

Orchids of New Zealand

2. Terrestrial Species (Part One)

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IN all the countries in which orchids grow, terrestrial orchids make up a large percentage of the total number of species. Australia has over 600 species, of which ninety per cent. are terrestrial, and in that country there are some of the most amazing and delightful terrestrial species. New Zealand has about eighty-five species, of which seventy-eight are terrestrial. England is famous for its ground orchids (having no epiphytic orchids at all), these having reached a high degree of beauty and imagery, and are often protected, or even cultivated, in the gardens and parks of many stately country mansions.

In the temperate countries of the Northern Hemisphere, there is a prevalence of the "hyacinth" ground orchid, as it is commonly called, in which many large and brightly-coloured flowers are arranged in a raceme very similar to the hyacinth. This arrangement is comparatively uncommon in the southern temperate countries; here the greater number of species have either one or a few flowers to each stem, and, in New Zealand at any rate, the colours are rarely bright enough to bring them, unaided, to the layman's eye.

As with so many of our native plants, colouring in our orchids, with a few very notable exceptions, is very dull. The colourful ground-orchids of all temperate countries are generally sun-loving flowers, which grow in open heaths or upon grassy hillsides, but very rarely in thick forest. New Zealand was, until very recently, a very heavily forested country, with comparatively few open heaths, and

it is a significant fact that the few areas in New Zealand that were first cleared of land are now most plentiful in sun-loving orchids. These areas include the North Auckland gumfields, which have many orchids found nowhere else in this country; the Taranaki pastures and the Marlborough Sounds, where many orchids are fast becoming wayside flowers, and some parts of the West Coast, particularly areas around Greymouth and Westport, in which several orchids grow which are solely confined to these parts.

In several places in New Zealand, as has already happened in Australia, South Africa, and over much of the Northern Hemisphere, ground-orchids are steadily becoming flowers of the wayside and the hedges. This is happening to some extent over the whole country, but particularly in the moister, warmer districts, such as North Auckland, Taranaki, Rotorua, Nelson, and the Marlborough Sounds, and the West Coast. Already orchids can be frequently found in road-cuttings, neglected verges, and beside water-races, and often epiphytic orchids, particularly *Earinas*, are found growing in old orchards. I have seen some fine bushes of *Earina Autumnalis* upon an old cherry tree in Westport.

Even in such dry and wind-swept places as the Canterbury Plains some orchids are accustoming themselves to civilisation. One little orchid, *Prasophyllum conlensoi*, is not uncommon in the roadside verges throughout the city of Christchurch. Another robust orchid, *Microtis uni-*



Calochilus, a curious species of New Zealand orchid, showing the typical flowers with heavy beard.

folia, forms large colonies beside water-races throughout the province. Indeed, water-races provide an ideal hunting ground for many unexpected

species. However, orchids of the rain forest are never likely to move towards civilisation. They have over-adapted themselves to their environment, and the only new recruits that can be expected to adapt themselves to pasturelands are orchids from tussock lands, light scrub, and sub-alpine herbfields. Almost any ground orchid from the open country can grow from sea level to 3,500 ft.

In this article I shall begin to discuss the ground orchids of the rain forests. There are many orchids which specialise themselves to a certain environment, and others, which are almost universal, but I cannot recall to mind any ground orchid which grows both in rain forest and upon heathland.

Some genera are almost wholly confined to rain forest. These are: *Calochilus*, *Caleana*, *Chiloglottis*, *Corybas*, and *Cyrtostylis*, but some species of *Corybas* can occasionally be found in moist places in somewhat dryer bush.

ORCHIDS OF THE RAIN FORESTS

Calochilus is a genus of dark dripping bush, from Western Nelson to North Auckland, and is fairly rare. It contains three species, all of which are found in New Zealand and Australia. All three species frequent bush, but one, *C. campestris*, is also found in fairly open sphagnum swamps.

All three species are much alike. They have a stout stem, up to 18 ins. high, and with one rather long and very narrow leaf, often tinged purple. The large, open flowers are quite handsome, and coloured greenish-purple, or, occasionally, yellowish-green. There are two to three on the stem, with the oblong sepals and petals rounded at the tips, and a large, rather long lip, which is bearded heavily, and is yellowish-green at the base.

The beard is the most noticeable part of the flower. It is up to $\frac{1}{2}$ in.

long, and composed of reddish-purple threads which, in certain lights, reflects metallic flickers of red, blue and almost black.

All three species—*C. campestris*, *paludosus*, and *robertsonii*, are fairly easily grown in a completely enclosed shade house, as long as they are preserved in the soil from which they were originally taken. This applies to almost all our indigenous orchids—a slight change of climate affects them very little, but they greatly resent any change of soil. Clay, made porous with fine, crushed shingle and dead grass roots, can be obtained from most hillsides, and will prove ideal for all, other than bush, orchids, particularly if sprinkled with charcoal once a year.

Unfortunately, there seems to be no soil mixture common to all bush orchids, and the safest way is to keep them in their original soil, though small amounts of charcoal are very beneficial to them, darkening the leaf and the colours of the flower, which cultivation tends to pale. It is most unwise to try any artificial or manufactured fertilisers, unless as a planned and methodical experiment, and insecticides should never be administered when the plant is in flower.

Caleana Minor is a slender, wiry plant, with the leaf and stem often tinged with red. The stem is 2-8 ins. high, and the leaf is very narrow and about half as high as the stem. However, it is the flower which is the most interesting part of the plant. Each is about $\frac{1}{2}$ in. long, coloured green tinged with red, and twisted upside down, so that the lip is uppermost. The sepals and petals are almost thread-like, but the lip is most remarkably shaped. The lower part is joined to the base of the column, is claw-like, and the upper part is expanded into a broad plate which is covered with numerous red lumps.

This lip serves greatly as an aid in the pollination of the plant, for when an insect alights on it, it overbalances, and shuts it up against the column of the flower, which holds the pollinia.

Like so many of the more remarkable of our orchids, this is an exceedingly local intruder from Australia, found so far, only in dense wet bush in a few places in the North Island. It is quite probable that it could also be found upon the West Coast of the South Island, and in North-west Nelson, if sought for.

This could be said of the whole of the orchidaceae in New Zealand. Their history may parallel the orchid history of the Philippines. In this huge collection of islands there were, at the turn of the century, four hundred species of orchids, and now, after a systematic survey, there are almost one thousand. Not, of course, that this country will ever have a third as many species as the Philippines, but I think that if a few responsible botanists really set out on a systematic survey, the number of species might be almost doubled upon the present total. Mr. E. Hatch, of Auckland, is doing excellent work in this field, and is keeping the nomenclature of our species in conformity with other countries, particularly Australia.

In a following article I will describe the Genera of *Chiloglottis*, *Corybas*, and *Cyrtostylis*, all these being peculiar moisture-loving and bush-dwelling orchids.

One of the Australian Sheoaks (*Casuarina Cunninghamiana*) is an attractive shelter tree for exposed and dry situations in all but the coldest districts. It develops a pleasing weeping habit as it grows old, and makes a graceful specimen. It may also be kept clipped close when it makes a dense hedge up to six feet in height.