



Indiana Department of Natural Resources Division of Forestry

Indiana Classified Forest Certified Group

UMBRELLA MANAGEMENT PLAN

Introduction

Purpose

The purpose of this document is to serve as the primary reference document on the functioning of the Indiana Classified Forest Certified Group and the resource management of the enrolled lands for group administrators, group members, and the general public.

Classified Forest & Wildlands Program

In the early 1900's, the majority of Indiana's forests had been cleared for agriculture and to provide raw materials for a growing nation. The concern about the rate of deforestation and the erosion caused by abandoned agricultural fields led to the passage of the Indiana Forest Classification Act (IC 6-1.1-6) in 1921. This act created the Classified Forest Program. The objective of the program was to protect forests and watershed and promote reforestation by providing landowners a property tax incentive. In 1979 a sister program, the Classified Wildlife Habitat Program, focusing on habitats other than forests was created. In 2006, the two programs were merged into the Classified Forest & Wildland Program. The statutory requirements of the joint program are contained in Indiana Code 6-1.1-6. The Indiana Administrative Code (312 IAC 15) contains rules that govern the management activity on enrolled parcels.

The objectives of the Indiana Classified Forest and Wildlands Program are to encourage better woodland and wildlife stewardship, and protection of Indiana watersheds. Classified Forest and Wildlands must contain a minimum of 10 contiguous acres that support a growth of native or planted trees, native or planted grasslands, wetlands or other acceptable types of land cover. The land must be managed in accordance with a Division of Forestry approved management plan. In return enrolled lands have property tax assessment of \$1 per acre. The landowner does not relinquish control of classified areas, nor does the Division of Forestry become connected with ownership of the land. The program requires that the land be protected from development, livestock grazing, fires that are not part of a management plan, destructive timber harvesting practices and other activities that threaten natural resource sustainability.

Indiana Classified Forest Certified Group (ICFCG)

Indiana Classified Forest Certified Group is a subset of the Classified Forest & Wildland Program landowners. ICFCG is committed to managing enrolled lands to the FSC[®] standards and policies. Membership in ICFCG provides classified landowners access to Forest Stewardship Council[®] (FSC-C071226) forest certification. The Division of Forestry holds the group certificate and serves as the group's administrator. Landowners are the group members and are responsible for implementing the FSC certification standards and policies on their classified forests. FSC principles and policies can be found at www.fscus.org.

Role of the Certification Body

The Division of Forestry contracts with a Certification Body, currently Scientific Certification Systems (SCS), to evaluate the ICFCG to make sure the group is meeting the FSC standards and policies.

Certification Audits

Full Audits: Every 5 years the ICFCG must be recertified. The Certification Body's auditors come to Indiana and compare ICFCG procedures both on paper and in the field to the complete FSC-US Forest Management Standard and FSC policies. If the standard and policies are being met or there are only minor departures from the standard, the Certification Body will issue a certification certificate for ICFCG. If there are major departures from the standard, corrections must be made before the certification certificate is issued.

Annual Audits: In the 4 years between full audits, the Certification Body will conduct annual audits. The annual audits follow up on issues observed in previous audits and select a portion of the FSC –US Forest Management Standard to evaluate the ICFCG against.

During a certification audit, the Certification Body has the right to access group members' forests and request documentation. Whenever possible, the Division of Forestry will contact the group member prior to the audit and request permission to visit the property on a specific day.

If the Certification Body identifies major or minor departures from the FSC standards and policies, the Certification Body will issue Corrective Action Requests (CAR) to the ICFCG. CARs identify the non-conformity, the requested corrective action and a time frame to make the correction.

Publication of Information

Summaries regarding ICFCG management, monitoring and audit report will be made available to the public. Confidential landowner information will not be released.

ICFCG Group Management

Group Organization

Figure 1 shows the layout of the Indiana Classified Forest Certified Group.

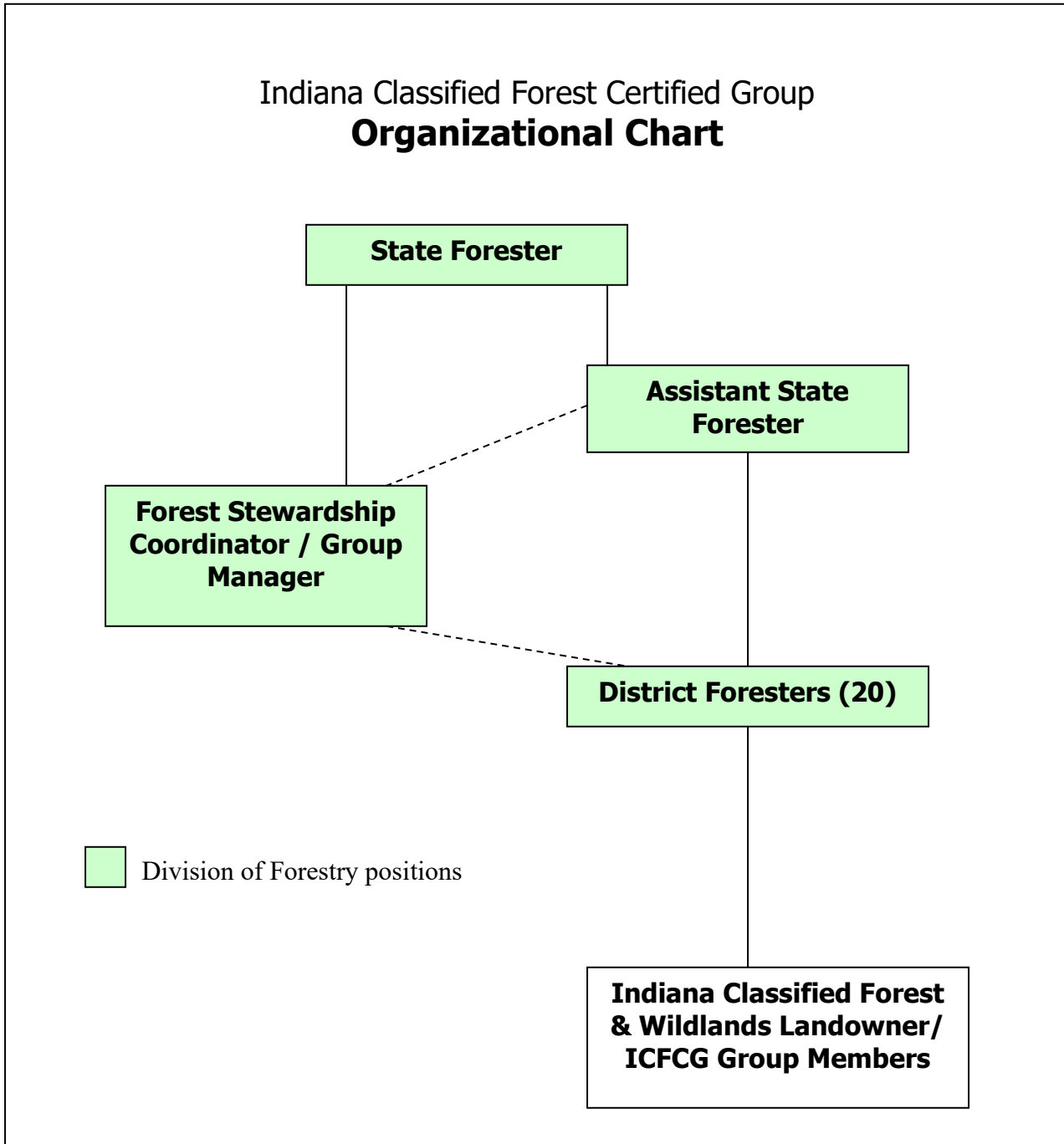


Figure 1. Indiana Classified Forest Certified Group organizational chart.

Eligibility Requirements

Enrollment in the Indiana Classified Forest Certified Group is voluntary; however, landowners must meet the following criteria:

1. Be enrolled in the Classified Forest & Wildlands Program
2. Own 10 (ten) acres or more of forest in one enrolled parcel
3. Meet the Forest Stewardship Council Principles

Group Responsibilities

State Forester, Director of the Division of Forestry

- Supervise and provide guidance to the group manager and Assistant State Forest
- Obtain funding for the group related expenses (annual fees, audits)
- Hear and make final decisions regarding group member appeals regarding enforcement or mandatory withdrawal decisions
- Minimum Qualifications: BS in Forestry or closely related field with continuing education on certification related topics

Assistant State Forester

- Supervise and provide guidance to the 20 district foresters including quality reviews of field offices.
- Provide guidance to the group manager
- Attend continuing education on certification related topics
- Minimum Qualifications: BS in Forestry or closely related field with continuing education on certification related topics

Forest Stewardship Coordinator / Group Manager

- Maintain the statewide database of group members
- Complete annual reporting and fee payment to Forest Stewardship Council
- Coordinate annual surveillance audits and recertification audits
- Provide overall group guidance and direction
- Conduct quality reviews of field offices with Assistant State Forester
- Process contested mandatory withdrawals for certified group
- Provide continuing education for staff, cooperators, & group members
- Ensure the use of FSC logos are in accordance with Forest Stewardship Council guidelines
- Minimum Qualifications: BS in Forestry or closely related field with continuing education on certification related topics

District Forester

- Conduct initial field inspections to determine eligibility for ICFCG
- Educate potential and existing group members on certification standards and group member responsibilities

- Ensure that a management plan is developed prior to classification and certification. All plans must be approved by the district forester. This includes checking the Natural Heritage database.
- Conduct 5 year Reinspections (audits) of group member properties
- Conduct environmental assessments via a pre-harvest conference
- Visit active timber sales on group lands.
- Track and resolve certification violations through negotiations, corrective actions or processing group departures.
- Maintain group member and certified parcel files
- Minimum Qualifications: BS in Forestry with continuing education on certification related topics

District Wildlife Biologists

- Provide technical expertise on wildlife management
- Write joint management plans with District Forester for group members whose primary objective is wildlife management
- Minimum Qualifications: BS in Wildlife Management or closely related field

Landowners / Group Members

- Voluntarily join the ICFCG
- Conform to the FSC certification standards
- Contact district forester when planning a timber harvest
- Notify district forester when timber harvest begins
- Follow their approved management plan
- Keep current on certification related topics
- Ensure that no FSC banned pesticides are used on certified parcels
- Keep records of management activities, harvest of timber and non-timber forest products, pesticide applications
- Annually report management information to the District Forester
- Minimum Qualification: Own at least 10 acres of Classified Forest, continuing education on certification related topics

Professional Foresters

- Write management plans for group members. Management plans must be written to the current Classified Forest & Wildlands Program standard. The plan must be approved by district forester and the group member.
- Recommend and conduct management activities for group members in accordance with the group member's management plan, the Classified Forest & Wildlands Program, and FSC certification standards/policies.
- Report management activities conducted on group member properties to the district forester.
- Participate in pre-harvest conference when administering a timber harvest for group member.

