

Indiana Department of Natural Resources – Division of Forestry

Draft

Resource Management Guide

State Forest: Yellowwood

Tract Acreage: 73

Foresters: James Dye & Laurie Burgess

Management Cycle End Year: 2026

Compartment 10 Tract 11

Commercial Acreage: 73

Date: December 7, 2011

Management Cycle Length: 15 years

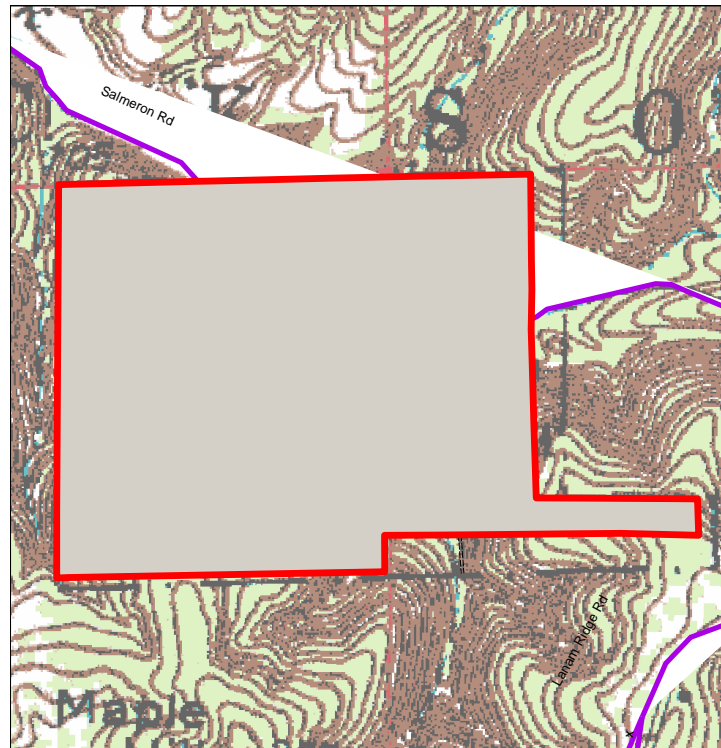
Location:

Compartment 10 Tract 11 lies in the northeast quarter of Section 8 and the northwest quarter of Section 9, Township-9-N, Range-2-E of Jackson Township in Brown County, Indiana. The tract lies approximately 12.75 miles east northeast of the city of Bloomington, Indiana.

General Description:

This tract is an approximately 73-acre, managed, multiple-use parcel comprising part of the 1,145 acres in Yellowwood State Forest Compartment 10. The timber type is predominantly semi-closed canopy mixed hardwoods, but a two to three acre stand and a scattering of loblolly pine are present in the southwestern, upland regions. This tract is surrounded by private properties on all sides. Tract boundaries are formed by Yellowwood State Forest property boundaries and do not follow any topographic features. The tract is easily accessible via Salmeron road (represented by the purple line in Figure 1 that runs through the tract), and a small public parking spot is located where the road turns east near the intersection of two intermittent streams. This area exhibits good opportunities for multiple use management, including timber management, wildlife management, and soil/water conservation. It is also suitable for public recreational

Figure 1 – YWSF, Compartment 10, Tract 11



activities such as hiking, gathering, hunting, and wildlife viewing.

Table 1 provides a summary of the 2011 forest resource inventory data and shows the relative frequency of tree species in this tract according to their abundance.

