



TRAIL SYSTEM MASTER PLAN | OCTOBER 2026

DCR Leominster State Forest

Note: Additional changes to this plan may be required subject to review by MassWildlife's Natural Heritage and Endangered Species Program.



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Figure 1. Six-Spotted Tiger Beetle (*Cicindela sexguttata*).

1. Introduction

1.1 Introduction and Purpose

The purpose of the Leominster State Forest Trail System Master Plan is to support trail network improvements including an updated trail system layout that enhances user experience and safety, reduces negative impacts to ecological and cultural resources, increases trail resiliency for its intended use, considers climate change impacts, and improves access. It is intended to be a working document, maintained and later updated by the Department of Conservation and Recreation (DCR) staff. It will be used by the DCR for planning and budgetary purposes, assisting staff in setting priorities for maintenance and future projects, while allowing for planning for future goals and potential expansion. The plan can be used to engage collaborators and apply for funding. It highlights protection of wildlife, as well as natural and cultural resources.

The Trail System Master Plan includes a Trail Management Plan for the park with prioritized recommendations for: changes to trail locations and alignments; prioritization of trail maintenance actions; public access and use guidelines; trail closures/restoration where necessary; and other DCR actions to improve trail maintenance, management, and public use.

The Trail Management Plan also includes design guidelines for circulation and restoration including trail directional and interpretive signage.

In a post-COVID world, there is increasing recognition of the importance of state parks and forests to the health and wellness of people across Massachusetts. Recreation users have increased and there are growing demands for additional trails and new park uses.

In service to DCR's mission and these increased needs, DCR has undertaken the trail planning process to address the following:

- Enhancing recreational experiences for approved uses.
- Protecting the priority natural and cultural resources in the state forest.
- Ensuring access for desired purposes, while limiting access for unauthorized purposes.
- Restoring and improving DCR facilities.
- Providing opportunities for public and collaborator stewardship of these recreational, natural, and cultural resources; and
- Updating management systems and practices.

Trail. An established and designated linear path or route designed and maintained for recreational activities.¹ More specifically, a **Forest Trail** is any path or way with a trail tread width 50 inches wide or less constructed or maintained for use by one or more of the following: pedestrians, wheelchairs, horses, bicycles, snow vehicles or recreation vehicles.²

1.2 Mission of the Department of Conservation and Recreation

The Massachusetts Department of Conservation and Recreation (DCR) oversees nearly half a million acres of land, making up one of the largest and most diverse state park systems in the country. The Department's work focuses on nurturing the vital connection between people and the environment by protecting, promoting, and enhancing our common wealth of natural, cultural, and recreational resources for the well-being of all. DCR infrastructure connects people to and through the beautiful landscapes and accessible recreational facilities we care for – strengthening our communities and driving our economy. DCR staff strive to build a healthier, more resilient Massachusetts where all residents and visitors can relax, reflect and feel a sense of belonging in our open spaces and public lands.

The mission of the DCR is:

To protect, promote, and enhance our common wealth of natural, cultural, and recreational resources for the well-being of all.

1.3 Trail System Planning

A Trail System Plan begins with assessing the function of the existing trails network and makes recommendations to guide the management of recreational trail assets within the context of the natural and cultural environments under the stewardship of the DCR.

Importance of Trails

Trails are more than paths through the woods or routes that connect one place to another. They create recreational experiences through a series of visual, physical, and emotional interactions with the landscape. Trails also provide an important way for visitors to experience, appreciate, and connect with the natural and cultural environment. When properly sited, designed, and maintained, trails can provide high-quality recreational opportunities while supporting conservation and resource protection goals.

Trail systems function as integrated networks. Successful trail systems work together to highlight scenic, natural, and cultural features; protect sensitive resources; provide meaningful connections; discourage unwanted behaviors; and offer a range of high-quality recreational experiences for diverse users.

Trail Impact on Wildlife

Recent research published by fish and wildlife groups in Vermont and New Hampshire suggest that trail systems like the one at Leominster State Forest play a crucial role in educating the public about surrounding habitat and wildlife populations, enhancing their protection.

¹ 302 CMR 12.02 Definitions. <https://www.mass.gov/doc/302-cmr-1200-parks-and-recreation-rules/download>

² 302 CMR 12.02 Definitions. <https://www.mass.gov/doc/302-cmr-1200-parks-and-recreation-rules/download>

Human recreation activity is shown to impact the breeding, feeding, and other life cycles of nearby wildlife. This can have significant consequences on the quality of life and reproductive rates of insects and animals. Studies, including Trails for Wildlife and People,³ recommend it is best to keep trails more consolidated and to provide wildlife corridors that allow for access to sensitive and isolated habitats.

1.4 The Planning Process

In 2025, DCR retained BSC Group to gather existing trail information and develop a Trail Master Plan for Leominster State Forest. The inventory process included field work to visually assess trails and other recreation resources within the park. Through this process approximately 52 miles of trails, including authorized and unauthorized, were recorded and assessed using submeter GPS/GIS. The Roads and Trails Inventory recorded trail locations, points of interest, and assessed trail conditions, including the condition of structures along the trail. It also recorded trail widths and types of surfaces. BSC Group's team included Heritage Consultants, LLC who conducted a pedestrian survey to update and add to DCR's cultural resource database of culturally significant features along the park trails. This inventory updated DCR's trail data, which dated back to 2008, and allowed DCR to integrate critical natural and cultural resource information including priority habitat for rare and endangered species, vernal pools, priority natural communities, wetland resource areas, soils and steep slopes.

The Leominster State Forest Trail Master Plan follows DCR's Trails Guidelines and

Best Practices Manual (revised in 2019). This includes the following steps:

- Get to Know the Trails
- Identify Scenic, Recreational, and Cultural Destinations, Features, and Experiences
- Identify Constraints, Issues, and Problem Areas
- Make Recommendations to Improve the Trail Network and User Experience

As a part of this planning process, DCR staff engaged and consulted with key collaborators as described later in Section 1.5.

DCR also conducted ongoing pre-filing consultation with the Natural Heritage and Endangered Species Program (NHESP) throughout development of the plan. DCR staff had multiple meetings with NHESP biologists to review proposed trail recommendations, discuss potential impacts to rare species and their habitats, and identify biological survey or other information needs necessary to inform trail planning and future permitting. This coordination allowed natural resource considerations to be incorporated into the planning process as recommendations were developed and refined.

Draft Trail System Inventory Maps were prepared and distributed within DCR to the Operations, Recreation, and Planning and Resource Protection staff. There was an internal meeting to discuss and verify the data and to clarify the specific goals for this forest. The Trail System Inventory Maps were then revised and provided for public review and comment to inform the final set of recommendations. A draft of

³ New Hampshire Fish and Game Department. (n.d.). *Trails for People and Wildlife: A Guide to Planning Trails that allow People to Enjoy Nature and Wildlife to*

Thrive. <https://www.wildlife.nh.gov/get-outside/trails-people-and-wildlife>

the trail master plan was discussed and distributed with DCR Operations, Recreation, and Planning and Resource Protection staff members for internal review before finalizing the plan and publicizing it on the DCR website.

Project Collaborators

As a public park that is accessible to the public and enjoyed for a variety of uses, there are many collaborators at Leominster State Forest. The following list of collaborators is not considered exhaustive:

- State Representatives
- Hassanamisco Nipmuc
- New England Mountain Bike Association (NEMBA)
- Midstate Trail Committee of the Worcester Chapter of the Appalachian Mountain Club (AMC)
- Mass Wildlife's Natural Heritage & Endangered Species Program (NHESP)
- Leominster, Fitchburg, Princeton, Sterling, and Westminster Conservation Commissions
- Various other user groups including horseback riding and climbing groups

Some of these collaborators provide information to their members or the public about Leominster State Forest. For example, the Town of Princeton Open Space Committee provides trail descriptions on their webpage,⁴ while NEMBA also publishes a trail map of Leominster State Forest.⁵

1.5 Public Participation in Developing this Trail System Plan

Notice of the DCR's intent to prepare a Trail System Master Plan for the Leominster State Forest was made on DCR's web site on March 13, 2025 with additional announcement to major collaborator groups via email.

Public comment was solicited through an online survey that was posted on DCR's web site from May 12, 2025, to November 3, 2025 which was advertised with fliers around the Forest and emailed to collaborators to share with their networks. Over 100 survey responses were received.

A collaborators' briefing was held on October 16, 2025 to introduce the planning process and solicit feedback. Invitees to this meeting included Snowriders of the Nashaway, Hassanamisco Nipmuc, Leominster Recreation Department, Leominster Conservation Commission, Leominster Sportsman Club, Appalachian Mountain Club/Midstate Trail Committee, Water Department, Waste Management, Radio Tower, District 8 Tech Rescue, Mass Wildlife Natural Heritage and Endangered Species Program, New England Mountain Bike Association, Fitchburg Conservation Commission, Westminster Conservation Commission, Sterling Conservation Commission, Princeton Conservation Commission, Westminster Conservation Commission, Sterling Conservation Commission, Princeton Conservation Commission and area legislators.

⁴ <https://www.town.princeton.ma.us/open-space-committee/pages/leominster-state-forest> (Accessed August 19, 2025)

⁵ <https://www.trailforks.com/region/brimfield/> (Accessed September 10, 2025).



Figure 2. There are several areas where visitors can launch kayaks and

2. Existing Conditions

A virtual briefing with legislative and municipal staff was held on October 29, 2025.

A public listening session was held November 13, 2025 to solicit additional public and user input. This meeting was advertised via a press announcement to news outlets covering the Leominster, Fitchburg, Lunenburg, Westminster, Sterling, Princeton, and East Princeton markets, and via email announcements to key collaborator groups. Additionally, flyers were hung in kiosks around the park and

shared with surrounding towns to be posted in their public spaces. The [public listening session presentation](#), which also summarizes survey responses, is available online.

A final collaborator meeting was held on September 24, 2026 to share final recommendations.

The draft plan was submitted for NHESP review on [DATE TBD].

The plan was presented to the public on October 8, 2026.

Building on Previous Reports

A Resource Management Plan (RMP) for Leominster State Forest was developed in 2025⁶; much of the existing conditions information is derived from that report with updated information provided by trail system planning field visits conducted in 2025.

2.1 Natural Resources

The Leominster State Forest hosts several sensitive and rare resources that may be sensitive to trail-based recreational use

and trail management and maintenance activities.

Of particular concern to DCR with respect to trails and trail-based recreation in Leominster State Forest are areas where illegal uses, off-trail uses or existing trails intersect with and impact sensitive resources, including:

- Rare and endangered species habitats
- Wetland resource areas
- Vernal pools
- Priority natural vegetation communities

⁶ Massachusetts Department of Conservation and Recreation. (2025). Resource Management Plan: Leominster State Forest.

<https://archives.lib.state.ma.us/entities/publication/71cd526a-33f8-4812-a041-e97899f52902>

Some of the primary natural resource existing conditions at Leominster that deserve special attention and protection include:

- At Leominster State Forest, the primary resource values include:
- Vernal Pools (potential or certified) and associated upland habitat, especially those supporting rare species that may be susceptible to recreational uses and management activities
- Forest soils, especially on steep slopes and near streams and wetlands
- Large forest blocks and associated wildlife habitat managed as Woodlands
- Public water supplies, protection zones, Outstanding Water Resources, and associated streams and wetlands
- Values of the Forest Reserve, which is mapped as exemplary by BioMaps (northwestern third of the forest, values include wilderness recreation, spiritual values, biodiversity, soil formation and carbon sequestration)
- The Midstate Trail Corridor
- Endangered Species that might be disturbed by any recreation, including non-motorized recreation (can link to the wildlife section)
- Secondary resource values include forest history and historical artifacts, and opportunities for scenic views and vistas.

Additional details about the Natural Resources at Leominster State Forest are described in the Resource Management Plan (RMP). The RMP also discusses climate, geology, natural history, water resources, vegetation and wildlife, and provides general management recommendations for the State Forest. A

comprehensive state-wide Forest Resource Management Plan (FRMP) will provide clear guidelines for land stewardship, ensure the protection of natural and cultural resources, and maintain consistency among recreation, resource protection, and sustainable forest management.

Wetlands and Watercourses

Leominster State Forest contains extensive freshwater wetland complexes and associated wetland resource areas that are subject to protection and regulation under the Federal Clean Water Act and the Massachusetts Wetlands Protection Act and include Bordering Vegetated Wetlands (BVW), Isolated Vegetated Wetlands (IVW), Bank to intermittent streams and ponds, Ordinary High Water (OHW) or Mean Annual High Water (MAHW) Line to perennial streams, Riverfront Area to perennial streams, Land Under Waterway or Waterbody associated with streams and ponds, Bordering Land Subject to Flooding (BLSF), and Potential Vernal Pools and Certified Vernal Pools (PVP/CVP).

Waterbodies include:

- Rocky Pond
- Crocker Pond
- Crow Hills Pond
- Paradise Pond
- Notown Reservoir (adjacent)
- Wachusett Lake (adjacent)

Trail Impacts on Wetland Resource Areas

Trails can negatively impact wetland resources when they directly traverse wetlands without sustainable surfaces, and when they generate sedimentation through the displacement and erosion of

soils that are carried into wetland resources. The primary contributor to wetland impacts from trails is poor trail layout and design, and off-trail uses, including creation of unauthorized trails.

In accordance with DCR's Trails Guidelines and Best Practices Manual, trail maintenance activities that have the potential to fill, remove, dredge or alter wetland resource areas will only be considered after a thorough review and permitting process by the local conservation commissions. This is even more significant when trail maintenance activities are proposed in mapped NHESP habitat, as is the case with the trails around Paradise Pond.

