GREEN RIDGE STATE FOREST

ANNUAL WORK PLAN

FISCAL YEAR 2021

Prepared: _____ _____
(Forest Manager) Date

Reviewed: _____ _____
(Regional Manager) Date

Approved: _____ _____
(Environmental Specialist) Date

Forest Overview

Green Ridge State Forest is located in eastern Allegany County. It is the only State Forest located in the Ridge and Valley province. Green Ridge receives the least amount of rainfall in Maryland, averaging 36 inches annually. Consisting of 48,839 acres, Green Ridge is the largest contiguous block of forestland in Maryland within the Chesapeake Bay watershed. It accounts for about 30% of the State Forest System and approximately 12% of all DNR land in Maryland.

The general geographic boundaries of Green Ridge are Town Creek to the west and Sideling Hill Creek to the east. The northern boundary extends to the Mason-Dixon Line. The southern boundary parallels the Potomac River.

Elevations range from 500 feet above sea level on the Potomac River to 2,000 feet on Town Hill.

Three Major highways traverse the forest in an east to west direction: Route 144, Maryland Route 51, and Interstate 68.

In the early 1800's, Richard Caton and William Carroll in partnership owned much of the land that is Green Ridge State Forest today. Richard Caton was the son-in-law to Charles Carroll of Carrolton, a signer of the Declaration of Independence. William Carroll was the grandson of Daniel Carroll of Rock Creek, a framer of the United States Constitution. The land was originally patented from vacant lands during the 1820-1840 period for inclusion into various timber and mining interests, primarily the Town Hill Mining, Manufacturing, and Timber Company. This business venture was financed by the estate of Charles Carroll of Carrollton. The crumbling stone structure known as the Carroll Chimney, part of the steam-powered sawmill built in 1836, is the only known surviving structure of that period.

In the 1880-1912 era, most of the remaining virgin forest was cut and a period of neglect resulted in numerous wildfires. During the early 1900's, the Mertens family of Cumberland attempted to convert the forest into apple orchards and promoted it as "The Largest Apple Orchard in the Universe."

The orchard was subdivided into 10-acre parcels and sold to individuals as investment properties. Five acres of each property parcel was cleared, burned, and planted into apple trees. The remaining five acres had the best trees cut and the poorer trees were left standing. The orchard company went into bankruptcy in 1918. The interests of the corporation were acquired by the State Department of Forestry in 1931.

The first forest management activities at Green Ridge were performed by the Civilian Conservation Corps (CCC) in the 1930's. Their main focus was fire control. Other work consisted of building roads, trails, recreation enhancements, and the management of existing forest for its future timber and wildlife potential.

During World War II, the CCC camp at Fifteen Mile Creek housed German prisoners of war who were required to cut pulpwood in the forest. As the forest grew it became popular with outdoor enthusiasts, especially hunters. It also contributed more and more to the local wood products industry.

Today, Green Ridge is a diverse forest consisting primarily of a 110 year old even-aged mixed oak forest, mixed with a wide variety of age classes resulting from various silvilculture activities beginning in the late 1960's.

The oak consists of a variety of species, including black oak, white oak, red oak, scarlet oak, and chestnut oak. Five native pines grow at Green Ridge: white pine, Virginia pine, pitch pine, table-mountain pine, and shortleaf pine. Flowering dogwood, redbud, and serviceberry are common understory trees.

Upland animals found in abundant numbers on the forest are white-tailed deer, fox and gray squirrel, raccoons, red fox, and cottontail rabbits. Other animals include muskrat, beaver, mink, chipmunks, mice, flying squirrels, weasels, skunks, opossums, bobcat, and black bear.

Wild turkey, ruffed grouse, and woodcock are popular game birds on Green Ridge. Other birds include the pileated woodpecker, red-tailed hawk, and the barred owl. A wide variety of neo-tropical migrants and songbirds also occur on the forest.

Wildflowers such as mayapple, coltsfoot, spring beauty, trillium, bloodroot, and spiderwort flourish at Green Ridge.

Green Ridge State Forest

Fiscal Year 2021
AWP Summary

This work plan includes silviculture proposals for a total of 204 managed acres within the 20,000 acre general management zone in which area based sustainable forest management is practiced. Of these managed acres, harvests are proposed. There will be some variation between managed acres and actual harvest acres to provide for various buffers and/or retention areas. Under area based management, the annual target is 200 managed acres.

The silviculture proposals within this plan include 146 acres of variable retention harvests for an estimated 567 mbf of hardwood.

In addition to the above silviculture projects, other maintenance, recreation, ecosystem restoration, watershed improvement, monitoring, and special projects are included in this plan. Specific projects are described within the following pages.

Maintenance Projects

General Maintenance will continue such as maintaining 100 primitive campsites, hazardous tree removal, pole gate installations as needed, mowing and maintenance of handicap access hunting areas, and general maintenance of headquarters complex, shooting range, and outbuildings.

