

**A MANAGEMENT PLAN FOR THE:
CEDAR RUN CREEK NATURAL AREA**



Prepared by:



**Grand Traverse
Conservation District**

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Objectives

The objectives of this management plan are to:

1. Improve, expand and develop opportunities for passive public recreation.
2. Protect natural areas, water quality and wildlife habitat.
3. Preserve scenic views and open spaces.

Management Recommendation Summary

This document lays out a general plan for achieving the objectives stated above.

Management will be focused on two primary areas: providing passive recreation opportunities and protecting natural features. To this end, management activities will be needed for user amenities and to maintain and enhance the integrity of natural features on the property. Annual work plans should be created and approved to address specific management tasks needed on the property.

Property History

The property originally contained upland forest and wooded swamp wetlands and riparian corridors before European settlement. The vegetation was unspoiled until the mid-1800s when settlers began clearing the land. This clearing consisted of logging, subsequent burning of slash and stump removal. Logging occurred in all areas of the property with any tree species of several inches in diameter or larger being harvested. This harvest included the removal of all trees in areas with level topography and most trees on sloped grades. Following this period of logging, the non-sloping areas were likely used for traditional agriculture, which included grazing, crop cultivation, and orchard establishment. The property also served as an important transportation corridor having had both a Benzie County road and the MN&E railway which traversed the property. In more recent history, portions of the property have been owned by the Scenic Trails Council of the Boy Scouts of America who managed most of the property for a scout camp. A large portion of the Natural Area found in Benzie County was owned by Jim Dunlop and Virginia Loomis who enjoyed their property as a high quality natural area.

Natural Features

The Cedar Run Creek Natural Area is approximately 316 acres of undeveloped land in Long Lake and Almira Townships which lies at the north end of Cedar Lake. The property boasts over 1,500 feet of frontage on Cedar Lake and over 8,700 feet of frontage on Cedar Run Creek, a designated cold water trout stream. The water features on this property are made even more significant in that they form the headwaters for Lake Leelanau.

The topography is quite varied and rises up rapidly from the shore of Cedar Lake to afford beautiful views of the lake. The upland portions of the property are a mixture of mature mesic northern forest, red pine plantations, second growth aspen, and scrub fields. The lowland areas of the property are dominated by stands of mature cedar and hemlock interspersed with yellow birch and red maple. This rich conifer swamp cover type provides a vital deer yard complex that connects larger wildlife areas in Leelanau and Benzie counties.

2006 Natural Area Proposal and Ballot Language

In 2006 Long Lake Township had the opportunity to purchase two high quality natural areas for public recreation; the 108 acre South Long Lake Forest Property and the 212 acre Gilbert Pines Boy Scout Camp. To take advantage of these opportunities the Township Board authorized the submittal of a millage to the voters of the Township to purchase lands to “preserve water quality and wildlife habitat and protect forests, natural areas and watersheds from development”. Thanks to the hard work of the Grand Traverse Regional Land Conservancy and many volunteers the millage was passed on November 7th 2006. The following ballot proposal language because it gives a clear indication of voter intent as to the management and future use of the properties.

Shall the limitation on the amount of taxes which may be imposed each year for all purposes on real and tangible personal property in the Township of Long Lake be increased as provided in Section 6, Article IX of the Michigan Constitution, and the Township Board be authorized to levy within the boundaries of the Township of Long Lake as a new millage a tax of not to exceed forty-six tenths of mill (\$0.46 per \$1,000.00 of taxable valuation) on the taxable value of such property for a period of twenty (20) years beginning with the levy made on December 1, 2006 (which will generate estimated revenues of \$152,893.05 in the first year) for the purpose of purchasing or causing the purchase of land to preserve natural areas, wildlife habitat, forestland, and water quality of lakes and streams, including the 212-acre Gilbert Pines Boy Scout Property and 108 acres of forestland on South Long Lake road? (Emphasis Added)

Property Acquisition

In 2006, with the help of the Grand Traverse Regional Land Conservancy, the Township submitted a grant to the Michigan Natural Resources Trust Fund to purchase the 212 acre Gilbert Pines Boy Scout Camp. This \$999,500 grant in combination with \$351,200 in matching funds authorized by the 2006 natural area proposal enabled the Township to acquire and protect this land. In 2007 the Township was approached by Jim Dunlap and Virginia Loomis about adding approximately 90 acres of land to the west end of the Boy Scout property in Almira Township. Again with the help of the Regional Land Conservancy, the Township submitted a grant to the Michigan Natural Resources Trust Fund to acquire the property. Jim and Virginia very generously contributed nearly \$185,000 in donated land value as matching funds to the \$554,925 grant application. With this addition, the Cedar Run Creek Natural Area is now over 300 acres of excellent wildlife habitat and abounds with resource based recreational opportunities.

Public Input and Plan Development

After the Cedar Run Creek Natural Area property was acquired the Township sought to develop a plan to guide management activities at the natural area. The Township engaged the services of the Grand Traverse Conservation District to solicit public input and develop a management plan for the property. To that end, a public input session was held to further gauge Township resident’s feelings regarding the management and use of the property. Based on public input gathered at this meeting, ballot language, deed restrictions, and safety and maintenance considerations, this plan was created to set out the broad goals and values related to the management of the Cedar Run Creek Natural Area. This plan should be reviewed often and modified as needed to reflect existing conditions and protect the features of the property.

ADMINISTRATION

Governing Body

The Cedar Run Creek Natural Area is governed by Long Lake Township. The Township retains control of all management and budgeting decisions for the property. The Township may wish to authorize the creation of a citizen advisory committee. The advisory committee would make management recommendations to the Township for final approval. The Township may appoint members of the advisory committee and review appointments on an annual basis.

Maintenance

Public property of this type requires active management. Experience has shown time and again that the “leave it be” attitude leads to resource degradation and decreased user enjoyment. To this end the Township may wish to appoint a property manager to perform or oversee maintenance required at the Cedar Run Creek Natural Area. This person or entity should keep abreast of user feedback and changing resource needs in order to prepare an annual maintenance report for submittal to the Township.

Proposed Guidelines

1. Camping is allowed at designated areas by permit only. No open fires.
2. All non-foot traffic trail users must stay on designated improved trails, and must respect any special access restrictions.
3. Motorized vehicles are prohibited except for authorized management purposes.
4. Dogs are permitted, but must be kept under control. Pet owners are required to clean up after their pets.
5. Hunting is allowed in accordance with State law.
6. Fishing is allowed in accordance with the laws of the State and the rules of the Michigan Department of Natural Resources and Environment.
7. No plants or other non-game specimens are to be removed unless authorized by management.
8. Littering is strictly forbidden. This includes dumping of compostable material and household waste.
9. Glass containers and alcoholic beverages are prohibited.

Enforcement

The rules for the Cedar Run Creek Natural Area should be approved by the township and written into local ordinance so that they may be enforced by law enforcement agencies.

Emergency Access

Emergency access is best provided via Cedar Lake Road which connects with the existing two track running along the northern boundary of the property. It would be ideal to create a vehicular connection to Tucker Road on the west end of the property. Any such connection would require the crossing of wetland and Cedar Run Creek. Emergency access requirements should be considered during the planning and construction of future bridges and boardwalks. Emergency service agencies shall be provided with a key to any locked gates on the property.

Publicity

Because portions of the Cedar Run Creek Natural Area have been used for recreation for many years, it is unlikely that a publicity campaign is needed at this time. However, trail maps and brochures should be available at the Township office and website. The Township may also wish to include these items along with the newsletter that accompanies tax bills.

Boundary Demarcation

The boundaries of the property should be clearly marked every 50 to 100 feet to avoid trespass concerns and so that users know when they are within or leaving the natural area. While this represents a significant upfront cost, the benefits will be reaped for years to come. Clear boundaries make forest management activities easier, and reduce hunting and trespass disputes with neighboring property owners.

