland locations where this habitat may eventually extend. Rank: 2.5*
 - *Site/area management; This habitat already protected by regulation, but many homes are currently present; Opportunities exist for more inland locations where this habitat may eventually extend. Rank: 2.5*
 - *Habitat and natural process restoration; Allow natural processes to rehabilitate sites when structures are removed. Rank: 2.5*

Threat - Sea level rise may reduce habitat, with little opportunity for migration.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 1*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 1*

Threat - Threat considered relatively low in this habitat.

- Actions:*
- *Invasive/problematic species control; Provide control where needed. Rank: 1.5*

Threat - Sea level rise may reduce habitat, with little opportunity for migration.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 1.5*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 1.5*

Threat - Some trampling of habitat

- Actions:*
- *Site/area protection; Identify and acquire parcels. Rank: 1.5*
 - *Site/area management; Control public access. Rank: 1.5*

Threat - Trampling of sensitive species by hikers.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 1.5*
 - *Resource and habitat protection; Control public access. Rank: 1.5*

Threat - Reduction in open rocky habitat from plant succession

- Actions:*
- *Site/area management; Management to maintain open conditions. Rank: 1.5*

Threat - Primarily by ATV and other vehicle use.

- Actions:*
- *Site/area protection; Control public access. Rank: 2*
 - *Resource and habitat protection; Control public access. Rank: 2*
 - *Policies and regulations; Support regulations to control public access. Rank: 1.5*
 - *Outreach; Educate private landowners and general public about the threat of 'overmanagement' of forest lands (removal of understory, ground cover, and leaf litter for control of ticks). Rank: 2*

Threat - Herbicide use for managing woody vegetation.

- Actions:*
- *Site/area management; ecologists should work with utility companies to manage these habitats. Rank: 2*

Threat - Spread of invasives in ROWs can pose threat to adjacent natural habitats.

- Actions:*
- *Invasive/problematic species control; Early detection and rapid response to identified invasive sites. Many invasive plants have initially been found on ROWs. Rank: 2.5*

Threat - These habitats are highly desirable for development.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*

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- *Resource and habitat protection; Development of management plans for protected sites. Rank: 2.5*
- *Policies and regulations; Recognition of wildlife importance of this habitat within policies, rules, etc. Rank: 2.5*
- *Outreach; Educate private landowners and general public about the threat of 'overmanagement' of forest lands (removal of understory, ground cover, and leaf litter for control of ticks). Rank: 2*

Threat - Requires periodic management by mechanical means (e.g., mowing, brush cutting) to maintain open conditions.

- Actions:*
- *Site/area management; Conduct management. Rank: 2.5*
 - *Policies and regulations; Prepare site-specific management plans. Rank: 2.5*

Threat - Suppression of natural fire considered a low threat, can be replaced by mechanical management and controlled burns.

- Actions:*
- *Site/area management; Conduct controlled burning where allowed. Rank: 2*
 - *Habitat and natural process restoration; Restore associated natural habitats that support similar wildlife values; i.e., maritime shrublands. Rank: 2*

Threat - Widespread invasions can reduce plant diversity; but, some invasives may be beneficial

- Actions:*
- *Invasive/problematic species control; Identify problem sites and conduct control when needed. Rank: 2.5*

Threat - Problematic native species; Deer may be an issue by selective browsing

- Actions:*
- *Invasive/problematic species control; Provide additional hunting opportunities in areas suffering from overbrowsing. Rank: 2.5*

Threat - Loss of habitat from plant succession

- Actions:*
- *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 3*
 - *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 3*
 - *Outreach; Expand public relations for fire management. Rank: 3*

Threat - These habitats are desirable for development in conjunction with old field and other habitats.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2*
 - *Resource and habitat protection; Conduct management where needed. Rank: 2*

Threat - May need some mechanical management, but not as intensive as neighboring old fields.

- Actions:*
- *Site/area management; Conduct management. Rank: 2*
 - *Policies and regulations; Prepare site-specific management plans. Rank: 2*

Threat - Threat very low as many hedgerows formed of invasive shrubs

- Actions:*
- *Invasive/problematic species control; Control invasives where needed. Rank: 2*

Threat - These habitats are highly desirable for development.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*
 - *Resource and habitat protection; Prepare site-specific management plans. Rank: 2*

Threat - Requires tree cutting.

- Actions:*
- *Site/area management; Conduct tree-cutting. Rank: 3*
 - *Policies and regulations; Prepare site-specific management plans. Rank: 3*

Threat - Invasion threat influenced by disturbance, proximity and land management (or lack of).