1. Identify and mark all new acquisition boundaries & re-blaze 15 miles of existing state forest boundary.

2. Continue to maintain 100 primitive camp sites.

3. Continue to maintain public shooting range.

4. Continue to maintain viewsheds on 5 overlooks.

5. Continue to maintain 4 handicap hunter access roads.

Recreation Projects

1. Maintain approximately 62 miles of trails including 50 miles of hiking trails and 12 miles of mountain bike trail.

2. Continue to enhance upland game hunting opportunities by enhancing early successional wildlife habitat at Kirk Orchard, Bull Ring Ranch, Anthonys Ridge, Town Creek, and Kasecamp Bottomlands.

3. Provide 2-4 guided interpretive tours on the forest to share management principles and practices with the public.

SPECIAL PROJECTS

A. Forest Regeneration Inventory:

A Critical part of achieving long term sustainable forestry is monitoring and measuring the outcomes or responses to the management. Since the Stand delineation and inventory project was completed in 2017, these technician resources will be available to focus on inventory of the regeneration and response to management. This work will include collecting regeneration inventory data under the Silvah protocol and all stands will be sampled 3-5 years post regeneration harvest.

B. Continue to Network with Partners:

GRSF is committed to being a "teaching forest" and strives to reconnect people to the land through providing forest management tours for the general public, hosting training sessions and forest resource-based events, service learning projects, and serving as natural laboratory for schools and universities.

1. Maintain working relationship with Garrett College – Forestry classes use forest as training laboratory and implement practices directed by Forest Manager.
2. Maintain working relationship with Allegany College of Maryland-Forestry Program will use GRSF for forestry lab and site for their Summer Harvesting Course. GRSF will provide a site where timber can be extracted as part of harvesting course in return for in-kind services.
3. Continue participation with Appalachian Forest Heritage Area (AFHA) Continue partnership with the Ridge and Valley Stream Keepers (RVSK). GRSF provides meeting room and shares information in return RVSK monitor water quality in the streams within GRSF.
4. Continue partnership with Wildlife Institute and RGS to work on enhancing early succession wildlife habitat on the forest.
5. Continue to support and collaborate with Volunteer groups to facilitate the spirit of service on the forest and reconnect people to the land.
6. Continue to participate in I&E Programs including Home Ground, Becoming an Outdoors Woman, Natural Resources Careers Camp, etc..

Green Ridge State Forest
Fiscal Year 2021
Silviculture Projects Summary

Proposal Name	Compartment	Managed Ac.	Harvest Ac.	Est (mbf)	Prescription
1 David Thomas Road	68	34	27	100	VR
2 Double Pine Road	1	61	37	149	VR
3 Divide Ridge Road	43	38	25	103	VR
4 Kirk Road	17	71	57	215	VR
*Total		204	146	567mbf	

Abbreviations for prescriptions:
VR Variable Retention

Silviculture Proposal Narrative

Proposal Name: David Thomas Rd
Managed Area: 34 Acres
Harvest Area: 27 Acres

Resource Impact Assessment

Forest Community Types and Development: This is a mixed oak stand within the general forest area. According the GRSF specified 100 year rotation, this stand is over-mature at 108 years. Furthermore it is an overstocked stand. These facts constitute the selection of this stand for regeneration silviculture treatment.

Rare, Threatened and Endangered (RTE) species: There are no known RTE species currently on or impacted by this site.

Habitats and Species of Management Concern: There are no known habitats or species of management concern on this site.

