

the undercover which included some interesting divaricating shrubs such as Lophomyrtus obcordata, Neomyrtus pedunculata, Corokia cotoneaster and others. The ground cover comprised a good variety of native herbaceous plants. Amongst them were Angelica rosaefolia, Tetragonia trigyna, our native spinach and Parietaria debilis, a lax growing herb belonging to the nettle family and seldom recognised as a native. Maybe it is passed by as a poor little 'Ginderella' unworthy of notice because it lacks any attractive features. Gnaphalium collinum, a native cudweed, white and cottony all over, has a stoloniferous habit of propagation which is helpful in the identification of this species.

The ferns, especially Pteris comans and P. macilentata var. saxatilis were quite common. The Aspleniums were well represented and of special interest were A. hookerianum and the coastal form of A. flaccidum.

A good leader, good weather and an interesting route made this a most successful outing.

.....

POHUEHUE

18th April

Miss M. Crookes.

In giving some account of our excursion, I felt it best to avoid a fairly long list of the species which we commonly encounter on our regular visits to the Waitakeres and confine myself to discussing species not often met.

A very common tree in the Pohuehue valley was the towai, Weinmannia silvicola, rare on the Waitakeres though common in suitable places on the North Shore. So far it has only been noted on our ranges in the vicinity of the Scenic Drive, not far from the West Coast turnoff. There is also a good collection of towais on the ridge at the back of Redwood Park.

New Zealand has two species of Weinmannia, W. silvicola and the kamahi, W. racemosa, well known to discriminating honey eaters. In addition the towai has a distinct variety, W. silvicola var. betulina. The towai is essentially a northern species, being found from lat. 35-38 degrees; that is as far north as Mangonui and as far south as Opetiki. The kamahi, on the other hand, is much more widely spread ranging from Te Aroha south to Stewart Island. It flourishes in a great number of different situations, indeed, as P. Wardle an authority on the species remarks, "W. racemosa may be the most abundant New Zealand tree."

How do we distinguish between kamahi, towai and var. betulina (birchlike)? An important question for they may be much alike and easily confused. First note that the twigs of kamahi are light grey and quite smooth, while those of towai are brown to dark grey and finely hairy (pubescent). In kamahi the adult leaves are simple, glossy and their veins are not raised above the upper leaf surface. Towai on the

other hand has adult leaves 1 - 5 foliate, not glossy and veins slightly raised above the leaf surface. Kamahi is a distinctly larger tree and its flowers and racemes stouter. To complicate the leaf situation, both trees have juvenile forms. The leaves of kamahi are usually simple, sometimes trifoliate and occasionally have five leaflets. The juvenile form of towai is most attractive, with pinnate juvenile leaves that may number up to nineteen.

As regards W. silvicola var. betulina, this variety has twigs dark grey to nearly black, while adults have one to three leaflets, though sometimes five. The upper leaf surface is glossy but light green, unlike adult leaves of towai and kamahi which are rather dark green, with veins like those of kamahi. The juvenile leaves are from five to seven, though nine have been noted. The variety is found on the Great and Little Barriers, Coromandel Peninsula, the Hunua range, the far north and ranges farther south than towai.

Thus described our three Weinmannias seem reasonably plain sailing but all has not been told. As Wardle remarks, "Even with populations that conform best to the descriptions given ----- there is a great deal of variation." Towai shows the greatest variation where, " --- within a single population there can be found species with only simple adult leaves and trees with nearly all leaves compound." As regards var. betulina, he comments that in the Thames - Huntly area, as well as on the higher altitudes of the Coromandel Peninsula and Little Barrier Island, there are plants with large leaves and a preponderance of unifoliate leaves and pale twigs that are clearly transitional to W. racemosa. He adds that in the far north some of the forms are more pubescent (softly hairy) marking an approach to W. silvicola.

It is hoped that these brief notes will encourage members encountering any of our Weinmannias to keep a sharp look out for variations. A carefully noted observation, particularly when backed by a voucher specimen, can easily provide a most useful piece of information.

Turning to our next subject for discussion, readers will no doubt be relieved to know that it concerns a single species without very close relatives as far as New Zealand is concerned. We were pleased to find that Miss Young had noted a small clearing in the bush where some flourishing clumps of Athyrium japonicum were growing. This fern has been reported only from one place on the Waitakeres, namely in Mrs D. Ussher's place on the Piha Rd., where it has secured a foothold among the branches of some fallen macrocarpas. Athyrium japonicum is a soft light green fern with a creeping rhizome and a frond from about nine to about twenty-one inches long, including stalk.

The frond is soft and light green in colour. At least so Cheeseman describes it. Allan considers it light to dark green. If you study the back of the frond you will see the sori are long and form a neat little herring-bone pattern on the lower surface of the pinnules.

