

Purple Peak Curry Reserve Management Plan

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1 Descriptive Summary

190 hectares at the head of the Grehan Valley above Akaroa was purchased from Graeme and Maryn Curry in 2015 by the Native Forest Restoration Trust, with substantial financial contributions also from Christchurch City Council and the Rod Donald Banks Peninsula Trust. [This current draft is being written while negotiations are still underway for the possible addition of perhaps 27 additional hectares of adjacent Glenwood, extending down the tributary streams of Te Ake and Waiuru to the Potts boundary]. See Map 1.

The area is described in some detail in an unpublished report: Wilson, Hugh 2008: Upper Grehan Valley, Akaroa. Profile and Ecological Information. The 40.5 hectare Glenwood land is described in another unpublished report: Wilson, Hugh 2015: Curry Homestead Block Report.

Most of the 190 hectares occupies a high amphitheatre of bushed gullies, rough pasture, gorse scrub and park-like treeland, backed by the steep slopes and bluff skyline of Purple Peak Ridge. The highest point on this ridge is 670m (locally known as "Coppertop"). Purple Peak/Te Piki o Te Ake is 646m high, lower than Coppertop but more prominently a peak, falling away steeply on all sides. Just to the northeast of Coppertop is "The Cabstand" a crossroads at 630m where Long Bay Road, Brocheries Road, Summit Road and Hickory Bay Road all intersect. At the southern end of Purple Peak Ridge, nearly 2km from the Cabstand, the land falls to Purple Peak Saddle, 590m, traversed by a long-established walking track (Purple Peak Track) from Akaroa into the Ōtānerito Valley. Some 25 hectares of the 190 hectare reserve lie on the Ōtānerito side of the ridge, down to about 540m near Brocheries Pond. A few hectares along the northern boundary drain in to the Takamātua Valley, to the north of Long Bay Road.

On the Akaroa side the 190 hectares descends to about 240m along Grehan Stream [Glenwood's lowest point is at about 180m]. While much of the terrain is moderately steep to very steep, there are considerable areas of gentler topography, some almost flat, mostly lying between about 240 and 450m.

There are numerous springs and small streams, combining to form the permanently flowing Grehan Stream which enters Akaroa Harbour at the northern end of Akaroa town, near Childrens Bay. These springs and streams have reduced flows in prolonged dry periods, but most keep running even through the driest periods experienced to date.

The land has been farmed for many years (the original Curry ancestors took up land here in the early 1870s), but is a difficult farming proposition with extensive gorse, deep bushed gullies and rocky bluffs, as well as some easier country. Currently (2015) about 35 hectares is under gorse canopy. About 55 hectares is under native bush and treeland. About 100 hectares is under mostly rough pasture, mostly of exotic grasses.

Native vegetation is well-represented. A preliminary botanical assessment revealed 133 native vascular plant species, including 26 trees, 22 shrubs and mistletoes, 11 climbers, 28 herbaceous dicots, 19 herbaceous monocots and 27 ferns. All four common Banks Peninsula podocarp trees are present (lowland tōtara, thin-bark tōtara, mataī and kahikatea). Raukawa, a tree species exceedingly rare on Banks Peninsula and regarded as "chronically threatened" nationwide, occurs as several adults and as epiphytic saplings on tree ferns. Some common native hardwood trees include kānuka, lacebark, ribbonwood, māhoe, kōwhai, fuchsia, wineberry, broadleaf, pigeonwood, marbleleaf, kaikōmako, ngaio, lemonwood, kōhūhū, lowland fivefinger, mountain fivefinger, sevenfinger and small-leaved milk tree. Red beech occurs locally in one stand on the Ōtānerito side of Purple Peak Ridge ("Skyline Beech" on map), close to much more extensive beech stands on Hinewai. There are several fine old cabbage trees. Three species of tree fern are locally common, mostly in the largest (northern-most) bush gully.

Besides native forest, other vegetation types of particular significance but very limited extent are snow tussock grassland and shrubland, fringing Brocheries Road and Long Bay Road (and thus vulnerable to Council "road maintenance" operations), and bluff vegetation, on both sides of the main ridge crest, up until now badly damaged by "gorse control" attempts. Persisting despite these odds are two Banks Peninsula endemic shrubs, Banks Peninsula hebe and Banks Peninsula sun hebe.

At least 75 naturalised exotic vascular plant species are recorded. Most are relatively benign, but a few are more or less serious alien invaders, notably sycamore maple, old man's beard clematis, holly, hawthorn, spindleberry, ivy, blackberry and pampas grass.

Native fauna noted include bellbird, tūī, kererū, brown creeper, silvereye, grey warbler, fantail, tomtit, shining cuckoo, harrier hawk, falcon, welcome swallow, spur-winged plover, pipit, morepork, black-backed gull, paradise shelduck, jewelled gecko, skinks, cicadas, nursery web spiders, tunnel-web spiders, red admiral butterfly, copper butterflies and little blue butterfly. Almost certainly present are Canterbury gecko, spotted skink, rifleman, Akaroa tree wētā, ground wētā, cave wētā, and stick insects. Stream surveys would reveal what native fish and invertebrates are present in the water courses.

Among naturalised bird species noted are rock pigeon, California quail, magpie, blackbird, song thrush, dunnoek, skylark, goldfinch, yellowhammer, greenfinch, chaffinch and a sizeable population (100+) of feral geese. Undoubtedly present are rats, feral cats, stoat, ferret, weasel, hedgehog, mice, hares and rabbits.

There are two sites of historical note. The most significant is the Worsley house site. Ernest Shackleton's famous Antarctic Captain Frank Worsley was born in Akaroa in February 1872. His mother Georgina died when Frank was only two. His father sent the three children off to school and attempted to make an income from their small land-holding of about 20 hectares. Land and house were sold to his neighbors, the Currys, around 1880. The flattened site of the hut and the remains of the stone fireplace are still evident.

The other site is that of "Purple Peak Farm" where William McDonald lived in the 1880s. He died there in 1889. His wife Anne was a Magee, and related to the Narbeys of Ōtānerito/Long Bay by marriage. She died in 1880, aged only 47, mother of four daughters and a son. In his obituary in the *Akaroa Mail and Banks Peninsula Advertiser*, William was described as "being of a peculiarly amiable disposition, and having broad and disinterested views" and also as being very involved in community affairs.

