

**THREATENED AND LOCAL PLANT SURVEY
(1989-1992)**

**WHAKATANE FIELD CENTRE
DEPARTMENT OF CONSERVATION**

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1992**

A report prepared for the Department of Conservation, Rotorua

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INTRODUCTION

In 1988 I prepared a register of threatened and local plants in the Eastern Region, Department of Conservation (Beadel 1988)¹.

The register stimulated an interest in threatened and local plants in the Whakatane field centre and the staff wanted to become familiar with the appearance and location of plants in their area. To achieve this it was planned to spend one or two days per year inspecting known threatened and local plant sites in the Whakatane district. This report briefly summarises which sites were visited in 1989 and 1991 and details the 1992 inspection. The status of some of the plants has changed since the 1988 report. Other sites of interest to DOC staff also visited during these surveys are listed.

These surveys have been very successful in familiarising DOC staff with the location and appearance of threatened and local plants in the Whakatane district over the past 3 years. They have also obtained up-to-date information on the continuing presence or possible disappearance of threatened plants in the district and the extent and health of the populations. This information is essential for determining management strategies for threatened and local plants. Three new populations of threatened plants were discovered. Following the 1991 survey it was decided to monitor three threatened and local plants in the Whakatane district (see Beadel 1992a). Another benefit is that the DOC field staff involved with these surveys has had an opportunity to increase his knowledge of the local flora and vegetation.

This survey should continue in the future and could be extended to other field centres in the Bay of Plenty Conservancy.

1989

Eight sites were visited in November 1989.

1. Mokorua Gorge Scenic Reserve

The population of *Bulbophyllum tuberculatum* (classed as rare in Given *et al* 1987 and local in Given 1990) was located. The population appeared to be in relatively good health.

2. Te Pare Kawakawa Private Historic Reserve

The population of *Bulbophyllum tuberculatum* was inspected and appeared to be in relatively good health.

1. The Department of Conservation has subsequently been reorganised and the former Eastern Region now comprises the Bay of Plenty and East Cape Conservancies. The register is currently being updated for the Bay of Plenty Conservancy (Beadel, in prep.).

3. Ohineterarakau Scenic Reserve

A new location for *Bulbophyllum tuberculatum* was discovered. An addition to the species list (Beadel and Shaw 1988), *Melicope ternata*, was recorded.

4. White Pine Bush

The identification of species for the interpretation labels were checked were found to be correct. Pongas have been placed along the edge of the walking track in this reserve. These pongas were brought in from outside the reserve. One of these has grown and is species which was not recorded by Smale (1984). This plant, *Cyathea smithii*, should be removed.

5. Port Ohope, Ohiwa Harbour

A population of *Stipa stipoides* was inspected. Ohiwa Harbour is the southern limit of *Stipa stipoides* on the eastern side of the North Island. It occurs as far south as Waikawau Beach on the western side of the North Island and also occurs in the South Island in Tasman Bay. (Beadel and Shaw 1988). Seed collected during this inspection were propagated by the Whakatane District Council nursery.

6. Road Reserve adjacent to Matekarepu Historic Reserve

Metrosideros carminea (classed as local by Given *et al* 1987, but not included in the 1990 threatened and local plant list) was inspected in the road reserve adjacent to Matekarepu Historic Reserve. Only one plant of *M. carminea* is known to occur at this site; however it is possible that it also occurs in the adjacent Matekarepu Historic Reserve and Kotare Scenic Reserve.

7. Bregman Wildlife Management Reserve

Populations of *Cyclosorus interruptus* (classed as vulnerable by Given *et al* 1987 and rare by Given 1990) and *Thelypteris interruptus* (classed as vulnerable Given 1990) were inspected. Three colonies of each species were located. The reserve showed signs of being heavily grazed and the *Cyclosorus* and *Thelypteris* plants were relatively small and evidence of cattle trampling of plants was observed. Stock should be removed from the reserve. (See Irving and Beadel 1992.)

8. Parimahana Scenic Reserve

Dicranopteris linearis (classed as rare; Given 1990) was inspected in the reserve. Extensive colonies were observed. Another rare plant, *Prasophyllum pumilum* (classed as rare in Given *et al* 1987 but not included in the 1990 threatened and local plant list) was searched for without success. A species list was compiled for this area (Beadel 1989).

1991

Six sites were visited in February 1991.

1. **Awaiti Wildlife Management Reserve**

Eight small clumps of *Cyclosorus interruptus* (classed as vulnerable by Given *et al* 1989 and rare by Given 1990) were located in grey willow forest.

2. **Lake Tamarenuai Wildlife Management Reserve**

An inspection of this reserve was made for three threatened and local plants *Utricularia australis*, *Thelypteris confluens*, and *Cyclosorus interruptus*. None of these species were found; however, several plants of *Juncus holoschoenus* were recorded. This species was not included in the threatened and local plant list in 1989, but in 1990 was classed as indeterminate. This species was also collected from the reserve in 1981 (a specimen is lodged in the Forest Research Institute herbarium, Rotorua NZFRI 10878). A species list was made for this reserve (Beadel 1991).

