DIVISION OF FISHERIES & WILDLIFE

Frances Crane North WMA Habitat Restoration Project Summary
SE-FC-TS1

Location

Site: Frances Crane WMA
Towns: Falmouth, Bourne, and Sandwich
District: Southeast

Project Area

210 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 and ecologists identify, prioritize, plan and implement natural community restoration and maintenance across MA to maximize biodiversity conservation, ecological function and climate resilience 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, or 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

The Frances Crane Wildlife Management Area (WMA) North Unit occupies a geologically and ecologically significant landscape, primarily situated on the Mashpee Plain outwash, with a smaller portion extending west onto the Buzzards Bay Moraine. The North Unit contains approximately 350 acres of sandplain grassland, 550 acres of restored pitch pine-oak woodland and pitch pine-scrub oak natural communities, and an additional 700 acres of unrestored woodlands. This WMA is situated directly to the south of Joint Base Cape Cod (JBCC), which supports 1,500 acres of grassland and roughly 15,000 acres of barrens-type woodland and shrubland. Active habitat management on both properties greatly enhances Frances Crane WMA's conservation value.

The natural communities within the North Unit are globally and regionally significant. Sandplain grassland and complementary natural communities, such as scrub oak thicket, pitch pines-scrub oak woodland, and sandplain heathland, form a diverse and functional barrens mosaic that supports high levels of biodiversity, including at least 31 MESA-listed species. Managing these communities is necessary to maintain their long-term conservation value and allowing the wildlife that live there to thrive.

The North Unit has undergone large-scale restoration resulting in the largest publicly-owned sandplain grassland in southern New England and has led to a dramatic recovery of the MESA-listed grasshopper sparrow. The site also supports highly-specialized species, including rare moths, butterflies, plants, and other wildlife dependent on barrens habitats, including eastern whip-poor-will, eastern box turtle, and purple tiger beetle.

Project Activities and Expected Outcomes

Selective tree removal will be conducted in phases on approximately 210 acres. The goal is to restore pitch pine-oak woodland and pitch pine-scrub oak communities. Tree thinning will expand on previous restoration to result in a total of 750 acres of restored woodland barrens communities on the WMA's North Unit. Both common and MESA-listed species will significantly benefit from this restoration, and these communities will be maintained by periodic prescribed fire.

Tree removal will be variable, prioritizing a spacing of approximately 30 feet between healthy pitch pine trees. This spacing represents the structure of high integrity fire-influenced oak-pitch pine communities, is recommended for wildfire hazard reduction, and makes the trees more resilient to infestations of southern pine beetles, which have recently been detected on the site. Hardwood trees will also be thinned, retaining oaks other species suited to periodic low-intensity fire. Post-thinning canopy closure will be between 40-70%. Fire breaks will be established to facilitate the safe application of prescribed fire and provide infrastructure for first responders. Project planning and oversight will be implemented by a team of experienced habitat biologists and restoration ecologists.

Highlights:

- Selective tree removal to restore open oak and pitch pine woodland will promote the growth of shrubs, like blueberry, huckleberry, and scrub oak. The forage and structure provided by a vigorous shrub layer is beneficial to numerous species, including rare insects, songbirds, and game species.
- Retained pitch pine will be spaced approximately 30 feet from each other to reduce southern pine beetle vulnerability and improve the resulting stands vigor and resilience to disturbance.
- This project will result in a woodland that has higher tree density than other restored woodlands in proximity, adding to the mosaic of conditions on site.
- The use of occasional prescribed fire for long-term habitat maintenance will preserve desired understory vegetation, like scrub oak, black huckleberry, and lowbush blueberry, to provide high-quality habitat features for vulnerable and common wildlife into the future.

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 and harmful insects, like the southern pine beetle;
- Restoring native species that are best adapted to the site's extant fire-influenced natural communities and to improve resilience to future drought, wildfire, and harmful insects;
- Thinning to prepare the site for the reintroduction of low-intensity prescribed fire to restore resilient native fire-influenced natural communities; and
- Restoring fire-influenced ecosystems that provide reliable carbon sinks in the long term compared to vulnerable dense fire-excluded forests.

