Ash Tree Update - 2016

Summary

- The invasive emerald ash borer beetle is present in National Capital Region (NCR) parks
- It is nearly 100% fatal to ash trees
- White ash is a very common tree in NCR forests
- Ash tree mortality is rising
- Parks are managing hazard and special value trees

Background

Emerald ash borer (EAB; *Agrilus planipennis*) is an invasive Asian beetle that targets ash tree species. It kills trees by destroying tissues that transport water and sugar within the tree. EAB is nearly 100% fatal. Most trees succumb to the effects of the beetle within 3-6 years.

We are now more than ten years into the emerald ash borer invasion of the National Capital Region (NCR). Ash trees are beginning to die off, with striking declines in some areas.

Ash trees are very common in the NCR. White ash (*Fraxinus americana*) was the tenth most common tree species in the region based on 2006-2009 data[1]. Green ash (*F. pennsyl-*

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1 Officially accepted data collected by the National Capital Region Inventory & Monitoring Network (NCRN I&M)

Left: Damage on an emerald ash borer-afflicted tree. Ash trees branches are directly across or "opposite" each other.
Right: Bark damage called "blonding" created when woodpeckers search under bark for emerald ash borer larva.

Photos, Left: NPS, Right: Kenneth R. Law

vanica), pumpkin ash (*F. profunda*), and black ash (*F. nigra*) are also present in NCR parks. The destructive nature of EAB means that we should expect significant changes to NCR forests as ash trees die off in the coming years.

Ash Trees in 2016

Density of ash (number of trees per hectare or ~2.47 acres) between 2006 and 2016 is shown in Figure 1. Living tree density was fairly consistent through 2014, after which it began to drop.

Dead tree density is only available for one full four-year period that ended in 2016. However, we expect dead tree density to increase quickly in the next few years before tapering off as a large proportion of EAB-killed ash trees initially left standing in place gradually fall. These downed ash trees will in turn create a temporary increase in dead wood on the forest floor.

Forest Management Implications

In locations where dead trees could be a threat to people or property, hazard tree maintenance will continue to be a safety issue. Especially valuable trees (showcase or historically significant trees) will require ongoing treatment with insecticide to maintain resistance to EAB.

In natural areas, the loss of ash from the forest canopy (the top layer of forest) will have cascading ecological effects as light penetrates deeper into previously shaded habitat. These effects may range from increased growth of tree species that once competed with ash to increases in species that capitalize
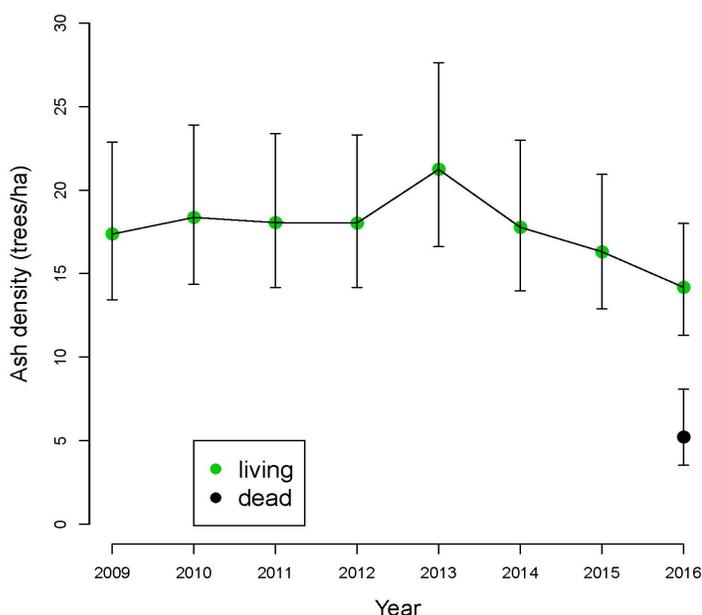
Figure 1. Ash tree density in rolling four year periods labelled by ending year (i.e., the 2009 data point shows average ash density for the 2006-2009). Green represents living tree density. Black represents dead tree density. Vertical lines show estimated error.