HICKORY FOREST NATURAL AREA Management Plan

INTRODUCTION

For over 50 years this beloved forest, now referred to as the Hickory Forest Natural Area, was owned and stewarded by Clarence and Esther Kroupa and their family. The property has steep, rolling topography compelling for passive public recreation and resource preservation.

One of the largest remaining intact and unprotected wooded parcels in the immediate vicinity of Traverse City, this special property is located within Garfield Township. It is contiguous to Hickory Hills (owned by the City of Traverse City) and by extension, Hickory Meadows (Recreational Authority). The 76.2-acre property is mostly comprised of mesic northern forest which is listed as vulnerable habitat in the State of Michigan and harbors exceptional floristic quality with habitat for many faunal species that rely upon this forest type.

With its sustainable trail design implemented in November of 2023, the property offers a quality trail experience on unpaved paths, protective of ecologically-fragile areas and which can transition to passive winter recreational opportunities.

VISION

As part of the larger Hickory Hills/Hickory Meadows park system taken in sum, the Hickory Forest Natural Area offers the community of Traverse City and beyond protection of one of the few remaining high quality northern forests near the core of the Traverse City urban area. The protection of this unique northern forest habitat, watershed and viewshed with dual objectives of preservation and provision of low-impact recreational activities honors the legacy of Clarence and Esther Kroupa and provides an enduring benefit to the community. During the acquisition process of the Hickory Forest property, coordinated trail planning and routing between Hickory Hills and Hickory Meadows has been undertaken to enable users to benefit from the entirety of the Hickory park system.

LAND USE HISTORY AND LOCATION

The Hickory Forest property was once owned by Clarence and Esther Kroupa. The Kroupas acquired the first 25-acre portion in 1952 and bought two adjacent parcels shortly thereafter. The initial 25-acre parcel was "nearly barren" when they purchased it, the result of poor farming practices. Visible erosion was present across the property, with only small sections of healthy forest

remaining. The adjacent parcels contained a larger percentage of healthy forest, but also contained dozens of acres of "farmed-out, depleted soil." With "soil conservation concerns and a strong desire to reforest land," the Kroupas did just that, planting thousands of trees (pine, spruce and hardwoods) in the following decades until the property gradually regained a beautiful, natural feel. Clarence, with the assistance from his wife and children, did all of this while working a full-time construction job. "Looking back on our work," Clarence later wrote, "it is somewhat in reverse to the way the first settlers cleared the land to plant crops to grow food and sell." It was the sincere wish of the family that the land be protected in perpetuity to protect it in its natural state with a minimum amount of disturbance or use.

Acquisition History

In 2020, Grand Traverse Regional Land Conservancy (GTRLC) negotiated a purchase agreement for the Hickory Forest property, making use of an interim buyer. The interim buyer held the property for three years while GTRLC staff worked with public partners for eventual public ownership. An exclusive option to purchase the property was subsequently assigned to the Recreational Authority following a successful Michigan Natural Resources Trust Fund (MNRTF) grant application. The transaction for the Recreational Authority to purchase the Hickory Forest Natural Area closed in June 2023. Long term stewardship of Hickory Forest will be implemented by the Grand Traverse Conservation District (GTCD), which also manages Hickory Meadows on behalf of the Recreational Authority, through consecutive renewal of a three-year Resource Management Services Agreement established in 2006.

Phase I & II Environmental Assessments were conducted by Otwell-Mawby PC in early 2020. Potential for residual agrochemicals from agricultural and orchard uses were identified as a Recognized Environmental Concern (REC). Soils samples were collected from the former agricultural and orchard sites and tested for agrochemicals. Based on laboratory analytical results, the property did not meet the definition of a "facility" as defined by Part 201 of Michigan Public Act 451 of 1994, as amended. While several samples contained concentrations of arsenic and lead above laboratory detection limits, none exceeded Michigan Department of Environment, Great Lakes and Energy General Cleanup Criteria. No further assessment or remediation of the RECs was warranted.

Location

The property lies in Garfield Township and is within the Grand Traverse Band of Ottawa and Chippewa tribal service area. The 76.2-acre Hickory Forest Natural Area is located in Section 5, Garfield Township, Grand Traverse County, and Section 32, Elmwood Township, Leelanau County. The Natural Area includes frontage on M-72 to the north with a narrow access on Barney Road to the south. At the time of this writing, access is gained through Hickory Hills**,** though formal public access (trailhead and parking) is planned to be developed off of Barney Road in Spring 2024. See location map in Appendix A, Figure 1.

ADMINISTRATION

Governing Body

Hickory Forest is governed by The City of Traverse City and the Charter Township of Garfield Recreational Authority Board of Directors. The Recreational Authority retains control of all management and budgeting decisions for Hickory Forest.

Citizen Advisory Committee (CAC)

The Recreational Authority Board authorized the creation of a seven-member citizen advisory committee in 2005 for Hickory Meadows. In 2023, the Board revised the scope of the Hickory Meadows Advisory Committee to include Hickory Forest and renamed the committee as the Citizen Advisory Committee. The committee provides advice and makes management recommendations to the Recreational Authority Board for final approval. The Recreational Authority Board appoints members of the CAC for staggered two-year terms, and reviews new appointments on an annual basis. The Executive Director of the Recreational Authority and a representative of the Grand Traverse Conservation District support the work of the CAC.

Property Management

A property manager appointed by the Recreational Authority shall perform or oversee all maintenance required at Hickory Forest. This person or entity shall prepare a quarterly maintenance report for submission to the advisory committee and the Recreational Authority Board. The Grand Traverse Conservation District (GTCD) has been contracted to serve as the property manager for Hickory Meadows since 2006, and the contract was extended in 2023 to include Hickory Forest. GTCD provides professional and technical services to implement an annual work plan for the management of Hickory Forest (and Hickory Meadows). A scope of services for GTCD is provided in Appendix C.

NATURAL FEATURES

The regional landscape encompassing the proposed Hickory Forest Natural Area lies within the greater North Central Hardwoods Forest ecosystem as defined by the EPA. The property is within the landscape ecosystem Subsection VII.5.2: Traverse City, Subsection Williamsburg, which covers the eastern portion of Leelanau County, Old Mission Peninsula, western portions of Antrim and Charlevoix Counties, and into southwest Emmet County. This land type association consists of drumlin fields, low elevation coastal dunes, dune and swale complexes, and is divided into peninsulas by the bays of Lake Michigan and several long, narrow inland lakes. Mesic northern hardwood forest is the dominant habitat type present at the property, with some areas of planted pine and young forest on previously wind eroded soils.

MESIC NORTHERN FOREST **61.7 acres**

Mesic northern forest comprises a majority of the Hickory Forest property. See habitat map in Appendix A, Figure 2. As defined by the Michigan Natural Features Inventory (MNFI), this is a forest

type consisting of moist to dry-mesic sites lying mostly north of the floristic tension zone, characterized by the dominance of northern hardwoods, particularly sugar maple (*Acer saccharum*), basswood (*Tilia americana*) and American beech (*Fagus grandifolia*). Conifers such as hemlock (*Tsuga canadensis*) and white pine (*Pinus strobus*) are frequently important canopy associates, however, are not currently abundant on the property. This habitat type is considered vulnerable in the State of Michigan by the MNFI due to restricted range and recent and widespread declines.

Generally speaking, this community type breaks into two broad classes: northern hardwood forest and hemlock-hardwood forest. It is primarily found on coarse-textured ground and end moraines. Soil compositions are typically loamy sand to sandy loam. The natural disturbance regime is characterized by gap-phase dynamics; frequent, small windthrow gaps allow for the regeneration of the shade-tolerant canopy species. Catastrophic windthrow occurred infrequently with several generations of trees passing between large-scale, severe disturbance events. Historically, mesic northern forest occurred as a matrix system, dominating vast areas of mesic uplands in the Great Lakes region. These forests were multi-generational, with old-growth conditions lasting many centuries.

