



CONSERVATION  
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### LOCAL CABBAGE TREE SURVEYS: THE WAIRAU VALLEY, MARLBOROUGH

(Short Answers in Conservation Science)

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# LOCAL CABBAGE TREE SURVEYS: THE WAIRAU VALLEY, MARLBOROUGH

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## 1. INTRODUCTION

The Sudden Decline epidemic (Simpson 1993) has focussed attention on the general conservation status of cabbage trees (*Cordyline australis*). They are mostly in widely scattered small patches of slowly declining trees in farmland. By fencing, these patches can be restored to health. But it is important to identify the most important patches so that local owners can understand the significance of their land to the local pattern. In my experience farmers are willing to negotiate a way to protect cabbage trees, which are usually esteemed parts of the landscape. With cabbage tree conservation in mind it is very easy to travel through an area and record the important sites. As an example, I describe sites in the Wairau Valley, Marlborough.

On 10 October 1993 I observed as much of the cabbage tree population as I could from the road, from the Blenheim airport, to Top House saddle. The objective was to identify parts of the population that may be significant for conservation, and to understand any genetic variation. The Dog Point Road stand, part of which is protected by a fence is probably the most extensive patch in the valley. Cabbage trees probably extend up all the major and some of the minor tributaries (e.g. the Avon).

## 2. OVERALL PATTERN

Cabbage trees occur throughout the valley and generally increase in number inland until their limit is reached at the Top House saddle. However the pattern is very irregular with definite local patches associated with swampy ground and riparian zones, separated by thinly populated plains and terraces, sometimes with extensive areas apparently lacking cabbage trees altogether. For instance:

Waihopai Rd Jcn swamp	30 trees
Gibson Creek crossing	1
Waihopai R bridge	4
Bankhouse	4
Black Valley	19
Marchburn Creek	3
Centre Valley	30
Wairau Valley (inc. the township)	4 (+ 4 planted)
Huddleston Creek	1
Boundary Creek	4

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Approx. 40 km

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100 trees

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Beyond Boundary Creek cabbage trees become generally more common but only in riparian zones or moist soils. They are very infrequent on the alluvial plain itself.

In the upper part of the valley the cabbage trees are concentrated on moister soils forming Traverse Spur, the Wash moraine and the high clay soils of the North bank (paleozoic greywacke and ultramafic outwash). They form open stands along the sides of gullies extending up to 500 m on Water Hill and in wet zones at the base of the hill slopes, but not on the Red Hills themselves.

They become rare towards the base of Top House saddle. One was seen on the alluvial terrace of the Wairau River, and the most inland occupied a riparian site within regenerating beech forest near the summit of Top House saddle itself, at approximately 600 m altitude. Apart from very occasional planted specimens, cabbage trees are not seen again until Totara Flat, south of Reefton, about 160 km distant.

### 3. KEY SITES

There are eight small patches or stretches of cabbage trees along the valley. These are located on Figure 1.

Site 1. Waihopai Rd. The Alpine Fault creates a wetland at this site and 2-3 ha of flax, cabbage trees, willow and *Coprosma propinqua* occur. Some 30 cabbage trees; including some young ones are present in the upper end of the swamp and along the stream flowing into it. This "tectonic wetland" is highly significant because it is formed by the Alpine Fault - New Zealand's most fundamental structural feature.

Site 2. Black Valley. This stream drains the northern end of the Hillersden Hills and creates riparian swampy ground where it joins and meanders across the Wairau plain. Here flax and 19 cabbage trees form a rather unhealthy grove, but which includes both young and old trees. The trees have a ragged appearance characteristic of the lowland Wairau cabbage trees. Typically the trees are dark green, the leaves quite narrow and lax (they hang down and move readily in the wind). The trees are generally small, up to 10 m tall, and have a narrow, elongated crown. Dark brown, dead leaves hang below the living head of leaves so that a green-brown mosaic is formed across the crown contributing to an "untidy" appearance. In addition to a naturally "untidy" appearance the wetland seems unthrifty as a result of farming and roading interfering with the ground water.

Site 3. Centre Valley. Similarly placed to Black Valley in terms of topography, the Centre Valley stand of 30 trees within flax is extremely important because it combines two forms. Some are the typical lowland form already described for Black Valley, but others have glaucous (blue-green) leaves tending to be much more erect, and larger than the typical form, and the crown is rounder and more spreading. This form is encountered again some 30 km up-valley at Saltwater Creek and it replaces the lowland green form almost completely beyond this point to the uppermost and most inland limit of cabbage trees.

**Site 4.** Wye River. The lower Wye flood plain and terrace system supports an excellent stand of large cabbage trees. No regeneration was observed and it may be advisable to protect some of the largest specimens which are assuming the form of very old trees.

**Site 5.** Saltwater Creek/Cabbage Tree Gully. The Traverse Spur, a remnant of Pleistocene outwash from the Branch/Leatham catchments creates a zone of moist soils on its downstream side and two significant stands of cabbage trees occur. One stream is known as Cabbage Tree Gully and supports a significant number of trees of the lowland form. Saltwater Creek supports many glaucous trees and a range of intermediates. This area should be looked at more closely to determine its conservation values.