Future Property Acquisitions

Efforts should be made to acquire adjacent, undeveloped properties from willing landowners. If the outright purchase of adjacent land is not feasible, every effort should be made to acquire trail easements which could link this property to other trail systems, natural areas, or population centers. Specifically, the old railroad grade would make an excellent trail to the Village of Lake Ann, and make the property more relevant to the surrounding communities.

RECREATION MANAGEMENT

User Groups

The grounds and trails of the Cedar Run Creek Natural Area are intended to provide for those activities that are considered as “passive recreation.” Passive recreation, in this case, is defined as non-consumptive of the resource and non-organized. The opposite of passive is active recreation, which includes improvements such as soccer and baseball fields. The Natural Area will accommodate many low impact users including but not limited to:

- Hikers
- Hunters and fishermen
- Trail Runners
- Mountain Bikers
- Cross Country Skiers
- Nature Enthusiasts
- Dog Owners

No fees will be assessed to users of the property. Motorized bike, ORV, and snowmobile traffic is not allowed unless required for management/maintenance activities. Paintball is also prohibited. In order to ensure that user needs are being met, it is important that the Township stay abreast of the numbers and types of users on the property and of any recurring user conflicts. This may be accomplished with comment cards and a place to file them at each trailhead or through public input meetings or advisory committees.

Current Trails

The current trail system evolved from logging roads, areas of repeated use, and abandoned road and rail corridors. The trail system is well used, but of poor quality. Early stages of erosion are evident at several locations on the existing trails and nearly all trail crossings of Cedar Run Creek and its tributaries are in need of replacement. Many of the current trails are acceptable for continued use. However, some sections need to be rerouted or closed completely. This will

require active management and monitoring as old habits die hard, and users will need to be encouraged to utilize newer more sustainable trails.

Proposed Trail System

It is recommended that existing trails be utilized when appropriate and expanded or closed as needed to create a system of looped trails. Because loop trails lead back to trailheads without backtracking, they reduce the instances of unwanted user created paths, make navigation easier, and create a more enjoyable experience for the user. The proposed trail system would effectively lead users through all habitat types on the property and highlight various points of interest. The Township may wish to partner with outside organizations specializing in trail design to ensure trails are sustainable and user friendly.

Future Trail Construction

Future trail construction should be performed in a manner that minimizes environmental impact and disruption to user activities and will be informed by other management activities on the property i. e. forest, watershed, and wildlife management. If new trails become established by frequent visitor use, these new trails should either be blocked or properly marked and maintained to prevent erosion. As mentioned above, it is important that the new trail system take users to prominent points of interest and to various habitat types. Users must *want* to stay on the trail, and they will if the trails lead them to the best destinations. A map of current and potential future trails may be found at the end of this document. Whenever practical, trails should be constructed to ADA barrier free standards to allow those with limited mobility access to the natural area.

Trail Surfaces

Trail surfaces should be designed first and foremost to limit erosion. Secondly, they should be easily maintained and provide an enjoyable experience for all user groups. Woodchips though not wheelchair friendly, are an easily renewable and inexpensive way to surface trails. Wood chips should be used where necessary to prevent erosion, and trail surfaces should be left “natural” when practical. Hardened trail surfaces may be desirable in certain locations to provide increased accessibility.

Adjacent Lands and Trail Considerations

Trails near the property boundary should be well posted and far enough away from private property that it is unlikely that trail users would stray onto private land. As noted above future trails across adjoining lands could provide excellent opportunities for enhanced accessibility and recreational use. These connections should be pursued whenever possible.

Trailheads & Parking

Parking areas and corresponding trailheads should be established at the following locations.

- 1 Cedar Lake Road (existing).
2. Tucker Road.

Each trailhead/parking area should include a garbage bin as well as, an information station/kiosk. Trail maps and dog waste bags should also be made available at trailheads. The parking areas should be bordered by fence or large rocks to clearly delineate their bounds and prevent vehicles from entering the trails. Parking areas should be sized according to expected demand and spatial limitations. If possible the parking areas should be visible from a main road. It is recommended that pit toilet facilities or a porta-john be installed at the Cedar Lake Road parking area.

FOREST MANAGEMENT

Management Unit Review

A Forest Stewardship Plan (FSP) has been created for the Cedar Run Creek Natural Area and is included at the end of this document. The FSP divides the property into several management units and lays out recommended management strategies for each. It should be noted however, that these management activities are only suggestions and that the pros and cons to implementing these recommendations must be weighed against the overall objectives of the property i.e. passive recreation, preserving water quality and wildlife habitat, and protecting scenic open spaces. That said, if carried out in a conscientious manner, these activities will increase the long term health of the natural systems on the property.

Timber Harvesting

Timber harvesting for monetary gain should be done only with the guidance of the attached FSP and should not negatively affect the natural integrity or recreational uses of the property. Harvesting for uses within the property (e.g. fencing, erosion cribs, etc.) may be useful. Harvesting for this purpose shall be conducted only with approval of the Township. Management should be granted the right to remove trees if the safety of the visitor is in question. The removal of dead trees along trails is an important issue. However, dead trees (standing and fallen) are important to the ecological health of the natural area and should be retained if not deemed hazardous.

Insect and Disease Control

Damage from insects and diseases can be extremely serious to the health of a forest. There are several invasive insects that have likely or are likely to infest the property. The Township and forester should monitor for new insect or disease damage occurring on the property. A few of the insects and diseases that are or could become possible problems are listed here:

Insects:

- Gypsy Moth – An exotic from Europe, the gypsy moth is the main defoliator of forests in the Northeastern U.S.
- Emerald Ash Borer – A non-native species, emerald ash borers originally come from East Asia. As its name implies, it only harms ash trees.
- Hemlock Woolly Adelgid – Another non-native species, this insect attacks hemlock trees and has the capacity to decimate high quality hemlock stands.

Diseases:

- Oak Wilt – This disease kills thousands of oaks each year in the Eastern U.S. The disease, once established, spreads to other oaks mostly through contact with infected trees' roots. This is especially so in the Natural Area because sandy soils are more conducive to this type of spread.
- Beech Bark Disease – A non-native species, beech bark disease is spread by a scale insect and primarily attacks mature beech trees.

Non-Native Plant Control

Another significant threat to the quality and biodiversity of the property is the spread of non-native plants. Where practical the Township should remove non-native invasive species in order to restore the area to its native habitat. Several exotic species currently found on the property include Spotted Nap Weed, Scotch pine, and Autumn Olive. Going forward it will be very important to develop an action plan for dealing with invasive species. This plan should

document existing species, recommend treatments, and prioritize areas and species of special concern. Further the plan should lay the framework for monitoring and rapid response efforts to combat emerging threats.

WILDLIFE MANAGEMENT

The various high quality habitat types present at Cedar Run Creek Natural Area support a wide variety of wildlife and this must be maintained. However, relatively little needs to be done for direct wildlife management. Rather, other activities such as forest management and trail development must be completed in a way that preserves the high quality habitat and minimizes human impacts to the environment. Examples of direct wildlife management activities that may be beneficial include: placing a loon platform on Cedar Lake, erecting nesting boxes, and replacing failed culverts to promote fish passage. In general, the feeding of wildlife on the property should be discouraged.

Hunting

As stipulated in the Natural Resources Trust Fund grant application, the property will be open for all hunting seasons. In addition, the removal of wildlife may be used as a tool for management purposes if other avenues are cost prohibitive or otherwise not practical. Note: Certain species such as deer and beaver can degrade habitat and recreational opportunities if populations become too large.

