

# Northern spruce engraver monitoring in wind-damaged forests in the Tanana River Valley of Interior Alaska

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In September of 2012, a large scale wind event occurred in the Tanana River Valley which resulted in an estimated 1.4 million acres of forest damage. The damage consisted of numerous broken, uprooted, and leaning spruce and birch. The details of this wind event were first reported in FS-R10-FHP (2013) and subsequent Forest Health Conditions in Alaska reports have provided updates on northern spruce engraver (*Ips perturbatus*) damage and monitoring in the wind-impacted areas (FS-R10-FHP, 2014, 2015).

Northern spruce engraver activity is generally found in scattered pockets of weakened or damaged spruce such as those along the edges of wildfires, rivers, or impacted by weather events. Often, windblown trees dry out quickly and become less suitable for the beetles. Many of the wind-damaged spruce stands in the Tanana River Valley, however, were left leaning but alive, potentially providing a persistent supply of weakened host trees for the beetles.

In the year following the windstorm, minor amounts of northern spruce engraver-caused mortality (~115 acres) were observed during the annual forest health aerial detection surveys conducted by Alaska Division of Forestry and FHP staff. By 2014, an estimated 425 acres of scattered mortality was mapped in the area. Observed mortality increased to nearly 900 acres of scattered damage in 2015. The damage observed thus far has been widely scattered individual trees or small groups of trees. To date, no extensive contiguous areas of northern spruce engraver-caused mortality have been observed in the wind-impacted area.

In response to the windstorm, local natural resource managers between Delta Junction and Tok have been actively working to mitigate bark beetle activity, using various techniques including those outlined in recent northern spruce engraver research (Fettig et al., 2013). Numerous monitoring projects have also been initiated. Current efforts include a Division of Forestry-led monitoring project in the Quartz Lake area near Delta Junction, being conducted with assistance from Fairbanks FHP staff. Stands in the Quartz Lake area were impacted by the 2012 windstorm and then again in late 2013 by a smaller scale windstorm.

Northern spruce engraver monitoring in the Quartz Lake area was initiated in 2014, with the installation of 15 monitoring sites distributed across a range of wind-damage

severities; 21 sites were monitored in 2015. Based on data from previous monitoring efforts (N. Lisuzzo, pers. obs.), the 2014 Quartz Lake trapping data suggested that beetle populations were elevated in roughly half of the sites monitored<sup>2</sup>. The 2015 monitoring data is currently being finalized, but initial indications are that elevated northern spruce engraver populations are present in a majority of trap locations. Aerial observers also noted scattered northern spruce engraver-caused mortality in residual spruce in the Quartz Lake area during the 2015 aerial surveys. A more detailed description of this monitoring effort is available in FS-R10-FHP (2016).

## References

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<sup>2</sup>Ideally, monitoring traps should be placed prior to the initial beetle flights each spring. Installation of the 2014 traps, however, appeared to coincide with the initial northern spruce engraver flight, presumably resulting in overall lower trap catches.