**Site 6.** Water Hill. Cabbage trees become very rare along the main valley, but a large number (over 100) occupy the lower gullies of Water Hill, reaching 500 m in altitude. The cabbage trees are all of the vigorous glaucous form. Water Hill (rainfall 1200-1400 mm) consists of Permian greywacke and is largely clothed in regenerating manuka. The area is freehold land on the Manuka Island rim. It may be important to secure protection of these gullies, because pine planting is widespread and expanding on adjacent properties in the area.

**Site 7.** Wash Bridge, : 30 cabbage trees occupy a drained swamp at the base of a mesozoic greywacke hillslope. They are in poor condition and probably have little conservation value. It is possible that the swamp formed after the road was built, but it may also represent an old floodplain left as the Wairau has cut down the post-pleistocene valley floor. Most of the cabbage trees of the Wairau occupy places that were former waterways, often at the bases of terraces and hillslopes.

**Site 8.** Red Hills outwash. Although there are no cabbage trees on the Red Hills themselves (ultramafic soils), small groups do occur on the outwash fans emerging onto the Wairau terraces. This land is mostly covered with manuka and kanuka. A large area has been cleared in the past year and planted in pines. One cabbage tree, representing one of the most inland individuals in the Wairau, has been bull-dozed. Any individuals or patches of cabbage trees should be left in places like this because they are genetically significant as colonisers of adverse sites.

#### 4. DISCUSSION

##### 4.1 Habitat preference

Cabbage trees are closely linked to wet sites: wetlands formed by former waterways (usually dewatered remnants of flax swamp), riparian zones along the lower reaches of streams above their confluence with the Wairau, or seasonally moist soils containing a high clay content associated with pleistocene outwash gravels and moraine and weathered northbank soils. They are seldom present where willows dominate.

#### 4.2 Aspect and altitude

Cabbage trees are part of the lowland vegetation, being more or less continuous from the coast, up the main and tributary valleys to the middle gullies, and occupy the warm aspects (N-facing slopes) of their uppermost habitats. The fact that cabbage trees are not present further inland throughout the Upper Buller and Grey catchments despite the lower altitude of these valleys, indicates a strong coastal-lowland affinity. (The coastal affinity becomes extreme in the most southern part of cabbage tree range in Fiordland and Stewart Is.)

#### 4.3 Genetic variation

Two genetically determined forms inter-relate:

- (a) Green, narrow-leaved, lax-leaved elongated crown, ragged appearance.  
This form occupies the lower part of the Valley and is essentially the same (although with overall smaller leaf-size and less vigorous appearance) as coastal lowland cabbage trees in Nelson, Takaka, Kaikoura, Canterbury, Wellington and Horowhenua. This extremely widespread form in both North and South Islands is the "typical cabbage tree".
- (b) Glaucous (blue-green), medium-wide leaved, lax but tending to be erect-leaved, rounded, spreading crown, neat appearance.

This form occupies the upper altitude of the range, but where the two overlap they can be identifiable side by side, or form a series of intermediates.

This form is similar to, or the same as, that characteristic of the West Coast (from Totara Flat, Grey R) to Otira (Taramakau R). Its occurrence in the Wairau may be more related to rainfall than altitude although it reflects the general change elsewhere in New Zealand that structurally heavier stems and stiffer leaves are characteristic at the upper altitudinal range of cabbage trees.

#### 4.4 Conservation

The cabbage trees of the Wairau are remnants of a formerly larger population and their absence over large areas reflects the drainage of wetlands, stock impacts and habitat domination by willows. Any groups of many trees (say greater than 20) are worthy of protection. In a landscape that contains virtually no indigenous trees over thousands of hectares, cabbage trees provide a fundamental sense of place in a valley of national importance.

A new phase of pine planting is a threat to the cabbage trees at the upper end of their range. The Saltwater Creek-Cabbage Tree Gully area requires further observations because the area may warrant a more detailed conservation proposal, owing to the numerous cabbage trees observed there.