Purple Peak itself figures in local Māori oral tradition. The Māori name is Te Piki o Te Ake, meaning "Te Ake's topknot", an obvious reference to the peak's shape that resembles the way Māori men of rank wore their hair. Te Ake was a Ngāi Tahu Chief, one of Moki's party involved in the conquest of the Ngāti Māmoe Pā at Parakākāriki on the SW side of Ōtānerito Bay. The area around Purple Peak is known as Ōtepatatu. J. C. Anderson in *Place Names of Banks Peninsula* writes: "It is said to have been a home of the patupaiarehe, or Māori fairies, and of maero, or wild men. Muttonbirds (tītī) once lived in the heights, but were exterminated by the fairy folk, with one of whom a Māori woman of the Ngāi Tahu was in love. She composed a song praying the tītī to return to the heights of O-tepatatu, to the lofty dwellings where sweetly sounds the fairy flute, the music of the mountains, that thrilled me through and through."

Akaroa's town water supply is partly derived from the Grehan Catchment - one of four streams that contribute. (The others are Aylmers Stream, Balguerie Stream and Takamātua Stream).

2 Goals

- 2.1 To foster the restoration of indigenous vegetation across the whole area for reasons of botanical value and interest, biological diversity, genetic conservation, enhancement of wildlife habitat, enhancement of water catchment and water quality, beauty, science, heritage, recreation and atmospheric CO₂ sequestration.
- 2.2 To establish and maintain a system of foot tracks across the reserve, primarily to facilitate conservation management, but also to allow the public free walking access insofar as this does not jeopardise conservation and water protection goals.
- 2.3 To encourage scientific study and education on the land except where such activities prejudice the prime conservation aims.
- 2.4 To protect and interpret sites of historical significance and interest on the land.
- 2.5 To collaborate and co-operate with neighbouring and nearby landowners with similar goals.

3 Principles

- 3.1 The basic philosophy is “minimum interference management” – that is, to allow natural succession to run its course towards a vegetation cover (nearly all forest) similar to that prevailing before human disturbance. The philosophy is not “zero management”. It allows a lot of management effort towards minimising the deleterious effects of human activity and introduction of alien species. However, it is just as important to know when *not* to interfere, as to know when a degree of interference or manipulation might help with indigenous vegetation and fauna restoration.
- 3.2 In deciding how best to look after Purple Peak Curry Reserve, criteria include what makes the gentlest impact on the natural environment, what uses the minimum of limited resources, what produces the deepest satisfaction for worthwhile effort towards the reserve’s goals.
- 3.3 This Plan recognises that restoration to pre-human condition like that prevailing about 800 years ago is an ideal unattainable for several reasons, not least of which is the extinction of many key species of fauna and the extinction of a few species of flora. In addition the elimination of many introduced species of both plant and animal is not feasible.
- 3.4 Where exotic species assist in the long-term re-establishment and ascendancy of native species, the exotics will be left undisturbed, except where we are bound by *reasonable* requirements of Noxious Plants legislation along boundaries. Exotic species which threaten native vegetation or wildlife will as far as possible be removed, but not if removal creates a worse disturbance or negative effect than the weed, predator or competitor itself. Exotic species that are deemed to be neither significantly beneficial nor significantly deleterious to the persistence or ascendancy of locally indigenous species will be left undisturbed, except when their likely spread beyond the reserve’s boundaries represents a real threat to the interests of neighbouring landowners. Even this exception should only prevail if control options available are not worse than leaving the situation alone, as judged by the widest possible criteria, and by local familiarity.

- 3.5 This Plan recognises that there is no need to "assist nature" with artificial plantings, and that natural regeneration is many times more efficient and appropriate than any human efforts to help. However, planting is not altogether ruled out - for example an "arboretum" of local species at some carefully chosen restricted site could be considered positive for goals of genetic conservation, science and education.
- 3.6 Any propagation of plants for reasons such as the arboretum plantings mentioned above under 3.5 must be sourced from within the reserve itself, except for the possibility mentioned under 3.7.
- 3.7 Reintroduction of species known to have become locally extinct on the reserve due to human disturbance but known to survive on closely contiguous areas is not entirely ruled out, but with the strong proviso that it is better to err on the side of *not* introducing anything, flora or fauna, than introducing something which is not adequately understood. At the very least, the natural distribution patterns of the species concerned should be thoroughly researched. The best course of action is to concentrate on improving habitat by the removal, where practicable, of negative elements, and to leave recolonization to nature. If after careful consideration an introduction is contemplated, it must be from the nearest possible naturally occurring population.
- 3.8 So far as possible "organic principles" will be followed in all management activity. This plan recognises, however, that some chemical pesticides will sometimes be necessary. They need to be used with extreme care. Application of herbicide should largely be limited to the stump-poisoning of freshly cut stems as close as possible to the ground. Drilling and poisoning of mature weed trees will sometimes be desirable, but ringbarking without the use of poison will be the better option for some species and for all but the largest specimens of others. Knapsack spraying of shrub weeds such as gorse and broom should be used only as a last resort after manual weeding, cutting and stump-poisoning. Aerial application of herbicide is ruled out as counterproductive and deleterious in all conceivable scenarios.
- 3.9 While mechanised options may represent the easiest way to get a job done, they are not necessarily the best. The use of non-powered hand tools is the first choice.

4 Water catchment issues

- 4.1 Protection and enhancement of stable stream flows, water quality and yield are priorities in the management of the reserve. All management decisions must consider relevant effects on water.
- 4.2 Public access to the reserve needs to be regularly weighed against its possible effects on water. Should a conflict arise, water quality is the priority.
- 4.3 The aim is to have all stream crossings along tracks bridged so that human contact with all water courses and water bodies is minimised.
- 4.4 No toilets/loos are to be sited within the Grehan catchment on the reserve.
- 4.5 Appropriate signage and other forms of information (e.g. pamphlets) will aim to alert all reserve visitors to the importance of safeguarding water quality in the catchment.
- 4.6 All animal control operations need to keep any poisons and carcasses well away from any water.

- 4.7 Management decisions concerning the currently (2015) large population of feral geese need to consider the implications for water quality.

