10/10/04

MARLBOROUGH DISTRICT

ECOLOGICAL SIGNIFICANCE ASSESSMENT REPORT

Property Number/Name: **Victoria Domain and associated reserves**

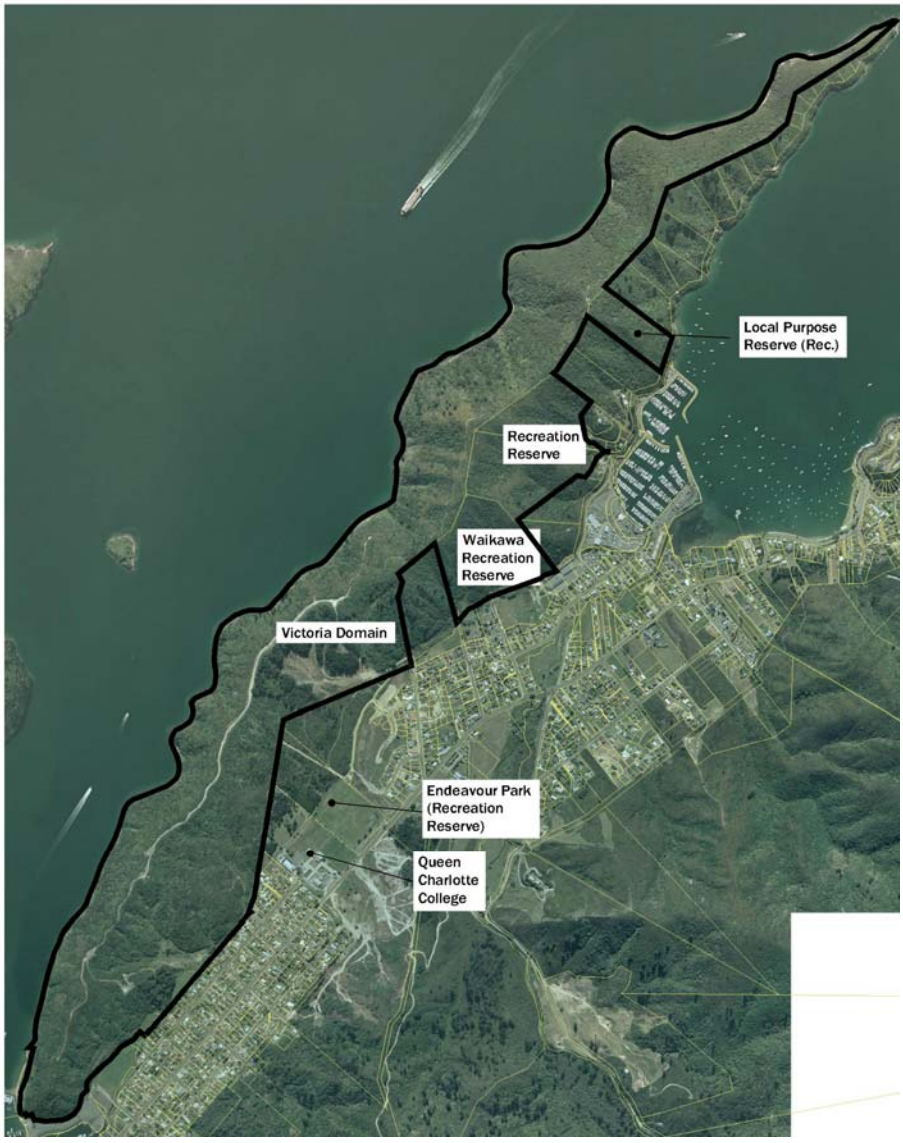
Landowner(s)/Occupier(s): **Marlborough District Council**

Ecological District: **Sounds** **Surveyed by: Geoff Walls**

Date: 4/6/04, 13 & 15/7/04

Number of Significant Sites: 1

Map of Property and Sites:



THE SETTING

Sounds Ecological District is one of four forming the Sounds-Wellington Ecological Region. The others are D'Urville, Cook Strait and Wellington. Sounds forms the largest and central district, and includes the entire Marlborough Sounds except the very outer reaches, Croisilles Harbour and western D'Urville Island. It is a wonderfully complex labyrinth of convoluted land and waterways ("drowned valleys"), with a robust but rather benign climate. The topography includes peninsulas, headlands, steep hills, strong ridges, gullies and confined flats and inlets. There are several substantial islands within each of the two main sounds, Pelorus and Queen Charlotte, and some smaller islets. The highest point is Mt Stokes (1204m), high enough to have an alpine character.

