Indiana Department of Natural Resources
Division of Forestry's 2010 Annual Report

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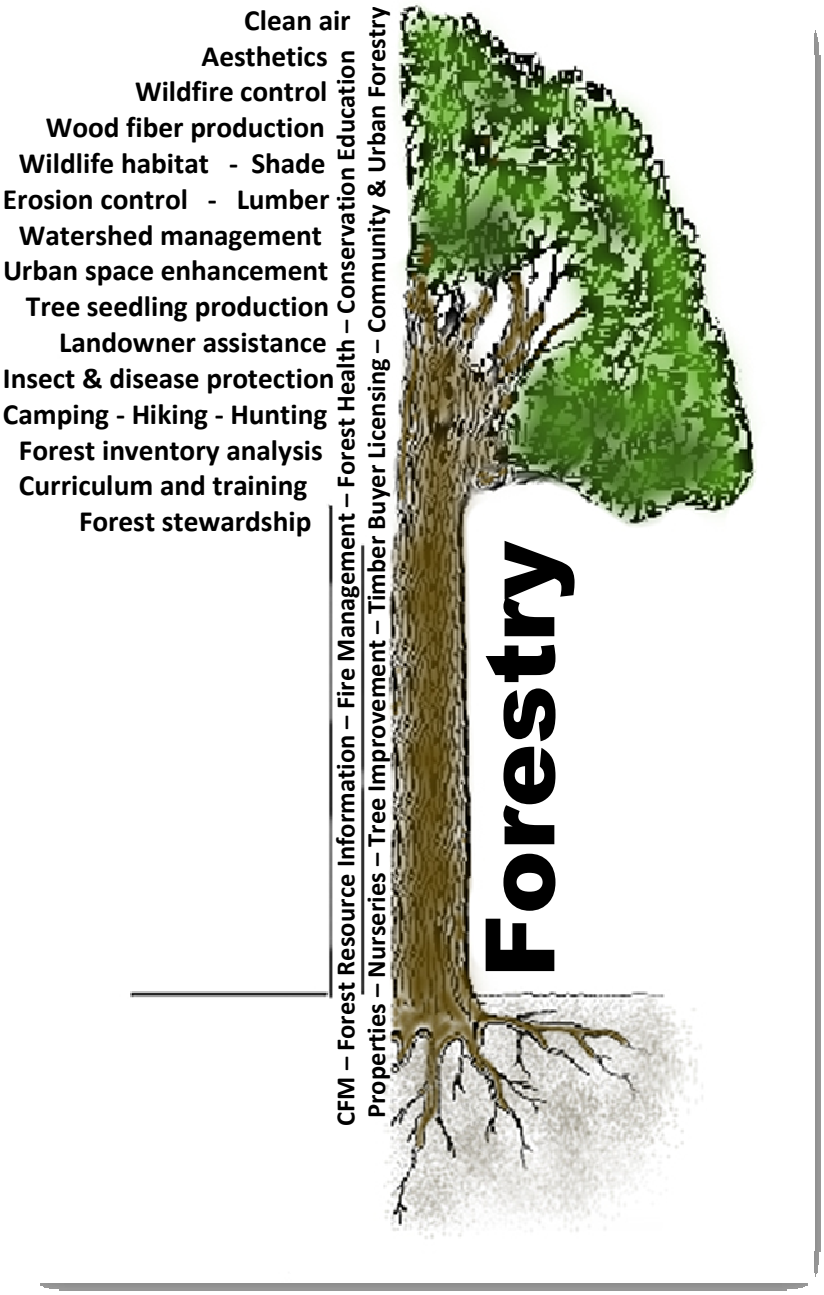

State Forest Properties

Forest Restoration Projects: More than 4,700 acres of forest restoration work on Indiana's State Forests was completed in 2010. This work positions these forests for continued health and productivity, providing jobs, wood products and other forest benefits for Hoosiers today and tomorrow. Primary work included reforestation of retired agricultural fields (117 acres), control of invasive plant species (403 acres), prescribed fires, timber stand improvements (3,996 acres) and wildlife habitat activity (213 acres).

Forest Conservation Land Acquisitions: With the down economic climate and tight budgeting land acquisition by the Division of Forestry was zeroed out for the first time in many years. At the same time there is an increase in the number of landowners interested in selling their lands to the State for long term conservation. In June 2010 Governor Daniels announced a major conservation initiative to conserve natural lands along 94 river miles of the Wabash River and Sugar Creek. And, a 25,600 acres along the Muscatatuck River. This initiative has since become known as the Governor's Healthy Rivers Initiative and will be the primary conservation land acquisition program for Indiana in the next few years

Forest 'Green" Certification: The 150,000+ acre Indiana State Forest system has been certified by both the Sustainable Forest Initiative and the Forest Stewardship Council since 2007. Independent 3rd party audits are conducted annually to assess compliance with certification standards. Audits in 2010 were conducted by Scientific Certification Systems and successfully completed with high marks and no corrective actions, or non conformities noted. Forest Certification allows wood products harvested from the State Forest system to participate in the global market of 'green certified' wood products.

State Forest certified wood products: Under rigid management and harvesting criteria the Division of forestry sold 9.77 million board feet of 'green' certified wood with gross revenue of $2,368,521 in fiscal year 2009-2010. These managed harvests were spread over 4,600 acres of the State Forest system. Fifteen percent of proceeds are allocated to county governments to help support their Volunteer Fire Departments. Annual timber growth on the State Forest system is 29.7 million board feet, with an annual harvest target level set at 15 million board feet (50% of growth).

Forest economy: The Division of Forestry expanded its Chain-of-Custody group to 49 member companies (Up 23%). This program allows small Indiana wood and forest product businesses to participate in the certified wood economies at low costs. Chain-of-custody is the process that reassures consumers that the products they buy that are labeled as "green" certified are actually grown and manufactured under controlled processes.

State Forest YHCC: The Young Hoosiers Conservation Corp provided much needed labor and staffing during the summer and early fall recreation season. They helped fill a void created by hopefully temporary state funding reductions to adequately pull us through the season and completed many important projects. In total they work on over 100 forest projects including conservation tree plantings, recreation trails, building and fire tower rehabilitation, forest improvement projects, guest services and more.

State Forest Recreation and Outreach: The primary State Forest Camping Season concluded in mid October with a steady stream of outdoor enthusiast and hunters enjoying early winter camping in November. Camping receipts during this was over $560,000 with 80% of the income coming from Deam Lake and Starve Hollow Lake State Forest Recreation Areas which have Class A or higher facilities. It is estimated that over 20,000 visitors attended or participated in outreach and educational programs offered by State Forest and recreation areas in 2010. These programs provide opportunities for public comment on property management and learning experiences for visitors and families.

State Forests have become popular destinations for horse enthusiasts. Improvements at Deam Lake's horse facilities have, for the most part, been completed and attendance is up considerably.

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Forest Resources Information

- Provided 703 technical assists upon request to various customers on topics of marketing, utilization, and efficiency, Best Management Practices, and forest resource and industry data.
- Provided various training opportunities (log, lumber, tree grades workshops, chainsaw training, Best Management Practices, SFI, etc) to 216 attendees for a total of 622 contact hours. Those attending were a combination of professional natural resources personnel and forest industry professionals.
- Coordinated 4 Field Days/Industry Education/Industry tour with an attendance of over 180 people.
- Coordinated 4 Landowner Outreach meetings focused on what to do if thinking of selling their timber. Attendance and response was outstanding. Approximately 170 people attended the 4 sessions.
- Division of Forestry's/Forest Resources Hardwood Economic Development Specialist attended 3 overseas trade shows. From these emerging market trade shows and/or mission we were able to secure over 52 trade leads/opportunities all with purchasing potential. Furthermore, thru our association with the Hardwood States Export Group we received an additional 90 prospects desiring our Indiana hardwood products. All these trade visits and leads were paid for by using Federal dollars resulting in no Indiana tax dollars spent.