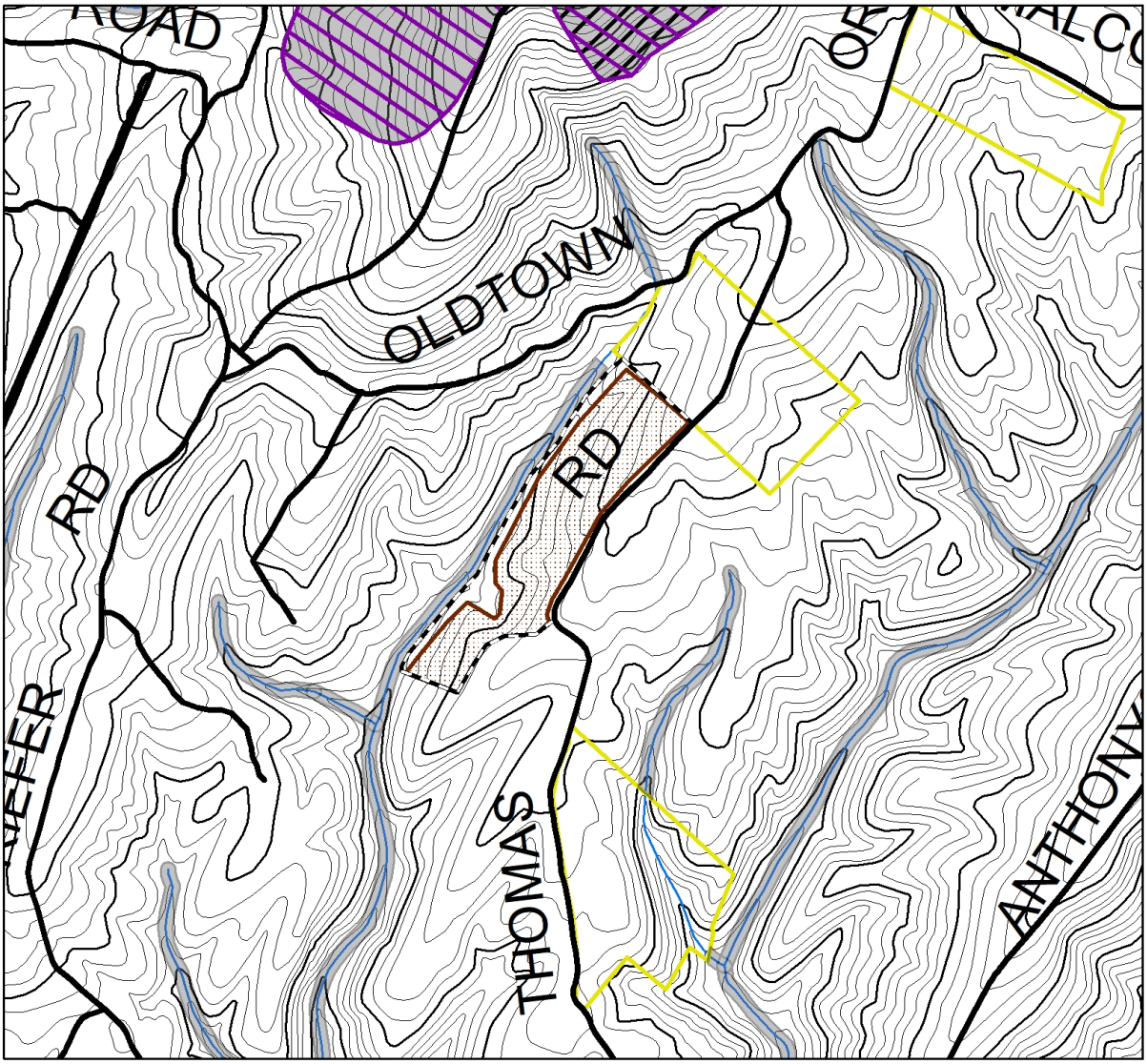
Water Resources: Water resources will be protected on this site. Access to the site is an existing road. All streams are already identified as HCVF and will be protected by a 50-foot wide no-cut forest buffer.

Soil Resources: Soil resources on this site will be protected under the ***Maryland Department of Natural Resources-Forest Service: Rutting Guidelines for Forest Operations on Maryland State Forests.***

Historic Conditions: This stand like most of GRSF likely developed on its own over the past 108 years into what it is today despite that fact that it was commercially clearcut, and likely the ground was converted to fruit orchards afterwards. Historically this site was likely dominated by American chestnut. However, chestnut blight has eliminated American chestnut from having a dominant position in the landscape.

Silvicultural Prescription: The recommendation for this stand is to regenerate the stand under the principles of variable retention. The objective is to achieve regeneration of a mixed oak stand while maintaining some attributes of the original stand for wildlife habitat, natural heritage, and aesthetics values.

FY-2021 Proposed Harvest David Thomas Rd



Compartment - 68
Managed Area - 34 Acres
Harvest Area - 27 Acres
Age - 108
Type - Mixed Oak
TPA - 281
AGS - 67 sq. ft.
Stocking - 121%+
Growth Rate - <2%
Soil Type - Klinesville
Site Index - 46
Composition - CO- 57%
WO- 19%

N

1 inch = 1,000 feet

0 250 500 1,000 1,500 Feet

MARYLAND DEPARTMENT OF NATURAL RESOURCES

MARYLAND DNR FOREST SERVICE

Legend

- Managed Area
- Harvest Area
- Wildlands
- OGEMA
- ESA
- HCVF
- GRSF Boundary

Silviculture Proposal Narrative

Proposal Name: Double Pine Rd
Managed Area: 61 Acres
Harvest Area: 37 Acres

Resource Impact Assessment

Forest Community Types and Development: This is a mixed oak stand within the general forest area. According the GRSF specified 100 year rotation, this stand is over-mature at 117 years. Furthermore it is an overstocked stand. These facts constitute the selection of this stand for regeneration silviculture treatment.

Rare, Threatened and Endangered (RTE) species: There are no known RTE species currently on or impacted by this site.

Habitats and Species of Management Concern: There are no known habitats or species of management concern on this site.