The geology is complex. In the west is Permian argillite and igneous conglomerate, with some areas of ultramafic "Mineral Belt" rocks and volcanics. In the central part is Carboniferous greywacke and argillite, and in the east is Carboniferous Marlborough schist. These are arranged in belts or strips along a NE-SW axis. D'Urville Island only separated from the mainland since the last glacial period.

The climate has prevailing west to north-west winds with fairly frequent gales, reliable rainfall, warm summers and mild winters. Soils are steepland soils formed from the parent rocks and include fragmented solifluction debris. They are moderately fertile as a rule, but in the higher rainfall areas they are leached and have infertile podzols. In the ultramafic areas the unusual concentrations of metallic minerals create soils that inhibit plants such as broadleaved trees and pasture grasses.

The pre-human vegetation cover would have been almost entirely forest, except for eroding scarps, beaches, water bodies and at the summit of Mt Stokes. Much of the forest has been cleared for farming or timber. Hard beech is dominant in most remaining forest areas up to about 500m, with black beech on spurs, kamahi common and some rimu. In the gullies and fertile lower slopes is lush broadleaved forest containing kohekohe, pukatea, tawa and nikau, sometimes with large rimu, matai and kahikatea. There is usually a profusion of ferns, climbers and epiphytes in these forests. Between 500 and 700m in altitude the forest is generally dominated by red beech, with kamahi and silver beech. Southern rata and Hall's totara often occur on ridge crests. Above 700m the forest is dominated by silver beech, with mountain beech on some western peaks. On the summit of Mt Stokes, above 1100m, is alpine vegetation of snowgrass, alpine daisies and cushion plants, with a fringe of "stoppy-stop" (leatherwood or tupare, *Olearia colensoi*) scrub. Ultramafic areas retain a little of the former forest cover of hard beech, kamahi and southern rata, but most has been burnt and now supports tight scrub of manuka, neinei (*Dracophyllum urvilleanum*), tauhinu and other shrubs. Areas of former forest not now in pasture or exotic pines are clad in scrub or regenerating low forest. Kanuka, manuka, tauhinu, gorse and Spanish heath are abundant in such vegetation at an early stage in regeneration, in drier sites or where there is continued grazing. Later in the regeneration process and in gullies, the dominant plants are kanuka and/or numerous broadleaved trees such as five-finger, mahoe, karamu, heketara and putaputaweta, usually with an abundance of tree ferns. Wilding pines are the main weed threat to these areas.

The flora has features of significance such as plants peculiar to the summit of Mt Stokes, such as the distinctive daisy *Celmisia macmahonii* var. *macmahonii* and species confined to the ultramafics. Cook's scurvy grass, once abundant around the coast, has virtually disappeared but still occurs on some islands. D'Urville Island is rather special; because it is possum-free it still has an abundance of mistletoes. It also has threatened plants such as shore milkweed (*Euphorbia glauca*) and wind grass (*Anemanthele lessoniana*).

The fauna includes most of the coastal, wetland and bush birds of the region. Threatened species include NZ falcon, marsh crake, kereru and South Island kaka. Sadly, little spotted kiwi have disappeared in recent decades from their former range, but have been rescued on some predator-free islands. Weka are still common. There is a nationally endangered endemic frog, Maud Island frog (*Leiopelma pakeka*), found only

on the island that gives it its name. Lizards (skinks and geckos) are fairly common still, and the giant landsnails *Powelliphanta hochstetteri obscura* and *Powelliphanta hochstetteri bicolor* are still present. Native fish, including eels, galaxiids and bullies, occur in most streams and wetlands.

People have lived in this area for many centuries. Evidence of former Maori settlement - middens, terraces, pits and worked stone material - occur in many places. There are extensive prehistoric quarries, particularly on D'Urville Island, from which material and artefacts were moved throughout the country. Some of the forest cover was burnt during the pre-European period of settlement, but most of the clearance happened since European arrival. Ship Cove is famous for being used by Captain Cook during his explorations in the late 18th century. He liberated pigs and goats for the first time in New Zealand there. The patterns of farming, established during the latter 19th century and early 20th century, still remain. However, they are becoming increasingly replaced by exotic forestry and coastal settlement. In a remarkable reversal of the former trend of destruction and alienation of the indigenous ecosystems, some modern landowners are returning their land to native forest and are tackling pests so that the native fauna and flora can flourish.

