Indiana Department of Natural Resources

Indiana Department of Natural Resources – Division of Forestry
Draft Resource Management Guides
Martin State Forest

Document Number: MSF 2019-1

The Indiana State Forest system consists of approximately 158,000 acres of primarily forested land. These lands are managed under the principle of multiple use-multiple benefit to provide forest conservation, goods and services for current and future generations. The management is guided by scientific principles, guiding legislation and comprehensive forest certification standards which are independently audited to help insure long term forest health, resiliency and sustainability.

For management and planning purposes each State Forest is divided into a system of compartments and tracts. In general terms compartments are 500-1,000 acres in size and their subunits (tracts) are 20-200 acres in size. Resource Management Guides (RMGs) are then developed for each tract to guide their management through a 15-25 year management period. There are approximately 1,700 tracts in the State Forest system. During annual planning efforts 50-100 tracts are reviewed and RMGs developed based on current conditions, inventories and assessments.

The RMGs for the following Compartments and Tracts contained in this document are part of tracts under review this year for **Martin State Forest**.

State Forest	Compartment	Tract
Martin	2	5

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State Forest: Martin
Forester: Kush
Management Cycle End Year: 2034
Acres: 56

Compartment: 2 Tract: 5
Date: Updated 3-21-2019
Management Cycle Length: 15 years

Location
This tract is located on the north side of HWY 450 at the intersection of HWY 450 and Low Gap Road. The nearest town is Trinity Springs, about 3 miles to the west on Hwy 450. The specific location is the N 1/2, SW 1/4, Section 14, T 4 N, R 3 W, Martin County, Indiana.

General Description
This tract contains 56 acres of hardwood timber. The entire tract is forested, but the forest type varies across the tract. The main ridge extending northeast from the southwest corner is dominated by old field type timber. Generally trees are of post to small sawtimber diameter. Severe surface erosion occurred high on the ridge, but it has long since stabilized. The North slope and area along Low Gap Road contains more mature timber. These mature areas contain large yellow poplar, black, red, and white oak, ash, and maple.

History
The U.S. Forest Service purchased this tract on March 28, 1941 from Lewis R. and Jennie Harington. This purchase is recorded in Deed Record 81, Page 456. This tract was then transferred to IDNR in the land transfer of October 29, 1968. This exchange is recorded in Deed Record 102, pg. 419.

The original inventory was not dated but is estimated to have been done in the early 1970's. It indicated that there were stumps present that were estimated to have been ten to fifteen years old. The stumps were especially prevalent on the west slope. That would have placed the harvest date around 1960. The inventory recommended harvesting the larger oaks in this area to release the beech-maple in the understory. The inventory also indicated that the old-field areas were naturally converting to primarily yellow poplar with oak and hard maple coming in along some of the edges. Documentation doesn't have an exact time for when the old fields were abandoned though likely in the 40's to 50's when the forest service acquired this property.

Volume estimates from that inventory indicated approximately 1,642 bd. ft. per acre of harvest stock and 3,490 bd. ft. per acre of growing stock on thirty acres. The remainder of the tract was categorized as old-field.

A harvest was conducted on approximately fourteen acres of the tract on 2-24-1981. One hundred sixteen trees with an estimated volume of 27,964 bd. ft. were sold to Benham Brothers. This sale was confined to the northwest corner of the tract. The harvest was followed-up with TSI in July of 1981 and the roads and skid trails were closed out at that

time. The log yard was seeded to oats in April of 1981 and vine TSI was performed in Feb. 1985.

A tract inventory was performed in 2004 by Jim Lauck. The inventory showed 2,873 board feet of growing stock and 1,644 board feet of harvest stock per acre. Mr. Lauck recommended a light harvest to improve the quality of the stand. He also recommended vine control.

In 2005, Mr. Lauck performed a recon of the stand and determined there was not quite enough volume to warrant a harvest.

Grapevines were cut and treated with herbicide throughout the tract in 2012.

The tract was re-inventoried in October 2013 with total volume estimated at 5,885 bd. ft./acre and 329,540 bd. ft. for the full tract.

Landscape Context

Most land in the area surrounding this tract is used for agricultural grain production or forestry. Some pasture and forage land is scattered throughout the area. The land use appears to be relatively stable.

Topography, Geology and Hydrology

The topography of the tract is relatively gentle and easily workable. There is one main ridge running northeast from the southwest corner. The sides of the ridge provide northwest and southeast aspects. A gentle swale runs north through the tract near the center of the property. Low Gap Road is located in this swale. The area east of Low Gap Road is a gentle north facing aspect. Approximately eighteen acres of the tract drain into the East Fork White River, six hundred feet to the south. Any runoff is first collected in the highway 450 roadside ditch and then drained by culverts under the highway to the south side of the road. The remainder of the tract drains into an intermittent stream and then into Indian Creek about one thousand feet northwest.

