

Indiana State Forest Procedure Manual



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SECTION A: STATE FOREST AND FOREST RECREATION AREA SYSTEM

Forest Management

People have a long history as users of forests and forest resources for items such as shelter, food, clothing, tools, recreation, and emotional/spiritual retreat. Use of forest resources was essential for human survival and advancement. Over time, reliance on forest resources to improve quality of life has become increasingly important. It has also fostered an awareness to manage forest resources for a continual supply of forest products and values to benefit people. The fact that trees and forests are renewable resources is the basis for sustainable forest management. Forests provide a variety of consumptive and non-consumptive commodities including recreation, wildlife habitat, timber, watershed protection, clean air, edibles, pharmaceuticals, chemicals, spiritual fulfillment, and emotional well-being.

Beginning in the early 1900s, the Indiana legislature recognized the importance of forest management to the well-being of its citizens and economy by purchasing state forest lands. Later legislation laid the foundation for the management of state forests (IC 14-23-4-1):

"It is the public policy of Indiana to protect and conserve the timber, water resources, wildlife, and topsoil in the forests owned and operated by the division of forestry for the equal enjoyment and guaranteed use of future generations. However, by the employment of good husbandry, timber that has a substantial commercial value may be removed in a manner that benefits the growth of saplings and other trees by thinnings, improvement cuttings, and harvest processes and at the same time provides a source of revenue to the state and counties and provides local markets with a further source of building material."

This and other enabling legislation provides basic direction to state forest management: *to protect and conserve forest resources for a variety of products and benefits*. This concept of forest management is known as multiple-use management. This provides multiple public benefits by managing for the maximum amount of compatible uses of forest resources. Today, state forest management combines legislative directives with current knowledge from natural resource research and public-use studies. Indiana's state forests are managed to provide a wide variety of benefits to a wide variety of users.

Resource History

Indiana's state forests lie within the Central Hardwoods Region. Major forest types in this region include oak-hickory, beech-maple, mixed mesophytic, and bottomland hardwoods. During the past several thousand years this region has been undergoing transition after the last glacial retreat. The glacial advance pushed forest types much farther south than their current distribution,

at which time the area was covered by spruce and firs. As the climate became increasingly drier and warmer, hardwood species gradually moved north and west, eventually covering the state.

When the state purchased this land, starting in the early 1900s, the majority of it was characterized by cut-over, burnt, and eroded areas having little value for private landowners. During Indiana's settlement period (throughout the 1800s) these lands were cleared for farm development and wood production. Regular burning within the forest was a common practice to improve grazing for livestock. Before state ownership, logging operations removed only high-quality black walnut, yellow-poplar, black cherry, white oak, and other select species. Later operations removed the remaining merchantable timber. Residual stands, where they existed, generally consisted of culls, small trees, and less desirable species. Many areas that had steep slopes or erodible soils were planted with crops. Because of a lack of modern conservation farming practices, the topsoil was quickly depleted and lost. The poorer subsoil was unable to support continued agriculture, and much of the land was abandoned. Populations of many wildlife species were decimated by subsistence hunting and loss of habitat, and by the turn of the century many species, such as deer and turkey, were extirpated from the state. Present-day state forests developed from these abandoned, subsistence landholdings.

Clark County Forest Reserve, located outside Henryville, began in 1903 with the acquisition of 2,000 acres of overcut and worn out land. One of the first state forests in the country, it was created for the purposes of serving as a state forest reservation, for forestry demonstration, and to establish a tree nursery. Funding was provided for expenses of the reserve, and, in turn, revenues from timber sales, leases, contracts for mining and removal of minerals or any other resource available from the land were part of returns to the state. Additions to Clark State Forest and creation of other state forests followed in later decades.

A critical process of protecting and developing forest stands while reducing erosion began with state acquisition of these lands. The Civilian Conservation Corps (CCC) was instrumental in this process by planting thousands of acres of eroding and bare ground to hardwood and pine trees. Residual hardwood stands were allowed to develop and recover from past harvesting, fire, and grazing. Timber stand improvement projects were used to nurture growth of trees. Many other bare areas never received attention and were left to develop low-quality, scrubby stands. Unfortunately, few records exist of early timber management activities. It is known that a large quantity of timber was harvested to support CCC operations and sawmills. Also, many rural electric cooperatives procured their first utility poles from developing state forest stands, and many of those poles were treated with creosote on the property. Furthermore, early timber sales for commercial production occurred, although specific details are limited.

Over time, these pine and hardwood stands developed and improved. In the 1960s, timber management activities became better documented with the arrival of professional foresters and improved recordkeeping on the state forest properties, and in the 1970s, the timber management procedures were first written down. With the further addition of professional foresters and professional managers, timber management activities increased. Today, timber management has developed into integrated forest resource management. The future management of the state

forests involves the integration of the principles of forest resiliency and sustainability, ecosystem management, and ecological classification concepts.

The degraded, cut-over forest of the early 1900s is now characterized by mature, generally even-aged stands of medium to large sawtimber. Early timber harvests tended to occur within isolated areas of a tract. Today, harvest areas cover entire tracts as trees mature on these previously degraded and cut-over lands. Quality of timber has also increased as stand improvement harvests develop healthier stems than were present in previous decades through the removal of weakened and diseased trees. Presently, more than 20 cover types and more than 50 species of trees are represented on state forest land.

Before examining present policy or future direction, it is useful to review the history of Indiana's state forest system. A chronological list of the highlights is presented below.

1901-1909	William H. Freeman, State Forester
1901	State Board of Forestry created.
1903	March 3, House Bill 98 authorizes purchase of 2,000 acres of land in Clark County to create forest reserve, Clark State Forest created.
1908	Arbor Day first observed in Indiana.
1909-1913	Charles C. Deam, State Forester
1913-1917	Elijah A. Gladden, State Forester
1917-1919	Richard Lieber, State Forester (Charles Deam - Acting)
1919-1928	Charles C. Deam, State Forester
1919	Department of Conservation created.
1921	Indiana Forest Tax Classification Act enacted.
1923	First professional forester employed in Department of Conservation.
1925	LaFuze Act enacted, provided tax money to State Forestry fund.
1928	Cooperative forest fire prevention and suppression agreement with U.S. Forest Service (authorized 1931).
1929-1936	Ralph F. Wilcox, State Forester
1929	State nurseries produce more than 1 million seedlings per year.
1929	Purdue University's Forestry Department established summer camp at Clark State Forest.
1929	Morgan-Monroe State Forest created.
1931	Jackson County (later Jackson-Washington) State Forest and Martin State Forest created.
1932	Harrison County (later Harrison-Crawford) State Forest created.
1933	Civilian Conservation Corps initiated.
1933	Scales Lake State Forest created.
1934	Ferdinand State Forest created
1935	Pike County State Forest, Wells County State Forest, and Wabash County State Forest (later Salamonie River State Forest) created.
1936	Greene-Sullivan State Forest created.
1936-1940	Hershel A. Woods, State Forester
1939	Salamonie River State Forest created.

- 1940-1942 Paul Yost, State Forester**
 1940 Frances Slocum State Forest created; Jasper-Pulaski Tree Nursery created.
- 1942-1945 T. E. Shaw - State Forester (Acting)**
 1942 Civilian Conservation Corps ended.
 1944 Selmier State Forest created.
 1944 Smoky Bear born.
- 1945-1962 Ralph F. Wilcox, State Forester**
 1947 Yellowwood State Forest created.
 1948 Owen-Putnam State Forest created.
 1962 Starve Hollow State Recreation Area created.
- 1962-1965 Robert D. Raisch, State Forester**
 1965 Deam Lake State Recreation Area created.
 1965 Department of Conservation becomes the Department of Natural Resources.
- 1965-1969 David M. Click, State Forester**
 1966 Wyandotte Caves State Recreation Area created.
- 1969-1973 John T. Costello, State Forester**
 1971 Property Managers Act enacted.
 1972 Timber Buyers Licensing Law enacted.
- 1973-1989 John F. Datena, State Forester**
 1980 Wyandotte Woods State Recreation Area created.
 1981 Vallonia Nursery transferred from U.S. Forest Service to Division of Forestry.
- 1990-2005 Burnell C. Fischer, State Forester**
 1996 Recreation administration of Frances Slocum State Forest transferred to Mississinewa Lake.
 1996 Recreation administration of Salamonie River State Forest transferred to Salamonie Lake.
 1996 Administration of Wyandotte Woods SRA and Harrison-Crawford State Forest combined.
 1996 Administration of Yellowwood and Morgan-Monroe state forests combined.
 2004 Administration of Ferdinand and Pike state forests combined.
 O'Bannon Woods State Park created from Wyandotte Woods SRA.
 2004 Ravinia Unit acquired and managed as a subunit of Morgan-Monroe State Forest.
 2004 Mountain Tea Unit acquired and managed as a subunit of Yellowwood State Forest.
- 2005-present John R. Seifert, State Forester**
 2005 Development of strategic plan to increase resource management.
 2005 Administration of Starve Hollow SRA and Jackson-Washington State Forest combined.
 2005 Administration of Deam Lake SRA and Clark State Forest combined.
 2006 Hardwood Ecosystem Experiment, a long-term, large-scale study of forest management and its impacts, initiated at Morgan-Monroe and Yellowwood state forests
 2008 Indiana State Forest system achieves dual certification under Sustainable Forestry Initiative® (SFI®) Program and Forest Stewardship Council® (FSC®) (FSC – C012858).

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|------|---|
| 2009 | Covered Bridge Unit acquired and managed as a subunit of Greene-Sullivan State Forest. |
| 2016 | Recreation administration of Francis Slocum and Salamonie River state forests returned to Division of Forestry. |

Current Management

State Forests and forest recreation areas currently operate under a management philosophy that may be described as integrated stewardship. This management philosophy uses active decision-making to produce consumptive and non-consumptive benefits in a sustainable manner, and incorporates the enacting legislation for state forests.

State forests and forest recreation areas work to integrate the management of all resources into the overall property management. In general, the approach in providing benefits is extensive rather than intensive. The objective is to have areas contribute to multiple state forest programs: managing properties as ecologically healthy and sustainable working forest systems that provide an extensive diversity of habitats, natural communities, and forest-based recreational opportunities. There are some exceptions, such as intensive recreation areas or nature preserves, where physical limitations, uniqueness, or other factors require some areas to be managed predominately for a particular benefit.

Future Management

During the mid- to late 20th century many tracts still contained areas in which deferring harvest was recommended, often due to the ongoing recovery from heavy use before state ownership. Due to past and present management activities, future management will include additional acreage that contains an increased amount of merchantable sawtimber and poletimber stems as trees continue to grow and mature. Species composition will also further develop as management practices provide routes to develop complex stand structures and greater habitat diversity.

As indicated above, the current management philosophy is inherently much the same now as was spelled out in legislation decades ago. However, with passage of time comes changes in terminology and a better understanding of forest ecosystems. Whereas forest management in the early 20th century centered around reforestation of overcut and eroded woodlots and demonstrating sound forest land practices, tomorrow's management must also include creating diverse wildlife habitat, providing public recreation, conserving forest resources, and education.

Included within these objectives is tackling modern forest issues such as rapid maturation of forests, expansion of invasive species, and potential impacts indicated by some climate change models. The forests, which are now largely even-aged with relatively simple stand structure, will continue to mature and change. Species composition is expected to change as well, possibly

disrupting relationships that could eventually affect the stability of the larger forest ecosystem. As the average tree increases in size and age, natural tree mortality is expected to rise.

Resource conservation trends indicate that in the coming years, a greater emphasis will be placed on overall habitat and community management than programs focused on individual species. Stand and forest-level management alternatives will be viewed more broadly at the landscape level, within a long-term sustainability and forest resiliency context. Changes already occurring in our forests will require greater use of management tools that help increase habitat diversity and promote heterogeneous forest conditions.

Section A Bullet Summary

- Legislation gave basic direction to state forest management. This basic direction guides the current management philosophy with changes as information and knowledge has increased.
- Human use and disturbances have affected Indiana's forests for thousands of years.
- State forests emerged out of the conservation ethic and have been growing and changing ever since.
- State forests and forest recreation areas are managed to provide a wide variety of benefits and values.
- The management scheme will evolve as knowledge of resources increases.
- Invasive species, oak regeneration, habitat diversity, and forest resiliency are rapidly emerging themes and concerns for today's forest managers.

Section A Appendices

[Appendix I A-1: State Forest and Forest Recreation Area Directory](#)

SECTION B: MANAGEMENT SUBDIVISIONS

All state forest and forest recreation area properties will be delineated into compartments and tracts to facilitate management, planning and record-keeping. This includes areas that have recreation facilities, administration facilities, and lakes.

The forest recreation areas are part of the state forest land base. There is no boundary between the recreation areas and the state forests. Forest recreation areas will be incorporated into the compartment and tract system of the state forests. The recreation areas are the set of intensive facilities (campgrounds, buildings, swimming facilities, and picnic areas), and extensive facilities (trails). The recreation areas are responsible for maintaining the set of facilities and associated programming. Resource management activities related to these facilities are coordinated with and can use the assistance of the state forest staff. The state forests have oversight of the general resource management activities on all property of the state forest land base, and will provide resource management assistance to the recreation areas. There will be coordination of management activities when the activities of one affect the area/facilities administered by the other. Recreation areas provide excellent opportunities for forestry demonstration due to the large, concentrated user numbers. State forests with adjoining forest recreation areas will provide property line and property ownership record assistance to the forest recreation area. The management staff of the forest recreation areas and the state forests will cooperatively work on resource management projects that may affect recreation area facilities.

Land Administration Units

Compartments are the largest land administration unit below the property level. Compartments should typically comprise 500 to 1,500 acres of relatively contiguous holdings. There may be occasions where parcels of a compartment may not be contiguous because of dispersed landholdings. Also, the scattered ownership of property may result in compartments smaller or larger than what is considered typical. Generally, compartments are not used for specific site planning and recordkeeping, but may be used for broad activity planning. Given their larger size, compartments are often viewed as a more appropriate landscape upon which to base wildlife habitat assessments, particularly for wider-ranging or more widely distributed species ([*Appendix I H-2: Management Guidelines for Compartment-Level Wildlife Habitat Features*](#)). Typical compartment boundaries will be property lines or major linear physical features.

Tracts are the primary land administration unit for management activity planning, monitoring and recordkeeping. Tracts are subdivisions of compartments. Typically tracts will contain 30 to 120 acres of contiguous holdings. Geographic isolation, distinct community types, identifiable boundaries, or other factors may result in tracts that vary from the typical size. Most inventories, activities, planning, and recordkeeping will be based on this unit. An individual tract will generally contain similar vegetative communities and terrain. There will be exceptions

where non-similar features are not large enough to be considered a stand-alone unit. Tract boundaries will primarily be delineated by contiguous geographic areas for ease of administration. They will not necessarily follow timber or vegetation types that create physically unmanageable units. Tract boundaries will generally follow discernible major or minor physical features (drains, roads, ridgelines) or property lines, even if existing GIS depictions show the lines veering off from these discernible features. Tracts can include bodies of water.

Compartment and tract boundaries can be adjusted by contacting the property specialist and GIS coordinator in the DNR Central Office.

The stand or stand type is a subunit of the tract. This can be an area of just a few acres up to the entire tract in size. The stand type will have a fairly homogeneous community of species, soils, size, slope and aspect. Stand type condition is the basis for many biological resource manipulation activities. Because it follows the biological features and physical features, a stand type can cross administrative boundaries into other tracts.

Section B Bullet Summary

- All portions of state forests and forest recreation areas will be laid out on the state forest compartment/tract system.
- There are no set boundaries between state forests and adjacent forest recreation areas. State forests comprise the underlying land base. Forest recreation areas are the set of intensive and extensive facilities and programming using a portion of that land base.
- State forests and forest recreation areas will coordinate activities and provide assistance to one another.
- Compartments are the largest land administration unit. Tracts are subunits of compartments and are the basis for most management planning, activities and recordkeeping. Stand type is a subunit of the tract encompassing similar biological and physiological features.

SECTION C: RECREATION

Indiana's state forests and forest recreation areas provide a variety of recreational opportunities. The emphasis is on recreational activities that can be integrated in a natural setting, predominately wooded. Often, these activities will be primitive and dispersed, and require limited development. Activities include hunting, hiking, camping, backpacking, and edibles gathering. Other activities require more modern facilities, but these will be at target locations with the overall recreation offerings being a mix of traditional, primitive and developed recreational opportunities. Highly developed systems will not be widespread across the state forest system. Recreation activities provide an opportunity for the public to learn about integrated forest resource management and the forest ecosystem on state forests.

It is the policy of the Division of Forestry to manage state forests to optimize multiple-use objectives. Because of the philosophy of offering limited developed recreational opportunities, recreation management often involves the maintenance of existing facilities and providing a forum for information dispersal. Additional recreation opportunities may be developed as user needs and demands are analyzed, and funding support is available. Recreation expansion has an impact on forest resources and must be considered in such decisions.

It is a primary goal to maintain all recreation facilities in a safe manner, and to meet maintenance and operation standards. Operation and management of state forest recreation opportunities and facilities are further guided by DNR policies, procedures and property regulations.

Developed recreation facilities provide additional opportunities to property patrons. State forest recreation areas provide the most developed recreation opportunities on Division of Forestry properties. Recreation facilities will be designed to blend into the surrounding forest setting.

While centralized, developed recreation facilities consume a large proportion of property efforts, dispersed recreational experiences are one of the key aspects of state forest recreation management, requiring relatively little infrastructure support. Dispersed recreational opportunities are most often provided simply with the creation of public access to the various holdings of state forest land. Access roads and dispersed designated parking units are the primary facilities needed by dispersed users.

Dispersed User Parking Areas

State forests and forest recreation areas encourage dispersed recreational use of the properties. In order to promote such use and to enhance user experience, the properties will install and maintain parking units for dispersed users. Areas of state forest holdings will be evaluated for dispersed recreation demand and existing parking availability. Parking will be

matched to expected use. Many parking units will be associated with physical features that serve as draws for visitors. Others may provide regular access into large holdings. A typical parking unit will be associated with a gated fire/access road that receives recreational use for hiking, wildlife viewing, hunting, and edibles gathering. High-demand situations may exist at lake sites or major trailheads. Where practical, parking units will be situated to avoid possible conflicts with neighboring private residences and private property in general.

The size and construction of the parking units should be appropriate for the site. These will be located along public roads. If the public road is a state (not state forest) or county road, permission must be obtained from the Department of Transportation or the county before installation. A minimum-size unit should easily accommodate two vehicles. These units will have a gravel surface at a minimum. Posts or log frames may be used to mark the unit edges. A sign must identify the parking unit. The simplest sign would be a Carsonite post with a "State Forest" decal affixed ([Appendix I C-1: Policy on the Use of Carsonite Signs](#)). All parking unit construction must conform to appropriate clearances and permits.

Property Non-Public Roads

Property fire/access roads are important recreational opportunities for dispersed users. They provide easy lanes of travel and a good orientation tool so users do not get lost. They also provide access for emergency care of users. Fire/access roads will always be clearly identified where they meet a public road. A Carsonite post with an appropriate decal, such as the simple "State Forest" decal, would be a simple way to mark these roads ([Appendix I C-1: Policy on the Use of Carsonite Signs](#)). If the fire/access road is likely to attract significant public use, a dispersed parking unit should be situated close to the fire/access road to accommodate users. Parking area design should discourage vehicle blockage of the fire/access road. Signs may be needed also. Further information on these roads is contained in [Section L: Forest Access](#).

Aesthetic and Visual Enhancement Areas (VEA)

Sightseeing and aesthetic scenery are an important use and benefit of the state forests and forest recreation areas. The goal of an aesthetic management program is not concealment of a forest management activity, but rather moderation of its impact. In resource management, all values cannot be maximized simultaneously. The goal of any successful management activity design is to accomplish the forest management objective while at the same time minimizing any unacceptable reduction in other resource values.

It will be the policy of the state forests to consider visual appearance when managing within 100 feet of high-use public roads and high-use recreational facilities (e.g., picnic areas, campgrounds, high-use trailheads). One of the management criteria will be to maintain or enhance the aesthetic values of a forested landscape.

Management Activities Within the VEA will Adhere to the Following Guidelines

- ☞ Management activities prescribed by property personnel that occur within the VEA should be designed and executed to moderate reasonably perceived visual impacts.
- ☞ No regeneration openings will be created within the VEA without prior approval from the Central Office.
- ☞ Harvesting that occurs within the VEA should primarily be single tree selection and maintain stocking levels above 60 SF basal area. Selection priorities include removal of dead or hazard trees, salvage operations, and the selective removal of individual stems that are at high risk of death or significant loss of value.
- ☞ Construction of roads, yards and skid trails should be outside the VEA where possible. If this is unavoidable, their locations will be designated by the property forester, sites should be affected no more than is necessary, and, as much as practicable, actions taken that will minimize visual impacts.
- ☞ Any slash, tree tops, splintered trees, and log butts that occur as a result of activity within the VEA will be evaluated for visual impact, and if necessary will be cleaned up or lopped to a height that will reduce the visual impact. Where possible, such debris will be used for firewood.
- ☞ Scenic vistas may be created with prior approval of the Central Office.
- ☞ While the intent of VEAs is not a concealment of resource management activity, their use may also be appropriate along some sections of high-use recreational trails. This is to be addressed on a case by case basis.

While addressing aesthetic concerns is important in areas regularly accessed by the public, we should also see these areas as opportunities for educational and interpretive use to build a better understanding of property management activities. If a waiver of VEA guidelines is needed to provide educational opportunities contact the Central Office.

A major consideration is the amount and type of use roads and areas receive from the public. Some roads and areas receive high public recreation use and consequently high sightseeing use. Other areas or roads will have lighter sightseeing use or traffic. Some roads may receive primarily rural commuter use with little sightseeing. The areas and roads with greater sightseeing use will receive greater VEA consideration than areas and roads with lesser sightseeing use.

It is important to remember that defining a VEA of 100 feet does not imply the aesthetics of an area are not visible or affected beyond that distance. Consideration must be given to the particular set of aesthetic circumstances operable in the entire area. Visual penetration, which is the length of a viewer's unobstructed line of sight, influences the aesthetic impact from an activity both within and beyond a VEA. The following factors affect visual penetration. Management in the VEA may be adjusted depending on these factors.

TOPOGRAPHY

- Length of slope
- Steepness of slope

Upslope or downslope view
Drainages, perpendicular or parallel to road

LAND FEATURES

Visual Barriers
Road banks, pine stands, existing vegetation, water, clearings, utility lines

TIMBER

Number of stems
Density of stems
Size of crowns
General appearance (park-like or thicket)
Timber Type - species characteristics

SEASON

Leaf-on or leaf-off during harvest
Visual impact after leaf fall

Hunting, Fishing, Trapping, and Wildlife Viewing

Recreational activities involving wildlife are major attractions to the state forests and forest recreation areas. While trapping has a commercial aspect to it, it is likely that most participants do trap for the recreational aspects as much or more than for the financial gains. The state forests and forest recreation areas will allow hunting, fishing and trapping to occur where appropriate, and under the statutes and regulations developed for these activities.

All properties will work to identify and develop areas, where appropriate, that persons with disabilities can participate in the above activities. Any of the above activities that are offered at a property should have a similar opportunity that can be used by persons with disabilities.

Backcountry Areas

Traditionally camping on state forests and forest recreation areas has only been allowed in designated, developed campgrounds. There was no opportunity for those wishing a more primitive backpack experience. Backcountry areas were created primarily to help fill this recreational void. Backcountry areas have trail systems where users can readily isolate themselves from regular human contact in an undeveloped setting. There are no facilities provided to support this camping experience, except parking facilities, trail systems and a few trailside shelters.

All campers must register with the state forest office via in person, phone, or a sign in sheet at a kiosk. Users must indicate the general region of planned camping. Backcountry area

camping is restricted to designated areas along the Adventure Hiking Trail, Knobstone Trail, and Tecumseh Trail corridors. Areas may be closed by the property manager during periods of high fire damage. Camping groups are restricted to family units or groups not to exceed six individuals. No campsites may be established within a quarter mile of a trailhead or access point. Use of the area will be restricted to a maximum of three days (72 hours). At the end of this period the user must vacate the backcountry area, with all equipment, materials, and trash, for a minimum period of 48 hours. There is currently no fee to camp in backcountry areas.

In order to help backcountry area users experience a wilderness-type outing, forest management of backcountry areas will differ from other areas of the state forest. Existing canopy openings have been allowed to revert to forest, or planted with native tree species to hasten reforestation. Horse trails will not be located in backcountry areas. As practical, existing horse trails will be relocated out of backcountry areas. As has been the policy and approach since the first backcountry designation in 1979, timber management in backcountry areas can continue, but with modifications. Since the goal of these areas is to maintain a relatively contiguous canopy, regeneration openings and maintained wildlife openings will not be created. The only exception to this is for catastrophic situations, such as storm salvage. A goal will be to develop an older and more homogenous forest structure than is created through standard management. Therefore, selection of trees to be removed will be more conservative than standard. Trees should be selected in such a way as to have removals typically 30% to 40% less than would be selected under regular management. Management entry cycles will be lengthened from typical state forest tracts by up to 50% to reduce the amount of impact. The goal is to create stand conditions with reduced management visual impacts when compared to typical tracts and management, hence allowing for more natural mortality of medium and large diameter trees and a forest of a late seral structure.

Knobstone Trail (KT)

The Knobstone Trail (KT) is another recreational opportunity for backpack enthusiasts. Similar to the backcountry areas, there is no current fee to camp or use the trail. The Division of Forestry maintains the trail, with considerable help from trail groups and trail volunteers. Currently the trail begins near Deam Lake State Recreation Area in western Clark County, passes through Clark State Forest and Elk Creek Fish & Wildlife Area, and ends on Jackson-Washington State Forest in northern Washington County.

State forest properties along the KT have both direct and indirect responsibility for the trail. Trails of this extent require regular monitoring and maintenance, including removal of downed trees, cleaning of trailheads and parking units, trail signage and soil stabilization. Much of this is done with property staff and equipment; however, the engagement of trail volunteers is encouraged to best manage the trail and human resources.

Timber management of the tracts through which the KT runs will not be any different than if the trail were not there, with the exception being that there will be modifications to avoid direct impacts to the trail. In harvest operations, skid trails, log yards and haul roads should be

placed to avoid the trail when practical. There may be times, however, when the trail route uses a pre-existing forest road or the topography is such that the operation uses the same place as the trail. In these cases, the properties will work to identify and locate alternate trail routes for long-term placement of the trail away from access roads.

The properties will ensure that the trail is clear of debris after harvest operations. If unplanned impacts occur to the trail, whether caused by management activities or other sources, the properties will coordinate trail restoration efforts. It is the responsibility of the properties to repair any damage to the Knobstone Trail caused directly by property activities.

Timber stand improvement projects along this and all other recreation trails should be done so that TSI trees that may fall across the trail are dropped during the TSI operation and cleared from the trail. Regeneration openings and maintained wildlife openings may be created and maintained in the trail corridor with prior Central Office approval.

Other Trails

Overall there are over 500 miles of recreation trails on the state forest system. These include hiking, biking, horse and multi-purpose trails. Many miles of trail are located on forest management access roads.

In addition to the Knobstone Trail and the Tecumseh Trail, the Adventure Hiking Trail also offers backpacking opportunities. Management along this trail is similar to that for the Knobstone Trail. Unlike the Knobstone and Tecumseh trails, the AHT is open to mountain bike use (DNR off-road cycling permit required).

Horse/equestrian trails and use are located on 10 state forest properties. Their density, use and management is guided by the DNR non-rule policy document Horses on DNR Properties-Information Bulletin #47 (<https://www.in.gov/nrc/2375.htm>).

Off-road bike trails are located on a number of State Forest properties. Their use and management is guided by the non-rule policy document Mountain Bikes on DNR Properties-Information Bulletin #30 (<https://www.in.gov/nrc/2375.htm>).

The overall objective and management of trails is to allow and offer a variety of trail experiences on the working forest landscape of the state forest system. Trails are managed to be compatible to the extent possible with the primary resource management mission of the forest system.

When forest resource management operations require a prolonged closure of a major trail, whether permanently or temporarily, forest staff will work to locate a suitable permanent or temporary trail reroute and notify trail users by on-site signage and web posting of the changes. With temporary reroutes, the property shall strive to restore the original trail to use as soon as

practicable after the management activity. Closures are undertaken to ensure the safety of trail users and forest operators.

Access for Persons with Disabilities

The properties provide excellent outdoor recreation opportunities to the general public. The relatively undeveloped nature of many outdoor activities found on the properties makes participation by persons with disabilities difficult or impossible without accommodation. Persons with a mobility impairment are among those likely to be able to participate in many activities if accommodations are made.

The properties will attempt to make reasonable accommodation for persons with disabilities so they can participate in the available outdoor recreational activities. The Central Office should be contacted for specifics on how to accommodate persons with disabilities in property recreation.

Section C Bullet Summary

- Recreation emphasis will be for multiple-use outdoor activities in a wooded setting with minimal development.
- Modernization of facilities will be at targeted locations.
- Dispersed user parking areas will be developed to support and enhance user access to blocks of property ownership and features that receive regular visitation.
- Fire/access roads will be identified for dispersed users.
- Visual enhancement areas increase the aesthetic values and benefits for sightseeing users.
- State forests and forest recreation areas will provide wildlife-based, dispersed recreation opportunities.
- Backcountry areas provide a primitive, backpack recreation experience. Management will be modified to enhance the setting.
- The Knobstone Trail provides a long distance hiking opportunity for backpack enthusiasts. Modified management enhances the trail corridor.
- State forests have more than 500 miles of trail. Some sections may be closed for public safety during management operations. DNR non-rule policy documents guide horse and mountain bike trail use.
- When possible, persons with disabilities will be provided opportunities to participate in outdoor recreation activities.

Section C Appendices

[Appendix I C-1: Policy on the Use of Carsonite Signs](#)

[Appendix I C-2: Backcountry Camping Policy](#)

SECTION D: RESOURCE INVENTORY

State forests and forest recreation areas will conduct inventories to survey resources and develop management guides to identify and guide management activities. There are several inventory methods covering a variety of resources. State forest trees have generally received the most intensive inventory work. Inventories will be conducted on all tracts, including those with intensive recreation facilities.

Forest Inventory

Property-wide Inventory

Most of the properties had a property-wide timber inventory conducted in the 1980s. These were conducted to determine allowable cut and growth rates. While most inventories were reliable only at the property or compartment level, for two properties, Clark and Owen-Putnam, the information was gathered intensively enough to be used at the tract level. Inventory protocol varied by property, with the exception of Martin and Ferdinand, where Continuous Forest Inventory (CFI) plots had been installed and sampled under a standardized methodology.

Property-wide inventories using a standardized methodology were completed in 2005 on all state forests, except Ferdinand and Martin, which had continued using CFI plots. While property-wide inventories provide one-time snapshots of forest condition, CFI plots provide the opportunity to monitor and document continuous change at specific sites over time. Historically these had only been used for timber measurements, but were eventually expanded to include other resources such as herbaceous cover, providing an excellent source for overall assessment of forest condition.

Starting in 2008 a comprehensive, system-wide CFI program administered by the Forest Resource Information Section of the Division of Forestry was established across all state forests. The inventory plots are based on a sampling rate of approximately one plot for every 40 acres. Twenty percent of the system is measured each year, with each plot re-measured every five years. Information is gathered on quantitative and qualitative measurements that describe forest site attributes; stand characteristics; tree measurements on live and dead stems such as species, diameter, height, damage, tree quality; counts of regeneration; and estimates of growth, mortality, and removal. A summary report of the data is published annually and is located on the division's webpage.

Tract Inventory

A tract inventory is performed for tract-level resource assessment and planning of management activities. While condition of the forest trees is a primary goal of this inventory, this inventory also gathers information about other forest resources for management purposes. This

inventory is most often employed to develop the tract management guide and prescription. Information is collected using a division-wide standardized inventory program on a data collector that includes tree species, diameter, and height ([Appendix I D-3: T-Cruise](#)). Other timber inventories may be done for a variety of management considerations.

The sampling method for the tract timber inventory is systematic horizontal point sampling with a random start. Sampling is based on a variable radius plot system using a 10-factor prism or 20-factor prism. The formula found in [Appendix I D-4: Point Sampling Guidelines](#) ($n=10+ (2.5 \times A-10)^{1/2}$) will be used to determine the appropriate minimum sample plots for a tract inventory using 10-factor prism. The sampling intensity must be one plot per five acres (7-chain x 7-chain grid) at the minimum (usually for large tracts). Tracts less than 51 acres will be sampled at the one plot per two-acre or higher intensity. Small tracts may require sampling as high as one plot per acre. One consideration in the intensity of the sampling is the homogeneity of the tract. Tracts that are homogeneous in species, size, aspect, community types, and terrain can be sampled at a light intensity. Tracts that have a mix of these features should be sampled at a high intensity to ensure adequate representation of distinct areas or stands. Another consideration in sampling intensity is the use of the information. Sampling an area for a simple overview may only require a light intensity. Light intensity sampling is more likely to miss many of the other resource features. Sampling an area to come up with figures for a timber harvest tally or for TSI estimation requires high intensity sampling. The factor for verifying whether border trees are in for a 10-factor prism is $D = 33 \times \text{DBH}$, meaning the tree is in if the distance to the center of the tree (in inches) is equal to or less than 33 times its DBH.

Using a 20-factor prism, the same formula above can be modified to determine the number of plots: $n = 1.1 \times (10 + (2.5 \times A - 10)^{1/2})$. Basically, using a 20-factor prism will require the need to take 10% more plots than a 10-factor prism. So, a 30-plot inventory using a 10-factor prism would become a 33-plot inventory using a 20-factor prism. Time traveling between plots should increase by 10% since there are 10% more plots, but since on the average only half the number of trees are measured on each plot, there should be some time savings even with the additional plots over a 10-factor prism inventory because time spent at each plot should decrease. Because of the amount of variability among trees that can occur between plots with a 20-factor prism, it cannot be used as handily as a 10-factor prism to estimate stand basal area. Because fewer trees are measured, each tree measured and each borderline tree has greater impact on the results. Extra care should be taken to ensure the in-or-out status of borderline trees. The factor for verifying whether border trees are in for a 20-factor prism is $D=23.33 \times \text{DBH}$, meaning that the tree is in if the distance (in inches) to the center of the tree is equal to or less than 23.33 times its DBH.

All state forests and forest recreation areas will develop a regular schedule of tract inventories and management guides. All tracts will be included in this schedule and will be inventoried regularly, including those within nature preserves and recreation areas. All portions of the tract will be inventoried, including regeneration openings, pine stands and old fields. The purpose of the inventory is to obtain a picture of the tract and the areas within the tract. Tracts containing recreation facilities, lakes and other non-timber features will be included in the schedule. The condition of all resources on the properties requires regular monitoring. For

example, trees and other vegetation in recreation areas receive considerable stress that can result in rapid decline.

The inventory plot center is located by pacing according to the selected grid (i.e., 10- or 20-factor) or using a GPS grid layout to locate plot center. At the plot center, the prism is used to determine which trees are in the plot. It may be necessary to take distance measurements to borderline trees to determine status in or out of plot. Trees in the plot are then measured. Information taken includes species, tree class, DBH, merchantable height, and percent sound if a deduction is appropriate ([Appendix I D-1: Indiana State Forest Method Set](#), [Appendix I D-6: Product Definitions](#), and [Appendix I D-7: Defects](#)). For tract timber inventories, information will be taken on all trees, living or dead, that are considered in the plot. However, dead trees should not be included in basal area figures for live trees.

While tree condition is a primary feature assessed in the inventory, other important information is needed to get as complete a view of the tract as possible. On each sample plot visited, or during the travel between plots, there is other observational information that should be gathered to assist with the management guide. This information includes aspect, slope position, gradient, geologic features, topographic features, water features, cultural resources, man-made features, primary understory vegetation, wildlife sign/habitat, access considerations, and property line/survey features. Plot information should include basal area, timber type, and timber size class.

The timber inventory information is processed by using a designated forest inventory program. The Resource Management Guide is completed using the inventory information and placed in the appropriate tract file. The inventory completion is noted on the Compartment Accomplishment Record. Timber inventories can be used for planning timber management activities for the operational life of the management guide developed from that inventory. Hard copies of reports generated from an inventory will be placed in the appropriate tract file.

Other Inventories

The Division of Nature Preserves (DNP) has assisted with natural areas inventories of the state forests. Maps, aerial photos and old records are used to help identify areas of interest. The areas are then examined on the ground, often several times during the growing season, to evaluate site quality. These examinations may result in proposals for new nature preserves or recommendations to the property on special area management. Reports are generally provided by DNP and should be maintained in a natural areas file. Management recommendations for areas will be noted in the appropriate tract file.

Fish inventories of fishing lakes may be done with the assistance of the Division of Fish & Wildlife. These are used to determine the quality of the fishery and to plan management activities such as stocking. Results should be maintained in a lakes, fisheries or appropriate tract file.

Cultural resource surveys and assessments are generally done on an as-needed basis. An assessment and clearance is required for any management activity that causes ground disturbance or impacts structures or sites over 50 years old. Properties will perform inventories of historic sites, usually homesites. Information on the site (location map, artifacts, features, etc.) should be kept in the tract file and provided to the division's archaeologist and maintained within a cultural resources database. Cultural site information, including location, should not be shared with the public and must remain confidential. Any documents released to the public should have references to cultural sites removed.

Other special inventories will be needed on occasion. The design and use of the inventories will depend on the particular situation. These will be developed with the assistance of Central Office staff specialists.

Reconnaissances (recons) are quick observational inventories. These are used to quickly determine a particular feature or condition that does not need a specific sampling technique. Recons are often used to assess areas for future inventory needs or management activities.

Storm blowdown salvage may require special sampling techniques if measurement of all trees is not feasible. Fixed-radius plots in a grid pattern can be used to estimate the number of trees and volume. Further information can be found in [Section G: Timber Sales](#), or the Central Office can be contacted for further information.

Section D Bullet Summary

- Property-wide forest inventories determine allowable cut and forest growth rates for properties as a whole and provide a snapshot of overall baseline data.
- Continuous forest inventory plots supply property-wide information from fixed, continuous plots and document changes over time.
- Tract timber inventories are the most common inventory used to inform forest management activities. Sampling intensity can vary depending on the use of the data and the condition of the tract. Information is processed on a forest inventory program.
- State forests will have a regular inventory schedule for all tracts. Forest recreation areas will be included in the inventory schedule of the adjoining state forest.
- Tract inventories will include lakes, recreation areas, and administrative areas for full resource monitoring. State forest and forest recreation area staffs will coordinate inventories on forest recreation areas.
- Several inventories are done to gauge other natural or cultural resources.

Section D Appendices

[Appendix I D-1: Indiana State Forest Method Set](#)

[Appendix I D-2: Sawtimber Volume Table](#)

[Appendix I D-3: T-Cruise](#)

[Appendix I D-4: Point Sampling Guidelines](#)

[Appendix I D-5: Relative Stand Density Charts for Upland Hardwoods](#)

[Appendix I D-6: Product Definitions](#)

[Appendix I D-7: Defects](#)

SECTION E: MANAGEMENT GUIDES

Management guides are the basis for resource management activities. Management guides will be used for all major activities except those considered routine maintenance. Management guides provide continuity in management by describing existing and past conditions, and providing the baseline for future recommended activities. All major activities must be addressed in either a management guide or guide amendment.

Tract Management Guide

The tract management guide is the primary guide for resource activities and management on a tract basis. The guide will provide information on known existing and past conditions and activities on the tract. It will contain summary information about the tract gathered in recent inventories. It will compare the inventory information to past information and conditions. The tract guide will contain a prescription for future timber management activities, if needed. It will also contain recommendations for activities involving recreation, wildlife, cultural resources, boundaries, demonstration/interpretation, access, watershed, and other vegetation management. A template for the management guide can be found in [Appendix II E-1: Resource Management Guide Template](#). Tract guides will identify when the next inventory and tract guide should be completed, and cover all planned activities until the next guide is due to be completed. Hard copies of the guide will be placed in the appropriate tract file.

State forests and forest recreation areas will have a regular schedule to complete tract management guides, tied with tract inventories. Tracts that contain forest recreation area facilities will be incorporated into the schedule of adjoining state forests. State forest and forest recreation area staff will coordinate the development of management guides for tracts associated with forest recreation areas.

The tract management guide is specific to the activities within the tract. The ending time is the next planned guide development. It should describe all planned management activities within the tract for the period the guide covers. The last activity in every guide will be the next planned review (inventory/management guide) of the tract for further management activities. When planned activities in a tract are completed, the guide will be updated to show the completion, or it can be shown on a tract activity completion summary sheet located in the tract file.

Three factors dictate which tracts require an inventory and management guide preparation. First, tracts in which management activities are being considered but do not have current management guides. For timber management activities, particularly harvests or major TSI, inventories are viable for the management cycle. Inventories are not needed for activities that do not disturb trees, or in situations of minimal disturbance, such as TSI of regeneration openings for crop tree release. The second factor determining if a tract requires an inventory or

management guide is if the previous management guide specifies the development of a new guide, generally the end of a management cycle. The third factor is if the tract does not have a current management guide, i.e., a management guide that includes the current time. If a property has tracts without current management guides, a minimum of 25% of annual inventory acreage will be on those tracts.

Often there is information that is lengthy and highly detailed from the inventory reports, or there may be information that is sensitive and not suitable for general dissemination. This may include cultural resource information, sensitive ecological data, or information on species that may be of interest to collectors. This information should be placed in a separate appendix to the guide that can be kept in the tract file. This is not for website posting like the main body of the guide.

Program Management Guides

Program guides (for example a wildlife guide) are management guides for particular program areas that cover specific timeframes. These guides provide the specific tracts and activities that are to be performed in the specified period. Again, completion of specified activities will be recorded in the guide. In most circumstances, information recorded in the program guides will also be recorded in the individual tract files and other appropriate files. At the end of the period, activities not performed will be reviewed. If the activity is no longer deemed necessary, it will be dropped. If it is still considered important, it will be scheduled in the program guide for the next period.

Adjoining state forests and forest recreation areas will coordinate the development of program management guides for tracts associated with forest recreation area facilities.

Amendments

There will be situations in which both tract guides and program guides will not be strictly followed. New opportunities will arise, catastrophes will happen, philosophies and techniques will evolve, updated inventories may be needed, and management resources will change. These situations can affect how well the goals in guides can be achieved, or if additional goals can be achieved, or if different goals are achieved. Any departure from either tract guides or program guides will be addressed by creating amendments to the guides. Major activities must be addressed in either a guide or a guide amendment before they are performed. In emergency situations, amendments to guides describing what occurred can be completed after the activities are performed.

Ten-Year Financial Guides

Ten-year financial guides are designed to generate budget requests for the division's budget process. These are created every two years at the beginning of the biennial budget process. Besides the biennial budget, these are important for planning and tracking future budget expenditures. See [Section Q: Property Planning and Accomplishment Reporting](#).

Section E Bullet Summary

- All major management activities will be addressed in management guides or guide amendments.
- Tract management guides are for management activities on a tract basis and cover the period until the next tract guide is developed.
- Program management guides are for management activities in a specified timeframe on a program basis.
- Amendments to guides address management activities not previously covered in tract or program guides.
- Ten-year financial guides are developed every two years for the biennial budget process and to track future expected projects.

Section E Appendices

[Appendix I E-1: Cover Types](#)

[Appendix II E-1: Resource Management Guide Template](#)

SECTION F: SILVICULTURAL GUIDELINES

Silviculture in the Central Hardwood Region is much more complex than it is in other regions. This is due to the complexity and diversity of the ecosystems, diversity of tree species, and the varying regeneration and growth strategies used for various species. These regeneration and growth strategies affect all aspects of silviculture and can generally be lumped into three categories. One is the shade tolerant trees that generally regenerate and develop under the canopy of the overstory. These trees then continue to grow as an existing tree into the canopy when released from competition. Some examples are sugar maple, red maple, and American beech. The second regeneration and growth strategy is for shade intolerant trees that tend to build up a great deal of seeds in the seed bank over time. Once a large enough space to allow full sunlight is created by the overstory being removed, the seeds then germinate and the tree begins to rapidly grow. Some examples are yellow-poplar and black cherry. The third growth strategy is that of the trees often referred to as having intermediate shade tolerance. These trees regenerate under a canopy of an existing overstory that must have enough shade to prevent shade intolerant trees from growing but not so much shade that only shade intolerant trees will grow. These young seedlings must then develop under that diffused light for several years while growing a substantial root. Once the tree has developed to that point and the overstory is removed, the developed seedling/sapling can then re-sprout vigorously enough to outcompete shade intolerant species. This sprouting is also an adaptation to fire. Some examples are oak and hickory species. Silvicultural techniques must be considered with these strategies in mind and efforts must focus on the species that are more difficult to regenerate.

Uneven-aged systems can regenerate shade tolerant species well. Larger group selection openings can support some shade intolerant and intermediate shade tolerant species, but on a limited scale. Even-aged systems will support the shade intolerant species and intermediate shade tolerant species well. The Indiana state forest system as a whole will be primarily managed under the uneven-aged system; however, even-aged systems will be a critical component to ensure a balance of forest age structure diversity, early successional forest habitat, and adequate tree regeneration.

The basic management unit of state forests is the tract. Groups of adjacent tracts form larger management units, known as compartments. Active forest management usually occurs at the tract or multiple tract level. Management guides are the guiding documents used to outline current conditions and proposed management for the tract.

Hardwood Management

The goal of state forest hardwood management is to produce healthy, vigorous forests of mixed species composition with quality forestland conditions providing a diversity of habitat within the forested context. It should be remembered that while within the timber industry there is often significant focus on high value timber species, the species composition is less important

than overall quality and vigor. It is acceptable and, on some sites, desirable to actively manage quality stems of species traditionally considered less desirable. It is desirable to grow some individuals to a large size and old age for aesthetic benefits, while in other areas diversification of age classes for wildlife considerations may be appropriate.

The discussion below provides an overview of the silvicultural systems most applicable to the state forest lands and provides initial guidance on when, where, why and how to apply these systems. In practice, the managing forester must take into account a myriad of factors beyond the scope of this writing in the implementation of these silvicultural systems to achieve both short term and long term forest resource objectives.

Regeneration Methods

Uneven-Age Management Method

Single-tree Selection

Single-tree selection is where the removal of a single, large crowned tree will create sufficient space for regeneration to be established and develop. Single-tree selection is generally only successful in the regeneration of shade tolerant species. Group selection and patch-cuts are when a group of trees is removed to create sufficient space for regeneration establishment and development. This system is useful in the regeneration of intermediate and shade intolerant species.

Group Selection or Patch-Cuts

Group selection or patch-cut openings may be up to 10 acres; however, to be effective they should be at least a quarter-acre in size (one tree height) on south-facing slopes and one-half acre (1.5-2 tree heights) on north-facing slopes. The minimum size of east and west slope group selection openings will be about one-third acre. Openings smaller than these minimum sizes should be considered canopy gaps rather than group selection openings. This is because the small canopy gaps will generally not support establishment and development of shade intolerant regeneration on a large scale. These canopy gaps are closer to single-tree selection gaps because they do not produce significantly altered environmental conditions that openings would create. Identification and layout of a group selection opening should consider the alignment of the site with the predominant sun angle. Openings with the widest dimension aligned toward the sun receive more light than those with the narrowest dimension aligned toward the sun.

The decision that a portion of a tract is suitable for a group selection or patch-cut is based on the composition or condition of the existing trees, the goals for the tract, and the likely result of the opening. Group selection/patch-cut openings will generally be a group or area with trees that: 1) have received significant damage in the past (such as wildfire, grazing, wind or ice) resulting in defective, decaying stems; 2) have poor vigor, either from insects, disease, drought stress, maturity, or damage; and/or 3) are generally mature with reduced vigor and little desirable regeneration present or possible without a significant increase in sunlight to the forest floor.

Groups of trees that may be less desirable timber species, but generally have quality and vigor should not be targeted for openings simply because of species composition. One exception to this is in cases of species conversion from non-native species, such as planted pine, to native hardwood stands. Forest health and vigor are of more importance than species composition. Generally speaking, a group selection opening is probably warranted when stocking is such that thinning to release quality trees is no longer possible.

Depending on conditions, some parts of any one tract may receive multiple regeneration openings over time, while other areas receive none. The criteria are based on the condition of the trees and the desired condition of the tract, not a set rotation.

State forests will track the age and future management for one cutting cycle of all group selection openings. By three years after a harvest all group selection openings should be evaluated for regeneration stocking levels. Results of this evaluation should be recorded on the Regeneration Opening Log ([Appendix II G-20: Regeneration Opening Log](#)). For each opening of 1 acre or larger, regeneration should meet the minimum standard of desirable hardwood species of 1,000 seedlings per acre within five years of harvest of typical upland hardwood species (including *Quercus*, *Carya*, *Acer*, *Liriodendron*, *Prunus*, and *Juglans*) on upland sites, and wet site species on wetter sites (including *Liriodendron*, *Acer*, *Juglans*, and *Platanus*). This stocking is determined with ocular estimation of spacing between each regeneration stem, with seedlings being spaced, on average, within 6 feet of each other (about one pace).

Between the ages of 8 and 12 years, all group selection openings will be evaluated for follow-up TSI. This TSI will release oak, walnut and other trees that are viable for reaching the main canopy. The TSI may also help other desired trees. If oak is the primary species to be released and is adequately distributed in the opening, prescribed fire can be used for release. Typical regeneration openings have had moderate, at best, success in regenerating oak and hickory, and usually not on the higher quality sites.

Even-Age Management Method

Oak Shelterwood

The landscape of southern Indiana has been oak-hickory dominated for approximately 4,000 years in large part due to fire, whether natural or set by Native Americans. Nearly all of the oak-hickory dominated areas of the state forests are under threat to convert to other forest types without intervention due to an aging overstory combined with a mid-story and understory that are filled with other, usually shade tolerant, species. These trees consist primarily of American beech, sugar maple, and red maple with lesser amounts of ironwood, muscledwood, blackgum, and sassafras. The ecological benefits of oak-hickory forests are immense, and the conversion of these forests to other types would be catastrophic.

The oak shelterwood method relies on multiple entries to achieve the final outcome and is an even-aged management method. The first step (preparatory cut) is to remove the sapling-, post-, and pole-size trees that are not oak or hickory while leaving a fully intact canopy. This can

be achieved through mechanical and/or chemical means with equipment and/or herbicide. In areas where feasible, prescribed fire can be the most economical and efficient method. It is important to remember, though, that constraints such as weather and state forest boundary locations may limit the use of prescribed fire at some sites. Before moving on to the next step in the shelterwood system, a sufficient cohort of oak and hickory seedlings and saplings should be present.

Once the cohort of seedlings and saplings is present and the understory and mid-story are free of competing trees, some of the canopy can be opened to allow enough sunlight for the cohort to continue to develop (establishment cut). This can be done through either a light thinning harvest or timber stand improvement. During this step the trees with the smallest crowns should be removed. The cohort should then develop until most of the saplings have a root collar diameter of ½ to 1 inch.

Once the cohort has developed, the overstory can then be removed through a timber harvest. Intervention in the young stand may still be required to release the best oak and hickory at around age 10.

Clearcut

Clearcuts tend to be very good at establishing shade intolerant regeneration. It is important to retain some species, such as aspen. The results with oak-hickory tend to be mixed; not having established regeneration is part of the cause for poor success. Clearcuts and large group openings are critical for providing diverse young forest habitat for wildlife and plant species, as well as regenerating areas of forest. Prime locations for this treatment may be areas of poorly stocked old fields that have a poor species mix with defect and poor form. Many of these areas were planted with non-native pine to help stabilize the sites. In addition to these areas, portions of the forests with high aggregations of mature and/or declining trees and timber should be reviewed for potential clearcuts to rejuvenate these areas, increase structural and species diversity, and recruit important early successional habitats that are lacking on the landscape.

A clear felling harvest of at least 10 acres in size will be considered a clearcut. Smaller than that will be considered a group selection opening. Clearcuts of 20 contiguous acres or larger in size must have an area of residual forest within it (an island or corridor) comprising at least 5% of the size of the clearcut. Clearcuts larger than 30 acres in size must receive prior approval from the Central Office.

Intermediate Management Method

Intermediate entries are treatments designed to assist the development of the existing trees, but not designed to establish new trees. Intermediate entries can involve commercial harvesting or pre-commercial timber stand improvement operations.

One type of intermediate entry that has often been used on State Forests is timber stand improvement harvests. This retains more desirable trees while removing defective or poor quality trees.

Thinning is another type of intermediate cutting. This is used in even-age or even-size groups of trees to reduce density. There are several different thinning methods commonly used. **Low thinning**, or thinning from below, removes trees most likely to drop out from competition, which are those in the suppressed and intermediate crown classes. While the shade intolerant trees will continue to live in the suppressed and intermediate crown classes, they should be removed in oak-hickory dominated sites in order to assist with potential future regeneration efforts of those species. **Selection thinning** involves the removal of trees in the dominant and occasionally co-dominant classes to release the desirable trees in the lower crown classes. **Geometric thinning** is the removal of trees in some predetermined physical pattern and is most often used with plantings and plantations. **Free thinning** is the combination of more than one thinning method.

Typical state forest timber harvests and timber stand improvement operations may involve a combination of the regeneration and intermediate methods on the same tract. Single-tree selection, group selection, improvement cutting, and thinning are usually done within a single operation.

Sites dominated by oak and hickory may often use a combination of strategies to maintain the oak-hickory community and prepare them for future regeneration efforts. Even-age oak-hickory stands that have similar sized trees would generally be managed with thinning to retain the trees with the healthiest crowns. Under this approach, mixed hardwood trees that are in the co-dominant and dominant position with oaks or hickories would be harvested to provide more resources to the oaks and hickories. Where shade tolerant trees have encroached into these areas over the past several decades, suppressed and intermediate mixed hardwoods (primarily American beech, sugar maple, and red maple) would be marked for harvest during intermediate entries as well.

The choice of what intermediate treatment to employ in a tract and how to employ it depends on the condition of the trees in the tract. In general, the trees are evaluated with one another in terms of vigor, canopy position, site/species relationship, potential for value increase, potential for loss of the individual, and what could use the space. Evaluations are directed at a desired future condition for the tract.

The key is to evaluate the capabilities and limitations of the individual species. For example, the state forests have many even-aged stands of mixed oak. Scarlet oak and black oak, because of their quicker growth, are much larger than the white oak. But they also have a much shorter life expectancy, and are now at or approaching maturity. The white oak can be much slower growing, so it can be intermediate or suppressed under the black and scarlet oak. White oak is able to respond well to release in these situations (based on studies), so using it is a reasonable strategy to start the removal of the scarlet and black oak to release the white oak. The longevity of white oak allows it to be grown to a larger size and older age than other species.

Thinnings and improvement cuts account for the majority of the trees removed in current harvest operations. Thinnings and improvements should release or maintain crop trees. Under typical dense crown conditions, residual trees need to be released on one or two sides to maintain growth. Release on two or three sides is typically needed to increase growth. Rarely is release on all four sides needed, and in some cases it can be detrimental. The tree may be more susceptible to wind throw or shock-caused mortality. A consideration is whether a tree crown has already been released through previous management or mortality.

On level ground with canopies at the same height, release of a tree on the south side of its crown provides the most release possible on one side. Release of a tree on the east or west sides of the crown provides a somewhat lower level of release. Release of a tree on the north side of its crown provides the least advantage. Another consideration is whether the removal of the tree to provide release will damage a crop tree. Release may be delayed to avoid damage.

Remember that release strategy varies by aspect and relative crown positions of the trees being evaluated. For example, for a tree on a north-facing slope with tree crowns in the same configuration as the slope position, the removal of the tree just to the south (uphill) will provide much release. The removal of the tree just to the north (downhill) will provide almost no release. On a south-facing slope with the same canopy configuration, the removal of the tree to the south will have little effect on the crop tree. The tree to the north may actually be growing out over the top of the crop tree to the south, so it may be a prime candidate for removal.