- In conjunction with DNR/DoF and Indiana State Department of Agriculture (ISDA) the first ever sponsored reverse trade mission was hosted in May. Six hardwood manufactures/traders from Istanbul, Turkey spent three days touring Indiana hardwood/veneer manufacturing facilities which received great press coverage.
- Private contractors collected forest inventory data from 550 plots across the state. The information, collected annually provides an excellent picture of the forest resource in Indiana.
- The Forest Resources Information (FRI) section concluded its second year of the Continuous Forest Inventory (CFI) program this year. The program which closely resembles the USDA Forest Inventory and Analysis program will program an up close view and provide valuable, timely, and current data regarding the forest resource on our State Forest properties. Data was collected from 750 plots. Another inventory program coordinated by FRI was initiated this year. Field crew personnel collected data from approximately 500 plots on randomly selected private lands enrolled in the Classified Forest/Wildlands program.
- In the 2010 Timber Buyer licensing year, we issued new licenses for 38 Timber Buyers and 114 Agents and Renewed 549 Timber Buyers and 1076 Agents, giving us a total of 587 Timber Buyers in the 2010 licensing year and 1190 total Agents.
- In 2010 we monitored 62 timber harvests on both public and private lands for compliance to accepted Indiana Forestry Best Management practices.

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Community & Urban Forestry

Our mission

The Community and Urban Forestry (CUF) program provides statewide leadership to increase public awareness of the value of trees in the urban forest. CUF program assistance includes visits to municipalities to encourage and promote the protection, expansion of urban forests. This assistance takes the form of reducing the impacts of land use change by preserving, conserving, and restoring the urban forest, development of urban forestry management segments into related municipal department work, simple and comprehensive tree inventories with management and work plans, and emergency response plans. Tree planting assistance focuses on strategically planting trees for their ecological benefits on the environment and human health. The program strives to help citizens make the connection between rural and urban forests and to incorporate the ideology that the urban forest is part of the community infrastructure. CUF achieves its mission by nurturing and forming a variety of partnerships throughout the state with its innovative grant, education, and outreach programs.

2010 Program Highlights

The CUF program continues work with 117 cities and towns throughout Indiana who are in the developing or managing phase of urban forestry management programs. Volunteers specific to the CUF program, Indiana Community Tree Stewards now numbering 1091, and volunteers

throughout the state working with urban forestry non profits contributed over 73,920 hours of volunteer service to their state and local urban forestry programs. These volunteers contribute their skills and time to advocate for the urban forest, plant trees, act as tree planting team leaders, serve on publication and display committees, instruct at our many workshops and Indiana Community Tree Steward courses, serve on tree boards and nonprofit boards, assist with street tree inventories, work with youth empowering them to engage with their communities to plant trees and advocate for positive environmental change, and present topics on their professional focus at IU and Purdue urban forestry and arboriculture classes.
Last year, in spite of the recession, CUF certified 66 Tree Cities as part of the national Tree City USA program-15 of which were awarded the Growth Award for urban forestry excellence, four Tree Campus USAs, and four Tree Line USA utilities.

Kendallville Mayor Suzanne Handshoe and the new Tree Board show Tree City pride at 2010 Arbor Day event.

Grant project highlights

By providing grant dollars to our partner cities, towns, and non profits who know the value of the urban forest, CUF was able to expand awareness of the environmental value of the urban forest throughout the state and, through these partnerships, provide services and assistance to over 3,551,440 Hoosiers. CUF provided $144,700 in federal grant dollars to 19 cities, towns, and non profits throughout the state. The grant was called Make your Trees Count and included the following projects: Twelve street, park, woodland with an I-Tree Streets component for the functional value of the resource, a brown field air and water quality tree planting project was implemented in Kokomo at a reclaimed Superfund site; trees were planted on Pogue's Run by Keep Indianapolis Beautiful to restore a wildlife corridor that is now an urban wildlife corridor; and a tree demonstration project was implemented in five areas in 10 counties by Hoosier Heartland RC&D to provide interest in planning and planting for storm water interception and air quality, and three tree planting projects were implemented to restore losses and potential losses from Emerald Ash Borer.

One project called Muni Trees was key in forming new partnerships and generating awareness of the value of correct urban forestry arboriculture practices. The scope of the project, called Municipal Tree Works (MUNI Trees) was to offer hands on-interactive-opportunities for pruning and maintenance to municipal personnel. This has been a dire need in Indiana communities, and the response was overwhelming. The day long instruction was taught by the Purdue Extension Urban Forester. It included a little lecture and a lot of hands on work. Response was very positive with over 50 participants. Hosts included Vincennes University at Jasper,

Noblesville Street Department, and Franklin Street Department. The project engaged municipal workers who are given the task to "trim the trees" but not given instruction on how to do that, thereby creating friction within the community. The success of MUNI Trees will be replicated next year in other regions of the state.

MUNI Tree participants focus on correct pruning techniques to keep the urban forest healthy in Noblesville.

Project: ArborMaster Course: With the high cost of professional arboriculture courses, and the economic woes making training prohibitive, we worked with Indiana Urban Forest Council and the Indiana Arborist Association to present Arbor Master courses at ½ cost. We requested that participants give back by offering a day of maintenance service to their local community. The 10 participants have given back to local parks and schools in their communities. This type of training in invaluable for professional certified arborists and will help to increase the quality of tree care on public and private urban lands.

13 Indiana arborists received $1,000 week-long Arbor Master instruction for $295.00 and committed to a day of volunteer arborist services to communities such as Anderson's Shady Side Park.

Project: SUSI Tools Fact Sheets. This grant project included a committee from the Indiana Urban Forest Council who worked diligently to write, design, and produce fact sheets that address the water, air, social benefits, urban woodlands, and economics of the urban forest. The scientific information for this unique tool was taken from the Sample Urban Statewide Inventory (SUSI) 2008 project which consisted of a sample street tree inventory and data analysis of the urban forest population in the state. The final product was assembled by a team of Indiana Community Tree Stewards and mailed to all Indiana state and federal representatives, 567 cities and towns, extension, Soil Water Conservation Districts, resource and conservation districts, and parks within the state. Each fact sheet explains the crucial need for the urban forest to specific groups, and lists challenges in 'mitigating the issues', and solutions to meet the challenge.

Project: The Indiana Big Tree Register 2010 was completed. This year long project is a partnership with Cooperative Forest Management District Foresters, the CUF Program, and the Indiana Urban Forest Council, Inc. Interspersed throughout the booklet are urban forestry facts unique to the Hoosier state from the sample urban statewide inventory (SUSI) along with Indiana facts on our rural forests. This partnership brings urban and rural forestry together and demonstrates the importance of both to all of our customers. The full color publication was sent out to over 1,500 customers throughout the state. Comments from customers rate this BTR as the best ever--one Indiana can be proud of. A photographic display of some of the more significant big trees in the state currently graces the walls of the Natural Resource Education Center (NREC) at Fort Harrison State Park and will also be on display at libraries throughout Indiana during the coming year.

The state champion Blue Ash (*Fraxinus quadrangulata)*is at home in Terre Haute and ready to face the onslaught of Emerald Ash Borer.

With a limited staff, CUF depends on its partners to expand and share the information provided to them by CUF We offer the tools and training that moves our municipals forward so they can expand their efforts. Fortville, Tree City USA, not only expanded their Arbor Day/Tree City event, they brought in new partners who, for the first time, were able to learn the value of trees in their community. Their Pancake Breakfast event involved the Optimist Club and the FFA. The event became a fund raiser for the FFA when their funding was cut. The event brought together pancakes, FFA students and parents, the Optimist Club, and a mix of citizens present for the breakfast. The syrupy treat kept them all sticking together to learn about the community Tree City USA award and the value of trees. The end of the morning found FFA students digging holes on a misty morning as they learned how to plant trees in their urban forest.

