DIVISION OF FISHERIES & WILDLIFE

Red Brook WMA Habitat Restoration Project Summary
SE-RB-TS1

Location
Site: Red Brook Wildlife Management Area (WMA)
Towns: Wareham and Plymouth
District: Southeast

Project Acres
~400 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

Red Brook Wildlife Management Area is one of the most important landscapes in southern New England for preserving regional biodiversity. It contains a mix of natural habitats known collectively as pine barrens. Pine barrens are fire-dependent plant communities that grow on dry, nutrient-poor soils left behind by glaciers. Red Brook is adjacent to, and part of, one of the largest remaining pine barrens in the world, encompassing over 20,000 acres. Red Brook is also a Coldwater Fish Resource. The functionality of these ecosystems is crucial, as they provide homes for many highly-specialized and declining plants and animals, including over 40 species listed under MESA that are often found only in pine barrens.

Red Brook WMA contains a large cranberry bog that will be restored back into an Atlantic white cedar swamp and other native wetland plant communities. Atlantic white cedar wetlands are critically

threatened in Massachusetts. Trees and root wads from this proposed habitat management work will be used in the wetland restoration efforts.

Project Activities and Expected Outcomes

Restoration efforts across approximately 400 acres will focus on removing white pine and reducing the canopy bulk density of pitch pine, while retaining widely spaced oak and pitch pine trees, and a natural return of native shrubs and herbs in the understory. This reduces the risk of catastrophic crown fire, enhances habitat for native plants and animals, and increases biodiversity. Thinning will be limited to a density that will be resistant to crown fire and southern pine beetle infestation. Whole tree removal is the preferred treatment method, but mulching/mowing will be used in some areas where whole tree removal is not feasible due to dense thickets of pitch pine with DBHs < 4 inches.

Project planning and oversight will be implemented by a team of experienced Habitat Biologists. Planned activities will create open habitats and diversify the habitats currently available in the area.

Highlights:

- Selective tree removal of white pine will promote the growth of a dense shrub layer across a variety of habitat types that include pitch pine-oak woodland, scrub oak shrubland, sandplain grassland, and heathland. This will provide high-quality habitat for over 40 MESA-listed species and expands nesting, foraging, and cover important for many other wildlife species. This work will also provide high-quality habitat for white-tailed deer, turkey, ruffed grouse, and quail.
- The management practices used in this project will help mitigate the threat of infestation from the invasive southern pine beetle.
- A portion of trees cut will be used in on-site cranberry bog restoration efforts.

Climate Considerations

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

- thinning to decrease tree density reducing vulnerability to wildfire, harmful insects, like the southern pine beetle;
- restoring native species that are best adapted to the site promoting resilience to future drought, wildfire, and harmful insects;
- thinning to prepare the site for the reintroduction of low-intensity fire to promote resilient native vegetation; and
- restoring fire-influenced ecosystems that provide reliable carbon sinks in the long term compared to vulnerable dense fire-excluded forests.

See page 4 for more details.