- Actions:*
- *Invasive/problematic species control; Control invasives where needed. Rank: 2*

Threat - Deer may selectively browse woody species

- Actions:*
- *Invasive/problematic species control; Provide additional hunting opportunities in problem areas. Rank: 2*

Threat - Uplands near the coast are prime areas for development.

- Actions:*
- *Site/area protection; much of this habitat is protected by TNC, State and Federal agencies, but still opportunities for infilling. Rank: 2.5*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and*

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easement. Rank: 2.5

- *Policies and regulations; Recognition of wildlife importance of natural maritime shrublands within policies, rules, etc. Rank: 2.5*

Threat - Degree of threat depends on level of disturbance, management (or lack of), and potential value of invasive shrubs to migratory and wintering birds.

Actions: • *Invasive/problematic species control; Invasives in this habitat are mostly woody shrubs that may need regular control in situations where their presence is compromising wildlife values. Rank: 2*

Threat - Deer

Actions: • *Invasive/problematic species control; Provide control where needed. Rank: 2*

- *Resource and habitat protection; Identification and eventual protection of areas for inland migration of this habitat. Rank: 2*
- *Site/area management; Identification and eventual protection of areas for inland migration of this habitat. Rank: 2*
- *Habitat and natural process restoration; Monitor habitat and provide restoration support where needed. Rank: 2.5*

Threat - Advance of invasives on this habitat type has been slowed due to harsher conditions.

Actions: • *Invasive/problematic species control; provide early detection and rapid response to problem situations. Rank: 2.5*

- *Site/area protection; Low priority as most examples of habitat have been protected. Rank: 2.5*
- *Site/area management; insure opportunities for inland migration with sea level rise. Rank: 2.5*
- *Site/area protection; conduct protection as needed. Rank: 2*
- *Resource and habitat protection; Provide opportunities for inland migration. Rank: 2*
- *Site/area management; little need for this action. Rank: 2*

Threat - May be some shifting of habitat with stronger storms and sea level rise; however, habitat may also benefit from climate alteration

Actions: • *Site/area protection; Identification and eventual protection of areas for inland migration of this habitat. Rank: 2*

- *Resource and habitat protection; Identification and eventual protection of areas for inland migration of this habitat. Rank: 2*
- *Site/area management; Identification and eventual protection of areas for inland migration of this habitat. Rank: 2*
- *Habitat and natural process restoration; Monitor habitat and provide restoration support where needed. Rank: 2*

Threat - Loss of habitat from plant succession

Actions: • *Habitat and natural process restoration; Develop fire prescriptions for priority parcels. Rank: 2*

- *Habitat and natural process restoration; Implement burn management on priority parcels. Rank: 2*
- *Outreach; Expand public relations for fire management. Rank: 2*

Threat - Habitat shifting and alteration and storms and flooding; Rapid sea level rise reduces habitat and limits reestablishment; increases in storm severity

Actions: • *Site/area protection; insure opportunities for inland migration with sea level rise. Rank: 2.5*

- *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*
- *Site/area management; insure opportunities for inland migration with sea level rise. Rank: 2.5*
- *Habitat and natural process restoration. Rank: 2*

Threat - Japanese Sand Sedge (*Carex kobomugi*)

Actions: • *Invasive/problematic species control; control of current populations and early detection of new incursions. Rank: 2.5*

- *Habitat and natural process restoration; control of current populations and early detection*

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of new incursions. Rank: 2.5

- *Site/area management; control of current populations and early detection of new incursions. Rank: 2*

Threat - Recreational activities; Beachgoers and dogs trampling habitat, disturbing nesting birds

- Actions:*
- *Site/area protection; control human access by fencing, patrols, etc. Rank: 3*
 - *Resource and habitat protection; control human access by fencing, patrols, etc. Rank: 3*
 - *Site/area management; control human access by fencing, patrols, etc. Rank: 3*
 - *Awareness and communications; signage, etc. Rank: 3*

Threat - Oil spills

- Actions:*
- *Policies and regulations; support regulations to curtail threat. Rank: 2.5*
 - *Resource and habitat protection; intensify clean-up actions in event of spill. Rank: 2.5*

Threat - Habitat shifting and alteration and storms and flooding; Rapid sea level rise reduces habitat and limits reestablishment; increases in storm severity

- Actions:*
- *Site/area protection; insure opportunities for inland migration with sea level rise. Rank: 2.5*
 - *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2.5*
 - *Site/area management; insure opportunities for inland migration with sea level rise. Rank: 2.5*