- Minimum Qualifications: BS in Forestry or closely related field, continuing education on certification related topics

Other Forestry Professionals

- Recommend and conduct management activities for group members in accordance with the group member's management plan, the Classified Forest & Wildlands Program and FSC certification standards/policies.
- Report management activities conducted on group member properties to the district forester.
- Participate in pre-harvest conference when administering a timber harvest for group member.
- Minimum Qualifications: Continuing education on certification related topics.

Group Enrollment

Maximum Group Enrollment

The maximum ICFCG enrollment is 1,000,000 acres. This maximum may be adjusted as staffing and technology capacities change.

Initial Enrollment

During the initial group development, enrollment in the Indiana Classified Forest Certified Group was automatic for eligible landowners. Landowners were given an opportunity to opt out of the Indiana Classified Forest Certified Group by submitting an *Indiana Classified Forest Certified Group Departure Request* form.

For all enrollments after the initial group development, the district forester will determine if the parcel would be eligible for certification during the initial field inspection. At the time of classification, the landowner will decide if they would like to join the certified group (opt-in). All of a landowner's eligible parcels will be included in the group certification.

Confirmation of Commitment to Group

When a group member's management plan is updated, the plan signature page will contain an option for the landowner to choose to stay or leave the ICFCG.

Reactivation of Group Membership

If a landowner has voluntarily departed from the certified group, they may reactivate their membership provided they are in conformance with their management plan and FSC standards. A second departure will result in a 10 year waiting period before a landowner can request reactivation of the group membership. The landowner will have to demonstrate conformance with their management plan and FSC standards for at least the past 5 years. In general, a third departure will be interpreted as evidence of a lack of commitment to the FSC standards. Reactivation after a third departure will require a petition to the State Forester.

Enforcement & Withdrawal from Group

Voluntary Withdrawal

Inclusion in the Indiana Classified Forest Certified Group is completely voluntary. Group members may leave the group at any time by submitting an *Indiana Classified Forest Certified Group Departure Request* form to their district forester or the group manager. Submitting a departure request form will remove all of the landowners certified parcels from the certification group. Departure from the ICFCG will not impact the landowner's status in the Classified Forest & Wildlands Program.

Voluntary withdrawal of a parcel from the Classified Forest & Wildlands Program will also result in the withdrawal of the parcel from the Classified Forest Certified Group, since program enrollment is an eligibility requirement. The landowner's certified parcels remaining in the Classified Forest & Wildlands Program may remain in the Classified Forest Certified Group unless the parcel withdrawal is related to conversion or mismanagement of the forest; in which case, certification on the remaining parcels may be withdrawn.

Enforcement & Mandatory Withdrawal

During the five year Classified Forest & Wildlands Program reinspection, review of annual reports, and forest management related visits, the district forester or group manager will audit group members for conformance with FSC standards. In the case of nonconformance, the district forester will issue the group member a corrective action request which outlines the issue, the required remedy, and timetable for completion. The corrective action may be issued on three different forms: the reinspection report, the timber harvest visitation form, or letter. The district forester will track the corrective action in the ICFCG tract record.

The type and severity of the non-conformance will determine the remedy and timetable. If the nonconformance is severe and has the potential to cause long term negative impacts on the forest resource, the corrective action timetable must require immediate stoppage of the offending practice and immediate action to contain the damage. If the non-conformance has to do with providing documentation, the group member should be given up to 60 days to comply. If the non-conformance is minor and is contingent on weather or equipment availability a longer timetable of 6 months to a year maybe appropriate. If the landowner makes a good faith attempt to remedy the problem does not fully achieve the remediation by the deadline, the district forester may extend timetable for completion.

When the non-conformance is a result of the group member not understanding the standard, the corrective action should contain an educational component. The group member will need to complete a training (ex. reading materials on the subject, field day) and then verify in writing that they now understand the standard and will comply fully in the future. If the group member fails the future, it can result in departure from the ICFCG.

If the group member is unable or unwilling to complete the corrective action, the district forester shall request the group member voluntarily withdraw from the group. If the group member will not voluntarily withdraw, the district forester will notify the group member of the intent to remove them from the Indiana Classified Forest & Wildlands Certified Group. The group

member will have 30 calendar days to contest their removal from the ICFCG to the State Forester. The decision of the State Forester is final.

If the nonconformance warrants the removal of the property from the Classified Forest & Wildlands Program, the district forest will file a formal complaint against the landowner to a Natural Resources Commission Administrative Law Judge. The group member will have the opportunity to a hearing before the Natural Resources Commission. The determination of the Natural Resources Commission is final.

Non Conformance Guidelines	
Non Conformance	Response
Timber harvest – failure to notify district forester prior to harvest	First nonconformance: educational corrective action request letter; Second nonconformance: removal from certified group
Banned chemical use	First (second) nonconformance: educational corrective action request letter (based on reporting time frames a landowner could do a second application before receiving CAR. Second (third) nonconformance: removal from certified group
BMP issue	On harvest field visit sheet or in letter request correction with 30-180 day timeframe. Time frame depends on severity of problem and time of year. BMP issues that will have a long term impact and the group member is unwilling or unable to correct will result in removal from the certified group and potentially the Classified Forest & Wildlands Program.
Forest Conversion	If forest conversion exceed FSC limit, corrective action request letter requesting the excess converted acres be restored to forest. Conversions where the group member cannot or will not restore back to forest will result in removal from the certified group and potentially the Classified Forest & Wildlands Program if exceed program limits.
Failure to follow stewardship plan	Gross disregard of stewardship plan may result in removal from the certified group and potentially the Classified Forest & Wildlands Program.

Group Fees

The Division of Forestry will pay all mandatory fees related to participation in FSC certification through 2014 and will reevaluate the payment structure with the certification contract.

Certification fee include the following:

- The cost of all third party certification audits
- FSC Annual Administrative Fee
- FSC pesticide derogation fees, if applicable

Group Membership Records & Reporting

Group Manager

The Group Manager will maintain a statewide database of all group members. The Group Manager is responsible for completing Forest Stewardship Council reporting requirements.

District Forester

The district forest shall maintain files on group members and certified parcels. Files will include management plans, enforcement documentation, management history, annual reports, & practice plans. The district forester shall also keep up to date the landowner database which includes landowner contact information and certification status.

Professional Foresters

When a professional forester writes a group member's management plan, the professional forester shall submit the plan to the district forester for approval. Professional foresters should report management conducted on group member's property to the appropriate district forester.

Other Forestry Professionals

Forestry professionals should report management conducted on group member's property to appropriate district forester.

Landowner/Group Member

Group members shall report management activities to the district forester by completing CFW Annual Report. The landowner will contact the district forester when planning a timber harvest. The landowner should also maintain personal records of management activities, harvest of timber and non-timber forest products, and pesticide applications.

