DIVISION OF FISHERIES & WILDLIFE

# William Forward WMA Red Pine Plantation Removal (Kents Island)
# FY25 Project Summary

## Location

**Site:** William Forward Wildlife Management Area (WMA)
**Towns:** Newbury
**District:** Northeast

## Project Acres

20 Acres

## MassWildlife's Approach to Habitat Management

MassWildlife uses habitat restoration and management to conserve both common wildlife and vulnerable species, including rare plants and animals protected by the Massachusetts Endangered Species Act (MESA) and other declining Species of Greatest Conservation Need (SGCN) identified in the Massachusetts State Wildlife Action Plan (SWAP). As part of this effort, biologists plan and implement projects to create, restore, and maintain a variety of healthy habitats to increase biodiversity and climate resiliency across our forests, wetlands, streams, fields, and more.

Biologists plan habitat projects that may include tree cutting, mowing, and mulching to strategically increase open habitats, promote patches of vigorous young forest, restore natural processes, and remove invasive plants. This project has been designed to ensure consistency with recommendations for climate-oriented forest management provided by the Climate Forestry Committee (Climate Forestry Committee Report, 2024; see below).

## Site Significance

William Forward WMA is roughly 2,000 acres and contains more than 1,300 acres of salt marsh bordering the Parker River and its tributaries. The Kents Island portion of the WMA is approximately 150 acres and contains exemplary mixed oak-hickory forest with hop hornbeam and scattered white pine and red cedar. The forest is adjacent to abandoned agricultural fields and shrublands targeted for invasive plant control and native warm season grassland restoration. Several red pine and spruce plantations are found on Kents Island; many of these trees are dying or unhealthy.

Because of its proximity to marshlands and the ocean, Kents Island is a haven for waterfowl, shorebirds, wading birds, songbirds, as well as spring and fall migratory birds. Targeted habitat management will add ecological diversity to this already-rich landscape and will directly benefit plants and animals listed under

MESA, Species of Greatest Conservation Need as identified in the Massachusetts State Wildlife Action Plan, and many common wildlife species.

The proposed project will build on past successful habitat work on Kents Island that included invasive plant control and mowing to benefit declining grassland, marsh, and shrubland birds. This restoration work complements landscape-scale efforts being conducted by multiple agencies and conservation organizations at several sites to restore salt marsh habitat and native vegetation in adjacent uplands.

The proposed project will be conducted on the Kents Island section of the William Forward WMA (Fig 1) that consists of mixed pine and oak woodlands as well as an abandoned agricultural field. This project will focus on approximately 20 acres within the pine and oak woodland area and the abandoned agricultural field.

## Project Activities and Expected Outcomes

Plantation and select tree removal will be conducted on approximately 20 acres and builds on past successful habitat work completed in the area. This project will focus on removing dying and hazardous non-native trees in dense plantations adjacent to open fields. These areas will be stumped and invasive plants will be removed in preparation for native warm season grassland restoration. Select white pine removal in the nearby oak-hickory forest will promote oak, hickory, and hop hornbeam regeneration. Project planning and oversight will be implemented by a team of experienced Habitat Biologists.

Highlights:

- Plantation and targeted tree removal will add to the variety of native habitats present at this location. It will promote the growth of blueberry heathlands and native warm season grasslands and will create diversity of structure and age classes within oak-hickory forests and hickory-hop hornbeam woodlands. These habitats provide cover, food, and nesting sites for declining wildlife including ruffed grouse, Eastern whip-poor-will, Eastern towhee, and black ducks.
- Plantation removal and select tree removal will occur at varying intensities to stimulate different vegetation responses. Oaks, hickories, hop-hornbeam, and other trees with high habitat value will be retained.

## Climate Considerations

This project was designed to ensure consistency with recommendations for climate-oriented forest management provided by the Climate Forestry Committee, and includes:

- removal of conifer plantations and restoration actions designed to promote growth of native plants that are less vulnerable to pests, pathogens, invasive plants, and risks associated with drought, catastrophic wildfire, and other severe disturbances;
- and prioritizing and maintaining at-risk species and habitats that are under pressure from climate change.

See page 4 for more details.

