Indiana Department of Natural Resources - Division of Forestry

(DRAFT)
RESOURCE MANAGEMENT GUIDE

State Forest: Yellowwood **Compartment:** 14 **Tract:** 01
Foresters: William Capello, David Vadas **Date**: November 3, 2010
Management Cycle End Year: 2030 **Management Cycle Length:** 20 years

Location

This tract is located in Section 1, T10N, R1E of Brown County.

General Description

This 38 acre tract (commercial forest acres = 33) sits just inside Brown County at the junction of Morgan & Monroe counties. Five acres within the tract include very steep slopes. This tract is located at the north end of the Brunner Tract Forest & Wildlife Management Unit. The west boundary of the tract borders Monroe county and private ownership. The north tract boundary is shared with Morgan-Monroe tracts 910 and 911. The east boundary follows the access road and is adjacent to Yellowwood tract 1402. The south boundary is a ridge that is shared with Yellowwood tract 1421. The majority of the tract consists of Mixed Oak and Chestnut Oak – Hickory stands. The 2010 inventory data (Noted in Table 1) lists the frequency within each category of the tract's forest composition in descending order of dominance.

Table 1. Species composition from August 2010 inventory on 6421401

Overstory Sawtimber	Understory Poles	Regeneration Layer
Chestnut Oak	Sugar Maple	American Beech
White Oak	Chestnut Oak	Sugar Maple
Yellow Poplar	Sassafras	Sassafras
Black Oak	American Beech	Yellow Poplar
Northern Red Oak	Red Maple	Red Maple
Pignut Hickory	Red Elm	
Sugar Maple	Shagbark Hickory	
American Beech	White Oak	
Sassafras	Pignut Hickory	
White Ash		
Red Maple		
Red Elm		
Silver Maple		
American Sycamore		
Shagbark Hickory		

History

The majority of this tract was acquired by Yellowwood State Forest in 1956; however in 1988 a large acquisition was made by the State Legislature (Brunner acq.) wherein a south ridge was added to the tract. At that time the tract covered 92 acres. In 1985 Forester Unversaw completed an inventory and management guide over this acreage. On 9-20-89 a combined 4

tract timber sale of 193,802 Bd. Ft. was sold by YSF Property Manager Duncan. This sale included portions of the current tract, portions of Morgan-Monroe M0910&11, Yellowwood Y1421&Y1403. No timber stand improvement (TSI) was noted to be completed within the tract following the harvest. In 1991 a windstorm with straight line winds ripped through a portion of the tract but did not damage enough timber to warrant a timber sale however firewood was made available to the public. In 1996 Yellowwood and Morgan-Monroe State Forests were reorganized and managed as one Property. At this time the tract delineations were redone and the current tract acreage of 38 acres was established. Also at this time the Property established the Brunner Tract Forest and Wildlife Management Unit wherein forest management activities and wildlife management applications were designed to encourage early successional wildlife habitats. Some of the Brunner cropfields were rehabilitated into permanent grassland fields. Also periodic forest management harvests would encourage the development of larger early successional forest stands. On August 2, 2010 an inventory was completed by Intermittent Forester William Capello. The results of this inventory are highlighted in the report below.

Landscape Context

This tract is surrounded by State Forest on all sides except the west which shares a property border with private land. Closed canopy forest is the most dominant cover type across this landscape. The immediate area surrounding this tract comprises the Brunner Tract Forest & Wildlife Management Unit. Within this Unit are modest wildlife openings that are in permanent grasslands as well as temporal forest regeneration openings. From this context, the State Forest area around the tract has a significant diversity in timber stand types, age classes and levels of forest succession as well as modest amounts of permanent wildlife openings.

Topography, Geology and Hydrology

This tract has two main ridges with elevations ranging from 960' on the north and far southeast boundaries down to an ephemeral drainage at 750' on the west boundary of the tract. The main ridge wraps around the tract like a horse shoe. It runs from the northwest boundary east to the eastern boundary then along the access road down to the southeastern boundary and then follows the southern boundary to the western boundary. The second ridge runs east and west in the southern half of the tract. During the inventory it was noted that this ridge has slopes on both sides that may limit normal harvest operations. The soils are well drained and formed from loess deposits as well as from parent material weathered from shale, siltstone, and sandstone.

Soils

This tract is made up of primarily from Berks Channery silt loams and Wellston-Gilpin silt loams.

BgF	Berks Channery silt loams. 35-80% slopes. Sandstone-bedrock – at 30"depth.
SI – 70	Well drained. Most areas are wooded. Soil suited best to trees.
75% of tract	Limited to building sites due to steepness of slope and depth of bedrock.
Blue	*Moderate, severe, moderate, slight.

WeC2	Wellston-Gilpin silt loams. 6–20% slopes. Sandstone-shale – at 52" depth.
SI – 71	Well drained. Most areas are wooded. Soil suited best to trees.
25% of tract	Severely limited to building sites due to steepness of slopes.
Green	*Slight, Slight, Slight, Slight.