The forest in the Hickory Forest Natural Area had mostly been cleared when the Kroupa family purchased it. Erosion occurred on exposed slopes, though some of the areas were spared the worst of the erosion impacts thanks to tree plantings by the family on the more level sections of the property. Ravines with large maples and other hardwoods have potential to become secondary old-growth forests. Mesic northern forests are by nature a habitat in transition and are adapted to periodic blowdowns caused by wind or insect disease. The understory flora is extremely rich in species diversity within the intact mesic northern forest. Downed trees provide the structure and organic nutrients this forest system relies upon. Ash species have fallen, opening gaps in the forest that contribute to future old-growth characteristics.

Mesic northern forest management Recommendation

Given the sensitive natural features, steep slopes, invasive plant risks and public use, no tree removal beyond pine plantation thinning or hazard tree removal near trails or other management needs is recommended. Tree planting within impacted areas of the property and removal of invasive species could benefit the property. Recent gaps created by infected and dead ash trees provide important microhabitat for a diverse understory and are characteristic of secondary old growth forest.

Planting native trees in the understory could aid species like hemlock and yellow birch. Deer exclosure fences could be an educational opportunity in areas where the understory is sparse or where Canada yew (*Taxus canadensis*) has been impacted by browse pressure. Protecting existing yew and/or reintroduction of yew could be considered moving forward. To maintain understory plant diversity, bow-hunting for white-tailed deer, being a low-risk hunting activity well suited for a highly visited property, is also an option.

FLORA AND FAUNA

According to the USDA Forest Service North Central Research Station, the historic land cover in this area was beech-sugar maple-hemlock forest. This cover holds true for this site, although within a highly fragmented landscape matrix of urban and suburban development. See Flora list and Bird list in Appendix B, Figure 1 and Figure 2.

Flora

Throughout the growing season in 2020, GTRLC staff conducted a plant inventory and found 110 plants, 96 of which were native species and 14 of which were non-native. The understory is bare in drier areas or where soils have eroded, and where pines were planted. Lush organic soils with humid conditions in the mesic northern forest, especially in the ravines, are host to a spectacular diversity of plant species. Spring ephemeral wildflowers put on a display, with bloodroot (*Sanguinaria canadensis*), Large-flowered trillium (*Trillium grandiflorum*), violet species (*Viola* spp.) and many other iconic northern Michigan species blooming. The mesic northern forest habitat supports populations of naturally occurring rich-mesic hardwood forest understory plants. The flora of this site is unique to the area and is home to species not commonly seen in the area, including Virginia waterleaf (*Hydrophyllum virginianum*), melic grass (*Melica smithii*), fall coral-root orchid (*Corallorhiza odontorhiza*), and sharped-lobed hepatica (*Hepatica acutiloba*, C value of 8). These observations are new records for Grand Traverse County. They are not yet documented by the University of Michigan Herbarium website with an herbarium voucher. Locally rare plants and those with a C value of 10 that were found on the property include large round-leaved orchid (*Platanthera orbiculata*) and cucumber-root (*Medeola virginiana*) and other uncommon plants include red trillium (*Trillium erectum),* fall coral-root (*Corallorhiza odontorhiza*) and spikenard (*Aralia racemosa*).

Floristic Quality

The 2020 plant inventory was entered into the Universal FQA website, from which a Floristic Quality Assessment (FQA) with resulting Floristic Quality Index (FQI) was calculated. The FQI score, derived from botanical inventories, is a way to quantify the rarity and quality of the plants found at a given site, and by extension the quality of the habitat. This FQA method was first defined by Wilhelm and Rericha for the Flora of the Chicago Region and has since been adapted to Michigan by various organizations. It assigns each native plant species a rating that reflects the fundamental conservatism that the species exhibits for natural habitats. A plant that exhibits specific adaptations to a narrow spectrum of the environment is given a high rating. Conversely, an introduced, ubiquitous species that exhibits adaptation to a broad spectrum of environmental variables is given a low rating. Utilizing this method, a FQI and Native Mean C are derived for a given area. The FQI is an indication of native vegetative quality for an area. Generally, 1-19 indicates low vegetative quality; 20-35 indicates high vegetative quality; and 35+ indicates “Natural Area” quality. The Native Mean C is also an indication of native vegetative quality, and habitats with Native Mean C values over 3.5 are considered high-quality resources.

The adjusted FQI for Hickory Forest Natural Area is 43.9, which is well above the state average and signifying it is a rare and extremely significant property in the State of Michigan. The total native FQI of the property rises to 46.1 if non-native species are removed from the equation.

Fauna

GTRLC staff noted 18 bird species utilizing the habitat either for nesting or foraging. This forest is a valuable location as refugia in the larger urban area and is likely a stopover and nesting site for many forest-dwelling neotropical migratory birds like tanagers, thrushes, warblers and vireos. Edge habitat is plentiful on the Hickory Hills boundary, benefiting those species found on Hickory Hills. The Grand Traverse Region falls within the Boreal Hardwood Transition zone as defined by Partners in Flight and the North American Bird Conservation Initiative (NABCI). Within this region, deciduous forests species of concern include two species observed on the property: Northern Flicker and Rose-Breasted Grosbeak.

FLORA AND FAUNA RECOMMENDATION

Carefully sharing information about rare or unique plants on the property while monitoring and caring for them should be trusted to qualified volunteers or staff. Locally rare plants and those with a C value of 10 found on the property should be monitored in the future. The location data of these plants was incorporated into the sustainable trail design for the property so that trails could be routed away from sensitive species.

The resulting trail design avoids known populations of rare plant species. Management of the property should address invasive plants and overbrowsing by deer and other wildlife through informational signage, outreach and on-the-ground monitoring and restoration efforts. Additional flora and fauna surveys of many taxonomic groups in mesic northern forest habitats will yield more species diversity and better understanding of the ecological values of this property.

SOILS, TOPOGRAPHY AND HYDROLOGY

This property lies entirely within the West Bay Shoreline sub-basin within the larger Grand Traverse Bay Watershed. Surface water sheds to Kids Creek and Grand Traverse Bay.
According to the USDA Forest Service North Central Research Station, this sub-region consists of "coarse-textured drumlins on ground moraine, steep end moraine; northern hardwood forest, conifer swamp. Sub-subsection VII.5.1 is a small area of steep end-moraine ridges between the drumlins of the Traverse City sub-subsection (VII.5.2) to the north and the outwash plains of the Newaygo Outwash Plain subsection (VII.3) and the Grayling Outwash Plain sub-subsection (VII.2.2) to the south. Soils on the end moraines are well-drained sands with few poorly or very poorly drained soils." The property contains soils that have been highly eroded in some areas. It has 5-6 separate soil types, the majority of which are loamy sands. The most sensitive habitat is located within the Leelanau-Kalkaska loam sand with steep, 25-45% slopes. Emmet gravelly sand loams, with 2-6% slopes, comprise the area that was historically used for agriculture. Although no wetlands, springs, streams, or vernal pool wetlands were found, it's likely that early spring runoff through the steep slopes can result in wet soils found in valleys. See soil and topo map in Appendix A, Figure 3 and 4 respectively.

SOILS, TOPOGRAPHY, AND HYDROLOGICAL MANAGEMENT CONSIDERATIONS

The steep topography and highly erodible slopes make the site prone to water runoff. Use of the property for recreation should be limited to low-impact activities, and trails should be aligned along contours on side slopes and built to sustainable trail standards.

Preservation of the property in its natural state will prevent sediment and nutrients from entering Kids Creek and West Grand Traverse Bay. Given the frequency and intensity of flooding in the Kids Creek watershed, preservation of the property in its natural state protects against exacerbation of this problem.