Trail maintenance that has the potential to reduce existing erosion and sedimentation should be prioritized, and trails that currently traverse and impact wetland resources will be evaluated for closure. It is important to note that mud holes or wet trail segments are not necessarily wetland resource areas and are not likely to produce impacts to wetland resources through sedimentation. The primary impact of wet trail areas is the trail widening and vegetation trampling that occurs when users try to avoid getting their feet wet.

Natural Heritage and Endangered Species Program (NHESP) Priority Habitat

Less than 5% of Leominster State Forest is mapped as a Priority and Estimated Habitat of Rare Species under the Natural Heritage and Endangered Species Program (NHESP); however, the two mapped areas overlap with three of Leominster State Park's major attractions and therefore receive a high volume of visitors and impacts associated with recreational activities.

One NHESP mapped area overlaps with a mile-long stretch of the Midstate Trail, as well as the Crow Hill Ledges, while the other NHESP mapped area overlaps with Paradise Pond and abutting land. These areas are regulated under the Massachusetts Endangered Species Act (MESA) to protect the area's capacity to provide significant habitat for state-listed rare and endangered plant and animal species.



Figure 3. View of a single-track trail along Paradise Pond.

Both areas contain unauthorized trails, with the Crow Hill Ledges experiencing the greatest degradation due to the steep grades and highly erosive soils. As trails erode and wash out, hikers/users travel along the edges, widening the trail footprint, compacting soils, damaging vegetation, and ultimately increasing erosion and further destabilizing the steep and highly erosive slopes. In some cases, new unauthorized trails have been created to bypass the worst stretches of steep, eroded trails, which is resulting in similar problems of increased trail footprints and new disturbance and opportunities for erosion. These areas are presumed to be used by hikers, and rock climbers, with rock climbing being a unique feature that is not available in many state parks.

The unauthorized trails within the NHESP mapped area around Paradise Pond are associated with access to the pond, as well as multi-use single track trails. The impacts and concerns associated with unauthorized trails around Paradise Pond are discussed in the Water and Wetlands section below.

Trail Impacts on Rare and Endangered Species Habitats

The rare species at Leominster State Forest, and their needs, habitats, threats, and specific recommendations for protection are detailed in the Leominster Resource Management Plan.

In accordance with DCR's Trails Guidelines and Best Practices Manual, all trail construction and maintenance activities (including basic maintenance) within Priority Habitat, whether completed by DCR staff or in cooperation with partners, must be reviewed and approved by the NHESP in accordance with the Massachusetts Endangered Species Act (MESA) unless it is covered by an exemption.

Vernal Pools

NHESP data layers on MassGIS only identify 8 Potential Vernal Pools at Leominster State Forest. However, dozens of frog and salamander egg masses were observed throughout the park during spring 2025. The presence of many pools and egg masses, coupled with the large tracts of upland forest, indicate that the forest provides very high-quality vernal pool habitat. Vernal pool species require a combination of upland and wetland resources for different stages of their life cycles; this means traveling between uplands and wetlands. Roads, houses, lawns and other landscape changes result in fragmentation and habitat loss. The large

intact forest, cold water streams, and overall high-quality water resources within and adjacent to Leominster State Forest provide ideal conditions for these species to thrive.

These vernal pools should be inventoried regardless of certification status to better inform trail maintenance activities and to avoid degradation and fragmentation of this highly sensitive resource.

Trail Impacts on Vernal Pools

Trail development and recreational use near vernal pools can affect both the pools themselves and the surrounding habitat that supports vernal pool-dependent species.

Trail construction and long-term recreational use may alter local hydrology, compact soils, increase erosion, fragment habitat, and reduce vegetative cover adjacent to vernal pools. Trails located too close to pool basins can intercept surface runoff, redirect drainage patterns, or contribute sedimentation into the pool, potentially affecting water quality and hydroperiod duration. Repeated foot, bicycle, equestrian, or unauthorized motorized use may also compact soils within surrounding upland habitat, reducing infiltration and increasing runoff.

Increased human activity near vernal pools can disturb sensitive wildlife species during critical breeding and migration periods. Amphibians and reptiles are particularly vulnerable to direct mortality from trail crossings, soil disturbance, and habitat fragmentation, especially during seasonal movements between pools and adjacent upland forest habitat. Informal or user-created trails may further expand impacts by increasing edge disturbance, vegetation trampling, and habitat fragmentation around otherwise intact pool systems.

Trail planning and management strategies can substantially reduce these impacts through appropriate siting, design, and maintenance practices. Avoiding direct trail placement within vernal pool depressions and maintaining protective vegetated buffers around pools and associated upland habitat can help preserve hydrologic function and ecological integrity. Additional measures such as minimizing trail width, controlling erosion, limiting unauthorized trail creation, providing seasonal protections where appropriate, and educating trail users about sensitive habitats can further reduce impacts while maintaining recreational access within forested landscapes.

Unique and Noteworthy Natural Features and Habitats

Priority Natural Communities

Leominster State Forest does not have any mapped NHESP Priority Natural Communities, however, UMASS' Designing Sustainable Landscapes Index of Ecological Integrity identified Leominster State Forest as hosting Forest, Ridgetops and Wetlands ranked in the top 10% within the State, Ecoregion, and Watershed⁷. Therefore, while not hosting any rare or unique communities, Leominster State Forest does host some of the highest quality and intact communities in the state.

BioMap 3

Massachusetts Natural Heritage and Endangered Species Program BioMap 3 identifies portions of Leominster State Forest as Critical Natural Landscape and

Core Habitat, reflecting the statewide ecological significance of the forest's intact habitats, ecological connectivity, and landscape resilience. While BioMap 3 is a conservation planning tool and not a regulatory program, these mapped areas provide important guidance for long-term stewardship, resource protection, and trail planning within the forest. Approximately 73% of the forest is mapped as Critical Natural Landscape and 39% as Core Habitat.

BioMap 3 identifies Leominster State Forest as part of a large, relatively unfragmented forest and wetland system that supports biodiversity, wildlife movement, and ecological processes at both local and regional scales. Mapped Core Habitat areas include forest interior habitat, wetlands, aquatic systems, vernal pools, and habitat associated with rare species. These resources contribute to the ecological integrity of the forest and support resilient natural systems capable of adapting to long-term environmental change.

The forest also contains extensive vernal pool and aquatic habitat resources. Although existing mapping identifies only eight Potential Vernal Pools within the forest, spring 2025 field investigations documented numerous amphibian breeding indicators, including dozens of frog and salamander egg masses, suggesting a substantially larger network of functioning seasonal wetlands. These habitats, together with the surrounding upland forest, provide important connected habitat for amphibians and other wildlife species that depend on both

⁷ Modeled by UMASS Designing Sustainable Landscapes Index of Ecological Integrity and ecoAssess. Designing Sustainable Landscapes is a project of the Landscape Ecology Lab at the University of Massachusetts ([Bradley Compton](#), Ethan Plunkett, [Joanna Grand](#), William DeLuca, and [Scott Jackson](#), with significant contributions from Kevin McGarigal, [Liz Willey](#),

Andrew Milliken, Scott Schwenk, and Eduard Ene). It is supported by U.S. Fish and Wildlife Service's North Atlantic-Appalachian Region, the Northeast Climate Adaptation Science Center ([NE CASC](#)) and the University of Massachusetts, Amherst.

aquatic and terrestrial environments throughout their life cycles.

In addition, Leominster State Forest contains mapped Coldwater Fisheries Resources associated with Steam Mill Brook and an unnamed tributary to Monoosnuc Brook. These systems provide habitat for brook trout and other cold-water dependent aquatic species sensitive to changes in water temperature, sedimentation, stream flow, and water quality. The protection of forest cover, wetlands, riparian corridors, and associated upland habitat is important to maintaining the ecological function and connectivity of these aquatic systems.

The long-term stewardship of these interconnected natural resources will require continued management practices that minimize habitat fragmentation, protect hydrologic and ecological functions, and limit resource impacts associated with roads, unauthorized trail creation, and incompatible recreational use.

Soils

The soils at Leominster State Forest vary considerably across the property in response to its upland forest setting, glacial landforms, steep topography, and numerous wetlands, streams, and pond systems. According to USDA Soil Survey mapping, the forest contains a mix of shallow, rocky upland soils, moderately well-drained glacial till soils, excessively drained sandy and gravelly deposits, and poorly drained hydric soils associated with wetlands, riparian corridors, and low-lying depressions.

Common soil conditions within the forest include:

- Rocky fine sandy loams and stony glacial till soils on uplands and ridgelines
- Well-drained to moderately well-drained loamy soils on gently sloping to moderately steep terrain
- Sandy and gravelly soils associated with glacial outwash deposits and terraces
- Shallow soils over bedrock or exposed ledge on steeper slopes and hilltops
- Poorly drained and hydric soils in wetlands, stream valleys, pond margins, and seasonally saturated depressions

It is important that trail development remain cognizant of the range of soil conditions present throughout the forest, as many are susceptible to erosion, rutting, compaction, and long-term degradation when disturbed. Shallow rocky soils on steep slopes are particularly vulnerable to soil loss, trail incision, and exposed roots or ledge where drainage is poorly managed or recreational use is concentrated. Likewise, sandy and gravelly soils may become unstable under repeated use, particularly on slopes where runoff accelerates erosion. Wetland and seasonally saturated soils are generally unsuitable for trail construction or repeated disturbance, as they are prone to compaction, rutting, and hydrologic alteration, and often support sensitive ecological communities. Sustainable trail design and maintenance should account for slope, drainage, soil stability, and seasonal wetness to minimize impacts to both recreational infrastructure and natural resource values.

2.2 Cultural Resources

Leominster State Forest contains a range of cultural and archaeological resources

that contribute to the historical significance of the property and warrant consideration in trail planning and site stewardship.

In accordance with DCR's Trails Guidelines and Best Practices Manual, any trail project or land management activity involving ground disturbance—including trail construction, drainage improvements, sign installation, tree planting, invasive species removal, or similar activities undertaken by DCR staff, partners, or volunteers—requires review by DCR's Office of Cultural Resources and, where applicable, consultation with the Massachusetts Historical Commission (MHC). This review helps ensure that cultural and archaeological resources are identified and protected prior to implementation.

The cultural resource conditions at Leominster State Forest are documented in the 2025 archaeological reconnaissance survey memorandum prepared by Heritage Consultants, LLC for DCR (not included in this document and on file at DCR due to sensitive archaeological site locational information). That assessment identifies archaeological sensitivity across the property, inventories above-ground historic features, and provides regional context for Indigenous and historical period occupation and land use.

Leominster State Forest also contains important Civilian Conservation Corps (CCC)-era resources dating to the 1930s, when Camp SP-13 (Company 197) completed extensive forestry, recreation, and infrastructure projects throughout the property. CCC work included the construction of forest roads, trails, water holes for fire suppression, dams, parking areas, recreational facilities at Crow Hill Pond, and other landscape improvements that helped define the modern park

system. Many of these Depression-era resources remain intact and continue to serve recreational or management functions, while also representing historically significant examples of early park planning and CCC craftsmanship. Several of these resources have been inventoried by the Massachusetts Historical Commission.

Because much of Leominster State Forest retains archaeological sensitivity for both buried and above-ground cultural resources, management activities involving excavation or substantial site disturbance should be approached cautiously and in consultation with DCR cultural resource staff. Trail planning and maintenance should seek to avoid or minimize impacts to above-ground cultural resources, including stone walls, cellar holes, historical foundations, CCC infrastructure, and other identified cultural features. Where appropriate, these resources may also provide opportunities for interpretation, education, and trail experiences that connect visitors to the forest's cultural and conservation history, while reinforcing stewardship of these irreplaceable landscape features.

Additional details about the Historic and Cultural Resources at Leominster State Forest are described in the Resource Management Plan (RMP).

2.3 Recreational Resources

Leominster State Forest consists mainly of upland forest and forested wetlands with some open water areas including several ponds. Paradise Pond, Crocker Pond, and Crow Hill Pond (also known as Upper Crow Hill Pond and Lower Crow Hill Pond) provide opportunities for water-based recreational activities such as swimming, fishing, and boating. Hikers enjoy the forested areas like the Mid-State Trail.

With approximately 45 miles of trails for activities such as biking and hiking, as well as large picnic areas and other spaces to relax, there are many opportunities for visitors to engage in a variety of recreational activities within Leominster State Forest.⁸

Regulations and Restrictions

Consistent with DCR's management objectives for Leominster State Forest, recreational and public uses are categorized as either **authorized uses**, which are compatible with the forest's recreation and conservation goals, or **unauthorized uses**, which are prohibited because they create conflicts, damage resources, or are inconsistent with long-term stewardship objectives.

Authorized Trail Uses

Authorized uses may include (subject to site-specific designation, seasonal conditions, and posted restrictions):

- Hiking / walking
- Trail running / jogging
- Biking / mountain biking (on designated roads and trails)
- Horseback riding (where designated or appropriate)
- Cross-country skiing / snowshoeing
- Snowmobiling (on fire roads only)
- Nature observation / birding
- Fishing (in accordance with state regulations)
- Hunting (in accordance with state laws, seasons, and safety restrictions)
- Non-motorized boating (where access is provided and permitted)

- Electric motorized boats (on Paradise Pond)
- Picnicking / day use activities
- Swimming (at Crow Hill Pond only)
- Dog walking (subject to leash requirements and waste removal requirements)
- Educational and interpretive programming

Unauthorized Trail Uses

The following trail uses are prohibited unless expressly authorized by DCR:

- Operation of unauthorized motor vehicles, including ATVs, dirt bikes, and other off-highway vehicles
- Unauthorized trail building, trail modification, jumps, berms, or obstacle construction
- Off-trail riding or repeated off-trail travel that causes vegetation loss or erosion
- Dumping of trash, debris, yard waste, or other materials
- Tree cutting, vegetation clearing, or collection of forest products without authorization
- Disturbance of wetlands, streams, vernal pools, pond shores, or other sensitive resource areas
- Camping
- Open fires
- Consumption of alcohol
- Vandalism, graffiti, or other destruction of signs, gates, infrastructure, or natural features
- Unauthorized structures, including blinds, platforms, ramps, or shelters

⁸ Resource Management Plan: Leominster State Forest (2025). p.

