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SEEKING A WAY TO CONSERVE FRAGMENTS OF NATIVE BUSH ON PRIVATE LAND: "CURTIS BUSH", WAINUIOMATA VALLEY, WELLINGTON

(Short Answers in Conservation Science)

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SEEKING A WAY TO CONSERVE FRAGMENTS OF NATIVE BUSH ON PRIVATE LAND: "CURTIS BUSH", WAINUIOMATA VALLEY, WELLINGTON

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Introduction

I really enjoy looking at remnant patches of native vegetation, especially bush. I never know what surprises are in store. Even if I am familiar with a region, when only remnants of the original pattern survive, I find that each is more or less distinct: species composition, dominance, age spectrum of the individuals and the particular geological or cultural history of the specific area. There is also the creative exercise of wondering what the significance of the remnant is in biogeographic, habitat or landscape terms, and what needs to be done to ensure survival, enhancement and appreciation by the owners or onlookers.

Such were my feelings when I was given the opportunity to look at a tiny remnant of bush on alluvial flats in the lower Wainuiomata Valley (February 16, 1993). I had been communicating with Mike and Jane Curtis over the past couple of years because of the very distinctive patch of cabbage trees on their farm. I had proposed to the Wellington Regional Council that the Conservation Corps might like to experience negotiating with a landowner to protect a piece of land. While I strongly believed that it was in their interest to learn from such an exercise, I nevertheless had to be involved, and found myself first in the Curtis house, then on site with pegs to mark out the fence line with the owner, then with the Corps watching them erect the fence, and now two years later, I am back looking at the tired, old cabbage trees regenerating from around their bases, or even sending up sprouts where no tree now exists above ground. It is a joy to behold the reversal, even of a tiny patch of trees, of the one-way journey to extinction that grazing animals invoke on native trees. We had only a thousand dollars, which means just 200 m of fencing could be purchased, but this enclosed two patches of trees, amounting to about a tenth of a hectare. For fertile, well-watered, sheltered, valley-bottom farmland this is the loss of several hundred dollars of sheep production every year: a lot in these times of no frills farming. So, I am grateful to the Curtis's for giving this land, informally, and perhaps even temporarily, to the country. They are delighted with the result, because they love the cabbage trees, and the bush nearby; in fact, they bought the farm because of these natural features, and now live among the trees of the remnant I am about to describe.

Geographical features

There is always a reason why a patch of bush has been left. From the road, the reason why this particular patch remains is not clear, but becomes evident when walking through the bush because a former channel of the Wainuiomata River meanders intricately along the side of the valley, and prevents easy access to people, vehicles and stock. Clearance would have invited damage from flooding and the closeness of the road may have been a consideration as well. Although channels on floodplains have a natural tendency to change over time, this particular situation may relate to land elevation resulting from the 1855 earthquake. Parts of the Wainuiomata River are now entrenched and are eroding the flats in places, to the detriment of native trees (several cabbage trees of the Curtis patch have been lost), and overall river stability.

I have not studied the history of the vegetation in detail, but it is obvious that there are at least two age classes. In Curtis bush there is one large totara tree on the old river bank (DBH 1.5 m) and one unusually large cabbage tree on the floodplain (DBH 1.5 m) that are clearly survivors of a vegetation that was present before all the other trees developed. At a guess I would say that the present bush established after the 1855 earthquake, on a site that was deforested (apart from occasional trees) by flooding, maori fires or very early pakaha colonisation in the 1840's. There were several sawmills in the valley and the large totara is sufficiently "deformed" to have escaped the axe.

Long term change in the valley vegetation is also indicated by a zone of buried wood in gley soil about 4 m beneath the present valley floor covering of silt and gravel. Mrs Curtis was informed by a former DSIR scientist that these had been dated at 7000 years old.

A general point emerges from investigation of the vegetation, soils, hydrology, topography and cultural history: every patch of New Zealand has a complex and fascinating history, no matter how ordinary it appears on the surface. It is important that these landscape ecology stories are told and understood by local people especially, so that the uniqueness of each area is appreciated, "pride" in local distinctiveness is felt and an interest in protecting what is locally special is generated. Perhaps this philosophy is best encapsulated by fostering in people a "feeling of belonging" or a "sense of place".

Composition of "Curtis Bush" remnant

The species present, the number of each (observed only briefly on one occasion, and therefore bound to contain errors and omissions) and aspects of their present ecology are listed in Table 1.

The remnant contains a surprising degree of species diversity and a mix of species that reflects the diverse influences on vegetation of southern North Island. Coastal forest species are ngaio and milk-tree (*Streblus banksii*). Lowland forest is represented by the

three podocarps and the range of broad-leaved hardwoods like titoki, kaikomako, pigeonwood, ribbonwood and passion vine. A more montane element, perhaps relating to the often severe climatic conditions, is indicated by pokaka and rewarewa. Milktree and rewarewa are close to the limits of their ranges in New Zealand and ribbonwood is uncommon around Cook Strait. There is a distinct lack of epiphytes (orchids, liliaceae) that might also reflect the severe winters and dry summers. Undoubtedly species have died out as the remnant has been grazed, and the forest floor has become open and unstable. Numerous dead or partially dead trees are present and the large proportion of species recording only a single (20 species) or two (8 species) individual(s) indicates that extinction of many species is imminent. The ground flora, including ferns, is virtually non-existent. Apart from occasional epiphytic seedlings or saplings in protected microsites, there is no regeneration.