Soils

Two soil types exist on this tract. The ridge top is composed of well drained Apalona silt loam. A fragipan exists in this soil type restricting water penetration. The site index for northern red oak on this soil is 68. The hill sides are composed of the Wellston-Tipsaw-Adyville complex. This is a well drained complex. Erosion hazard is rated as high for this soil type. Signs of past severe erosion are present high on the slopes especially the southeast aspect on the western portion of the tract. Deep erosion gullies are likely the result of poor land management tin the early 1900's. The erosion has stabilized, but is still visible. Site index for Northern Red oak on this soil is 70-80.

Access
This tract has excellent access. Low gap road bisects the tract. Eleven and a half acres lie to the east of Low Gap Road and 44.5 acres lie to the west. Hwy 450 borders the tract to the south, and a private driveway provides access to the west end of the tract.

Boundary
The tract is bounded on all sides by private property. The west line follows a fence line north from Hwy 450 to a concrete monument and Carsonite posts. The line turns east following some fence and an obvious tree line. A survey pin marked "ARENA S0242" and steel post is located on the east side of Low Gap road on the north property line. Another post and survey pin marks the northeast corner of the property. This northeast pin is located just on the edge of the power line ROW. The line runs due south to HWY 450. Where it meets the highway, it runs southwest along the centerline of the highway to the POB.

Wildlife
This tract offers both mature hardwood forest and old field type forest. There are many hard and soft mast producing tree species present to provide both food and cover for a variety of wildlife.

The Wildlife Habitat Feature Tract Summary showed deficiencies in large diameter legacy trees, small diameter and large diameter snags. This is likely due to the young age of the tract's timber. As the trees age, more trees will move into the larger diameter age classes. More snags will develop over time to fill the deficiency.

Additionally, a Natural Heritage Database Review is part of the management planning process. If Rare, Threatened or Endangered species or communities 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 communities. Including the use of water quality BMPs to conserve soil and protect water quality leaving the site.

Communities
The two main stand types on this tract are Oak Hickory and Mixed Hardwood forest. Both communities contain a diverse mix of overstory trees, understory saplings, and herbaceous plants. The ridge top and eroded old field areas contain shrubby species such as flowering dogwood and eastern red cedar. Mulit-flora rose is prevalent throughout the tract, but is worst in the ridge top area and in the southwestern area. The rose seems to be stressed due to the heavy shade and will likely continue to decline in the future. Treatment may be necessary to control problem occurrences.

Recreation
No developed recreational facilities exist in or near this tract. While not permitted an ATV trail exists running the length of the ridge crossing onto private property to the north and to the west. It will be monitored and signed posted to inform the public. Other forms of recreation likely include hunting and gathering.

Cultural
Cultural resources may be present but their location is protected. Adverse impacts to significant cultural resources will be avoided during any activities.

Tract Subdivision Description and Silvicultural Prescription
The tract is composed of two main forest types- Oak Hickory and Mixed Hardwood. There are no clear boundaries between the forest types, some inventory points fell in areas dominated by oak and hickory and some fell in areas composed of a mixture of species.

Compartment: 2	**Tract: 5**	
County: Martin	**Section: 14**	**Township: 4N Range: 3W**
Comercial Forest Acres	56	**Average Site Index:** 70
Non-commercial Forest	0	**Average Annual Growth:** 152 bd.ft.
Recreational Use	0	**Total Basal Area:** 93 sf/ac
Permanent Openings	0	**B.A.-Trees > 14" :** 35 sf/ac
Other Openings	0	**B.A.-Trees < 14" :** 59 sf/ac
Total Acres	56	

Species	**Total**
American Beech	5,080
American Elm	0
Basswood	0
Bitternut Hickory	8,630
Black Cherry	2,050
Black Oak	99,890
Chinkapin Oak	7,540
Eastern Redcedar	1,020
Northern Red Oak	9,040
Red Maple	3,740
Sassafras	1,940
Scarlet Oak	930
Shagbark Hickory	3,550
Sugar Maple	12,910
Virgina Pine	1,180
White Ash	17,270
White Oak	12,980
Yellow Poplar	139,050
Total	**329,540**
Per acre	**5,885**

Mixed Hardwood:
This type contains 5,547 bd. ft. of volume per acre including 2,867 bd. ft. of harvest stock and 2,753 bd. ft. of growing stock. The dominate species in this type is yellow poplar which makes up 55 percent of the volume. Black oak is the next most common species with 17 percent of the volume. The remaining volume is made up of a mix of species.

Trees range in size from large mature timber to areas of sapling dogwood and cedar. Some areas contain very promising groups of pole to post size black and red oak timber.

Oak Hickory:
This type contains 6,678 bd. ft. of volume per acre including 1,803 bd. ft. of harvest stock and 4,875 bd. ft. of growing stock. The most voluminous species is Black oak with 63 percent of the total volume followed by white oak and yellow poplar each with 10 percent. Various oaks, hickories, and other species make up the rest of the volume. Some very nice large diameter white oak is present on the North slope near the northern property line. Most of the North slope area has an oak dominated overstory with a heavy sugar maple midstory.