Table 1 – Forest Species Composition & Structure within Y1011 – November 2011

Overstory Layer	Understory Layer	Regeneration Layer
Yellow Poplar	American Beech	American Beech
Black Oak	Sugar Maple	Red Maple
Chestnut Oak	Dogwood	Black Oak
White Oak	Sassafras	Hickory
Loblolly Pine	Red Maple	White Ash
Northern Red Oak	Bluebeech	White Oak
Shagbark Hickory	Black Oak	Yellow Poplar
Scarlet Oak	Yellow Poplar	Sugar Maple
Largetooth Aspen	Ironwood	Bluebeech
American Sycamore	Black Cherry	Northern Red Oak
Red Maple	Eastern Redbud	Sassafras
Pignut Hickory	Hickory	Chestnut Oak
Virginia Pine	Eastern Redcedar	Black Walnut
Bitternut Hickory	Largetooth Aspen	
Sugar Maple	Chinkapin Oak	
Basswood	White Oak	
Blackgum		
Sassafras		
Pin Oak		
American Beech		
White Ash		
Black Walnut		
Red Elm		

History:

Yellowwood State Forest was created in 1940 when federal land was leased to the State of Indiana. The land was deeded to the State in 1956. Prior to that time, the Civilian Conservation Corps and Works Project Administration completed three lakes, a shelterhouse and a residence, all presently in use. Other such buildings were sawn from the Forest in kit form and shipped to other public properties. Yellowwood Lake was completed in 1939. The 133-acre lake is about 30 feet deep.

Compartment 10 Tract 11 is comprised of two parcels granted to the State by the federal government on October 30, 1956.

In terms of forest management, a forest inventory was conducted in 1975 and a management plan was written for both tracts 11 and 12 (now combined as Tract 11). A timber sale took place on October 26, 1984 to remove 485 trees containing 109,928 board feet of sawtimber. Logging for this sale took place from January through May of 1985. In 1987, TSI was completed to complete regeneration openings created during timber harvest. In 2011, a timber inventory was completed which estimated 561,220 board feet of total sawtimber and 223,980 board feet of that was designated as harvest volume.

Tract 11 is the product of two former tracts, formerly Tract 11 with 53 acres and Tract 12 with 20 acres. This area is an isolated parcel of Yellowwood State Forest and was originally delineated separately because of topography. However, due to the size & isolation of these 2 adjacent areas, the tracts were combined into one Tract (Tract 11) for longterm resource management purposes.

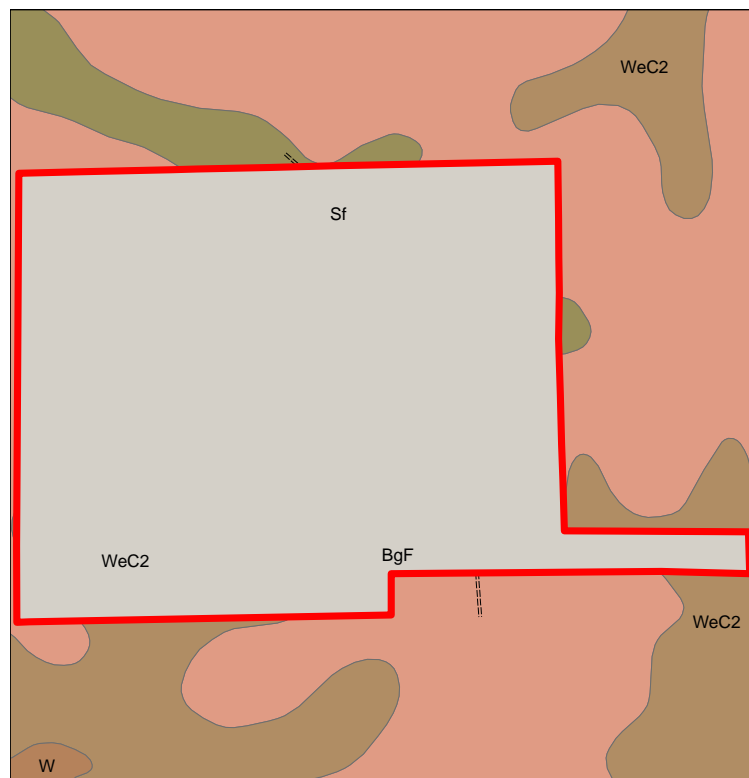
Landscape Context:

This tract is surrounded by closed canopy, privately held deciduous & scattered pine forests whereas to the southwest lies additional private property with a home, pond, and large areas of open field. Near the southeast corner is Lanam Ridge Road with several private properties and dwellings. Across Salmeron Road to the north is forested private property with a dwelling. Salmeron Road largely follows a mapped intermittent though a low elevation area. This mapped intermittent lies along part of the north boundary and connects with another mapped intermittent in the eastern third of the tract. Salmeron Road separates about 8.5 acres in the northeast quarter from the rest of the tract.