Group Resource Management

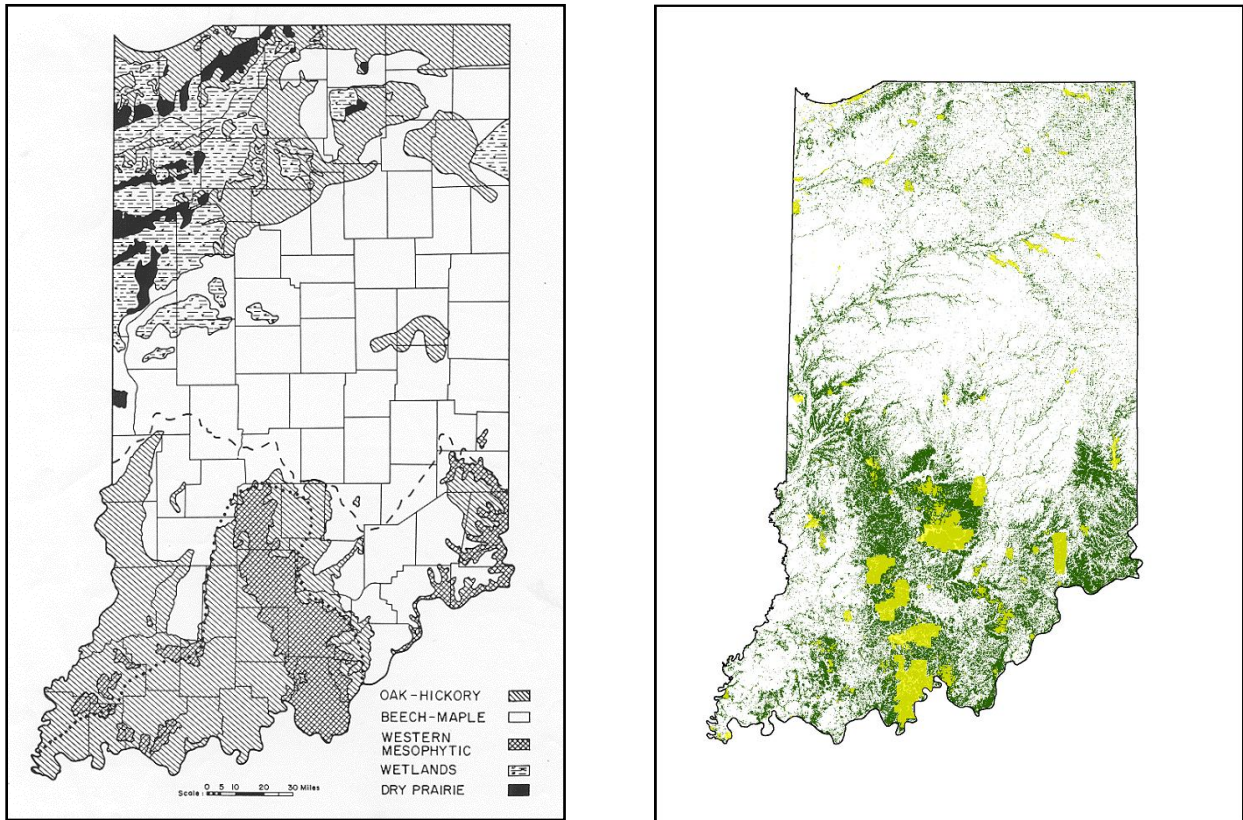
Description of Forest Resources

Group

Pre-European settlement the area now known as the state of Indiana was over 85% forested. In 1800 there were 19.8 million of acres of forest; by 1920 the state's forest cover had been reduced to 1.4 million acres. Land was cleared for agriculture, urban development, and to provide raw material for a growing nation.

Severe erosion and the threat of eradication of Indiana's forest led to the passage of the Classified Forest law in 1921. The law created the Classified Forest Program which provides a property tax incentive for private landowners to protect their existing forests and to reforest cleared areas. As of December 2011, the program, expanded into the Classified Forest and Wildlands Program, has over 681,500 acres enrolled.

The forest base of Indiana has recovered to over 4.75 million acres. Conversion, fragmentation, and forest pests are the current primary threats to Indiana's forests.



Left: Pre-white settlement distribution of forests. Right: 2008 Distribution of forests in Indiana (FIA data). Yellow represents publicly owned forest; green represents private forests.

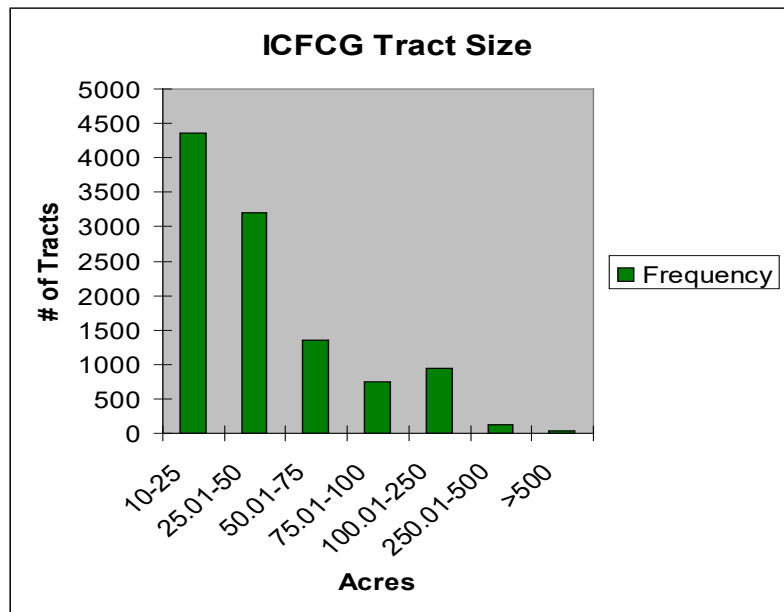
To determine overall current forest conditions of the Indiana Classified Forest and Wildlands Program (CFW) land, we queried the US Forest Service's Forest Inventory and Analysis (FIA) database. The CFW lands include 140 FIA plots that were most recently measured during the 5-year period from 2004 through 2008. Using the FIA EVALIDATOR 4.0 tool, the following overall forest information is available.

Forest types:

A clear majority (70%) of the approximately 500,000 acres in the program are considered oak-hickory. Of the oak-hickory acreage, 83% are considered medium stocked or fully stocked, with only 13% considered understocked. The remaining 4% are overstocked.

The other forest types are listed below by percent:

- Maple-beech-birch: 14%
- Elm-ash-cottonwood: 7%
- Softwoods (white-red-jack pine; loblolly-shortleaf pine, other soft wood):4%
- Oak-pine: 3%
- Oak-gum cypress: 1%



Volume:

The overall volume per acre is 7,329 board feet, International scale. Volume per acre for the major forest types are 8,022 for oak-hickory, 7,144 for maple-beech-birch, and 4,042 for the elm-ash-cottonwood group. The total sawtimber volume of program land is estimated to be 3.6 billion board feet.

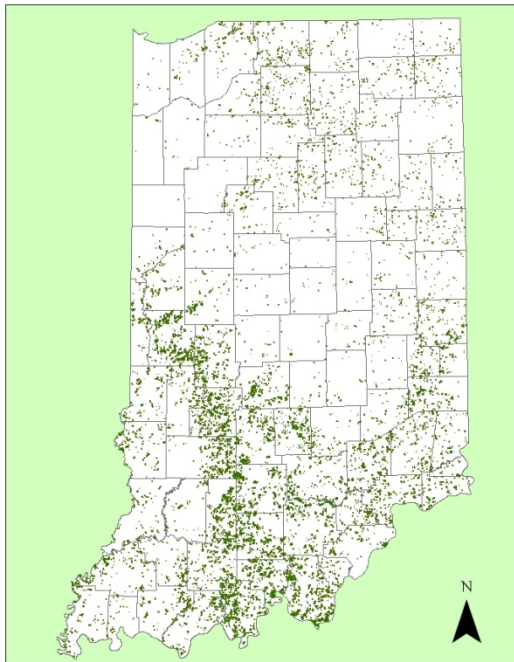
Growth:

FIA estimates growth by the change in plot volumes from one measurement period to another. A total of 93 plots are available to determine growth on program lands. Overall, program lands are growing 92.5 million board feet, International scale, per year, or about 187 board feet per acre per year. By major type group, the oak-hickory types are growing at 230 board feet per acre, with maple-beech-birch at 218 board feet per acre. The elm-ash-cottonwood group is growing at a negative 279 board feet per acre, indicating that harvest, mortality and/or conversion exceeds growth. The continued decline in the elm-ash-cottonwood group is expected because of the presence of Dutch elm disease and emerald ash borer in the state. All other forest type groups have positive growth rates.

Tract Size:

Based on the Classified Forest & Wildland database (September 2009), the average forest parcel size in the ICFCG is approximately 50 acres. The minimum size is 10 acres (eligibility requirement) and the maximum forest tract is 2,134 acres. Below is a size distribution graph:

Distribution of Indiana Classified Forest Certified Group Tracts



Geographic Distribution of ICFCG tracts:

The distribution of Indiana Classified Forest Certified Group tracts reflects the distribution of Indiana's private forests. The majority of enrolled land occurs in southern Indiana where the forest base is greatest.

Landowner

The forest resources found on individual tracts will be discussed in the tract specific management plan.

Management Objectives

Group Level Objectives

Desired Future Condition

The desired future condition of ICFCG forests is healthy privately owned forests of native mixed hardwoods and/or native softwoods within their natural geographic ranges in a variety of age classes that will provide timber, wildlife habitat, watershed protection, recreation, and biological diversity for the group members, their communities, and the state.

Ecological Objectives

- To retain and expand the native forests on the landscape
- To protect and enhance biological diversity including rare, threatened and endangered species
- To retain examples of ecological communities that are not protected on publicly owned properties

Social Objectives

- To increase the group members' and their communities' knowledge of forests and the services they provide
- To retain the cultural, archaeological, and other socially significant sites on the landscape
- To identify forests with high conservation values and manage to maintain and enhance those values

Economic Objectives

- To retain and increase the economic value of ICFCG forests through forest management
- To provide revenue to group members through the sale of certified forest products
- To provide a source of certified wood for the Indiana wood based industries and to encourage the development of new markets for certified wood
- To maintain the forest land base for the tourism and recreation industries

Group Member Level Objectives

On the 2008 Classified Forest & Wildlands Annual Report, landowners ranked the following reasons for owning their classified land. The list is from most important to least important.

- To protect or improve wildlife habitat
- To protect nature and biological diversity
- To pass on land to my children or other heirs
- For land investment
- For production of timber products
- For hunting or fishing
- For other recreation
- For collection of non-timber products
- For production of firewood

- To enjoy beauty or scenery

The individual group member's desired future condition and specific objectives for each tract will be contained in the management plan for that tract.

Silvicultural Systems

Silviculture in the Central Hardwood Region is less refined than other regions. This is due to the complexity of the species mix, the variety of sites, and the inconsistent results with some methods. The Indiana Classified Forest Certified Group lands are primarily managed under an uneven-aged system. This does not preclude management under an even-aged system when it meets the objectives of the Classified Forest & Wildlands Program and the group member. Group members typically desire the uneven-aged system's relatively unbroken canopies that maintain their aesthetic appeal and visual continuity.

Prior to management activities on a certified tract, the goals and activities for the parcel must be explained in the group member's management plan. Management activities are based on the desired future condition of the tracts and the benefits provided to the forest and the group member.