Fortville, Tree City USA engages new groups to help care for the urban forest.

Summary
The year ended with the Green Team III working with the State Urban Forestry Coordinator to help plan and develop the state program for the next five years. Members of the Green Team III included a variety of Indiana professionals and volunteers who have a stake or must work within parameters of urban forestry practices. By the end of the day, the team had listed goals for the next five years that will fit within the framework of the State Resource Assessment Strategic Plan. The plan will be presented to the Indiana Urban Forest Community at the 2011 winter conference of the Indiana Urban Forest Council.

It was a busy year for CUF, and we are proud of what a staff of one coordinator, one volunteer coordinator/urban forester, and one part time grant administrator can accomplish. CUF is very grateful to the Indiana Urban Forest Community for their dedicated -community and statewide professional and volunteer- efforts to enhance the environmental health of our cities and towns utilizing the multi- purpose natural resource tool-the urban forest.

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Conservation Education

Project Learning Tree is a curricular supplement used nationwide to introduce pre-K through 12 students to complex environmental issues, using the forest as a “window to the world”. In 2010, there were nearly 700 educators trained in the program. Thirty-one facilitators were trained in the new Environmental Experiences for Early Childhood at a retreat in March, including five new facilitators. More than 175 early childhood educators throughout the state were trained in the new materials. The strongest area of the program continues to be the training of preservice teachers. Fifteen colleges and universities either integrated PLT into their methods courses or held workshops to prepare almost 400 teachers-in-training to use the program.

Time donated to the state by facilitators and other volunteers totaled more than $70,000.

The **Indiana Demonstration Forest Program** identifies private forest landowners who are doing an exemplary job of forest management and assists in networking those landowners with others interested in improving and/or diversifying their forest management practices. There are currently 27 private woods desiganated as Indiana Demonstration Forests. In 2010 there were 5 field events hosting 406 people.

As a means of both education and public outreach, the Division of Forestry relies on its **website development**. Significant changes were made to the Division's website during 2010 including the addition of the 2010 Big Tree Register, an extensive Forest Stewardship Coordinating Committee page, and digitizing all Division publications (with the exception of property maps) so that they can be printed from the website.

A new interactive map of all state properties was also introduced this year that allows website visitors to select properties by type, name or county location, and to zoom in for a close-up look at an aerial view. In total, there were 185 changes made to Forestry's website in 2010 with an average turn-around time of 1.06 days. In 2010, there were more than 133,000 visits to the Division of Forestry's website, with webpages of our state forests, recreation areas and nurseries being the most popular.

For the fifth consecutive year, Indiana hosted the National FFA Convention and the Division of Forestry conducted the **Forestry Career Development Event**. This year forestry teams from 40 states competed, with the team from Missouri placing first, followed by teams

from Minnesota and Georgia. The event challenges students' knowledge of forest management, woods, tree and equipment identification, use of maps and compasses, forest economics and other aspects of forestry.

The Division's 2010 **Arbor Day** activities reached more than 5,600 people at 41 events throughout the state. Programs included presentations for school groups, Tree City USA gatherings, tree seedling distributions, forestry field days, group tree plantings and other public events.

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The last Friday of April, a day to put down roots...

Fire Control Headquarters

Executive Summary

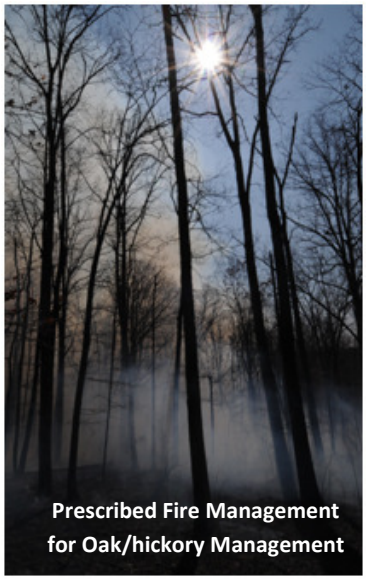
2010 proved to be a year of extremes with relation to weather patterns. A warm, wet spring gave way to one of the warmest and driest summer/fall periods on record. This year was dominated by the very active summer/fall fire season which demanded the focus of all personnel to concentrate on fire suppression duties including fire operations, prevention, inter-agency coordination and above all providing for fire and responder safety on dynamic firelines. The predominance of fire suppression duties, however, did not preclude the fire staff's ability to make significant strides in other program areas including Volunteer Fire Assistance grant management, training of fire personnel, Federal Excess Property to Fire Departments and Fire Prevention and Education.

Fire Operations

Again, this year was dominated by the well-above average fall fire season which resulted in increased fire suppression operations and difficulty in meeting the overall prescribed fire management goals established for the year.

- Fire Suppression Operations
  - 36 Fires burning 847 acres.
  - Numerous technical / tactical assists (estimated to be 75+).
  - No personnel injuries or losses of equipment.

- Prescribed Fire Management
  - 36 Prescribed Fires managing 3,388.5 acres.
  - 3% short of the established goal due to high to extreme fire weather predominating the late summer and fall months.



Prescribed Fire Management for Oak/hickory Management

Night Fire Suppression Operations – Common 2010 Scenario

Volunteer Fire Assistance Grants

The Volunteer Fire Assistance grants leverage federal funding from the USDA Forest Service against rural fire department funding to benefit both volunteer and rural fire departments with acquisition of needed safety equipment, water handling equipment, training and other items critical to effective rural fire protection. Seventy rural Indiana fire departments received grants totaling $567,456.28.

Dry Hydrant for water access to rural ponds and waterways.

Federal Excess Property Program

The Federal Excess Property Program (FEPP) enables the Division of Forestry to screen and acquire federal property for distribution and service. While this particular program is noted for providing many rural departments with four-wheel drive vehicles typically used as brush rigs, many other items intrinsic to rural fire protection such as generators, tankers, pumps, etc. are also made available. Most notably this year, the closing of Newport Chemical Weapons Depot made large quantities of specialized and relatively costly hazardous materials handling supplies and equipment available. A complete and serviceable decontamination trailer valued around $100,000.00 was put into service in the Southern part of the state for incident response. Another example of the "bumper" year was the distribution of many hazard material suits with the State Fire Marshal's Office assisting with proper distribution information.

- Acquisition value in excess of $1,700,000.00 in non-consumable items documented and put into service by rural fire departments across the state.
- A large quantity of consumable items including small tools, disposable ("one-time-use") items and miscellaneous equipment was also acquired and distributed to the rural fire service.

Fire Prevention

The increased fire activity resulting from the dry conditions throughout the summer and fall months prompted a different approach for fire prevention programming. Working in unison with the State Fire marshal's Office, Fire Headquarters personnel coordinated a three well-received webinars targeting three distinct user groups: 1. Fire fighting personnel. 2. Local government officials. 3. General Public. Each "pod-cast" focused on user-group specific topics with all focused on fire prevention, safety and awareness. Additionally, many other prevention related activities go undocumented due to the method of delivery. One example that was generated this year was a three-part series of "Wildland Tailgate" safety meetings. Each of these were sent to departments with the intent that personnel would take the time to casually discuss important safety and tactical topics spurred on by these concise and illustrated training aids.

- The prevention programs reached more that 68,000 persons in 2010 not counting those who were reached by the pod-casts and other media related deliveries.
- Programs were presented at county fairs, State Fair, health & safety fairs, schools, youth groups, etc.

Fall Foliage Festival Parade

Training and Personnel Management

Fire Headquarters personnel presently track the training, experience and qualifications for 1,209 wildland fire qualified personnel in the state within the Incident Qualification System. This year a migration was made to a web-hosted secure database for tracking resources. This upgrade improves the ability for resources to be moved from one agency to another and facilitates more efficient resource mobilization. The growing pains are almost complete and some of the benefits are being realized with this new way to do business.

