forest management note

Note No. 29 Northern Forest Research Centre Edmonton, Alberta

FOREST INSECT AND DISEASE CONDITIONS IN SASKATCHEWAN IN 1983 AND PREDICTIONS FOR 1984

Annual surveys of tree pests and conspicuous forest damage in Saskatchewan are conducted by the Forest Insect and Disease Survey (FIDS) of the Canadian Forestry Service (CFS). Close liaison is maintained with personnel from Saskatchewan Parks and Renewable Resources (SPRR) and with numerous other federal, provincial, and municipal government agencies that cooperate and assist with the surveys. This Note briefly summarizes important and noteworthy forest insect and disease conditions in Saskatchewan during 1983 and, where possible, provides infestation forecasts for 1984.

SPRUCE BUDWORM
Choristoneura fumiferana (Clem.)
JACK PINE BUDWORM
Choristoneura pinus pinus Free.

In 1983 white spruce stands scattered over a total area of approximately 12 700 ha in Saskatchewan were moderately to severely defoliated (more than 30% of current foliage destroyed) by the spruce budworm (Fig. 1). The current epidemics, the first since 1968, began in the Usherville area in 1982, when 2000 ha were affected. In 1983 this outbreak expanded to 4800 ha and a new outbreak (7900 ha) was detected in the Red Earth area. Egg-mass counts indicated that moderate-to-severe defoliation will recur in these areas in 1984. Timber harvesting already in progress in the Red Earth outbreak area may be redirected by SPRR to reduce budworm-infested trees and salvage white spruce stands that could be seriously affected if the epidemics persist.

The last epidemics of jack pine budworm, in the Nisbet and Torch River forests, collapsed in 1980. Since then, populations have been closely monitored to detect any new increases. Only low populations have been detected and no significant increases are anticipated for 1984.

MOUNTAIN PINE BEETLE
Dendroctonus ponderosae Hopkins

A mountain pine beetle control program was initiated by SPRR in 1980 when the beetle was confirmed in lodgepole pine stands in the Saskatchewan portion of Cypress Hills Provincial Park (Fig. 1). By the spring of 1983 more than 2250 beetle-attacked trees had been removed under the program. In addition, 259 newly reddened trees (suspected to have been killed by 1982 beetle attacks) were identified by aerial survey in the fall of 1983.

JACK PINE DWARF MISTLETOE
Arceuthobium americanum Nuttal. ex. Engelmann

Jack pine dwarf mistletoe, a parasitic plant that causes witches'-brooms, stem deformation, reduced growth, and possible tree mortality, is well distributed throughout the range of jack pine in Saskatchewan. Systematic roadside surveys were initiated in 1982 to establish intensities and distribution of the disease in the commercial forests of the province. A total of 113 km of roadside pine stands in six geographic areas of the province had been assessed by the end of 1983. Brooming was found in 19% of the stands surveyed; 8% were rated as moderately to severely infected (one-third or more of pine trees broomed) and 11% were lightly infected (less than one-third of pine trees broomed). Most of the surveys to date have been conducted in areas where significant infections of the disease are known to occur.

A project has been initiated by FIDS to study the impact of the disease on pine stands. SPRR has begun to identify the most severely infected jack pine stands in the Nisbet and Fort a la Corne provincial forests in order to determine timber harvesting priorities.

