DIVISION OF FISHERIES & WILDLIFE

Herman Covey WMA Pitch Pine and Oak Woodland Restoration
FY25 Project Summary

Location

Site: Herman Covey Wildlife Management Area (WMA)
Towns: Belchertown, Ware
District: Connecticut Valley

Project Acres

85 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

Herman Covey WMA encompasses approximately 1,500 acres. The WMA is located within the Swift River Valley which is a unique and diverse landscape containing pitch pine and oak woodlands, warm season grasslands, aspen stands, wet meadows, emergent marshes, and abandoned agricultural fields. Targeted 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 more common animals.

This current project proposal will build on past successful habitat restoration in the area. Habitat restoration began in 2015 with invasive plant control, mowing, and replanting of native warm season grasses to benefit state-listed grassland birds. Thinning of closed canopy oak and white pine stands on

East Street was conducted in 2019 to promote growth of oak, pitch pine, and hickory woodlands and to allow sunlight to stimulate growth of grasses and shrubs like blueberries and scrub oak. Habitat restoration at Herman Covey WMA compliments landscape-scale efforts that are being conducted by multiple state agencies at several sites in the Muddy Brook and Swift River Valleys to improve conditions for declining and state-listed wildlife including bees, birds, moths, reptiles, and rare plants.

This proposed project will be conducted on the Bondsville Road section of the Herman Covey WMA (Fig. 1) that consists of mixed pine and oak woodlands as well as an abandoned agricultural field.

Project Activities and Expected Outcomes

Select tree removal will be conducted on approximately 85 acres and will occur at varying intensities to stimulate different vegetation responses. Individual trees or clusters of trees with high habitat value will be retained to provide food and/or winter cover to wildlife. Tree cutting will promote pitch pine and oak regeneration by removing white pine and red maple within the project area. Project planning and oversight will be implemented by a team of experienced Habitat Biologists.

This project will build on past successful habitat work in the area. Planned activities will create semi-open habitats and diversify the habitats currently available in the area.

Highlights:

- Tree removal will add to the variety of habitat types present at this location. Targeted tree removal will create conditions that promote vigorous growth of blueberry heathlands, scrub oak thickets, and grasslands, as well as oak regeneration to provide cover for declining wildlife including ruffed grouse, Eastern whip-poor-will, prairie warblers, and grasshopper sparrows.
- This project will also benefit state-listed insects which require pitch pine to complete their lifecycle.
- Dead oak trees will be removed as a safety precaution to reduce wildfire risk and to protect prescribed fire crew members and MassWildlife staff who occasionally work in the area.

Climate Considerations

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

- tree thinning that will restore open woodland conditions and promote growth of native herbs, shrubs, and trees that are more resilient to drought and harmful insects;
- prioritizing and maintaining at-risk species and habitats that are under pressure from climate change;
- and restoring fire-influenced ecosystems that provide reliable carbon stocks currently and into the future as compared to fire-excluded forests vulnerable to severe and intense wildfires.
See page 4 for more details.

