

11. BLACK BIRCH of Auckland and Otago, RED BIRCH of Wellington and Nelson : HUTU-TAWHAL.—(*Fagus fusca*.)

The true black birch is a noble tree, found from Kaitia, in the North Island, to Otago, but often local and absent from extensive districts. It ascends the mountains from the sea level to 3,000 feet. The tree is usually from 60 to 90 feet in height, with a trunk from 3 to 8 feet in diameter. In many districts it is abundant, and forms a large portion of the forest.

So much confusion has arisen from the misapplication of the names "black birch," "red birch," and "white birch," that without actual examination it is difficult to say what tree may be intended in any particular instance. In many parts of the colony, the small-leaved tarata (*Pittosporum tenuifolium*) is called black birch; in others, the name is applied to the tawhero (*Weinmannia racemosa*.) In fact, the term "birch" may be regarded as a generic name applied by bushmen to any small-leaved tree, and qualified with the prefixes "black," "white," or "red," at the caprice of the individual, or as may be suggested by the colour of the foliage, bark, or timber.

It is certain that the reputation of *Fagus fusca* has suffered from the substitution of other timbers known as "black birch," notably of the next species, *Fagus solandri*, and of the tawhero (*Weinmannia racemosa*). The timber of the latter greatly resembles that of the true black birch, but may be at once distinguished by its lighter specific gravity.

The tree, when growing, may be distinguished from the other species of *fagus* by its sharply serrated leaves. The timber is red, rather stout in the grain, and very durable. It seems well adapted for sleepers and upper timbers for bridges, wharves, and jetties: it has also been used for piles.

In the North, the abundance of kauri and other timbers has led to its neglect, even for fencing purposes. The first instance of its being used to any extent was on the Thames Gold Fields, where it was largely employed for sleepers on the tramways, and is still perfectly sound, except where sap has been used, after being laid five years. On account of its strength and durability it is highly valued for mine props, cap pieces, &c., &c.

In Wellington, it is highly valued for fencing purposes, and especially for posts; the next species being frequently used for rails. Fences of this species are said to remain in good condition for fifteen years and upwards.

In Nelson it has been sparingly employed, with the next species, for marine piles. Mr. Akerson, of Nelson, informed me that he has taken up piles of this species which had been driven seventeen years, and found thereon perfectly sound except where attacked by teredo. He also stated that, in addition to its superior durability, it had the power of resisting the attacks of the teredo for a longer period.

I am informed by Mr. Blackett that the Waiau-ua Bridge was constructed eleven years ago entirely of this timber (*Fagus fusca*), and that on a recent close examination no trace of decay could be detected.

12. WHITE BIRCH of Nelson and Otago, BLACK BIRCH of Wellington, Canterbury, and Nelson.—(*Fagus solandri* and *F. cliffortioides*.)

This tree occurs from the centre of the North Island to Otago, and is often found in much greater abundance than the preceding species. It attains similar dimensions, but is easily distinguished by the entire leaves. The heart timber is of a darker colour, and the white sap-wood much larger in proportion, which has probably led to its being called white birch, in certain districts.

The timber is certainly less durable than that of *Fagus fusca*, but owing to the confusion arising from the misapplication of the common names of the different beeches even in the same district, I have been unable to obtain precise and satisfactory evidence on this point, except with regard to its employment for piles.

For fresh-water piles it is said to last eight years in good condition. In marine situations it is usually attacked by the teredo as soon as the bark is detached, and is often much damaged in two or three years, but will stand for ten years without requiring removal. Mr. Akerson, of Nelson, is of opinion that it would stand for more than twenty years, if protected with copper sheathing. Piles drawn thirteen years after being driven had the parts exposed to the attack of teredo perforated to the centre and badly decayed: the upper and lower portions of the pile in fair condition, but not equal to *Fagus fusca* under similar circumstances.

Mr. Thornton, engineer for the Province of Canterbury, informed me that the first sleepers used on the Lyttelton Railway were of this species, and that they were so badly decayed within eighteen months as to require removal. He attributed this rapid decay to their indifferent and sappy quality.

13. RED BIRCH.—(*Fagus menziesii*.)

Although this handsome tree has the same general distribution as *Fagus solandri*, it is much more local, and occurs in smaller quantity. It is rarely more than 3 feet in diameter. The timber is said to be durable, but I have been unable to procure direct evidence respecting it. It is chiefly used in the Lake district of the South Island.

14. POHUTUKAWA.—(*Metrosideros tomentosa*.)

This tree is almost peculiar to the Province of Auckland, where it is abundant on rocky coasts, sometimes attaining the height of 70 feet, or more, but with a comparatively short trunk, 2 to 4 feet in diameter, and numerous massive tortuous arms. Its peculiar habit, combined with its great durability, renders it specially adapted for the purposes of the ship-builder, and it has usually formed the frame-work of the numerous vessels built in the Northern province. For this purpose it is superior to the Northern rata (*Metrosideros robusta*) and to the Southern ironbark (*Metrosideros lucida*), both of which are now used. I am not aware that it has been used for constructive works, but its density and durability render it valuable for the framing of dock gates, sills, &c. I have never seen a log of this timber perforated by teredines except in the most superficial manner.