5 Management Resources – workers, work parties, contract labour, materials and equipment

- 5.1 Nearly three decades of experience on neighbouring Hinewai Reserve strongly suggests that the necessary work on the Purple Peak Curry Reserve is best and most efficiently carried out by a small core of permanent reserve staff. Hinewai's Trustees (the Maurice White Native Forest Trust - MWNFT) have agreed to manage the Purple Peak Curry Reserve in accordance with this Management Plan (see the Memorandum of Understanding signed January 2015) insofar as the resources of the MWNFT and the NFRT (Native Forest Restoration Trust) allow, and insofar as the working draft of this Management Plan does not diverge in any significant way from the Management Guidelines of Hinewai Reserve.
- 5.2 Unpaid volunteer work is valued, but in practice needs to be used sparingly and with caution, as it can impinge negatively on time and work practices of permanent staff without a highly positive return. The best volunteer contribution seems to be one or a small number of people working from one to a few days under close supervision by permanent staff working with them. Sometimes a larger group can be very helpful for a particular job (e.g. carrying fencing materials to a site) provided timing and weather co-operate. Some good motivated volunteers who build up experience from repeated work visits can be particularly helpful.
- 5.3 Contract labour is appropriate for major tasks such as possum control, fencing, creation of fire-fighting ponds, etc, provided financial resources allow.
- 5.4 Contractors, permanent staff and volunteers all need to be clear about methods acceptable for work on the reserve (see Section 3, Principles). Hinewai has a small handwritten "Methods Manual" available for volunteers and new permanent staff members, relevant to both reserves.
- 5.5 Material such as timber, nails, shingle, etc will be required, within budget, for some of the work specified in this Plan.
- 5.6 A range of tools are needed for the work specified in this Plan. While the emphasis is on hand tools, power tools such as brushcutters, chainsaws and routers will also be appropriate for some tasks. It is envisaged that both the NFRT and the MWNFT will contribute to the cost, maintenance and operation of this equipment.
- 5.7 Both permanent staff and volunteer helpers should clean tools at the end of each day's work and return them to their correct places.

6 Buildings

- 6.1 The general policy of the Native Forest Restoration Trust is to have no buildings on Trust reserves.
- 6.2 Notwithstanding Clause 1, facilitation of a manager's or caretaker's house on or beside the reserve is not ruled out in the Plan should this prove necessary or strongly desirable for practical management. In particular, the site shown in Map 1 is flagged in this Plan as a possible site for a future manager's house, either by allowing a building just within the edge of the reserve at this place, or by subdividing off a hectare or so to allow private ownership of the land and erection of a small appropriate dwelling by a manager, with legal provisions in place to ensure at least an option for its continued use for reserve management through ownership changes. [Note: experience on neighbouring Hinewai Reserve has shown the huge advantage of having a staff member or members living on or beside the reserve].
- 6.3 Again notwithstanding Clause 1, provision of a small workshop and/or tool storage shed, should this prove advantageous for the practical management of the reserve, is not ruled out in this Plan. The obvious siting of such a shed would be beside any manager's dwelling, whether on or off the reserve.
- 6.4 Structures such as stiles, footbridges, steps, boardwalks, information panels, loos, seats, small shelters, etc, directly related to controlled and minimally obtrusive visitor access and to protection of water quality, are expressly allowed under this Management Plan.
- 6.5 Should any buildings as mentioned in Clauses 2, 3 and 4 be realised, their erection and use need to follow principles of environmental responsibility such as non-intrusive and attractive appearance on the landscape, solar-water-heating, insulation, composting toilets etc.

7 Public Access and Information

- 7.1 The protection and restoration of native vegetation, wildlife and landscapes and the strict care of water catchment values, have precedence over all other uses of the reserved land, including public access and recreation.
- 7.2 Insofar as the prime goals of conservation and water protection are not compromised, members of the public are welcome to walk through the reserve on the designated tracks, without needing to ask permission, and without charge.
- 7.3 There may be times, such as during high fire risk, animal control programmes, etc, when restraints on free access need to be imposed. In such cases the restrictions will be made plain by appropriate signage or other means.
- 7.4 Access is *on foot only* beyond the formed public roads and carparks. Trail bikes, mountain bikes, vehicles of any sort, and horse-riding, are not permitted along the walking tracks
- 7.5 Camping is not permitted anywhere on the reserve.
- 7.6 Management reserves the right to deny access to people believed to be engaged in activity deleterious to the goals of the reserve.

- 7.7 Dogs and other pets are not allowed on the reserve, with the single exception of hunting dogs for specific animal control projects (see 9.10)
- 7.8 Every effort will be made to maintain walking links with Akaroa and with neighbouring track networks through good PR with neighbouring landowners and through fostering appropriate public behavior across private land, but also if necessary through clarification of existing public access rights along paper roads.
- 7.9 Appropriate visitor facilities and information will be provided so far as resources allow. Education of visitors about the reserve, its natural and human history is considered a worthwhile goal.
- 7.10 An entry charge for visitors is not ruled out by this Plan, but experience on Hinewai Reserve suggests it is much more appropriate, easier, and indeed more productive simply to provide strong, secure donation boxes at appropriate places, e.g. at entry and exit points beside information boards.
- 7.11 News about the Purple Peak Curry Reserve is appropriately disseminated by NFRT's mailouts, by Hinewai Reserve's twice-yearly *Pīpipi*, by Rod Donald Banks Peninsula Trust's mailouts, by Christchurch City Council's mailouts, and by articles in local newspapers such as the *Akaroa Mail*, *Bay Harbour News*, and *The Press*.
- 7.12 A pamphlet with map and information will be created, and made available at entry points, Akaroa Information Centre, etc.

8 Tracks and Signs

- 8.1 The track network is for
 - a) Access for management purposes
 - b) Recreational access for the visiting public
- 8.2 The main track ("Curry Track") intended as a walking route through the reserve is already formed (2015) (see Map 1). From a main entrance at the Akaroa Heritage Park carpark it crosses the top of the Curry Airstrip Paddock for about 400m before crossing the boundary fence into the Purple Peak Curry Reserve. It wends its way through bush up through the Grehan catchment, zigzags up through regenerating kānuka, pasture and gorse, crosses 610m Browntop Saddle with magnificent views in all directions, then makes a short descent through bush to the Brocheries Pond Carpark. At the lowermost western edge of the Reserve the Grehan Link Track runs down to the top end of Rue Grehan. Another short side track leads to the historic Worsley House site, and a further very short side track leads on to Kōwhai Knoll Lookout.
- 8.3 In any assessment of the already formed tracks, and in the planning of additional walking routes, the following considerations are important: the track network needs to be adequate for good access and mobility around the reserve, but not so extensive that ongoing maintenance puts too high a demand on time and resources, nor that water catchment issues are compromised.
- 8.4 Some additional track routes that could be considered are indicated on Map 2, chiefly a more or less horizontal link between Curry Track and Purple Peak Track. Track access to one or two of several small waterfalls could also be considered.

