representatives of industry or other interested persons. The Act provides for the establishment of forestry experimental areas on federal lands and for regulations for the protection, care and management of such areas. It provides also for the submission to Parliament of an annual report on activities of the Department for each fiscal year and for various operational matters. The Act repeals the Canada Forestry Act, 1949.

The *Forest Research Branch* conducts both basic and applied research related to forest management and forest fire control. The basic research is to gain an understanding of the natural processes governing the behaviour of forests and forest fires, while the applied research is concerned with the application of such knowledge in the development of methods for the establishment, growing, harvesting and protection of forests.

Forest management research deals with silviculture, ecology and forest mensuration and inventory. Many of the silvicultural studies involve (*a*) assessing the factors responsible for the success or failure of natural regeneration following various cutting methods and treatment of seed beds, (*b*) comparing different methods of seeding and planting, and (*c*) determining the effects of different methods of intermediate cutting on the development of residual trees and stands. Studies are made of growth and yield and of successional changes in most of the important forest types. Techniques used in mensuration are constantly under review and study; new methods are tested and developed. Application of silvicultural techniques as well as research in regulation of cut and in methods of protection are aimed at determining how forests may be maintained at the highest levels of production. The relationships between forest growth and site are being studied with a view to the assessment of long-term productivity. The requirements of light, temperature and moisture that will produce optimum conditions for growth and development are being determined for the seedlings of many important species of trees. The physiological processes of growth and reproduction are under investigation for a limited number of species. In tree breeding, superior strains are selected or developed and there is a continual improvement in propagation and breeding techniques. Research in forest soils is directed toward determining the relation of tree growth and nutrition to chemical and physical properties of the soil.

Research in forest inventory methods is of increasing importance because of greatly expanded programs of forest inventories being conducted in most provinces and in the northern Territories. Data from air photographs are correlated with field observations to develop new techniques of timber estimating. The use of stand volume tables and various methods of field sampling are being investigated and compared. Research is continuing in methods for measuring tree images and tree shadows to determine heights, crown widths, canopy density and other data from photographs taken in different seasons of the year under various conditions. The use of large-scale photography of sample areas is also being investigated and studies are being made in the identification of species and sub-types.

Adequate protection of forests against fire is of vital importance in Canada. The Forest Research Branch works in full co-operation with provincial forest services in almost all phases of forest fire control. Major contributions of the Branch have been in the fields of fire danger measurement and fire control planning. Methods for classifying forest fuel types, for using prescribed fires in hazard reduction, for determining the efficiency of fire control organizations, and for preparing and analysing individual fire reports are being investigated. Studies are being continued in the use of chemicals for fire suppression and pre-suppression, and of fire fighting equipment and techniques. Another important field of endeavour is the study of lightning and other fire causative agencies.

The *Forest Entomology and Pathology Branch* conducts research on forest insects and diseases and maintains regional laboratories and field stations in all principal forested regions of Canada. The forest insect and disease survey is a Canada-wide project conducted by the Branch in co-operation with the provincial forest services and forest industries, the primary objective of which is to maintain an annual census of forest insect and disease conditions, and to detect and predict the occurrence of outbreaks. Results of the survey are made immediately available to the owners and operators of forest lands for use in planning salvage programs and directing control operations or other measures