

TIMARU DISTRICT SNA SURVEY

AREAs 26a-f

Area Name: Chapmans Creek	Property: Mt Peel Station	
SNA 26a & b (central map reference): J37: 665-092	Area Size (ha): 29.6	Altitude (m): 400-660
SNA 26c (map ref NZTM): 1456200E-5147030N	Area Size (ha): 0.94	Altitude (m): 600-650
SNA 26d (map ref NZTM): 1455860E-5146760N	Area Size (ha): 6.64	Altitude (m): 650-750
SNA 26e (map ref NZTM): 1458485E-5147150N	Area Size (ha): 9.61	Altitude (m): 400
SNA 26f (map ref NZTM): 1459200E-5147670N	Area Size (ha): 3.17	Altitude (m): 370
Surveyors (SNA 26a &b): Mike Harding	Survey Time: 2 hours	Survey Date: 21-11-06

General Description:

This Area comprises a narrow strip of indigenous vegetation and areas of shrubland in and adjacent to the incised gully of Chapmans Creek on the north side of Mule Spur on the eastern flank of the Mt Peel Range. The Area provides a corridor of mostly-indigenous woody vegetation between Rangitata Gorge Road and areas on the upper slopes of the Mt Peel Range that are proposed for protection as public conservation land in the Preliminary Proposal for tenure review of Mt Peel Pastoral Lease.

Plant Communities:

The lower (eastern) part of the gully (Area 26b) is more modified; the upper (western) part of the gully (Area 26a) supports indigenous vegetation less affected by woody weeds and pohuehue. The plant communities of these areas are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Area 26a: Upper (western) gully forest:

The forest canopy is dominated by broadleaf, kowhai, mountain ribbonwood and matipo. Other canopy species present are cabbage tree, lancewood, fuchsia, five-finger, marbleleaf, pohuehue and, at two locations, Canterbury tree broom.

Understorey species are matipo, kowhai, pate, wineberry, horopito, mapou, weeping mapou, *Coprosma rigida*, *C. rhamnoides*, *C. rotundifolia*, *Helichrysum lanceolatum*, porcupine shrub, bush lawyer, *Calystegia tuguriorum* and native jasmine.

Ground-cover species are bush lily, prickly shield fern, *Polystichum richardii*, thousand-leaved fern, kiokio, mountain kiokio, hen and chickens fern, necklace fern, *Asplenium hookerianum*, *A. richardii*, *Blechnum penna-marina*, *B. chambersii*, *B. fluviatile*, hound's tongue fern, *Cystopteris tasmanica*, pennywort, *Pterostylis* sp. and hookgrass.

Additional species present on the forest margin and/or beside the creek are matagouri, broom*, gorse*, *Coprosma propinqua*, *C. rugosa*, mountain akeake, koromiko, mountain wineberry, native broom, bush snowberry, scrambling fuchsia, lawyer, scrub pohuehue, toatoa, mountain flax, golden speargrass, Himalayan honeysuckle*, tutu, bracken, grey willow*, *Lotus* sp.*, bidibid and *Epilobium melanocaulon*.

Area 26b: Lower (eastern) gully forest:

This narrow strip of forest has a canopy extensively covered by the indigenous climbing pohuehue. Canopy trees beneath or emergent from the pohuehue are kowhai, lemonwood, lowland ribbonwood, narrow-leaved lacebark, broadleaf, lancewood, fuchsia and matipo. The Area supports some very tall trees of lowland ribbonwood, narrow-leaved lacebark and kowhai.

The margins of the forest, along the stream, are dominated by broom*, with occasional *Coprosma propinqua* and weeping mapou and scattered wilding pine* and Douglas fir* trees. A pine shelterbelt is present at the terrace edge on the northern side of the Area.

Areas 28c to 28f:

These areas were not surveyed closely. They support shrubland dominated mostly by mingimingi and matagouri, with a range of other shrubland species.

Birds/Fauna Observed:

Indigenous birds observed were bellbird and grey warbler.

Notable Flora, Fauna and Habitats:

The presence of Canterbury tree broom and the length of the valley covered by indigenous vegetation are notable features of the Area. The Area provides important habitat for lizards.

Notable Plant and Animal Pests:

The indigenous climber, pohuehue, poses the greatest threat to the Area, especially to the tall forest in Area 26b where it is dominant in the forest canopy. Wilding trees of pine and Douglas fir, and grey willow, also pose a threat.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

The Area is long and thin, though buffered to some extent by its location along an incised creek. Parts of the boundary are fenced, though the Area is grazed. The Area does not adjoin other areas of indigenous vegetation except at its upper end, though it does form a corridor of woody vegetation in an otherwise modified landscape. Areas of shrubland are less well buffered and are grazed as part of larger paddocks.