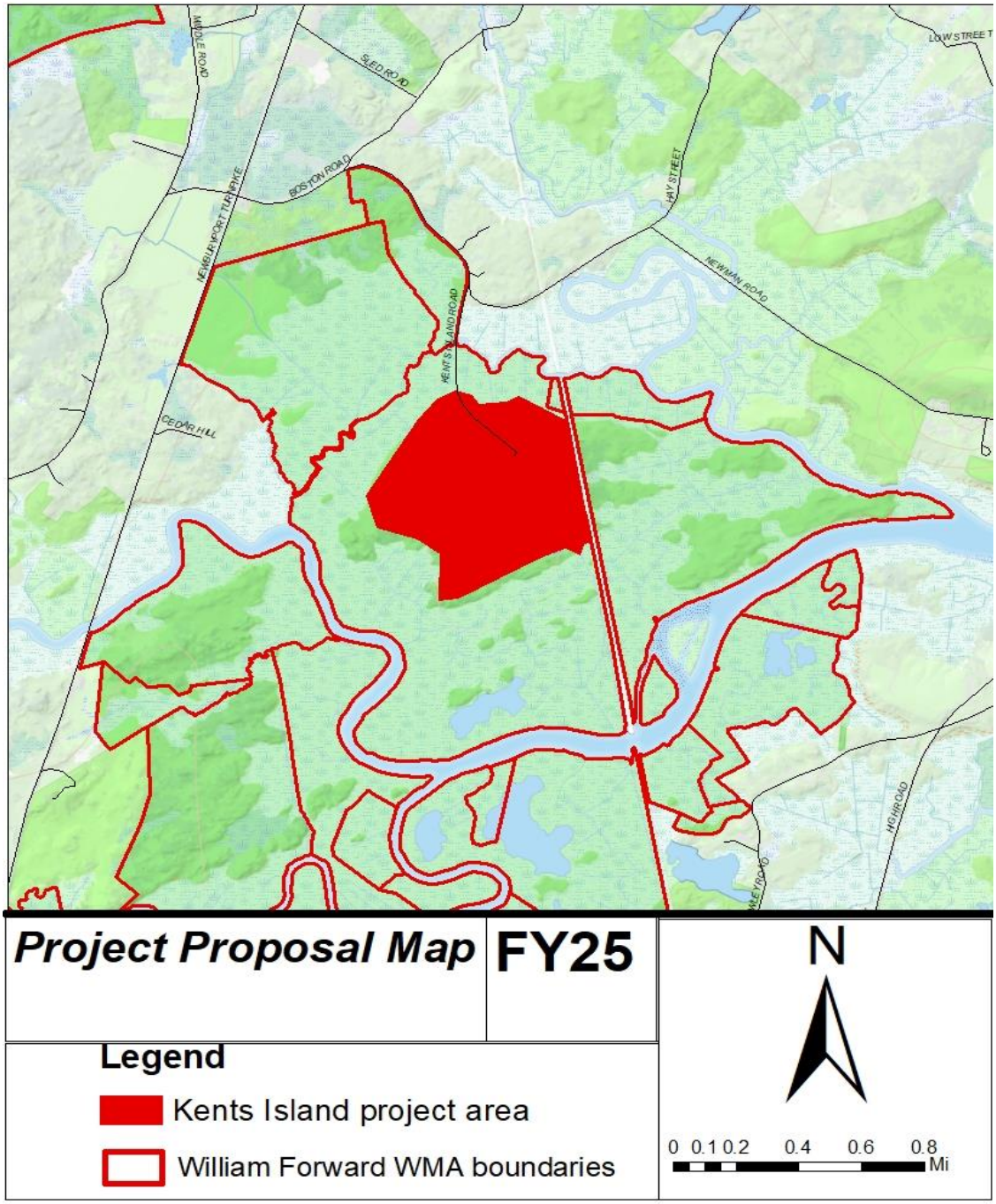


Figure 1. Map of William Forward Wildlife Management Area (Kents Island section) with highlighted project area.

