

**Indiana Department of Natural Resources
Division of Forestry**

**DRAFT
RESOURCE MANAGEMENT GUIDE**

State Forest: **Yellowwood** Compartment: **14** Tract: **26**
 Tract Acreage: **150** Commercial Forest Acreage: **120**
 Forester: **Kaylee DeCosta** (for Dave Vadas) Date: **3/15/2012**

Location

This tract is located in Section 12 of Brown County of Township 10N, Range 1E. It is approximately 7.5 miles southeast of Martinsville and 3 miles north of Lake Lemon. Access is through a gated firetrail off of Bear Creek Road at Bear Wallow.

General Description

This tract is 150 acres in size, 120 of which are commercial acres. The remaining 30 acres are designated as permanent wildlife field areas which are periodically burned or mowed to maintain early successional habitat. The forest resource is predominantly medium to large sawtimber Mixed Oak with Mixed Hardwoods present in some of the cove areas and on north or east facing slopes. The tract's resource composition is listed below in Table 1 according to their dominance.

Table 1. Overview of Y1426 Forest Resources

Overstory Sawtimber Layer	Poletimber Layer	Regeneration Layer	Cull Species
Black Oak	Yellow Poplar	American Beech	Sassafras
Chestnut Oak	Sassafras	Sassafras	Blackgum
Yellow Poplar	Blackgum	Ironwood	Yellow Poplar
White Oak	Sugar Maple	Sugar Maple	Northern Red Oak
Northern Red Oak	Shagbark Hickory	Yellow Poplar	White Oak
Scarlet Oak	Red Maple	Flowering Dogwood	Black Walnut
Large-tooth Aspen	Chestnut Oak	Blackgum	Chestnut Oak
Sugar Maple	White Ash	White Ash	Sugar Maple
Red Maple	Eastern White Pine	Red Maple	Bitternut Hickory
Pignut Hickory	White Oak	Bluebeech	Black Oak
Eastern White Pine	Pignut Hickory	Shagbark Hickory	American Beech
Sassafras	Red Elm	Black Cherry	
Bitternut Hickory	American Elm	Pignut Hickory	
Shagbark Hickory	Large-tooth Aspen	Redbud	
Red Elm	American Beech	Red Elm	
Blackgum	Basswood	American Elm	
Basswood	Bitternut Hickory	Eastern White Pine	
White Ash		Pawpaw	
American Elm		Basswood	

Black Walnut American Sycamore American Beech		Black Oak Eastern Redcedar	
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History

The State Forest acquired this Tract in a large 680 acre purchase from George Brunner in June of 1988. Prior to State acquisition Mr. Brunner had a series of private timber sales throughout the purchase area, 2 of which were located in current Tract 26. The first sale occurred in 1983 and consisted of 85,501 BF in 370 trees. In 1984 the second timber sale was sold over another portion of this current Tract that included 606 trees containing 152,243 BF. These timber sales consisted of mostly singly selected trees along with modest sized group selection openings. An inventory conducted on the Brunner portion by their forest consultant prior to these harvests indicated approximately 4,285 BF/A of present volume with 1,365 BF/Ac. of harvest volume. The current Tract 26 also held some old homestead buildings, some small orchard areas, a wildlife pond and a modest sized barn. In the fall of 1988 all of the old buildings on this parcel were razed, burned and buried using Fire Headquarter Staff under the direction of the DNR Surplus Property Section. Only the barn was left for management purposes. The old fields were routinely mowed to promote wildlife and were seeded to grasses and legumes. Some of the better openings were tilled and seeded to produce wheat straw for DOF properties to use in seeding roads and trails. Storage of some of each year’s crop of wheat straw was stored in the Brunner Barn for several years. Following the burning of the remaining Barn in the late 1990’s seed straw production was discontinued and using a Wild Turkey Federation Grant some of the larger openings were renovated, disked and planted to warm season grasses using a local farmer in 2001. Since 2001 these grassland plantings and some smaller fields have been maintained by prescribed burning and periodic mowing to maintain their early succession status. In March of 2012, old tract 27 (58.6 acres) was combined with old tract 26 to form new Tract 26 of 150 acres. These two adjacent tracts were combined because of a common shared access along a central ridge and to increase ease of timber management over both areas. The current tract inventory of 150 acres was completed on March 13, 2012 by Forest Intermittent K. DeCosta.