In summary, for intermediate treatments, evaluate each situation with the goal of removing just enough to maintain or improve the growth of the residual trees and with the goal of working the stand toward a regeneration harvest if needed. Occasionally trees will have sufficient room from previous management release or mortality for maintenance or growth without the need to remove other trees. *It is better to have a good tree in the wrong place than a poor tree in the right place.* In other words, do not sacrifice desired species composition or quality for spacing, as long as the trees remain healthy. However, dense clusters of desirable trees must be thinned to retain vigor. When release is needed, evaluate alternatives from the trees surrounding the desirable trees. With large clusters of desirable trees, it is likely that some of the desirable trees must be removed to provide release to the remaining desirable trees.

There are hardwood stocking guides/charts available to help provide guidance in managing hardwoods ([Appendix I D-5: Relative Stand Density Charts for Upland Hardwoods](#)). They are guides for determining if management treatments are needed, and the extent of the treatment needed. In general, areas that receive intermediate treatments (no openings) should have stocking reduced to at least the mid- to fully stocked range, or below, on the hardwood stocking charts. Residual stocking should remain in the fully stocked range, above the B-line. Stocking should definitely not drop below the C-line into the understocked range, unless exceptional circumstances exist. If the stocking is reduced no lower than the upper to fully stocked range, then there will be considerable growth loss due to stocking density. Hardwood density charts are great for graphically showing what is seen in the woods. If crowns are properly evaluated and used for marking, the density charts will work out correctly. Areas that are highly

overstocked should not receive one operation that drastically reduces stocking to the B-line. Rather, stocking should be stepped down over several years using more than one operation.

Pine Management

Pine management on state forests depends on whether the pine is natural or planted. Natural pine only occurs at Clark State Forest. Most of the state forests have extensive acreage of pine that had been planted on abandoned, eroded fields. Much of this pine is now at maturity or past maturity. It has done its job of stabilizing exposed, eroded sites, and acting as a seedbank for native hardwood species.

The natural Virginia pine at Clark State Forest should be managed to maintain its presence and sustainability. The pine that occurs on the steep knobby hills will generally not be subject to management because of the sensitive soils and slopes. The natural pine that is found on more stable sites will be managed similar to hardwoods—quality individuals will be grown to reach mature condition, and regeneration will be promoted to maintain the presence of the species.

Non-native pine planted on all state forests should be evaluated on a site-by-site and species-by-species basis. Though not native in most cases, pine does provide benefits to wildlife and has aesthetic value. Any pine area that is in good condition should be retained and managed until maturity. This management can include thinning the pine as part of a management operation. When available, appropriate stocking guides/charts can be used to guide these operations similar to that discussed in the hardwoods discussion above. Pine plantations to consider retaining may be those with species that do well in certain areas. In general, the pines that do well on our state forests are eastern white pine, shortleaf pine, and loblolly pine. In general, the pines that do poorly on state forests are red and Virginia (in plantations outside their native range). Mature pine plantations should be considered for opportunities to create early successional habitat and convert the areas to native hardwood species through natural regeneration. Planting of oaks and walnut may be considered in some cases.

Pine, when in small scattered clumps and not containing much volume, can be harvested with hardwoods. This is especially true when pine is being removed for logistical reasons. When pine is in larger groups, or there are several small groups in close proximity (even on nearby tracts), consideration should be given to having a separate pine sale.

Other Management Considerations

There are numerous non-timber factors beyond the needs of the trees affecting marking decisions. These have to do with the goals for the tract or the forest in general.

Mast production may cause some species to be favored over others for wildlife benefit. Wildlife roosting and cover can also be an important consideration. Snag and cavity tree

retention is an important consideration. This does not mean that no declining and recently dead trees or cavity trees may be marked, but that due consideration must be given to retaining these on the landscape. Aesthetics must also be given consideration. This does not mean that management should be hidden from public view or that openings and clearcuts cannot be near recreational features, but it is an important factor that must be taken into account throughout the management process. Additionally, some species may be favored simply to maintain their presence to enhance diversity.

Logistics plays a major role in marking decisions. Trees along skid trails and haul roads that would be readily damaged by harvest operations should be marked. Just being able to fell a harvest tree without damaging other trees that are to be residual trees can be difficult. This often leads to choices of leaving trees that a forester wants to take out to keep from damaging residual trees, or taking out what would otherwise be a residual tree in order to have a place to fell another tree.

Special Management Considerations

Black Walnut

Black walnuts tend to be one of the most valuable timber species and provide a valuable, reliable mast alternative; however, they tend to occur sporadically over most state forest land. Because of the large seed, removal of walnut from an area without provision for regeneration will likely mean there will be no further walnut on that site, at least for a long time. Therefore, before all (or the only) walnut are removed from an area by management operations, an attempt should be made to promote walnut regeneration at the site. One option is to create a regeneration opening at the time of the walnut removal so current seed can regenerate. Another option is creating an opening a cycle, before the walnut removal, that is sufficiently close to the walnut to receive seed for regeneration, then remove the walnut in the next cycle. Lone walnuts on quality sites should not be removed in single-tree selection operations, even if they are of lower quality; an effort must be made to retain the seed source.

Ash

Due to the emerald ash borer (EAB), the future of ash in the Central Hardwood Region looks similar to elm or even worse, until some enemies of the borer or resistance to it arise. EAB is now located in every county that has state forest land, and most state forest acreage has already been affected by the first killing wave.

Ash management direction on state forests ahead of the killing wave has been to salvage merchantable ash trees as part of normal harvest operations before they are lost to EAB. This strategy also has the important goal of capturing natural ash regeneration while seed sources are available. Harvest strategies that create conditions suitable for ash regeneration are encouraged. Such strategies will use only a fraction of the ash on the state forest system before mortality is widespread.

As evidenced throughout the ash range, a low percentage of ash will escape and survive the initial EAB killing wave. After the heavy round of mortality, the strategy on the state forest system shifts to one that conserves healthy ash remaining on the forest. As a general policy, ash found within a proposed harvest area that are live and healthy are to be retained in the stand. These trees may have simply been lucky escapes that will succumb to EAB in future attacks, or they could potentially possess some natural resistance to EAB. The number of trees with true resistance is expected to be low.

Where healthy ash trees are found, the site should be evaluated for potential regeneration activities to capture viable seed and natural regeneration while still retaining the seed trees.

Recent evidence indicates that blue ash is more tolerant or resistant to EAB than other ash species, particularly green and white ash; therefore, the goal of salvaging ash trees ahead of the killing wave does not apply to blue ash. Blue ash should be treated as most species, or even somewhat favored, as it may become our most common ash and the only one to readily survive EAB's sweep through the state.

Tools

Stocking Guides/Charts

Stocking guides and charts are designed to provide guidance for management decision making ([Appendix I D-5: Relative Stand Density Charts for Upland Hardwoods](#)). The most famous and perhaps most widely used are the Upland Central Hardwood Stocking Guides. These are the most useful and appropriate for most situations on state forests. But they are merely guides and cannot address all circumstances that are likely to be encountered. For one thing, they are hardwood guides and do not cover situations where planted pine may exist with the hardwoods. Fortunately, there have been other guides and charts created, but some of these are for specific states or regions, and specific species. For example, there are specific stocking charts for red pine and eastern white pine in Wisconsin (USFS Timber Management Field Book). The important thing is to use the stocking guide/chart that is most appropriate to the situation, if available, but also realize it is to be used as a guide and the managing forester may need to make adjustments.

Harvest Operation

This is a primary management tool. State forest harvest operations generally combine several silvicultural techniques. Single-tree and group selection regeneration are often done in the same operation as improvement and thinning cuts. Occasionally an even-age method such as clearcutting is used to regenerate a large area, usually pine-to-hardwood conversion.

Most of the trees harvested are selected because of thinning and improvement treatments. As tracts mature, as is now occurring, the emphasis on thinning and improvement treatments will decrease. An entire harvest, or series of harvests, may mostly consist of regeneration cuts,

including group selection openings and/or even-age methods, as trees across the management unit and in older openings reach harvestable size and conditions where thinning and improvement treatments are warranted to meet forest objectives.

Timber Stand Improvement (TSI)

Another primary management tool, TSI, is most often used in post-harvest situations to complete openings and manage undesirable trees not removed during the harvest. For example, non-merchantable cull trees can either be felled or girdled to create snags and increase downed woody debris, which is an important resource for wildlife. This practice is also applicable in non-commercial situations, such as thinning operations in pole-size stands. Also, group selection openings and clearcuts should be targeted for TSI at age 10-15 years, to perform release on desirable species, especially oak-hickory.

There are situations where pre-harvest TSI is desirable. The most prominent one is the deadening of grapevines within planned group selection openings. This should occur at least two years before harvest. Another situation is the deadening of lower canopy, shade tolerant trees in planned group selection openings in order to promote establishment of advanced oak-hickory regeneration. This generally requires herbicide use to prevent sprouting. It should be done several years before harvest in order to allow the oak and hickory seedlings to develop to a viable size. Reduction of invasive species, such as ailanthus and bush honeysuckle, is also an important undertaking before openings are created.

Another TSI situation is follow-up crop tree release in 10-15 year old group selection openings. These are often situations where slower growing species such as oak-hickory are being overtopped by faster growing but less desired species such as yellow poplar. The less desired trees that are competing directly with the desired trees are removed. This increases sunlight to the desired trees, helping to ensure they will maintain a position in the stand until the next cycle provides another opportunity for release. The less desired species will occupy areas of the opening between the desired species. If delayed too long, many viable oak-hickory stems may be lost to overwhelming competition from faster growing trees. This age is also the ideal time to remove vines from the young canopy.

Timber stand improvement is also performed in plantings and plantations. The operations include release, improvement and thinning treatments, and pruning. This work is time consuming and generally undertaken only with higher value hardwood species.

Prescribe Fire

Low to moderate intensity prescribed burns can be also be used as an effective tool for the management of understory plant communities, including hazardous fuels reduction, forest regeneration, invasive species control, and habitat enhancement. These types of prescribed fire do not burn into the crowns of mature trees. Instead, they target fire-intolerant seedlings, saplings, and, occasionally, pole-size individuals of thin-barked species. Specifically, management activities that use prescribed fire include control of woody vegetation on permanently maintained

grass/herbaceous habitats, support for advance regeneration of fire-tolerant tree species (e.g., oaks and hickories), maintenance of unique fire-dependent natural communities (e.g., barrens), and control of fire-intolerant tree regeneration in forest openings. Implementing a prescribed burn requires construction of firebreaks by hand or machine (typically tracked equipment with a blade), where natural or existing firebreaks do not already occur. When used for maintenance of grass/herbaceous habitats, prescribed fires may cover up to 300 acres, while the typical woodland fire in today's fire controlled environment is usually less than 75 acres.

Planting

Most tree planting on state forests is done on abandoned agricultural land recently acquired by the state. The focus of these tree plantings should be on tree species that are difficult to naturally regenerate, generally oaks and walnut. These plantings may require site preparation a year prior and follow-up weed control one to two years after.

Occasionally planting in a wooded situation is desired in order to establish desired regeneration such as oak, where natural regeneration of that species would be limited, primarily due to lack of available seed source. This is done in a situation where a harvest opening will allow the oak to grow and develop. Such enrichment plantings should be planned in advance of the harvest. The seedlings must be planted at least one growing season before harvest to ensure seedling establishment before to release if planted before harvest. All mid-story trees should be deadened to give the seedlings maximum diffuse sunlight.

Section F Bullet Summary

- Central Hardwoods Silviculture is complex.
- Management activity is based on the tract level.
- Hardwood management will consist primarily of uneven-age management. Some even age management will be used through shelterwoods and clearcuts.
- Single-tree selection, group selection, improvement cutting, and thinnings are generally done in the same operation. Decisions on management methods are based on the condition of the trees in the tract.
- All group selection openings will be evaluated around age 10-15 years for crop tree release through TSI.
- Pine will be evaluated to harvest in order to create early successional habitat and convert the areas to naturally regenerated hardwoods. Some pine, if doing well, may be left in areas for aesthetics.
- Timber management activities will take into account non-timber goals and values.
- Ash has been heavily affected by emerald ash borer. Retention of live, healthy ash within affected EAB areas are to be conserved.
- Among the management tools available for use are harvesting, timber stand improvement, planting, and prescribed fire.
- Stocking guides and charts should be used to help determine needs for management.

SECTION G: TIMBER SALES

Procedures – Field Work

Tract management guides or amendments will specify the need for a harvest in a tract, and will summarize the ability of the tract to sustain a harvest. The guides will identify the proposed harvest year. The inventory for the tract management guide will be in effect for the management period covered by the guide, except for salvage harvests. No recent tract inventories are needed for salvage harvests—a brief management guide amendment describing the need for the salvage harvest is all that is required.

If a decision is made to harvest a tract, the first step is to locate the boundaries of the tract. State forest property line locations need to be clearly delineated or appropriate buffers need to be established. Neighbors will be notified. Archaeological clearance must be obtained. All sensitive areas, i.e., those related to plants, animals, unique natural features, streams, and cultural sites, must be accounted for in the harvest area. These will have been identified in the management guide process. A harvest plan will be devised that will identify yard locations, haul route(s), and primary skid route(s). All roadwork should be done before the sale date. Ideally, all property lines, roadwork, neighbor contacts, sensitive areas, and archaeological clearance should be identified and completed six months before the sale date.

All possible property line or property subdivision evidence in a sale area, even if it is not on a property line, should be located, documented, and marked. The operations will avoid obliterating property line evidence, even if interior to the line. Features such as fences, markers, monuments, stones, roads, and timber changes can provide valuable evidence in future surveys. Probable locations of evidence include all 16th corners (corner of any "40"), corners of further subdivisions, and the lines between the corners. All survey markers such as monuments, stones, rebar and pipe will be identified with yellow Carsonite survey marker posts, documented and mapped. Operations will avoid survey markers. Fences, roads, treelines and other similar evidence will be documented, mapped, and placed in the appropriate property files.

Costs associated with timber sale preparation should be documented and kept on file for use on the FM 200 form ([Appendix II G-18: FM 200 – Cost of Operations](#)). This data includes all costs directly related to the sale even if they are not associated with timber marking, e.g., roadwork and boundary locations. Tract inventories and tract management guide development costs should not be included because these are done for a tract regardless of whether a timber harvest is involved.

Occasionally, in the process of marking a sale in one tract, it becomes necessary to mark a few trees in neighboring tracts for logistical reasons. Such reasons include taking out trees along haul roads for improved access, or creating a log landing in a tract that is not the actual sale tract. Another example may involve the removal of a tree in a neighboring tract just over the tract boundary to create a gap into which a harvest tree in the sale tract will fall. This may even

include removing a few dying trees that are immediately next to or easily accessible to the sale tract. It is not necessary to have updated tract inventories and management guides to remove these few trees. In these cases, the trees should be tallied separately from the sale tract, and their removal noted in the appropriate tract file. This tally amount can be merged with the tract sale tally to create the full sale tally.

Tree Marking

Trees for timber harvests will be marked with tree marking paint. The paint colors to use for harvest marking are blue or yellow. Red or orange tree marking paint can also be used when there is no orange paint used in the vicinity for boundary marking, and light purple can be used when the harvest does not occur near a property line. Trees are marked near eye level for logger visibility, and at ground level (stump mark) for auditing purposes. Trees can be marked in the following ways.

A tree that is sound and has no volume deduction (sawtimber and pole trees – board foot and cord volumes) is marked with a band of paint around the tree stem, or at least three large paint spots on the stem so **the marked tree is visible from all directions**, and a spot at ground level on the downhill side. Each property should make the choice of marking sawtimber trees with bands or spots, and then pole trees would be marked with the other mark in order to differentiate from sawtimber trees. Sawtimber trees and pole trees will have different marks on them, either bands or spots.

A tree that is generally sound but has a volume deduction or defect consideration (sawtimber and pole trees—board foot and cord volumes) is marked as above with the addition that there will be a diagonal paint slash on the stem indicating the deduction or defect.

A tree that is considered cull (not sound) and is not calculated to contain any volume is marked with “X” on the stem and enough around the tree stem to be visible from all sides, plus a small “X” at ground level on the downhill side.

If there is a tree that is considered to contain prime volume, mark it the same as a sound tree. In addition, number the tree (use consecutive numbers) near eye level. Numbers can be in another color of paint if desired.

Even under ideal conditions, tree-marking paint quickly loses its visibility. Care should be taken to ensure that the paint is put on a sound bark surface. Scraping of the tree (do not cut through the bark) may be necessary to remove loose bark, snow, moss, or ice. The stump marks should be as low as possible on the stem so they remain on site after stem removal.

BE SURE TO USE PLENTY OF PAINT. Aerosol, in particular, is thin by nature, and should therefore be put on heavily.

Trees with multiple stems should be treated as multiple trees if separate stem diameter measurements can be taken and tallied. The number of stump marks should match the number of

stems tallied. If the multiple stems are so high or are growing in such a way that individual stems cannot be measured, treat them as one stem.

All tree marking should take into consideration how the tree will fall and how the log will be removed. Trees with heavy leans or tops heavy to one side are unlikely to be felled in directions other than where gravity wants them to go. Be aware of the crown size of the felled tree. Is it too large to fit among standing trees without damaging them? The marking forester then has the decision to make as to whether to mark an additional tree(s) to create adequate felling space, allow residual trees to be damaged by the felling, or pass up the tree and leave it for a potential future harvest.

Likewise, the marking forester must be sure that felled trees can be removed by typical harvesting equipment. At locations where the likely route to skid goes through tightly packed quality stems, it is prudent to mark a skid route and mark a few trees that can be removed to open up the skid route or that could serve as bumper trees and be removed in the harvest. Slope, drainages, and rock outcrops should be considered in determining accessibility for harvest. Slopes greater than 30 degrees are problematic for typical skidding equipment. Generally, slopes greater than 30 degrees should be avoided with harvest operations. There are several cases where this guideline may not hold. In locations where the slope this steep is short, it may be relatively easy to maneuver through. In other cases, an operator may have non-typical equipment that can maneuver on these slopes. And in places where these steep slopes are longer, it may be possible for skidding equipment to maneuver above or below the steep slope, and cable logs off the steep slope with little effort.

Tree Tally

When trees are marked, the following information is recorded:

- ☞ Species
- ☞ DBH
- ☞ Product
- ☞ Number of 12-foot logs to the nearest 1/2 log (sawtimber)
- ☞ Percentage defect (if any)

Trees that are sound but have a volume deduction may have volume deducted two ways. One way is a percentage deduction. The marking forester estimates the percentage of the log volume to be deducted and identifies that figure on the tally. A “30” in the defect column indicates a tree that is 70% sound and has a 30% volume deduction. The volume for this tree is adjusted for this 30% deduction. In deducting volume using a percentage, remember that the lowest log on the tree has the highest percentage of volume compared to the remaining logs. This method is best used when the defect runs down the tree, such as with a lightning scar or a scrape down the stem from a falling tree. The other way to account for volume deduction is to reduce the merchantable log height by the log length needed to eliminate the unsound stem portion. If a 3¹/₂ log tree has about one log length of the stem that is unsound, the log length for that tree would be tallied as 2¹/₂ logs. This method is best used when the defect is confined to a portion of the stem length, such as butt rot.

Trees that are considered cull (not sound) need to have the species, product, logs (nearest half log using 16-foot logs) recorded. No volume deduction is recorded for culls because they are considered to have no substantial merchantable volume.

Pole trees that are considered sound but need to be removed as part of the harvest operation should be marked as trees with volume and will be tallied as poles with the product code, species, DBH, and merchantable height (nearest half log using 16-foot logs to 4-inch dib). The volume will be given in cords. Sawtimber size trees that may have little, if any, sawlog volume may be tallied as poles. This includes trees that fork low into multiple small stems, may sweep, crock, or corkscrew to the extent that there is no straight sawlog, or that have multiple spots of decay on the stem.

Sawtimber volume is calculated using board foot volume from a Doyle volume table. Trees that are considered to contain merchantable sawtimber board foot volume must have a DBH of or larger than the 12-inch diameter class.

Timber sales that involve multiple tracts will have each tract tallied separately. The tallies will be combined for the total. Each tract file shall contain information not only for the entire sale, but the tally from that tract. This way, the removals within the tract can be compared to the tract inventory.

The outside boundary of sale areas should be identified so that buyers do not have to wander out of the sale area looking for sale trees. To mark sale area boundaries three diagonal, parallel slashes will be put on small or cull trees that are part of the residual. These slashes should be just outside the visible range of the sale marking and should be within eyesight of one another. The slashes should be oriented toward the sale area. A different color of paint than that used for the sale tree marking can be used. Flagging can also be used to supplement the painted slashes. Each has a different advantage. Paint is not easily removed, whereas flagging is visible from multiple directions. Sale boundaries that are against a good, physical marker do not need to be marked (roadway, utility corridor, large stream, etc.).

Prime and Quality

Black walnut, white oak, chinkapin oak, swamp chestnut oak, swamp white oak, burr oak, northern red oak, black cherry and sugar maple are the only species in which prime volume can be identified. To be considered prime, a black walnut must have a minimum 8 feet of log length clear on all four faces and a minimum DBH of 17 inches. All other species must have a minimum of 8 feet clear length on all four faces and a minimum DBH of 19 inches to be considered prime. Prime volume is not the same as veneer volume and should not be advertised as such. Do not advertise any trees as veneer trees even though the coding term we use is veneer. The prime designation is based on surface appearance of the log. Whether a log is suitable for veneer depends on surface and internal appearance, which cannot be determined until the tree is felled.

Trees that are considered to have prime volume will be tallied as a Quality tree. The inventory program will calculate the entire tree as Quality and add it to the harvest tally. Using the log scale on the Biltmore stick, the actual amount of prime volume in the stem will be estimated and tallied in writing. The inventory program calculated Quality amount will be rolled into the total sawtimber volume, and the prime volume determined from using the log scale on the Biltmore stick will be the advertised prime volume. This prime amount will be listed as a footnote on notices. In Forestry Exchange listings the prime volume will be listed as Veneer. If a property has a large enough amount of prime volume to consider a freestanding harvest of prime trees, the Central Office will be contacted to consider alternative estimation and tally methods.

GPS should be used to identify the locations of prime trees. These locations can be used to create maps to be distributed to the potential buyers.

Quality sawtimber trees are those trees that just miss making the prime designation for the species listed for prime above, or the same quality and higher quality in other species where prime is not an option. For example, where a prime white oak has four clean faces, a quality white oak may have three clean faces and one face that has some defect. A red maple may be clean on all four faces, but because it does not have a prime option, it would go down as quality sawtimber. The amount of quality in a sale can be used in advertising the sale to potential buyers.

Marking Groups – Special Circumstances

It may be possible to depart from the above-described method in some marking circumstances. In cases where all trees within an area are to be removed, they do not have to be individually marked and tallied. Instead, these areas can be marked by identifying the removal of all trees within a set boundary. The circumstances in which this is likely to occur in are heavy storm damage with significant downed material, and conifer patches that have large numbers of relatively homogeneous stems. With prior Central Office approval this can also be used in stands of relatively lower value hardwoods where individual marking will be too time consuming relative to the value of the timber being removed. This should not be used for standard hardwood group selection openings. In both cases, the boundary will be marked with three paint slashes on the first trees outside the removal area, with the slashes on the side toward the removal area. Two slashes will be vertical and on roughly opposite sides of the tree facing the next marked boundary trees. These two vertical slashes will be connected with a horizontal slash facing the harvest area. The three paint slashes will be at eye level and would essentially create a broad “H” facing the removal area. The marked boundary trees will also receive a spot of paint on the stump below the slashes. The boundary trees are not part of the trees to be removed. The boundary trees must be within easy eyesight of each other. The boundary trees must be selected so that all trees to be removed fall within an area determined by straight lines drawn between the marked boundary trees. If in the vicinity there are also to be trees marked individually for removal, the paint used for the boundary tree marking must be a different color than that used for individual tree marking.

To tally standing, homogeneous conifer stands, prism point plots may be used. There should be a minimum of three plots in any removal area. Removal areas larger than 3 acres but

less than 20 acres in size will be sampled at the rate of one plot per acre. Removal areas larger than 20 acres may be sampled at the rate of one plot per 2 acres. These plots should be in a systematic grid with random start. This would also be done in the stands of low-value hardwoods.

Another acceptable variation on this method would be to individually mark and tally the larger and/or higher value trees and use point sampling for the cordwood trees and/or lower value trees.

The downed material in storm-damaged areas often makes individual tree marking dangerous and prism point plots unusable. In this case fixed radius plots may be used instead. One-tenth acre circular plots with a radius of 37.2 feet are run through the area. These plots should be in a systematic grid with random start. However, because of the difficulty and dangerous conditions that can occur in storm damage, it may not be feasible to traverse an area with a grid sample. In this case, parallel grid lines can be run along the outside edge of the damage area where travel is feasible. Then plots are projected into the damage perpendicular to these parallel lines. These should be into the damage a sufficient distance to get an adequate sample of the damage area, and should cover all the types and forest conditions in the salvage area.

Calculating

When marking is completed, the total number of poles with volume, cordwood with volume, and cull trees by species is compiled. When trees are marked and tallied, volumes of trees with merchantable volume will be determined using the inventory program. Sales where tree numbers are estimated by sample plots will use the appropriate method to determine estimated volume and estimated numbers of trees.

Individual sales that cover more than one tract will have each tract tallied separately. The separate tract tallies will be placed in the appropriate tract files for future reference. The separate tract tallies will be combined for a total sale tally.

Trees less than the 12-inch DBH class down to the 6-inch DBH class are poles. The volume measure will be cords. Cords can be used on trees 12-inches DBH and larger if crook, forking, form, taper, or other defects make sawtimber an unworkable product.

Culls are considered to have no commercial volume and are offered as a way to accomplish non-commercial thinning or timber stand improvement through the harvest operation. They also are marked to provide dropping lanes for other marked trees, lanes for skidding, or to complete openings.

The number of trees and culls marked in the sale **must** match the number tallied and advertised. We sell by the number of trees, not volume. Volumes are only estimates. When numbers of trees are determined through sampling, that fact must be listed and emphasized in the paperwork and on notices that the number is an estimate based on sampling.

Procedures - Administration

The following forms are used to initiate a timber sale:

- ☞ Forestry Exchange/LTB Notice
- ☞ Timber sale area narrative – if created
- ☞ Letter of Agreement for Sale of Timber ([*Appendix II G-1: Letter of Agreement for Sale of Timber*](#) or [*Appendix II G-2: Letter of Agreement for Installation Payment of Timber*](#))
- ☞ FM 203 - Notice ([*Appendix II G-3: FM 203 – Timber Sale Notice*](#) or [*Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment*](#))
- ☞ FM 201 - Map of Timber Sale Area ([*Appendix II G-5: FM 201 – Timber Sale Area*](#))
- ☞ FM 202 - Bill of Sale ([*Appendix II G-7: FM 202 – Bill of Sale*](#))
- ☞ Timber Sale Down Payment Acknowledgement ([*Appendix II G-9: Timber State Down Payment Acknowledgement*](#))
- ☞ FM 200 - Cost of Operation ([*Appendix II G-18: FM 200 – Cost of Operations*](#))

Prior to the sale date, the following paperwork must be done:

- ☞ Forestry Exchange/LTB Sale Notice – Central Office is notified by the property that a notice is ready for review on the Forestry Exchange. The LTB deadline is around the 20th of the month, so the notice must be placed well ahead of the deadline for review. After Forestry Exchange approval by the Specialist the notice will be placed in the LTB Bulletin if it makes the deadline.
- ☞ FM 203 Notice ([*Appendix II G-3: FM 203 – Timber Sale Notice*](#) or [*Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment*](#)) – One copy is sent to the Central Office. Copies are sent to the property's buyers list. One copy is attached to and becomes part of the Timber Sale Agreement. Buyers should also be sent a map, either an FM 201 showing sale area in appropriate context with necessary information including landings, haul road, primary skids, etc. NO sensitive ecological features or cultural site information should be included.
- ☞ Notice (abbreviated) – One copy of an abbreviated notice to two area newspapers as legal notices far enough in advance so that they are published at least two weeks prior to the sale date. The information on this notice will be the same as the standard notice except: 1) only total numbers for all trees, culls and volume will be given, with no species break down; and 2) lengthy special conditions will not be included, but will only be referenced by a statement similar to "contact office for special sale conditions." Publisher's claims are paid by properties by approved methods. Keep copies of claims with property file.
- ☞ Timber sale area narrative – Description of sale (if completed by property). One copy is sent to the Central Office with FM 203. Copies are sent to the property's buyers list with the FM 203.

- ☞ FM 201 Map of Timber Sale Area ([*Appendix II G-5: FM 201 – Timber Sale Area*](#))
 - One copy is sent to the Central Office with FM 203. Copies are sent to the property's buyers list with the FM 203. One copy is attached to and becomes part of the Timber Sale Agreement. This can be sent to buyers with FM 203 showing the sale area.
- ☞ Legal Notice Publisher's Claim – Original to be kept with property files. One copy will be retained in the property sale file. Another copy will be sent to the Property Specialist with the timber sale contract.

On the sale date, the following paperwork must be done:

- ☞ Timber Sale Agreement ([*Appendix II G-1: Letter of Agreement for Sale of Timber*](#) or [*Appendix II G-2: Letter of Agreement for Installation Payment of Timber*](#)) – Must be filled in should buyer be ready to pay for sale that day. All signatures must be original on the three copies of the agreement. These are signed only when the sale is paid for in full, or a down payment is made.
- ☞ Sale Agreement Attachments – The following should be attached to each copy of the timber sale agreement when appropriate – sale notice, sale area map, Forestry rutting guidelines, installment areas map, installment payment schedule.
- ☞ Timber Sale Down Payment Acknowledgement ([*Appendix II G-9: Timber State Down Payment Acknowledgement*](#)) – Filled in should buyer be ready to make down payment for sale that day.
- ☞ FM 202 Bill of Sale ([*Appendix II G-7: FM 202 – Bill of Sale*](#)) – Filled in should buyer be ready to pay for sale in full that day.
- ☞ Return of Deposit Acknowledgement ([*Appendix II G-6: Return of Deposit Acknowledgement*](#)) – Filled out for unsuccessful bidders. When the performance deposit check is returned to them, they must sign this form. The original is kept in the property files. The bidder may receive a copy if desired.
- ☞ Receipt Form 352 – Filled out for the successful bidder as receipt of timber sale performance deposit. One copy remains in property files, one copy is given to bidder, and one copy is sent to the Central Office with the performance deposit check via certified mail. This must be mailed the day it is received. Keep photocopies of check and receipt in timber sale file. The receipt must be filled out to the same name as the accountholder on the check.

At the time of sale payment, the following paperwork must be done:

- ☞ Timber Sale Agreement ([*Appendix II G-1: Letter of Agreement for Sale of Timber*](#) or [*Appendix II G-2: Letter of Agreement for Installation Payment of Timber*](#)) – Successful bidder information is completed. All three forms must be signed in ink. Purchaser's signature must be notarized. Purchaser's name must be official entity name as identified by buyer's license (can be looked up on Forestry Exchange).
- ☞ FM 202 Bill of Sale ([*Appendix II G-7: FM 202 – Bill of Sale*](#)) – Completed with copy going to buyer, copy in property files, and original to the Central Office. Only completed upon payment of the full sale purchase amount, or after final

payment when a down payment was received first. If down payment is made, this is not sent with timber sale packet. It is sent individually to the Central Office later when the remaining balance is paid. When sale allows installment payments Partial Payment Acknowledgement is used to acknowledge the installment payments, except the final payment when a Bill Of Sale is used.

- ☞ Timber Sale Down Payment Acknowledgement ([*Appendix II G-9: Timber Sale Down Payment Acknowledgement*](#)) – Completed if Purchaser makes a down payment. Original to the Central Office with sale packet, a copy to buyer and a copy in property files.
- ☞ NR 7 Receipt – Completed with copy going to buyer and copy in property files. Used at payment of down payment, installment payment, and remaining balance payment, or for full purchase payment.
- ☞ FM 200 Cost of Operation ([*Appendix II G-18: FM 200 – Cost of Operations*](#)) – Completed with copy to property files and a copy to the Central Office.
- ☞ Receipt Form 352 – Photocopy for performance deposit sent to the Central Office with sale packet.
- ☞ Legal Notice Publishers Claims – Photocopy sent in sale packet to the Central Office.
- ☞ Installment Payment Acknowledgement ([*Appendix II G-10: Timber Sale Installment Payment Acknowledgement*](#)) – Completed when Buyer makes an installment payment on a sale broken into installment payment areas.
- ☞ Installment Payment Schedule ([*Appendix II G-19: Installment Payment Schedule*](#)) – Attached to timber sale agreement where installment payments are allowed.

Timber Sale Administration

Upon completion of marking and layout, the sale is ready to sell. The sale date and time should avoid periods that may cause conflict for buyers. Sale dates should be chosen to match the primary times of the year that harvest activities occur. In general, the three middle days of the work week are best with sale times in the morning to early afternoon. Adjacent properties that have common buyers should coordinate so they do not have conflicting sale dates and times.

Prior to being offered for sale, all proposed sales will be reviewed by the Central Office. Properties will advise the Property Specialist at least three months prior to the proposed sale dates. Properties will provide the Property Specialist with a copy of the management guide (including all appendices), archaeological clearance, Natural Heritage Database review, ecological review, sale layout, and sale notice (include any special conditions). The Property Specialist will schedule a day with the property to visit the sale site. Once the sale is approved, the property is free to begin scheduling and preparing the remaining sale paperwork.

Properties may sell more than one sale in a day. Such clustering of sales often brings additional interest to an offering. It is suggested to offer the best quality sales first, and the lowest quality last. With multiple sales, the sale times should be staggered at least 10 minutes apart, but no more than 20 minutes apart. When multiple sales are held in one day, properties need to make

the sale sequence clear to buyers. Buyers will be informed that any bids dropped off rather than submitted in person at bid opening time, must be clearly identified on the front of the envelope for the sale bid.

The first step to offer a sale is to complete an FM 203 Notice ([Appendix II G-3: FM 203 – Timber Sale Notice](#) or [Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment](#)), a Forestry Exchange/LTB Sale Notice, and an abbreviated notice. The abbreviated notice is for submission to local newspapers as legal notices. The only difference between the abbreviated notice and the FM 203 Notice is there is no individual species breakdown in the abbreviated notice; only sale totals are listed. The legal notices should be submitted to two newspapers to run one time only in an edition that will be out at least two weeks prior to the sale date. Only one original publisher's claim is needed. The publisher's claims are paid through approved procedures. Copies of the claim are maintained in the timber sale files.

The Forestry Exchange/LTB Notice is used for listing the sale on the Forestry Exchange website and for publication of the sale in the Licensed Timber Buyers Bulletin. The FM 203 Notice must be sent to the Central Office with sufficient time for review and approval of the Exchange site listing. The Exchange/LTB Notice must be approved by the Property Specialist by approximately the 20th day of any month in order to be in the next month's bulletin. Sale listings in the Exchange must be submitted in such time to allow approval and posting on the Exchange for at least two weeks prior to the sale.

Sales may be listed more than one month. To do this, properties simply must send the appropriate information to the Property Specialist for each month a sale is to be listed. Listing sales more than one month in advance is particularly important for sales that occur in the first half of a month. Early in the month sales have little lead time or can even be past when the bulletin comes out.

FM 203 Notices are sent to local buyers at least two weeks prior to the sale date. FM 203 Notices must include any special conditions to be listed on the contract, and any non-contract conditions such as the need for county road permit or bond.

Included with the notices will be (an) area map(s) showing the sale location. A reduced scale topo map or a property map is better for identifying sale location in context. Avoid using only a blow-up of the topo map. While it is useful for showing details of the sale area, the overall sale context and location map is lost. A combination of two maps is often best.

A Timber Sale Area FM 201 ([Appendix II G-5: FM 201 – Timber Sale Area](#)) must be completed with the sale area delineated and pertinent sale features identified, such as sale boundary, landings, and roads. This can be used as the map sent to potential buyers if it contains sufficient information. No cultural site information is to be identified on this map.

A timber sale area narrative may also be created and included. The narrative is a brief description, only a few paragraphs long, giving a verbal description of the goals for the harvest, access, sale quality, land conditions, and any special conditions. The buyers will generally be

buyers known to operate in the area, especially those that have bid on past sales. The Forestry Exchange listing of buyers is a good resource for creating, expanding or updating a property's buyers list.

Some sales may be sold with an installment payment option. This allows buyers to pay for portions of a larger sale as those portions are harvested rather than harvesting the whole sale at once. This provides an opportunity for buyers with limited access to funds to purchase larger sales that would otherwise be out of their financial reach. This requires a prior decision by the forester and some slightly revised paperwork. Most important is the breaking of the sale area into designated installment areas on the ground. This can be done by tract (if a multi-tract sale) or by some readily identifiable physical feature. This can also be done by using multiple colors of marking paint, with each color representing a different installment area. The paperwork will include an installment area map that shows the delineations of the areas, and an installment payment schedule that identifies the payment due for each area. It is important that the payment schedule is based on the value of the timber in the delineated areas, not the volume. This is to ensure that an area of high volume, low value timber does not get left behind after low volume, high value timber is harvested.

All special conditions that will appear on the sale contract should be listed on the FM 203 Notice ([*Appendix II G-3: FM 203 – Timber Sale Notice*](#) or [*Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment*](#)). In particular this should include any limitations on operations such as limited harvest periods or special management requirements.

Another condition that should be clear is the need to obtain access across private property if there is no reasonable access across state forest land. Properties selling sales where the only reasonable access is across private property will contact appropriate neighbors and inform them that buyers may approach regarding access. Properties can provide buyers with the names of neighbors who appear receptive to access. However, any access agreement is strictly between the neighbors and the buyers. Properties will not be involved in this other than recommending that any access agreement be put in writing.

Once notice has been sent on sales, properties are likely to receive inquiries from potential buyers. Some may simply want verbal directions to the sale areas so they can view them. Others may want verbal verification of what the sale looks like, and others may want to set up a viewing of the sale led by property staff. Properties should schedule time to handle these requests. Properties should schedule some time a week or so before the sale date to contact potential buyers and make sure they received the notice, especially if there seems to be little interest in the sale.

Some buyers may drop off or mail bids to the property prior to the bid opening time. All such bids should remain unopened, put in an envelope (marked that it is a bid), sealed, and placed in a secure location (property safe) until the bid opening. In situations with multiple bid openings on the same day, the outside of the envelope should be clearly marked with the designated sale. Mailed or delivered bids not received before the bid opening time will not be considered.

Prior to the sale date, the property will determine a minimum bid. This will be calculated by using the timber harvest tally. Using the value generated on the reports, a 10% deduction will be taken from that value to reach the standard minimum bid amount. Additional deductions of 5 or 10% can be taken to arrive at the final minimum bid value to account for additional difficult circumstances such as poor access or rough terrain. The minimum bid is not public knowledge and is only known by property staff and Central Office property staff.

Bids are only accepted from licensed timber buyers. This can be verified on the Forestry Exchange website. If a bid is received from an individual who is not licensed, immediately contact the timber licensing forester and the Central Office.

When the bid opening is held, the sale is sold to the highest qualified bidder whose bid at least meets the minimum. If two or more bids are below the minimum, and the highest bid is reasonably close to the minimum, the sale may be sold to the highest bidder at the discretion of the property manager. The property may contact the Property Specialist for a ruling on this if there is some question. The minimum is still not considered public knowledge. There is no winning bid if the high bid is submitted by two or more buyers (tie). Sales with tie bids must be rebid.

If all bids are rejected and do not meet the minimum, the minimum bid is still not public knowledge. If the **same** sale is put up for bid at a later date, the minimum bid will be conveyed orally to all interested buyers who contact the property but will not appear in any advertisement or sale paperwork. If the sale is altered in any way, such as adding/deleting trees or developing access that changes the value, it becomes a different sale. The minimum will be recalculated and is not public knowledge.

Sales that do not receive a successful bid may be rebid at a later date. All costs associated with the unsuccessful bid attempt will be included with the later sale costs.

The timber sale bid opening is a sealed bid process. All bids should be in a sealed envelope with the performance deposit included. Properties will provide envelopes for bidders to enclose and seal their bids and deposits. Within five minutes of the set bid opening time, the property staff will announce that the bid opening is about to take place and that all sealed bids should be submitted. Any bids held in the property safe will be removed for the bid opening. When the bid opening time is reached, an announcement is made to that effect, and no further bids will be accepted. The bid opening time should be based on a wall or desktop clock in the office that is readily visible to persons in the office. A wristwatch may be used if so announced. In such a case, the wristwatch will be removed from the wrist and placed on a desktop or other open location for persons in the office to view up to the bid opening time. A cellphone can also be used. Property personnel will not accept any bids submitted after the announcement that the bid opening time has been reached.

After the announcement that the bid opening time has been reached, the designated property person will begin individually opening and reading the bids received in time. The bids

are read out loud giving the name of the bidder and the amount bid. The buyer submitting the highest qualified bid that at least meets the minimum bid or is below but determined to be reasonably close to the minimum is announced as the winner. Any bids received after the announcement that the bid opening time has been reached are not qualified and will be rejected and returned.

Bid openings are open to the public. They will be held in a public accessible location. They must be held at the location identified in the notices, except as otherwise approved by Central Office. If the location is moved, appropriate notice must be given. Generally bid openings are held at property offices. If the office is too small to accommodate the expected number of users, the bid opening can be moved, at the property manager's discretion, immediately outside the office. All users within the office must be informed of this move.

A bid is not qualified if a sealed bid does not contain an acceptable performance deposit. All buyers bidding on state forest timber sales must be licensed timber buyers. Bids not on the appropriate FM 203 Notice for the sale should be attached to a FM 203 Notice ([Appendix II G-3: FM 203 – Timber Sale Notice](#) or [Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment](#)).

The performance deposit is to ensure adequate performance on the part of the bidder through the bidding process and length of the contract. The performance deposit can be submitted as a company check, certified check, or money order, and the payment instrument must be completely filled out. Performance deposits in the form of cash are not acceptable. The performance deposit must be in an amount at least equal to 5% (.05) of the bid amount. The deposit may be greater than this amount. If the deposit is less than this amount, it is not acceptable, and the bid is not qualified. An incomplete performance deposit payment instrument is not acceptable, and the bid is not qualified.

Prior buyers who have had a portion of their performance deposit withheld due to issues with harvest operations may be required to submit an increased performance deposit on future sales or may be barred from future timber sales. Central Office staff shall be responsible for tracking this information, as this requirement is not restricted to individual properties.

After the winning bid is announced, performance deposits are returned to all unsuccessful bidders. When a performance deposit is returned, a Return of Deposit Acknowledgement is completed ([Appendix II G-6: Return of Deposit Acknowledgement](#)). This is maintained in property sale files. If an unsuccessful bidder is not present, the performance deposit Return of Deposit Acknowledgement and deposit check are sent via certified mail to the bidder with instructions to complete the Acknowledgement and return it to the property.

The successful bidder receives a DNR 352 Receipt Form for the performance deposit amount. This receipt will list the sale date, property, sale number, sale compartment and tract, number of trees and estimated volume, and that it is for a performance deposit. One receipt copy is retained by the property for audit purposes. A photocopy of the receipt and deposit check are placed in the property timber sale files. One receipt copy and the deposit check are sent to the

Central Office via certified mail. The receipt must be filled out to the same name as the account holder on the check.

Successful buyers have 14 calendar days to make a down payment for the sale. A buyer may choose to pay the full amount in one payment, in which case this is due at the same time a down payment (this is explained further below). If, at the minimum, the down payment is not made in the 14 calendar days from bid opening (day one is the day after the bid opening), the performance deposit amount is considered forfeit. When the 14-day deadline is approaching, and it appears a buyer may forfeit the deposit by not paying, the property will contact the Central Office on how to proceed. The down payment amount is equal to or larger than 10% of the bid amount.

Buyers may make the down payment or full payment by mail. In order to meet the deadlines, the payment can arrive a few days after the deadline, but the postmark on the envelope should be the same day or prior to the deadline. Any payment in an envelope postmarked after the deadline has failed to meet the sale terms and may be returned to the buyer. In such a case, this fact should be documented. When a payment is made by mail, the payment envelope will be saved as part of the sale file. Receipts, Down Payment Acknowledgements, Bills of Sale, etc. for a payment by mail can be sent to the buyer via mail.

At the receipt of a down payment for a sale, the property will complete a DNR 7 Receipt form. The amount the receipt shows as received will be the amount of the down payment, not the total bid amount. This form will list the appropriate sale number, number of trees, and compartment and tract. Any listed volume should state that the volume is estimated. This receipt must indicate that amount provided is for a down payment. The buyer receives the appropriate copy, and the appropriate copy is retained by the property for audit purposes. A Timber Sale Down Payment Acknowledgement form is also completed to show that the buyer has made a down payment ([Appendix II G-9: Timber Sale Down Payment Acknowledgement](#)). When the form is completed, a photocopy is given to the buyer, a photocopy is put in the property sale file, and the original is sent to the Central Office in the timber sale packet that includes the Timber Sale Agreements ([Appendix II G-1: Letter of Agreement for Sale of Timber](#) or [Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#)). The Timber Sale Agreement (three copies) is completed and given to the Purchaser to have signed and notarized. The Purchaser should return the signed Timber Sale Agreements to the property within one month of the bid opening date.

If a down payment is made, the remaining balance of the bid amount must be received within 12 to 18 months (depending on specific property requirements) of the bid opening date, or prior to the start of harvest operations, whichever occurs first. Harvest operations will not be allowed to begin unless the full payment, or an installment payment, is received and timber sale agreements are approved. If the remaining balance of a bid amount is not received by the specified deadline, the buyer forfeits the performance deposit and the down payment. Prior to the specified deadline, the property should contact the buyer in writing to advise him the deadline is approaching. A copy of this contact will be placed in the sale file.

A Timber Sale Area FM 201 ([Appendix II G-5: FM 201 – Timber Sale Area](#)) must be completed with the sale area delineated and pertinent sale features identified, such as sale boundary, landings and roads. That form is sent to the Central Office in the timber sale packet that includes the Timber Sale Agreements sent up for approval.

If a buyer makes a down payment, the original Timber Sale Down Payment Acknowledgement ([Appendix II G-9: Timber Sale Down Payment Acknowledgement](#)) is sent to Central Office in the timber sale packet.

The Bill of Sale is not completed until full payment for the sale is completed ([Appendix II G-7: FM 202 – Bill of Sale](#)). A signed copy of the Bill of Sale can then be given to the buyer, and the original sent to the Central Office. One copy should be retained in the property sale file. It will include the complete address of the buyer. The listing of what was sold will list the number of trees, compartment, and tract. If volume is listed, it must be identified as estimated. The amount received as down payment and as payment of the remaining balance will be shown separately and as the total bid amount on the Bill of Sale. When a down payment is made, the Bill of Sale will be sent separate from the sale packet to the Central Office at a later date.

Some sales may be set up as installment sales with a slightly different set of paperwork. Installment sales are designed for larger volume sales where the large single payment may deter buyers who do not have the access to funds. Instead of requiring a large single final payment before harvest operations start, the buyer may harvest designated portions of the sale area and pay for those designated portions just prior to starting on them. The installment payment versions of the Sale Notice and Timber Sale Agreement ([Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment of Timber](#) and [Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#)) will be used. In addition, a map showing the installment areas and an installment payment schedule will be included as part of the Timber Sale Agreement attachments. Upon payment of an installment payment, in addition to the receipt described below, the property will issue to the buyer an acknowledgement form acknowledging receipt of the installment payment. Copies are provided to the buyer, and the property sale file, with the original, is sent to the Central Office.

At the receipt of the payment of the remaining balance for a sale or any installment payment, the property will complete a DNR 7 Receipt form. This form will list the appropriate sale number, number of trees, and compartment and tract. The amount received will be the amount paid on this date. Do not include any down payment amounts or prior installment payments. This form must indicate that it is for payment of the remaining balance or an installment. Any listed volume should state that the volume is estimated. The buyer receives the appropriate copy, and appropriate copy is retained by the property for audit purposes.

If a buyer chooses to, they can forego making a down payment and instead pay the full bid amount in one payment. In this case, the full payment must be received within 14 days of the bid opening. The DNR-7 and Bill of Sale are completed as above except there is no down payment amount, and no Down Payment Acknowledgement form is used. The Bill of Sale is sent with the sale packet ([Appendix II G-7: FM 202 – Bill of Sale](#)). The DNR-7 amount is identified

as the full payment amount. If full payment is not received within the 14 days, the performance deposit is considered forfeit. The property should contact buyers prior to the 14-day deadline and document this contact. The property will also contact the Central Office.

The Timber Sale Agreement is completed when the buyer makes the payment within the 14-day time period after the bid opening, whether this is a down payment or the full bid amount payment. Properties need to be sure that the Purchaser name is listed correctly. This information is most easily checked by looking up buyers on the Forestry Exchange website. Three sets of the Letter of Agreement are needed ([Appendix II G-1: Letter of Agreement for Sale of Timber](#) or [Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#)). One copy of the Sale Notice FM 203 ([Appendix II G-3: FM 203 – Timber Sale Notice](#) or [Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment](#)) and one copy of the Timber Sale Area FM 201 ([Appendix II G-5: FM 201 – Timber Sale Area](#)) are attached to each of the three copies of the Letter of Agreement and become part of the Timber Sale Agreement. In addition, a map showing the installment areas and an installment payment schedule will be included as part of the Timber Sale Agreement attachments if the sale involves installment payments. The property will review the terms of the agreement with the buyer, especially if they are a new buyer or if there are special conditions. Three copies of the agreement are needed. The agreement will list the number of trees, the amount bid, and the location that includes the property, compartment, tract, section, township, and range. The agreement will specify the ending date of the agreement. Up to two years should be considered a common length for the sale agreement term; however, properties may set the length for what they feel is appropriate for the particular sale circumstances as long as that period does not exceed three years. Shorter terms may be appropriate for some circumstances. An agreement that covers two summer/fall periods provides flexibility to Purchasers of large sales in case of poor weather. Any special conditions should be included. The special conditions listed on this contract should have appeared on the Sale Notice FM 203. The Purchaser must sign the agreement, and their signature must be notarized. The Purchaser must include their Licensed Buyer Number. All signatures on all three sets of the agreement must be original. The sale is still not sold at this point, and the operation cannot begin. Similar to other revenue, payment for the timber sale should be deposited in the property bank account as soon as possible.

With the down payment process, there are three places on the first page of the Letter of Agreement for monetary amounts ([Appendix II G-1: Letter of Agreement for Sale of Timber](#) or [Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#)). If there is a down payment made on a sale, the first space on the agreement will list the full bid amount. The second space will show the down payment amount. The third space under Paragraph #1 will show the remaining balance. The amounts shown in the second space and third space should, when added, equal the amount in the first space.

If there is not a down payment made, the first space on the agreement will list the full bid amount. The second space will also show the full bid amount. The third space under Paragraph #1 will show the remaining balance, which in this case would be zero dollars (\$0.00). The amounts shown in the second space and third space should, when added, equal the amount in the first space.

For Timber Sale Agreements with installments options, the sale agreement will reference the attached Installment Payment Schedule ([Appendix II G-19: Installment Payment Schedule](#)) for the payments that are due.

Once the above paperwork is completed, and the sale is paid for or a down payment has been made, the timber sale packet is ready to be sent to Central Office for State Forester approval and signature. The timber sale packet will include:

- ☞ three completed, purchaser-signed, notarized Letter of Agreement (all original signatures) with appropriate attachments ([Appendix II G-1: Letter of Agreement for Sale of Timber](#) or [Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#))
- ☞ one completed Cost of Operations FM 200 ([Appendix II G-18: FM 20 – Cost of Operations](#))
- ☞ one completed Timber Sale Area FM 201 ([Appendix II G-5: FM 201 – Timber Sale Area](#))
- ☞ one completed Timber Sale Down (or Installment) Payment Acknowledgement (original) ([Appendix II G-9: Timber Sale Down Payment Acknowledgement](#)), or
- ☞ one completed Bill of Sale FM 202 (original) ([Appendix II G-7: FM 202 – Bill of Sale](#))
- ☞ one clean Notice FM 203 ([Appendix II G-3: FM 203 – Timber Sale Notice](#) or [Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment](#))
- ☞ all bids submitted (originals)
- ☞ photocopy of Receipt 352 and check photocopy for performance deposit
- ☞ photocopy of Publisher's Claims for legal notices (be sure legal notice can be read)
- ☞ copy of timber sale narrative and other information sent to potential buyers

If a down payment is made, the sale packet should be sent to the Central Office for approval prior to receiving full payment. The sale agreement signature process with the buyer may begin once the down payment is made. Even with State Forester approval of the sale agreement, harvest operations cannot begin until final, full payment of the bid amount is made, or in the case of a sale with an installment option, an installment payment is made.

Properties will retain copies of the above paperwork in a timber sale file for the particular harvest operation. Properties will place the completed Return of Deposit Acknowledgement Forms ([Appendix II G-6: Return of Deposit Acknowledgement](#)) in the sale file. In addition, properties will include a copy of the Cost of Operation ([Appendix II G-18: FM 20 – Cost of Operations](#)), Bill of Sale ([Appendix II G-7: FM 202 – Bill of Sale](#)), and Timber Sale Area ([Appendix II G-5: FM 201 – Timber Sale Area](#)) in the appropriate tract file(s).

The above timber sale packet will be sent to the Central Office. Upon approval, the State Forester will sign the agreements. Two agreements will be returned to the property, one for the property timber sale file, and one to be sent to the Purchaser.

When the State Forester signs the agreements and full (or installment) payment of the bid amount has been made, harvest operations may begin. A pre-harvest conference is required for the Purchaser's employees ([Appendix I G-1: Pre-Harvest Conference Guidelines](#)). This

conference will explain the timber sale, explain the contract, identify the on-the-ground conditions in the sale area, and establish clear lines of communication between the logging crew and property staff. It is critical that the supervisor or authority over the logging crew be in attendance.

It is required that at least one person supervising or on the logging crew have completed training equal to or greater than Indiana Level 1 Cutter training (or other logger training) and Introduction to BMPs by the start of harvest operations. At least one logger training and one BMP training must be taken by the person within the past three years. A timber buyer may bid on a sale without having the training and then may bring in a crew that meets the training, or take training to meet the requirement prior to the start of harvest operations. Out-of-state operators may substitute similar training from other states at the discretion of the Division of Forestry. Questions about whether out-of-state training programs meet the requirement should be directed to the Timber Licensing Forester by the property forester. In order to verify that the logging crew meets the requirement, a Pre-Harvest Conference Form ([Appendix II G-11: Timber Sale Pre-Harvest Conference Form](#)) will be completed before the start of the harvest operations that documents training. The property must verify the stated training through the Forestry Exchange site and specify when they have completed the verification by dating the form. This record will be kept in the property timber sale file, and a copy will be sent to the Property Specialist.

If the sale area is accessed through a property gate that is to be periodically locked during the operation, the property will not supply the contractor with a key to a DNR lock. The contractor may supply a hardware store lock that can be double-locked with the DNR lock so that opening either lock will open the gate. Or the property can temporarily double lock the DNR lock with a hardware store lock and give one key to the contractor, while the property retains the other key(s).

During the course of active harvest operation, appropriate property staff will make regular visits to the sale area to review the operation. Visits should be made weekly, at a minimum average, and more often if property personnel feel doing so is warranted or there exists the potential for problems with the operation. During visits the staff will review a random set of stumps to ensure they are marked. This will serve as a random sample. Any stumps not marked will be accounted for. At each visit, a Timber Sale Visitation and Evaluation Record ([Appendix II G-8: Timber Sale Visitation and Evaluation Record](#)) is completed. One copy is given to the logging supervisor on site, one copy is given to the Purchaser, and one copy is retained by the property in the timber sale file. If the operation is violating provisions of the timber sale agreement, the logging crew, and especially the logging supervisor, should be informed immediately. Ways to correct the violation and/or come into compliance with the agreement provisions will be discussed. The Timber Sale Visitation and Evaluation Record will document these circumstances, and all such situations will be put in writing. The operation should be reviewed again as soon as the reviewer thinks the violation is correctable. If the violation is not corrected in the appropriate time, the Property Manager should be informed. The administering forester, with permission from the Property Manager, can authorize a cessation of harvest operations if the logging operation continues to fail to meet contract specifications. If necessary the Property Manager and the Property Specialist will review the violation as soon as possible. If

the violation could result in the loss of performance deposit, the Property Manager will immediately advise, in writing, the Purchaser of this fact. The Property Manager and Central Office staff will make the decision on loss of performance deposit. The Central Office will inform Purchasers of the loss of performance deposit.