Special Concern Species:

A wildlife inventory has not been performed on the property. A comprehensive wildlife survey should be conducted to identify any “endangered” or “special concern” species and their locations. When the property was crossed checked against the Michigan Natural Features Inventory it was found that Club Moss (*Lycopodiella margaritae*) is present on the property. Red shouldered hawks have also been documented on the property. Management activities should be carried out in a manner that protects these sensitive species.

WATERSHED MANAGEMENT

Surface Water

There are several important surface water features on the property, including Cedar Lake, Cedar Run Creek, and various emergent wetlands, small ponds, and unnamed tributaries. They are generally of very high quality and will require little management save for monitoring for invasive species and preventing unwanted human impacts. To that end, trails and other recreational resources should be planned and maintained in such a way that minimizes impacts to these water features. Specifically, hardened access points should be established to provide opportunities for users to access the water without trampling surrounding vegetation. Currently the most pressing concern for water features on the property are the numerous failing culverts on Cedar Run Creek and its tributaries. The culverts are undersized and set with inappropriate gradients. This has created plunge pools and small waterfalls that prevent fish and other organisms from migrating up stream. These culverts should be cataloged and prioritized for replacement or better yet, removal so that the river can find its natural bed. This will have an immediate and positive effect on the aquatic ecosystems on the property.

Fishing

Fishing is allowed on the property and shall be conducted according to all state and MDNR rules and regulations. As noted above, access points should be provided to fisherpersons to avoid undue damage to riparian areas.

Erosion

Going forward, erosion caused by human activities and the introduction of excess sediment to water bodies is the primary threat to surface waters on the property. An established trail system with appropriate surfaces will minimize erosion caused by foot or bike traffic. Constructing boardwalks or bridges will also minimize stream bank damage and sediment delivery by protecting stream-crossing points on any future trails.

Adjacent Lands Impact

The water features on the property may also be impacted by land use or management changes on lands adjacent to the property. The township should work closely with adjacent landowners to minimize negative impacts from these lands. In addition neighboring property owners on Cedar Lake may provide assistance in the early detection of invasive species introduced to the lake.

EDUCATION/INTERPRITATION

Signs

1. Informational Signs

Trails should be clearly marked to provide a safe and comfortable atmosphere for the visitor; international symbols should be used on signs. Any rules should be clearly displayed at each parking area.

2. Interpretive Signs

The Township or property manager shall decide on topics for interpretive signage. Interpretative signage will be limited in order to keep the natural character of the property intact.

Trailhead Kiosks

Trailhead kiosks or information stations will be an important aspect of the trail system. They are what the visitor will encounter upon arrival and the last thing they see as they leave. This unique situation presents an opportunity to not only orient the visitor through the use of trail maps, but to educate the user on management practices and etiquette.

Group Use

Group use is welcome at the Cedar Run Creek Natural Area. Organized groups of more than 50 people should contact the Township or manager before use of the property.

Research

Research regarding the natural and recreational qualities of the Cedar Run Creek Natural should be encouraged. The Township shall review all research projects before they are carried out. This research will be beneficial to the ongoing management and improvement of the property

Cedar Run Creek Natural Area



Cedar Run Creek Natural Area



Forest Management Plan Written for Long Lake Township

8870 N. Long Lake Rd.

Traverse City, MI 49684

Planned Property Location: 316 acres with 142 acres at the S ½ of the S ½ of Section 7, Long Lake Township, Grand Traverse County, Michigan and 174 acres within the W ½ of Section 12, Almira Township, Benzie County,

Michigan

316 Acres Composing the Cedar Run Creek Natural Area



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Schillinger
FORESTRY, LLC

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316 Acres Composing the Cedar Run Creek Natural Area

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Introduction to the Cedar Run Creek Natural Area

Cedar Run Creek Natural Area is a three hundred and sixty-three acre parcel situated across the Grand Traverse-Benzie County Line. The land has a wide variety of cover types present ranging from open fields to mature northern hardwoods. There are two unique water courses that converged into one course within this property. The parcel size and its distance from paved roads make it a refuge for wildlife and the active hiker.

Long Lake Township acquired this property in 2008 and any past management was administered by the previous owners. Much of the accessible hardwoods have been selectively harvested in the past. Harvest work was fairly well done but some of the largest and valuable trees were removed during these past harvests. These hardwood harvests were many years ago so the density and tree size has expanded considerably since. The red pine plantation was thinned a number of years ago. Harvesting work was completed well, although pockets of bark beetle infestation make this stand ready for additional thinning. There are three pockets of densely growing aspen clones. These pockets seem to be the result of purposeful clear-cutting for wildlife benefit. The current stands are young enough to still be excellent food and cover for many species of wildlife. Good stem recruitment in these stands make them good candidates for future clearing when the stems age to a point where their wildlife benefit diminish. Lastly, the two creeks merge into one and are surrounded by lowland plant species. These corridors are excellent for wildlife migration and cover zones therefore management in these areas will be extremely limited.

Cedar Run Creek Natural Area is a large enough parcel to do active forest management and yet small enough for active recreational users to explore its full boundaries. The parcel provides an excellent opportunity for public education on proper forest management while they enjoy the property for recreational purposes. Signage posted throughout the parcel educating users on forest management is recommended. Recruitment of local volunteers to assist in managing areas, help remove invasive species and enhance places for wildlife and human use will also be an educational tool. Engaging and educating those that will most utilize this land will be a substantial benefit to both the volunteers and the natural area's health and safe usage.

Management Timing on all the Stands **And Other Forest Health Issues**

Some of the stands in Cedar Run Creek Natural Area have or could have oak trees present. For the potential oaks present any cutting, harvesting or machine work should be done when the leaves are not on the trees or are about to come on therefore inhibiting the spread of the oak wilt disease and keeping damage to remaining trees to a minimum. Oak wilt will not bother other species of trees but cutting during the growing season, especially in the spring, has the potential to greatly degrade the standing value of any woodlot. Oak wilt is already present in Grand Traverse County and cutting or pruning of oaks during the growing season will increase the likelihood of the oaks getting the disease and is strictly not allowed.

There is another pest that could potentially move into the area called Emerald Ash Borer. This insect can kill any type of ash tree fairly quickly. This pest should not cause a panicked harvest on this or any land, but it should warrant some consideration when the next scheduled harvest time comes. A good idea is to remove more ash trees than normal, to get value from them rather than having them killed by Emerald Ash Borer. With EAB many miles away this should not be a dire concern for this property, especially since the canopy is less than 10% ash in one stand.

A third disease could move into the area called beech bark disease. This is a two factor disease that starts with a scale insect, secondly a fungus gets into the wounds from the scale insects and can eventually kills large beech trees. To prepare for the coming of this disease the larger rougher barked beech trees should be harvested during the next scheduled harvest. The younger smoother barked trees are less likely to get this disease since the rain washes away the crawler stage of the scale insect before they can cover themselves with their protective scale. Should the beech trees on this property get this disease, the moving of beech firewood or logs is prohibited from mid summer to late fall. This is the time of year that the scale insects are in their crawler stage and can re-infect neighboring trees when the infected wood is moved to a new location. This disease is a problem in Michigan, but the beech component on this property is less than 15-20% of the tree canopy so there should be no rash decisions to cut any one species completely off of the property.

Finally, any mechanical work of any kind should not be done on this land during the spring "bark slip" period. This is the time of year when the leaves are just about to or have recently come out. The tree trunk is growing quickly and the bark is therefore quite loose on the tree accelerating any mechanical injury to the stem. Therefore, between April 15th and June 15th machine driven work of any kind should not take place on this property.

These forest health issues need to be addressed when management takes place on this property even though none of these problems are immediately near this land. The landowner is encouraged to keep in contact with a forester to keep up on any new treatment measures for these or other forest health issues. Should any widespread control measures be found for these diseases resource professionals should be the first to know about them.

