



FIDS PEST REPORT 94-32

December, 1994

FOREST INSECT AND DISEASE CONDITIONS IN MOUNT REVELSTOKE AND GLACIER NATIONAL PARKS 1994

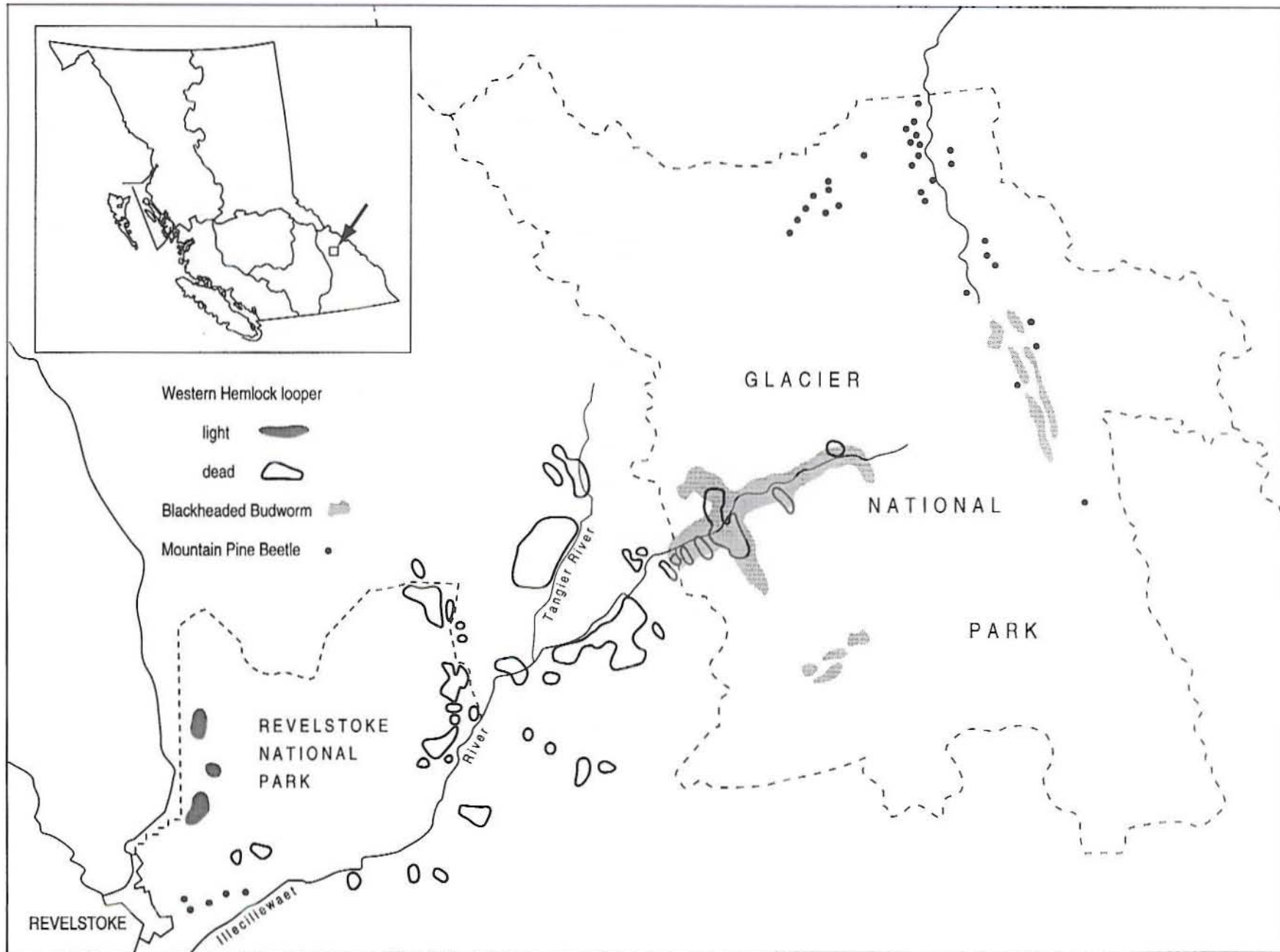
L. Unger and A. Stewart
Forest Insect and Disease Survey

Some of the more important forest insects and diseases in the parks are discussed by host in this report, which also fulfills the requirements for maintaining a Parks research and collection permit. Aerial surveys were completed by late August and covered most of the main drainages; limited ground surveys were conducted intermittently from June to September. Insect and disease conditions were, in most cases, discussed with Parks personnel during the field season. Most outbreaks are continuous beyond park borders and are reported in more detail in the annual FIDS report for the Nelson Forest Region.

