

New Hampshire Bird Records





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Cover Photos: Gyrfalcon by Len Medlock (top) on 1/25/15, Seabrook, NH, and Tom Graham, 1/26/15 (bottom).

New Hampshire Bird Records is published quarterly by New Hampshire Audubon's Conservation Department. Thank you to the many observers who submit their sightings to NH eBird (www.ebird.org/nh), the source of data for this publication. Records are selected for publication and not all species reported will appear in the issue. The published sightings typically represent the highlights of the season. All records are subject to review by the NH Rare Birds Committee and publication of reports here does not imply future acceptance by the Committee. Please contact the Managing Editor if you would like to report your sightings but are unable to use NH eBird.

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Volunteers and Research

Emerald Ash Borer – What You Need to Know and How Birders Can Help

by Phil Brown, Molly Heuss, and Steve Roberge



This photo depicts “blonding” made by bark flicking, as well as deeper holes, made by woodpeckers foraging for Emerald Ash Borer larvae. Photo by Molly Heuss.

Introduction to the Pest

Emerald Ash Borer (EAB) is a transplant here in New Hampshire, where it was first detected in Concord in 2013. The metallic green beetle was transported unintentionally from Asia, most likely to Michigan ports in the 1990s on cargo ships. In North America, EAB is known to infest all true ash (*Fraxinus*) tree species to which it has come in contact. In New Hampshire, this includes the most commonly found White Ash (*F. americana*), but also Green Ash (*F. pennsylvanica*) and Black Ash (*F. nigra*).

EAB is a phloem-feeding beetle, meaning the beetle’s young, a creamy white larva, feeds just under the ash tree’s bark. All growth and nutrient and water flow occurs in this layer of the tree. Larvae feeding back and forth under the bark can therefore choke the tree from the inside. This behavior also makes EAB infestation very hard to see because most damage occurs within the tree itself. EAB starts out in low numbers, but populations quickly explode. Adults are capable of flying several miles in a year, although most stay close to home.

EAB will begin killing ash trees within three to five years of arriving in a stand or woodlot and is a voracious feeder, often filling the phloem layer of a tree with thousands of larvae. This beetle’s incredible ability to succeed in our ash species spells the potential loss of billions of forested and landscape trees. It is a prime example of the danger invasive species pose to our native systems, which we rely on for clean air, drinking water, food resources, and recreation. Millions of ash trees have been killed over the past 10 years from the Midwest to the East Coast.

As of November 2015, EAB has been found in 25 states as well as Ontario and Quebec (visit emeraldashborer.info for updated information). This can seem like a shockingly large infestation, but many communities in the Northeast remain un-infested. We all want to keep it that way for as

long as possible so our neighbors have more time to learn about EAB and prepare for its arrival. In New Hampshire, 13 towns within Merrimack, Rockingham, Hillsborough, and Belknap Counties are currently known to have infested ash trees (Figure 1). All four of these counties are now under state and federal quarantine (visit NH Bugs.org for updated information), however, six remaining New Hampshire counties, as well as neighboring Maine and Vermont, where EAB hasn’t yet been detected, rely on those of us living in the quarantined area to help slow its movement into their backyards. You can help by keeping ash firewood near where it was grown, following best management practices when moving ash *within* the quarantine, and by following the EAB quarantine regulations when conducting a timber harvest. A plethora of EAB information, including quarantine regulations and best management practices, are available at NH Bugs.org.

The Connection between Birds and EAB



The ash tree depicted in this photo has been de-barked by a forest ecologist to show the larval galleries (tunnels). The bark in the right portion of the image has not been removed but shows heavy blonding caused by birds. Photo by Molly Heuss.

Identifying infested trees is challenging, and often times EAB cannot be detected until ash trees begin dying three or more years after the infestation. Four species of birds, including three woodpeckers (Hairy, Downy, and Red-bellied) and White-breasted Nuthatches, appear to play a particularly important role in helping forest ecologists detect infestations. In infested ashes, birds remove the bark to expose larval galleries and the D-shaped exit holes where larvae will mature into adults, and then pry out the larvae.

