NATURAL RESOURCES MANAGEMENT PLAN

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Prepared For:

A. B. Sample Estate

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A. B. Sample Estate
440 Acres
Sample County, Florida

Introduction

The purpose of this stewardship management plan is to identify the resources of the A. B. Sample Estate and to make recommendations based on the landowner's objectives and goals.

The main objective of the landowner is to actively manage timber as a source of revenue while enhancing the overall value of the property through aesthetic enhancement, wildlife habitat improvement, soil and water conservation, and recreational improvements. Timber and wildlife recommendations will be developed along with future cash flow and cost projections.

Location

The Sample Estate is located approximately X miles north of Sampleville, Florida in Section XX of Township X North, Range X West, Sample County.

History

We speculate that the Estate has never been in any type of agriculture like the most of the surrounding area was at one time. This is due to the wet nature of the tract. This particular area was probably once a natural longleaf pine / wiregrass area.

Tract Characteristics

This 440-acre tract has been divided into five different sections of timber. The tract also contains several non-plantable wet areas and food plots. Each section of timber has been inspected for volume, value, growth, stocking, merchantibility, and features related to wildlife to determine the best recommendations.

Future management activities will include timber harvests, prescribed burning, edge management, food plot establishment, and food plot maintenance. These management activities will occur over a period of time to achieve the landowner's goals and objectives.

Timber

Timber management activities over the next five years will involve first thinnings in the pine stands to remove the poorly formed and diseased trees and prescribed burning to continue the of control hardwood competition and fuel hazards. Thinnings will take place in years 2003 and 2004.

The key ingredient to intensive timber management is pine plantation thinnings. The goal and purpose of our management scheme is to grow the largest sized trees in as little time as possible because the bigger trees are more valuable. The sooner this objective can be met, the annualized return to the landowner will be greater. Therefore, we advise clients on first thinnings to have all of the diseased and suppressed trees taken out and to leave enough space for future growth. On second thinnings we are more concerned with leaving only the best crop trees which will provide the healthiest, most profitable stand.

Wildlife

Wildlife management on this tract will feature species such as bobwhite quail, white-tailed deer, and wild turkey. Although management recommendations will focus on enhancement of the property for game species, management recommendations are provided for other game species and non-game species as well.

Topography

Tract topography is typical of a Lower Coastal Plain flatwoods region with no slopes except for where there are drains or springheads. During normal weather conditions the tract is generally wet during the wetter times of the year. A topographic map is included on page X of this plan.

Aesthetics

Silvicultural practices such as prescribed burning and thinnings are very beneficial to timber production, wildlife habitat enhancement and especially aesthetics. However, prescribed burning can be extremely dangerous and potentially damaging to the property. For this reason it is highly recommended that burning be carried out by certified burners who properly prepare smoke management plans and follow those plans as closely as possible. All burning should be preceded by the preparation of a smoke management plan so that in the event of a problem, the property owner will be afforded some limit of liability by law.

Soil and Water Conservation

Soils in the Norfolk series are most prevalent on the property. The Norfolk series consists of deep, well-drained, strongly acid soils that are on uplands in nearly level to strongly sloping areas. These soils have medium surface runoff and medium internal drainage. Permeability is rapid to moderately rapid in the surface soils and moderate in the subsoil. These soils are well aerated throughout and have good tilth. They have a high capacity for holding available moisture. They retain plant nutrients well and respond well to fertilizers. Where the slopes are mild, they are well suited to a wide variety of cultivated crops. The soils have site indexes of 60 - 70 for longleaf, 75-85 for slash pine, and 90 for loblolly pine.

These soils developed from thick beds of acid sandy clay loam material. They have a dark-gray to light brownish-gray loamy sand surface layer, 4 to 10 inches thick. The loamy sand extends to depths of 20 inches in some places. The subsoil is yellowish-brown porous, friable fine sandy clay loam. It is underlain by distinctly mottled sandy clay loam parent material.

The native vegetation was mainly longleaf pine, low shrubs, and wiregrass, but very little of this native vegetation remains in Sample County. Throughout the county, much of the native vegetation has been replaced by planted pines and hickory, various oaks, and shrubs, especially where prescribed burning has been excluded.