- Commercial activities without permit or authorization
- Discharge of firearms except as lawful and authorized during hunting seasons and in appropriate areas
- Harassment, feeding, trapping, or disturbance of wildlife except as authorized by law
- Activities that create unsafe conditions or interfere with authorized recreational use, management access, or emergency response
- Any use inconsistent with posted regulations, trail designations, or temporary/permanent closures

The authorized and unauthorized uses identified in this plan reflect current DCR policy and regulations. However, DCR may modify permitted uses over time in response to changing recreational demand, resource protection needs, visitor safety, and evolving management priorities. Additional information regarding authorized and unauthorized uses is provided in DCR regulations (302 CMR).

Features of Interest⁹

- Crow Hills Ledges
- Upper and Lower Crow Hill Ponds
- Mid-State Trail
- Notown Reservoir
- Paradise Pond
- Rocky Pond
- Wolfden Hill

Day-Use Area

During the summer, visitors arrive at the day-use area at the main entrance. They pay an \$8 parking fee to park at this lot. The picnic area and beach provide recreation opportunities which are supported by amenities such as a restroom building. This location also includes the trailheads for the Bald Hill, Black Bear Run, and Wolf Rock trails, allowing visitors to hike or bicycle to explore the rest of the Forest.¹⁰

Picnic Areas

There are two large picnic areas in this area including the main area near the beach and on the north shore of Lower Crow Hill Pond, and additionally near the Princeton Lot located on the northwest shore of Upper Crow Hill Pond. Both spaces provide visitors with access to picnic tables, stationary grills, and scenic pond views. The Princeton Lot also provides visitors with parking for the Crow Hill Trail that leads up to the Ledges and Wolf Rock.¹¹

Water-Based Recreation

Leominster State Forest's ponds provide opportunities for a variety of water-based recreational activities, including fishing and limited boating. Permitted boating uses vary by pond based on access, site conditions, and management considerations.

Paradise Pond provides the most direct boating access within the forest, with car-top boat launches available for non-motorized and electric-powered watercraft. Crocker Pond also allows non-

⁹ Resource Management Plan: Leominster State Forest (2025). p. 5

¹⁰ Resource Management Plan: Leominster State Forest (2025). p.11

¹¹ Resource Management Plan: Leominster State Forest (2025). p. 12

motorized, car-top watercraft; however, access requires users to carry boats a considerable distance from the gated access area to the pond. Rocky Pond similarly allows non-motorized, car-top watercraft, although the distance between available access and the shoreline limits ease of use. Boating is not permitted on Upper or Lower Crow Hill Pond.

Fishing opportunities are available at multiple ponds throughout the forest. Crow Hill Pond, in particular, provides a popular angling destination and is annually stocked with approximately 400–500 trout by the Massachusetts Division of Fisheries and Wildlife.¹²

Trail-Based Passive Recreation

Hikers, runners, bicyclists, and other recreationists use the forest roads and trails along ponds. When there is snow cover, the Forest's trails are also enjoyed by cross-country skiers, snowmobilers, and snowshoers. The Midstate Trail, a 92-mile long-distance trail, passes through the Forest and connects to the local trail system.¹³



Figure 4. View of a single-track trail along the base of the ledges.



Figure 5. View of a picnic area adjacent to Crow Hill Pond.

Hunting

Leominster provides public lands for hunting during all legal hunting seasons, with highest levels of use during the fall deer hunt¹⁴.

Rock Climbing

Technical rock climbers can climb the ledges near South Crow Hill, a gneiss crag with numerous climbing routes ranging in

¹² Resource Management Plan: Leominster State Forest (2025). p.12

¹³ Resource Management Plan: Leominster State Forest (2025). p. 12

¹⁴ Resource Management Plan: Leominster State Forest (2025). p. 12

height and difficulty, challenging their abilities, often in the company of friends. Climbers typically park in the Ledges Lot and walk 0.2 miles to the base of Crow Hill Ledge. Several of the ledge's rock-climbing routes (i.e., Intertwine, Tarzan, and Diagonal) are considered "among the best in the Commonwealth." The view from atop the ledge is considered among the best in the Forest and is enjoyed by climbers and hikers¹⁵.

2.4 Ownership and Management

Leominster State Forest is 4,570 acres and is owned and operated by the DCR. However, there are three tracts that do not connect to the main body of the forest, as well as a few parcels owned by others that are surrounded by DCR property.

Leominster State Forest (Leominster or the Forest) is located in northern Worcester County, spanning the towns of Leominster, Fitchburg, Sterling, Westminster, and Princeton. The Forest is located approximately 15 miles north of Worcester and is in close proximity to Route 2 and Interstate 190.

Leominster State Forest is made up of four non-contiguous tracts. They are:

- **Fitchburg Road Tract.** Fitchburg Road/Route 31 divides this tract, providing access to numerous parking areas and entry points. This tract is mainly surrounded by residential development, rural residential property, and undeveloped land, including DCR Division of Water Supply Protection (DWSP) land. The Leominster Sportsman's Association, Waste Management Fitchburg City

Landfill, Great Wolf Lodge Water Park, and NE Renewable Power also dot the perimeter of the tract.

- **Beamon Road Tract.** This tract, located south of the Fitchburg Road Tract, is surrounded by residential property and DWSP land.
- **Main Street Tract.** This tract, located south of the Fitchburg Road Tract, is surrounded by rural residential property, conservation easements, and DWSP land.
- **Oak Hill Road Tract.** This tract is located north of Route 2 and is primarily bordered by residential property and undeveloped Town of Fitchburg land. The Midstate Trail passes north-south through the Forest. This 92-mile-long regional hiking trail runs from Rhode Island to New Hampshire and links to regional trails in adjacent states. Along its course, it passes across Mount Wachusett and 10 other DCR-owned or managed properties, and the closest to the Forest are Westminster State Forest and Wachusett Mountain State Reservation. The Midstate Trail Committee of the Appalachian Mountain Club's (AMC) Worcester Chapter maintains the treadway and provides trail information (Midstate Trail Committee n.d.).¹⁶

¹⁵ Resource Management Plan: Leominster State Forest (2025). p. 12

¹⁶ Resource Management Plan: Leominster State Forest (2025). p. 8



Management will be designed around ecosystem function and wildlife habitat

management techniques.

Woodland management also supports

wildlife movement, habitat connectivity, and genetic connectivity among wildlife populations, increasing resilience to habitat fragmentation, climate change, disease, and other environmental pressures. Responsible forest management can provide renewable local wood products while protecting water quality, sequestering carbon, supporting biodiversity, and maintaining a range of

Commercial forest management that demonstrates a range of “excellent forestry” through the application of appropriate silvicultural practices and Best

Commercial forest management that demonstrates a range of “excellent forestry” through the application of appropriate silvicultural practices and Best Management Practices shall be the applied

review. <https://www.mass.gov/doc/dcr-stewardship-council-landscape-designation-presentation-2022-7-28/download>

management standard. Emphasis shall be placed on uneven-aged management while allowing, where ecologically appropriate, limited openings of up to five acres to promote habitat diversity, forest regeneration, ecological restoration, or other approved management objectives. Demonstration forest opportunities may also be provided to educate landowners and the public.

Forest management will play a role in the ecological restoration of areas that have been significantly altered by past management practices, such as plantations of non-native species and areas affected by high-grade harvesting.¹⁸

Forest management planning is achieved by establishing goals for desired future conditions and periodically implementing management objectives in the field. Management activities may include commercial or non-commercial harvesting, prescribed fire, invasive-species control, and other appropriate practices. Impacts to recreational users will be minimized through careful planning but may not always be avoidable.

Recreational trails shall be considered within the broader management of the Woodland where practicable. Forest management project sites will be closed to the public during active harvesting operations when necessary for public safety. Temporary trail closures, rerouting, or reasonable modifications may also occur during active harvesting or related forest-management operations. These temporary measures shall not be construed as a change in the Woodland designation or as evidence that recreation and sustainable forestry are incompatible.

Areas that undergo treatment may look considerably different following management than they did before management. In some cases, temporary equipment crossings may be required over recreational trails, log landings may be established, and interior forest roads may be used for trucking. Best Management Practices will be used to minimize adverse effects on ecological and cultural resources, recreational uses, and the overall project area.

DCR manages Woodlands as connected, living ecosystems, recognizing that responsible forestry can simultaneously provide renewable resources, protect ecological functions, sustain wildlife populations and genetic diversity, and provide meaningful opportunities for public recreation.

2.5 Trail System Development

As reported in the 2025 Archaeological Assessment Survey, conducted by Heritage Consultants, LLC for this project, the following was noted about development of the state forest.

Leominster State Forest was established in 1922 with an initial acquisition of 141 acres. By 1932, the forest had expanded to approximately 1,890 acres through continued land acquisitions and reforestation efforts, primarily focused on planting red and white pine. During the 1930s, the Civilian Conservation Corps (CCC) played a major role in developing the forest's infrastructure. Camp SP-13 (Company 197) was established at Leominster State Forest in 1933, where CCC crews conducted forest thinning, tree

¹⁸ Massachusetts DCR Stewardship Council. (July 28, 2022). DCR's Landscape Designations and Management Guidelines: 10-year
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review. <https://www.mass.gov/doc/dcr-stewardship-council-landscape-designation-presentation-2022-7-28/download>

planting, wildfire suppression, and recreation improvements.

In 1935, the CCC constructed eight water holes to support wildfire suppression efforts and completed numerous public recreation projects, including the construction of roads, parking areas, and approximately 2.2 miles of trails. The CCC also established a 20-acre wildlife refuge with food plantings to improve wildlife habitat. By the time Camp SP-13 closed in December 1937, Leominster State Forest had expanded to more than 3,200 acres. Following the camp's closure, CCC crews from West Townsend completed unfinished projects, including development of the Crow Hill Pond recreation area. Many of these CCC-era improvements remain visible today, including portions of the trail system, road network, Upper Crow Hill Pond Dam, the historical trail stone steps west of Route 31, and other recreational infrastructure that continue to support visitor use.

The forest also preserves evidence of much earlier settlement and land use, including historical colonial occupation. The eastern portion of the property contains remnants of the historical village of Notown, an eighteenth- and nineteenth-century settlement that predates state ownership. Cellar holes, stone walls, wells, fruit trees, historical roads, and other cultural landscape features remain visible along portions of the trail system, providing visitors with a tangible connection to the area's colonial agricultural and rural history.

2.6 Park Layout, Access, and Circulation

While most of the trails at Leominster State Forest appear to be multi-use, they vary in width, condition, difficulty, and

primary user groups. Most of the trails used by all users are wider, often including forest roads, trails to specific features, and trails around day-use areas. These trails are primarily natural surface.



Figure 7. View of a kiosk at the beach parking lot (North of the Dam).

Access and Parking

Most visitors arrive by vehicle and park at one of the five formal parking lots along Fitchburg Road (Route 31). These lots, from north to south are the Beach Lot, Princeton Lot, Ledges Lot, Rocky Pond Lot, and Paradise Pond Lot. The Beach and Princeton Lots are paved and serve as the primary access points to Lower and Upper Crow Hill Ponds. These lots also function as key visitor orientation areas, providing informational kiosks, trail maps, and directional signage to help visitors navigate the forest's trail network.

Parking availability varies seasonally. The Beach Lot and adjacent day-use area are open during the recreation season and close after Labor Day. In contrast, the Princeton Lot is closed during the summer operating season and reopens after Labor Day, providing continued access to the trail system outside the peak beach season.

Visitors seeking to rock climb or hike the Midstate Trail park at the Ledges Lot, on the west side of Route 31. Other visitors

may access the Forest from informal roadside parking areas along Route 31 in Westminster and Princeton, Notown Road in Westminster, Hastings Road in Sterling, or via foot from adjoining conservation lands.¹⁹

There are no bus stops or bus routes close to Leominster State Forest; however, staff have mentioned that Boston residents will use public transportation such as the MBTA commuter rail to Wachusett Station and then use a rideshare service to travel the rest of the way to visit the Forest.

Paved Access Roads

There are few paved roads within Leominster State Forest, with these roads being located directly off Route 31 and leading to the major day-use areas, specifically the Crow Pond Hill Recreation Area with paved parking lots, accessible parking spaces, picnic areas, and swimming areas.

Unpaved Forest Roads/Ways

The unpaved forest roads act as major arteries bisecting the large western tract of Leominster State Forest from north to south and east to west. This historic road network is closed to public vehicles but used by park staff for maintenance and for emergency access.

Forest Road. Any paved or unpaved way constructed and maintained for use by wheeled vehicles registered under M.G.L c. 90, whether such a corridor is normally open for such use or not.²⁰

The unpaved forest roads were originally developed as part of the Civilian Conservation Corps (CCC) program to provide access for park maintenance and

fire control. Today, these roads serve three main purposes: recreational use, quick access for staff and emergency purposes, and as fire breaks. These forest roads are accessible by most off-road vehicles and allow access for search and rescue. Road conditions and sizes vary widely; however, they are generally characterized by gravel or natural surfaces, and the historic CCC culvert crossings, abutting fire ponds, and the foundation/road base are immaculate.