See page 5 for more details.

Project Proposal Map

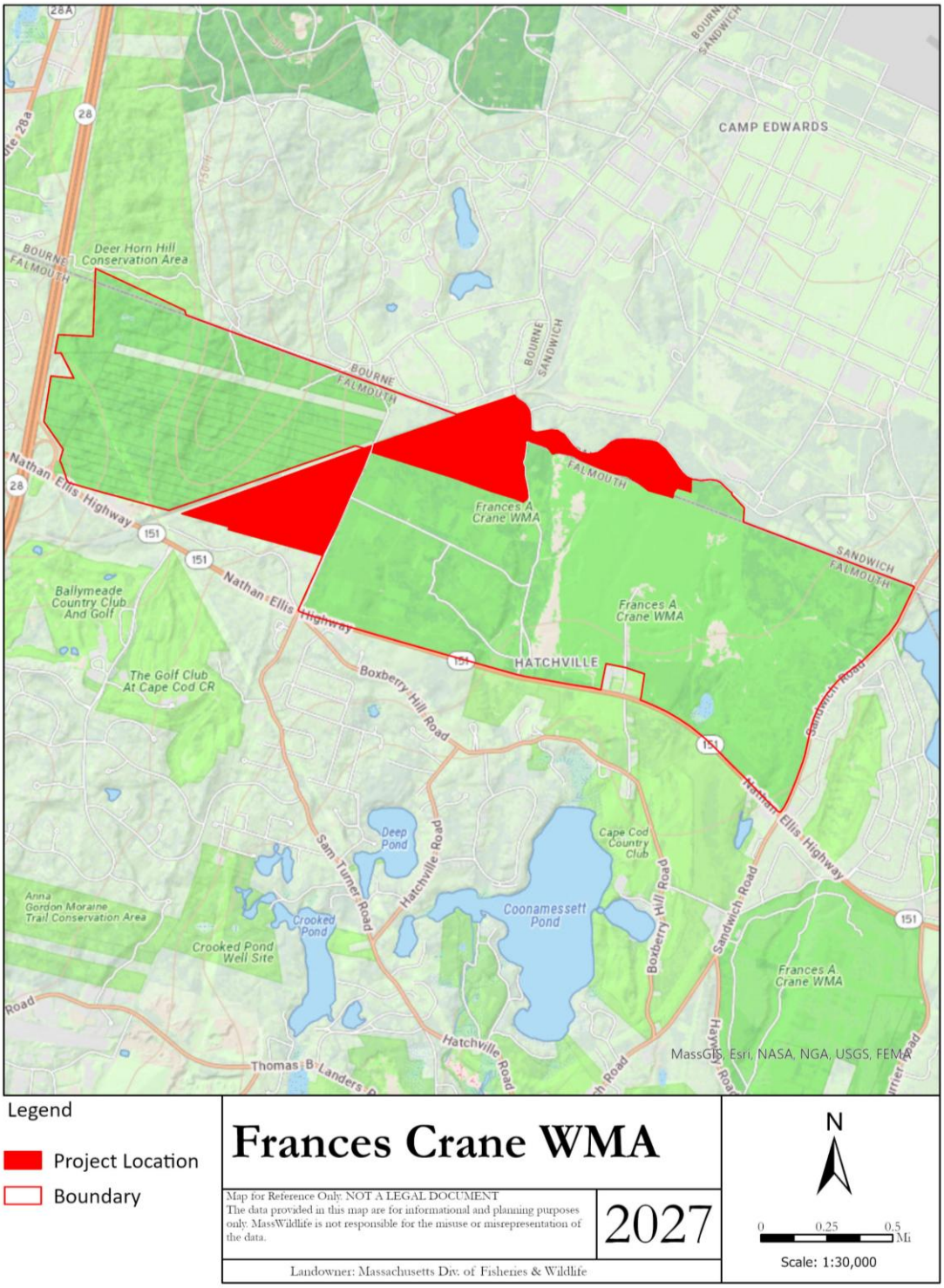

Figure 1. Map of Frances Crane WMA North Unit with highlighted project area.

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 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.