

they deposit themselves. Fires also will spread in forests in which stock have grazed, as in such forests the undestroyed undergrowth and trees are always parched, and ready to fire from the merest spark. A forest in which the undergrowth has been destroyed loses its capacity for holding back the water from heavy rains; the effluent streams rapidly swell, inundate the lower lands, and then quickly dry up, causing great inconvenience by the consequent shortage of water. In hilly country the destruction of the bush is generally followed by the surface-soil slipping into the streams, and leaving bare rock-faces. In the Rhone District alone, in France, it is estimated that floods (due principally to the deforesting of the high lands) have caused damage to the extent of several millions in a comparatively short number of years. In our own country, also, floods are even now much more destructive than when the upper parts of the rivers and tributaries flowed from forest-clad lands. The average pioneer farmer is not a travelled man nor a reading man; the forest and scenery reserves are to him a mere fad and waste of good land and money; and he values them only so long as he can run his stock in them without the inconvenience of paying rent. Even on his own farm he seldom preserves clumps of native bush to afford his stock shelter from winter winds and summer heat.

*Noxious Weeds.*—As a rule the reserves inspected have been free from noxious weeds; a few, however, in the Auckland District had a few patches of furze and blackberries. In the Wellington District the Californian thistle and the burr thistle have spread into some of the reserves, particularly in the Rangitikei district.

*Animal Pests.*—In the Auckland District rabbits may be seen in the more accessible reserves, but they are so few as not yet to be a pest. In Wellington District, also, the reserves are so far not seriously troubled with rabbits. There is an exception, however, in the Tongariro National Park, for there I find that rabbits and hares have become so plentiful as to make it advisable to at once take measures to prevent their further increase.

*Fires.*—The greatest danger we shall always have in managing our reserves is from fires. The bush on some of the reserves inspected in the Wellington District I found quite destroyed by fires that occurred in the summer of 1908. In spite of last summer having been a dry one there was not much damage done by fire. There were a few small fires on the Tongariro Park, and one near the mountain hut has rather damaged the surroundings of the beautiful Ohinepango Spring. I have sent to nearly every owner adjoining a reserve a circular reminding him of his liability for fires; and I have nailed up one or more notices on boards warning the general public that the reserves must not in any way be damaged. I know no really effective measure to protect bush from fire, but I think it is a most certain disadvantage to have any open grass, scrub, or fern land within a reserve; and should such exist it should either be excluded, or else an inner fence should be erected, and stock allowed on the open part only, to keep it eaten down. In any future fencing arrangements I would strongly urge that nothing but the big trees within 2 chains of the fencing-line be allowed to be cut down within the reserve boundary, as then the native shrubs will soon spring up in the charred margin of the bush, and the necessity for grazing will then be obviated.

It is a great mistake for any one to assert that fires do not spread in green bush. Along the Main Trunk line I saw burnt bush which was the result of a fire that originated some miles away.

Fires are often caused by workmen when laying out new roads. The scrub, fern, &c., are in the way, and the easiest method to get rid of it is to burn it off, and it frequently happens that in doing so hundreds of acres of the contiguous lands are burnt off. It is the frequent burning-off of the fern and scrub that is often responsible for the very impoverished condition of, open country, as, after fires, heavy rains wash away all the ash and natural humus. It would be advisable if the Public Works and Roads Departments instruct their foremen never to burn off for road-formation when going through reserves.

*Indigenous Birds.*—Many of our native birds are fast becoming rare, and one of the objects of our reserves is that they may afford a sanctuary for native-bird life. In the Auckland District such birds as fantails, tomtits, grey-warblers, silver-eyes, the small and large cuckoo, and the kingfisher are fairly plentiful; parakeets kakas, pigeons, wekas, landrails, kokakos, robins, and whiteheads are generally rare, and the bell-bird seems to have become extinct. On the reserves near Rotorua I was informed that a great amount of pigeon-slaughtering was done last season, and from the number of used cartridges I saw on the ground there was no doubt of the truth of the information.

In the Wellington District I found that tuis, fantails, tomtits, grey-warblers, the two cuckoos, kakas, parakeets, whiteheads, and rifleman are generally plentiful. The whitehead (supposed to be nearly extinct) I found in nearly every reserve of any size, even close to towns. Kingfishers I saw few of. The bell-bird and kokako are scarce, while the huia seems to have become extinct as far as Wellington District is concerned. Pigeons are now rare, except in the Waimarino Forest. I am credibly informed that last winter people even camped in the bush near Ohakune, and shot pigeons in hundreds to sell in the large towns. The sale of the native pigeon should be more strictly prohibited than the sale of trout. I find that blackbirds, thrushes, yellowhammers, and sparrows have spread to the most out-of-the-way places.

*Fencing.*—In most instances I found adjoining owners willing to pay one-half of the cost of the fence between their land and the reserves, but the boundaries to be fenced are altogether of such a great length that the fencing can only be done by degrees. Trespassing on reserves near towns is generally done by the stock of people who, not having enough land of their own, turn their animals into the public roads. These people could probably be stopped by a notice in the local journals that their stock would be impounded.

In laying out township-sites it has not heretofore been the custom to make reserves for future water-supply, and in most country towns the water-supply is now obtained from an area that has