The larger Red-bellied and Hairy Woodpeckers are better equipped at prying large strips of bark off trees (sloughing), but the Downy and the nuthatch, and other species to a lesser extent, also play a role in removing smaller scales of bark (scaling), and all are known to feed upon EAB larvae. The resulting effect of heavy feeding on ash trees is referred to as “blonding,” and this is the tell-tale mark of EAB infestation. Birders might notice a woodpecker’s affinity for select backyard trees which

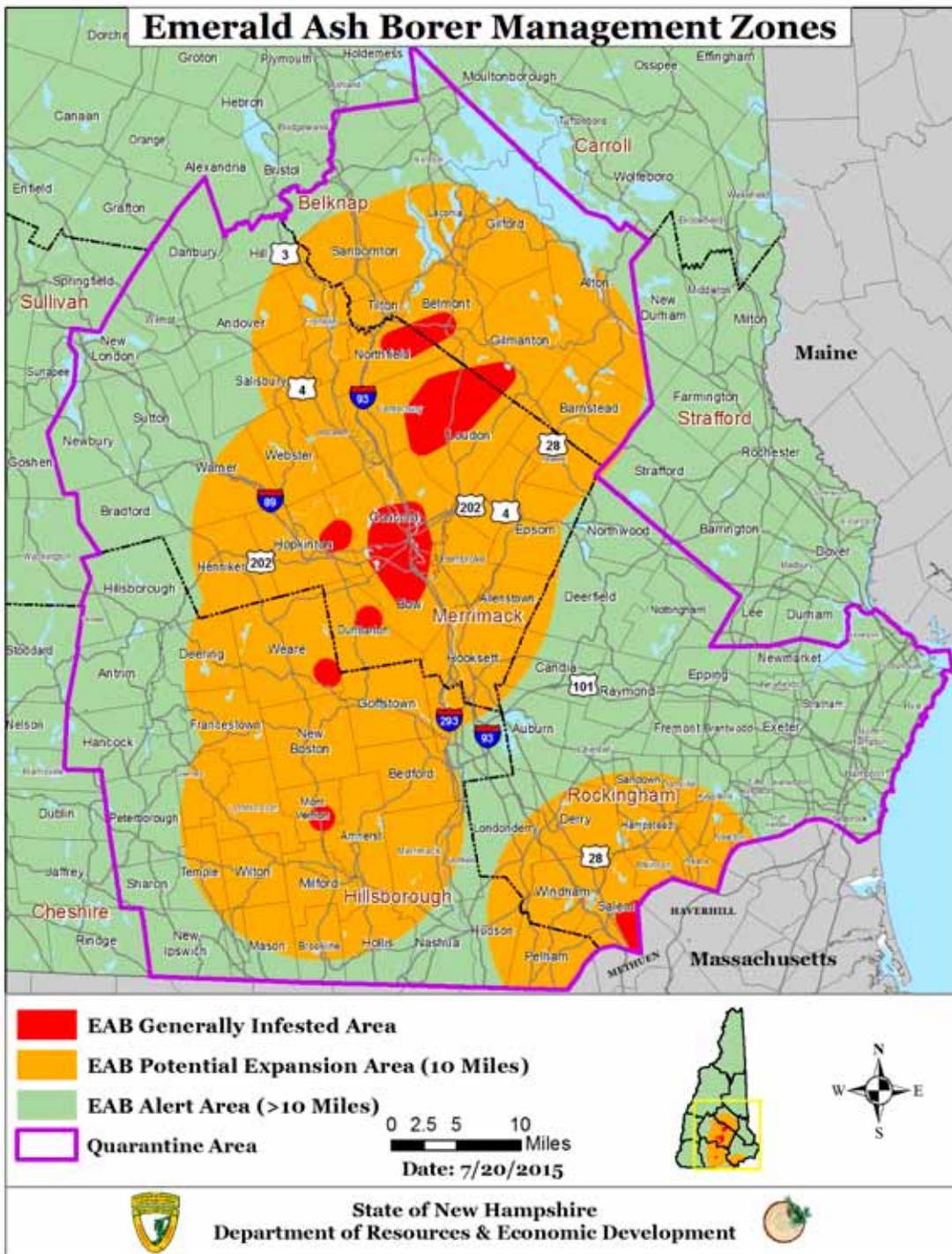


Figure 1. Emerald Ash Borer infestation in New Hampshire.

are infested by this pest before noticing the bark blanding, which may follow soon after. Only the amount of feeding seen on EAB infested trees (as opposed to foraging on native pests or naturally-occurring bark sloughing) produces this appearance, which is most notable on trees during the winter months. Although woodpeckers are quite effective EAB larvae foragers, and some trees appear completely de-barked, studies have put their mean foraging rates at only 35-40% of the EAB population. Thus, woodpeckers alone cannot defeat this insect pest, but they may still help by providing us an opportunity to detect its presence on our landscapes.

Birders are generally more tuned into the signs of heightened bird activity in backyards or a favorite patch of woods than the average person. With this in mind, UNH Cooperative Extension and NH Division of Forests and Lands partnered with NH Audubon in 2014 to begin a series of outreach programs about this insect pest, particularly as birders are well-positioned to help identify new infestations. New Hampshire birders are geographically fairly well spread out and are already accustomed to searching in trees and forest settings for their quarry, many with high-powered optics and a penchant for minute detail. Armed with just a little knowledge of tree identification and what to look for, birders and other outdoor enthusiasts could multiply the ongoing efforts to keep up with the spread of EAB around the state. Finding new detections of EAB infestation might lead to more intensive surveys around these areas, where bio-controls (including both egg and larvae-parasitizing wasps) and other treatments can be tried to slow the spread.

Although the outlook for ash survival in New Hampshire is grim, it appears to be quite the opposite for this group of native bird species which are benefitting from an added and increasingly abundant food source, EAB larvae. A well-referenced, long-term study conducted by the US Forest Service and Cornell University in the Detroit area titled "Effects of the Emerald Ash Borer on Four Species of Birds" (Koenig, et al. 2013) has shown that both short-term and sustained population increases have resulted from the introduction of EAB. This trend appears to play out