With regard to training, again the activity of the fall fire season precluded some of the training accomplishments due to Fire Headquarters suppression obligations and fire personnel not available due to suppression responsibilities.

- 10 individual courses ranging from one day to five days instructed.
- 181 hours of classroom instructor time.
- 375 personnel trained.

Summary

The challenges presented this year were overcome with sound accomplishments both on the fireground and within each specific core area of the fire program. Each of the core areas produced highlights this year, most of which were either directly or indirectly related to the response to 2010 summer/fall fire season. This fire program continues to adapt to changes in staffing and budget while also maximizing the performance of each of the core areas of the program. Now that 2010 has come to a close, we take on the challenges of 2011 with a focus on personnel preparedness including training and personal protection.

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Tree Seedling Nurseries

Nursery/Tree Improvement Section

The past year continued with its economic downward trend. Seedling sales were at 3.3 million generating $1.68 million in revenue from over 50 species of trees and shrubs. Five planting-specific packets were also made available for sale to the public, as well as our continuation with the “Select Line” of

tree seedlings. Arbor Day celebrations continue to be highly attended as approximately 60,000 seedlings were provided for these various events statewide. Government tree planting programs again had sign up periods which should help sales in the future. Seed was very abundant to help reach customer needs for increase planting.

The YHCC program provided youth to assist with many nursery projects. Along with our DOC work crew, this made up our summer labor force. Seedbed maintenance, grounds upkeep, painting projects and installing vinyl siding were a few of the many projects completed by YHCC workers. Our partnership with DOC continues to be vital in our efforts to meet our customer needs while living within our increasingly tight budgets. The use of the northern nursery as a distribution center and seed buying facility remain as an effective means to service the northern half of the state.

Irrigation was the word of the summer as a severe drought had its grasp on seedling stock. Countless hours of irrigation eased the pressure from a very limited supply of rainfall. Along with various cultural practices, seedling inventory remained high to offer Indiana citizens a variety of seedling choices.

Seed for Nursery use was plentiful this year from many species. Seeds from Tree Improvement seed orchards were collected from 15 various species. A total of 2.9 million seeds were collected from these orchards for fall sowing. Newly established seed orchards continue to be a high priority for use in the future to provide us with seed. Indiana is also participating in a multi-state Butternut germplasm preservation grant. This work is to help save a threatened tree species.

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Forest Health

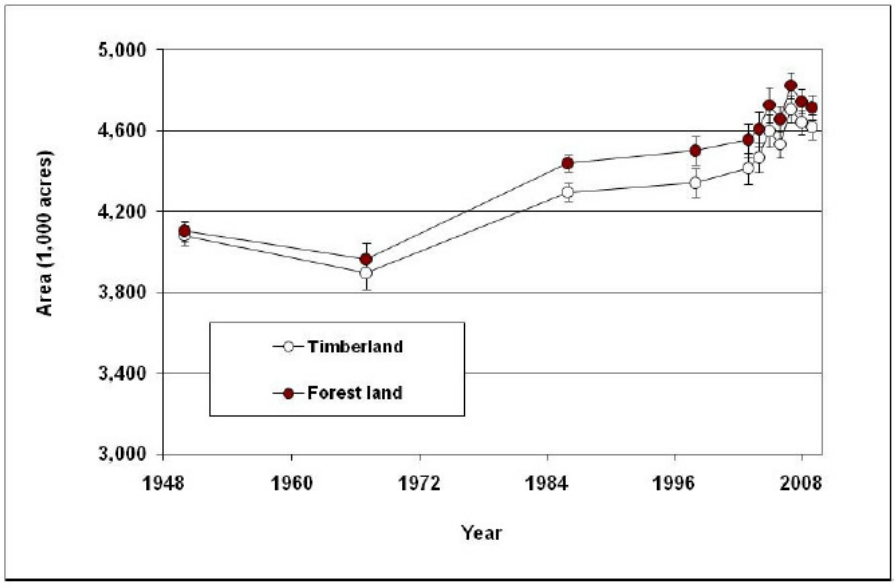
Brief Summary: The 2010 growing season's major forest health problems are gypsy moth and emerald ash borer. Other health problems include the spring floods and the summer drought that continues into the fall and winter. The recurring forest health issues continue to be oak wilt mortality in northwestern Indiana, white oak mortality in southern Indiana, butternut canker, ash yellows, white pine root decline (*Procera* root rot), aging pine plantations and hardwood forests.

2010 Indiana
Forest Health Highlights

1. Indiana's Forest Resources

Approximately one of five acres in Indiana — 4.7 million acres (including reserved or low-productivity land) — is covered in forest. Forest land increased from 3.896 million acres in 1967, to 4.342 million acres in 1998, to 4.714 million acres in 2009. Private forest land is 84% and public forest land is 16% of all forest land. Indiana has surprisingly diverse forests, encompassing northern maple / beech / birch types to southern bald cypress swamps, and dominated by oak-hickory type in south central Indiana. More than 85 different tree species grow in Indiana forests. Hardwoods occupied nearly 97 percent of this area, with the remainder classified as softwoods or nonstocked. Reflecting the effect of past glaciations, forests exist in large consolidated blocks chiefly in the hilly southern part of the state. In the northern two-thirds of the state, forests generally occupy scattered woodlots, wetlands, and riparian corridors.

Indiana forest areas.



Growing Stock Volume

The total growing-stock volume on forest land has increased 7.7% since 2004. The net volume of growing-stock (trees with a DBH greater than or equal to 5 inches) on forest land in 2009 totaled 9.7 billion cubic feet, almost four times the 2.5 billion cubic feet estimated during the 1950 inventory.

Forest Products

Indiana ranks 9th nationally in total lumber production and 3rd in hardwood lumber production. Indiana forests contribute over $17 billion annually to Indiana's economy. In 2005, Indiana's primary wood-using industry included 212 sawmills, 13 veneer mills, two handle plants, one pulp mill, and eight mills producing other products. Direct employment within the industry accounted for over 38,000 people and indirectly, the industry supports over 90,000 jobs. Forest-based manufacturing provided $3.77 billion in value-added, $8 billion in value of shipments, and a payroll of $1.4 billion to Indiana's economy in 2006. More than two-thirds of the 84.2 million cubic feet of industrial roundwood harvested in 2005 came from south-central and southwestern Indiana. Saw logs accounted for 90 percent of the total harvest, with other minor products—primarily veneer logs, pulpwood, handles, and cooperage—making up the rest.

2. State Forest Health Issues – An Overview

The **2010 growing season's major forest health problems** are gypsy moth and emerald ash borer. Other health problems include the spring floods and the summer drought that continues into the fall and winter.

The recurring forest health issues continue to be oak wilt mortality in northwestern Indiana, white oak mortality in southern Indiana, butternut canker, ash yellows, white pine root decline (*Procera* root rot), aging pine plantations and hardwood forests.

Other future forest pests of concern (but not yet encountered) for Indiana in 2010 continue include the exotics – Sudden Oak Death, Hemlock Woolly Adelgid, Beech Bark Disease and Red Bay Wilt. Of recent concern is Thousand Cankers Disease of Black Walnut that was detected in Tennessee in July of 2010.

Also of concern are **Invasive plants** that have potential to affect Indiana forest regeneration and biodiversity. Currently, the kudzu eradication program continues to eradicate locations with the goal to remove kudzu from Indiana.

3. Exotic Insect Pests of Indiana Forests

Two exotic major insects of concern - Gypsy moth and Emerald Ash Borer - continue to dominate the state resources for monitoring and management activities.

