RESOURCE MANAGEMENT GUIDE

Location
Compartment 08, Tract 01 is located in Section 15, T4S, R3W in Clark Township in Perry County. It is approximately 2 miles due north of Bristow, Indiana.

General Description
This tract is 80 acres with a mixed cover type of pine and hardwoods. Approximately 66 acres are classified in the hardwood stratum and 14 acres of pine.

History
This parcel was acquired from Fred and Elizabeth Lehmkuhler in June of 1950. The first documentation in the file is a Timber Management Work Plan completed by Bill Hahn. At this time, the total hardwood acreage was 28 acres with a total board foot volume of 2,364 board feet per acre. Boundary line work was done in 1982 by Ben Hubbard, Janet Eger, and Donnie Hoppenjans. A management guide was completed by Janet Eger in 1983. At this time, 48 acres were considered commercial forest and 32 as pine. Growing stock was 3,491 Bd Ft per acre and harvest stock was 780 Bd Ft per acre. Several activities were prescribed including boundaries, filling in a well, cleaning up old junk, and a light harvest in 1991-1993. Another management guide was created by Janet Eger in 1990. Growing stock was 3,669 Bd Ft per acre and harvest stock was 2,231 Bd Ft per acre. This was followed by a timber sale in 1992, removing approx 24,436 Bd. Ft. across 24 marked acres. TSI was completed in 1993.

Landscape Context
Surrounding landscape is a mix of forested and agricultural uses. Farming is commonplace within the richer soils in the broad valleys and ridgetops. There is a small town within 2 miles. There is scattered rural development across the landscape.

Topography, Geology and Hydrology
This tract contains topography ranging from flat ridgetops to overhanging rock outcrops. Slopes of all aspects are present. Bedrock is sandstone, and most of the outcrops and the sandstone shelter are located on the east side of the tract along the north facing slope. There are no significant drainages in the tract. Runoff from the south portion of the tract drains to Coon Branch then to Maggity Branch. The north side also drains to Maggity Branch. Maggity drains to the Anderson River and eventually to the Ohio.

Soils
Adyeville-Wellston-Deuchars silt loams (AbvD2 eroded, AbvD3 severely eroded)
This soil complex varies from moderately well drained to somewhat excessively drained and is located on sideslopes in uplands. Slopes are 8 to 20 percent. In terms of forest management, the soil complex is listed as well suited to hand planting and moderately suited to mechanical planting. It is moderately suited to harvesting equipment with a

limitation of low strength, and the complex has a severe erosion hazard on roads and trails due to slope. The soil complex has a site index of 85 for Red oak.

Adyeville-Tipsaw-Ebal complex (AccG)
This soil complex varies from moderately well drained to somewhat excessively drained and is located on sideslopes in uplands. Slopes are 20 to 50 percent. In terms of forest management, the soil complex is listed as moderately suited to hand planting and poorly suited to mechanical planting. It is poorly to moderately suited to harvesting equipment due to slope and low strength, and the complex has a severe erosion hazard on roads and trails due to slope. The soil complex has a site index of 75 for Black oak.

Apalonia silt loam (AgrC2)
This soil is moderately well drained and is located on sideslopes in uplands. Slopes are 6 to 12 percent. . In terms of forest management, the soil is listed as well suited to hand planting and moderately suited to mechanical planting. It is moderately suited to harvesting equipment due to slope and low strength, and the soil has a severe erosion hazard on roads and trails due to slope. The soil has a site index of 60 for White oak.

Access
Access to the tract is very good. A gravel county road runs along the north boundary of the tract for most of its length. Access to the tract for timber management could be made off of this road. Two areas have been documented as being used as a log yard, in 1982 and 1992. The only area that is inaccessible is a portion of very steep topography on the east edge of the tract. This area contains the rock shelter mentioned elsewhere in this management guide.

