

Forest Stand Descriptions & NTFP Production Sites

Stand 1- Stand 1 was recently acquired from the Sugar Creek Coal Company and consists of the steep north facing slope to the right (north) side of the trail as you enter the woods behind the house. This slope was not fully evaluated at the time of inspection due to steep and rugged terrain. The terrain is gently to steeply sloped at the top, with conditions quickly becoming steeper as you approach the creek. Species composition on the north facing aspect is consistent with most mesic (i.e., moist, but well drained) forest habitats, with medium and large diameter tulip poplar, red oak and sugar maple trees dominating the forest canopy. Understory conditions in this stand are variable, with some areas being densely vegetated (shrubs, briars/rose, saplings), while other areas are open and easily traversable. Overall, based on observed species composition, aspect and age of forest, this site appears to hold great non-timber forest product (NTFP) potential. NTFP indicator species such as Solomon's seal, hepatica, trillium (not observed at the time of inspection, landowner mentioned it's presence), tulip poplar and maidenhair fern were observed in this stand, indicating excellent NTFP potential.

Trees: Tulip poplar, sugar maple, red maple, beech, red oak, chestnut oak, black oak, white oak and pawpaw (will not reach fruit bearing size due to lack of sunlight)

Shrubs/Vines: Maple leaf viburnum and greenbrier

Herbs: Christmas fern, maidenhair fern, New York fern, rue anemone, black cohosh, downy rattlesnake plantain, Solomon's seal and hepatica

Invasive Species: Multiflora rose (scattered, low abundance)

Management Recommendations:

1. If desired, establish wild-simulated ginseng, goldenseal, and/or ramp plantings on north facing aspects where companion/indicator species are present (i.e., tulip poplar, sugar maple, spicebush, hepatica, trillium). To start, establish small test plantings and evaluate success after 1-2 years growth.
 - Recommended Planting Quantities:
 - 1 - 2 Lbs. ginseng seed
 - 200-500 ramp bulbs or ¼ Lb. seed
 - 4-5 Lbs. goldenseal root
1. Continue to allow the forests in this stand to grow naturally, while keeping an eye on any potential disturbance events that will alter stand conditions. If disturbances occur, such as mortality from disease, storm damage, etc., monitor the vegetative regrowth to ensure that high-quality trees (oaks, hickories, and associate species) have a chance to establish, and that invasive species do not outcompete desired crop trees.

2. If desired, source small diameter logs for mushroom cultivation using a “worst first” selection criteria.
 - Suitable species for cultivation primarily include sugar maple and American beech, but white oak, shagbark hickory, and tulip poplar can also be used as suitable substrates.
 - Ensure that the tree species selected is suitable for the strain of mushroom(s) being cultivated
2. No significant grapevine presence was observed at the time of inspection. Vines established in high-quality canopy trees should be cut to prevent crown breaks/damage, but vines established in low-quality understory trees or thickets can be maintained for wildlife value.
3. Establish NTFP

Stand 2 – Stand 2 was recently acquired from the Sugar Creek Coal Company and consists of the ridgetop trail behind the house and very steep predominately south and southwest facing slopes just south of the trail. The vegetative composition in this stand is relatively consistent with south/west facing sites, and is well stocked with hard mast (i.e., nut) producing species, including white oak, black oak, chestnut oak, shagbark hickory, and pignut hickory, as well as some lingering early successional and wind dispersed species, such as redbud, sassafras and dogwood. The understory herb community is representative of south/west facing stands, with a relatively low diversity of herb species present. Unfortunately, oak/hickory dominant stands and ridge top habitats are typically too hot and dry for the production and/or management of most Non-Timber Forest Products (NTFP's). However, stands like this can be used as a source for small diameter logs (4"-8") for mushroom cultivation. Shade-loving species like sugar maple and beech have a tendency to accumulate in the mid-story layer of oak/hickory dominant stands, and ultimately prevent the germination and establishment of new oak and hickory seedlings. By selectively removing and utilizing mid-story trees, the conditions for oak and hickory recruitment are improved, while simultaneously creating an opportunity to produce a marketable product (i.e., mushrooms). Sugar maple and beech are both suitable substrates for shiitake, lion's mane, and oyster mushroom production. Wild chicken of the woods mushrooms were observed at the time of inspection and can be found throughout late spring, summer and early fall.