Soil Name	**Vegetative Community**	**Slope in Percent**	**Drainage**	**Site Index***
Norfolk loamy fine sand	Flatwoods/ Wiregrass	0-5	Well	Loblolly-90 Slash-80 Longleaf-70
Norfolk loamy sand	Flatwoods/ Wiregrass	0-5	Moderate	Loblolly-90 Slash-80 Longleaf-70
Portsmouth fine sandy loam	Cypress/Gum	0-2	Very Poor-Poor	Loblolly-95 Slash-80

*****Average height of dominant and co-dominant trees at age 50

Prescribed Burning:

Burning is an important tool in forest and wildlife management. For forest management, burning reduces and ultimately eliminates woody species in stands so that pines in those stands have little competition. Burning also eliminates hazardous fuel in case of future wildfires. For wildlife management, burning creates new, green growth which provides browse, seed, and insects that many wildlife species feed on. Early season burning (December to February) is usually done to renew vegetation for wildlife and reduce hazardous fuel. Late season burning (March to May) is used for light to heavy control of hardwoods and is responsible for wiregrass flowering, which, in turn, disperses seed and promotes the species. This is also called a growing season burn.

We recommend that prescribed burning be done in a checkerboard fashion on the Sample Estate. Stands 1-4 should be broken up into at least 3 different sections apiece and each should be burned along with another section from a different stand every third year. This pattern will ensure that new vegetation and cover will be spread throughout the property at different times.

Unburned strips approximately 30-40 yards wide running the length of the property or within each stand can be helpful in establishing a quail population. This area would provide escape cover from predators such as hawks. The corridor should be left unburned for several years in order to establish thick cover. Outside the corridor along

the edges there should be some type of cover planted so that the quail can have easy access to other areas without being exposed to predators.

TIMBER STANDS

STAND 1 - LOBLOLLY PINE (85 ACRES)

Description

This stand of loblolly was bedded and then planted during the 1984-1985 planting season and is otherwise known as the Northwest Stand. The present stocking is approximately 521 trees per acre with an average diameter of 6 inches and an average merchantable height of 28 feet. Near the middle of the stand on the eastern side is an area of about 4 acres that contains unfertile soil and has produced very few trees. This area of poor stand establishment was not included in the timber cruise. In general, Stand 1 has an under-story much like that of a typical flatwood site with ti-ti and gallberry bushes. Bracken fern and water oaks are also present.

Recommendations

Stand 1 should be fifth-row thinned in 2003 to remove the diseased and suppressed trees in order to give room for the more vigorous trees to accelerate in growth. Leaving approximately 150-200 trees per acre will maximize timber production while resembling quail woods. A prescribed burning schedule should begin the year following the thinning operation and continue at two-year to three-year intervals.

The thinning will benefit quail, deer, and turkey by opening up the stand. The sunlight will be able to penetrate the forest floor allowing herbaceous plants and small shrubs to grow in the understory, therefore increasing the forage productivity of the stand. Prescribed burning will control the understory and also create new vegetation.

If the timber is not of merchantable long-wood pulpwood length at the time of the thinning, an in-woods whole tree chipping operation will be used. These operations require large ramp sites due to larger machinery and the rapid pace at which they move; however, the ramp sites are generally cleaner of logging debris. These larger ramps will present an opportunity for food plots and fallow openings. The area of low soil fertility can be used as a ramp site.

STAND 2 - SLASH PINE (100 ACRES)

Description

The Northeast portion of the Estate was bedded and then planted to slash pine during the 1979-1980 planting season. This stand has been thinned twice in the last 10 years with the last time being in 1999. The stocking average is approximately 115 trees per acre that have an 8-inch diameter with 37 feet of merchantable height. The understory is very open and it consists of primarily bracken fern, wiregrass, ti-ti , gallberry bushes, and an occasional sweetgum. This stand was partially burned in 2000.

Recommendations

The prescribed burning schedule that has been followed in Stand 2 is the cause for the general openness, and the herbaceous plants and grasses present that wildlife prefer as a food source. Continue to burn with late season burns every two to three years.