Boundary
This tract is bordered by private property on all sides, and the tract has fairly good evidence to allow determination of the boundary. On the north line, the boundary follows the existing gravel county road to a point at which the existing road turns to the southwest. At this point, an old roadbed continues west along the property line. This roadbed follows the property line until the northwest corner of the tract is reached. No evidence could be found on the northwest corner, but the county road does touch the corner here. The east line was run from a T-post found on the northeast corner that appeared to be on or very near the corner. The south and west lines were run from a stone located on the southwest corner of the tract. The stone is well marked and appears to be accurate. An oak tree is being used as the southeast corner; no other evidence was noted in the area.

Wildlife
In terms of wildlife habitat, the inventory determined that there is a deficiency of legacy trees in this tract. Legacy trees are live trees of selected species that could support Indiana Bat populations. There were 43 less trees than the desired maintenance level for 11+ DBH and 81 trees less than the desired maintenance level of 20+ DBH. These numbers are based on the tract acreage of 80 acres, but 14 acres of the tract are in pine which is not a preferred bat species. Also, in the eastern portion of the tract, the

inventory recorded a high number of pole sized Sugar maple, due to the slow conversion of that portion of the tract from an oak-hickory timber type to more of a beech-maple type. This plan includes potential for pine management in the western portion of the tract. Creating an opening in the pine to facilitate conversion to native hardwoods will help to improve the legacy tree numbers in the long term. Legacy trees are based on certain hardwood species, and these species are likely to be present if a regeneration opening were created in the pine stand.

Interestingly, both snags and cavity trees exceeded maintenance levels in this tract. All but the 19+ DBH snags exceeded optimal levels. This deficiency should be supplemented by 19" DBH snag creation during post harvest TSI if possible. The higher numbers of snag and cavity trees versus legacy trees likely relates back to changing stand composition. That is, more older and poor form oak-hickory with younger beech-maple coming in.

In terms of RTE wildlife species, there was a Bobcat sighting approximately 6 miles southeast of this tract in 2002. It is possible that this tract could be a part of a Bobcat's home range. According to the species summary in the Indiana State Forest Environmental Assessment, its range includes coniferous and deciduous forests including areas with thick underbrush and rock outcrops. The assessment also mentions that early successional forest, forest openings, and forest gaps, provide excellent habitat for hunting prey. Any harvesting activity in this tract should therefore enhance habitat for the Bobcat. There is a rock outcrop in the tract which could provide some wildlife habitat benefits. The rock shelter will not be disturbed by heavy equipment, and in fact the topography is too steep to allow access with equipment. Any harvesting in the tract will include an adequate buffer around the shelter.

Another RTE species noted was a Hooded Warbler about 1.2 miles northwest of the tract. Following data is from Natureserve explorer and the Indiana Environmental Assessment for Indiana State Forests. Typical habitat includes young and old forest with moderate or heavy understory growth, including shrubby forest openings. Population of this species is noted as increasing at a rate of 2.1% per year in North America. Habitat loss and nest predation are primary concerns with this species. Cited literature does note that shrubby forest openings are part of the preferred habitat for this species. Managing some of the pine in this tract to create a group selection opening would, within several years, provide this habitat which is otherwise lacking in the tract.

Communities

No rare, threatened, or endangered plants were identified within this tract. Vine honeysuckle was observed growing the in the understory of some of the pine areas. A few Autumn-olive were noted throughout the tract, but they are very scattered. There was an approximately 1 acre patch of Ailanthus growing in this tract. This was treated with a Garlon basal spray by Jamie Winner in the summer of 2008.

Recreation
Recreation uses in this tract are primarily hunting. Two deer stands were noted. The tract does have excellent access from a county road, but it is an isolated 80 acre parcel so does not necessarily warrant additional recreational facilities such as a trail system or maintained firelane.

Cultural
Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects.