## Climate Considerations Details

MassWildlife has determined that the decision to implement this project is consistent with EEA climate goals and guidelines and agency land management objectives. Carbon and climate change considerations specific to the activities proposed for this project are discussed below.

| Proposed Activity | Alignment of Activity with Climate Oriented Strategies and Recommendations |
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| **Access improvements (landing improvements, gravel, road grading, ditch maintenance, road widening, straightening, and alteration of intersections).** | Roads, landings, and associated infrastructure are critical for access by both the public and natural resource managers. These infrastructure elements are also associated with both **vulnerabilities** and **opportunities** in terms of climate change **resiliency**.<br><br>**Vulnerabilities:**<br>• Roads occupy areas that would otherwise be carbon rich forest.<br>• Road edges can become avenues for the spread of invasive species.<br>• Roads have the potential for sediment transport into surface water resources.<br><br>**Opportunities**<br>• A well-designed and well-maintained access system makes all other land management and monitoring activities possible while minimizing impacts.<br>• Roads provide for public access including hiking, hunting fishing, etc.<br>• Roads are critical for both Emergency Response (Injuries, Accidents, etc.) and Incident Stabilization (fire, flood, storm damage, etc.).<br><br>Given the predicted **increase in storm frequency and intensity**, improving and maintaining roads, road surfaces, and stormwater infrastructure is imperative.<br><br>• Proper surfacing, grading, and ditching **minimize erosion** from stormwater and snowmelt.<br>• Periodic maintenance is required to **avoid water channelizing** within compacted tire paths.<br>• **Adding gravel** or other material to the road surface helps support the **heavy vehicle traffic** associated with forestry work, fire operations, and post-storm recovery efforts. Alterations (**widening, straightening**) are often needed to upgrade old, narrow farm lanes to meet modern vehicle access needs.<br>• Ditching, cross culverts, and relief cuts can be designed with **future storm intensities** in mind and should minimize, to the greatest degree possible, impacts to surface water resources.<br><br>Most log landings are **temporary** in nature. Permanent landings that are properly located and well-built can serve as permanent access infrastructure, concentrating activities and minimizing the non-forested footprint required to conduct agency management. Whether temporary or permanent, the use, maintenance, and stabilization of landings will include considerations of **future climate change impacts**. Landing BMPs include:<br><br>• **Post-harvest stabilization** measures such as grading and smoothing to prevent erosion and sedimentation.<br>• **Seeding** to provide cover and further stabilize the soil.<br>• **Invasive plant survey and control** to minimize further infestation risks. |

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| | • Periodic mowing of permanent landings to allow herbaceous and shrubby vegetation to dominate the site between harvests, adding **diverse habitat opportunities** for local wildlife. |
| **Erosion and sedimentation control installation, including water bar installation and seeding landings and other disturbed areas.** | Water bars help stabilize skid trails and ensure that **excessive erosion** is avoided while maintaining the site for future forestry operations. Properly stabilized skid trails will **revegetate** naturally while being discernable enough to use in future operations. Beyond compliance with the BMP manual standards, the size and frequency of water bar installation, and degree of stabilization, should be determined by:<br><br>• **Other uses** that may occur between operations, e.g. hiking trails, snowmobiles trails, use as firebreaks, or unauthorized uses (OHV/ATV)<br>• The **impacts of future climate conditions**, especially more frequent storms. If the area is already known to be wet, and in the future **more frequent storms are expected**, more water bars than what may be normally installed are encouraged.<br>• **Soil type**. Land managers may consider seeding and mulching water bars on highly erodible soils, steep slopes, or excessively wet areas to ensure longevity and prevent water bar degradation. |
| **Invasive plant control, including pre- and/or post-harvest and follow up treatments.** | Strong consensus exists among land managers and climate science experts regarding the **threat to future forest health** posed by the introduction and spread of invasive plants. **Invasive plants** can:<br>• aggressively **outcompete native plant species,**<br>• dominate understory communities, and even climb, kill, and topple mature trees,<br>• threaten overall **biodiversity**.<br>• threaten **soil health** and long-term **carbon storage**.<br><br>**Monitoring and controlling** invasive and interfering plant populations prior to and following forestry operations is a critical practice for **minimizing the risk of further impacts** inadvertently (though not unexpectedly) spread by harvesting-related activities. |
| **Habitat restoration and maintenance prescribed fires—heath, shrubland, woodland, or grassland.** | Prescribed Fire is the planned use of fire in a particular place and time, under established conditions and safety requirements to accomplish resource management goals.<br><br>• Prescribed fire improves habitat for a **variety of wildlife and native plants** and **restores natural communities** dependent on fire.<br>• In fire-influenced natural communities, fragmentation of the landscape and the suppression of fires (prescribed or natural) leads to accumulation of volatile hazardous fuels in the surface, mid-story, and canopy vegetation layers.<br>• Excessive vegetation density **negatively impacts the habitat quality** of the natural community and may eventually lead to fuel buildup and unplanned, catastrophic wildfire.<br>• Prescribed fires that reflect natural return intervals increase below-ground **carbon storage and sequestration.**<br><br>The consequences of **catastrophic wildfires** include: |

