

IOWA'S FOREST HEALTH REPORT, 2004

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INTRODUCTION:

Each year, the Iowa DNR, Bureau of Forestry operates programs to protect forests from insects, diseases and other stressors. These programs involve ground and aerial surveys, transects, traps, laboratory procedures and treatments during the growing season. And, after each growing season, the Bureau issues a summary report regarding the health of Iowa's forests.

This 2004 report is somewhat different in that new forest stressors may be on the horizon for Iowa forests and those stressors created a great increase in 2004 field activities. So, this report dwells upon those field activities, including numerical analyses, resulting in an annual report that is specific and detailed toward individual forest stressors.

This year's report begins with a brief description of the size and character of Iowa forests, then delves into discussions of Gypsy Moth, Sudden Oak Death and Emerald Ash Borer (forest stressors that are not yet established in Iowa, but threaten to enter Iowa in the future). Forest insects and diseases already present, and invasive plant species are also discussed.

THE SIZE AND CHARACTER OF IOWA'S FORESTED LAND:

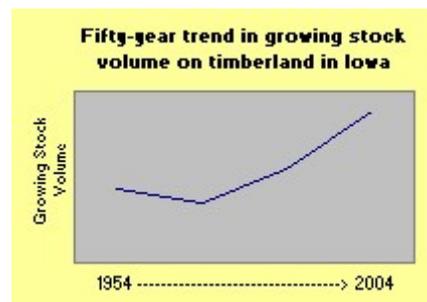
The positive news regarding Iowa's

forests is that they are generally healthy and are increasing in number of acres. Forest's help achieve clean water, wildlife and economic goals in Iowa. Iowa's forests are increasing in average tree quality and average tree size. Most Iowa forests are native hardwood forests with oak, hickory, maple, basswood, walnut, ash, elm, cottonwood and many other hardwood species. Less than 3% of Iowa forests are conifer forests.

A positive forest fact is that Iowa now has approximately 2.7 million acres of forested land representing a steady increase over the past few decades. Forest conservation programs, reforestation programs and shifts in agricultural land use can all contribute to an increase in forested acres.

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A noteworthy statistic is that the amount of growing stock in Iowa forests is increasing. "Growing stock" is a measure of percent of sound (as opposed to cull) trees.



Oak is one of Iowa's most abundant hardwood species, but oak is decreasing

in acreage in some areas. Forest succession tends to drift toward more shade-tolerant species such as maple in the absence of forest disturbance events. But foresters are developing silvicultural systems to counter this trend and regenerate oak, and are incorporating these silvicultural systems into ongoing harvesting, forest improvement and reforestation programs.

A forest resource that is expanding and sustainable promotes economic strength in Iowa. A forest resource that is healthy contributes immensely to our state's goals of clean water, abundant wildlife habitat, lumber and veneer



Walnut --- a valuable Iowa hardwood species.

production, and a level of outdoor recreation and urban aesthetics that enhances quality of life in Iowa.

Even though Iowa's forests are generally healthy and are contributing to the above amenities, certain stressors can threaten our forests and those stressors are discussed here in more detail.

GYPSY MOTH: Each growing season, approximately 5,000 insect traps are distributed around Iowa for gypsy moths. Iowa agencies cooperate in this trapping effort, including the USDA, Office of the State Entomologist, DNR, cities and counties. A large number of volunteer trappers assist each year, too.

Gypsy Moth is a European insect species introduced into New England over 100 years ago. Gypsy Moth continues to spread west from that introduction site and defoliate our native forests wherever they become established. Gypsy Moth has established itself in certain areas of Wisconsin now, and just beginning to move into NE Iowa. Through Iowa's trapping program and follow up treatments, Gypsy Moth has been kept out of Iowa and this effort is being increased now, for continued prevention of infestation.

Some good news is that 2004 saw a decrease in Gypsy Moth trap catches, both in Wisconsin and Iowa. Weather patterns and other natural factors combined to slow the insect this year. Only 27 moths were caught, down from 159 moths in 2003.

SUDDEN OAK DEATH:

Prominent in the media were reports recently of a fungal disease causing sudden and complete death of certain oak trees along the Pacific Coast of the Western United States. Obviously, the

need to prevent spread of this new forest stressor became paramount and many states immediately implemented measures to avoid that possibility. In Iowa, nursery inspections were implemented immediately by the State Entomologist and the USDA throughout Iowa, intercepting suspect shipments of plant materials.