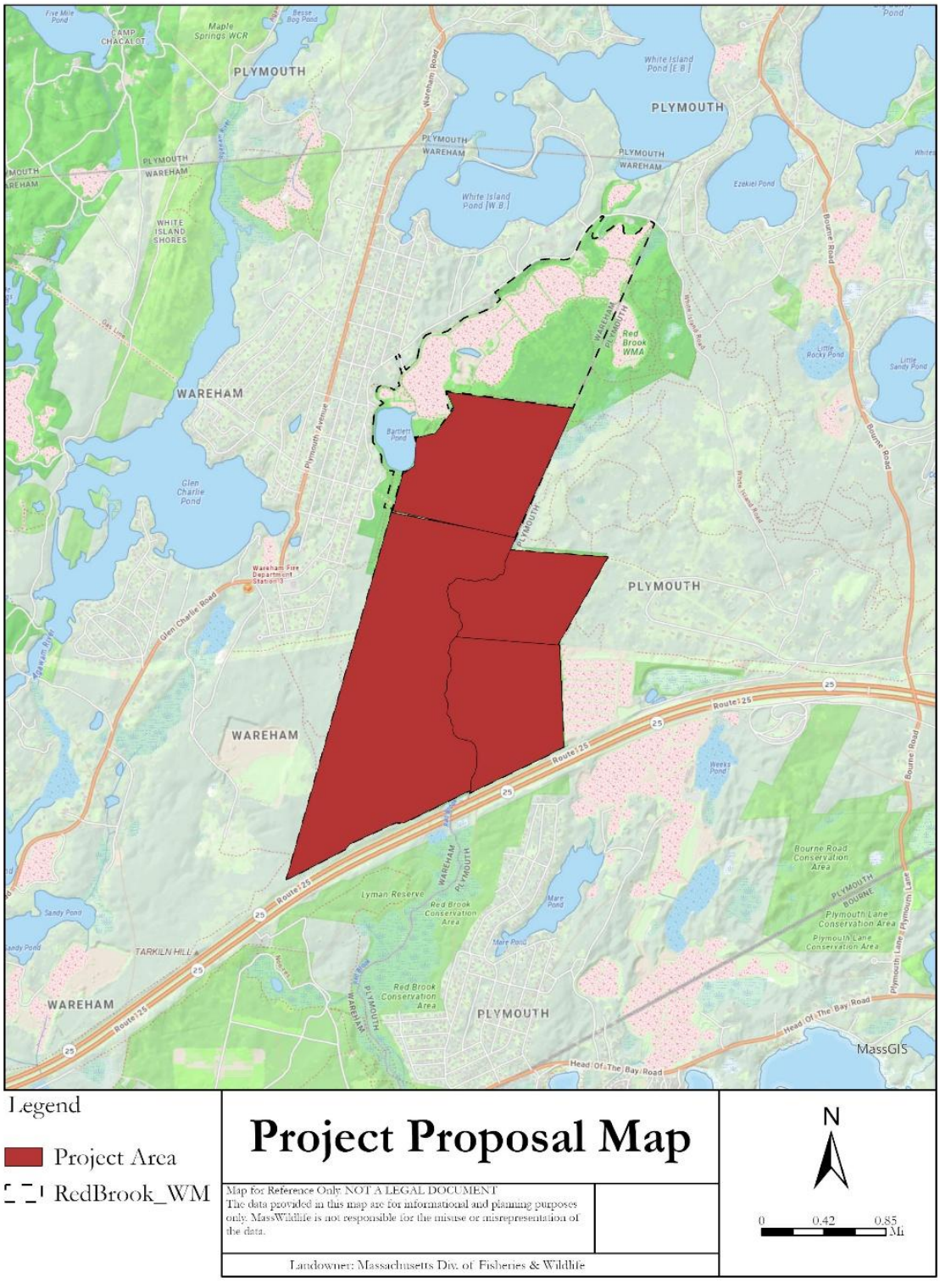

Figure 1. Map of Red Brook Wildlife Management Area with highlighted project area.

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
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**. **Vulnerabilities:** • Roads occupy areas that would otherwise be carbon rich forest. • Road edges can become avenues for the spread of invasive species. • Roads have the potential for sediment transport into surface water resources. **Opportunities:** • A well-designed and well-maintained access system makes all other land management and monitoring activities possible while minimizing impacts. • Roads provide for public access including hiking, hunting fishing, etc. • Roads are critical for both Emergency Response (Injuries, Accidents, etc.) and Incident Stabilization (fire, flood, storm damage, etc.). Given the predicted **increase in storm frequency and intensity**, improving and maintaining roads, road surfaces, and stormwater infrastructure is imperative. • Proper surfacing, grading, and ditching **minimize erosion** from stormwater and snowmelt. • Periodic maintenance is required to **avoid water channelizing** within compacted tire paths. • **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. • 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. 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: • **Post-harvest stabilization** measures such as grading and smoothing to prevent erosion and sedimentation. • **Seeding** to provide cover and further stabilize the soil.

	• **Invasive plant survey and control** to minimize further infestation risks. • Periodic mowing of permanent landings to allow herbaceous and shrubby vegetation to dominate the site between harvests, adding **diverse habitat opportunities** for local wildlife.
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: • aggressively **outcompete native plant species,** • dominate understory communities, and even climb, kill, and topple mature trees, • threaten overall **biodiversity**. • threaten **soil health** and long-term **carbon storage**. **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. • Prescribed fire improves habitat for a **variety of wildlife and native plants** and **restores natural communities** dependent on fire. • 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. • Excessive vegetation density **negatively impacts the habitat quality** of the natural community and may eventually lead to fuel buildup and unplanned, catastrophic wildfire. • Prescribed fires that reflect natural return intervals increase below-ground **carbon storage and sequestration.** The consequences of **catastrophic wildfires** include: • The release of large amounts of **carbon** including **soil carbon**. • Tree mortality. • Severe soil, duff, and below ground vegetation impacts. • Potential alteration of soil chemistry. • Threats to firefighter safety, human communities, and property damage. • 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.

	Fuel breaks are: • **vegetated areas,** • maintained at lower structure and density, • designed to **slow the spread of fire**, • designed to **control prescribed fire** or wildfire, • opportunities to encourage open woodland, shrubland, or grassland natural communities. **Fire breaks** may be natural or constructed **barriers to the movement of fire**, with some examples being: • open water, • paved roads, • graveled woods roads, • trails, • and periodically mowed paths ("fire lines"). 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**.
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 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: • Reducing tree **density reduces vulnerability** to pests like southern pine beetle and to drought stress. • Restoring **native species** that are best adapted to the site **promotes resilience** to future drought, wildfire, and harmful insects. • Reintroducing low-intensity fire **promotes resilient native vegetation**. • Removing heavy fuel loads **reduces vulnerability to wildfire**. • Restoration better positions these sites **to adapt to climate change**. • Restored sites are **more reliable carbon sinks in the long term** than highly vulnerable dense fire-excluded forests. 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.

(Posted Date: June 2, 2025; Updated: June 12, 2025)