Topography, Geology, and Hydrology:

This tract consists of a large upland section in the southwest areas with

Figure 2 – Brown County Soil Survey Map



several long; fairly steep slopes that lead down to lower areas along the west, north, and east. The east slopes drain into a mapped intermittent stream which flows into the larger, east-west intermittent stream along Salmeron road. The southeast “panhandle” contains an upland oldfield. Across the road in the northeastern area, the terrain begins to gradually incline to the north, northeast, forming south & southwest facing slopes. Soils within this tract are typically derived from sandstone-shale and have a bedrock depth of 36 to 52 inches. All the drainages from this tract flow into Plum Creek which eventually flows into Lake Lemon.

Soils:

The Berks-Trevlac-Wellston Complex (BgF) is the most dominant soil type found within the tract comprising approximately 42.5 of the tract’s 73 acres. It is found on hills and slopes that are steep and include slopes ranging from 20 to 70 percent. Next most common is the Wellston-Gilpin silt loam (WeC2) which makes up about 21.5 acres. Also found on hills, slopes here range from 6 to 20 percent. The remaining soils are Steff silt loams (Sf) which are frequently flooded and comprise 9.5 acres of the tract’s flatter lowland areas in the northeastern portion of the tract.

Table 2 – Basic Soil Information for YSF Compartment 10, Tract 11

BgF	Berks-Trevlac-Wellston complex		20-70% slopes	Sandstone-shale-36"
	Site Index - 70	Well drained, most areas in woodland, suited to trees Unsuitable for building sites and septic absorption fields		
42.5 Acres	Erosion <i>Moderate</i>	Equipment Limitations <i>Severe</i>	Seedling Mortality <i>Moderate</i>	Windthrow Hazard <i>Slight</i>
WeC2	Wellston-Gilpin silt loam		6-20% slopes	Sandstone-shale-52"
	Site Index - 71	Well drained, most areas wooded, soil suited to trees Severely limited to building sites due to steepness of slopes		
21 Acres	Erosion <i>Slight</i>	Equipment Limitations <i>Slight</i>	Seedling Mortality <i>Slight</i>	Windthrow Hazard <i>Slight</i>
Sf	Steff silt loam		0-2% slopes	
		Moderately well drained, frequently flooded, well suited to trees Unsuitable for building sites and severely limited for roads		
9.5 Acres	Erosion <i>Slight</i>	Equipment Limitations <i>Slight</i>	Seedling Mortality <i>Slight</i>	Windthrow Hazard <i>Slight</i>

Access:

This tract is accessible to the public via Salmeron Road. Salmeron Road's surface is gravelled but appears to be well maintained. The road is however quite narrow with the lowland areas being prone to flooding. A small log yard from the previous harvest may be reused for any proposed future timber harvest. This yard is on the south side of Salmeron Road and may require the construction of an additional yard and access road. A Division of Archaeology and Historic Preservation review project will be submitted and reviewed prior to roadwork construction.

Boundary:

As a whole, this tract is surrounded by privately held lands along all sides. Boundary marking in orange paint has been historically maintained every 6 years and this tract's boundary is clearly visible due to its recent maintenance. All State Forest property corners for this tract were identified and GPS'd in July 2009. All are U.S. monuments except for the northwestern corner which is designated by a stone.

Wildlife:

Wildlife resources in this tract appear to be abundant due to a habitat that is fairly diverse. Habitats include mostly mixed hardwoods with scattered pockets of pine plantations along with areas of mixed hardwoods and pine. The oaks, hickories, walnut, and beech provide hard mast for deer, turkey and squirrel. Snags (standing dead trees) and cavity trees provide nesting, bugging, and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls, small ponds, ephemeral drainages, and the mapped intermittent stream provide reasonable habitats for herptiles and aquatic vertebrates.