Weeds that pose serious ecological threats are wilding conifers (mostly pines) and old man's beard. Animal pests are feral pigs, deer, goats and possums, and smaller predators such as rodents, mustelids and hedgehogs. Wasps are also an ecological problem. Techniques for dealing with all these pests are available and with regular control it is possible to keep the threats to a minimum. The Department of Conservation manages an extensive network of reserves throughout the ecological district. There are areas of private land with protection as QEII National Trust Open Space Covenants. Threatened species are being managed on several of the islands, notably Maud Island in Pelorus Sound and Motuara Island in Queen Charlotte Sound.

THE PROPERTY

The property occupies the majority of a long ridge system that runs north-eastwards 5km from Picton, terminating in a point called The Snout. The ridge is connected to the mainland by a broad flat valley for much of its length, but in the north forms the western limb of Waikawa Bay. The land is mostly moderate to steep in slope and rises from the sea to 184m. The shore is generally rocky, but has a series of small gravel beaches, particularly on the NW flank where it forms the eastern side of Picton Harbour. The largest of the beaches are graced with the names Bobs Bay, Pine Bay, Titoki Bay and Karaka Bay.

The land is administered by Marlborough District Council, but has a variety of classifications building on an original declaration of reservation in 1857. Most of it is recreation reserve, called Victoria Domain. Other parcels, mainly on the eastern side, are peripheral additions, mostly also recreation reserves but also local purpose reserves. The NE portion of the ridge system, in the Waikawa Bay catchment, is largely in private ownership. There are some residences with driveways, but other holdings have holiday cottages accessed by boat. The main reserve has public road access and a series of good walking tracks. People make much use of the reserve system.

The original cover of dense native forest is largely gone; just a few big trees (mainly black beech and hard beech) remain on headlands and in one upper gully. The clearance may have begun in Maori times – there is evidence on the shore of burnt stones, charcoal and midden. It would certainly have been completed following European settlement, in the quest for timber and pastoral farmland. The land (as in most of the Sounds) was farmed for many decades. Now though this property, and much of the land in the vicinity, is regenerating rapidly back to native bush through short-lived vegetation of gorse, broom, bracken, manuka and kanuka. The humid mild climate, and the relatively fertile soil, encourage the process. Some of the property is still at a fairly early scrubby stage in which gorse and broom are dominant, but most of the rest is now low forest of five-finger, mahoe, akeake and kanuka, with a wealth of shrubs and ferns beneath the

canopy. The whole regeneration process has been complicated by the presence of numerous wilding pines and other weeds and plantations of Australian wattles and blackwoods. However, there has been a steady management regime of felling the exotic trees and controlling other weeds, and the lush native forest regeneration is the result.

There are numerous weeds, as a result of the proximity to residential gardens and past well-intentioned exotic plantings. The worst ecological weeds present include gorse and broom (only a problem on the exposed western shore, otherwise doing a good job as a nursery for native bush plants), old man's beard, Japanese honeysuckle, banana passionfruit, wilding pines, wilding wattles, sycamore, veld grass (*Ehrharta erecta*) climbing dock, ivy, robinia (*Robinia pseudacacia*) and cotoneaster. Possums are present throughout the bush and scrub. Feral pigs and probably deer occasionally turn up, having come from the hinterland to the east. Also probably present are stoats, hedgehogs, cats, rats and mice.