If you have ever roamed about the English countryside, you will be certain to have noticed a charming light green fern, a lover of damp places, and it may put you in mind of our A. japonicum. It also is an Athyrium, A. filix-femina, the well known Lady fern, which is cosmopolitan

in distribution and is the type species of the genus. Certainly it is an Athyrium and an important one at that, but if you examine a fertile frond you will note that the sorus is quite different from that of A. japonicum, for it is round with a kidney-shaped indusium (protective covering over the spore containing capsules). How do we explain this curious soral difference in ferns of the same genus? First it must be remembered that Athyrium is a very large genus (about six hundred species) and further it is a very old one, so there has been plenty of time and opportunity for variation. Discussing sorus shape in the genus Holtum remarks, " It is probable that the primitive species of Athyrium had sori ----- with kidney or horseshoe-shaped indusia and that these species gradually gave rise to those with elongate sori." In some species the sori elongated along the vein, crossing over it at the tip. If it passed only a short way down the far side the species had a J-shaped sori, if it extended equally along both sides of the vein the sori formed a very narrow inverted U. However a further change took place. The sori, where it crossed the vein eventually broke down, thus we have two separate sori, one on each side of the vein. This is the stage that has been reached in A. japonicum and if you examine it carefully you will note that the sori on the lowest veins in the pinule are usually paired. It is the vagaries of the sori that have given the genus its name, for Athyrium comes from the Greek athurein, to play or sport, hence Athyrium means sportive, variable.

In fact the sori were so variable that earlier we had two genera, Athyrium and Diplazium. Athyrium included the species with round or kidney-shaped sori and Diplazium those with elongate and double sori. Diplazium literally means "a double oblong" from the Greek di, two, and plasion, oblong. It is therefore not surprising that Athyrium japonicum has had various names. First it was Asplenium japonicum on account of the long sori; then when it was found there were characteristics such as scales, etc. that separated it from the spleenworts, it came to rest in Diplazium and so became Diplazium japonicum, but further studies of the two genera showed it was most difficult to form a dividing line between them, so now we have one genus, Athyrium.

Our only other species of Athyrium, the large and handsome A. australe, also has long sori. The Lady fern, with kidney-shaped indusia grows well in cultivation here and I have twice had specimens brought to me for identification.

A. japonicum is widely distributed in S.E. Asia on hills at moderate elevations and is found in Polynesia and Queensland. In New Zealand it was not at first thought to grow on the mainland. Cheeseman first discovered it in the Kermadecs on Sunday Island. Later it was reported from the northern part of the North Island. Allan states that it is found from lat. 35-39 degrees, but that it is local.

I have dwelt at some length on this attractive fern as I am hoping that members may be moved to keep a particularly sharp look out for it in their various travels. I would also be glad to hear of dark green forms, which so far I have not seen.

At the conclusion of our excursion a very hearty vote of thanks to Miss M. Young was carried, for her arrangement of the

excursion. The members also expressed appreciation of Mr. H. StClair Brown for his interest in and care of this very beautiful piece of bush.

* P. Wardle. Biological Flora of New Zealand. 1. Weirmannia racemosa Linn.F. (Cunoniaceae) Kamahi. N.Z. Journal of Botany, Vol.4, No.1, March 1966.

** Holttum. Flora of Malaya, Vol.2. Ferns

.....

EASTER IN THAMES

K.J. Haydock.

During Easter this year my family and I spent our time botanizing in the area around Thames which is part of the Coromandel Forest Park. The area was only opened to public access on 7.3.70, until when access had been by permit only.

One trip was up the Kauaeranga Valley, the road following the river most of the way to the motorable end at Whangaiterenga Picnic Area. The Forest Service are establishing an indigenous Arboretum just past the Park Headquarters, with the flora labelled and giving a good representation of the plants in the area.

The Kauaeranga Valley has been extensively milled in the past for commercial timbers, mainly kauri, and fired and cleared for farming. Much of this burnt over land and the abandoned farms are reverting to Leptospermum scrub and eventually back to native bush and the rest has been planted in exotic pines.

The Whangaiterenga Picnic Area was surrounded by Leptospermum ericoides and L. scoparium scrub and a variety of different Pittosporum species in a small area, P. eugenioides, P. tenuifolium and P. ellipticum being most prominent. The track leads on from the picnic area with Coprosma areolata and Gleichenia dicarpa being prominent along the sides. Extensive boggy areas were encountered en route with clumps of Podocarpus decrydioides growing therein, Kauri, rimu and rata trees were prominent on the back ridges to the south and Table Mountain to the north.

A short trip took us up to Edwards Lookout just past the picnic area. The soil was of very poor quality and signs of the last burn off were still evident. The flora was generally stunted and small. We only went up to the first knoll which gave us extensive views up and down the valley.

Going further up the valley we turned off the main track, forded the Kauaeranga River and proceeded up the Tarawaere Creek to one of the old timber dams. This was used to store water before being tripped and the resulting rush of water taking the felled logs downstream to be milled. This track was literally a botanists paradise, 56 species of trees