There are many areas of erosion, gullies, and areas where the road surface has washed out to reveal the 'road base' which consists of large stones and often has created areas of uneven footing.

Some forest roads have become narrower over time as vegetation encroaches into the road shoulder. The foundation of these historic roads provides stable, if undermaintained, multi-use corridors that cross the large western tract of Leominster State Forest from east to west (Rocky Pond Road and Parameter Street), and north to south (Steam Mill Brook, Bartlett Road, Hell's Highway, Wolf Rock Road, King Tut's Highway, and Paradise Alley).

These are likely used by visitors seeking a direct or relatively easy, long-distance hike (walking in and out or loops), without extreme elevation changes or particularly difficult terrain. They are generally multi-use.

¹⁹ Resource Management Plan: Leominster State Forest (2025). p. 11

²⁰ 302 CMR 12.02 Definitions. <https://www.mass.gov/doc/302-cmr-1200-parks-and-recreation-rules/download>



Figure 8. View of a typical forest road.

These trails are also important for general management activities and emergency access.

- Rocky Pond Road (Rocky Pond Lot)
- Parameter Street (Elm Street Lot)
- Steam Mill Brook Road (crosses sportsman's gun range)
- Bartlett Road
- Hell's Highway
- Wolf Rock Road (Lauren Lane)
- Old Country Road
- King Tut's Highway
- Paradise Alley
- Fenton Road
- Ledges Road

Unauthorized Trails

The multi-use trails and unauthorized trails focus on park user desires for increased access and exploration around waterbodies; as shortcuts between existing trails; to bypass steep or eroded segments of trails; and to create new trail experiences. These trails are experience-focused and tend to highlight challenging terrain, scenic views, or interesting natural features. The location and use of many unauthorized trails indicate a desire for

more challenging trails and water access points.

Unauthorized trails have created unique challenges at Leominster State Forest, with the largest concerns being related to wayfinding and people being unsure about how to identify their location based on the existing maps which also makes it difficult for rescue teams to find them or guide them out.

These trails emerged over the past several decades and managers decided to add all the unauthorized trails to the official maps to ensure that users are not getting lost. There has been a reduction in lost hikers since this change was made. These trails are partially maintained by collaborator groups and are considered "authorized trails" by staff and the community. However, as more unauthorized trails are added or modified, the official maps are not updated to reflect these changes and the potential for lost hikers increases.

2.7 Trail Conditions

The 45 miles of authorized forest roads and trails at Leominster State Forest are in good shape overall, with 65% ranked as "Good," 22% ranked as "Fair," and only 13% ranked as "Poor." However, this does not consider the approximately 7 miles of unauthorized trails that have been added over the past decade. Most of the unauthorized trails are narrow mountain bike paths and are in "Fair" shape, with 30% ranked as being in poor condition, often associated with excessive root damage, erosion on steep slopes (especially along the banks of waterbodies), and rutting through wetland complexes.

2.8 Recreational Conflict

Leominster State Forest supports a wide range of recreational uses, including hiking,

mountain biking, horseback riding, hunting, fishing, snowmobiling, and seasonal passive recreation. This diversity of uses contributes to the forest's value as a regional recreation destination but also creates management challenges where uses overlap in space and season.

The potential for conflict is most evident where different user groups share trails and access corridors, particularly where differences in speed, trail expectations, and recreational objectives create compatibility concerns between hikers, mountain bikers, equestrians, and seasonal motorized users. In addition, unauthorized off-highway vehicle use and informal trail creation can contribute to trail degradation, soil erosion, vegetation loss, wetland disturbance, and conflicts with authorized non-motorized recreation. These unauthorized uses may also compromise emergency access, complicate trail management, and create confusion for visitors navigating the forest trail system.

As with many large multi-use public landscapes, the primary management challenge is balancing recreational access and user experience with the protection of natural resources, maintenance of sustainable trail infrastructure, and discouragement of unauthorized uses that undermine both ecological integrity and long-term stewardship objectives.



Figure 9. View of unauthorized trails adjacent to Paradise Pond.

2.9 Ecological Impacts of Trail Activities

Leominster State Forest serves a large community of users, although there are only a few areas that show signs of wear from heavy use. Several unauthorized trails were identified, including some new ones being actively constructed through previously intact blocks of forest and wetlands. Encroachment of trails into these intact areas can have significant impacts on the function and quality of sensitive habitats, as well as species populations within the forest.

The new development of unauthorized trails can lead to fragmentation and degradation of intact habitats, which provide critical refuge from direct impacts or buffering of indirect impacts from human activities in the forest. As discussed above, Leominster State Forest has been identified as supporting 5 types of Core Habitat, all of which emphasize the statewide significance of undisturbed, intact areas. These unauthorized trails damage vegetation and soils, while also providing a vector for invasive species into these previously intact areas. Over time, these activities could reduce the resilience

of these areas to the effects of climate change.

All trail-related uses, management, and maintenance have the potential to negatively impact a variety of sensitive natural and cultural resources at Leominster State Forest.

Of particular concern to DCR with respect to recreational uses, trail system management, and trail maintenance at Leominster State Forest are:

- Creation and use of unauthorized trails
- Erosion and sedimentation
- Trail structure conditions and maintenance
- Wayfinding and public safety
- These concerns have negative impacts on:
 - NHESP Rare & Endangered Species
 - Vernal pools
 - Wetland resources
 - Sensitive cultural sites
 - Ecological health and resilience

Some of the main causes of trampling, erosion, sedimentation, and soil disturbance are:

- Illegal motorized trail use
- Creation and use of unauthorized trails by users, including motorized users
- Off-trail uses
- Off-leash dogs
- Limited resources for trail planning and maintenance (poorly maintained trails lead to braiding and trail offshoots)

Trampling

Trampling is a significant concern within Leominster State Forest's sensitive habitats. As previously mentioned, more vulnerable species such as salamanders and turtles often do not have enough warning to leave a trail or the ability to fend off danger presented along these trails. Some of these dangers include off-leash dogs, which eat or kill small wildlife, geocaching, where trail users hike off-trail to locate one of Leominster State Forest's forty unapproved geocaches, or bicycles which can run them over while moving at high speeds.

It should be noted that the goal of this report is not to condemn bicycling within the park, but to illustrate the need to minimize and mitigate the negative impact these activities have on sensitive areas. Off-trail recreation and unrestricted expansion can have direct and indirect impacts on the function of adjacent habitats.

Off-trail recreation, recreation on unauthorized trails, and recreational uses that widen trails have caused various problems including soil compaction, damage to vegetation, increased erosion and sediment problems, encroachment on wildlife refugia, as well as direct mortality of small and slow wildlife (e.g., salamanders, frogs, turtles, fledgling birds).

Erosion and Sedimentation

Erosion occurs when wind or water (primarily water) carries soil from its existing location. Erosion is particularly problematic on trails with steep slopes and those without proper drainage because water becomes channelized, eroding and carrying soil with it, and depositing it elsewhere (sedimentation).

This is most likely to occur where trails are aligned along the “fall-line” of the slope (the most direct path up or down) which is common for old forest roads, older trails, and some newer style mountain bike trails. As soils on trails erode, the trails become further gullied, making it more difficult to divert the water off the trail. Trail layout and structures, such as drainage dips, grade reversals, and water bars, can be used to get water off the trails. A “contour” alignment of trails can help address this issue. Eroded soils eventually end up as deposited sedimentation and can negatively impact water resource areas.

This is particularly important to consider when trails are located on steep slopes, in areas with highly erosive soils, and areas around wetlands can negatively impact the long-term sustainability of the trail, the user experience, the quality of wetland resources, and NHESP habitats. Therefore, careful planning, design, and long-term management – including sufficient resources for maintenance - are critical factors to consider in the trail planning process.

Soil Disturbance

Soil disturbance is a necessary part of trail construction and maintenance, but soil disturbance can also negatively impact below-ground archaeological resources. Soils can also be disturbed by illegal off-highway vehicle use, and unauthorized trail building.

Little of Leominster State Forest has undergone professional archaeological testing so ground disturbance in areas of archaeological sensitivity should be approached with caution and in consultation with the DCR Archaeologist to avoid inadvertent impacts to buried cultural resources. Above-ground features,

such as stone walls and cellar holes, should be regularly cleared of vegetation to maintain their structural integrity.

Examples of Existing Trail Damage



Figure 10. Erosion of Trail Surface



Figure 11. Erosion of Trail Fall Line



Figure 122. Erosion of Sediment from Storm Water Drainage

2.10 Climate Change Impacts and Resilience

Climate change is projected to bring more frequent and intense storms, increased flooding, warmer winters with more freeze-thaw cycles, and hotter, drier, longer summers. While total annual precipitation is increasing, a greater proportion of the rainfall is expected to fall as high-intensity events as opposed to gentler, sustained rainfall. In addition to affecting forest ecosystems, these changes are expected to increase stress on trail infrastructure and maintenance systems throughout the forest.

Further, the Massachusetts Climate Change Assessment identifies forest health degradation as a priority impact in Massachusetts due to changing climatic patterns and increasing pest occurrence. These changes are expected to impact how visitors experience Leominster State Forest, and should inform planning for trail locations, resilient design, and maintenance.

Leominster State Forest is characterized by steep topography, shallow rocky soils,

numerous wetlands and ponds, and an extensive network of perennial and intermittent streams that create a highly connected and dynamic hydrologic system. These conditions contribute to rapid runoff generation during storm events and increase the vulnerability of low-lying areas to flooding, erosion, and prolonged saturation. Many areas within Leominster State Forest that currently experience seasonal wetness, muddy trail conditions, erosion, and drainage-related maintenance issues, are likely to experience more frequent and prolonged flooding, erosion, and trail degradation in the future.

Areas where trails cross wetland systems, intermittent streams, or poorly drained terrain are particularly vulnerable to erosion, compaction, and trail widening. Existing crossings that currently span only active stream channels, while leaving adjacent saturated areas untreated, may become increasingly ineffective as flood extents expand and water levels fluctuate more frequently. These conditions may result in greater maintenance demands, increased trail instability, and more frequent rerouting around muddy or flooded sections.

Less snowpack and more freeze-thaw cycles in winter may lead to accelerated trail degradation and may shorten the season for snow-related recreation. More frequent blowdowns from high wind and saturated soils can expose root systems, create trail hazards, and require increased maintenance. Supporting forest health, including managing pests and invasive species, is important to maintain the ecosystem services forests provide, such as erosion mitigation, flood storage, and cooling for wildlife and state forest visitors.

Climate-resilient trail planning, design, and maintenance includes considerations such

as accounting for how water will flow across and down trails, avoiding trail crossings over wetlands or crossing at the narrowest point, and sizing drainage structures generously to accommodate larger storms are all factors in effective climate-resilient trail siting and design. Trail

managers should anticipate increased maintenance needs, including supporting the function of natural drainage systems and addressing routine wear and tear before large storms, which can exacerbate existing vulnerabilities.

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3. Management Goals, Features, Experiences, and Expectations



Figure 13. View of a typical single-track trail.

3.1 Trail System Management Goals

Management of the trail system at Leominster State Forest should support DCR's broader Core Principles by providing diverse and equitable outdoor recreational opportunities; conserving natural and cultural resources; advancing climate resilience; supporting healthy communities; and inspiring stewardship through public engagement, education, and collaboration.

Consistent with these principles, the trail system should be managed to help DCR achieve four broad goals:

- Provide the public with opportunities to experience, appreciate, and interact with the property's natural, scenic, and cultural resources through an equitable, inclusive, and welcoming trail system.
- Provide opportunities for a diverse range of recreational and physical activities within a natural setting that supports connections with nature and contributes to healthy communities.
- Protect and steward natural and cultural resources by incorporating sound science, research, and technical expertise into trail planning and management and supporting climate

change mitigation, adaptation, and long-term resilience.

- Provide opportunities for trail users and collaborators to connect through stewardship of the property's natural, cultural, and recreational resources and foster future generations of stewards through public engagement, education, and collaboration.

To achieve these goals, the trail system should effectively contribute to four primary objectives:

- Highlight natural, scenic, and cultural features and provide appropriate opportunities for access, interpretation, and education where public use can occur without adversely affecting sensitive resources.
- Provide a variety of desired recreational experiences for users with different interests, abilities, and experience levels.
- Connect important features, destinations, access points, and regional trail networks.
- Provide appropriate access to support forest, fire, emergency, and resource management activities.

The trail system should achieve these objectives while simultaneously:

- Avoiding or minimizing impacts to sensitive natural and cultural resources, particularly where increased access could result in disturbance or degradation.
- Meeting user needs and expectations by providing safe, welcoming, and sustainable recreational experiences.
- Minimizing ecological impacts and incorporating practices that support climate resilience and the long-term sustainability of natural resources.
- Minimizing maintenance costs and management requirements through appropriate trail siting, design, construction, and stewardship.

3.2 Features, Access Points and Connections

The most important features of Leominster State Forest are the abundance of natural, cultural, and recreational resources. All management activities and improvements should maintain sustainable public recreation and education opportunities consistent with the property's Woodland Landscape Designation, while protecting the highly important natural and cultural resources in the Forest.

Hiking, mountain biking, hunting, access to the ponds, historic sites and buildings, and the recreational experiences provided by the road and trail system itself are also important features of the forest.

