Indiana Department of Natural Resources – Division of Forestry
Draft
Resource Management Guide

State Forest Jackson-Washington Compartment 10 Tract 31
Forester D. Potts/Miranda Vogel Date February 5, 2014
Management Cycle End Year 2038 Management Cycle Length 20 years

Location
The tract is located Washington County, Indiana approximately nine miles northeast of Salem, IN . More specifically in Section 11, Township 3N and Range 4E.

General Description
This tract is approximately 58 acres. The general cover type is hardwood forest. All 58 acres are considered commercial forest.

History
This tract is comprised of two separate land acquisitions, one occurring in 1954, the other in 1996.

A portion of this tract is from an acquisition in 1954 containing approximately 928.5 acres, from Elvin Nolan and Alice Nolan, his wife, Tony Nolan and Lissie Nolan, his wife, Sherman Nolan and Bessie Nolan, his wife.

The second land acquisition occurred in 1996 from Evelene Nicholson, containing approximately 180 acres.

According to the tract history file, first record of management occurred in 1971 and which was a management plan for a tract referred to as Compartment 48 Tract 1. At that time the estimated volume per acre was 1778 bd.ft./ac Doyle. The management plan recommend considering a harvest in 5-10 years.

The next recorded activity was a cruise in 1988 and subsequent management guide, written in the same year. That management guide indicated the tract size was 45 acres (smaller than today, due to the 1996 land acquisition) and recommended a harvest in the next year or two. The cruise data estimated the total volume per acre to be 5,645 bd.ft. Doyle, with a harvest of 1,666 bd.ft./ac and a leave volume of 3,978 bd.ft./ac.

A timber sale occurred in 1988, 118,530 bd.ft. was sold to Adkins Sawmill, Inc. for $12,777.00 (the sale encompassed three tracts, C10 T30, 31, and 32). According to the "report of timber sale" form, 38,208 bd.ft. Doyle was harvested from approximately 25 acres in C10 T31.

Approximately 10 acres of the tract are part of the State Forest backcountry recreation designation established in 1979.

Landscape Context
The area surrounding this tract to the north, east and south is primarily Jackson-Washington State Forest. To the west agricultural land dominates the flat bottomlands. Sparse residential housing can be found in the area as well. 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 a main ridgetop that provides access to the entire tract. A large proportion of the tract (approx 36 acres) is a north facing slope, to the north that transitions to an east facing slope off the eastern end of the ridgetop. The other approximately 22 acres is comprised by south and west facing slopes, south of the main ridge. The underlying geology consists largely of siltstone and shale. The hydrology of this tract is comprised primarily of ephemeral drainages, to the west and south. Located to the north and northeast, directly adjacent to the tract, is Spurgeon Hollow Lake, it is manmade and approximately 22 acres in size. Spurgeon Hollow Lake and the ephemeral drainages flow in a westerly direction, eventually leading into Delaney Creek. Delaney Creek flows north to the Muscutatuck River, which then flows westerly into the East Fork White River. A small manmade wildlife pond is located south of the southern tract boundary, west of the access road leading into 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 Spurgeon Hollow Lake, drainages and wildlife ponds from prescribed management activities, including timber stand improvement (TSI), invasive species control, and/or timber harvesting.

Soils
Berks-Weikert complex (BhF) (~53 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. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the woods. 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 (GID2) (~3 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. During wet periods, roads tend to be slippery and ruts form easily.

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.

Stendal silt loam (Sf, So) (~0.10 acre) This soil series consists of very deep, somewhat poorly drained soils that formed in acid, silty alluvium. These soils are on flood plains and flood-plain steps. Slopes range from 0 to 2 percent. Used mainly for growing corn and soybeans. Some areas are in forest. Native vegetation is dominantly hardwood forest. This soil is well suited to trees. The equipment limitations and plant competition are concerns in managing the woods. Equipment use should avoid wet periods- .dry periods or when the ground is frozen is preferred. Seedlings survive and grow well if competing vegetation is controlled and if livestock are excluded from area. The site indexes for hardwood species range from 85 (sweetgum) to 90 (pin oak). Preferred trees to manage for are bur oak, overcup oak, red maple, shellbark hickory, swamp chestnut oak, and swamp white oak.

Wellston silt loam (WeC2, WeD) (~3.26 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. 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. During wet periods, roads tend to be slippery and ruts form easily. 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) (~0.59 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.