Tract Subdivision Description and Silvicultural Prescription

Hardwood
Approximately 66 acres (82%) of the tract consists of commercial hardwoods. The inventory data estimates the hardwood stratum contains 5,840 bd. ft. per acre of sawtimber volume, a total of 385,760 bd. ft. Harvest volume was estimated to be 1,670 bd. Ft. per acre, a total of 110,550 bd. Ft. Residual volume was estimated to be 4,170 bd. Ft. per acre, a total of 275,210 bd. Ft. A more realistic estimate, considering areas to avoid and access, potential number of harvest trees per acre, etc, only has a harvest of approximately 42 acres. That would result in a harvest volume of 70,140 Bd Ft. This excludes sensitive areas, steep slopes, and areas of hardwoods that contain a relatively low harvest volume. Attached stocking guide illustrates that the current number of trees and basal area in this stratum corresponds to an 83% stocking. The trees selected for harvest in the inventory would reduce this stocking to 72%. Mixed oaks appear to be in the majority here. The breakdown of volume includes White oak (73,240), Yellow poplar (53,950), Black oak (41,630), Pignut hickory (32,820), and Virginia pine (28,330). Refer to Harvest/Leave Summary Report for complete species breakdown.

Pine
Approximately 14 acres (17%) of the tract consists of planted pine. This is further subdivided into 12 acres of primarily Virginia pine and 2 acres of primarily White pine. The inventory data estimates the tract contains a total of 45,030 bd. ft of pine volume. Harvest volume in the Virginia pine was estimated to be 980 bd. ft. per acre, a total of 11,740 bd. ft. Harvest volume in the White pine was estimated to be 1,510 bd. ft. per acre, a total of 3,030 bd. ft.

Most of the pine in this tract consists of Virginia pine, but White pine is also present. The White pine is growing better than the Virginia pine, which is typical of this area. The White pine is located on the east side of the tract, above the rock shelter. The Virginia pine is scattered through the western and central portions of the tract. Management should be geared toward growing native hardwoods in place of pine where desirable, but also maintaining some existing pine stands for the purpose of habitat diversity.

Summary Tract Silvicultural Prescription and Proposed Activities

According to inventory data for this tract, a timber sale would be recommended. The estimate for a harvest in the hardwoods is 70,140 Bd. Ft. This is less than the original TCruise inventory estimate of 110,550 Bd. Ft. The lower estimate accounts for excluding some portions of the tract due to inventory points with low harvest volume, as well as portions of the tract that should not be harvested due to various limitations. The harvest prescription will vary throughout the harvest area. The northeast portion of the proposed harvest area overlays the older harvest that took place. That area tends to have a beech-maple understory with a mixed oak overstory. This area is not an ideal spot to attempt oak regeneration, so the best prescription will be to thin the oak with the plan of growing beech and maple here. Conversely, the southwest portion of the tract contains potential for an oak regeneration area. Post harvest TSI should concentrate on oak regeneration in this area – likely with understory girdling of maple and beech. Some portions of the proposed harvest area have too much Yellow poplar present to attempt oak regeneration. These areas will likely need to be managed to continue growing poplar. The Ailanthus that was treated in the tract should be checked again for resprouting at a convenient time such as when doing post harvest TSI.

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

Species	Growing Stock	Harvest Stock	Total Volume
AMB	5100	6130	11230
BYC	2310	0	2310
BLC	4510	0	4510
BLG	910	1310	2220
BLO	41630	25690	67320
WHP	12750	0	12750
LAA	990	1190	2180
RED	4010	0	4010
PIH	32820	8650	41470
REM	0	1740	1740
SCO	6670	6680	13350
SHH	0	830	830
SUM	5400	4650	10050
VIP	28930	4400	32730
WHA	0	5340	5340
WHO	73240	4350	77590
YEP	53950	41320	95270
TRACT TOTALS:	272620	112280	384900

TRACT TOTALS:	272620.00	112280.00	384900.00
PER ACRE TOTALS:	4130.61	1701.21	5831.82

Proposed Harvest Area
Compartment 8 Tract 1

Legend

Harvest Area

Id

- Pine
- Hardwood
- Tract Boundary

2

0 320 640 1,280 Feet