Harvest operations that are started but then temporarily closed while the logging crew is elsewhere should have temporary closeout measures installed. These include water diversions on main skid trails, ruts smoothed, and log yards cleaned up. These temporary closeout measures should be done on all operations in which the crew will be gone for more than two weeks. There may be circumstances in which logging crews are unable to perform temporary closeout measures, such as bad weather or poor soil conditions.

If a harvest operation has a recreational trail going through it, a determination should be made before the sale is sold as to whether the trail should be closed or rerouted. Generally, minor trails can be closed. They should be closed so that users are not forced to backtrack to leave the area, i.e., they should be closed at either a terminus or an intersection with another trail. Closures should occur when harvest operations are about to begin. They can be reopened once operations are completed, equipment has been removed from the site, and the trail has been inspected and determined to be ready for reopening. Major trails should generally be rerouted rather than closed, to avoid major recreational user disruption. Reroutes should take reasonable routes to avoid the site of operations. Due to their not actually causing a closing, reroutes can be in place earlier than a closure and can be left in place longer after operations cease. Efforts should still be made to minimize the use of a reroute if it causes inconvenience or a reduced experience for the user. In some cases a reroute may be maintained as a new trail location.

When a harvest operation is satisfactorily completed, the property will complete a Timber Sale Agreement Release form ([Appendix II G-13: FM 204 – Timber Sale Agreement Release Form](#)) and a Forester's Verification of Timber Sale Completion form ([Appendix II G-14: Forester's Verification of a Timber Sale Completion](#)). These forms are sent to the Property Specialist to initiate the reimbursement of the performance deposit to the Purchaser.

On occasion, a Purchaser may be unable to complete a harvest operation in the specified period because of weather or other extenuating circumstances. The Purchaser may request an extension of the agreement time length, in writing, from the Property Manager. The Property Manager may grant the Purchaser an agreement extension if they think the Purchaser made a diligent effort to complete the operation within the specified length. Each grant of agreement extension must be in writing, must justify for the extension, and be for a period no more than three months in length. A copy of the request for an extension and the grant of an extension will be maintained in the property sale files. A copy will be sent to the Property Specialist. Properties will not grant more than two extensions without Section Staff approval.

Any other correspondence pertaining to a sale will also be sent to the Property Specialist in Central Office.

Salvage, Catastrophic or Emergency Events

There are occasions when there are salvage, catastrophic, or emergency events that affect timber management planning and require a rapid response. Often these include events such as weather (e.g., wind, ice, drought), insect and disease outbreaks, or forest fire. Some are man-made, such as trees being damaged during operations, or the need to remove trees for a project. Rapid degradation of timber after these events can occur, so a response outside the normal framework of forest management practices is often needed. Salvage of the damaged material before degradation becomes excessive is a priority.

If these events are large scale covering many acres and involving tens of thousands of board feet of timber that need to be salvaged, standard timber sale procedures can be used with the following exceptions. Tract inventories and management guides for the tracts do not have to be completed. Rather, a one-page addendum to the existing management guide or a narrative, if there is no guide, can be completed that describes the event and the prescription for salvage. It should be submitted immediately for archaeological clearance, along with an explanation that it is being submitted for priority approval for a salvage situation. A Natural Heritage Database review is to be conducted, and the results need to be reviewed for impact regarding the salvage. The tree marking and tally can follow the appropriate method described above. Sale paperwork, advertising, review and sale procedures will follow standard sale procedures.

In other cases, these events will be smaller, more localized occurrences involving just a few acres and a few thousand board feet of timber. When these occur within an existing timber sale area, a different set of procedures will be followed to sell this timber. If the salvage is in an already existing sale area, the existing clearance and guidelines for cultural resources will be deemed to cover the salvage. If it is not an existing sale area, a Natural Heritage Database review and archaeological clearance will be requested, as above. An addendum or narrative will be required, as above, with an abbreviated amount of information explaining the event and need for quick action. The Central Office will still review it. The trees will be individually marked and tallied. The state forest inventory program will be used to determine a minimum price for the value of the salvage material.

Sale procedures will then vary considerably—this will not be an open bid process. The salvage sale tally will be taken to the purchaser of the sale in the same tract. The purchaser, if interested in buying the salvage, will be asked to submit a price for the salvage timber. If that figure meets or exceeds the minimum price established by the state forest, the purchaser's price is accepted and the appropriate sale paperwork [Timber Sale Agreement ([Appendix II G-1: Letter of Agreement for Sale of Timber](#)) or [Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#)), Bill of Sale ([Appendix II G-7: FM 202 – Bill of Sale](#)), Timber Sale Area ([Appendix II G-5: FM 201 – Timber Sale Area](#)), and Cost of Operations ([Appendix II G-18: FM 20 – Cost of Operations](#))] are completed and submitted to the Central Office for approval.

If the first price for the salvage timber provided by the Purchaser does not meet or exceed the minimum, they will be told that and will be allowed to submit a second price. If the second price for the salvage timber does not meet the minimum, the Purchaser will be told the minimum,

and the property can negotiate with the Purchaser to see if they would purchase the salvage timber for the minimum price or reasonably close to the minimum price. If the purchaser and the property negotiate and agree on a price, the sale paperwork is completed as in the paragraph above. If the Purchaser does not agree, the property will contact other purchasers of existing timber sale areas on the state forest, beginning with the one physically closest to the salvage and moving away, and follow the same sale process outlined in these two paragraphs.

If the salvage timber sale is a small, localized sale as above but is not within an existing sale area, the procedures will be similar to those described in the two paragraphs above, but with some differences. The salvage sale area must be submitted for a Natural Heritage Database review and archaeological clearance. The property will contact purchasers of existing timber sales on the state forest, beginning with the one closest to the salvage and moving away, and follow the sale process outlined in the above two paragraphs.

The State Forest will still collect a 5% performance deposit for these sales, unless the salvage is within an existing sale area already covered by a performance deposit by the same purchaser. The purchaser will submit this at the time of completing the Timber Sale Agreement ([*Appendix II G-1: Letter of Agreement for Sale of Timber*](#)). The full payment for the sale must be completed prior to sending the sale paperwork to the Central Office for approval. The 10% down payment option will not apply to these small sales.

Salvage sales that involve the salvage of trees damaged by a harvest operation cannot be sold to the purchaser of the harvest operation that caused the damage.

Sometimes the distinction between a large event and a small event, or which sale procedure to use (traditional advertised bid or purchaser price) may not be clear. Ten thousand board feet is provided to serve as a loose threshold. Sometimes the speed needed to have the material moved is a factor. This may be a consideration when material may degrade quickly, if health/safety concerns are a consideration, or if other operations are inhibited/enhanced. A cost-benefit analysis may be used to determine whether it is worth going through an advertised bidding process. A salvage sale with a few high-quality trees may bring greater financial gain in an advertised bidding process than a salvage sale of many low-quality trees. This may be determined on a case-by-case basis during the Central Office review of the salvage sale.

Section G Bullet Summary

- Timber sales will generally involve the individual marking and tallying of trees. On certain occasions where storm damage or dense conifer stands make individual marking impractical, boundaries can be marked for areas where there is complete removal.
- Timber sales are sold by the number of trees. Volumes are only estimates. Tree numbers are estimates in sales using sampling. Listings of numbers of trees must be consistent on all paperwork.
- State Forest timber sales are sealed bid sales.
- Timber sales are approved when the State Forester signs the sale agreement.

- Timber sales are sold to the highest qualified bidder. The bid must include a performance deposit.
- Harvest operations can begin only after the sale is paid in full.
- A pre-harvest conference is held prior to the beginning of harvest operations. Property staff will review sale operations on a regular basis.
- Upon satisfactory completion of harvest operations, performance deposit reimbursement will be initiated.
- Alternate procedures are available for the sale of salvage harvests to expedite the process.

Section G Appendices

[Appendix I G-1: Pre-Harvest Conference Guidelines](#)

[Appendix I G-2: Conversion Estimates for DIB](#)

[Appendix I G-3: Resource Management Process Flowchart](#)

[Appendix I G-4: Resource Management Process Descriptions](#)

[Appendix I G-5: BMP Rutting Guidelines](#)

[Appendix II G-1: Letter of Agreement for Sale of Timber](#)

[Appendix II G-2: Letter of Agreement for Installment Payment of Timber](#)

[Appendix II G-3: FM 203 – Timber Sale Notice](#)

[Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment](#)

[Appendix II G-5: FM 201 – Timber Sale Area](#)

[Appendix II G-6: Return of Deposit Acknowledgement](#)

[Appendix II G-7: FM 202 – Bill of Sale](#)

[Appendix II G-8: Timber Sale Visitation and Evaluation Record](#)

[Appendix II G-9: Timber Sale Down Payment Acknowledgement](#)

[Appendix II G-10: Timber Sale Installment Payment Acknowledgement](#)

[Appendix II G-11: Timber Sale Pre-Harvest Conference Form](#)

[Appendix II G-12: State Forest Timber Sale Review](#)

[Appendix II G-13: FM 204 – Timber Sale Agreement Release Form](#)

[Appendix II G-14: Forester's Verification of a Timber Sale Completion](#)

[Appendix II G-15: Timber Sale Post-Harvest Evaluation](#)

[Appendix II G-16: Timber Sale Checklist](#)

[Appendix II G-17: Timber Sale Packet Checklist](#)

[Appendix II G-18: FM 200- Cost of Operation](#)

[Appendix II G-19: Installment Payment Schedule](#)

[Appendix II G-20: Regeneration Opening Log](#)

SECTION H: FISH AND WILDLIFE MANAGEMENT

Fish and wildlife management will be an active and integral part of the overall Division of Forestry property management direction. Habitat conservation and vegetative management will continue to be the primary fish and wildlife management tools employed by the division. Management of fish and wildlife populations on state forests and forest recreation areas through augmentation, regulating harvests, etc., will be typically be addressed by the Division of Fish & Wildlife; although, there are activities, such as trapping, that may require additional oversight from property personnel.

Forest Wildlife Habitat Management on State Forests

The forests of the Midwest are diverse and dynamic, having been continually shaped by a variety of natural and human-caused disturbances. Fires, windstorms, insects, floods, and droughts have played a significant role in how our forests have developed. Plant and animal communities that rely on forest habitats have also been affected by these events and have developed a resiliency to change and disturbance that has allowed their populations to endure over time. On state forests and forest recreation areas, forest management activities can be prescribed to mimic the effects of natural disturbance events that have historically affected our forests. Managing forests with these historic ecological considerations in mind is important because native wildlife populations have adapted to, and in many cases benefit from, these historic conditions resulting from forest disturbance.

While this general management philosophy is appropriate in most cases, many rare or threatened species require special consideration when planning forest management activities. Therefore, we must often take a comprehensive approach to forest management planning by maintaining an overall healthy, sustainable forest environment while giving special consideration to species of greatest conservation need. Wildlife habitat management has always been an integral part of state forest management, and the review of important habitat components and unique natural communities will be a part of each forest resource and timber harvest plan. State-wide natural heritage databases and other species occurrence records are analyzed during the management decision-making process to determine if such species or communities exist on tracts where management may occur. Management activities will be planned to protect or promote special habitats, communities, or populations that are thought to occur on managed tracts. Important wildlife habitat elements, such as dead standing trees and cavity/den trees, are regularly inventoried on state forests, providing essential information that is directly used to plan forest management activities. For more information on the management of important wildlife habitat features see [*Appendix I H-2: Management Guidelines for Compartment-Level Wildlife Habitat Features*](#).

General Considerations for the Management of Forest and Woodland Wildlife Habitats

Continuous Mature Forest Canopy

Areas of continuous mature forest canopy are an integral part of central hardwood ecosystems. These communities contribute to the habitat requirements of species that require mature forest conditions and contribute to ecological diversity and aesthetic values. Refer to Procedure Manual [Section F: Silvicultural Guidelines](#) for management techniques appropriate for the maintenance of continuous mature forest canopy. In general, techniques based on single-tree selection that result in canopy recovery (i.e., closure) in a relatively short period of time are consistent with the maintenance of continuous mature forest canopy. Other important characteristics of mature forests, such as standing and downed coarse woody debris, must also be retained during management activities to maintain healthy mature forest communities.

Early Successional and Young Forest Communities

These are areas in which the overstory vegetation is removed or significantly reduced at one point in time, and then the area is allowed to return or naturally develop into later seral conditions (e.g., regeneration openings created during timber harvest). These early successional areas provide unique foraging, nesting/denning, and roosting opportunities for a wide variety of wildlife, including those that are typically more associated with mature forest habitats. Once regarded as habitat for simply “game species,” young forests are now recognized as an important ecological component within forested landscapes for a much wider variety of species, including many that are of greatest conservation need. On state forests, young forest habitats are created during timber management activities; however, specific situations may require the creation of early successional habitat outside of timber harvesting events. Refer to [Section F: Silvicultural Guidelines](#) for management techniques appropriate for the creation of young forest habitat.

Maintained Wildlife Openings

Small, vegetated openings located in predominantly forested areas provide unique habitat opportunities for certain forest wildlife species. These areas are particularly important for their herbaceous (typically) cover and forage, and as habitat for insects that are important as pollinators and to the diet of certain bird, reptile, and amphibian species. These wildlife openings must be maintained regularly to remain in an open condition. Maintained wildlife openings should not be created in areas where the cover type is predominantly mature hardwood forest; instead, consider sites that are already in old field condition or opportunities where sites need to be maintained as forest openings, such as log landings. The amount and distribution of suitable open areas in the entire surrounding landscape should be assessed when deciding whether to create a maintained wildlife opening.

Other Unique Terrestrial Habitats and Communities

Unique habitats and communities such as forested wetlands, seeps, and karsts can be found on many state forest properties, and should be protected appropriately to maintain their

integrity and continue their ability to support the species that depend upon them. Locations of these sites can often be found in the Natural Heritage Database or within property tract files; when new sites are located, they should be noted accordingly on the Ecological Resource Form ([Appendix II H-1: Ecological Resource Review](#)). In general, these sites are to be avoided during forest management activities. More specific management guidance can be found in [Appendix I H-2: Management Guidelines for Compartment-Level Wildlife Habitat Features](#).

Open Water Fisheries

The continued cooperative maintenance of open water fisheries by the divisions of Fish & Wildlife and Forestry provide both ecological continuity and recreational opportunity.

Management of Species of Greatest Conservation Concern, Including Federally Listed Species

State forests provide habitat for many species of conservation concern, including those that are federally listed. For most of these species, the Natural Heritage Database is the official record of observations and occurrence on state forests. Where listed species have been found in or near tracts considered for management activities, prescriptions should account for long-term habitat suitability of all such species that could reasonably be affected. Additional consideration should be given to listed species most vulnerable to direct injury from forest management activities (e.g., tree felling, skidding, prescribed burning). In these cases, consider whether the timing of activities can be altered so they occur when the species is not present or reasonably protected from the activity (e.g., seasonally restricted to subterranean hibernacula). Consult with appropriate resources for management guidance for listed species, such as the State Forest Environmental Assessment, the division's forestry wildlife specialist, or other DNR biologists and ecologists. When occurrences of critically imperiled (G1) or imperiled (G2) species have been noted during a Natural Heritage Database search, the division's forestry wildlife specialist should be consulted to develop a strategy to avoid or minimize impacts (see [Appendix II H-1: Ecological Resource Review – Part 4: “DNR Natural Heritage Database Review”](#)).

In some cases, special management guidance will need to be developed for species that require additional protections on state forest properties. Currently, two federally listed species, Indiana bat and Northern long-eared bat, have special management guidance in place to manage their populations and habitat on state forests ([Appendix I H-1: Interim Forest Management Guidelines for Federally Listed Bats](#)). These will serve as the division's interim guidance until a Habitat Conservation Plan has been approved by the U.S. Fish and Wildlife Service and an Incidental Take Permit is authorized for state forests.

When is a Natural Heritage Database Review Required?

A Natural Heritage Database review should occur in each of the following situations:

- ☞ During the preparation of a Resource Management Guide.

- ☞ Prior to starting a significant management activity not previously addressed in a Resource Management Guide.

The first situation is covered in depth in [Section E: Management Guides](#) and the associated appendices. When a significant management activity is planned on state forest property, *and it has not been addressed in a Resource Management Guide (or an amendment)*, a Natural Heritage Database search should be conducted and a review made of the query results. An activity can be seen as “significant” if it directly or indirectly disturbs a significant amount or number of habitat components (e.g., trees, groundcover, shrub layer) across an area. Examples of this include the felling of numerous trees in a localized area, or prescribed burning or broadly applying herbicide across a larger area (e.g., >1 acre). While these are examples of activities with direct impacts, it should be noted that a database review should occur when there is a potential for significant indirect impacts, too, such as when activities occurring near a stream could affect species located downstream of the site. Examples of activities that would not typically trigger Natural Heritage Database reviews include post-hole digging and localized excavation, the felling of a few dispersed trees, tree-girdling, burning a brush pile, and regular mowing for facility maintenance.

While small-scale impacts, like felling one or a few trees, would not typically trigger a database search, proximity to unique habitats or features can elevate these actions to the level of a significant activity. For instance, rare plants are often associated with seeps and springs, so when felling even a few trees or locally applying herbicides near such features, a database search should be conducted.

Natural Heritage Database search output and any relevant management considerations addressing the findings should be documented and entered as part of the tract record.

Guidelines for Fish & Wildlife Population Augmentation and Restoration

Game Species

The reestablishment and restocking of native game animals refills human-created gaps in the ecosystem and provides the opportunity for recreational hunting and wildlife observation. Any proposed reintroduction or restocking project must be coordinated with the Division of Fish & Wildlife and the Division of Forestry, program director or property section head.

Nongame Species

The reestablishment and restocking of native nongame animals refills human-created gaps in the ecosystem, can be used to reinforce the population of some threatened and endangered species, and provides non-consumptive recreational opportunities. Any proposed reintroduction or stocking project must be coordinated with the Division of Fish & Wildlife and the Division of Forestry, program director or property section head.

Fish

The stocking and restocking of fish into state forest and forest recreation area waters can be used to manage both vegetation and existing fish populations while enhancing the recreational fishing opportunities. The control and removal of undesirable aquatic populations is to be considered a part of this program. Any proposed fish stocking project must be coordinated with the Division of Fish & Wildlife and the Division of Forestry, program director, or property section head.

Nonnative (Exotic) Introductions

The introduction of non-native species of either plants or animals should only be undertaken after careful consideration of the long-term ramifications to the native ecosystem. Any proposed non-native animal introductions must be coordinated with the Division of Fish & Wildlife and the Division of Forestry, program director, or property section head.

Guideline for Refuges and Special Management Areas*Refuges*

It is possible that posted refuge areas will be needed on some state forests if it becomes apparent that efforts to establish and maintain populations of game or nongame species are being adversely affected by other activities. The establishment of posted refuge areas on State Forests will require the approval of the Division of Forestry, property section head.

Special Management Areas

Special management areas may be established on some state forests and forest recreation areas on a temporary basis to accomplish specific management goals. The establishment of special management areas will require the approval of the State Forester. On these special management areas the wildlife management objectives may supersede other multiple uses.

Collection of Animals

Properties occasionally receive requests from the public to gather or collect animals, including reptiles and amphibians. Removal of animals by individuals is prohibited except as provided by hunting, fishing, and trapping laws and regulation, or for legitimate research. Properties will not issue permits for animal gathering. Research that requires animal collection or handling must receive a scientific collection license through the Division of Fish and Wildlife.

Section H Bullet Summary

- State forests and forest recreation areas will promote a variety of vegetative successional stages to provide habitat diversity, with emphasis on contiguous mature forest habitat.
- Guidelines are available for the management of wildlife habitat features.
- Guidance is available for management activities when listed species are present.
- Fish or wildlife stocking programs will be coordinated with the Division of Fish & Wildlife.
- Animal collection, including that of reptiles and amphibians, is prohibited, except as specified by laws, regulations, and for approved research.

Section H Appendices

[Appendix I H-1: Interim Forest Management Guidelines for Federally Listed Bats](#)

[Appendix I H-2: Management Guidelines for Compartment-Level Wildlife Habitat Features](#)

[Appendix II H-1: Ecological Resource Review](#)

SECTION I: WATER QUALITY AND BEST MANAGEMENT PRACTICES

Quality water is a primary benefit of forestland. This water is available in a variety of ways and provides many different uses. Groundwater is an important source of drinking water for many rural areas and communities. Lakes and streams provide drinking water and recreational opportunities for people, and important habitat for wildlife. Wetlands are important water filtering systems, and provide habitat for many plant and animal species.

There are many examples nationally where public water supply reservoirs rely on forested watersheds to maintain and enhance water quality. It has been shown that these watersheds can supply this water while still allowing for active timber management programs. Forest productivity and health depend upon maintaining stable soils.

During the creation and early expansion of the state forests and forest recreation areas, thousands of acres of eroding and abandoned farmland were planted to trees. Over time, these areas have recovered to a forested condition, and soil has stabilized. Other areas, formerly forested in the form of wooded pasture, have developed, with the absence of livestock, into more stable watersheds with reduced rates of sedimentation.

Current state forest management seeks to minimize the negative impacts of forest management, recreation, and other land-use activities on water quality and quantity.

Watersheds

Every portion of every state forest and forest recreation area is part of a watershed. The normal geologic rate of erosion in forestland is approximately 0.1 - 0.3 tons/acre/year. Management activities on state forests have the potential to minimally increase erosion in a watershed. Timber harvest operations create short-term soil disturbance over large areas. Many recreation management activities create long-term soil disturbance activities over small, concentrated areas.

Studies have shown timber harvest operations can result in erosion rates of 0.2 - 0.5 tons/acre/year for the first year after harvesting over the harvest area. These rates have not been shown to affect soil productivity. Rates at a site within the harvest area will vary depending on whether it has heavy disturbance, such as through road development, or minimal disturbance. In addition to increased erosion, harvest operations may result in increased nutrient flow from the watershed. Levels of increase from state forest operations have not been documented to be a concern to water quality in Indiana.

Timber on state forests is managed at a sustainable level. At this level, about 3% of any state forest is affected by harvest operations in any year. Approximately 10% of any harvest

operation may receive heavy soil disturbance within such areas as roads, skid trails, and log landings.

The effects of harvest operations on erosion and sedimentation can be minimized several ways. Layout, design, and marking of areas can be done before the operation begins. Landings can be planned for areas with minimal slope and away from riparian areas. Where possible, roads and skid trails should be planned to avoid steep slopes, and water diversions can be installed to control water run-off.

After harvest operations are completed, the harvest area should promptly be closed. Water diversions will be installed where appropriate. All major bare soil situations (landings, skid trails, roads) may be seeded with an appropriate seed mixture to stabilize the soil. Seed should be sourced locally, and documentation of the species used and their source should be maintained within the harvest file. Non-native invasive species are to be avoided in seed mixes. Mulch, straw, or matting should be used where needed and applied in a timely manner. Lesser-used skid trails and other areas where disturbance removes only the duff layer and leaves the topsoil with underground plant structures (e.g., roots, rhizomes, etc.) intact should not have water diversions installed. In these situations, there is sufficient soil bonding, and the existing plant structures will result in rapid regeneration.

All harvest operations will comply with the current edition of Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide ([Appendix I I-1: Indiana Logging and Forestry Best Management Practices](#)).

Pesticides can also be a concern to water quality. Agricultural pesticides regularly find their way into groundwater and surface water supplies. Pesticides, including both herbicides and insecticides, are regularly used on state forest and forest recreation areas to control a variety of pests. Pesticides used on state forests and in state forest lakes should be applied carefully. All pesticides will be used according to label directions. Application of any pesticide on the property will be recorded on the Pesticide Application Record ([Appendix II I-1: Pesticide Application Record](#)) and will be annually submitted to the Central Office. When applicable, targeted applied pesticide treatments will be used rather than broadcast treatments. When required, pesticides will only be applied under the direction of a licensed applicator.

The effect of disturbance related to recreational activities on water quality will vary depending on the activity. Construction activities create disturbances similar to harvest operations and require similar efforts to reduce impact. More problematic are long-term or continuous disturbances such as heavily used campgrounds, trails, or areas around lakes. Diversions created from soil cannot be maintained, and often seed cannot survive the heavy traffic or soil compaction. In these situations, water diversions may have to be created out of wood, using purchased treated lumber or downed logs, or out of other stable material, such as stone. Areas may have to be closed periodically to allow ground cover to get established. Heavy traffic areas may require a hardened surface, such as stone, to reduce erosion and funnel the traffic in a smaller area. Other measures may be needed to armor the soil or divert traffic.

Wildlife habitat development projects may create considerable soil disturbance. Project design and implementation are to include conservation measures to manage and reduce soil loss.

Other soil disturbing activities should be considered on an individual basis, and should be stabilized according to the guidelines for similar disturbances. If in doubt, contact the property specialist for recommendations.

Riparian Areas

The riparian areas and floodways along lakes, streams, rivers, and sinkholes are important for water quality. Alluvial soils tend to be richer and moister than upland soils. These areas may be prone to periodic flooding. This creates rich sites that support many species and habitats not found in uplands. Site richness makes riparian areas extremely productive areas for growing trees. These areas can be managed for timber if extra care is taken to minimize soil disturbance and sedimentation.

Riparian areas, besides being productive for tree growth, produce other important benefits. They often are important for fisheries and other wildlife that prefer these areas. Riparian areas draw recreational users for water-based activities or for the wildlife that is attracted to these areas.

All harvest operations will comply with Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide ([Appendix I I-1: Indiana Logging and Forestry Best Management Practices](#)). In general, tree removal will be limited to no more than seven trees per acre in primary riparian zones, with few, if any, trees to be cut within 15 feet of any perennial stream. No group selection openings will be made in primary riparian zones. Exceptions to this must be approved by property specialist.

Riparian zones can affect recreational and other activities. Wet soils and periodic flooding affect the quality of trails and the maintenance they require. Trails should be placed outside flood zones whenever possible. Those that must traverse flood zones should be designed and constructed to avoid becoming a channel for water flow. Future recreational facility development will be designed to avoid riparian zones whenever possible. Maintained wildlife openings will not be placed in primary riparian zones, unless otherwise approved by the property specialist.

For purposes of this section, perennial streams are those indicated by solid blue lines on USGS topographic maps. Dashed blue lines on USGS topographic maps indicate intermittent streams.

Projects that involve work in perennial or intermittent streams and/or floodways of perennial or intermittent streams with over 1 square mile of upstream watershed may require a permit from the Division of Water for construction in a floodway. Contact the property specialist for these situations.

Wetlands

Wetlands are transitional lands characterized by the following:

- ☞ Water tables at or near soil surface, or covered by shallow water at least 14 days during the growing season.
- ☞ Hydrophytic plants supported, at least periodically.
- ☞ Substrate is predominantly undrained hydric soil.

On state forests and forest recreation areas, wetlands often occur closely adjacent to streams, or in the upper reaches of lakes, and, therefore, usually fall within riparian management zones. The management in these areas will follow the guidelines for riparian zones, with extra care to ensure the benefits and values of these unique areas.

There are some broader river bottoms that exist beyond the riparian zone specifications, but are forested wetlands by their nature. Management activities in these areas will follow the guidelines provided for in the *Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide* ([Appendix I I-1: Indiana Logging and Forestry Best Management Practices](#)).

Springs and Seeps

There are areas with springs that produce regular (but not stream-size) flow of water. Spring areas often contain small, but unique plant communities. Major springs and seeps may provide rare habitat for some species. The soil around such sites is saturated most of the year, which makes the soil vulnerable to impacts. Property operations will be managed to avoid disturbance to these sensitive sites.

Section I Bullet Summary

- All harvest operations will comply with *Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide* ([Appendix I I-1: Indiana Logging and Forestry Best Management Practices](#)).
- Some activities along stream flood zones may require permits from the Division of Water.

Section I Appendices

[Appendix I I-1: Indiana Logging and Forestry Best Management Practices](#)
[Appendix II I-1: Pesticide Application Record](#)

SECTION J: INFORMATION AND EDUCATION

The state forests and forest recreation areas provide opportunities for people to learn about natural and cultural resources, and their management. All state forests and forest recreation areas will have a program to provide information, education, demonstration, and/or interpretation of natural and/or cultural resources to the public. There is considerable flexibility in the direction these programs can go, based on the resources and abilities available at each property. There are some components that will be common to all properties. These are described below.

Good Neighbor Program

The Good Neighbor Program is designed to better inform property neighbors of major activities occurring on the state property that could be disruptive to the neighbors. Each property is to maintain, and routinely update, a database to store their neighbor information. The database will be used to contact neighbors of portions of the property where major management activities are planned, prior to the activity beginning. Major activities are anything involving non-routine actions, new construction, or heavy equipment. Examples of major activities that would require neighbor contact are new trail construction, reconstruction of existing trail with bulldozer, timber harvest, marking new property line, etc. Examples of routine activities that do not require neighbor contact are renewing existing property line markings, clearing existing trail of downed trees and brush, timber inventory, and mowing fire/access roads.

The neighbors to be contacted prior to any activity are determined by the location of the activity. All neighbors adjacent and closely adjacent to the tract in which the activity occurs will be contacted about the activity.

The neighbor database will be used for other informational mailings that may be done by the property. This includes information on property open houses, field days, or a property newsletter.

The property may wish to expand the neighbor database or create a similar database to include interested individuals or groups from the surrounding communities that are not technically neighbors.

Signs

Signs are the most common informational tool used on the state forests and forest recreation areas. Most signs are along roads and in recreation areas. Wood signs should conform to DNR sign standards. Signs that provide roadway traffic control must meet the standards of traffic signs and should be promulgated. Roadway signs that do not meet the standards should be considered there only for informational purposes.

Excellent opportunities for management information signs occur along all public roads and trails that pass through our properties. Because the audience will often be traveling in vehicles, such signs should be simple and easy to read.

Where appropriate, properties are encouraged to use Carsonite-type signs ([Appendix I C-1: Policy on the Use of Carsonite Signs](#)). These have utility for marking trails, property lines, parking units, and other situations. They are relatively easy to install and maintain.

There are several other informational signs used by properties. These are either metal or plastic. Signs serve a variety of purposes, including providing information on resource management activities or advertising the contribution of conservation funding partners.

Do not nail signs to trees. Use posts—metal T-posts, Carsonite-type, or wood—to support signs. If a sign must be nailed to a tree, the tree should be a species that will not reach merchantable size, such as redbud or dogwood, or a suppressed understory tree.

Tract Management

All tracts that have a timber harvest will have at least a minimal informational sign installed during and for at least one growing season after completion. The minimum is the green and white Timber Management Area sign that each property has received in the past. Harvest areas that receive high public visitation should be considered for more intensive information presentation. These are likely to be areas along roads or that have trails going through them.

These high traffic areas are the recommended location for the T.R.E.E. (Timber Resource Education Effort) mini-kiosk signs. Each of these mini-kiosks will have the basic information about the activity, a visual "storyboard" section highlighting some phase of management, and information on BMPs.

For other areas, an example of a simple, yet effective system is using a standard sheet of paper and a post. Develop a simple narrative explaining the harvest activity and the goals and benefits it achieves (use a point size larger than 12 to make it easy to read). Laminate the sheet, and attach it to the post. Set the post along the route most likely used by visitors. More than one of these can be installed depending on the visitation. They are easy to replace if vandalized. And the information can be readily changed as the operation progresses from marking, to logging, to TSI, to regrowth.

Other management activities that provide good information opportunities are timber stand improvement, tree planting, and wildlife projects. Similar projects can readily use generic signs designed for project type rather than tract specifics so they can be reused on later, similar projects.

Public Information Exchange

State forests and forest recreation areas will provide opportunities for public information exchange and input with the public on major projects at the state forests and forest recreation areas ([*Appendix IJ-1: Opportunities for Public Input*](#)). One way this will occur is through an annual open house to which the public is invited to comment on planned or ongoing projects at the properties. The goal is to provide and obtain project-specific or property-specific information and comments.

Another opportunity for public information exchange and input is by submitting comments to projects online. Properties will send tract management guides for tracts that will be harvested to the Central Office for posting on the division website to provide project-specific information and solicit project-specific comments.

Personnel on properties have met and will continue to meet with interested persons regarding information or issues of concern. Personnel will, when possible, meet with interest groups to discuss common interests.

Presentations

Properties often receive requests to make presentations to groups and schools. Properties will accommodate requests as resources and abilities allow.

Often a better alternative is to have groups, especially schools, come to the property for presentations or field days. This allows presentations to reach larger numbers of people.

Interpretive Trails

Properties are encouraged to develop self-guided forest or natural resource interpretive trails. These trails allow individuals or groups to learn about resources and resource management without the development of an in-person presentation. The trails can use either descriptive signs at the stops, or posted stops keyed to a descriptive brochure. The descriptive brochure with keyed stops is the best method for most complex trails because it is easy to update. Even keyed trails with brochures should maintain a minimum level of signs to explain to those who do not have a brochure what the trail is about.

Education Centers and Interpretive Areas

A few properties have education centers with interpretive staffing. Some properties have small areas in their lobbies for limited interpretive displays. These are excellent opportunities to reach the public with information on forest resources and the value of forests. Displays in the

centers and areas should include information on forest resources and resource management. Contact the Central Office for assistance in developing these displays.

Section J Bullet Summary

- Properties will develop a Good Neighbor program to inform neighbors of upcoming major activities.
- Properties will develop and maintain a neighbor database.
- Signs on properties provide information on topics such as facilities and traffic control.
- Signs or narratives, such as T.R.E.E., are used to help interpret forest management activities.
- As resources allow, properties will make presentations to groups, either on property or off property.
- Properties should develop self-guided interpretive trails.
- Properties with education centers or interpretive areas will include displays on forest resources and resource management.

Section J Appendices

[Appendix I J-1: Opportunities for Public Input](#)

SECTION K: FOREST PRODUCTS

Timber, for sawmills and other wood processing facilities, is the primary forest commodity, but there are many other products harvested from the forest. Many are harvested in a combined recreational/subsistence pursuit, such as game animals, fish, and edible plants. The pursuit of wildlife and fish is covered in [Section C: Recreation](#). Besides animals, there are several other forest resources that are gathered and used.

Firewood

Public firewood cutting can provide several benefits. It is a service to the public, and provides people an opportunity to reduce home heating bills. Firewood cutting can be used to reduce logging yard debris and harvest treetops, especially where aesthetics is a concern. Firewood cutting has broad environmental advantages. Firewood, a renewable resource, usually replaces nonrenewable fossil fuels such as coal, oil and gas. If firewood is substituted for a fossil fuel, there is a net saving in carbon release to the atmosphere. Firewood contains carbon that already exists in the biosphere, whereas burning fossil fuels releases carbon that has been sequestered for millions of years. For these reasons, the state forests and forest recreation areas will encourage and maintain, where appropriate, public firewood cutting on the properties.

Public firewood areas should be readily accessible to the public and visibly identified as a firewood cutting area. If the access is via a fire/access road, there must be sufficient signs along the road to direct the cutters to the appropriate area (Carsonite-type posts work well). Firewood cutting area boundaries should be identified. A map will be available to cutters showing the layout of the firewood cutting area. The property should also develop a short information sheet on firewood cutting with various rules and conditions.

Firewood cutting is limited to material on the ground. No standing trees, live or dead, may be taken by public firewood cutters.

It is at the discretion of the properties where and when to sell firewood cutting permits. Where possible, the convenience of users should be considered in setting up a property firewood cutting program. Where normal office hours are difficult for many people to make in order to buy a permit, permits can be sold through the mail (cutter sends check to property, then property mails receipt, firewood area map, and firewood cutting information).

It is at the discretion of the properties where and when to open firewood cutting areas. Firewood areas may receive the most public interest if they are open during at least some weekends. Areas with high vandalism or abuse potential may not be suitable. Access to and within the firewood areas should be sufficiently firm to support the use. Firewood areas should be closed when weather conditions make access difficult or damaging. Cutters who are closed

out of firewood areas because of abrupt weather or access condition changes will be allowed opportunities to complete their permit when conditions improve.

Interest in commercial firewood cutting has waned in recent years. If a property receives interest in commercial firewood cutting and wishes to pursue it, the property should contact the Central Office.

Properties will not sell already cut firewood to the public for home use.

Firewood prices are listed in [*Appendix I K-1: Prices for Other Forest Products*](#).

Other Wood Products

Properties may occasionally receive requests for purchase or use of other wood products such as poles or posts. The properties have the discretion about whether to provide these products. Contact the Central Office for rates or fees that may be designated for specific products ([*Appendix I K-1: Prices for Other Forest Products*](#)).

Similar to firewood, no standing trees, live or dead, may be cut by users. Only downed material may be taken. It is at the discretion of the property to use property personnel to drop standing material. If material is dropped, it must be based on the tract management guide or an appropriate amendment to the guide, and done with a management objective. A tally of the trees removed will be put in the appropriate tract file.

Edible and Medicinal Plant Material Gathering

DNR regulations allow public gathering of nuts, berries, and mushrooms without permit. All gathering of edible/medicinal plant materials except for nuts, berries, fruits, leaves and mushrooms requires a permit from the property. **Properties will not issue permits for the gathering of ginseng and goldenseal, which is prohibited.** Properties will not issue gathering permits for gathering that essentially kills, removes, or destroys plants or their reproductive capacity. An exception to this are cases where the edible/medicinal plant is an exotic, such as dandelion and garlic mustard. Properties may issue gathering permits for dead plant material that is not essential for species reproduction. Properties may issue permits for edible/medicinal plant gathering that has minimal effect on plant survival or reproduction.

These permits must only be for home use. No permits will be issued for commercial gathering of edible/medicinal plants. Following the above guidelines, it is at the discretion of the property to issue permits for gathering.

There is no charge for gathering permits.

Properties may receive requests for the collection of plant material for scientific purposes. These are processed through Central Office, see [Section O: Research](#) for more information.

Other Material Gathering

Properties occasionally receive requests from the public to gather or collect animals. Removal of animals by individuals is prohibited except as provided by hunting, fishing and trapping laws and regulations, or for authorized research purposes. Properties will not issue permits for animal gathering. Research that requires animal collection is processed through Central Office, see [Section O: Research](#) for more information.

Properties regularly receive requests for rock and mineral gathering. Permits may be issued by the properties for recreational gold panning; however, other rock and mineral collection often requires greater disturbance than gold panning and, therefore, properties will not issue permits for any other rock and mineral collection. See [Section S: Geological Resources](#) for additional information regarding gold panning and other mineral collection requests.

Section K Bullet Summary

- Properties will provide public firewood cutting programs where practical.
- Nuts, berries and mushrooms may be gathered without permit. With strict limitation, some other edible/medicinal plant materials may be gathered by permit.
- Removal of animals is prohibited except as provided through hunting, fishing, and trapping regulations. Permits for gathering/collection of animals for research will be processed by Central Office staff.

Section K Appendices

[Appendix I K-1: Prices for Other Forest Products](#)

SECTION L: FOREST ACCESS

Access to and within the state forest holdings is critical for a variety of uses. Access is critical for the dispersed recreation activities promoted on the state forests and forest recreation areas. Management activities require ready access. Users find the properties friendlier places when there is adequate and well-identified access. Access to state forests and forest recreation areas consists of two features, roads and designated parking areas.

Forest access roads fall into two broad categories, roads managed by other government agencies and roads managed by the properties.

Designated parking areas for property users help make properties more inviting. Users feel they are welcome in the area. Major facilities attract large numbers of users and require significant parking space. The smaller, dispersed designated parking areas are a primary tool to serve dispersed recreational users, which is a major state forest user group.

State and Federal Highways

State and federal highways are a primary access to the state forests and forest recreation areas for people from outside their vicinity. About half the properties have a state or federal highway that serves the property's main entrance. These highways are generally high quality with an asphalt surface. They generally have few limits with regard to the type of vehicles and loads they can support.

Local INDOT district or sub-district heads are the primary contacts for the properties. The properties should maintain regular contact with local INDOT officials. Good directional signs and road condition should be primary topics of conversation. All properties will encourage local INDOT units to place directional signs to the properties, particularly the primary recreation areas. INDOT approval must be obtained before developing any new access to a state or federal highway.

County Roads

County roads provide the primary access to the main entrance for about half the properties. More important, they are the primary access system to the various blocks and holdings of the properties. There are more miles of county roads on state forests and forest recreation areas than miles of state and federal highways.

County roads are generally not built to the same standard as state or federal highways. There are often load limits on county road bridge structures and seasonal limits on the roads. County roads are often not as well defined as state or federal highways. Old "public" or

"township" roads may or may not be considered county roads. Some county roads may end in private driveways.

It is imperative that properties maintain regular contact with county commissioners and/or county road superintendents. Properties will work with county officials to ensure that county roads that provide access to state forest holdings remain open as county roads unless the state is able to obtain an easement or other access arrangement to the holding. Properties will contact county officials for prior approval to develop access to forest land from county roads.

There may arise situations where it would be beneficial to a property for a county road or an old "public/township" road to be vacated. Such roads may serve no other landowner than the state, and may therefore receive limited maintenance. The director of DNR has the authority to vacate such roads. The property specialist should be contacted to initiate this process.

Likewise there may be situations where old public roads that may not be maintained by the county are the only logical access to state forest lands. Use of old county highway maps and other historical county maps may be needed to prove the past public use nature of that road. Properties should collect and maintain copies of these whenever possible. Public roads, even when officially vacated, can still be used as access by property owners who were serviced by the road when it was a public road. Properties should continue to make regular use of and do basic maintenance of these old roads whenever possible to avoid the public perception of them being abandoned, thereby potentially giving the perception that the state is relinquishing its rights to that roadway. This should be documented in a file for each road.

State forests and forest recreation areas cannot spend state resources to improve or maintain county roads when the county receives funding from INDOT to maintain that stretch of road. If such roads need additional maintenance or improvement, they should be vacated first; however, there may be situations where county roads create a detriment to adjacent state forest holdings. In these cases, it may be possible to perform work along the road right-of-way. For example, it is acceptable to put in a ditch to drain a user-parking unit that floods from water backing up from a county road. The key consideration is that the work is done to improve state forest property, not the road. Any work in the county road right-of-way should have prior clearance from county officials. Contact the property specialist regarding specific circumstances.

Property Public Roads

These are roads on properties that are regularly open to public vehicle traffic. Typically these are roads that provide access to the main recreation and service areas of the properties. Many of these are former county (public) roads, or CCC-developed roads. Some were created with subsequent facility development. These roads are often asphalt-surfaced, or occasionally gravel. These roads are not part of a county or INDOT state highway system; however, they are subject to all laws and regulations that apply to state highways. They are maintained with the assistance of local INDOT units, and through INDOT projects. The properties will regularly contact the head of the local INDOT units to coordinate needed state forest road maintenance.

Where these roads provide the only access to private landowners, they will be maintained to a reasonable standard with the assistance of INDOT. Access will not be restricted except when there are safety concerns.

Each road will receive a unique identifier by the property. The property will maintain a record of major activities performed on these roads.

Property Non-Public Roads

These are roads that are used by vehicles primarily for management purposes, and access for private vehicles is generally restricted. They have several names such as firelanes and firetrails, but will generally be called fire/access roads. The oldest of these are old roads that provided access to and around the old farmsteads. Some may have been "public" roads at one time. Many others were developed for fire management or use by CCC crews when the state forests were created. Access to these are generally restricted by gates. The primary locks on gates for these roads will always be DNR locks using the Fire Trail (FT) series of key cores, unless otherwise specified.

Today these roads serve a multiple-purpose role. Passively, they serve as a firebreak. They also provide access for fire control situations. They provide access for other emergencies such as search and rescue, and human injury. They provide regular access for management activities, and countless users use them for walk-in recreational access. They may provide occasional vehicle recreation access for people with disabilities. They may also provide limited access for neighboring landowners to reach their property.

There are three levels of fire/access roads based on how large an area they serve, how often they are used, and who uses them. They should be constructed and maintained to match their use. All fire/access roads should be identified where they intersect a road open to the public. This identification can be a simple Carsonite post with a "State Forest" decal. A road designation (number or name) can also be attached.

Primary fire/access roads serve as primary access to large blocks of property with many tracts. They generally feed into a network of secondary roads. Many year-round management activities require use of these roads, so they receive regular use even during poor ground conditions. The need for all-season access requires that these roads be built to a hard surface condition (gravel) and drainage structures for their entire length. They may occasionally be open for public use for seasonal activities such as hunting because of the hardened surface. These roads are often used to provide recreational access to persons with disabilities because of the hardened surface.

Secondary fire/access roads serve as access to portions of large blocks of ownership or as the main access in small ownership blocks. These often serve multiple tracts or feed into a network of lesser-used roads, each of which serves one or a few tracts. Secondary fire/access

roads do not handle as much all-season traffic as the primary access roads. These roads are only occasionally used during periods of poor ground conditions. The road surface is mostly dirt, with gravel and geotextile fabric to harden scattered soft areas.

Tertiary fire/access roads serve as access to only one or a few tracts. Any tertiary road is seldom used in poor ground conditions. Traffic over long periods of time is minimal. Gravel and geotextile fabric is occasionally used to strengthen soft spots in the road surface, usually in support of a specific management operation.

These roads are not part of a county or INDOT state highway system. Each road will receive a unique identifier by the property and will be mapped and maintained in a GIS database (see [Section T: Records and Files](#) for specific attributes to be maintained). The property will maintain a record of these roads, including major activities and expenses. Roadwork performed for access for timber sale(s) will have the expenses documented ([Appendix I L-1: Equipment and Vehicle Costs](#)) on the FM 200 ([Appendix II G-18: FM 200 – Cost of Operations](#)). Expenses on a road serving more than one sale may be split among the sales if appropriate.

Access for Persons with Disabilities

The properties provide excellent outdoor recreation opportunities to the general public; however, the nature of many outdoor activities makes participation by persons with disabilities difficult or impossible without some accommodation. Persons with a mobility-limiting disability are those most likely to seek accommodation. Hunting, for example, is an activity in which many people with disabilities can participate if an accommodation is made for access.

Properties will have a written plan that identifies the location and management of a set of fire/access roads for access by persons with disabilities. These roads will be constructed and maintained with a hardened (gravel) surface for the entire length open for this use. This makes primary fire/access roads ideal for this purpose but there may be secondary or tertiary fire/access roads that can also be used, provided they are sufficiently hardened. While hunting is the most established and most common recreational activity accommodated in this way, there are other uses that can or would benefit. Edible/medicinal plant gathering, birdwatching, and nature viewing are some of the other activities that may or could be accommodated with a hardened series of roads. Further information on disabled user access can be found in the *Recreation Procedures Manual*.

Dispersed User Parking Areas

State forests and forest recreation areas encourage dispersed recreational use of the properties. In order to promote such use and to enhance user experience, the properties will install and maintain parking units for dispersed users. Areas of state forest holdings will be evaluated for dispersed recreation demand and existing parking availability. Parking will be matched to expected use. Many parking units will be associated with physical features that serve

as draws. Others may provide regular access into large holdings. A typical parking unit will be associated with a gated fire/access road that receives recreational use for hiking, wildlife viewing, hunting, and edible/medicinal plant gathering. High-demand situations may exist at lake sites. Where practical, parking units will be situated to avoid possible conflicts with neighboring private residences and private property in general.

The size and construction of parking units should be appropriate for the site. These will be located along public roads. If the public road is a federal, state (non-state forest), or county road, permission must be obtained from the Department of Transportation or the county prior to installation. A minimum-size unit should easily accommodate two vehicles. These units will have a gravel surface at a minimum. Posts or log frames may be used to mark the unit edges. A sign must identify the parking unit. The simplest sign would be a Carsonite post with a "State Forest" decal affixed. All parking unit construction must conform to appropriate clearances and permits. A GIS layer of parking units should be maintained as outlined in [Section T: Records and Files](#).

Key Security

Properties are often approached by public individuals or contractors for access to neighboring property across state forest, or for access to locked property facilities. Access permission across state Forest land is covered in [Section U: Land-Use Permits](#). In situations where access is granted through barriers (e.g., door, gate, etc.) that are locked with DNR locks, the properties shall never provide, loan, or distribute keys to DNR locks to private individuals or contractors. This includes persons requiring access for disability reasons. If the barrier must be locked during portions of the entry period (such as nightly), the individual/contractor can supply a hardware store lock to use in a double-locking method where either the DNR lock or the hardware lock opens the barrier. If double-locking is not possible, the properties will purchase hardware store locks for temporary use on the barrier during the entry period, with one key going to the individual/contractor, and the property retaining the spare keys. The properties will obtain hardware store locks for all gates/barriers requiring access for disabled persons. The properties should always maintain a supply of hardware store locks on hand for these purposes.

Limits to Public Access for Safety Reasons

The properties, by nature, have many inherent hazards that any reasonable person should be expected to know. Examples are cliffs, bluffs, caves, dangerous animals, and biting insects. Other hazards are from human activity and may be less apparent to users. Some hazards are from current management activities, while others are from past activities. Users may be expected to be less knowledgeable about these dangers. When the hazards are considered to be significant, efforts will be made to post hazards and/or limit user access ([Appendix I L-2: Management of Potential Hazard Areas](#)). Examples include pesticide spraying for tree plantings, old wells, recreation facility construction, and timber harvests.

Section L Bullet Summary

- Properties will coordinate with county road officials and INDOT for roads under those agencies' jurisdiction that serve the properties.
- County roads can be vacated through the department director. Contact the property specialist.
- Property public roads are maintained through coordination with INDOT.
- Fire/access roads provide safety and management access to blocks of property.
- Some fire/access roads will be identified and developed for use by persons with disabilities.
- Properties will develop Dispersed User Parking Units for use by dispersed users on the various blocks of state ownership.
- Properties will never provide, loan or distribute keys to DNR locks to the public and/or contractors.
- Properties will post and/or close areas for public access if there are significant safety hazards.

Section L Appendices

[Appendix I L-1: Equipment and Vehicle Costs](#)

[Appendix I L-2: Management of Potential Hazard Areas](#)

SECTION M: CULTURAL RESOURCES

The Division of Forestry is conscious of and respects the rights and traditional forest-related knowledge of indigenous people who reside within the state or who have cultural affiliations with the state. It is the policy of the division to periodically initiate consultation with Native American tribes and/or nations in order to seek input on sustainable forest management practices on state forest properties. Such actions may include, but are not limited to activities that may affect spiritually, historically, or culturally important sites, the discovery of burials, or division policy.

The Division of Forestry is also conscious of the natural and cultural history present within the state forest system and manages its properties to protect and preserve these significant sites. In order to manage the cultural resources within the system, the division has taken an active role in identifying and interpreting known sites. It is the policy of the division to avoid all significant known cultural sites during any project that results in ground disturbance. In an effort to implement this policy the division conducts an archaeological assessment of all projects in which ground disturbance may occur (e.g., timber harvests, road construction, campground improvements, etc.).

An archaeological site is defined by the presence of an artifact (any portable object made or used by humans) or a feature (non-portable evidence of past human behavior, activity, or technology). Artifacts and features may either be pre- or post-contact. Pre-contact sites in Indiana date back to the retreat of the Wisconsinan glacier, approximately 12,000 years ago, and can be divided into four main time periods: Paleo (pre 8000 B.C.), Archaic (8000 – 1000 B.C.), Woodland (1000 B.C. – A.D. 1000), and Mississippian (A.D. 1000 – 1600). The post-contact period, generally referred to as beginning around A.D. 1650, begins with the introduction of European populations, beliefs, and traditions into North America and Indiana.

Any archaeological site more than 50 years old is considered a cultural resource and requires clearance before being disturbed, regardless of its presumed significance. Examples include a variety of sites that can provide considerable information about what occurred on land that is now a state forest or forest recreation area. Prehistoric resources typically included encampments, lithic scatters, rockshelters, quarries, or isolated finds. Many of these resources will include artifacts such as manufacturing debris, stone tools, pottery, or worked bone, and are often difficult or impossible to identify on the landscape. Historic resources include old homesteads, farmsteads, schools, cemeteries, and survey monuments. In most cases, the buildings are no longer present; however, they can be identified by foundations, foundation stones, wells, yard trees, perennial flowers, fencing, and trash piles. These sites often tell much about past attempts to clear and farm the land.

Other cultural resources came about after the creation of the state forests. Several significant structures were built by the Civilian Conservation Corps (CCC) and/or the Works Progress Administration (WPA) during the 1930s and 1940s. The CCC program was founded in

March 1933, when President Franklin D. Roosevelt called for Congress to authorize this peacetime army to fight against unemployment, massive soil erosion, and the declining timber resources in the United States. The WPA was formed in 1935. Both programs sought to employ the nation's unemployed by federally funding the construction of roads, installation of telephone and electric lines, improvements of forests and parks, and rehabilitation and conservation of deserted wastelands that were once agricultural fields. Many of the roads and buildings in the state forests were constructed at this time, and millions of trees were planted on highly eroded landforms. While most of the original camp structures were razed when the program was discontinued, many structures from that era are still in use today as recreational, service, and administrative buildings on the state forests and forest recreation areas. The division CRM program seeks to provide the tools to help to preserve and protect these historic structures located within the properties. Historic structures and archaeological sites related to this time period are important cultural resources that relate to the early days of the state forest system.

Clearances

To protect cultural resources, archaeological clearance must be obtained for all soil-disturbing activities. As a rule of thumb, any activity involving ground excavation over 12 inches deep or 12 inches wide will require approval prior to the onset of the activity. Several different categories of reviews are possible, depending upon the type of project planned.

Inventory Review

A review of cultural resources will be initiated when a tract is inventoried to assist with the planning of the management guide. Once a tract is inventoried or is scheduled to be inventoried, the Inventory Review Form ([Appendix II M-1: Cultural Review for Timber Inventory](#)) should be completed and submitted to the division archaeologist. This review process is designed to identify any known cultural features within the management unit so that the managing forester will have comprehensive knowledge of cultural resources prior to finalizing management decisions that may affect the resource. The division archaeologist will inform the submitter of any known or potential resources within the inventory tract.

Management Activity Review

All management activities in which ground disturbance may occur (such as timber harvests, road or trail construction, or tree plantings) will be sent to the division archaeologist for review on the Management Review Form ([Appendix II M-2: Cultural Review for Timber Harvest/Management](#)). The review process involves not only conducting a background check for all known cultural sites in the immediate and surrounding area, but also identifying the probability of unknown sites occurring within the project. This information is then assessed to determine if a field review of the project area is necessary. If it is determined that a field reconnaissance of the project area is recommended, the forest archaeologist will schedule with the forester who is administrating the project to review the location. The request should be submitted to allow reasonable time for it to be reviewed, and, if needed, to allow time to conduct

any field surveys and subsequent write-ups. Minor soil disturbing activities do not require clearance. Examples of these are post or gate installation, or digging to repair a broken waterline (i.e., area was already disturbed during waterline installation). If there are questions whether clearance is required, contact the division archaeologist.

Land Disposal

Clearance is required before any state forest or forest recreation land is disposed of through sale or exchange. Because the disposal process is done through Central Office, the Central Office will be responsible for requesting clearance.

Historic Structures

Although prehistoric sites are often difficult to distinguish outside of a systematic investigation, most historic resource sites are discernible with careful examination. When disturbance of these sites is likely, clearance must be obtained. Common situations where disturbance is likely are when hazardous conditions such as open wells or dilapidated structures are to be filled or razed. Many historic structures are located in service and recreation areas. These include buildings, stairways, picnic tables and cookers. These often require regular maintenance and occasional major rehabilitation. Any work on these structures that is beyond cosmetic maintenance and involves structural changes must receive clearance from DHPA. Requests for clearance will be submitted to the division archaeologist. Requests should be made using the Historic Structures Alteration Application ([Appendix II M-3: Historic Structure Alteration Application](#)) and should be submitted at least 60 days prior to the onset of the project. If there are questions whether clearance is required, contact the division archaeologist.