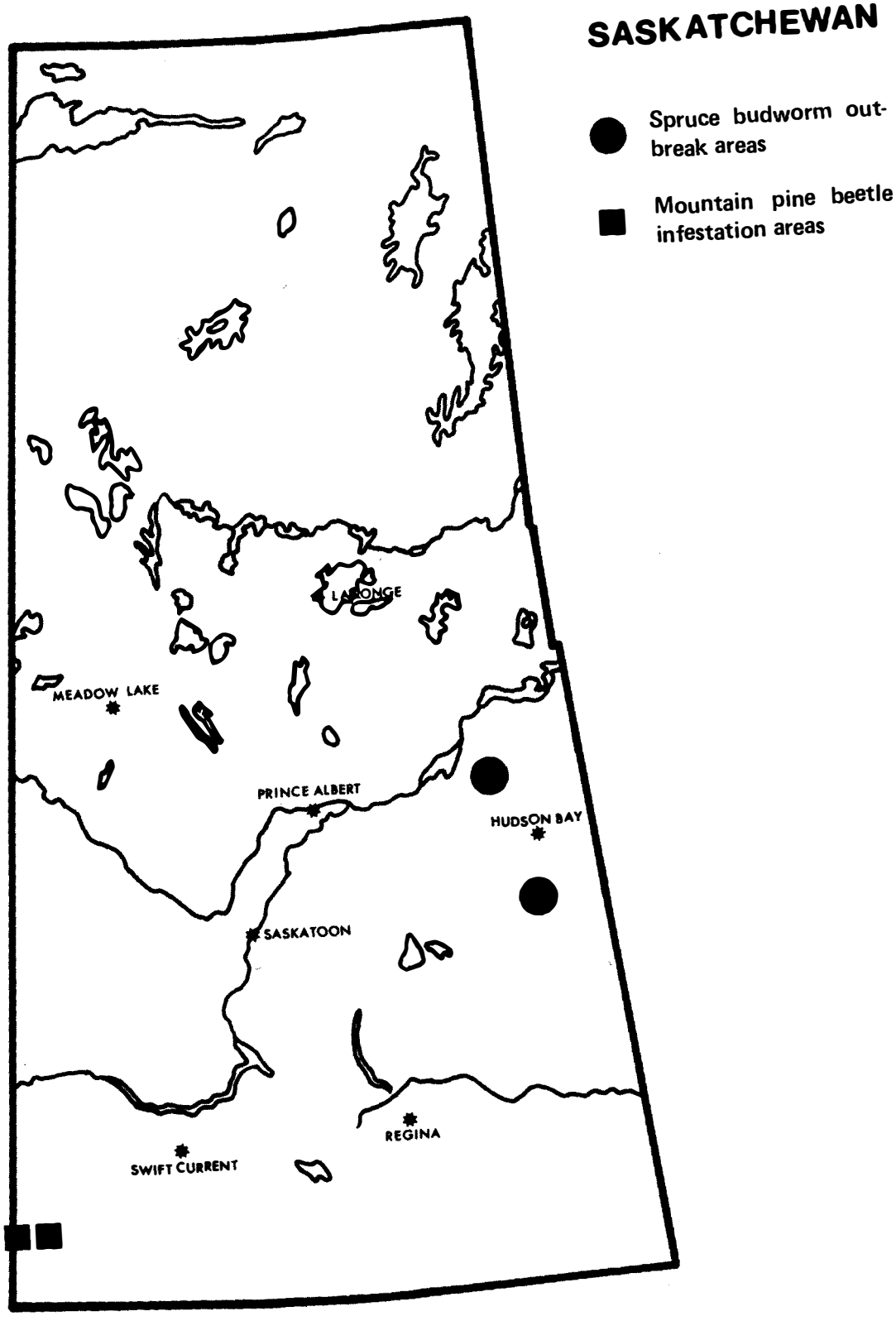

Figure 1. Areas of spruce budworm outbreak and mountain pine beetle infestation in Saskatchewan in 1983.

TREMBLING ASPEN DEFOLIATORS

The current epidemics of trembling aspen defoliators in Saskatchewan began in 1972, reached maximum levels in 1980 (128 000 km affected), and have since been declining annually. In 1983 moderate-to-severe defoliation (30-100% loss of foliage) was mapped over an area of 3500 km^2 in the province (Fig. 2). Approximately 700 km^2 of commercially zoned aspen forests were affected in east-central Saskatchewan. The remaining 2800 km^2 involved widely scattered, noncommercial forests in parks and semiagricultural areas and ornamental and shade trees and shrubs in urban areas.

In east- and west-central Saskatchewan the primary defoliator in 1983 was the **forest tent caterpillar,** ***Malacosoma disstria*** Hbn. The major east-central outbreak area included Greenwater Provincial Park and extended south through the Big Valley, Stove Creek, Okla, Hazel Dell, Fishing Lake, Tuffnell, and Invermay areas. Isolated minor outbreaks were recorded west of the Manitoba-Saskatchewan border between Namew Lake and the Carrot River, west of Hudson Bay in the Silas-Neely Lake area, in the Beaver Hills near Parkerview, and in the Wroxton-Lake of the Prairies area. The major west-central outbreak straddled the Alberta-Saskatchewan border between the Battle River and Macklin and extended eastward as far as Neilburg, Rutland, and Hearts Hill, with isolated minor outbreaks near Lashburn, Waseca, and Rabbit Lake.