Boundary
The eastern boundary of this tract is an ephemeral drainage that flows north to Spurgeon Hollow Lake. The northern boundary tract boundary follows Spurgeon Hollow Lake, continuing west past the dam, eventually intersecting Delaney Creek Road. The tract boundary follows Delaney Creek Road for approximately 400 feet, at which point the tract boundary becomes the State Forest property boundary, with private property. The property boundary follows a line due south for approximately 1,000 feet, where it intersects an ephemeral drainage. This ephemeral drainage is the southern tract boundary and follows a path east for approximately 1,800 feet to the main ridgetop. The tract boundary continues east across the ridgetop and then intersects the ephemeral drainage that forms the eastern boundary.

Wildlife

Wildlife Habitat Feature Tract Summary

	Maintenance level	Optimal level	Inventory	Available above maintenance	Available above optimal
Snags (all species)					
5"+ DBH	232	406	780	548	374
9"+ DBH	174	348	473	299	125
19"+ DBH	29	58	34	5	-24

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 cruise data shows that the number of snags is above the maintenance level and optimal levels for the 5"+ and 9"+ DBH classes. The number of snags for the 19"+ class is exceeded for the maintenance level.

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 found on the north slopes on the west side of the tract near the ridgetop and on the east-facing slope in the southeast corner of the tract. Ailanthus should be treated prior to the commencement of harvest or other activities that expose soil and opens stand to increased sunlight.

Forest Condition
The 2014 inventory shows a total volume of 8,832 bf per acre on tract. The total basal area is 96 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 proposes the removal of 1,722 bf per acre, bringing the basal area down to 80 sq. ft. per acre and the number of trees to 72 per acre. The leave tally shows post-harvest stocking at 64%, excluding sub-merchantable trees and culls.

Mixed hardwoods occupy the north-facing slopes. Oak-hickory forest is found on south-facing slopes. Medium sawtimber-size chestnut oak is the dominant species on the flat ridgetop running through the center of tract. Trees in this area exhibit mediocre to poor form and soundness, and include many culls. Chestnut oak becomes less concentrated extending down from the ridgetop on the south slopes, where scarlet and black oak are more common. Scars on the overstory trees throughout the tract, but particularly in this area, indicate a likely history of fire. Species regenerating in the understory include primarily sassafras, chestnut oak, and scarlet oak. Sugar maple, American beech, and white, black, and northern red oaks grow on the forest floor as it extends down from the ridgetop. The dominant species on the north slopes and in the drainages are American beech, sugar maple, and tuliptree. White ash, pignut hickory, white oak, and red elm occur in these areas as well. The inventory found a total of about 23,980 bf of white ash in the tract. Trees in the overstory are large and mature, and include many culls and snags. Dead down debris is abundant on the slopes. The understory is fairly open on the north slopes and throughout in areas where canopy closure and other conditions restrict new growth to mostly very shade-tolerant species. Sugar maple, American beech, pawpaw, and white ash were found regenerating on the north slopes in areas with more shade. Tuliptree can be found in areas where snags, crown die-back, or broken tops have created openings in the canopy. Grapevines can be found extending downhill from both sides of the ridgetop, particularly in the center of the tract and on the east side of the tract.

Recreation
This tract offers limited recreation use, within the tract, due to available public access. However, Spurgeon Hollow Lake, which is northern border 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 and large game hunting including squirrels, turkey, and deer. 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

Oak-hickorySubdivision The oak-hickory stand is located on the ridgetop running through the tract and on the south slopes. This stand type consists mainly of medium sawtimber-size chestnut oak, with a small number of large sawtimber-size scarlet, white, black, and northern red oaks. Pignut hickory is also present, making up 553 bf per acre. The inventory found a basal area of about 23 sq ft per acre and a volume of 2,363 bf per acre in chestnut oak, with a total volume of 137,050 bf for the tract as a whole. Many trees on the flat ridgetop exhibit poor form and are wholly or partially hollow. Abundant snags and cull trees with broken tops admit light onto the forest floor to regenerate sassafras and some oaks. The prescribed management recommendation is to conduct an improvement harvest that would supply more light for healthy crop trees with good form and growth characteristics.