Significance

Vegetation of this general type is found in coastal plains and alluvial valleys of southern Wairarapa, although I cannot recall the occurrence of either ribbonwood or milk-tree there. It is quite possible that the composition is unique being one of the only valley-floor bush remnants east of Rimutaka Range and south of Paekakariki. The occurrence of old ngaio is uncommon almost everywhere in New Zealand.

The bush is composed almost entirely of fruit-bearing trees, and flocks of kereru (pigeon) are known from the area.

The karaka trees are offspring of or possibly sometimes originals of plantations planted by Maori around the coast of southern North Island, and are therefore living reflections of former human society.

Management

"Curtis Bush" (Figure 1) consists of two distinct patches which form a more or less closed canopy (identified as North and South patches here) linked by a zone of treeland (scattered trees in pasture or on stream banks) where the farmhouse and woolshed are also located.

There is no doubt that, without fencing, a majority of these trees will be dead within a century. A woodland of totara and cabbage trees would probably be the only survivors. Ideally the whole area could be fenced, enabling the treeland between the North and South patches to thicken up and deleterious "edge-effects" reduced (e.g. penetration of cold wind). There are features in the central zone of treeland not found elsewhere (e.g. the only matai present). Alternatively individual trees of note in this area (e.g. a large cabbage tree) could be protected. The core of the north and south patches must be fenced if they are to survive. The banks of the meandering "stream" (which contains discontinuous pools of water, and zones of moist mud) would provide an excellent habitat for regeneration of most of the forest species present.

Regeneration would be assisted by active management of weeds and understorey grasses. *Phytolacca* (ink-weed) and wandering jew are present and would expand. A dense undergrowth of *Urtica ferox* (tree nettle) may not be desirable, and key species like kahikatea, pukatea and ribbonwood could be propagated and planted.

The Curtis's are establishing a farm tourism business, including horse trekking and perhaps cabins. Observations of the bush, the meandering stream (which could be greatly enhanced by ponding, weed control, and animal exclusion), the cabbage trees nearby and any restoration actions, would be of interest to visitors if the area was adequately interpreted. A simple horse trail that linked identified key features (the large totara, the large cabbage tree, epiphytic broadleaf (see Table 1), the milk-trees, the regenerating cabbage tree patches upstream, buried wood in the stream bank and so on) would be a beginning that the owners are willing to entertain.

Discussion

I believe that this remnant of bush could become much more than just a landscape feature for the owners and passers-by. These are important values of course; indeed travellers stop to admire the area. Shelter is an important resource for the farm stock. Creating a recreational and interpretation asset out of the bush is one way to justify its protection, because this will add to the farm business. Conservation does not have to involve alienation from use, but continued grazing will inevitably result in further loss.

As a Department of Conservation scientist my role is limited. I face a dilemma as to whether my time should be spent advising on the development of a private resource. There is absolutely no doubt that public money spent protecting the bush would increase the value of the farm to the owners. Is this the way to spend public funds? Yet, time spent advising and assisting with interpretation and the best place to fence, offers an educational opportunity for perhaps thousands of people over the years. Any protection also offers an example to other landowners. There is, after all, a million hectares of privately owned bush in New Zealand and probably an equal area of riverbanks, wetlands, dunes and shrublands that all serve a role and will serve a future role when we, as a nation, stop simply protecting and start restoring.

Conservationists can do no more than state their case and offer advice. The landowner must lead the way. I am pleased to be able to help, and I have found that if owners are allowed to make the decisions and are not forced to compromise their rights or independence they will usually oblige. Be honest, understanding, respectful and patient.

Conclusion

(1) "Curtis Bush" is worthy of protection by excluding stock, managing weeds, and planting key species.

(2) The development of a recreational facility (an interpreted horse bush trail) is one way to achieve this.

(3) Protection will safeguard a locally rare ecosystem with unusual composition, including cultural features, will maintain a landscape feature, and offer educational and recreational opportunities, as part of an economically viable farm operation.

(4) Advocating conservation to landowners is a valid expenditure of public funds.

(5) Landowners are interested in their "patch" and will only be helpful if their owners rights are respected.

Table 1 : Species, their frequency and aspects of their condition, in "Curtis Bush" Wainuiomata Valley. The symbol ∞ = numerous.

