Indiana Department of Natural Resources – Division of Forestry

Draft

Resource Management Guide

State Forest Jackson-Washington | Compartment 10 | Tract 30
Forester M. Vogel | Date July 31, 2014
Management Cycle End Year | Management Cycle Length 20 years

Location

Tract 30 is located in Township 3N, Range 4E, in Washington County. About 28 acres are in Section 11 and about 6 acres are in Section 14.

General Description

This tract is approximately 36 acres of hardwood forest.

History

A portion of the tract was included in the purchase of 928.5 acres for $12,070 from the Nolan Family in 1954. In 1996 the state acquired 180 acres from Evelene Nicholson; the tract boundary was adjusted accordingly.

A harvest in 1988 included tracts 30, 31, and 32, which totaled 115 acres at that time. The inventory conducted before the sale found 72% stocking, 81 sq ft of basal area per acre, and 1,544 bf per acre in tract 30. 35 acres of the tract were harvested, at 1255 bf per acre. 118,530 bf total from the three tracts were sold to Adkins Sawmill, Inc. for $12,777. Sugar maple and American beech contributed the greatest volumes. The goal of the harvest was an improvement cut removing large, mature trees, thinning medium saw-size trees, and removing culls and defect trees to release tuliptree, white ash, and oaks.

Forester Eric Johnson reported that the land had been cut heavily before it was purchased by the state, resulting in trees of poor quality on good site conditions

Landscape Context

Tract 30 is located east of N. Delany Park Road. The tract is surrounded primarily by State Forest land. Some private residential land and farmland lie to the south. The north tract boundary is a mapped perennial drainage flowing into Spurgeon Hollow Lake. Land use has changed very little in the past ten years, with exception to the area surrounding Salem, IN, which has experienced some growth and expansion.

Topography, Geology and Hydrology

The topography in this tract ranges from flat on the ridgetop to very steep on the slopes. This tract is comprised primarily of two ridges that originate from the western tract boundary; the ridges are parallel and extend to the northeast. The entire tract is accessed from these two ridges. The slopes from the two ridges are generally north and/or west facing, with one east facing slope on the northern ridge. The underlying geology consists largely of siltstone and shale. The hydrology of this tract is comprised of ephemeral drainages which lead north to a mapped perennial drainage. Located to the northwest, is Spurgeon Hollow Lake, it is manmade and approximately 22 acres in size. Water

flowing out of Spurgeon Hollow Lake flows in a westerly direction, eventually leading into Delaney Creek, which then flows north to the Muscatatuck River, and eventually into the East Fork White River. A small manmade wildlife pond is located west of the tract. Another manmade wildlife pond is located south of the main access road, which has an easement through private property for about 1,900 feet from Delaney Creek Road, east of the State Forest property boundary with private property. Following Best Management Practices (BMP's) will minimize potential impacts to the mapped and unmapped intermittent streams, ephemeral streams, and wildlife ponds from prescribed management activities.

Soils

Berks-Weikert complex (BhF) ~30.1 acres This soil series is steep to very steep, well drained soils are on side slopes in the upland areas. The Berks soil is moderately deep, and the Weikert soil is shallow. The two soils occur as areas so intricately mixed that mapping them separately is not practical. This soil complex is suited for trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 50 (black oak) to 70 (white oak). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Gilpin silt loam (GlD2) ~2.5 acres This strongly sloping, moderately deep, and well drained soil is on side slopes in the uplands. This soil is fairly well suited to trees. The erosion hazard, the equipment limitations, and plant competition are the main concerns in the management of wooded areas. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site indexes for hardwood species range from 80 (red oak) to 95 (yellow- poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Cuba silt loam (Cu) ~0.29 acre This series consists of very deep, well drained soils that formed in acid, silty alluvium. These soils are on flood plains, flood-plain steps and natural levees. Slope ranges from 0 to 3 percent. Native vegetation is mixed hardwood forest. This soil is well suited to trees. No major hazards or limitations affect planting or harvesting. The site indexes for hardwood species is 100 (yellow-poplar). Preferred trees to manage for are bitternut hickory, white oak, red oak, black walnut, sugar maple, and yellow-poplar.