Landscape Context

The majority of land surrounding the tract is managed State Forest with some privately managed forestlands to the east. One large wildlife pond lies within the Tract on the edge of the central ridge’s warm season grassland field. Two small reservoirs also lie within a mile south of this tract. This tract is located within the designated Brunner Tract Forest & Wildlife Management Unit of Yellowwood State Forest. The Brunner Tract has had a long history of upland row crops and farming activities prior to the State’s Acquisition in 1988. This Management Unit was established to continue the great diversity of forestland and early successional wildlife habitats by utilizing periodic timber harvests as well as maintaining open, grassland fields. Some of the wildlife fields within this Unit were planted shortly after acquisition to warm season grasses that are given prescribed burns on a regular basis. The remainder of the Brunner Tract’s smaller wildlife fields is mowed every 4-5 years to prevent or reduce woody plant encroachment. At times these fields are also prescribed burns to reduce fescue and thatch. This mixture of grassland field edges with early successional forest habitats is unique on the Yellowwood State Forest and provides a very diverse wildlife habitat as well as many opportunities for wildlife viewing and game hunting for the public.

Topography, Geology and Hydrology

This tract is comprised of mainly of two smaller finger ridges and one larger central finger ridge off of the one large main ridge. Topography ranges from 6% to 70% slopes with all aspects being represented within the tract; south aspects however occur more frequently than other aspects. The underlying soils range from 27 - 52 inches in depth to weathered siltstone, interbedded siltstone w/sandstone and/or shale bedrock. Two mapped intermittent streams occur within the tract on either side of the central ridge. Several other unmapped ephemeral drainages also occur throughout the tract. The water resources from the northeast half of this tract drain into Bear Lake and from there into Bear Creek which drains into Lake Lemon. Water resources from the southwestern half of the tract drain into a private reservoir and then into Jack Creek which also feeds the drainage of Bear Creek.

Soils

BgF (Berks-Trevlac-Wellston complex, 20 – 70% slopes) Moderately steep to very steep slopes and well drained soils. This tract is comprised of approximately 70% of this soil type and presents moderate to severe erosion hazards, severe equipment limitations, slight to moderate seedling mortality, and slight windthrow hazard. Management considerations should include building haul roads on a contour and constructing water bars to prevent erosion. Site index for Yellow Poplar is 90 and 70 for White Oak.

WeC2 (Wellston-Gilpin silt loams, 6 – 20% slopes, eroded) Moderately sloping to moderately drained soils on sideslopes and ridgetops. This soil type comprises approximately 30% of the tract and presents slight risks for erosion hazard, equipment limitation, seedling mortality, and windthrow hazard. Site index for Yellow Poplar is 90 and 70 for White Oak.

Access

Access to this tract is through a gated firetrail off of Bear Creek Road at Bear Wallow. This roadway underwent road improvements during recent timber harvests. Four log yards will need to be installed along the edges of the wildlife field areas so as to avoid skidding across the fields. A central haul road will also need to be constructed through the large wildlife field along the central ridge in this tract. This haul road will also be utilized in a timber sale in adjacent tract 28.

Boundary

This tract is bordered by Yellowwood State Forest on all sides except on a third mile stretch along the east boundary adjacent to private property. This boundary is marked in orange paint. The last remarking was in the fall of 2011 and is currently up to date.

Wildlife

The tract's resource inventory was conducted in late winter so only a few migrant breeding birds were detected. Birds seen or heard during the inventory include the following:

Red-headed Woodpecker	Pileated Woodpecker	Hairy Woodpecker
Wild Turkey	Eastern Bluebird	Mourning Dove
Blue Jay	Red-bellied Woodpecker	Song Sparrow
Eastern Towhee	Dark-eyed Junco	Field Sparrow
Northern Cardinal	American Crow	American Goldfinch

Northern Flicker	Carolina Chickadee	Brown-headed Cowbird
Carolina Wren	Tufted Titmouse	Downy Woodpecker
Red-tailed Hawk	Red-shouldered Hawk	White-breasted Nuthatch

This tract includes a rich diversity in habitat types which is reflected in the diversity of bird species utilizing it. The wildlife field areas and the associated fringe habitat along with the adjacent forested areas provide an excellent habitat matrix that provides habitat for a wide diversity of wildlife species. Additionally, a timber harvest in this tract will thin the current stand and allow for a denser understory layer which provides additional cover and habitat for shrub nesting species.