HUNTING AND TRAPPING

Significant white-tailed deer browse is likely on this site as very few eastern hemlocks and only a few small plants of Canada yew, a favorite food source for deer, were found in surveys. Heavy deer browse limits these species on rich soils, and Canada yew has been almost eliminated from forests in Michigan where it used to grow abundantly. Other herbivores could be contributing to the declines in these coniferous species but many studies have documented the significant impact deer in particular have on flora and fauna, including orchids and ground nesting forest bird species.

Hunting and Trapping Recommendation

Given the relatively urban setting and limited acreage, firearm hunting and trapping could cause user conflict and are not well suited for this site. However, bow hunting of white-tailed deer can be considered to increase biodiversity of the site while also providing a new bow-hunting opportunity near Traverse City. Signage, outreach and consultation with DNR staff may ease concerns of trail users as bow hunting is a relatively low-risk hunting method, and removal of deer to carrying-capacity levels for the site could benefit the ecological value of the property. Bow hunting will be subject to a permitting regime established by the Recreational Authority and is anticipated to be in place beginning in the fall of 2024.

INVASIVE SPECIES AND FOREST PATHOGENS

Invasive species are defined as plant or animal species, typically non-native, which aggressively take over habitat. If not controlled, invasive species may displace or extirpate native plant or animal species from their original location. Although not yet abundant, small populations of high priority non-native invasive plants are found in the forest interior, including garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), dame's rocket (*Hesperis matronalis)* and Sweet woodruff (*Galium odoratum*) on the property edges. If left unchecked, these species, especially garlic mustard, are capable of crowding out native plants in the understory of the forest. Exotic insects and fungal infections (often spread by insects, birds or wind) have an increasingly detrimental impact on Michigan forests. Insects and fungal diseases such as the emerald ash borer, spongy moth, oak wilt, and beech scale already impact the forests in the area. Additional pests on the horizon include the hemlock wooly adelgid, Asian longhorn beetle, spotted lantern fly, and pine weevil.

Invasive Species and Forest Pathogen Recommendation

To maintain or improve the property's conservation values, preventing the widespread establishment of invasive plants should be a top priority. The entire property should be fully scouted and mapped for invasive species and a treatment plan developed. Plant identification and verification before treatment occurs is important, as many native species can be misidentified as invasives. Additionally, a boot brush station at each public access entry site would be a beneficial educational tool and may curb some of the transport of seeds into the property. Fungal diseases such as oak wilt, beech-bark disease (which follows behind the beech-scale) and white pine blister rust all have devastating impacts on northern forests. Ongoing management should include monitoring for these diseases and other pathogens or non-native insects, and removing infected trees if they present a trail hazard or risk of spread. Conversely, downed woody debris can improve the organic soil content of mesic northern forests. A majority of insect and fungal diseases are windborne or spread by insects or wildlife. Therefore, preemptive salvage logging has little benefit in these situations and each tree species should be assessed with various factors in mind and managed on a case-by-case basis. Mesic northern forests are adapted to periodic pest disturbances. Nutrients from dead or dying trees replenish the forest soils and nurture understory flora. Interpretive signage highlighting the importance of downed trees for soil and wildlife habitat perspectives could be beneficial for public education.

HUMAN-MADE FEATURES

The property was owned and managed by the Clarence and Esther Kroupa family for over 50 years. Portions had been cleared for agriculture and soil erosion was prevalent. Thanks to the Kroupa's tree planting efforts, erosion was slowed, the land began to heal, and the park now harbors acres of high-quality forest. Two power lines bisect the property.

PINE PLANTINGS 14.6 acres

Pine plantings occur on sites formerly suffering from erosion of dry soil. They frame the northern and southern ends of the intact mesic northern hardwood forest. These areas were likely cleared for farming and remain defined as wind-eroded in the soil survey of Grand Traverse County. This habitat type is often characterized by an overstory heavily dominated by planted pines such as white pine and red pine, with very little growing in the understory beyond bracken fern and tree seedlings. If the pine plantings are thinned, oak, sugar maple, beech and basswood seedlings would likely reforest the understory relatively quickly.

PINE PLANTATION MANAGEMENT RECOMMENDATION

Increase biodiversity within the pine stands by transitioning the pine plantations to a staggered age structure with a goal towards mesic northern forest. Select cutting and felling of planted pine trees would aid native sugar maple and beech seedlings and increase diversity in the pine planted areas. This could be a low-impact activity carried out by the property manager (GTCD) or as part of a chainsaw training course for volunteers.

EXISTING INFRASTRUCTURE

Numerous social trails and two-tracks run throughout the forested portions of the property. GTRLC staff designed and oversaw construction of a new Recreational Authority Board-approved trail layout that balances passive recreational use and preserves sensitive natural features. See Figure 5 in Appendix A. Numerous social trails and grown-over two-tracks used by the former owners for property maintenance are present, though none are designed or marked specifically for non-motorized use. Discouraging use of informal trail routes with well communicated signage and implemented restoration practices is imperative to the sustainability of the site.

EXISTING INFRASTRUCTURE MANAGEMENT RECOMMENDATION

Decommission existing social trails and prohibit motorized vehicle access. Design and install sustainable multi-use trails.

ENCUMBRANCES

Powerline and/or Utility Easement: Two overhead electrical power lines bisect the property, one on the northern edge of the property and a second on the southern extent. The north power line is owned and managed by Consumers Power while the line that bisects the south portion is owned and managed by Traverse City Light and Power. Efforts to work cooperatively with the respective power line companies on hazard tree removal and maintenance will benefit the ecological values of the property. Installing native plant habitat with low-growing shrubs, forbs or grasses, similar to efforts in the utility easement at Hickory Meadows, would reduce long-term maintenance costs, slow invasive species spread, and benefit native pollinators and other fauna.

MNRTF Agreement: The Michigan Natural Resources Trust Fund Grant Agreement that enabled the public purchase of Hickory Forest Natural Area restricts some uses of the property, such as sale of the property or conversion to uses other than those proposed in the management plan.

Septic Easements: None known.

Oil and Gas Lease: None known.

PROPERTY USE GUIDANCE

GTRLC designed and oversaw implementation of a sustainable hiking trail system balancing trail-related activities, preservation of ecologically-sensitive areas, and the unique feel of the site. Future trail development and other property uses are subject to Recreational Authority Board approval and will be developed in consultation with the Citizen Advisory Committee and GTCD. Going forward, GTCD should consider enlisting volunteers to energize maintenance of trails and preservation of natural features.

TRAIL USE

The quality and rich diversity of plant species found in this forest is unique to the Traverse City area. Guided wildflower hikes could be a very popular activity at this property, especially in the spring when spring ephemeral wildflowers are at peak bloom. In an effort to balance nature observation, resource protection and recreational activities, a well-built singletrack trail through this steeply sloped and forested property offers the opportunity for a moderate distance hiking trail experience.

Trail design criteria should always take into account ecologically sensitive areas, erosion, water management, soil stability and neighboring parcel buffering. Proper utilization of these areas can offer year-round trail activities for visitors to the property.

Trail Use Recommendations

A sustainable trail system can feature views of amazing natural features and accommodate year-round activities. Trails should be marked with numbered signposts and maps matching existing trails on Hickory Hills and Hickory Meadows. The site is not conducive to high intensity, off-trail, wider-impact activities.

Enjoyment of the natural features can be enhanced by providing well marked, maintained, and sustainably designed trails. Hiking, biking, snowshoeing and cross-country skiing represent trail related activities the public has indicated as being important. Care must be given to keep a light-touch on the land, prevent user conflicts, match trail design with compatible uses and prevent resource degradation. GTRLC recommended development of a sustainable hiking trail for the majority of the property and that is what has been implemented in the initial phase of trail development. A future multi-use (hiking and mountain biking) connector trail will be constructed to provide connectivity from Barney Road to a planned dedicated mountain biking trail system in Hickory Hills.