Wellston silt loam (WeC2, WeD) ~3.0 acres This series consists of deep or very deep, well-drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. Wellston soils are on nearly level to steep uplands in areas of acid sandstone, siltstone, or shale bedrock; but are most common on ridgetops. Slope ranges from 0 to 50 percent but are dominantly 4 to 18 percent. Native vegetation consisted of oak, hickory, dogwood, tulip poplar, and cherry. This soil is fairly well suited to trees. Locating logging roads, skid trails, and landings on

gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. Seedlings survive and grow well if competing vegetation is controlled. The site indexes for hardwood species is 81 (red oak) and 90 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, persimmon, red oak, scarlet oak, shagbark hickory, sugar maple, yellow-poplar, and white oak.

Zanesville silt loam (ZaB, ZaC2) ~0.97 acre This gently sloping, deep, moderately well-drained or well-drained soil is found on ridge tops on the uplands. The soil is well suited to trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site index for this soil ranges from 70 (white oak) to 90 (yellow-poplar). Preferred trees to manage for are black oak, bur oak, chestnut oak, persimmon, scarlet oak, red oak, and white oak.

Access

This tract can be accessed on foot from Delaney Creek Road, from the northwest and via Spurgeon Hollow Lake in the north. Vehicle access is via an access road from Delaney Creek Road, this road crosses two private properties, both with legal easements for State personnel and contractors. Access to within this tract is via a main ridge system to the southeast of the tract. The main ridge located in the center of this tract provides access to all areas.

Boundaries

This entire tract is interior to the State Forest, meaning there are no property boundaries with private property. The northern tract boundary is a mapped perennial drainage. The eastern tract boundary is the middle of the southern ridge, the adjacent tract that shares the ridgeline as a boundary is C10 T29. The southern boundary is the flat ridgetop to the south and west of the tract. The western boundary is an ephemeral drainage that flows north to the mapped perennial drainage.

Wildlife

Wildlife Habitat Feature Tract Summary

	Maintenance level	Optimal level	Inventory	Available above maintenance	Available above optimal
Snags (all species)					
5"+ DBH	144	252	187	43	-65
9"+ DBH	108	216	187	79	-29
19"+ DBH	18	36	59	41	23

A Natural Heritage Database review was completed for the tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The wildlife habitat feature summary shows that the number of snags in all pertinent size classes found during the inventory are beyond maintenance levels. The number of snags for the 19+ class is exceeds the optimal level. Additional snags will likely be created through TSI following a prescribed timber harvest.

Communities

A Natural Heritage Database review was completed for the tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Ailanthus was observed within the tract and should be treated before prescribed timber harvesting occurs.

Forest Condition

TM 901 RESOURCE MANAGEMENT GUIDE			
INVENTORY SUMMARY			
		Compartment:	10
State Forest:	Jackson-Washington	Tract:	30
Forester:	M. Vogel	Inventory Date:	8/5/14
ACREAGE IN:			
Forest	36		
Non-Forest	0		
Water	0		
Permanent Openings	0		
Other Uses	0		
TOTAL AREA	36		

(Estimated Tract Volumes for Commercial Forest Area-Bd.Ft., Doyle Rule)

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
sugar maple	13,210	73,550	86,760
chestnut oak	16,380	40,630	57,010
American beech	6,000	40,560	46,560
white oak	2,560	35,190	37,750
shagbark hickory	4,770	26,260	31,030
pignut hickory	980	18,560	19,540
scarlet oak	0	15,600	15,600
northern red oak	1,580	7,920	9,500
white ash	6,480	2,080	8,560
bitternut hickory	0	5,860	5,860
American sycamore	0	5,800	5,800
yellow poplar	0	5,360	5,360
basswood	0	4,040	4,040
black oak	0	2,520	2,520
black cherry	2,080	0	2,080
			0
TRACT TOTALS	**54,040**	**283,930**	**337,970**
PER ACRE TOTALS	**1,501**	**7,887**	**9,388**

The 2014 inventory shows a total volume of 9,388 bf per acre on tract. The total basal area is 97 sq. ft. per acre. The total number of trees per acre is 80. These values indicate current stocking for the tract is 75%, excluding sub-merchantable trees and culls. The harvest tally approximates the removal of 1,501 bf per acre with a leave volume of 7,887 bf per acre, bringing the basal area down to 82 sq. ft. per acre and the number of trees to

72 per acre. The leave tally shows post-harvest stocking at about 65%, excluding sub-merchantable trees and culls.