- 8.5 Some additional tracks could be formed for "management only" purposes, their use restricted to reserve staff, contractors, scientists, etc. Standards of benching, stepping, vegetation clearance, marking, frequency of maintenance, etc can be lower than along tracks open to the public. Some signage will be necessary, however, mainly to discourage use by the public.
- 8.6 Public tracks need to be well-signed and marked, using routed signs, white-topped marker posts, arrows, etc.
- 8.7 Signage already installed (2015) uses distinctive olive green paint, but white for arrows and warnings and some interpretive signs. It seems a good idea to be consistent with these "conventions" when making further signage.
- 8.8 Signs can be erected for both directional and interpretive reasons. Signage should not be so excessive, however, as to give the impression that Purple Peak Curry Reserve is over-cluttered with signs. The signs also need to be aesthetically pleasing and reasonably unobtrusive in the natural environment.
- 8.9 Information boards and pamphlet boxes at the three or four entry/exit points are regarded as desirable, informational and beneficial.
- 8.10 A Nature Walk, such as Fantail Falls Nature Walk near Ōtānerito Homestead on Hinewai Reserve, could be considered if resources allow. Interpretation of natural history, landscape, plants, birds, other fauna, human history, etc, can be more intensive on such a short, dedicated preferably circular walk, than along the overall track network. One possible location for such a Nature Walk could be Skyline Beech off Brocheries Road (See Map 2). Another might be "Tussock Knoll" beside the Cabstand.
- 8.11 Establishment of a wheelchair access track would be challenging, considering the steepness of much of the terrain, but is certainly not ruled out.
- 8.12 The track network needs assessment from time to time as to whether it is best fit for purpose.

9 Animal Control

- 9.1 Introduced fauna known to be present on the land in 2015, also known or suspected to be deleterious to the goals for the reserve, include sheep, cattle, possums, hares, rabbits, hedgehogs, rats, mice, feral cats, ferrets, stoats, weasels, magpies, feral geese and wasps. Other fauna known to be deleterious, with potential to invade and establish, are goats and deer.
- 9.2 Control to elimination is a top priority for goats, deer, cattle and sheep.
- 9.3 Reduction to as low a population as possible is a high priority for possums.
- 9.4 Reduction of hare and rabbit numbers is desirable. Rabbits will tend to diminish in the absence of stock-grazing, but hares will flourish.
- 9.5 Reduction of hedgehog numbers is also seen as beneficial but harder to achieve.
- 9.6 Control of rats and mice across the wider reserve is probably impractical, but attempts to keep numbers low should not be ruled out if the substantial resources needed in time

- and money were ever available. However, the use of quantities of toxin required for such an effort may well be unacceptable in a water catchment supplying a town.
- 9.7 There is considerable evidence that feral cats and mustelids (ferrets, stoats and weasels) prey mostly on rats and mice and keep the rodent numbers down, although some counter-evidence suggests that their effect on rodent numbers is not very significant. Whatever the case, rats are the most significant, though largely unseen, predators of birds, lizards and invertebrates, and large-scale control programmes against cats and mustelids are likely to be counter-productive in the context of this reserve unless equally large-scale measures are concurrently undertaken against rats.
 - 9.8 Sheep, cattle, deer and other possible livestock such as pigs, llamas and alpacas, straying from neighbouring properties should be rounded up and returned as quickly as possible, preferably by the owners or, failing that, shot, once any legal requirements and reasonable neighbourly obligations are met. Discovering and repairing entry points through boundary fences is the immediate follow-up action required. Well-built and well-maintained boundary fences form the front line of defence against stock invasions.
 - 9.9 There has long been a population of feral geese in the Grehan catchment, numbering well over 100 in 2015. Their elimination seems necessary for water catchment reasons even if they seem otherwise relatively benign. They are spread beyond the boundaries of the Purple Peak Curry Reserve, mostly across Glenwood, so that any programme should seek co-operation from the Shearers, who should own Glenwood after December 2015, and if necessary from other relevant landowners, probably the Smails and Lisa Potts.
 - 9.10 Neither dogs nor cats nor any other species likely to cause negative effects if they escaped in to the wild are to be brought on to or kept within the reserve, with the exception of hunting dogs brought on to the reserve specifically to help on limited occasions with animal control operations.
 - 9.11 Pesticides such as cyanide and 1080 are not ruled out, but their use in the water catchment supplying Akaroa town needs very careful consideration and is likely to be ruled unacceptable, leaving trapping as the main means of possum control over most of the reserve.
 - 9.12 If shooting is in progress on the reserve, restrictions to public access and movement will be applied so far as is necessary for safety.
 - 9.13 Wasp nests (*Vespula vulgaris* and *V. germanica*) need to be destroyed beside or near tracks, using the best and most environmentally acceptable methods available [to date this has been by tipping a dose of carbaryl powder into the nest entrance]. Wider control of wasps is not currently feasible, but if practical methods become available can certainly be considered.

10 Fences

- 10.1 Boundary fences will be maintained to a high standard wherever necessary to exclude entry in to the reserve from neighbouring farmland or roads of sheep, cattle or other livestock, if possible with the full co-operation of adjoining landowners and with cost-sharing as spelled out in the Fencing Act (Maps 1 and 2).
- 10.2 Internal fencing can be removed as time allows, and any worthwhile materials salvaged. Because other jobs are likely to have greater priority, some internal fences can be left to

continue disintegrating in situ. Vegetation will overwhelm them, and they are unlikely to be seen for long as an intrusion on the open landscape. Unwanted internal fences close to and visible from the walking tracks are the ones to prioritise for removal, especially any that cut across a walking route and that otherwise would require a stiled crossing.

11 Disposal of rubbish and junk

- 11.1 Remaining rusting wire, etc, can be buried in carefully chosen sites or even left to continue rusting at carefully chosen out-of-sight places well away from water courses of any size, but everything possible should be recycled. Where internal fences are removed and the posts and battens are not worth re-using, they should also be disposed of at carefully chosen places and left to continue rotting.
- 11.2 Rather than providing rubbish bins anywhere on the reserve, visitors need to be encouraged to take their own rubbish away with them. Any litter found on the reserve should be immediately picked up and disposed of properly. Any visitors found littering should be subjected to rigorous re-education! Experience on neighbouring Hinewai Reserve suggests that nearly all visitors are responsible about litter and rubbish and the litter problem is almost non-existent. It is possible that Purple Peak Curry Reserve's closer proximity to the town might raise the litter issue's importance a little.
- 11.3 Burning of rubbish on the reserve is not seen as necessary in any circumstance.

12 Weeds

- 12.1 No plant species native to Purple Peak Curry Reserve is regarded as unwanted or weedy. This statement is relevant to some people's perception of *Muehlenbeckia australis* (pōhuehue), *Rubus cissoides* (bush lawyer) and *Urtica ferox* (ongaonga or bush nettle). The only exception to this statement might be in the case of possible planting or arboretum areas, where selected native trees and shrubs could be freed from the competitive growth of the species mentioned above for purposes of better growth and display.
- 12.2 In deciding whether effort is to be directed towards any particular alien plant species, two questions need asking:
 - a) Is the species seriously deleterious to native vegetation or wildlife?
 - b) Is its control possible without causing worse damage than would occur if the plant is simply left alone?

Most of the 75+ naturalised alien vascular plant species on the reserve are best left alone.

