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# PEST REPORT

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FIDS PEST REPORT 94-10

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## Spruce Beetle in the Yukon Territory

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Spruce beetle, *Dendroctonus rufipennis*, killed mature and over-mature white spruce over more than 25 000 ha in stands in and adjacent to Kluane National Park in the southwestern Yukon. This is the largest outbreak recorded in the Yukon and the first significant spruce beetle activity since 1977. In addition to the extensive tree mortality there are concerns of increased fire hazard and possible effects on wildlife habitat.

Recent beetle-caused tree mortality was mapped during an aerial survey in late June. More than 90% of the mortality resulted from beetle attacks in the spring of 1993. The remaining 10% of the trees were attacked prior to 1993 and were grey.

The total area mapped by severity classes was:

Light (less than 10% of stand killed)	-	11 600 ha
Moderate (10-30% of stand killed)	-	10 300 ha
Severe (more than 30% of stand killed)	-	3 000 ha

Within Kluane National Park, most of the infested stands were located in the Alsek River drainage between the Lowell Glacier and Haines Junction, with additional concentrations in the Mush and Bates lakes area, and west of Kathleen Lake. Both inside and outside the Park, large infestations were seen in the Shakwak Valley between Bear Creek and Kluane Lake, and farther south near Quill Creek and in the foothills just west of Dezadeash Lake.

Three ground probes were undertaken to confirm identification and assess population condition. One was accessed by vehicle from the Alaska Highway, 15 km north of Haines Junction, and two by helicopter, one near Trout Lake and one near Mush Lake. There was significant current attack (5-30%) in addition to the red and grey attack in all areas. The current attacks had occurred in early June 1994, by beetles which had emerged from the red trees after completing

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development in only one year. This accelerated development from the normal two year cycle was unexpected, especially for an insect at or near the northern limit of its range. Examination of the red trees confirmed that an estimated 10 to 25% (depending upon the location) of the beetle brood had emerged from these 1993-attacked trees. The remainder of the brood was in larval and pupal stages and will emerge in 1995.

The origin of the infestation is unknown, but it may be related to large infestations in the Chilkat River drainage, and other areas of coastal Alaska. Strong prevailing winds may have transported a population of adult spruce beetles up river valleys into the interior where they found abundant susceptible mature and over mature white spruce.

If a high proportion of existing broods survive to attack in 1995, a significant intensification of the infestation is expected, as well as a spread into susceptible stands to the east and north. Stands in the Dezadeash Valley and side drainages are at risk, as well as stands along the east side of Kluane Lake.

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