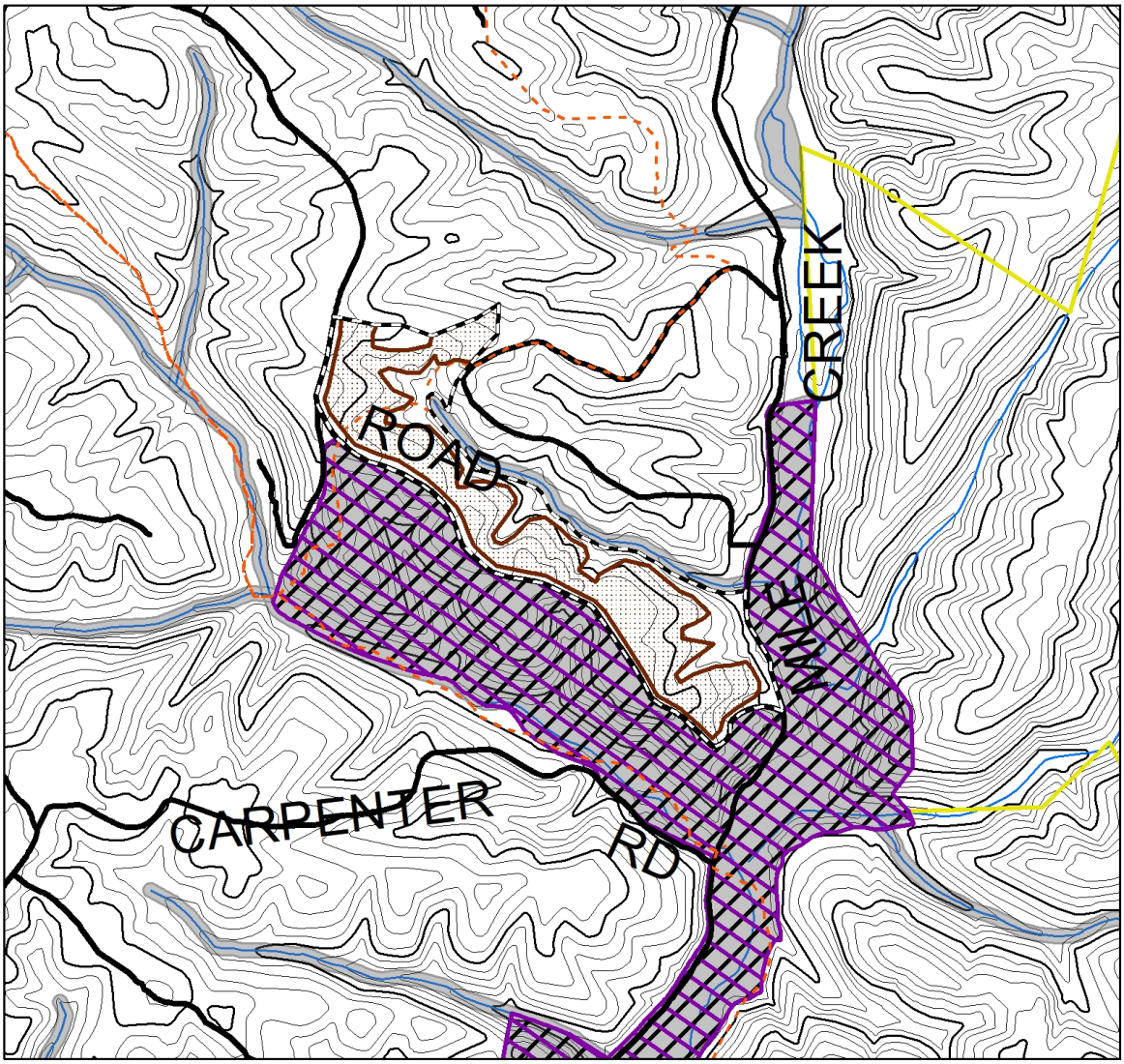
Water Resources: Water resources will be protected on this site. Access to the site is an existing road. All streams are already identified as HCVF and will be protected by a 50-foot wide no-cut forest buffer.

Soil Resources: Soil resources on this site will be protected under the ***Maryland Department of Natural Resources-Forest Service: Rutting Guidelines for Forest Operations on Maryland State Forests.***

Historic Conditions: This stand like most of GRSF likely developed on its own over the past 117 years into what it is today despite that fact that it was commercially clearcut, and likely the ground was converted to fruit orchards afterwards. Historically this site was likely dominated by American chestnut. However, chestnut blight has eliminated American chestnut from having a dominant position in the landscape.

Silvicultural Prescription: The recommendation for this stand is to regenerate the stand under the principles of variable retention. The objective is to achieve regeneration of a mixed oak stand while maintaining some attributes of the original stand for wildlife habitat, natural heritage, and aesthetics values.

FY-2021 Proposed Harvest Double Pine Rd



Compartment - 1
Managed Area - 61 Acres
Harvest Area - 37 Acres
Age - 117
Type - Mixed Oak
TPA - 212
AGS - 96 sq. ft.
Stocking - 108%+
Growth Rate - <2%
Soil Type - Weikert
Site Index - 59
Composition - WO- 63%
SO- 21%

N

1 inch = 1,000 feet

0 250 500 1,000 1,500 Feet

MARYLAND DEPARTMENT OF NATURAL RESOURCES

MARYLAND DNR FOREST SERVICE

Legend

- Managed Area
- Harvest Area
- Hiking Trail
- Wildlands
- OGEMA
- ESA
- HCVF
- GRSF Boundary

Silviculture Proposal Narrative

Proposal Name: Divide Ridge Rd
Managed Area: 38 Acres
Harvest Area: 25 Acres

Resource Impact Assessment

Forest Community Types and Development: This is a mixed oak stand within the general forest area. According the GRSF specified 100 year rotation, this stand is mature at 100 years. Furthermore it is an overstocked stand. These facts constitute the selection of this stand for regeneration silviculture treatment.