A food plot has already been established near the southeast corner of the stand, as well as a pond located on the western edge near the clearcut. These areas will provide wildlife with an abundant food source and a watering hole during drought conditions. Parts of the openings can be planted in oats, wheat, and rye for deer and turkey. For quail, the remaining areas can be planted in corn and grain sorghum or they can be left as fallow areas.

A fertilization treatment for Stand 2 should be applied in the late winter / early spring of 2003. Foliar samples will be taken in the winter to determine the prescription needed.

For timber objectives, another harvest should not be scheduled until the majority of the trees in the stand can be considered of substantial chip-n-saw size with a small percentage of sawtimber mixed in. This period will occur in approximately 6-8 years.

STAND 3 - SLASH PINE (121 ACRES)

Description

The Southwest block has a present stocking of 481 trees per acre and the average diameter is about 5.5 inches with merchantable height at only 25 feet. It was bedded and then planted during the 1987-1988 planting season. This stand includes several wet, isolated areas such as cypress and gum ponds. Between Stand 3 and Stand 1, the edge of a wet area and the adjacent uplands has been partially converted into a food plot. The ground cover is made up of ti-ti, gallberry bushes, and pinestraw since the last prescribed burn in 1999.

Recommendations

At the current time Stand 3 is too young for any harvest to take place but by 2004 the stand should be ready for its first thinning. Approximately 150-200 trees per acre will be left to achieve the look of quail woods. This fifth-row thinning will accelerate the growth in the more vigorous and healthier trees and open the canopy so that herbaceous weeds

and grasses may grow. The thinning operation will also be a good time to establish food plots.

Stand 3 should be burned before harvest in the winter of 2003-2004 and the year following the harvest, 2004. A prescribed burning schedule should be followed thereafter on two to three year intervals. With late season burns the native wiregrass will comeback after fuel hazards are reduced with early season burns.

STAND 4 - LOBLOLLY PINE (82 ACRES)

Description

The Southeast portion of the Estate was bedded and then planted in loblolly pine during the 1980-1981 planting season. The topography of this stand includes steeper slopes which is different from the other stands. The stocking is currently at 162 trees per acre with an average diameter of 7 inches and an average merchantable height of 32 feet. Stand 4 was thinned in 1997 and has been burned one time since harvest. A fertilization treatment, done in 2002, put out 200 lbs./acre of nitrogen, 50 lbs./acre of phosphorus, and several micro-nutrients. Bracken fern, pine straw, wiregrass, water oak, ti-ti, and gallberry make up the ground cover.

Recommendations

Conduct another thinning sometime between 2005-2008 to open the canopy of the stand. Doing this will further the forage productivity and the growth of the trees. Burn in the winter of 2002 and again in the late spring / early summer months of 2004.

STAND 5 – SLASH PINE (22 ACRES)

Description

Located between Stands 1,2, and 4 this stand of slash pine was bedded and then planted during the 1998-1999 planting season. The stocking is presently 540 trees per acre, all of which are pre-merchantable trees. The ground cover consists of water oak, greenbriar, wiregrass, ti-ti, and gallberry.

Previous to this planting, Stand 5 was part of Stand 4. This portion was clear-cut due to the off-site species planted on unfertile ground. The lack of growing was caused by loblolly pine's demand for nutrients that this area could not provide. Therefore, slash pine was planted, which is a less nutrient demanding pine species than loblolly.

Recommendations

Stand 5 should be checked in the late summer of 2003 for a herbicide release treatment. If the application is needed it will be applied in late August to October of 2003. The purpose of a release is to eliminate all competing vegetation such as sod-forming grasses and woody plants. Arsenal will be used at a rate of 16 ounces per acre with no surfactant.