Large aspen tortrix, ***Choristoneura conflictana*** (Wlk.), was the primary defoliator in the Cypress Hills Provincial Park area. Minor, scattered outbreaks of **Bruce spanworm,** ***Operophtera bruceata*** (Hulst.), occurred in the Turtleford-Livelong area, and scattered, light leaf-rolling damage by the **early aspen leaf curler,** ***Pseudexentera oregonana*** Wlshm., was observed across the province.

The forest tent caterpillar outlook for 1984, based on egg-band counts at 40 locations across the province, is for a further general decline; however, some moderate-to-severe defoliation may recur in Greenwater Provincial Park and in the Porcupine Plain, Lintlaw, Endeavour, Fishing Lake, and Macklin areas.

WHITE PINE WEEVIL
Pissodes strobi (Peck)
LODGEPOLE TERMINAL WEEVIL
Pissodes terminalis Hopping

Dead tops and terminal shoots caused by these weevils were commonly observed in young jack pine and white spruce stands, particularly in plantations across the province. A systematic survey of 150 young white spruce trees in plantations in the Grassy Lake area in 1982 indicated 22% top kill by *P. strobi*. A similar survey of 100 jack pine saplings in a plantation in the Gem Lakes area in 1983 indicated only 1% top kill by *P. strobi*, but 27% of the trees sustained terminal shoot injuries by *P. terminalis*. Observations across the province in 1983 indicated that up to 40% of the trees in some young jack pine plantations may have sustained terminal shoot injuries by *P. terminalis*. Some top kill of jack, Scots, and Mugho pines and white and Norway spruces by *P. strobi* was also recorded in provincial tree nurseries at Prince Albert, South Branch (MacDowall), and Big River.

CLIMATIC TREE INJURIES

Frost damage, of poplars in particular, was extensive across the southwestern part of the province. Branch dieback, foliage retardation, and tree mortality were evident in the Lloydminster-Saskatoon-Prince Albert areas. Hail injury and repeated annual defoliation by the forest tent caterpillar in recent years were important stress factors in some areas. Conspicuous reddening of foliage of young balsam fir in Prince Albert National Park was attributed to either hail injury or late spring frost injury.

DUTCH ELM DISEASE
Ceratocystis ulmi (Buisman) C. Moreau

The Prairie Farm Rehabilitation Administration (PFRA) and SPRR have been conducting intensive surveys across Saskatchewan in recent years to determine the presence and distribution of Dutch elm disease (DED). A single confirmed DED-infected tree was observed and removed in Regina in 1981, but no new infections have since been recorded.

OTHER NOTEWORTHY TREE PESTS

Scattered light defoliation of young, open-growing spruce trees in farm shelterbelts and of ornamental spruces in urban areas by the **yellow-headed spruce sawfly,** ***Pikonema alaskensis*** (Roh.), has been a common annual occurrence across Saskatchewan in recent years. Conspicuous shoot galls, caused by **spruce gall aphids** ***(Adelges*** spp. and ***Pineus*** spp.), have also been a common occurrence on spruce in many areas.

Moderate-to-severe defoliation of Manitoba maple by the **fall cankerworm,** ***(Alsophila pometaria*** (Harris), and the **larger boxelder leaf roller,** ***Archips negundanus*** (Dyar), was extensive in the Prince Albert, Saskatoon, Nipawin, and Melfort areas.

A **birch leaf-mining sawfly,** ***Profenusa thomsonii*** (Konow), and **willow leaf miners,** ***Lyonetia*** sp., caused conspicuous light-to-severe foliage browning of birches and willows, respectively, in many areas of the province.

Populations of the **larch sawfly,** ***Pristiphora erichsonii*** Htg., have generally remained at low endemic levels in recent years. Only traces of tamarack defoliation were detected at a few locations in 1983.

Feeding injury (pecking holes) caused by the **yellow-bellied sapsucker,** ***(Sphyrapicus varius*** (Linnaeus)), was observed in some areas. These birds, which are small migratory members of the woodpecker family, attack a wide variety of deciduous and coniferous tree species.