Name	Number of individuals	Ecological Comment
Canopy trees		
Karaka	∞	Mostly medium sized trees, some old and declining; in fruit.
Totara	few	2 sizes - one very old (DBH 1.5 m) and from earlier veg, 300+ yrs; others 150 yrs: north patch only; 2 epiphytic seedlings the only regen.
Titoki	∞	Dominant canopy tree. Flowering. No regen.
Manatu (ribbonwood)	few	Widely scattered; small trees, healthy, a few saplings along creek-side. Flowering.
Kanuka	1	Declining individual. Nth patch.
Cabbage tree	∞	Dominant scattered tree around margins. One very large 1.5 m DBH in south patch - former veg; one with large *Gris. lucida* epiphyte wrapping around trunk, sth end. Mostly typical S. N.I. provenance, but several Wairarapa "tarariki".
Pukatea	few (4?)	Very scattered, small unhealthy individuals, on contracted alluvium.
Mahoe	few	Scattered trees, young ones in sites sheltered from grazing; one epiphytic seedling.
Ngaio	< ∞ (6 trees) (1 regen)	Scattered old plants throughout, often leaning ± horizontal trunks. One sapling in protected place-vigourous. Coastal element.
Kaikomako	∞	Mostly small, ± unhealthy trees; lots of green fruit.
Matai	2	Small (8 m) trees in central zone, near house. Far north end near road. Small tree 6-7 m.
Tawa	few	Scattered small, mostly unhealthy. Bearing fruit. Mostly north end.
Rewarewa	1	Far north end near road. Small tree 6-7 m.

Name	Number of individuals	Ecological Comment
Canopy trees Cont'd		
Mapou	1	4 m tree nth end.
Pigeonwood	few	Scattered small trees throughout.
Hinau	1	Nth end. Medium tree, not healthy.
Pokaka	1	Middle of patch; very sick tree, with a few fruit.
Streblus banksii	4	3 nth end, 1 sth-large; much possum browse; very small leaves. Rare element.
Streblus heterophylles	2	Very small trees along stream. Nth.
Myrtle (*bullata x obcordata*)	1	Tall, handsome tree 9 m, nth end.
Kahikatea	2	North patch. Small trees 9 m.
Lancewood	1	Streamside, sth patch.
Canopy vines		
Metrosideros perforata	∞	Old vines on many trees; flowering
M. colensoi	< few	
M. diffusa	1	North patch near road/stream.
Parsonsia heterophylla	1	Vine along roadside, nth end.
Passion vine	1	North patch.
Supplejack	2	North patch.
Epiphytes		
Kapuka (*Griselinia lucida*)	2	One old epiphyte - excellent specimen on c.t. (sth end), one young seedling also epiphytic on cabbage tree.
Pyrrosia serpens	∞	Epiphytic on cabbage trees.
Phymatodes diversifolium	1	Epiphytic. Central area.

Name	Number of individuals	Ecological Comment
Shrubs		
Coprosma propinqua	< ∞	Scattered, mostly along edge of stream, mostly north patch.
Coprosma areolata	few	Healthy tall shrubs, along stream banks.
Coprosma rhamnoides	few	Unhealthy small shrubs. No regen.
Coprosma rigida	2	Tall, healthy shrubs along stream.
Coprosma rotundifolia	1	Sth end, large shrub adj. to stream. No regen of any shrub *Coprosma* spp.
Urtica ferox (tree nettle)	∞	Only common and regenerating species, especially along stream bank.
Kawakawa	2	Protected by roadside fence/creek bank only.
Tauhinu	1	Probably more in protected places along road or open streamside.
Melicope simplex	1	Dense shrub 3 m; streamside.
Carmichaelia flagelliformis	5	4 small trees (4 m), 1 sapling (1.5 m). Knoll on meander. One patch nth side. In fruit. Excellent group.
Manuka	2	Streamside, sth patch.
Mamaku	1	One alive, very sick; several dead trunks. Central zone near stream.
Bush margin vines		
Muehlenbeckia complexa	few	Vines mostly epiphytic on cabbage trees, or along stream or outside fence along road.
M. australis	1	Sprawling vine along roadside.
Forest floor herbs		
Hydrocotyle sp.	∞	Ground cover throughout.
Histiopteris incana	∞	Roadside/streamside, north patch.

Name	Number of individuals	Ecological Comment
Forest floor herbs		
Asplenium colensoi (*cookianum*?)	few	Shaded streambank, nth.
Asp. flaccidum	1	Terrestrial streambank, nth.
Lastreopsis hymenophylloides	1	Terrestrial streambank, nth.
Adiantum sp.	1	Terrestrial streambank, nth.
Blechnum fluviatile	1	Terrestrial streambank, nth.
Wetland species		
Myriophyllum sp.	∞	The stream bed is extremely disturbed by stock and weeds. A greater range of species would be recorded with closer inspection.
Carex secta	∞	
Carex ustilago	few	
Lemna minor	∞	
Azolla filiculoides	∞	
Introduced plants		
Pasture grasses	∞	Throughout ground under trees.
Phytolacca octandra	1	Protected area under trees.
Cupressus macrocarpa	2	Planted, sth patch: old house site?
Pear (*Pyrus communis*)	1	Planted, sth patch: old house site?
Tradescantia fluminensis	1 patch	Needs immediate removal.
Aponogeton distachyon	few	Sth patch, aquatic.
Polygonum persicaria (willow weed)	∞	Stream mud.

FIGURE 1. Location of Curtis Bush.