Management Unit#1
Good Quality Northern Hardwood Stand



With some poor quality trees to remove

Management Unit Information

Management Unit Number: 1 **Number of Acres:** 54 (+/-)

=====**Major Objectives of Unit**=====

Manage for long term sustainable timber management with an emphasis on encouraging passive recreation and wildlife use.

=====**Existing Conditions**=====

Size Class: M9 (Northern Hardwoods)

Soil Type: 64B, 64C, 64D 64E, 64F

Site Quality: Good-Excellent **Stand Quality:** Fair-Excellent **Stand Density:** 125 ft²/acre

Management Unit Description:

This is a northern hardwood stand. Sugar maple dominates most of the forest canopy at 65% but seven other species are present making this stand more diverse than other stands on the property. In the northern end of this unit the tree quality drops from the rest of the stand and ironwood seeds heavily into the understory. Although present in the rest of the stand ironwood is not a majority of the understory in most of the stand, sugar maple and beech dominate the understory. Past cutting seems to concentrate on better quality larger trees. This cutting did leave some damage in the woods. Those damaged and other poor formed trees should be removed during future harvest. Currently 39% of the sampled trees were of poor or fair condition.

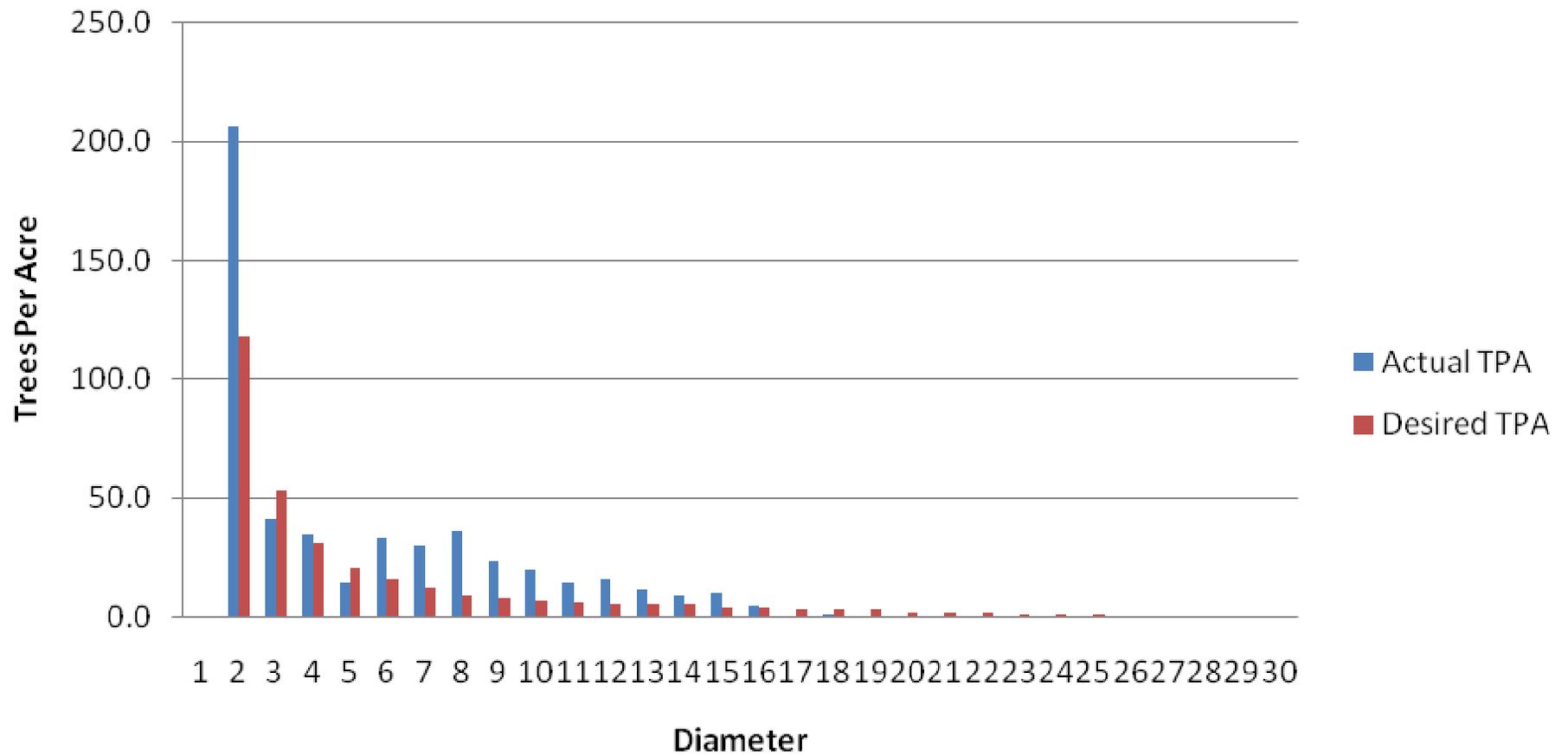
=====**Planned Management Activities**=====

This stand could make the Township some perpetual income every 10-15 years provided it is managed well during each of those management entries. To manage this stand to protect its future un-even aged composition and receive some income the Township should hire a professional forester to administer the management activity on the property. This forester should mark trees for removal to 1) improve the quality of the remaining stand and 2) reduce the canopy competition to bring the stand density to 90-100ft²/acre. In areas where tree quality is good or excellent, this stand should have the over-stocked diameter classes thinned to bring this stand closer to an un-even aged unit. These overstocked classes include the 6-15" classes.

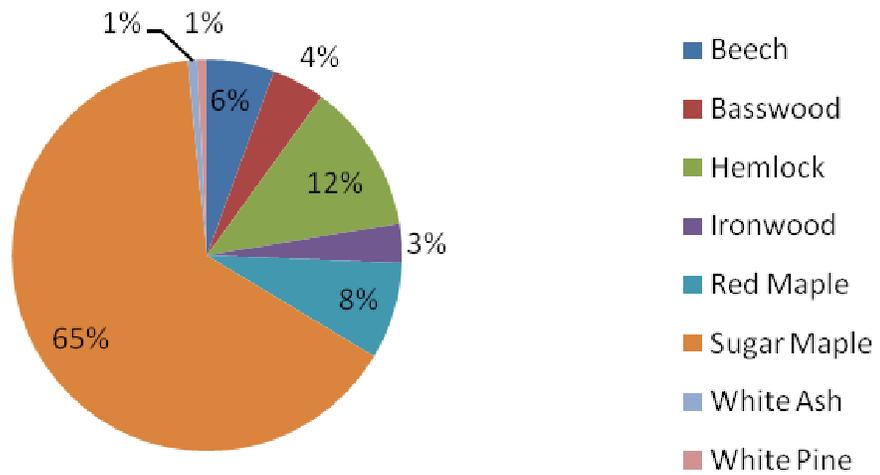
Each harvest entry should increase the health and quality of the remaining trees and look to eventually convert this stand to a healthier and more productive un-even aged stand. In addition to provided perpetual income, an un-even aged stand provides a host of benefits; more species of wildlife can use the stand regularly, diverse species and size structure make the stand less vulnerable to catastrophic events, there is continuous tree cover keeping erosion to a minimum, continued aesthetically pleasing recreation use and nutrient cycling vibrant.

In addition to value management, tree removals should further the access for all wildlife species. All standing dead trees should remain as such, alive hollow trees can be girdled to increase wildlife use within those trees. However these hollow trees should be created only where they will not pose a physical threat to recreational users. Removing hemlock and white pine trees should be avoided during management as they provide different structure to the stand. The large mast (seed) producing trees such as beech should be thinned around to encourage large healthy canopy growth capable of large seed production.