Comments received on the draft of this management plan also urged the Authority to consider how the property could help to support non-motorized connections to other recreational areas and to the regional non-motorized trail system. Improving and supporting connectivity between parklands is also a goal of the Authority. The Authority will continue to work closely with the City of Traverse City to maintain and enhance direct connectivity to Hickory Hills (and by extension, Hickory Meadows), M-72 and Barney Road, and will continue to work with the broader community to help connect recreational amenities throughout the region.

The above recommendations were incorporated into the trail layout in the trail map in Appendix A, Figure 5, and are further described below.

Design trails to maximize environmental sustainability through:

- grades that do not exceed the maximum sustainable grade of the local sandy soils;
- incorporation of numerous reversals in the trail grade to control water flow across the trail, and;
- minimize sharp turns which can degrade quickly over time.

Provide maximum social sustainability of trails through:

- numerous options for users, ranging from a half-hour stroll to an hours-long tour of the entire property and adjacent Hickory Hills and Hickory Meadows;
- development of hiking-only trails that minimize impact on the steep slopes throughout the property;
- minimizing speed differential between pedestrian users and mountain bikers by prohibiting biking on the hiking trails and constructing a designated multi-use trail connecting to planned dedicated mountain biking trails in Hickory Hills; and
- providing adequate line of sight on designated, hiking/biking multi-use trails.

WINTER USE

In contrast to hiking/biking trails which are most sustainable when they remain narrow and are bench-cut into the side slopes of hills, cross-county ski trails are better suited to wider openings, with flat or more gently sloped terrain. This site is limited in that regard as it is very heavily forested and has challenging terrain.

WINTER USE RECOMMENDATION

Given the steep terrain and limited flat areas, users looking for groomed ski trails should be directed to Hickory Hills and Hickory Meadows. Snowshoeing can be easily incorporated without any active maintenance beyond standard tree-over-trail removal and signage updates. In all seasons, trails should be well-marked to prevent users from getting lost or inadvertently trespassing onto private property. Should a groomed trail be desired in future, selecting a location on the wider, flatter portions of the property is recommended. All trails should avoid steep slopes and significant natural features. Managers should consider any trails marked for winter use will be used all year long, even if the original intent was for winter use only. All trails should be designed with sustainable trail goals for all seasons.

PARKING LOT AND TRAIL ACCESS

At the time of this writing, established formal access to the property currently exists through Hickory Hills with parking at the end of Randolph Street. As the popularity of the Hickory Forest

Natural Area grows, ongoing coordinated efforts to access from Hickory Hills and the creation of additional parking lot(s) on the Hickory Forest property are necessary for trail and emergency access and trail maintenance needs. As such, a parking lot and trailhead access from Barney Road is planned to be developed in Spring 2024.

PARKING LOT AND TRAIL ACCESS RECOMMENDATION

Investigate the need for and feasibility of parking and trailhead access from M-72 in future. Coordinate signage throughout the properties with City of Traverse City and Recreational Authority partners. Coordinate with local EMS officials for signage and other emergency access considerations.

ACCESSIBLE TRAILS

Challenging terrain and erodible soils post significant challenge to provision of trails meeting Universal Access (UA) design concepts or comply with Americans with Disabilities (ADA) Act standards.

ACCESSIBLE TRAIL RECOMMENDATION

Although physical limitations of the property may make it impossible to provide the same user experiences for users of a UA or ADA trail, it is always the goal to provide as many of these amenities and experiences as possible. A Universal Access (UA) trail section/loop from the planned Barney Road trailhead could allow a broader spectrum of users to experience the southernmost portion of this unique property.

OTHER INFRASTRUCTURE CONSIDERATIONS

Boundaries

Mark all boundaries to protect private property and guide use on the property. Signs and posts should be installed along property boundaries.

Signage

Signage will be critical to protecting the natural features and state expectations for the property including trail etiquette. Signs, maps, kiosks and trail markers for the Hickory Forest Natural Area should be created, installed and maintained. For cohesiveness among Hickory Forest, Hickory Hills and Hickory Meadows trail systems, a comprehensive signage project was undertaken by the City and Recreational Authority during 2022-23. Implementation of the new signage is planned for 2024 and will include recognition of the MNRTF and key project partners such as GTRLC and GTCD where appropriate.

Fences

Fencing could be a useful trail routing tool, especially near the parking areas, neighboring residential properties or problem sites.

OTHER INFRASTRUCTURE RECOMMENDATION

Signage and a minimal amount of fencing will be required for the trails to be used sustainably. Benches and interpretive signage are popular trail amenities. These locations should be in scenic locations thoughtfully chosen to avoid unintended impacts to the native flora. Interpretive signs could focus on multiple topics including habitat, wildlife, geology, and property history. Boot

brushes at trail access sites are highly recommended for educational purposes and to reduce the spread of garlic mustard.

HICKORY FOREST PARK RULES

- Permitted uses include hiking, running, snowshoeing, classic skiing (non-groomed), low-impact mountain biking (on designated multi-use trail), nature study, photography, and guided hikes.
- Open from dawn to dusk unless for guided night hikes or other special events.
- Camping and fires are prohibited at Hickory Forest.
- Stay on designated improved trails and respect any special access restrictions.
- Off-road or other motorized vehicles are prohibited in Hickory Forest except for directly authorized management purposes.
- Dogs are permitted within Hickory Forest but must be kept on a leash in accordance with State and local laws. Pet owners are required to clean up after their pets.
- Firearm hunting and trapping are not allowed on the property. Bow hunting will be allowed by permit beginning in the fall of 2024.
- No plants or other specimens are to be removed from Hickory Forest unless authorized by management.
- Littering is strictly forbidden. This includes dumping of yard waste, household trash and abandoning animal waste bags along trails.
- No person shall damage, deface, or destroy any property or features within Hickory Forest.
- Glass containers and alcoholic beverages are prohibited at Hickory Forest.
- Fireworks, horse-riding and paintball are prohibited at Hickory Forest.
- Drone use must be approved in writing by the Recreational Authority.