Threat - Japanese Sand Sedge (Carex kobomugi) on foredune

- Actions:*
- *Invasive/problematic species control; control of current populations and early detection of new incursions. Rank: 2.5*
 - *Habitat and natural process restoration; control of current populations and early detection of new incursions. Rank: 2.5*
 - *Site/area management; control of current populations and early detection of new incursions. Rank: 2.5*

Threat - Beachgoers and dogs trampling habitat

- Actions:*
- *Site/area protection; control human access by fencing, patrols, etc. Rank: 3*
 - *Resource and habitat protection; control human access by fencing, patrols, etc. Rank: 3*
 - *Site/area management; control human access by fencing, patrols, etc. Rank: 3*
 - *Awareness and communications; signage, etc. Rank: 3*

Threat - Although potential for new development is low, a sizable amount of this habitat is already built on.

- Actions:*
- *Site/area protection; support regulations to curtail threat. Rank: 2.5*
 - *Resource and habitat protection; intensify clean-up actions in event of spill. Rank: 2.5*

Threat - ATV use, trampling of habitat.

- Actions:*
- *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 2*
 - *Resource and habitat protection; Control public access. Rank: 1.5*
 - *Site/area management; Control public access. Rank: 1.5*

Threat - Lack of disturbance (natural and anthropogenic) to maintain community.

- Actions:*
- *Habitat and natural process restoration; Identify methods for restoring this habitat. Rank: 2.5*
 - *Site/area management; Conduct management by methods identified in 2.3. Rank: 2.5*

Threat - The potential for this threat is considered low in this habitat.

- Actions:*
- *Invasive/problematic species control; Provide control where needed. Rank: 1.5*

Pelagic

Threat - Runoff can impact water quality making the habitat unusable for pelagic species

- Actions:*
- *Land/water protection; mitigating impacts from runoff. Rank: 2.5*

Threat - Nutrient loading and sediment runoff

- Actions:*
- *Land/water protection; Best management practices for agriculture and aquaculture will mitigate impacts. Rank: 3*

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Threat - Pelagic species can be targeted and harvested by multiple gear types in these areas (i.e. trawl, gillnets, rod and reel)

Actions: • *Species management; careful management can mitigate the impacts of this threat . Rank: 2*

Threat - Large volume fisheries for important secondary consumers (i.e. herring) can impact this habitat type

Actions: • *Species management; careful management can mitigate the impacts of this threat . Rank: 2*
• *Policies and regulations. Rank: 2*

Threat - Lack of information from research to address habitat and taxonomic issues

Actions: • *Data collection and analysis; Evaluate use of migratory stopover/winter habitat. Rank: 2*

Threat - Runoff can impact water quality making the habitat unusable for pelagic species

Actions: • *Land/water protection; mitigating impacts from runoff. Rank: 2*

Threat - Nutrient loading and sediment runoff

Actions: • *Land/water protection; Best management practices for agriculture and aquaculture will mitigate impacts. Rank: 2.5*

Threat - Pelagic species can be targeted and harvested by multiple gear types in these areas (i.e. trawl, gillnets, rod and reel)

Actions: • *Species management; careful management can mitigate the impacts of this threat . Rank: 2*

Plantation & Ruderal Forest

Threat - Many wooded tracts within urban areas remain unprotected; however, larger tracts exist in parks, cemeteries, etc.

Actions: • *Site/area protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
• *Resource and habitat protection; Identify and acquire key parcels for fee purchase and easement. Rank: 3*
• *Policies and regulations; identify and influence mechanisms for incentivizing land owners for conservation and watershed protection (farm, forest and OS; local planning policies that make it possible for land owners to economically benefit). Rank: 2.5*
• *Outreach; Educate private landowners and general public about the threat of 'overmanagement' of forest lands (removal of understory, ground cover, and leaf litter for control of ticks). Rank: 2*

Threat - Ruderal forests are generally heavily infested with invasives.

Actions: • *Invasive/problematic species control; Conduct invasive control projects and restore sites with native species. Rank: 2.5*
• *Policies and regulations; Implement and enforce nuisance plant regulations. Rank: 2.5*

Threat - Deer browsing contributes to reduced shrub and herb density and diversity, favoring spread of invasive plants.

Actions: • *Invasive/problematic species control; Investigate other methods for controlling deer populations in urbanized settings. Rank: 2.5*

Threat - Situated in populated portions of the state, wooded tracts are heavily impacted by trampling, illegal dumping, and other intrusions.