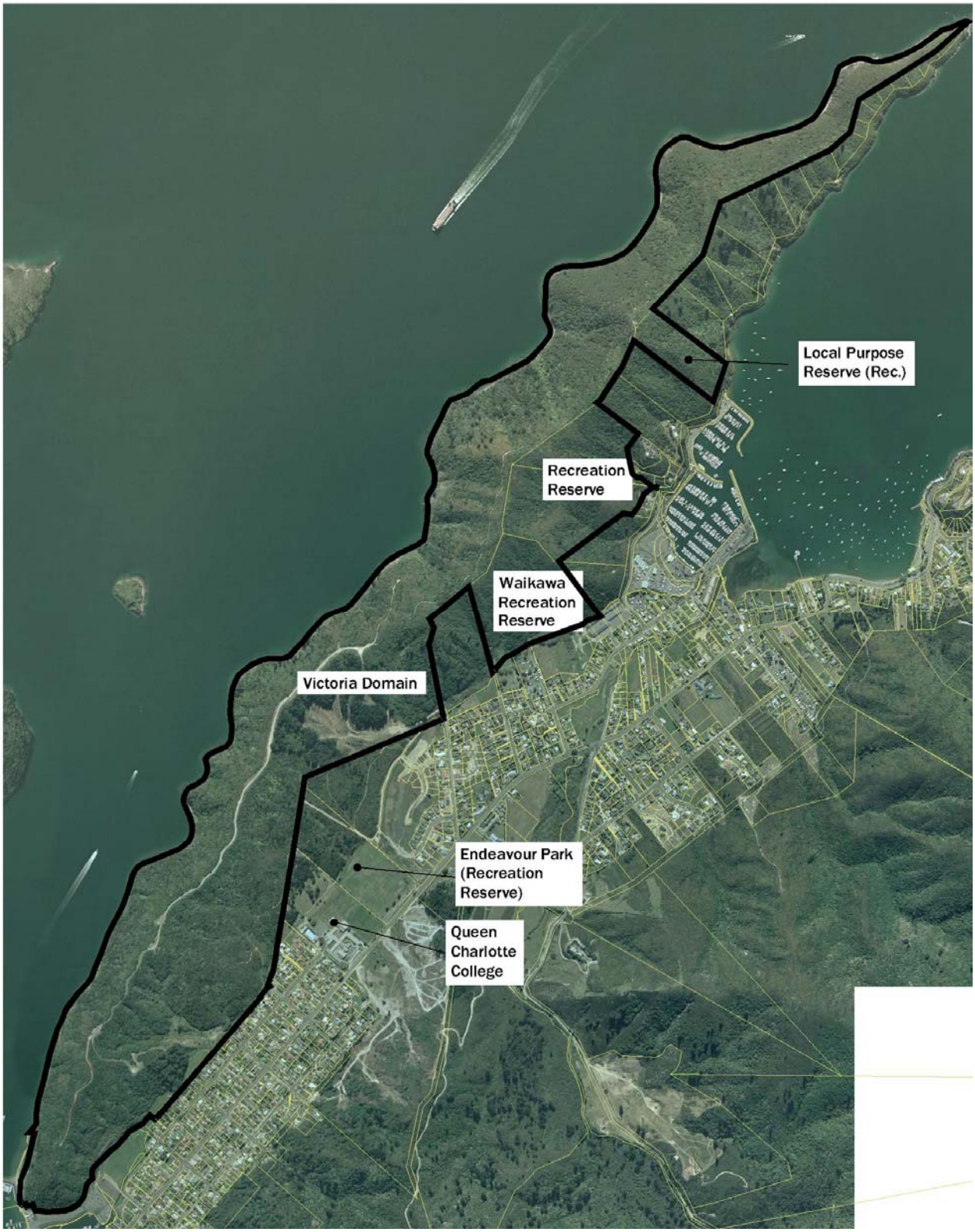
Native bush birds detected on the property during the survey were weka, fantail, silvereye, riroriro, tui, bellbird, kingfisher and silvereye. Shore birds included pied shag, spotted shag, little shag, little blue penguin, black-backed gull, red-billed gull, welcome swallow and South Island pied oystercatcher.

The motivation for this survey came from consideration of the concept of using the reserve system as the basis for a "mainland island", in which ecological pests could be intensively controlled so that the area could become a showpiece for nature restoration. This management concept is discussed later in the report.

Significant Ecological Sites

One site of natural significance can be identified on this property. It makes up the whole of the property except the eastern areas managed for intensive recreational use.

Site 1 Victoria Domain and associated reserves, GR P27/962928.



Site 1 Victoria Domain and Associated Reserves

Landform

The site is made up of an elongated ridge system projecting northwards to form a narrow headland. The western side is generally steep and has a rocky shore punctuated by several gravel beaches.

Vegetation

The vegetation is an interesting mosaic, largely of regenerating communities following clearance and farming, but with some older remnants and a couple of plantations of exotic trees. Most of the area, particularly on the more humid eastern slopes, is clad in low forest dominated by five-finger. Other common native trees are mahoe (whiteywood), akeake, kohuhu and putaputaweta. Kanuka is present in places and there is typically dense undergrowth of ponga, rangiora, kawakawa and ground ferns. Mamaku is common in gullies. On the drier western flanks kanuka and akeake are relatively more abundant than in the east, mixed with five-finger and mahoe. On the main ridge crest of The Snout are places where tall manuka is dominant, with dense undergrowth of five-finger, kohuhu, shining karamu, club moss and moss. All these lush new forests have regenerated through and replaced dense early successional gorse, broom, manuka and bracken. It has taken less than 30 years for this process, despite the complication of wilding pines and operations to control them.