Specific access points, day use areas and features include:

- Crow Hills Ledges
- Upper and Lower Crow Hill Ponds
- Mid-State Trail
- Notown Reservoir
- Paradise Pond
- Rocky Pond

- Wolfden Hill

Trail Connections

Within Leominster State Forest, there are 45 miles of roads and trails, and there remain many opportunities for new officially designated and maintained trail connections, especially multi-use trails. The Midstate Trail, a 95-mile National Scenic Trail from Rhode Island to New Hampshire, passes through the western edge of Leominster State Forest. The Midstate Trail connects on the southwestern edge of the Leominster State Forest from the Wachusett Lake Reservoir in Princeton, and on the northwestern edge of the Leominster State Forest near Rice Meadow Pond in Westminster. There are three trailheads along Route 31 which connect to the Midstate trail. Additionally, the Midstate Trail can be accessed from Redemption Rock Trustees of Reservations across Route 140.

The Nashua Valley Conservation Area is a conservation area located to the northeast of Leominster State Forest at the Notown Reservoir. There are hiking trails available in this area with access to the peak of North Monoosnoc Hill.

To the east of the Leominster State Forest is the Elm Street Parking Lot and several trails which connect to the Leominster State Forest property. The Elm Street Parking Lot and these trails are located on land owned by the Town of Leominster.

Also to the east of the Leominster State Forest is the area owned by the Leominster Sportsman Association. This is used as hunting land and has several trail connections that connect back to the Leominster State Forest. Hunting is allowed on Leominster State Forest land with proper permitting.

Due to its large size, central location and position in a chain of protected lands, Leominster State Forest has many opportunities to improve connections, access points, and connect with other trail systems.

3.3 Recreational Experiences and Expectations

The DCR desires to manage the Leominster State Forest in a way that provides a range of users with a diversity of allowed recreational experiences while simultaneously protecting the sensitive natural and cultural resources of the forest.

Walking, Running, Hiking, Snowshoeing, and Cross-Country Skiing

Experiencing the natural environment on foot is the slowest and perhaps simplest mode of travel. One can stroll leisurely, observing the world around you or engaging in deep conversation with a friend; families can take the time for discovery as they hike; or one can hike, run, or ski at a strenuous pace, raising the heart rate, sweating on the hills and feeling the rush of both accomplishment and exercise.

Some pedestrian trail users desire wide, relatively short to moderate distances (1 to 4 miles) that they can travel without too much challenge. Some users will also desire a fully or mostly accessible trail surface that is firm and stable without obstructions. Trail runners, hikers, and cross-country skiers often desire challenging trails that offer variable terrain, provide access to more remote areas, scenic vistas, are longer (8-10 miles), and might even require some wayfinding skills. Within Leominster State Forest, runners include individuals, groups such as school

cross-country teams and participants in organized events. Runners in the Leominster State Forest can find a variety of well-marked running loops of three to six miles on easy to moderate trails, as well as some more challenging terrain.

Cross-country skiing can only be experienced in Leominster State Forest a few times a year, but the experience of being able to strap on the skis after a storm, surround yourself in a white wonderland and feel like you are the only one in the woods can be marvelous. While skiing is a pedestrian trail use, it is perhaps most similar to mountain biking in terms of the types of trails desired, the speed and distance traveled and the equipment and technical skill required.

The trail user experience at Leominster State Forest will be enhanced by ensuring trails that:

- Provide routes at a variety of distances with accessibility and level of challenge for the individual
- Bring the user through a diversity of landscapes and habitats
- Connect access points, features and destinations in the forest
- Are well marked and signed
- Provide various loop options

The trail user experience at Leominster State Forest can be diminished by:

- Encountering damaged, illegal, or eroded trails
- The presence of dog waste, or other trash or dumping
- Encountering illegal motorized vehicles or aggressive off-leash dogs
- Situations that are confusing or poorly marked trails
- Overcrowding of trails

- Flooded trails and other blocked trails
- Sudden and steep slopes
- Lack of signage / confusing trail networks

Mountain Biking

Mountain biking is a mode of travel that can add speed, distance, technical skill, and physical challenge to the trail experience. In these ways, the experience is similar to trail running and cross-country skiing. In general, most users on mountain bikes desire to connect with nature and experience diverse landscapes and destinations in the same way that other users do. However, the mountain biking experience also includes technical challenges. Experiencing a trail on wheels (and on skis to some extent) is somewhat different than on foot. The flow of the trail – its twists and turns, its ups and downs, its obstacles – all contribute to the mountain biking experience. The quality of the trail is integral to the quality of the experience.

As with pedestrian users, mountain bikers desire varying distances, levels of challenge, and technical difficulty, and want to find the levels that are right for them. But they may also desire to increase their level of technical challenge as they develop. Mountain bikers may travel 5 to 15 miles during an outing, and an adequate trail system should provide approximately 40 miles of trails of varying types, levels of difficulty, and terrain. Single-track trails and loop trails are important to the mountain bike experience, and loops of various difficulties are important to the different riders. All of Leominster State Forest's trails are open to mountain bikers; however, these are multi-use trails and are not for the exclusive use of mountain bikers.

On all trails, mountain bikers should expect to encounter other users, including dogs and pedestrians. They should expect to ride in a manner that will not startle others. They should be prepared to slow down and yield to walkers and hikers, especially on downhill segments. And they should expect to stay off some trails.

DCR includes mountain biking as an authorized use of Leominster State Forest and desires to provide adequate trail experiences including a variety of types of trails, difficulties, and terrains. DCR prohibits jumps, berms, obstacle construction, and other unauthorized trail modifications and therefore Leominster State Forest is not anticipated to include expert trails, man-made obstacles, or off-trail opportunities.

In summary, the mountain biking experience at Leominster State Forest is enhanced by trails that:

- Provide a variety of difficulties, distances, and terrains
- Offer loop opportunities
- Provide sufficient mileage
- Connect key destinations

The biking experiences at the forest can be diminished by:

- Poorly maintained or damaged trails
- Lack of signage / confusing trail networks

Horseback Riding

Exploring Leominster State Forest on horseback provides a unique and highly valued recreational experience.

Equestrians are able to travel greater distances than pedestrian users while experiencing the forest from an elevated perspective that offers expanded views of the surrounding landscape. The

relationship between horse and rider also contributes to a distinct connection with the trail environment and overall outdoor experience. Horseback riding on forest trails requires specialized skills, experience, and appropriate trail conditions to support safe and enjoyable use.

Equestrian users often seek wide, well-connected trails or forest roads that accommodate horses and provide access to trailheads, staging areas, and compatible destinations throughout the forest. Other riders may prefer a broader variety of trail experiences, including narrower trails, loop opportunities, and routes of varying lengths and terrain conditions.

The equestrian experience within Leominster State Forest is enhanced by many of the same qualities valued by pedestrian trail users, in addition to:

- Trails maintained with appropriate horizontal and vertical vegetation clearance for horses and riders
- Access to water sources suitable for horses
- Trailer-accessible parking and staging areas

The equestrian trail experience is diminished by:

- Inadequate vegetation clearance or trail tread maintenance
- User conflicts or encounters that may startle horses, including motorized vehicles, uncontrolled off-leash dogs, and high-speed or non-yielding mountain bike traffic.
- Structures not designed for equestrian access (bridges, etc.)
- Lack of signage / confusing trail networks

Snowmobiling

Snowmobiling offers an opportunity to experience the forest and the landscape in winter on a motorized recreational vehicle. Snowmobiling is a popular activity in north central Massachusetts; however, current climatic conditions have reduced the length of the season and created less consistent snow cover.

Most snowmobilers desire open, groomed trails with safe wetland crossings that connect various access points, parking areas and destinations. Snowmobilers also desire trails that are connected to a broader regional snowmobile network. Mostly, snowmobilers desire snow.

Hunting

Hunting is a long-established and important recreational use within Leominster State Forest and contributes to the forest's multiple-use management objectives. The large, contiguous forest blocks, diverse habitats, and extensive undeveloped landscape provide opportunities for hunting a variety of game species in accordance with Massachusetts hunting regulations and seasons established by the Massachusetts Division of Fisheries and Wildlife (MassWildlife). Commonly hunted species in Massachusetts include white-tailed deer, wild turkey, black bear, coyote, gray squirrel, and other small game. Hunting also plays an important role in wildlife management by helping to maintain balanced wildlife populations and supporting healthy forest ecosystems.

Hunters generally seek large, relatively undisturbed areas with limited recreational conflicts, reliable access to hunting locations, and habitats that support healthy wildlife populations. Forest roads, trailheads, and designated parking areas

provide access to interior portions of the forest, while undeveloped upland forests, wetlands, and early successional habitats offer a diversity of hunting opportunities. Although waterfowl hunting has historically been limited within Leominster State Forest, Rocky Pond may provide opportunities for waterfowl hunting should management objectives and public use patterns support this activity in the future.

The hunting experience within Leominster State Forest is enhanced by many of the same qualities valued by other forest users, in addition to:

- Large, contiguous forest blocks with minimal fragmentation.
- Quiet areas with limited recreational conflicts and opportunities for solitude.
- Access to designated parking areas, forest roads, and trail networks that facilitate entry into hunting areas.
- Healthy forest habitats that support diverse wildlife populations.

The hunting experience within Leominster State Forest is diminished by:

- Unauthorized trails that encroach into traditional hunting areas, increasing recreational use and reducing opportunities for solitude.
- Excessive clearing of understory vegetation associated with unauthorized trail construction, particularly within mountain laurel thickets and other dense cover that provide important habitat and security for wildlife.
- High concentrations of recreational users during hunting seasons, particularly on unauthorized trails

that increase human presence in otherwise undisturbed areas.

- Poorly marked trail systems or limited public awareness regarding hunting seasons and shared recreational use.

Experiencing and Learning about Nature

Experiencing and learning about the natural world can be accomplished through the various forms of trail-based recreation, although it is perhaps best appreciated on foot. Pedestrians can explore and observe natural habitats while using the main trails; stopping to investigate some small plant or insect, standing still and soaking up the sights, smells, and sounds of a particular woodland, or searching for the perfect photo opportunity – these are activities most easily engaged in when the pace is slow and reflective. The experience of finding a moment of solitude in the Forest is special; a moment to revel in the glory of nature, to reflect on one's own existence, to meditate or pray. These special moments are enhanced by the diversity and natural beauty of the Forest landscape.

Engaging in these experiences is enhanced by:

- Access to a variety of diverse habitats
- A sense of solitude
- Well-maintained trails
- Clear trail signage and maps

This experience can be diminished by:

- Disturbance from other users
- Damage to natural habitats
- Poorly maintained or confusing trails

Stewarding and Improving Trails and the Environment

The experience of being able to volunteer one's time and energy to improve an area or trail system that you enjoy is a valuable experience that many seek. Modern society often lacks opportunities to get outside and engage in physical labor, and volunteer stewardship on trails offers the opportunity to improve the environment, enhance recreational experiences, and realize visible and tangible accomplishments. Such activities also strengthen participants' sense of connection to the environment and trail system and provide opportunities for environmental education and skill development.

In addition, the Leominster State Forest trail system has some significant ongoing maintenance needs, and volunteer stewardship has been and can be a critical component of successful trail system management.

The volunteer stewardship experience is enhanced by:

- Well-organized and clearly defined volunteer projects
- Opportunities to meet and socialize with others
- Projects which have a clear, lasting, and visible benefit

The volunteer experience is diminished by:

- A lack of organization
- Bureaucratic red tape
- When accomplishments do not appear to have longevity

Recreating with Dogs

Family pets, especially dogs, are an important part of today's society. For many

owners, dogs are members of the family. Just like humans, dogs need to both exercise and socialize with other dogs to be healthy. As a result, many users of Leominster State Forest desire to recreate with their dogs on trails and allow their dogs to socialize and recreate together.

While some dog owners prefer to keep their dog on a leash to both control and protect the dog, frequently, dog owners desire to recreate and exercise their dogs off leash. Current DCR regulations require that dogs at most state and urban parks, including Leominster State Forest, be on leash.

The reasoning for this is that some dogs can be aggressive, and even friendly dogs off leash, particularly on trails, can startle or frighten other users or dogs as they approach. Dogs off leash will also tend to run both on and off trail, contributing to off-trail impacts, and potentially disturbing wildlife.

For many dog owners, the experience of recreating with their dog is enhanced by:

- The ability to allow their dogs to run and explore at their own pace
- The experience of allowing dogs to socialize with each other in wide open spaces
- The opportunity for human owners to socialize with each other

The experience of recreating with a dog can be diminished by negative encounters with other users or other dogs. Since off-leash dogs on trails can impact other users and potentially off-trail environmental resources, dog owners should expect to recreate with their dogs on leash and on trail.

4. Management, Staffing, and Partners

4.1 Permitting Procedures

All trail maintenance, improvement, and construction activities within Leominster State Forest must be reviewed and approved by DCR. Activities are guided by DCR's Trails Guidelines and Best Practices Manual, with the level of review determined by the nature, location, and potential impacts of the proposed work. DCR staff, volunteers, and partner organizations must coordinate with the appropriate DCR personnel before initiating work.

Proposals for new trails, reroutes, and major maintenance or infrastructure improvements should be documented using DCR's Trails Proposal Form. These projects include bridge construction or replacement, wetland and stream crossing improvements, substantial tread reconstruction, and significant drainage or erosion-control work. Proposals should identify the location, purpose, work limits, proposed methods, resource constraints, and anticipated maintenance responsibilities, supported by maps, photographs, and design information appropriate to the project. Routine maintenance may proceed within an approved work scope; activities beyond that scope require additional DCR review.



Figure 14. View of visitors walking along a multi-use trail.

