dcr
Massachusetts

Resource Management Plan
Montague State Forest

Adopted by the DCR Stewardship Council MONTH, 2025

Massachusetts Department of Conservation and Recreation
Division of Conservation and Resource Stewardship
Office of Cultural Resources

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Purpose

Resource Management Plans (RMPs) are foundational documents that identify a park, forest, or reservation's defining natural, cultural, and recreational resources and identify potential threats and opportunities to guide DCR's continued stewardship of the property and to inform future decisions about the property in a way that celebrates and preserves its identity.

RMPs are prepared for "all reservations, parks, and forests under the management of the department" (M.G.L. c. 21, § 2F). These plans "shall include guidelines for the operation and land stewardship of the aforementioned reservations, parks and forests, shall provide for the protection and stewardship of natural and cultural resources and shall ensure consistency between recreation, resource protection, and sustainable forest management." DCR finalizes RMPs following a public process and adoption by the DCR Stewardship Council. The contents of this RMP represent the best available information at the time of adoption by the Stewardship Council.

Mission and Core Principles

The Massachusetts Department of Conservation and Recreation, an agency of the Executive Office of Energy and Environmental Affairs, oversees 450,000 acres of parks and forests, beaches, bike trails, watersheds, dams, parkways, and over 100 National Register listed properties. The agency's mission is to protect, promote, and enhance our common wealth of natural, cultural, and recreational resources for the well-being of all.

DCR strives to be an exemplary leader in conservation and recreation. DCR's staff is passionate, dedicated, and continuously employs best practices, expertise, and a sense of place in carrying out the mission. The following core principles ground the agency in its work. For the benefit and well-being of all—people and the environment—DCR pledges to:

- Provide access to a diversity of outdoor recreational experiences and unique landscapes that is equitable, inclusive, and welcoming.
- Conserve lands, water, and forests by integrating science, research, and technical expertise into the management of our natural resources.
- Advance climate change mitigation and adaptation efforts by implementing sustainable practices and advancing resiliency across our infrastructure, assets, and resources.
- Support healthy communities by providing places for people to connect with nature and each other.
- Inspire generations of stewards by recognizing and honoring our legacy through partnerships, public engagement, and education.

Stewardship

DCR honors Indigenous peoples for their care, throughout many generations, of the land that DCR now stewards on behalf of the people of the Commonwealth. DCR embraces this legacy of stewardship, fostering a sense of shared responsibility by all people for protection of the waters, lands and living things for the enjoyment and appreciation of all.

To learn more about the DCR, its facilities, and programs please visit us at www.mass.gov/dcr. Contact us at mass.parks@mass.gov.

Montague State Forest

1. Property Overview

Characteristic	Value
Date Established	1908/ca. 1957
Location	Montague, Wendell
Ecoregion	Worcester Plateau and Connecticut River Valley
Watershed	Connecticut, Millers
DCR Region	Central
DCR District	Central Highlands
DCR Complex	Erving
Management Forestry District	Eastern Connecticut Valley
Fire Control District	Franklin
Size (acres)	685.5
Boundary Length (miles)	10.5
Elevation - Minimum (feet)	290.9
Elevation - Maximum (feet)	1,381.4
Environmental Justice (acres)	0.0
Estimated Annual Attendance (2020)	2,000
Interpretive Programs (# programs, 2023)	0
Interpretive Programs (# attendees, 2023)	0

2. Landscape Designations

Designation	Acres
Parkland	0.0
Reserve	0.0
Woodland	619.9
No Designation	65.9

3. Regulatory Designations

Designation	Acres
Priority Habitat (MESA)	27.3
Outstanding Resource Waters – Lake Pleasant	8.9

4. Long-Term Agreements

Agreement	Expiration Year
None Identified	N/A

5. Concessions

Concession Type
None

6. Partners & Friends

Group(s)
None

7. Features of Interest

Feature
Cliffs (off Wendell Road)
Montague Plains
Robert Frost Trail

8. Natural Resources

Resource	Value
Tree Canopy (acres)	649.1
Rivers and Streams (miles)	2.3
Open Water (acres)	0.0
Wetlands (acres)	10.4
Certified Vernal Pools (#)	0
Potential Vernal Pools (#)	1
State-Listed Species (# Regulatory)	7
State-Listed Species (# Non-Regulatory)	0
Federally Listed Species (#)	0
Aquatic Invasive Plants (# known species)	0
Terrestrial Invasive Plants (# known species)	0

9. Forest Management (Since 2012)

Management Objective	Acres
Sustain fundamental ecological functions	27.0

10. History of Wildfires and Conditions Influencing Future Wildfires

Wildfire Attribute	Value or Characteristic
Number of wildfires on property; 2019–2023	0
Acres burned by wildfires on property; 2019–2023	0.0
Number of wildfires in Fire Control District; 2019–2023	220
Acres burned by wildfires in Fire Control District; 2019–2023	108.5
Type of Wildland-Urban Interface	Intermix
Predicted rate of spread, based on Fire Behavior Fuel Model 13	Rapid

11. Natural Hazards

Hazard Type	Acres
Flood (1.0%-chance)	Data unavailable
Flood (0.2%-chance)	Data unavailable
Hurricane Inundation (Cat. 1)	N/A
Hurricane Inundation (Cat. 4)	N/A

12. Climate Change (By 2070)

Type of Change	Amount of Change
Increase in annual days over 90° F	>30
Change in annual maximum daily rainfall (inches)	>10
Massachusetts Coastal Flood Risk Model area of inundation (acres)	N/A

13. Cultural Resources

Resource Type	#
Archaeological	1
Historic - Total MACRIS Listed	0
Historic - National Register Listed	0
Historic - National Historic Landmark	0

14. Recreation Resources

Resource	#
Robert Frost Trail	1
Trail Systems	2

15. Recreation Activities

Activity
Dog walking, on leash
Hiking/Walking
Mountain biking
Snowmobiling
Wildlife viewing

16. Roads and Trails

Metric	Value
Roads - Unpaved (miles)	1.9
Roads - Paved (miles)	0.6
Forest Roads - Unpaved (miles)	2.5
Forest Roads - Paved (miles)	0.0
Trails - Unpaved (miles)	1.5
Trails - Paved (miles)	0.0
Trails - Unauthorized (miles)	0.133
Trail Density (miles/acre)	0.007
Area of Impact (acres)	309.6

17. Parking

Parking Resources	#
Lots	1
Parking Spaces - Total	8
Parking Spaces - Accessible (HP)	0
Parking Spaces - Other	8

INTRODUCTION

Montague State Forest (Montague or the Forest) is in the Town of Montague (the Town) approximately 30 miles north-northeast of Springfield. The closest DCR properties are Wendell State Forest (within 1 mile, and in one instance abutting, the Forest) and Connecticut River Greenway State Park (multiple tracts within 4 miles). Montague lies at the joining of the Millers and Connecticut Rivers. The Town's physical and demographic characteristics are diverse; combining dense industrial nodes at Millers Falls and Turners Falls with sparsely populated rural sections where the Forest is located. Large swaths of permanently protected land abut, and in some cases nearly encompass, the Forest's three tracts, creating continuums of open space that run west into the Connecticut River Valley, northeast across the Millers River Valley into New Hampshire, and southeast into the Quabbin Watershed. As of 2017, 39%, or 7,752 acres, of land in the Town is permanently protected (Town of Montague 2017: 5-4).

The Forest consists of three non-contiguous tracts (see Land Stewardship Zoning Map on page 24):

- **Country Hill Tract.** Located in the northeast corner of the Town, this approximately 267-acre tract is minimally developed with recreation resources and is bisected by Wendell Road.
- **Dry Hill Tract.** This approximately 390-acre tract is located on the east edge of the Town and is only accessible from unmaintained town roads. These town roads, along with several trails, connect to other conserved lands.
- **Montague Plains Tract.** This small (approximately 27 acres) tract is near the center of the Town and inaccessible from Town roads, only through passive means via other conserved lands.