Actions: • *Site/area protection; Identify and acquire unprotected sites. Rank: 2*
• *Policies and regulations; Implement and enforce regulations to prevent illegal dumping, access by ATVs, and other intrusions. Rank: 2.5*

Threat - Because plantations typically consist of a single tree (usually a conifer) species, they are highly susceptible to insect and other pest damage.

Actions: • *Site/area management; Control invasive species. Rank: 2*

Threat - Deer may cause browsing impact on community establishment and composition.

Actions: • *Invasive/problematic species control; Provide more hunting opportunities in problem areas. Rank: 1.5*

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Threat - Many of these habitats are on protected land, especially state management areas and parks.

Actions: • *Site/area protection; Identify and acquire parcels. Rank: 2*

Shoreline

Threat - Dams and water management/use

Actions: • *Habitat and natural process restoration; restore natural hydrologic processes where needed. Rank: 2*

Threat - Industrial and military effluents; especially in impounded areas along major rivers where sediments may contain sizable amounts of chemicals, heavy metals, and other effluents

Actions: • *Site/area management; Clean up, remove contaminate sediments; identify marsh habitats within existing clean-up sites. Rank: 1.5*

• *Policies and regulations; Consider reducing existing discharge limits. Rank: 1*

Threat - Invasive non-native/alien species

Actions: • *Invasive/problematic species control; Identify problem areas and conduct control measures. Rank: 2.5*

• *Policies and regulations; Support regulated buffers of small wetlands to reduce spread of invasives from surrounding uplands. Rank: 1*

• *Education and awareness; guidelines to limit unintended transport of invasives (boater guides, boot cleaning, aquaria draining, etc.). Rank: 3*

Threat - Storms and flooding; Increased flooding may alter riverine habitat

Actions: • *Data collection and analysis; Monitoring for community changes due to changing water regime*

Subtidal

Threat - Dams and water management/use; can affect natural hydrology

Actions: • *Habitat and natural process restoration; remove dams to allow maximum natural tidal flow. Rank: 2.5*

Threat - Invasive non-native/alien species; Chinese mitten crab, etc.

Actions: • *Invasive/problematic species control; Identify and control invasives as needed. Rank: 2*

Threat - Household sewage and urban waste water; improving with cesspool phaseout and wastewater treatment improvements

Actions: • *Site/area protection; Identify and protect sites, especially upland buffers. Rank: 2.5*

• *Resource and habitat protection; maintain adequate upland buffers. Rank: 2.5*

• *Policies and regulations; strengthen existing regulations to protect wider upland buffers. Rank: 2.5*

Threat - Industrial and military effluents

Actions: • *Site/area protection; Identify sites for protection, especially upland buffers. Rank: 2*

• *Resource and habitat protection; maintain adequate upland buffers. Rank: 2*

• *Policies and regulations; strengthen existing regulations to protect wider buffers. Rank: 2*

Threat - Agricultural and forestry effluents

Actions: • *Site/area protection; identify and protect sites, especially upland buffers. Rank: 2*

• *Resource and habitat protection; maintain adequate upland buffers. Rank: 2*

• *Policies and regulations; strengthen existing regulations to protect wider upland buffers. Rank: 2*

Threat - Habitat shifting and alteration; Sea level rise may diminish habitat, need to provide opportunities for migration.

Actions: • *Site/area protection; Identify areas for potential habitat migration. Rank: 2.5*

• *Data collection and analysis; monitor habitat condition to detect changes caused by climate change. Rank: 2.5*

Threat - Recreational activities; damage from boating

Actions: • *Awareness and communications; provide public with information regarding habitat values and potential damages caused by human intrusion. Rank: 2*

• *Policies and regulations; determine need for regulations to limit damage by public*

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intrusion. Rank: 2

Threat - Habitat shifting and alteration; Unknown impacts at this time

- Actions:*
- *Site/area protection; identify sites for potential habitat shifting. Rank: 2.5*
 - *Data collection and analysis; monitor habitat for changes caused by climate change. Rank: 2.5*

Threat - Habitat shifting and alteration; Sea level rise may reduce protective barriers, alter salinity levels in ponds, etc.

- Actions:*
- *Site/area protection; identify sites to support potential migration of habitat. Rank: 2.5*
 - *Policies and regulations; provide additional regulatory protection for potential migration sites. Rank: 2.5*
 - *Other; monitor habitat for changes caused by climate change. Rank: 2.5*

Threat - Other ecosystem modifications; Management needed on some ponds to open/close breachways.