ICFCG timber management should create a forested condition that is healthy and vigorous. While there is significant focus on high value timber species, the species composition is less important than overall quality and vigor. Individual stems may be grown to a very large size and very old age for aesthetic benefits or wildlife considerations. There should be varied species composition, forest structure, and tree size to provide habitat diversity appropriate to the size and location of the tract.

Regeneration Methods

Uneven-Aged Management

Regeneration methods under the uneven-age system are singletree selection and group selection.

Single Tree Selection

Single tree selection is the removal of a single, large crowned tree that creates sufficient space for regeneration to develop. Singletree selection is most successful in the regeneration of shade tolerant species.

Group Selection

Group selection is the removal of a group to create sufficient space for regeneration establishment and development. Group selection is useful in the regeneration of intermediate and shade intolerant species. Openings should have a diameter of at least one times the average tree height. Openings smaller than these minimum sizes are canopy holes not group selection openings. Canopy holes will generally not support establishment and development of shade intolerant regeneration on a large scale. These canopy holes are closer to single tree selection gaps because they do not produce significantly altered environmental conditions that openings should 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 to make a group selection opening 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 openings will generally be a group of trees that: 1) have received significant damage resulting in defective, decaying stems; 2) have poor vigor, either from 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. Generally speaking, a group selection opening is warranted when stocking is such that thinning to release quality trees is no longer possible.

Over time, some parts of a tract may receive multiple group selection openings. Other parts of the same tract may never receive a group selection opening. The criteria are based on the condition of the trees and the desired condition of the tract, not a set rotation.

Between the ages of 8 and 12 years, group selection openings should be evaluated for timber stand improvement (TSI). TSI will release oak, walnut and other crop trees that are viable for reaching the main canopy. If oak is the primary species for release and is adequately distributed in the opening, prescribed fire can be used for release.

Even-Age Management Regeneration Techniques

Shelterwood Method

The shelterwood method removes the lower canopy, shade tolerant trees under the main canopy. The lower canopy prevents the regeneration of main canopy species, particularly oaks and hickories.

Prescribed fire is one tool to remove the lower canopy. Prescribed fire creates the conditions similar to those occurring prior to European settlement when natural fire and Native American fire created park-like conditions in the forest. Botanists with the Division of Nature Preserves think this was a major factor shaping forest structure and composition. We believe that oak will become established under the moderate light conditions created by prescribed fire. While more shade intolerant species will not receive sufficient light for competitive growth.

The second method is TSI with herbicides to deaden the lower canopy, shade tolerant trees. This is done only after a heavy seed crop has produced numerous new seedlings. However, operational practicality dictates that most tracts cannot receive treatment following the good seed crops. Therefore, treating a tract's lower canopy should be done as part of other management operations. This should be done in areas with lesser disturbance of the main canopy from management operations, and an adequate supply of seed trees that should be removed in the next management cycle. When seedlings are underplanted in planned openings, the undesirable second story trees should be deadened to assist with seedling establishment.

Once the regeneration has achieved the desired size, the overstory can be removed. The oak and hickory regeneration should be sufficiently well established to compete strongly with other species that will respond to the release.

Clearcutting

Clearcutting is the complete removal of all trees in the stand to open up growing space and release nutrients for the next stand. Clearcutting is appropriate when the stand is all mature or overmature, and the objective is to regenerate shade intolerant species. Due to the stocking requirements in the Classified Forest & Wildlands law, special permission may be required from the State Forester prior to implementation of the clearcut.

Green Tree Retention

In regeneration or salvage openings 20 acres or greater, islands of sound mature trees, understory trees, shrubs, live cavity trees, and snags will be left in reserve. These “green tree retention” areas 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 acres shelterwood would require either one 1 acres island or several islands greater than 1/5 acres that total 1 acre. The residual structure is retained throughout the entire rotation of the even-age stand.

In the case of pine plantation conversion to a hardwood stand, green tree retention of pine is not required or recommended.

Intermediate Methods

Intermediate cuttings are treatments designed to assist the development of the existing crop trees, but not designed to establish a new stand. Crop trees can be trees that have low timber value, but provide other value. Intermediate cuttings can be commercial harvesting or precommercial TSI operations.

Improvement Cuttings

Improvement cuts retain the more desirable trees while removing defective or poor quality trees.

Thinning

Thinning is used to reduce density. There are several different methods commonly used. Low thinning, or thinning from below, removes the trees most likely to drop out from competition - those in the suppressed and intermediate crown classes. Selection thinning involves the removal of trees in the dominant and occasionally codominant 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.

Special Management Considerations

Ash

Due to the emerald ash borer, the future of ash in the central hardwoods looks similar to elm or even worse, until some enemies of the borer or resistance to it arise. When planning intermediate or regeneration harvests, the removal of sawtimber size ash should be considered. This is to reduce the large breeding/feeding sites these trees provide the borer. We hope that with ash reduced to smaller, scattered individuals, the borers will have a harder time finding the trees, and the trees they do find will be too small to provide for a large population buildup. This should allow some ash to survive this first wave of infestation. In addition, depending on the rate of spread of emerald ash borer, the sawtimber size tree may not survive until the next harvest cycle.

Species with Restricted Distribution

Species that have a limited geographic distribution because they are at the edge of their range (examples: overcup oak, tamarack, arborvitae, Virginia pine, white pine) or are a disjunct population (examples: yellowwood, hemlock, white pine) should be managed to maintain their natural genetic composition, presence, and sustainability.

Non-native Pine

Non-native pine stands 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 stand that is in good condition should be managed to maturity. Pine stands in poor condition or that have reached maturity should be converted to hardwoods.

Non-native pine can be planted to reforest old field sites, especially if the conditions are harsh. We recommend eastern white pine, shortleaf pine, red pine, and loblolly pine. Other species of pine can be planted only if they are mixed with these recommended species. Pine can also be used as a trainer/site ameliorator when mixed in hardwood plantings.

Weather Related Damage

Tornados, straight line winds, drought, and ice storms can have significant impacts on group member woods. In the case of tornados or straight line winds, a salvage harvest should be considered factoring the economic feasibility and safety concerns. After the removal of any salvageable material, the work to finish the opening (deadening all trees greater than 2 inches dbh, vine control) should be completed. If desirable regeneration in sufficient densities does not take place within the first growing season after the improvement work, plantings of desirable species should be made. The new growth should not need thinning for 10 -15 years after the harvest.

Removal of ice damaged trees should be considered during planned harvest activities. Trees with severely reduced crowns or other structural damage should be candidates for removal.

Trees that have been stressed by drought and are showing signs of significant decline should be considered for removal during planned harvest activities. A group opening and/or clearcut may be appropriate in heavily impacted areas (stands of tulip poplar).

Insect and Disease Outbreaks

Insect or disease outbreaks can have significant impacts on forest stands. Impacted areas should be considered for removal during planned harvest activities. A group opening and/or clearcut may be appropriate in heavily impacted areas (stands of tulip poplar).

Legacy and Wildlife Trees

In order to keep and develop wildlife habitat and stand structures that would develop from natural forest processes, the following types of trees and structures should be retained:

- Legacy trees: Individual old trees that function as a refuge or provides important structural habitat values. “Wolf” trees at home sites, along abandoned road beds, etc are recommended for retention.
- Large live trees: The goal is to retain at least 3 live trees greater than 19 inches dbh per acre.
- Snags & Culls: : The goal is to retain/create at least 4 snags greater than 5 inches per acre with an optimum target of 7 snags greater than 5 inches dbh per acre. Standing snags and culls not salvaged should be left standing, except where they pose a human safety hazard. Cull trees may be deadened (girdle, herbicide) when necessary to achieve a silvicultural goal, but should be left standing. A tree with less than 10% live canopy should be considered a snag. Snags that have no remaining bark or no visible cracks, splits, or hollows may be felled as well as any snags leaning more than 45degrees from vertical.

Legacy trees should be generally representative of the species mixture on the site.

Other Management Considerations

There are numerous non-timber factors affecting marking decisions.

Mast production may cause some species to be favored for wildlife benefit. Roost and cover can be important considerations, especially with pine management. Recreational and scenic goals may also result in altered management. For example, wolf trees can be very aesthetic. In some areas, wildlife or scenic goals result in the complete exclusion of trees. Some species may be favored simply to maintain their presence or enhance diversity.

Harvest logistics play a major role in marking decisions. Trees along skid trails and haul roads that would be readily damaged by harvest operations should be marked. Felling a tree without damaging the residual stand 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.

Harvest Equipment

Below is a list of equipment commonly used on harvest sites in the ICFCG lands:

Felling

- *Chainsaw*: Hand held gas powered chainsaws are the most common felling tool used. Chainsaws are also used to top and buck the bole.

- *Mechanical harvester/feller buncher*: A motorized machine that grabs trees and then cuts them. Trees are stacked in piles to be moved to the yard. Use of mechanical harvesters is limited.

Landing/Skidding

- *Rubber tire skidders*: An articulated tractor like machine that uses a metal cable or grapple to drag logs from the stump to the log yard. The front of the skidder often has a blade. This is the most common piece of harvest equipment used on the ICFCG lands
- *Forwarder*: A tractor like machine with a grapple and storage bed. The forwarder picks up logs and puts them on the bed of the machine. The logs are then driven to the log landing and unloaded. Forwarders can have rubber tires or tracks. Use of forwarders reduces soil disturbance because the logs are not dragged to the landing. Use of forwarders reduces the number of trips to the log yard due to the large carrying capacity. Use of forwarders is uncommon.
- *Animal teams*: Occasionally animal teams, typically horses, are used to transport logs.