Condition and Management Issues:

The lower part of the area (Area 26b) is in relatively poor condition, with a canopy partly smothered by pohuehue and margins affected by woody weeds, notably broom. The upper part of the Area (Area 26a) is in better condition, though would benefit from weed control (grey willow) and the exclusion of stock.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A modified example of indigenous forest typical of the ecological district. Shrubland habitats are typical of the ecological district.
Rarity	H	Supports a population of Canterbury tree broom (threat status: nationally endangered). Provides important habitat for lizards.
Diversity and pattern	M	Species diversity is less than that originally present.
Distinctiveness/special features	M	Is part of a corridor of indigenous woody vegetation between the slopes of the Mt Peel Range and the Rangitata Valley.
Other Criteria		
Size/shape	M/H	A moderate-sized area that is partly buffered.
Connectivity	M	Adjoins (soon to be) protected land at its upper boundary and provides a low-altitude extension to indigenous habitats in that area.
Long-term Sustainability	M	Some conservation management will probably be required to maintain its ecological values.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This Area has been informally protected by its location in an incised gully, limiting its potential for development. The forest of Area 26b is threatened by the smothering pohuehue, though the main values are likely to persist with limited management, especially within Area 26a. No additional resources are required to implement effective protection, though control of pohuehue, wilding pines and grey willow and exclusion of stock would benefit the Area.

Discussion:

Area 26a easily meets the District Plan criteria for a Significant Natural Area; Area 26b also meets the criteria. Its main attributes are its size, the presence of Canterbury tree broom, the habitat it provides for lizards, and its role as a corridor of indigenous vegetation.



TIMARU DISTRICT SNA SURVEY

AREA 27c-g

Area Name:	Property: Mt Peel Station	
SNA 27c (central map reference): J37: 675-069	Area Size (ha): 2.3	Altitude (m): 470-520
SNA 27d (map ref NZTM): 1457138E-5145419N	Area Size (ha): 3.65	Altitude (m): 520-700
SNA 27e (map ref NZTM): 1457241E-5145123N	Area Size (ha): 4.7	Altitude (m): 500-600
SNA 27f (map ref NZTM): 1457103E-5144715N	Area Size (ha): 10.7	Altitude (m): 550-700
SNA 27g (map ref NZTM): 1457117E-5145676N	Area Size (ha): 7.38	Altitude (m): 550-700
Surveyors: Mike Harding	Survey Time: ½ hour	Survey Date: 15-11-06

General Description:

This Area comprises five separate sites on the south-facing slopes above a small gully at the upper end of the main terrace west of Mt Peel Station homestead, and west of Area 27b. The lower area adjoins a planted stand of pine trees on its northern boundary.

Plant Communities:

SNA27c supports hardwood forest with a single kahikatea tree; the other sites support shrubland. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy is dominated by lowland ribbonwood, lemonwood, narrow-leaved lacebark, wineberry and fuchsia. Other canopy species are kowhai, kahikatea (one tree), mapou, lancewood and mountain ribbonwood.

Species present in the forest understorey are fuchsia, horopito, lowland ribbonwood, mahoe, marbleleaf, *Melicope simplex*, native jasmine, bush lawyer, *Coprosma rotundifolia* and elderberry*.

Ground-cover species are *Polystichum richardii*, thousand-leaved fern, *Blechnum fluviatile*, hen and chickens fern, *Asplenium richardii*, hound's tongue fern, pennywort and Darwin's barberry* seedlings.

Shrubland and forest margin species are pohuehue, weeping mapou, koromiko, *Coprosma rigida*, *C. propinqua*, mistletoe (on *C. propinqua*), prickly shield fern, lawyer, *Calystegia tuguriorum* and Himalayan honeysuckle*.

Birds/Fauna Observed:

Bellbirds were observed in the forest.

Notable Flora, Fauna and Habitats:

The size and number of the lowland ribbonwood trees, and the presence of kahikatea, are notable features. The shrubland areas provide important habitat for lizards.

Notable Plant and Animal Pests:

Elderberry and Darwin's barberry (seedlings) are the main plant pests present. Neither are dominant at present.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

The lower part of SNA27c is buffered on its lower (southern boundary) by a small stream and on its northern boundary by an exotic plantation. It is not fenced. It is not connected to other areas of indigenous forest, though several important indigenous forest remnants are present in the area. The upper shrubland sites adjoin areas of open grassland.