The Dry Hill Tract hosts approximately 1 mile of the approximately 42-mile-long Robert Frost Trail. This regional point-to-point trail runs roughly north-south through the Connecticut River Valley and adjacent uplands from the Hadley-South Hadley municipal boundary to Wendell. Founded by the Amherst Conservation Department (ACD), there is no current agreement for maintenance of the trail within Montague. In addition to Montague, the trail also passes through the DCR's Mount Holyoke Range State Park, J. A. Skinner State Park, and Mount Toby State Forest. Its official terminus is Wendell State Forest Headquarters, though the trail does not pass through that forest (ACD and Amherst Area Trail Committee 2004).

The Forest is on land shaped by generations of Indigenous peoples and non-Indigenous inhabitants. Past and present Indigenous residents embody fluid, relational connections to the places and spaces now known as Montague State Forest. Groups and individuals, including Indigenous peoples known as the Pocomtuc(k) and/or the Norwotuck tribes, as well as the Pennacook, Nipmuc, and Squakheag, are recorded in available documentation (Native Land Digital 2023) as having relationships to this place over seasons and generations. The resource-rich Connecticut River Valley was an important locus of Indigenous occupancy and the seasonal fishing areas on falls of the Connecticut and Millers Rivers attracted regional gatherings and important settlements at Pocomtuck (Deerfield) and Peskeomskut (Turners Falls), with smaller settlements near Montague Plain. Following Indigenous people's dispossession, European territorial divisions commenced with the 1673 Sunderland grant and permanent settlement occurred circa 1716. Montague was incorporated in 1754 (Massachusetts Historical Commission 1982: 1–7). Although establishment of Montague State Forest would not occur until the 1950s, the Commonwealth's acquisition of lands constituting the Forest began in 1908 with the purchase of a 25-acre Reforestation Lot on Montague Plain (described below, referred to here as the

Montague Plains Tract). Reforestation Lots were authorized under Chapter 478, Acts of 1908 (Massachusetts General Court (MGC) 1908). This program permitted limited land purchases for reforestation, water quality protection, and demonstration of scientific forestry, with a 10-year option for reacquisition by the previous landowner. Subsequently, the MGC designated all Commonwealth-owned lands from this program as state forests under Chapter 126, Acts of 1931 (MGC 1931). Annual reports describe the Montague lot as Scrub Oak or Acorn Brush Lands and there were multiple attempts to establish pine tree plantations that were hindered by forest fires (Cook ca. 1950; Rane 1918: 24). In 1921, the Commissioner of Conservation purchased lands in eastern Montague and Wendell and designated them Wendell State Forest. The purchases were made under authority of the State Forest Act (M.G.L. Chapter 132) that allowed the Commissioner to "acquire ... any lands suitable for the purposes of conservation or recreation" (M.G.L. c. 132, § 30–31). The State Forester described the lands as largely suitable "for no other purpose than that of producing forest trees" and mostly covered with "a young growth of mixed hardwoods" (Massachusetts Department of Conservation (DoC) 1922:15). Between 1922 and 1926, the Commonwealth acquired additional lands in the Town for Wendell State Forest (Franklin County Registry of Deeds Book 674, Page 66; Book 675, Page 118; Book 674, Page 305; Book 690, Page 106; Book 691, Page 82; and Book 720, Page 330). These 1921–1926 acquisitions created what are now the Country Hill and Dry Hill tracts in Montague State Forest. During the Great Depression, laborers from Civilian Conservation Corps (CCC) Camp S-32 were assigned to Wendell State Forest and probably worked in what is now Montague, but the historically significant CCC improvements occurred within current Wendell State Forest limits (Berg 1999: 73). Meanwhile, the Reforestation lot was managed separately from Wendell State Forest until around 1957, when it was designated as Montague State Forest. At this time, state forest lands in the eastern part of the Town were still part of Wendell State Forest (Department of Natural Resources (DNR) and Edwards, Kelcey and Beck 1957a: 163; 1957b: 145). Around 1966, Montague State Forest's administrative boundaries were expanded to encompass the Country Hill and Dry Hill Tracts creating the current administrative boundaries (DNR 1966: March 29 minutes). Prior to adoption of this RMP, Montague State Forest was managed under a regional Guidelines for Operations and Land Stewardship plan (i.e., GOALS plan) covering the Northeastern Connecticut Valley Region (Department of Environmental Management 1997).

The Forest's three tracts of land (and the Town) fall within two ecoregions: the Country Hill and Dry Hill Tracts in the easterly part of town are within the Worcester Plateau (i.e., Worcester-Monadnock Plateau) Ecoregion, while the Montague Plains Tract is in the westerly part of town within the Connecticut River Valley Ecoregion. All three tracts are undeveloped. The Country Hill and Dry Hill Tracts consist of upland spread across the north-northeast slope of Country Hill (part of a ridgeline defining the south side of the Miller's River Valley) and the slopes and summit of Dry Hill. The glacial till on these tracts is forested with mixed hardwoods of American beech, maple, and red oak, as well as oak-hemlock and oak white pine stands. Dense swaths of mountain laurel and blueberry may be found in the forests' understory. The Dry Hill Tract hosts multiple shrub and wooded swamps, and bogs, many of which are strung along Chestnut Hill Brook. Well-maintained town roads border portions of the Country Hill Tract, while unmaintained town roads cross through the Dry Hill Tract. Scattered cellar holes, stone walls, and old roads testify to historic-period settlement of the land. A limited trails network permits public passive recreation on the two tracts. A utility line runs up the side of Country Hill and services a public safety communications tower on adjacent Town land. The Montague Plains Tract lies between Lake Pleasant Road (gated, now Commonwealth property) and a railroad right-of-way (ROW) and is nearly surrounded by the Montague

Plains Wildlife Management Area (WMA). Montague Plains (i.e., Montague Sand Plains) is a large glacial outwash plain—a deposit of sand and gravel associated with glacial Lake Hitchcock that hosts "the largest inland Pitch Pine - Scrub Oak (PPSO) Community in the state," and "the most extensive example of this type of ecological community in the Connecticut River Valley" (Town of Montague 2017: 3-2, 3-28). The Montague Plains Tract is nearly level, was recently subject to a forest management project for habitat restoration and fire control and is now an emergent PPSO Community.

PARK IDENTITY

Montague State Forest preserves valuable open space, affords important regional and local trail connections, and contributes to a broader network of conserved lands in the eastern Connecticut River Valley. The property's identity is primarily that of forested upland tracts set within a patchwork of protected open space, with Dry Hill being perhaps the dominant landform and visitor attraction. The Forest's secondary identity derives from one tract's location on Montague Plains, with its attendant PPSO Community that creates habitat for multiple species protected under the Massachusetts Endangered Species Act (MESA). The emergent PPSO Community was created in 2017 in conjunction with the Massachusetts Division of Fisheries and Wildlife (MassWildlife) through a cooperative habitat management project. All future activities and improvements should be consistent with Montague's Woodlands status, which is intended to "provide the range of ecosystem services that sustainable managed forestlands offer, as well as education examples of excellent forestry" (DCR 2012:37).

DEFINING RESOURCES AND VALUES

Resources and values that define the Forest are related to its location in the Worcester Plateau and Montague Plains. They include:

- Contributions to landscape-scale resource protection.
  - The Forest is part of a large network of open space and species habitat in the eastern Connecticut River Valley that includes the adjacent Wendell State Forest.
  - The Montague Plains Tract's location within the larger Montague Plains WMA.
- The summits of Dry Hill and Country Hill, which are emblematic of the Worcester Plateau geology and geography.
- The geography and natural resources of the Montague Plains Tract: sandy outwash plain, an emergent Pitch - Pine Scrub Oak Community and Priority Habitat for six MESA-protected species designated by the Massachusetts Natural Heritage & Endangered Species Program (NHESP) as Species of Special Concern (five insects, one reptile).
- A rare example of a Red Maple - Black Gum Swamp natural community, an NHESP Priority Natural Community, on the Dry Hill Tract.
- Sustainable silvicultural management.
- Historical archaeological sites and associated cultural landscapes that illustrate historical settlement patterns of Montague.
- The Dry Hill and Country Hill Tracts provide trail connectivity for regional and local trail networks.

STATEMENTS OF SIGNIFICANCE

Statements of Significance describe the importance or distinctiveness of a place and its resources (National Park Service 1998). These statements reflect current scholarly inquiry and interpretation and go beyond a simple listing of resources to include contextual information that makes the facts more meaningful. When developing significance statements, the following criteria are considered:

- The property's significance at the time of its establishment.
- How the property, or society's understanding of the property, has changed since its acquisition that makes it significant or unique within the State Forest system today.