Bucking/Hauling

Bucking done in the yard is typically accomplished with a chainsaw or saw head attached to a boom. A boom is an articulated arm with grapple at the end. Booms are typically used to load logs on to trucks. The boom may be part of the log truck or may be an independent machine called a log loader.

Sale close out

At the end of the sale, installation of erosion control devices such as water bars and broad based dips and the repair of access and haul roads are often needed. This is frequently accomplished using the blade of the skidder or using a bulldozer.

Forest Growth & Dynamics Monitoring

Group Level

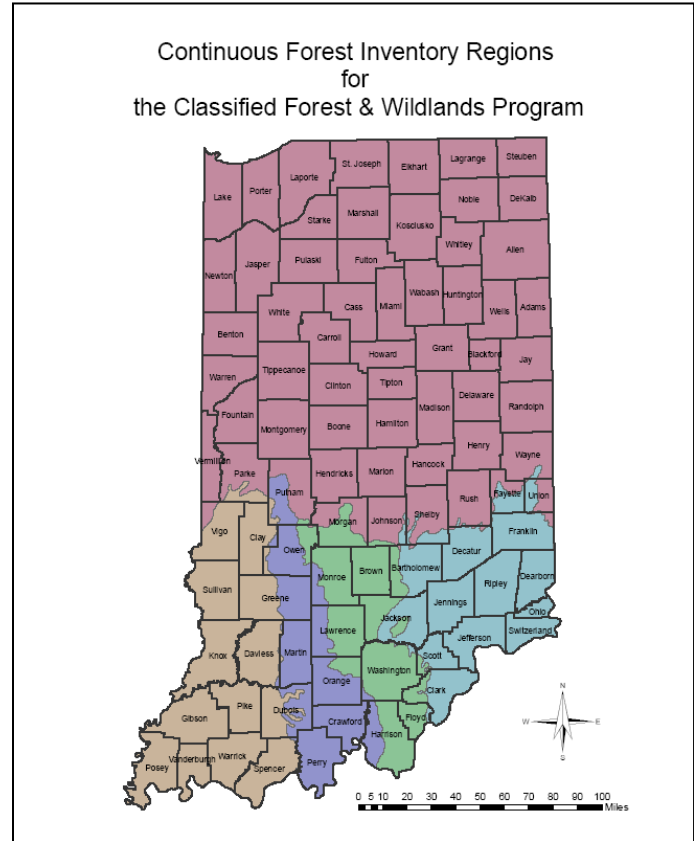
Forest Inventory and Analysis Program (FIA)

The ICFCG will use Forest Inventory and Analysis Program data to monitor forest growth and dynamics. The U.S. Forest Service conducts the Forest Inventory and Analysis Program. The purpose of the program is to do a continuous survey of the forest resources in the United States. One fifth of the program's plots are measured each year. FIA provides information on species, tree size, forest health, growth mortality, and harvest removals. The Classified Forest and Wildlands lands contain approximately 140 FIA plots. Annually the Division of Forestry with the assistance of U. S. Forest Service will do an analysis of the current 5 year data for the plots located on Classified Forest & Wildlands tracts.

Continuous Forest Inventory (CFI)

To supplement FIA data, the Division of Forestry is developing a continuous forest inventory on the Classified Forest and Wildlands parcels, with similar protocols as used on our state forest CFI program. We will be looking to capture change in cover type, volume, volume removed, and stocking levels by species group.

In 2008, the Division of Forestry began a continuous forest inventory (CFI) system on the State Forest System. This system was designed heavily from the Forest Inventory and Analysis (FIA) system, but at a much higher intensity. The CFI system that will be established on Classified Forest and Wildlands lands will be comparable in all aspects to the CFI system on the State Forest Properties. The primary difference is the sampling intensive will be lower. Like the property system, 1 panel or one-fifth of the plots will be measured each year.



Five regions have been identified based on natural regions with similar forest types. Region one contains the Southwestern Lowlands Natural Region, and the Southern Bottomlands Natural Region (tan). Region two contains the Shawnee Hills Natural Region (purple). Region three contains the Highland Rim Natural Region (green). Region four contains the Bluegrass Natural Region (blue). Region five contains the Grand Prairie Natural Region, the Black Swamp Natural Region, the Central Till Plain Natural Region, the Northwestern Morainal Natural Region, and the Northern Lakes Natural Region (red). CFI data will be significant at the CFI region level. Implementation of the CFI on the Classified Forest & Wildland Program will be dependent on budgetary constraints

Group Member Level

Forest growth and dynamics monitoring at the group member level will be consistent with the size of the certified tract. In general, due to the small size and the light intensity of management of most tracts, monitoring will be based on the qualitative observations rather than formal inventories. On large certified tracts (greater than 500 acres), depending on level of management intensity, inventories may be appropriate.

Marketing of Forest Products

Timber, Logs, Firewood, Chips, Pulpwood

Group members can market round wood (standing timber, logs, firewood), wood chips, and pulpwood as FSC certified. Group members will notify the District Forester before initiating a sale of forest products. The District Forester will provide information necessary to ensure that the

products removed may be marketed as FSC certified. Each group member must report the volume sold and buyer of forest products on the annual report.

The most commonly sold forest product from group member's property is standing timber. To maintain a FSC chain of custody, these members need to state the following information on the timber sale contract or other document that transfers ownership of the forest products from the landowner to the buyer. Each document must state:

"The timber or other forest products specified in this document are certified by the Forest Stewardship Council (FSC). The seller's FSC Certificate number is SCS-FM/COC-000123N. The FSC claim is FSC 100%."

All FSC certified products must be kept separate from non-FSC certified products to maintain the integrity of the chain of custody system. The most commonly anticipated occurrence is a timber sale that involves both FSC certified and non-certified forests. In these cases, the sales document or timber sale contract must separate out the FSC material from the non-FSC material in a way that makes it clear the volume of FSC material. Additionally, any cut logs or other products that are moved by the landowner or logger must be stored or marked separately. Each FSC chain of custody certified logger will have a documented procedure to identify and/or separate FSC from non-FSC material.

Timber from ICFCG lands sold on shares cannot be passed down the chain of custody unless the shares sale logger/consultant (outsourcing contractor) is FSC Chain of Custody certified.

Occasionally, forest landowners may choose to process their own timber into logs, firewood or chips:

FSC Product Classifications

W1 Rough Wood

- W1.1 Roundwood (logs)
- W1.2 Fuel Wood
- W1.3 Twigs

W3 Wood in Chips or Particles

- W3.1 Wood chips
- W3.2 Sawdust
- W3.3 Wood shavings
- W3.4 Wood wool
- W3.5 Wood flour
- W3.6 Wood pellets

P1 Pulp

- P1.2 Mechanical Pulp, unbleached
 - P1.2.1 Groundwood

- Maintain a system to assure that FSC material is physically separated from or otherwise identifiable from non-FSC material.
- Maintain sufficient records of FSC material harvested from FSC certified land and sold to assure that volume of FSC material sold during the calendar year does not exceed the volume on inventory.
- Sales invoices for products sold with FSC claims must include name and contact information for buyer and seller, date, product description, quantity and unit of measure, the member's FSC certificate number and the claim of "FSC 100%". Conversion factors must be provided for sales of products if units are other than board feet, Doyle scale. The member must provide a sample invoice stating the above information to the Division of Forestry upon request.
- Records of any approval for use of the FSC logo.

Non-timber Forest Products

Non-timber forest products (maple sugar, mushrooms, plants, etc) or manufactured timber products (lumber, tool handles, wood novelties, etc) shall not be marketed as FSC certified at this time.

Use of FSC Trademarks

Any use of the FSC trademarks for promotional use must be approved by the FSC Certification Body (SCS). Any member that intends to use the FSC logo must submit the proposed use including draft artwork to the Group Manager.

The Group Manager will review the artwork to assure the current FSC promotional panel has been used and basic compliance with FSC International Standard Requirements for use of the FSC trademarks by Certificate Holders (FSC-STD-50-001). If the promotional panel is missing or needs to be updated, the Group Manager will use the FSC label generator to generate the appropriate graphic. The Group Manager will also provide general guidance on using trademarks.

Once the artwork is complete, the Group Manager will send the request SCS for trademark approval. The Group Manager will notify the member or changes need or of approval. The Group Member and the Group Manager will keep a record of the logo approval in its file for future audit purposes.

Socioeconomic Issues

Public Access

ICFCG tract are privately owned and access is controlled by the group member. The group member is expected to allow customary uses of their land.

Contribution to the Economy

According to Indiana's Hardwood Industry: It's Economic Impact (http://www.in.gov/dnr/forestry/files/fo-IHI_economic-impact.pdf)

Indiana has 4.7 million acres of forest land, 85% of which is owned by private landowners. The total economic impact of the forest industry is \$17 billion. Every board foot of timber processed contributes \$51 to the state's economy.

The contribution of Classified Forest and Wildlands Program land is approximately 30 million board feet annually or about \$1.5 billion in total economic impact. Each acre of forest annually supports \$259 of hardwood industry wages paid. The approximately 500,000 acres of Classified Forest and Wildlands Program forest land contributes \$130 million in hardwood industry wages.

Changes in Forest Ownership

Privately owned forest land in Indiana, like the rest of the US, is being parcelized, or forest tracts are being subdivided into smaller parcels. Nationwide, the number of family forest owners increased from 9.3 million to 10.3 million during the 10-year period ending in 2003 (Butler and Leatherberry, 2004. American's family forest owners. *Journal of Forestry*. 102:4-9). This increase in the number of owners without a significant increase in forest acreage results in smaller average parcel size.

Most forest landowners in Indiana are older than the population average. Forty-two percent of family forest owners in Indiana are 65 years or older; 42% are retired (National Woodland Owner's Survey). This ownership pattern will result in the continual passing of land to new owners, frequently resulting in parcelization. The change in land ownership and smaller size of ownership could present problems to the collective management of the forest resource of the state and to the forest industry.