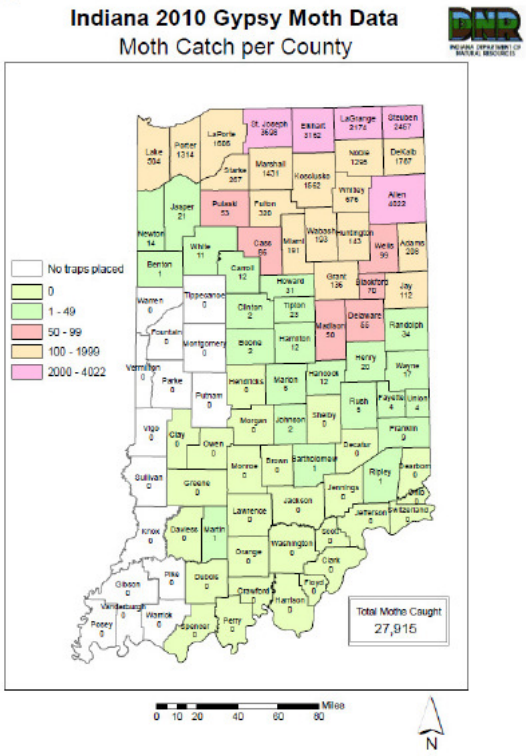
1. Gypsy Moth – *Lymantria dispar*

The 2010 Cooperative Gypsy Moth Survey completed its 23rd year of the statewide survey. The survey is part of the Slow-The-Spread (STS) Program and uses the STS protocol for its' design and operation dividing the state into three zones - the STS Evaluation Zone, the STS Action Zone, and the State Area (Figure 1). The survey design used fixed 5K, fixed 3K, fixed 2K and rotating 3K, respectively, for the three zones. Across all zones, the survey set 13,713 traps all referenced by GPS. Fifteen counties in the state area were not trapped this year, compared to twenty one

counties not trapped in 2009, mostly for economic reasons, but also because of negative trap catches in previous years. There are plans to survey these counties in 2011.

Figure 1: STS Action/Evaluation Zones for 2010

Figure 2: Number of male moths caught per county in 2010



The survey detected 27,915 moths from 52 counties ranging from 1 to 4,022 moths per county (Figure 2). This year's moth catch is 17,602 fewer from last year's high number of 45,517 (Table 1). Even though the moth catch is significantly lower than 2009, STS data indicates a slight spread into counties south of the action zone. Positive traps occurred throughout the Action Zone with most of the positive traps in the central area of the Action Zone.

Table 1: Number of male gypsy moths caught in the three survey areas from 2008 to 2010.

Year	STS Evaluation Area	STS Action Area	State Area	Total
2010	16,202	11,534	179	27,915
2009	39,637	5,734	146	45,517
2008	42,726	321	82	52,129

The results of the 2010 survey found that the majority of the moth catch was in the Evaluation Zone (Table 1). The Evaluation Zone, which includes the quarantined counties of Steuben, LaGrange, Elkhart, Noble, St. Joseph, Porter, Allen, and DeKalb, detected 58.0% of the moths (16,202 of 27,915). The northern third of the state falls in the Action Zone, which is below the Evaluation Zone under STS protocol. The Action Zone detected 41.3% of the moths (11,534 of

27,915). The majority of the Action Zone moth catch occurred in the northern and eastern parts, adjacent to the Evaluation Zone. The State Area detected 0.6% of the moths (179 of 27,915).

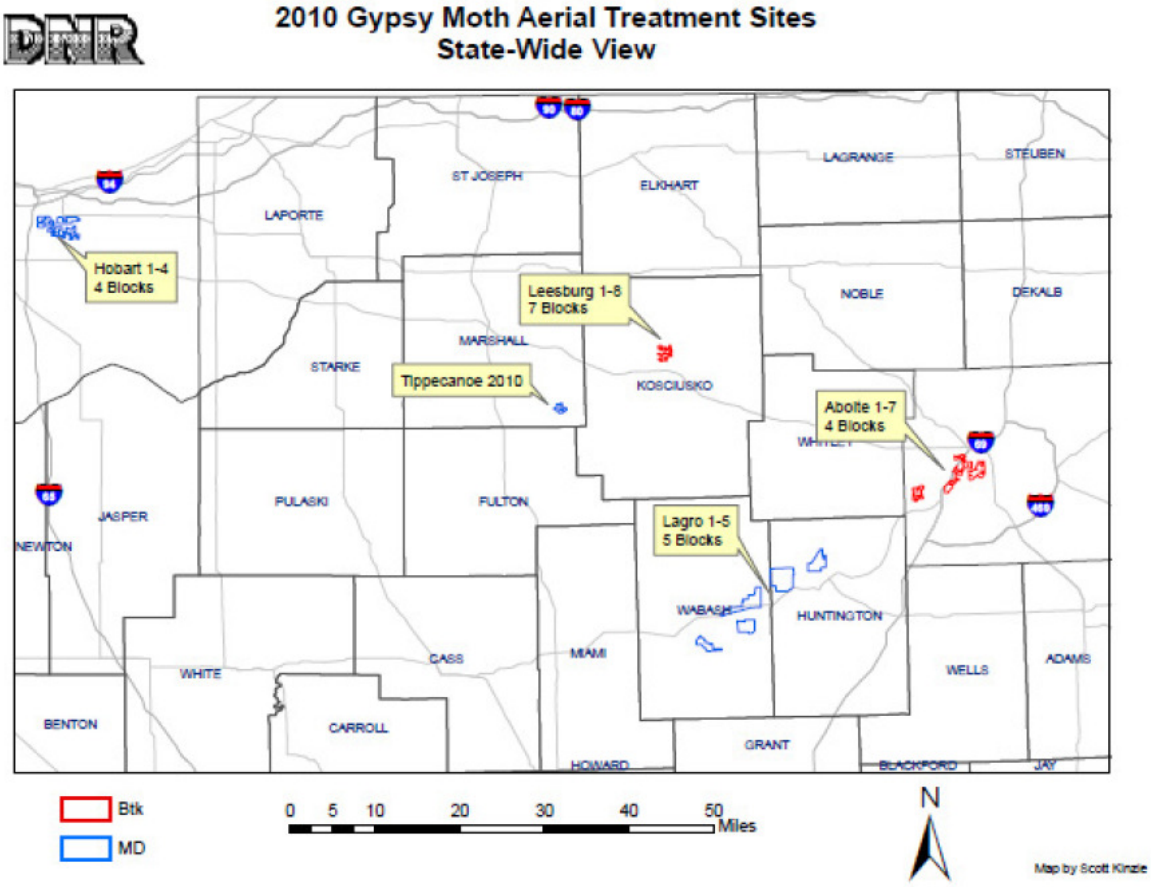
Since the survey began in 1972; 419,040 moths have been caught in 90 of the 92 counties. Gypsy moth has not been detected in Dubois and Sullivan Counties since surveys began in 1970.

Btk (*Bacillus thuringenisis kurstaki)*: Treatments to slow-the-spread and development of gypsy moth were conducted on 2 sites divided into 11 blocks totaling 5,111 acres in two counties (Figure 3). All 11 blocks were treated with Btk at 25 BIU/acre with two applications each for a total of 10,222 treated acres.

Mating Disruption: One site with 4 individual blocks totaling 3,750 acres was treated with pheromone flakes (Disrupt II, Hercon) at 6 gm/acre. Two sites divided into 6 individual blocks totaling 9,343 acres were treated with SPLAT at 6 gm/acre (Figure 3). All total 13,093 acres were treated for mating disruption.

Aerial surveys detected no defoliation in 2010, compared to 70 acres of defoliation in 2009.