The property's role in recreation and its importance to the community it supports, particularly regarding activities that are unique to that property.

For park planning, these statements focus management actions on the preservation and enjoyment of those attributes that most directly contribute to the importance of the place. For interpretive planning, they comprise the information upon which the interpretive themes and overall program are built.

The following Statements of Significance have been identified for Montague State Forest. The sequence of these statements does not reflect their level of significance.

- Montague State Forest links the Montague Plains WMA with Wendell State Forest and the Town of Montague Water Supply land. This contiguous protected space supports ecosystem processes and interactions among different habitats.
- Unique to Massachusetts, the reforestation lot program let landowners turn over land to the state for reforestation; within 10 years they could then buy back the land. Unclaimed lots ended up as part of the State Forest system resulting in a system with parcels of varying sizes all over the state.

UNIFYING THEME

The Unifying Theme is a statement that ties a property's stories together and shapes the overall interpretive message that DCR wants to share with visitors in their experience at the property. The theme provides an overarching conclusion for visitors to contemplate (Ham 2013) and answers the question "so what?" The theme guides all interpretation for the park, both personal (i.e., formal and informal interactions with visitors) and non-personal (e.g., exhibits, signage, brochures).

The Unifying Theme for Montague State Forest is:

> Unfragmented landscapes support ecosystem connections and health among different habitats, making the whole greater than the sum of the parts.

VISITOR EXPERIENCE

Montague State Forest provides a variety of visitor experiences, including the following:

- **Virtual Experience.** Potential visitors will find little information about Montague on DCR's web site. The "Find a Park" tool (https://www.mass.gov/info-details/find-a-park) identifies the Forest's location and lists Hiking/Walking as activities that visitors may enjoy here. There is no additional information to help potential visitors plan a trip. The Wendell State Forest web page does not list Montague as being one of its "related parks."

- **Entering the Park.** There is no formal DCR Forest entrance at any of the three tracts. Visitor access to each tract is as follows:
  - Country Hill Tract. Ungated, unmarked forest roads are located on Wendell Road and Mormon Hollow (one road each). An unmarked gravel pull-off on Wendell Road is used for rock climbing access (discussed below).
  - Dry Hill Tract. The Town (with grant assistance from DCR) has established two small parking areas with informational kiosks for the Town's Dry Hill Conservation Area: one at the intersection of the Dry Hill Connector Road (i.e., Dry Hill Cross Road) and East Chestnut Hill Road, and one on Dry Hill Road. Visitors may park and walk approximately 1.2 miles or 0.3 miles along these unmaintained town roads (see cover photo) to access the Forest (including the Robert Frost Trail) and/or town conservation lands and trails. Alternately, visitors with four-wheel-drive or off-highway-vehicles (OHV) may drive to the Forest via these roads.
  - Montague Plains Tract. Visitors must park at one of two gated MassWildlife pull-offs on Old Northfield Road or Turners Falls Road and walk approximately 0.5 miles to the Forest, on forest roads through MassWildlife and/or town lands.
- **Trail-based Passive Recreation**. Visitors may access limited trail and forest road networks on the Country Hill and Dry Hill Tracts or may use trails on the Dry Hill Tract as part of a longer hike onto other conserved lands. There are no trails on the Montague Plains Tract.

THREATS AND OPPORTUNITIES

The following information identifies potential threats to the park's natural and cultural resources and identifies opportunities to enhance their protection and stewardship. Although recreation is not considered a resource under statute (M.G.L. c. 21, § 2F), it is included below because recreation is an important part of the park-going experience, helps define a park's values, and is a key part of assessing the consistency of activities taking place in the Commonwealth's forests, parks, and reservations.

Threats and opportunities identified below are used to inform the development of management recommendations. Potential recommendations must meet prioritization criteria to be included in the Priority Recommendations table (Table 19, page 28).

Natural Resources

Threats

- The Town, which owns some lands adjacent to the Dry Hill Tract, allows OHV use in some portions of the Dry Hill Conservation Area and associated Dry Hill Public Trail System. However, although the Town has incorporated the Forest tract into its trails system, kiosk signage does not explicitly forbid OHV use on Forest land in accordance with DCR regulations.
- Unmaintained public roads cross through the Forest's Dry Hill Tract. These roads are open to OHV and four-wheel-drive vehicles. Dry Hill Connector is gated but the gates are left open, and East Chestnut Hill Road is ungated. Lack of gates allows depreciative behaviors such as OHV use and after-hours gatherings. In particular, OHV use is degrading habitats through erosion and sedimentation. The presence of an ungated power line ROW passing through the tract is exacerbating this situation.
- Some DCR-owned forest roads have no gates. Lack of gates may allow unauthorized OHV use in the Forest that threatens natural communities and species habitat.

- Ungated utility line corridors in the Forest's Dry Hill Tract encourage OHV use that threatens natural species habitat and communities on Forest land.
- An unknown party (or parties, possibly associated with the Town) has constructed a trail up the west slope of Dry Hill within the Dry Hill Tract without DCR approval (TrailForks.com 2022). Additional unsanctioned trail segments are also present in the Forest. Construction of trails without authorization or applicable regulatory review may threaten MESA-protected species habitat, natural communities, and/or ecosystem functions.
- Rock climbers use a group of ledges and boulders on the Country Hill Tract, a short distance from Wendell Road. The climbing community refers to the site as Roadside Crag; it is part of a larger complex of climbing sites (on and off DCR properties) that is valued by the regional climbing community. There are unapproved permanent climbing bolts installed at this location that are in violation of DCR Parks and Recreation regulations. Unsanctioned climbing may threaten sensitive natural communities or species habitat. This climbing location is publicized on various websites, including that of the Western Massachusetts Climbers' Coalition (WMCC) (WMCC 2017).
- There are at least two unapproved geocaches in the Forest that are located away from trails. Inappropriately located geocaches may threaten sensitive natural resources.
- Portions of the state forest are dense with mountain laurel, which is native but can threaten the natural regeneration of overstory forest trees.
- Asiatic tearthumb (i.e., mile a minute vine), an invasive plant, has been observed near the Forest in the Montague Plains WMA. This plant is considered an "Early Detection Priority" that should be "eradicated or reduced to negligible populations" upon discovery (MIPAG 2011: 1). Invasive species may negatively impact both the ecological integrity and biodiversity of the Forest.
- Emerald ash borer, a wood-boring invasive insect, poses a risk to all ash species located within Montague State Forest.
- Red pine scale, an invasive exotic insect, poses a threat to the health of red pine stands in the Forest.
- Eastern hemlocks in the Forest are threatened by the presence of hemlock woolly adelgid and elongate hemlock scale, both of which are invasive insects that feed on and weaken their host trees.
- Spongy moth, an invasive pest that causes defoliation during its spring feeding in the caterpillar life stage, poses a threat to the health of hardwood stands in the Forest. The inspect has not, to date, been identified in the Forest, but has caused damage to other DCR parks and forests nearby.
- Although the Forest's natural communities have not been systematically surveyed, two Priority Natural Communities have been identified. These communities, and existing and potential threats to their ecological integrity and continued persistence in the Forest are identified below:
    - Red Maple - Black Gum Swamp (S2 - Imperiled). A relatively small example of this community type is located on the Dry Hill Tract; it is in good condition with relatively few invasive exotic plants. This community type is threatened by hydrologic alterations and selective logging of trees other than black gum (Swain 2020). Other management needs for this community are not well understood, therefore, management strategies or activities may inadvertently threaten this rare community type (Swain 2020: 244).
    - Pitch Pine - Scrub Oak (S2 - Imperiled). This community is being managed by MassWildlife on its Montague Plains WMA just outside the Forest and is being established on the Montague Plains

Tract. This community type is "severely threatened by… the suppression of fire" (MassWildlife 2015: 172). The southern pine beetle, a native insect that favors pitch pines, has not been identified in the Forest. However, an outbreak of this pest would pose a significant threat to the health of pitch pines in this community, as well as associated community and species habitat management goals.