SUMMARY

MANAGEMENT RECOMMENDATION

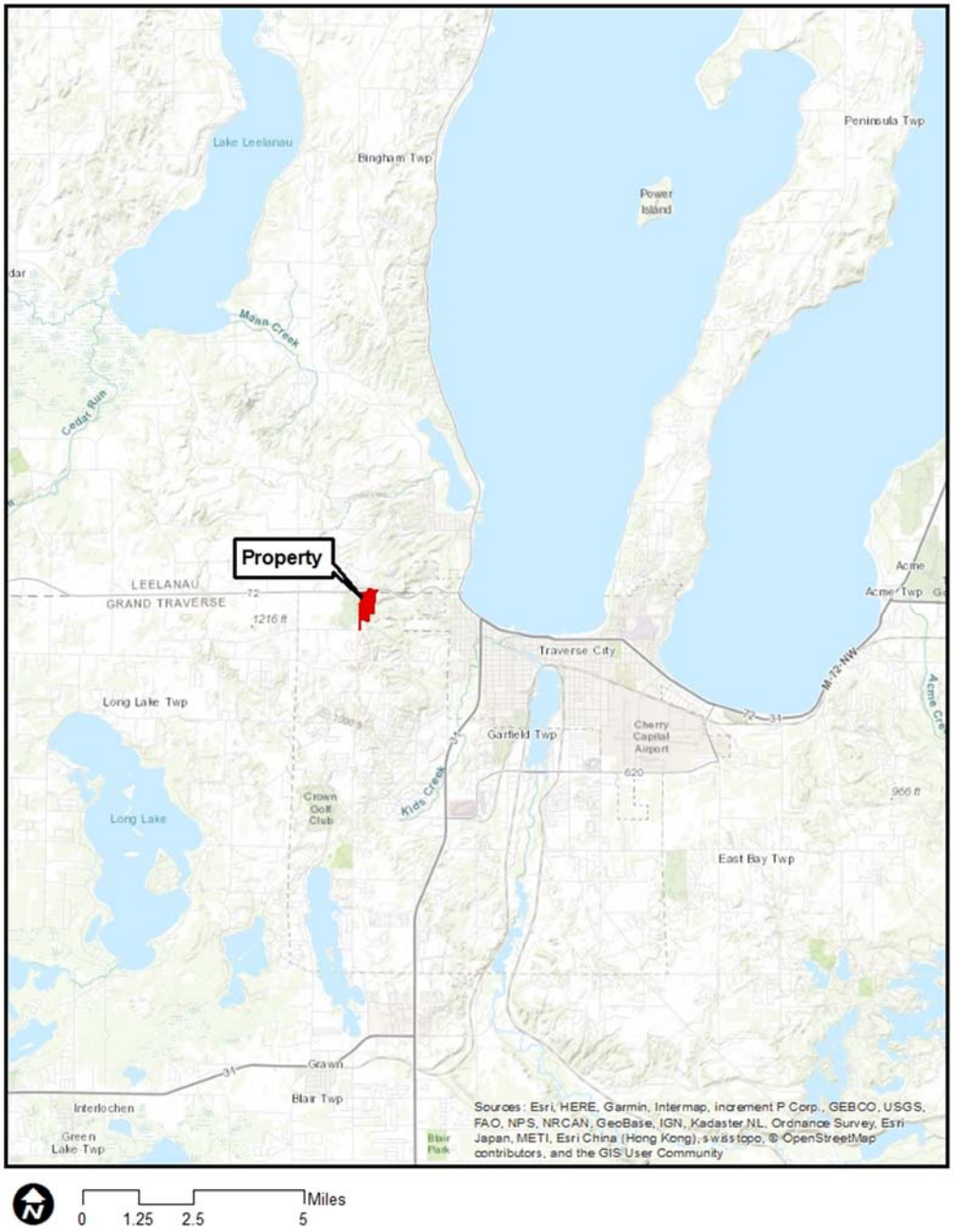
The Hickory Forest Natural Area shall be managed to protect the unique and diverse natural features of the property balanced with providing passive outdoor recreational amenities. Together with Hickory Hills and Hickory Meadows, Hickory Forest bolsters their collective ecological footprint for the Traverse City area by providing valuable water quality and habitat protection, wildlife corridors and ecological education. Signage and guided hikes could elevate such experiences.

With a well-developed volunteer group, thoughtfully designed trail system, excellent signage and cooperative planning and management, Hickory Forest will build on its history as a quiet, peaceful setting that provides sustainable access for the public to enjoy a spectacular natural area. These activities would continue the stewardship ethic of Clarence and Esther Kroupa with a sustainable trail system that protects sensitive natural features. Having been awarded a grant through the MNRTF, the management will additionally need to comply with the original intent of the grant application and grant agreement.

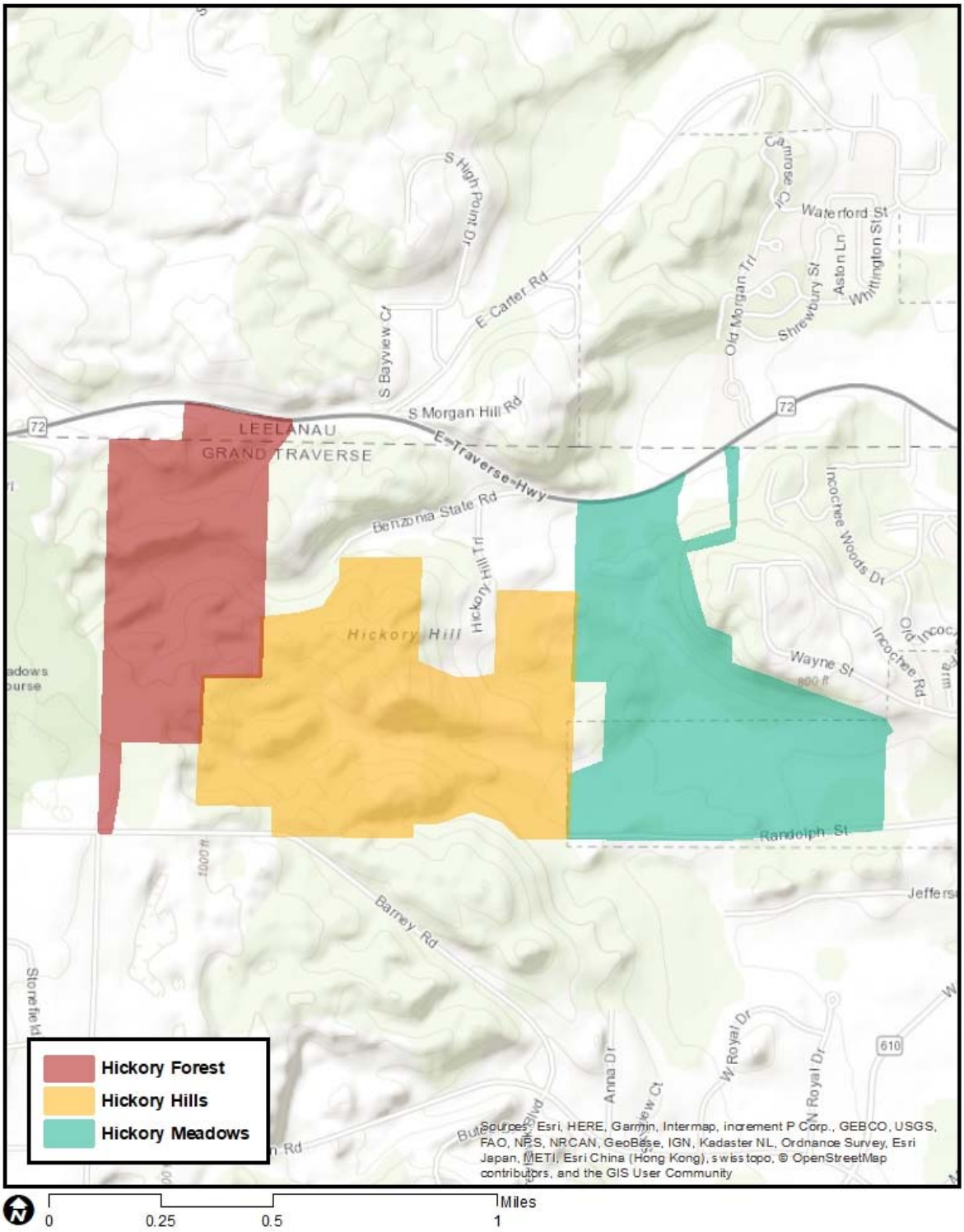
Based on its history and current environmental attributes, this property is best suited for use by individuals, families, and those looking to enjoy a peaceful respite in the Traverse City urban area. Hickory Forest is a complementary addition to existing natural lands as residents and visitors continue to seek additional outdoor recreation options in the future.