Species and sign noted during the 2011 inventory include Eastern gray squirrel, chipmunks, white-tailed deer, various songbirds, and woodpeckers.

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.

Wildlife Habitat Features:

According to the data collected during the tract inventory and represented in the following table (Table 3), this tract is fairly well represented in regards to the number, size and species of dead (snag) trees suitable for consideration by the Indiana bat (*Myotis sodalis*) and its suggested habitat requirements.

Snags, standing dead or dying trees, may be one of the most important wildlife habitat features in Indiana’s forests as they are used by a wide range of species as essential habitat features for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting. Additionally, snags are an important contributor to the future pool of downed woody material. For this tract only the largest size class falls below maintenance levels, while the two larger size classes fall below optimal levels. There is a very high abundance of smaller snags. One reason for this is that the tract simply does not have an abundance of larger trees, which is also reflected in the lack of legacy trees in the 20” and greater size classes. Larger trees that are present tend to be in good health and vigor. Forest wildlife species depend on live trees for shelter, escape cover, roosting and as a direct (e.g., mast, foliage) or indirect (e.g., foraging substrate) food resource. The retention of live trees with certain characteristics (legacy trees and cavity trees) is of particular concern to habitat specialists such as cavity nesters or Species of Greatest Conservation Need like the Indiana bat. Legacy trees of a particular species having certain characteristics suitable as live roost trees for the Indiana bat are very well represented in all size categories. Cavity trees meet and exceed maintenance levels in all size classes.

Legacy trees, standing dead trees (snags) and cavity trees will be given consideration for retention as habitat for the Indiana bat and other wildlife as defined by the Resource Management Strategy for the Indiana bat on State Forest Property and the Management Guidelines for Compartment-level Wildlife Habitat Features. In addition, the girdling of select cull trees could be performed during post harvest timber stand improvement (TSI) to increase snag trees, particularly in the larger size classes.

Table 3 – Wildlife Habitat Summary

Legacy Trees*	Maintenance Level		Inventory	Available Above Maintenance	
11”+ DBH	657		831	174	
20”+ DBH	219		134	-85	

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

Snags (All Species)	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
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5"+ DBH	292	511	906	614	395
9"+ DBH	219	438	296	77	-142
19"+ DBH	36.5	73	15	-22	-58

Cavity Trees (All Species)	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
7"+ DBH	292	438	498	206	60
11"+ DBH	219	292	247	28	-45
19"+ DBH	36.5	73	51	15	-22

Communities:

Currently, there are some concerns with exotic plant species within Tract 11. Several light to moderately infested patches of multiflora rose were observed, however multiflora rose is so widespread that it has become naturalized to the area. One occurrence of autumn olive and bush honeysuckle was also noted in the tract. These are depicted by the orange and purple markers(respectively) in Figure 3 at right.

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.

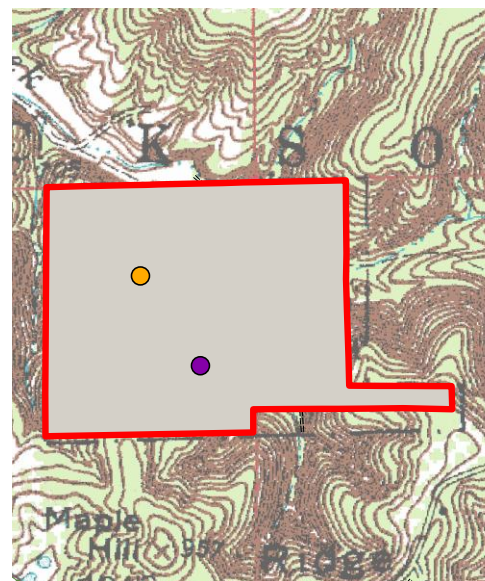
Figure 3 – Exotic Locations

Recreation:

This tract is easily accessible via Salmeron Road, and a very small parking spot is located where the road turns east. This tract offers a few recreational opportunities such as off-trail hiking, gathering, hunting, and viewing.

