

Protection of Forest from Insect-damage.

An early co-operative agreement should be entered into with the Department of Agriculture to conduct in co-operation with this Service all entomological investigations. Their advice as to control should be obtained, and in the case of control operations this Service should look to them for assistance in effectively controlling the pests.

It is hoped that the Director of the Biological Section of the Department of Agriculture will be able to detail an officer at an early date to make a comprehensive examination of all the State plantations, so that we may be forerhanded in dealing with such trouble as the introduction of exotic trees may bring us.

Protection of Water-supply.

The greatest indirect value of the State forests lies in their influence upon the regularity of water-supply. In many districts of the country from the forest areas is drawn the only water-supply for the development of power, for irrigation, and for domestic and industrial use. The future development, for instance, of the great irrigable areas of Central Otago is dependent upon the amount of water and the manner in which it flows from the Southern Alps. The same may be said of all those regions that border or are contiguous to the Southern Alps. It has been proven that the vegetative covering has a very decided influence on run-off, and probably a slight influence on precipitation. It is necessary, therefore, that this Service follow a definite consistent policy with reference to the restriction of the use of forest resources for the purpose of protecting the water-supply. Complete information must be collected as to the sources, the amount and use of water arising in the public forest, and an investigation as to the special measures necessary to maintain the protective value of the cover. This water-protection plan for the Dominion will show all those watersheds that supply water for municipal and domestic use, for irrigation, and for the development of hydro-electric power. It will show also flumes, dams, fire plants, streams, disastrous floods, and settlements, mines, and railways in need of protection from snow-slides, &c. The economic value of our forests from a climatic and protective standpoint cannot be too highly emphasized. It is particularly vital, for instance, that a continuous protective forest be established on the Tararua, Ruahine, and Kaimanawa Ranges, Taupo District, and through the Huiarau Range, Ruakumara Range, and all along the eastern and western side of the Southern Alps.

Protection of the Public Health.

Every precaution must be taken by the forest officers to protect the public health, and all persons on State-forest lands should be subject to trespass proceedings if insanitary conditions result from their presence. For instance, this regulation might be enforced: "It is prohibited to have or leave in an exposed or insanitary condition on public forest lands camp refuse or debris of any description, or to deposit on the public forest lands, or being or going thereon and depositing in the streams, lakes, or other waters within or bordering upon the public forests, any substance or substances which pollute or are liable to cause pollution of the said streams, lakes, or waters."

Fish, Bird, and Game Protection.

It is recommended that this Forest Service be charged with the protection of the native and imported fish, birds, and game. It is the logical function of the Forest Service in France, Germany, and to some extent in North America. In the Province of New Brunswick this control is working out splendidly, and there is no reason why it should not do so here. Particularly is it of value here in New Zealand to have charge of such imported animals as deer: unrestricted multiplication of these animals may lead to serious forest damage (as, for instance, is the case in Scotland).

Game is a product of the forest; it adds materially to the enjoyment of the public forests by the public, as well as to their possible economic uses. The preservation of game, animals, birds, and fish, and the elimination of game violations, should be an important duty of forest officers. In every manner encouragement should be given to the development of this aspect; and if it is not thought advisable to hand over the game-protection to the Forest Service a very close co-operative agreement should be entered into with the present competent authority. For instance, every forest officer should be appointed a Ranger under the Native and Imported Game Act.

GRAZING WITHIN STATE FORESTS.

This Service should have authority to permit, regulate, or prohibit grazing in State forests. Under its direction the Forest Service should allow use of the forage crop as fully as the proper care and protection of the forests and the water-supply permit. Every effort should be made by forest officers to promote the fullest possible use of the grazing resources, for the utilization of forest grasses and plants reduces the fire danger and helps to protect the forests. All grazing should be under the form of permits on a *per capita* basis, as there are several reasons why the acreage-lease system is undesirable: for instance, it increases the difficulty of proper silvical development, prevents a proper use of the range under abnormal natural conditions, and tends to exclude the smallest owners. The lease gives the lessee some right to dictate the use to which the area will be put, and during the tenure of the lease no part of the tract could be closed to grazing, even though the necessity was urgent to prevent the destruction of seedlings, to secure reproduction on cut-over lands or burnt areas, or to protect important watersheds. The privilege is a fixed instead of a flexible one, and if during the period forage is destroyed by fire, insects, or other cause, the stock have to be removed from the forest instead of being transferred temporarily to another range.