

SD – Innovative Approaches to Mountain Pine Beetle Management in Custer State Park

Mountain pine beetle (*Dendroctonus ponderosae*) infestations are resulting in widespread pine mortality throughout western North America. In the Black Hills of South Dakota the bark beetle epidemic that began in the late 1990s has already resulted in the loss of more than 2 million pines and infestations continue to expand. A mountain pine beetle infestation in the Black Elk Wilderness Area, adjacent to the northern boundary of Custer State Park, began to migrate into the park with small pockets of infested trees appearing within the park, including stands in the Cathedral Spires and Sylvan Lake area which are prime recreational areas. Sequential sampling of the bark beetle in Custer State Park showed that the beetle population was increasing, similar to the population build-up that occurred in other areas of the Black Hills.



In response to this expanding threat to the park, the South Dakota Division of Resource Conservation and Forestry developed a detailed plan to aggressively manage the infestation through the use of innovative approaches. Harvesting infested trees and thinning to reduce stand susceptibility has long been an acceptable and proven means of slowing beetle populations and tree mortality. These tactics were long-standing approaches employed in the park. In addition to these tactics, pheromones, synthetic forms of attractants naturally produced by beetles, were used as spot baiting to purposely draw beetles to specific trees. These baited trees drew many times the normal number of beetles, essentially “soaking up” a population, but without excessive spill-over attacks, with many of the baited trees only having one to four adjacent trees also attacked.



The infested trees were felled during the fall, cut into 2-foot lengths and left to dry. These logs were monitored and the mortality of the various beetle life stages tracked until emergence the following spring. Felling the trees and cutting into short lengths created a habitat unsuitable for the beetle, resulting in significant mortality. While some beetles still emerged from the cut wood, the numbers were low enough that the adults dispersed rather than mass attacking the adjacent standing trees.

Pheromones were also employed to repel beetles in an innovative effort to protect the rare limber pines present in Custer State Park. The limber pine in the Cathedral Spires is a relic stand that has received National Natural Landmark status from the National Park Service. Limber pine is a preferred host to the mountain pine beetle and there was

concern that South Dakota could lose this unique stand to the epidemic. Individual trees were baited with an anti-aggregation pheromone to repel mountain pine beetles from the trees. In addition, several ponderosa pines lower in the draws were baited with an aggregation pheromone to draw the beetles to these pines as a "push-pull" technique. None of the limber pines have become infested with mountain pine beetles.

Sequential sampling of the beetle populations during the last summer showed that the increasing population had been checked. These tactics are being continued to reduce the population in Custer State Park. Due to the unchecked infestations in the adjacent Wilderness Area in the Black Hills National Forest, efforts must be continued in the coming years through monitoring, baiting, sanitation/salvage, and thinning to minimize pockets of infestations when they occur and reduce the susceptibility of the forest to an epidemic. These management strategies will help to ensure that Custer State Park remains a place of beauty and biodiversity in the Black Hills of South Dakota.

CONTACT: SD Dept of Ag, Resource Conservation & Forestry Division, 605-773-3623, SDRCF@state.sd.us

RELATED SITES:

PDF:

DATE: 2006-12-18