Soil and Water Conservation

Forests have long been recognized as the best protector of watersheds. However forest management practices, in particular logging, have the potential to negatively impact soil and water resources. The use of best management practices (BMPs) by loggers, landowners and land managers offers the greatest opportunity to reduce negative impacts and maintain water quality and other forest health goals.

Best Management Practices

Forestry best management practices are required during management activities conducted on ICFCG lands and should be included as a requirement in logging contracts. [The Indiana Logging and Forestry Best Management Practices 2005 BMP Field Guide](#) will serve as the BMP guidelines for the ICFCG. A copy of the document can be found on the Division of Forestry website: <http://www.in.gov/dnr/forestry/2871.htm>.

Monitoring of BMPs

At the group level, 10% of timber sales each year will be monitored for BMPs utilizing the standard Indiana Forestry BMP Monitoring form. The monitoring will be conducted by trained Division of Forestry personnel. The Division of Forestry will report annually on findings of BMP monitoring. Monitoring of 10% of timber harvests reported on the 2008 Annual Report has been completed. This will serve as a baseline for the group. A copy of the monitoring results is included in appendix A.

At the group member level, the district foresters will be involved in timber sales on group lands and will monitor the implementation of BMPs. The district forester will hold a pre-harvest conference with the landowner, professional forester, and logger. BMPs will be one of the discussion points. The district forester will be conducting at least one field visit during the active harvest and can monitor adherence to BMPs. A post harvest field visit will also be conducted and BMPs will be considered during this visit. Corrective action requests will be issued as necessary to insure compliance with the BMP guidelines.

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).

Recommendations 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.

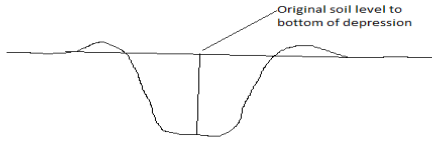


Figure 1 – A rut with the cross section for measure that is level with the original soil level.

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 since 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" in depth for less than 10' 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" or more in depth and be less than 10' 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.

Seeding of Disturbed Areas

The following guidelines for seeding of disturbed areas to prevent erosion are from the Indiana Division of Nature Preserves' "Options and Recommendations for Revegetation of Disturbed Soils Requiring Erosion Control" (1996).

The following are options for revegetating with regard to soil disturbance. Option 1 (and perhaps #4 on occasion) offers the most desirable example of habitat restoration, and #3 the least. Option #4 is to do no planting.

#1. Re-establish previously existing species of local genotype.

The ideal objective in revegetation following soil disturbance is to re-establish species of local genotypes that occurred naturally at the site prior to disturbance. If the site is within an area of existing native vegetation, revegetation can occur by natural seeding of those species that are in, and adjacent to, the disturbance. This is particularly feasible if the disturbance is small, such as a skid trail, but even on larger impacts this option can work because natural communities commonly contain accumulated dormant seed, and rhizomes, that will germinate and grow following the disturbance. If the site is not a natural community prior to disturbance, then proceed to Option 2.

Option #1 can perhaps best be accomplished by:

- avoiding activities that cause disturbance on steep slopes and / or slopes of especially erodible substrates
- mulching and establishing temporary annual species and/or short-lived perennials to control immediate soil erosion concerns and to allow time for native species to become established
- avoid the use of fertilizers, as this tends to encourage the grow of exotics (which compete with the native plants)

Species recommended for Option #1:

winter wheat (*Triticum aestivum*)

cereal (annual) rye grass (*Secale cereale*)

oats (*Avena sativa*)

Several varieties of the above go by various names and are widely available.

#2. Utilize nursery grown plants and seeds, but one appropriate for the natural community.

In this option nursery grown seeds and plants of native species normally associated with the current or pre-existing natural community of the project site are mechanically planted. Currently this works best in sites that occur in natural grassland areas, e.g., prairie, as a large commercial supply of seeds exists for plants of these communities. For woodlands situations, commercial availability of seeds is limited. It is best to acquire seeds that originated from plants occurring naturally in similar communities and as close to the site as possible. Seeds of plants from states

immediately surrounding Indiana are acceptable if unavailable from local sources. Seeds origination in states other than adjacent ones may possess undesirable traits. Also, it is best to avoid plants that have been bred for aggressive growth and/or reproduction (perhaps most cultivars).

In many cases, the selection of this option is the most difficult, in that the sower must know which species are appropriate for the natural community being treated. Determination can be made by careful study of the impacted site and environs and the utilization of manuals such as Flora of Indiana (C.C. Deam, 1941). Most of the species listed below are not normally found in forested sites, and thus using them would preclude the goal of revegetation with species truly native to the site. This is another reason why option #1 is best. However, this option is clearly better than #3. Other species for this option are available for purchase on a limited basis from native plant nurseries.

Species available for Option #2:

Indiangrass (*Sorghastrum nutans*), little bluestem (*Schizachyrium scoparium*), deertongue (*Panicum clandestinum*), Canada wild rye (*Elymus Canadensis*), switch grass (*Panicum virgatum*), Virginia Wild Rye (*Elymus virginicus*)*, Silky Wild Rye (*Elymus villosus**)

* 2009 forest seed recommendation additions provided by Tom Swinford, Regional Ecologist, Division of Nature Preserves

#3. Utilize non-invasive species.

If options #1 and #2 are not possible, at the very least utilize plants that will not spread into adjacent natural communities. Recommending plants that are acceptable for use is not without risk, as some of these may reproduce in certain situations and be invasive, while in others perhaps not. Caution should always be exercised with the use of exotics (regional non-native), as these are generally the ones that bring the greatest havoc to natural communities.

Species cautiously recommended for Option #3

Orchard grass (*Dactylis glomerata*), timothy (*Phleum pratense*), redbtop (*Agrostis stolonifera*), alsike clover (*Trifolium hybridum*), red clover (*Trifolium pratense*)

Although these species are capable of reproduction and spread – and therefore should be used sparingly—they are not known to be aggressively invasive. They probably are best used in larger openings rather than on skid trails, and should not be used at all in natural grassland areas.

#4 No planting.

If, following disturbance it appears that massive erosion is unlikely (e.g., on level topography, anticipated rapid natural invasion or leaf-fall), plantings, and/or sowing of seeds may not be necessary. A minimal amount of erosion on site, available to colonization by native plants, is preferable to erosion control coupled with the growth of aggressive non-natives. In fact, minor patches of erosion provide a niche for some natives requiring exposed soil for seed germination and reduction of competition. This option may not commonly present itself, but should be considered when conditions permit. Not every soil disturbance needs to be mechanically planted.

Commonly available species to avoid in all options:

These species are known to invade natural communities and compete with native species.

Smooth brome (*Bromus inermis*) and all other non-native brome species

Reed canary grass (*Phalaris arundinacea*)

Kentucky 31, tall or meadow fescue (*Festuca arundinacea*, *Festuca elatior* and *Festuca pratense*)

Crownvetch (*Coronilla varia*)

Birdsfoot trefoil (*Lotus corniculatus*)

Lespedeza –all non-native species including “Appalow sericea, Kobe, Korean, etc (*Lespedeza cuneata*, *L. striata*, *L. stipulacea*)

Clover (all except those listed in option #3)

Sweet clover (*Melilotus* spp.)

Autumn olive (*Elaeagnus unbellata*)

Fish & Wildlife

Group Level

Indiana Department of Natural Resources has a Division of Fish & Wildlife that is responsible for managing all wildlife in the state of Indiana. Indiana Code Title 14, Article 22, Chapter 2, Section 3 defines the Division’s authority and responsibilities:

The [Division of Fish and Wildlife] shall . . . provide for the protection, reproduction, care, management, survival and regulation of wild animal populations regardless of whether the wild animals are present on public or private property . . . [and] Organize and pursue a program of research and management of wild animals that will serve the best interests of the resources and the people of Indiana.

The Division of Wildlife will serve as the technical provider on issues of wildlife for the ICFCG.

Game Species

The Fisheries Section and the Wildlife Section of the Division of Fish & Wildlife deal with game species. The Fisheries Section is responsible for monitoring and research of the fish populations and aquatic habitats in Indiana’s freshwater lakes, streams, and rivers. Additionally, the operation of several state fish hatcheries provides a source of additional fish for stocking purposes statewide.

The Wildlife Section is responsible for managing 130,000 acres of wildlife habitat on 21 Fish & Wildlife Areas (FWA), providing technical and financial resources for wildlife habitat improvements on private lands, and conducting wildlife surveys and research. Wildlife biologists assist private landowners with recommendations for wildlife habitat improvements and wildlife population management strategies. Research/Survey biologists monitor game populations, wildlife disease, and conduct research.

Nongame Species

The Wildlife Diversity Section of the Division of Fish & Wildlife is responsible for the conservation and management of over 750 species of nongame, endangered, and threatened

wildlife in Indiana. Section staff includes a herpetologist, a mammalogist, an ornithologist and an aquatic biologist. Wildlife Diversity Section staff have statewide responsibility. The Wildlife Diversity Section will not provide recommendations on Indiana bat. For Indiana bat, the US Fish & Wildlife Service is the lead agency.

Group Member Level

Information regarding wildlife present on the ICFCG tract and management recommendations will be included in the tract's management plan. For game species and common nongame species, the district biologists will provide management recommendations or will serve as a technical resource for plan writers. The Division of Forestry's Forestry Wildlife Biologist will serve as the rare, threatened and endangered wildlife species technical resource for plan writers. The Forestry Wildlife Biologist will confer with Wildlife Diversity Section biologists as necessary to insure consistent management recommendations.