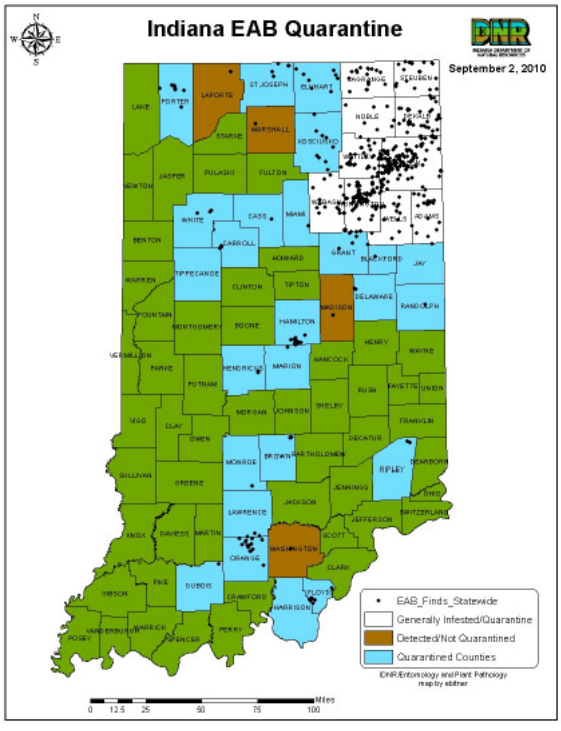
Figure 3. 2010 Treatment Sites

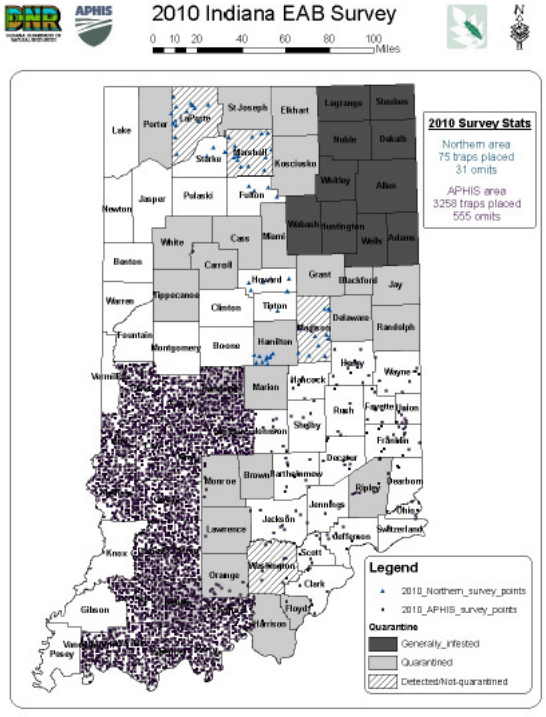


2. Emerald Ash Borer - *Agrilus planipennis* Fairmaire

Emerald ash borer (EAB) is an exotic beetle native to Asia that was discovered in southeastern Michigan near Detroit in the summer of 2002 and in northeast Indiana in June of 2004. The adult beetles feed on ash foliage but cause little damage. The larvae (the immature stage) feed on the inner bark of ash trees disrupting the tree's ability to transport water and nutrients killing the tree.

Quarantine: In 2010 EAB was detected in eight new counties – Cass, Carroll, LaPorte, Hendricks, Madison, Marshall, Tippecanoe and Washington. Currently, 39 of the 92 Indiana counties are under quarantine or have had EAB detected. Currently Indiana's EAB quarantine is under review to determine need to continue with the state quarantine.





Survey: The 2010 survey season utilized 21 field personnel, 13 from DNR and 8 USDA/APHIS. Aphis surveyors deployed 3,258 purple panel trap in the south western portion of the state on a 1.5 x 1.5 mile grid. DNR surveyors also set 75 purple panel traps in the northern and south eastern area of the state focusing on high-risk sites (sawmills, campgrounds and composting sites). In addition to the panel traps, several complimentary survey methods were also employed: (1) DNR nursery inspectors conducted visual surveys of suspect ash; (2) Delimitation within infested townships, especially outlier infestations, was conducted; and (3) an aerial survey mapped mortality caused by EAB.

The aerial survey of infested counties detected ash mortality in 701 woodlots/forests totaling 23,400 acres with greater than 5 trees/acre dead. The majority of mortality occurred in Huntington County (285 woodlots/forests & 10,525 acres). Other counties with >1,000 acres of woodlots/forests with mortality are Adams, Allen, DeKalb, LaGrange, Orange, Randolph and Steuben.

Hardin Ridge SLAM Project: In the winter of 2008 Emerald Ash Borer (Agrilus planipennis) was identified in the Hardin Ridge Recreation Area of Hoosier National Forest. An initial visual

survey identified 54 heavily infested trees that were removed and chipped according to IDNR regulatory requirements. In a cooperative effort, the USFS and Indiana DNR started the SLAM (SLowing Ash Mortality) project in 2009. Survey protocols determined a survey area totaling $36mi^2$. Sixteen girdled detection trees per square mile were selected within the immediate $9mi^2$ core zone around the initial known infestation. Around this core zone 4 trees per square mile were selected for girdling. In all 208 detection trees were girdled for survey purposes. The survey was completed in 2010 with 28 trees positive. 25 trees ranged from 1-100 larvae per tree; 2 trees ranged from 100-200 larvae per tree and 1 tree had 200+ larvae. All were located in the core area with the majority in the Hardin Ridge Campground. Over the winter of 2010/2011 the ash resource will be surveyed and treatment plans developed for implementation in 2011.

Information and web links may be found at the IDNR Division of Entomology and Plant Pathology EAB website: In addition, the website has an interactive web map showing the known EAB locations in Indiana. http://www.in.gov/dnr/entomolo/3443.htm .
Purdue University also maintains an EAB website: http://www.entm.purdue.edu/EAB/

3. Secondary Exotic Insect Pests of Concern

a. Pine Shoot Beetle - *Tomicus piniperda-*Yearly surveys for pine shoot beetle are conducted by USDA/APHIS personnel using Lindgren funnel traps in southern Indiana to detect new infested counties. No other surveys were conducted for the beetle or its damage. No new county detections occurred in 2010. *T. piniperda* occurs in 66 of the state's 92 counties.

b. Granulate (Asian) Ambrosia Beetle - ***Xylosandrus crassiusculus*** **-** Populations of granulate ambrosia beetle are wide spread in the state. No active survey was conducted on this pest in 2010. Late season infestation was reported on honey locust in nursery stock and harvested black walnut logs in Parke and Sullivan Counties

c. Exotic Bark Beetle: Early Detection Rapid Response (EDRR) Survey - This survey was not conducted in Indiana in 2010.

d. Hemlock Woolley Adelgid - Hemlock Woolly Adelgid was not detected or reported in 2010 by nursery inspectors or DNR staff that monitors the native population of eastern hemlock as part of their duties.

e. Light Brown Apple Moth (LBAM) - No survey was conducted in 2010 for Light Brown Apple Moth. To date we have had no reports or confirmations of LBAM in Indiana.

f. Asian Long-horned Beetle – A few reports of the beetle were received in 2010 from landowners and homeowners. All were investigated and found to be native wood borers.

4. Non-Indigenous Plant Pathogens

1. Sudden Oak Death - *Phytophthora ramorum*

The Division of Entomology and Plant Pathology Nursery Inspectors annually survey nurseries for this disease. The purpose is early detection of *Phytophthora ramorum* (Pr) in vegetation before infection centers become fully established and more difficult to eradicate. In 2010, two SOD

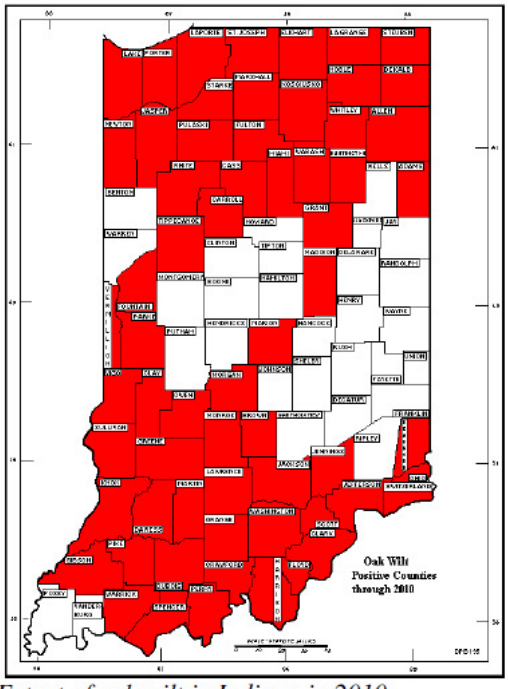
surveys were conducted. One survey involved the annual foliage sampling and the second survey sampled water sources using rhododendron leaf bait in the spring and fall.

