Risk of moving forest pests remains long after storm events: Forest Service Study

DURHAM, N.H., February 9, 2017 – Potentially damaging wood-inhabiting insects can survive in downed trees and logs used for firewood for up to several years following a major storm, a recent U.S. Forest Service study concluded.

In June 2011, a powerful EF3 tornado tore a 39-mile path through western Massachusetts, damaging or killing thousands of trees. After the storm, Forest Service entomologists conducted a study to determine how long firewood cut from a major disturbance would harbor potentially damaging insects.

“The downed trees provide habitat to many insects over time,” said Kevin Dodds, a Forest Service entomologist and lead author of the study. “This habitat changes over time as the downed trees decay, and generally speaking, the insects that colonize tree material early can often be the most damaging if moved into new environments.”

Invasive insects such as the Asian longhorned beetle and emerald ash borer pose major threats to forests across the United States and can be easily spread in wood products. The entomologists collected ash, birch, maple, oak and pine logs from the blow down area and split it into firewood-sized pieces. “Firewood was collected by the third week of April 2012, 2013 and 2014 and placed in rearing barrels after splitting,” reads the study.

Each year they opened the drums and painstakingly inventoried the insects that had emerged from the wood. They kept detailed records of the number, species and year that the insects had emerged, as well as from which type of wood.

The study noted that firewood harvested from the large scale disturbance in northeastern hardwood forests produced large numbers of insects, even three years after the tornado.

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In all, researchers estimated that a total of 39,121 insects representing 42 species emerged from the firewood. Eastern ash bark beetle, or *Hylesinus aculeatus*, was the most common insect collected and accounted for 85 percent of the total number of insects.

“It was a little surprising that even after three years, we still found insects associated with recently killed trees emerging from firewood,” Dodds added. This discovery adds another note of caution to the movement of firewood and other wood products. The long distance movement of firewood is a major contributor to the spread of tree-killing invasive insects. “Even years after firewood or logs appear to be safer for transport, they might still be infested with forest-harming insects,” added Dodds.

“We wanted to put ourselves in the shoes of someone who wanted to cut firewood after a blow down,” said Dodds. “The goal of the project was to act as if we were cutting or salvaging firewood. If there’s a big disturbance, people and municipalities will clear their properties, often through firewood cutting, over a period of years. While some may believe that older firewood poses less of a threat for moving pests, we found that at least at three years out, this material can still harbor damaging insects.”

It turns out that not all of the trees died at the same time following the storm. Some of the damaged trees stayed alive for several years after being blown over. The disturbance happened in year one, but in year three or four there were still insects associated with recently dead trees found in firewood. “We often see these large wind disturbances and assume everything is wiped out. Instead, there are pockets of living trees and a range of damage classes creating suitable habitat over time” said Ryan Hanavan, study co-author and fellow Forest Service entomologist. “Staggered mortality resulted in favorable conditions for these insect communities over the course of this study.”

Dodds added “The time period after a large disturbance where someone could move damaging insects is larger than we originally thought.” The study was published in January 2017 in the peer review journal *Agricultural and Forest Entomology*.