A Natural Heritage Database review was obtained for this tract. If rare, threatened or endangered species 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.

Deficiencies were found in the wildlife habitat feature summary for timber snags in the 9”+DBH and 19”+DBH categories as highlighted in red below. Postharvest TSI following timber harvests is also a management technique that can aid in increasing tract snag densities. This would include the girdling of some residual cull trees or unharvested timber in planned group selection openings.

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
<i>11”+ DBH</i>	1080		2070	990	
<i>20”+ DBH</i>	360		608	248	
Snags (all species)					
<i>5”+ DBH</i>	480	840	961	481	121
<i>9”+ DBH</i>	360	720	356	-4	-364
<i>19”+ DBH</i>	60	120	50	-10	-70

* **Species Include:**AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

Communities

The current tract resource inventory was conducted during late winter; therefore many understory plant species that have been present during the summer were also undetectable. Yellow Trout Lily, Spring Beauty, Cut-leaved Toothwort, Harbinger of Spring, Golden Ragwort, and Common Cinquefoil were among some of the early emergent herbaceous plants observed.

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Multiflora rose was also present within the tract but appears to be especially concentrated along field edges and creek bottoms. The multiflora rose along field edges is controlled periodically by

fire but continues to persist. Bush Honeysuckle was also seen growing along some of the field edges; these species is one invasive that should be treated during the current cutting cycle.

Recreation

This tract is easily accessible to the public and is frequently used by hikers and hunters due to the great variety of timber types as well as mixture of open grassland and field areas. The variety of habitats makes this tract a model wildlife viewing area. A modest public parking lot lies across the road from and adjacent to the cable/cattlegate that protects the Compartment's Firetrail from traffic off of Bear Creek Road. This gate is often the site where management activities are posted as they occur within the Brunner Tract Forest & Wildlife Management Unit. The 41.5 mile long Tecumseh Trail also traverses through the southern edge of this tract. This southernmost portion of this tract also lays adjacent to the Morgan-Monroe Back Country Area. With the combined use by hikers and backpackers in this portion of the tract a Visual Enhancement Area will be prescribed adjacent to that portion of the ridge and Trail. The VEA along these portions of the tract means this portion of the tract will be managed using only single tree selection so that closed canopy forest conditions are perpetuated.