Rare, Threatened and Endangered (RTE) species: There are no known RTE species currently on or impacted by this site.

Habitats and Species of Management Concern: There are no known habitats or species of management concern on this site.

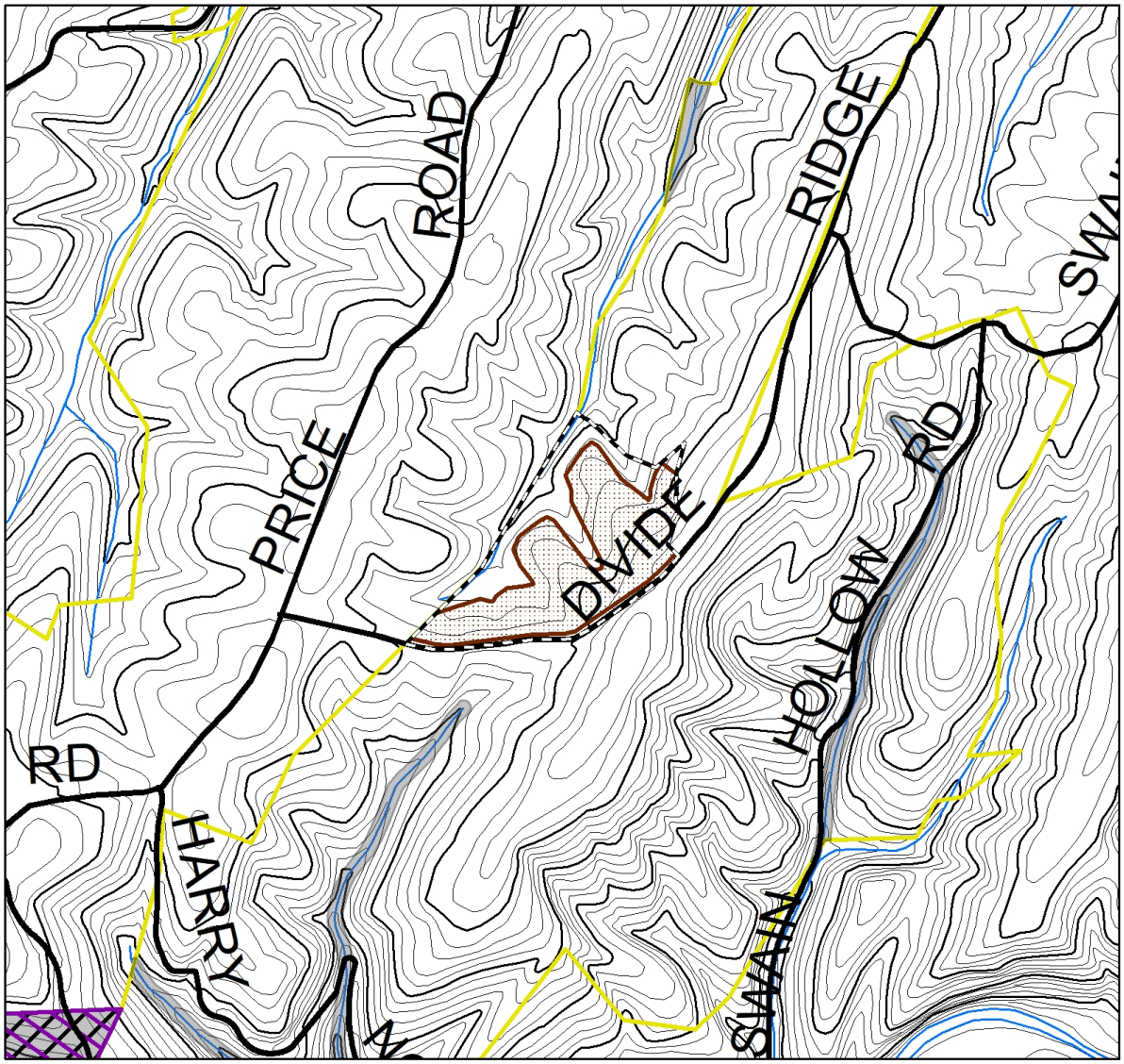
Water Resources: Water resources will be protected on this site. Access to the site is an existing road. All streams are already identified as HCVF and will be protected by a 50-foot wide no-cut forest buffer.

Soil Resources: Soil resources on this site will be protected under the ***Maryland Department of Natural Resources-Forest Service: Rutting Guidelines for Forest Operations on Maryland State Forests.***

Historic Conditions: This stand like most of GRSF likely developed on its own over the past 100 years into what it is today despite that fact that it was commercially clearcut, and likely the ground was converted to fruit orchards afterwards. Historically this site was likely dominated by American chestnut. However, chestnut blight has eliminated American chestnut from having a dominant position in the landscape.