Perhaps a more useful breakdown of the stand would be Mature Forest and Old Field Forest. Forest types within Mature Forest area include both Oak-Hickory and Mixed Hardwood. The Old Field Forest area includes the ridge top area and the higher elevations of the southeast aspect. The forest type in this community is mixed hardwood. The Mature Forest area contains much more productive soil and has some mature timber present. The Old Field area contains post to small sawtimber sized trees, a heavy layer of red cedar and dogwood, and quite a bit of multi-flora rose. Some potentially higher value trees are present (mostly black oak) but they are in the 6-12 inch diameter class.

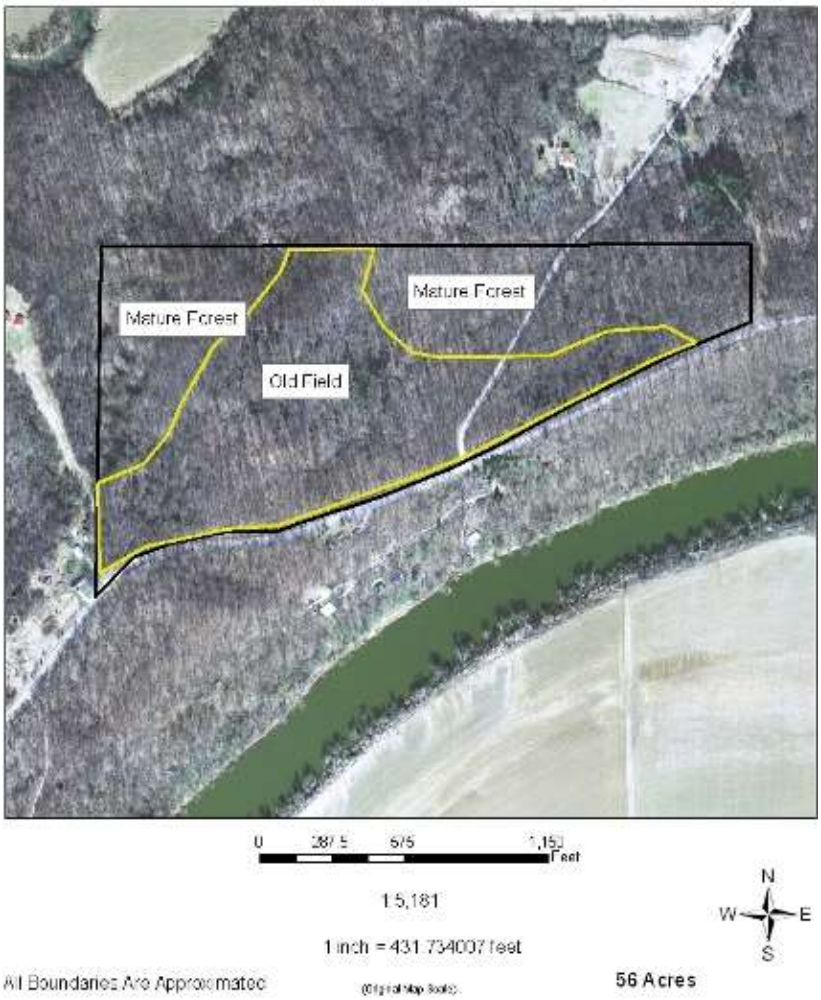
Summary Tract Silvicultural Prescription and Proposed Activities
When the tract was reviewed in 2013 the recommended management strategy is to let the forest continue to develop. In re inspecting this tract in 2019 it was determined the forest has developed to a point of maturity that a harvest is recommended to improve health and growing conditions. A moderate harvest is prescribed to remove approximately 25-35% of the standing volume. The timber throughout much of this tract is general light, though the mature timber is declining and quality timber in the smaller diameter classes needing released.

Given the current stocking rate and stand condition an improvement cut/selection thinning is prescribed in the section of mature timber of the tract, favoring retention of the healthiest and highest quality trees. Trees targeted for removal should include drought-stressed, fire damaged, suppressed, defective, poorly-formed, and over-mature declining timber.

The ridge top and old fields areas containing pine and shrubby species will also be thinned to allow higher quality stems to grow such as small oak noted in this area. Regeneration openings over less than 10% of this area may be created to allow higher quality stems to grow along with promoting native hardwood species and creating a component of early successional habitat.

The use of forestry BMPs will minimize soil erosion and protect water quality. Prompt installation of water diversions in conjunction with seed and straw (where needed) following harvesting will be employed to minimize any effects to neighboring water

resources. Prior to the harvest, grapevine control is prescribed. Portions of or all of 0205 will receive postharvest Timber Stand Improvement (TSI) to ensure opening completion and crop tree release. Invasive control will also be prescribed if deemed appropriate by the administering forester. A field review for regeneration opening success is planned 3-4 years after opening TSI completion. An inspection 5-7 years post-harvest will be completed with additional TSI possible.



Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Monitor property lines and Multi-flora rose.	ongoing
Pre-harvest vine control	2019
Timber Harvest	2019-2020
Post harvest regeneration and invasive species check	2021-2022
Post harvest crop tree release and opening completion	2021-2022
Inventory and update management guide	2033