- There is no information on the presence or distribution of invasive plants in Montague State Forest. Such information is needed to determine if any sensitive resources are being impacted by invasive plants.
- Utility poles and lines are present on the Country Hill Tract, in a corridor extending from Ellis Road, approximately 1,000 feet through the Forest, to a telecommunications tower outside the Forest on Town of Montague—Turner's Falls Water District land. Within the Forest, the transmission infrastructure is in disrepair. Some cables have fallen onto the ground and the corridor is overgrown.

Opportunities

- The Forest is located within the Quabbin to Cardigan Initiative's (Q2C) project area. This initiative is a public-private collaborative effort to conserve the Monadnock Highlands of north-central Massachusetts and western New Hampshire. The Forest's location within the project area offers opportunities to participate in agency partnerships, grants, and land acquisitions in support of DCR's and Q2C's mutual conservation and recreation goals (Q2C 2023).
- There may be opportunities to protect existing Forest tracts by acquiring adjacent, undeveloped parcels.
- Approximately 65.9 acres of the Forest has no Landscape Designation (DCR 2012). Assigning Landscape Designations to these areas could help with management of associated natural resources and ensure management consistent with DCR properties statewide.
- There are opportunities to protect natural resources by identifying and correcting minor boundary deviations in DCR's data for the Forest. For example, the southeast corner of the Dry Hill Tract encompasses a Red Maple - Black Gum Swamp Community, only part of which is currently shown as belonging to DCR.
- There is an opportunity to enhance protection of natural resources by installing cantilevered identification signs rules and regulations signs at forest entry points for the Dry Hill and Country Hill Tracts.
- There is an opportunity to limit OHV access to the Forest's Dry Hill Tract by installing obstructions such as logs and boulders at access points.
- It has been reported that OHVs occasionally use utility line corridors and MassWildlife forest roads near the Montague Plains Tract (Leddick 2024). Occasional monitoring, including coordination with MassWildlife staff, by Environmental Police Officers, DCR Rangers, and/or Forest operations staff, as appropriate and available, may help to prevent negative OHV impacts to MESA-protected species habit and natural communities on this tract.
- The Forest's potential vernal pool may "support rich communities of vertebrates and invertebrates" (MassWildlife 2009) and serve as important habitat components for other wildlife. Surveying and certifying this pool (DCR (n.d.) and MassWildlife (2009)), as appropriate, may help better protect these animals.

- No invasives have been identified to date in the Forest. There is an opportunity to protect natural resources through continued monitoring and reporting of any invasives that are identified in the future, particularly in disturbed areas associated with OHV use, forestry, utility easements, and other areas of disturbance (BSC Group 2017: 14, 15, 38).
- Active forest management can aid in creating conditions favorable for the regeneration of native overstory trees, as well as establishing more resilient forest conditions.
- The Montague Plains Tract was recently subject to a forest management project through a cooperative effort with MassWildlife, whose Montague Plains WMA nearly surrounds this tract of Forest (DiNardo 2022). The Montague Pitch - Pine Scrub Oak Community is also NHESP Priority Habitat of Rare Species. There is an opportunity to improve or maintain NHESP species habitat and the attendant Pitch - Pine Scrub Oak Community, reduce the threat of wildfire threats, and ensure consistent environmental management of Montague Plains by continuing ecosystem management or restoration activities in partnership with MassWildlife.
- The Montague Plains Tract exists in an area of "Primary Wildfire Risk" (Korby 2015:11). Fire is a significant natural hazard on Montague Plains to due to the extremely flammable nature of the PPSO vegetation (Korby 2015:5). There is an opportunity to assist with the Town's community hazard reduction efforts by conducting prescribed fire and mechanical treatments for fuels mitigation and management in Montague Plains, possibly in partnership with MassWildlife (Korby 2015:12).

Cultural Resources

Threats

- A lack of a comprehensive archaeological survey exposes unidentified archaeological resources to potential unknown threats.
- Approximately 65.9 acres of the Forest has no Landscape Designation (DCR 2012). Assigning Landscape Designations to these areas could help with management of associated cultural resources and ensure management consistent with DCR properties statewide.
- Current digitized and spatially referenced flood maps from the Federal Emergency Management Agency (FEMA) do not cover Montague State Forest. This limits DCR's ability to identify potential threats from flood events to cultural resources in the Forest.
- Erosion due to extreme weather events and human activities (hiking, electrical ROW maintenance and expansion, mountain bike and OHV use) may threaten archaeological resources.
- One potential historical archaeological site on the Country Hill Tract appears to straddle the DCR property boundary. A neighboring landowner has a forest road next to the site. This site may be threatened by activities of the abutter.
- There are historical archaeological sites in close proximity to the trail network of the Dry Hill Tract, making them susceptible to vandalism. One of these sites shows evidence of having been damaged: stones appear to have been removed from a cellar hole and stacked in a large pile.
- Construction and use of the previously mentioned unauthorized trails may disturb areas of the Forest that have potential archaeological resources.

- There are unapproved permanent climbing bolts for rock climbing installed at the so-called "Roadside Crag" on the Country Hill Tract. Unsanctioned climbing may threaten sensitive cultural resources such as Indigenous people's archaeological sites or stone features.
- There are at least two unapproved geocaches in the Forest, some of which are located away from trails. Inappropriately located geocaches may threaten sensitive cultural resources.

Opportunities

- There is an opportunity to expand knowledge of archaeological resources in the Forest by conducting a cultural resource reconnaissance survey in cooperation with partners, including the Town, Tribal partners, and Eversource.
- The Forest is located within 5 miles of the Turners Falls Sacred Ceremonial Hill Site, a "highly significant Native American "prayer hill" containing stone features" (Matthews 2008). This site has been determined to be eligible for listing on the National Register (Matthews 2008). The "site is considered by Tribal authorities to be part of a ceremonial district" (Shutesbury Historical Commission (SHC) 2021). Although the boundaries of this district "are presently undetermined," its approximate boundary is "a 16-mile radius around the Turners Falls Site" (SHC 2021). Because of the Forest's location within the potential district, there is a possibility that Indigenous features occur within the Forest.
- There is an opportunity to protect cultural resource in the Forest by limiting OHV access into the transmission line ROW and blocking other points of OHV access into the forest.
- There is an opportunity to enhance protection of cultural resources by installing rules and regulations signs at forest entry points for the Dry Hill and Country Hill Tracts.

Recreation

Threats

- Current digitized and spatially referenced flood maps from FEMA do not cover Montague State Forest. This limits DCR's ability to prepare for flood emergency operations and to identify potential threats from flood events to recreational resources in the Forest.
- There is limited official information available on Montague State Forest. DCR's webpage does not include information on the Forest, making it difficult for potential visitors to become aware of the property and its recreational opportunities.
- The lack of an up-to-date trail map for the Forest threatens user enjoyment of the property.
- Unauthorized, unmapped (by DCR) trails such as the Dry Hill Summit Loop may cause Forest visitors to get lost or may lead them to engage in behaviors that violate DCR regulations.
- The lack of a maintenance agreement for the Robert Frost Trail within Montague State Forest may lead to work by outside groups that is inappropriate, unauthorized, and not consistent with DCR Best Practices.
- Unauthorized, permanent climbing bolts have been installed at the "Roadside Crag" on the Country Hill Tract. Per DCR Parks and Recreation regulations, climbing with ropes is only permitted in designated areas and may threaten recreationist safety, natural resources, or cultural resources.

- An uncapped historical well is located in an archaeological site immediately adjacent to Dry Hill Connector Road, posing a potential safety hazard to Forest visitors.

Opportunities

- Adding a Montague State Forest web page to DCR's web site would allow potential visitors to become aware of the Forest, its resources, and associated recreation opportunities.
- There is an opportunity to enhance the visitor experience of the Forest by installing cantilevered identification signs at the Country Hill and Dry Hill Tracts. It may be appropriate to develop Welcome Wayside content for the Dry Hill Tract for use on the Town's existing kiosk at this location.
- There is an opportunity to increase public awareness of the Robert Frost Trail, a valuable and little-known regional hiking route, through information disseminated on maps and DCR webpages.
- DCR and the WMCC, a 501(c)(3) non-profit organization, formerly had a Volunteer Stewardship Agreement (now expired) and draft management plan to govern rock climbing activities in Wendell State Forest. Following appropriate natural and cultural resources review, there is an opportunity to ensure appropriate recreational use and stewardship of the Roadside Crag in Montague State Forest by updating these documents to include this climbing location in the Forest (DCR and WMCC 2017; WMCC 2015).
- There is an opportunity to improve the experience of recreationists in the Forest by cutting brush along the shoulders of forest roads and applying gravel to the road surface where appropriate.
- As any future trail improvements are planned, there is an opportunity to identify possibilities for accessible trails at the Forest.
- Pine barrens, as represented by the Montague Plains Tract, are a regional and statewide conservation priority due to their support of numerous (>180) species that are identified as being of greatest conservation need in the Massachusetts State Wildlife Action Plan (Leddick 2024). There may be opportunities to educate the public on the uniqueness of the pine barrens habitat and associated restoration efforts, or to partner with MassWildlife or the University of Massachusetts at Amherst for such education programming.