*Management Concerns = Erosion Hazards, Equipment Limitations, Seedling Mortality, & Windthrow Hazards.

Access

The tract is easily accessible via the north access firetrail that proceeds through the north portion of the Brunner Tract Forest & Wildlife Unit. This area is cable gated on the south end adjacent to the old Bear Wallow pond. A modest 3 car parking lot is adjacent to the cable gate for public parking.

Boundary

This tract shares its west boundary with private land which is identified by orange paint and occasional private land posted signs. The line was recently rerun and remarked by Forester Vadas in August of 2010. This remarking was initiated as it was discovered that the northern end of the fence (fence corner) was inconsistent with the Property's deed description. A resolution with the adjacent landowner is active. The rest of the tract is surrounded by Yellowwood and Morgan-Monroe State Forest property. The access road borders the tract from the northeast down to the southeast boundary.

Wildlife

Wildlife habitat documentation and analysis is an important element of tract level forest management. Considering that wildlife species vary greatly in habitat use, the management goal is to maintain the highest level of wildlife habitat diversity. Wildlife habitat features that are generally noted within the tract resource inventory include: snags, live trees, cavity/den roosting trees, culls, downed woody material, ponds, water pools, mast trees, shrubs and fruit producing vines. Standing dead or dying trees (snags), provide bat roosts, cavities and sites for wildlife dens and nests. They also contribute through decomposition as food reservoirs both above ground and on the forest floor. Most standing snags are retained in the stand for wildlife habitat unless they contain quality salvageable material or unless there is a felling safety issue with a marked tree. Live tree retention is also important for most forest wildlife species, as they depend on these trees for shelter, escape cover, roosting, mast and foliage. Specific tree densities are essential for tree roosting Indiana bats and cavity nesting/denning wildlife species. Live cavity trees are used by a wide range of wildlife species as they provide long term nests, dens, and create potential future snags. Cull trees are damaged and/or decayed trees that also provide sources of future cavity trees and roosts. Live culls with cavities and decay will be retained for wildlife value. When feasible if an adequate number of snag trees are not present, girdling live culls during post harvest timber stand improvement will assist in satisfying the guideline requirements. Downed woody material may include tree stems, logs, limbs and tree tops. The advanced stages of decay provide cover and foraging habitat for small mammals, ground-dwelling birds, reptiles, and amphibians. Mast trees, shrubs and fruit producing vines provide hard and soft food resources that are essential for a wide variety of forest wildlife. Wild grapevines will be retained except where their growth jeopardizes the integrity of regeneration openings or future stand development. In tract level forest management every effort will be made to meet or exceed target densities of snags, roost trees and cavity trees described to ensure that wildlife habitat benefits the highest number of individuals and populations possible. An analysis of the tract's wildlife resources is available in the ecological resource review which was completed after the tract inventory.

Indiana Bat Habitat Guidelines

The Indiana Division of Forestry recognizes the potential to enhance the Indiana bat habitat on its lands by implementing comprehensive management principles. These management principles include obtaining data on size, species, and numbers of snags trees. Snag trees and some specific species are an integral part of the Indiana bat policy as they are prime roosting sites for maternal colonies. The Bat guidelines are summarized in Tables 2 &3. Cavity dwelling wildlife resources were inventoried and compiled in Table 4.

Table 2. Legacy Trees inventoried on 6421401

Size Classes	Maintenance Level	Inventory	Available For Removal
11"+ DBH	342	712	370
20"+ DBH	114	222	108

**** Species Include:***
American Elm, Bitternut Hickory, Black Locust, Cottonwood,, Green Ash, Northern Red Oak, Post Oak, Red Elm, Shagbark Hickory, Shellbark Hickory, Silver Maple, Sugar Maple, White Ash, White Oak

These species of trees, whether dead, dying, or alive have a relative high value as potential Indiana Bat roost trees and are encouraged for conservation.

Table 3. Snag Trees inventoried August 02, 2010 on 6421401

Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
5"+ DBH	152	266	215	63	-51
9"+ DBH	114	228	17	-97	-211
19"+ DBH	19	38	7	-12	-31

Table 4. Cavity Trees inventoried August 02, 2010 on 6421401.

Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
7"+ DBH	152	228	0	-152	-228
11"+ DBH	114	152	0	-114	-152
19"+ DBH	19	38	0	-19	-38

Analysis: Inventory currently does not meet guidelines in size classes for live and cavity trees. Harvesting activities should maintain snags present on tract unless safety issues are present. Post-harvest TSI should incorporate snag creation to increase the tract's viability for Indiana Bat habitat.

Communities

The Natural Heritage Database indicates no records of RTE's (rare, threatened or endangered) species within this tract however there are several records nearby. The following nearby records are from a Natural Database Review dated November 26, 2010: 05/21/1922- Illinois Blackberry; 10/06/1997- Kirtland's Snake; 08/19/1999- Timber Rattlesnake; ??/??/2000- Kirtland's Snake; 10/16/2000- Kirtland's Snake; 07/17/2001- Timber Rattlesnake; 07/30/2002- Timber Rattlesnake. In the fall of 2009 a modest sized rattlesnake was observed by Forester Vadas on the Compartment road on the east end of this tract. This record is not currently listed on the NHD. The above listed records from the NHD exist in adjacent tracts to the west, south and east. Some potential habitat for the above listed species does exist within the tract. If said species are identified in the future within the tract their location will be recorded and pertinent information will be submitted to the NHD.