Projects that may alter wetland resource areas require evaluation under the Massachusetts Wetlands Protection Act and applicable local wetland bylaws. DCR will determine whether review and permitting through the local Conservation Commission are necessary. Projects that reduce existing erosion, sedimentation, and other impacts to wetland resources should be prioritized, including trail improvement, rerouting, or closure where appropriate.

Work within mapped Priority Habitat may require review by the Natural Heritage and Endangered Species Program under the Massachusetts Endangered Species Act, unless an applicable exemption applies. Early coordination should identify opportunities to avoid resource impacts and establish the required reviews.

Activities involving ground disturbance must be coordinated with DCR's Office of Cultural Resources and, where applicable, the Massachusetts Historical Commission. Depending on the location and scope of work, additional documentation, consultation, or archaeological investigations may be necessary before implementation.

Inclusion of a project in this Trail System Master Plan identifies a planning recommendation and does not constitute authorization to begin work. Projects must receive DCR approval and complete

applicable resource reviews and permits before implementation. Volunteer and partner-led work must also follow the authorization procedures described in Section 4.2.

4.2 Trail Maintenance and Stewardship

DCR staff are responsible for routine maintenance of the Leominster State Forest trail system. Typical activities include clearing fallen trees and vegetation, maintaining drainage features, repairing trail tread, replacing signs and trail markers, and addressing minor erosion and safety concerns. Maintenance should focus on designated trails and approved work priorities to provide safe recreational access while protecting natural and cultural resources.

Larger or more technically complex projects may require qualified contractors or approved partner crews working under DCR oversight. Trail relocations, substantial erosion repairs, bridge and crossing construction, and other major improvements must follow the project review and approval procedures described in Section 4.1. Projects completed by contractors must also comply with applicable DCR procurement requirements.

When staff discover a potentially unauthorized trail during forestry operations, maintenance, or other field activities, they should document its location, take photographs, and record evidence of recent construction and observed safety or resource concerns. Findings should be reported promptly to the property manager or designated DCR contact so the trail's authorization status can be checked against agency records and appropriate review initiated. Active unauthorized construction, immediate

hazards, or ongoing resource damage should be referred promptly to appropriate DCR supervisory or enforcement personnel. Recommendations for evaluating these trails, documenting management decisions, and conducting follow-up inspections are provided in Section 5.2.

Volunteer and partner-led stewardship can supplement DCR's maintenance capacity and support trail restoration, monitoring, signage, and invasive species management. Projects must be reviewed and approved before work begins through a Volunteer Stewardship Agreement or Memorandum of Understanding, as appropriate and determined by DCR. Agreements should define approved locations and activities, work methods, equipment, scheduling, supervision, safety requirements, resource-protection measures, and responsible contacts.

Ongoing partnerships should be supported by approved annual work plans that identify priority projects and the limits of authorized routine maintenance. Changes to approved locations, methods, structures, or work limits require additional DCR review and written approval. General stewardship agreements do not provide blanket authorization for new trails or trail modifications; those projects must also complete the applicable trail proposal, resource review, and permitting processes.

4.3 DCR Staffing

Leominster State Forest and its satellite properties, Johnny Appleseed State Park, Lancaster State Forest, and two seasonal swimming pools located in Clinton and Fitchburg, are managed by a limited core staff of two people responsible for overseeing day-to-day operations, maintenance, public access, and resource stewardship across a large and diverse

property. Year-round staffing is supplemented by seasonal personnel who assist with routine maintenance, visitor services, and seasonal operational needs; however, the scale of the property, extensive trail and road network, recreational infrastructure, and broad management responsibilities present ongoing operational challenges. Additional seasonal aquatics staff support summer waterfront operations at Crow Hill Pond, including lifeguarding and beach management, but these positions are dedicated to visitor safety and waterfront programming and provide limited capacity for broader forest maintenance, trail stewardship, or land management activities elsewhere within the property.²¹

4.4 Friends of Groups

At present, Leominster State Forest does not have a formally organized “Friends” group dedicated specifically to stewardship of the property. However, the forest benefits from an active recreational user community, regional trail networks, and opportunities for volunteer stewardship, public engagement, and partnership-based management. Establishing a formal friends organization or stewardship partnership, which could be initiated through outreach to the DCR Regional Legislative and Partnerships Coordinator, could provide additional capacity for trail maintenance, user education, volunteer coordination, fundraising, and long-term resource stewardship consistent with DCR management objectives.

4.5 New England Mountain Bike Association

The New England Mountain Bike Association (NEMBA) is a regional trail

advocacy organization with local chapters dedicated to trail stewardship, recreation access, open space conservation, and education on responsible trail use. Through volunteer trail work, organized rides, rider education, and partnerships with land managers, NEMBA chapters play an important role in maintaining sustainable trail systems and fostering stewardship within the mountain biking community.

At Leominster State Forest, NEMBA—primarily through its Central Massachusetts and regional chapter network—has contributed to trail maintenance, organized volunteer work days, and promoted responsible mountain bike use within the forest’s trail system. These efforts support DCR’s broader stewardship objectives by helping maintain trail conditions, improving user awareness of appropriate trail etiquette, and encouraging volunteer involvement in trail management and resource protection. NEMBA’s ongoing engagement also provides an important connection between DCR and the recreational user community, helping to identify trail issues, coordinate stewardship initiatives, and promote sustainable access consistent with long-term conservation and recreation goals.

4.6 Appalachian Mountain Club

Appalachian Mountain Club (AMC) promotes the protection, enjoyment, and understanding of forests, waters, and trail systems throughout the northeastern United States by encouraging outdoor recreation, conservation stewardship, and public education. Through organized hikes, educational programming, volunteer stewardship initiatives, and professional trail expertise, AMC supports sustainable public access to natural landscapes while

²¹ Resource Management Plan: Leominster State Forest (2025). p. 17

5. Recommendations

advancing long-term resource protection goals.

The Worcester Chapter of the AMC administers and maintains the Midstate Trail in Massachusetts, which runs through Leominster State Forest. Additionally, AMC's regional programming and stewardship mission align closely with DCR's objectives for conservation, recreation, and public engagement. AMC-sponsored hikes, outdoor education opportunities, and volunteer trail work can help foster public appreciation for the

5.1 Advance Outreach and Education on Responsible Recreation and Forest Stewardship

Education and outreach should foster a shared ethic of stewardship by helping visitors understand that Leominster State Forest is home to diverse wildlife, significant ecological communities, and irreplaceable cultural resources. Through effective communication, visitors can better appreciate that trails are not simply recreational amenities, but infrastructure that requires thoughtful planning, maintenance, and responsible use to



Figure 15. Trail in a dense patch of Mountain Laurel (*Kalmia latifolia*)

forest's natural and cultural resources while encouraging responsible trail use and stewardship ethics. In addition, AMC's professional trail crews and technical trail expertise may provide opportunities for partnership on trail assessment, maintenance, erosion control, and sustainable trail improvements where resource protection and recreational management objectives intersect. Such partnerships can enhance DCR's capacity to maintain recreational infrastructure while improving trail sustainability and visitor experience.

balance recreation with long-term resource protection.

Recommendations include:

- Develop and deploy public-facing educational materials, including trailhead signage, kiosk displays, interpretive panels, maps, and digital communications, that promote responsible recreation and explain how individual visitor actions influence the health of the forest.
- Promote Leave No Trace principles by encouraging visitors to stay on designated trails, avoid creating shortcuts or bypasses, properly dispose of waste, respect wildlife and other visitors, and avoid trail

use during excessively wet or muddy conditions to minimize erosion and trail degradation.

- Communicate how thoughtfully planned, constructed, and maintained trail systems support both recreation and conservation by concentrating visitor use, protecting sensitive habitats and cultural resources, improving trail sustainability, and reducing long-term maintenance needs.
- Interpret the forest's rich natural and cultural history—including Indigenous stewardship by the Nipmuc people, the historic settlement of Notown, and the legacy of the Civilian Conservation Corps—to strengthen visitors' connection to the landscape and foster a greater sense of shared responsibility for its stewardship.
- Increase public awareness of DCR's trail planning, review, and approval process by explaining how new trails are proposed, evaluated, authorized, and maintained, and why unauthorized trail construction and modification undermine sustainable recreation, resource protection, visitor safety, and equitable management.
- Communicate proactively about forest management activities so visitors understand why management is occurring, what to expect during operations, how recreation may be temporarily affected, and how these activities contribute to long-term forest health, habitat diversity, climate resilience, wildfire preparedness, and ecological regeneration.
- Highlight opportunities for visitors to participate in stewardship

through volunteer trail maintenance, invasive species removal, citizen science, and other conservation initiatives that foster long-term engagement with the forest.

- Collaborate with partners and user groups, including the New England Mountain Bike Association (NEMBA), Appalachian Mountain Club (AMC), Midstate Trail Association, Western Massachusetts Climbers' Coalition, local conservation organizations, and municipalities to expand educational messaging, promote responsible recreation, and cultivate a shared stewardship ethic across the diverse recreation community.
- Provide clear information to trail users and stewardship partners about how to propose trail improvements and participate in approved volunteer projects. Explain that new trails, reroutes, and trail modifications require DCR review and approval before work begins.

5.2 Develop a Sustainable, Clearly Organized Trail System

Leominster State Forest's trail network should be refined to create a more sustainable, manageable, and user-friendly system that balances recreation, resource protection, and operational capacity.

Recommendations include:

- Reduce redundant, braided, and poorly aligned trails to simplify the network and concentrate maintenance efforts on priority routes.
- Designate a core system of sustainable trails that support

multiple recreation types while minimizing environmental impacts.

- Establish clearly identified loop opportunities of varying distances, skill levels, and recreational experiences for hiking, mountain biking, horseback riding, and passive recreation.
- Identify opportunities for bike-specific trail experiences where appropriate and compatible with DCR management goals.
- Preserve select low-use or undeveloped areas as quieter habitat-focused zones with limited trail development.
- Improve trail alignment over time by relocating unsustainable trail segments away from steep slopes, wet areas, and erosion-prone locations.
- Establish a consistent response when staff discover a potentially unauthorized trail during forestry operations, maintenance, resource assessments, or other field activities. Document the location using GPS where practical, take photographs, and record evidence of recent construction, connections to existing trails, unauthorized structures, and observed safety or resource concerns. Report findings promptly to the property manager or designated DCR contact and confirm the trail's authorization status against agency records.
- Evaluate newly identified unauthorized trails for consistency with the recommended trail system, resource protection goals, visitor safety, and maintenance capacity. Following review, determine whether the trail should be closed and

restored or considered for formal adoption or rerouting through DCR's trail proposal and approval process. Prioritize responses to active construction, immediate safety hazards, and ongoing damage to sensitive resources.

- Maintain an internal record of unauthorized trails, management decisions, and follow-up inspections. Clarify that inclusion on an inventory or emergency response map does not, by itself, constitute authorization for recreational use or maintenance.

5.3 Prioritize Trail Maintenance, Repair, and Infrastructure Improvements

A proactive maintenance program is needed to improve trail conditions, address infrastructure deficiencies, and reduce long-term management burdens.

Recommendations include:

- Restore damaged trail segments and correct chronic drainage issues through sustainable trail design practices, including replacing failing water bars with grade reversals, drainage dips, and improved tread shaping.
- Develop a comprehensive maintenance plan for trail infrastructure, including culverts, bridges, boardwalks, retaining features, drainage structures, and stream crossings.
- Assess aging trail structures for safety, functionality, and climate resilience, prioritizing replacement or retrofit where needed.
- Review wetland and stream crossings during repair planning to determine whether relocation, redesign, or

enhanced crossing structures can reduce resource impacts.

- Apply DCR climate resiliency standards to future trail and crossing improvements.
- Use DCR's Trails Proposal Form to document and review proposed new trails, reroutes, and major maintenance or infrastructure projects, including bridge construction or replacement, wetland and stream crossing improvements, substantial tread reconstruction, and significant drainage or erosion-control work.
- Coordinate proposals with appropriate DCR staff early in project development to establish the scope, design requirements, resource reviews, permitting needs, and long-term maintenance responsibilities. Obtain written DCR approval and complete applicable reviews and permits before work begins.
- Establish a clear communication process and target response timeframes for trail proposals so volunteers and partners understand where their requests stand. Identify a DCR point of contact, acknowledge receipt, and provide an initial response describing any additional information needed, anticipated review steps, and expected timing. Provide updates at key milestones, including referral for NHESP or cultural resource review, and notify proponents when delays or changes affect the schedule. Communicate final decisions in writing, including approval conditions, reasons a proposal cannot proceed, or next steps needed to advance it.
- Incorporate project review and approval into implementation

planning for the recommendations in this Master Plan. Identify routine maintenance that can proceed within an approved work scope and activities that require additional project-specific review.

5.4 Improve Trailheads, Parking Areas, and Wayfinding

Improved access points, orientation, and signage are critical to enhancing public safety, reducing confusion, and improving overall visitor experience.

Recommendations include:

- Formalize primary trailheads with consistent park entry signage, orientation kiosks, regulatory signage, and trail maps in accordance with DCR Trail Guidelines and Best Practices.
- Improve secondary trailheads and pull-off parking areas with wayfinding signage, boundary identification, and parking improvements where safety concerns exist.
- Evaluate parking configurations at major access points—including Rocky Pond, Paradise Pond, Elm Street, Justice Hill Road, and Hobbs Road—to improve circulation, trailer access, and visitor safety.
- Install clear intersection signage, directional markers, and route identification throughout the forest.
- Develop a coordinated trail naming and numbering system to improve navigation, emergency response, and public communication.
- Update digital trail information and actively manage trail data on public recreation platforms such as Trailforks and AllTrails to improve consistency between on-the-ground signage and online mapping.