Inventory

A long-term goal is to have a full cultural inventory of all known sites on state forests and forest recreation areas. It is the responsibility of the division archaeologist to complete the system-wide inventory; however, property personnel can help facilitate this process by recording locations and brief details about known prehistoric and historic sites they encounter on the Historic Sites and Structures Inventory Form ([Appendix II M-4: Historic Sites and Structures Inventory](#)). If a cultural resource is discovered during management activities that may result in disturbance to the site, then the division archaeologist should be contacted prior to the ground-disturbing activity.

Protection

Cultural resources are subject to damage or destruction through a variety of activities. Properties will take actions to help ensure the stability of cultural resources. A field reconnaissance will be performed in activity areas to try to locate previously unidentified resources, when necessary. All known cultural resources in activity areas will be visibly marked.

Unless a management activity directly involves the resource, all activity operations, especially with equipment, will avoid the immediate area of the cultural resource by at least 100 feet. This buffer may be reduced upon consultation with and recommendation of the division archaeologist.

Cemeteries and burial sites are a unique situation in terms of responsibility and even ownership. Ownership of cemeteries may be unclear at times. Generally, if there is not a clear exception in the state's deed, or there is no separate title chain for the cemetery parcel, the state should be considered the owner if the state owns the surrounding land. Maintenance responsibility for cemeteries is unclear and varied. Some cemeteries are well maintained, while others receive no maintenance. The parties maintaining cemeteries include state properties, cemetery associations, families, township trustees, or volunteers. Much of the variability in maintenance depends on accessibility, past history, ownership, and amount of use.

Cemeteries on state forest and forest recreation area lands will be documented as cultural resources. No ground disturbance should occur within 100 feet of a cemetery without prior approval from DHPA. A *Cemetery Development Plan* must be submitted to the division archaeologist, who will request approval from DHPA for any projects within 100 feet of a burial ground. The request should be submitted at least 60 days prior to any planned ground disturbance. All cemeteries on the properties should be evaluated periodically. Cemeteries with reasonable access should receive some periodic, basic maintenance to prevent loss of features. Generally, this maintenance involves control of trees and shrubs that could damage the features. Properties wishing to undertake work that involves repairing or resetting stones and markers will coordinate with the division archaeologist and obtain appropriate clearance. It may be desirable to regularly mow some cemeteries because of their visibility and visitation. This should be evaluated by the properties based on available access and available property resources. Whenever possible, the properties will coordinate with township trustees, cemetery associations, families, or volunteers to provide cemetery maintenance assistance. Cemeteries with no access obviously cannot be considered for routine maintenance. Questions about cemetery maintenance or condition should be directed to the division archaeologist. Additional information is also available in [Appendix I M-1: Cemetery Access and Maintenance](#).

Well Closure

In the early to mid-1800s, lands that are currently part of the state forests and forest recreation areas were open for settlement. During this time an immense number of settlers moved into the state and homesites and farmsteads emerged across Indiana. Remnants of these historic sites are still present within the forests in the form of such features as foundations, artifact scatters, and wells. These sites are often avoided to circumvent negative impacts to the deposits; however, open wells do require some additional considerations in order to avoid potential incidents from someone accidentally stepping into these historic features.

While many of the wells are located away from recreational features such as trails or campgrounds, several open wells are found in close relationship to these more-used areas of the properties. Therefore, the division has developed guidelines to minimize risks by recommending

the posting or closing of known wells that are within 100 feet of developed trails or recreation areas. Closing of the well should be done in a way that will not affect potential cultural deposits that are associated with the historic feature. Well posting/closing should follow the recommended guidelines listed in [Appendix I M-2: Well Closure Policy](#).

Section M Bullet Summary

- Archaeological clearance is needed for all except the most minor ground-disturbing activities. Any work on historic structures also requires clearance.
- The cultural resource program will develop and maintain an inventory of cultural resources.
- Management activities will strive to avoid potentially significant cultural resource areas.
- Properties should provide basic maintenance to cemeteries on the properties.
- Wells within 100 feet of developed trails or recreation areas should be posted or closed off in order to minimize risk.

Section M Appendices

[Appendix I M-1: Cemetery Access and Maintenance](#)

[Appendix I M-2: Well Closure Policy](#)

[Appendix II M-1: Cultural Review for Timber Inventory](#)

[Appendix II M-2: Cultural Review for Timber Harvest/Management](#)

[Appendix II M-3: Historic Structures Alteration Application](#)

[Appendix II M-4: Historic Sites and Structures Inventory](#)

SECTION N: NATURAL AREAS

The natural areas program on state forests and forest recreation areas takes several approaches. The primary goal of the program is to maintain biodiversity, conditions, and functions that can be deemed natural.

"Natural," as used in this context, is a relative term. In one sense, "natural" refers to being uninfluenced by humans. There is no place in the state forests that has not and will not be influenced by humans. Humans have visited and used all the land that is currently state forest for thousands of years. And even if physical human intervention ceases on a parcel, chemical and other interventions will occur through pollutants and other introduced agents such as exotic species and diseases. A true natural condition would be that which would occur prior to humans existing in North America. Re-creating such a condition is an impossibility. Extinct species such as mastodons to passenger pigeons cannot be reintroduced. Disease and insect agents, such as chestnut blight and gypsy moth, have or will alter the species composition. Many non-native species are common in the ecosystem.

A more obtainable version of "natural" is to re-create the community structure, as much as possible, and retain (or restore) as much of the species composition as was present at the time of European settlement. This is often the goal of organizations such as the Division of Nature Preserves and The Nature Conservancy. In this way, biodiversity is maintained by retaining remnant populations of species that occupy a very narrow ecological niche, which makes them vulnerable to catastrophic loss. The goal is to keep existing species and populations viable for the future.

State forests and forest recreation areas as a whole have considerable value as natural areas. The natural areas program consists of four parts: nature preserves, high conservation value forests, representative natural areas, and unique/significant areas. These parts, when combined with overall state forest management, enhance the state forests' contribution to biodiversity and other values.

Nature Preserves

Through cooperation with the Division of Nature Preserves, all state forests have undergone a natural areas review. This review used past records, aerial surveys, and uncommon or abrupt topographic features to locate unique species or communities. The results of this review were either proposals for dedicated nature preserves or recommendations on management to enhance the structure or composition of a community. See [Appendix I N-1: Nature Preserve Listing](#) for more information on all nature preserves within state forests and forest recreation areas. When practical, boundaries of nature preserves will follow tract or other reasonable management boundaries.

Nature preserves on state forests and forest recreation areas are under the primary management direction of the Division of Nature Preserves and the articles of dedication for each preserve. Unless prescribed by the articles of dedication or under the direction of the Division of Nature Preserves, no management activities that create disturbance will be conducted in nature preserves. Non-disturbing activities such as marking property boundaries or tract inventory can occur.

State forests, as resources allow, will assist the Division of Nature Preserves with the management of nature preserves. Many preserves require little to no management activity; other preserves require periodic or regular management to maintain community integrity. Prescribed fire is a management tool used on many preserves that properties are likely to be requested to assist with. Control of aggressive, exotic species is another activity for which a property's assistance may be requested.

Recreational developments, usually trails, will be routed to avoid nature preserves, as much as is practical. Fire/access roads through nature preserves will be evaluated for need. If considered needed for access beyond the nature preserve, such roads, when allowed in the articles of dedication or with agreement with the Division of Nature Preserves, can be maintained to a minimal level necessary to provide the needed access. Roads within the nature preserves that only serve the nature preserve areas and are no longer needed will be abandoned.

Properties will avoid the introduction of non-native materials and biological agents into nature preserves—exceptions will be made only when approved by the Division of Nature Preserves or when allowed in the articles of dedication. When it is necessary to introduce non-native materials or agents, the least aggressive or damaging materials or agents as possible will be used. For example, if stone is needed to stabilize a roadbed, gravel of a type similar to native stone in the preserve may be used. If ground cover is needed, an annual species that will not out-compete native species should be used.

Unique/Significant Areas

A very useful aspect of the natural areas review by the Division of Nature Preserves has been the identification of areas that, while not important enough to be dedicated nature preserves, they may require special management consideration to maintain or enhance their contribution to forest communities and/or biodiversity. Such areas may include seeps, springs, rock cliffs, or unique plant communities. In addition, areas may require management consideration due to identified wildlife habitat or geological features.

Areas of significance will be noted in the appropriate tract file for consideration in future management decision-making. All management activities in the tract will take these significant attributes into account. When resources allow, recommended special management activities to enhance the attributes will be attempted. The most common recommended activity has typically been prescribed burning.

Non-native Species Management

The impact of introduced non-native species and their widespread distribution means that no acre of land is not affected by humans. The effects of these non-native species in Indiana forests is wide ranging. The elimination of American chestnut as a major component of Indiana forests by chestnut blight forever changed forest species composition and the other species dependent on it. Starlings compete with native birds for food and nesting sites. Recent research has indicated that earthworms may have changed the chemical balance and nutrient cycle of forest areas.

State forests and forest recreation areas will regularly plan activities to eliminate or control non-native invasive species. The Division of Nature Preserves has assisted by identifying invasive threats during some natural area reviews. State forest and Division of Forestry staff have also identified species of concern.

Recent insects of major concern include gypsy moth, emerald ash borer, and Asian longhorn beetle. Grasses of concern include phragmites and Japanese stiltgrass. Trees of concern include paulownia and ailanthus. Shrubs of concern include multiflora rose, autumn olive, and bush honeysuckle. Herbaceous plants of concern include purple loosestrife, kudzu, and Japanese chaff flower. These, as well as other similar aggressive non-native species, can be controlled or eliminated with a three-part process.

The first step in non-native species control is monitoring. This is identifying and tracking what and where non-natives are present on state forests. In some cases the monitoring will be scientific. An example is trapping for gypsy moth. More often, monitoring is observational, such as property personnel noting a large population of garlic mustard in a stream drainage. This information should be noted in the appropriate tract file.

The second step in the control process is to avoid introduction of non-native species. Some species should never be planted/seeded on state forests. This includes all species listed on the Prohibited Invasive Terrestrial Plants Rule, 312 IAC 18-3-25, preliminarily adopted July 17, 2018, which includes reed canary grass, autumn olive, and ailanthus. In other situations, avoidance can include minimizing conditions that allow non-natives to spread to uninfected areas. One example would be to avoid putting a trail through an uncontrolled population of stiltgrass, because the stiltgrass might use the trail as an avenue to spread to other areas.

The third step is direct elimination of non-native species. There are several management tools used. Mechanical removal of some species can be done. This has been done with purple loosestrife and garlic mustard. Direct elimination has the drawback of being time consuming for the area covered and having limited success. Prescribed fire can be used to control some non-native species. Fire may injure but not eliminate many species. Pesticides are often the favored treatment because of cost effectiveness and degree of success; however, non-target organisms are often affected. Biological controls from the non-native species' home ranges are increasingly

important. Introduction times can be long, and there is concern about introducing another non-native species.

Properties are encouraged to annually undertake significant projects to manage and control non-native invasive species through some type of eradication or removal.

Section N Bullet Summary

- Division of Nature Preserves provides a natural areas review of state forests.
- State forests will assist the Division of Nature Preserves in the management of nature preserves on state forest properties.
- State forests will identify unique/significant areas for special management consideration.
- State forest properties will work to control non-native, invasive species.

Section N Appendices

[Appendix I N-1: Nature Preserve Listing](#)

SECTION O: RESEARCH

State forest and forest recreation area properties provide an excellent setting for many types of research. This can include research on management activities, social values and perceptions, and forest ecosystems. In the past, research has ranged from informal, observational studies conducted by property personnel to internationally backed research by university scientists. Properties are encouraged to continue to provide sites and available resources to support research. The following guidelines are designed to provide consistent opportunities for research on state forests.

Division Research

Occasionally, state forest personnel identify a need or desire to conduct some type of research. In the past, this research was often done informally without helpful outside analysis or input. This often resulted in few findings, with limited value. All future research by property personnel must be proposed in writing with a clear objective and action plan. This document is sent to the Central Office staff for review. The proposal will include a clear methodology for the sampling design and analysis of data. Properties are encouraged to consult research professionals within or outside the division for help in designing research. After review, the research proposal will be forwarded to the state forester for approval to proceed.

The division may occasionally fund outside researchers to perform desired research. This research will also be approved by the State Forester.

All research should receive necessary permits and/or approvals prior to commencement. For instance, research that involves construction in a floodway will need to comply with the Flood Control Act. Soil-disturbing research will receive archaeological clearance, where appropriate. Research that involves the handling of wildlife would require a permit from the Division of Fish & Wildlife, and, in some cases, the U.S. Fish and Wildlife Service. Research that involves the removal or taking of vegetation, rocks, or other materials must receive appropriate approval, possibly from other agencies.

External Research

State forest properties are regularly used as research sites by researchers from outside the division. **Before conducting research and/or specimen collection activities on state forest, external researchers must first receive authorization to access state forest property for these purposes from the designated division personnel.** For their collection/research activities to be considered for access authorization, researchers must submit a written proposal stating the objective(s) of the research and the methods to be used. The proposal will include start and end dates, and names and affiliations of those involved. If the submitted information is submitted directly to the division Central Office it will be forwarded to the property manager for review, as

well. The property manager and any other relevant division staff should have the opportunity to review the research proposal and provide input prior to access approval. Proposed research activities must comply with state forest policies and procedures, including archaeological clearance, when ground-disturbing activities are involved.

Researchers granted approval for research/collection activities on state forest properties will be notified in writing by designated division personnel. Conditions for research/collection property access authorization will include (but are not limited to) the following conditions:

- ☞ Researchers must contact a property representative (usually the property manager) prior to starting field work to discuss the location of study sites and timing of activities. In many cases, researchers do not know the specific locations of study sites when they submit research proposals to the division. Contacting property personnel prior to selecting sites will allow an opportunity for researchers to learn about any property activities that may interfere with their study (e.g., forest management actions, recreation activities).
- ☞ Access authorization is typically granted until the end of the calendar year; extensions can be granted by request from the researcher.
- ☞ It is the researcher's responsibility to secure any additional state or federal permits required for their activity (e.g., handling permit from Division of Fish & Wildlife).
- ☞ No specimen of flora, fauna, water, mineral or artifact may be disturbed or removed from the state forest property, except where authorized by the division.
- ☞ If any research/collections are to occur on dedicated nature preserves located on state forest, then an additional permit must be issued by the Division of Nature Preserves.
- ☞ The division is to receive copies of any reports, published articles, or similar materials that provide results of the authorized activities. Copies of reports should arrive to the division in a timely fashion, as soon as possible after the conclusion of authorized activities.
- ☞ The division requests the opportunity to review and comment upon any results or documents, including publications in scientific journals, before they are made public.
- ☞ The division is to be recognized as a project cooperators in related reports, including publications in scientific journals.
- ☞ The written authorization notice provided by the division must be carried by the researcher while conducting research/collection activities on state forest.

Section O Bullet Summary

- Research conducted on state forest and forest recreation area properties will have clearly stated objectives and methodology.
- External research and/or collection requests will include a written proposal, and will be reviewed by designated Central Office staff and relevant property personnel.
- Research and/or collection activities must receive the appropriate authorization before conducting any field work. For external research/collections, this includes written authorization to access state forest property for these activities.

SECTION P: PROPERTY LINES AND OWNERSHIP

State forests generally have a scattered ownership pattern. This pattern occurred because major land acquisition ceased before all desirable land for state forests was purchased. For example, Owen-Putnam State Forest contains about 6,000 acres, but was originally envisioned as a 50,000-acre property. This left an ownership with many inholdings, outholdings, and convoluted boundaries. In an early Department of Conservation publication, it was envisioned that a state forest system of 750,000 acres would be created. State forests have a considerable length of property line with neighboring private land owners, much more than if acquisition had been more consolidated. Property line location, identification and maintenance is a major program responsibility along with simple ownership management. A property line/ownership program at every property should consist of the following elements.

Property Line/Ownership Research

Property line/ownership research is the gathering of information in a non-field setting that will assist with ownership determination or property line location. This research is done whether it is for ownership records, a property line run or a line survey. Much of the research involves courthouse work. This includes obtaining copies and checking the descriptions of deeds for the state property and the property of neighbors. This is particularly important for parcels that have metes and bounds descriptions, or reference some type of monumentation. This information can often be obtained at the county recorder office. At times, it may be necessary to follow chains of title back in time to determine the intention of a description.

Another key piece of research is the layout of sections and the location of known corner monuments. There are several locations for this. The county surveyor will often have records of past survey work and where corners were set. The State Archives in Indianapolis contain copies of the original field notes of the Indiana land survey system, when the sections were first laid out. Local professional surveyors often are willing to share knowledge of monumentation they have found or have set. Longtime area residents and neighbors also often have knowledge of past survey activity, or know the locations of monuments and fences.

Properties should make an effort to identify and contact private surveyors doing work in their areas. An effort should be made to obtain copies of all private surveys that include state forest property. Copies of these surveys should be sent to the property specialist.

Aerial photographs are good for locating fence/tree lines and roads. Often it is best to have photos from prior to 1950 to match with recent photos. Old tree lines may be difficult to see in recent years due to regrowth of the forest.

Records of deeds and other land transfers (by will or court order) are generally kept in the Recorder's office of the county courthouse. Becoming familiar with the individual recording

style of particular courthouses and learning how things are laid out is critical to having easy success. Knowing about useful tools such as Grantor and Grantee records helps speed up this time-consuming process.

Field Evidence Location

Locating evidence in the field to identify a line location is one of the most difficult parts of the job. Like the research, it is critical that evidence location be done for property line runs and line surveys. It is the most critical part of the job because the line must be based on some evidence to be located on the ground. Evidence varies greatly. It includes fences, tree lines, cornerstones, rebar, PK nails, and old roadbeds.

All field evidence should be visited and documented, even if it is not on a property line. Evidence located off of the property line, either on private land or within state property, is just as important as evidence on the line. Any work on private property should be cleared with the private land owner. All evidence needs to be evaluated for its value in determining a line location. Some evidence may not have marked a line at all or may have changed. Examples include fence lines that were placed for convenience, roads that shifted to avoid wet spots, or stones that were purposely moved by someone in the past.

It is critical that property personnel give the same importance to evidence located within ownership blocks as is done for evidence on the ownership lines. Monuments and other evidence (such as fence) may be critical to back up evidence on the line or in situations where evidence on the line is lacking. Evidence within ownership blocks can easily be destroyed or damaged by management activities. It is critical that property personnel locate, mark, and GPS the location of survey monuments in the interior of state forest ownership. Other possible line evidence (fence, tree lines, roads, etc.) should be documented with a map. In areas where ground-disturbing activities (such as timber sales, wildlife projects, road work) are to occur, all probable locations for survey monuments will be searched prior to the activity in an attempt to locate possible survey monuments. Probable locations in any section include all 16th corners (the corner of any "40"), any further subdivision corners, and the lines between them. These locations should be searched whether or not county surveyor records show anything is located there. Deed descriptions, county survey records, and known surveys are possible sources of information on the locations of survey markers.

Property Line Run

The property line run is the primary form of approximate property line location. Usually, the property line run occurs in conjunction with the location of field evidence. It is not a survey, and should never be considered as accurate as a survey. A property line run is the location of a property line using basic equipment such as a hand compass, a 100-foot tape, a hip chain, a clinometer, and other such equipment. It involves one or two property personnel. Using existing evidence, the approximate line is located and marked. Pacing is not a recommended

measurement method for this. Difficult terrain and heavy undergrowth often make accurate pacing difficult. Modern, inexpensive instruments such as the hip chain are much more accurate and save time in the long run.

Property lines identified by line runs can only be marked with flagging or paint.

Flagging is one way a property line in a line run can be marked. Flagging has the advantage of limited duration. It will quickly become less visible, and has a less permanent presence, which prevents neighboring owners from thinking it is the exact property line. Flagging is good for situations where there is uncertainty about the location of a line. Flagging is also good for when line needs to be marked for only a short-term basis.

The property line can also be marked with orange boundary marking paint. The paint is placed on line trees. It consists of one vertical slash in each direction of the property line and one vertical slash on the side of the tree facing state property. It has the advantage of being longer lasting than flagging. This allows for easy re-marking of line. Because of its somewhat permanent nature, paint should only be used where there is a good line between known points. Flagging and painting lines each have an appropriate use.

All interior or on-line survey monuments located will be documented in property files/database and will include a map. Whenever possible, this documentation will have the location recorded by GPS. In the field, these monuments will be marked with a Carsonite post with a "Survey Marker" decal. This is to prevent loss of the survey monument. All these monuments will be referenced using at least three witness trees or marked with a Carsonite post. *It is important that properties put considerable effort into locating, marking and documenting interior monuments.* Interior monuments are as important as on-line monuments for locating property lines, especially during a survey.

Monuments located off state property will be documented in property files/database and will include a map. Whenever possible, this documentation will have the location recorded by GPS. These monuments should be marked with nothing more than temporary flagging. These monuments should be referenced, if possible.

All other property line evidence (such as fence) will be documented in property files/database and on a map. Whenever possible these will have the location recorded by GPS.

Properties will have an annual schedule to run 10% of the property line mileage, with the entire property line mileage covered in 10 years. This does not mean all the mileage will be marked. Many sections of line cannot be marked because of poor descriptions or lack of evidence; however, regular coverage of lines is important to show "possession" of property and check for possible encroachments. Most important, regular coverage helps to maintain existing monumentation and evidence. Also, additional evidence may be uncovered with subsequent line runs.

All GPS information for property line information will be downloaded into property GIS files and will also be sent to Forestry Central Office.

Property Line Survey

The property line survey is performed by a licensed professional surveyor. This may be a DNR surveyor, or a surveyor hired by the DNR. Line evidence located by the property is still critically important. It is unlikely that the surveyor will know the line area as well as the property personnel will. A property line survey will require substantial assistance and possibly supervision from property personnel.

A property line located by a property line survey will be marked with orange Carsonite boundary post markers spaced within easy eyesight of each other, averaging no more than 125 feet apart. Property corners not already monumented will be marked with an appropriate DNR monument. DNR monuments will not replace existing monuments, stones, and other markers.

Boundary markers will not be placed on lines surveyed by private surveyors unless approved by the division surveyor (contact property specialist). All private surveys obtained by the property will be sent to the property specialist. Properties also will not place boundary markers on lines surveyed by the DNR surveyor in situations where only corners are set. Many old DNR surveys are this type. In these cases, one Carsonite property line marker with decal should be placed on either side of the monument, on the property line, and within 10 feet of the monument. Properties will use Carsonite markers with survey marker decals to mark relevant private survey markers.

Properties may request a survey using the Request for Survey Assistance form ([Appendix II P-2: Request for Survey Assistance](#)). Surveys may be requested because of encroachment situations, or they may be requested simply to locate property lines.

Each property will designate a survey contact person who is responsible to ensure the necessary research, supplies, and personnel are available for a survey. The properties will inform the property specialist of the selected survey contact persons. The property specialist will be responsible for coordinating the survey schedule with the division surveyor and the properties.

The property specialist and division surveyor will advise the property of the research, field evidence, and records that the property will need to conduct a line survey. Field evidence includes survey monuments and markers, fences, roads, tree lines, and use changes. This evidence may be along the line, within state ownership, or outside state ownership. Local citizens may have knowledge of past surveys and other known evidence in the area. Record evidence includes deeds of all surrounding property back at least 50 years and two prior ownerships. Other records include known surveys, either from the county surveyor's office, or professional surveyors who have done work in the area.

The property will notify neighbors of an upcoming survey. Surveys inevitably entail some crossing of private property. The property will contact the appropriate landowners for permission to cross private property for survey work. Landowners should be informed of minor limb/brush clearing that might be necessary. During survey work, efforts should be made to find the least obstructed routes so disturbance is kept to a minimum. If a landowner is upset by inadvertent clearing damage, compensation can be claimed through the DNR Tort Claims Procedure.

The property will supply at least one person to assist the division surveyor. The property will coordinate with the surveyor on materials needed for the survey, such as posts, hubs, and rebar. The property will supply what is needed. The surveyor and survey contact person will coordinate on a work schedule for the project.

The surveyor will inform the property manager and the property specialist immediately when an encroachment is located. In encroachment situations, the surveyor and property will refrain from discussing resolution of encroachments with private landowners. They will only discuss the line location and how it was arrived at. All encroachment resolution questions should be referred to the property specialist. The property specialist will formulate a resolution with the assistance of the property manager, surveyor, section staff, and attorney, as needed.

When fieldwork is completed, the surveyor will provide the property and property specialist with a print of the survey. This print must be recorded in the county Recorder's office. The record type, book and page number will be supplied to the surveyor and property specialist. The division surveyor will supply copies of the print to all appropriate surveyors. The property will supply copies of the survey print to all appropriate neighbors. Copies for distribution can be obtained through the property specialist.

The property will develop a schedule to regularly inspect, maintain, and enhance the posting of surveyed lines. Posted survey lines will be inspected at least once every five years. Additional markers can be installed on line by running a taut, straight string between two existing markers on either side of the desired location, and placing the new marker gently against the string.

The property specialist should maintain a system to track surveys. The Property Specialist will periodically review the survey line maintenance performed by the properties.

Property Line Location Requests

Properties often receive requests from neighboring landowners or contractors working on neighboring land to identify property line locations. Anyone requesting a property line location should complete a Property Line Location Request form ([Appendix II P-1: Property Line Location Request](#)). This form lists the responsibilities and limitations of the line locations. It also lists the information required from the person making the request. The completed form will be maintained in property files.

Properties will make a reasonable effort to accommodate such requests without disrupting operations. A line run is used to fulfill the request. If heavy foliage causes significant obstruction, the line location may need to be postponed until after leaf fall. Properties will inform those making location requests that lines located through line runs are not to be treated as surveyed lines. There may be situations where lack of evidence or line complexity makes it impossible for a line to be located. The property will then inform the neighbor the line cannot be located with a line run and recommend they contact a surveyor.

Fencing Requests

Properties occasionally receive requests from neighbors to help fence property lines. This comes from a statutory requirement for private landowners that adjoin to share in the cost of common fencing. This statutory requirement does not include the State of Indiana and state property. The Property Specialist can be contacted for further information.

Encroachments and Property Disputes

Often during the course of working on property lines, property staff identify possible encroachments or disputes on state forest land. Disputes involve a discrepancy or perceived discrepancy in ownership of a parcel or the location of a property line. Encroachments are the unauthorized use of state forest land for a private use. Encroachments take a number of forms, some of which are better resolved through law enforcement and property regulations.

The worst encroachments involve some type of construction that creates something of a permanent nature. Trails and fences are readily remedied forms of these types of encroachments because they are relatively easy to move. Buildings, roads, utility lines, and lakes are more difficult because of the degree of disturbance and permanent nature. Houses are especially problematic because of the emotional attachments. Construction encroachments involving permanent development are considered the most serious, as a general rule, and receive the highest priority.

Unauthorized use (not involving construction) of state forest property is another form of encroachment. This can involve a wide variety of activities, many of which are addressed in DNR Property Regulations. Use encroachments include crop fields, grazing, parking areas, yards, gardens, ORV use, dumping, unauthorized road use, unauthorized trail use, storage of personal property, and unauthorized ingress and egress.

The third type of encroachment is theft encroachment. This can be the loss of forest products such as timber, poles/posts, and firewood. Unauthorized gathering that occurs on a property falls into this category. It also includes the loss of materials installed by the property, such as recreational items, boundary markers, gates, signs, and other such items.

Disputes involve a disagreement over the location or perceived location of property lines. Disputes also involve discrepancies of state property deed descriptions with private property deed descriptions. There are often situations where deeds for state forest land describe land that is also described on private land deeds.

Handling all of the above situations properly will vary, based on particular circumstances. Encroachments that generally involve a violation of property regulations and appear not to involve a dispute in property ownership or property line location should be resolved through normal law enforcement channels. Examples include unauthorized ORV use, unauthorized gathering, removal of state property (e.g., gates, signs, markers), and trash dumping. These often do not involve a line or ownership dispute, and are simply disregard for regulations or are plain vandalism. Properties will work with law enforcement or other local authorities to resolve these situations.

Timber theft or removal, whether or not there is property line or ownership question, will be reported immediately to the property specialist. Such reports will include a map and listing of trees removed. The property specialist will work with the timber buying licensing forester to resolve the situation. If a survey is deemed necessary, the property will submit a Request for Survey Assistance form ([Appendix II P-2: Request for Survey Assistance](#)).

Other encroachments that appear to involve a question of ownership or property line location will be handled in one of two ways. Encroachments need to be classified as to whether they are in an initial stage or have been active and ongoing for some time and have occurred more than one year ago. Anything under construction, development, or installation should be considered in the initial stage.

If an encroachment is in an initial stage, the property will immediately contact the encroacher and property specialist. The property will present to the encroacher evidence of ownership or line location. The property will request the encroacher's evidence of ownership or line location.

If after review of the evidence the property is confident there is encroachment on the state property, property personnel will advise the encroacher and *request* they cease the activity. This will be done in writing. If the encroacher does not cease, the property will not take a confrontational stance. Rather, the property will advise the property specialist of the status, and they will determine a course of action.

If after reviewing the evidence the property cannot confidently determine if the activity is encroaching on state property, the property will advise the encroacher of the questionable nature of the ownership or line. The property will not request that the activity cease, but can recommend that the encroacher avoid the questionable area. The property will advise the encroacher that if there is a later determination (such as after a survey) that state property was encroached upon, the encroacher will be the responsible party. This will be done in writing. The property will keep the property specialist apprised of the situation.

If an encroachment has been ongoing and active for some time, the property will gather additional line and ownership evidence. If the property is confident there is an encroachment, the property will immediately contact the property specialist. The property specialist will determine how to proceed. If there is a question of ownership or line location, the property will submit a Request for Survey Assistance form ([Appendix II P-2: Request for Survey Assistance](#)) to initiate a survey. This form is sent to the property specialist.

In all these encroachment situations, the properties will maintain a non-confrontational approach to the encroacher. The properties will not make any threats, direct or implied, regarding the encroachments. The property specialist will be the primary division contact with the encroacher for encroachment resolution. The only exceptions are simple use encroachments (e.g., yards, grazing, etc.) that the property may be able to resolve amicably in discussion with the encroachers.

Property personnel can often readily resolve minor use encroachments by tactfully dealing with the encroacher; however, no matter how apparently minor an encroachment may appear, the properties and the property specialist will work to resolve all of them. Minor encroachments, if ignored, can often grow into major encroachments because ownership of property can blur with time.

For encroachments involving the removal of timber, the property specialist and timber licensing forester will work with other Central Office staff to determine a resolution. The preference is to resolve the matters by having the encroacher compensate the state an amount on par with the severity of the offense. Further guidance is provided in [Appendix I P-3: Timber Encroachment or Threat Resolution Guidelines](#). If that does not succeed, or the offense is considered egregious, administrative law or even standard legal avenues may be pursued.

Section P Bullet Summary

- The first element of a property line/ownership program is research with courthouse records, local surveyors, aerial photos, and area residents to locate possible line evidence.
- Location of field evidence includes stones, survey markers, monuments, fence, tree lines, and roads. All should be mapped, documented, and GPSed. Stones, monuments, and other survey markers will be marked with Carsonite posts.
- Properties will attempt to locate, mark, document, and GPS survey markers and other evidence interior to property lines, as well as on line. In particular, properties will check probable locations of survey markers, such as 16th corner, prior to ground-disturbing activities.
- Property line run is the standard method of property line location. It is an approximation only, based on limited evidence and using basic equipment. Line identified through line runs will be marked only with paint or flagging.
- Property line surveys will be performed by DNR or contract surveyors. Properties will be on a rotating schedule for the division surveyor. Contract surveys will be based off

submitted Request for Survey Assistance forms ([*Appendix II P-2: Request for Survey Assistance*](#)).

- Properties will attempt to assist neighbors with line location requests by doing line runs.
- All timber theft situations will be reported to the property specialist.
- Minor use encroachments can be resolved by the property working with the encroacher, as long as the encroachment ceases. Otherwise, any encroachment that involves a line location or ownership dispute will be resolved through the property specialist.
- All encroachments, even minor ones, will be addressed. This is to prevent potential escalation.

Section P Appendices

[Appendix I P-1: Analysis of a Section of Land](#)

[Appendix I P-2: Slope Correction Table](#)

[Appendix I P-3: Timber Encroachment or Theft Resolution Guidelines](#)

[Appendix II P-1: Property Line Location Request](#)

[Appendix II P-2: Request for Survey Assistance](#)

SECTION Q: PLANNING AND ACCOMPLISHMENT REPORTING

Planning and accomplishment reporting, properly designed and carried through, is primary to the success of any organization. By setting targets and goals, activities can be focused toward meeting them rather than diverting effort in undesired directions.

Strategic Plans

The Division of Forestry direction is provided by guiding legislation and a division strategic plan that covers a planning period of five to ten years. This plan, along with guiding legislation, policies, and procedures, gives overall guidance to property activities.

Ten-Year Financial Guides

Ten-year financial guides are designed to generate budget requests for the division budget process, and are reviewed every two years at the beginning of the biennial budget process. They provide information on expected increases needed in operational budgets, and needed major projects.

In addition to the use for the division budget process, these guides are important for property planning and management. They link property budgets to program directions. They are used for defining expected budgetary needs. They are particularly helpful for properties in identifying, planning, and tracking major projects. The long timeline allows properties to prioritize project needs.

After creation of the guide, properties will use the guide to track existing budget needs and plan new ones. The Central Office will oversee the development of the financial guides.

The section also cooperates with DNR Asset Management to forecast budgetary needs for the state through property level biennium budget spreadsheets and facility master plans. These spreadsheets, which are provided by Asset Management, are updated every two years.

Property Performance Goals and Accomplishment Reporting

The property section uses the property performance goals (PPGs) and accomplishment reporting system, which is currently developed using an ACCESS database format. Properties update accomplishments in the reporting system monthly. Periodic reports will be sent to the section head.

Section Q Bullet Summary

- Strategic plans provide overall direction for the division and its properties section.
- Ten-year financial guides and Asset Management spreadsheets provide budget planning and tracking, especially for major projects.
- A property performance goals and accomplishment reporting system is used to set property management goals and track accomplishments.

SECTION R: LAND ACQUISITION

The days of major land acquisition that occurred with the state forest and forest recreation area properties from the 1930s through the early 1960s are unlikely to occur again in the near future. For the last few decades, there has been limited land acquisition. After the early 1960s, the state forest system did not receive a regular supply of land acquisition funding. What little land acquisition that did occur came about through donations, special funding from the legislature, or by selling outholdings.

Beginning in the early 1990s the Indiana Heritage Trust program was created to provide land acquisition funding to the DNR. Funded through Environmental License Plates and legislative appropriations, the program has provided a small but regular source of funding for state forest land acquisition. This program still strives on under the new name of the President Benjamin Harrison Conservation Trust (PBHCT). For several years in the mid-2000s, the division also earmarked a large portion of state forest timber sale revenue to land acquisition. The PBHCT, combined with small, intermittent allotments to the division's Division of Land Acquisition account, allows the consolidation of state forest holdings.

A primary goal of state forest and forest recreation area land acquisition is the consolidation of existing state forest holdings. This reduces conflicts with neighbors, improves management, and reduces property lines. Another major goal is to obtain viable access to all state forest holdings. This improves the management of the holdings and increases the recreation opportunities for state forest users. Occasionally, there has been acquisition of large, non-contiguous parcels that are extensive enough to support state forest users.

General Land Acquisition and Transfers

In general, all land acquisition and other land transactions are handled through the Division of Land Acquisition. The property specialist is the primary liaison with the Division of Land Acquisition concerning general land interest transfer situations.

Land acquisition is almost always done with willing sellers. Offers made to purchase are based on appraisals. An offer cannot be more than an appraisal unless it can be documented that some value has changed or was missed by appraisal. Offers can be less than the appraisal, but the seller must be informed of the appraisal amount. The Division of Forestry will generally purchase property at the appraised value.

President Benjamin Harrison Conservation Trust Land Acquisition

The Division of Forestry plans to use the PBHCT to acquire large pieces of property that benefit and/or simplify property management, improve the management of some property

programs, reduce or simplify property lines, and contain unique/special species, communities, or features in relation to the mission of the state forests. In general, these are parcels that would be the primary targets of any major land acquisition program. Emphasis will be given to those projects that best meet the objectives described above. Projects that pull in additional financial partners, particularly with respect to the PBHCT Discretionary Account, will also be given additional preference.

Prior to submitting a parcel for acquisition, a property is expected to have thoroughly inspected the parcel and checked the use of the land and if there are any structures. To propose a parcel for PBHCT acquisition, the property must fill out a Forestry Land Acquisition Request form ([*Appendix II R-1: Land Acquisition Request*](#)). This form and requested attachments should be complete. All sellers must be willing and must be contacted by the property prior to submission of the form. The submission must be sent to the property specialist at least two weeks prior to the PBHCT project quarterly due dates, which are Feb. 1, May 1, Aug. 1, and Nov. 1 of any year. The properties are encouraged to contact the property specialist prior to submitting the acquisition forms.

Properties are expected to be the primary contact with the selling landowner and/or their representative unless other arrangements are made with the property specialist. Properties should not have selling landowners/representatives contact the Division of Land Acquisition. Any questions regarding land acquisition should be relayed through the property to the property specialist.

Central Office staff will evaluate submitted parcels against each other and available funds to determine what is forwarded through the PBHCT process. Parcels may be combined to create projects for PBHCT. Properties will be notified that submitted parcels have been made a PBHCT project by receiving a copy of the PBHCT project form within two weeks after the quarterly due dates. Those that receive no project form can assume no project was created for the parcels for that quarter.

The property should be available to show submitted parcels to the property specialist. The submitted parcels may be visited twice, once for photos for the committee presentations, and once for environmental inventory to complete the Environmental Statement.

The PBHCT Project Committee meets approximately one month after the quarterly due dates. The property can contact the property specialist for the status of a project through the committee.

The Division of Land Acquisition will order the title work and handle the appraisal process. The property specialist may assist with the presentation of offer paperwork.

Shortly after a parcel is purchased, Stewardship Account funds are available for minor management projects on the purchased parcels. Properties should work expeditiously to determine highest priority for use of these funds and to ensure they are spent. The funds must be used on projects that benefit the purchased parcel, but have considerable flexibility. Among the

possibilities for use of the funds are building/improving roads and trails that access or go through parcels, tree planting or timber stand improvement, trash removal, invasive control, and even limited surveying. Funds do not necessarily have to be used directly on the purchased parcel. For example, funds can be used to build a trail to a parcel. These funds may be available through the division director, who tracks the use of the funds.

Supplementary Land Acquisition Funds

In the past the Division of Forestry has committed a portion of its dedicated funds toward land acquisition. Funds in this account will be used to purchase parcels of various sizes or easements (right of ingress and egress across land owned by someone else) that provide reasonable access to existing state forest property. These funds may be used to supplement large Trust projects.

CRR funds can be earmarked for land acquisition. These will likely be large, special opportunities.

Land acquisition funds can also come through partners or other sources. Common partners include the National Wild Turkey Federation, The Nature Conservancy, Indiana Trail Riders Association, and the Hoosier Hikers Council. Sometimes “funding” comes in the form of donations, partial or whole. This can be from outside groups or even from some landowners selling their property below appraised value. Partners that provide funds or partial donations can be used as match in Trust projects. Some funds not directly associated with land acquisition can also be used as match. For example, tree planting grants can be used as Trust match. These partnerships are important in PBHCT projects because having funding partners is required in order to tap the large funds available in the Discretionary Account.

Prior to submitting a parcel for acquisition, a property is expected to have thoroughly inspected the parcel and checked the use of the land and if there are any structures. To initiate a parcel for Forestry-dedicated funds acquisition, the property must complete a Forestry Land Acquisition Request form ([*Appendix II R-1: Land Acquisition Request*](#)). This form and requested attachments should be complete. This is sent to the Property Specialist when the information is complete. All sellers must be willing, and must be contacted by the property prior to submission. The property may contact the property specialist prior to submitting the form regarding the parcel.

Properties are expected to be the primary contact with the selling landowners and/or their representatives unless other arrangements are made with the property specialist. Properties should not have selling landowners/representatives contact the Division of Land Acquisition. Any questions regarding land acquisition should be relayed through the properties to the property specialist.

Central Office staff will evaluate submitted parcels/easements against each other and available funds to determine what is submitted for acquisition through the Division of Land

Acquisition. The property specialist will contact the properties if parcels or easements are submitted for acquisition.

The property should be available to show submitted parcels to the property specialist. The submitted parcels may be visited twice, once for photos and review, and once for environmental inventory to complete the Environmental Statement. The property can contact the property specialist for the status of a project through the acquisition process.

The Division of Land Acquisition will order the title-work and handle the appraisal process. The property specialist may assist with presenting the offer paperwork.

Land Trades

Legislation makes it possible for the Division of Forestry and other agencies to enter land trade arrangements. This option allows the potential for the section to acquire additional strategic parcels to achieve land acquisition goals outlined above. Trades may be initiated by the Division of Forestry or a landowner interested in a trade. In general, any trade must be consistent with the guiding legislation.

Other Land Transactions

Occasionally, there are other land transactions that properties may wish to conduct. One example is the disposal of outholdings. Properties considering other land transactions should contact the property specialist.

Section R Bullet Summary

- The President Benjamin Harrison Conservation Trust provides substantial funds for acquiring critical parcels for the state forest properties. Stewardship funds provide for minor management projects on the purchased parcels.
- Funding partnerships are important for accessing the funds of the Discretionary Account in PBHCT projects.
- The Division of Forestry Acquisition Account contains limited funds used for the purchase of small parcels or easements.
- Other land transactions will be submitted to the property specialist.

Section R Appendices

[Appendix II R-1: Land Acquisition Request](#)

SECTION S: GEOLOGICAL RESOURCES

The geological resources on the state forests can be placed in several categories. Minerals, oil and natural gas have potential economic value to local economies and the state. Rock, as aggregates, can have value for construction and building. Rock formations, such as karsts or cliffs, can have scenic or recreational value, but can also create rare ecological communities. The type of rock and how it lays can result in hydrology that creates water resources such as springs and seeps. These have value for the water resource, and for the rare communities it may support.

Minerals, Oil, Natural Gas, and Rock/Aggregate Extraction

Some places on the state forests have a history of extraction. Examples include coal in the vicinity of Greene-Sullivan, Pike, and Ferdinand state forests; oil/gas extraction in the vicinity of Pike and Ferdinand state forests; gypsum mining at Martin State Forest; and rock quarries in the vicinity of Harrison-Crawford State Forest. Periodically, there is heightened interest in some areas for mineral development, such as natural gas exploration. Properties may be approached by commercial concerns regarding commercial extraction. All such inquiries should be directed to the Central Office.

Any such future operations will be conducted to meet with applicable standards and to cause minimal disruption to property operations and programs.

Properties regularly receive requests for rock and mineral gathering. Permits may be issued by the properties for recreational gold panning, of limited and minor site disturbance. Other rock, aggregate and mineral collection often require greater disturbance than panning for gold. Properties will not issue permits for rock, aggregate and mineral collection. Gold panning permits are guided by DNR Non-Rule Policy Document (Information Bulletin #62) on Prospecting in Indiana. This bulletin can be found at <https://www.in.gov/nrc/2375.htm>. Permits issued shall identify the permitted panning area, conditions and disturbance restrictions. There is currently no charge for gold panning permits. Sample permits may be found in the Recreation Procedure Manual.

Requests for research permits should be referred to Central Office.

Rock Formations and Features

State forest properties have many rock features such as caves and cliffs that attract enthusiasts who seek such physical challenges. Unfortunately, such areas may also contain rare and/or sensitive biological resources that could be damaged by such activity. The department Cave and Karst Policy and Property Regulations provide constraints, controls, and management

guidelines for these features. In general, property operations will be managed to have minimal disturbance to sensitive sites. In order to retain the open forest atmosphere, prohibitive devices, such as fences, will only be used when determined to be necessary.

Spring and Seeps

Springs and seeps often occur when geologic formations channel water to the surface. Major springs and seeps may often provide rare habitat. In addition, by nature, the soils in the vicinity of such features may be soft and vulnerable to traffic and impacts. In general, property operations will be managed to have minimal disturbance to sensitive sites.

Section S Bullet Summary

- Extraction of geologic resources is coordinated through the Central Office.
- Department policies and regulations govern geologic formation/feature use and protection.
- Low impact, recreational gold panning is allowed by permit.
- Operations will be managed to avoid unintended impacts to major springs and seeps.

SECTION T: RECORDS AND FILES

As with any government agency there are a large number of records and files that must be maintained by the properties. Most of these involve overall property administration, financial management, purchasing, and personnel management. As a natural resource management agency, there is an additional need for considerable land and resource management files. These are important for the tracking and continuation of professional land management of the state's properties.

While not all inclusive, this section is designed to provide a brief overview of records, files, and other information properties should maintain. Many of the records, files, and information explained here can be done on paper or digitally through computer software. While tracts are the primary management unit for timber management and other resource management activities, they are not ideally suited for recording some other activities. Property lines, wildlife projects, lakes, trails, and roads are not confined by tract boundaries; therefore, it is often quite logical to document activities through another identifier than the compartment/tract.

Paper Files

Although electronic files are superseding paper files in many instances, there are circumstances where paper files should be maintained. Often the only records of previous management activities are available as paper hard copies. Loss of these historical files would result in a greater loss of tracking management activities and their long term effects. In other cases, maintaining paper records is more convenient or currently the only available resource for some records.

Electronic Files

The desired trend is to move paper files toward electronic filing and storage. As section-wide data bases and filing systems are developed, all properties will migrate their paper files, and existing electronic files to the e-filing systems, and the corresponding standardized file naming system. This will include standard file naming and organization across the state forest system. Electronic files are to be backed up weekly to avoid potential data loss from hardware failure. Some files will likely be held locally, but a majority is expected to eventually migrate to central depositories as system capabilities and connectivity is assured.

GIS Files

Geographic data should be collected and maintained for a variety of resources, including roads, trails, boundary and corner markers, cultural resources, unique natural features, wildlife

features (such as roost trees), and other significant resources. Features can be recorded as points, lines, or polygons. A copy of the feature files should be maintained on the DNR GIS file server known as the M:drive, using a standardized naming system.

Some GIS files may be maintained as a system dataset rather than for individual properties. Examples of these types of files include topographic maps, aerial photographs (both recent versions and historic editions), property boundaries, etc. Such files will be maintained by the Central Office or through DNR Division of Management Information Systems.

Standard Files

Properties should maintain a set of standardized files in addition to a set of files that may be specific to individual properties. The following file types should be maintained and continually updated to provide accurate, accessible information. Unless specifically stated otherwise, files may be maintained electronically or as a paper hard copy.

Compartment Files

Properties will maintain a file for each compartment.

Tract Files

Most timber and other vegetation inventories and management are conducted on the tract level. Properties will maintain tract files to document the resource management activities that occur on the tract. Tract files will include all tract inventories and management guides. Selected paperwork from timber sales (see [Section G: Timber Sales](#)) will be maintained in the tract file. This includes current as well as previous documents. Management recommendations from the natural areas survey will be placed in the appropriate tract file. Tract files may also contain records on property lines, roads, lakes, Natural Heritage Database reviews, cultural resources, and other items deemed appropriate; however, doing so is not necessary if the information is available in another standardized file.

Timber Sale Files

Properties will maintain a file for each timber sale indefinitely. The file will contain copies of all pertinent paperwork including the paperwork identified in [Section G: Timber Sales](#). Where appropriate, accountable receipts will be maintained in receipt books for audit purposes. Photocopies of receipts can be used in the timber sale files.

Property Lines and Land Ownership

Records on property lines and land ownership will be based on the legal land description—section, township, and range. Activities to document include all line and evidence location work done. This should include maps and descriptions of line evidence located

(monuments, markers, fencing, etc.) including evidence interior, exterior and on line. Properties will obtain records of pertinent known survey markers from county surveyor offices. Properties will provide county surveyor offices with updated survey marker location information.

Properties will maintain a file of all known survey prints, private and state, that involve state property lines. Properties will endeavor to obtain copies of prints for all private surveys adjacent to the properties. Properties will send a copy of every private survey print they obtain to the property specialist.

Properties will maintain a file of deeds for the state property. In addition, properties will obtain and maintain a file of deeds for adjacent private land.

Permits, Easements, Agreements, and Letters of Permission

Properties will maintain a file of all permits, easements, agreements, and letters of permission that grant some access or other right to another person or entity to enter and use state property for some specific purpose. Most commonly these are utilities, but can also include travel access.

Roads

All properties should have at least one relatively recent, original county highway map for every county in which the property is located. In addition, older county highway maps will be retained because they provide valuable historical reference for old public roads.

All property service and fire/access roads that are not part of a county or INDOT highway system will receive a unique identifier from the property. Properties will maintain a record of major activities performed on the roads, identifiable to a particular road. Roadwork expenses should be included as part of the record. When the roadwork is for access to (a) timber sale(s), the expenses will be included in the expense listing on the MF 200(s) ([*Appendix II G-18: FM 200 – Cost of Operations*](#)).

Some property service roads receive roadwork from INDOT through a maintenance agreement. The work performed by INDOT will be documented in the appropriate road file.

Trails

Properties will give each trail a unique identifier. Properties will maintain files to document projects on trails. This will include maps or shapefiles showing trail locations.

Lakes

Most properties have man-made lakes that require considerable activity for dam integrity and public use. Properties will maintain a file on projects on lake management. This file will

include rehabilitation projects, dam inspection reports, and user facility projects (boat ramps, docks). All lake vegetation management will be documented.

Natural Areas

Properties will maintain a file for each DNR dedicated nature preserve on the property. The file will include a map, the articles of dedication, and the master plan. It will also contain a record of management activities, if pertinent. The presence of a nature preserve is also to be noted in the appropriate tract file.

Properties will maintain a file for each area designated as High Conservation Value Forest (HCVF) or Representative Sample Area (RSA). The file will include a map and description of the HCVF or RSA. In nearly all cases HCVFs are also dedicated nature preserves.

Management recommendations and identification of these and any other special areas resulting from natural area surveys that do not involve a nature preserve designation will be incorporated into the appropriate tract files.

Fish and Wildlife

Properties conduct many projects to benefit wildlife. To document these activities, properties will maintain a file of all wildlife activities performed on the property. The file will contain maps showing the locations and descriptions of the activities. Records and locations of past activities such as wildlife openings and waterholes will be maintained. Fish management activities will be documented according to the lakes on which the activities are performed.

Plantations and Plantings

While plantations and plantings are typically located within tracts, it is usually easiest to have a separate file during the period when these areas are managed separately from the remainder of the tracts. Once these areas stop receiving special attention and are managed with the tracts, then separate documentation should cease. The exception to this is when another goal, such as research, requires continued separation of recordkeeping.

Each plantation and planting will have a unique identifier that is retained until it is incorporated into the tract management. Information that should be documented includes species planted, planting scheme, site preparation, cultural treatments, and weed control. Associated costs may be documented, including time worked.

Section T Bullet Summary

- As paper records are migrated to electronic databases, files will be retained in a centralized depository using a standardized file naming system.
- GIS records will be maintained on roads, trails, and other geographic features.

- Records will be maintained on compartment activities, tract activities, property line and land ownership, permits, easements, agreements, letters of permission, roads, trails, lakes, natural areas, fish and wildlife, and plantations and plantings.

SECTION U: LAND-USE PERMITS

Because of their extensive nature, state forests and forest recreation areas often receive requests for use of land. The nature of these requests generally entails some type of access. This may be for ingress or egress, or for some utility with structures. Sometimes the access is minimal and short term; other times the access is relatively permanent and intrusive in nature.

Requests for use can be divided into four use categories (Minimal Use, Moderate Use, Major Use, Farmland and Other Land Lease) and based on the length of use and the amount of disturbance. These four use categories are handled by four different methods.

Minimal Use

This type of use is the lowest in terms of impact and length of time, and generally entails some type of temporary or sporadic access. It uses existing fire/access roads with no major additional work required or permitted. Major work is anything that requires excavation, soil disturbance, or standing tree removal. Adding stone to wet spots in a road, moving downed trees, or reasonable clearing of overhanging limbs is not considered major.

Another example of minimal use is when the amount of use would amount to probably less than 10 times per year, and would be sporadic or irregular in nature. No access that is regular should be allowed, such as every-week use. The expected use of this access is unlikely to cause significant damage to the fire/access road. The use is infrequent enough, at good road condition times, and with a light impact vehicle that will have little effect on the fire/access road. One example of this use is a person wanting vehicle access to his property to hunt for turkey in the spring and for deer in the fall. Another example is a farmer who wants access to a field in the spring for planting, in the summer for cultivating, and in the fall for harvesting.

Requests for this type of use can be approved at the property level with a letter of permission. The length of term for the letter of permission is at the discretion of the property manager, but will not exceed one year. The expiration date should be clearly stated. The letter should include a description of the road via its designation, name or number, and a map. The letter will describe the limits of work the permittee can do on the use area, which are described above. The letter will include a clause stating that the permission granted by the letter can be terminated before the expiration, at the discretion of the property manager. One copy of the letter will be given the permittee, and the original will be retained in a property file specifically for such agreements.

Moderate Use

This type of use is a step above the use described above, though it also includes some type of temporary or sporadic access. Again, this use utilizes existing fire/access roads, skid

trails, yards, or other existing features. It also may include new features, such as low-impact skid trails or yards. Major work to the use areas is not allowed unless agreed to in writing. Major work is anything that requires excavation, soil disturbance, or standing tree removal. Adding stone to wet spots, moving downed trees, or reasonable clearing of overhanging limbs is not considered major. Any soil disturbance or excavation beyond an existing disturbed roadway requires archaeological clearance prior to permission being granted. Use areas that do not use existing roads and may involve soil disturbance or excavation will require archaeological clearance, including new yards or skid trails.

The length of use would amount to probably less than a year, and would be irregular over the prescribed length and concentrated in time. No access that is regular should be allowed, such as an every-week access.

This expected use may have the potential to cause significant disturbance to the use area. The use, though infrequent, is concentrated and may occur at less-than-ideal times as far as ground conditions are concerned. The use generally involves large, heavy vehicles and equipment with high impact that could significantly disturb the use area.

One example of this use is a logger wanting access to skid, yard, or haul across state forest land for a harvest on neighboring land. Another example is a utility contractor who wants access to a utility right-of-way on neighboring land to install new lines.

Requests for uses of this type of use are approved at the division level. The approval is started at the property level with the property completing all the information on a Letter of Agreement for Use of State Property ([Appendix II U-1: Letter of Agreement for Temporary Use of State Forest Land for the Purposes of Ingress and Egress](#)). The length of term for the letter of agreement is at the discretion of the property manager, but will not exceed one year. The expiration date should be clearly stated. The letter should include a description of the specified use area via its designation, name, or number, and a map. The agreement will describe the limits of work the permittee can do on the use area, and will specifically describe any major work the permittee is allowed to do. This document will identify whether existing features (roads, yards, skid trails) will be used, or if new features are to be created. The property specialist should be contacted prior to completing paperwork if significant work is to be done.

The property will prescribe a use agreement fee and performance deposit that will be an amount the property deems reasonable to cover the expenses of repairing possible damage to the use area for the prescribed use, and condition of the use area. This performance deposit will be handled the same as a timber sale performance deposit. A Receipt 352 will be completed with the permittee receiving a copy and the property keeping a copy for audit purposes. The property will keep a photocopy of the check and receipt with the permit paperwork. The yellow receipt copy and the check will be sent to the Central Office property specialist with the Letter of Agreement ([Appendix II U-1: Letter of Agreement for Temporary Use of State Forest Land for the Purposes of Ingress and Egress](#)). This will be sent via certified mail, similar to a timber sale deposit.