Condition and Management Issues:

The forest is in relatively good condition, though the forest understorey is grazed and open. Shrubland sites are grazed. Some weed control may be necessary to protect the ecological values of the Area.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A good example of regenerating hardwood forest, with species (including kahikatea) representative of the original forest of the area. Provides important habitat for lizards.
Rarity	M/H	
Diversity and pattern	L/M	Species diversity is probably less than that originally present.
Distinctiveness/special features	M	The abundance of large lowland ribbonwood trees, and the presence of kahikatea are notable.
Other Criteria		
Size/shape	M	A small remnant with a good shape and well buffered.
Connectivity	M	Forms part of a network of forest habitat in the area.
Long-term Sustainability	M	The ecological values are likely to persist with minimal conservation management.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This Area has been informally protected by the landowner. Its presence on a relatively steep slope by a stream limits the potential for development of the Area. No additional resources are required to implement effective protection, though removal of stock and control of aggressive weeds (elderberry and Darwin's barberry) would benefit the Area.

Discussion:

The Area meets the District Plan criteria for a Significant Natural Area. Its main attributes are the presence of mature lowland ribbonwood and kahikatea, and the habitat it provides for lizards.



TIMARU DISTRICT SNA SURVEY

AREAS 28a and 28c-28f

Area Name: Lynn Stream	Property: Mt Peel Station	
SNA 28a (central map reference): J37: 670-039	Area Size (ha): 0.79	Altitude (m): 600
SNA 28c (central map reference): J37: 658-053	Area Size (ha): 5.21	Altitude (m): 550
SNA 28d (central map reference): J37: 668-052	Area Size (ha): 2.68	Altitude (m): 500
SNA 28e (map ref NZTM): 1456659E-5144763N	Area Size (ha): 11.67	Altitude (m): 550-650
SNA 28f (map ref NZTM): 1458627E-5142673N	Area Size (ha): 1.68	Altitude (m): 550-600
Surveyors: Mike Harding	Survey Time: <i>see below</i>	Survey Date: <i>see below</i>

General Description:

These five small areas all lie on the boundary of a much larger area, encompassing Lynn Stream, which is proposed for protection as public conservation land in the Preliminary Proposal for tenure review of Mt Peel Pastoral Lease. They are ecologically part of the Lynn Stream area, though appear to lie, at least partly, within the area proposed as private land. The areas are described separately below.

Plant Communities:

Three of the areas support hardwood forest; the other two support shrubland. Naturalized (exotic) species are indicated with an asterisk*.

Area 28a

(survey time: ½ hour; survey date: 11-08-06).

This Area supports hardwood forest. Dominant species are broadleaf, narrow-leaved lacebark, lancewood and five-finger. Southern rata is present at about the lower boundary of the Area.

Area 28c

(survey time: ¼ hour; survey date: 18-08-06)

This Area supports hardwood forest dominated by broadleaf. Other species present are mountain totara, marbleleaf, fuchsia, mountain ribbonwood, kowhai, matipo, bush lawyer, mountain akeake, lancewood, yellowwood, *Coprosma propinqua*, *C. rigida* and prickly shield fern.

Area 28d

(survey date: 18-08-06)

This Area was not inspected closely. It supports well established hardwood forest.

Areas 28e and 28f

These areas were not surveyed closely. They support shrubland dominated by mingimingi and matagouri.

Birds/Fauna Observed:

Indigenous birds observed were kereru and tomtit (both in Area 28c).

Notable Flora, Fauna and Habitats:

The most important feature of each of these three areas is that they form part of a much larger ecologically-important area of intact indigenous forest in Lynn Stream. Lynn Stream provides habitat for the nationally-endangered blue duck, and may provide habitat for long-tailed bat. Areas of shrubland provide important habitat for lizards.

Notable Plant and Animal Pests:

No notable plant or animal pests were observed during the brief inspections.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

Each of these five Areas lies on or about the boundary of an area in Lynn Stream which is proposed for protection as public conservation land. While each area is small, each is part of a much larger area. The Areas may be affected by fencing or tracking associated with the tenure review of Mt Peel Pastoral Lease.

Condition and Management Issues:

All five Areas appear to be in relatively good condition.

Property Owner Comment:

The boundaries of these SNAs, as originally marked in the draft report, include areas that have become public conservation land through tenure review. The boundaries have been altered but are still approximate, as the new property boundaries are not yet recorded on Council's electronic (GIS) maps.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