Silvicultural Prescription: The recommendation for this stand is to regenerate the stand under the principles of variable retention. The objective is to achieve regeneration of a mixed oak stand while maintaining some attributes of the original stand for wildlife habitat, natural heritage, and aesthetics values.

FY-2021 Proposed Harvest Divide Ridge Rd



Compartment - 43
Managed Area - 38 Acres
Harvest Area - 25 Acres
Age - 100
Type - Mixed Oak
TPA - 208
AGS - 107 sq. ft.
Stocking - 120%+
Growth Rate - <2%
Soil Type - Weikert
Site Index - 62
Composition - CO- 46%
SO- 19%

N

1 inch = 1,000 feet

0 250 500 1,000 1,500 Feet

MARYLAND DEPARTMENT OF NATURAL RESOURCES

MARYLAND DNR FOREST SERVICE

Legend

- Managed Area
- Harvest Area
- Wildlands
- OGEMA
- ESA
- HCVF
- GRSF Boundary

Silviculture Proposal Narrative

Proposal Name: Kirk Rd
Managed Area: 71 Acres
Harvest Area: 57 Acres

Resource Impact Assessment

Forest Community Types and Development: This is a mixed oak stand within the general forest area. According the GRSF specified 100 year rotation, this stand is mature at 100 years. Furthermore it is an overstocked stand. These facts constitute the selection of this stand for regeneration silviculture treatment.

Rare, Threatened and Endangered (RTE) species: There are no known RTE species currently on or impacted by this site.

Habitats and Species of Management Concern: There are no known habitats or species of management concern on this site.

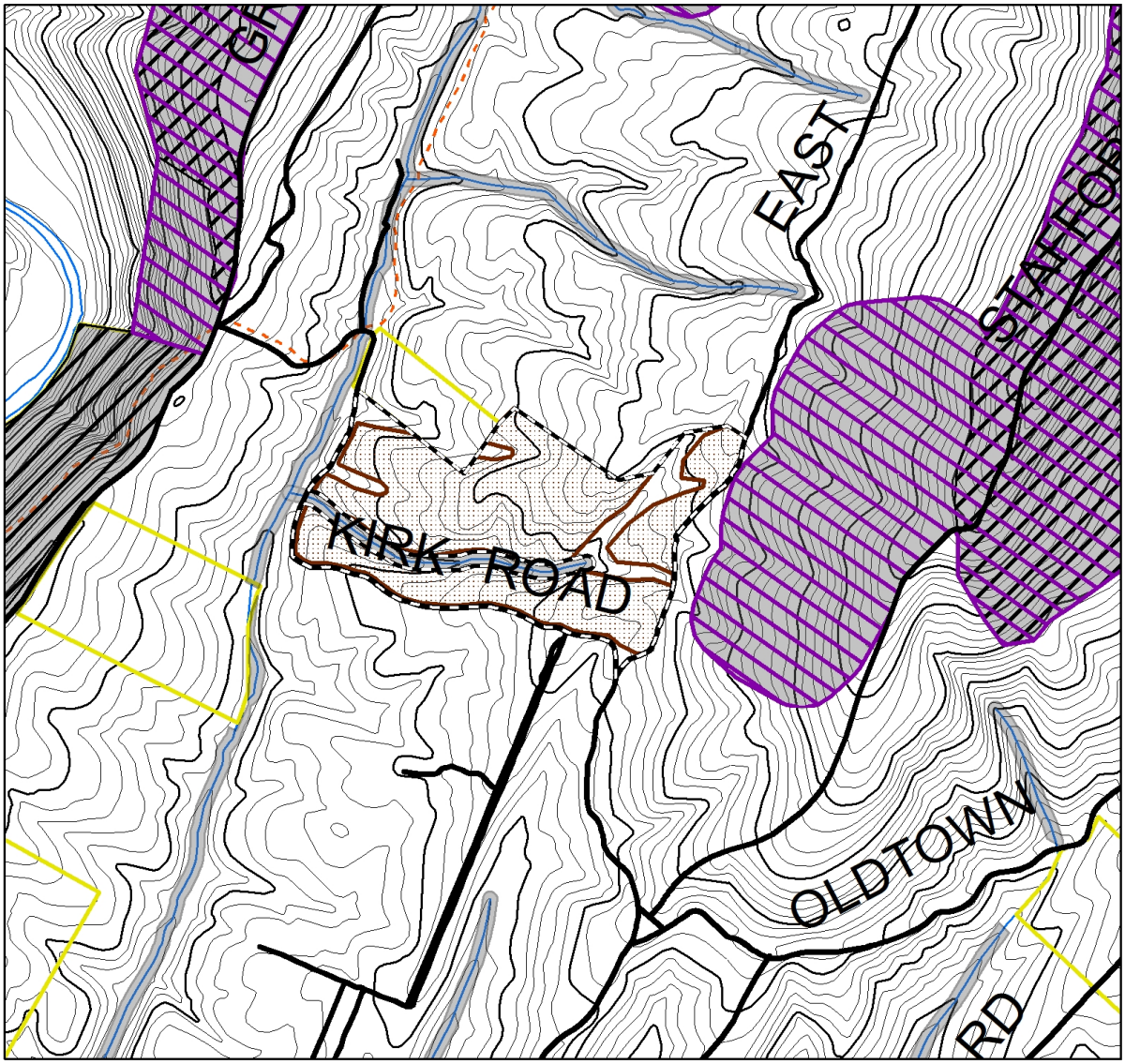
Water Resources: Water resources will be protected on this site. Access to the site is an existing road. All streams are already identified as HCVF and will be protected by a 50-foot wide no-cut forest buffer.