G.N. Still
March 1984

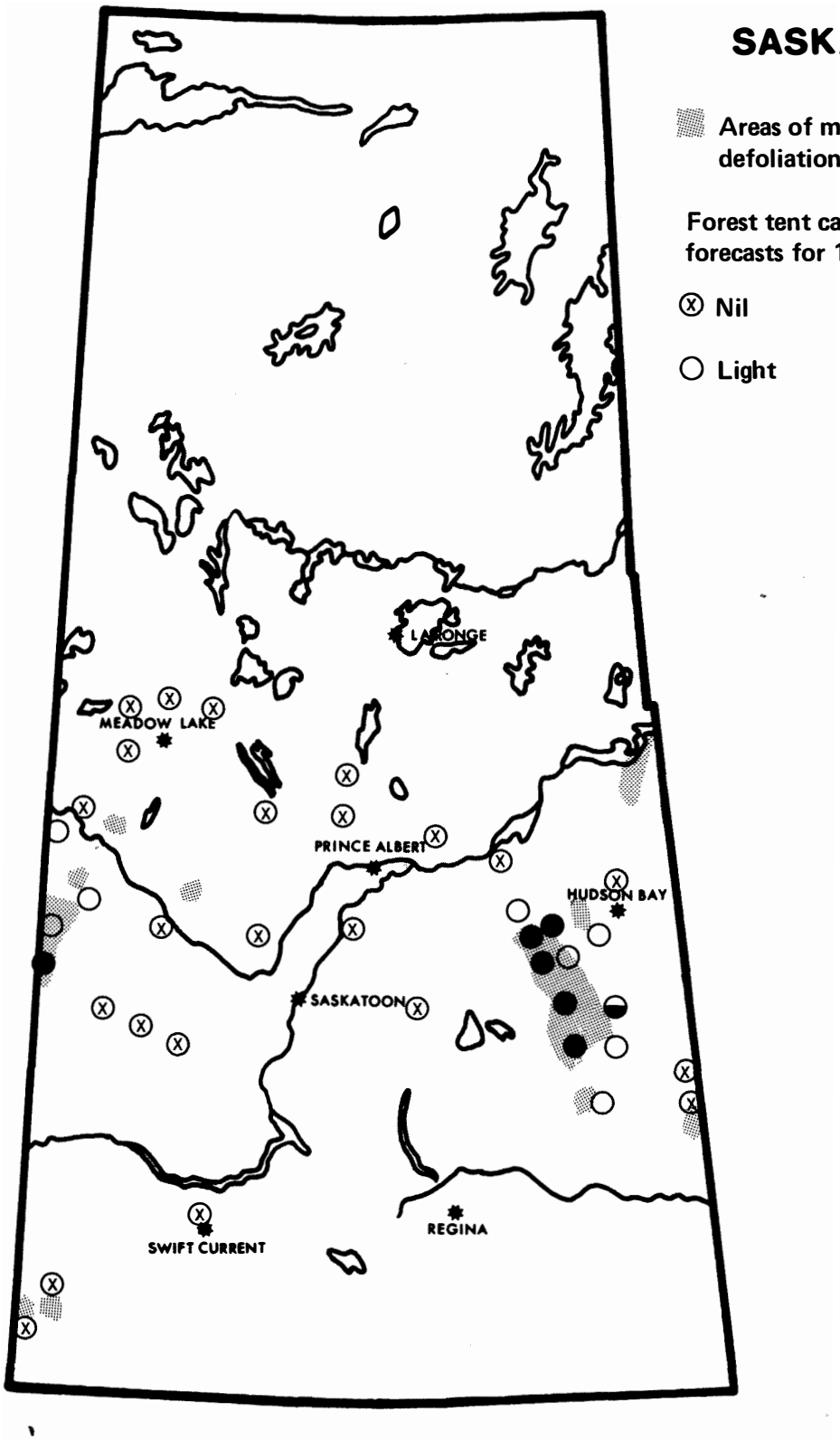

Figure 2. Areas of moderate-to-severe defoliation of trembling aspen in Saskatchewan in 1983 and forest tent caterpillar defoliation forecasts for 1984.

Canada

Northern Forest Research Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5 (403) 435-7210

Cat. No. Fo29-2/29-1984E
ISBN 0-662-13083-9
ISSN 0714-1181

Environment Canada
Canadian Forestry Service
Environnement Canada
Service canadien des forêts