



United States  
Department of  
Agriculture

Forest  
Service

Rocky  
Mountain  
Region

Forest Health Management  
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**File Code:** 3410

**Date:** 1/22/2003

**Subject:** Damaged trees on Highway 385 west of Wind Cave, RCSC-08-04

**To:** John Twiss, Black Hills National Forest Supervisor

This report contains our initial findings regarding a large area of ponderosa pine centered approximately one mile west of Wind Cave off Highway 385 that has red to brown needles. We examined parts of the area on January 22, 2004. Below are our initial findings. A more detailed report will be forthcoming and we will monitor the area in the future.

The most obvious damaging agent we found on the trees was physical damage of branches caused most likely by hail. Most branches had at least one, and frequently more, small scars where they were struck. Most scars appeared fairly fresh, and are likely from a hail event in the summer of 2003. Since the scars did not typically girdle branches, it has taken time for needles to change from green to red or brown. There is a directional aspect to the damage. Most of the dead or dying branches occur on the southeast side of the trees. This is another indication that much of the current damage is related to hail.

Based on observations from similar events, there will be some tree mortality associated with this event. How much mortality will occur is hard to say. There are a number of factors that can affect the amount of mortality associated with this event. There is a considerable amount of western gall rust in this area. Galls that girdled branches have caused some branch mortality. Another, and perhaps more important disease agent that might cause increased mortality is *Sphaeropsis* shoot blight (*Diplodia*). It is unknown at this time whether this fungus is found in this area. If *Sphaeropsis* is in the area additional branch and tree mortality might occur. Wounds caused by hail have been associated with *Sphaeropsis* mortality. Finally, although little activity was noted at this time, these damaged trees could become targets for bark beetles, notably *Ips*. *Ips* preferentially attacks stressed trees. The drought conditions over the past few years have weakened trees. The addition of extensive crown damaged will increase stress.

It appears that this is similar to damage we have seen on the forest from past hailstorms. We have records of such events in the Kirk Hill area in 1999, Sheridan Lake Road in 2000, and although not documented, a similar event occurred around Hill City in 2001. Based on these events, we do not expect heavy mortality from hail damage alone. However, other factors could cause increased mortality.

Please let us know if you have further questions on this or other forest health topics.

Sincerely,  
James T. Blodgett  
Forest Pathologist

Kurt K. Allen  
Entomologist

CC: F.Carroll, BHNH SO; B.Cook, BHNH SO; J.Allen, Hell Canyon RD; D.Boone, Hell Canyon RD; D.Roddy, Wind Cave NP; J.Ball, SD State Forestry