Soil Resources: Soil resources on this site will be protected under the ***Maryland Department of Natural Resources-Forest Service: Rutting Guidelines for Forest Operations on Maryland State Forests.***

Historic Conditions: This stand like most of GRSF likely developed on its own over the past 100 years into what it is today despite that fact that it was commercially clearcut, and likely the ground was converted to fruit orchards afterwards. Historically this site was likely dominated by American chestnut. However, chestnut blight has eliminated American chestnut from having a dominant position in the landscape.

Silvicultural Prescription: The recommendation for this stand is to regenerate the stand under the principles of variable retention. The objective is to achieve regeneration of a mixed oak stand while maintaining some attributes of the original stand for wildlife habitat, natural heritage, and aesthetics values.

FY-2021 Proposed Harvest Kirk Rd



Compartment - 66
Managed Area - 71 Acres
Harvest Area - 57 Acres
Age - 100
Type - Mixed Oak
TPA - 290
AGS - 111 sq. ft.
Stocking - 121%+
Growth Rate - <2%
Soil Type - Lehew
Site Index - 57
Composition - WO- 24%
SO- 21%

N

1 inch = 1,000 feet

0 250 500 1,000 1,500 Feet

MARYLAND DEPARTMENT OF NATURAL RESOURCES

MARYLAND DNR FOREST SERVICE

Legend

- Managed Area
- Harvest Area
- Wildlands
- OGEMA
- ESA
- HCVF
- GRSF Boundary

WATERSHED IMPROVEMENT PROJECTS

Continue to establish and enhance riparian buffers along Town Creek with volunteer tree planting projects. Non invasive tree and shrub species will be planted to establish forest buffers and enhance wildlife habitat.

SPECIAL WILDLIFE HABITAT PROJECTS

1. Continue Implementation of the Kirk Orchard, Anthony's Ridge, and Kasecamp Bottoms, and Town Creek Special Wildlife Habitat Plans.

2. Continue rotational mowing and brush management in approved grasslands and other wildlife openings.

ECOSYSTEM RESTORATION PROJECTS

1. Work will continue to suppress ailanthus populations on the forest. Focus will be put on roadside populations, Special Wildlife Habitat areas, and individuals found within harvest proposal areas. Research has shown that suppression of ailanthus is most successful when using basal bark or cut surface treatments prior to harvest.

MONITORING PROJECTS

1. MD DNR Fisheries will continue to monitor aquatic populations in Town Creek and the Potomac River. The Ridge and Valley Stream Keepers will also continue to monitor water quality in the streams within the region.

2. GRSF staff will monitor regeneration of stands by completing post harvest regeneration inventories on all final rotation harvests during 2nd & 5th growing season.

3. MD DNR Wildlife & Heritage Division will continue to monitor 2 GRSF resident black bear sows and cubs that are collared and gps equipped.

4. MD DNR Wildlife & Heritage Service will continue to research and monitor T&E species on the forest including wood turtle, timber rattlesnake, and several lepidoptra species.

5. MD DNR Wildlife & Heritage Service will continue to monitor big game harvest on the State Forest via required hunter harvest check in system.

6. GRSF staff will continue to monitor and document all timber operations within the forest on a weekly basis.

7. Maryland Department of Agriculture (MDA) will continue to monitor gypsy moth, hemlock wooly adelgid, and other insect pest populations on the forest.

8. MD DNR Wildlife & Heritage Service will continue to monitor whip-poor-will populations with annual spring nightjar survey.

9. MD DNR Wildlife & Heritage Service will coordinate monitoring of GWWA population with spring surveys.

Operational Management

1. Introduction

This section of the plan is designed to cover the annual cost and revenues associated with the

operational management of Green Ridge State Forest. It is the Department's intent that most of the revenues generated from the GRSF will be used to pay for the management and operation of the Forest. As stated in Chapter 1 of this plan, "*The primary goal of the Green Ridge State Forest Sustainable Management Plan is to demonstrate that an environmentally sound, sustainably managed forest can contribute to local and regional economies while at the same time protecting significant or unique natural communities and elements of biological diversity."*

The numbers expressed in this section are only estimates and averages of annual expenses and revenues. These numbers will fluctuate each year based on management prescriptions, economic conditions and public use of the forest.

The following information is a breakdown on Revenues and Operational costs associated with the Green Ridge State Forest. These figures are only estimates that are based on projected revenues and operational expenses. Yearly changes in the timber markets and weather conditions can severely affect revenues. Also weather can greatly affect recreation revenue. Operational expenses will vary from year to year mainly based on costs associated with proposed projects. For many special projects other sources of revenues such as matching grants will be sought to help offset the cost to the Department.