----- Gypsy Moth, Sudden Oak Death and Emerald Ash Borer (forest stressors that are not yet established in Iowa but threaten to enter Iowa in the future).

Then, within Iowa's forest health programs, inspections took the form of extensive collections of leaf and bark samples in forests near these shipment sites. In August, this cooperative effort among the Forest Service, laboratories in Ohio and Mississippi, and Bureau personnel canvassed for woodland presence of the fungus. Beginning at suspected points of plant shipments into Iowa from the Pacific coast, the nearest forest was located and samples collected along 400 meters of transect line. The samples (several hundred in total) were stored on ice and mailed to the laboratories for analysis.

Fortunately, all samples proved negative for Sudden Oak Death. And, plant disease personnel are still studying whether the disease could exist on oak in Iowa and be able to withstand the Winters. However, sampling for this disease is likely to continue next growing season. Current philosophy is to err on the side of caution and take every effort to ensure this newly-discovered fungus does not become a problem for Iowa forests.

EMERALD ASH BORER (EAB):

Although not yet found in Iowa, EAB is judged as having more potential for future harm to Iowa forests than any other insect currently being dealt with in the United States. Emerald Ash Borer is native to the orient, and was introduced near Detroit only a decade, or so ago. Already, EAB has moved into several S.E. Michigan counties, Ohio, Indiana, and Ontario.

EAB kills all ash species by burrowing under the bark and eating the growth (cambium) layers of the trees. EAB has been found capable of killing every ash tree in neighborhoods or woodlands. Ash is one of the most abundant native tree species in N. America, and has been a preferred and heavily planted landscape tree in our yards and other urban areas.

Therefore, immense efforts are being made by forestry and entomology agencies to control EAB. Slowing the spread of the insect through detection, early eradication, removal of infected trees and prevention of transport of infected wood products is progressing vigorously in several central states.

Even though the spread is not known close to Iowa at this time, The Forestry Bureau decided to implement early detection programs, the first one occurring this growing season. With financial assistance from the Forest Service and field assistance from Iowa State University Entomology Extension, the following activities occurred in 2004: Bureau personnel visited 32 Iowa cities having forest product manufacturing facilities and ran transects

N., S., E., and W. through those cities canvassing for ash displaying insect symptoms. Individual symptomatic trees were inspected more closely. ISU personnel visited over 2,000 urban ash trees in over 200 Iowa cities. In addition, industrial sites recently landscaped with ash were inspected in the process, along with some larger public recreation areas.

Fortunately, no evidence of EAB was found. However, the potential for damage to Iowa's forests and urban forests from this newly discovered insect will, without doubt result in these transects becoming an annual event.

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These precautionary actions send a message that Iowa is serious about preventing damage from EAB to the maximum extent possible, and for as long as possible.

Meanwhile, research on a national level is progressing equally vigorously to find and develop methods to combat EAB in the future, including visits to the orient to find natural enemies of the insect.

*A map showing Iowa EAB survey locations is attached as Appendix A.

WHITE OAK DECLINE: For a number of years, a phenomenon has been noticed in N.E. Iowa regarding white oak mortality. Increasingly, instances of mature trees "standing

dead" in the woods are being observed and reported. Aerial inspection of major Iowa forested lands is done each year by the Bureau of Forestry and this oak decline is readily observable from the air. This year, the aerial surveys detected an increase in the decline.

Through a grant from the USDA, Forest Service, the Bureau is now bringing more intense study to Iowa's white oak decline situation, searching for causes and management recommendations. This year, under that grant, several native white oak forests in E. and N.E. Iowa were studied intensely. Weekly observances were done in the Spring when symptoms are most visible.



White oak decline caused this valuable white oak to die.

Temperature measurement devices were installed in certain woodlands to check for frost damage. Several hundred limb, bark and leaf samples were collected and delivered to the plant diagnostic laboratory at Iowa State University to culture out fungi and other stressors that may be affecting these oaks. Bole and root samples were collected and analyzed for pathogens and starch content. This extensive data is coming together and is guiding needed additional studies to be implemented next year, even a third year, if necessary.

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This effort is yielding information on causes, whether they be atmospheric, fungal, age related, insect, or a combination. Oak wilt and Ganoderma (spp.) fungi were absent in first year laboratory analyses, pointing the way toward increased study of the other factors in the second year of this study.