Cultural

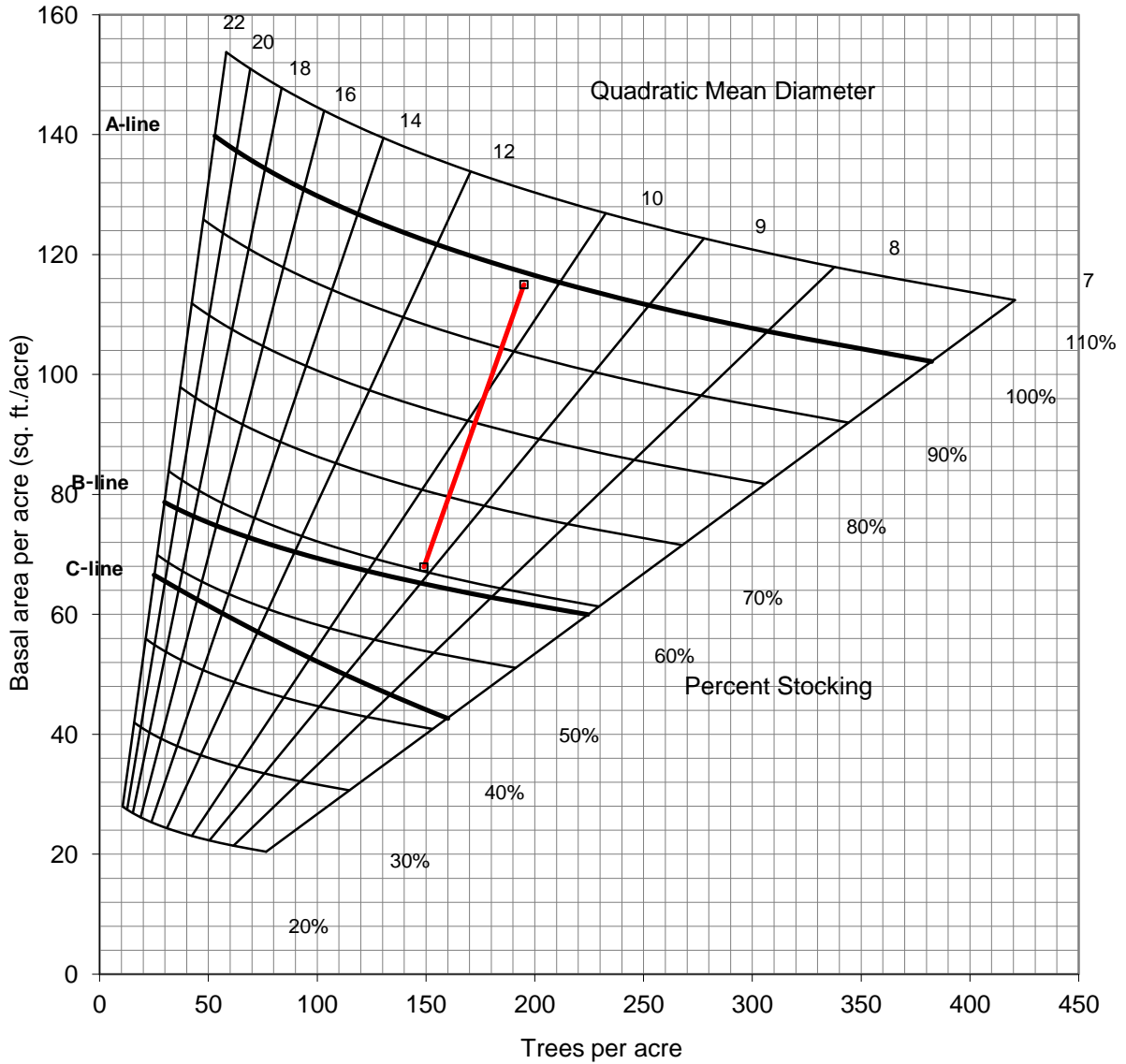
Cultural resources may be present on this tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Tract Subdivision Description and Silvicultural Prescription

Tract Summary Data (150 Acres)

Total Trees/Ac.= 195	Overall % Stocking = 98% (Fully-stocked)
Sawtimber & Quality Trees/Ac.= 48.8	BA/A= 115.0 sq. ft./Ac.
Present Volume	= 8,178 Bd. Ft./Ac.
Harvest Volume	= 3,381 Bd. Ft./Ac.
Growing Stock Volume	= 4,797 Bd. Ft./Ac.