CLIMATE CHANGE

Climate change impacts nearly every aspect of DCR's properties, from ecosystem health, to infrastructure, to recreation. (See DCR 2024a for an overview of these impacts.) The Department is actively working to mitigate and adapt to current and future impacts through such actions as forest management; decarbonizing DCR's buildings, vehicles, and power equipment; protecting wetlands; and using nature-based solutions to minimize stormwater impacts. Information on these, and other, efforts is incorporated into RMPs as available and appropriate.

Any discussion of climate change requires a shared understanding of terminology. Because of this, this RMP section adopts commonly accepted terms to the greatest extent possible. In general, climate-related technical terms used in this RMP are as defined in the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2021). Exceptions to this are the terms Adaptation, Risk, and Sensitivity, which are used as defined in DCR's Climate Change Vulnerability Assessment (CCVA; Weston and Sampson 2022).

DCR manages its forests to provide a range of ecosystem services such as recreation, clean water, wood commodities, and wildlife habitat (DCR 2020). For ecosystems under its management, DCR carefully considers both their vulnerability to climate change and their ability to mitigate the effects of climate change by storing carbon in ecosystems and harvested wood products. Several approaches are used to monitor DCR forests and to design forest management strategies to adapt to climate change and provide ecosystem services. (See Swanston et al. (2016) for information on adaptation strategies and approaches associated with DCR's forest management.) Established in 1957, DCR's Continuous Forest Inventory (CFI) system uses a network of more than 2,000 permanent plots on which repeated measurements are taken on an ongoing basis. The CFI measures the status, size, and health of over 100,000 trees; other vegetation; down woody material; and the forest floor. (See DCR 2022 for additional information on the CFI system.) This information helps DCR understand at a strategic scale the current character, condition, and trends of forest ecosystems under its care. DCR also uses operational inventory to help plan specific treatments and evaluate their outcomes. Using these different scales of information, remotely sensed data, and local and regional external expertise, DCR plans projects that help its stands, forests, and other lands adapt to climate change and mitigate greenhouse gas emissions. The conservation and science-based management of forest lands are an essential element to ensuring crucial carbon storage and advancing climate change resilience (Massachusetts Executive Office of Energy and Environmental Affairs (EEA) 2024). For additional information on the relationship between DCR's forest management practices and climate change, please see pages 77–85 in Massachusetts Forest Action Plan 2020 (DCR 2020) and Managing Our Forests…For Carbon Benefits (DCR 2023).

The Department is actively assessing and addressing the vulnerability of its properties and facilities to the impacts of climate change. In 2022, DCR conducted a CCVA (Weston and Sampson 2022). Findings from this CCVA are being used by DCR to enhance park operations and maintenance, inform resilient investment, and provide a framework for hazard mitigation and climate adaptation for natural resources, cultural resources, recreational activities, buildings, facilities, and other infrastructure. Property-specific climate change information from the CCVA is included in the Climate Change (by 2070) table (Table 12) at the beginning of this RMP. An overview of the impacts of climate change on DCR facilities and operations is presented in the DCR Climate Impacts Story Map (DCR 2024a).

Climate Exposure and Impacts

A summary of the ways in which the Commonwealth's natural, cultural, and recreational resources may be impacted by climate change is provided below. During the preparation of RMPs some resources may be identified as having particularly high exposure and/or sensitivity to the anticipated hazards or consequences of climate change. When this occurs, these resources and the projected impacts to them are described. In some instances, the potential impacts of climate change on a given resource are not well understood. When this occurs, only exposure is discussed.

Natural Resources—General Impacts

Climate change affects temperature, precipitation, and atmospheric and ocean chemistry, which in turn directly and indirectly affect the natural environment, including the plants, animals, and natural communities of DCR's forests, parks, and reservations.

Climate is known to influence the presence, absence, distribution, reproductive success, and survival of both native and non-native plants (Finch et al. 2021). Native northern and boreal species, including

balsam fir, red spruce, and black spruce may fare worse under future conditions, but other species may benefit from the projected changes in climate (Janowiak et al. 2018). Some non-native invasive species will be affected by climate change while others will remain unaffected, and some non-invasive non-native species are likely to become invasive (Finch et al. 2021). In general, elevated temperature and CO_2 enrichment associated with climate change increases the performance of non-native plants more strongly than the performance of native plants (Liu et al. 2017). Climate change may result in the presence of new non-native invasive plants on a property, and changes to the distribution and/or abundance of invasives already present on a property.

Exposure to a changing climate affects wildlife in a variety of ways. For animals that live in or near aquatic environments, "changes in habitat and hydrological regimes are expected to shift their abundance and distribution" (Isaak et al. 2018: 89). Impacts to terrestrial animals are expected to be highly variable (Halofsky et al. 2018) but may be considered to fall into the following four categories: 1. habitat loss and fragmentation; 2. physiological sensitivities (i.e., innate characteristics that influence the ability to cope with changing temperature and precipitation conditions); 3. alterations in the timing of species' life cycles; and 4. indirect effects (e.g., disruption of ecological relationships) (Friggens et al. 2018). Although all Northeast wildlife are exposed to hazards associated with climate change, some groups, "including montane birds, salamanders, cold-adapted fish, and freshwater mussels, could be particularly affected by changing temperatures, precipitation, sea and lake level, and ocean processes" (MassWildlife 2015: 357). In addition, it is the position of the Massachusetts Natural Heritage and Endangered Species Program that state-listed species and Priority Natural Communities are likely to be highly sensitive to climate change and that all state-listed species will be negatively affected by hydrologic changes, changes in water, soil, and air temperature, and changes in forest composition.

Natural Resources—Property-Specific Exposure and Impacts

The entire length of Chestnut Hill Brook within the Forest's Dry Hill Tract has been identified as Coldwater Fisheries Resource by MassWildlife. Such streams provide important habitat for coldwater species, which are typically more sensitive than other species to alterations in stream flow, water quality, and temperature (Massachusetts Bureau of Geographic Information (MassGIS) 2021).

The Forest's Red Maple - Black Gum Swamp natural community is vulnerable to alterations to hydrology. Changes in precipitation, such as those associated with a changing climate, have the potential to impact these communities.

Climate change may cause some vernal pools to dry earlier in the season than they have historically, potentially interfering with amphibian life cycles and negatively impacting associated wildlife (Cartwright et al. 2022). Similar impacts may occur at the Forest's potential vernal pool, if it functions as a vernal pool.

Pitch pines in the Forest's emergent PPSO natural community may be increasingly at risk of southern pine beetle infestations, as climate change could significantly alter the insect's generation periods (DCR 2024b).

Cultural Resources—General Impacts

Climate change may negatively affect cultural resources, their preservation, and maintenance (EEA 2022; International Council on Monuments and Sites (ICOMOS) Climate Change and Cultural Heritage Working

Group 2019; Rockman et al. 2016: 3, 18; United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Center 2007). In Massachusetts, cultural resources may be exposed to the following natural phenomena that are correlated with adverse impacts: higher annual average temperature (especially in winter), increased numbers of freeze-thaw cycles, increased precipitation intensity, higher relative humidity, higher wind speeds, an increase in severe storm events, increased numbers and severity of wildfires, more severe seasonal droughts, increase in number and severity of inland flood events, increased coastal flooding and erosion, increased probability of landslides, changes in groundwater levels, shifts in native and invasive species distribution, performance, and phenology; and changes in oceanic and atmospheric chemistry (Rockman at al. 2016; Commonwealth of Massachusetts 2023: 5.1-31–5.1-61).