The slope extending down to Spurgeon Hollow in the north half of the tract is characterized by mixed hardwoods, with a small number of oaks and hickories. Mixed hardwood forest occupies most of the east and southeast-facing slopes running from the northeast corner to the southwest corner through the center of the tract. Large sawtimber-size American sycamore and sugar maple grow in the moist flat bottomland area along the northeast boundary. American beech and sugar maple mainly dominate in the overstory along the northwest edge of the tract. The north-facing slope in the southeast and the ridgetop in the north half of the tract are characterized by oak-hickory forest. Chestnut oak, white oak, shagbark hickory, and pignut hickory make up most of the overstory in these areas. The southwest edge of the tract borders a field. Snags, blown down trees, and culls are abundant throughout the tract, especially on the slopes where the soil is thin and the trees are exposed to the effects of strong winds. Many of the snags and blown down trees were identified during the inventory as large hollow American beech and white ash trees. Culls found on the ridgetop were typically unsound chestnut oaks. Culls found on the east- and southeast-facing slopes were typically American beech, sugar maple, and white ash trees. Grapevines are abundant along the east and west edges in the south half of the tract and in the mixed hardwood stand in the southwest corner. Ailanthus is present in large patches on the east-facing slope in the south half of the tract. Root sprouts, stump sprouts, and pole-size trees grow in this area.

Recreation
This tract offers limited recreation use, within the tract, due to available public access. However, Spurgeon Hollow Lake, just northwest of this tract, is use frequently by the public for recreation, especially during spring, summer and fall. Primary recreation uses for the tract and lake include: fishing, canoeing, mushroom hunting and small game, turkey, and deer hunting. Swimming on State property is restricted to designated areas only, swimming is not allowed at Spurgeon Hollow Lake. Spurgeon Hollow Lake parking area is a trailhead for the Knobstone Trail.

During proposed management activities, specifically timber harvesting, public access into the tract will be restricted for safety reasons. Access into the area will be permitted following the completion of the harvest.

Cultural
Cultural resources may be present but there location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Subdivision Description and Prescription
Mixed hardwoods: The mixed hardwoods stand type is located on the north-facing slope along the northern tract boundary, and also on the east and southeast-facing slopes extending from the northeast corner to the southwest corner through the center of the tract. Large sawtimber-size American beech and sugar maple comprise much of the

overstory along with a number of yellow-poplar, white ash, white oak, and shagbark hickory. A small number of basswood, black cherry, and American elm can be found in the overstory in the diverse southwest corner of the tract. The inventory found 2,410 bf of sugar maple sawtimber per acre and 1,293 bf of American beech sawtimber per acre. Inventory data also shows 238 bf of white ash sawtimber per acre and 149 bf of yellow-poplar sawtimber per acre. Understory growth and species in the mixed hardwoods stand varies depending on light availability and other conditions. Sugar maple, American beech, and pawpaw grow in areas where the closed canopy admits little light to the forest floor. Yellow-poplar, spicebush, and ironwood are more common where snags, broken tops, and blown down trees have created gaps in the canopy. Large American sycamore can be found in the flat bottomlands along the northeast boundary where the forest runs down to Spurgeon Hollow. Some sample plot basal areas measured during the inventory were found to be low due to the high number of culls and snags. Abundant blown down overstory trees indicate that some steep slopes and thin soils cannot sustain the large, mature trees at this time. Trees with severe lean may pose a particular concern to crop trees on the steep slope near the north edge of the tract. The inventory approximates the prescribed harvest would remove 367 bf per acre of sugar maple sawtimber, 180 bf per acre of white ash, and 167 bf per acre of American beech. The leave tally shows that this would leave 2,043 bf of sugar maple and 1,127 bf of American beech per acre. Large, mature, struggling American beech and sugar maple, as well as some chestnut and black oaks should be considered for TSI where thin soils, slope steepness, or access limits harvesting. Large patches of ailanthus, ranging from sprouts to pole-size trees, were observed on the east and southeast-facing slope running from the northeast corner to the southwest corner through the center of the tract. Grapevines are abundant in the same area. Timber stand improvement should occur to control the ailanthus and also to control grapevines within the tract. The prescribed management recommendation is to conduct an improvement harvest promoting healthy crop trees with good form, health and growth characteristics. The 1988 management guide recommended regeneration openings to remove poorly formed and dying trees, however due to the tract's presence in the Backcountry Area, regeneration openings are not a permitted silvicultural prescription. Approximately 8 acres of this tract lies outside of the Backcountry Area, in those areas regeneration openings are a viable silvicultural prescription.