5.5 Improve Recreational Experience Through Trail Classification and Design

The trail network should provide diverse, intentional recreational experiences that better match user expectations and objectives.

Recommendations include:

- Designate trails by intended recreational experience, use type, and difficulty level using a consistent classification system for hiking, mountain biking, and other trail uses.
- Consider adopting trail rating systems that align with recognized recreation platforms to improve user understanding of trail conditions and difficulty.
- Identify opportunities for accessible recreation experiences, including trails and amenities suitable for people with mobility impairments.
- Conduct assessments of trail suitability and prioritization for Other Power-Driven Mobility Devices (OPDMD) in accordance with applicable accessibility guidance.
- Identify locations appropriate for trail-based amenities, staging areas, and gathering spaces that support organized recreation while minimizing conflict with natural resources.

5.6 Protect Natural and Cultural Resources

Long-term trail management should prioritize avoidance, minimization, and mitigation of impacts to natural and cultural resources.

Recommendations include:

- Avoid locating trails in wetlands, riparian corridors, vernal pool habitat, rare species habitat, and other sensitive ecological communities wherever practical.
- Evaluate opportunities to relocate trails currently creating repeated wetland, stream, or erosion impacts.
- Route trails to follow sustainable contours rather than fall-line alignments where feasible.
- Incorporate ecological restoration into trail closures and reroutes through revegetation, decompaction, and habitat enhancement.
- Coordinate soil disturbance, trail construction, and infrastructure improvements with DCR cultural resource staff and applicable permitting agencies.
- Integrate interpretive signage where appropriate to educate users about natural and cultural features while discouraging off-trail use.

5.7 Strengthen Stewardship Partnerships and Volunteer Coordination

Given DCR's limited staffing and maintenance capacity, stewardship partnerships remain essential to long-term trail management.

Recommendations include:

- Continue working collaboratively with user groups, municipalities, and volunteer organizations to maintain, improve, and steward trails.
- Establish or update formal stewardship agreements that define responsibilities, standards, permitting requirements, and annual work planning processes.

- Prioritize partnerships that support trail maintenance, mapping, signage, monitoring, invasive species management, and trail restoration.
- Develop clear review and approval procedures for partner-led trail work to ensure consistency with DCR standards and resource protection goals.
- Explore opportunities for supplemental volunteer and financial support for trail improvements, particularly where recreation demand is high.
- Use DCR's Trails Proposal Form to document and review proposed new trails, reroutes, and major maintenance or infrastructure projects, including bridge construction or replacement, wetland and stream crossing improvements, substantial tread reconstruction, and significant drainage or erosion-control work.
- Coordinate proposals with appropriate DCR staff early in project development to establish the scope, design requirements, resource reviews, permitting needs, and long-term maintenance responsibilities. Obtain written DCR approval and complete applicable reviews and permits before work begins.
- Incorporate project review and approval into implementation planning for the recommendations in this Master Plan. Identify routine maintenance that can proceed within an approved work scope and activities that require additional project-specific review.

5.8 Improve Connectivity Within and Beyond the Forest

Leominster State Forest serves as part of a broader regional recreation network and should continue to strengthen connections both internally and externally.

Recommendations include:

- Improve internal trail connections between major destinations, trailheads, and recreation nodes.
- Evaluate opportunities to connect with adjacent open space, municipal trail systems, and regional recreational corridors.
- Assess opportunities to improve long-distance trail continuity, including linkages to broader trail networks and commuter trail systems where appropriate.
- Coordinate with neighboring landowners and municipalities to improve access, signage, and compatible recreation planning across boundaries.

5.9 Recommended Trail System

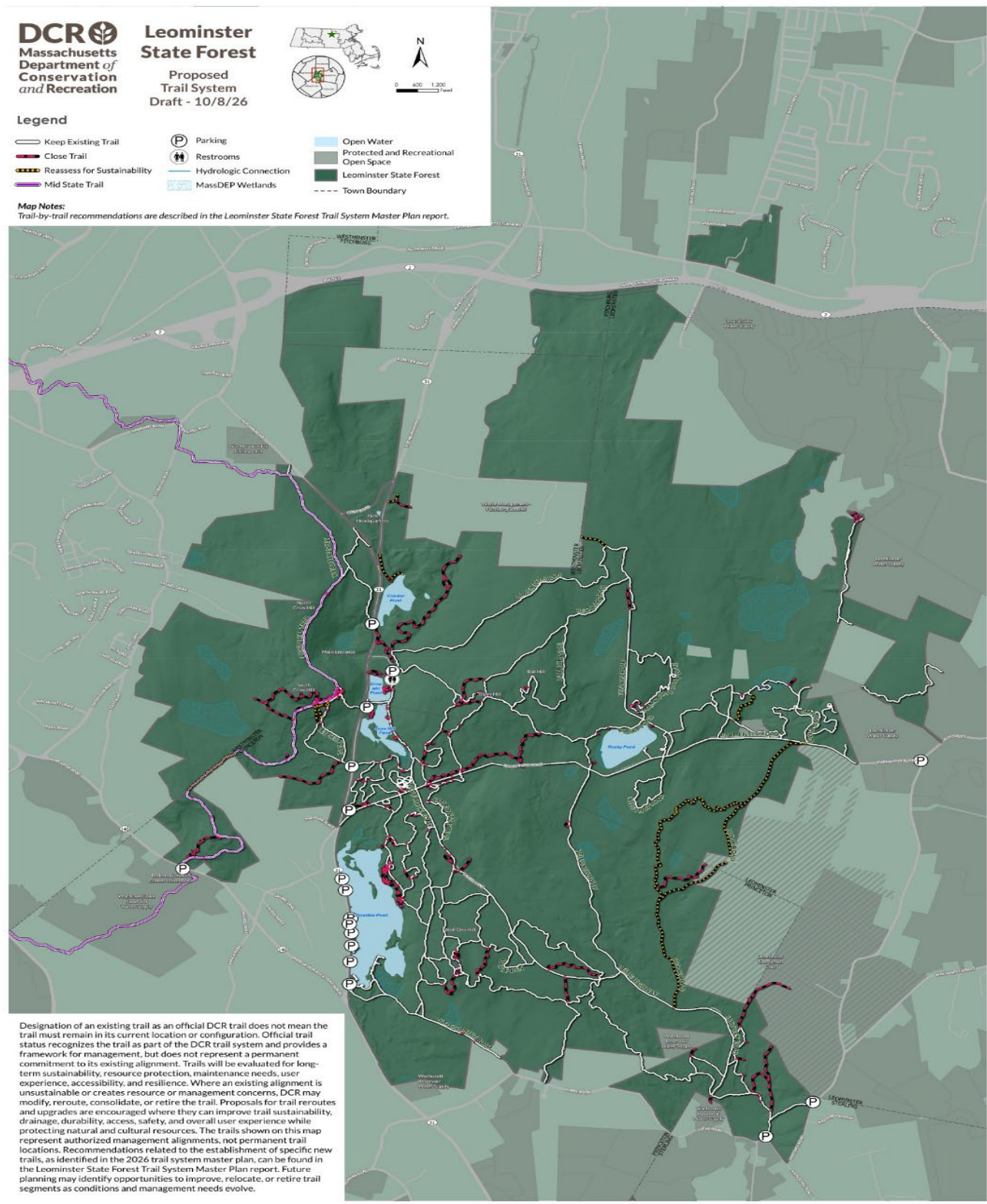


Figure 16. Leominster State Forest Proposed Trail System. A full-page version of this map is provided in Appendix B.

Recommendations for Parking Areas and Trailheads

T1 - Elm Street Parking Area and Trailhead

The Elm Street Parking Area and Trailhead is owned by the Town of Leominster and is the eastern connection in to the Leominster State Forest. DCR is working with the Town of Leominster to improve visibility of DCR signage and wayfinding. DCR should continue working with the Town to improve signage and the gravel parking area. DCR to review applying for a grant to make these improvements.

T-2 - Hastings Road Trailhead

A small pull-off area is located to the southeast of LSF along Hastings Road. A trail connects back to the main trail from the Justice Hill Trailhead. DCR should further review the area and consider formalizing the pull-off in the future. Signage should be added to the trailhead for wayfinding.

T3 – Justice Hill Road Trailhead

A pull-off area along Justice Hill Road is adjacent to the trailhead. This is the southern connection to the LSF. DCR should consider providing a paved parking area for this trailhead to increase safety and improve sight lines. Trailhead and wayfinding signage should be improved.

CLOSE - The main trail entrance should be renovated to close parallel trails.

T4 – Hobbs Road Trailhead

This is not an official trailhead, but connects from Hobbs Road into the LSF to Farmer's Run Trail.

ADOPT – This trailhead should be adopted into the master plan. DCR should add wayfinding signage to formalize the trailhead.

T5 – Route 31 to North County Road

This forest road connects Route 31 to North County Road. DCR should make major repairs to the forest road and stream crossings.

T6 – Paradise Pond South Lot and Trailhead

This dirt lot is located to the south of Paradise Pond. The parking area should be paved to increase safety. Wayfinding signage should be added at the trailhead. Pond access should be signed to improve wayfinding.

T7-T9 – Paradise Pond West Shore Access

There are multiple pull-offs from Route 31 along the western edge of Paradise Pond. These pull-offs should be consolidated, paved, and formalized to reduce erosion. DCR should improve signage at the pond to better manage pond access.

ADOPT – Selectively adopt trails for pond access. The goal should be to reduce erosion and provide safe pond access.

T10 – Rocky Pond Road Lot and Trailhead

This parking area is located along Route 31 between Paradise Pond and Crow Hills Pond. The parking area should be paved to increase safety and access to the trailhead, and to improve sight lines.

CLOSE – Multiple trail connections from the parking area to main trails should be closed to reduce erosion and improve wayfinding.

CLOSE – Trail connection between Sawyer’s Run and Hemlock Ridge Trail. Also maintain main trails to close minor braiding.

T11 – Crow Hill Emergency Access Parking Area and Trailhead

This parking area is located on the west side of Route 31 south of Crows Hill Pond. The parking area should be paved to improve safety and sight lines. Trailhead signage should be improved and wayfinding signage should be added.

CLOSE – trails other than the main trail that lead away from the parking area. Improve the entrance to the main trail.

CLOSE – dead end trail that travels south from the main Ledges Trail.

T12 – Princeton Lot

This paved parking area is located on the east side of Route 31 at the Crow Hills Pond dam. There is a small picnic area and access to the pond. Across the road, there is a trailhead that leads to the Crow Hill Ledges.

CLOSE – reduce number of access trails to the water. This will help reduce erosion.

REPAIR – Work with MassDOT to implement a crosswalk from the parking area to the trailhead across the road.

T13 – Day-Use Beach Parking and Trailheads

This seasonal parking area is open to the public and provides access to the beach to the north of Crow Hills Pond. There is a large picnic area. Several trails begin here.

Trailhead and wayfinding signage should be added and improved to support easier use of the trails. DCR should consider this area for the AAB FSTAG trail.

CLOSE – Multiple accesses to the pond cause erosion. Trails should be closed to better manage pond access.

CLOSE – Dead end trail north of the Black Bear Run trailhead.

CLOSE – Trail from the north of the parking lot and repair erosion damage.

REPAIR – erosion damage on the Ball Hill Trail.

T14 – Crocker Pond Dam Access

This area does not connect to the rest of the LSF trail network and provides maintenance access to the dam. There is a small picnic area and pond access.

ADMIN – Convert this trail to administrative access only.

CLOSE – Picnic area and water access to reduce erosion and better control water access.

T15 – Headquarters Access Trail

This trail does not connect to the rest of the trail network and is used by DCR staff for maintenance.

ADMIN – Convert this trail to administrative access only.

CLOSE – Dead end trail to waste management area to public.

External Trail Connections

C1 – Midstate Trail (MST) Southern Connection

This trail connection is part of a larger trail network and comes from the Wachusett Lake Reservoir along the Redemption Rock Trail – Route 140. There is no parking available on the DCR property for trailhead access. DCR should consider working with the Trustees to implement a crosswalk

across Route 140 to provide safe a crossing for the MST. DCR should work with the MST group (AMC) to improve trailhead and wayfinding signage. DCR should consider solutions to shift the MST trail off private property.

REPAIR – Work with MST management (AMC) to repair eroded and braided trails.

CLOSE – trail leading off the main trail. Trail is eventually abandoned and is affected by erosion.

C2 – Crow Hill Trail Connection

There are several internal connections from the LSF trail network to the Midstate Trail. DCR should improve boundary markers, wayfinding and directional signage to improve user experience. DCR should also renovate trails and stream crossings. DCR should consider installing signage and other efforts to advertise use of other parking areas for connections to the Midstate trail to reduce access in this area. Other locations provide more sustainable access.

C3 – Midstate Trail (MST) Northern Connection

This trail connection is part of a larger trail network and comes from Rice Meadow Pond (Private Recreation Area) at Notown Road and from Stone Hill Road. Parking is not located at this connection. DCR should work with the MST group to improve trailhead and wayfinding signage. DCR should work with the MST group to improve trailhead and wayfinding signage.

ADOPT – Trail connection from Notown Road to the MST.

C4 – Nashua Valley Conservation Area

This area connects to the trail system in the Nashua Valley Conservation Area at

the Notown Reservoir. DCR should improve wayfinding signage

REPAIR – Bridges that should be replaced to reestablish a safe connection.

CLOSE – Access to the water in this area since the reservoir is protected.

C5 – Trails on Leominster Land

Since the eastern connection to the LSF is connected through Leominster owned land, this connection is one of the most important. DCR should work with the Town of Leominster to maintain trails, boundary markers, and wayfinding signage to improve user experience.