Twenty-one nurseries were surveyed in 2010 sampling foliage of host plants. A total of 400 total samples were submitted for testing to Purdue Plant Pest Diagnostic Lab with 123 samples ELISA positive for *Phytophthora*. All samples were PCR negative for *P. ramorum*.

The nursery water source on ten of the twenty-one nurseries was sampled using rhododendron leaf bait and submitted to Purdue Plant Pest Diagnostic Lab. The water filtration method of sampling the water source was used on one of the ten nurseries. All samples were negative for *P. ramorum.*

2. Dutch Elm Disease - *Ophiostoma ulmi (syn. Ceratocystis ulmi)*

As in 2009, the incidence of DED killed elm is slowing in 2010 when compared to prior years. Symptoms of the disease are seen in July and are scattered across the landscape. Standing dead forest, fence row and urban elms of all sizes are common across the state. This slowing may be from the reduced number of elms to support beetle populations resulting in lower numbers of beetles and greater separation of live trees to attack. Predation and parasites are also believed to be involved in the slowing of disease incidence.



Extent of oak wilt in Indiana in 2010

3. Oak Wilt - *Ceratocystis fagacearum*

Oak wilt is present in 63 counties and no new county records occurred in 2010. The aerial forest pest detection survey recorded 100 acres of forest with oak wilt in 2010, however the survey was not specifically surveying in an organized manner for oak wilt. Thus, there are more acres with active oak wilt than the 100 acres reported by the aerial survey.

Oak wilt is common in the woodlots of northwestern Indiana in the Kankakee River basin. In other infested counties, especially southern Indiana, oak wilt is spotty and difficult to separate from oak decline symptoms. In all situations, mortality occurs to red and black oak in small spots, less than 1 acre, consisting of sapling to saw timber size trees totaling less than 10 trees per spot, usually 1-5 trees. Oak wilt in white oak has not been detected in any of the reported spots.

Oak wilt is predicted to continue as a minor and localized concern in Indiana, with the exception of the sand ridge areas of northwestern Indiana where it is commonly found in black oak stands.

4. Butternut Canker - *Sirococcus clavigignenti-juglandacearum*

As in prior years no surveys were conducted in 2010 as the disease is present throughout the state. The Hardwood Tree Improvement Cooperative at Purdue University continues to locate and collect plant material from butternut trees for a breeding program to save the species.

5. Beech Bark Disease – Disease complex of *Cryptococcus fagisuga* Lind and *Nectria coccinea* var. *faginata* Lohman

No surveys for this disease were conducted in 2010. No reports of trees with the scale or canker and no beech mortality were received. To date this disease is not present in Indiana and is expected to first occur in northern Indiana because of its presence in Michigan and the possibility that infected/infested material (firewood) is brought into Indiana.

6. Red Bay Wilt – Risk to Indiana Sassafras and Spicebush

This forest pest complex is not known to be present in Indiana. No surveys were conducted in 2010 and no reports of dying sassafras or spicebush were received.

7. Dogwood Anthracnose – *Discula destructiva*

Dogwood anthracnose is present throughout the state. The disease is common on flowering dogwood in southern Indiana forests, but not as common in northern Indiana because of the limited presence of flowering dogwood in the forests. The wet spring and early summer did not result in reports of flowering dogwood dieback or mortality from this disease. No survey for this disease was conducted in 2010.

5. Native Insect and Disease Concerns

1. Forest Tent Caterpillar – *Malacosoma disstria*

The south eastern Indiana forests defoliated between 2003 and 2006 are recovering from the defoliation and subsequent mortality. Aerial surveys did not detect any defoliation or additional mortality.

2. White Pine Root Decline - *Verticicladiella procera*

Procera Root Rot (White Pine Root Decline) is an annual killer of white pine windbreak, ornamental and Christmas trees. No survey was conducted in 2010 but mortality occurs in all areas of the state.

3. Anthracnose – Apiognomonia spp.

Although the spring and early summer had weekly rains in May and June, the temperatures were warm and no defoliation of sycamore and other hardwoods was observed or reported.

4. White Oak Mortality

Reports of white oak dying continued in 2010 primarily from forested areas of south central Indiana. As in prior years, Two-Lined Chestnut Borer *(Agrilus bilineatus)* is involved in the decline and death of the white oak.

5. Looper Complex – Linden Looper *Erannis tiliaria* and Half Winged Geometer *Phigalia titea*

Aerial surveys were completed in 2010 and no noticeable defoliation was noted.

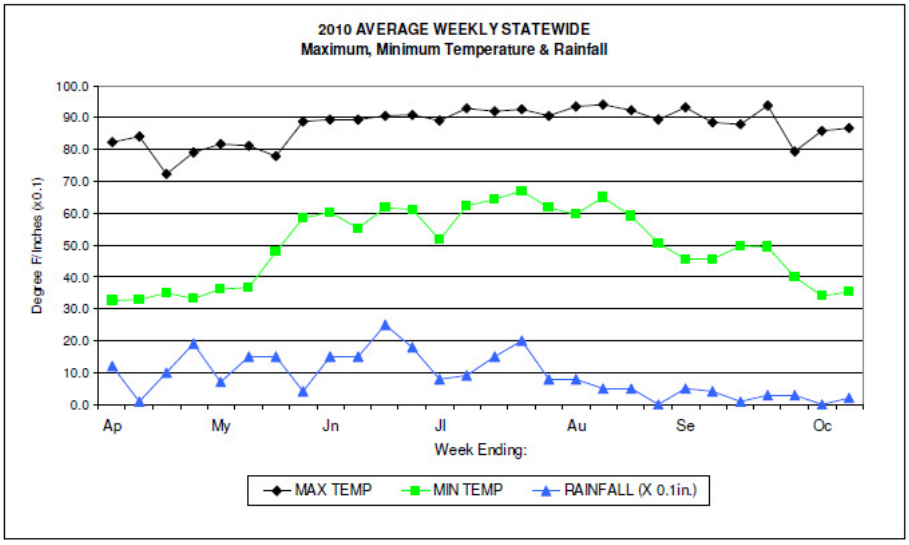
7. Bacterial Leaf Scorch (BLS) – *Xylella fastidosa*

A bacterial leaf scorch survey was not conducted in 2010.

6. Weather-Related Issues in Indiana Forests

Ozone Damage: Indiana conducted the national ozone biomonitoring survey for vegetative damage. Twenty four biosites were surveyed during late July and early August, 2010. Ozone damage incidence was very low across the sites in southern Indiana. Severity of damage when found was light to moderate. Ozone damage incidence was slightly higher in northern Indiana with severity light to moderate. The weekly rains during May and June followed by the drought starting in July may be the reason for the low incidence of damage on sensitive plants.

Weather – Wet Spring – Summer/Fall Drought: The graph below shows the maximum, minimum temperatures and average weekly rainfall during the growing season. The spring was warm with maximum temperatures averaging 80F followed by 90F through the summer into the



fall. Rainfall during the spring through late July was averaging 1.0" or more per week followed by weekly averages of <0.5" per week. The growing season weather created flooding in the spring especially in southern Indiana. The wet spring produced good foliage color and observations during aerial surveys in June that the forests were in excellent condition. The rains stopped in July. The heat returned and a drought condition developed. This has produced burn bans in October across the state with the majority in southern Indiana. Although under a drought, tree and forest mortality has not started but is anticipated to occur next spring should the winter also be dry with limited rain and snow. This drought may be similar to a drought that started in the late

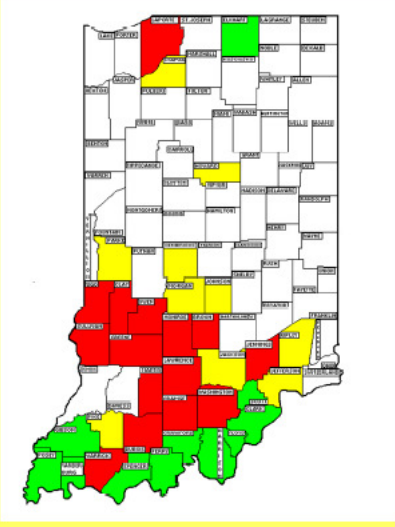
summer and fall of 1987 and continued through 1988 which resulted in tree mortality over the following 5-7 years.