Oak-hickory: The oak-hickory stand type is located on the ridgetop and upper slopes in the north half of the tract and on the north-facing slope in the southeast corner. Small to medium sawtimber-size chestnut oak makes up the overstory on the ridgetop. The inventory found a basal area of 11.8 sq. ft of chestnut oak per acre. Scarlet oak and black oak are common overstory trees in this area as well. These species transition to white oak, northern red oak, and shagbark and pignut hickory in the extending down into the upper north- and southeast-facing slopes. The inventory data shows 1,048 bf of white oak, 862 bf of shagbark hickory, 543 bf of pignut hickory, and 264 bf of northern red oak per acre. A diverse array of species is emerging in the midstory and on the forest floor in this cover type. Medium sawtimber- and pole-size sugar maple, American beech, chestnut oak, and pignut hickory appear in the midstory in parts of the stand. These trees vary in their health and vigor. Pawpaw, sassafras, black cherry, yellow-poplar,

musclewood, and some substantial oak regeneration can all be found on the forest floor. As in the mixed hardwoods stand, many of the overstory trees show signs of decline such as crown die-back, rot in the butt log, and extremely poor form. In stands where so many of the trees are in poor condition, the recommended management prescription is to regenerate the area, thereby providing full sunlight to a new and healthy cohort of trees. Again, this management prescription is not possible, except for approximately 8 acres of the tract due to Backcountry Area regeneration opening restrictions. A number of culls and snags appeared in the inventory but most of the sample plots were fully stocked or overstocked. Chestnut oaks with unsound stems and poor vigor could be thinned to release crop trees. Selection of other struggling overstory trees in the stand would provide light and space for the midstory and understory by removing 455 bf of chestnut oak, 133 bf of shagbark hickory, and 71 bf of white oak per acre, as well as 58 bf of black cherry, and 44 bf of northern red oak (as approximated I the tract inventory). This would leave 1,129 bf of chestnut oak, 729 bf of shagbark hickory, 977 bf of white oak, 58 bf of black cherry, and 264 bf of northern red oak. Grapevines are present in the southeastern part of the tract. Timber stand improvement should occur to control the ailanthus and also to control grapevines within the tract. The prescribed management recommendation is to conduct an improvement harvest promoting healthy crop trees with good form and growth characteristics.

Tract Prescription and Proposed Activities

A harvest within the next 2-3 years is prescribed, making light, space, and nutrients available to mixed hardwood and oak-hickory species growing in the understory and midstory by removing large, mature, struggling trees, particularly those with severe lean that are vulnerable to wind-throw. Harvest volume is estimated between 50-100MBF. Prior to harvest activities, TSI should occur to treat the ailanthus and grapevines found within the tract. Harvest activities should avoid the streambed and wet bottomland near the north boundary. Harvest activities in tract 30 should take place in conjunction with those in the adjacent tracts 31 and 32, if possible. Post harvest TSI operations should occur following the harvest to provide crop tree release to midstory tree and crop trees not adequately released through the harvest and to further control grapevines and ailanthus.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Pre-harvest TSI: ailanthus control	2015-2016
Mark harvest and sell timber	2015-2016
Post-harvest TSI	2018-2019
Regeneration opening monitoring >1acre in size	2019-2022
Inventory and Management Guide	2038