Mixed hardwoods Subdivision: The mixed hardwood stand type consists mainly of American beech, sugar maple, tuliptree, and white ash. White oak can be found in both the oak-hickory stand and the mixed hardwoods stand; the inventory found about 21,840 bf of white oak in the tract as a whole. Many overstory trees show signs of decline, including crown die-back, and exterior and interior decay. The cruise data shows 1,177 bf per acre of American beech, 1,947 bf per acre of sugar maple, 815 bf per acre of tuliptree, and 413 bf per acre of white ash. Hollow and cull trees, blown down trees, and snags are numerous; those on the steep slope west and south of Delany Creek Road may present a hazard to motorists, as they are prone to breaking off and falling over. The proposed thinning would remove 267 bf per acre of American beech, 164 bf per acre of sugar maple, and 219 bf per acre of tuliptree. White ash should be removed to capture mortality in merchantable trees and potentially slow the spread of emerald ash borer in the forest. TSI consideration should be given to dominant large hollow trees to promote the grown of more healthy and vigorous trees. Tuliptree, sugar maple, and American beech seedlings and saplings are abundant. These species are expected to thrive in the understory and midstory under small canopy gaps created by single-tree and small group selection. Areas where large pole-size white oak and pignut hickory grow in the midstory will also benefit from release by new openings in the canopy. A variety of oaks and hickories, including red oak group species, white and chestnut oaks, and pignut and shagbark hickories were found regenerating on the forest floor consistently throughout the tract during the inventory. The north slope would be a suitable location for larger regeneration openings, which provide conditions sufficient for oak and hickory regeneration, however much of this tract is located in the backcountry area where openings are restricted under current backcountry management guidelines. Regeneration openings are permissible outside of the backcountry area (about 10 acres of the total tract). Expected regeneration within the opening is likely to consist of yellow poplar, black cherry, red maple, and sassafras. Removal of declining trees will serve to capture mortality and promote growth in the midstory and understory.

Tract Prescription and Proposed Activities

The proposed management activity is to conduct a single tree and group selection harvest within the next two years that would serve to enhance conditions necessary to promote vigorous oak-hickory forest and to release crop trees in both the oak-hickory and mixed

hardwoods stand types. The use of regeneration openings are limited to areas outside of the Backcountry Area. Selection of trees within the backcountry's 10 acres will be of lower intensity than generally applied on other areas JWSF. Additionally, retention of larger diameter trees in the backcountry area will be higher in keeping with the backcountry recreational designation.

Harvest activities in tract 31 should take place in conjunction with harvest activities in the adjacent tracts 30 and 32, timber stand improvement measures should include removing potential hazard trees, and deadening non-merchantable trees left behind after harvest. Pre-harvest TSI is recommended to control Ailanthus and reduce the number of grapevines within the tract.

Proposed Activities Listing

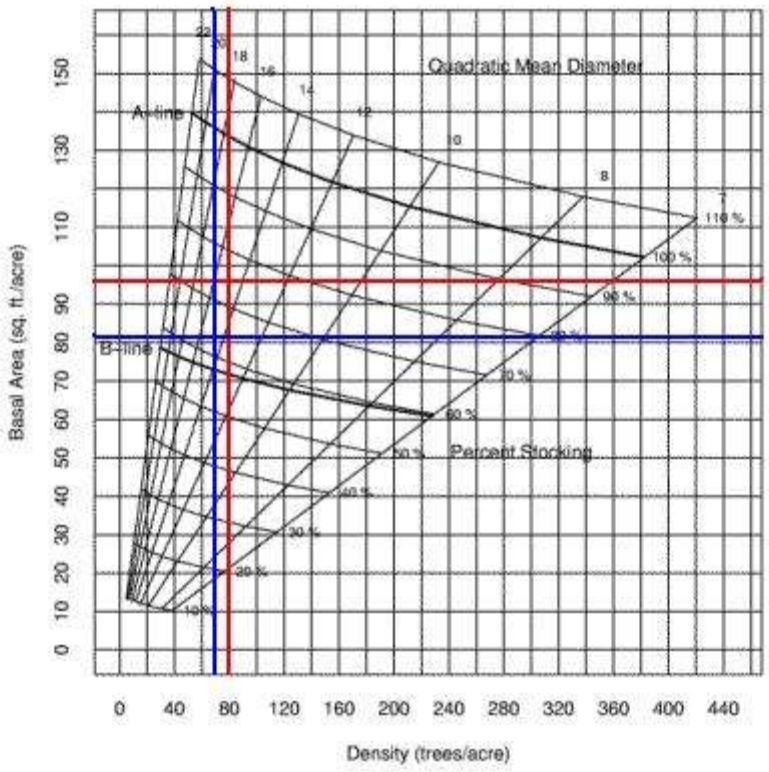
Proposed Management Activity	*Proposed Date*
Pre-harvest ailanthus and grapevine control	2014-2016
Mark harvest and sell timber	2015-2016
Post-harvest TSI	2018-2019
Regeneration opening monitoring >1acre in size	2019-2022
Inventory and Management Guide	2038

