



September 22, 2020

Timber Area Review for 2020 Proposed Library Project

Property Owner	Monroe County Community School Corporation
County	Monroe
Property Legal Description	Pt. SE1/4, S17, T8N, R1W - 2 parcels of 6.408 and 18.566 acres
Date of Completed Review	September 21, 2020
Tract Acres	Estimated area 25.0 Acres Includes: Stands #1-5
Forested Acres	Est. 18 Acres

On September 21, 2020 I met with Monroe County Public Library officials Marilyn Wood and Grier Carson as well as Matheu Architect President Christine Matheu at the project area located just south of Batchelor Middle School. We reviewed the forested area as well as the approximate locations for the access road and proposed new Branch Library (See attached Site Map). In this report I delineated 5 timber stands within the project area. These are described below. The proposed access road will run mostly south along the edges of the forested Stands #3 & 4 which leads to a proposed building site and parking area for the new library. Currently the project area has some preliminary control points and survey flags established on the ground however the surveying and layout for the access road, parking area and building site are to date not established.

Stand #1 Description

This forested unit consists of a tree plantation of 20 or more years of age consisting of mostly Pin Oak, Red Oak, White Oaks, Blackgum, Persimmon, and Callery Pears along with an occasional Black Locust, Yellow Poplar, Atlantic White Cedar, or Sweetgum. All the trees in this stand appear to be of plantation origin with the planting spaced from 5-8' apart. The timber is mostly pole sized with a few small sawtimber trees emerging. The poles tend to be in the larger diameters of 8-10" diameter at breast height (DBH). The Stocking of the timber is considered high and trees are competing with each other for resources in the ground and with the sun. The understory is weak due to the high stocking however Asian Bush Honeysuckle is modestly present as well as some natural grape vines. Overall, Stand 1 is healthy with little mortality observed. Non-native tree species are the lightly invasive Black Locust, Atlantic White Cedar, and invasive Callery Pears. Asian Bush Honeysuckle is a highly invasive and exotic brush species.

Stand #2 Description

This forested unit also consists of a tree plantation younger than Stand #1 of probably 10-15 years of age consisting of mostly Red Maple, Black Cherry and Atlantic White Cedar along with some Callery Pear volunteers invading in. Most of the trees in this stand appear to be of plantation origin also. Plantings are about spaced about 6' by 6' apart. The timber is mostly small pole sized (4-6" DBH). The Stocking of the

timber is considered modest and trees are not competing seriously yet. The understory is weak with mostly Asian Bush Honeysuckle modestly present. Overall, Stand 2 is healthy with little mortality observed. Non-native species observed here are Atlantic White Cedar and Callery Pear.

Stand #3 Description

This forested unit also consists of a tree plantation as old as Stand #1 of probably 20-25 years of age consisting of mostly mixed conifers and hardwood species. Species planted in this Stand tended to be the most diverse of all the Stands observed. Evergreens include White Pine and Atlantic White Cedars whereas the hardwoods are mostly Red Oak, White Oak species (probably including some Swamp White Oak with White Oak), Persimmon, and Yellow Poplar with some Blackgum, Sweetgum, Black Walnut, Redbud and Pawpaw individuals scattered about. Callery Pear is mixed in this Stand also but becomes more dominant near the southern and eastern portion of the Stand. Plantings are spaced about 8' by 8' apart. The timber is mostly large pole sized (6-10" DBH) however some individuals were observed to be small sawtimber sized (12"+ DBH). The larger individuals observed were White Pine, Black Walnut and Yellow Poplar. The Stocking of this Stand of timber is considered heavy and trees are seriously competing with each other. The understory is modest but has a fair amount of mostly Asian Bush Honeysuckle (exotic & invasive) present. Overall, Stand 3 is healthy at this time with some light mortality due to tree competition. Non-native species observed here are Atlantic White Cedar, White Pine and Callery Pear with the Callery Pear being the most invasive tree species present.