The original Letter of Agreement, map delineating the area, photocopy of performance deposit check, and photocopy of deposit receipt will be sent to the property specialist for review. The property specialist will pass the letter to the division director for approval. The Letter of Agreement is not complete and cannot be implemented until it is approved by the division director. Once approved, the original letter will be retained in Central Office, and two copies will be sent to the property, one for property files, and one for the permittee.

The property specialist will maintain a file of active and recently expired Letter of Agreements. The properties will also maintain a similar file.

Major Use

This type of use is a step above the use described above and can often involve uses other than vehicle access. It will consist of one or more of the following factors that will raise it above the previous use level. This use may or may not use existing fire/access roads, skid trails, yards or other existing features. Major work to the use areas is not allowed unless agreed to in writing. Major work is anything that requires excavation, soil disturbance, or standing tree removal. Adding stone to wet spots, moving downed trees, or reasonable clearing of overhanging limbs is not considered major. Any soil disturbance or excavation beyond the existing disturbed roadways requires archaeological clearance prior to permission being granted. Use areas that are not existing roads and that may involve soil disturbance or excavation will require an archaeological clearance.

The length of use is long term, and may not have an end date determined at the time the permit is requested. This would include use that is regular in nature, but not necessarily require a large amount of use time.

The expected use may be likely to cause significant disturbance to the use area. The use may utilize heavy vehicles or equipment. Often the use may require that major work be done to improve an existing road or other feature, or involve the actual creation of a road, utility corridor, or other feature.

By statute, all utility lines installed across state forest land, even within an existing right-of-way, easement, and public road right-of-way fall in this category. The only utility lines exempt from this are those that were installed prior to state acquisition of the land, or those installed strictly for property use. Utilities installed for property use are still outlined under an agreement or contract. New utilities that use the facilities of another utility (such as the phone company using electric company poles) are not covered by the other utility permit and must obtain their own. Utilities are one common example of a somewhat permanent use that falls in this category.

Access lanes to private property are another example of this use. Use that is frequent or regular, and that may require a much more developed access lane would fall in this category. Access to homes would definitely fall in this category. Vacation cabins that are used on an every weekend basis would also fall in this category.

Requests for uses of this type are approved at the division level. These are handled through the statutory permit and easement agreements. Requests for these agreements should be sent to the property specialist by the parties seeking the agreements after contact with the property. The request should include information on the location and extent of the usage, and specifics of any proposed site alteration. A Natural Heritage Database review should be conducted of the use area.

The property specialist will review the request and information provided to the state forester. Additional information may be needed to evaluate the request. The property specialist will visit the proposed site and consult with the appropriate property staff. The property section staff will develop a recommendation of the request as reviewed against the Department/Natural Resources Commission Policy on land-use easements and permits. Fees may apply per NRC Information Bulletin # 28 (<https://www.in.gov/nrc/2375.htm>). If archaeological clearance is needed, it must be obtained before the easement document is signed. Archaeological reviews are the responsibility of the party requesting the easement.

Requests that are deemed acceptable then have an easement document created. The easement document will include a description of the allowed use, the disturbance that is allowed, and a specific location description. Maps showing the location and appropriate engineering drawings will be included as exhibits.

The easement document is first sent to the grantee for signature and notarization. It is then returned to the property specialist to obtain the appropriate department signatures.

The easement is effective at the time of recording.

The original easement document is retained in State Land Office. Copies are sent to the appropriate property for their files, to the grantee, and to Central Office. The property specialist will maintain a database and file of easements and other similar agreements. The property specialist will periodically review the database to identify those requiring renewal. Properties will maintain a similar file specific to the property.

Farmland and Other Land Leases

While the state forest system has relatively few cropland acres, certain land may be acquired or managed for agricultural crop production until such time comes for those lands to be restored to a more natural condition. Croplands may be leased following the lease guidelines established by the Indiana Department of Administration. Lease development and solicitation is coordinated by the property manager in cooperation with the property section head.

Periodic requests are received concerning other types of land leases. These should be directed to the property specialist.

Section U Bullet Summary

- Requests for land use that have minimal impact or duration can be handled at the property level with a Letter of Permission.
- Requests for land uses that have moderate impact or duration are handled by the division with a Letter of Agreement for Temporary Use of State Land.
- Requests for land uses that have major impact or duration are handled through the department easement/permit process.
- Requests for cropland leased are handled through state land leasing policies.
- The property specialist will maintain records of easements, permits and other similar land-use agreements.

Section U Appendices

[Appendix I U-1: Permit Statute](#)

[Appendix II U-1: Letter of Agreement for Temporary Use of State Forest Land for the Purpose of Ingress and Egress](#)

SECTION V: TRAINING

Property management will continue to become more complex. Today's manager must have knowledge of many functions, including computer operation, personnel management, engineering, surveying, public relations, marketing and law, among others. This knowledge is in addition to the basic land and natural resources management knowledge that forest managers traditionally were thought to need. Property staff is called upon to stay current on an evolving and growing list of tasks. Regular training can be used to help keep property personnel up to date with new technologies and research findings, and familiar with basic concepts of overall property management.

There are many facets to training that are available to employees. Generally, the training of any employee is the responsibility of the employee's supervisor.

This section does not provide an all-inclusive guide for training. Rather, it provides some training guidance for the property section positions, particularly with regard to land, recreation and resource management.

New Full-time Employees

All new full-time employees will receive basic orientation. This is scheduled through the Central Office.

Property managers, assistant managers, and office managers will participate in management and supervisory training programs available through the State Personnel Department. The Central Office administrative assistant can be contacted for more information. The manager's supervisor will develop the schedule for completion of the appropriate courses.

Existing Full-time Employees

Existing full-time employees must receive regular training to maintain acquired skills, learn new skills, learn new technologies and techniques, operate safely, and continue to broaden their knowledge base. There are a broad array of training opportunities for existing employees. Employees should receive a minimum of 60 hours of training within a three-year period, or an average of 20 hours every year.

Professional organizations such as the Indiana Society of American Foresters, the Indiana Parks and Recreation Association, and the Wildlife Society are often excellent sources of training. These groups hold numerous workshops throughout the year that cover resource, land and recreation management. The division encourages professional employee membership and participation in these organizations to improve employee training.

Colleges and universities are excellent sources of training for employees. Often there are workshops for specific audiences, such as the forestry workshops through Purdue University Extension. In other cases, the general open courses provide training opportunities for all property staff, such as computer software courses.

Other training opportunities are available through a variety of organizations. The Nature Conservancy, for example, has offered workshops regarding exotic species.

The State Personnel Department is a good source of training for existing employees. The courses provide an opportunity to refresh skills or learn something new.

In-house training is often used to fill the gaps in the other training opportunities. This training may use division staff as trainers, or may be set up by the division, using outside experts in a particular field. In-house training often covers state administrative procedures. Examples include chainsaw safety training offered by Division of Forestry specialists.

Properties are encouraged to periodically take a property staff trip to another property to see the various aspects of another property's operations, such as recreation, resource management, service area, and administration, among others. This is an excellent opportunity to exchange ideas, learn new methods, and find out things that work or don't work.

It is the responsibility of the supervisor to ensure that employees have an opportunity to attend applicable, available, regular training that is considered necessary to satisfactorily perform work duties. This often involves retaking previous training courses. For example, supervisors should periodically receive refresher training on the roles and responsibilities expected of them and the employees they supervise.

Intermittent Employees

Training for intermittent employees is more problematic because of the small employment window, limited responsibilities, and erratic work schedule. It is the supervisor's responsibility to ensure that intermittent employees receive appropriate training pertinent to the scope and duration of their work. This training can range from complex instructions, such as training on front gate operations and the Campground Reservation System, to simple training opportunities such as personally showing someone how to properly use a lawnmower. Some of this training is offered at the department level, such as annual security and interpretive naturalist training.

Training Requirements

There are few situations in which particular training or certification is required. Supervisors must be sure that the following situations are addressed.

Properties with sewage treatment plants must have at least one employee trained and certified to operate the plant, unless that plant is serviced by contract. New assistant property managers on properties with wastewater treatment plants may be required to obtain wastewater treatment plant certification.

All professional positions that apply pesticides must complete applicable training and be appropriately certified to apply and supervise pesticide application on the property.

All employees working prescribed and wildland fires are to complete applicable training. It is encouraged that all properties have at least one red-carded wildland firefighter.

Employees using chainsaws are required to complete chainsaw operation and safety training offered through the Division of Forestry.

All supervisors must receive supervisory training.

All properties must have at least one person trained in purchasing and administrative procedures.

Resource management staff are required to complete 20 hours/year of training that would qualify for them to obtain and retain SAF Certified Forester status, or similar status in other disciplines (e.g., certified wildlife biologist).

Properties are required to conduct monthly safety training on pertinent topics per guidance from the DNR Division of Asset Management-Safety and Training.

Training Records

Employees shall maintain a sheet where they record the training they take ([Appendix II V-1: Record of Training](#)). A copy of this record of training will be presented to the employee's supervisor at least during the annual performance appraisal, if not more often. The supervisor shall place the copy in the employee's file until superseded by a revised record.

Section V Bullet Summary

- Supervisors will arrange and schedule training for new full-time employees.
- Supervisors will provide opportunities for existing full-time employees to receive appropriate, adequate training.
- Supervisors will provide appropriate training to intermittent employees.
- There are a few instances where training or certification is required.
- Employees shall maintain a record of their training, with a copy going to the supervisor.

Section V Appendices

[Appendix II V-1: Record of Training](#)

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Appendix I A-1: State Forest and Forest Recreation Area Directory

<u>PROPERTY</u>	<u>COUNTIES</u>	<u>ACREAGE</u>
Clark State Forest P.O. Box 119 Henryville, Indiana 47126 (812) 294-4306 clarksf@dnr.IN.gov	Clark, Scott, Washington	25,352
Deam Lake State Recreation Area 1217 Deam Lake Road Borden, IN 47106 (812) 246-5421 deamlakesra@dnr.IN.gov	Clark	236
Ferdinand State Forest 6583 East State Road 264 Ferdinand, IN 47532 (812) 827-2857 ferdinandsf@dnr.IN.gov	Crawford, Dubois, Perry	7,780
Frances Slocum State Forest Managed through Salamonie River State Forest	Miami	515
Greene-Sullivan State Forest 2551 S. State Road 159 Dugger, IN 47848 (812) 648-2810 greensf@dnr.IN.gov	Greene, Parke, Sullivan Includes 298 acre Covered Bridge Retreat	9,343
Harrison-Crawford State Forest 7240 Old Forest Road SW Corydon, In 47112 (812) 738-8232 harrisonsf@dnr.IN.gov	Crawford, Harrison, Orange	24,322
Jackson-Washington State Forest 1278 East State Road 250 Brownstown, IN 47220 (812) 358-2160 jacksonsf@dnr.IN.gov	Jackson, Washington	18,417

Martin State Forest 14040 Williams Road Shoals, IN 47581 (812) 247-3491 martinsf@dnr.IN.gov	Greene, Lawrence, Martin	7,863
Morgan-Monroe State Forest 6220 Forest Road Martinsville, IN 46151 (765) 342-4026 morgansf@dnr.IN.gov	Monroe, Morgan	25,879
Owen-Putnam State Forest 2153 Fishcreek Road Spencer, In 47460 (812) 829-2462 owensf@dnr.IN.gov	Owen, Putnam	6,673
Pike State Forest Managed through Ferdinand State Forest	Gibson, Pike	5,031
Salamonie River State Forest 5400 East State Road 524 Lagro, Indiana 46941 (260) 782-0430 salamonieriverstfor@dnr.IN.gov	Wabash	955
Selmier State Forest 905 E. Co. Rd. 350 N. North Vernon, IN 47265 (812) 346-2286 selmiersf@dnr.IN.gov	Jennings	350
Starve Hollow State Recreation Area 4345 S. Co. Rd. 275 W. Vallonia, IN 47281 (812) 358-3464 starvesra@dnr.IN.gov	Jackson	278
Yellowwood State Forest 772 S. Yellowwood Road Nashville, IN 47448 (812) 988-7945 yellowwoods@dnr.IN.gov	Brown	25,083

13 State Forests, 2 State Recreation Areas 24 counties 158,077 acres

Appendix I C-1: Policy on the Use of Carsonite Signs

Note: All Carsonite posts should have appropriate decals applied when installed.

Recreational Trails

Most recreational trails will be marked using dual-sided Brown Carsonite posts with decals to identify type of trail (e.g., horse, hiking, etc.) and the individual trail identification (number or color code). If trails are currently marked with some other system, change to brown Carsonite as the markers need to be replaced. It is strongly suggested that trails are given descriptive names and use traditional routed signs or text signs at the beginning of trails, then use Carsonite to mark the trail routes. The first Carsonite post on each trail should have a decal showing the type of trail and the number or color code of the trail. Subsequent posts need only the number or color identifier until you reach a trail intersection, then again use the type of trail decal. If you think that using the type of trail decal more frequently is worthwhile on your property you may do so, but it is not required.

Special Horse Trail Marking

The back of all horse trail marking posts should have a stable decal indicating the return route to the campground or trailhead. Also, on loop trails, whenever possible, place the marker posts on the right side of the trail as it leads away from camp and on the left side after the halfway point when the trail is leading back toward camp. It is also suggested that an informational/text sign be placed at the halfway point, and perhaps at other points, explaining how far it is to camp or day-use area. These information signs can also be an interpretation opportunity.

Marking other Property and Recreational Facilities

You may use any color of Carsonite posts, except orange, red, or yellow, to mark other property facilities.

Orange

Orange posts should only be used for marking boundary lines. These posts should contain the appropriate *Property Boundary* decal and should only be placed on property lines that have been surveyed either by the division surveyor or approved by the division surveyor.

Red

Used to identify safety zones or other danger areas.

Yellow

Used for identifying survey marker locations (e.g., corner stones, etc.) with appropriate *Survey Marker* decal. Survey markers may be on property lines or off line.

“Slashed” decals

The use of “slashed” decals indicating that an activity is prohibited on a trail or area will be necessary at the beginning of certain trails. We need to limit the use of slashed decals to those

places where trail users may become confused (intersections of hiking and horse trails) in order to minimize the feeling of over control.

Appendix I C-2: Backcountry Camping Policy

All campers must register with state forest office via person or phone (765-792-4654), or by signing the sign-in sheet at the kiosk. Users must indicate the general region of planned camping. During periods of high-fire danger the area may be closed by the property manager.

Camping groups are restricted to family units, or groups not exceeding six persons.

No campsite may be established within ¼ mile of access points into the area.

Use of the area is restricted to a maximum of three days (72 hours) by any individual.

Follow the carry-in carry-out trash policy, i.e., what you carry in you must carry out.

Make minimal impact when camping/hiking in backcountry area to preserve natural state of forest.

Appendix I D-1: Indiana State Forest Method Set

Prime trees, per the stated grading guide. Trees whose grading meets the guides and have the potential, based on lack of surface defect, to be veneer trees. This will usually only be the butt log of a tree. Volume is tallied as board feet Doyle.

Sawtimber trees are those trees in the 12-inch diameter class and larger that are considered to have merchantable sawtimber volume. This is volume that is tallied as board feet Doyle.

Quality sawtimber trees are those sawtimber trees in species that have a prime option that do not quite meet the prime designation (e.g., clear on three of four faces), and similar or better trees in those species without a prime option.

Culls are defined as live trees with no merchantable volume. Generally, their designation for removal in a harvest is for logistics, such as creating a felling or skidding lane, or occasionally in order for the harvest operation to perform some of the TSI. Poles can be considered culls when they are determined to have essentially no sound volume.

Snags are defined as standing, dead trees. These can be sawtimber size or pole size. Volume in culls and snags is in cords. There is value in identifying this “lost” volume. Cord volume measure is a way to keep it separated from sawtimber. If a snag needs to be tallied with merchantable volume, it must be treated as a live tree.

Poles are considered to have no merchantable sawtimber volume. They are trees in the 6- to 11-inch diameter class. Larger diameter trees can be considered poles if they are considered to contain no sawtimber volume but are considered to contain cord volume. Volume in poles is calculated in cords. Pole size trees with defect that eliminates their having any cord volume should be considered culls.

Saplings are smaller than the poles but large enough to have DBH. They are not assigned a volume.

Species List and Codes for All Method Sets

BLO	Black Oak	837BL	BLG	Blackgum	693BG
REO	Northern Red Oak	833RE	SWG	Sweetgum	611SG
SCO	Scarlet Oak	806SC	LAA	Largetooth Aspen ^{743LA}	
BJO	Blackjack Oak	824BJ	QUA	Quaking Aspen	744QA
NPO	Northern Pin Oak	809NP	COT	Eastern Cottonwood	742CT
PIO	Pin Oak	830PI	SWC	Swamp Cottonwood	744SC
SHO	Shingle Oak	817SH	BAP	Balsam Poplar	741BP
ZSO	Shumard Oak	834ZS	COF	Kentucky Coffeetree	571CF
SOO	Southern Red Oak	812SR	SYC	American Sycamore	731SC
CBO	Cherrybark Oak	813CB	SAS	Sassafras	931SS
ORO	Other Red Oak	800OR	PER	Persimmon	521PM
WHO	White Oak	802WH	PAB	Paper Birch	375PB
CHO	Chestnut Oak	832CH	RIB	River Birch	373RB
ZCO	Chinkapin Oak	826ZC	YEB	Yellow Birch	371YB
BUO	Bur Oak	623BU	OHB	Ohio Buckeye	331OB
POO	Post Oak	835PO	ZYB	Yellow Buckeye	332ZB
SWO	Swamp White Oak	804SW	CAT	Catalpa	452CT
XSO	Swamp Chestnut Oak	825XS	EUA	European Alder	355EA
OVO	Overcup Oak	822OV	BLL	Black Locust	901BL
OWO	Other White Oak	801OW	HOL	Honeylocust	552HL
BIH	Bitternut Hickory	402BH	ZBW	Black Willow	922ZW
MOH	Mockernut Hickory	409MH	OSO	Osage-orange	641OO
PIH	Pignut Hickory	403PH	DOG	Dogwood	491DG
REH	Red Hickory	412RH	REB	Redbud	471RB
SHH	Shagbark Hickory	407SH	PAP	PawPaw	367PP
ZSH	Shellbark Hickory	405ZH	ZRM	Red Mulberry	682ZM
PEC	Pecan	404PC	IRO	Ironwood	701IW
SUM	Sugar Maple	318SU	HAW	Hawthorn	500HW
REM	Red Maple	316RM	BLB	Bluebeech	391BB
SIM	Silver Maple	317SL	AIL	Ailanthus	341AL
BLM	Black Maple	314BM	PAU	Paulownia	712PU
BOX	Boxelder	313BX	YEL	Yellowwood	481YW
NOM	Norway Maple	320NM	OTH	Other Hardwoods	999OT
YEP	Yellow-poplar	621YP	JAP	Jack Pine	105JP
CUC	Cucumbertree	651CC	LOP	Loblolly Pine	131LP
BLA	Black Ash	543BA	PIP	Pitch Pine	126PP
ZBA	Blue Ash	546ZA	REP	Red Pine	125RP
GRA	Green Ash	544GA	SCP	Scots Pine	130SP
WHA	White Ash	541WA	SHP	Shortleaf Pine	110SP
PUA	Pumpkin Ash	545PA	VIP	Virginia Pine	132VI
BLW	Black Walnut	602BW	WHP	Eastern White Pine	129WP
BUT	Butternut	601BT	OTP	Other Pine	100OP
BLC	Black Cherry	762BC	ERC	Eastern Redcedar	068ER
AME	American Elm	972AE	NWC	Northern White-cedar	241WC
REE	Red Elm	975RE	BAC	Baldcypress	221BA
ROE	Rock Elm	977RO	BAF	Balsam Fir	012BA
WIE	Winged Elm	971WE	EAH	Eastern Hemlock	261EH
HAC	Hackberry	462HC	BLS	Black Spruce	095BS
SUG	Sugarberry	461SG	WHS	White Spruce	094WS
AMC	American Chestnut	421AC	NOS	Norway Spruce	091NS
AMB	American Beech	531AB	TAM	Tamarack	071TM
BAS	Basswood	951BS	OTC	Other Conifers	299OC

Appendix I D-2: Sawtimber Volume Table

Tree Volume Table for Indiana Hardwoods, Doyle Log Rule Form Class 78 by 12-foot Lengths
(From Beers, 1973).

DBH	Board feet (Doyle) by merchantable height in number of 12-foot logs											
		1	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6
10	3	8	11	14	-	-	-	-	-	-	-	-
11	6	15	21	25	-	-	-	-	-	-	-	-
12	10	23	32	39	45	50	-	-	-	-	-	-
13	14	32	44	55	64	71	-	-	-	-	-	-
14	19	41	57	72	84	94	103	112	-	-	-	-
15	24	51	71	90	105	119	131	143	-	-	-	-
16	30	61	86	110	129	146	161	176	188	206	-	-
17	36	72	103	130	153	175	194	212	229	252	-	-
18	44	84	119	150	180	207	229	251	273	300	-	-
19	52	97	137	174	208	241	267	294	322	351	-	-
20	61	111	156	199	238	277	308	341	373	406	-	-
21	70	129	176	225	270	316	353	393	428	466	-	-
22	81	149	198	255	305	359	401	449	488	530	578	625
23	93	168	228	289	344	405	455	508	552	598	650	701
24	105	190	257	324	386	454	511	570	620	671	728	786
25	118	212	286	360	430	505	569	635	692	747	808	869
26	133	236	318	399	479	558	630	702	765	826	896	968
27	148	261	348	435	527	613	693	771	842	909	986	1062
28	163	285	382	478	579	670	758	843	922	996	1084	1172
29	181	314	418	523	630	729	825	918	1005	1087	1184	1280
30	200	340	456	571	685	791	895	997	1092	1182	1290	1398
31	220	372	497	622	740	857	968	1080	1182	1281	1402	1522
32	234	402	539	676	799	927	1044	1167	1277	1387	1518	1649
33	267	435	584	732	866	1001	1126	1258	1377	1496	1635	1774
34	295	470	632	793	936	1078	1211	1353	1471	1609	1726	1914
35	325	507	682	856	1007	1158	1299	1451	1588	1727	1888	2050
36	357	547	735	932	1082	1240	1390	1552	1700	1844	2020	2196
37	391	590	792	993	1158	1324	1484	1655	1813	1968	2156	2345
38	426	635	850	1065	1238	1410	1581	1760	1931	2095	2300	2507
39	465	681	910	1139	1318	1497	1680	1868	2050	2224	2437	2650
40	506	732	974	1215	1400	1585	1782	1979	2171	2355	2582	2808

Appendix I D-3: T-Cruise

T-Cruise for Inventory

T-Cruise - Setting up an INVENTORY on the Forge

- Press the Windows key on your Forge and then click the **TC Pro Pocket** OR hit the **F6** shortcut to take you to T-Cruise
- “Choose action” window pick **NO INITIAL ACTION** (no initial action and create a new cruise take you to the same place)
- Default document is created
- Click **FILE** scroll down to **IMPORT PARAMS FILE**
- Click on **IN_DNR_10BAF_Prism_Spp#**
 - If your Forge is not showing this file make sure you are searching All Folders
 - If still nothing copy the necessary files from
 - M:\Division_Workspaces\Forestry\T-Cruise
 - Save them to \My Documents\Templates
 - If you don’t have access to the M:Drive contact the Central Office
- Click on **FILE** and then **SAVE AS**
 - Change the Name to a three digit property code and four digit compartment tract number followed by an “I” for Inventory (0000000I)
 - Change the Folder to TCruiseCE
- Click **SAVE**
- Click **Opts** and then **Misc. Settings** make sure “English logs to ft factor/max logs” (the first two boxes display a 12 and a 7 respectively, if they don’t, change them)

How to use T-Cruise on the Forge once it’s set up

- To save a plot click the “**→ F**”
 - Note you cannot toggle to Solo Forest (map) without saving
- To edit an existing plot click **Edit** and then scroll down and click **Edit Plot by ID**
- Forcing a point (if for example you have one in the water and you can’t get to it)
 - **Knowing the plot number** of the one you want to force is helpful, in Solo Forest click the plot you want to force to open its attributes, memorize the plot number (should be something to the effect of 3_8, the first number is the column that point is in on the grid and the second number is the row)
 - Use your shortcut key to **open T-Cruise** (TC Pro Pocket)
 - Click the “+” to add a plot
 - **Fill in the Plot ID** with the plot number you memorized a minute ago
 - Continue like normal

Using T-Cruise for an INVENTORY on the Forge

- After setting up T-Cruise for an inventory and generating a grid in Solo Forest
- Open Solo Forest, turn on the sound (very top menu), and walk to the plot where you want to start
- When you reach a plot the Forge should make a noise and prompt you with a window saying “Do you want to log a point with T-Cruise?” click **YES**
 - If this window is not coming up make sure your RTI is turned on
 - To turn RTI on click **Tools, More, RTI**
 - Programming flaw, there’s no way of knowing if RTI is on aside from being prompted when you reach a point
- In popup window Fill in an appropriate stratum (be consistent)
- Leave the “Plot ID”
- Click **OK**
- For an inventory 2 inch size classes are used
 - 2 inch trees within an 11ft radius should be tallied and receive a product code of “AA” for auto assign
 - 4 inch trees picked up by a 10BAF prism should be tallied and receive a product code of “AA”
 - 6 to 10 inch trees picked up by a 10BAF prism should be tallied as “POL” for poles
 - 10+ inch trees picked up by a 10BAF prism should be tallied as “SAW” for sawtimber (10inch trees are rarely tallied as sawtimber)
 - Snags (of any size) receive a product code of “AA” and the snag column should read “Yes”
 - A product code of “Q” for Quality can be designated
 - A product code of “P” for Prime can be designated
 - A product code “CL” is used to designate Cull trees
 - If you hit any of the options starting with “G” don’t panic just hit Cancel

Using T-Cruise for an INVENTORY on Your Desktop

- On the Forge unit, save the cruise file you are working on by clicking the “**➡F**”
- Plug you Forge unit into the computer
- Copy the file you are working on and save it locally
 - Should be saved under My Documents\TCruiseCE on the Forge
- Open T-Cruise on your Desktop, Heuristic Solutions should open
- Click “**Load.tct**” navigate to the folder containing your .tct files and click on **IN_DNR_10BAF_Prism_Spp#** and click **OPEN**
 - If you don’t have the necessary files saved somewhere they can be downloaded from
 - M:\Division_Workspaces\Forestry\T-Cruise

- Save them into a local folder exclusively for .tct files
 - If you don't have access to the M:Drive talk to the Central Office
 - Click **Import .tce** navigate to where you locally saved the .tce file from the Forge unit and open it
 - "Browse for imbedded" window pops up click **NO** another window comes up click **OK**
 - Trying to use a file still saved on the Forge unit does not work
 - **NOTE: DO NOT TRY TO DO THIS STEP BEFORE LOADING THE .TCT FILE**
 - Click **Tract Info**
 - Fill in the "Land Area" with the **tract acreage** (*required field)
 - Click **Fill Date Field with Current Date** (*required field)
 - Fill in "Name" with the 3 digit property code followed by the tract number
 - Note: if you don't fill in the name, your Habitat Features won't calculate
 - Fill in "Cruiser"
 - Editing Info
 - If you need to make changes or check the data:
 - Click **Edit, Edit Plot by ID**
 - Choose the plot you wish to view or edit and click **OKAY**
 - Use the "Edit previous" and "Edit next" to move between plots
 - If you need to edit the stratum acreages
 - **Stratify** at the very top and then **Edit Stratum Land Area** (acreages must be determined in GIS)
 - If you need to edit general plot data
 - Click **Edit** then **Edit Plot Level Information**
 - Click "**Run By Group**"
 - You will be prompted to **SAVE**, do so
 - I would suggest saving in a .tcd specific folder
 - Click **OKAY** several times
 - Microsoft Access should open up
 - Check the top left "Report" and "Path" should be followed by files you named
 - If NO TRACT ID appears contact the Central Office and specify that T-Cruise isn't linking your tables to Access
 - Click the **Harvest/Leave** tab at the top of the page
 - Click **18. Non-Stratified Harvest/Leave Summary Report** (this is one you'll need to adapt for the management guide table harvest leave totals)
 - **PRINT!**
 - Or save as a pdf (Click **file, save & publish, save object as, pdf or xps, save as**)

- Click **19. Non-Stratified Harvest/Leave Summary Report Per Acre** (this is one you'll need to adapt for the management guide table harvest leave per acre)

TCruise for a Harvest

Setting up T-Cruise for a HARVEST on the Forge

- Press the Windows key on your Forge and then click the **TC Pro Pocket** OR hit the **F6** shortcut to take you to T-Cruise
- “Choose action” window pick **NO INITIAL ACTION**
- Default document is created
- Click **FILE** scroll down to **IMPORT PARAMS FILE**
- Click on **IN_DNR_10th_Plot_Spp#**
 - If your Forge is not showing this file make sure you are searching All Folders
 - If still nothing you can copy the necessary files from
 - M:\Division_Workspaces\Forestry\T-Cruise
 - Save copy of file to \My Documents\Templates
 - If you don’t have access to the M:Drive contact the Central Office
- Click on **FILE** and then **SAVE AS**
 - Change the Name to a three digit property code and four digit compartment tract number followed by an “H” for Harvest (0000000H)
 - Change the Folder to TCruiseCE
- Click **SAVE**
- Click **Opts** and then **Misc. Settings** make sure “English logs to ft factor/max logs” (the first two boxes display a 12 and a 7 respectively, if they don’t, change them)

How to use TCruise on the Forge once it’s set up

- To add a plot click the “+”
 - Fill out the info you are prompted for
 - Click **OK** in the box (not the one at the very bottom)
 - Click **OK** and disregard Grapevine
 - You should have a blank plot
- To save a plot click the “ → F”
 - Note you cannot toggle to Solo Forest (map) without saving
- To edit an existing plot click **Edit** and then scroll down and click **Edit Plot by ID**

Using T-Cruise for a HARVEST on your Desktop

- On the Forge unit, save the cruise file you are working on by clicking the “ → F”
- Plug the Forge unit into the computer
- Copy the file you are working on and save it locally
 - Should be saved under My Documents\TCruiseCE on the Forge
- Open T-Cruise on your Desktop, Heuristic Solutions should open
- Click “**Load.tct**” navigate to the folder containing your .tct files and click on **IN_DNR_10th_Plot_Spp#** and click **OPEN**

- If you don't have the necessary files saved somewhere they can be downloaded from
 - M:\Division_Workspaces\Forestry\T-Cruise
 - Save file into a folder exclusively for .tct files
- If you don't have access to the M:Drive contact the Central Office
- Click **Import .tce** navigate to where you locally saved the .tce file from the Forge unit and open it
 - "Browse for imbedded" window pops up click **NO** another window comes up click **OK**
 - Trying to use a file still saved on the Forge unit does not work
 - **NOTE: DO NOT TRY TO DO THIS STEP BEFORE LOADING THE .TCT FILE**
- Click **Tract Info**
 - Fill in the "Land Area" with the number of plots you have (*required field)
 - If you have deleted plots subtract the number you deleted from the total and use that number
 - Click **Fill Date Field with Current Date** (*required field)
 - Fill in "Name"
 - Sometimes T-Cruise gets weird if you start with something besides the 3 digit property code it has embedded
 - Fill in "Cruiser"
- If you need to make changes or check the data
 - Click **Edit, Edit Plot by ID**
 - Choose the plot you wish to view or edit and click **OKAY**
 - Use the "Edit previous" and "Edit next" to move between plots
 - Use the "Prev page" and "Next page" to see the rest of a plot
 - Page 1 is going to be trees 1-100
 - Page 2 is going to be trees 101-200
- Click "**Run By Group**"
 - You will be prompted to **SAVE**, do so
 - Save in a .tcd specific folder
 - Click **OKAY** several times
- Microsoft Access should open up
 - Check the top left "Report" and "Path" should be followed by files you named
 - If NO TRACT ID appears contact the Central Office and specify that T-Cruise isn't linking your tables to Access
 - Click the **Timber Sale** tab at the top of the page
 - Click **12. Report FM 203**
 - PRINT!
 - Or save as a pdf

- Click **file, save & publish, save object as, pdf or xps, save as**

Using Indiana Reports (Access)

Opening an Existing Report

- Open **Indiana Reports** (desktop shortcut)
- The last report you had open will open as the default
- Click on **Settings**
- Click Load T-Cruise Tables
- Navigate to the file in which your .tcd files are saved and open the one you want

Appendix I D-4: Point Sampling Guidelines

For 10-factor prism

Equations Used In Horizontal Point Sampling		Suggested Minimal Sample Points in Forest Inventory		
		Acres (A)	No. of Points (n)	
Basal area (BA) = $0.005454 \times dbh^2$		1-10	10	
Basal area factor (BAF or F) = a constant set by the prism or angle gauge used in sampling (e.g. 10)		11-17	1 pt/A	
Tree factor = BAF/the basal area of a tree of a given dbh		18	17	
Volume factor = tree factor x the volume table estimate for a tree of a given dbh and merchantable height		19	18	
BA/acre = (number of trees tallied x BAF)/number of sample points taken (n)		20	19	
Trees/acre = (number of trees tallied x tree factor)/n		30	21	
Volume/acre = (number of trees tallied x volume factor)/n		40	24	
		50	26	
		60	28	
		70	29	
		80	31	
		90	32	
Plot Size for Vines	Spacing in Chains for Sample Points Per Acre		100	34
$1/10$ acres = ~37 ft. radius	1 acre = 10 square chains	5 x 6 chains – 1 pt./3 acres	150	40
$1/20$ acres = ~25 ft. radius	3 x 3 chains = ~1 pt./acre	6 x 6.5 chains – ~1 pt./4 acres	200	44
$1/30$ acres = ~21.5 ft. radius	4 x 5 chains = 1 pt./2 acres	7 x 7 chains – ~1 pt./5 acres	*n = $10 + (2.5 \times (A - 10))^{1/2}$	
$1/50$ acres = ~16.5 ft. radius				

For 20-factor prism, revise the above formula to $n = 1.1 \times (10 + (2.5 \times (A - 10))^{1/2})$. This is a 10% increase in number of points over 10-factor prism inventory.

Appendix I D-5: Relative Stand Density Charts for Upland Hardwoods

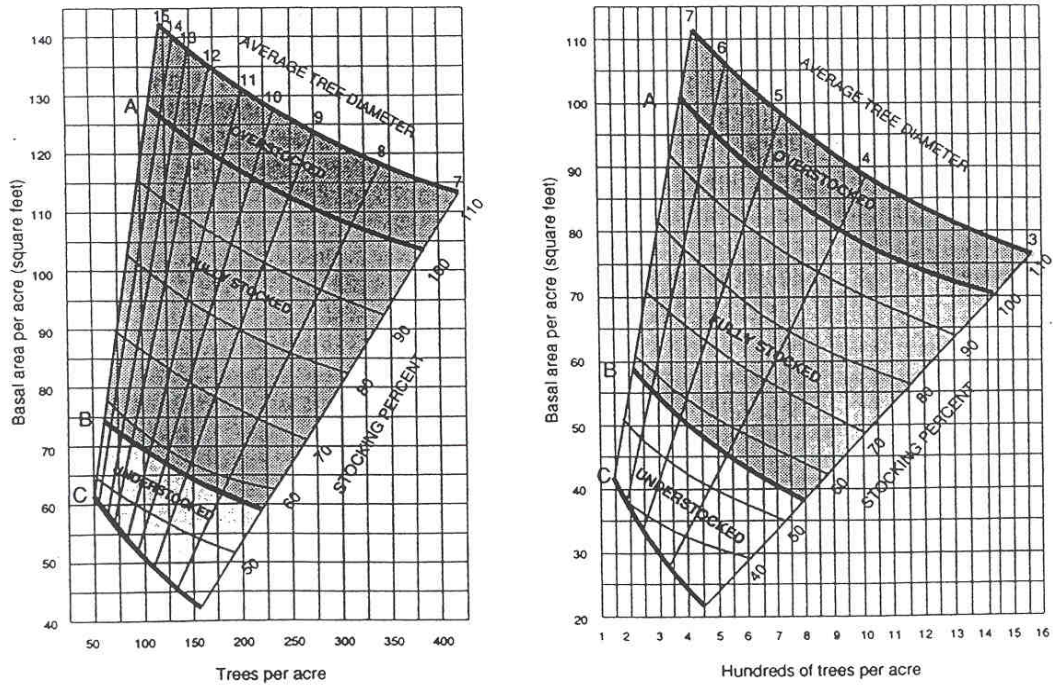


Figure 2.—Relative stand density charts for upland hardwood (oak) stands (redrawn from Roach and Gingrich 1968).

Appendix I D-6: Product Definitions

The product definitions listed below are designed to classify the tree into several useful categories to help determine the existing condition of the forest, and future needs. For the product categories, the trees are considered alive, except for the snag product.

S **Sawtimber** trees are those trees in the 12-inch diameter class and larger that are considered to have merchantable sawtimber volume. Sawlog height is measured using 12-foot logs to a 10-inch DIB.

Q **Quality sawtimber** trees are sawtimber trees that have high quality, i.e., minimal defect, but don't quite reach prime quality in species where prime designation is possible, and of at least the same quality and higher in species without prime designation. Quality trees must be at the minimum in the 16-inch DBH class. The determination of quality is made in the butt log. Quality trees cannot have any decay defects in the butt log. Quality trees can have some, limited, non-decay minor defect in the butt log, but can have no major defect. There can be no internal decay in the butt log. This is evidenced through sounding for punky wood or hollow sound. Quality trees can have decay defect in the upper logs as long as it does not produce greater than 20% defect deduction. Sawlog height is measured using 12-foot logs.

V The V is from veneer, but this really refers to **prime trees**. The term veneer here is really for the designation of prime trees, per the stated grading guide. The only species to be considered to have prime are black walnut, northern red oak, white oak, chinquapin oak, swamp chestnut oak, swamp white oak, burr oak, black cherry, and sugar maple. The determination of prime is made in the butt log. If the butt log cannot make prime, but a higher log can, the tree is still not considered prime. To be considered prime, black walnut must have a minimum 8 feet of clear log length on all four faces and a minimum DBH of 17 inches. The oaks and other species must have a minimum of 8 feet clear length on all four faces and a minimum DBH of 19 inches. To be clear log length, there can be no visible defects such as knots, pin knots, catfaces, seams, scars, etc. on the butt log, except close to the ground line on root flares. There can be no open defects such as a dead fork, open hole, or surface decay anywhere on the butt log. There can be no internal decay in the butt log. This is evidenced through sounding for punky wood or hollow sound. Prime trees can have decay defect in the upper logs as long as it does not produce greater than 10% defect deduction. Sawlog height is measured using 12-foot logs in inventory. In a sale tally it is most accurately measured using the log scale on a Biltmore stick.

P **Poles** are considered to have no merchantable sawtimber volume and are generally trees smaller than the 13-inch diameter class, down to the 6-inch class. Volume in poles is calculated in cords. Poles with defect that destroys their volume can be considered culls. Cordwood height to a 4-inch DIB is measured using 16-foot logs. Poles can be a larger diameter tree in which form or defect make sawtimber volume unlikely.

C **Culls** are defined as live trees with no merchantable volume. Poles can be considered

culls when they are determined to have essentially no sound cord volume. Height to a 4-inch top is measured using 16-foot logs.

N Snags are defined as standing, dead trees. These can be sawtimber size or pole size. Height to a 4-inch dib is measured using 16-foot logs.

A Saplings are live trees in the five-inch class to the one-inch class. No merchantable height measure is taken on these.

The **leave** and **remove**/harvest designations are to determine the likely status of a particular tree should management activities occur in the area. This would be for trees whose removal is recommended to occur. A tree to be removed could be removed via several operations – TSI, logging, hazard tree removal in recreation areas. In a typical forest situation there are several reasons a tree would be chosen for removal/harvest:

- The tree exhibits poor vigor/weak crown, and will likely die before the next management activity is likely to occur.
- The tree has a major defect, and its removal would benefit surrounding decent trees by providing release.
- The tree is a decent tree in amongst many decent trees that are competing against one another. The tree must be removed to provide significant release on residual decent trees to improve vigor and growth, and prevent stagnation and eventual mortality.
- The tree is competing against other trees that are preferred to reach the desired future condition of the tract, and its removal would benefit the growth of the preferred trees. Preference may be determined by site conditions, species composition, quality, or combinations of these.

Appendix I D-7: Defects

Defect Definitions:

Major Defects: Butt rot, conk, canker, large or spiral seam, large crack, large scar, large hole, large rotten burl, internal decay, large, broken or dead limb or fork, broken or dead top, serious crook or sweep, abnormally short merchantable length, several minor defects on the same log.

Minor Defects: Ingrown bark, small seam, small crack, small scar, small hole, and small burl. Small broken or dead limb, spiral grain, slight crooks, or sweep.

Appendix I E-1: Cover Types

Timber type is determined by the dominance of species or species groups in the sawtimber and pole-size main canopy trees at a point. Dominance is determined by the amount of basal area represented in the type species.

DOH Dry Oak-Hickory – Depending on location, soils, and geology, these sites are usually dominated by chestnut, scarlet, and black oaks. Some sites on limestone soils can be dominated by chinkapin and shumard oaks. Pignut and shagbark hickories are occasionally found in these areas. Common understory plants should include painted sedge, greenbrier, and blueberry.

MOH Mesic Oak-Hickory – These sites are dominated by overstory of white, northern red, and/or chinkapin oaks. Black, scarlet, and chestnut oaks are present but don't usually make up the entire overstory. Hickory species include bitternut, pignut, shagbark, and occasionally mockernut. These are where mesic oak and/or hickory species are the dominant species.

BOH Bottomland Oak-Hickory – These sites are dominated by various wet site oaks. Those found in central and northern Indiana are likely to be dominated by pin, Shumard, swamp white, and bur oaks. Farther south those species may include swamp chestnut, overcup, and cherrybark oaks. Shellbark hickory is also common on these sites. These are where bottomland oak and/or hickory species are the dominant species.

BM Beech-Maple – These are where beech and/or maple species are the dominant species.

PI Pine/Conifer – These are where pine, red cedar, spruce or conifer species are the dominant species. While most of the pine is planted, the vast majority is older and has been allowed to naturalize and there is no specific maintenance, so it would not be considered this type.

MH Mixed Hardwoods (upland) – These are where none of the other hardwood types describe the species mix on upland sites. This may include dominant species such as yellow-poplar, cherry, ash or elm, either singly or in combination. It may include species or species groups from the other types that are not in dominance.

BH Bottomland Hardwoods (mixed) – These are where bottomland mixed hardwood species dominate. If bottomland oak-hickory species dominate, then this would be classified as a bottomland oak-hickory type.

TP Tree Plantation or Planting – This is where there is an obvious tree planting effort that has not yet naturalized or been left unmaintained. Where tree planting maintenance, i.e., mowing, spraying, pruning, still occurs it will be considered this type. While most of the pine is planted, the vast majority is older and has been allowed to naturalize, and there is no specific maintenance, so it would not be considered this type.

NF Non-Forested – This is where the site is being maintained as a non-forested site, or it is an old field situation that has not developed a significant woody plant component. The point may actually have one or two trees on it, but they will be in a non-forested situation. That is, the majority of the point is not wooded. This may include wildlife openings/plots, lakes, non-forested recreation sites, service areas, and roads.

Appendix I G-1: Pre-Harvest Conference Guidelines

Purpose: To benefit all forest resources by emphasizing the importance of minimizing impacts to them during the harvest; to improve communication between foresters and logging crews; to assure that the logging crews have working knowledge of the timber sale contracts before work begins; and to identify possible problems that may develop during the harvest, including those that may lead to forfeiture of the performance deposit.

Who must attend: The marking forester, the logging supervisor, and the logging crew. It is optional for the timber buyer to attend the conference, but they should know what will be discussed and what is expected under the terms of the contract, since they are ultimately responsible for the end results of the harvesting operation.

Where is it held: Although some of the preliminary information may be exchanged in the forest office, an on-site inspection of the harvest area should be made by all parties during the conference.

When is it held: The conference is held prior to the commencement of logging operations.

How long does it take: Most pre-harvest conferences can be completed within two hours, depending on the characteristics of the harvest area and previous working experience between the forester and the logging crew.

What information is exchanged and what is discussed: The following steps are recommended to complete a pre-harvest conference. A Pre-Harvest Form must be a completed and kept in the property sale file.

1. Obtain logging crew information – Ask for the names and assigned jobs of the logging supervisor and the members of the logging crew. Obtain logger training information to ensure the crew meets the training guidelines. Find out who is responsible on the job when the supervisor is absent. Insist on being notified if any crew member changes are made. Get the supervisor's phone number and ask for a tentative harvest schedule that includes days of the week, expected completion date, pullouts, and restarts. Get the timber buyer's phone number, if it is not already known. Complete the Pre-Harvest Form.
2. Give forester information – Provide to the buyer and to the logging supervisor the marking forester's name, working schedule, office phone number, and approximate schedule of when the forester will be available for consultation on the job. Provide the same information for the person responsible for the sale administration when the marking forester is not available. If the logging supervisor will be absent from the harvest area, also provide the designated logging person with the information.

3. Review the terms of the contract including any special logging areas and conditions. Point out that the buyer is held accountable for the actions of the crew. Explain that the logging crew is expected to know the terms and work in a manner consistent with the terms. Provide a copy of the contract to the logging supervisor.
4. If the crew does not meet training requirements, advise the crew they cannot begin until the training requirements are met. Contact the property specialist if special training is needed.
5. Discuss the deposit and the conditions that may cause its forfeiture.
6. Discuss ways to prevent unnecessary injury to the residual stand. Such items as directional felling, use of wedges, and selection of acceptable bumper trees may be covered.
7. Provide the logging crew with several copies of the Timber Sale Area Map (FM 201) showing yarding areas, major skid trails, roads, special areas, boundaries, etc. If the logging crew cannot interpret topographic maps, provide a simplified drawing of the harvest area.
8. Tell and show how the sale area boundaries are marked. Explain that crossing property boundaries or felling trees across the property line is trespassing.
9. Tell and show how yarding areas are designated. Discuss where the edges of yards are located and/or how they are marked. Point out that the contract requires that any relocation shall be designated by the seller (i.e., the forester in charge of the harvest area).
10. Tell and show how roads are designated. Discuss maintenance of the roads, including any limits imposed on excavation. Demand advance notice of any intent to use a dozer in the harvest area, and point out that any relocation must be approved by the seller.
11. Tell and show how skid trails are designated. Discuss construction of skid trails and any limits imposed on excavation. Explain that the placement of additional skid trails or changes in existing skid trails need prior approval from the forester in charge of the harvest area.
12. Explain restrictions about working during wet weather and soil conditions. Discuss excessive rutting and give acceptable guidelines.
13. Discuss closing procedures for skid trails, yards, and roads. Discuss the need to close out portions of the harvest area in a timely manner once operation has moved beyond those portions. Discuss the need to perform temporary closing measures when long operational delays can be reasonably expected.

14. Discuss trash and lubricant disposal. Make it understood that oil, transmission, and other mechanical fluids cannot be drained, dumped, or buried on state property.
15. Show the location of roads, yards, and skid trail heads.
16. Discuss possible problem areas. Point out wet areas and look at yard size.
17. Show areas of special concern such as hiking trails, riparian areas, steep slopes, wet areas, and young groups of trees.
18. Show and discuss “special logging areas” and “special logging conditions” designated by the contract.
19. Discuss whether any gates/cables should be closed each night and what system will be used (e.g., double locks, etc. – no state keys are to be given out).
20. Discuss firewood cutting and whether the tops of the trees remain property of the state (if specified by the contract). Explain that the buyer is liable for the actions of or injury to any person they allow to enter the harvest area for the purpose of selling or giving firewood.
21. Provide a copy of the Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide if the logging crew does not have one. A photocopy is acceptable. Explain that the logging job is to meet the guidelines in the field guide (stated in the contract) unless otherwise specified by property personnel. Point out that failure to comply with the guidelines or the contract could result in forfeiture of some or all of the performance deposit. More important, the quality of the job done will serve as a demonstration to the public who visit the property that logging can be done in a responsible manner with minimal impact to the forest resources.

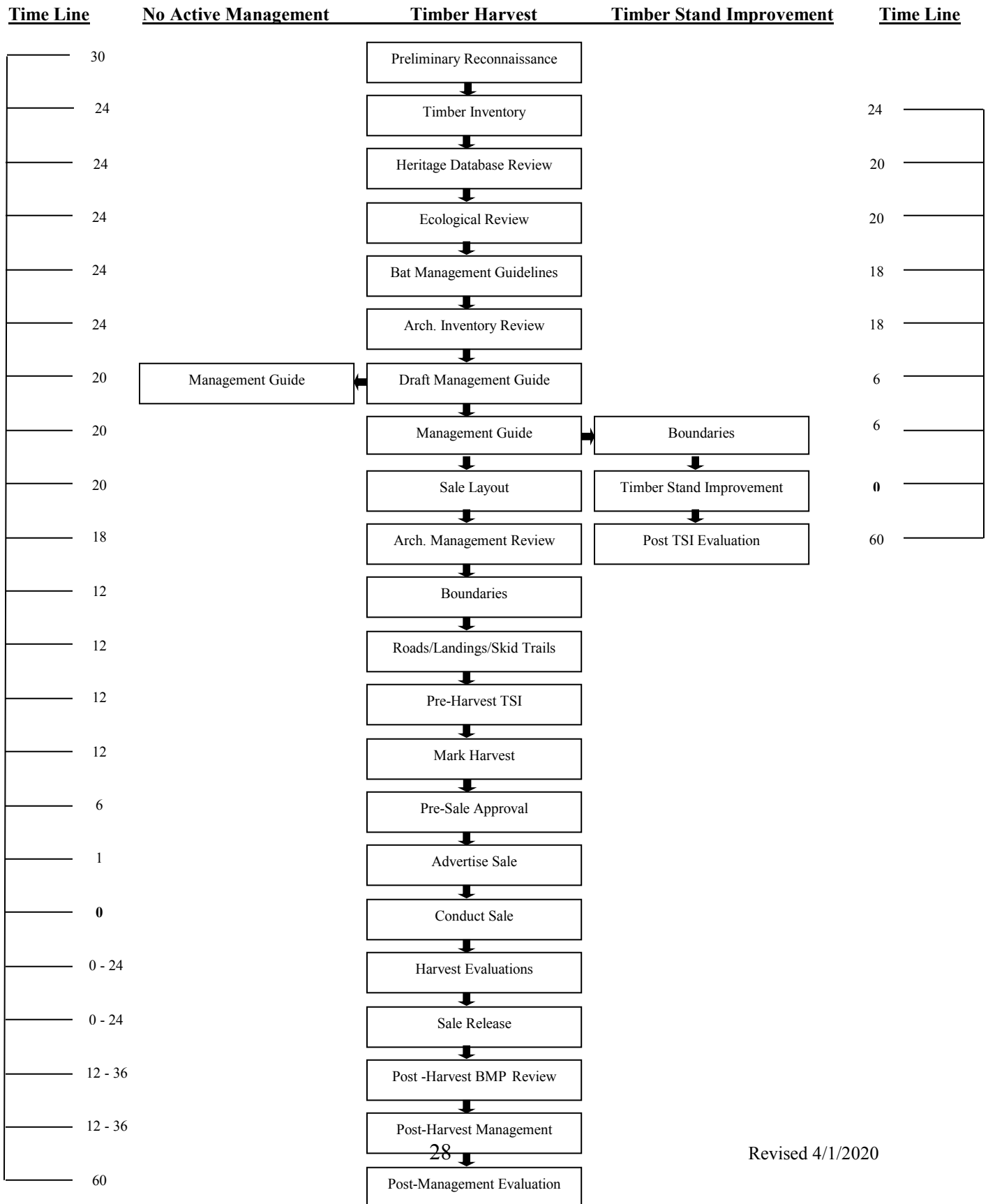
Appendix I G-2: Conversion Estimates for DIB
Used to Estimate Small End of Log DIB for Prime Volume Estimation

This chart can be used to help estimate the small end DIB for prime logs of a known DBH. Three estimates are given, depending on taper. Also, length of log will affect the DIB, short log being larger relative to a longer log, all other things, such as taper, being equal. Remember these are estimates, not absolutes. All diameters are in inches.

Diameter inside Bark (DIB)			
	Form Class		
<u>DBH</u>	<u>0.80</u>	<u>0.76</u>	<u>0.75</u>
40	32	30	30
39	31	30	29
38	30	29	28
37	30	28	28
36	29	27	27
35	28	27	26
34	27	26	26
33	26	25	25
32	26	24	24
31	25	24	23
30	24	23	22
29	23	22	22
28	22	21	21
27	22	21	20
26	21	20	20
25	20	19	19
24	19	18	18
23	18	17	17
22	18	17	16
21	17	16	16
20	16	15	15
19	15	14	14
18	14	14	13
17	14	13	13
16	13	12	12
15	12	11	11
14	11	11	10
13	10	10	-

Information courtesy I. D. Sieg.

Appendix I G-3: Resource Management Process Flowchart



Appendix I G-4: Resource Management Process Description

The resource management process relates to individual tracts of state forestland. The Management Guide for the tract specifies the resource management activities to be applied, if and when practicable. The guide is developed within the context of the Division Strategic Plan. Procedures and policies for resource management activities are in the Division of Forestry Properties Section Resource Management Procedures Manual.

This resource management process and its flowchart are designed for internal use to provide guidance in planning management activities. They are intended to describe the process and provide an approximate order and timeline of management events. In some cases the order and timeline do not have to be followed exactly. In other cases, one activity cannot occur without a previous activity having occurred first.

Activity: Description

Preliminary Reconnaissance: Identification of forest tracts to be inventoried. Tracts are identified on maps, and a visual inspection of the tracts is made. This is not always done in situations involving prescheduled inventories.

Timber Inventory: Consists of a statistical inventory of the tract, using on-the-ground point samples. Properties should perform at least 25% of their inventories on tracts that have no current inventory and management guide.

Natural Heritage Database Review: Formal review of the Indiana Natural Heritage Database for any animal and plant species of significant concern. Information from this review is included in the Appendix of the Management Guide prepared for the tract. The Division of Nature Preserves maintains the Natural Heritage Database.

Ecological Review: Tract is reviewed for ecological resources using an Ecological Review Form developed by the Division of Forestry. Depending on the tract and the ecological resources encountered, a number of items may be addressed in the management guide.

Archaeological Inventory Review: Tracts are evaluated for known cultural resources. Archaeological Inventory Review form is completed and submitted to the Central Office. Results are included in the Appendix of the Management Guide for the tract in order to protect sensitive site information.

Draft Management Guide: A draft management guide is developed for the tract, incorporating all information gathered. Information restricted from public distribution should be placed in an appendix to the guide. This appendix can also contain more detailed inventory information that is summarized in the guide. This draft may recommend no further management, or it may recommend specific management activities that may include such items as tree planting, wildlife habitat improvement, timber stand improvement, recreation work, and timber harvesting. The draft is posted for public review.

Management Guide: The final Management Guide is prepared after review of all the information contained in the draft guide and evaluating public comments. Duration of the Management Guide is an approximate 20-30 year timeframe determined by the analysis

of the forester writing the guide.

Sale Layout: If the Management Guide recommends a timber harvest, the resource managers identify on-the-ground the locations of access roads, log yards, and main skid trails. This may include, as appropriate, the identification of significant ecological/biological resources, riparian areas, visual enhancement areas and cultural resources. At approximately this time, adjacent neighbors are notified of the planned harvest.

Archaeological Management Review: The proposed timber sale area is sent to the division archaeologist for clearance. Frequently, this requires an on- the-ground archaeological review by a qualified archaeologist. Modifications in the sale layout may result from this review.

Boundaries: Resource managers identify the boundaries of the timber harvest area. Special consideration is given to boundaries that are on property lines with neighbors.