Trees: Chestnut oak, white oak, red oak, black oak, sugar maple, red maple, black gum, shagbark hickory, pignut hickory, redbud, beech, dogwood, sassafras, walnut, big tooth aspen, sourwood and pawpaw (will not reach fruit bearing size due to lack of sunlight)

Shrubs/Vines: Spicebush, greenbrier and wild hydrangea

Herbs: Lowbush blueberry and beech drops

Invasive Species: Autumn olive, tree of heaven, privet, oriental bittersweet, barberry, stilt grass, Japanese honeysuckle and multiflora rose

Management Recommendations:

1. The primary concern observed in **Stand 2** is the presence of tree of heaven (*Ailanthus altissima*), a highly invasive species. Tree of heaven seedlings were observed along the road. Seedlings are easily pulled by hand, and should be eliminated wherever they are observed. Mature trees can be controlled mechanically by girdling or cutting, but follow up treatment of the root sprouts is required. Systemic herbicides can also be used for cut-stump, basal bark, or hack and squirt applications. Tree of heaven is a dioecious species with distinct male and female trees. Seeds, which resemble winged maple seeds, are only produced on female trees and should be prioritized for removal to eliminate the seed source. Female trees can easily be identified by the large clusters of seeds that form during the summer growing season, and can be immediately treated, or marked for treatment at a later date. Removal information will be included in the resources section of this management plan.
2. Identify priority areas where invasive removal will have a highly likelihood of success, and will benefit desired native vegetation and crop trees.
 - Use organic and mechanical control methods whenever possible.
 - Monitor the regrowth of root sprouts and/or new emerging seedlings, and repeat control activities as needed.
3. Control invasive species whenever feasible to limit their spread and establishment, especially within newly formed canopy gaps that may develop as a result of storm damage, grapevine damage, or natural tree mortality.
4. If barberry, privet and bush honeysuckle bushes are small, they can be manually removed. Larger plants may require a different method, such as removing with a mattock or herbicide application. We recommend herbicide application as a last resort. Management information is located in the resources section of this management plan.
5. Remove greenbrier in unwanted areas. The plant produces an underground rhizome system that can be difficult to remove. Small plants can be manually removed, making sure that all of the root system is removed. Large plants and large populations of plants may require the use of herbicide. Greenbrier removal resources have been provided in the resources section of this management plan.

Stand 3 – Stand 3 consists of the cabin, front yard and some woods that is oriented on predominately west and southwest facing aspects, with moderately to steeply sloped terrain. The wooded area of this stand appears to have been an old pasture and or a grazing site. As is common with most old field/formerly grazed sites, several non-native invasive species (NNIS) have established in this stand, including privet, autumn olive, Japanese stilt grass, and bush honeysuckle. Most of these species can be controlled/eradicated with herbicide applications, or can be significantly suppressed by mechanical control methods (repeated cutting, pulling). Japanese stilt grass is very difficult to control by any method, and is generally not feasible once well established. In addition to NNIS, wild grapevines have also become well established in this stand, and can damage both young and mature trees by overtopping and causing crown breaks. Grapevines are best cut in April when they are actively growing, and should be cut when established in any high-quality trees occupying canopy position. For wildlife value, leave vines that are established in snags/thickets and in trees that are already suppressed or damaged. In the southern most

portion of this stand is an intermittent stream with rugged steep slopes on both sides. Numerous fruit bearing persimmons and pawpaws are naturally occurring in this stand and additional propagation sites exist throughout various sections of this stand along forested edges and clearings. The southwest facing slope leading down to the stream is consistent with typical south/west facing sites, and is well stocked with oaks, beech and hickory. The north facing slope just south of the stream was not inspected at the time of the assessment. However, based on aspect and steepness, this area may hold NTFP production potential. The opening near the powerline is relatively grown up with invasive species taking advantage of sunlight as a result of major canopy gaps.

Trees: Chestnut oak, white oak, red oak, black oak, sugar maple, red maple, persimmon, pawpaw, black locust, honey locust, beech, sycamore, redbud and dogwood

Shrubs/Vines: Spicebush,

Herbs: Stoneroot, pussy toes, royal fern, Christmas fern, wild yam, wingstem and ironweed

Invasive Species: Autumn olive, privet, stilt grass, Japanese honeysuckle and multiflora rose

Management Recommendations:

1. If desired, establish fruit, nut, and/or berry plantings along best suited field and forest edge habitats. Edges of front yard may also be suitable sites.
 - NTFP species that are well suited to these sites include pawpaw, persimmon, elderberry, black walnut, chestnut (culinary and/or timber), as well as wild blackberries and black raspberries.
 - Once established, ensure that trees/shrubs are maintained free from competitive and overtopping vegetation, and well-watered through the first growing season.
2. Identify priority areas where invasive removal will have a highly likelihood of success, and will benefit desired native vegetation and crop trees.
 - Use organic and mechanical control methods whenever possible.
 - Monitor the regrowth of root sprouts and/or new emerging seedlings, and repeat control activities as needed.

Forest Stand Map