APPENDICES

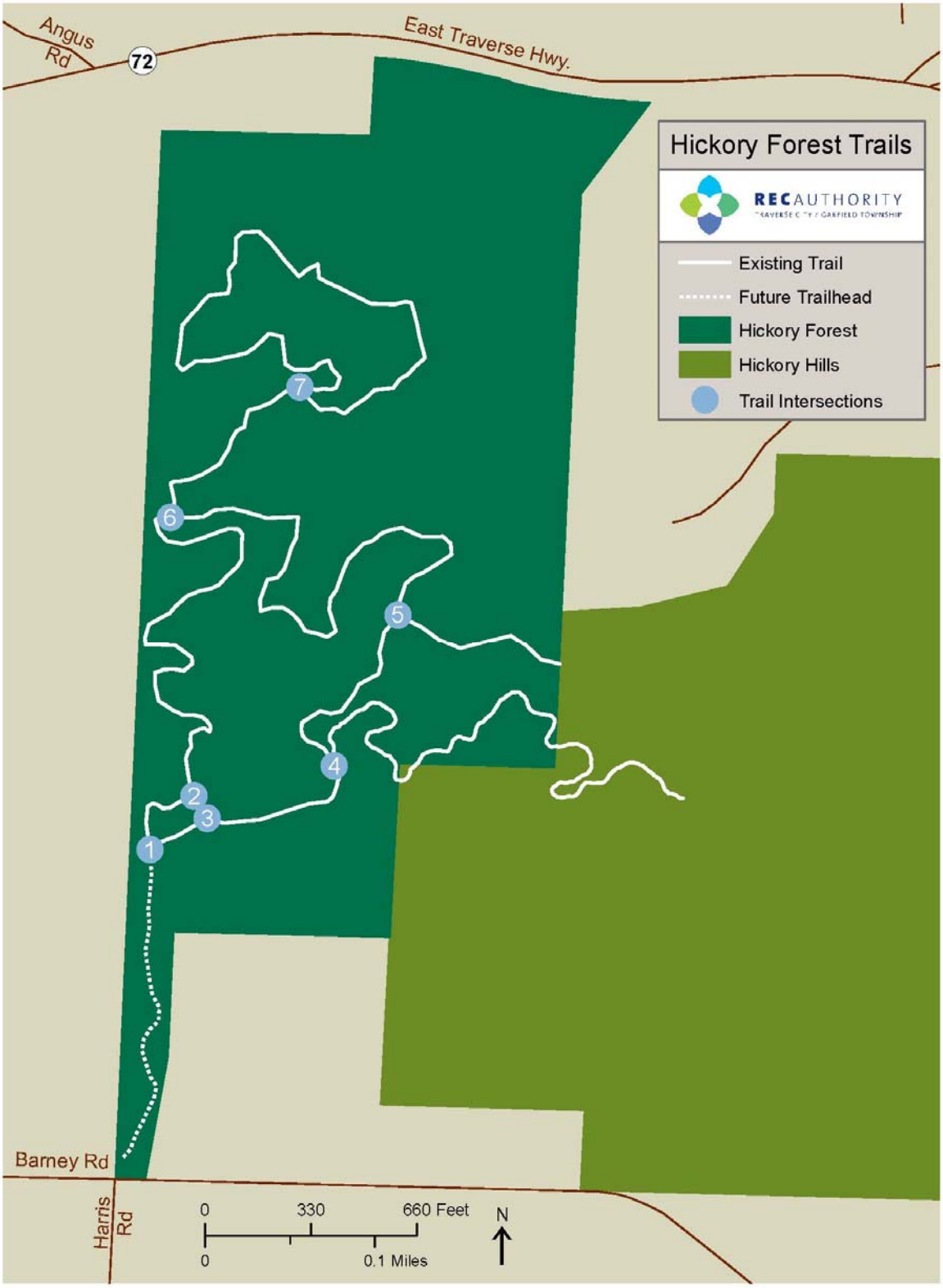
Appendix A. Maps



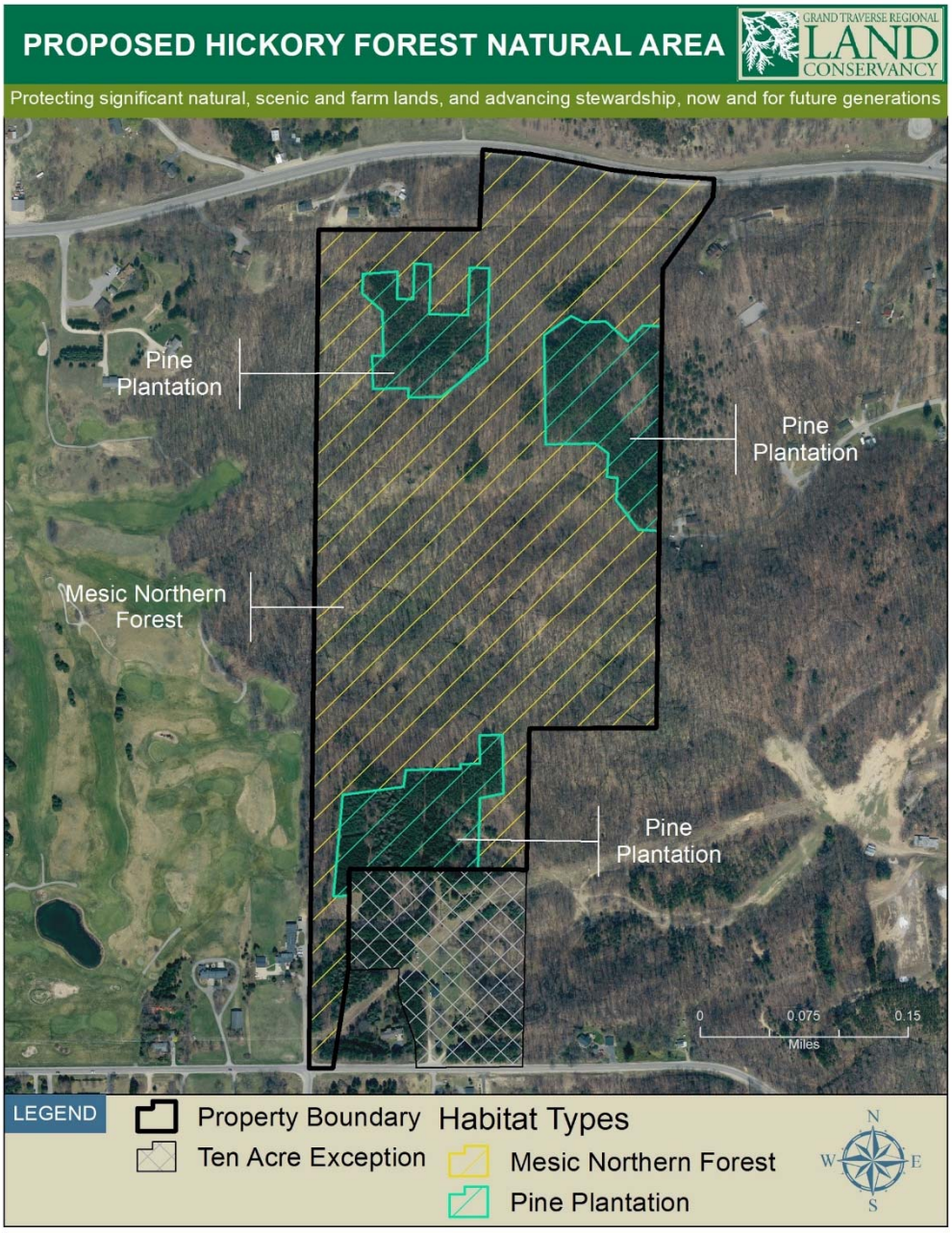
Parkland Context



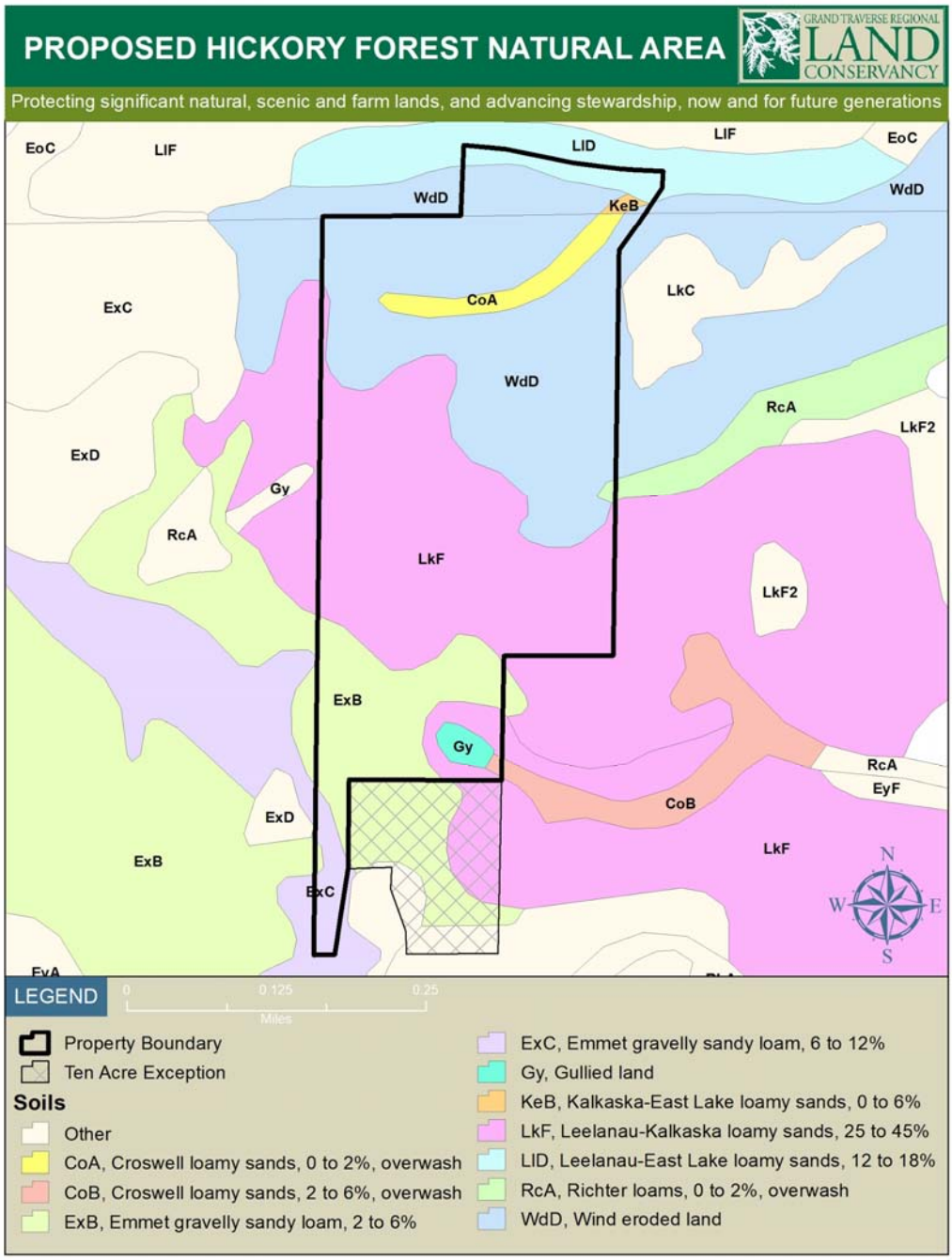
Hiking Trails



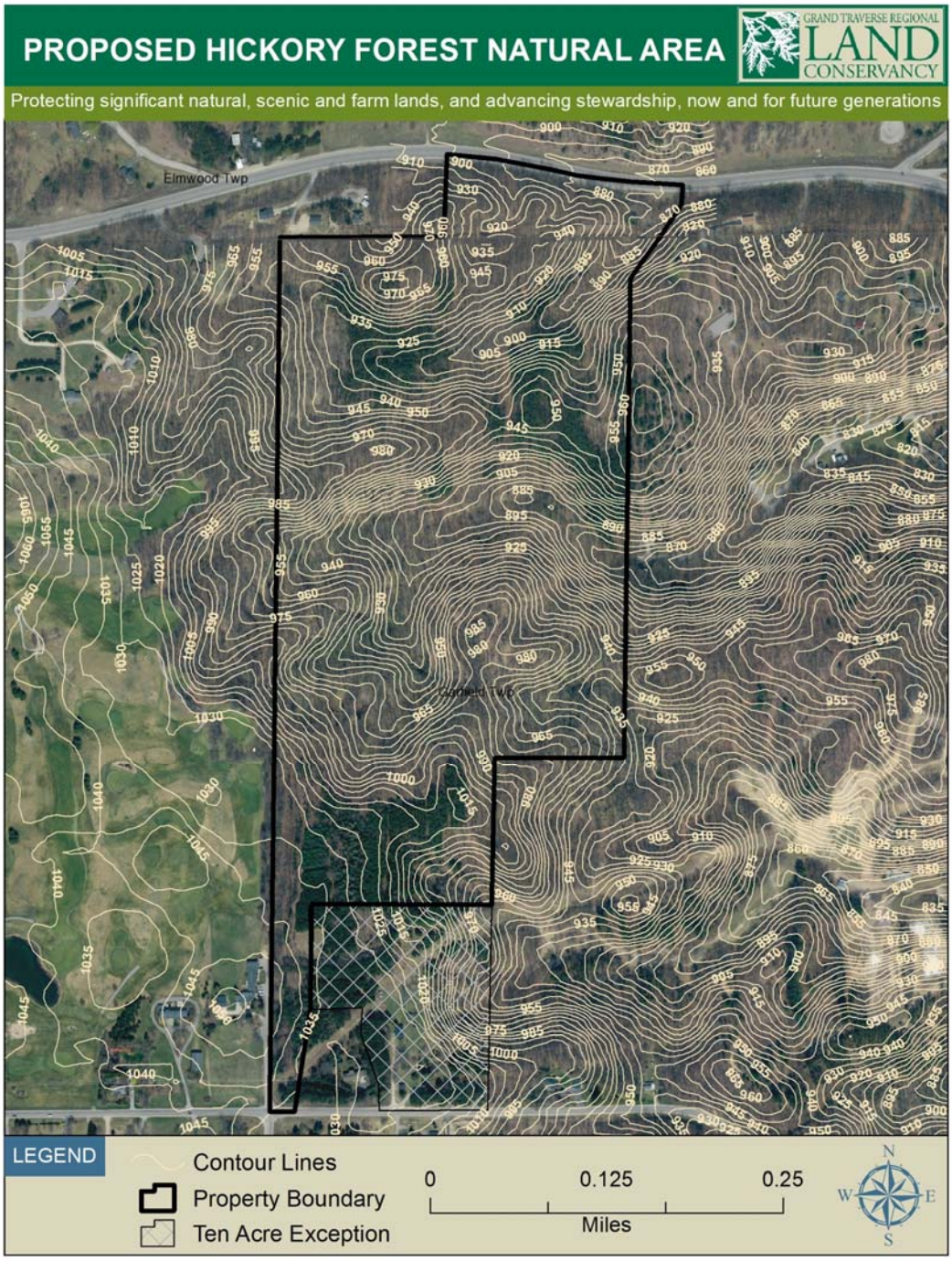
Habitat Types


PROPOSED HICKORY FOREST NATURAL AREA
GRAND TRAVERSE REGIONAL LAND CONSERVANCY
Protecting significant natural, scenic and farm lands, and advancing stewardship, now and for future generations
Pine Plantation
Pine Plantation
Mesic Northern Forest
Pine Plantation
0
0.075
0.15
Miles
LEGEND
Property Boundary
Ten Acre Exception
Habitat Types
Mesic Northern Forest
Pine Plantation
N
W
E
S

Soils


PROPOSED HICKORY FOREST NATURAL AREA
GRAND TRAVERSE REGIONAL LAND CONSERVANCY
Protecting significant natural, scenic and farm lands, and advancing stewardship, now and for future generations
EoC
LIF
LID
LIF
EoC
WdD
KeB
WdD
ExC
CoA
LkC
WdD
RcA
LkF2
ExD
Gy
RcA
LkF
LkF2
ExB
Gy
RcA
EyF
CoB
ExD
LkF
ExB
ExC
EvA
N
W
E
S
LEGEND
0
0.125
0.25
Miles
Property Boundary
Ten Acre Exception
Soils
Other
CoA, Croswell loamy sands, 0 to 2%, overwash
CoB, Croswell loamy sands, 2 to 6%, overwash
ExB, Emmet gravelly sandy loam, 2 to 6%
ExC, Emmet gravelly sandy loam, 6 to 12%
Gy, Gullied land
KeB, Kalkaska-East Lake loamy sands, 0 to 6%
LkF, Leelanau-Kalkaska loamy sands, 25 to 45%
LID, Leelanau-East Lake loamy sands, 12 to 18%
RcA, Richter loams, 0 to 2%, overwash
WdD, Wind eroded land