Roads/Landings/Skid Trails: Access roads, log yards, and main skid trails may be constructed by Division of Forestry equipment operators.

Pre-Harvest TSI: If the tract requires timber stand improvement harvest, such as vine control, prior to the activity, is performed at this time.

Mark Harvest: Resource managers mark and measure trees to be included in the harvest.

Pre-Sale Approval: A supervisor inspects the proposed sale for conformance with division policies and technical competency.

Advertise Sale: The timber sale is publicly advertised in accordance with Division of Forestry policies.

Conduct Sale: The timber sale is conducted at the property in accordance with Division of Forestry policies.

Harvest Evaluations: Resource managers inspect the work of the loggers during the harvesting operations. Deviations from contract requirements are corrected.

Sale Release: When harvesting is completed and all aspects of the timber sale contract are fulfilled, the buyer is released from the timber sale contract.

Post-Harvest BMP Review: The sale is reviewed by Division of Forestry staff for compliance with water quality best management practices. Any deviations are corrected.

Post-Harvest Management: Application of any post-harvest management recommended in the management guide. This may include such activities as timber stand improvement and tree planting.

Post-Management Evaluation: Inspection and evaluation of post-management activities, and results of management.

Appendix I G-5: BMP Rutting Guidelines

What is a rut?

For the purposes of this guideline, a rut is a depression made into the soil surface by the passage of a vehicle or equipment. Often these depressions occur when soil strength is not sufficient to support an applied load. The depth of a rut for this guideline is measured from the adjacent soil level to the top of the tread or “lug” of the depression. “Cupping” or “splash” at the top of the depression above the original soil level is not to be the top of the measurement (Figure 1).

Recommendation for live harvests

Harvest Area	Rutting Restrictions	Remediation/Maintenance Actions
General harvest Area	No rut shall exceed 18” in any part of the harvest area.	Any rut deeper than 12” for longer than 50 ft. must be smoothed and stabilized.
Access Road	No rut shall exceed 18” on access roads	Any rut deeper than 8” for longer than 50 ft. must be smoothed and stabilized.
Log Landing	No rut shall exceed 24” on log landings	Any rut deeper than 18” for longer than 50 ft. must be smoothed and stabilized.
Skid Trail	No rut shall exceed 18” on skid trails *Except main skid trails(24”)	Any rut deeper than 12” for longer than 50 ft. must be smoothed and stabilized.
Stream Crossing	Rutting limited to 8” and should be smoothed and stabilized after the harvest is completed	All rutting at stream crossings must be smoothed and stabilized to ensure the integrity of the stream bank and bed
RMZ/Sensitive Areas	Rutting shall be limited to 12” maximum depth	Rutting deeper than 8 inches should be avoided. Smoothing of ruts deeper than 6 inches is only recommended if the conditions are fairly dry and will not further disturb the area.

*The main skid trails are those that are immediately connected to the landing and are for the conveyance of logs and stems from secondary trails to the landing.

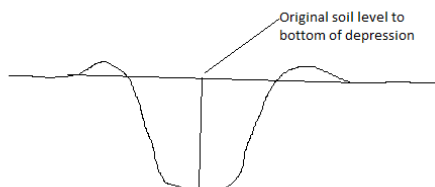


Figure 1 – A rut with the cross section for measure that is level with the original soil level.

General Harvest Area (GHA)

The GHA is defined as the area within the boundaries of the harvest unit, minus the area in the landings. In the GHA, the length of a rut made by the wheels or track on each side of a machine is to be measured separately and added to determine total length of rutting. The access roads and landings are not to be included in the GHA because they are highly impacted areas that are understood to have high compaction and some rutting during wet conditions.

- Rutting >12" deep shall not exceed an average of 200'/acre for the GHA, with no more than 400' of rutting on any one acre of the GHA**.

General Policy Related to Roads, Landings, and Skid Trails

- Road, landing, and skid trail surfaces are shaped and stabilized (e.g., graded, ruts filled) as needed during construction and operations, and at closure to maintain their operability. Expanding the footprint of roads, landings, and skid trails to maneuver around wet or muddy areas that develop during use is restricted.
- Appropriate water diversion and erosion control structures are to be used during construction and active operations, as well as at closure to reduce erosion and minimize sediment transport.
- All remediated ruts are to be smoothed and stabilized to be less than 6 inches in depth for less than 10 feet when the GHA is closed after the harvest.
- Any rut smoothing should be undertaken after the soil conditions are favorable and have higher soil strength so that greater damage is not done to the area during mitigation. And all ruts are to be smoothed and stabilized so that no rut shall be 6 inches or more in depth and be less than 10 feet in length.

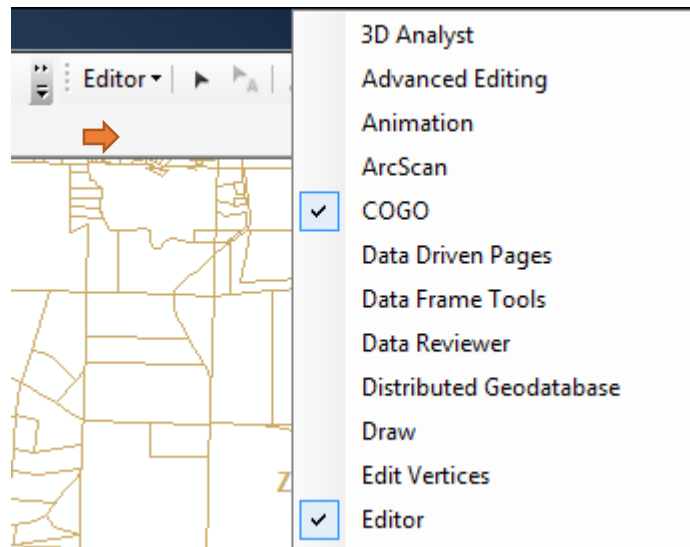
**Prior to reaching any of these levels of rutting, it is expected that the logger/resource manager will apply the appropriate suite of guideline recommendations to reduce rutting so that the maximum extent of rutting is not reached.

Appendix I G-6: ArcGIS Map Making Reference Guide

NOTES:

If you don't see a **Toolbar** you need, right-click the gray space at the top of the map and a checklist will appear.

It's a good idea to leave on the Standard, Tools, Layout, Editor, and Draw toolbars.



To **Add Data**, launch the Catalog window. Find the data and drag it into the Table of Contents. You may have to use the Connect to Folder button to add a new drive.

To view an **Attribute Table**, right-click layer name and choose Open Attribute Table.

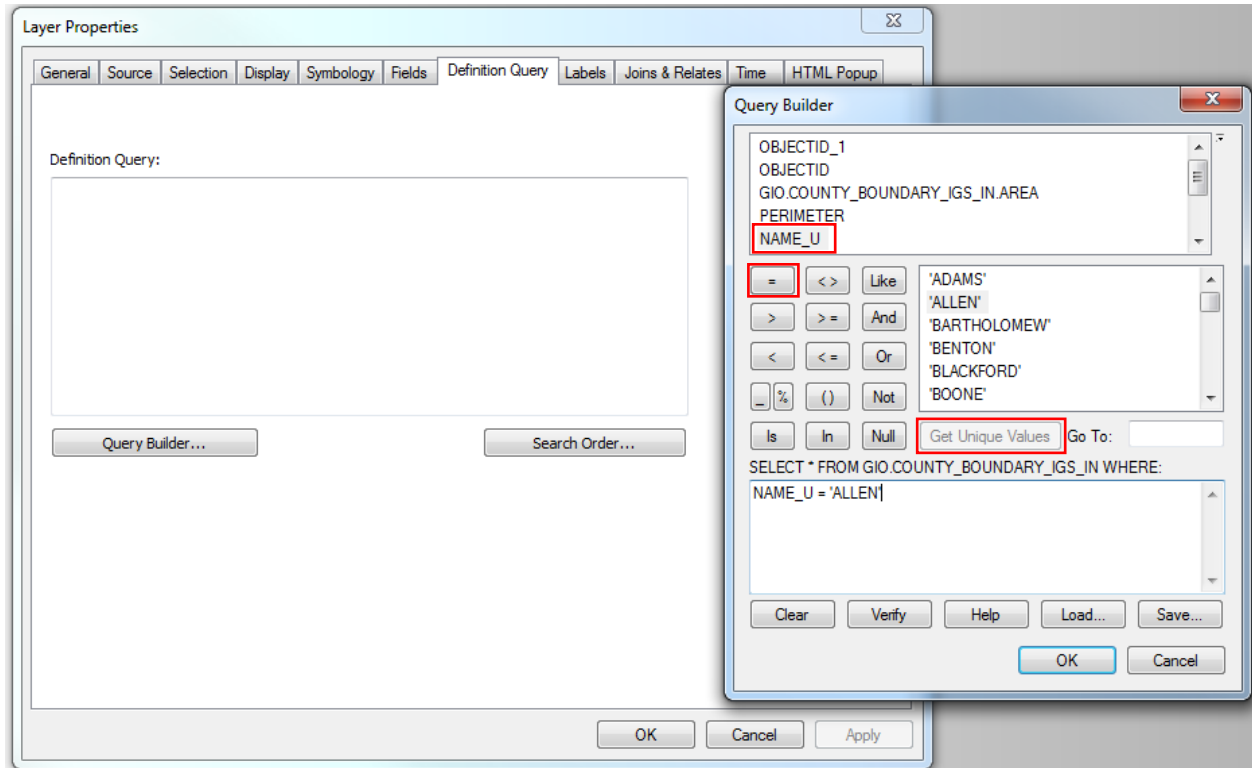
OBJECTID *	SHAPE *	SHAPE_Length	Type	Name	Property	Color	Miles
1	Polyline	2407.391392	Hike/Bike	Firetower	Ferdinand	<Null>	1.495881
2	Polyline	2296.551908	Hike/Bike	Foxy Hollow	Ferdinand	<Null>	1.427008
3	Polyline	4342.343092	Hike/Bike	Kyana	Ferdinand	<Null>	2.698202
4	Polyline	3392.10351	Hike/Bike	South Ridge	Ferdinand	<Null>	2.107751
6	Polyline	4119.124792	Hike/Bike	Twin Lakes	Ferdinand	<Null>	2.5595

To select a feature in the table, click the gray square to the right of the line and it will turn blue.

OBJECTID *	SHAPE *	SHAPE_Length	Type	Name	Property	Color	Miles
1	Polyline	2407.391392	Hike/Bike	Firetower	Ferdinand	<Null>	1.495881
2	Polyline	2296.551908	Hike/Bike	Foxy Hollow	Ferdinand	<Null>	1.427008
3	Polyline	4342.343092	Hike/Bike	Kyana	Ferdinand	<Null>	2.698202
4	Polyline	3392.10351	Hike/Bike	South Ridge	Ferdinand	<Null>	2.107751
6	Polyline	4119.124792	Hike/Bike	Twin Lakes	Ferdinand	<Null>	2.5595

You can then use the Zoom to Selected button to go to that feature.

To filter down what you're seeing from any layer, use a **Definition Query**.
Right-Click layer name – Properties – Definition Query tab.




Click Query Builder. Double-click field name, =, Get Unique Values. Find value in list and double-click.

You can combine multiple statements, but each must be a complete query.


Correct: Name = 'Red Trail' OR Name = 'Blue Trail'

Incorrect: Name = 'Red Trail' OR 'Blue Trail'

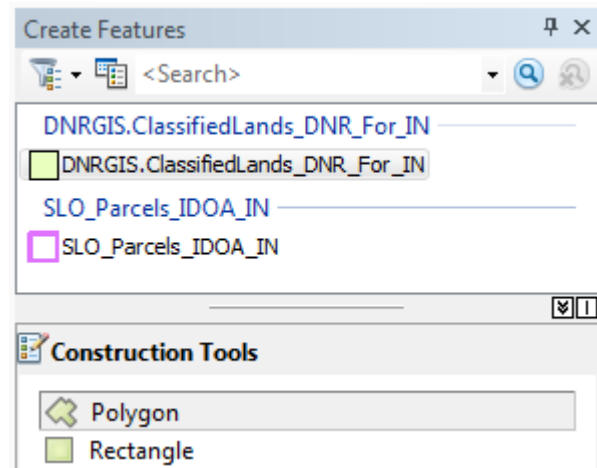
DIGITIZING:

This must take place in Data View, not Layout View. Switch using the small buttons on the bottom left of the map. 

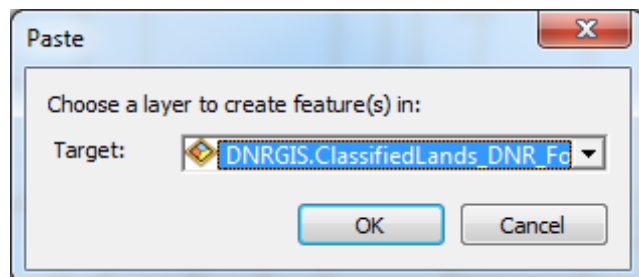
Start an Edit Session (Right-click layer name – Edit Features – Start Editing)



To digitize by clicking on the map, launch the **Create Features** window  from the Editor toolbar.


Choose a layer at the top and a Construction Tool (usually Polygon, Line or Point). The cursor will turn to + and then you can click on the map to add vertices. Double-click to end the shape.





To **Copy** features from another existing layer, select that feature(s) in the **Attribute Table**. Go to Edit – Copy and Edit – Paste. If more than one target is editable, there will be a dropdown.



If this feature is needs to be split up (for Cover Types, for example) use the **Cut Polygons** tool  on the Editor Toolbar. This will only work when the item is selected (outlined in aqua). You can select a polygon with the Edit tool .

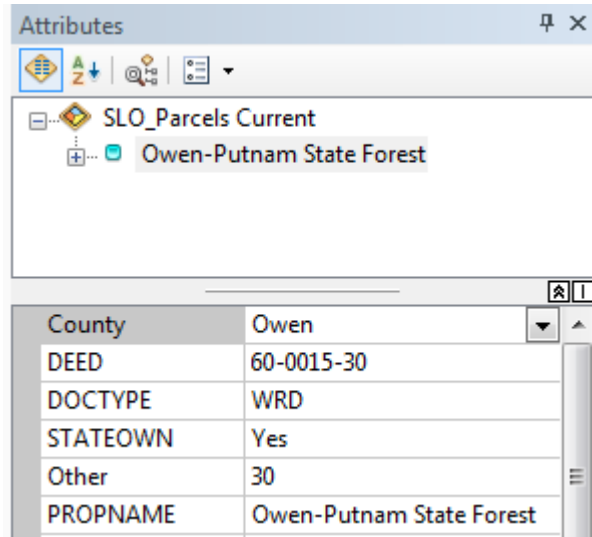
To **Delete** a feature, make sure it is the only one selected in the attribute table and click .

There is a **Trace** button  on the Editor Toolbar. It can be used to follow an existing feature instead of clicking all the vertices. Snapping will need to be on (Snapping toolbar – Use Snapping). See <http://desktop.arcgis.com/en/arcmap/10.5/manage-data/editing-fundamentals/creating-segments-by-tracing-features.htm>

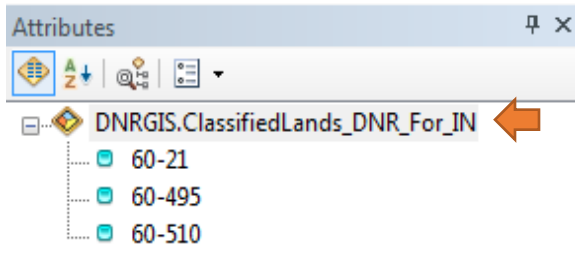
To **Move** a feature, select it using the Edit tool and click and drag it to move. To reshape lines and polygons, click the Edit Vertices button  on the Editor Toolbar and then move the individual points.

When editing it is always a good idea to fill in the **Attributes** as you go. You can enter these directly into the **Attribute Table**.

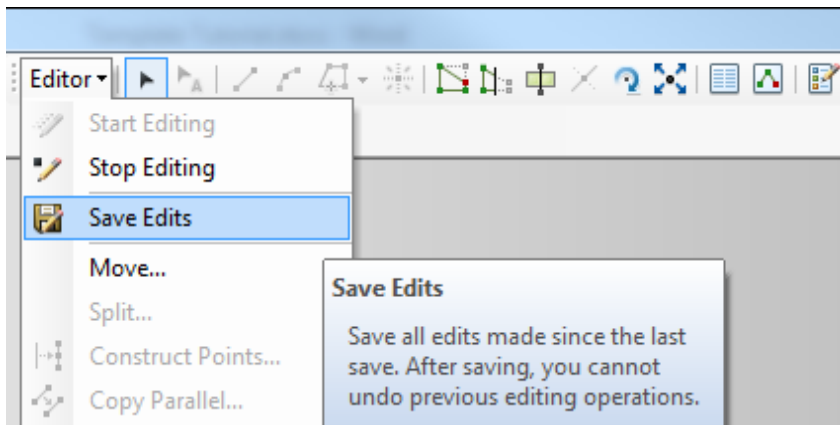
There is also a button  in the Editor Toolbar that will launch the Attributes window.



You can change attributes for multiple features at once by selecting multiple features with the Edit Tool (click on the first feature then shift + click on subsequent features). Click on the layer name in the Attributes window and then what you type in below will apply to all selected features.





Don't forget to Save Edits before you Stop Editing.



GENERAL TEMPLATE STEPS:

Save document under new name and location. (File – Save As.)

Change text in the title bar & text blocks where appropriate. (Double-click text block to edit.)

Pan  or Zoom  to area of interest. Tract/Harvest should occupy about 50% of the map area.

SEE DIGITIZING STEPS

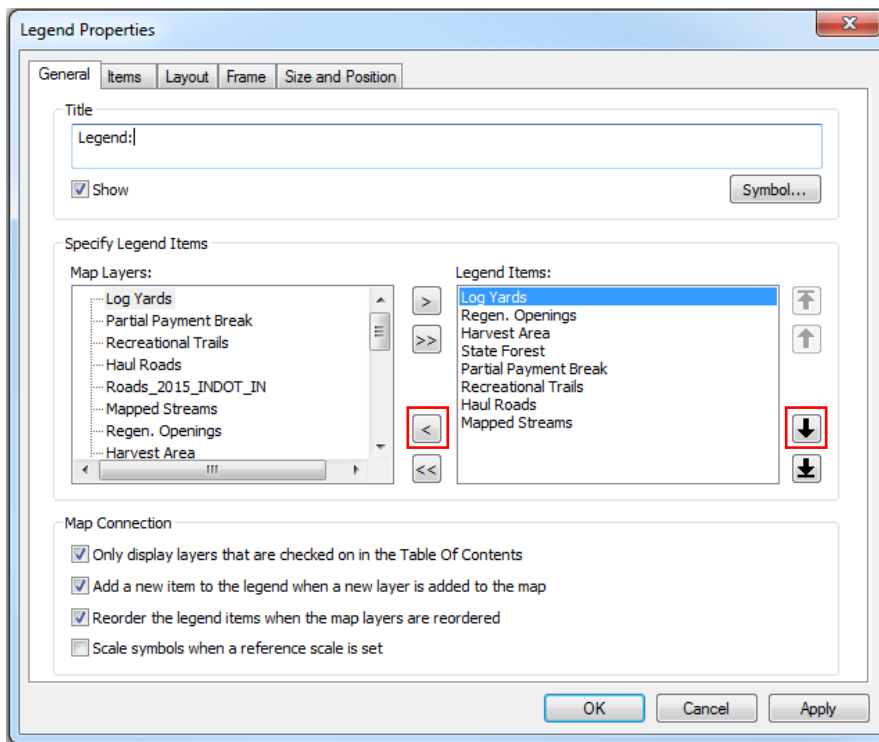
Turn off any extra layers or base layers that aren't the appropriate one.

Use **Definition Query** on any layer where too many features are visible.

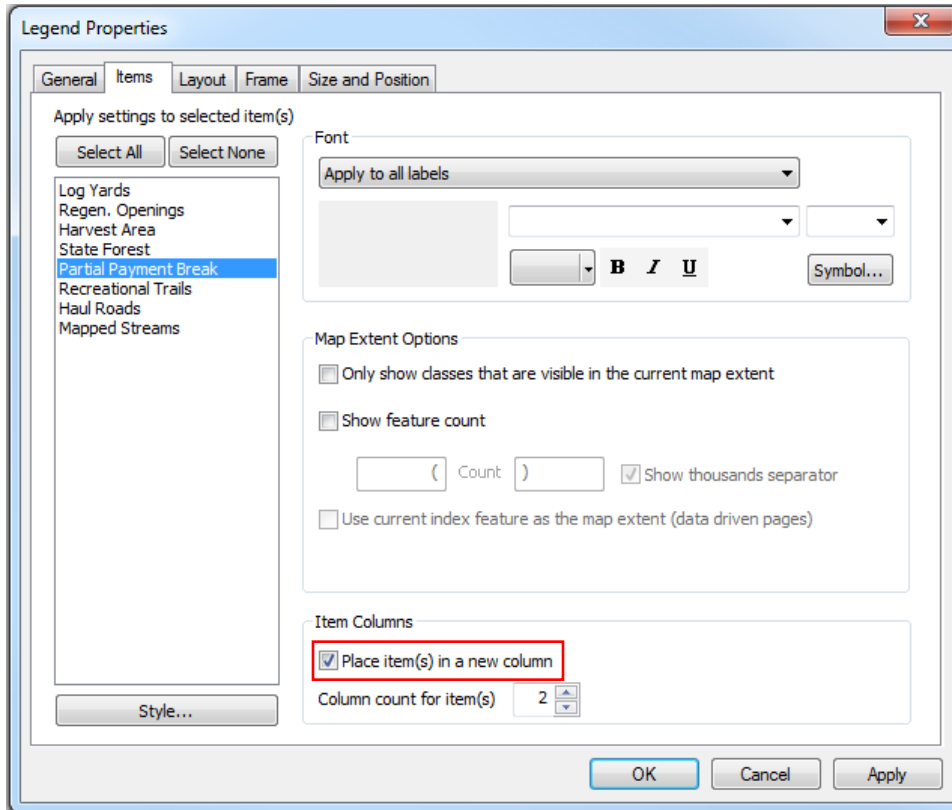
Add labels on the map itself (Nature Preserve name, miles to log yard, acres in regen opening)



Make sure the **Legend** looks good. Double-click on the legend to launch Properties. The General tab determines which layers are in the legend. Highlight an item and use left arrow to move it. Use the up and down arrows to change the order.



The Items Tab has a check box to control which item starts a new column in the legend. Highlight the individual layers and check/uncheck this box as needed.



Save the map document (change the name if you didn't do so before).

File – Export Map will let you save as a PDF.

Appendix I H-1: Interim Forest Management Guidelines for Federally Listed Bats

NOTE: The guidelines in this document are to serve as interim guidance until a habitat conservation plan (HCP) that addresses the management of federally endangered bats is approved by the U.S. Fish and Wildlife Service (USFWS) and an Incidental Take Permit is authorized for state forests.

Guidelines 1-5 apply to ALL state forest properties; guidelines 6-11 apply ONLY to state forest locations affected by the known occurrence of Indiana bat “reproductive records”¹, known northern long-eared bat maternity roosts, or known bat hibernacula used by federally listed species.

1. Canopy cover shall not be reduced below 60% due to the creation of regeneration openings within management compartments where timber harvesting occurs. Harvesting during salvage operations where canopy cover has already been reduced is exempted from this guideline.
2. Shagbark and shellbark hickory shall be maintained as a forest component due to their high value as roost trees. Historically, these species were only occasionally selected for harvest on state forests (annually < 5% of individuals >5 inches DBH are marked for harvest in sales, according to division records) and they are typically not cut during TSI activities. Abundance and size class distribution of these species will be evaluated through routine management tract inventories and continuous forest inventories (CFI) on state forest properties. Within management compartments, the abundance of shagbark and shellbark hickory trees ≥ 11 inches DBH will be managed at current (2013) levels.
3. Standing snags shall not be felled, except where they pose a human safety hazard (a tree with <10% live canopy should be considered a snag). Snags that have no remaining bark and no visible cracks, splits, or hollows may be felled as well as any snags leaning more than 45° from vertical. Occasional salvage harvesting of recently dead or dying trees may occur, provided additional snags are recruited during timber stand improvement and/or other resource management projects.

Snag retention has been routinely practiced on state forests, accounting for the relatively high snag density observed from the current continuous forest inventory and earlier landscape-scale and system-wide inventories. Snag abundance and size class distributions are evaluated through routine management tract inventories and continuous forest inventories (CFI) on state forest properties. Within management compartments, the abundance of snags ≥ 9 inches DBH will be managed at current (2013) levels.

¹ Known maternity roosts or live capture of adult females determined to be “reproductive” or juveniles

4. The USFWS reports that the following genera and species collectively include the overwhelming majority of maternity roosts for the Indiana bat:

Ash (<i>Fraxinus</i>)	Maple (<i>Acer</i> , excluding <i>A. negundo</i>)
Elm (<i>Ulmus</i>)	Poplar (<i>Populus</i>)
Hickory (<i>Carya</i>)	Oak (<i>Quercus</i>)
Black locust (<i>Robinia pseudoacacia</i>)	

Live tree abundance and size class distributions are evaluated through routine management tract inventories and continuous forest inventories (CFI) on state forest properties. Where available, **the division will maintain at least nine live trees per acre ≥ 11 inches DBH in the genera and species listed above** within management compartments. This guideline applies to all compartments where the current (2013) density of live trees ≥ 11 inches DBH in the genera listed above exceeds 18 per acre.

In addition, this density will include at **least three live trees ≥ 19 inches DBH, also in the genera and species listed above**. This guideline applies to all compartments where the current (2013) density of live trees ≥ 19 inches DBH in the genera listed above exceeds six per acre.

In compartments that do not meet the minimum current densities indicated above, the division will not reduce the density of live trees in the genera/species listed above by more than 50%.

5. Riparian canopy cover in project/harvest areas shall not be reduced below 80% due to the creation of regeneration openings. Riparian areas are defined as acreage within 100 feet of each side of a perennial stream (solid blue-line) or 50 feet of each side of an intermittent stream (dashed blue-line).

Known Maternity Roost Management

6. Whenever practical, known Indiana bat and northern long-eared bat maternity roosts should be protected from disturbance during forest management activities. If a known maternity roost is to be felled, it shall not be done during the dates shown below², except in cases where there is a risk to safety. Prior to felling a known roost during a species' restriction period 2, the division wildlife specialist shall be notified and a roost emergence survey must be performed using methods approved by USFWS. Felling must occur within 24 hours after a roost survey that results in no exiting bats.
7. Tree felling shall not occur within 150 feet of a known northern long-eared bat maternity roost from June 1 through July 31. During any other time of the year tree felling is allowed within 150 feet of a known northern long-eared bat roost.

² For Indiana bat roosts: **April 1 through September 30**; for northern long-eared bat roosts: **June 1 through July 31**.

Known Hibernacula Entrance Management

8. Maintain a forested buffer with a radius of 527 feet around all hibernacula entrances listed below, where no tree harvesting and no ground-disturbing activities (e.g., from operation of heavy machinery, excavation, etc.) occur. Maintain a buffer around karst features connected to known hibernacula (e.g., sinkholes, springs, etc.) in accordance with Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide to minimize the likelihood of logging debris or sediment covering or entering the feature's opening.

The following caves are known hibernacula entrances receiving a 527 foot buffer on State Forest:

Big Wyandotte (Crawford Co.)	Parker's Pit (Harrison Co.)
Easter Pit (Crawford Co.)	Batwing (Crawford Co.)
Jug Hole (Harrison Co.)	Saltpeter (Crawford Co.)
Twin Domes (Harrison Co.)	

Additionally, Wildcat Cave (Crawford Co.) is historically an Indiana bat hibernacula; however, there has been no evidence of use since 2003. Consult with USFWS-BFO on the need for a buffer around this cave entrance prior to prescribing management activities typically prohibited in buffer.

Seasonal Forest Management Restrictions

9. **Indiana bat records, Tree Felling:** No felling of trees >3 inches DBH in areas affected by the known occurrence of Indiana bat hibernacula or reproductive records during the "no harvest" periods shown in Table 1, below.
10. **Indiana bat records, Burning:** Prescribed burns shall not be conducted on sites that contain live trees or snags >3 inches DBH within areas affected by the known occurrence of Indiana bat hibernacula or reproductive records during the "no burn" periods shown in Table 1, below.
11. Prior to a burn, temporary fire breaks shall be created and maintained around any known Indiana bat primary maternity roost that is within a proposed burn area.
12. **Northern long-eared bat hibernacula records:** No felling of trees >3 inches DBH within 0.25 miles of any known northern long-eared bat hibernacula entrance April 1-Nov. 15.

No prescribed burning within 0.25 miles of northern long-eared bat hibernacula April 1-Nov. 15. For hibernacula known to be used by both Indiana bat and northern long-eared bat, apply the measures in guidelines 9 and 10, above.

Table 1. Dates and area affected by seasonal harvest and prescribed burning restrictions applicable to the presence of **Indiana bat**.

<i>Record Type</i>	<i>No Harvest Dates</i>	<i>No Burn Dates</i>	<i>Where do restrictions apply?</i>
Hibernacula	April 1- Nov. 15	April 1 – Nov. 15	10 miles from Priority 1 or 2 hibernacula; 5 miles from Priority 3 or 4 hibernacula
Reproductive female or juvenile live capture	April 1 – Sept. 30	April 15* – Sept. 15	5 miles from capture location
Single primary maternity roost or multiple maternity roosts	April 1 – Sept. 30	April 15* – Sept. 15	2.5 miles from primary roost location, or central location between multiple alternate roosts

*The “no burn” start date is April 25 at Salamonie River and Frances Slocum State Forests.

Appendix I H-2: Management Guidelines for Compartment-Level Wildlife Habitat Features

Maintaining wildlife habitat suitable for a wide variety of native species is an essential component of forest management. The Division of Forestry strives to promote and maintain high faunal diversity at each of its properties. Though wildlife habitat requirements are species-specific, there are some habitat features that are necessary to many species. Such features include snags, cavity and den trees, and ponds. These guidelines address the management of compartment-level habitat features commonly found on division properties. The target densities of snags, roost trees, and cavity trees described in this document are to be applied across each management compartment and managed at the tract-level. The division recognizes that not every managed tract will meet or exceed the targets recommended here; however, every effort should be made to manage individual tracts in such a way that the cumulative effect of forest management activities creates conditions that meet or exceed target densities at the compartment-level. Managing compartments in this way will help ensure a species' habitat needs are addressed across large portions of properties, benefiting the highest number of individuals and populations possible.

These guidelines were designed to benefit a wide-range of native wildlife species; however, the division recognizes species that are rare or experiencing significant population decline may require further habitat management consideration. Indiana wildlife Species of Greatest Conservation Need (SGCN) are classified as either “endangered” or “species of special concern” and may require habitat management guidelines that differ from those described in this document. In situations where habitat management guidelines disagree, those that provide the most benefit to SGCN should typically be given priority.

SNAGS

Justification: Essential habitat feature for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching, and bat roosting and important contributor to future pool of downed woody material. Snags may be one of the most important wildlife habitat features in our forests as they are used by a wide range of species. Given the ephemeral nature of snags (most will fall within 5-10 years), it is even more critical this feature is well represented on the landscape.

Definition: Standing dead or dying trees with < 10% live crown; ≥ 5 inch DBH and ≥ 8 feet tall.

Given the importance of this wildlife habitat feature, ***it is recommended that whenever possible all snags are left standing during timber harvest operations.*** The division suggests that every effort is made to manage tracts using the compartment-wide density targets shown in Table 1 (below), particularly when snags must be felled (e.g., for safety).

Table 1. Compartment-level snag density targets by diameter distribution, managed at the tract-level:

Diameter (DBH) Distribution	Target Snag Density	
	Maintenance-level ^a	Optimal
TOTAL minimum of snags per acre $\geq 5''$:	4	7
<i>Including</i> at least this many snags per acre $\geq 9''$:	3	6
<i>Including</i> at least this many snags per acre $\geq 19''$:	0.5	1

^a approximates current system-wide density of snags

Recommendations

- Felled snags should be left on site, particularly those with a high degree of rot and decay.
- Where snag inventory does not meet guidelines, especially where snags are needed for the management of local Species of Greatest Conservation Need (e.g., Indiana bat), culls can be girdled within the appropriate diameter class. Girdling culls during post-harvest TSI can also serve to replace snags that had been felled for safety reasons during harvest operations.
- It is important to minimally target “maintenance-level” snag densities across management compartments, though where possible managers are encouraged to take advantage of situations that would result in “optimal” densities of snags.
- When considering snags to retain or culls to girdle to meet minimum guidelines, give priority to the most sound individuals with >25% exfoliating bark (for Indiana bat roosting habitat), especially those near water. Give highest preference to species that have been found to be important for Indiana bat roosting sites (see “Roost Trees for Indiana Bat,” below) and are relatively long-lasting, such as oaks, sugar maple, and hickories.
- For more information on snag retention and management specifically for Indiana bats, refer to [Appendix I H-1: Interim Forest Management Guidelines for Federally Listed Bats](#).

LIVE TREE RETENTION (Roost and Cavity/Den Trees)

Justification: 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 is of particular concern to habitat specialists such as cavity nesters or Species of Greatest Conservation Need, like the Indiana bat.

Definition: Live trees ≥ 7 inch DBH will need to be retained compartment-wide to satisfy the life requirements of many forest wildlife species. Specific densities and characteristics necessary for tree-roosting bats (e.g., Indiana bats) and cavity nesting/denning species are described below. Where possible, one tree with characteristics suitable for both habitat features (i.e., a bat roost tree with a cavity) can be used toward meeting both categories’ recommended target densities.

Roost Trees for Indiana Bat

Justification: Provide current and future roosting habitat for the federally endangered Indiana bat and other bat species. During the spring, summer, and fall, Indiana bats roost in the daytime under slabs of bark on live or dead trees. Species suitable for roosting as mature live trees include shagbark and shellbark hickories and, occasionally, white oak and sugar maple; however, Indiana bats mostly use snags for roosting, and will often select trees of certain species that retain bark longer than others (see genera/species listed below). Roost trees are particularly important to female bats raising young in maternity colonies during the summer. When preferred mast trees (e.g., oaks and hickories) are retained for this objective, a valuable food resource is also provided for many forest wildlife species.

Definition: The U.S. Fish and Wildlife Service reports that the following genera and species collectively include the overwhelming majority of maternity roosts for the Indiana bat:

Ash (<i>Fraxinus</i>)	Maple (<i>Acer</i> , excluding <i>A. negundo</i>)
Elm (<i>Ulmus</i>)	Poplar (<i>Populus</i>)
Hickory (<i>Carya</i>)	Oak (<i>Quercus</i>)
Black locust (<i>Robinia pseudoacacia</i>)	

Table 2. Compartment-level roost tree density targets by diameter distribution, managed at the tract-level:

Diameter (DBH) Distribution	Roost Trees per Acre
TOTAL minimum roost trees per acre $\geq 11''$:	9
Including at least this many roost trees $\geq 20''$:	3

Recommendations

- When considering retention of live trees, give priority to preferred species/genera listed – *particularly shagbark and shellbark hickory*.
- Solar radiation is important to the energetic requirements of roosting Indiana bats – perhaps more than to most other bat species in Indiana. Active roosts often occur around openings and within open canopy situations where large trees receive unobstructed or partially obstructed solar radiation throughout much of the day. Additionally, open understories beneath partially opened canopies create an optimal environment for bat foraging activities. Where possible, leave live trees that can serve as suitable roosting sites around openings, at edges, and within open forest where they will receive abundant solar radiation.
- Refer to [Appendix I H-1: Interim Forest Management Guidelines for Federally Listed Bats](#) for more information on the retention and management of Indiana bat roost trees.

Live Cavity/Den Trees

Justification: Important for long-term availability of cavity nests, dens, and, potentially, future snags. Trees retained as cavity trees need to appeal to a wide range of wildlife species, from those that only use existing cavities to primary excavators that create new cavities in trees exhibiting injury or evidence of advanced decay.

Definition: Live trees ≥ 7 inch DBH with at least one cavity opening ≥ 1 inch across its narrowest dimension. Openings should appear to lead into a hollow cavity or a deeply recessed area of advanced decay in the sapwood suitable for further excavation. Decay should appear to be advanced enough to support a sharpened pencil pushed into it. Openings can be created by excavation or other natural process (e.g., injury, dead limb) and can occur at any location on the tree (including large limbs and base).

Table 3. Compartment-level cavity tree density targets by diameter distribution, managed at the tract level:

Diameter (DBH) Distribution	Live Cavity Trees per Acre	
	Maintenance-level	Optimal
TOTAL minimum cavity trees per acre $\geq 7''$:	4	6
<i>Including</i> at least this many cavity trees per acre $\geq 11''$:	3	4
<i>Including</i> at least this many cavity trees per acre $\geq 19''$:	0.5	1

Recommendations

- It is important to minimally target “maintenance-level” cavity-tree densities across management compartments, though where possible managers are encouraged to take advantage of situations that would result in “optimal” densities.
- Where live cavity tree inventory does not meet guideline, live culls can be reserved that are within the appropriate diameter class and have evidence of heart/sapwood decay, broken limbs, or similar defects.
- Individual live cavity trees should not be located within the interior of regeneration openings unless included as a leave tree within residual structure (see below). Cavity trees can be located along the edge of openings.
- Live cavity tree retention priorities: 1) give preference to species of live cavity trees that have been found to be important roost trees for Indiana bats, especially shagbark and shellbark hickories (Table 3), 2) where possible, give preference to trees with cavity openings ≥ 5 inches in diameter, 3) retain cavity trees at edges of openings and just outside of openings, and 4) retain cavity trees close to water sources.

Considerations for Cull Retention

Culls, especially those with excessive damage and/or decay, are the most likely sources of

future cavity trees and, where practical, should be retained for their wildlife value. Girdling culls can create snags while retaining live culls with cavities or decay can serve to satisfy guidelines for cavity trees. Live culls may also provide benefits as roost trees and sources of mast.

When considering the fate of culls...

1. Are there any deficiencies in the number of snags, cavity trees, or roost trees as suggested above?
2. If deficiencies exist in a category, do the characteristics of the cull satisfy the category's requirements? Is it within a suitable size class? Is it a suitable species?
3. Always satisfy guidelines for roost trees and maintenance-level snags first, as they benefit the Indiana bat, a federally endangered species.
4. If deficient in the number of cavity trees and no culls with cavities exist, retain live culls that are damaged or have advanced decay.
5. If all guidelines have been satisfied, consider:
 - a. Will the continued growth of the cull interfere with stand development? If so, consider girdling to create snag.
 - b. Would retention of the cull as a snag create an unsafe situation, affect regeneration, or jeopardize the integrity of nearby crop trees? If so, consider felling the cull for use as downed woody material (see below).
 - c. Is the cull an important mast species that won't interfere with stand development? If so, consider leaving for a cavity or roost tree.

DOWNED WOODY MATERIAL

Justification: Critical cover and foraging habitat component for wildlife, such as small mammals, ground-dwelling birds, reptiles, and amphibians. Discarded tops and limb piles provide cover for birds and small mammals and forage for herbivores. Logs provide persistent cover for small mammals, reptiles, and amphibians; logs in advanced stages of decay are particularly important in recent regeneration openings that are susceptible to soil desiccation.

Definition: Includes all discarded tops, limbs, and logs.

Recommendations

- In each tract, retain at least two large logs (≥ 11 " large-end diameter, ≥ 4 feet length) per acre. Where this guideline cannot be met, fell culls (unless needed to meet snag or live cavity/roost tree guidelines) or distribute suitable debris from log yard back into regeneration opening.
- Encourage loggers to remove tops at ≥ 11 " diameter to contribute to future supply of large logs on managed areas. Retain tops and limbs whenever possible, particularly within regeneration openings. Distribute tops and limbs across regeneration openings in such a way so as not to interfere with regeneration processes and future stand development.

- Firewood cutting should not deplete supply of large logs (≥ 11 " large-end diameter, ≥ 4 feet length) below two per opening-acre across any given regeneration opening.
- Where possible, protect large logs in an advanced state of decay that were present before the harvest operation.
- If intending a prescribed burn after harvest, separate logs from large top/limb piles to prevent prolonged exposure to intensely burning fuels and to keep them from being totally consumed by the fire; however, light to moderate exposure of green logs to fire is encouraged to accelerate decay processes.
- Snags/culls felled for safety considerations should be left within regeneration openings.

RESIDUAL STRUCTURE IN EVEN-AGE STANDS

Justification: Wildlife species differ in their response to regeneration methods as a result of differences in the scale and intensity of disturbance. For instance, birds most commonly found in late succession forests have been found to react positively to uneven-age systems like selection harvests, while species preferring early succession forest reach highest abundance and species diversity in large, recently harvested even-age stands. Where there is concern that forest structural elements attractive to mature forest species are not being retained in even-age systems, residual structure reserved within regeneration openings has been found beneficial to some late successional species.

Definition and Applicability: Residual structure includes "islands" of sound, mature trees, understory trees, shrubs, live cavity trees, and snags left in reserve within even-aged regeneration openings ≥ 20 acres. This guideline also applies when regeneration openings ≥ 20 acres are created within salvage areas following a large-scale disturbance. Residual structure should total **at least 5%** of the regeneration opening area, configured as an individual island or several islands, each no smaller than $1/5$ acre. For example, a 20-acre shelterwood would require either one 1-acre island or several islands $>1/5$ acre that total 1 acre. Residual structure is retained throughout the entire rotation of the even-age stand.

The decision to include residual structure in even-age stands should rest with the community needs across the entire compartment and property. Recent research has found that many early successional species are experiencing population declines, and as a result, researchers caution against systematically managing for only late succession species when planning land management activities. Throughout their recent history, division properties have been managed using primarily uneven-aged systems—typically single-tree and group selection—that have resulted in generally mature forest conditions not favorable to many area-sensitive early successional species. While prescription of even-age systems has been infrequent on division properties, the creation of regeneration openings of sufficient size (approximately 20 acres) to maximize the abundance and diversity of early successional species has been an even rarer occurrence.

As long as division properties are primarily managed using uneven-age systems, we should seek out opportunities to achieve maximum diversity and abundance among wildlife species that

require early successional forest habitat by allowing for some large harvest openings suitable for these species, where it is silviculturally justifiable. To this end, residual structure is not recommended in even-age stands up to 20 acres so as to maximize benefit for early successional species; however, stands ≥ 20 acres should receive residual structure as described above to accommodate both late and early successional species.

Recommendations

- Where necessary, each reserve “island” should include as much of the following as possible:
 - Relatively vigorous hard and/or soft mast trees and shrubs
 - Trees in the canopy, midstory, and understory strata; shrubs and groundstory vegetation
 - Live cavity trees or trees with high den/cavity potential (large broken limbs, evidence of heart rot, portions of dead or dying tops); including species that are typically prone to cavities (black/red oak, white ash, silver maple, cottonwood)
 - Snags
- Where appropriate, plan reserves to incorporate important wildlife habitat features such as semi-permanent pools.
- Where possible, reserve islands should be of regular shape (e.g., circular) to obtain the highest ratio of area-to-edge.

WILDLIFE POOLS AND PONDS

Permanent Wildlife Ponds and Impoundments

Justification: On many division properties, impoundments have been created in forest management areas to provide for wildlife. In most cases these “wildlife ponds” or “water holes” were created by the Division of Fish & Wildlife and were designed to permanently hold water throughout the year. These ponds provide for wildlife foraging activity, drinking, and cover, and are also important breeding habitat for forest amphibians. These ponds are especially important to forest amphibians that typically breed in naturally occurring forest pools, as they are a reliable source of habitat, even during dry winters, and are free of fish that would feed on eggs and young.

Definition: Small impoundments and dug-out ponds designed to permanently provide a reliable source of water to forest wildlife year-round.

Recommendations

- At a minimum follow Best Management Practices guidelines when harvesting near permanent ponds.
- To protect the structural integrity of impoundments, keep trees from establishing on levees or raised impoundment walls. However, some trees left around perimeter where

they will not compromise the impoundment's structure will benefit many forest species using the pond. Whenever possible, remove no more than 25% of the canopy cover within a 50-foot buffer around the pond perimeter.

- To provide cover for wildlife using a pond, minimize disturbance to groundstory vegetation within a 50-foot buffer around perimeter of the pond. This does not preclude forest management activities (including tree harvesting and invasive species management) around ponds; however, one objective of such activities should be to retain > 50% of native groundstory vegetation around pond perimeter.
- Maintain natural water levels and seasonal fluctuations.
- Maintain water quality and quantity; keep ponds from filling with soil or woody debris.
- Where possible, retain all snags and logs within 100 feet of ponds.
- When ponds are present in even-age stands that require residual structure, plan retention structure around pond site to meet both features' recommendations.

Ephemeral (seasonal) forest pools

Justification: Forest pools that hold water through the spring and early summer provide essential breeding habitat for forest amphibians, such as wood frog and spotted, Jefferson, and marbled salamanders. Such pools are free of fish, which are a major predator on the eggs and young of forest amphibians. While these species may breed in any soil depression holding water in late winter or early spring (e.g., tire ruts), naturally occurring breeding pools are preferable and should not be degraded.

Definition: Seasonal breeding pools most suitable for forest amphibians are relatively shallow, semi-permanent (holding water at least January-June), often shaded by forest canopy, and are free of fish. These pools typically occur on poorly drained forest soils and/or in places where the water table is close to ground surface.

Recommendations

- To protect the integrity of area around forest pools:
 - restrict heavy equipment from entering pools and immediate area around pool perimeter
 - remove no more than 50% of basal area within 100 feet of the pool
 - retain canopy cover over pool to encourage shading and limit evaporation
 - where possible, retain all snags and logs within 100 feet of pools
- To provide cover for wildlife using pool, minimize disturbance to groundstory vegetation around perimeter of pool.
- Maintain natural water levels and seasonal fluctuations of pool.
- Maintain water quality and quantity; keep pools from filling with soil or woody debris.
- When pools are present in even-age stands that require residual structure, plan retention structure around pool site to meet both features' recommendations.

MAST TREES AND SHRUBS; FRUIT-PRODUCING VINES

Justification: Hard and soft mast are critical food resources for a wide variety of forest wildlife.

Recommendations

- Retain all native mast producing shrubs whenever possible, except where shrub growth interferes with the regeneration of important trees species and/or stand development. Retention of mast producing shrubs is particularly important within any residual structure reserved in large openings.
- Use mast trees to fulfill residual structure and live cavity tree requirements whenever possible.
- Retain wild grape vines except where their growth jeopardizes the integrity of regeneration openings and/or future stand development.

Monitoring, Reporting, and Evaluating the Availability of Compartment-level Wildlife Habitat Features

Monitoring habitat availability and quality are important aspects to wildlife habitat management. Some monitoring can be accomplished at the tract level using routine inventory data collected in preparation for timber harvesting. These data will be useful for tract-level estimates of features such as snags, cavity trees, and roost trees to help determine appropriate retention quantities; however, the guidelines described in this document are applicable at the broader compartment level. Appropriate compartment-wide estimates can include those calculated from cumulative tract-level inventories or those derived from other comprehensive monitoring programs, such as the division's continuous forest inventory. Additional monitoring programs to estimate habitat availability will be coordinated by the forest wildlife specialist on an as-needed basis. Properties should maintain data relating to habitat feature inventories in such a way that allows for efficient reporting at the tract, compartment, and property levels. Properties are encouraged to spatially document where features such as ponds, pools, and wetlands occur, accurately delineating boundaries of these features whenever possible.

Trends in habitat feature abundance across compartments should be reviewed by the forest wildlife specialist periodically to ensure appropriate availability is maintained on each division property. Furthermore, the needs of native forest wildlife species, especially those designated as Species of Greatest Conservation Need, should be evaluated on a similar periodic basis to make certain habitat requirements are addressed as new information becomes available. Updates and changes to these guidelines should occur when warranted, though such adjustments should continue to reflect applicability at the compartment scale and benefit the full complement of native species residing on division properties.

Appendix I I-1: Indiana Logging and Forestry Best Management Practices

Activities carried on, in and around forests impact the forest environment in many different ways. The focus of these guidelines is the quality of the water flowing from forest lands. Because the reduction in water quality from soil-disturbing activities can't be seen flowing from a single source, such as a pipe, but is spread across the land, the term non-point source (NPS) pollution is used. Forestry is a minor NPS pollution contributor in Indiana. Forests have long been recognized as the best protector of watersheds. The fact that other land uses contribute more to total pollution, although true, is not important. Improvement of water quality requires reduction of NPS pollution from all sources, including forestry.

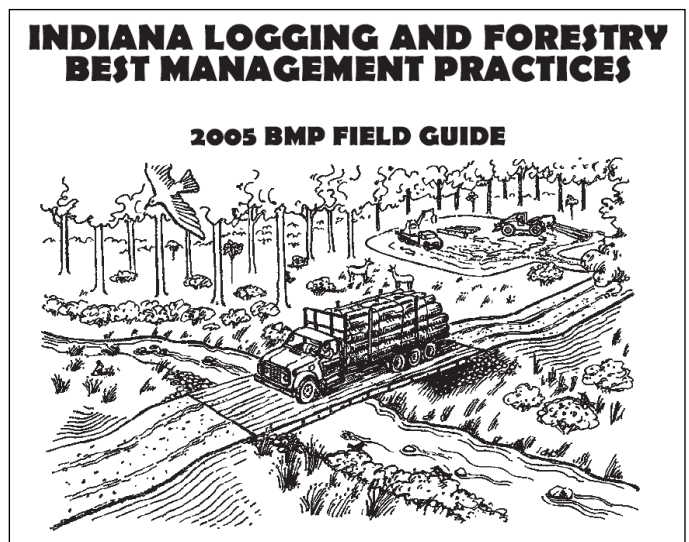
Additionally, these guidelines consider worker safety, aesthetics, and forest productivity concerns.

Logging has the greatest impact of the typical forestry activities. The use of Best Management Practices (BMPs) by loggers, landowners and land managers offers the greatest potential to reduce NPS, and reach water quality and other forest health goals. This guidebook summarizes BMPs for logging and forestry practices. The BMPs described in this book are guidelines, and as guidelines may need some modification to adjust to local woodland, soil and watershed characteristics.

Organization of the Guidebook

This guidebook does not contain all the specifics and background of each BMP. To be so detailed would require many more pages. The BMPs contained in sections I through VII have been arranged logically in the sequence of a logging operation: 1) Pre-harvest Planning, 2) Forest Roads, 3) Skid Trails, 4) Stream Crossings, 5) Riparian Management Zones, 6) Log Landings, and 7) Fuel, Lubricants and Trash. Each of these aspects of a harvest operation is discussed from planning to construction to maintenance to closing. The BMPs in Section VIII cover non-logging BMPs, to include guidelines for: 1) Tree Planting and Natural Regeneration, 2) Forest Chemicals, 3) Fire and Fire Control Lines, 4) Woodland Grazing, and 5) Recreation Trails. The glossary defines terms employed in this guidebook and the Appendices cover A) Guidelines for Seeding Disturbed Areas, B) Federal Requirements for Forest Roads in Wetlands, C) Sources of Help and Information, and D) Known Regulations.

For the complete 2005 BMP Field Guide go to:
https://www.in.gov/dnr/forestry/files/fo-2005_Forestry_BMP_Field_Guide.pdf



Appendix I J-1: Opportunities for Public Input

The Division of Forestry welcomes the ideas and suggestions of Indiana taxpayers. We actively solicit public input through several processes. Public input is given thoughtful consideration in the development of strategic and operational plans and management decisions.

The three major ways public input is accepted is through personal contact with division staff, open houses, and the division's webpage. Lists of property managers and other division staff are available on the division website. Although not all field offices are staffed at all times, email and telephone messages will be addressed. A question, comment or suggestion pertaining to a state forest property decision or action should first be addressed to the property manager. If you feel your comment is not given proper consideration, the state forester and/or appropriate staff would be your next option.

Open houses are scheduled each year. Open house locations and times vary from year to year. When open houses are scheduled, a statewide news release is issued and the dates, times, and locations are posted on the Division of Forestry website. Open houses for multiple properties may be combined in a central location. Times vary from daytime, evening, or weekends. Property personnel at each open house will provide maps and descriptions of upcoming activities, including timber management, recreational developments, recent land acquisition, upcoming management plans, and general issues facing the property. Each visitor is given the opportunity to submit written comments to the property. Comments are considered by each property in finalizing management activities. A statewide summary of open houses is posted on the state forests web page.

Forest management planning is done through a process we call the management guide. Before any forest management activity can take place, property personnel must complete a management guide for a given tract. Specific guidelines for the content and preparation of a management guide can be found in [Section E: Management Guides](#) and [Appendix II E-1: Resource Management Guide Template](#). Each management guide is summarized and presented at an open house and/or posted on the division's state forest web page. Guides are posted as they are prepared throughout the year. Indiana taxpayers are given the opportunity to review and comment on management guides through the division's webpage or by written comment to the property during a minimum 30-day comment period for each guide. A summary of comments received and how those comments were addressed will be posted on the division website before management plans are implemented. If you feel your comment is not given proper consideration, submit your comment to the state forester. Management actions related to your comment will be delayed until the state forester issues a decision.

Division strategic plans and other occasional planning efforts will follow a process that allows or encourages public input. The current Strategic Direction for the Division of Forestry was the result of numerous scoping meetings, public meetings, and draft plans posted on the division website for public comment, all before the plan was finalized. A summary of public comments received and how those comments were addressed is also posted on the division's website.

Appendix I K-1: Prices for Other Forest Products

Prices for firewood

For public home use - \$10.00/rick

Commercial firewood – contact Property Specialist

Prices for other products

Contact property

Appendix I L-1: Equipment and Vehicle Costs

<u>Equipment</u>	<u>Operation unit</u>	<u>Cost per operation unit (\$)</u>
backhoe	hour	75.00
JD 450 bulldozer	hour	100.00
JD 650 bulldozer	hour	125.00
JD 750 bulldozer	hour	125.00
skidsteer/bobcat	hour	75.00
motor vehicle	mile	0.40

Appendix I L-2: Management of Potential Hazard Areas

User Safety

State forests, by their very nature, pose a variety of hazards to people that are a function of the forest's "natural" condition. These hazards may include geological (steep hills, cliffs, caves), hydrological (lakes, streams), botanical (dead trees, poisonous plants), and faunal (animal bites, stings). These hazards, by being part of the nature of forests, should be considered inherent. Any user should reasonably expect these hazards at a forest.

There are other hazards at state forests, however, that are the result of management activities. These are hazards that result from activities such as construction, vegetation management, and facility maintenance. Generally, these hazards can be divided into three categories for handling.

The first category would be hazards that are minimal, or that are of such a nature that reasonable persons would avoid them. No general public warning of the hazard is necessary. For example, if an employee is mowing the grass, a user is unlikely to run into the path of the mower, and likewise the employee will likely avoid mowing areas with users.

The second type of hazard may be one where the hazard is minor, but it is deemed serious enough by the management or it may be perceived serious enough by the public that it is prudent to post a hazard sign. These are hazards that are not considered to be generally of an immediate life-threatening nature. This would be a situation similar to a grocery store where a sign warns of a wet floor, but access is not restricted. An example on the properties would be the posting of "Trucks Entering Highway" signs on public roads where visibility is limited for haul road entry and exit.

The third type of hazard is where the hazard is significant. These are often circumstances where the public would not be fully cognizant of the hazard, and the hazard may pose an imminent threat for serious injury. In these circumstances, an evaluation by the property staff may determine a need to close the area to public entry. An example of this a shelter house rehabilitation where a person would not likely know the potential hazards in the work area.

All properties will maintain a public bulletin board in the vicinity of the property office, or a primary, visible public entry point. This bulletin board will be used for the posting of hazardous areas.

Hazards That Require Hazard Posting

Work activities should be evaluated for potential public safety concerns. Examples of activities that may pose a potential safety concern include trail construction, structure rehabilitation, timber harvesting, wildlife habitat improvement, infrastructure rehabilitation, roadwork, and recreation

site construction. Generally, any activity involving the use of heavy equipment may be a potential public safety concern.