Rare, Threatened, Endangered Species

Group Level

The Indiana Department of Natural Resources, Division of Nature Preserves runs the Indiana Natural Heritage Data Center, which works to locate and keep track of Indiana's rarest plants, animals, and natural communities. They maintain an extensive database of these elements of natural diversity. The Indiana Natural Heritage Data Center is a part of an international network of Heritage Programs and Conservation Data Centers, and is a member of the Association for Biodiversity Information. (<http://www.natureserve.org/>)

The Division of Nature Preserves and the Natural Heritage Data Center will provide information on locations of rare, threatened and endangered (RTE) species and provide management recommendations for RTE plants and some insects for the ICGCG.

Group Member Level

Information regarding rare, threatened, and endangered species (RTE) will be included in the tract's management plan. Plan writers will check the Natural Heritage Database for known occurrences of RTE species. Field observations of RTE species should also be included in the plan. The Division of Nature Preserves will confirm new occurrences or RTE species and serve as the technical resource for management recommendations for RTE plants and some insects. The Division of Forestry's Forestry Wildlife Biologist will serve as the RTE wildlife species technical resource for plan writers. The Forestry Wildlife Biologist will confer with Wildlife Diversity Section biologists as necessary to insure consistent management recommendations.

Native American Concerns

The Division of Forestry has identified Native American Nations that have expressed interests in Indiana. The list, containing both federally and non-federally listed Tribes, was compiled from the Native American Consultation Database of the National Park Service and the Federal Highway Administration, Indiana Division list of "Federally Recognized Native American

Tribes with Ancestral Connections in Indiana” and from personal correspondence with the Indiana Division of Historic Preservation and Archaeology.

- Citizen Potawatomi Nation
- Delaware Nation
- Forest County Potawatomi Community, Wisconsin
- Hannahville Indian Community Council
- Kickapoo Tribe of Indians of the Kickapoo Reservation
- Kickapoo Tribe of Oklahoma
- Miami Tribe of Oklahoma
- Ottawa Tribe of Oklahoma
- Peoria Tribe of Indians of Oklahoma
- Pokagon Band of Potawatomi Indians
- Prairie Band Potawatomi Nation
- Shawnee Tribe
- Wyandotte Tribe of Oklahoma
- Miami Nations of Indiana of the State Of Indiana
- Wea Indian Tribe of Indiana, INC
- Wea Indian Tribe
- Kiskopo Band of the Shawnee Nation

Protection of legal and customary rights

The following is a list of Treaties enacted between the US government and Native American Tribes in Indiana. Details of the treaties are available online through the University of Oklahoma’s Indian Affairs: Laws and Treaties webpage (digital.library.okstate.edu/kappler/VOL2/toc.htm)

- August 1795 – Treaty of Greenville
- June 1803 – Treaty of Fort Wayne
- August 1804 – Treaty of Vincennes
- August 1805 – Treaty of Grouseland
- September 1809 – Treaty of Fort Wayne (“Harrison’s Purchase”)
- September 1817 – Treaty with the Wyandots
- October 1818 – Treaty of St. Mary’s
- August 1821 – Treaty of Chicago
- October 1826 – Treaty of Mississinewa
- September 1828 – Treaty of Carey Mission
- October 1832 – Treaty of Tippecanoe
- October 1834 – Treaty with the Miami
- November 1838 – Treaty with the Miami
- November 1840 – Treaty with the Miami (final secession of native land in Indiana)

Although none of the original Native American Nations’ landholdings remain in Indiana, the Division of Forestry recognizes that this does not preclude the existence of legal or customary rights. No legal or customary rights that would impact ICFCG tracts have yet been identified. If

in the future such rights are identified, the Division of Forestry will work with the specific Native American nation to insure the protection of those rights.

Management of Sites of Special Significance

In 2009 a letter was sent out notifying each group of the State's intention to enter the Classified Forest & Wildlands Program into green certification and asking for comments on the Program or for areas of which they may have concerns due to cultural significance. No responses were received. If sites of special significance are identified in the future, the Division of Forestry will work with the specific Native American nation to development management recommendations appropriate for the level of detail provided.

Cultural Resources

Indiana's cultural resources are regulated and monitored through the Department of Natural Resources' (DNR) Division of Historic Preservation and Archaeology (DHPA). DHPA is the central repository of the state's archaeological records and reports. Indiana Code 14-21-1 and Administrative Code 312 IAC 21 and 22 provide protection for archaeological sites on both private and public land and standardize archaeological work within the state. DHPA is tasked with the responsibility of regulating that work and governing the protection of these sites.

It is the intent of the Division of Forestry (the Division) to comply with all state and federal laws regarding archaeological sites and historic cemeteries on property within the Classified Forest and Wildlands Program. All district foresters will be trained in the recognition of cultural resources and to the procedures which they should follow in case a potential archaeological site is identified. Understanding of applicable state and federal laws will also be incorporated into the district forester's training.

In addition, at the notice of an initiation of a timber sale (either through the annual management plan or by contact with the district forester) a review of the project area for known archaeological sites will be conducted by the Division's forest archaeologist, under cooperation with DHPA. The district forester will contact the forest archaeologist with the pertinent information to perform the review (i.e. landowner's name, county, parcel id, etc.). If any known sites are identified by the forest archaeologist during the review, a letter will sent to the landowner informing them of the potential for cultural deposits and instructions or recommendations on policies and procedures available to them. This policy is being implemented in an effort to give the landowners the information and/or tools they need to make informed decisions about the management activities on their land and how these activities can affect cultural sites. It is the intent of the Division to encourage protection of all known significant sites from activities that might negatively impact them.

Pest Control

Pest species can be native or exotic (nonnative). The pest species of most concern are the exotic species with invasive characteristics because of the severe impacts they can have on natural communities. Below is a list of invasive exotic species known to occur in Indiana forests or natural areas.

Insects

- Asiatic Garden Beetle
- Banded Elm Bark Beetle
- Common Pine Shoot Beetle
- Emerald Ash Borer
- European Chafer
- European Gypsy Moth
- Granulate Ambrosia Beetle
- Soybean Aphid

Pathogens

- Bacterial Leaf Scorch, Pierce's Disease
- Butternut Canker
- Dutch Elm Disease

Plants

- Amur Cork Tree
- Asian Bush Honeysuckle(s)
- Autumn Olive
- Bicolor Lespedeza
- Black Alder
- Black Locust
- Black Swallow-Wort
- Buckthorn(s)
- Callery Pear
- Canada Thistle
- Chinese Silvergrass
- Chinese Yam
- Common Reed; Phragmites
- Creeping Charlie
- Creeping Jenny
- Crown Vetch
- Cut Leaved Teasel
- Dame's Rocket
- Garlic Mustard
- Giant Hogweed
- Japanese Hedge Parsley
- Japanese Honeysuckle
- Japanese Hops
- Japanese Knotweed
- Japanese Stilt Grass
- Kudzu
- Leafy Spurge

- Multiflora Rose
- Norway Maple
- Oriental Bittersweet
- Periwinkle
- Princess Tree, Paulownia
- Privet(s)
- Purple Loosestrife
- Purple Winter Creeper
- Reed Canary Grass
- Russian Olive
- Sericea Lespedeza
- Siberian Elm
- Smooth Brome
- Spotted Knapweed
- Star-of-Bethlehem
- Sweet Clover(s)
- Tall Fescue
- Tree of Heaven
- White Mulberry
- Wine Raspberry
- Winged Burning Bush
- Wintercreeper

The 2009 Indiana General Assembly passed House Bill 1457 (IC 15-16-10) that establishes an Invasive Species Council. The Council has broad duties and responsibility, including recommending laws, funding, priorities, projects, rules; communication, coordination of education and outreach programs, convening meetings, assisting state agencies, and reporting back to the legislature. The law became effective July 1, 2009. The Division of Forestry will monitor the activities and recommendations of the council and incorporate them into the ICFCG as appropriate.

The Division of Forestry and the Division of Entomology and Plant Pathology work together on major forest pest threats such as gypsy moth and emerald ash borer. Programs are in place to monitor and slow the spread of these two pests.

The Division of Entomology also helps and prevents the spread of pest species in the following ways:

- Certification and inspection nurseries and nursery stock, licensing of nursery dealers
- Apiary inspections
- Establish quarantines
- Biological control programs
- Phytosanitary program
- Exotic and Invasive plant survey & monitoring with some eradication efforts

Integrated Pest Management

ICFCG will use integrated pest management (IPM). IPM is a pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of complementary techniques including prevention, monitoring, mechanical controls, biological controls, regulatory control, cultural management, and chemical controls. IPM takes both environmental and economic impacts into consideration when developing a pest management strategy.

Use of non native species

Prevention is a key element of integrated pest management. None of the known exotic invasive species listed before should be purposely planted or released on ICFCG tracts. Non native species may be used as described in the *Seeding of Disturbed Areas* section of this document. Extreme caution should be used when using any non native species. Group members must document the use of non-native species and monitor the application site. If the non-native species begins spreading beyond the application site it should be eradicated.

Pesticide Use

Pesticide use is one tool available in IPM. In general non-chemical pest management which provides desired control and is cost effective is preferred.

High hazardous pesticides, banned by FSC, are not to be used on ICFCG. The use of a banned pesticide will result in the issuance of a corrective action request and possible removal from the certified group. More information on banned pesticides is available from district foresters and on the Division of Forestry's website (<http://www.in.gov/dnr/forestry/>).

All pesticides must be applied according to the label. Group members must keep records of pesticides applied to their certified forests. Landowner records should include the pesticide used, date, the reason for application, location of application, amount applied, and name of applicator. The group member must report pesticide use on their Classified Forest & Wildlands Annual Report.

The group manager will review pesticides reported on the annual reports and issue corrective actions as necessary.