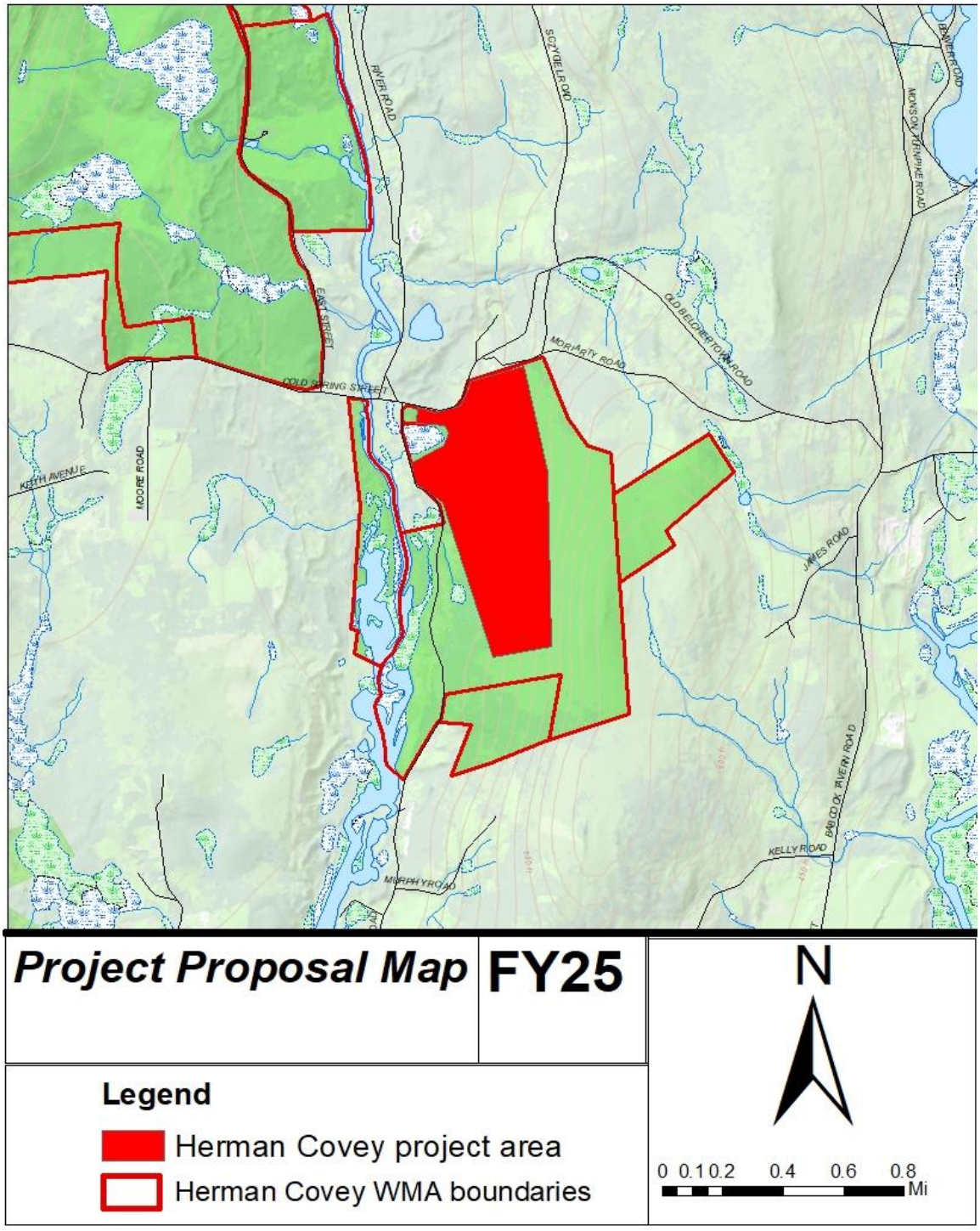

Figure 1. Map of Herman Covey Wildlife Management Area with highlighted project area.