C6 – Leominster Sportsman Association (LSA)

This property is owned and operated by the LSA, and there are active connections between LSA and LSF properties. Hunting is also legal on LSF property with proper permits. Due to recent conflict between user groups and ambiguous property delineation, it is recommended to redirect popular trails and close certain trail connections. DCR should reassess these connections and consider rebuilding the forest road which crosses into LSA property. DCR should improve boundary markers and wayfinding signage to help reduce conflicts.

This area serves as access for other uses as well, such as water access for Fire District 8 along Brook Road. DCR should work with the Radio Station (WXLO) for future access permits to their tower located on LSA property.

ADMIN – Close public access from Parmenter Street to Bartlett Road

CLOSE – Access to LSF from the south to reduce conflicting recreational use.

Adopt Trails to the LSF Trail System

Southern Trails

- Trail from Hobbs Road to Farmers Run

Wolf Den Trails

- Northern trail connector (Wolf Den Back to Front) between Wolf Den trail
- Southern connection from Wolf Den to the major intersection (OTB trail)
- Northern trail connector from King Tut's Highway and Wolf Den trail

Wolf Rock Road / Rock Pond Road Intersection

- Trail connector from Paradise Alley trail (west) and Paradise Alley (east)

Convert Trails to Administrative Use

Ball Hill Trails

- Trail connection between Black Bear Run and the waste management property

Trail Closures

Southern MST

- Close unauthorized trails due to erosion, braiding, and ambiguous ending.
- DCR to consider keeping trail to Glacial Boulder.

Midstate Trail

- Close dead end trails off main trail.

Midstate Trail – Crow Hill Ledges

- Close large loop behind the Ledges which connect to rear parcels to reduce trail densities and to better control access.

- Close loop trail off Midstate trail west of the Ledges to reduce trail densities and to better control access.
- Close trails north of the upper Ledges trail to reduce trail densities and to better control access.
- Close trails south of the upper Ledges trail to reduce trail densities and to better control access.
- Close trail connection from lower Ledges trail and Climbing Base trail to reduce trail densities and to better control access and increase safety.
- Close trail connection between both connector trails from the lower Ledges trail and the Ledges trail (south to the parking lot) to reduce trail densities and to better control access.

Parmenter Street (Northeast)

- Close dead end trail off Spooky Forest trail

Justice Hill Trailhead (Southeast)

- Close access to LSA from Moonlit Hollow trail to reduce conflicting recreational use.
- Close access to LSA from Bartlett Road to reduce conflicting recreational use.
- Close access trails to Bartlett Pond Brook to reduce erosion.
- Close dead end trail north of Mountain Laurel Flowers trail
- Close southern trail from Bartlett Road (beaver dam)

Southern Trails

- Close trail from Wolf Rock Road to Farmers Run to better control access in this area.

- Close smaller loop off Wolf Rock Road (Frack) to reduce trail density in the area.

Wolf Den Trails

- Close Wolf Den Extension trail to reduce trail density.
- Close parallel trails off Wolf Den trail to reduce trail density.
- Close southern trail connection due to unsafe trail conditions

Paradise Pond Southern Trails

- Close unsafe trails for water access such as eroded banks and the old rope swing

Paradise Pond Eastern Shore

- Close access to pond from Superman trail to reduce erosion and better control water access.
- Close connections from Superman trail to Paradise Alley trail to reduce trail density in the area.
- Close jumps and winding trails off Paradise Alley trail to reduce trail density and unsafe conditions in the area.
- Close loop off Paradise Alley trail to reduce trail density in the area.
- Close southern section and braided trails from Paradise Alley trail to reduce trail density and erosion.
- Close southern trails off connector between Paradise Alley trail eastern and western sections to reduce trail density in the area.
- Close northern trail off connector between Rocky Pond Road and Paradise Alley trail to reduce trail density in the area.

Wolf Rock Road / King Tut's Highway Intersection

- Close parallel loop at intersection to reduce trail density in the area.
- Close southern trail at intersection to reduce trail density in the area.
- Close eastern dead end trail

Wolf Rock Road / Rock Pond Road Intersection

- Close minor braided trails and connections from Rocky Pond Road to the Boardwalk trail to reduce trail density in the area.
- Close Berry Hill Connector that is affected by steep slopes and erosion
- Close Berry Hill West and loop from Rocky Pond Road and White Pine trail that is affected by steep slopes and erosion
- Close unnecessary connections at intersections at the Labyrinth trail to reduce trail density in the area.

Ball Hill Trails

- Close minor braided trails
- Close mid-slope southern trail connection between White Pine trail and Berry Hill trail that is affected by steep slopes and erosion
- Close loop connection from Fenton Road and Red Oak trail to reduce trail density in the area.

Rocky Pond Trails

- Close trail access to the water to reduce erosion
- Close trail from Rocky Pond Road to Parmenter Street and McGillicuddy trail to reduce erosion and trail density in the area.

Trails to be Reassessed

Parmenter Street (Northeast)

- Reassess Ravens Run due to poor conditions

East

- DCR should consider future use or relocation of the Stream Mill Loop. Goals should be to provide a better connection and a more accessible trail. Trail should be wide enough for UTV access for staff.

Paradise Pond Eastern Shore

- DCR to reassess the Superman trail

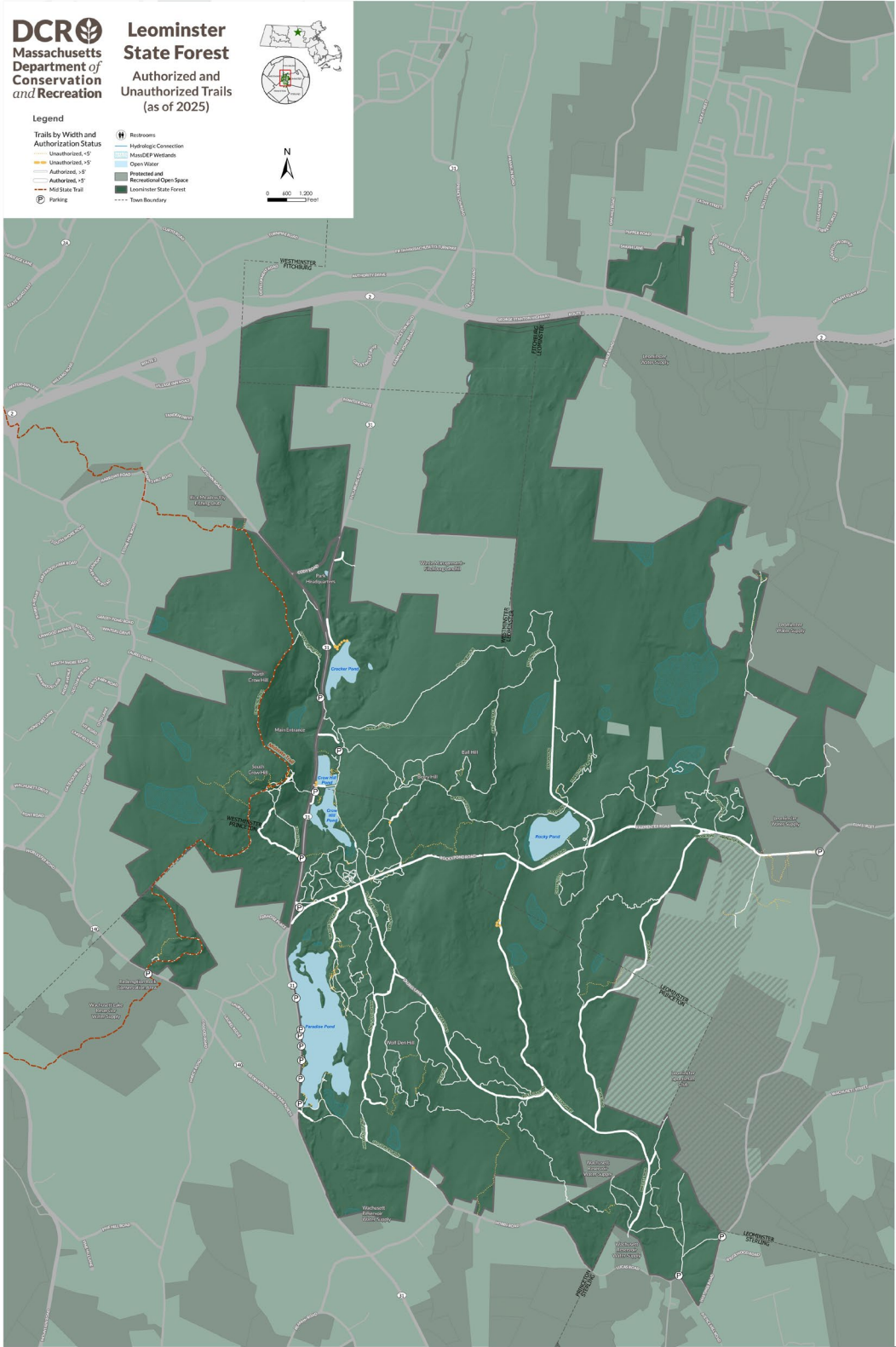
Midstate Trail

- DCR should consider if trail can be rerouted from private property to DCR property. May require coordinating with cultural resources and to assess the possibility of utilizing the break in the existing stone wall

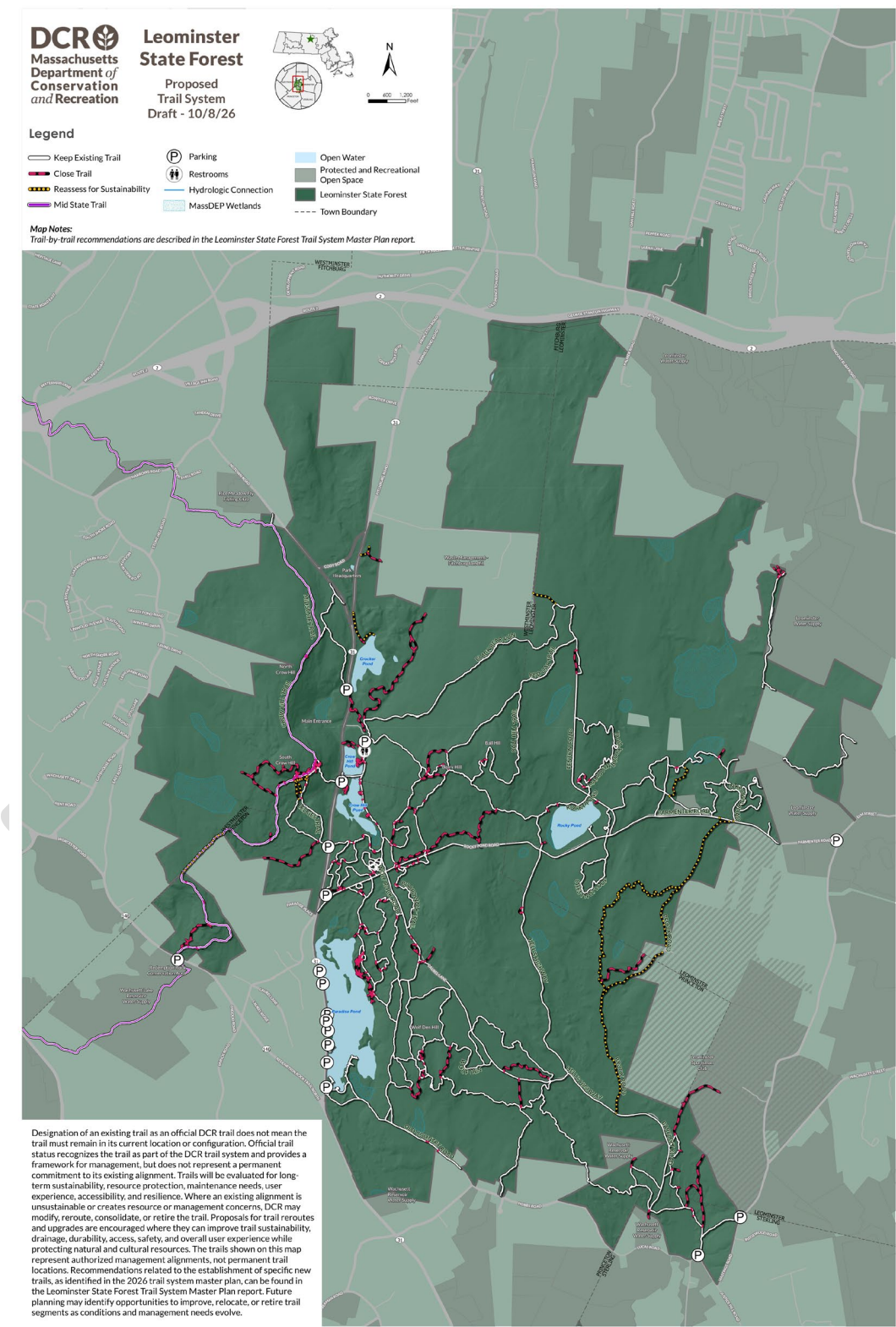
Midstate Trail – Crow Hill Ledges

- DCR to reassess access and use of climbing trails. Consider installing signage warning of dangerous conditions
- Reassess lower Ledges trail and multiple braided trails in the area
- Reassess western connector trails from the lower Ledges trail to the Ledges trail (south to the parking lot)

Appendix A: Leominster State Forest Authorized and Unauthorized Trails (as of 2025)



Appendix B: Leominster State Forest Proposed Trail System



DRAFT

TRAIL SYSTEM MASTER PLAN
DCR LEOMINSTER
STATE FOREST