Fire Management

The Division of Forestry, Fire Management Program provides organizational, operational and technical support regarding wildland and prescribed fire management. Indiana Code 14-23-5-1 outlines the Division of Forestry's fire responsibilities. The Division of Forestry assumes Wildland fire responsibilities on approximately 7.328 million acres of forest and associated wildlands. When the Fire Warden System was disbanded (late 1950s or early 1960s) the division reorganized to its current fire staffing structure. Due to limited staffing and the emergence of a stronger rural fire service, Fire Management Program serves as a "support" agency. Roughly 95 percent of all wildland fires in Indiana are suppressed by rural and volunteer fire departments. Our fire programs are thus geared to support an already existing fire service.

Wildfire

Group members should use caution when using fire on their property to prevent unplanned forest fires. In the event of a wildfire, the group member should contact their local fire department. After the fire, the group member should contact their district forester to discuss if any changes in management plan are needed to address the fire damage.

Prescribed Burning

Prescribed fire may be used as a management tool on ICFCG tracts as long as it is recommended in the management plan. The *Silvicultural Systems* section of this document discusses uses of prescribed fire in the forest management.

Special Management Areas

High Conservation Value Forests

The following ecological communities are considered high conservation value forests for the ICFCG:

1. Old Growth Forest

Old growth forest is defined as (1) the oldest seral stage in which a plant community is capable of existing on a site, given the frequency of natural disturbance events, or (2) a very old example of a stand dominated by long-lived early- or mid-seral species. The onset of old growth varies by forest community and region. In Indiana, remnant old growth forests are typically dominated by long-lived early- or mid-seral species, such as oaks. Depending on the frequency and intensity of past disturbances, and site conditions, old-growth forest will have different structures, species compositions, and age distributions, and functional capacities than younger forests.

The ICFCG recognizes two types of old growth on state forests that are differentiated by the historic occurrence of logging.

- **True Old Growth** (a.k.a. “Type 1 Old Growth”): Three acres or more that have never been logged and display old growth characteristics (see list below). Additionally, a stand of true old growth has no evidence of human-caused understory disturbance (e.g., grazing).
- **Developing Old Growth** (a.k.a. “Type 2 Old Growth”): 20 acres of forest that that have been logged >80 years ago¹ and retain significant old growth structure and functions. Additionally, developing old growth stands have had little or no human-caused understory or groundstory disturbance within previous 80-100

¹ >80 years since logging/disturbance on mesic sites; ≥100 years on drier sites with lower productivity.

years, depending on site quality². Examples of understory/groundstory disturbance could include, but are not limited to, prescribed fire and grazing.

Characteristics of Old Growth Forests in the Central Hardwood Region

- Mean age of dominant canopy trees >150 years old on mesic sites; ≥175 years old on drier sites.
- All-age stand structure with multi-layered canopy.
- All-age canopy gaps; gaps >7% of forest area.
- 10:1 live to dead tree ratio by size class (≥5" dbh).
- >20 canopy tree species.
- Most dead wood in advanced decay stages, rather than recent mortality with little decay; significant abundance of large diameter dead wood, much of it in advanced stage of decay.

Old Growth Management Guidelines

- ICFCG stands classified as either true or developing old growth shall be managed to maintain the values associated with the stand (e.g., remove exotic species, conduct prescribed burning, and thinning from below in forest types when and where restoration is appropriate).
- Permanent forest clearing shall be avoided within 100 feet of a designated old growth area. No regeneration openings (or portions of openings) should occur within 50 feet of an old growth area. All other forest management activities, including single-tree selection harvests, are permissible at any distance from old growth areas.
- Construction of new roads shall be avoided in designated old growth areas. Maintenance of existing roads is permissible if old growth characteristics are maintained in the area. In general, trail development or maintenance is permissible if old growth characteristics are maintained.

2. Intact forest block (>740 acres) in agriculturally dominated landscapes

Based on forest breeding birds studies, a forest patch >740 acres should be large enough to provide habitat for most forest species. 740 acres and greater would provide suitable habitat for more than 70% of the forest breeding birds in Midwestern fragmented forests (and, presumably, other taxa) and even the most area-sensitive forest bird species would be finding at least 'moderately suitable' habitat. If an ICFCG tract falls within a >740 acre forest block in the agriculturally dominated areas of the state, it would be a high conservation value forest and managed to maintain the forest cover. The Division of Forestry will work to increase the forest enrolled in Classified Forest & Wildlands Program in identified blocks.

3. Hemlock Stands

² 80 years for mesic sites; 100 years on drier sites.

Hemlock occurs in disjunct populations in Indiana. Where it occurs it should be managed to maintain it in the landscape.

4. Native Pine Stands

Pine stands of natural origin in northern Indiana are considered HCVF. The counties bordering Lake Michigan are within the native range of white pine and jack pine. Much of the forest in this area has been converted or highly fragmented. Any remaining naturally occurring stands of pine should be managed to maintain them on the landscape.

5. Sites Critical to Local Communities Traditional Cultural Identity:

No sites are currently known. If a community would identify such a site it would be considered for HCVF.

6. Communities Most Need of Protection (S1, S2)

The Division of Nature Preserves has identified those ecological communities that are most need of protection. In the Natural Heritage Database, they are given a s-rank of S1 (critically imperiled) or S2 (imperiled). ICFCG tracts that contain a community in most need of protection will be managed to maintain and enhance the community type. If the community type is not a forest, the area will not be target for conversion to forest. Below is a list of critically imperiled and imperiled community types. Descriptions of the community types can be found in *Natural Communities of Indiana*.

Common Name	SRANK
Siltstone Glade	S2
Bluegrass Till Plain Flatwoods	S2
Boreal Flatwoods	S2
Central Till Plain Flatwoods	S2
Dry Flatwoods	S2
Mesic Southwestern Lowland Flatwoods	S1
Mesic Floodplain Forest	S1
Dry-mesic Prairie	S2
Mesic Prairie	S2
Dry Sand Prairie	S2
Wet-mesic Sand Prairie	S2
Eroding Cliff	S1
Limestone Cliff	S1
Sandstone Overhang	S2
Sandstone Overhang	S2
Dry Sand Savanna	S2
Acid Bog	S2
Forested Fen	S1
Muck Flat	S2
Sand Flat	S1
Sedge Meadow	S1
Acid Seep	S1
Circumneutral Seep	S1
Forested Swamp	S2
Shrub Swamp	S2
Sinkhole Swamp	S1

Identification and Designation of HCVF

ICFCG tracts will be continuously assessed for the presence of HCVF by District Foresters during regular tract reinspections and other property visits. Candidate areas will be submitted by the District Forester to the Group Manager who will determine if further evaluation is needed. If further evaluation is warranted, the Group Manager will set up an assessment committee. Make up of the assessment committee will depend on type of HCVF. Based on the finding of the assessment committee, the area will or will not be designated as HCVF.

Representative Sample Areas

The Indiana Department of Natural Resources, Division of Nature Preserves' purpose is to protect the best remaining natural areas in Indiana. Indiana's Nature Preserve law sets forth a process of dedication for significant natural areas. The Division of Nature Preserves inventoried the entire state and identified good examples of ecological communities. These communities are included in the Natural Heritage Database. Representative sample areas for ICFCG will be those identified ecological communities that occur on ICFCG tracts and do not occur on any publicly protected land in a given natural region.

ICFCG tracts identified as being or containing a representative sample are will be managed to maintain and enhance the community type it is representing.

Mapping of Resources

The Division of Forestry uses ArcGIS to track and make maps of ICFCG resources. District foresters will provide group members maps of there forest resources in their management plans.

Safety

Group members and all others conducting management activities on ICFCG land are required to wear appropriate protective gear and to follow applicable OSHA regulations.

Training

It is an expectation of group member, group management, and persons recommending/conducting management activities will educate themselves on certification related topics appropriate for their role in the group.

Current Training Opportunities

Game of Logging- Coordinated through the Indiana Forest Industry Council (IFIC). The program offers 4 levels of cutter/faller training and 1 level of skidder training. Successful completion will satisfy the requirements for understanding OSHA 1910.266.

Best Management Practices- Coordinated through the Indiana Division of Forestry and focused on forestry professionals. Successful completion will prepare the participant to implement BMPs in forestry operations.

Pesticide Training- Pesticide use is regulated through the State Chemist's Office located at Purdue University. Training to become a Certified Pesticide Applicator is coordinated through this office. Successful completion of the required training assures that chemicals will be applied in a safe and responsible manner. A landowner does not need to become a certified pesticide applicator but must follow all label instructions or hire a certified pesticide applicator.

LTB Bulletin- the Licensed Timber Buyers Bulletin is a monthly publication of the Division of Forestry. It is distributed to approx. 650 licensed timber buyers and approx. 650 agents. We discuss certification issues routinely in this publication

State Forest on site training- The State Forest System is currently FSC certified. Many of the forest workers who work on state forest land will also work on private lands. The training and experience that these workers will acquire can be easily translated to work on private lands. The State Forest System also provides educational opportunities for the general public: field days, tour, onsite educational materials.

Attending meetings of professional groups and forest organizations- Division of Forestry personnel make presentations and conduct training for groups such as the Indiana Forest Industry Council, the Indiana Hardwood Lumbermen's Association, the Indiana Society of American Foresters, and The Indiana Association of Consulting Foresters, Indiana Forest and Woodland Owners Association. These training opportunities will include presentations at periodic meetings, field days, placing articles in the newsletters published by these organizations, or on-site training conducted at the request of an organization.

Division of Forestry web site- Publications and information on forest certification and a variety of other forestry and forest management topics are available for viewing and download from the Division of Forestry website <http://www.in.gov/dnr/forestry/>.