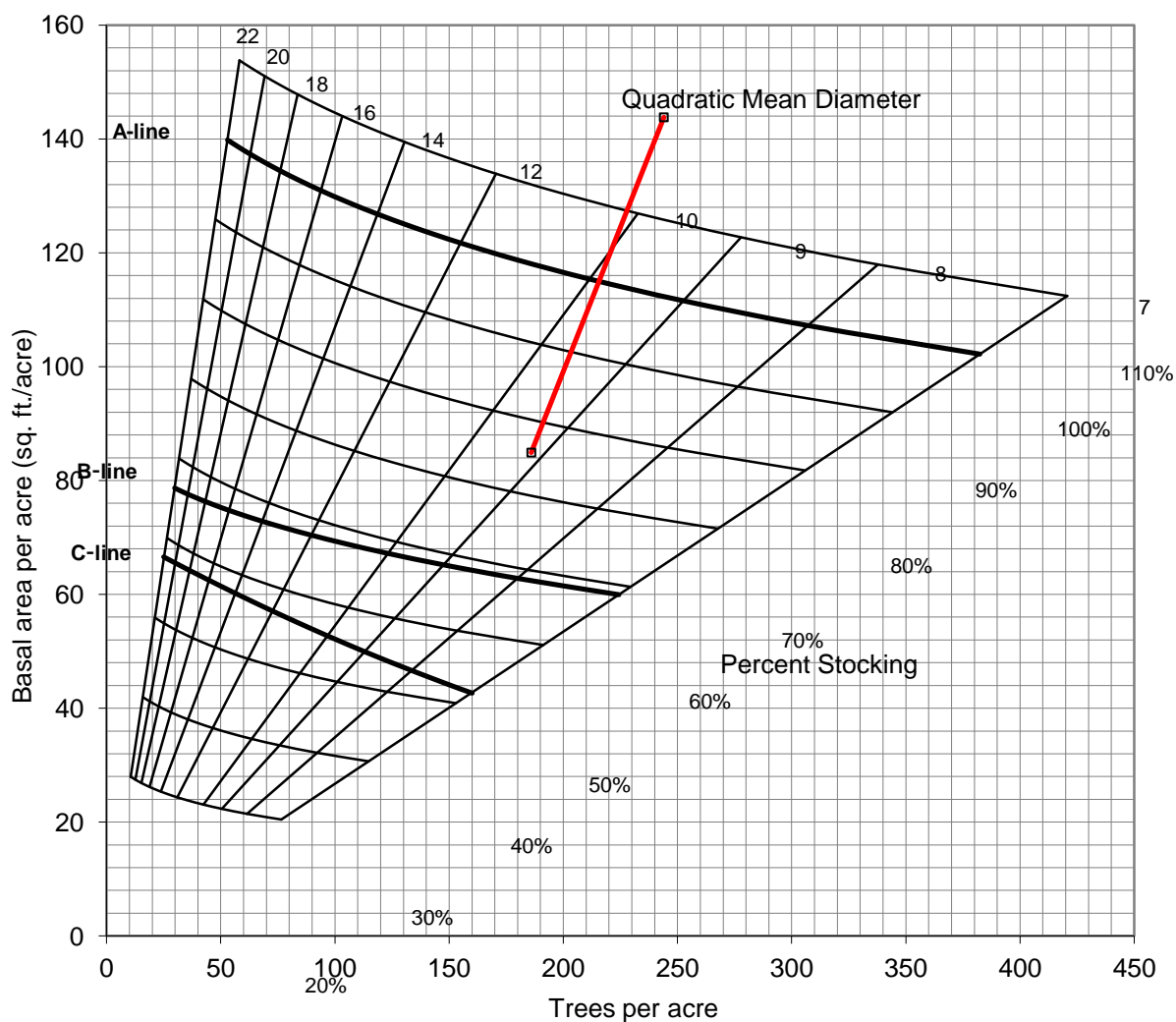
Figure 1. Gingrich Chart for Y1426 Whole Tract Stocking



Commercial Forest Summary Data (120 Acres)

Total Trees/Ac.= 244	Overall % Stocking = 122% (Over-stocked)
Sawtimber & Quality Trees/Ac.= 61	BA/A= 143.8 sq. ft./Ac.
Present Volume = 10,223 Bd. Ft./Ac.	
Harvest Volume = 4,226 Bd. Ft./Ac.	
Growing Stock Volume = 5,997 Bd. Ft./Ac.	

Figure 2. Gingrich Chart for Y1426 Commercial Stand Stocking



Silvicultural Prescription

The current tract resource inventory was completed on March 13, 2012: 35 prism points were evaluated over 120 acres (1 point for every 3.4 acres). Inventory summary results are given above and detailed species volumes are presented in Table 2 below for the commercial forest acreage. Based upon this inventory the tract's commercial forest acreage is presently overstocked and a timber harvest is prescribed.

The proposed timber harvest will focus on the removal of dying, leaning, mature, deformed, or poor quality stems that possess low vigor in an effort to release the more vigorous and valuable croptrees as well as to improve their spacing. The Basal Area is very high in portions of this tract which has caused moderate to severe crown competition of croptrees in the intermediate and overtopped tree crown classes. Thinning from above and below is recommended to reduce the crown competition and increase growth and vigor on selected croptrees. Fire damage was noted in some areas adjacent to the wildlife field where prescribed burns have jumped fire lines during routine prescribed burns. The stand in this tract overall possesses fair quality. Yellow Poplar, Black Oak, White Oak, and Red Oak species represent the highest quality trees within the tract; healthy and vigorous quality stems that have not yet reached maturity should be retained in this harvest. Hickory represents a fairly strong component in the intermediate to codominant layers. As hickory species have valuable timber qualities and are consistent mast producers for wildlife an effort to release and retain these species should be expended in the marking effort. Because of the proximity to the field areas, the marking forester should be aware of old barbed-wire fencing that has grown into the boles of some trees; several of these areas were noted during the inventory. Timber marking close the Tecumseh Hiking Trail and the Morgan Monroe Backcountry Area should follow timber marking rules set forth for Visual Enhancement Areas as well as for marking within the Backcountry Area. This will necessitate singletree selection harvests with no openings with an emphasis on retaining crown canopy.

