

Emerald Ash Borer Management Plan

Buckhorn State Park

October 2014

Background

Emerald ash borer (EAB, *Agrilus planipennis* Fairmaire) is an exotic beetle that is native to China, Mongolia, North Korea, South Korea, Japan, Taiwan, and the Russian Far East. Emerald ash borer probably arrived in the United States on solid wood packing material carried in cargo ships or airplanes originating in its native Asia. It was first identified in the Detroit, Michigan area in 2002, and, as of October 2014, EAB has been found in 24 states and two Canadian provinces.

As of November 2014, Wisconsin has 37 counties quarantined for EAB. Residents and affected businesses in quarantined counties are restricted from moving any hardwood firewood, ash nursery stock or ash logs or timber out of the quarantine area. Buckhorn State Park is within a quarantined county as of 2014.

In North America, EAB has only been found in ash (*Fraxinus* spp) trees and recently in white fringetrees (*Chionanthus virginicus*). Ash trees generally die within five years of being infested. There appears to be very little natural resistance of North American ash species to EAB.

Adult beetles nibble on ash leaves but cause little damage. The canopy of infested trees begins to thin above infested portions of the trunk and major branches because the borer larvae destroy the water and nutrient conducting tissues under the bark. Heavily infested trees exhibit canopy die-back usually starting at the top of the tree. One-third to one-half of the branches may die in one year. Most of the canopy will be dead within 2-3 years of when symptoms are first observed. Sometimes ash trees push out sprouts from the trunk after the upper portions of the trees die. Although difficult to see, the adult beetles leave a "D"-shaped exit hole in the bark, roughly 1/8 inch in diameter, when they emerge in June through August (in Wisconsin).

The EAB beetle can have a one- or two-year life cycle. Adults begin to emerge early June in southeastern Wisconsin with peak emergence in late June. Females usually begin to lay eggs about 2 weeks after emergence. Eggs hatch in 1-2 weeks, and the tiny larvae bore through the bark and into the cambium - the area between the bark and wood where nutrient levels are high. The larvae feed under the bark for several months, usually from late June through October. The larvae typically pass through four stages, eventually reaching a size of roughly 1 to 1.25 inches long. Most EAB larvae overwinter in a small chamber in the outer bark or in the outer inch of wood. Pupation occurs in spring and the new generation of adults will emerge in early June, to begin the cycle again.

EAB adults are capable of flying several miles from the tree where they emerge, although most beetles travel less than ¼ mile. Many infestations, however, were started when people moved infested ash nursery trees, logs, or firewood into non-infested areas.

Key Concerns for Buckhorn State Park

The main concerns regarding EAB in Buckhorn State Park are public safety, resource protection, and aesthetics. Buckhorn State Park offers many recreational opportunities including camping, a picnic area and playground, a swimming beach on Castle Rock Lake, several miles of hiking trails, and various winter activities.

Trees that are in heavily used areas such as campgrounds and picnic areas are typically under greater stress than forest trees due to soil compaction and bark and limb injuries and may be more attractive to EAB females for depositing eggs. Areas of heavy use by the public will be the first sites assessed for hazard tree identification and removal and new tree plantings.

Current Situation

EAB has not been found in Buckhorn SP but was discovered within 15 miles of the park in Adams County in 2014.

Priority Areas for EAB Management at Buckhorn State Park

1. High visitor use areas including picnic areas, entrance station, beach parking lot, new campground
2. Wooded areas surrounding roads and trails.

Schedule for priority areas:

Area 1: Fell, process, and replace ash trees in priority areas over the next 5 years. Replacement trees will be a diverse mix of ecologically appropriate species.

Low Priority Areas

Low visitor use wooded areas, grasslands, and wetlands. Ash trees in these areas will typically be allowed to die and become wildlife habitat, as long as they are not a safety hazard.

Wildlife Concerns

Ash species, especially white ash, can be important sources of habitat and browse for wildlife. The samaras are good forage for many other birds and small mammals. White ash's ability to readily form trunk cavities if the top is broken and its large size (24 to 48 inches) at maturity make it highly valuable for primary cavity nesters such as woodpeckers. Once the primary nest excavators have opened up the trunk of the tree, it is excellent habitat for secondary nesters such as wood ducks, owls, nuthatches, and gray squirrels.

Endangered Resources and State Natural Area Concerns

There is one state natural area within Buckhorn State Park: Buckhorn Barrens. Several rare species have been documented within or near the park. Buckhorn State Park is also within the Karner blue butterfly federal high potential range. The SNA program will also be consulted if any EAB management involves Buckhorn Barrens SNA.

Tools for Management of EAB

Hazard Tree Removal

Hazard trees will be identified and removed from within the priority areas noted above. When possible, all infested trees will be chipped. Depending on the quantity, chips can be blown into wooded areas. Any chip collection will be retained on the park, away from the public. Wood that cannot be chipped will be stockpiled in the park, away from the public. Stumps in mowed areas will be ground down so that they are not a tripping or maintenance equipment hazard. Stumps of hazard trees that are felled should be treated to prevent re-sprouting.

Replacement Tree Planting

Tree planting will be needed to replace hazard trees that are removed from high use areas. Replacement trees will be a diverse mix of ecologically-appropriate species that are not susceptible to EAB, with a balance of fast-growing and slower species. More quickly growing trees will help replace shade trees sooner while allowing slower growing, longer living species to

reach maturity. Proper maintenance after the trees have been planted, such as watering as needed and reducing competition from other vegetation, will be needed to increase the survival of the saplings.

Monitoring

Park staff will monitor for EAB symptoms and hazard trees in the park. Woodpecker activity and thinning crowns will be the primary signs of emerging hazards.

Public Education and Communication

EAB posters and other information will be posted in the campground bulletin boards. Flyers and information will be handed out in the park office. Notices about hazard tree removal will be placed in bulletin boards and in the park office.

Funding

Educational literature is available through the DNR at no charge. The park may be able to purchase any materials for physical controls and labor out of the operations budget. Tree planting may also be done by volunteers.

Park staff will identify and pursue alternate funding sources, such as the Sustainable Forestry Fund, to augment the park operation budget.

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