



OS I-05

Effects of emerald ash borer on ash forests and considerations for forest management

Kathleen S. Knight^{1†}, Charles E. Flower^{1*}, Brian M. Hoven², Kyle C. Costilow³, Matt Higham², Valerie E. Peters⁴, David L. Gorchov², Robert P. Long¹

¹ *USDA Forest Service Northern Research Station*

² *Miami University*

³ *USDA APHIS*

⁴ *Eastern Kentucky University*

The emerald ash borer (EAB) has decimated populations of multiple species of ash and threatens to alter forest ecosystems where ash is a dominant tree species. A decade of data from forest monitoring plots across Ohio provides high temporal resolution information on the effects of EAB across a range of ash forest ecosystems. The plots represent a gradient of ash density and all five ash species native to Ohio. Yearly data on ash mortality, ash tree fall, ash regeneration, EAB population density, native and non-native plant species and a snapshot of increases in coarse woody debris provide a multi-dimensional picture of the effects of EAB across a range of forest ecosystems. The results show that nearly all mature ash trees in the stand can progress from healthy to dead within 3-6 years, during which time the EAB population builds, peaks, and then crashes to low densities but persists. Stands with greater densities of dead ash trees experienced larger changes in carbon budgets and invasive shrub growth rates. Other forest stands exhibited resilience as forest gaps were filled by rapid growth of native trees. The results show which ecosystems are likely to experience impacts, as well as the timing of those impacts, allowing managers to tailor forest management strategies in forests affected by EAB.

***Presenting Author:** charlesflower@fs.fed.us

†**Corresponding Author:** ksknight@fs.fed.us

Science & Management of Ash Forests after Emerald Ash Borer

Workshop on the Future of Ash Forests

July 25 – 27, 2017, Duluth, MN