- 12.3 Gorse and broom will be removed along boundary and road frontages to comply with legal requirements. Gorse, broom and blackberry will be removed from tracksides as part of regular track maintenance. The spread of tagasaste (tree lucerne) will be controlled along roadside banks mainly to pre-empt ugly rotary slashing by council contractors, but some will be left in appropriate places back a bit from the road to provide food for kererū and to act as nurse canopy beyond slashing reach.

Roadside removal of gorse, broom and blackberry has the added benefit of conserving

- limited but valuable areas of snow tussock and snow tussock shrubland. Unfortunately the tussocks are also periodically savaged by the Council slashing.
- 12.4 Manual cutting and stump-poisoning as spelt out in the "Hinewai Methods Manual" is the preferred method for removal of gorse, broom and blackberry, followed immediately by mulching of any bare ground with the cut material. Very small plants can be hand-pulled. Any volunteer helpers need to be carefully trained in the exact application of these methods, simple as they seem.
- 12.5 The following species known to be present (2015) on Purple Peak Curry Reserve are targeted for elimination:
- Acer pseudoplatanus* (sycamore maple)
Pinus radiata (Monterey pine) [stump poisoning is not needed for any pine species if no green needles are left below cut]
Clematis vitalba (old man's beard clematis)
Prunus avium (wild cherry)
Cupressus macrocarpa (Monterey cypress, macrocarpa)
Cedrus libani (cedar of Lebanon)
Chamaecyparis lawsoniana (Lawson cypress)
Eucalyptus spp.
Ilex aquifolius (holly)
Hedera helix (ivy)
Euonymus europaeus (spindleberry)
Pinus ponderosa (ponderosa pine)
Fraxinus excelsior (ash)
Juglans regia (walnut)
Salix fragilis (crack willow)
Dryopteris filix-mas (male fern)
Cortaderia jubata (pampas grass)
All other exotic conifers
[Exotic trees as in 2015 are plotted on Map 1]
- 12.6 Hawthorn (*Crataegus monogyna*) is abundant on parts of the reserve, absent from most of it. Under conservation management it will eventually be outcompeted by native regeneration. Elimination by other means of the main infestations is not practical. However a policy of "containment" makes good sense (i.e. preventing spread into areas more or less hawthorn-free by removal of outliers, advance seedlings and saplings).
- 12.7 The following species, although more or less undesirable, are present in numbers too great to be effectively controlled, and need to be simply tolerated. They will eventually be more or less outcompeted by native regeneration:
- Sambucus nigra* (elderberry)
Leycesteria formosa (Himalayan honeysuckle)
Rubus fruticosus agg. (blackberry)
[mostly *R. echinatus*]
- 12.8 The following species are known to be in the wider area. They might already be present on the reserve or could invade in the near future, and they could be eliminated if establishment is nipped in the bud before populations grow. The first one is known to be present on immediately adjacent Glenwood.
- Passiflora pinnatistipula* (yellow passion fruit) - Glenwood
All *Cotoneaster* spp.

All *Berberis* spp.
Lonicera japonica (Japanese honeysuckle)
Cortaderia selloana (pampas grass)
Tradescantia fluminensis (wandering willy)
Ehrharta erecta (veld grass)
Pseudotsuga menziesii (douglas fir)
Salix cinerea (grey willow)
Polypodium vulgare (polypody fern)
Centranthus ruber (spur valerian)

- 12.9 Other undesirable species not listed above may appear. Akaroa town itself is a nearby source of many potential invaders. Each newly discovered arrival needs careful assessment using local botanical expertise.

13 Road verges and boundaries

- 13.1 Every reasonable effort will be made to meet the legal requirements for keeping road verges and boundaries clear of gorse and broom. [See also Section 3, Principles, and the Hinewai Methods manual].
- 13.2 Hand-pruning of overhanging and encroaching native vegetation along roadsides might or might not pre-empt the Council's contractor's insensitive use of their rotary flail, but it is worth trying. Communication and liaison with City Council and Environment Canterbury staff to encourage more awareness of the environmental values of roadside vegetation and more sensitive management of the verges, including through snow tussock vegetation, is worth pursuing.
- 13.3 Communication and liaison with neighbours over boundary management should also be actively pursued for better all-round long-term outcomes.

14 Exotic trees

- 14.1 Policy is to remove all planted and wilding exotic conifers everywhere on the reserve (Map 1).
- 14.2 Exceptions to the elimination policy of 14.1 and 12.5 are the 2 or 3 mature cypresses at the edge of the reserve that provide important shelter against wind for neighbours at "Toad Hall" (east of the Curry Hay Paddock) and at the A-frame. There needs to be careful monitoring and removal of any seedlings or saplings at these two sites (Map 1).
- 14.3 Policy is to remove most exotic hardwood species and to monitor for the arrival of exotic hardwood species not currently known to be present on the reserve. The following is a provisional list of exotic hardwood trees known to be present on or near the reserve, roughly in order of priority, i.e. the most serious weedy trees come first, the most benign last:
- Acer pseudoplatanus* (sycamore maple)
Prunus avium (wild cherry)
Prunus cerasifera (cherry plum)
Ilex aquifolium (holly)
Cotoneaster spp. (cotoneaster)
Fraxinus excelsior (ash)

Maytenus boaria (mayten)
Salix spp. (willows)
Populus spp. (poplars)
Sorbus aucuparia (rowan)
Acacia and Paraserianthes spp. (wattles)
Eucalyptus spp. (eucalypts)
Juglans regia (walnut)
Chamaecytisus palmensis (tagasaste, tree lucerne)
Crataegus monogyna (hawthorn)
Sambucus nigra (elderberry)

- 14.4 As a general policy trees are best felled rather than ringbarked or poisoned and left standing; felling results in quicker rotting time and does not leave a standing and gradually disintegrating tree skeleton. However, in at least some cases on Purple Peak Curry Reserve, because of the size or position of the tree for example, ringbarking or poison-drilling is likely to be the preferred option.
- 14.5 Wood from the exotic trees can be salvaged for firewood if practicable.
- 14.6 Tagasaste or tree lucerne (*Chamaecytisus palmensis*) is used to some advantage as kererū food and as a fast-growing nurse canopy, but the use of this exotic species is not necessary or appropriate on Purple Peak Curry Reserve.
- 14.7 Species or races of species native to other parts of New Zealand but not to Akaroa Ecological District are regarded as exotic. For example, should rangiora (*Brachyglottis repanda*) invade from Akaroa gardens, it should be eliminated.