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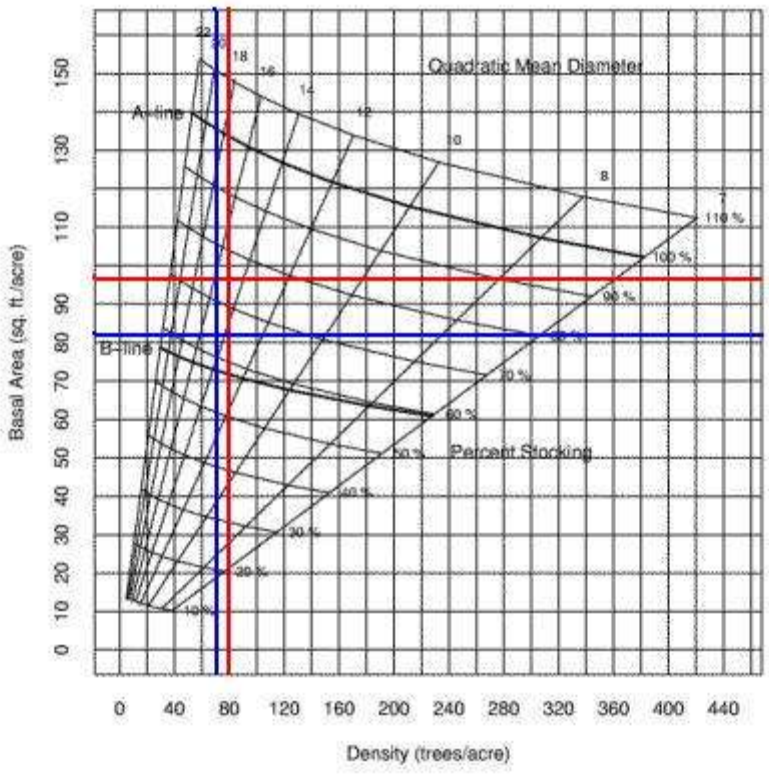
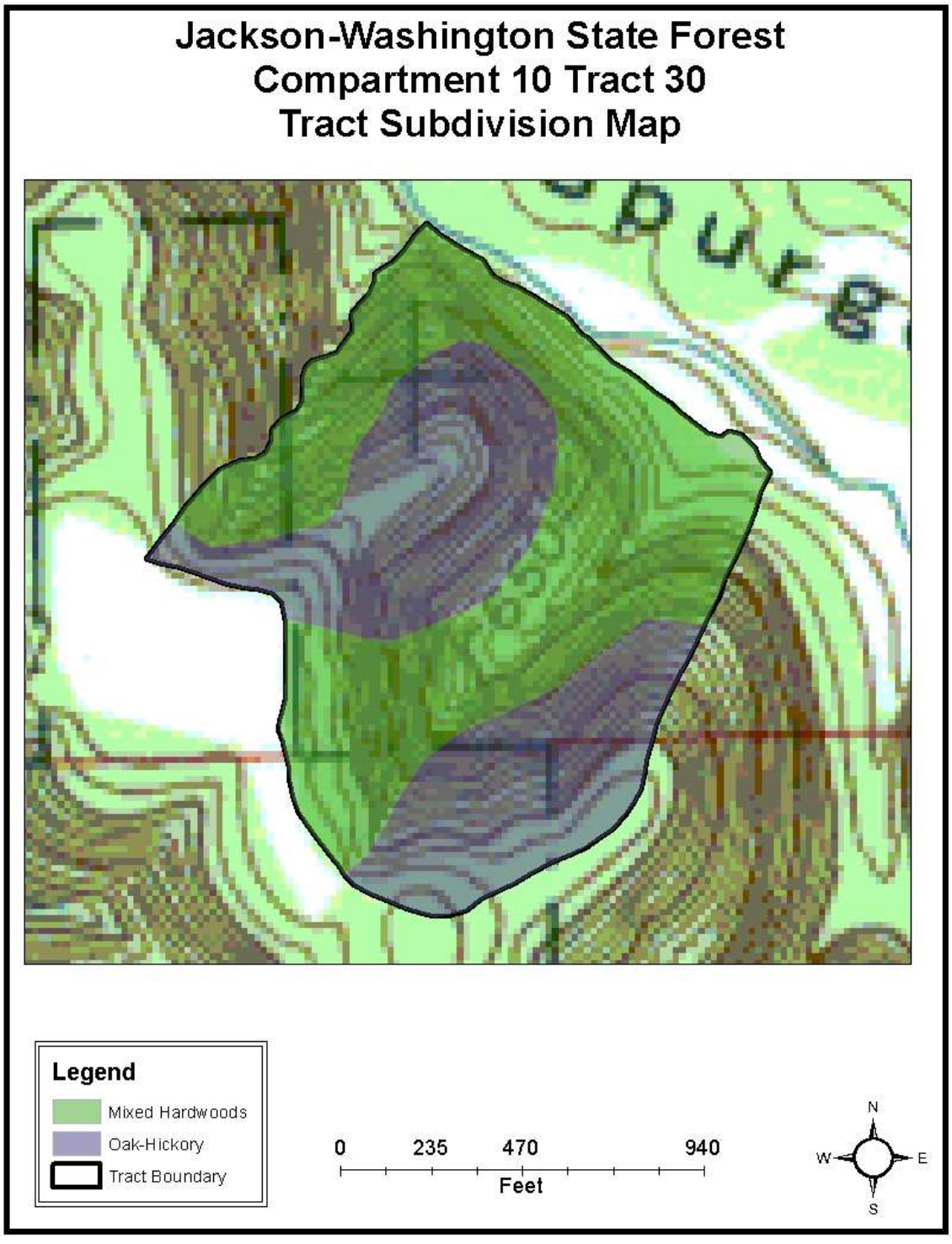
Stocking Guide
Compartment 10 Tract 30
36 acres