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.
Permanent stream crossing repair or replacement.	It is increasingly recommended to size permanent crossings for the **predicted higher flows** expected as climate change influences future storm characteristics (e.g., precipitation events will likely be more intense and occur with greater frequency), and as a stream's hydrology changes due to **forest conversion for development** in its watershed. • Crossings need to have the ability to **safely pass large volumes of water**, sediment, and debris stirred up by high flows. • Crossings are required to maintain **safe passage for emergency personnel and other roadway travelers**. • Crossings should also allow for **habitat connectivity**, a critical measure for the ongoing viability of wildlife populations in increasingly fragmented landscapes. • Open arch or bridge spans are costlier but may be preferable over traditional culvert approaches because of their lower maintenance needs and their ability to withstand water volumes associated with **larger and more frequent precipitation events** anticipated under **future climate scenarios.** • Open arch designs or bridges provide **improved passage for both aquatic and terrestrial wildlife**.
Restore areas of significant soil disturbance or damage.	Significant soil disturbances can impact numerous soil properties including reduced **carbon stabilization**, increased compaction, reduced fertility due to mixing layers, increased erodibility, etc. Restoration activities may include: • Smoothing and installing water bars on firebreaks, especially those that are installed on slopes. • **Reforesting** ORV or logging access roads that are no longer needed and/or are redundant. • Correcting **erosion issues** associated with poor maintenance, poor drainage or water diversion infrastructure, loss of vegetation or topsoil (can occur on newly acquired properties), etc. Considerations for soil restoration activities: • Seedlings or saplings used need to be **protected from herbivory**. • Seeding should be done with **non-invasive and preferably native vegetation** and monitored for **invasive vegetation** during establishment. • **Future climate scenarios** such as increased rain and flooding. • Access control, especially unauthorized OHV/ORV activities. • Felling trees on-site to create barriers increases the pool of large, **downed, woody debris** while reducing the needs for **larger carbon footprint** devices like gates. • If earthwork or natural features are included as design elements, plan for access to perform routine maintenance.

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: • **Other uses** that may occur between operations, e.g. hiking trails, snowmobiles trails, use as firebreaks, or unauthorized uses (OHV/ATV) • 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. • **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.
Temporary stream or wetland crossing.	Temporary stream crossings are occasionally necessary to facilitate forest management activities, though careful project layout can help **minimize the number of stream crossings required**. • Crossing design, installation, maintenance, and removal should be done in accordance with the highest standard BMPs to minimize impacts to sensitive stream and wetland resources. • Plan for worst case **climate scenarios** that generally indicate a greater frequency of higher intensity precipitation events. • Changing **climatic conditions** change will require the continuous evaluation on the types of structures used.
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.
Silvicultural burning for initiating/maintaining regeneration.	Although most often used in Massachusetts for open habitat maintenance, prescribed burning is also used within **oak forests** in Massachusetts and elsewhere for silvicultural purposes. Fire rapidly converts a fraction of a forest's stored organic carbon into other forms including CO_2 but carefully applied use of **low intensity fire** offers great payback value in trade for this minor loss. Prescribed fire can: • prepare a site for **reforestation**, • discourage **invasive species**, • and encourage **native tree regeneration** better adapted to fire regimes, particularly oak and hickory. Forest stands treated with periodic light burning exhibit reduced biomass losses in the event of a wildfire, generally have **more resistance to pathogens**, and should be more **resilient under climate scenarios** that anticipate more frequent drought facilitated fires.
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**.
Tree mowing (for maintaining aspen, e.g.)	Mowing is used to perpetuate both non-forest (grasslands) and **young sproutland forest** conditions within a given footprint on the landscape. This practice is one dependable way to provide such critical habitats in the absence of discrete localized natural disturbances such as flooding or fire. Mowing to **reset the development** of a stand that has grown out of the sapling stage is recommended as one climate-smart alternative to achieve the agency's **young forest habitat goals** (rather than harvesting mature forest stands over time in a mosaic of large adjacent patches). Although mowing and mulching trees in place

	aligns with carbon objectives and avoids harvesting older forest, it can be prohibitively **costly to implement**.
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.
Salvage cut, standing or fallen trees, insect, disease, or weather-related decline or mortality.	The agency strives to balance **ecological function**, **public safety** concerns, and **management planning objectives** when deciding whether or not to salvage damaged, declining, or dead trees. Ecologists note that natural disturbances improve structural complexity in the living stand while adding greatly to the **biologically important dead wood** component often lacking in our region's second-growth forests. However, large accumulations of dead wood can present **added wildfire risks** which need to be considered when public safety and adjacent property might be threatened. Moreover, large mortality events may interrupt and **interfere with planned stand development.** The use of limited and targeted salvage harvesting provides an opportunity to: • minimize further pest and pathogen impacts/infestation when possible. • Create fire breaks and **reduce heavy accumulation of fuels**. • Intervene and **redirect stand response** to better align with management objectives. • Guide regeneration towards **future climate adapted species**.

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