15 Fire

- 15.1 Fire is a serious risk, and every practicable precaution must be taken to reduce the risk and deal with any fires that do occur.
- 15.2 The main risks come from lightning strikes in rare rainless thunderstorms, burnoffs by neighbouring landowners, campfires or cookers lit by walkers or illegal campers.
- 15.3 "No fires" signage will be displayed at all entry points and other appropriate places. The strict ban on any sort of fire, including cookers and smoking, will be made plain in pamphlets, etc. An alert watch is needed by all staff, helpers, visitors, and neighbours. A staff house with an overview of the reserve would be a significant safeguard.
- 15.4 All relevant people (especially staff, helpers and neighbours) should be familiar with procedure in the event of a fire. The initial step is to phone 111, state 'Rural Fire' when the call is answered, and have geographical, access and other details ready to deliver. In most cases the prompt dispatch of fire-fighting equipped helicopters will be part of the appropriate response, although the decisions on this and on ground teams, etc, will be made by the Fire Service.
- 15.5 A Fire Plan for the reserve, preferably co-ordinated with Hinewai's Fire Plan, will be drawn up as soon as possible containing all relevant information, including access, fire-fighting water locations, key personnel and contact details, etc. The Fire Plan needs regular updating and copies lodged with the Fire Service and with DOC, and also with Christchurch City Council Parks and Reserves Managers.

- 15.6 Provision of fire-fighting pond(s) on the reserve needs careful consideration, in co-operation when possible with other relevant agencies such as Christchurch City Council Parks and Reserves. A suitable site exists at Goose Flat (Maps 1 and 2).
- 15.7 Reserve Management retains the right to close off public access to the reserve when the fire risk is deemed to be dangerously high.
- 15.8 Creation of fire-breaks is not ruled out in this Plan, but, practically speaking, their formation and maintenance to the extent where they are likely to make a difference is not considered realistic.

16 Pasture

- 16.1 The long-term goal is to convert pasture areas into native forest just as for the rest of the reserve. It is true that moderate grazing by sheep can favour regeneration of some native species (e.g. kānuka, ribbonwood, lacebark, kōwhai, tōtara, small-leaved Coprosma, etc.) in that it removes vigorous competition from ungrazed exotic grasses. However, the amount of internal fencing which would be needed to gain any advantage from this, makes any attempt to temporarily graze limited areas and facilitate the establishment of such species unrealistic and impractical. It makes much more sense simply to destock the whole area. Neighbouring Hinewai has clearly shown how quickly ungrazed pasture has moved towards early forest succession. Native bracken is a great ally in this respect. Although its establishment can be patchy it can readily invade ungrazed grassland. Once established, bracken serves as a good nurse canopy, initially for species such as māhoe and *Coprosma robusta*. Even where bracken doesn't conveniently invade, the rough hill country of Purple Peak Curry Reserve provides numerous micro-sites where native woody plants can establish within ungrazed pasture.
- 16.2 Planting of natives into pasture areas is not considered appropriate, but is not ruled out in strictly limited areas for reasons such as arboretum displays (see 3.5). Such planting requires labour-intensive follow-up work - erection of protection around each plant against hares, rabbits, etc, and hand-weeding each sapling from long-grass competition until the sapling grows above the grass, usually for between 1 and 5 years. Mulching with the pulled grass laid thickly around the base of the sapling, or using weedmat of environmentally friendly material helps.
- 16.3 Ungrazed long grass in late summer and autumn may represent an increased fire-risk, emphasising the need for strict fire precautions (see Section 15).

17 Propagation and Planting

(See also 3.5, 3.6, and 3.7)

- 17.1 In line with a policy of minimal interference, all or virtually all "planting" is to be left to nature. Planting by people is limited to small areas for shelter, amenity or arboretum displays close to, for example, info boards or entry/exit sites.
- 17.2 There shall be no "memorial" plantings on the reserve. Requests for this sort of planting can be passed on to the adjacent Akaroa Heritage Park which specifically caters for that activity.

- 17.3 If propagation and planting is to be undertaken, it must be strictly from local stock - that is, from the reserve itself, or from no more than 2kms away from the reserve boundaries.
- 17.4 Propagation from seed is preferable to using cuttings, in that it maintains greater genetic diversity.

18 Snow Tussock Conservation

- 18.1 Snow tussock vegetation is of very limited extent on the reserve, but excellent opportunities exist for looking after it along upper road verges of Brocheries and Long Bay Roads, and on "Tussock Knoll" (see Map 2) beside the Cabstand.
- 18.2 The main management involved is simply diligent removal of gorse and broom, and perhaps removal of some other potentially invasive exotics such as tussock hawkweed, *Hieracium lepidulum*.
- 18.3 The snow tussockland will gradually become snow tussock shrubland. Eventually native shrubs and small trees will predominate at the expense of the tussocks. There will be no attempt to deflect this natural succession in order to prolong the tussock cover which on these sites is induced by human activity and transitional to scrub and forest.

19 Arboreta

- 19.1 Should a display area of planted local native trees and shrubs be considered, it needs to be of strictly limited extent and carefully sited near a track or entry/exit point.
- 19.2 Mapping of any specimen plantings on to a plan, full records of source and planting dates, measurements of growth (preferably annual) and labelling to interpret the plantings to visitors, are all worthwhile.

20 Scientific Studies

- 20.1 Scientific studies are to be encouraged on the reserve, both for their intrinsic interest and for their benefit for management decisions, provided that they do not conflict with the primary aims of conservation and water catchment protection.
- 20.2 Examples of appropriate fields of study might include: changes in vegetation and fauna over time using repeated recordings of marked plots, photopoints, and continuous noted-down observations; climate records, especially rainfall and temperature; surveys of flora and fauna by specialists in particular groups, especially of poorly known groups such as invertebrates and fungi; hydrology and stream flows; water quality; soils; local geology; plant diseases; ecological responses to extreme events such as severe drought, fire, extensive land slippage, etc.
- 20.3 A systematic check of all scientific work being undertaken on the reserve needs to be kept. This could easily be included within Hinewai's established systems. Researchers are asked to fill out a simple form, and also to send to reserve management a summary of findings or resulting publications which are archived and made available to interested people.

- 20.4 Permission is required from management for collections of samples (e.g. plants, insects, rocks, water samples, soil samples) to be made on the reserve, and these samples must be minimal, limited to amounts strictly necessary for the scientific work being undertaken.
- 20.5 Researchers will be required to remove all markers and equipment from the reserve immediately their field work is completed. Unfortunately this needs to be actively enforced, as the record for compliance is surprisingly poor!