INVASIVE PLANT SPECIES:

Continuing strong in 2004 are Iowa's programs directed at non-native plants that invade Iowa woodlands, frequently altering natural plant communities and ecosystems.

Programs for invasive plant species are a cooperative effort within Iowa, with several agencies working together, along with an extensive network of volunteers. Four species continue to be of concern:

- Bush Honeysuckle,
- Buckthorn,
- Garlic Mustard, and
- Multi-flora Rose.

Other invasive species are also being noticed in lesser numbers, including oriental bittersweet.

Not only in Iowa, but in the central hardwood regions in general, additional attention is being directed at invasive plant species, attention aimed at

controlling and limiting the spread of these forest stressors.

CONCLUSION: Iowa forests are generally healthy, and providing abundant forest products and amenities, including outdoor recreation opportunities, wildlife habitat, clean water, and the economic benefits of a vast array of wood and wood fiber products.

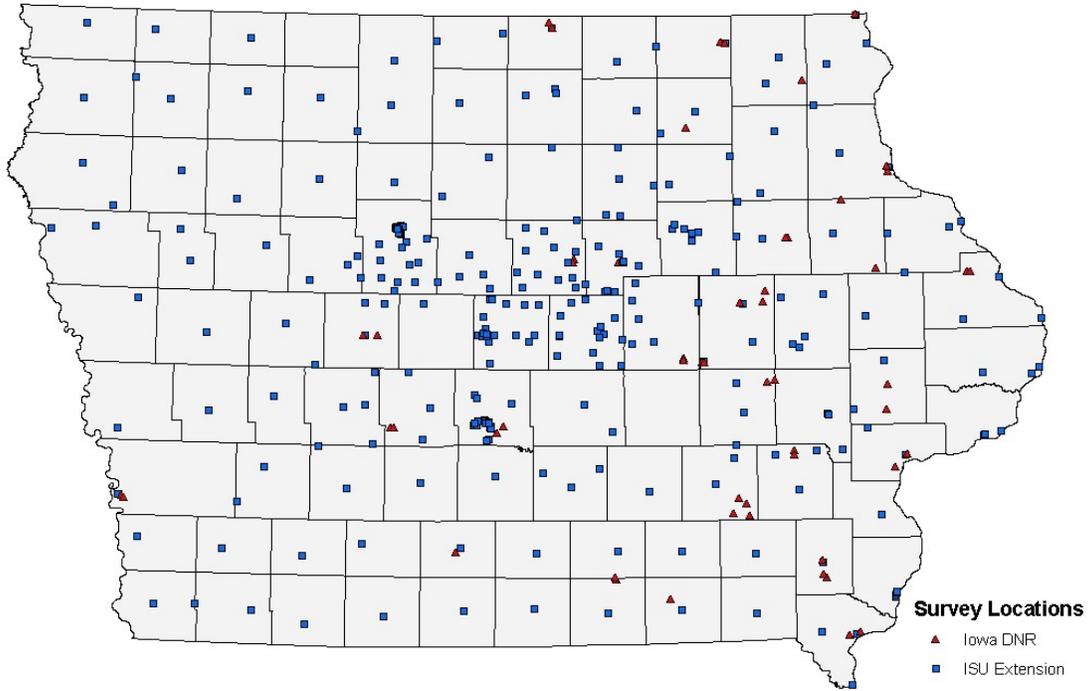
Iowa forests also have a variety of stressors, most of which are naturally occurring and always present. These stressors take a toll on Iowa forests however, native stressors are generally less than epidemic now.

Iowa forests are generally healthy, providing abundant forest products and amenities, including outdoor recreation opportunities, wildlife habitat, clean water and economic benefits resulting from a vast array of wood and wood fiber products.

The Bureau of Forestry, through cooperation with other agencies has programs in place to counter forest stressors which have potential to move into Iowa and damage our forests. Those programs operated vigorously during 2004, and plans are in place for similar, continued vigorous forest health program operations in 2005.

* Please refer to Appendix A, on the next page for additional data and graphics regarding EAB.

EMERALD ASH BORER 2004
COMBINED SURVEY LOCATIONS
IADNR AND ISU EXTENSION
11/10/04



Graphic furnished by APHIS and ISU