2. Green Ridge State Forest Revenue

Estimated: $200,000 to $225,000

Revenues that are generated from the Green Ridge State Forest are deposited into the Department's Forest Reserve Fund. In order to cover expenses out of this Fund, a Green Ridge Forest Budget must be developed a year in advance as part of the larger DNR budget. It then goes through the legislative approval/review process along with all other state operating budgets. Once adopted, the budget goes into effect the first day of the fiscal year (July 1st).

Forest Product Sale Revenue: *Estimated: $150,000 to $175,000*

This revenue is generated from the sale of forest products, which are identified in the Annual Work Plan. Traditional forest products include pulpwood and sawtimber from intermediate and regeneration harvests. This revenue is tied to forest harvest activities identified in the annual work plan and will vary each year. With the current age class distribution of the forest most revenue will be from regeneration final harvest operations.

Recreation Revenue: *Estimated: $75,000 to 125,000*

This revenue is generated from the sale of camping permits, fuel wood permits, and shooting range permits.

Other Revenue/Funding Sources

Annual Amounts vary, Estimated:$NA

Other budgetary funding that is utilized on an annual basis in the management of Green Ridge State Forest comes from a variety of sources including the Forest or Park Reserve Fund and General Funds.

Grants

Annual Amounts vary, Estimated for FY-2021: $0

Other funding comes in the form of grants through state and federal sources and are primarily utilized in recreation, habitat and watershed restoration projects. These funds are project specific. Some funding will be obtained through partnerships and grants, such as National Recreation Trail Grants funds. Expenses include the installation recreation improvements, removing invasive species and re-establishing native plant communities and habitat.

3. OPERATIONAL COST:

Estimated total Annual Expenses: $449,477

Operational expenses are those costs paid directly out of the GRSF operational budget by the State Forest Manager and vary based on approval of operational budgets. The Forest Manager prepares a proposed operational budget for the forest based on instructions provided approximately one year in advance of the fiscal year. The FY-2019 budget proposal was prepared in August of 2017.

Staffing Cost

Estimated total Annual Expenses: $449,477

Operational expenses are those costs paid directly out of the GRSF operational budget by the State Forest Manager and vary based on approval of operational budgets. The Forest Manager prepares a proposed operational budget for the forest based on instructions provided approximately one year in advance of the fiscal year. The FY-2021 budget proposal was prepared in August of 2019.

Classified Salaries, Wages and Benefits, Estimated: $256,200

This cost is associated with Departmental State Personnel classified salaries. This staff is responsible for developing and implementing annual work plans, managing the daily activities on the forest, including resource management, recreation program management, maintenance, and administration.

Contractual Staffing, Estimated: $98,555

This cost is associated with contractual staffing associated with operations of the state forest. Contractual personnel are responsible for assisting classified personnel in conducting work outlined in the annual work plan, managing the daily activities on the forest, including boundary line work, maintenance of trails, forest roads, maintaining primitive campsites, a public shooting range, overlooks, wildlife habitat areas, and assist with implementing all maintenance, recreational, silviculture, and ecosystem restoration projects.

Land Operation Cost

Estimated: $84,722

This includes expenses for office and field equipment, vehicles, gates, gravel, signs, boundary paint, roadwork contracts and construction, trash removal from illegal dumping, boundary line work & surveying, tree planting, site preparation, control of invasive species, pre-commercial thinning and other forest management practices. Some of these costs will vary greatly from year

to year based on the activities identified in the Annual Work Plan.

Forest Certification, Inventory & Monitoring Program

Estimated: $10,000

This estimate reflects the annual cost of various on-going inventory and research projects on the forest. Expenses are directly tied to Forest Certification. The purpose of forest monitoring is to accurately evaluate forest health and the effects of specific management activities. Resource managers will use the information to make informed future management decisions (i.e. adaptive management). Cost would cover both forest resource and sensitive habitat inventories and monitoring the effects of various restoration projects.

Expenses for forest certification will vary from year to year and will be at their highest at the initial certification and then every five years when the re-certification is done. Routine audits are used to verify compliance with the various certification programs. The goal is to certify Green Ridge State Forest under both the Sustainable Forest Initiative (SFI) and the Forest Stewardship Council (SFC). Each certifying agency takes a slightly different look at what is needed for sustainable forest management. Expenses will include fees for audits and annual monitoring programs for compliance with the certification requirements.

Future plans include hiring additional staffing to cover wildlife management activities, restoration projects, recreation management, monitoring, and additional forestry related activities outlined in this Sustainable Resource Management Plan for Green Ridge State Forest.

4. Summary

This is the general breakdown on Revenues and Operational Cost associated with the Green Ridge State Forest for FY-2021. As described, these figures will vary from year to year. This generalization of the operating budget suggests the importance of maintaining income levels in order to achieve the goals set forth in the other portions of this plan (i.e. sustainability).