Cultural:

Cultural resources include old building sites, wells, etc. and their locations on State Forests are protected. All identified sites are referred to the Division of Forestry



Archaeologist and are reviewed prior to any planned road construction or proposed timber harvest. Maps of identified cultural sites are not provided to the public. In the event of a proposed timber harvest the DOF Archaeologist will determine the extent and conditions for protecting each site(s).

Tract Inventory:

A summary of the most recent forest resource inventory is noted in Table 4 below. Specific species groups and estimated volumes are attached in Table 5.

Table 4 – Estimated Y1011 Tract Volumes (Commercial Forest Area), Doyle Rule

Species	Harvest (bd. Ft.)	Leave (bd. ft.)	Total Volume (bd. ft.)
Yellow Poplar	62,330	83,420	145,750
Black Oak	53,850	86,420	140,280
Chestnut Oak	15,970	30,990	46,960
White Oak	5,300	32,130	37,430
Loblolly Pine	8,100	29,100	37,190
Northern Red Oak	5,180	19,850	25,040
Shagbark Hickory	6,680	16,760	23,450
Scarlet Oak	7,560	11,840	19,390
Largetooth Aspen	19,240	0	19,240
American Sycamore	8,770	6,320	15,090
Red Maple	11,060	1,410	12,460
Pignut Hickory	0	8,430	8,430
Virginia Pine	8,280	0	8,280
Bitternut Hickory	2,700	3,420	6,120
Sugar Maple	1,660	2,510	4,170
Basswood	1,930	1,950	3,880
Blackgum	2,140	0	2,140
Sassafras	1,430	0	1,430
Pin Oak	0	1,090	1,090
American Beech	970	0	970
White Ash	840	0	840
Black Walnut	0	830	830
Red Elm	0	760	760
Tract Totals	223,990	337,230	561,220
Per Acre Totals	3,068	4,620	7,688

Table 5 – 2011 Forest Resource Inventory Summary for Y1011

Total Number of Trees per Acre: 288

Average Tree Diameter: 7.2"

Average Site Index: 77

Stocking Level: 109%

	Acres		Sq. Ft. per Acre
Hardwood Commercial Forest:	71	Basal Area Sawtimber:	74.1
Pine Commercial Forest:	2	Basal Area Poles:	28.8
Noncommercial Forest:	0	Basal Area Culls:	5.9
Permanent Openings:	0	Sub-merchantable:	12.2
Other Use:	0		
Total	73	Total Basal Area	121

Tract Inventory Description and Silvicultural Prescription:

The timber types within this tract are predominantly closed canopy mixed hardwoods but scattered hardwood individuals and areas with loblolly pine are also present in the southwest, upland portions of the tract. The sawtimber overstory consists mostly of yellow poplar, black oak, chestnut oak, white oak, loblolly pine, Northern red oak and shagbark hickory. The overall quality of merchantable timber varies widely from poor to good. The poorer quality timber is often found in the flatter, lower elevation areas where grapevines have reduced growth and development. This tract has a large component of pole-sized timber particularly in the easternmost portion. Yellow poplar, red maple, and sugar maple are the most common species however modest numbers of sassafras, black oak, shagbark hickory, blackgum, and white oak are also present. The larger saplings of the tract's understory consist mostly of American beech, sugar maple, flowering dogwood, sassafras, and red maple species. Seedling regeneration consists mostly of American beech, red maple, black oak, assorted hickories, white ash, white oak, and yellow poplar trees. The current stocking level of 109% indicates the tract's timber resource has reached an overstocked condition (Figure 4). The largest impediment to growth other than stand overstocking is clusters of grapevine arbors. Portions of the tract have also experienced light windthrow but this doesn't appear to be a significant concern at present.