21 Expansion of initial reserve

- 21.1 In principle, adding more land to the initial reserve is seen as a worthwhile goal.
- 21.2 In practice, additional land purchases and responsibilities need to be carefully assessed against whether the expansion adds significant conservation values to the existing reserve and whether it over-stretches available management resources.
- 21.3 As a general principle, land actually adjoining the existing reserve is a far better prospect than land not adjoining. Also, additions that simplify boundary demands, particularly those that lessen obligations with gorse and broom along boundaries, make much more sense than additions that make boundary issues more complex and demanding.
- 21.4 Actual purchase and Trust ownership is seen as the best means of reservation, but other conservation opportunities on adjacent land could involve co-operation with neighbouring landowners through assistance with fencing, covenanting, management advice, and labour at the workplace.

22 Collaboration with neighbouring reserves, conservation trusts and agencies

- 22.1 Purple Peak Curry Reserve is somewhat unusual as its formation has involved co-operation and contribution among four main agencies:
- i. Native Forest Restoration Trust, the legal owner
 - ii. Christchurch City Council
 - iii. The Rod Donald Banks Peninsula Trust
 - iv. The Maurice White Native Forest Trust, whose primary responsibility is their own neighbouring reserve, Hinewai

Other relevant Trusts and agencies are, or may be:

- v. The QEII National Trust
- vi. The Banks Peninsula Conservation Trust
- vii. The Department of Conservation

Solid effort needs to go into communicating and co-operating with all these agencies, as well as with neighbouring landowners and the Akaroa Heritage Park. At the same time the demands of too much "networking" can deflect from the day to day time and work required on the reserve itself. The ongoing reserve work needs to be regarded as the top priority.

23 Management of native wildlife

- 23.1 As with the vegetation, the fundamental policy is one of minimum interference and maximum monitoring.
- 23.2 The most important need is to foster improvement of habitat through the continuing recovery of native vegetation.
- 23.3 Decisions on the control of alien predators need to take into consideration the complex relationships between predator and prey, in particular how any control of mustelids and cats affects the populations of rats with probable counter-productive results. However, if the results of predator control can be clearly shown to be beneficial, resources can certainly be channeled in that direction. Holistic control of rats, mustelids and cats is likely to be highly beneficial, but the costs, effort, impact and the certainty of reinvasion combine to render it "probably unrealistic"
- 23.4 Reintroductions of locally extinct or near-extinct species need very careful consideration. The preference is *not* to interfere in this way but to wait patiently for the natural recolonisation of the improving habitat from distant surviving populations. [A striking example on adjacent Hinewai is the recent recolonisation by New Zealand falcons].
- 23.5 If, after careful consideration, a decision is made to reintroduce a species as was undertaken for tūī on Hinewai in 2009-2010, the project must follow strict Department of Conservation guidelines, including:
- a) the organism must come from the nearest surviving wild population capable of providing transferable stock
 - b) the species must have been part of the original native fauna of Purple Peak Curry Reserve
 - c) the modes of transfer and release must be such as to allow the maximum possible chance of survival and establishment in the habitat
 - d) the survival and behavior of the newly re-introduced species on and near the reserve needs to be monitored by a competent researcher.
- 23.6 All native fauna on Purple Peak Curry Reserve, including invertebrates, fish, reptiles, birds, etc., are to be protected to the highest possible degree. This includes anciently indigenous fauna such as kererū and rifleman (among the birds), as well as relatively recent self-introductions from afar such as silvereyes, welcome swallows, and spur-winged plovers.
- 23.7 Collecting faunal specimens for scientific reference and study is allowable only with written permission from management, and then only with rigorous restraint and after appropriate discussion with reserve staff and scientific advisors.

24 Historical Sites

- 24.1 The historical sites known to be present on the reserve will not be damaged or compromised in any way.
- 24.2 Appropriate signage for the interpretation of one or more of these sites to the walking public is considered appropriate.

- 24.3 Liaison and communication with groups or agencies having special interest and/or information concerning these sites – eg, the Akaroa Museum, the Antarctic Heritage Trust, Ngāi Tahu – are to be encouraged.

25 Long-term legal safeguards for reserve status of land

- 25.1 The reserve will be covenanted in perpetuity under a protected land covenant with one of the covenanting agencies, probably with the QEII National Trust as with other Native Forest Restoration Trust reserves, or possibly with the Banks Peninsula Conservation Trust. The wording of the covenant will have to be compatible with the agreements already signed with the Rod Donald Banks Peninsula Trust, the Christchurch City Council, and the Maurice White Native Forest Trust.
- 25.2 If the Maurice White Native Forest Trust is to play a substantial part in the day-to-day management of Purple Peak Curry Reserve, the wording of the covenant must not significantly limit flexible and knowledgeable decision-making by the people on the ground actually doing the work, within the guidelines of the Management Plan.

26 Rates relief

- 26.1 Christchurch City Council local body legislation provides for 100% rates relief for a covenanted reserve, especially for one with public access and use. Full rates relief for Purple Peak Curry Reserve should be requested from the Council.

27 Inappropriate development

- 27.1 There will be no human-made structures or excavation on the reserve except those directly related to the goals of conservation, water catchment protection, public access on foot, and effective management in line with Section 2 (Goals) and Section 3 (Principles) of this plan.
- 27.2 Human-made structures on the reserve will be kept to a minimum, meeting only the needs of foot access, information and good management, and (only after careful assessment by the Native Forest Restoration Trust) possibly manager accommodation, small workshop and storage facility, toilets, and simple shelter. Any structures that are made must meet the highest standards of unobtrusiveness in the landscape regarding design, construction, colours and environmental impact. They must also be built to appropriate safety standards.
- 27.3 There shall be no commercial development of tourist facilities, including campgrounds and cafes, and no provision of mechanised transport away from existing roads, including new roads¹, gondolas, helicopter landing pads, quad bike tracks, etc.

¹ If the 27 hectares of Glenwood currently under negotiation, is added to the reserve, this will have to be reworded to allow for the “Fire escape route” wanted by the Shearers from Glenwood Homestead across to Purple Peak Road (NB: Suky to mark on Map 2 please).

28 Curry Knoll

- 28.1 As at 2015 a decision needs to be made on what to do with these 2 hectares, the only bit of land purchased by the NFRT that lies on the northern (Takamātua) side of Long Bay Road, near Graeme and Maryn Curry's farmhouse, and not fenced off at time of purchase. It continues to be grazed by the Curry's stock, mainly sheep. Vegetation is partly pasture, mostly gorse and broom scrub, with one adult ash tree (*Fraxinus excelsior*), some hawthorn, and some rather battered māhoe. The unmarked boundary line runs through gorse scrub for much of its length, recently sprayed on the Curry side. An ancient Māori burial site (with human skeleton, since removed for reburial) was discovered on this land around or just before 2000.
- 28.2 The expense of erecting a new fence, keeping the boundaries (including the road banks) free of gorse, broom, hawthorn and ivy, would be hard to justify in terms of conservation gain. One suggestion is to retain ownership but to allow Graeme Curry to continue grazing it as before, perhaps in return for some quid-pro-quo such as allowing us to fence off the bush between the Curry Airstrip Paddock and the Curry Hay Paddock. This bush is an extension of the bush on the reserve and part of a Recommended Area for Protection (Akaroa RAP 28 – Grehan), most of which is included now in Purple Peak Curry Reserve, albeit heavily infested with sycamore, hawthorn, wild cherry and plum. It is traversed by the newly formed Curry Track.