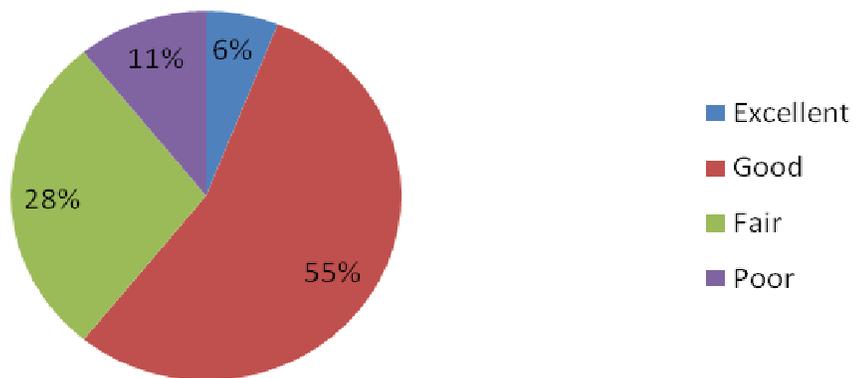
Cedar Run Creek, Hardwoods Unit #1



Cedar Run Creek, Hdwds #1, Diversity Mix



Cedar Run Creek, Hdwds #1, Quality Mix



Management Unit #2

Northern Hardwood Stand, with poorer form and less dominated by sugar maple



Trees to consider removing

Management Unit Information

Management Unit Number: 2 **Number of Acres:** 13 (+/-)

=====**Major Objectives of Unit**=====

Manage for long term sustainable timber management with an emphasis on encouraging passive recreation and wildlife use.

=====**Existing Conditions**=====

Size Class: M9

Soil Type: 54B, 54C

Site Quality: Good

Stand Quality: Fair-Good

Stand Density: 143 ft²/Acre

Management Unit Description:

This stand is a northern hardwood stand. The sugar maple component of the stand is less than unit#1 at 52%. Aspen makes up 25% of the canopy currently. However the Aspen trees are aging and will naturally fall out of the canopy over the next 5-10 years. This stand has not been harvested within the last three decades or more. This is likely due to poor logging access since the stand is bordered by streams on three sides. The property boundary composes the south boundary and would be the only way to get timber out of this unit without extensive bridge work. 65% of this stand is fair or poor quality timber and there was no excellent timber sampled. The understory has ironwood as the most prolific species present with the other canopy species, with the exception of aspen, seeding in.

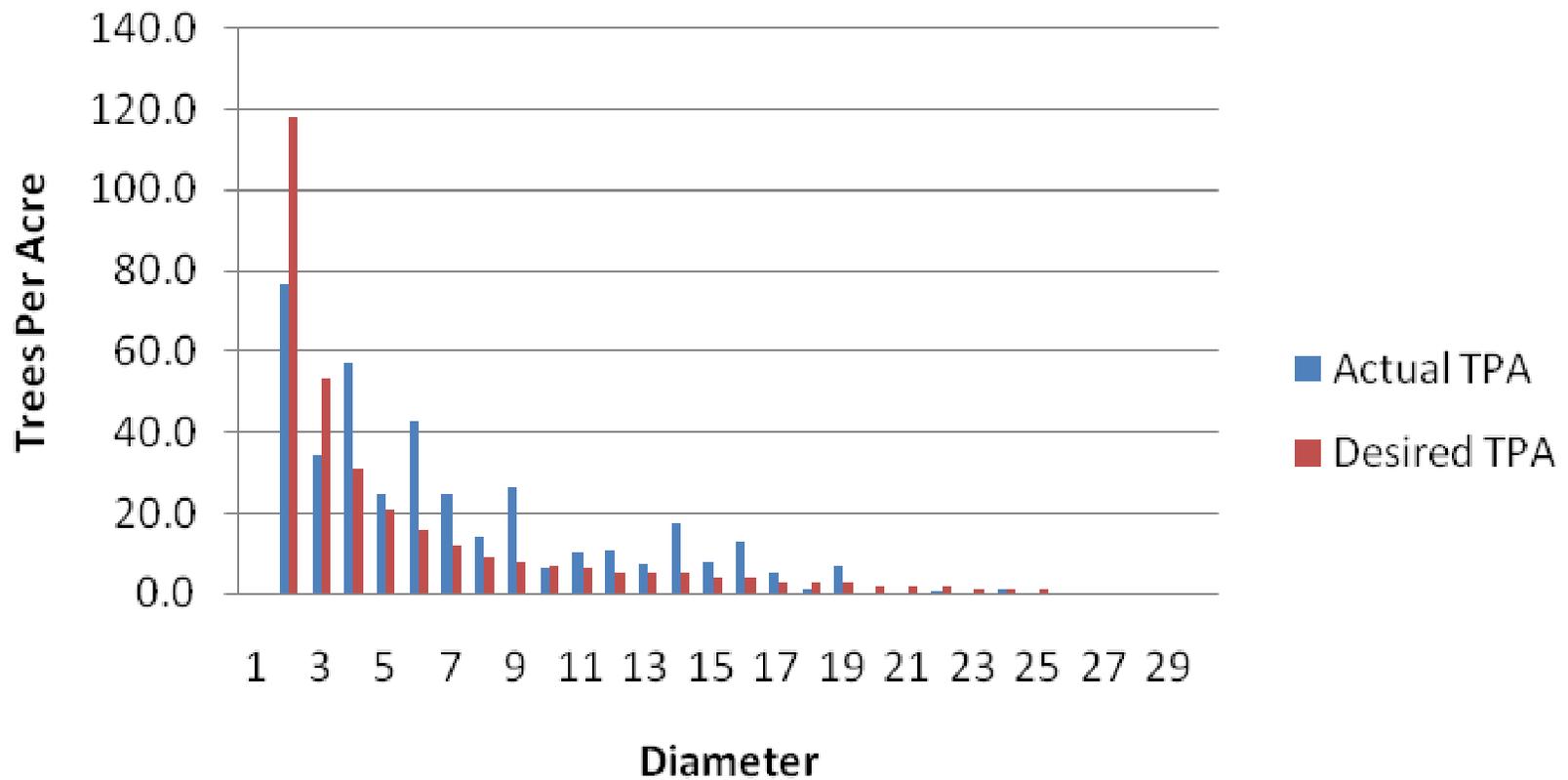
=====**Planned Management Activities**=====

This stand is in need of an improvement harvest if safe, non destructive logging access can be achieved. If this access is possible then the poor and fair trees should be targeted for removal. In addition to those trees the aspen should be removed before they get worse as they begin to die out and degrade. This harvest should be done in the same manner as described in unit #1 keeping the density at 90-100 ft²/acre and ever improving the future health and value of the remaining trees.

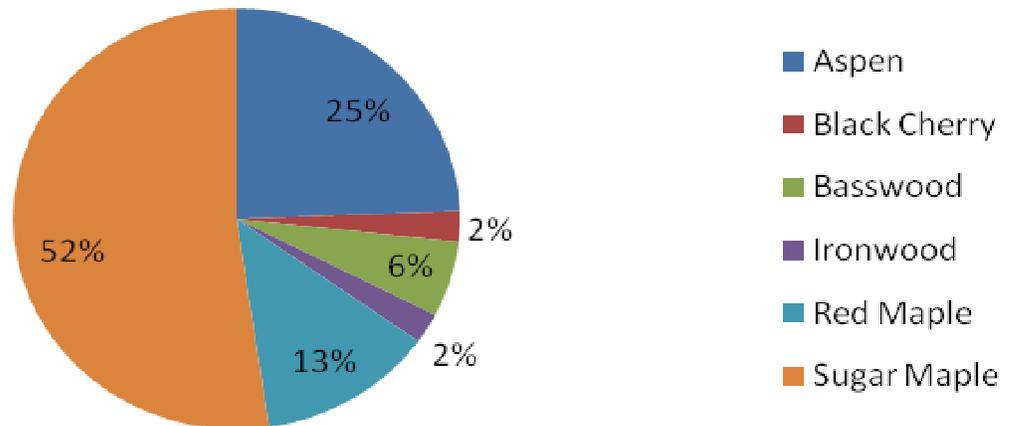
If good logging access is not attainable, this stand should have the aspen trees monitored annually to ensure they will not fail on recreational structures or users. Aspen trees that are in danger of failing but will not disturb areas where people may gather they should be left to degrade naturally. In addition the aspen trees could be purposefully girdled to increase wildlife use where it is safe to do so. If possible this and all hardwood stands in the property should have 5 standing dead trees per acre if they are safely away from failing on persons or property.