Pine

The **mountain pine beetle**, *Dendroctonus ponderosae*, infestation in Glacier Park increased slightly, with an estimated 1380 white and lodgepole pine killed over 25 ha (Map 1), up from 1140 trees in 1993. The main area of beetle activity near the mouth of Mountain Creek started to subside due to host depletion, but increased attack was mapped farther up the creek. No broods were examined in the park, but those in the Golden Forest District were large and indicated static to increasing populations. Groups of ± 10 trees continue to be killed annually along the Beaver River to Grizzly Creek. Populations remained low in Mt. Revelstoke National Park, with occasional spot outbreaks of up to five trees observed on south-facing slopes above the Illecillewaet River, in lodgepole pine and blister rust- infected white pine.

An introduced disease, **white pine blister rust**, *Cronartium ribicola*, continues to cause branch and top dieback, tree mortality, and reduced biodiversity throughout the ranges of western white and whitebark pines in both parks. Although no data was collected in the parks this year, a 1993 assessment of representative natural white pine stands in the adjacent Revelstoke Forest District revealed average accumulated infection rates of 82%, including 25% mortality.



Map 1. Occurrence of defoliation and tree mortality caused by the western hemlock looper, defoliation by the western blackheaded budworm, and trees killed by the mountain pine beetle in and near Mt. Revelstoke and Glacier national Parks. Forest Insect and Disease Survey 1994.

Western hemlock

A total of 290 ha of mature western hemlock and western red cedar near the western boundary of Mt. Revelstoke National Park were lightly defoliated by the **western hemlock looper**, *Lambdina fiscellaria lugubrosa* (Map 1). This was down from 6400 ha of moderate to severe defoliation in both parks in 1993, reflecting the decline of the outbreak throughout the B.C. Interior. Stand mortality caused by the outbreak was mapped over 1686 ha: 966 ha in Mt. Revelstoke National Park and 720 ha in Glacier National Park (Map 1).

The accumulated impact of defoliation has been assessed in representative stands, though post-outbreak mortality of trees with significant crown dieback can occur for up to five years and will be monitored annually. About 270 000 trees have been killed to date, or 604 000 m³, in Mt. Revelstoke National Park and 206 000 trees or 452 000 m³ in Glacier National Park. Previous studies indicate that top-kill starts with only 40% defoliation, some tree mortality follows 60% defoliation, and over half the trees die within five years after 80% defoliation.

Defoliation is expected to decrease further in 1995, based on trends in larval sampling (average decrease 80% from 1993), pheromone trapping (average 90% fewer moths), and egg counts (average 63% decrease) at monitoring sites outside the parks.

The **western blackheaded budworm**, *Acleris gloverana*, was the main cause of generally light defoliation of western hemlock over 4580 ha in Glacier National Park (Map 1), in and beyond areas where hemlock looper defoliation had been recorded for the past three years. Expansions occurred in the upper Incomappleux River drainage, along Flat Creek, and along the Illecillewaet River to Loop Brook. Standard larval beating counts increased to 1700 from 900 in 1993, while hemlock looper numbers dropped to 150 from 1800. Fall egg sampling indicates a major population reduction for 1995, with only six eggs per 45 cm branch sample. Populations in Mt. Revelstoke National Park remained low, limited to scattered trace defoliation.

Defoliation by the **hemlock sawfly**, *Neodiprion tsugae*, was also evident in the Beaver River blackheaded budworm infestation, where the number of sawfly larvae doubled to 700 in beating samples. Sawfly larvae feed mainly on older foliage and when this is along with new foliage feeders, such as the budworm, the impact is greater.

Alpine fir

Western balsam bark beetle, *Dryocoetes confusus*, remains a chronic pest along the Beaver River south of Grizzly Creek. Recently killed mature alpine fir were mapped in scattered ± 5 tree groups. Chronic scattered single attacks continued at higher elevations in Mt. Revelstoke National Park.

Engelmann spruce

Small **spruce beetle**, *Dendroctonus rufipennis*, infestations were noted along Mountain and Connaught creeks. No ground checks were made but populations have been increasing in numerous areas of the Golden TSA, including upper Bachelor Creek adjacent to Mountain Creek in the Park. No additional activity was noted at a small group of dead spruce below Beaver Lookout first mapped in 1992.

Deciduous trees

Discoloration of birch and black cottonwood by **leafminers** continued for the third year in the northern half of the Nelson Forest Region, but at lower levels in most areas. In the parks, *Lyonetia speculella* again severely discolored birch in the upper Illecillewaet River areas of Glacier National Park, most conspicuously along slide paths and in relatively pure stands, but decreased to light levels in Mt. Revelstoke National Park. Scattered light discoloration of black cottonwood by *Phyllocnistis populiella* continued. Previous outbreaks of discoloration by leafminers have not caused significant tree mortality.

No **gypsy moth**, *Lymantria dispar*, adults were caught in pheromone-baited traps at Illecillewaet and Loop Brook campgrounds and at Mt. Revelstoke National Park.

Scattered individual willow branches and stems were again killed by an introduced insect, the **poplar and willow borer**, *Cryptorhynchus lapathi*, in Mt. Revelstoke National Park. Since first collected in the Nelson Region in 1949, though likely present for several years prior, scattered attacks by this borer have become chronic through most of the host range.