3. **Ohiwa Harbour**

The population of *Spartina* near Kutarere was inspected. This colony had expanded markedly since I first observed it in about 1984 and it was recommended that active control measures should be undertaken to ensure its early removal (cf. Beadel and Shaw 1988). A control programme has since been implemented (D. Gosling pers. comm.).

4. **Road Reserve adjacent to Matekerepu Historic Reserve**

The *Metrosideros carminea* plant (see above, 1989) was relocated.

5. **Unnamed lake near Awakeri (NZMS260 V15 483 462)**

This small lake is largely surrounded by wetland. Vegetation types present include manuka shrubland (understorey dominated by swamp millet (*Isachne globosa*), *Baumea* sp. (*B. rubiginosa*)/swamp millet - *Eleocharis acuta* sedge-grassland, and raupo reedland. *Sphagnum cristatum* is common. Other species present include *Carex secta*, *C. virgata*, cabbage tree, *Juncus holoschoenus* (refer to above under Lake Tamarenuai), *Blechnum minus*, *Schoenoplectus validus*, *Baumea teretifolia*, *B. articulata* and *Eleocharis sphacelata*. The wetland is in good condition and is of significant botanical conservation (very high/exceptional botanical conservation value following Shaw 1988). It is worthy of formal protection.

6. Lake Otumuhi

A brief inspection was made. Much of the lake is surrounded by a narrow margin of wetland comprising grey willow/manuka scrub and forest. Species present include toetoe (*Cortaderia fulvida*), cabbage tree (*Cordyline australis*), *Eleocharis sphacelata*, swamp millet, *Carex secta*, *C. virgata*, *C. sp.* (*C. geminata* agg.), *Eleocharis acuta*, raupo, *Juncus pallidus*, *Baumea articulata* and *B. sp.* (*B. rubiginosa*?).

A more detailed inspection of these latter two lakes is recommended.

1992

Seven sites were visited in January 1992. These were Matata coastline, Tumurau (Braemar) lagoon, Lake Pupuwharau, and Awakeri Hot Springs. Monitoring studies were established at a further three sites: *Thelypteris confluens* at Bregman Wildlife Management Reserve, *Cyclosorus interruptus* in Awaiti Wildlife Management Reserve, and *Bulbophyllum tuberculatum* on Ray Unsworth's property (near Ohinetararakau Scenic Reserve) (see Beadel 1992a for details).

Matata coastline

(*Austrofestuca littoralis*)

Austrofestuca littoralis is a coastal sand dune plant that is classed as vulnerable in (Given 1990). It was collected from the Matata coastline in 1949 by N.D. Wrathall (NZFRI 2500). The coastline between Murphy's motorcamp and the Tarawera river mouth was inspected, however, no *Austrofestuca littoralis* was observed. It is recommended that other portions of the coastline be systematically searched for this species.

Several additions to the species list for Matata Wildlife Refuge (Irving 1992) were recorded; native sand oxalis (*Oxalis rubens*), New Zealand spinach (*Tetragonia tetragonioides*) and sea rocket (*Cakile maritima*).

Tumurau Lagoon

(*Utricularia australis* and *Cyclosorus interruptus*)

Utricularia australis (classed as indeterminate, Given 1990) was collected by R. Mason in 1963 from the lagoon; a specimen was lodged in the Botany Division Herbarium at Lincoln (CHR 126977). A search was made of the lagoon using canoes, but no *Utricularia* plants were found. Large numbers of waterbirds were observed on the lagoon during the survey and the water quality did not appear suitable to support *Utricularia*.

Two colonies of *Cyclosorus interruptus* (classed as rare in Given 1990) were discovered. One of the populations is very vigorous and is the healthiest that I have observed in the Te Teko ecological district. The other population comprised about seven plants.

A provisional checklist of the plant species present in and adjacent to the lagoon was compiled (Beadel 1992b).

Lake Pupuwharau, Kawerau (*Utricularia australis* and *Thelypteris confluens*)

Utricularia australis (classed as indeterminate; Given 1990) was collected by R. Mason in 1963 from Lake Pupuwharau and a specimen was lodged in the Botany Division Herbarium at Lincoln (CHR 169319). A search was made of the lake using canoes, but no *Utricularia* plants were found. The lake appears to still contain suitable habitat for *Utricularia*. A second inspection two weeks later also failed to locate any *Utricularia*.

Thelypteris confluens (classed as vulnerable in Given 1990) was recorded from nine sites around the lake. The plants were in excellent condition and are the healthiest that I have observed in the Te Teko ecological district. This population is the best in the Te Teko ecological district. *Thelypteris confluens* is currently known from only three other locations in the Te Teko ecological district (Beadel 1988, Irving and Beadel 1991).