Like all stands on this property and regardless of access, this stand should be monitored for invasive species annually. If detected these invasive species should be promptly removed as funding and resources allow.

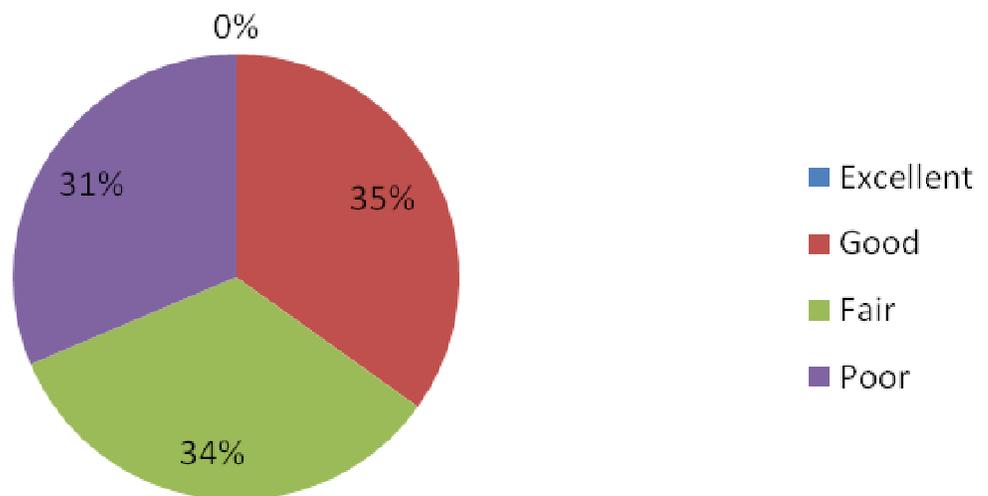
Cedar Run Creek, Hardwoods Unit #2



Cedar Run Creek Hdwd #2, Diversity Mix



Cedar Run Creek Hdwd #2, Quality Index



Management Unit Information

Management Unit Number: 3 Number of Acres: 16 (+/-)

=====**Major Objectives of Unit**=====

Manage for long term sustainable timber management with an emphasis on encouraging passive recreation and wildlife use.

=====**Existing Conditions**=====

Size Class: M9

Soil Type: KaB, KaB2, KaE

Site Quality: Good-Excellent

Stand Quality: Good **Stand Density:** 90ft²/acre

Management Unit Description:

This unit is similar to units 1 and 2 with regard to composition though its different past management dictates a separate unit. This stand has a significant component of fair-poor formed trees. This is partly due to a past selective cut which removed many of the best formed trees leaving the poorest formed trees on site. Species diversity of this unit is the poorest of the hardwood units with 82% of the sampled trees sugar maple. Understory is heavy due to the past heavy cutting but is dominated by beech and ironwood.

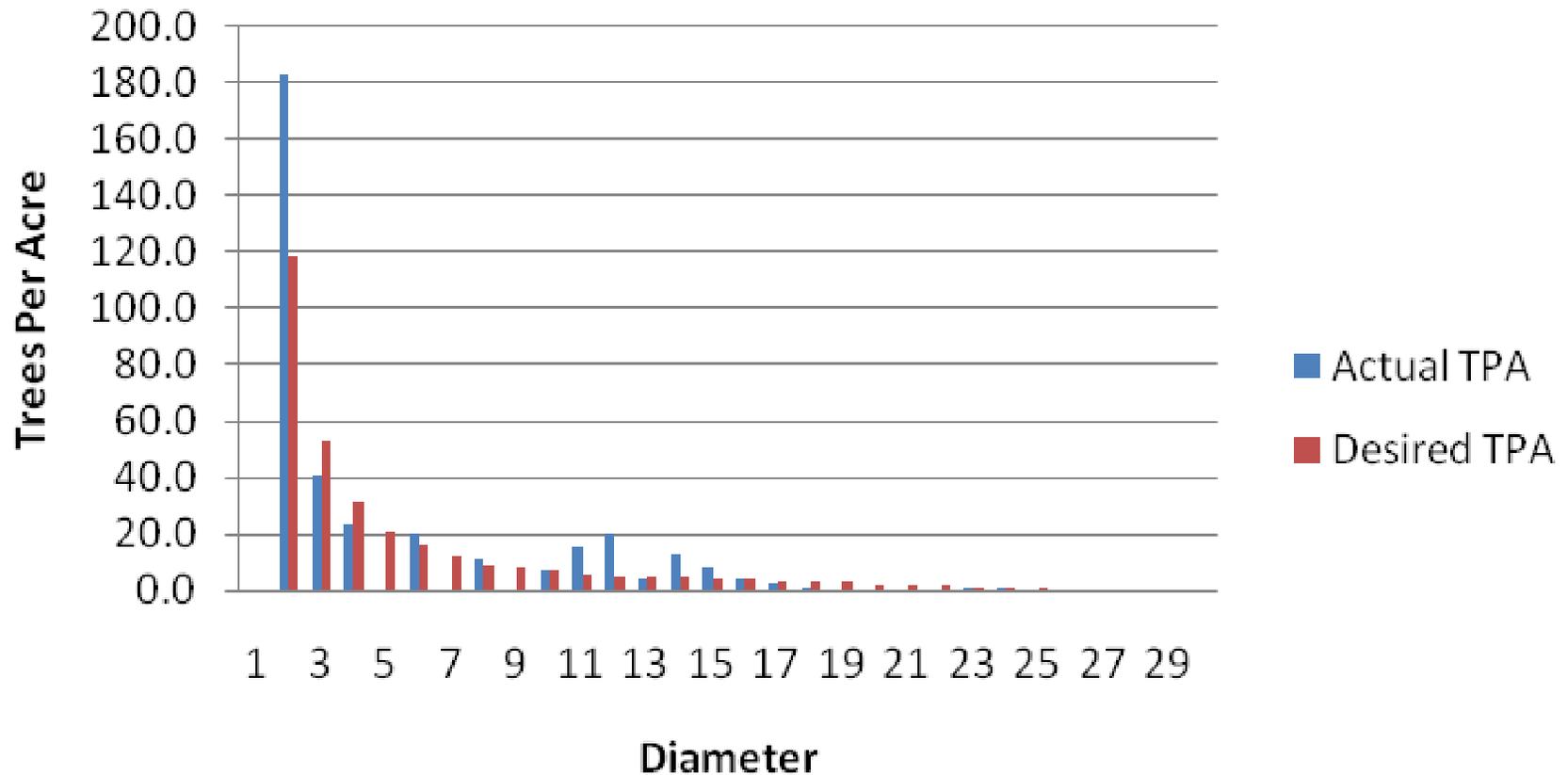
=====**Planned Management Activities**=====

This stand is not ready for a thinning currently. This stand will be ready for a thinning when the average stand density reaches 120ft²/acre. This thinning should be carried out as described in unit #1 striving to keep health and quality and removing the poorest and most hazardous trees first. This thinning should also look to expand the diversity of the species present. This will make this stand less vulnerable to catastrophic problems in the future.