7. Invasive Plant Species

Kudzu - *Pueraria lobata* - an Asian native invasive vine is located throughout Indiana but is predominately in southern Indiana. Currently there are 121 known sites totaling 117.06 acres. Additional sites that need confirmation were reported in Jennings, Lawrence, Hendricks, Marion, St. Joseph, Sullivan, and Vanderburgh Counties. Every year additional sites are confirmed in the state as more awareness of Kudzu results in reports of 'new' sites.

Herbicide applications were conducted at 47 kudzu sites totaling 46 acres in 19 counties. Sites were treated with a combination of clopyralid and/or glyphosate depending on the presence of surface water. The 2010 growing season got hot early and provided an extra 6 weeks of growing for Kudzu. This resulted in regrowth on sites that had little or no kudzu growth in 2009 indicating that suppression and eradication efforts in prior years were not as successful as desired.

Kudzu Treatment Status 2010



- **All shaded counties have kudzu**
- **Counties in yellow are nearly eradicated and in monitoring stage**
- **Counties in red have on going treatment programs**

REPORT PREPARED BY:
Philip T. Marshall, Forest Health Specialist, Division of Forestry

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Cooperative Forest Management

Classified Forest and Wildlands

There were 438 new tracts enrolled in the program this year, totaling 23,437 acres. Withdrawals from the program totaled 1,974 acres for a net increase of 21,463 acres

Landowner Assistance

We assisted 958 new landowners in 2010 and wrote 1,421 Stewardship Plans on 47,893 acres. A total of 1,212 Classified Forest and Wildland tracts were re-inspected which amounted to 68,741 acres.

Outreach

District Foresters conducted 213 outreach events.

Forest Certification

The Classified Forest and Wildland Programs had a successful audit in 2010. No Major or Minor Corrective Action Requests were noted. District Foresters performed 155 harvest site inspections.

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Division Administration

Statewide Forest Assessment & Strategy

In June 2010 the Indiana Division of Forestry and partners completed the Indiana Statewide Forest Assessment and the Indiana Statewide Forest Strategy. This was part of a statewide planning effort involving all of Indiana's forest stakeholders, natural resource partners, land stewards and conservationists.

This process developed a landscape scale assessment and strategy that spans all of Indiana's forest ownerships. Indiana currently has 5.1 million acres of forestland, 85% of which are privately owned. The remaining 15% are under public ownership and include county, city, and state-owned land as well as urban forests.

The Statewide Forest Resource Assessment identifies key forest-related issues and priorities to support development of a long-term Resource Strategy specific to Indiana's forest needs. The

assessment identifies landscape areas where national, regional, and state resource issues and priorities converge. It incorporates the best data available, stakeholder input, and other state assessments, plans, and priorities. The assessment is a valuable document for communicating forest-related issues, threats, and opportunities in the State of Indiana. A link to the Statewide Forest Assessment can be found below.

The Statewide Forest Strategy builds upon the assessment and include long-term strategies to address threats to forest resources in Indiana. It contains the prioritized strategies and action steps that the Division of Forestry, partners, land stewards and conservationists can implement to reduce forest fragmentation and conversion, conserve soil and water resources, control invasive species spread and maintain biological diversity in Indiana's forests.

2010 Statewide Forest Strategy:

1.) Conserve, manage and protect existing forests, especially large forest patches

2.) Restore and connect forests, especially in riparian areas

3.) Expand Best Management Practices, with special attention to invasive species

4.) Coordinate education, training, and technical assistance, especially to develop strategic partnerships with land-use decision makers

5.) Maintain and expand markets for Indiana hardwoods, especially those that are sustainably certified and for local use

More information about these two important documents is available at:
http://www.in.gov/dnr/forestry/5436.htm

Indiana Forest Stewardship Coordinating Committee

In September 2010, the Indiana Forest Stewardship Coordinating Committee expanded its mission from bringing together and maintaining communication among interest groups and individuals concerned with the management of Indiana's forest resources to serving as the leadership body responsible for the implementation of the Indiana Statewide Forest Strategy.

The committee formed six subcommittees and began implementing specific action steps from the 2010 Statewide Forest Strategy to expand economic incentives to keep forests as forests, develop a timber check off program, prioritize forestation along riparian corridors, expand and encourage the use of forestry best management practices, ensure land use decision makers are

aware of the benefits of maintaining forestland and enhancing training and education of private landowners.

This committee is open to leaders from all organizations and groups who are interested in the management of Indiana's public and private forestlands. The Indiana Forest Stewardship Coordinating Committee informs state forest policy functioning to promote communication and understanding of current forest management issues. The committee promotes the sustainability of forest resources and the improvement of forest management practices in Indiana extending the health, productivity, extent and usefulness of Indiana's forest resources.

More information about this important committee and its work is available at: http://www.in.gov/dnr/forestry/6252.htm

Forest Resources Information Annual Report Data

- Provided 703 technical assists upon request to various customers on topics of marketing, utilization, and efficiency, Best Management Practices, and forest resource and industry data.
- Provided various training opportunities (log, lumber, tree grades workshops, chainsaw training, Best Management Practices, SFI, etc) to 216 attendees for a total of 622 contact hours. Those attending were a combination of professional natural resources personnel and forest industry professionals.
- Coordinated 4 Field Days/Industry Education/Industry tour with an attendance of over 180 people.
- Coordinated 4 Landowner Outreach meetings focused on what to do if thinking of selling their timber. Attendance and response was outstanding. Approximately 170 people attended the 4 sessions.
- Division of Forestry's/Forest Resources Hardwood Economic Development Specialist attended 3 overseas trade shows. From these emerging market trade shows and/or mission we were able to secure over 52 trade leads/opportunities all with purchasing potential. Furthermore, thru our association with the Hardwood States Export Group we received an additional 90 prospects desiring our Indiana hardwood products. All these trade visits and leads were paid for by using Federal dollars resulting in no Indiana tax dollars spent.
- In conjunction with DNR/DoF and Indiana State Department of Agriculture (ISDA) the first ever sponsored reverse trade mission was hosted in May. Six hardwood manufactures/traders from Istanbul, Turkey spent three days touring Indiana hardwood/veneer manufacturing facilities which received great press coverage.
- Private contractors collected forest inventory data from 550 plots across the state. The information, collected annually provides an excellent picture of the forest resource in Indiana.

- The Forest Resources Information (FRI) section concluded its second year of the Continuous Forest Inventory (CFI) program this year. The program which closely resembles the USDA Forest Inventory and Analysis program will program an up close view and provide valuable, timely, and current data regarding the forest resource on our State Forest properties. Data was collected from 750 plots. Another inventory program coordinated by FRI was initiated this year. Field crew personnel collected data from approximately 500 plots on randomly selected private lands enrolled in the Classified Forest/Wildlands program.
- In the 2010 Timber Buyer licensing year, we issued new licenses for 38 Timber Buyers and 114 Agents and Renewed 549 Timber Buyers and 1076 Agents, giving us a total of 587 Timber Buyers in the 2010 licensing year and 1190 total Agents.
- In 2010 we monitored 62 timber harvests on both public and private lands for compliance to accepted Indiana Forestry Best Management practices.

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