Several other species that are now uncommon in the Te Teko ecological district were also recorded: *Sparganium subglobosum*, *Drosera binata*, *Eleocharis gracilis*, *Ranunculus amhitrichus* and *Epilobium chionanthum*. Vegetation and flora of the lake and environs is described in Beadel (1992c).

Protection of Lake Pupuwharau and adjoining wetlands and secondary forest and shrublands should be accorded a high priority.

Awakeri Hot Springs (*Dicranopteris linearis*)

Two small populations of *Dicranopteris linearis* (classed as rare; Given 1990). One is in a fenced enclosure around the hot spring and one is about 10m north of the hot spring beneath kanuka trees. Further information about these colonies and management recommendations is presented in Appendix 1.

Bregman Wildlife Management Reserve

More than 20 plants of *Thelypteris confluens* (classed as vulnerable in Given 1990) and over 40 plants of *Cyclosorus interruptus* (classed as rare in Given 1990) were recorded in February 1992 (see Beadel 1992a). Most of these plants were relatively small and appeared to be damaged by cattle trampling (i.e., broken fronds).

The reserve had been recently grazed by cattle. Grazing in the reserve should stop (see Irving and Beadel 1992).

Osmunda regalis, a large introduced fern, was recorded from the wetland (recorded by Miller 1983 but not by Irving 1992). The infestation is not large at this stage and eradication of the species from the wetland should be considered. It may adversely compete with the populations of threatened and local plants in the reserve in the future (*Thelypteris confluens* and *Cyclosorus interruptus*).

Awaiti Wildlife Management Reserve

One addition to Irving (1992) was recorded from the reserve; *Asplenium bulbiferum* subsp. *bulbiferum* x *A. flaccidum* subsp. *flaccidum* (a specimen is lodged in the Forest Research Institute herbarium, Rotorua).

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APPENDIX

AWAKERI HOT SPRINGS

(*Dicranopteris linearis*)

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1992

Dicranopteris linearis, a fern classified as rare (Given 1990) occurs at the Awakeri Hot Springs. There are two small populations. One is in a fenced enclosure around the hot spring and one is about 10m north of the hot spring beneath kanuka trees. I inspected these populations on 23 Januray 1992 accompanied by Derek Gosling (DOC, Whakatane).

1. Colony in fenced enclosure:

The fenced site comprises the hot spring, mown grass and a small area of privet (*Ligustrum sinense*), blackberry (*Rubus* sp., *R. fruticosus* agg.), canna lily (*Canna indica*) and Japanese honeysuckle (*Lonicera japonica*). The *Dicranopteris linearis* occurs amongst the privet, blackberry, canna lily and Japanese honeysuckle and extends over a horseshoe shaped area about 7 x 2 m. The population appears relatively healthy and there is new growth. In the past the problem plants (i.e. blackberry, privet, canna lily and Japanese honeysuckle in this area were regularly pruned to prevent them from out-competing with the *Dicranopteris*. However this was done by two residents of the Awakeri Hot Springs motor camp, who have now left the motor camp.

2. Colony beneath kanuka:

About 10m to the north of the Hot Spring there is a small colony (about 5 x 4m in extent) of *Dicranopteris linearis* growing beneath kanuka and *Cotoneaster glaucophylla* f. *serotina*. Dead fronds were dominant at this colony at the time of inspection. *Dicranopteris linearis* is common in the tropics and subtropics; however, in New Zealand it is confined to geothermally heated soils (but even there tends to be frosted-off in winter) (Brownsey and Smith-Dodsworth, Given 1981). It is likely that this colony is outside of the warming influence of the hot springs and would be subject to frosts which probably accounts for the dead fronds.

Management Recommendations:

The adventive shrubs and lianes growing in association with the *Dicranopteris* in the fenced enclosure should be regularly pruned to prevent them from overtopping the fern. Any plant control work carried out in this area should not use chemical methods. Careful removal of weeds by hand is required at this site.

The long-term survival of this population of *Dicranopteris* may be enhanced by planting a few kanuka within the fenced enclosure. Any kanuka planted on this site should be cultivated from the kanuka growing adjacent to the enclosure. Once the kanuka is well established, weed growth in the enclosure may decline, leading to a decrease in the level of active management required to maintain the *Dicranopteris* population.

Checklist of indigenous species recorded around the Awakeri Hot Springs during a brief visit on 23 January 1992.

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Baumea huttonii

B. juncea

Blechnum "blackspot" (unnamed, common species)

Cyathodes fraseri

Cyperus ustulatus

Dicranopteris linearis

Isachne globosa

Kunzea ericoides var. *ericoides*

Leucopogon fascicularis

Morelotia affinis

Phormium tenax

Pteridium esculentum