Use the link below to submit a comment on this document:

www.in.gov/dnr/forestry/8122.htm

You must indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered. Note: Some graphics may distort due to compression.

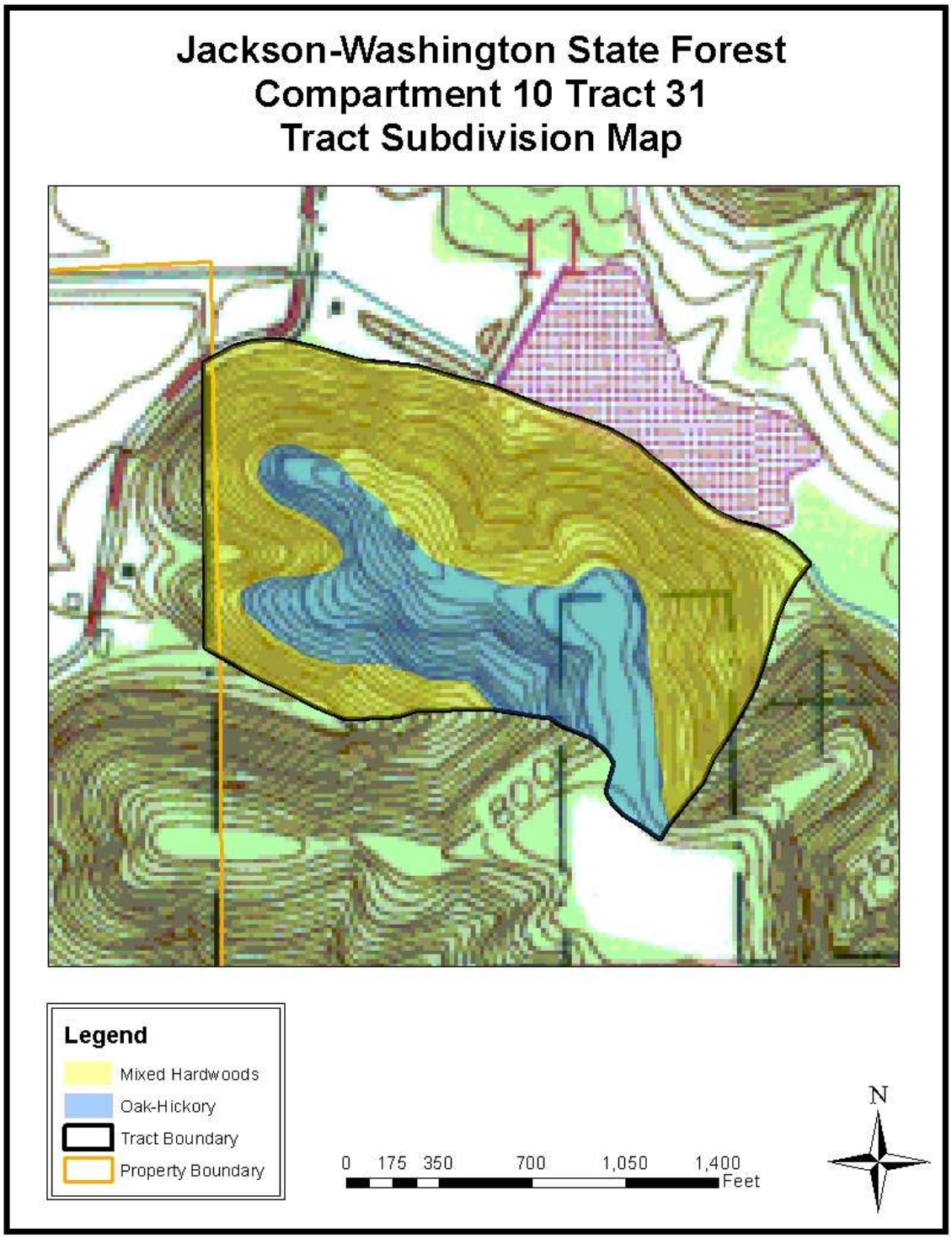
Stocking Guide
Compartment 10 Tract 31
58 acres



