

and the trees removed are used for pulpwood, posts, poles and sawlogs. Properties near population centres acquire value as recreational areas. Forest pest problems in 1977 were dominated by the spruce budworm which infested almost 14.1 million hectares, 5% less than in 1976, but spraying operations to control this insect were limited to 4 200 ha in high-value areas. Smaller acreages on Crown lands and lands managed under agreement were treated for white pine weevil, pine and spruce sawflies, white grubs, white pine blister rust, annosus root rot and mice.

The forest research centre provides scientific and technical knowledge to improve management of forest resources. Various disciplines including tree ecology and physiology, site and fertilization, tree genetics and breeding, mensuration, silviculture, equipment design and development are used to solve problems in tree improvement, stock production, regeneration and forest tending. Results of province-wide research are published in journals and reports. Research headquarters is at Maple and there are four field stations at Thunder Bay, Sault Ste Marie, Dorset and Midhurst.

The timber sales branch co-ordinates management plans for Crown management units and approves plans for company management units. Forest resources inventory requirements and priorities for management plans are determined by the branch. As of March 31, 1977, 174 plans (88 Crown units, 26 company units and 60 agreement forests) were completed or under way for about 534 443 km². Planning access roads is another responsibility. The branch arranges for allocation, disposition and measurement

Forests cover more than one-third of Canada's land area and in 1978 forest products made up 19% of export sales. Newsprint alone accounted for \$2.88 billion in exports.

of Crown timber through Crown land licensing, timber sales and wood scaling. During 1977, some 428 Crown timber licences covering an area of 241 393 km² were effected. The Crown land timber harvest amounted to 15.9 million cubic metres. Ontario's primary wood-using industries are licensed and their performance is monitored. In 1977, there were 822 primary wood-using plants in Ontario. The branch is also responsible for promoting new industrial development and forest industry growth. Information is collected and analyzed on production, transportation and use of timber.

The aviation and fire management centre is responsible for forest protection of a 518 000 km² area, divided into seven regions and 38 districts. In 11 other administrative districts, south of this area in agricultural counties, municipalities are responsible for fire control. The vast inaccessible land north of the protection area, totalling over 295 000 km², does not support significant stands of merchantable timber and, except for property values and human life, are not normally protected. Within the fire regions, agreements were in effect in 1978-79 with 205 municipalities for prevention and control of forest fires. An agreement was in effect with the federal government for fire protection of 392 127 ha of Indian lands.

Forest fires are detected primarily by aerial patrols using contracted aircraft. Limited backup detection is occasionally provided through lookout towers in areas of high wilderness recreational use such as Algonquin Park. Public reporting of forest fires is part of the program. The basic fire-fighting strike force comprises 135 trained five-man unit crews and 39 fire-bombing aircraft. The natural resources ministry owns 49 aircraft, most of which can drop either long- or short-term retardant on fires. Contracted helicopters and heavy water bombers are also used. The communication system includes a network of ground stations, radiotelephones, fireline radios, aircraft radios, portable aircraft radiotelephones, telex and facsimile. A network of 125 primary weather stations supplies information to determine fire weather indexes and aids detection patrol planning.

Manitoba. The administration of provincial Crown forest lands in Manitoba is the responsibility of the forest division of the mines, natural resources and environment