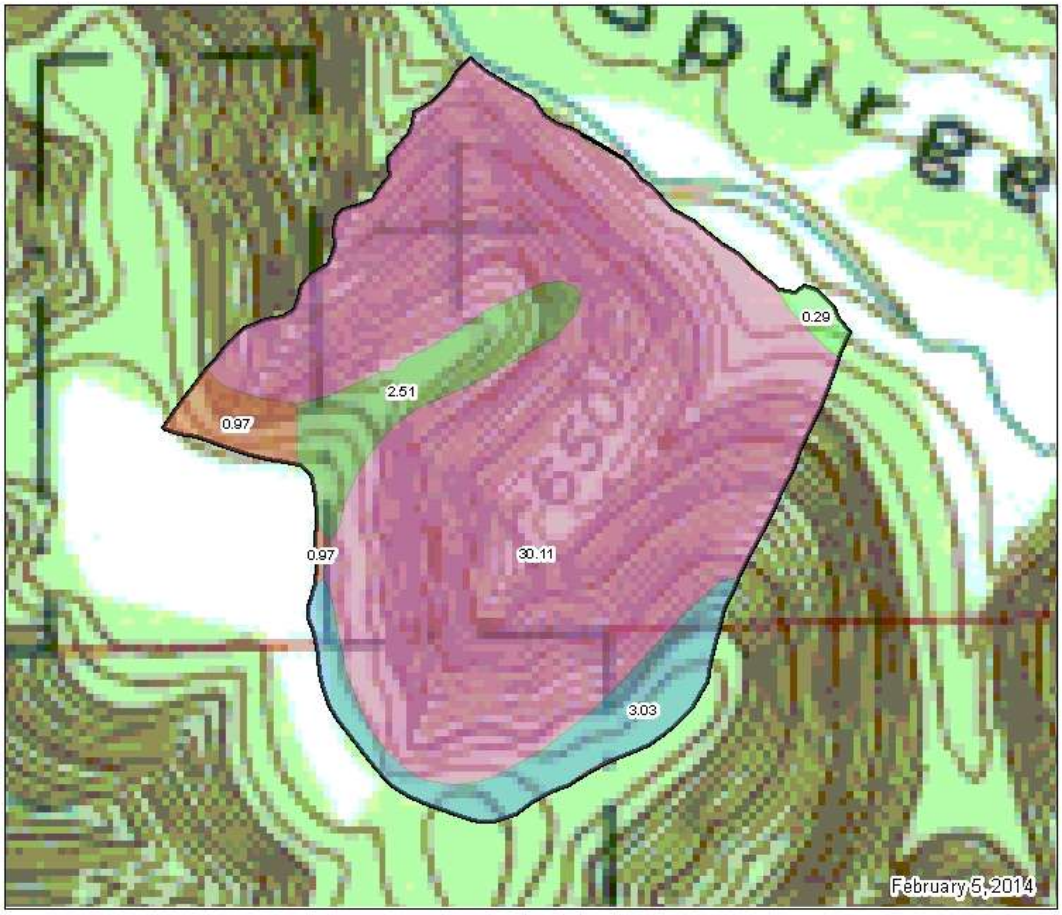
Pre-Harvest Inventory Data in Red
(Sub merchantable trees excluded)
Total BA/A = 97 sq.ft. per acre
Total #trees/acre = 80 trees per acre
Avg. tree diameter = 15 inches
Percent stocking = 75%

Post-Harvest Inventory Data in Blue
(Sub merchantable trees excluded)
Total BA/A = 82 sq.ft. per acre
Total #trees/acre = 72 trees per acre
Avg. tree diameter = 14.8 inches
Percent stocking = 65%

Attachments



Jackson-Washington State Forest
Compartment 10 Tract 30
Soils Map



Legend

Soils

- BhF
- Cu
- GID2
- WeC2
- ZaB
- Tract_Boundary

0 190 380 760 Feet

N
W E
S