

Foresters in charge of valuable plantations might be armed with the power of special constables, empowering them to arrest suspected persons if necessary, as unless some such provision is made it is quite possible for an unknown offender to give a fictitious name, and thus escape justice.

GENERAL REMARKS ON THE SUITABILITY OF TREES FOR VARIOUS LOCALITIES.

It is almost impossible to state with accuracy whether the species of trees now being extensively planted by this Department are altogether suitable for general planting in the several localities. Soil, aspect, elevation, rainfall, shelter or exposure, time of planting, and weather experienced during planting are the dominating factors for success or failure, and, as some of these conditions necessarily vary more or less (even in a single acre), the difficulty of stating definitely whether a certain species is successful or not at a given locality is apparent. Take the larch, for instance: Generally speaking, this tree does well at all stations from Rotorua southwards. It is, however, injuriously affected during exceptionally dry seasons, such as occurred last year at Tapanui, Otago Central, Marlborough, and in a lesser degree at Hanmer Springs; whilst at Rotorua a late spring frost cut back the leaders of many thousands planted in varying aspects, while those on a northern aspect were not so affected. In the South Island, generally, larch planted on lands with a northern aspect would certainly result in failure; and even in such a position, with a free, open, gravelly soil, which became dust-dry during a drought, this tree has suffered more or less.

There was considerable loss amongst larch at Dumgree and Gimmerburn Plantations where planted on flats, where the soil is naturally deep and heavy, whilst on the steep southern slopes hardly a single failure occurred. But the most remarkable feature here is the loss amongst the Oregon pine, Weymouth, pitch, and Corsican pines at Dumgree, the latter being generally considered one of the best of drought-resisting species.

At Hanmer Springs the losses were confined to a few dozen larch-trees, from 5 ft. to 8 ft. high, which had inadvertently been planted on a gravelly patch.

Amongst the pine family, probably no species is more generally adapted for extensive planting than *Pinus Laricio*: the seed is cheap and easily raised, and its timber is of excellent quality. The chief disadvantage, however, is failure in transplanting and susceptibility to spring frosts, the latter occurring only at Waiotapu. This year it has been demonstrated by losses at Dumgree that a certain degree of moisture is necessary for its entire success, although in other dry localities, even where planted on pure gravel, no deaths have taken place. As the foregoing shows, the question of the adaptability of a tree for a given locality depends on such varied circumstances that it is quite impossible to supply reliable information.

Of the correspondence received by this Department, fully one-half relates to this subject, and it is seldom a correspondent requiring information thereon offers any further facts than that "the soil is good" or "the land is poor."

Amongst the hundreds of species of trees grown in New Zealand the writer can only name with certainty two examples which will thrive in any position or soil (except swamps), and in any portion of the colony from sea-level up to the limit of tree-growth—viz., *Pinus ponderosa* and its variety *Pinus Benthamiana*. So far as the experience of the officers of this Department goes, the species named have never been injured by frosts, heat, drought, or insect life, whilst thriving specimens may be seen on such dissimilar lands as pure sea-sand, pumice, gravel, heavy, moist, or dry clay, to almost solid rock.

A question frequently asked at each of the stations by settlers and others contemplating planting is, "What kind of trees do best?" The answer is that all the species grown at each of the nurseries are generally suitable for that particular district, provided the individual requirements of each species are duly considered. Precisely what these requirements consist of—varying as they do with each species—cannot be definitely stated without a personal acquaintance of the particular locality, and practical experience.

TREE-PLANTING ON PUMICE LANDS.

In the Waiotapu district the available area of Crown land totals over 1,000,000 acres, of which 22,900-odd acres has been leased on pastoral license, yielding an annual revenue of £61 15s. 6d. At present an additional area of 3,500 acres is being enclosed, which necessitates the erection of 800 chains of fencing, at a total cost of £600, or 15s. per chain. This area will, at the present rate of planting, be sufficient for five years.

At Whakarewarewa Plantation fencing has been imperative, owing to the boundaries being adjacent either to private lands or much-frequented tourist routes, and where stray cattle and horses are somewhat numerous. This cattle-nuisance is, unfortunately, a very serious problem in connection with the planting of this reserve. Included within the fence-line are some 300 acres of Native land covered with dense forest, which it is impossible to fence, owing to the precipitous nature of the boundary-lines. Here are a large number of Native-owned cattle, which trample and destroy the young trees during the night, taking refuge in the bush during the day. On several occasions some twenty-five mounted men have endeavoured to drive them out, but the cattle being of a particularly wild nature the efforts proved unsuccessful. Shooting was then resorted to, with the result that the Native owners laid a criminal charge against the writer and an employee for wilfully shooting a bull. The case was, however, dismissed by the Magistrate, though further attempts to destroy the herd have not been deemed prudent, owing to the risk of further charges of a personal nature.

Under the State Forests Act the penalty for allowing any animal to wander on any reserve is a fine not exceeding £5, in addition to recovery of amount of damage done, and it is further provided that any Ranger or other person may drive cattle to the nearest public pound. In the present case the cattle are owned by several Natives who cannot remove them, owing to their practically wild state, nor can any number of persons succeed in driving them to a pound. Further, it is futile to sue a penniless