In places on the eastern flanks dense areas of exotic pines have been harvested in recent years. A cover of gorse and broom has quickly developed, but already native trees (especially five-finger, and also mahoe, akeake, kohuhu and mamaku) are growing through. The processes of regeneration and succession will obviously follow the path taken by the older native vegetation. Weeds (especially wilding pines and old man's beard) will require control, but gorse and broom should rapidly disappear without the need for control.

There are several small pockets of remnant beech trees. The largest two are at the southern end (entirely black beech) and in the centre at the head of a gully (hard beech, with black beech and tawa). Other smaller pockets of black beech occur on low spurs on the western side between Bobs Bay and Karaka Bay. These beech remnants are the only reminders of the original forest cover, which would have predominantly been a mixture of hard beech (most slopes), black beech (dry spurs and ridge crests) and broadleaved forest of kamahi, pukatea and tawa (gullies). Podocarps (rimu, totara, matai and kahikatea) were probably also present in the past.

Along the shore, out of reach of the tides but subject to salt spray and erosion caused by wave action from below, is a distinctive fringe of vegetation. Most common are akiraho and whaririki (coastal flax). Less common are koromiko (*Hebe stricta*), the native grass *Poa anceps* and native linen flax (*Linum monogynum*). Even less common are patches of renga lily (*Arthropodium cirratum*, found between Bobs Bay and Karaka Bay), kowhai (*Sophora microphylla*, at Titoki and Karaka Bays), saltmarsh ribbonwood (*Plagianthus divaricatus*, a few plants at Titoki Bay) and the shrub *Melicytus* aff. *obovatus* (between Shelley Beach and Titoki Bay).

To complete the picture of the vegetation communities are exotic tree plantations. In the Pine Bay catchment and on the ridge above are plantations of wattles and Tasmanian blackwood. Near the southern end, adjacent to a park with Centennial plantings, is a stand of tall Douglas fir trees. There are various small artificial plantings elsewhere, associated with picnic spots. They have primarily native plants, but these include non-local species such as pohutukawa, northern rata and karo.

The vegetation cover has been mapped in the past for management plans: in 1978 and in 1995. Both maps are now quite out of date, showing how fast the vegetation has changed through regeneration and weed management. The 1978 map showed that most slopes were clad in gorse and broom scrub containing isolated wilding pines, with large areas of open pine forest and smaller areas of manuka-kanuka scrub, regenerating

broadleaved forest in some gullies and pockets of beeches. The 1995 map showed patterns more like those there now, but most of the pines have since gone and what was mapped as manuka-kanuka scrub is now kanuka forest with dense undergrowth of broadleaved trees and shrubs. It is expected that the remaining areas of gorse and broom will become broadleaved forest quite quickly, but that the older vegetation will persist for many decades without such dramatic change.

Flora

The species present are mostly typical of the ecological district. However, there are some of note. The black beech, hard beech, kamahi and tawa present as remnants indicate the nature of the former forest cover. So too do the large pukatea in one privately owned gully north of Waikawa marina, and the puka (*Griselinia lucida*) on the shore there. Totara and matai seedlings, evidently brought by birds, indicate the potential for podocarps to resume occupation of the site. A rewarewa tree seen near The Snout has probably originated from seed blown across the sound from the north. Several plants are of interest on the western shore. Kowhai trees at Karaka and Titoki Bays may be of natural occurrence but may owe their origin to former Maori occupation; kowhai was much valued as a medicinal plant and was cultivated for that reason. There is a remnant of harakeke (lowland flax) at Titoki Bay that may also stem from the time of Maori occupation. Renga lily occurs along the shore in several places from Bobs Bay to Titoki Bay; it has recently been suggested that this species may have been brought to the Marlborough Sounds by Maori and cultivated for food and medicinal use. A few plants of saltmarsh ribbonwood (*Plagianthus divaricatus*), an estuarine species not common in the Sounds, occur in the western bays. Last but not least is the occurrence of a shrub that is a relative of porcupine shrub and mahoe and looks like something in between. It has yet to be formally named, but is currently known as *Melicytus* aff. *obovatus*. It is endemic to the cliffs and islands of Cook Strait but occurs in places in the Sounds. The Victoria Domain population, of about 20 plants growing on the dry exposed shore just above the splash zone, is the most inland population known.