If a property evaluates a work activity and determines there is a minor potential public safety concern, the property will post the area/structure as a hazard area. The area will be posted as follows:

The hazard will be posted at the property office, the area/structure, and/or the property bulletin board. The hazard will be posted with a sign at the affected area/structure and at obvious public entry points into the area/structure, at parking units, along public roads, on fire/access roads, at doorways, and on trails.

The signs to post the area/structure will read:

HAZARD AREA
AREA MAY CONTAIN MINOR HAZARD TO PUBLIC SAFETY

in large, bold type. These can be reusable signs ordered through a local sign shop. Posted with the sign will be a brief description of the hazard area/structure (compartment/tract, trail name, shelter house, road, etc.) and a brief description of the hazard (chemical application, unusual vehicle traffic, etc.). List the property contact for the public to go to for further information. A map, drawing, or sketch (as appropriate) showing the hazard area will also be posted. Where exposed to the weather, these descriptions will be appropriately weatherproofed (lamine, etc.).

Postings at the property office and/or the property bulletin board will be a description of the hazard as above.

All postings should be checked during the hazard period to ensure maintenance. Missing postings will be replaced. Once the hazard has ceased, the postings will be removed.

Hazards That Require Closing for Public Safety

Occasionally various areas of any property are under some type of work activity that may cause a safety concern for general public use. In those circumstances, it is prudent to temporarily close and post an area closed for general public entry. This is pursuant to DNR Property Regulations 312 IAC 8-2-1 Section 1(a).

Work activities should be evaluated for potential public safety concerns. Examples of activities that may pose a potential safety concern include trail construction, structure rehabilitation, timber harvesting, wildlife habitat improvement, infrastructure rehabilitation, roadwork, and recreation site construction. Generally, any activity involving the use of heavy equipment may be a potential public safety concern.

If a property evaluates a work activity and determines there is significant potential public safety

concern, the property will close the area/structure to public entry. The closing will be posted as follows:

The closing will be posted with signs at the property office and the property bulletin board. The closing will be posted at the area/structure to be closed and at obvious public entry points into the area/structure—at parking units, along public roads, on fire/access roads, at doorways, and on trails. A copy of each posting will be sent to the section head.

The signs to close the area/structure will read:

SAFETY AREA
AREA TEMPORARILY CLOSED TO PUBLIC ENTRY

in large, bold type. Underneath in smaller type will be a brief description of the closed area/structure (compartment/tract, trail name, shelter house, road, etc.) and a brief description of the hazard (construction debris, tree trimming-falling limbs, land clearing for wildlife food plot, etc.). List the property contact for the public to contact for further information. A map, drawing, or sketch (as appropriate) showing the closed safety area will also be posted. Where exposed to the weather, these signs will be appropriately weatherproofed (lamine, etc.).

In addition, all recreational trails that are adjacent to or go through a safety area will be temporarily rerouted away from the safety area or closed. Rerouted trails must be adequately marked so users follow the appropriate route.

All postings should be regularly checked during the closed period to ensure maintenance. Missing postings will be promptly replaced. Once the need for the safety area has ceased, the postings will be promptly removed, and any trail reroutes will be discontinued. Areas will be closed for the minimum time necessary and will cover the minimum area needed to ensure public safety.

When a planned project involves potential hazards that may affect a recreational trail, the planning will include a strategy for the trail. The two options are closure and rerouting. The considerations involved in deciding which option to take are the inconvenience to the user, the length of time of the hazard, and the ability to reroute. A short, seldom used trail would be easy to close for a short period of time. A closure of a portion of a long distance trail should never be done because of the inconvenience of causing users to backtrack.

Chemical Application

Chemical applications contain many hazards, real and perceived. These guidelines are designed to help deal with the situations involving chemicals. In general, chemicals can be divided into two types, household and industrial.

Household chemicals are those products that can be bought over-the-counter by any member of

the general public. The products included in this group are cleaners, lubricants, pesticides, and disinfectants. These products will often have few, if any, limitations on application and area reentry (human contact). These products should be applied according to the label directions. If the product label does specify a no-reentry period, then the treated area will be posted as a closed area for the stated period.

Industrial chemicals are those products that are not generally purchased by the public. This includes products such as cleaners, lubricants, pesticides, and disinfectants. These products will often have extensive limitations on application and area reentry (human contact). These products should be applied according to label directions, and where appropriate, under the direction of a properly trained person. If the product label specifies a no-reentry period, then the treated area will be posted as a closed area for the stated period. This is similar to the posting of suburban yards when treated by lawn care companies.

Some pesticides create a situation where even beyond the no-reentry period there may be or may be perceived to be a hazard in some forms of contact. An example of this are slow-acting herbicides that may be sprayed on edible plants. The edible plants may absorb the herbicide but may not exhibit a reaction until well after reentry is allowed. In these cases, a hazard posting should be maintained until the plants definitively exhibit the treatment.

These guidelines will apply to products used by properties and under the supervision of properties. In some cases there are utility lines with permits on properties that must receive permission to apply chemical treatments. If permission is granted, it should include the requirement that the treated areas be posted for the hazard.

Some utility easements are under more lenient terms or were established prior to state ownership. In these cases, the properties should request posting when possible. However, the state has no authority to enforce any requirements other than those spelled out in the easement.

Appendix I M-1: Cemetery Access and Maintenance

The properties that make up the state forest system in Indiana were once settled and owned by private individuals and institutions. Because of this previous history, there are many cemeteries located within the boundaries of state forests. These cemeteries range in size from a simple family burial plot with homemade headstones to formal cemeteries with ornate stones, fences and plantings. For purposes of this policy, cemeteries located within the boundaries of state forest properties will be classified as either being owned by the State of Indiana (i.e., the real estate upon which the cemetery is located has been deeded to the state), or as being owned by an outside individual, agency, or institution, but is essentially a completely surrounded inholding within a state forest.

Regardless of the ownership of the cemetery it shall be the policy of the Division of Forestry that permission to enter any cemetery will be granted unless such entry would create an unsafe or hazardous situation. The Division of Forestry will waive any property entrance fees for individuals who are specifically entering the property to visit a cemetery. This permission to enter is different from providing physical walking or driving access to a cemetery, which will be addressed later in this policy.

Vehicle and Walking Access to Cemeteries

The Division of Forestry will maintain existing roads and trails (non-county/state/federal roads located on state forest land) that provide access to known cemeteries. The Division of Forestry is not responsible for the creation of new access roads or the upgrading of existing roads for the sole purpose of improved access to cemeteries. Some existing roads and trails that provide driving access to more remote cemeteries may be gated and locked to prevent unauthorized use of the road. However, persons wishing to visit cemeteries beyond the locked gates may gain access by request at the property office with reasonable advance notice. Persons seeking such access should be aware that some property offices are not staffed full time, and notice of a visit should be made several days in advance, if possible. This access policy applies to both cemeteries owned by the state and those that are inholdings within state boundaries.

Care and Maintenance of Cemeteries

The Indiana Attorney General's Office determined in December 1987 that the Department of Natural Resources has no statutory responsibility to maintain cemeteries located within the state-owned property, which was acquired prior to Sept. 1, 1982. Cemeteries acquired after Sept. 1, 1982 may carry a maintenance responsibility under IC 23-14-1-4.5. This statutory responsibility for the care and maintenance of cemeteries that have no funds for maintenance was assigned to the counties (IC 23-14-26) and the townships (IC 23-14-27).

The Division of Forestry recognizes that all cemeteries provide both a cultural resource for the entire state and a personal touchstone for families. Therefore, without statutory mandate, the Division of Forestry has adopted the following policy on the care and maintenance of cemeteries located within the boundaries of Division of Forestry properties.

Cemeteries not owned by the DNR but surrounded by Division of Forestry lands

- The DNR is not required to provide labor nor materials for the maintenance of these cemeteries, which are private property.
- Division of Forestry personnel will cooperate with organizations, individuals or institutions wishing to maintain such cemeteries by facilitating access across state-owned property, providing technical forestry expertise and making other similar contributions.
- The Division of Forestry will provide available information about cemeteries to persons requesting such information.

Cemeteries located on Division of Forestry managed land

- The Division of Forestry will identify and document the location of each such cemetery as that information becomes available.
- The Division of Forestry will seek, to the best of its ability, to protect cemeteries from accidental or intentional damage.
- The Division of Forestry will attempt to keep known cemeteries free of woody vegetation that is less than 4 inches in diameter. Larger trees will be removed if they pose a danger to the site or visitors. The Division of Forestry will not be responsible for the control of any non-woody vegetation.
- Division of Forestry personnel will cooperate with organizations, individuals or institutions wishing to pursue additional maintenance.

Appendix I M-2: Well Closure Policy

In the early to mid-1800s lands that are currently part of the state forests were open for settlement. During this time an immense number of settlers moved into the state and homesites and farmsteads emerged across Indiana. Remnants of these historic sites are still present within the forests in the form of such features as foundations, artifact scatters, and wells. While these sites are often avoided to circumvent negative impacts to the deposits, open wells require some additional considerations in order to avoid potential incidents from accidental injury at these historic features.

The typical well on a state forest property is approximately 1 meter wide and 4 to 5 meters deep. The upper portion of the well is generally constructed from stacked stone (often sandstone or limestone, depending on material availability). The wells were hand dug, and once bedrock was encountered, the rock substrate was used for the wall of the feature. In their current condition, most wells are level with the ground surface and may or may not hold water.

While many of the wells are located away from recreational features such as trails or campgrounds, several open wells are found in close relationship to these more-used areas of the properties. Therefore, the division has developed guidelines to minimize risks by recommending the posting or closing of known wells that are within 100 feet of developed trails or recreation areas. Closing of the well should be done in a way as not to impact potential cultural deposits that are associated with the historic feature. Well posting/closing should follow the recommended guidelines listed below.

Posting

- Posting of the well would involve placing Carsonite posts and/or signs and flagging around the well to notify users of a potential nearby hazard.

Closing

- Soil from within an archaeological site or cultural artifacts/features **cannot** be used to fill in an open well (i.e., you cannot use nearby foundation stones to fill a well or push in soil from the area surrounding the well).
- The well should be closed off in such a way as to allow for egress/ingress by herbs, invertebrates, and small animals.
- Well closure should be done in such a way that it can be reversible.
- The well can be closed in a variety of ways. For more information on approved methods to close out wells, contact the division archaeologist.

Appendix I N-1: Nature Preserve Listing

State Forest	Nature Preserve	Acreage	Dedicated	Significance
Clark	White Oak	143.1	4/17/1975	High-quality white oak and mixed oak-hickory forest.
	Virginia Pine - Chestnut Oak	23.6	1/15/1976	Native Virginia pine and chestnut oak forest.
	Alum Cave	142	2/22/2002	Siltstone cliffs, mesic, dry-mesic, and dry upland forests with native Virginia pine forest.
	Outbrook Ravine	518.6	2/1/2018	Mesic to dry upland forest, including the northwestern most extension of naturally occurring Virginia pine. Rare plants.
Harrison-Crawford	Post Oak – Cedar	266	10/15/1970	Dry upland forest, mesic upland forest; glades; rare plants.
	Scout Mountain	40	5/27/1976	Mixed mesophytic forest with beech-maple and oak-hickory types; cave and high-priority Indiana bat hibernacula.
	Greenbrier Knob	144.2	3/3/2017	Limestone cliffs; Blue River gravel wash; rare plants.
	County Line Glades	84.6	3/3/2017	Limestone barrens; dry upland forest; rare plants.
	Leavenworth Barrens	761.3	11/29/1982	Dry upland forest, mesic upland forest; glades; barrens; rare plants.
	Bat Wing Cave	10	1/20/1983	High-priority Indiana bat hibernacula.
	Charles C. Deam	258.9	8/19/1993	Floodplain forest, talus slopes, limestone cliffs, sandstone cliffs, upland forests, rare plants and wildlife.
Jackson-Washington	Indian Bitter	35	2/21/1986	Dry-mesic upland forest, mesic upland forest, cucumber magnolia.
	Knobstone Glades	60	2/21/1986	Siltstone glades; xeric, dry, and dry-mesic upland forest.
Martin	Henshaw Bend	77	6/30/1997	High-quality mesic upland forest, river bluffs.
	Tank Spring	60	6/30/1997	Mesic upland forest, sandstone cliffs, prominent spring.

State Forest	Nature Preserve	Acreage	Dedicated	Significance
Morgan-Monroe	Scout Ridge	14.5	8/21/1969	Old-growth beech-maple stand.
	Sweedy Hollow	150.1	9/16/2009	Mesic, dry-mesic and dry upland forest; mesic floodplain forest; sandstone cliff communities.
	Low Gap	320	3/16/2010	Mesic, dry-mesic, and dry upland forest.
	Ravinia Seep Springs	452.4	8/23/2017	Mesic upland forest with groundwater-fed seeps and open sedge meadow prairie fens. Rare species.
Owen-Putnam	Pleasant Grove Valley	64.2	7/13/2017	Seep springs and sandstone cliffs.
	Section 9 Seep Spring	46.7	7/13/2017	Mesic upland forest with seep springs.
Yellowwood	Crooked Creek	35	1/21/1981	Yellowwood tree; mesic and dry-mesic forest.
	Miller Ridge	30.6	3/19/2010	Yellowwood tree; mesic, dry-mesic, and dry upland forest.
	Lucas Hollow	42.8	1/16/2018	High-quality mesic upland forest.

Appendix I P-1: Analysis of a Section of Land

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

LAND DESCRIPTION DIAGRAM

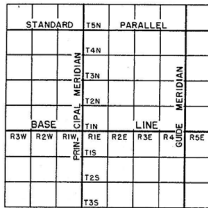


Diagram showing division of tract into Townships

36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

Sectional map of Township showing adjoining Sections

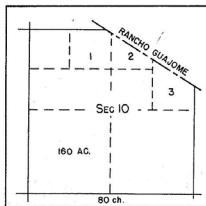
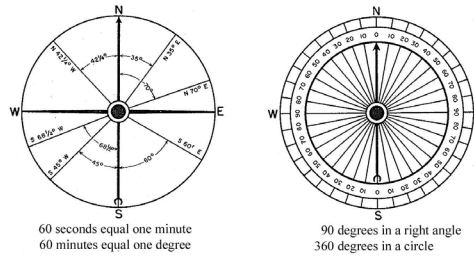


Diagram illustrating division of Fractional Section into Government Lots



60 seconds equal one minute
60 minutes equal one degree

90 degrees in a right angle
360 degrees in a circle

40 CHAINS 160 RODS 2640 FEET		20 CHAINS		80 RODS	
NW 1/4 160 ACRES		W 1/2 NE 1/4 80 ACRES		E 1/2 NE 1/4 80 ACRES	
CENTER OF SECTION					
1320 FT.	20 CHAINS	660 FT.	660 FT.	1320 FT.	
NW 1/4 SW 1/4 40 ACRES	NE 1/4 SW 1/4 40 ACRES	W 1/2 NW 1/4 SE 1/4 20 ACS	E 1/2 NW 1/4 SE 1/4 20 ACS	N 1/2 NE 1/4 SE 1/4 20 ACRES	
SW 1/4 SW 1/4 40 ACRES	SE 1/4 SW 1/4 40 ACRES	10 CHAINS	40 RODS	S 1/2 NE 1/4 SE 1/4 20 ACRES	80 RODS
440 YARDS	80 RODS	1/2 NW 1/4 SW 1/4 SE 1/4 5 ACRES	1/2 NE 1/4 SW 1/4 SE 1/4 5 ACRES	1/2 NW 1/4 SW 1/4 SE 1/4 10 ACRES	1/2 NE 1/4 SW 1/4 SE 1/4 10 ACRES
		2 1/2 ACS ACS	SE 1/4 SW 1/4 SE 1/4 330'	SW 1/4 SE 1/4 SE 1/4 660 FT.	SE 1/4 SW 1/4 SE 1/4 660 FT.
		330' 5 CHS	660 FT.	10 CHAINS	40 RODS

Table of Land Measurements

LINEAR MEASURE	SQUARE MEASURE
1 inch = .0833 ft.	144 sq. in. = 1 sq. foot
7.92 inches = 1 link	9 sq. feet = 1 sq. yard
12 inches = 1 foot	30 1/2 sq. yds. = 1 sq. rod
1 vara = 33 inches	16 sq. rods = 1 sq. chain
2 3/4 feet = 1 vara	1 sq. rod = 272 1/4 sq. ft.
3 feet = 1 yard	1 sq. ch. = 4356 sq. ft.
25 links = 16 1/2 feet	10 sq. chs. = 1 acre
25 links = 1 rod	160 sq. rods = 1 acre
100 links = 1 chain	4840 sq. yds. = 1 acre
16 1/2 feet = 1 rod	43560 sq. ft. = 1 acre
5 1/2 yards = 1 rod	640 acres = 1 sq. mile
4 rods = 100 links	1 sq. mile = 1 section
66 feet = 1 chain	36 sq. miles = 1 Twp.
80 chains = 1 mile	6 miles sq. = 1 Twp.
320 rods = 1 mile	1 sq. mi. = 2.59 sq. kilm
8000 links = 1 mile	
5280 feet = 1 mile	
1760 yards = 1 mile	

An Acre is:

43,560 sq. feet.	660 feet x 66 feet.
165 feet x 264 feet.	160 square rods.
198 feet x 220 feet.	208' 8" square.

or any rectangular tract, the product of the length and width of which totals 43,560 sq. ft.

From US Bureau of Land Management (<https://www.blm.gov>).

Appendix I P-2: Slope Correction Table

Slope Correction Table			
Distance is measured on slope.			
Percent	66'	70'	99'
10	0.3	0.3	0.8
15	0.7	0.8	1.1
20	1.3	1.4	2.0
25	2.0	2.2	3.0
30	2.9	3.1	4.4
35	3.9	4.2	5.9
40	5.1	5.4	7.6
45	6.4	6.8	9.6
50	7.8	8.3	11.7
55	9.3	9.9	14.0
60	11.0	11.6	16.5
65	12.7	13.3	19.1
70	14.6	15.5	21.9
75	16.5	17.5	24.7
80	18.5	19.7	27.8
85	20.6	21.9	30.9
90	22.8	24.2	34.2
95	25.0	26.6	37.6
100	27.3	29.0	41.0

Conversion Table
Chains to feet
$\frac{1}{8}$ ch = 11.0'
$\frac{1}{4}$ ch = 16.5'
$\frac{1}{3}$ ch = 22.0'
$\frac{1}{2}$ ch = 33.0'
$\frac{2}{3}$ ch = 44.0'
$\frac{3}{4}$ ch = 49.5'
$\frac{5}{6}$ ch = 55.0'
1 ch = 66.0'
1 $\frac{1}{6}$ ch = 77.0'
1 $\frac{1}{4}$ ch = 82.5'
1 $\frac{1}{3}$ ch = 88.0'
1 $\frac{1}{2}$ ch = 99.0'

The number of feet that need to be added to the set horizontal distance desired in order to achieve the horizontal distance on a particular slope. Example: To run a horizontal distance of 99 feet on a 45% slope, the actual slope distance that has to be run is 9.6 feet further, or a total of 108.6 feet.

Appendix I P-3: Timber Encroachment or Theft Resolution Guidelines

These guidelines outline the three levels of reimbursements for unauthorized removal of timber from state forest lands. The descriptions provide some guidance in criteria used to determine if that level of reimbursement is warranted.

Triple Stumpage Reimbursements

These are cases where the DNR is reasonably certain the encroacher ignored obvious line evidence. There is sufficient evidence in the field such as signage, fencing, posts, roads, survey markers, line marking that was ignored in crossing the property line. The encroacher either fails to contact state forest for line location assistance or fails to heed the recommendations thus provided. This will include cases where the encroacher may have purposely crossed the property line.

Double Stumpage Reimbursements

These are cases where the DNR is less certain that the encroacher ignored obvious line evidence, and perhaps made a bad judgment call. Some of the same evidence described above may be in place but may have been conflicting. The encroacher either fails to contact state forest for line location assistance or fails to heed the recommendations thus provided.

Single Stumpage Reimbursements

These are cases where the DNR feels certain that the encroacher made all reasonable efforts to ascertain and follow the property line, but still ends up over the line. This would be cases where the followed line evidence is wrong. Or it could be where state forest personnel placed a line inaccurately, and the encroacher follows that line.

Appendix I U-1: Permit Statute

The following is the statutory Indiana Code for easements on state lands:

IC 14-18-10 Chapter 10. Utility Easements

[14-18-10-1](#) Permit requirement

[14-18-10-2](#) Issuance of permit; public highway rights-of-way passing through state land; charges prohibited

[14-18-10-3](#) Prohibited easements

[14-18-10-4](#) Violations

IC 14-18-10-1 Permit requirement

Sec. 1. A person may not erect or construct a utility, telephone, or telegraph line upon or across:

- (1) a state park;
- (2) a state forest;
- (3) a state game preserve;
- (4) land acquired by the state and set aside for use by the public as a scenic or historic place; or
- (5) that part of a public highway right-of-way that passes through a state park, a state forest, a state game preserve, or land acquired by the state and set aside for use by the public as a scenic or historic place;

unless the person has a permit from the director to erect or construct the line.

[Pre-1995 Recodification Citation: 32-5-4-1.]

As added by P.L.1-1995, SEC.11.

IC 14-18-10-2 Issuance of permit; public highway rights-of-way passing through state land; charges prohibited

Sec. 2. The director may issue to any person, without charge, a permit to erect or construct a utility, telephone, or telegraph line as described in section 1 of this chapter under the rules and restrictions that the director considers necessary:

- (1) for the protection and preservation of the natural scenic conditions of the land; or
- (2) to prevent the line from interfering with or obstructing the use and enjoyment of the property by the public.

However, the director shall not impose a charge to issue a permit to erect or construct a utility, telephone, or telegraph line as described in section 1(5) of this chapter.

[Pre-1995 Recodification Citation: 32-5-4-2.]

As added by P.L.1-1995, SEC.11. Amended by P.L.145-2015, SEC.6.

IC 14-18-10-3 Prohibited easements

Sec. 3. A person may not construct or erect a utility, telegraph, or telephone line as described in section 1 of this chapter in violation of any of the rules and restrictions of a permit issued under this chapter.

[Pre-1995 Recodification Citation: 32-5-4-3.]

As added by P.L.1-1995, SEC.11.

IC 14-18-10-4 Violations

Sec. 4. A person who violates this chapter commits a Class C infraction. Each day that such a violation exists constitutes a separate offense.

[Pre-1995 Recodification Citation: 32-5-4-4.]

As added by P.L.1-1995, SEC.11.

IC 14-18-11 Chapter 11. Easements in State Forests

[14-18-11-1](#) Grant and conveyance of rights-of-way

[14-18-11-2](#) Approval of terms and conditions of rights-of-way

IC 14-18-11-1 Grant and conveyance of rights-of-way

Sec. 1. The department may grant and convey by deed rights-of-way to railroads and to telegraph and telephone companies to construct and operate lines across the land of state forests and state nurseries.

[Pre-1995 Recodification Citation: 32-5-5-1.]

As added by P.L.1-1995, SEC.11.

IC 14-18-11-2 Approval of terms and conditions of rights-of-way

Sec. 2. The terms and conditions upon which the rights-of-way are granted and conveyed by deed under this chapter must be submitted to and approved by:

- (1) the governor;
 - (2) the attorney general; and
 - (3) the Indiana department of administration;
- before the deed becomes operative or possession is taken under a deed.

[Pre-1995 Recodification Citation: 32-5-5-2.]

As added by P.L.1-1995, SEC.11. Amended by P.L.53-2001, SEC.2; P.L.1-2002, SEC.69.

Appendix II

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Appendix II E-1: Resource Management Guide Template

Indiana Department of Natural Resources
Division of Forestry
 DRAFT RESOURCE MANAGEMENT GUIDE

State Forest	Compartment	Tract
Forester	Date	Acres
Management Cycle End Year	Management Cycle Length	

Provide succinct, detailed descriptions of the following.

Location

General description of location of tract including county, section, township and range, and approximate distance and direction from nearby municipality.

General Description

General overall description of tract including acreage, general cover type.

History

Provide a history of the tract from known information such as date of acquisition, previous owner(s), probable previous land use (old aerial photos, evidence such as home sites, fencing), and management history as state forest. A bullet list is recommended.

Landscape Context

Provide a description of the surrounding landscape near the tract. Describe dominant land uses, such as agriculture, forest, residential, etc., and changes you see occurring.

Topography, Geology and Hydrology

Provide a description of the topography of the tract including a general description of the slopes found in the tract. Describe the underlying geology. Describe the hydrology of the tract – are there any major water bodies in the tract and into what major stream(s) and/or lake(s) does runoff drain toward.

Soils

Provide a brief description of the soil types found in the tract. Provide any unusual conditions due to the soil types. Attach the auto-generated soils map to the Guide Appendix.

Provide succinct, detailed descriptions of the following, and prescribe any work needed.

Access

Describe access to the tract and within the tract for management activities.

Boundary

Describe the tract boundaries. If the tract boundary line is also a property line, describe how it was identified.

Ecological Considerations

Describe any wildlife and wildlife sign observed in the tract and what wildlife is likely to occur in the tract. Describe the kind of wildlife habitat the tract provides. Describe tract snag and legacy tree densities, using the format below.

The Division of Forestry has developed compartment level guidelines for two important wildlife structural habitat features: snags and legacy trees. Snags are standing dead or dying trees. Snags provide value to a stand in the form of habitat features for foraging activity, den sites, decomposers, bird perching, and bat roosting. Snags eventually contribute to the future pool of downed woody material. Downed woody debris provides habitat for many species and contributes to healthy soils. Legacy trees are specific tree species that are preferred by the Indiana bat for roost trees.

	Maintenance Level	Inventory	Available Above Maintenance
*Legacy Trees 11"+ DBH	1062	2754	1692
*Legacy Trees 20"+ DBH	354	1096	742
Snag 5"+ DBH	472	329	-143
Snag 9"+ DBH	354	242	-112
Snag 19"+ DBH	59	98	39
*Selected Tree Species: AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO			

Inventory data for Compartment 7 Tract 1 shows that legacy trees and 19"+ snags exceed maintenance levels, while 5"+ and 9"+ snags are below target maintenance levels.

Sample alternate wording if pertinent: *Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels in all diameter classes.*

It is important to note that these are compartment guidelines and that even though the estimated tract data does not quite meet all target levels, it is likely that suitable levels are present for these habitat features in the surrounding landscape. The prescribed management will maintain or enhance the relative abundance of these features.

Describe the general plant community type(s) found in the tract. Describe any exotics encountered and any need for exotic control.

Any rare, threatened, or endangered wildlife or plants/plant communities identified during the Natural Heritage Database (NHD) review or otherwise known to occur on the tract should be described in the appendix of the guide. The body of the guide is to include a statement such as

the following:

“A Natural Heritage Database Review is part of the management planning process. If Rare, Threatened or Endangered 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 species.”

Recreation

Describe any recreation facilities in the tract. Describe primary recreation uses of the tract. Describe recreation considerations to be implemented during management activities. Describe recreation work recommended. Example: trail maintenance, trail signage, etc.

Cultural

Describe any cultural features found in the tract, e.g., old homesites, old barns, fence lines, etc. This sensitive information on cultural resources should be placed in a separate appendix. Rather than disclosing sensitive information in the body of the management, the following statement should be used. “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

Divide the tract into subdivision units – cover types (see [Appendix I E-1: Cover Types](#)). These may be based on timber type, tree size/age, past land use, current use, etc. Each subdivision that is forested must have had at least two inventory points in it. If it does not have at least two inventory points in it, it is not large enough to be considered a subdivision. The only exception to this is for non-forested or special areas such as lakes, fields, etc. that can have less than two inventory points in them. The subdivision will be titled based on the reason for calling it a subdivision. Examples of common names can be found in [Appendix I E-1: Cover Types](#) and can include Dry Oak-Hickory, Mesic Oak-Hickory, Bottomland Oak-Hickory, Beech-Maple, Pine/Conifer, Mixed Hardwoods, Bottomland Hardwoods, Tree Plantation or Planting, and Non-Forested. These will be keyed to a map showing the delineation of the subdivisions.

The narrative for each subdivision will begin with a description of the current condition of the subdivision. Information from the inventory for that stand will be summarized and used to help describe the subdivision, including dominant species, volume, and basal area stocking. The current stocking condition of the subdivision will be compared to the hardwood stocking chart. The desired future condition of the subdivision will be described. The activities necessary to reach that desired future condition and their approximate time to occur is then outlined (prescription).

It is possible to have no subdivision of a tract, a tract that is relatively homogeneous, in which case the subdivision description becomes the description for the tract.

The discussion shall include a summary of the total timber inventory using the format below. This table is not to be broken down by harvest and leave tallies.

The current forest resource inventory was completed on 2/14/18 by Forester X. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data (trees >11”DBH):

Species	# Sawtimber Trees	Total Bd. Ft.
White Oak	2175	570,150
Sweetgum	706	42,490
Virginia Pine	399	48,634
Yellow Poplar	478	47,198
Chestnut Oak	208	54,560
Sugar Maple	302	42,594
Black Oak	143	29,274
American beech	199	9,880
Northern Red Oak	52	11,628
Pignut Hickory	88	11,080
American sycamore	57	4,070
Black Cherry	55	3,378
Red Maple	41	2,580
Blackgum	70	3,152
Largetooth Aspen	30	1,760
Black Locust	23	1,452
Shagbark Hickory	30	1,430
White Ash	23	1,452
Total:	5,079	886,770

Summary Tract Silvicultural Prescription and Proposed Activities

Combine the prescriptions described in the tract subdivisions into a summary prescription for the tract and an outline of proposed management activities for the entire tract over the course of the management cycle. Include approximate timeframes in which the activities would occur. Briefly describe any possible impacts of the proposed activities on the features identified above—soils, hydrology, wildlife, recreation, etc. The final proposed activity will be the approximate date of the next inventory and management guide to start the next management cycle.

Proposed Activities Listing

Create a summary list of proposed activities for the tract in approximate chronological order up to the start of the start of the next management cycle, which is the date of the next inventory. This listing should include timber, as well as non-timber recommendations, such as trail maintenance, road work, invasive species control, regeneration checks, wildlife projects, etc. that are pertinent to the tract.

Proposed Management Activity

Proposed Date

Maps

The guide is to include a location map showing tract boundaries, property boundaries, and public roads overlaid on a 1:24,000 or 1:40,000 USGS topographic map. This map is to use the auto-generated GIS template found on the DNR file server I:\Properties section\. The guide will also include an aerial photo of the tract created via GIS, which clearly delineates each tract subdivision (stand) to be discussed in the guide. The map will also identify authorized recreation trails, public roadways, existing fire trails, and water bodies.

Appendix

Attach the following items as guide appendices:

- A map showing the soil types in the tract. This map is to use the auto-generated GIS template found on the DNR file server I:\Properties section\.
- A topographic map (not hill shade) of the tract created via GIS that clearly delineates each tract subdivision to be discussed in the guide. The map will also identify authorized recreation trails, public roadways, existing fire trails and water bodies.
- A map showing the acquisition history of the tract on NAIP aerial background. This map is to use the auto-generated GIS template found on the DNR file server I:\Properties section\.
- A stocking guide chart with the tract level, and each stand level stocking condition, when appropriate, plotted and identified.
- Summary inventory report providing basic harvest and leave volume information. A full set of inventory reports should be kept in the tract hard copy file. This includes reports on volume, numbers of trees, and basal area by species.
- A map showing ecological features within 1 mile on leaf off aerial. This map is to use the auto-generated GIS template found on the DNR file server I:\Properties section\.
- Description of rare, threatened, or endangered wildlife or plants/plant communities identified during the NHD review. Include management prescriptions or recommendations and a map showing the results of the review. This map is to use the auto-generated GIS template found on the DNR file server I:\Properties section\.
- A topographic map showing sensitive features such as caves or cultural sites. Features will be labeled as sensitive areas.
- Description of cultural resources located within the tract and management recommendations for the resources.

Appendix II G-1: Letter of Agreement for Sale of Timber

Letter of Agreement For Sale of Timber on State Forest Land

Indiana Department of Natural Resources,
Division of Forestry 2020

THIS AGREEMENT, entered into this ___ day of _____, _____ by and between the Indiana Department of Natural Resources, Division of Forestry, (hereinafter "the Seller"), and _____ (hereinafter "the Purchaser") under the provisions of Indiana Code ("IC") 14-23-4.

The Seller agrees to sell to the Purchaser, upon the terms and conditions hereinafter stated, all of the merchantable timber contained in _____ sawtimber trees, _____ pole trees, _____ cull trees, and _____ logs, all marked or designated by the Seller on a certain tract of land situated on an area of approximately _____ acres in the _____ of Section _____, T-____, R-____, of _____ County, Indiana, in _____ State Forest, and being more particularly described on attached State Forest Form FM 203 hereto.

The property may be further described as Compartment _____ Tract _____ and designated on attached State Forest Form FM 201.

This is Indiana State Forest Timber Sale Number _____.

All trees to be sold have been marked by applying _____ paint on the trunk and a spot on the stump.

The timber specified in this document is Certified Wood. Indiana State Forests are certified by both the Sustainable Forestry Initiative® (SFI®) Program and the Forest Stewardship Council® (FSC®). Purchasers of State Forest timber may market state forest timber products as certified if they have the appropriate Chain of Custody certificate.

The FSC Certificate Number for Indiana State Forests is SCS-FM/COC-00099N. The FSC claim is "FSC 100%".

The SFI Certificate Number for Indiana State Forests is NSF-SFI-FM-6L841.

Within fourteen days from the date of bid opening, the Purchaser agrees to pay the Seller for said timber an amount equal to or greater than ten percent (10%) the bid amount. Any payment of less than the total bid amount (purchase amount) of \$ _____ is known as a down payment. The receipt from the Purchaser of the sum of \$ _____ is hereby acknowledged by the Seller. Purchaser may not commence harvest operations until payment of the total bid amount is made in full and this agreement is approved.

The Purchaser further agrees to cut and remove said timber in strict accordance with the following conditions:

1. The Purchaser agrees to pay the remaining balance of the bid amount, which is \$ _____, within one year of the date of bid opening and prior to the start of harvest operations. Failure of the Purchaser to pay the remaining balance of the purchase amount within one year of the bid opening date will result in immediate termination of this instrument, with all rights to said timber reverting to the Seller, and the forfeiture of any down payment and the performance deposit by the Purchaser, unless otherwise agreed to in writing by the Seller and the Purchaser. The Seller may require a fee for any payment extensions.
2. All timber shall be cut and removed no later than the ___ day of _____, _____, which is the expiration date of this agreement. Title to all standing or felled timber which remains on State Forest lands after the termination or expiration date of this agreement, shall revert to the Seller. An extension of the expiration date may be agreed upon in writing between the Seller

and the Purchaser. This instrument may be terminated prior to the stated expiration date as agreed to in writing by the Seller and the Purchaser.

3. Purchaser assumes liability for damage caused to unmarked trees and residual timber unless damage incurred is incidental to reasonably executed removal procedure.
4. The Purchaser's employees and/or contractors and/or subcontractors are required to attend a pre-harvest conference prior to commencement of any logging operations. Purchaser is responsible for informing all employees and/or contractors and/or subcontractors of all provisions covered in this agreement. The Purchaser binds his successors, executors, administrators, and assignees to all covenants of this agreement.
5. The Purchaser shall not assign or subcontract the whole or any part of this agreement without the Seller's prior written consent. No permitted assignment shall release the Purchaser from the terms of this agreement and from liability for the fulfillment of this agreement.
6. The Purchaser shall advise the Property Manager three (3) days prior to the commencement, discontinuance and completion of logging operation. The Property Manager may deny access to Purchaser when wet conditions may result in Purchaser's activities causing unreasonable rutting and erosion. The deadlines established for completion of this agreement may be amended according to mutual agreement of the parties when soil condition delays occur. Harvest operation restriction dates that may be contained herein may be revised at the discretion of the Seller.
7. All log roads, log yards, and skid trails will be smoothed such that ruts (resulting from harvest operations) will be filled by the Purchaser as specified by the Seller. During harvest operations, all ruts greater than 18 inches in depth shall be promptly leveled. Upon sale closeout, no ruts shall be left that are greater than 12 inches in depth for a length of ten feet or more, unless specified by the Seller for documented purpose. The Purchaser shall follow the attached Indiana Forestry BMP Rutting Guidelines, unless otherwise specified by the Seller.
8. Logging roads, skid trails and log yarding areas may be constructed and used by the Purchaser only after their location has been designated by the Seller with such location and construction being at the sole discretion of the Seller.
9. As soon as practicable, or as designated by the Seller and before the termination of this agreement, the Purchaser will construct water bars or other soil conservation measures, in accordance with Best Management Practices techniques on log roads, skid trails, landings, yards, and stream crossings where needed to prevent unreasonable erosion, stream sedimentation and floodway obstruction.
10. Purchaser agrees to leave no logging debris, including but not limited to tree tops or logs from trees, in floodways, crop fields, pastures, or stream beds located on State Forest property in accordance with Best Management Practices techniques as specified and identified by the Seller.
11. Contaminants drained from equipment shall be placed in suitable containers and disposed of by the Purchaser in accordance with Best Management Practices. The Purchaser further agrees to comply with all applicable federal, state and local laws, rules, regulations or ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment of any state or federal statute or the promulgation of regulations thereunder after execution of this agreement shall be reviewed by the Seller and the Purchaser to determine whether the provisions of the agreement require formal amendment.
12. All refuse generated by Purchaser's activities shall be removed from the premises on a

daily basis.

13. The Purchaser and his/her employees shall take reasonable precautions to prevent and control fires.
14. Privileges of ingress and egress to the property shall be obtained by the Purchaser before the logging operation begins.
15. Fences damaged or destroyed by the Purchaser in the removal of timber included in this agreement shall be repaired or replaced by the Purchaser to the condition of the fences prior to sale. Fences so damaged shall be replaced or repaired before the timber leaves the site.
16. The Purchaser shall ensure that at least one person (timber buyer, supervisor, crew member) who is responsible for working on this timber harvest will have completed and will maintain the minimum training requirements, and is on the harvest site at all times harvest operations are occurring. This minimum training will include the Indiana Level 1 Cutter Training (or other logger training) and Introduction to BMPs training. As part of the minimum training requirements, the person has to have a logger training and a BMP training, both within the past 3 years. The Purchaser agrees to provide the name(s) of the person(s) meeting this training requirement prior to the start of harvest operations. Purchasers and/or logging crews from out-of-state may meet this requirement by having completed equivalent training in their resident state, subject to the approval of the Seller.
17. The Purchaser agrees to the following additional conditions: _____
18. Purchaser shall comply with OSHA General Industry safety standards.
19. Purchaser shall comply with the guidelines in Indiana Logging and Forestry Best Management Practices: 2005 BMP Field, unless otherwise specified by the Seller. The Purchaser shall complete these guidelines within fourteen days of the removal of the last load of logs from the sale area, or the removal of harvesting equipment, whichever occurs first, or as specified by the Seller. If circumstances require that harvest operations cease for a period longer than 14 days, including but not limited to soil conditions, these guidelines will be implemented by the Purchaser at the time of operation cessation as specified by the Seller.
20. Purchaser shall not discriminate against any employee or applicant for employment, to be employed in the performance of this agreement, with respect to his/her hire, tenure, terms, conditions, or privileges of employment or any matter directly or indirectly related to employment, because of his/her race, color, religion, sex, disability, national origin or ancestry. Breach of this covenant, may be regarded as a material breach of this agreement.
21. The Purchaser agrees to indemnify, defend, and hold harmless the State of Indiana and its agents, officers, and employees from all claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any. The State shall not provide such indemnification to the Contractor.
22. Upon verbal or written notice by Seller of Purchaser's failure to comply with conditions and requirements of this agreement, the Purchaser may be required to suspend all operations in the sale area by the Seller. Failure to comply with conditions and requirements of this agreement may result in a forfeiture of a portion or all of the performance deposit, termination of this agreement by the Seller, higher performance deposits for the Purchaser on future state forest timber sales, and/or disqualification of the Purchaser from future state forest timber sales. Termination of this agreement may result in the loss of some or all sale payment. The performance deposit is an amount at least equal to 5% (five percent) of the full purchase amount.

23. Notices: Any notice required or permitted to be given under this agreement shall be deemed to have been received by the respective parties if hand delivered or properly addressed with first class postage prepaid to the following address:

Seller: *(Property Managers Name and Address)* Purchaser:

Name	Name
State Forest	Company
Address	Address
Phone number	Phone number

24. The State will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest, or attorney's fees, except as required by Indiana law, in part, IC 5-17-5-1 et seq., IC 34-54-8-1 et seq., IC 34-54-8-3 et seq., IC 34-54-8-5 et seq., and IC 34-13-1-1 et seq.

25. This agreement shall be construed in accordance with and governed by the laws of the State of Indiana and suit, if any, must be brought in the State of Indiana.

26. No right conferred on either party under this contract shall be deemed waived and no breach of this agreement excused, unless such waiver or excuse shall be in writing and signed by the party claimed to have waived such right.

27. The Purchaser and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the State of Indiana, as set forth in Indiana Code 4-2-6 *et seq.*, the regulations promulgated thereunder, and Executive Order 04-08, dated April 27, 2004. If the Purchaser is not familiar with these ethical requirements, the contractor shall refer any questions to the Indiana State Ethics Commission or visit the Indiana State Ethics Commission website at <http://www.in.gov/ethics>. If the contractor or its agents violate any applicable ethical standards, the State (the Seller) may, in its sole discretion, terminate this contract immediately upon notice to the Purchaser. In addition, the Purchaser may be subject to penalties under Indiana Code 4-2-6-12.

28. The undersigned attests under penalties of perjury that they are the contracting party, or that they are the representative, agent, member or officer of the contracting party, that they have not, nor have any other member, employee, representative, agent or officer of the firm, company, corporation or partnership represented by them, directly or indirectly, to the best of their knowledge, entered into or offered to enter into any combination, collusion or agreement to receive or pay, and that they have not received or paid, any sum of money or other consideration for the execution of this agreement other than that which appears upon the face of the agreement.

29. Compliance with Telephone Solicitations Act as required by IC 5-22-3-7.

The Purchaser and any principals of the Purchaser certify that

A. The Purchaser, except for de minimis and nonsystematic violations, has not violated the terms of

(i) IC 24-4.7 (Telephone Solicitation of Consumers),

(ii) IC 24-5-12 (Telephone Solicitations), or

(iii) IC 24-5-14 (Regulation of Automatic Dialing Machines) in the previous three hundred sixty-five (365) days, even if IC 24-4.7 is preempted by federal law; and

B. The Contractor will not violate the terms of IC 24-4.7 for the duration of the agreement, even if IC 24-4.7 is preempted by federal law.

The Purchaser and any principals of the Purchaser certify that an affiliate or principal of the Purchaser and any agent acting on behalf of the Purchaser or on behalf of an affiliate or principal of the Purchaser:

- A. except for de minimis and nonsystematic violations, has not violated the terms of IC 24-4.7 in the previous three hundred sixty-five (365) days, even if IC 24-4.7 is preempted by federal law; and
- B. will not violate the terms of IC 24-4.7 for the duration of the agreement, even if IC 24-4.7 is preempted by federal law.

30. The Purchaser hereby agrees to protect, indemnify, and save harmless the State of Indiana from any and all liability for personal injuries, death and/or property damage suffered or incurred by any person in connection with the Purchaser's performance of this agreement. The Purchaser shall carry Workers Compensation and Liability Insurance as required by State and Federal Law.

31. Employment Eligibility Verification: The Purchaser affirms under the penalties of perjury that he/she/it does not knowingly employ an unauthorized alien. The Purchaser shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC 22-5-1.7-3. The Purchaser is not required to participate should the E-Verify program cease to exist. Additionally, the Purchaser is not required to participate if the Purchaser is self-employed and does not employ any employees.

The Purchaser shall not knowingly employ or contract with an unauthorized alien. The Purchaser shall not retain an employee or contract with a person that the Purchaser subsequently learns is an unauthorized alien.

The Purchaser shall require his/her/its subcontractors, who perform work under this agreement, to certify to the Purchaser that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Purchaser agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

The Seller may terminate for default if the Purchaser fails to cure a breach of this provision no later than thirty (30) days after being notified by the Seller.

32. The parties having read and understand the foregoing terms of the agreement do by their respective signatures and date below hereby agree to the terms thereof.

IN WITNESS WHEREOF, the parties have executed this agreement as of the day and year first written above.

PURCHASER

Company Name: _____

Company Representative

Print Name: _____ Title: _____

(Signed) _____

Timber Buyer License Number: _____

STATE OF INDIANA, _____ County, SS:

Before me, the undersigned Notary Public in and for said County, this _____ day of _____,

_____, came _____, Representative of

_____ and acknowledged the execution of the foregoing instrument.

Name of Notary Public;

_____, _____

(Print Name)

(Signature)

Expiration of Commission: _____

County of Residence: _____

DNR, Division of Forestry Authorization;

John R. Seifert, State Forester Date

Appendix II G-2: Letter of Agreement for Installment Payment of Timber

Letter of Agreement For Sale of Timber on State Forest Land

Indiana Department of Natural Resources,
Division of Forestry 2020

THIS AGREEMENT, entered into this _____ day of _____, _____ by and between the Indiana Department of Natural Resources, Division of Forestry, (hereinafter "the Seller"), and _____ (hereinafter "the Purchaser") under the provisions of Indiana Code ("IC") 14-23-4.

The Seller agrees to sell to the Purchaser, upon the terms and conditions hereinafter stated, all of the merchantable timber contained in _____ sawtimber trees, _____ pole trees, _____ cull trees, and _____ logs, all marked or designated by the Seller on a certain tract of land situated on an area of approximately _____ acres in the _____ of Section _____, T-_____, R-_____, of _____ County, Indiana, in _____ State Forest, and being more particularly described on attached State Forest Form FM 203 hereto.

The property may be further described as Compartment _____ Tract _____ and designated on attached State Forest Form FM 201.

This is Indiana State Forest Timber Sale Number _____.

All trees to be sold have been marked by applying _____ paint on the trunk and a spot on the stump.

The timber specified in this document is Certified Wood. Indiana State Forests are certified by both the Sustainable Forestry Initiative® (SFI®) Program and the Forest Stewardship Council® (FSC®). Purchasers of State Forest timber may market state forest timber products as certified if they have the appropriate Chain of Custody certificate.

The FSC Certificate Number for Indiana State Forests is SCS-FM/COC-00099N. The FSC claim is "FSC 100%".

The SFI Certificate Number for Indiana State Forests is NSF-SFI-FM-6L841.

Within fourteen days from the date of bid opening, the Purchaser agrees to pay the Seller for said timber an amount equal to or greater than ten percent (10%) the bid amount. Any payment of less than the total bid amount (purchase amount) of \$ _____ is known as a down payment. The receipt from the Purchaser of the sum of \$ _____ is hereby acknowledged by the Seller. Purchaser may not commence harvest operations until payment of the total bid amount is made in full and this agreement is approved.

The Purchaser further agrees to cut and remove said timber in strict accordance with the following conditions:

1. The Purchaser agrees to pay the remaining balance of the bid amount, which is \$ _____, within one year of the date of bid opening. This may be paid as one final payment prior at the start of harvest operations. Or this remaining balance may be paid in _____ installment payments. Harvest operations cannot begin until at least one installment payment is made. Installment payments are made in accordance with the attached installment payment schedule and the respective area. Once an installment payment is made the Purchaser may only harvest timber in the respective area identified on the installment payment schedule and shown on the attached installment payment map. Harvest operations can only begin in subsequent areas when the appropriate installment payment is made for that area and previous harvest areas have been closed out per Best Management Guidelines specified in Appendix I I-1, except for those areas (skid trails, haul roads, log landings) that are necessary for operations in later harvest areas. Failure of the Purchaser to pay the full remaining balance of the purchase

amount within one year of the bid opening date will result in immediate termination of this instrument, with all rights to said timber reverting to the Seller, and the forfeiture of any down payment and the performance deposit by the Purchaser, unless otherwise agreed to in writing by the Seller and the Purchaser. The Seller may require a fee for any payment extensions.

2. All timber shall be cut and removed no later than the ____ day of _____, _____, which is the expiration date of this agreement. Title to all standing or felled timber which remains on State Forest lands after the termination or expiration date of this agreement, shall revert to the Seller. An extension of the expiration date may be agreed upon in writing between the Seller and the Purchaser. This instrument may be terminated prior to the stated expiration date as agreed to in writing by the Seller and the Purchaser.
3. Purchaser assumes liability for damage caused to unmarked trees and residual timber unless damage incurred is incidental to reasonably executed removal procedure.
4. The Purchaser's employees and/or contractors and/or subcontractors are required to attend a pre-harvest conference prior to commencement of any logging operations. Purchaser is responsible for informing all employees and/or contractors and/or subcontractors of all provisions covered in this agreement. The Purchaser binds his successors, executors, administrators, and assignees to all covenants of this agreement.
5. The Purchaser shall not assign or subcontract the whole or any part of this agreement without the Seller's prior written consent. No permitted assignment shall release the Purchaser from the terms of this agreement and from liability for the fulfillment of this agreement.
6. The Purchaser shall advise the Property Manager three (3) days prior to the commencement, discontinuance, and completion of logging operation. The Property Manager may deny access to Purchaser when wet conditions may result in Purchaser's activities causing unreasonable rutting and erosion. The deadlines established for completion of this agreement may be amended according to mutual agreement of the parties when soil condition delays occur. Harvest operation restriction dates that may be contained herein may be revised at the discretion of the Seller.
7. All log roads, log yards, and skid trails will be smoothed such that ruts (resulting from harvest operations) will be filled by the Purchaser as specified by the Seller. During harvest operations, all ruts greater than 18 inches in depth shall be promptly leveled. Upon sale closeout, no ruts shall be left that are greater than 12 inches in depth for a length of ten feet or more, unless specified by the Seller for documented purpose. The Purchaser shall follow the attached Indiana Forestry BMP Rutting Guidelines, unless otherwise specified by the Seller.
8. Logging roads, skid trails and log yarding areas may be constructed and used by the Purchaser only after their location has been designated by the Seller with such location and construction being at the sole discretion of the Seller.
9. As soon as practicable, or as designated by the Seller and before the termination of this agreement, the Purchaser will construct water bars or other soil conservation measures, in accordance with Best Management Practices techniques on log roads, skid trails, landings, yards, and stream crossings where needed to prevent unreasonable erosion, stream sedimentation and floodway obstruction.
10. Purchaser agrees to leave no logging debris, including but not limited to tree tops or logs from trees, in floodways, crop fields, pastures, or stream beds located on State Forest property in accordance with Best Management Practices techniques as specified and identified by the Seller.

11. Contaminants drained from equipment shall be placed in suitable containers and disposed of by the Purchaser in accordance with Best Management Practices. The Purchaser further agrees to comply with all applicable federal, state and local laws, rules, regulations or ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment of any state or federal statute or the promulgation of regulations thereunder after execution of this agreement shall be reviewed by the Seller and the Purchaser to determine whether the provisions of the agreement require formal amendment.
12. All refuse generated by Purchaser's activities shall be removed from the premises on a daily basis.
13. The Purchaser and his/her employees shall take reasonable precautions to prevent and control fires.
14. Privileges of ingress and egress to the property shall be obtained by the Purchaser before the logging operation begins.
15. Fences damaged or destroyed by the Purchaser in the removal of timber included in this agreement shall be repaired or replaced by the Purchaser to the condition of the fences prior to sale. Fences so damaged shall be replaced or repaired before the timber leaves the site.
16. The Purchaser shall ensure that at least one person (timber buyer, supervisor, crew member) who is responsible for working on this timber harvest will have completed and will maintain the minimum training requirements, and is on the harvest site at all times harvest operations are occurring. This minimum training will include the Indiana Level 1 Cutter Training (or other logger training) and Introduction to BMPs training. As part of the minimum training requirements, the person has to have a logger training and a BMP training, both within the past 3 years. The Purchaser agrees to provide the name(s) of the person(s) meeting this training requirement prior to the start of harvest operations. Purchasers and/or logging crews from out-of-state may meet this requirement by having completed equivalent training in their resident state, subject to the approval of the Seller.
17. The Purchaser agrees to the following additional conditions: _____
_____.
18. Purchaser shall comply with OSHA General Industry safety standards.
19. Purchaser shall comply with the guidelines in Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide, unless otherwise specified by the Seller. The Purchaser shall complete these guidelines within fourteen days of the removal of the last load of logs from the sale area, or the removal of harvesting equipment, whichever occurs first, or as specified by the Seller. If circumstances require that harvest operations cease for a period longer than 14 days, including but not limited to soil conditions, these guidelines will be implemented by the Purchaser at the time of operation cessation as specified by the Seller.
20. Purchaser shall not discriminate against any employee or applicant for employment, to be employed in the performance of this agreement, with respect to his/her hire, tenure, terms, conditions, or privileges of employment or any matter directly or indirectly related to employment, because of his/her race, color, religion, sex, disability, national origin, or ancestry. Breach of this covenant, may be regarded as a material breach of this agreement.
21. The Purchaser agrees to indemnify, defend, and hold harmless the State of Indiana and its agents, officers, and employees from all claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any. The State shall not provide such indemnification to the Contractor.

22. Upon verbal or written notice by Seller of Purchaser's failure to comply with conditions and requirements of this agreement, the Purchaser may be required to suspend all operations in the sale area by the Seller. Failure to comply with conditions and requirements of this agreement may result in a forfeiture of a portion or all of the performance deposit, termination of this agreement by the Seller, higher performance deposits for the Purchaser on future state forest timber sales, and/or disqualification of the Purchaser from future state forest timber sales. Termination of this agreement may result in the loss of some or all sale payment. The performance deposit is an amount at least equal to 5% (five percent) of the full purchase amount.

23. Notices: Any notice required or permitted to be given under this agreement shall be deemed to have been received by the respective parties if hand delivered or properly addressed with first class postage prepaid to the following address:

Seller: *(Property Managers Name and Address)* Purchaser:

Name	Name
State Forest	Company
Address	Address
Phone number	Phone number

24. The State will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest, or attorney's fees, except as required by Indiana law, in part, IC 5-17-5-1 et seq., IC 34-54-8-1 et seq., IC 34-54-8-3 et seq., IC 34-54-8-5 et seq., and IC 34-13-1-1 et seq.

25. This agreement shall be construed in accordance with and governed by the laws of the State of Indiana and suit, if any, must be brought in the State of Indiana.

26. No right conferred on either party under this contract shall be deemed waived and no breach of this agreement excused, unless such waiver or excuse shall be in writing and signed by the party claimed to have waived such right.

27. The Purchaser and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the State of Indiana, as set forth in Indiana Code 4-2-6 *et seq.*, the regulations promulgated thereunder, and Executive Order 04-08, dated April 27, 2004. If the Purchaser is not familiar with these ethical requirements, the contractor shall refer any questions to the Indiana State Ethics Commission or visit the Indiana State Ethics Commission website at <http://www.in.gov/ethics>. If the contractor or its agents violate any applicable ethical standards, the State (the Seller) may, in its sole discretion, terminate this contract immediately upon notice to the Purchaser. In addition, the Purchaser may be subject to penalties under Indiana Code 4-2-6-12.

28. The undersigned attests under penalties of perjury that they are the contracting party, or that they are the representative, agent, member or officer of the contracting party, that they have not, nor have any other member, employee, representative, agent or officer of the firm, company, corporation or partnership represented by them, directly or indirectly, to the best of their knowledge, entered into or offered to enter into any combination, collusion or agreement to receive or pay, and that they have not received or paid, any sum of money or other consideration for the execution of this agreement other than that which appears upon the face of the agreement.