- Actions:*
- *Site/area management; manage breachways as needed. Rank: 2*

Threat - Invasive non-native/alien species; Phragmites and other aquatic plants.

- Actions:*
- *Invasive/problematic species control; identify and control invasives as needed. Rank: 2.5*

Threat - Problematic native species; Overbrowsing of aquatic plants by Canada goose and mute swans.

- Actions:*
- *Invasive/problematic species control; expand hunting opportunities for geese, expand population control measures for swans. Rank: 1.5*
 - *Policies and regulations; expand hunting seasons, bag limits, etc. Rank: 2*

Threat - Agricultural and forestry effluents; Runoff from adjacent croplands primarily.

- Actions:*
- *Site/area management; maintain adequate upland buffers. Rank: 2*
 - *Policies and regulations; strengthen existing regulations to support wider upland buffers. Rank: 2.5*

Threat - Household sewage and urban waste water; Runoff from lawns, septic systems of nearby residential development.

- Actions:*
- *Site/area protection; Identify and protect sites, especially upland buffers. Rank: 3*
 - *Policies and regulations; strengthen existing regulations to provide for wider protected buffers. Rank: 2.5*

Threat - Recreational activities; damage from boating

- Actions:*
- *Awareness and communications; Inform public of potential impacts of intrusion. Rank: 2*
 - *Policies and regulations; determine need for regulations to curb public intrusion, i.e., limiting boat motor size, etc. Rank: 2*

Threat - Habitat shifting and alteration; Sea level rise increases salinity, increased damage from storms.

- Actions:*
- *Site/area protection; Identify and protect areas for potential habitat migration. Rank: 2.5*
 - *Data collection and analysis; monitor changes in habitat caused by climate change. Rank: 2.5*

Threat - Problematic native species; Heavy browsing on aquatic plants from Canada goose and mute swans.

- Actions:*
- *Invasive/problematic species control; control problematic species with increased hunting opportunities for geese, expanding programs to control swan populations. Rank: 2*
 - *Policies and regulations; expand hunting seasons, bag limits, etc. Rank: 1.5*

Threat - Household sewage and urban waste water; Runoff from adjacent uplands; stormwater overflow

- Actions:*
- *Site/area management; maintain adequate upland buffers. Rank: 2.5*
 - *Policies and regulations; strengthen existing regulations to provide wider buffers. Rank: 2.5*

Threat - Agricultural and forestry effluents; Runoff from adjacent croplands primarily.

- Actions:*
- *Site/area management; maintain adequate upland buffers. Rank: 2.5*
 - *Policies and regulations; strengthen existing regulations to provide for wider buffers. Rank: 2.5*
 - *Invasive/problematic species control. Rank: 2*
 - *Data collection and analysis; Early detection. Rank: 2*

Threat - Loss of wetlands due to shore line development, bulkheads, and poor urban development

- Actions:*
- *Site/area management; Avoid locating roads near wetlands and fish bearing streams; Roads*

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should be sited to avoid sensitive areas such as wetlands, streams, steep slopes, etc.; Where ever possible, "soft" approaches (such as beach nourishment, vegetative plantings, and placement of large woody debris) to shoreline modifications should be used. Rank: 2

- *Policies and regulations; The diking and draining of tidal marshlands and estuaries should not be undertaken unless a satisfactory compensatory mitigation plan is in effect and monitored. Rank: 2*
- *Site/area management; Use an adaptive management plan with ecological indicators to oversee monitoring and ensure mitigation objectives are met; Take corrective action as needed. Rank: 2*

Threat - Dredging, dredge disposal and other benthic disturbances such as trawling

- Actions:*
- *Data collection and analysis; Undertake multi season, pre- and post- dredging biological surveys to assess impacts to animal and submerged aquatic vegetation communities. Rank: 2*
 - *Data collection and analysis; Address cumulative impacts of past and current dredging operations on fishery resources by considering them as part of the permitting process; Identify and characterize the fisher habitat functions and service in the project area. Rank: 2*
 - *Policies and regulations. Rank: 2*

Upper Perennial

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 6*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 7*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 9*

Threat - All categories impact this habitat type

- Actions:*
- *Land/water protection; preserving, restoring cover for streams, and mitigating runoff. Rank: 3*

Threat - Inhibit the movement of fish, increase water temperature, and create lentic habitat

- Actions:*
- *Land/water protection; protection, management, mitigate runoff. Rank: 3*

Threat - Competition

- Actions:*
- *Education and awareness; educate the public. Rank: 8*