Other features

Native birds are common in the site. The shore is used by coastal birds. There are numerous weeds, more towards the southern end but also right as far as The Snout. The worst are wilding pines, wilding wattles, cotoneaster, old man's beard, Japanese honeysuckle and banana passionfruit. Others that require control or surveillance are veld grass, climbing dock, pampas grass, sycamore, broom (two species on the western shore), morning glory, valerian and "exotic natives" such as pohutukawa and karo. Exotic shrubs such as gorse, Himalayan honeysuckle and Spanish heath are not ecological threats because they are out-grown by regenerating native forest species. Animal pests include possums (abundant), pigs and deer (very occasional visitors), hedgehogs, feral cats, rodents and mustelids. The vegetation and native fauna would benefit much if they were controlled and kept at low levels.

Assessment of ecological significance

(a) ***Representativeness****: does the site represent a good example of one of the characteristic types of native vegetation in the district?*

The site is representative of the lowlands of the eastern inner Sounds that have been modified in the past but are now vigorously regenerating.

(b) ***Rarity****: are there rare species or communities?*

Pied shag and little blue penguin are listed as nationally threatened. *Melicytus* aff. *obovatus* was formerly listed as threatened but is now deemed to be secure in its Cook Strait stronghold; this population however is the most inland.

(c) ***Diversity and pattern****: is there a notable range of species and habitats?*

The site has considerable species and habitat diversity for the size of the area, by virtue of the topographic diversity and lack of large browsing animals.

(d) ***Distinctiveness/special ecological characteristics****: are there any features which make the site stand out locally, regionally or nationally?*

The site is distinctive as a prominent and discrete topographic feature close to Picton. It is also distinctive for the rapidity of regeneration of native forest, to the almost total exclusion of the previous gorse and broom, and the progressive control of the exotic trees that were formerly dominant.

(e) ***Size and shape****: how do size and shape influence character and viability?*

The site is quite large in size and although elongated has natural ecological boundaries around much of it, so has a good configuration for long-term viability.

(f) ***Connectivity****: what is the degree of ecological connections with surrounding areas?*

The site is ecologically part of the inner Sounds coastal system. It is isolated from other terrestrial natural areas by water and built-up settlements, although large native forest tracts are nearby.

(***g)*** ***Sustainability****: does the site possess the resilience to maintain its ecological integrity and processes?*

The site is currently in good ecological condition, despite having been heavily modified in the past. It is getting ever better, as regeneration progresses. The vegetation is doing a good job of holding the erodible hillsides together and provides valuable habitat for native birds and other small animals (lizards and invertebrates). It is largely self-maintaining, although there are various weeds that require urgent and ongoing attention and the numbers of possums and other animal pests are of concern and will require control if the native vegetation and fauna are to be restored to very good condition.

Tabulated ranking of the above criteria using the scale: L =Low M =Medium H =High

Criterion	Ranking
Representativeness	M
Rarity	M
Diversity and pattern	M-H
Distinctiveness/special ecological characteristics	M-H
Size and shape	M
Connectivity	M
Sustainability	M
Overall significance	**M+**

Suggestions for Future Management

The site is well managed at present and is regenerating rapidly as a result. As long as that kind of management continues it will get better and better over time. However, wilding pines and other weeds (particularly wilding wattles, cotoneaster, old man's beard, Japanese honeysuckle, false acacia and banana passionfruit) are well established and will require on-going control to keep in check. Others that require control or surveillance are veld grass and sycamore (which have the potential to invade much of the site if not checked), climbing dock, pampas grass, broom (on the western shore), morning glory, valerian and "exotic natives" such as pohutukawa and karo.

Some former plantings are no longer appropriate and their removal would allow a more natural appearance. A good example is at Bobs Bay, where planted cherries (or plums), agaves and an exotic palm are out of place and would be best removed. Pohutukawa and karo pose a conundrum of a sort, as although they are not natural to the South Island they are analogues for native plants that have gone from the site and provide excellent food for native birds. So on a spectrum of "weediness" they are at the benign end, but if the desire is to keep the place as natural as possible they should be removed. Southern rata, natural to the locality, could be planted as an alternative.