Topography


PROPOSED HICKORY FOREST NATURAL AREA
GRAND TRAVERSE REGIONAL LAND CONSERVANCY
Protecting significant natural, scenic and farm lands, and advancing stewardship, now and for future generations
Elmwood Twp
LEGEND
Contour Lines
Property Boundary
Ten Acre Exception
0
0.125
0.25
Miles
N
W
E
S

Appendix B. Flora and Fauna Lists:

Figure 1. Flora

Scientific Name	Common Name	C	Notes
Acer rubrum	red maple	1	
Acer saccharum	sugar maple	5	
Actaea pachypoda	dolls-eyes	7	
Adiantum pedatum	maidenhair fern	6	
Alliaria petiolata	garlic mustard	0	Invasive
Allium burdickii; a. tricoccum	wild leek	7	
Apocynum androsaemifolium	spreading dogbane	3	
Aquilegia canadensis	wild columbine	5	
Aralia nudicaulis	wild sarsaparilla	5	
Aralia racemosa	spikenard	8	
Arctium minus	common burdock	0	
Arisaema triphyllum	jack-in-the-pulpit	5	
Athyrium filix-femina	lady fern	4	
Berberis thunbergii	japanese barberry	0	Invasive
Botrychium matricariifolium	daisy-leaved moonwort	5	
Botrypus virginianus	rattlesnake fern	5	

Cardamine diphylla; dentaria d.	two-leaved toothwort	5
Carex albursina	sedge	5
Carex deweyana	sedge	3
Carex intumescens	sedge	3
Carex leptonervia	sedge	3
Carex pedunculata	sedge	5
Carex pensylvanica	sedge	4
Carex plantaginea	sedge	8
Caulophyllum thalictroides	blue cohosh	5
Circaea alpina	small enchanters-nightshade	4
Circaea canadensis; c. lutetiana	enchanters-nightshade	2
Claytonia caroliniana	carolina spring-beauty	6
Cornus alternifolia	alternate-leaved dogwood	5
Dicentra canadensis	squirrel-corn	7
Dicentra cucullaria	dutchmans-breeches	7
Dryopteris intermedia	evergreen woodfern	5
Dryopteris marginalis	marginal woodfern	5
Epipactis helleborine	helleborine	0

Erythronium americanum	yellow trout lily	5	
Fagus grandifolia	american beech	6	
Frangula alnus; rhamnus frangula	glossy buckthorn	0	
Fraxinus americana	white ash	5	
Galium aparine	annual bedstraw	0	
Galium circaezans	white wild licorice	4	
Galium odoratum	sweet woodruff	0	
Galium triflorum	fragrant bedstraw	4	
Geranium robertianum	herb robert	3	
Hamamelis virginiana	witch-hazel	5	
Hepatica acutiloba	sharp-lobed hepatica	8	
Hesperis matronalis	dames rocket	0	
Hieracium pilosella	mouse-ear hawkweed	0	
Hydrophyllum virginianum	virginia waterleaf	4	
Juniperus communis	common or ground juniper	4	
Laportea canadensis	wood nettle	4	
Lonicera tatarica	tartarian honeysuckle	0	Invasive
Maianthemum canadense	canada mayflower	4	

Maianthemum racemosum; smilacina r.	false spikenard	5
Medeola virginiana	indian cucumber-root	10
Melica smithii	melic grass	7
Milium effusum	wood millet	8
Monotropa uniflora	indian-pipe	5
Oryzopsis asperifolia	rough-leaved rice-grass	6
Osmorhiza claytonii	hairy sweet-cicely	4
Ostrya virginiana	ironwood; hop-hornbeam	5
Parthenocissus quinquefolia	virginia creeper	5
Phytolacca americana	pokeweed	2
Picea abies	norway spruce	0
Pinus resinosa	red pine	6
Pinus strobus	white pine	3
Pinus sylvestris	scotch pine	0
Platanthera orbiculata; habenaria o.	round-leaved orchid	10
Poa nemoralis	bluegrass	0
Polygonatum pubescens	downy solomon seal	5
Populus grandidentata	big-tooth aspen	4

Populus tremuloides	quaking aspen	1
Prenanthes altissima	tall white lettuce	5
Prunus serotina	wild black cherry	2
Pteridium aquilinum	bracken fern	0
Pyrola americana; p. rotundifolia	round-leaved pyrola	7
Quercus alba	white oak	5
Quercus rubra	red oak	5
Ranunculus abortivus	small-flowered buttercup	0
Ribes cynosbati	prickly or wild gooseberry	4
Rubus allegheniensis	common blackberry	1
Rumex acetosella	sheep sorrel	0
Sambucus canadensis	elderberry	3
Sanguinaria canadensis	bloodroot	5
Solidago canadensis	canada goldenrod	1
Sorbus americana	american mountain-ash	4
Streptopus lanceolatus; s. roseus	rose twisted-stalk	5
Taxus canadensis	yew	5
Tilia americana	basswood	5

Trillium erectum	stinking benjamin; red trillium	7
Trillium grandiflorum	common trillium	5
Tsuga canadensis	hemlock	5
Ulmus americana	american elm	1
Uvularia grandiflora	bellwort	5
Viburnum acerifolium	maple-leaved viburnum	6
Vinca minor	periwinkle	0
Viola canadensis	canada violet	5
Viola labradorica; v. conspersa	dog violet	3
Viola pubescens	yellow violet	4
Viola rostrata	long-spurred violet	6

Figure 2. Fauna

Bird Species:
American Redstart
Black-capped Chickadee
Hermit Thrush
Indigo Bunting
Ovenbird
Pileated Woodpecker
Pine Warbler
Red-bellied Woodpecker
Red-eyed Vireo
Red-tailed Hawk
Rose-breasted Grosbeak
Scarlet Tanager
Tufted Titmouse

Appendix C. GTCD Scope of Services Agreement

The Grand Traverse Conservation District shall provide resource management services to the Recreational Authority. As such, the District shall:

1. Oversee implementation of the Management Plans for Hickory Meadows and Hickory Forest and, with mutual agreement of the Recreation Authority and the District, assist with projects on other Rec Authority-owned parklands.
2. Develop and implement an annual Work Plan for Hickory Meadows and Hickory Forest for presentation at the Advisory Committee's March meeting. The Work Plan is to be submitted to the Rec Authority annually by the end of March for recommended approval.
3. Regularly monitor activities and user trends at Hickory Meadows and Hickory Forest; coordinate routine inspections and maintenance of existing structures and trails; report any abuse or misuse to the Rec Authority.
4. Seek and explore grant funding opportunities cooperatively with the Rec Authority Executive Director and Citizen Advisory Committee to support identified improvement projects within approved annual Work Plans.
5. Obtain the necessary permits and permissions needed for Work Plan-related activities.
6. Whenever possible, coordinate and utilize volunteers to accomplish work to garner greater community support, create better stewards of our environment, and to reduce labor costs.
7. Coordinate, to the maximum possible extent, the acquisition of materials and the use of labor on projects at Hickory Meadows and Hickory Forest including bidding, contractor screening, and project coordination.
8. Provide administrative and clerical support necessary to accomplish Work Plan-related activities.
9. Provide staff support and facilitation of Advisory Committee meetings through the development of draft agendas and documentation of minutes.
10. Regularly attend Rec Authority Board of Directors meetings to provide monthly verbal reports of progress and written quarterly reports.
11. Provide a final report and recommendations for program continuation to the Rec Authority prior to March 31, 2026.
12. The District will not be responsible for any activities listed above that are not accomplished due to inability to obtain permits, or to lack of funding, labor availability, or other factors beyond the District's control.