US Forest Service
Rocky Mountain Region

Forest Health Protection
State and Private Forestry/Tribal Relations

Rapid City Service Center
8221 Mt. Rushmore Rd.
Rapid City, SD 57702

Report RCSC-18-08

September 17, 2018

Limber Pine in Nebraska

James T Blodgett, Plant Pathologist

On May 5, 2018 Kelly Sullivan Burns (Pathologist), Amy Chambers (Technician), and I examined limber pine (*Pinus flexilis*) for white pine blister rust (*Cronartium ribicola*, WPBR) and other damage agents in western Nebraska (**Map 1**). The disease was not found, nor was it observed during previous visits in 2013[1] and 2006.

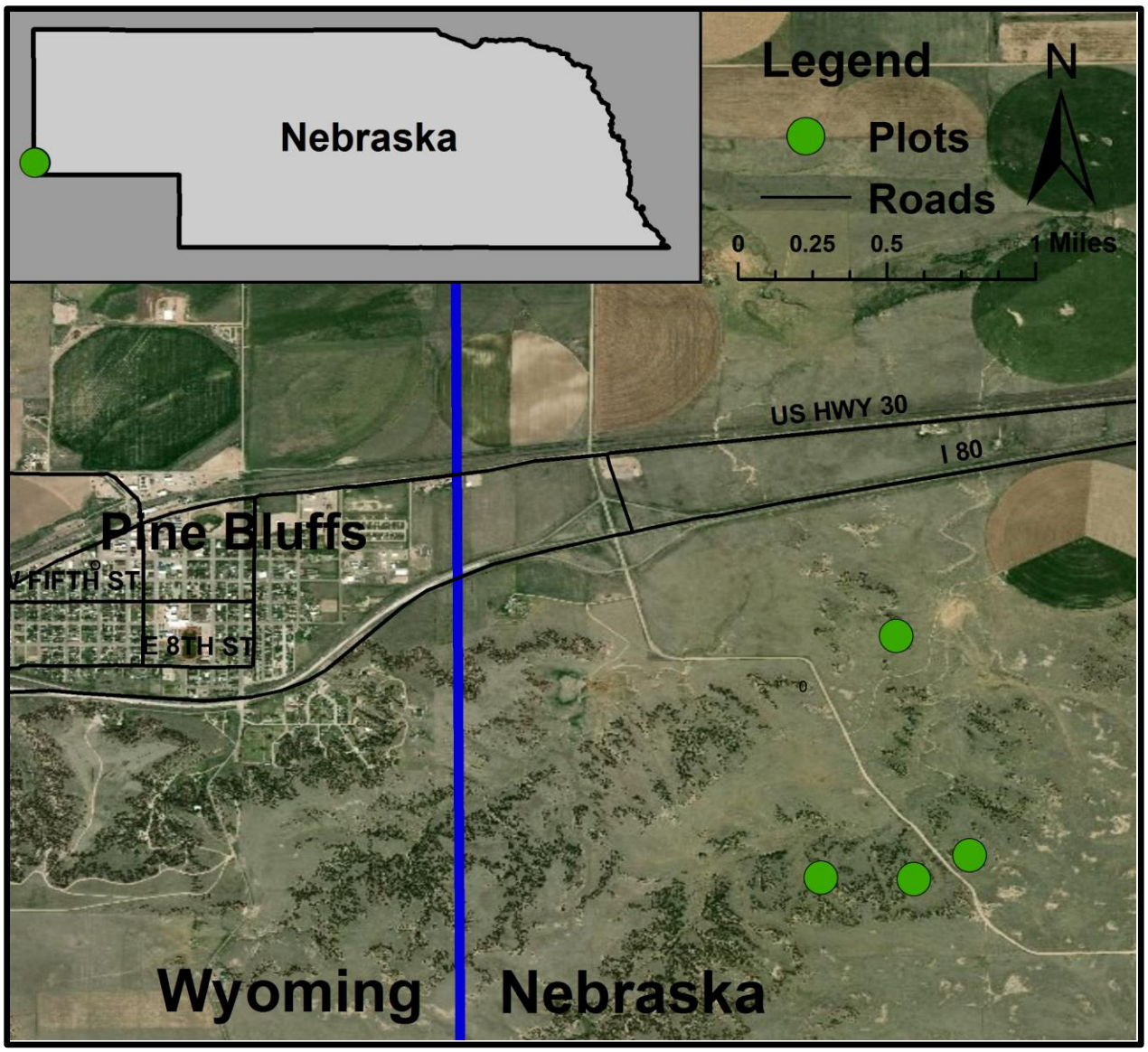
We surveyed three transects that intersected four previously visited plots (**Map 2**). Each transect consisted of 3 people walking in parallel with a spacing of approximately 50 ft. The total length of the three transects was 1.7 miles and approximately 200 ft wide. The number of trees examined/infected with WPBR and the relative frequency of other damage agents were recorded. Trees with potential WPBR symptoms were examined more closely. Since trees were examined in both directions some trees were double-counted, but those trees were examined on opposite sides by two people.

The number of trees counted was 2,427. However, since some trees were double-counted, approximately 1,820 trees were examined. WPBR was not found and the damage agents observed were similar to those previously reported in 2013. However, the frequencies of damage agents differed slightly from previous observations. The most common damages observed in 2018 (from most to least common) were: hail, twig-beetle, porcupine (and other rodent), engraver beetles (*Ips* spp.), and animal/mechanical. Recent limber pine mortality was very low and was mostly due to the engraver beetles (likely *Ips pini*). Much of the animal/mechanical damage was caused by cows and other ungulates.

The site contained numerous *Ribes* plants (the alternate host of WPBR) and likely several species, but species were not identified. *Ribes* leaves were examined and WPBR was not found; however it was early in the season.

Fifteen branches were examined for years of needle whorl retention. Trees are recovering from the drought damage previously reported with 6 years of needle whorl retention verses 1 to 3 years in 2013. Much of the twig- and engraver beetle damage was older. The older twig- and engraver beetle damages are likely associated with the previous drought.

[1] Blodgett, J. T. 2013. Limber pine in western Nebraska. USDA For. Serv., Rocky Mountain Region, For. Health Mgt., Rpt. RCSC-1-14.



Map 1. Limber pine location examined for white pine blister rust and other damage agents in western Nebraska.

Map 2. Limber pine transects examined in 2018 (light-green shaded) and plots (dark-green dots) examined in 2013 and 2006.