The phenomena listed above may produce a variety of adverse impacts to Massachusetts' cultural resources. Sensitivity and potential impacts vary based on resource category (i.e., archaeological sites, cultural landscapes, ethnographic landscapes and sites, and buildings and structures). Resource-specific factors such as location, design, materials, condition, etc. will also influence sensitivity and consequent impacts. All categories of cultural resources may be subject to complete or partial destruction through wildfire, inland flooding, sea level rise, storm surge, or landslides. Additionally, these resource categories may be subject to other types of impacts, as follows. Archaeological sites may have site stratigraphy disrupted by changes in hydrography, may suffer accelerated decomposition of artifacts and features, and may be impacted inadvertently during disaster response. Cultural landscapes may lose plantings due to a variety of stressors (e.g., drought or flood, pests, soil salinity), may be infiltrated by invasives, may be eroded by surface runoff, may experience more rapid deterioration of hardscaping and site furnishings, and may be damaged by high wind or heavy snow events. Ethnographic landscapes, traditional cultural places, and associated communities (including Indigenous peoples) may suffer both tangible and intangible impacts such as loss or diminishment of natural species used for food, ceremony, or medicine; alterations in timing of hunts, etc.; increased difficulty of vulnerable subgroups (e.g., the elderly) to perform outdoor tasks; and a loss of cultural knowledge associated with resources and practices. Buildings and structures may be damaged or destroyed by high wind or heavy snow events, suffer accelerated deterioration through a variety of mechanisms (e.g., elevated humidity, chemical reactions, destructive pests and organisms), may be destabilized by hydrological changes, or be damaged by inadequate gutters or drainage systems (ICOMOS Climate Change and Cultural Heritage Working Group 2019: 73–89; Rockman et al. 2016: 20–24). (See Rockman et al. 2016: 19–24 for a detailed assessment of the potential impacts of climate change on cultural resources.)

Cultural Resources—Property-Specific Exposure and Impacts

No cultural resources with known elevated exposure or sensitivity to potential consequences of climate change were identified at this property.

Recreation—General Impacts

Outdoor recreation and park visitation are dependent on weather and climate and will be affected by a warming climate (Wilkins and Horne 2024). Higher temperatures positively affect participation in most outdoor activities, except snow-based activities (Wilkins and Horne 2024). "Winter is warming substantially faster than other seasons, and winter warming is especially pronounced in the...Northeastern United States" (Wilkins and Horne 2024: 15). Exposure to this climate change phenomenon is projected to significantly reduce the length of winter recreation seasons for downhill

skiing, cross-country skiing, and snowmobiling, decreasing recreational opportunities and causing substantial economic impacts (Wobus et al. 2017). Whitewater rafting, primitive area use, and hunting are also projected to be negatively impacted by exposure changing weather patterns associated with climate change (Askew and Bowker 2018). Although "coldwater fishing habitat is expected to decline under a warming climate, which will likely result in fewer fishing days," overall fishing participation in the Northeast is projected to rise "due to the more favorable temperatures" (Wilkins and Horne 2024: 11). Horseback riding on trails, boating, swimming, and visiting interpretive sites are also expected to see higher participation in the Northeast under climate change (Askew and Bowker 2018). Temperature preferences of campers indicate that the "number of ideal days" for camping will also increase (Wilkins and Horne 2024: 13). Participation in biking is also projected to increase, especially in the winter and shoulder months (Wilkins and Horne 2024: 13). Climate change may also impact outdoor recreation through increased impacts to recreation infrastructure (e.g., flooding impacts), and increased exposure to disease vectors (e.g., mosquitoes and ticks), longer pollen seasons, and heat-related illnesses (O'Toole et al. 2019).

Recreation—Property-Specific Exposure and Impacts

Recreation activities at the Forest likely to be negatively impacted by exposure to weather changes resulting from climate change include snow-dependent sports (i.e., snowmobiling). Other recreation activities may see increased participation in the shoulder seasons, such as mountain biking.

APPLIED LAND STEWARDSHIP ZONING

DCR assesses the appropriate uses and stewardship of its properties at two spatial scales: the landscape level and the property level.

Landscape Designation

In 2012, DCR engaged in a comprehensive system-wide assessment of lands managed by its Division of State Forests and Recreation, designating them as Reserve, Woodland, or Parkland. (See Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines (DCR 2012) for details.) Multiple Landscape Designations may apply to individual properties with diverse resources and levels of development. All of Montague State Forest was designated Woodland. Identification of Land Stewardship Zones within Montague was performed in the context of the Woodland Landscape Designation.

The following Land Stewardship Zoning is recommended to guide management and any future development. (See Figure 1. Land Stewardship Zoning Map, page 24, and the Land Stewardship Zoning layer on DCR's Stewardship Map: https://dcrsgis-mass-eoeea.hub.arcgis.com/.)

Zone 1

Zone 1 areas have highly sensitive ecological and/or cultural resources that require additional management approaches and practices to protect and preserve these special features and their values (DCR 2012). The following areas of Montague have been designated Zone 1.

- The Montague Plains Tract, the entirety of which is pine barrens with an emergent PPSO Priority Natural Community, and is habitat for multiple, recreation-sensitive, MESA-protected rare species.

(Application of this zoning is intended to recognize, rather than to preclude, future management activities that may occur on this tract for the enhancement of habitat for MESA-protected species.)

Zone 2

Zone 2 areas provide for a balance between resource stewardship and recreational opportunities that can be appropriately sustained. They include stable yet important cultural and natural resources. These areas provide a buffer for sensitive resources, recharge areas for surface and groundwaters, and large areas where existing public recreation activities can be managed at sustainable levels (DCR 2012). The following areas of Montague have been designated Zone 2.

- The entireties of the Dry Hill Tract and Country Hill Tract are designated Zone 2.

Zone 3

Zone 3 areas include altered landscapes in active use and areas suitable for future administrative, maintenance, and recreation areas (DCR 2012). The following areas of Montague are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- No areas in the Forest have been designated as Zone 3.

Significant Feature Overlay

Significant Feature Overlays provide precise management guidance in order to maintain or preserve recognized resources features regardless of the zone in which they occur. The following Significant Feature Overlays were developed for Montague.

- No Significant Feature Overlays were developed for the Forest.

DCR Stewardship Map Tool

This RMP should be viewed in conjunction with DCR's Stewardship Map, a GIS-based tool that allows users to view a property's natural, cultural, and recreational resources. The Stewardship Map tool is dynamic, and information continues to be updated after adoption of an RMP. Guidance for using the tool, as well as Best Management Practices (BMPs) for resource stewardship, are located on the Stewardship Map site: https://dcrsgis-mass-eoeea.hub.arcgis.com/.

Because authorized trails are located within State-Listed Species Habitat on this property, managers should consult an additional GIS-based tool, the NHESP 2022 Guidance Codes for DCR Trail Maintenance Map. (https://mass-eoeea.maps.arcgis.com/home/item.html?id=cb252e8df40d408c81fe8fcf690e14f6) This tool allows users to select specific trail segments and identify restrictions and regulatory review associated with performing 10 common trail maintenance activities on these segments. Because site-specific rare species information is confidential under Massachusetts law (M.G.L. c. 66, § 17D), access to this tool is restricted.

Consistency Review

Resource Management Plans "shall ensure consistency between recreation, resource protection, and sustainable forest management" (M.G.L. c. 21, § 2F). For planning purposes, an activity is considered consistent with resource protection if it has no significant, long-term, adverse impact on resources. To

this end, a series of indicators were developed to evaluate the impacts of recreation and forest management on natural and cultural resources.

Many activities with the potential to negatively affect resources are already subject to agency and/or regulatory review (e.g., forest management activities, projects within Priority Habitat). For these activities, compliance with state regulations, regulatory authority guidance, DCR policies and processes, and BMPs is considered an indicator of consistency between park use and resource protection. New indicators were generated for activities not subject to agency or regulatory review, and are based on available data, information readily identifiable via aerial imagery or site visits, assessments by DCR subject matter experts, or the property manager's knowledge of park conditions and use. (See Table 18, page 25.)

Indicators are applied during the RMP planning process in order to ensure a standardized assessment of consistency across all properties in the DCR system. Inconsistencies identified via the application of indicators are used to inform the development of management recommendations.

