

Date: October 28, 2013  
Re: Engraver beetles at Scotts Bluff National Monument, RCSC-2-14  
To: Robert Manasek (Resource Management Specialist)  
Cc: Rachel Allison (District Forester), Laurie Stepanek (Forest Health Assistant), Mark Harrell (Forest Health Specialist), Bob Cain (Entomologist), Susan E Gray (Group Leader)  
By: James T Blodgett (Plant Pathologist)  
USDA Forest Service  
Rocky Mountain Region  
Forest Health Protection  
Rapid City Service Center  
8221 S Highway 16  
Rapid City, SD 57702  
Phone: 605-716-2783  
E-mail: [jblodgett@fs.fed.us](mailto:jblodgett@fs.fed.us)

On October 23, 2013 Robert Manasek (Resource Management Specialist) and I examined dead and dying ponderosa pine (*Pinus ponderosa*) at Scotts Bluff National Monument. The initial purpose of this site visit was to look for mountain pine beetle (*Dendroctonus ponderosae*), which has been found in the area in 2011 and 2012. Mountain pine beetles were not found, but one tree near the Visitor Center, five trees on the bluff near the overlooks, and a few small clumps of trees in the southwest corner of the National Monument were recently attacked by engraver beetles (*Ips calligraphus* and *I. pini*).

Damage included fading tops and whole crown mortality. Boring dust in bark crevices and at the base of trees, and pitch tubes on trunks were observed (**Fig. 1**). Nuptial chambers with radiating egg galleries were etched into the wood, and beetles were observed in the bark (**Fig. 2**).

Drought stress is the likely contributing to the beetle mortality and drought stress symptoms were common (**Fig. 3**). Stress symptoms included low needle retention (often one to two years of needle whorls), yellowing needles, stunted needles, and scattered dead branches.

Ponderosa pine typically maintains three years of needle whorls. Porcupine damage was also observed, mostly affecting smaller trees. Older dead trees had wood borers that colonized the trees after mortality.

## **Management Recommendations:**

Sanitation of infested trees. Engraver beetles over winter as adults and become active in spring. Cutting and removing or treating infested trees with developing beetles can reduce the number of beetles that emerge and attack new trees. Trees should be removed from the area and processed, or treated in place by 1 March. Treatments can include burning, peeling of bark, or chipping.

Preventive insecticides for high value trees. There are a number of pesticides effective at preventing beetle attacks of uninfested trees. High valued trees near the Visitor Center or cultural areas can be protected with these sprays.

Traps in areas with infested trees. Funnel traps baited with pheromones will draw beetles into traps as opposed to attacking new trees. Traps will not collect all beetles, but can reduce new attacks.



**Figure 1.** Boring dust in bark crevices (left) and pitch tubes (right) indicating pine engraver beetles attack.



**Figure 2.** Galleries of the engraver beetle radiating from nuptial chamber etched in wood (left) and beetles in bark (right).



**Figure 3.** Ponderosa pine near the Visitor Center attacked by engraver beetles (left), and tree with drought stress symptoms on the bluff (right).