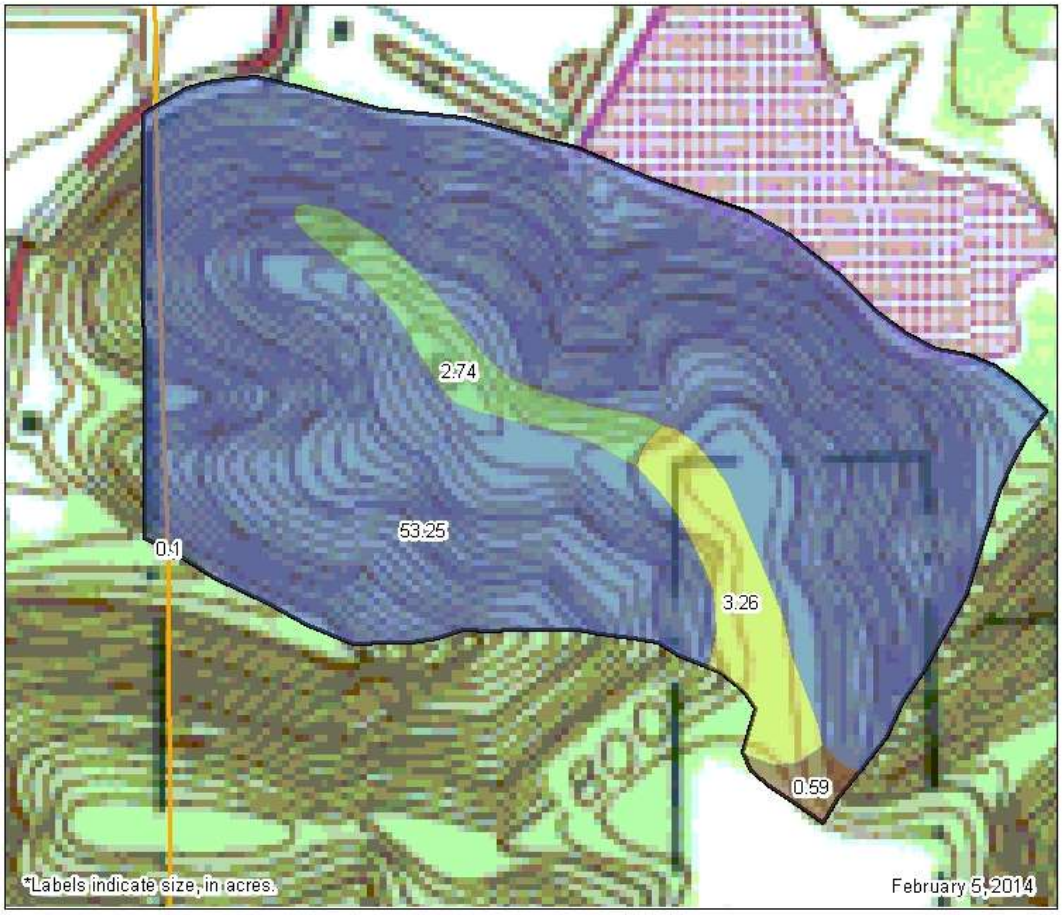
Pre-Harvest Inventory Data in Red
(Sub merchantable trees excluded)
Total BA/A = 96 sq.ft. per acre
Total #trees/acre = 80 trees per acre
Avg. tree diameter = 15 inches
Percent stocking = 75%

Post-Harvest Inventory Data in Blue
(Sub merchantable trees excluded)
Total BA/A = 80 sq.ft. per acre
Total #trees/acre = 72 trees per acre
Avg. tree diameter = 14.4 inches
Percent stocking = 64%

Attachments



Jackson-Washington State Forest
Compartment 10 Tract 31
Soils Map



Legend

Soils
- BhF
- GID2
- So
- WeC2
- ZaB

Tract Boundary

Property Boundary

0 205 410 820 Feet

N
W E
S