Stand #4 Description

This forested unit also consists of mostly tree plantations with some young and some older plantings. Ages probably run from 15 to 20 years of age. There is also a mixture of evergreens and hardwoods here with the evergreens being mostly Atlantic White Cedars. Many of the Atlantic White Cedars are in the process of fading out of the Stand due to competition with faster growing hardwoods. Callery Pears, Red Oak, Red Maples, Black Cherry, Blackgum, Persimmon and what appear to be Swamp White Oaks are mostly present. I did notice a couple of small Bald Cypress present. Some of the Red Oak trees that are poles look to be of good quality and vigor. Portions of this Stand has a fair amount of multiple stems which could be the result of droughts following the planting with resprouting of the trees. The multiple stems also appear to be more in the eastern portion of the Stand. The lower midsection area of the Stand appears to have some native, pole sized Red Maple growing in wetter drainage sites. These were probably not planted trees but came up naturally. The Callery Pear is mixed throughout this Stand but becomes more dominant near the southern and eastern portion of the Stand. Overall, plantings are spaced about 6' to 8' apart. The timber is variable in size but are mostly pole sized (6-10" DBH). The Stocking of this Stand of timber is considered high in most areas of the Stand and trees are seriously competing with each other. There does not appear to be high amounts of mortality yet. The understory is modest but also has a fair amount of mostly Asian Bush Honeysuckle (exotic & invasive) present. At the south end of the Stand is where there is a modest more recent planting that appears to be heavy to Callery Pear. This planting looks like it about 5-10 years old. Also at the very south end of Stand #4 are more recent plantings of Hazelnut (a brushy wildlife plant), Burr Oaks, Persimmon, White Oak and Black Cherry. Some of these trees are planted in the area where the building or parking area of the new construction is to occur. As these trees range from 2-5" in DBH they could be selected for removal and transplanted using a tree spade. Overall, Stand 4 is healthy at this time but has a large amount of Callery Pear. Non-native species observed in Stand 4 are Callery Pear, Atlantic White Cedar, and Bald Cypress with the Callery Pear being the most invasive tree species present.

Stand #5 Description

This forested unit has some plantation timber but also has evidence of old field natural succession regeneration. The old fields take up nearly two thirds of the Stand and include some areas where an open brushy/forb habitat occurs. Some of this old field has old erosion areas which is conducive for exotics to appear and thrive. For the plantations, they appear to be mostly Callery Pears along the western portion with

possibly some mixed Oaks. Ages run from 10 to 30 years of age. The Callery Pears of plantation origin appear to be about 10 years in age being 4-6" DBH or larger. For the majority of the rest of the Stand the Callery Pears appear from 2-6" DBH in the old field succession. As this stand is being rapidly invaded by the Pears they already dominate the portion of the Stand that is in timber. In addition to the invading Pears there are naturally occurring pioneer species such as small diameter Red Maple, Black Walnut, Flowering Dogwoods, and a few Kentucky Coffeetree. Older trees in Stand 5 that came in from natural old field succession are poletimber Red Cedar, Black Cherry, Sassafras to large pole to SST Black Willow and Red Maple. The presence of Red Cedar is a sure sign that the past history of this area was old farm fields or degraded pasture areas. The understory is much more diverse in Stand 5 where the Callery Pear has not invaded the more open fields. Here there are naturally occurring Blackhaw, Smooth Sumac, and Flowering Dogwood. These are great wildlife plants that produce escape cover and valued fruit. Overall, the Callery Pear is most prominent in the western 1/3 of the old fields but appears to be moving eastward due to its fruit being moved and deposited by birds. The Stocking of this Stand of timber is considered high in the western portion but consists of mostly Callery Pear. The eastern area ranges in stocking from fair to very low as there are modest areas of open forb fields with Goldenrod, Blackhaw and Blackberry canes. There does not appear to be high amounts of mortality. The understory is full of young Callery Pear in places yet mostly Asian Bush Honeysuckle (exotic & invasive) is also present. Overall, Stand 5 is healthy at this time but has way too much contribution by Callery Pear. Non-native species observed in Stand 5 are Callery Pear. Invasive exotics are mostly Asian Bush Honeysuckle, Multiflora Rose however Callery Pear is the most invasive tree species that is present.

Library Construction Impacts

As the construction of the proposed access road, parking areas and Library are mainly in the south portions of Stands #3, 4 & 5 the effect of damage to the plantation trees will mostly be borne by the removal of Callery Pears. This is a good thing. Callery Pears are a serious exotic invasive tree and it would be very beneficial for them to be removed whenever possible. This tree is an environmental disaster whenever and wherever it is found. No true ecologist should shed a tear at its removal from the environment. The proposed roadway and parking area for the Library project per the attached construction map will however impact some poletimber White Pine, Oaks and Persimmons at the south end of Stand #3, some small poletimber Red Maple, Callery Pear and Black Cherry at the south end of Stand #4 and some early successional Red Maples in the SW portion of Stand #5. The majority of the hardwoods located in all Stands 1-5 will not be impacted greatly by the construction. It would be beneficial to transplant some of the Burr Oaks, Hazelnuts and possibly some Persimmons from the south end of Stand #4 that are of small diameter yet vigorous to sites around the Library and parking areas prior to the construction. This can be fairly easily done using a tree spade.