Activities Schedule

Activity	Stand No.	Date	Income (Cost)	Annual Net
Release	5	2002		
Fertilization	2	2003		
Disk Firelines & Prescribe Burn**	2, 3, 4*	2003		
Thinning	1	2003		
Commission	1	2003		
Disk Firelines & Prescribe Burn	1, 4*	2004		
Fertilization	1	2004		
Thinning	3	2004		
Disk Firelines & Prescribe Burn**	2*, 3, 4*	2006		
Fertilization	3	2005		
Disk Firelines & Prescribe Burn**	1*, 2*, 4*	2006		
Disk Firelines & Prescribe Burn**	1*, 2*,3, 4*	2003		

- *Denotes growing season burn
- **Fireline installation not included

WILDLIFE MANAGEMENT

Roads:

Roads should be wide enough to allow sufficient sunlight to reach the edges so that crops or natural vegetation can grow. These planted roadsides can lead to larger planted areas such as old log decks or established food plots. If planting the roadsides is not an option the natural vegetation can be maintained at different stages of succession through rotational mowing / harrowing practices. For quail and turkey shrub-like plants such as autumn olive or bicolor lespedeza can be planted on roadsides to supplement their diets. For deer and turkey a mixture of oats, wheat, and rye would be very beneficial.

Fallow Openings:

Openings in the woods left unplanted are very beneficial to many wildlife species. Quail prefer fallow fields because of the many bugs residing in them. These openings can be maintained with fire, harrowing, or mowing. It is not a bad idea in fairly large openings to keep different parts of them at different stages of development. In other words, you may mow half of the opening every year while disking the other half every other year. This type of mowing and disking regime works well if it is done in irregular shapes throughout the opening.

According to quail studies done by Tall Timbers Research Facility broods mostly used fields of two acres in size that had three-fourths of the field harrowed in the late winter and one-fourth left as cover.

Planted Food Plots:

Food plots should be irregularly shaped and situated in areas where wildlife will feel secure when using them. They work well when placed in areas where two different cover types, such as planted pines and a hardwood drain, come together. Combination plantings should be used to extend the life of the food plot and insure production.

Deer and turkey prefer combination plantings like oats, wheat, and rye, or oats, wheat, and arrowleaf clover. Persimmon trees and sawtooth oaks give good mast production and work well within food plots to attract game for harvest.

Forest Management Practices:

In many cases forest management practices benefit wildlife. Thinning young pines is one such practice. Thinning allows sunlight to penetrate to the ground enhancing growth and production of natural vegetation. Burning is another common forest management tool that is beneficial to wildlife. Burning maintains vegetation at useable heights for deer and turkey and allows quail easy access into and through stands for quail.

GENERAL FOOD PLOT PLANTING GUIDE

Plant Type	Plant Species	Timing	Rate** Lbs/Ac	Depth	Planting Technique	Target Species ***	Soil Adaptions
Grasses	Corn	Mar-May	12-20	1/2 - 1"	Single	Q, D, T	Well-drained uplands
	Sorghum	May-June	15-20	1 - 1 1/2"	Strips	Q, D, T	Well-drained uplands
	Millet	Apr-June	35-50	1/2 - 1"	Strips	Q, T	Well-drained uplands
Legumes	Cowpeas	Apr-June	60-90	1/2 - 1"	Combo B	D	Moderate to Well-drained
	American Jointvetch	Mar-June	5-10	1/2 - 1"	Combo B	D	Well-drained sandy to silt loams
	Arrowleaf Clover	Sep-Nov	5-10	1/4 - 1/2"	Combo A	D, T	Well-drained
	Crimson Clover	Sep-Nov	20-25	1/4 - 1/2"	Roadside	D, T	Well-drained upland clay
Cereal Grains	Wheat	Sep-Nov	75-120	1/2 - 1"	Combo A	D, T	Well-drained to Moist
	Oats	Sep-Nov	50-100	1/2 - 1"	Combo A	D, T	Moderate to Well-drained
	Rye	Sep-Nov	85-115	1/2 - 1"	Combo A	D, T	Well-Excessively Well-drained
Other	Chufa*	May-June	25-50	1/2 - 1"	Single	D, T	Well-drained

*Chufas should be planted in sandy well-drained areas to allow the turkey to scratch them out of the ground.

**Rate listed is for planting a single species, if species are used in combination the rate should be divided by the number of species used in the combination.

***__D__ - deer, __T__ - turkey, __Q__ – Quail

Combo A - all species of combination A can, and should be planted together; the same goes for **Combo B**.
Single - these species should not be planted in combination.
Strips - winding strips 5-10 feet wide should be planted within larger food plots.

Note: Fallow disking areas in late winter will produce valuable weed plants for quail, turkey, and deer. Strips of these fallow-disked areas should be left in food plots.