## 5. CONCLUSION

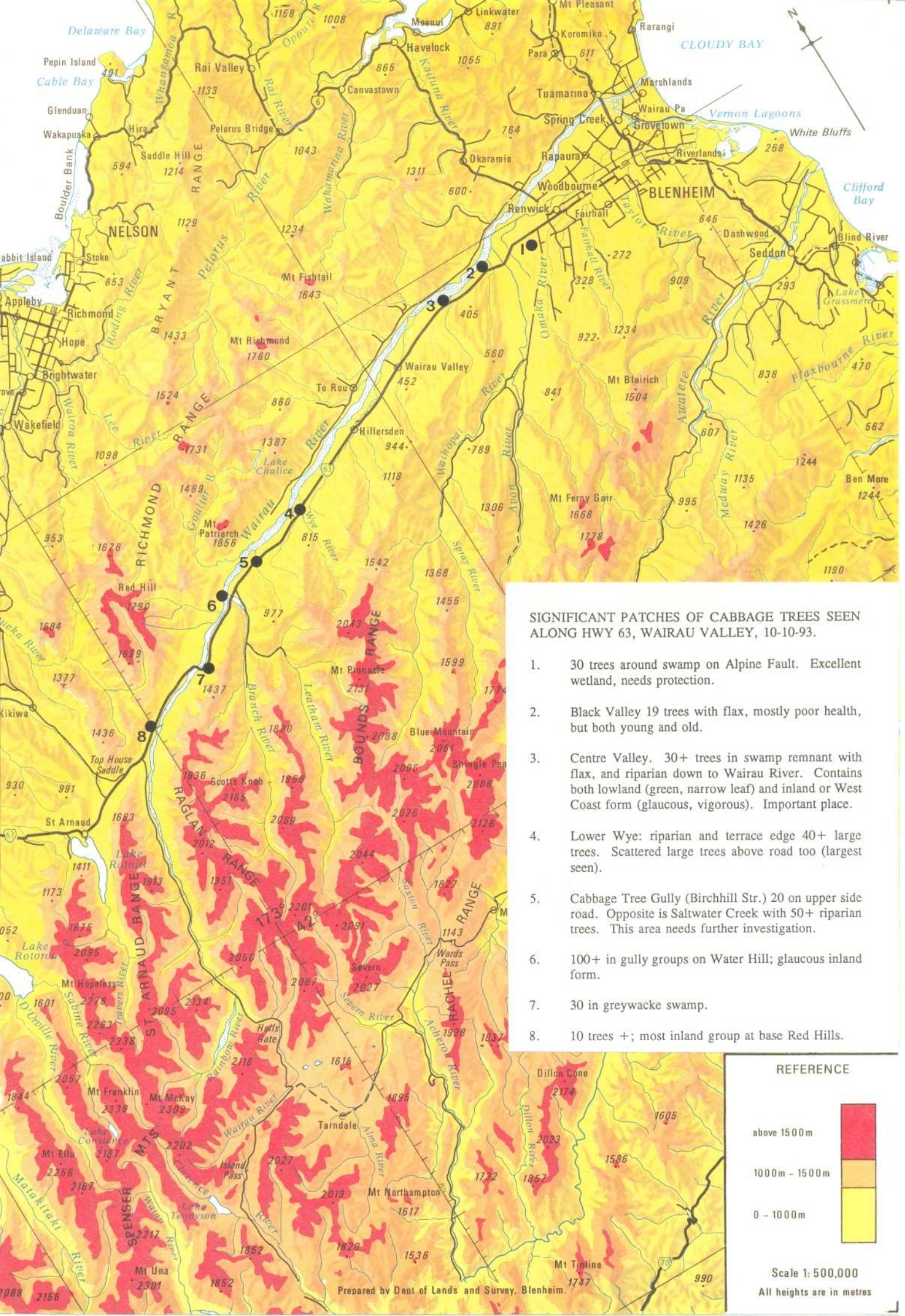
Cabbage trees are an indigenous landscape feature of the Wairau Valley and represent the coastal-lowland element of the flora. Genetic variation of lowland and "upland" forms is apparent, the latter identifiable also on the wet coastal lowlands of the West Coast, the former widespread in the relatively drier lowlands of both South and North Islands. They occupy wetlands of several types, but predominantly former and existing riparian zones and flax swamps. Most are continuing to be damaged by stock. Significant stands are few and far between and several are worthy of protection, simply by fencing at this stage.

This brief report is prepared to illustrate that patches of cabbage trees worthy of protection can often be identified from the road, merely by recording basic features as one travels by. A report then serves as a starting point for implementing conservation actions, especially discussion with landowners. In this way a representative sample of cabbage tree stands will eventually become protected. This is a basic action required to restore cabbage trees to a sustainable condition.

## 6. REFERENCES

Simpson, Philip G. 1993: Cabbage Tree Sudden Decline (*Cordyline australis* - Agavaceae Hutch.) New Zealand Forestry 38(2): 33-38.

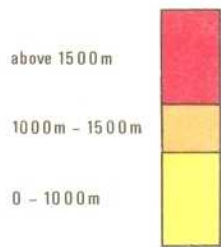




**SIGNIFICANT PATCHES OF CABBAGE TREES SEEN ALONG HWY 63, WAIRAU VALLEY, 10-10-93.**

1. 30 trees around swamp on Alpine Fault. Excellent wetland, needs protection.
2. Black Valley 19 trees with flax, mostly poor health, but both young and old.
3. Centre Valley. 30+ trees in swamp remnant with flax, and riparian down to Wairau River. Contains both lowland (green, narrow leaf) and inland or West Coast form (glaucous, vigorous). Important place.
4. Lower Wye: riparian and terrace edge 40+ large trees. Scattered large trees above road too (largest seen).
5. Cabbage Tree Gully (Birchhill Str.) 20 on upper side road. Opposite is Saltwater Creek with 50+ riparian trees. This area needs further investigation.
6. 100+ in gully groups on Water Hill; glaucous inland form.
7. 30 in greywacke swamp.
8. 10 trees +; most inland group at base Red Hills.

**REFERENCE**



Scale 1:500,000  
All heights are in metres