CELEBRATING 100 YEARS OF CONSERVATION AND PUBLIC SERVICE ON THE ROUTT NATIONAL FOREST

"Bark Beetles on the Routt National Forest"
by Mary Peterson, Forest Supervisor

With the recent outbreaks of spruce and mountain pine beetles on the Routt NF, I thought it would be interesting to check into the last hundred years of bugs and pestilence on the Routt. We all know about the Routt Divide Blowdown which occurred on October 25, 1997. Strong winds in excess of 120 miles per hour blew from the east over the Continental Divide. In the early hours, a path of wind almost five miles wide and thirty miles long flattened over four million trees in the Routt National Forest landscape. Spruce and fir trees north of Steamboat Springs were blown over, roots and all, or snapped off at the trunk in patches of up to four thousand acres. As is the case in these natural disturbances, spruce beetles, normally endemic in spruce stands, found the fallen trees a perfect home for feeding and increasing their populations. Despite salvage of some blown down stands and suppression of insects in high value stands by applications of pesticides and tree and bark removal, we are now experiencing an epidemic of spruce beetles which was not unexpected--especially given the drought conditions and mild winters of the last five or six years.

At the same time, the Routt's lodgepole pine stands have been experiencing mountain pine beetle infestations which are now at epidemic proportions. This too is not unexpected given the age and density of lodgepole pine stands on the forest, the mild winters, and drought stress the trees have been under for the last few years, all of which create a "perfect storm" for epidemic levels of bark beetles.

In the life history of a forest, these natural disturbance processes—wind throw, drought, insects--are not uncommon. A look back in the historic records show that even within the last 100 years on the Routt NF such conditions have occurred.

In 1906 Paul Reddington, an inspector from the Washington Ofice who spent the summer of 1906 on the forest to assess timber, wrote a report to document his findings regarding timber condition, timber sales, timber trespasses, and insect conditions. In that report, he stated the Elk River timber should be removed as soon as possible since 25% was dead or dying from insects.

In 1908, Supervisor Ratliff estimated 1.6 billion board feet of green timber and 581 million board feet of dead timber on the Routt National Forest.

Prior to the 1997 blowdown, the Routt NF experienced an earlier severe wind storm on June 15, 1939. Considerable damage to timber on the Routt NF resulted from this storm. The greatest damage occurred on wet sites, although the storm swept down trees on ridge tops and other typical dry sites in local areas. It is estimated that about 85 per cent of the damage occurred on south and west exposures and was much heavier on cut-over areas than in virgin timber. The force of the wind was not uniform over the forest, it was being

more severe on the Gore and North Park Districts than elsewhere.

Prior to 1939 all historic reports indicate the Routt NF was quite free of tree damaging insects, with all losses endemic and usually as a secondary attack on diseased or injured and dying individual trees. By 1944 some indications of an epidemic attack were beginning to appear over the Forest. Heavy infestations of mountain pine beetle were reported in lodgepole pine stands in the Chedsey Creek, Little Grizzly and Sawmill Creek drainages in North Park. "Groups of up to 50 and 75 infested trees were seen with the infestation extending 25 to 30 feet up the bole of the tree." Timber harvesting in 1945 and 1946 in this area apparently checked this outbreak.

In 1945 Ranger John Douglas reported a very heavy attack of spruce beetle on the south end of the Gore District, near Long Spring Butte, Wheeler Basin, and Muddy Slide. This attack was confirmed by entomologist Tom T. Terrell. Typical of some insect attacks, 1946 showed only about one fifth as many new trees infested as the 1945 attack indicated. This was no doubt an unfavorable year for the bugs but still enough remained to create an explosive situation. Entomologists continued to survey the situation and study the insect's life cycle, rate of increase, and travel distances and methods of control. This continued through 1949. By that year surveys showed practically all the Englemann spruce timber on the White River forest north of the Colorado River and the Yampa District were infested and dying. Light infestations had crossed the Colorado River east to the Eagle area and were spreading north and east across the Yampa River.

It was found the bugs could be killed by spraying the tree bole from the ground to a height of 15 to 20 feet with a solution of diesel fuel and orthodichlorobenzene. Pilot projects in 1950 indicated the cost would be about $4.00 per tree, almost prohibitive, but with all the Colorado Englemann spruce timber at stake, it was decided to hit the front of the spreading beetles. The Forest Service requested funds from Congress and presented their plan. By late 1951, funds were appropriated and a 100-man camp was established on Buffalo Pass to work south toward the Rabbit Ears Highway. Early in 1952 another 100-man camp was established at Base Camp about two miles north of Dumont Lake. This camp was to work the area from Harrison Creek north to join with the crew from Buffalo Pass.

Other camps were established on the perimeter of the spreading spruce beetles on the White River and Arapaho Forests. This treatment was generally possible because of the two year cycle for the beetles to mature before leaving the parent tree. This also made detection difficult as an infested spruce tree would remain full color green the first year then begin to fade color and die the second year after attack.

With the assistance of a favorable winter beetle kill, prolonged severe temperatures, a parasite feeding on the beetles, and a great increase in woodpeckers, combined with insecticide treatments, the beetle epidemic ended, and by the fall of 1953 practically all camps in the area were closed. Only spot treatment was necessary over the following year.

The Forest had suffered a tremendous loss. Practically all of the Engelmann spruce on the Yampa District along with lodgepole pine and spruce east across the Gore District from Harrison Creek north to Buffalo Pass were dead. The loss has been conservatively estimated to be about one and a fourth billion board feet of Engelmann spruce and lodgepole pine.

During the peak of the beetle flight in 1950, beetles were carried by the wind, a distance of 20 to 30 miles, east across the Colorado River from the White River plateau. Beetles floated two to four inches deep along the shores of the high mountain lakes in the attack areas. Very little of this timber was ever salvaged. Within two years following death of the tree wide spiral cracks developed in the trees, making them unsuitable for lumber.

Sources:

History of the Routt National Forest, 1905-1972. Developed in 1965 and partially revised in 1972.

Routt Divide Blowdown brochure, 1997.