elsewhere in infested areas. All four bird species (Red-bellied Woodpecker, Hairy Woodpecker, Downy Woodpecker, and White-breasted Nuthatch) named in the Detroit study are also cavity-nesters and stand to reap the habitat benefits of many dead snags across their home ranges, which may further increase their survival.

Breeding Bird Survey (BBS) data show that Red-bellied Woodpeckers are thriving not only in New Hampshire, but across the northern portions of its range, including the Northeast. The Red-bellied Woodpecker's most recent population expansion in New Hampshire and across the Northeast may stand to benefit from the presence of Emerald Ash Borer (which is now present in roughly the eastern third of the country). Whether the upward trend in Red-bellied Woodpecker population growth will hold or if these population gains are short-term is anyone's guess. EAB, itself, diminished from the landscape after a core period of 10 or more years following its establishment in the Midwest. With its population leveling off after depletion of its host tree, there is perhaps some hope that this group of foraging birds may serve as an effective long-term control measure if and when EAB does level off across the landscape. The one thing that seems certain is that woodpeckers in New Hampshire will be able to lead us to EAB for several more years to come.

The Impact Landowners Can Expect

Landowners should take a proactive approach to this situation and stay educated so that they can make informed decisions about their trees when EAB flies into their town. For woodlot owners, conservation commissions, and concerned residents, it's important to get a sense of what component of your forest is ash. This can be done on your own if you have experience identifying ash, or you can opt for a forest inventory completed by a consulting forester, which will yield the amount, size, and location of your ash trees, as well as their value and health. University of New Hampshire Cooperative Extension's County Foresters are also always available to meet and walk with you. The inventory will prepare you for what action you'll need to take if and when the emerald ash borer is detected on your property. In some cases, no action will be recommended, but in others, a more active and aggressive approach such as a timber harvest may be needed to prevent mortality.