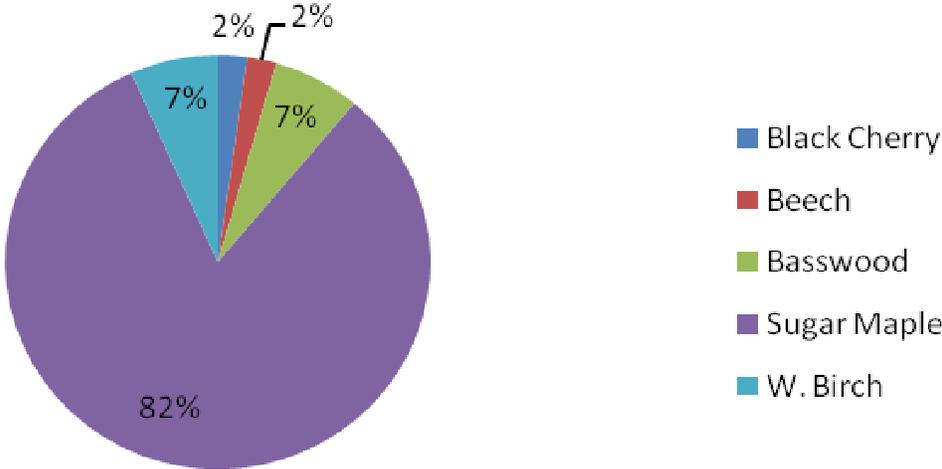
This stand will take the longest of the hardwood stands to produce good perpetual income but it may be the fastest to convert to an un-even aged hardwood stand. Each future management entry should look to open areas to allow new pockets of young trees to establish along with maintain or encouraging an even diameter distribution as depicted below.

As in all hardwood stands the owner could encourage wildlife access in this unit by the following; Leaving standing dead trees alone (provided they will not be hazardous to recreational human use), increase tree species diversity, allow the stand to retain some coarse woody debris after management activities, promote large seed bearing tree species like beech and oak and protect those areas/features already in use by wildlife.

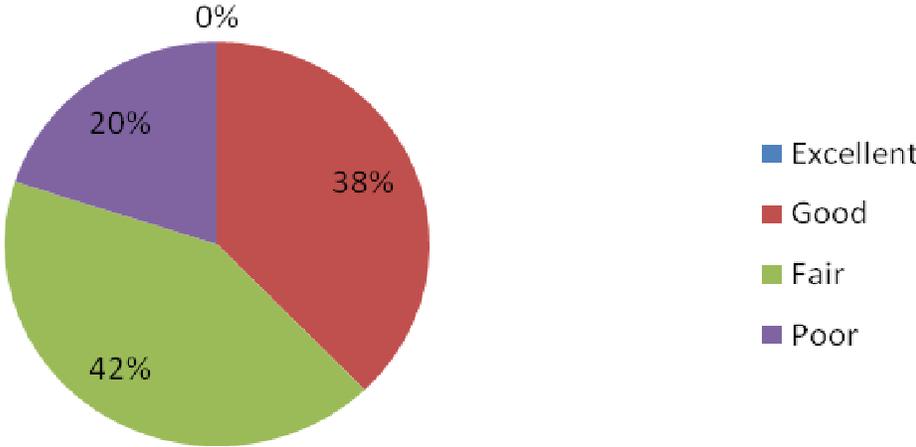
Cedar Run Creek, #3 Hardwoods



Cedar Run Creek, Hdwd #3, Diversity Mix



Cedar Run Creek, Unit #3 Quality Index



Management Unit #4



Young, dense aspen clones

Management Unit Information

Management Unit Number: 4 Number of Acres: 21 (+/-)

=====**Major Objectives of Unit**=====

Manage for wildlife use and shorter rotation aspen clearings.

=====**Existing Conditions**=====

Size Class: A3-6 (Aspen, young-vigorous sprouts) **Soil Type:** 54C, 54E, KaB, KaE
Site Quality: Good **Stand Quality:** Good **Stand Density:** 150ft²/acre

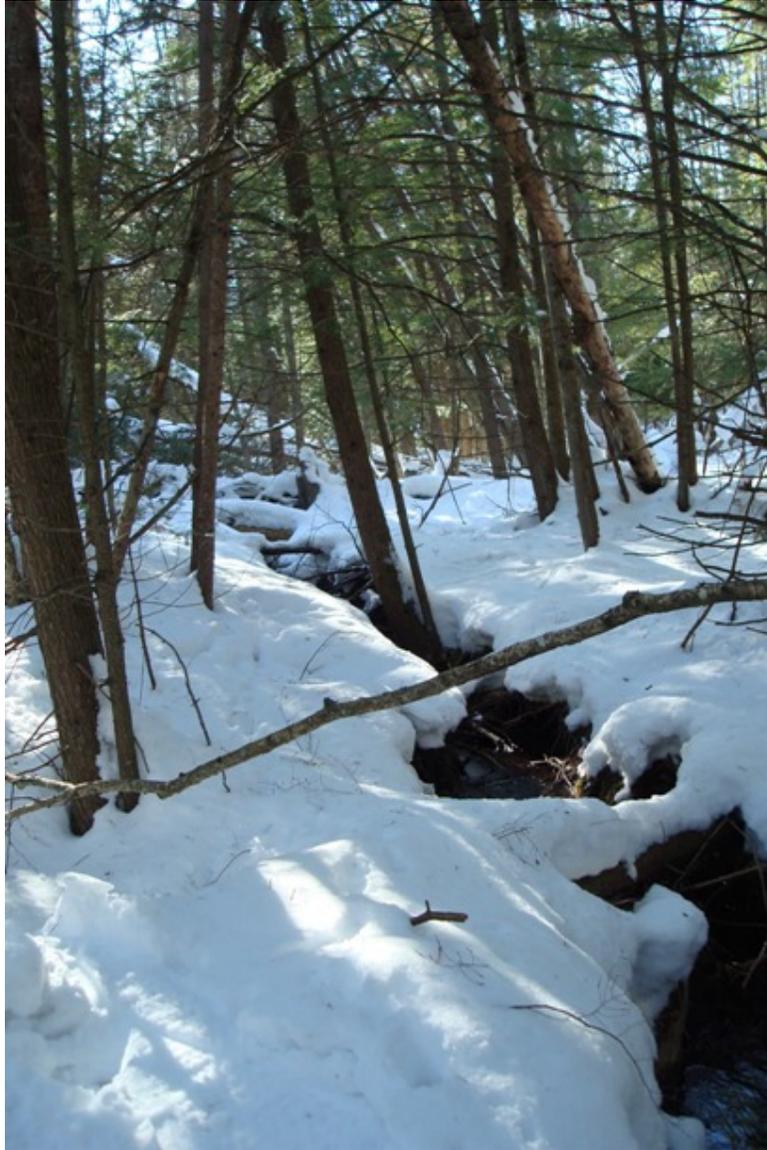
Management Unit Description:

This unit is a series of three aspen clumps. The tree sizes range from 1-8” in diameter with the majority of the stems being in the 4-6” diameter classes. In each clump, the trees on the edge of the stand are smaller than the trees in the center indicating these stands expanded over 2-3 years. All three stands appear to have been clearcut at the same time years ago, therefore the stands today are young and very dense. These stands are approaching the end of their prime years for the most benefit to wildlife who utilize this species for their dense re-growth like grouse woodcock and deer. In addition to many aspen stems this stand does a have few other species present; sugar maple, beech, white ash, and some scattered ironwood and balsam fir.