The status of indicators (Yes, No, Unknown, and N/A) were accurate at the time this RMP was prepared and were used for planning purposes. However, they represent a snapshot in time and may not reflect future conditions. In addition, the status of indicators will change as recommendations get implemented.

MANAGEMENT RECOMMENDATIONS

Thirteen priority management recommendations were developed for this property. They are presented in Table 19, page 28. All recommendations are of equal importance.

Priority management recommendations derive from Threats, Opportunities, and Consistency Assessment information presented in this RMP. For a recommendation to be considered a priority and listed in the table, it must meet one or more of the criteria listed below. Maintenance and management needs not meeting one or more of these criteria are not included in the table but are identified in the Threats and Opportunities sections.

The following types of recommendations are considered priority:

- Natural resource stewardship and restoration activities consistent with park identity and intended to improve ecological function and connectivity.
- Cultural resource management activities consistent with park identity and intended to prevent the loss of integrity of significant cultural resources.
- Improvements consistent with park identity that are needed to support intended park activities.
- Actions required for regulatory compliance or compliance with legal agreements.
- Activities that prevent or ameliorate threats to the health and safety of park visitors and employees.
- Activities that address inconsistencies among recreation, resource protection, and sustainable forest management, as identified through use of the Consistency Assessment checklist.

Progress toward implementing priority recommendations is tracked through the use of DCR's Capital Asset Management Information System (CAMIS). The property manager should enter each recommendation listed in Table 19 (page 28) into CAMIS as a separate work order, noting "*RMP" in the description field. Non-traditional work orders (e.g., volunteer trail work, posting of Department of Public

Health (DPH) Fish Consumption Advisory posters, certification of vernal pools) should be closed out by the property manager, once the recommendation has been implemented.

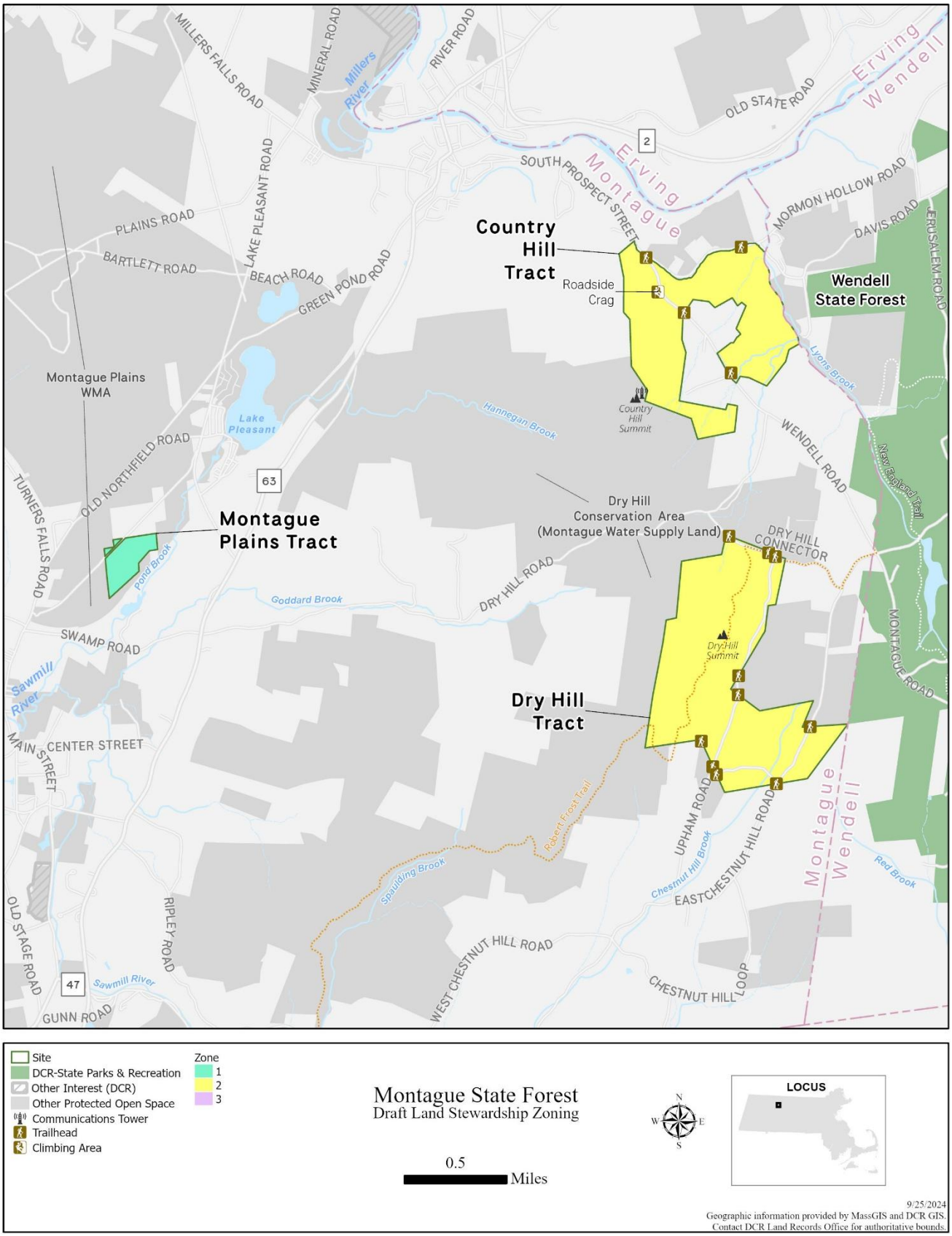

Figure 1. Land Stewardship Zoning Map.

Table 18. Consistency Assessment. This assessment represents a snapshot in time and may not reflect future conditions.

Category	Metric	Status
Landscape Designation	1. All development and uses of the park since 2012, or currently planned for the park, are consistent with its Landscape Designation(s).	Yes
Natural Resources	1. All projects (normal maintenance activities, special projects, volunteer projects) conducted within Priority Habitat were reviewed and approved through DCR's internal review process and by NHESP for potential impacts to rare species and their habitats.	Yes
Natural Resources	2. All projects conducted within areas subject to state and/or federal wetlands or waterways regulations were reviewed and approved through DCR's internal review process; reviewed and approved through the appropriate, local, state, and/or federal review process; and were carried out in accordance with the terms of a valid permit.	Yes
Natural Resources	3. Sensitive resource areas, such as steep slopes, riverbanks, streambanks, pond and lakeshores, wetlands, and dunes are free of desire paths and other user-created trails.	No
Natural Resources	4. Aquatic areas adjacent to beaches, boat ramps and launches, roads, and hiking trails are free of eroded sediments.	Yes
Natural Resources	5. The extent of exposed soil in campground and/or picnic sites is stable or decreasing.	N/A
Natural Resources	6. The extent of native vegetation in campground and/or picnic sites is stable or increasing. (As assessed by property manager.)	N/A
Natural Resources	7. Area of trail impacts in Reserves is less than 50% of total area. (See Naughton (2021) for information on primary area of trail impacts.)	N/A
Natural Resources	8. Congregations of breeding, migratory, or wintering wildlife are protected from disturbance by temporary (e.g., seasonal) restrictions on recreational access.	Yes
Natural Resources	9. Geocaches, letterboxes, orienteering control locations, and other discovery destinations are located outside sensitive natural resource areas and their locations have been reviewed and approved by park personnel. (As assessed by property manager.)	No
Natural Resources	10. Zone I wellhead protection areas are free of vehicle parking, chemical storage, or concentrated recreation.	N/A