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| | • The release of large amounts of **carbon** including **soil carbon**.<br>• Tree mortality.<br>• Severe soil, duff, and below ground vegetation impacts.<br>• Potential alteration of soil chemistry.<br>• Threats to firefighter safety, human communities, and property damage.<br>• Threats to human health from severe smoke impacts both locally and potentially at long distances. |
| **Establishing and/or maintaining fuel/fire breaks.** | Climate models predict **drought and wildfire potential** increasing in the region due to climate change, and the agency is adopting strategies to both **reduce the risk of catastrophic fire spread** and **maintain fire-adapted habitats**. Fuel breaks and fire breaks are essential tools for both prescribed burning and wildfire control.<br>**Fuel breaks** are:<br>• **vegetated areas,**<br>• maintained at lower structure and density,<br>• designed to **slow the spread of fire**,<br>• designed to **control prescribed fire** or wildfire,<br>• opportunities to encourage open woodland, shrubland, or grassland natural communities.<br>**Fire breaks** may be natural or constructed **barriers to the movement of fire**, with some examples being:<br>• open water,<br>• paved roads,<br>• graveled woods roads,<br>• trails,<br>• and periodically mowed paths (“fire lines”).<br>The fuel and/or fire breaks proposed in this project were designed as **part of agency planning efforts** for fire control and management for this area within a **framework of reducing climate vulnerability**. |
| **Full overstory removal, complete stand, plantation conversion to native species.** | Long considered a critical practice on agency lands to improve biodiversity and forest resilience, the **conversion of single-species conifer plantations** to more diverse mixes of native species has also been encouraged as a climate-smart practice by NIACS and other climate adaptation experts. Tree monocultures, intensively managed throughout the world to produce much of the wood we all use, are **highly vulnerable** to the kinds of **pest and disease** impacts that are likely to worsen as climate changes. Conversion of monoculture plantations aligns with many climate-smart forestry practices highlighted in the CFC report, including but not limited to:<br>• Improving **resistance to pests and pathogens**.<br>• Increasing resiliency by promoting **diversity of plant species**.<br>• Providing age class/**structural diversity**.<br>• Improving conditions for a wide variety of local wildlife through the creation of temporary **young forest** habitat.<br>• Promoting **future-adapted tree species** in the regeneration mix. |
| **Diffuse overstory removal, partial cut, habitat modification/maintenance.** | Open **woodlands, savannas, barrens, and heathlands** are low tree-density, **fire-dependent** forests with diverse understory vegetation critical for conserving many state-listed rare species. They are **imperiled** across Massachusetts due to |

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| | development and negative ecological alterations resulting from a lack of management primarily decades of fire exclusion. Climate experts recommend **prioritizing and maintaining sensitive or at-risk species and habitat**, with the expectation that pressure on these will only increase with changing climate. Ecological restoration of these sites ensures continued habitat function and reduces climatic vulnerability:<br>• Reducing tree **density reduces vulnerability** to pests like southern pine beetle and to drought stress.<br>• Restoring **native species** that are best adapted to the site **promotes resilience** to future drought, wildfire, and harmful insects.<br>• Reintroducing low-intensity fire **promotes resilient native vegetation**.<br>• Removing heavy fuel loads **reduces vulnerability to wildfire**.<br>• Restoration better positions these sites **to adapt to climate change**.<br>• Restored sites are **more reliable carbon sinks in the long term** than highly vulnerable dense fire-excluded forests.<br><br>The agency recognizes that this site may store less carbon than denser forests in the short term. But climate models predict an increase in disturbance on these sites including drought, wildfire and range expansion of harmful insects that puts a dense fire suppressed forest at greater risk of becoming a carbon source in the long term. Projects like this are undertaken on federal, state agency, and other conservation lands across the Commonwealth, under the guidance of collaborative teams consisting of biologists, restoration ecologists, foresters, and fire management professionals. |

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