Forest Management Recommendations

At present the 5 Stands identified on the Site Map appear to be healthy in respect to vigor. However most of the Stands have tree and shrub species that are undesirable. As the tree plantations in Stands 1-4 are densely stocked yet vigorous at this time I would recommend some management prescriptions in these to maintain their vigor as well as to promote a better composition of tree species. Some of these plantations have some very nice Oak, Cherry and Pine individuals and it would be a shame to have them continue their growth into a more stagnated condition. Also, as it would probably not be prudent to remove all of the Callery Pear at one time due to their dense population within these Stands. Instead, I would suggest a slow but methodical reduction over time in the numbers of the Callery Pear population. This could be done by working in one Stand at a time each year or by conducting a very light treatment over several years in each Stand. As visual impacts appear to be very important here the treatments would need to be conducted during fall periods where the effect would not be as noticeable. However, there is a great educational opportunity here

to explain forest management to people who like to hike and observe nature. An educational trail would be a great opportunity to explain the process of removing exotic invasives and over the years would show the wonder of replacing these exotics with native regrowth and development. The most interesting question would be how the invasive species could be treated without endangering the environment or creating too much of an eyesore. For Forest Management recommendations I have outlined 2 different sets of treatments below: Exotic Invasive Control Measures and Plantation Thinnings.

Exotic Invasive Control Measures

There are 2 main exotic invasives in these Stands and they have a widely divergent effect on the environment. The Callery Pear is a tree species that tends to grow into dense stands that exclude native vegetation and natural regeneration of the hardwoods that commonly occur in this portion of the State. Their effect inhibits establishment of native vegetation and crowds out understory development. Their main effect is in the forest canopy. The second invasive is the ground cover known as Asian Bush Honeysuckle. The Honeysuckle species can grow into dense shrubs that exclude light to the forest floor effectively shading out natural forbs and native shrubs. At present most of the Honeysuckle that is present is in small shrubs wherein it can be treated easily. Removing this shrub from the environment will create more diversity in the forest floor. At this time it is not impossible to treat. I would recommend treating a whole stand at a time in the fall and the die off will not be as noticeable after natural forest regrowth occurs in the next spring and summer.

Recommended treatments for these 2 exotic, invasive plants can vary. For this section I will recommend treatments for each exotic.

1) Callery Pear Treatment

As the Callery Pears within these Stands are mostly present in a poletimber size class, Timber Stand Improvement (TSI) techniques that would be beneficial would involve individual tree girdling, tree felling or basal herbicidal treatments. Tree girdling could best be accomplished using a chain saw however with some of the smaller trees it may be difficult to implement the girdling due to the small diameters of some of the trees. A "hack and squirt" treatment could be utilized for these smaller trees however you would need to use an approved herbicide such as Tordon RTU or Roundup (Glyphosate). For this treatment a total ring around the tree would not be necessary as the herbicide would be the principal agent of death. Basal bark treatments could also be used on some of these smaller trees using Garlon 4. A mineral oil carrier for this herbicide would be more environmentally favorable rather than the diesel fuel carrier normally used in broader applications in larger forest environments. Very small Callery Pears could also be treated by a Roundup spray treatment. Leaving the trees standing after many of these treatments would provide some benefit to woodpeckers, forest reptiles and amphibians. Retreatment of the covered areas would be necessary for a few years to prevent reestablishment by seed stored in the ground.

2) Asian Bush Honeysuckle Treatment

As the ABH population is widespread in the understory yet fairly small in individual size I would recommend 2 treatments. For small individuals hand pulling is possible during conditions when the soil is saturated. This could be done by school groups or interested volunteers on a field day. Otherwise a Roundup spray treatment to individual stems during the spring or fall periods would be effective. Roundup is generally safe for these uses as it binds heavily to the soil and tends not to move through the environment. For larger clumps of ABH I would recommend a cut stump treatment using Roundup or Tordon RTU. A Garlon 4 basal treatment using the mineral oil carrier could also be used for these larger individuals. Normally a 2-3 year treatment and retreatment program is necessary to generally eradicate this exotic to cover the seeds that germinate from years past.

Plantation Thinning Treatment

The existing plantations of Mixed Hardwood and Pine species are densely stocked. As such some of the less vigorous and smaller individuals could be scheduled for deadening so that the remaining healthy and quality

individuals are released. The TSI treatments for thinning in these stands are similar to that in the Exotic Invasive Treatment protocol. The only caution I would recommend is that if you are treating a smaller Pin Oak surrounded by other Pin Oaks I would recommend either felling the tree or doing a double girdle without herbicide. There is a possibility that in treating a tree surrounded by other trees of the same species with an herbicide such as Tordon RTU would allow root grafts between the trees to have the herbicide "flash" over and impact the better tree. If the trees are of separate species then the herbicide could normally be applied with the single girdle or hack and squirt treatment. In order to avoid high numbers of unsightly dead trees I would recommend the treatment be done in late fall. These trees would just not leaf out in the spring. I would also recommend treating lightly throughout the Stands using a several year treatment schedule.