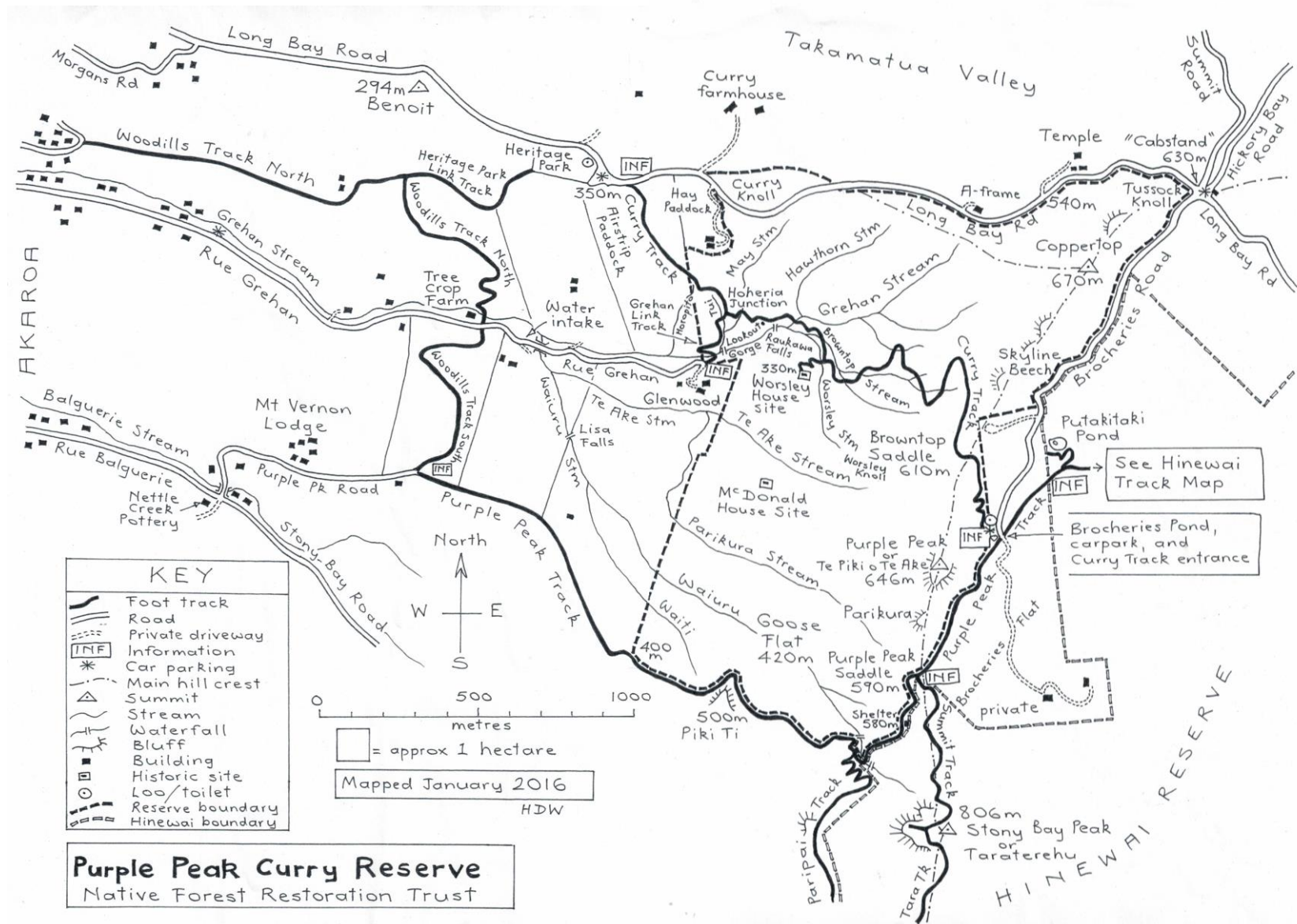
29 Summary of acts provided for in this Management Plan

This section covers acts provided for that are provisionally prohibited in the Conservation Covenant (2015) between the Native Forest Restoration Trust and Christchurch City Council (Terms: 3 of that agreement)

- 29.1 [3d] Planting or sowing of locally sourced indigenous plants is allowed for under this Management Plan (see 3.5, 3.6, 3.7, 17.1, 17.3, 17.4 and 19.1)
- 29.2 [3e] The use of herbicide to control invasive exotic plants is allowed for under this Management Plan (see 3.8)
- 29.3 [3f] Control of exotic pest animals may be undertaken using poisons, snares or traps but only in a manner designed to maximise the desired control and minimize any deleterious effects on indigenous elements of the environment or on water quality, also to minimise any undue or unnecessary suffering by target animals (see 9.1, 9.6, 9.7, 9.11, 23.3)
- 29.4 [3h] Soil excavation is permissible for purposes of track formation, low-key visitor facilities, fire-pond creation and possibly for staff accommodation and burial of biodegradable rubbish (see 6.2, 6.3, 6.4, 6.5, 8.2, 8.3, 8.4, 11.1, 15.6)
- 29.5 [3i] Buildings and other structures are permissible within the following limitations:
- a) Provision of a manager's or caretaker's house should this prove necessary for the practical implementation of this Management Plan (see 6.2)
 - b) Provision of a small workshop/storage facility should this prove necessary for the practical implementation of this Management Plan (see 6.3)

- c) Provision of stiles, footbridges, steps, information panels, boardwalks, loos, simple seats, small shelters, etc, to enable carefully controlled and minimally obtrusive visitor access on foot along the designated walking tracks, to protect natural values (eg., keep walkers off vulnerable surface roots or other vulnerable vegetation or soils) and to ensure there is no contamination of water (see 6.4).
- 29.6 [3m] The only type of domestic animal permitted on the reserve is “hunting dog” and this only by special arrangement with Management as part of essential exotic pest animal control programmes (see 9.10).
- 29.7 [3p] Carrying, discharging or shooting of any firearms will be solely for the control of exotic pest animals, and this only by special arrangement with Management as part of essential exotic pest animal control programmes (see 9.8, 9.9, 9.12).

Appendix A Map 1



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Appendix B Map 2