The proposed silvicultural prescription is to mark an intermediate harvest primarily using an improvement cutting whereby single trees are selected for removal. The composition of the tract will be improved by harvesting low quality, damaged, diseased, dying and poorly formed trees as well as harvesting less desirable timber and wildlife tree species such as red and sugar maple, American beech, sassafras, and American sycamore. This will result in thinning the canopy and reducing crown competition for the maturing & better quality sawtimber and preferred tree species. Mature and/or declining yellow poplar and black oak individuals should be given particular consideration for selective removal to release adjacent crotrees. White ash trees that are present within the tract should be harvested in a sanitation cut to reduce habitat for Emerald Ash Borer (EAB) populations that are already present in this quarantined county. Young black walnut trees in the lowland areas should be crown released where possible by harvesting other tree species that are competing with their crowns. Standing dead trees (snags) and cavity trees

will be given consideration for retention as habitat for wildlife. Legacy trees as defined by the Resource Management Strategy for the Indiana bat will be given consideration for retention as habitat for the Indiana bat. Group selection regeneration openings may be prescribed in mature stands, in stands where stocking is low, or in stands of poor quality timber. This may include the low quality and decadent Virginia pine stands that may be present in this tract. As Indiana State Forests are sustainably certified by 2 international agencies (FSC and SFI) the tract regeneration goal is to regenerate at least 10% of the tract acreage provided that stand conditions are favorable. Early successional stands are presently underrepresented by acreage within the State Forest and even a small percentage of regeneration acreage provides valued habitat for several rare and threatened wildlife species. As the silvicultural prescription is predominantly an improvement cutting type of harvest most habitat and cover types currently present will be retained in the future stand.

Preharvest management in the form of Timber Stand Improvement (TSI) is planned to reduce established grapevine arbors. No prescription is proposed for the management of multiflora rose. However, isolated infestations of autumn olive and bush honeysuckle should also be treated in the preharvest TSI operation so as to prevent their spread.

A Postharvest TSI Project is planned to complete any regeneration openings created by the proposed harvest as well as to perform croptree release in harvested forest acreage wherein croptrees were insufficiently released. This croptree release will consist of deadening poorly formed, low vigor and competing undesirable stems as well as to encourage early successional (oak) regeneration by reducing understory shade tolerant populations such as sugar maple and American beech. In addition, the girdling of select cull trees should be performed through post harvest TSI to address the suggested guidelines of the Strategy for the Consideration of the Indiana bat (IDNR – Division of Forestry, Resource Management Strategy for the Indiana Bat on Indiana State Forests, April 2008).

Where present and appropriately laid out, existing yards and skid trails will be reused. The application of appropriate State Forest Best Management Practices (BMP's) will be applied prior to and during the harvest so that existing and newly created skid trails, access roads and yards are constructed to reduce soil erosion and reduce runoff to neighboring ephemerals and intermittent streams.

The overall goal of this prescription is to implement an improvement cut that will reduce competition among the better formed and quality trees, enhance growth of selected croptrees, capture valuable forest resources through the removal of over-mature and declining trees, improve understory composition in favor of oak regeneration, and improve the tract's overall timber species composition while providing a balanced and enhanced forest wildlife habitat for future generations of Indiana citizens.