Category	Metric	Status
Natural Resources	11. All boat ramps and launches have cleaning stations and/or educational signs and materials on preventing the spread of aquatic invasive organisms. (As assessed by property manager.)	N/A
Natural Resources	12. For each barrier beach there is a current, approved Barrier Beach Management Plan and all beach-related activities are conducted in accordance with this plan.	N/A
Cultural Resources	1. All maintenance activities and projects with the potential to cause sub-surface disturbance are being reviewed by the DCR archaeologist for potential impacts to archaeological resources.	Yes
Cultural Resources	2. All maintenance activities and projects affecting historic properties (buildings, structures, and landscapes over 50-years-old) are being reviewed by the Office of Cultural Resources to avoid adverse impacts.	Unknown
Cultural Resources	3. Historic buildings, structures, and landscapes are being used, maintained, and repaired in a manner that preserves their cultural integrity and conveys their historic significance to park visitors.	Unknown
Cultural Resources	4. Recreational activities such as hiking, biking, and boating are not eroding cultural properties such as archaeological sites or historic landscapes through creation of desire lines, rutting in the landscape, damage to historic built features, or excessive scouring (erosion) of coastal and shoreline areas.	Unknown
Cultural Resources	5. Geocaches, letterboxes, and other discovery destinations are located away from sensitive cultural resources, and their locations have been reviewed and approved by park personnel.	No
Cultural Resources	6. Historic buildings, structures, landscapes, archaeological sites, and concentrations of historic resources are located outside of areas predicted to be subject to flooding, storm surge, or sea-level rise.	Unknown
Recreation	1. Types of recreation, levels of recreational use, and types and extent of recreation infrastructure are consistent with the park's identity statement.	Yes

Category	Metric	Status
Recreation	2. Trail density is consistent with the park's Landscape Designation(s). (See Trails Guidelines and Best Practices Manual (DCR 2019) for density thresholds.)	Yes
Recreation	3. All authorized trail construction was performed in accordance with an approved Trail Proposal Form.	Yes
Recreation	4. Over 90% of the park's official trails network is classified as being in Fair or better condition.	No
Recreation	5. Recurring use by OHVs is restricted to authorized trails. (As assessed by property manager.)	No
Recreation	6. There is a high level of compliance with dog leash regulations and policies. (As assessed by property manager.)	Unknown
Recreation	7. Athletic fields are free of recreation-caused impacts (e.g., bare spots) to turf. (As assessed by property manager.)	N/A
Recreation	8. Water-based recreation is consistent with "Uses Attained" designation as identified by the Massachusetts Department of Environmental Protection (MassDEP) in its most current integrated list of waters (e.g., MassDEP 2023); DPH fish consumption advisories; and/or water quality testing at waterfront areas.	N/A
Recreation	9. Recreation facilities are located outside of areas subject to flooding, storm surge, or sea-level rise.	Unknown
Sustainable Forest Management	1. Forestry activities are consistent with Landscape Designation and associated forestry guidelines.	Yes
Sustainable Forest Management	2. Forestry activities are consistent with current Forest Resource Management Plan.	N/A
Sustainable Forest Management	3. Tree cutting is performed in accordance with an approved cutting plan, if required under the Massachusetts Forest Cutting Practices Act (M.G.L. c. 132, §§ 40–46).	Yes

Table 19. Priority Recommendations for Montague State Forest. All recommendations are of equal importance. When multiple agency parties are responsible for implementing a recommendation, the lead party, or parties, are identified parenthetically in the Implementation column. Property managers should enter these recommendations as work orders in CAMIS to ensure their tracking and implementation.

Category	Recommendation	Implementation
Natural Resources	Apply Landscape Designations to those portions of the Forest currently lacking such designations.	Management Forestry (Lead), GIS Program
Natural Resources	Confirm Forest boundaries where DCR GIS data deviates from town assessor data.	GIS Program (Co-Lead), Management Forestry (Co-Lead)
Natural Resources	Survey, document, and submit documentation to certify the potential vernal pool, in accordance with DCR (n.d.) and MassWildlife (2009), as warranted.	Office of Natural Resources (Lead), Volunteers
Natural Resources	Work with utility line easement holders to install gates on their rights-of-way.	Park Operations (Lead), Partner, Trails and Greenways Section
Natural Resources	With appropriate review and permitting, continue to coordinate habitat management activities and wildfire fuels mitigation on the Montague Plains Tract with MassWildlife.	Forest Fire Control, Management Forestry (Lead), Office of Natural Resources, Partner
Cultural Resources	Conduct an archaeological reconnaissance survey (950 CMR 70) in cooperation with partners such as the Town of Montague, interested Tribes, and Eversource. Complete appropriate Massachusetts Historical Commission archaeological site forms for identified archaeological resources.	Consultant, Office of Cultural Resources (Lead)
Cultural Resources	Work with Indigenous partners to inventory, document, conserve, and interpret Indigenous resources and history within the Forest.	Management Forestry, Office of Cultural Resources (Lead), Partner
Cultural Resources	Evaluate the vandalized historical cellar hole on the Dry Hill Tract to determine if any mitigative or preventative actions are necessary.	Office of Cultural Resources (Lead), Park Operations
Cultural Resources	Fill or cap the open well adjacent to Dry Hill Connector Road.	Office of Cultural Resources, Park Operations (Lead)

Category	Recommendation	Implementation
Recreation	Establish a DCR web page for Montague State Forest.	Interpretive Services, Regional Staff (Lead), State Parks Operations, Web Content Creator
Recreation	Create a Forest trail map that includes the Robert Frost Trail.	GIS Program, Interpretive Services, Trails and Greenways Section (Lead)
Recreation	Partner with Town of Montague to update signage and clarify rules regarding off-highway vehicle use on state land, both at the Dry Hill Road and East Chestnut Hill Road trailheads, as well as trail information on the town website (https://www.montague-ma.gov/p/293/Town-Plans). Include information on DCR Regulations.	Park Operations (Lead)
Recreation	Partner with the Town of Montague to install Forest related content at the Town's kiosks on Dry Hill Road (near the Dry Hill Tract).	Interpretive Services (Lead), Park Operations, Trails and Greenways Section

Category	Recommendation	Implementation
Recreation	Resolve trail-related threats and opportunities identified in this RMP, in accordance with Trails Guidelines and Best Practices (DCR 2019, or update), through the following actions: • Maintain authorized trails, as identified in the DCR Trail Data Layer provided to the Natural Heritage and Endangered Species Program in 2021, and in accordance with the Recreational Trail Maintenance and Biodiversity Conservation 2021 update. • Evaluate trail segments for discontinuation or active closure, including those that are: unauthorized, unsafe, connecting to privately-owned property, located in environmentally or culturally sensitive areas, or otherwise inconsistent with DCR Trails Guidelines and Best Practices. Provide an updated trail data layer to the Natural Heritage and Endangered Species Program. • Establish new trails, as warranted, following regulatory review. Provide an updated trail data layer to the Natural Heritage and Endangered Species Program.	Management Forestry, Office of Natural Resources, Park Operations (Co-Lead), Partners, Trails and Greenways Section (Co-Lead)
Recreation	Conduct a natural and cultural resources review of potential impacts from rock climbing at the Roadside Crag. If appropriate, invite the Western Massachusetts Climbers' Coalition (i.e., WMCC) to renew and expand the expired Volunteer Stewardship Agreement and Management Plan for rock climbing at Wendell State Forest to include the Roadside Crag in Montague State Forest.	Office of Cultural Resources, Office of Natural Resources, Park Operations (Lead)
Recreation	As appropriate, based on review of rock climbing's impacts to natural and cultural resources at Roadside Crag, either install signage to close crag or install rules and regulations sign.	Park Operations (Lead), Sign Shop
Recreation	Work with the geocaching community to ensure that caches located in sensitive natural and cultural resources are relocated out of those areas and that any new geocaches are placed outside of sensitive areas and with the approval of the property manager.	Office of Cultural Resources, Office of Natural Resources, Park Operations (Lead)

Category	Recommendation	Implementation
Recreation	Install cantilevered identification signs at entry points for the Country Hill and Dry Hill Tracts.	Park Operations (Lead), Sign Shop
Recreation	Install Forest rules and regulations signs at trailheads.	Park Operations (Lead), Sign Shop
Recreation	Implement measures to curb unauthorized off-highway vehicle (OHV) use, such as adding gates and other physical barriers, and erecting signage prohibiting OHV use.	Park Operations
Recreation	Increase the presence of Environmental Police Officers, DCR Rangers, and/or Forest operations staff, as appropriate and available, in areas with high unauthorized off-highway vehicle (OHV) use.	Bureau of Ranger Services (Co-Lead), Regional Staff (Co-Lead), Park Operations
Recreation	Identify a responsible party for maintenance of the Robert Frost Trail within the Forest and create a Volunteer Stewardship Agreement with that group.	Park Operations, Trails and Greenways Section (Lead)

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