=====**Planned Management Activities**=====

This stand is not in need of need for active management currently. The dense clusters of aspen trees make these stands still valuable to many species of wildlife. Eventually this stand should be clearcut again to encourage another round of dense re-sprouting. This re-sprouting will again be extremely valuable to grouse woodcock and deer. Typically aspen can be clear-cut every 20-30 years so this stand should be looked at for another clearing in 10-15 years (2020-2025). This new clearing should happen when the stem density begins to sharply decline and tree sizes get big enough to entice a pulpwood cutter to be interested in the wood volume. Like management described for the hardwood units, this cut should be directed and over-seen by a forester to ensure fair payment and good cutting work.

Management Unit #5



The riparian portions of this parcel, and associated wetland plant cover

Management Unit Information

Management Unit Number: 5 **Number of Acres:** 140 (+/-)

=====**Major Objectives of Unit**=====

Retain in its current state, protect the watershed(s), allow non-damaging recreational use and safety needs dictate management.

=====**Existing Conditions**=====

Size Class: Lowland Species-9 **Soil Type:** KaC, KaE, Lu, W, 73, 54D, 58B
Site Quality: Good **Stand Quality:** Good **Stand Density:** 120ft²/acre

Management Unit Description:

This unit surrounds the creeks and water courses on the property. Tree species present include; balsam fir, yellow birch, white birch, aspen, cedar, hemlock, red maple and white pine. As a general observation the trees get bigger as the distance from the creek/standing water increases.

=====**Planned Management Activities**=====

Active mechanized forest management is not needed in this unit at this time. Proximity and sensitivity to water make management of this stand difficult and tree values negate the need for active management. This area provides natural cover for wildlife refuge, water and food. To enhance this area for wildlife use there are several management activities that can take place.

- 1) Protect hard to regenerate species (hemlock, cedar and yellow birch) from deer browse where it becomes established. Protection can come from piling brush into a fence/physical barrier or protect new seedlings with human-made deterrents such as planting tubes or other physical barriers to browsing.
- 2) Plant and protect from browsing desired species in canopy gaps where larger trees are naturally knocked over by wind events. Species to consider planting are; Yellow birch, hemlock, larch northern white cedar and white pine.
- 3) Monitor and quickly eliminate invasive species as they occur to reduce cost and effort to eradicate them. A small list of invasive species to actively monitor for are; all species of buckthorn, garlic mustard, phragmites, mile-a-minute weed and oriental bittersweet.

Management Unit #6



Mature red pine plantation



With pockets of bark beetle damage

Management Unit Information

Management Unit Number: 6 **Number of Acres:** 31 (+/-)

=====Major Objectives of Unit=====

Manage for high quality pine log products, control bark beetles.

=====Existing Conditions=====

Size Class: R9

Soil Type: KaD, KaD2, KaE

Site Quality: Good **Stand Quality:** Good **Stand Density:** 188ft²/acre

Management Unit Description:

This unit is the red pine plantation on the east end of the property and surrounding the north end of Cedar Lake. Original planting is approximately 7'x7' spacing. The stand was thinned previously though it was not a direct 33% thinning removing 1 of every 3 rows. Original planting mortality and varying planting intensities led to a non-homogeneous plantation. The average tree within this stand is 12" in diameter and has six 8' logs of merchantable timber. Stand diameter ranges from 4-16". The understory is suppressed but includes beech, sugar maple, black cherry and some white pine. The stand has some active bark beetle pockets that should be generously thinned and removed to cut down on the number of bark beetles within the stand.

=====Planned Management Activities=====

This stand needs a thinning soon, 2012 at the latest. This thinning should aim to remove about 1/3 of the canopy and all of the trees that have a heavy infestation of bark beetles in them. This 1/3 thinning should focus on removing the poorest formed and smallest trees on site. This will leave the healthiest and most valuable trees growing for protection against further bark beetle infestations and help increase future timber value. This thinning should remove the timber portions of trees and chip/burn or break down the tops to keep bark beetle numbers to a minimum. As with any tree cutting this thinning should be set up and over seen by a forester to ensure good workmanship and fair value paid.

After the next thinning this stand could be cleared if hardwood regeneration is good underneath the pine. With the regeneration released this area should hopefully convert well to a young hardwood stand. If regeneration is not good, the Township could consider re-planting red-pine or mixing red pine and red oak. Regeneration will most likely be good in some areas and not in others. Therefore re-planting should be directed to those areas where there is not an understory to take over the site after the pine is removed. The decision to cut this stand any further should be made by a forester or qualified resource professional.

Management Unit Information

Management Unit Number: 7 **Number of Acres:** 41 (+/-)

=====**Major Objectives of Unit**=====

Remove invasive plants, enhance wildlife access

=====**Existing Conditions**=====

Size Class: G (Open Fields)

Soil Type: KaA, KaB, KaC, 64C, 64D

Site Quality: Good **Stand Quality:** Good **Stand Density:** 0ft²/acre

Management Unit Description:

This unit is the openings scattered throughout the parcel. Many of these openings are dominated by bracken fern, grasses and spotted knapweed. Many areas have trees scattered in these openings, some species present include; white pine, autumn olive, service berry and black cherry. Some areas have desirable grass species like little bluestem. These areas get a lot of sun and these sandy soils dry out fairly rapidly.

=====**Planned Management Activities**=====

These meadows need to be managed to 1) remove the invasive spotted knapweed and autumn olive and 2) to re-establish plants/communities that benefit wildlife. The first management activity is to establish native warm season grasses, such as little and big bluestem, Indian grass and switch grass. To do this the spotted knapweed must be controlled. This plant can be controlled in a variety of ways and the owners should solicit the help of a resource professional with experience in controlling this invasive plant. Options for spotted knapweed removal include; prescribed burning, selective herbicide application, manual removal and/or smothering with mulch or landscape fabric. Black plastic applied for an entire growing season kills the weeds and many of the seeds within the soil's seed bank. This is the most effective when treating small areas. To control autumn olive: Cut all autumn olive when it is found during the late summer and immediately apply an approved basal treatment herbicide. Refer to reference material for more removal details

With the knapweed controlled warm season grasses can be directly seeded on the soil. A species like Canada wild rye should be added to the mix of seed applied so it can readily suppress weed competition as the warm season grasses become established. To add a nectar source wildflowers should be added to the mix, species to include are: sand coreopsis, milkweed, dogbane, golden rod, dotted mint and hoary vervain. Seeds can be applied manually or mechanically with a no-till drill. Once the grasses are established management of the undesirable plants within the meadow will be needed. Manually pulling (with gloves) or spot treating with herbicide are the best options. Herbicide application must be directed by a licensed applicator when applicable and the directions on the product must be followed exclusively.

Shrub species to replace the autumn olive used by many wildlife species are; gray dogwood, serviceberry, witchhazel, and sand/pin cherry. Songbirds love these shrubs and will utilize these areas much more frequently making the extra effort worthwhile.

Timeline for Forest Management

**Long Lake Township
8870 N. Long Lake Rd.
Traverse City, MI 49684**

Planned Property Location: 316 acres with 142 acres at the S ½ of the S ½ of Section 7, Long Lake Township, Grand Traverse County, Michigan and 174 acres within the W ½ of Section 12, Almira Township, Benzie County, Michigan

316 Acres Composing the Cedar Run Creek Natural Area

Unit #	Management Activity	Year Planned	Year Complete
1&2	Commercial improvement harvest to 90ft ² /acre	2010-2015	
3	Improvement harvest	2013-2018	
4	Clear cut to promote dense re-sprouting	2020-2025	
5	Monitor for and remove invasive species	Each Year	
6	Commercial thinning by 1/3, removing poorest quality and bark beetle infested trees	2010-2012	
7	Monitor for and remove invasive plants	Each Year	
7	Plant grasses/shrubs of choice	Funding Allows	
1,2&3	Commercial improvement harvest, creating un-even aged stand	Each 10-15 Years	
6	Remove trees or lightly thin to encourage more hardwood regeneration	2020-2037	