29. Compliance with Telephone Solicitations Act as required by IC 5-22-3-7.

The Purchaser and any principals of the Purchaser certify that

- A. the Purchaser, except for de minimis and nonsystematic violations, has not violated the terms of
 - (i) IC 24-4.7 (Telephone Solicitation of Consumers),
 - (ii) IC 24-5-12 (Telephone Solicitations), or
 - (iii) IC 24-5-14 (Regulation of Automatic Dialing Machines) in the previous three hundred sixty-five (365) days, even if IC 24-4.7 is preempted by federal law; and
- B. the Contractor will not violate the terms of IC 24-4.7 for the duration of the agreement, even if IC 24-4.7 is preempted by federal law.

The Purchaser and any principals of the Purchaser certify that an affiliate or principal of the Purchaser and any agent acting on behalf of the Purchaser or on behalf of an affiliate or principal of the Purchaser:

- A. except for de minimis and nonsystematic violations, has not violated the terms of IC 24-4.7 in the previous three hundred sixty-five (365) days, even if IC 24-4.7 is preempted by federal law; and
- B. will not violate the terms of IC 24-4.7 for the duration of the agreement, even if IC 24-4.7 is preempted by federal law.

30. The Purchaser hereby agrees to protect, indemnify, and save harmless the State of Indiana from any and all liability for personal injuries, death and/or property damage suffered or incurred by any person in connection with the Purchaser's performance of this agreement. The Purchaser shall carry Workers Compensation and Liability Insurance as required by State and Federal Law.

31. Employment Eligibility Verification: The Purchaser affirms under the penalties of perjury that he/she/it does not knowingly employ an unauthorized alien. The Purchaser shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC 22-5-1.7-3. The Purchaser is not required to participate should the E-Verify program cease to exist. Additionally, the Purchaser is not required to participate if the Purchaser is self-employed and does not employ any employees.

The Purchaser shall not knowingly employ or contract with an unauthorized alien. The Purchaser shall not retain an employee or contract with a person that the Purchaser subsequently learns is an unauthorized alien.

The Purchaser shall require his/her/its subcontractors, who perform work under this agreement, to certify to the Purchaser that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Purchaser agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

The Seller may terminate for default if the Purchaser fails to cure a breach of this provision no later than thirty (30) days after being notified by the Seller.

32. The parties having read and understand the foregoing terms of the agreement do by their respective signatures and date below hereby agree to the terms thereof.

IN WITNESS WHEREOF, the parties have executed this agreement as of the day and year first written above.

PURCHASER

Company Name: _____

Company Representative

Print Name: _____ Title: _____

(Signed) _____

Timber Buyer License Number: _____

STATE OF INDIANA, _____ County, SS:

Before me, the undersigned Notary Public in and for said County, this _____ day of _____,

_____, came _____, Representative of

_____ and acknowledged the execution of the foregoing instrument.

Name of Notary Public;

_____, _____

(Print Name)

(Signature)

Expiration of Commission: _____

County of Residence: _____

DNR, Division of Forestry Authorization;

John R. Seifert, State Forester Date

Appendix II G-3: FM 203 – Timber Sale Notice

Sale Notice

Indiana Department of Natural Resources,
Division of Forestry
FM 203

2020

Notice is hereby given at the following time and date:

The State Forester, acting for the Indiana Department of Natural Resources and the Director of Public Works and Supply, will offer for sale the following described property (volumes are estimated):

SPECIES	# Trees Sawtimber	Volume - Doyle Board Feet	# Trees Poles	Pole Volume Cords	Culls

This is Indiana State Forest Timber Sale Number _____.

The public sale is to be held in the offices of:

--

The sale has the following conditions:

--

The timber specified in this document is Certified Wood. Indiana State Forests are certified by both the Sustainable Forestry Initiative® (SFI®) Program and the Forest Stewardship Council® (FSC®). Purchasers of State Forest timber may market state forest timber products as certified if they have the appropriate Chain of Custody certificate.

The FSC Certificate Number for Indiana State Forests is SCS-FM/COC-00099N. The FSC claim is "FSC 100%".

The SFI Certificate Number for Indiana State Forests is NSF-SFI-FM-6L841.

Sealed bid for such property will be received at the office of the Property Manager until the hour and date above set out, at which time and place all acceptable bids will be publicly opened and read aloud, and any bids received after the designated time will be returned unopened.

Bidders in good standing are required to submit a check (completely filled out) for an

amount equal to or larger than five percent (5%) of their bid amount payable to the Indiana Department of Natural Resources with their bid as a performance deposit. Bidders not in good standing are required to submit a performance deposit for an amount equal to or larger than 10% or 20% of their bid, depending on the level of their standing as provided to them by the Indiana Department of Natural Resources. The performance deposit amount is not part of the total sale (bid) payment, but is a separate payment. Failure to comply with conditions and requirements of the executed contract may result in a forfeiture of a portion or all of this performance deposit.

The property will be sold under written contract to the responsible bidder making the highest sealed bid, provided the bid is acceptable to the state. The winning bidder must make a payment equal to or larger than ten percent (10%) of the bid amount within fourteen calendar days of the bid opening. The winning bidder must return the executed timber sale agreements to the Indiana Department of Natural Resources within one month of the bid opening date. The remaining bid amount balance, if any, shall be paid within one year of the bid opening or prior to the start of harvest operations, whichever occurs first. The bidder may pay the entire bid amount within fourteen calendar days of the bid opening. Failure to pay at least a ten percent (10%) down payment or the full bid amount within fourteen calendar days from the date of bid opening will result in a forfeiture of all of the performance deposit. Failure to pay the total bid amount within the prescribed time will result in a forfeiture of all of the performance deposit and any down payment. The terms of the sale will be cash, the buyer to accept delivery of the property and to remove the property therefrom by ____ ____, _____, which will be the expiration date of said contract. The Department reserves the right to accept and/or reject any and/or all bids. The Department (at its discretion) reserves the right to rebid the sale.

Bid Information		
State Forest:	Sale Number:	Sale Date and Time:
Bidder Name (print and sign):		License Agent Number:
Address:		Bid:

Notes
Only current licensed buyers or their registered agents may submit bids. Buyer should satisfy himself as to volume in sale.

For Use with Non-Certified Sales

Sale Notice

Indiana Department of Natural Resources,
Division of Forestry
FM 203

2020

Notice is hereby given at the following time and date:

The State Forester, acting for the Indiana Department of Natural Resources and the Director of Public Works and Supply, will offer for sale the following described property (volumes are estimated):

SPECIES	# Trees Sawtimber	Volume - Doyle Board Feet	# Trees Poles	Pole Volume Cords	Culls

This is Indiana State Forest Timber Sale Number _____.

The public sale is to be held in the offices of:

--

The sale has the following conditions:

--

Sealed bid for such property will be received at the office of the Property Manager until the hour and date above set out, at which time and place all acceptable bids will be publicly opened and read aloud, and any bids received after the designated time will be returned unopened.

Bidders in good standing are required to submit a check (completely filled out) for an amount equal to or larger than five percent (5%) of their bid amount payable to the Indiana Department of Natural Resources with their bid as a performance deposit. Bidders not in good standing are required to submit a performance deposit for an amount equal to or larger than 10% or 20% of their bid, depending on the level of their standing as provided to them by the Indiana Department of Natural Resources. The performance deposit amount is not part of the total sale (bid) payment, but is a separate payment. Failure to comply with conditions and requirements of the executed contract may result in a forfeiture of a portion or all of this performance deposit.

The property will be sold under written contract to the responsible bidder making the highest sealed bid, provided the bid is acceptable to the state. The winning bidder must make a payment equal to or larger than ten percent (10%) of the bid amount within fourteen calendar days of the bid opening. The winning bidder must return the executed timber sale agreements to the Indiana Department of Natural Resources within one month of the bid opening date. The remaining bid amount balance, if any, shall be paid within one year of the bid opening or prior to the start of harvest operations, whichever occurs first. The bidder may pay the entire bid amount within fourteen calendar days of the bid opening. Failure to pay at least a ten percent (10%) down payment or the full bid amount within fourteen calendar days from the date of bid opening will result in a forfeiture of all of the performance deposit. Failure to pay the total bid amount within the prescribed time will result in a forfeiture of all of the performance deposit and any down payment. The terms of the sale will be cash, the buyer to accept delivery of the property and to remove the property therefrom by _____, _____, which will be the expiration date of said contract. The Department reserves the right to accept and/or reject any and/or all bids. The Department (at its discretion) reserves the right to rebid the sale.

Bid Information		
State Forest:	Sale Number:	Sale Date and Time:
Bidder Name (print and sign):		License Agent Number:
Address:		Bid:

Notes
Only current licensed buyers or their registered agents may submit bids. Buyer should satisfy himself as to volume in sale.

Appendix II G-4: FM 203 – Timber Sale Notice for Installment Payment

Sale Notice

Indiana Department of Natural Resources,
Division of Forestry
FM 203

2020

Notice is hereby given at the following time and date:

The State Forester, acting for the Indiana Department of Natural Resources and the Director of Public Works and Supply, will offer for sale the following described property (volumes are estimated):

SPECIES	# Trees Sawtimber	Volume - Doyle Board Feet	# Trees Poles	Pole Volume Cords	Culls

This is Indiana State Forest Timber Sale Number _____.

The public sale is to be held in the offices of:

--

The sale has the following conditions:

--

The timber specified in this document is Certified Wood. Indiana State Forests are certified by both the Sustainable Forestry Initiative® (SFI®) Program and the Forest Stewardship Council® (FSC®). Purchasers of State Forest timber may market state forest timber products as certified if they have the appropriate Chain of Custody certificate.

The FSC Certificate Number for Indiana State Forests is SCS-FM/COC-00099N.
The FSC claim is "FSC 100%".

The SFI Certificate Number for Indiana State Forests is NSF-SFI-FM-6L841.

Sealed bid for such property will be received at the office of the Property Manager until the hour and date above set out, at which time and place all acceptable bids will be publicly opened and read aloud, and any bids received after the designated time will be returned unopened.

Bidders in good standing are required to submit a check (completely filled out) for

an amount equal to or larger than five percent (5%) of their bid amount payable to the Indiana Department of Natural Resources with their bid as a performance deposit. Bidders not in good standing are required to submit a performance deposit for amount equal to or larger than 10% or 20% of their bid, depending on the level of their standing as provided to them by the Indiana Department of Natural Resources. The performance deposit amount is not part of the total sale (bid) payment, but is a separate payment. Failure to comply with conditions and requirements of the executed contract may result in a forfeiture of a portion or all of this performance deposit.

The property will be sold under written contract to the responsible bidder making the highest sealed bid, provided the bid is acceptable to the state. The winning bidder must make a payment equal to or larger than ten percent (10%) of the bid amount within fourteen calendar days of the bid opening. The winning bidder must return the executed timber sale agreements to the Indiana Department of Natural Resources within one month of the bid opening date. The remaining bid amount balance, if any, shall be paid within one year of the bid opening or prior to the start of harvest operations, whichever occurs first. The bidder may pay the entire bid amount within fourteen calendar days of the bid opening. Or this remaining bid amount may be paid in installment payments, with respective installment payments due prior to the start of harvest operations in respective harvest areas, with the entire bid amount due within one year of the bid opening. Failure to pay at least a ten percent (10%) down payment or the full bid amount within fourteen calendar days from the date of bid opening will result in a forfeiture of all of the performance deposit. Failure to pay the total bid amount within the prescribed time will result in a forfeiture of all of the performance deposit and any down payment. The terms of the sale will be cash, the buyer to accept delivery of the property and to remove the property therefrom by ____ ____, _____, which will be the expiration date of said contract. The Department reserves the right to accept and/or reject any and/or all bids. The Department (at its discretion) reserves the right to rebid the sale.

Bid Information		
State Forest:	Sale Number:	Sale Date and Time:
Bidder Name (print and sign):		License Agent Number:
Address:		Bid:

Notes

Only current licensed buyers or their registered agents may submit bids. Buyer should satisfy himself as to volume in sale.

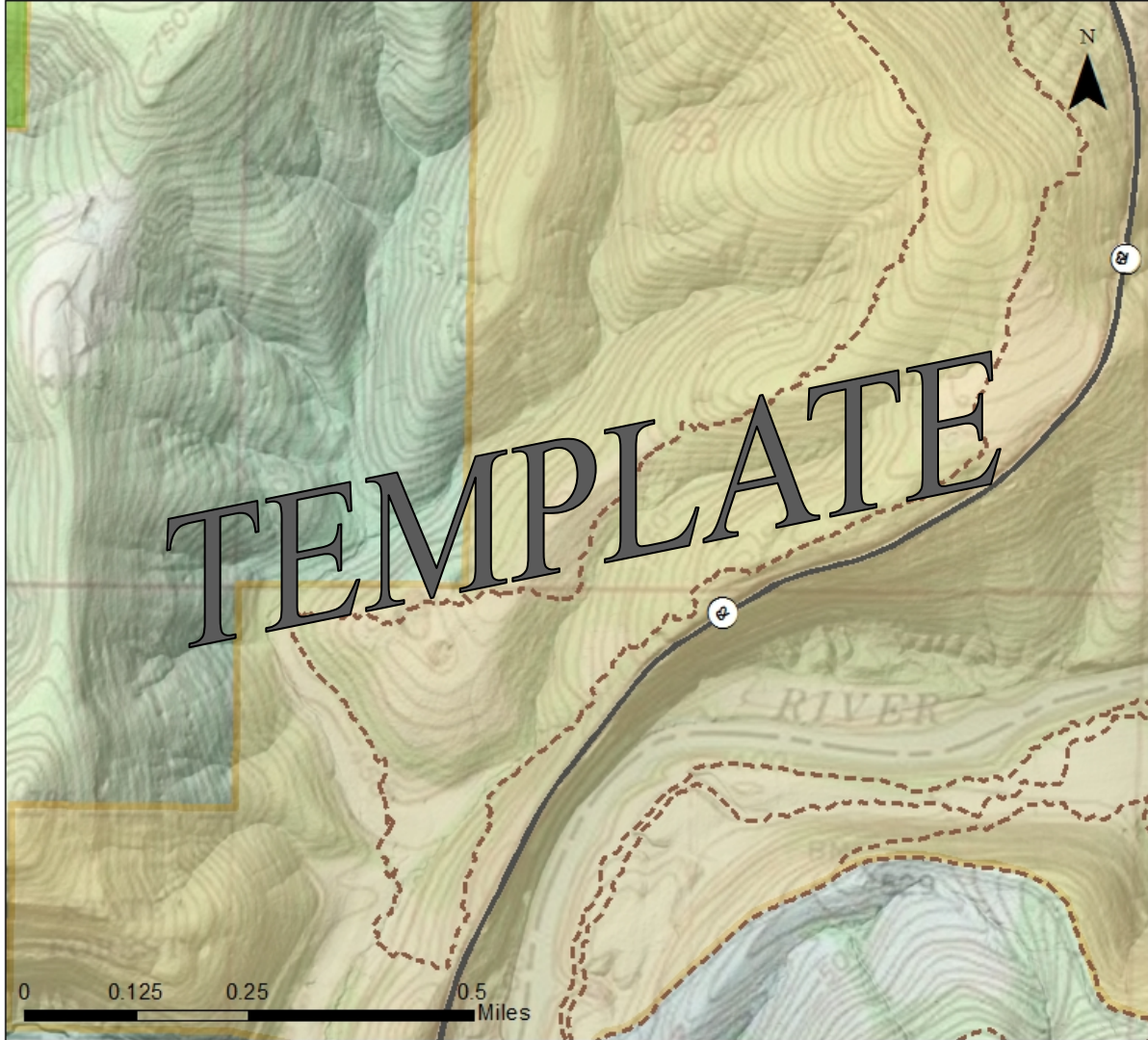
Appendix II G-5: FM 201 – Timber Sale Area

Below is a sample form for FM 201 – Timber Harvest Map. It is recommended to use the ArcGIS map on your local drive in order to populate with data from your property.

Timber Harvest Map MF 201

NAME State Forest
 Compartment: Tract:
 County: Location: [TRS]

Sale Date:
 Sale Number:
 Marked by: [Staff Name]



Legend:	Legend
Log Yards	Partial Payment Break
Regen. Openings	Haul Roads
Harvest Area	Recreational Trails
State Forest	Mapped Streams

Harvest Numbers:
 Harvest Area: [acres]
 Number of Trees:
 Number of Poles:
 Number of Culls:
 Estimated Harvest Volume: [bdft]
 Estimated Pole Volume: [cords]

Appendix II G-6: Return of Deposit Acknowledgement

Return of Deposit Acknowledgement State of Indiana Department of Natural Resources	2020
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By signing below, the signatory representing said company does hereby acknowledge receipt of a timber sale deposit check of said amount, for a timber sale at said State Forest on said date.

Name of Company Representative:		Company Name:	
State Forest Name:	Sale Number:	Check Amount:	
Returned by (Forester's Name):	Date of Sale:	Time of Sale:	

Signature of Company Representative:	Date:
--------------------------------------	-------

Notes	
Timber bidder signs appropriate blank. State fills in the rest of this form. If a bidder is not present, deposit checks will be returned to non-winning bidders by certified mail. Retain stubs.	

Appendix II G-7: FM 202 – Bill of Sale

Bill of Sale Indiana Department of Natural Resources Division of Forestry	FM 202 2020
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This form is used when the final, remaining balance is paid, whether or not there were any previous payments.

State Forest:	Date:
Purchaser Name and Address:	
Amount Received this Date (Remaining Balance):	For:

Previous Payment Amount Received:	Date Down Payment Received:
Total Amount Received for this Sale (Sum of Previous Payments and Amount Received this Date) (Bid Amount):	

The total amount listed above is the sum of the previous payment(s) received and the payment of the remaining balance of the bid amount.

Signature:	Title:
Sale Number:	

(One copy to Property Sale File, one copy to Central Office, one copy to the Buyer)

Appendix II G-8: Timber Sale Visitation and Evaluation Record



TIMBER SALE VISITATION & EVALUATION RECORD

State Form 53174 (R / 7-12)
DEPARTMENT OF NATURAL RESOURCES

I. SALE INFORMATION				
Property		Date of visit (month, day, year)		Visit number
Compartment	Tract(s)	Section(s)	Township	Range
Marked acres	Volume	Number of trees	Number of culls	Number of poles
Date of sale (month, day, year)	Date of expiration (month, day, year)	Extension(s) granted? <input type="checkbox"/> Yes <input type="checkbox"/> No		Date of expiration (month, day, year)
Name of timber buyer / company		Name of logging operator		

II. PERFORMANCE CHECKLIST				
	YES	NO	Previous violations corrected?	
			YES	NO
A. Was at least three (3) days notice given prior to commencement, discontinuance, or completion of logging operation?				
B. Was the pre-harvest conference attended?				
C. Were the sale boundaries honored?				
D. Are the log yard locations and maintenance acceptable?				
E. Are the haul roads maintained in acceptable condition?				
F. Are the skid trails maintained and closed out properly?				
G. Is skidding damage to the residual stand within acceptable limits?				
H. Is felling damage to the residual stand within acceptable limits?				
I. Was the riparian policy honored?				
J. Were contaminants from equipment disposed of properly?				
K. Was trash disposed of properly?				
L. Were special contract provisions followed?				
M. Was appropriate personal protective equipment observed being used?				
N. Other: _____				

III. PERFORMANCE EVALUATION
<i>You must give an explanation of any no responses. Include recommended corrective measures.</i>

IV. OTHER COMMENTS

Signature of Forester	Date (month, day, year)
Signature of logging representative	Date (month, day, year)

DISTRIBUTION: White - Logging supervisor; Canary - State; Pink - Purchaser

Appendix II G-9: Timber Sale Down Payment Acknowledgement

Timber Sale Down Payment Acknowledgement Indiana Department of Natural Resources Division of Forestry	2020
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Used to acknowledge the receipt of a down payment for a timber sale. The amount received must be equal to or larger than ten percent (10%) of the bid amount.

State Forest:	Date:
Purchaser Name and Address:	
Amount Received this Date:	For:
Total Bid Amount:	Remaining Balance Amount::
Remaining Balance Due Date:	

Signature:	Title:
Sale Number:	

(One copy to Property Sale File, one copy to Central Office, one copy to the Buyer)

Appendix II G-10: Timber Sale Installment Payment Acknowledgement

Timber Sale Installment Payment Acknowledgement Indiana Department of Natural Resources Division of Forestry	2020
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Used to acknowledge the receipt of an installment payment for a timber sale when there is still a remaining balance amount to be paid.

State Forest:	Date:
Purchaser Name and Address:	
Amount Received this Date:	For:
Total Amount Received as Payment to Date:	
Total Bid Amount:	Remaining Due Balance Amount:
Remaining Balance Due Date:	

State Forest Signature:	Title:
Sale Number:	

(One copy to Property Sale File, one copy to Central Office, one copy to the Buyer)

Appendix II G-11: Timber Sale Pre-Harvest Conference Form

TIMBER SALE PRE-HARVEST CONFERENCE FORM

State Forest _____ Date: _____

Sale Number: _____ Compartment _____ Tract _____

Logging Supervisor _____

Training _____

I understand the timber sale contract terms, including any special logging conditions, and will supervise the logging crew to assure the terms are met.

Signature _____

Phone Number _____

Please list completed training, in particular Game of Logging Level 1 Cutter Training, Introduction to BMPs, or equivalent. For out-of-state training please indicate state where it was held.

	Logging Crew Members	Training
Cutter(s)	_____	_____
	_____	_____
	_____	_____
Skidder Oper.	_____	_____
	_____	_____
	_____	_____
Yard	_____	_____
	_____	_____
Drivers	_____	_____
	_____	_____
	_____	_____

Crew member in charge when the logging supervisor is absent: _____

I understand the timber sale contract terms, including any special logging conditions, and will supervise the logging crew to assure the terms are met.

Signature _____

Phone Number _____

Administering Forester _____

Phone number _____

Signature _____

Verification of Training - date: _____

Training is verified through the Indiana Forestry Exchange website. Send copy of completed form to C.O. Property Specialist, and keep copy in property timber sale file.

Appendix II G-12: State Forest Timber Sale Review

STATE FOREST TIMBER SALE REVIEW

State Forest: _____

Compartment/Tract: _____

Sale Number: _____

Sale Date: _____

Property Forester: _____

Reviewer: _____

Field Review Date: _____

Office Review Date: _____

Field review

Conditions during field review: _____

- Reasonable access to all parts of the sale:
- Streams/water bodies taken into account:
- Cultural and ecological/biological features avoided where necessary:
- Public roads taken into account:
- Utilities taken into account:
- Marking follows standard procedures and guide prescription:
- Other:

Office Review

- Management guide is complete:
- Inventory is complete and timely:
- Wildlife/ecological review is included and addressed (if necessary):
- Archaeological clearance is completed and addressed (if necessary):
- Heritage Database Review is completed and addressed (if necessary):
- Web posting of the management guide and public comment summaries completed:
- Other:

Other Comments:

Overall recommendations:

Appendix II G-13: FM 204 – Timber Sale Agreement Release Form

Timber Sale Agreement Release Form State of Indiana Department of Natural Resources	FM 204 2020
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By signing below, the signatory hereby acknowledges completion, contract termination, and release of a timber sale at the following state forest and date:

State Forest:	Date:
Amount of Deposit Refund:	

Timber Sale Information				
Purchaser:			Purchaser Address:	
Compartment(s):	Tract(s):	Section(s):	Township(s):	Range(s):
Sale Number:			Date and Time of Sale:	

Signatures	
Signature of Purchaser's Representative:	Date:
Signature of Property Manager:	Date:

Notes
To be used to initiate return of deposit.

Appendix II G-14: Forester's Verification of a Timber Sale Completion

Forester's Verification of a Timber Sale Completion Indiana Department of Natural Resources Division of Forestry	2020
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By signing below, the forester hereby states that he/she has made the final inspection of the following described timber sale from the Indiana Department of Natural Resources, Division of Forestry, on the said sale date.

Forester's Name:		Sale Number:	
Purchaser's Name and Address:		Sale Date:	
State Forest:	Date of Inspection:	Compartment(s):	Tract(s):

By signing below, the forester hereby states that he/she has found the following checked items to be a true and accurate assessment of the present condition of the sale area:

YES	NO	
		1. As far as I could discern, only marked trees were cut.
		2. I determined the first item's accuracy by a stump count or sampling system.
		3. Damage to the residual trees due to the felling was within acceptable limits.
		4. Damage to the residual trees due to skidding was minimal and within acceptable limits to guarantee a sufficient stocking of healthy, good growing trees so that future harvest of high quality timber are possible as planned in the tract resource management guide.
		5. Skid trails, log landings, and logging roads were laid out and used as prescribed in the timber sale contract.
		6. Best Management Practices completed as specified.
		7. Other:
8. If your answer was "no" to any of the above items, explain why:		
9. The above statements and representations are true and correct to the best of the knowledge of the undersigned.		

In witness whereof the forester set his/her hand on the following date:	
Forester's Signature:	Date:

Appendix II G-15: Timber Sale Post-Harvest Evaluation

TIMBER SALE POST-HARVEST EVALUATION

State Forest: _____ Compartment/Tract: _____ Sale Number: _____

Harvest Completion Date: _____ Property Forester: _____ Date: _____

Access – haul road, landings, primary skid trails

Note condition of the access features – surface stabilized, vegetative cover or hardened surface where appropriate, diversions in place and working. Identify any **significant** invasives issues. Identify any mitigation needs.

Access Conditions _____

Invasives issues _____

Mitigation needs _____

Timber Harvest – single trees selection and intermediate treatment areas - thinning, improvement, sanitation

Note whether the treatment used achieved the desired results, such as release of desirable growing stock.
Harvest Conditions _____

Invasives issues _____

Mitigation needs _____

Openings of One Acre and Larger – group selection and clearcuts

For each opening of 1 acre or larger note if the regeneration meets minimum standard of desirable hardwood species (can include native Virginia pine at Clark). This standard is 1,000 seedlings per acre within 5 years of harvest of typical upland hardwood species (including *Quercus*, *Carya*, *Acer*, *Liriodendron*, *Prunus*, and *Juglans*) on upland sites, and wet site species on wetter sites (including *Liriodendron*, *Quercus*, *Carya*, *Acer*, *Juglans*, and *Platanus*). This stocking is determined with ocular estimation of spacing between each regeneration stem, with seedlings being spaced, on average, within 6 feet of each other (about one pace). Also note any significant invasive issues in the opening. Responses are yes or no. If inadequate regeneration or invasives issues are noted in any opening, describe mitigation.

Opening #1: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #2: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #3: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #4: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #5: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #6: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #7: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Opening #8: Regeneration adequate? _____ Invasives issues? _____ Mitigation needed? _____
Prescribed mitigation _____

Appendix II G-16: Timber Sale Checklist

Timber Sale Checklist

Compartment _____	Tract(s) _____	Target Sale Date _____	
<u>Suggested Timeline</u>	<u>Target Date</u>	<u>Accomplish Date/Notes</u>	<u>Task</u>
2+ years before marking	_____	_____	Research or recon
2 years before marking	_____	_____	Inventory, Ecological Review and Draft Guide or Guide Amendment
Before final Guide	_____	_____	Natural Heritage Review Archaeology Inventory Review
Before Final Guide	_____	_____	Public Input (web posting)
Before Final Guide	_____	_____	Consideration of Public Input
18 months before marking	_____	_____	Develop final Guide
At beginning of work for sale	_____	_____	Start Cost of Operations
1 year before marking	_____	_____	Develop Sale Layout
1 year before marking	_____	_____	Boundaries
After sale layout	_____	_____	Archaeology Management Review
After sale layout	_____	_____	Layout recreational trail reroutes
1-2 months before work/markings	_____	_____	Send good neighbor letters
After Arch approval and at least 6 months prior to sale	_____	_____	Road, trail, landing work
1 year before sale	_____	_____	Pre-harvest TSI
1 year before sale	_____	_____	Recheck NHD if over 1 year from last review
1 year before sale	_____	_____	Mark Harvest
6 months before sale	_____	_____	Pre-sale approval
1 month to 3 weeks before sale	_____	_____	Advertise: Notice for Forestry Exchange
1 month to 3 weeks before sale	_____	_____	Notices to newspapers (2) Advertise – Notices to buyers
Prior to sale	_____	_____	Have the following up-to-date: Cost of Operations Sale Area Map Bill of Sale Timber Sale Notice Timber Sale Agreement Minimum bid

Timber Sale Checklist – Page 2

<u>Suggested Timeline</u>	<u>Target Date</u>	<u>Accomplish Date/Notes</u>	<u>Task</u>
Prior to sale	_____	_____	Confirm publishers claims from newspapers
At day of bid opening	_____	_____	Have the following ready: For successful bidder – DNR 352 for deposit For unsuccessful bidder - Return of Deposit Acknowledgement
On day of bid opening	_____	_____	Send deposit check and yellow copy of DNR 352 to C.O. – Property Specialist
On day of bid opening	_____	_____	Give successful bidder Timber Sale Agreement (3) to complete
At time of payment (14 days of bid opening)	_____	_____	Receive from buyer Payment (Down, within Installment, or Full), Timber Sale Agreement (3)
At time of full payment (within 1 year of bid opening)	_____	_____	Give to buyer: Bill of Sale DNR 7
When initial payment and Agreement are received	_____	_____	Send sale packet to C.O. for approval: Cost of Operations Sale Area Map Bill of Sale, or Down Payment Acknowledgement Timber Sale Notice Bids Timber Sale Agreement (3) Publishers Claims
When approved sale paperwork returns from C.O.	_____	_____	Send one Timber Sale Agreement to buyer, find out buyer’s harvest plans/timeline – set up pre-harvest conference if appropriate
Before harvest begins	_____	_____	Conduct Pre-harvest Conference

Timber Sale Checklist – Page 3

<u>Suggested Timeline</u>	<u>Target Date</u>	<u>Accomplish Date/Notes</u>	<u>Task</u>
Before harvest begins – 24 hours or more	_____	_____	Set up restricted access area – post signs for restricted access
During harvest	_____	_____	Conduct regular evaluations of harvest site – once per week minimum; advise property manager/C.O. if not satisfactory
After harvest is completed	_____	_____	Conduct final evaluation
After harvest is completed	_____	_____	If satisfactory, complete Timber Sale Release and Forester’s Verification of Timber Sale Completion; contact C.O. if not satisfactory
After harvest is completed	_____	_____	Send Timber Sale Release and Forester’s Verification to C.O. Property Specialist
After harvest is released	_____	_____	Conduct BMP monitoring (by BMP monitoring team)
Within 2 years of harvest	_____	_____	Conduct and complete needed post- harvest TSI
Within 5 years of harvest	_____	_____	Conduct post-management evaluation including regeneration review of openings 1 acre or larger

Appendix II G-17: Timber Sale Packet Checklist

Timber Sale Packet
Check List

- 3 original Contracts, legible and complete with attachments
- 1 original Timber Sale Down Payment Acknowledgement or 1 original Bill of Sale (FM 202), and NR 7 receipt photocopy
- All original bids, if not on bid sheet (FM 203) then staple it to a bid sheet
- 1 Cost of Operation (FM 200), accurate and complete
- 1 copy of Proof of Publications from two newspapers, write date paid on copy.
- 1 Sale Notice (MF 203)
- 1 Sale Map (FM 201)
- 1 photo copy of DNR-352 receipt for Bid Deposit
- 1 copy of all (except 352, blue copy left in book) the above for sale file, also FM 200 and Sale map to tract file

Timber Sale Packet
Check List

- 3 original Contracts, legible and complete with attachments
- 1 original Timber Sale Down Payment Acknowledgement or 1 original Bill of Sale (FM 202), and NR 7 receipt photocopy
- All original bids, if not on bid sheet (FM 203) then staple it to a bid sheet
- 1 Cost of Operation (FM 200), accurate and complete
- 1 copy of Proof of Publications from two newspapers, write date paid on copy.
- 1 Sale Notice (MF 203)
- 1 Sale Map (FM 201)
- 1 photo copy of DNR-352 receipt for Bid Deposit
- 1 copy of all (except 352, blue copy left in book) the above for sale file, also FM 200 and Sale map to tract file

Timber Sale Packet
Check List

- 3 original Contracts, legible and complete with attachments
- 1 original Timber Sale Down Payment Acknowledgement or 1 original Bill of Sale (FM 202), and NR 7 receipt photocopy
- All original bids, if not on bid sheet (FM 203) then staple it to a bid sheet
- 1 Cost of Operation (FM 200), accurate and complete
- 1 copy of Proof of Publications from two newspapers, write date paid on copy.
- 1 Sale Notice (MF 203)
- 1 Sale Map (FM 201)
- 1 photo copy of DNR-352 receipt for Bid Deposit
- 1 copy of all (except 352, blue copy left in book) the above for sale file, also FM 200 and Sale map to tract file

Timber Sale Packet
Check List

- 3 original Contracts, legible and complete with attachments
- 1 original Timber Sale Down Payment Acknowledgement or 1 original Bill of Sale (FM 202), and NR 7 receipt photocopy
- All original bids, if not on bid sheet (FM 203) then staple it to a bid sheet
- 1 Cost of Operation (FM 200), accurate and complete
- 1 copy of Proof of Publications from two newspapers, write date paid on copy.
- 1 Sale Notice (MF 203)
- 1 Sale Map (FM 201)
- 1 photo copy of DNR-352 receipt for Bid Deposit
- 1 copy of all (except 352, blue copy left in book) the above for sale file, also FM 200 and Sale map to tract file

Appendix II G-18: FM 200 – Cost of Operations

Below is a sample form for FM 200 – Cost of Operations. Formulas embedded in this form are not available in this document. For the active form go to:

<https://ingov.sharepoint.com/sites/DNRPortal/forestry/properties/default.aspx>.

Location: _____ Sections _____ T R _____						Total Cost of Operation		
Compartment: _____ Tract: _____						Marking Cost		TOTAL
County: _____						hrs. @ _____	per hour	
Tract Acreage: _____ Marked Acreage: _____						cans of paint @ _____	per can	
Color of Paint: _____						miles @ \$0.44	per mile	
Avg. Volume/tree: _____						Administration Costs		
Number of Openings: _____ Total Acres: _____						hrs. @ _____	per hr to prepare paperwork	
Acres per Opening: _____						hrs. @ _____	per hr to show & conduct sale	
						miles @ \$0.44	per mile to show sale	
						Boundary Location and Marking Costs		
						hrs. @ _____	per hr to locate & mark boundary	
						cans of paint @ _____	per can	
						Advertising Costs		
						# of mail-outs _____	at _____	
						Newspaper: _____		
						Newspaper: _____		
						Other Costs		
						Sale Price/MBF:		Total Sale Price:
						Sold to: NAME, ADDRESS, PHONE	Total Cost:	
							Net:	0.00
							Other Bidders	Bid
						Date of Sale:		
						Contract length:		
						Marked by:		
						Sale Number:		
TOTALS:						# of Bid:		
	0	0	0	0	0			

Brief description of marking objective & silvicultural method used & other comments:

Appendix II G-19: Installment Payment Schedule

Below is a sample form for Installment Payment Schedule. Formulas embedded in this form are not available in this document. For the active form go to:
<https://ingov.sharepoint.com/sites/DNRPortal/forestry/properties/default.aspx>.

Appendix II G-20: Regeneration Opening Log

State Forest Regeneration Openings

Property Name	Comp/ Tract	Number of Openings	Total Opening Acres	Sale Date (Month/ Year)	Harvest Completed (Month/ Year)	Regeneration target Options: -mixed hardwoods -oak and mixed hardwoods -bottomland hardwoods -pine -mixed pine & hardwoods -other (specify)	3-7 Species included or expected	Regeneration confirmed date (m/d/yr)	Success Rating Options: -Regeneration meets or exceeds target* -Insufficient regeneration. Action needed*

*Regeneration success: natural regen exceeds 1,000 tree stem/acre. Tree planting areas exceed 400 trees/acre

Appendix II H-1: Ecological Resource Review

Indiana Division of Forestry Tract-level - Ecological Resource Review

Date of Review: _____

State Forest: _____

Forester: _____

Compartment: _____ **Township:** _____

Tract(s): _____ **Range:** _____

Total Acres: _____ **Section(s):** _____

1. Tract-level Habitat Overview

Using readily available resources (aerial photos, area maps, GIS, personal knowledge, etc.), estimate the proportion of each cover/habitat type within **1 mile** of tract center.

Habitat/cover type	0%	0 < 1%	1-10%	11-50%	51-90%	>90%	Unknown
Closed-canopy deciduous/mixed forest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pine/conifer plantations or natural stands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Early successional forest (≤ 20 years old)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shrub-scrub or old field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grasslands/hayfield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cropland, pastures, feedlots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open water (lakes, ponds, rivers, streams, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riparian areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developed areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 1.1. Consider whether the proposed management activities for the tract would significantly alter the relative proportion and availability of habitat/cover types throughout the assessment area. Consider both short- and long-term changes and conditions. Discuss in the tract Resource Management Guide the possible impacts on habitat/cover types that would be completely converted or significantly reduced due to the proposed management activities. Consult with DoF Forest Wildlife Specialist, if necessary.
- 1.2. Consider whether the proposed management activities would significantly disrupt travel/dispersal corridors or create isolated habitat units separated from larger units of similar habitat. This is especially important when species of special conservation need have been observed in the area and could be affected by such habitat fragmentation. If applicable, address these considerations in the Resource Management Guide, including short- and long-term impacts. Consult with DoF Forest Wildlife Specialist, if necessary.
- 1.3. Consider whether the proposed management activity will increase the likelihood that specialist interior forest species would be affected by generalist species using forest edge habitats. Where practical, avoid situations where the perimeter of proposed regeneration (or permanent) openings would be located within 200 feet of maintained forest edges. Maintained edges include those between forest and terrestrial habitats maintained to not naturally revert into forest, such as agricultural fields, developed areas, “daylighted” permanent roads, or maintained utility right-of-way corridors. **Consult with DoF Forest Wildlife Specialist if the proposed management activity will include one or more regeneration or permanent openings totaling ≥ 5 acres within 200 feet of maintained forest edges.**
- 1.4. Where applicable, discuss in Resource Management Guide compliance with guidelines regarding cover types affected by proposed activities, such as the use of Best Management Practices where open water and riparian areas occur.

2. Structural Habitat Features (e.g., Snags, Cavity Trees, Legacy Trees, etc.)

- | | YES | NO |
|--|--------------------------|--------------------------|
| 2.1. Were structural habitat features included in tract inventory? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.2. If done, did all structural habitat feature inventories meet or exceed all compartment-level guidelines? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2.3. Is a hardcopy summary of the habitat feature inventory results included in this tract’s management file? . | <input type="checkbox"/> | <input type="checkbox"/> |

If “no” is checked for any box above, address in tract Resource Management Guide. If “no” is checked for **2.2**, consider if further tract-level management is necessary and address in tract Resource Management Guide.

3. Special Habitats

Are any special habitats present within or near tract? (check if ‘yes’)

- Permanent wetlands and pools (typically annual inundation; not including created “wildlife ponds”)
- Seasonal/ephemeral wetlands and pools
- Wildlife ponds (created)
- Springs/seeps
- Sinkholes, caves, or other karst features
- Ledges, rock outcrops, cliffs, talus slopes
- Other:

For each special habitat present, refer to appropriate guidelines in DoF Procedure Manual and address management/ planning considerations in the tract Resource Management Guide. If impacts are unavoidable, describe possible short- and long-term impacts and how these may be mitigated. Also, be sure to document the location of each special habitat.

4. DNR Natural Heritage Database Review

YES NO

- 4.1. Was a Natural Heritage Database review done?.....
- 4.2. If a review was done, has there been recent (≤ 20 years) documented evidence of plant or animal species listed as endangered, special concern, threatened, or rare within or near this tract?.....
- 4.3. Was a “critically imperiled” (G1) or “imperiled” (G2) element within or near this tract?.....
- 4.4. Are the results of the Natural Heritage Database search included in this tract’s management file?

If “no” is checked for 4.1 or 4.4, provide an explanation in tract Resource Management Guide. If “yes” is checked for 4.2 and species, habitats, or communities of special conservation need could be affected by management activities, address this in the Resource Management Guide in terms of possible short- and long-term impacts. Include how you will address the conservation of each of these species/habitats/communities while planning for management activities. If “yes” is checked for 4.3 and a proposed management activity could potentially impact the long-term integrity of the community or habitat for a species, then consult with the DoF Forest Wildlife Specialist to develop a strategy to avoid/minimize impacts.

5. Non-native Invasive Species

In the table below, list all non-native invasive species that were observed during inventory or are known to exist within or near this tract. Consider level of management needed for each species, address management/monitoring in the tract Resource Management Guide, and map occurrences.

Species	Management Actions (check all that apply)			
	Immediate Management Required	Monitoring/ Re-evaluation Recommended	Addressed in Management Guide?	Mapped?
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Other Species Or Sign Observed During Inventory:

Comments/Notes:

Appendix II I-1: Pesticide Application Record

Pesticide Application Record

<i>Property Name</i>	<i>Date Used</i>	<i>Personnel</i>	Location (Comp/Tract, other)	Acres Treated	Pesticide Commercial Name (Product)	Active Ingredient	Amount of Product Used	Mix Gallons used	Work Type	Target Pest	Method and comments; Include % solution and effectiveness comment
<i>EXAMPLE</i>	<i>5/12/2012</i>	<i>smith</i>	<i>C2T5</i>	<i>3</i>	Roundup	glyphosate	6.4 ounces	2.5	invasives	autumn olive	foliar spray; 2% sol'n; heavy infestation; generally effective; retreat next year

Appendix II M-1: Cultural Review for Timber Inventory

Cultural Review for Timber Inventory
Indiana Department of Natural Resources – Division of Forestry

Property:

Compartment:

Tract:

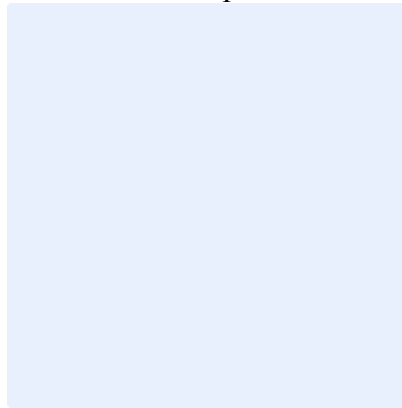
Name:

Date of Inventory:

Submission Date:

Known Cultural Resources:

Map



Appendix II M-2: Cultural Review for Timber Harvest/Management

Cultural Review for Timber Harvest/Management

Indiana Department of Natural Resources – Division of Forestry

Property: _____ Compartment: _____ Tract: _____
 Name: _____ Date: _____ Project ID (Central Office Use): _____

Entire Project Area Previously Reviewed

LOG YARDS

Number log yard(s):	Size(s) of log yard(s):		Project Id:
Yard	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Yard	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Yard	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Yard	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Yard	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	

HAUL ROADS

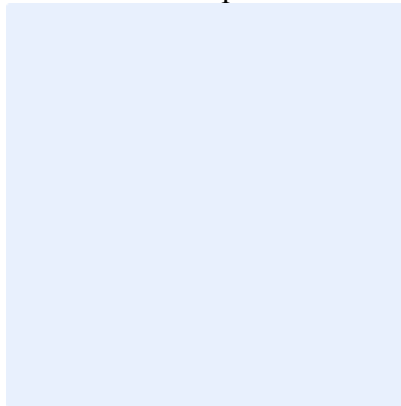
Number road(s):	Length of road(s):		Project Id:
Road	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Road	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Road	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	

SKID TRAILS

Number skid trail(s):	Length of skid trails(s):		Project Id:
Trail	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Trail	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Trail	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Trail	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Trail	Existing: Yes <input type="checkbox"/>	No <input type="checkbox"/>	

Any other ground disturbance planned (If so please explain): _____
 Any known cultural sites (If so please describe and indicate on map): _____

Map



Comments:

Appendix II M-3: Historic Structure Alteration Application

Historic Structures Alteration Application
 Submitted to the DNR Division of Historic Preservation and Archaeology
 Submitted by DNR Division of Forestry

Project Number: (for Central Office use)		Project Title:			
Property Name		Contact Person		Application Date	
County	Civil Township	Topo. Quad.	Section	Township	Range

History of the Structure	Begin Date
<p>Name of structure:</p> <p>Date of original construction:</p> <p>Type of construction: Frame Masonry Log Other (specify):</p> <p>Past use of structure:</p> <p>Current use of structure:</p> <p>Has the structure been altered previously: How:</p> <p>Condition of structure: Excellent Good Fair Deteriorated Ruins</p> <p>Supplementary description:</p>	

Project Description

Additional Comments

Please attach a location map and photos, including shots of the entire building and close-ups of the area to be altered.

Appendix II M-4: Historic Sites and Structures Inventory

Historic Sites and Structures Inventory

Division of Forestry

Property Name:

Examiner Name:

Date of Exam:

Site Identification

Common Name:

Property Site Number:

Site Location

County:

Legal Township:

Compartment:

Tract:

Legal Description:

Directions to Site:

Site Description

Use (for buildings only):

Category:

Endangered:

Condition:

Integrity:

Time Period Used:

Size of Site:

Narrative Description / Historic Notes:

Artifacts Noted:

Recommended Actions:

Notes

Attach topo map with site located. Sketch site plan on back of this form, and attach any available photographs.

Appendix II P-1: Property Line Location Request

PROPERTY LINE LOCATION REQUEST

This property line location request is being submitted by:

Name (please print)			Address	
City	State	Zip	Daytime phone	Home phone

*Please include a copy of the deed record for the property adjacent to the line to be located.
A copy of the deed record can be obtained at your county courthouse or offices.*

The person submitting this request understands that any line location by Indiana Department of Natural Resources Division of Forestry personnel is governed by the following.

1. This service is provided as a convenience to our neighbors and is performed free of charge. Property lines are generally run for activities such as logging operations, pasture location, etc. The lines will generally be marked with flagging, unless an exact line is found between two good points of evidence. In this case the line may be marked with painted trees and/or signs. State Forest personnel reserve the right to refuse to run any line they feel is unnecessary or unjustified. In cases where the location of a line is difficult to determine, it may not be possible for State Forest personnel to locate the line. The person submitting the request may then need to call on the services of a private surveyor.
2. The lines located through this service are **not** surveyed lines and should not be used as such. The lines are **approximate** property lines only, based on limited evidence and the use of basic equipment. These lines should not be used for the sale of property, nor described in a sale as being surveyed lines or exact property lines.
3. It is highly recommended that a "buffer zone", or zone of no activity, be observed. A buffer zone 50 feet wide is generally recommended, though the State Forest personnel who locate the line can indicate how accurate the line is in each individual case, and how much of a buffer zone is needed. This is to protect the private individual from crossing onto state property because of marked line inaccuracies.
4. State Forest personnel will attempt to perform line locations in a timely manner. However, it may not be possible to locate a line immediately upon receiving the request. It is recommended that a request be submitted at least one month prior to the desired completion date. It is also preferred that line locations be planned so they may be performed during the winter and early spring as the lack of foliage facilitates the location of evidence for lines.

I, the undersigned adjoining property owner and/or logger to the state property, take full legal responsibility and liability for any and all damage to state property (i.e. buildings and/or fences constructed on state land, trees cut or damaged, etc.) that occurs on or near the requested property line location, upon its survey by an Indiana licensed land surveyor recognized by the Indiana Department of Natural Resources.

**Office Use Only
Request Completed**

Signature of person submitting request	Date	Date: _____
State office receiving request (Division of Forestry personnel ONLY)	Date	Initials: _____

Appendix II P-2: Request for Survey Assistance

Request for Survey Assistance

Division of Forestry

Today's Date:

Date of Line Examination:

Location

Section:	Township:	Range:	Legal Township:	Compartment:	Tract:
Property:		County:		Quadrangle Map:	

About the Encroachment

Method of Discovery: routine examination public notification wildfire examination landowner request forester request producer request	Location: timberland pasture land old field roadway other	Priority: extreme high low	Type: access road existing building new construction utility access errant fence line resource removed
--	---	--	---

Line Determination

Equipment Used: hand compass staff compass metal detector quadrangle map aerial photos deed record plat book other	Starting Point: corner stone corner post fence corner old signs surveyor stake tree lines topography unknown	Ending Point: corner stone corner post fence corner old signs surveyor stake tree lines topography unknown	Evidence: fence wire old posts stone wall picket fence staples, etc. old signs tree lines dead furrows topography triangulation
---	---	---	--

Adjacent Owners and Addresses:

Forester / Property Manager's Statement:

Notes

Attach copies of quadrangle map and court house records.

Appendix II R-1: Land Acquisition Request

Division of Forestry Land Acquisition Request

Division of Forestry Property:

Property Contact Person:

Type of Acquisition:

(fee simple – State ownership; easement – State has partial rights of use)

Source of Acquisition Funds requested:

(Indiana Heritage Trust; Division Land Acquisition Funds; CR&R; other – specify)

Landowner Name:

Address:

Phone Number:

Has landowner been contacted?:

Is landowner a willing seller?:

Secondary Name:

Address:

Phone Number:

Parcel Location:

(include county and legal township)

Parcel Legal Description (if different than deed – if property for purchase is less than what is described on deed):

Acreage:

est. % wooded:

est. cost:

What has parcel been used for?

If there is zoning, what is the property zoned as?

List structures and their condition:

Briefly explain the benefits of this parcel to the property goals:

Has an organization or individual been contacted to provide matching funding?

If yes, provide information on contact - name, address and phone number:

*Property personnel must have reconned the subject property prior to completing this form.
Property will inform landowner that a review inspection of the property may occur.*

Attach copy of relevant deed(s), copies of property tax statement(s), topo map (2) and plat map (2). Be sure that one copy of the topo map and plat map are marked with location of the property, and one copy is unmarked. Also include the names and official mailing address for the county commissioners in the county of acquisition.

**Appendix II U-1: Letter of Agreement for Temporary Use of State Forest
Land for the Purposes of Ingress and Egress**

INDIANA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY

Letter of Agreement for Temporary Use of
State Forest Land for the Purposes of Ingress and Egress

The Department of Natural Resources, Division of Forestry, an agency of the STATE OF INDIANA, does hereby grant unto _____, (Print Name of Company/Individual Requesting Access) hereinafter referred to as the Permittee, permission to use, maintain, and repair a/an _____ (Specify as: Access Road, Yard, Skid Trail, etc.) to be used for _____ (Specify Purpose; Removal of Timber, Temporary Access, etc.) in, over, upon, through an area of approximately _____ (Specify size in acres, lineal feet, etc.) in the _____ of Section _____, T- ____, R-____, of _____ County, Indiana in _____ State Forest.

The property may be further described as Compartment ____, Tract _____, and as shown on attached map.

I. General Provisions

- (1) Ingress and egress is granted to the above Permittee upon the following special conditions:
- (2) The Permittee shall notify the property manager three (3) days prior to the date of the ingress or egress herein granted and three (3) days prior to the date of completion.
- (3) Unless an extension of time is agreed upon in writing between the property manager and the Permittee, all ingress and egress privileges shall begin no sooner than the _____ day of the month of _____, _____, and terminate as of the _____ day of the month of _____, _____.
- (4) The Permittee shall relinquish a deposit in the amount of \$ _____ to be held until the permit is satisfactorily completed to ensure compliance with the permit provisions, and cover any damage and/or close out costs.
- (5) The Permittee shall use only the area designated by the property manager and shall not cut/clear or damage any trees on state property without prior approval from the property manager.
- (6) Logging debris (including tops, limbs, and parts of logs) shall not be left on the State's premises without prior approval from the property manager at any time during or after the period designated under this agreement.
- (7) Permittee shall not assign the whole or any part of this agreement without the

State's prior written consent. The Permittee binds his successors, executors, administrators, and assignees to all covenants of this agreement.

- (8) Upon termination of the terms of this agreement, the Permittee shall restore the area designated herein to a condition equal to or better than its condition prior to the beginning of Permittee's activities.
 - (9) The Permittee's privilege of ingress or egress may be restricted when or where wet conditions are present or when unreasonable rutting or erosion would occur as determined by the property manager.
 - (10) Reasonable care will be exercised by the Permittee to prevent the starting and spread of fire.
 - (11) Any damage or destruction to private or public improvements occasioned by or in the exercise of this agreement shall be the sole responsibility of the Permittee.
 - (12) All trash generated by the Permittee's activities shall be removed from the premises by the Permittee on a daily basis.
 - (13) Specific plantings, streams, special trees, wildlife areas, or other special areas identified by the property manager below as areas not to be disturbed shall remain unmolested by the Permittee:
 - (14) The Permittee shall comply with the guidelines in *Indiana Logging and Forestry Best Management Practices: 2005 BMP Field Guide*, unless otherwise specified by the Department of Natural Resources, Division of Forestry. All log roads, log yards, and skid trails will be smoothed such that ruts (resulting from harvest operations) will be filled by the Purchaser as specified by the Seller. During harvest operations, all ruts greater than 18 inches in depth shall be promptly leveled. Upon sale closeout, no ruts shall be left that are greater than 12 inches in depth for a length of ten feet or more, unless specified by the Seller for documented purpose. The Purchaser shall follow the attached Indiana Forestry BMP Rutting Guidelines, unless otherwise specified by the Seller.
- II. The Permittee hereby agrees to protect, indemnify, and save harmless the State of Indiana from any and all liability for personal injuries, death and/or property damage suffered or incurred by any person in connection with the Permittee's performance of this agreement. The Permittee shall carry Workers Compensation and Liability Insurance as required by State and Federal Law.
- III. The Permittee further agrees as follows:
- (1) All modifications of this contract will be reduced to writing, dated, signed and witnessed, and will be attached to this instrument.

- (2) Failure to comply with any conditions or terms of this instrument shall result in a loss of the privileges of ingress and egress herein contained, upon written or verbal notice by the property manager.
- (3) The State will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest, or attorney's fees, except as required by Indiana law, in part, IC 5-17-5-1 et seq., IC 34-54-8-1 et seq., IC 34-54-8-3 et seq., IC 34-54-8-5 et seq., and IC 34-13-1-1 et seq.
- (4) The Permittee agrees to comply with all applicable federal, state and local laws, rules, regulations or ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment of any state or federal statute or the promulgation of regulations thereunder after execution of this instrument shall be reviewed by the State and the Permittee to determine whether the provisions of the instrument require formal amendment.
- (5) This instrument shall be construed in accordance with and governed by the laws of the State of Indiana and suit, if any, must be brought in the State of Indiana.
- (6) The Permittee agrees to indemnify, defend, and hold harmless the State of Indiana and its agents, officers, and employees from all claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Permittee and/or its subcontractors, if any. The State shall not provide such indemnification to the Permittee.
- (7) No right conferred on either party under this agreement shall be deemed waived and no breach of this agreement excused, unless such waiver or excuse shall be in writing and signed by the party claimed to have waived such right.
- (8) Notices: Any notice required or permitted to be given under this instrument shall be deemed to have been received by the respective parties if hand delivered or properly addressed with first class postage prepaid to the following address:

Grantor: (Print Property Manager's Name and Address)

Permittee: (Print Name and Address)

IV. The undersigned attests under penalties of perjury that he is the agreeing party, or that he is the representative, agent, member or officer of the agreeing party, that he has not, nor has any other member, employee, representative, agent or officer of the firm, company, corporation or partnership represented by him, directly or indirectly, to the best of his

knowledge, entered into or offered to enter into any combination, collusion or agreement to receive or pay, and that he has not received or paid, any sum of money or other consideration for the execution of this instrument other than that which appears upon the face of the instrument.

V. The parties having read and understand the foregoing terms of the instrument do by their respective signatures and date below hereby agree to the terms thereof.

IN WITNESS WHEREOF, the parties have executed this agreement.

Name of Applicant;

Company Name

(signed) _____

Print Name: _____

Title: _____

Company Representative _____

Timber Buyer License Number: _____

STATE OF INDIANA, _____ County, SS:

Before me, the undersigned Notary Public in and for said County, this ____ day of _____,

_____ came _____, Representative of _____

and acknowledged the execution of the foregoing instrument.

Name of Notary Public;

(Print Name)

(Signature)

Expiration of Commission: _____

County of Residence: _____

Commission Number: _____

IDNR, Division of Forestry Authorization;

John R. Seifert, State Forester

Date

Appendix II V-1: Record of Training