Even if you do not own a woodlot, you may have ash trees surrounding your home or yard. In this case, you will need to be a little more involved with the health of your ash and deciding if the tree needs to be removed when it becomes infested. It is one thing for an ash tree to die in the middle of the woods, because when it falls over it does so with little to no impact, and it can be seen as a useful habitat feature for birds and other wildlife. If an ash next to the house dies and falls over, there is a high probability it will cause significant

damage to your property. If you have an ash tree within striking distance of your home, garage, or anything else you value on your property, you should plan on hiring an arborist to remove the tree safely. (New Hampshire Audubon, at considerable expense, recently conducted the removal of about 15 potential hazard trees that were dead and dying adjacent to the McLane Center parking lot.) If you wish not to cut the ash in your yard, there are insecticide treatments that can keep your ash from succumbing to the emerald ash borer. These treatments will have to periodically be repeated for the life of the tree as long as EAB is present on the landscape.

EAB's arrival in New Hampshire has complicated forest management efforts and has already cost homeowners and landowners thousands of dollars in tree removals and pesticide treatments. This "green menace," however, has encouraged us all to be more aware of forest health concerns and attend more closely to our trees, and has certainly created a sense of appreciation for the struggling ash (including a nationwide seed-saving program). EAB has necessitated communication between private citizens who love their trees, regulators who try to slow EAB's spread, and those in the forest products industry who rely on healthy trees for a thriving business. We are better prepared now to respond to future infestations of invasive forest pests, which is an ever-present threat in our changing world. By helping to monitor the movement of EAB through observing birds, you can help your neighbors and local businesses prepare for its arrival.

References

Koenig, W., A. Liebhold, D. Bonter, W. Hochachka, and J. Dickinson. 2013. Effects of the emerald ash borer invasion on four species of birds. *Biological Invasions* 15:2095-2103.

Molly Heuss (formerly a Forest Health Specialist with NH Division of Forests & Lands), Steve Roberge (UNH Cooperative Extension Cheshire County Forester), and Phil Brown (NH Audubon's Director of Land Management), and various others teamed up to bring knowledge of EAB to birders and outdoor enthusiasts in 2014 in response to the EAB infestation in the Concord area. They have since reached audiences in several venues across the state, and this article is an attempt to summarize their educational, informative, and often entertaining, workshops. Their message: New Hampshire forests are changing with the arrival of EAB, but knowledge is power and there can sometimes be a silver lining.

New Hampshire Bird Records Endowment Fund

Donations to this fund provide long-term support for all facets of *New Hampshire Bird Records*, from the publication to the collection, organization, quality control, dissemination, preservation, and storage of New Hampshire bird sighting information.

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Abbreviations Used

BBC	Brookline Bird Club
BBS	Breeding Bird Survey
CA	Conservation Area
CC	Country Club
CFT	NH Audubon Chapter Field Trip
FT	Field Trip
IBA	Important Bird Area
L.	Lake
LPC	Loon Preservation Committee
NA	Natural Area
NHA	New Hampshire Audubon
NHBR	New Hampshire Bird Records
NHRBC	NH Rare Birds Committee
NWR	National Wildlife Refuge
PMRO	Pack Monadnock Raptor Observatory
PO	Post Office
R.	River
Rd.	Road
Rt.	Route
SF	State Forest
SP	State Park
SPNHF	Society for the Protection of NH Forests, Concord
T&M	Thompson & Meserves (Purchase)
TNC	The Nature Conservancy
WMA	Wildlife Management Area
WMNF	White Mountain National Forest
WS	NHA Wildlife Sanctuary
~	approximately
WTP	Wastewater Treatment Plant

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