Possums are the main animal threat to the vegetation at present. They are everywhere and in considerable numbers. Signs of their browsing were found on many plants, including the unusual coastal shrub *Melicytus* aff. *obovatus*. Possums are also known threats to birds and other native fauna, both directly and through competition for food resources. For the restoration of the natural ecology, possum control is of very high priority. If predators such as stoats, cats, hedgehogs and rats were controlled as well, the bird, lizard and invertebrate life would benefit much. Any deer and pigs that arrive should be controlled as they are detected. Control of exotic wasps would benefit the native fauna and the experience for visitors.

This survey has been broad-brush and has focused on the major ecological features. It has not looked at the smaller life forms such as lizards and invertebrates. A closer look to see what small native fauna is present could turn up some interesting results.

The Adjacent Private Land

Alongside Victoria Domain and contiguous with it at the north-eastern (Waikawa Bay) end is a series of private sections. Some have traditional Sounds baches nestled in the bush and little jetties for boat access. One or two, accessible by car, have substantial homes. The rest are essentially unoccupied. Together they form a physical and ecological complement to the domain and its associated reserves. Whilst they were not included in this survey they were nevertheless looked at from nearby with an ecological eye. The more southerly sections behind the marina have suffered fire relatively recently and have quite extensive areas of gorsy vegetation, mainly on spurs, through which are coming regenerating native plants. In the gullies and on

shaded faces is secondary native broadleaved forest (dominated by five-finger), the result of older regeneration. The sections north of the marina, running out to The Snout, have vegetation typical of the domain: mostly secondary native broadleaved forest, with some kanuka, little pockets of black beech and hard beech (including regeneration) on low spurs but also higher, and a shore fringe of akiraho and whahariki. Of particular note are trees of kamahi, pukatea, puka (*Griselinia lucida*) and pigeonwood, associated with gullies and the sheltered shore.

As with the domain and associated reserves, the wilding pines previously present have been felled by the Marlborough District Council. There are a few other weeds, though not much of a problem at present. The same suite of animal pests is undoubtedly present.

The Idea of a "Mainland Island"

The motivation for this ecological survey was to look at Victoria Domain and its associated reserves with a view to ecological restoration. This led to the concept of exploring "mainland island" kind of restoration, whereby pest control would be done at such intensity that vulnerable iconic native species such as kiwi could be re-introduced. The advantages of the site for this prospect are that it is very close to a strong local community, is well known and used by the community and visitors, is right on a major route for tourists and travellers and is a discrete landform, mostly in public ownership. It is quite possible to imagine the site after a few years of that kind of management: a showpiece of native vegetation restoration, alive with native birds, with an education centre, guided walks and a thriving management partnership involving Marlborough District Council, the adjacent landowners, the Department of Conservation, local schools and the local community.

The disadvantages though are considerable. There is a long landward boundary to protect. It would require a pest-proof fence at least 3km long. It would be necessary in addition to have an intensive cordon of traps and/or bait stations along the entire shoreline to have a good chance of keeping the site free of rats, stoats and cats. Nearly half of The Snout peninsula is privately owned, with several different owners. It might be possible to get them all to participate, but management would be complicated and possibly in conflict with the needs and wishes of the owners. If they did not wish to participate, the fence would have to cut a swathe through the dense vegetation cover and would exclude the eastern part of The Snout peninsula. Currently the domain and its associated reserves are much used by the public for recreation. A "mainland island" would preclude that kind of use. However, all of these difficulties and issues could be overcome if there was a general consensus that a "mainland island" was a great idea for the site.

There is another site nearby that lends itself much better to the creation of a "mainland island". That is Kaipupu Point on the other side of Picton Harbour. It is virtually an actual island, and with the excavation of a ditch or moat could be turned into one. The narrow neck connecting the point to the mainland could easily be fenced to be pest-proof. About two-thirds of the point is public land protected as scenic reserve and managed by the Department of Conservation; the rest is owned and managed by Port Marlborough New Zealand Ltd. Although most of the reserve is clad in secondary vegetation, there are substantial remnants of hard beech forest and gully broadleaved forest, providing good habitat and seed sources for regeneration. This site would be much more straightforward to set up and manage as a "mainland island", without jeopardising existing activities unduly.

Maybe in time to come people will go to the lookout on Victoria Domain at night to listen to the kiwi calls across the bay, and saddlebacks will make their own way to the domain from Kaipupu Point. Both headlands could become showpieces of nature restoration right on Picton's doorstep.