Recreation

This tract is not readily accessible to recreational visitors as it lies a mile within a cabled gate adjacent to Bear Wallow road. Visitors are welcome to hike to the area from the gate at which point they can utilize the area for recreational opportunities such as: hunting, nature study, mushroom, berry and nut gathering.

Exotics

Japanese stiltgrass is the only exotic recorded during the inventory. This species was noted along the west Compartment roadway. Stiltgrass populations have been documented as increasing throughout the Property and the seed is casually spread by vehicles, hikers and hunters as well as by animals such as white-tailed deer. Disturbed areas are most often areas where the grass invades. A timely mowing of the access firetrail was completed in September of 2010 by Property staff and modestly reduced this year's production of seed. Continued mowing and prompt revegetation of disturbed areas within the harvest area will be prescribed to reduce habitable sites.

Cultural

No cultural sites were observed during the inventory.

Tract Inventory Summary

The current inventory of the tract was completed in August of 2010. The dominant timber resources are summarized in Table 5 by species and descending order of volume.

Table 5. Stand & Stock Volume Estimates (BF-Doyle) for Y1401.

Species	Harvest (BF)	Leave (BF)	Total Volume (BF)
Chestnut Oak	1541	1464	3005
White Oak	141	1453	1643
Yellow Poplar	54	578	632
Black Oak	319	252	571
Northern Red Oak	306	218	524
Pignut Hickory	260	185	445
Sugar Maple	298	138	436
American Beech	166	0	166
Sassafras	23	27	50
White Ash	44	0	44

Silver Maple	36	0	36
Red Elm	0	27	27
Red Maple	23	0	23
American Sycamore	0	12	12
Shagbark Hickory	0	0	0
Total Per Acre	**3211**	**4354**	**7614**
Tract Totals	**122,018**	**165,452**	**289,332**

Tract Subdivision Description and Silvicultural Prescription

Mixed Oak

This is the most dominant cover type on the tract, covering approximately 44% of the tract. The majority of the overstory is made up of Oaks and Hickories. The understory and regeneration layers are predominantly Beech/Maple. Due to the unfavorable regeneration layer of these existing stands an understory treatment following harvest to encourage oak regeneration would be very beneficial as most of this area may qualify for regeneration treatments during the next rotation. Sanitation marking of White Ash is recommended for tract to reduce Emerald Ash Borer breeding areas.

Chestnut Oak - Hickory

This is the second most dominant cover type on tract and covers approximately 28% of the tract. The overstory in this stratum consists mainly of Chestnut Oak and Hickory species. Both the understory and regeneration layers are dominated by shade tolerant Beech/Maple although they have occurrences of Oak, Hickory and Yellow Poplar seedlings. Removal of less vigorous stems will allow for release of higher quality and longer-lived stems. Both single and group selection harvest methods are recommended to remove lower quality stems and to remove areas of poor quality and overmature timber.

Summary Tract Silvicultural Prescription and Proposed Activities

This tract would benefit from forest management. An improvement thinning utilizing single tree and group selection should be performed across the tract to improve overall stand health and improve croptree spacing. Single tree selection will remove poorly formed & mature stems as well as improve the spacing of selected croptrees. It will also increase the growth and development of the residual stand. Group selection openings will be implemented in areas of inadequate stocking, poor quality, or mature timber. As this tract occupies a portion of the Brunner Tract Forest and Wildlife Management Unit an emphasis on creating larger group selection openings should be stressed. These larger group selections would create favorable habitats for early successional wildlife species that need these types of habitats to survive. This tract is proposed to be marked and possibly sold during the current fiscal year (2010-11) or the next (2011-12). Harvest yields from this tract are estimated at 101,000 BF. Areas where midstory release to increase the establishment of advanced oak regeneration should be noted during marking and incorporated into a post harvest timber stand improvement plan in conjunction with standard group selection opening completion. Snag creation in the 9-19" diameter size classes will be prescribed following the tract harvest on poletimber & small sawtimber stems that are left unharvested. This tract will be up for a new management review & guide in 2030.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
DHPA Review	2010-2011
Roadwork improvements	2010-2011
Timber Marking	2010-2011
Timber Sale w/Tract 21	2010-11 or 2011-12
Post-Harvest TSI	2011-2013
Boundary Remarking	2015-2016
Management Reinventory & Guide	2030

Attachments (in Tract File)

Gingrich Stocking Charts
Ecological Resource Review
Natural Heritage Database Review
Wildlife Habitat Review
Archeological Clearance/Roadwork Request
Soil, Stand, and Roadwork Maps
TCruise Reports

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