Proposed Management Activities

Proposed Periods

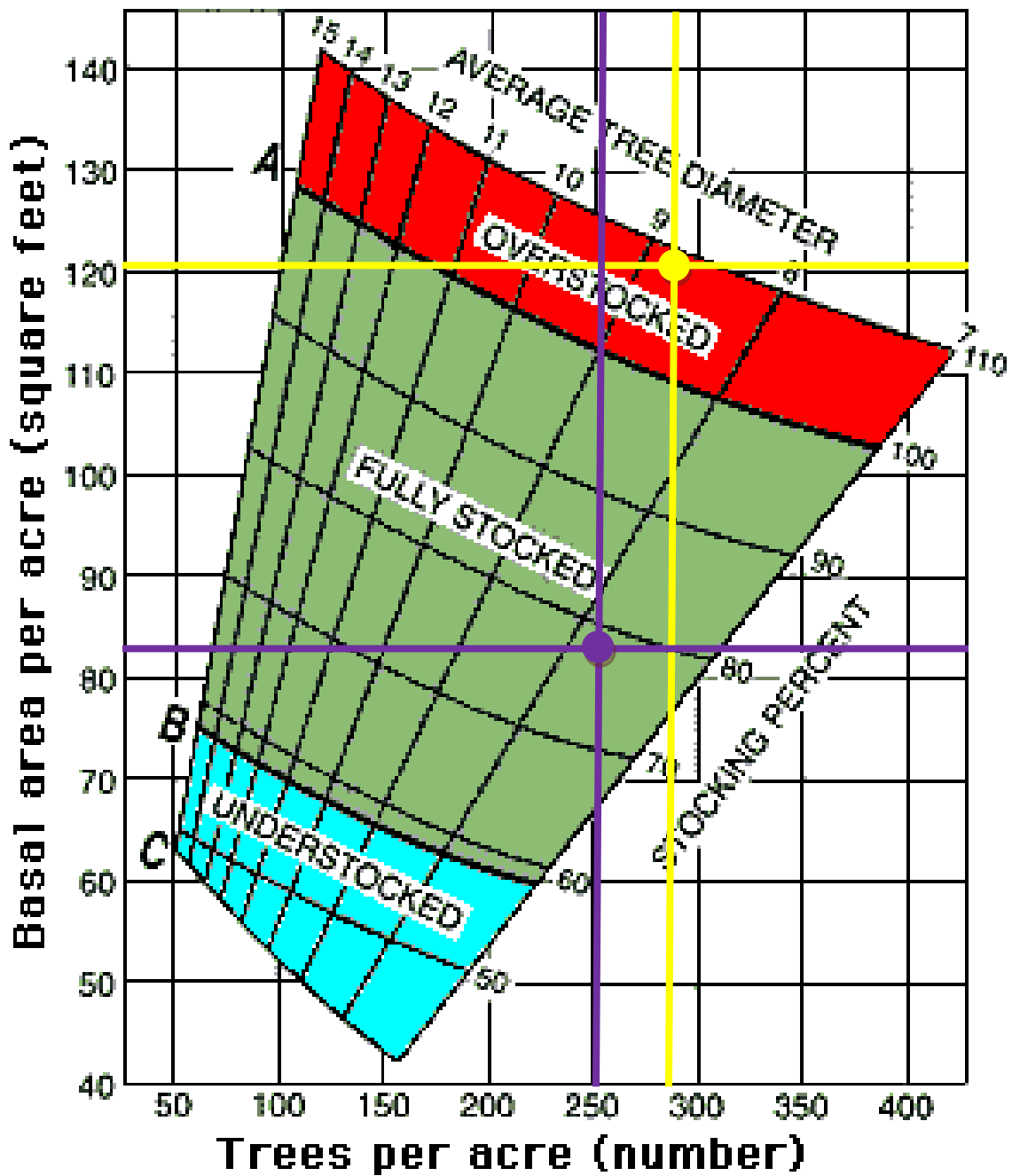
Preharvest Grapevine & Exotic Species Control	2012
DHPA Cultural & Roadwork Review	2012
Timber Sale Roadwork Construction	2012
Timber Marking & Sale	2012
Timber Harvest	2012-2014
Postharvest BMP Review	2012-2015
Postharvest TSI Project	2012-2015
Inventory and New Management Guide	2026

The following attachments are kept in the tract file:

- Ecological Resource Review
- Aerial photo map with noted special features
- Aerial photo map with noted unique areas
- Soil type tract map
- Indiana Natural Heritage Database Map
- TCruise reports

Figure 4 – Gingrich Stocking Chart for Y1011’s 2011 Forest Inventory

Yellow lines indicate current values; Purple lines indicate projected values after timber harvest



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

http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

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.