This tract is located within the Brunner Tract Forest & Wildlife Management Unit. Forested tracts within this Unit have managed for early successional forest and grassland wildlife habitats since 1988. The wildlife fields are maintained by periodic mowing and prescribed burns however the modest sized forest regeneration openings that were prescribed for regeneration in past harvests are only ephemeral in nature. Given this ephemeral nature of forest regeneration openings prescribed harvests within this Unit strive to create periodic modest sized regeneration openings from 1 to 10 acres as forest timber types and forest health conditions allow. Overall, some areas were noted during the inventory as having fairly poor quality, poor species composition, and windthrow damage; other areas also have groups of over-mature trees (Yellow Poplar and Black Oak in particular). In stands where intermediate silvicultural treatments are needed, the growth of more vigorous, longer-lived mast-producing species such as oaks & hickories will be encouraged. White Pine was noted along the edges of the tract's access firetrail and some of the wildlife fields; these stands should be retained in the harvest as they provide great diversity and wildlife cover in winter seasons. Several very large wolf trees are also adjacent to the maintained wildlife openings. These trees were mostly BLO and WHO approaching and exceeding 40 inches in diameter. Some of these trees should be retained in the harvest as wildlife and seed trees but others may need to be marked for removal to allow for the growth of higher quality, adjacent croptrees. Ash species should be harvested where feasible in a sanitation cutting to reduce habitat for Emerald Ash Borer which is already present in northern Brown County. Some of the cull trees retained in this harvest could be girdled or deadened during post harvest TSI to increase snag density and improve Indiana Bat habitat or retained in areas where snag/cavity densities are low.

Overall the cutting cycle for this tract is suitable for 15 years. Based upon the inventory data a timber sale is proposed for this tract for FY2012-13 and a modest harvest marking of over 300,000 BF but could approach 400,000 depending upon the amount of regeneration that is prescribed.

Table 2. Volume Estimates: Yellowwood SF Comp. 14 Tract 26

Data from March 2012 Inventory (Commercial Forest Acreage)

Species	Harvest	Growing Stock	Total Volume
Black Oak	159,790	240,940	400,730
Yellow Poplar	145,390	48,230	193,620
Chestnut Oak	51,460	97,420	148,880
White Oak	10,020	126,860	136,880
Northern Red Oak	36,590	83,750	120,320
Scarlet Oak	19,680	31,110	50,790
Pignut Hickory	3,210	30,530	33,740
Sugar Maple	19,420	3,740	23,160
American Sycamore	6,330	14,220	20,550
White Ash	17,140	0	17,140
Bitternut Hickory	2,690	10,760	13,450
Largetooth Aspen	13,130	0	13,130
Shagbark Hickory	0	11,510	11,510
Red Maple	10,420	0	10,420
Eastern White Pine	1,830	6,440	8,270
Sassafras	4,670	0	4,670
American Elm	1,980	2,310	4,290
Basswood	0	3,950	3,950
Black Walnut	0	3,880	3,880
Blackgum	0	2,830	2,830
American Beech	2,310	0	2,310
Red Elm	1,000	1,190	2,190
Tract Totals (Bd. Ft./Ac.)	507,060	719,670	1,226,710
Per Acre Totals (Bd. Ft./Ac.)	4,226	5,997	10,223

Proposed Activities Listing

Proposed Management Activity

DHPA Access project (Combined w/T28)
 Timber Sale Roadwork Improvement
 Timber Marking
 Timber Sale
 Post Harvest TSI and Invasives Treatment (if needed)
 ReInventory and Management Guide

Proposed Period

CY 2012
 CY 2012-13
 CY 2012-13
 FY2012-13
 CY 2012-15
 2027

Attachments

Included in Tract File:

- Topo Map of Tract Features

- Tract Soils Map
- INHD Review Map
- Stocking Guide Chart
- Ecological Resource Review
- TCruise Reports

To submit a comment on this document, click on the following link:

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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.