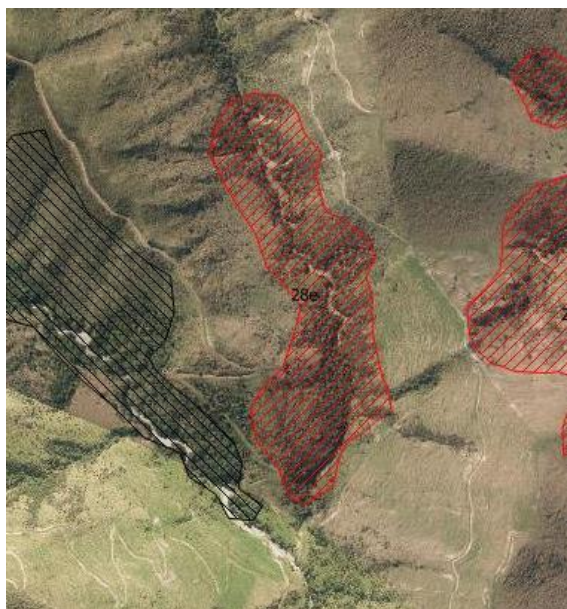
Primary Criteria	Rank	Notes
Representativeness	M/H	The Areas contain good examples of indigenous vegetation typical of the ecological district and include species representative of the original vegetation.
Rarity	M/H	The Areas provide important habitat for lizards and are part of a catchment which provides habitat for blue duck.
Diversity and pattern	M	Species and habitats are probably slightly less diverse than those originally present.
Distinctiveness/special features	M	The Areas are part of a much larger area of relatively intact and soon-to-be protected indigenous forest.
Other Criteria		
Size/shape	M	Each Area is small but each has a good shape and is relatively well buffered.
Connectivity	M/H	Each Area adjoins a (soon to be) protected area along at least 25% of its boundary.
Long-term Sustainability	M/H	Little if any conservation management will be required for the maintenance of ecological values.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

Each of these three Areas may be affected by tracking and/or fencing associated with the tenure review of Mt Peel Pastoral Lease.

Discussion:

These Areas easily meet the District Plan criteria for a Significant Natural Area. Their main attributes are the presence of mature hardwood trees, important fauna habitat, and their locations adjoining a much larger area of indigenous vegetation.



Area Name: Lower Raules Gully	Property: Mt Peel (Waikari Hills) Station	
Ecological Districts: Orari/High Plains	Nearest Locality: Peel Forest	
SNA 714a: Central map ref. (NZTM): 1457700E-5149525N	Area Size (ha): 3.14	Altitude (m): 420-440
SNA 714b: Central map ref. (NZTM): 1457650E-5149840N	Area Size (ha): 4.99	Altitude (m): 420-440
SNA 714c: Central map ref. (NZTM): 1458705E-5149405N	Area Size (ha): 17.13	Altitude (m): 420-440
SNA 714d: Central map ref. (NZTM): 1458700E-5148920N	Area Size (ha): 3.38	Altitude (m): 420-440
SNA 714e: Central map ref. (NZTM): 1458150E-5149505N	Area Size (ha): 2.04	Altitude (m): 420-440
Surveyors: Mike Harding and Hermann Frank	Survey Time: 2 hours	Survey Date: 20-12-17

General Description:

These five sites lie along lower Raules Gully and on nearby terrace scarps, adjacent to the Rangitata River. The sites adjoin SNA 714 in the upper part of Raules Gully and are a continuation of the vegetation and habitat within that site.

Plant Communities:

Two main plant communities are present at these sites: hardwood forest and shrubland, as described below. Naturalised (exotic) species are indicated by an asterisk*.

Forest:

Important canopy species present at these sites are matipo (*Pittosporum tenuifolium*), five-finger (*Pseudopanax arboreus*), cabbage tree (*Cordyline australis*), broadleaf (*Griselinia littoralis*), lancewood (*Pseudopanax crassifolius*), pohuehue (*Muehlenbeckia australis*), native bindweed (*Calystegia tuguriorum*), and mistletoe (*Ileostylis micranthus*). Additional species along and near the river are kowhai (*Sophora microphylla*), fuchsia (*Fuchsia excorticata*), mountain akeake (*Olearia aviceniifolia*), tutu (*Coriaria sarmentosa*), Himalayan honeysuckle* (*Leycesteria formosa*), crack willow* (*Salix fragilis*), and grey willow* (*Salix cinerea*).

Other plant species present are scrambling fuchsia (*Fuchsia perscandens*), Khasia berry* (*Cotoneaster simonsii*), bracken (*Pteridium esculentum*), prickly shield fern (*Polystichum vestitum*), male fern* (*Dryopteris filix-mas*), and wall lettuce* (*Myelis muralis*). Shrubland (as described below) is present at forest margins and in forest openings.

Shrubland:

Shrubland at these sites is mostly dominated by mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*), sweet brier* (*Rosa rubiginosa*), lawyer (*Rubus schmidelioides*), and scrub pohuehue (*Muehlenbeckia complexa*). Some parts of the lower riverbed are dominated by broom* (*Cytisus scoparius*) or Khasia berry*. Other species are *Coprosma rigida*, porcupine shrub (*Melicactus alpinus* agg.), gorse* (*Ulex europaeus*), native jasmine (*Parsonsia capsularis*), native bindweed, and *Clematis foetida*.

Additional species within shrubland on the terrace riser within SNA 714d are elder* (*Sambucus nigra*), *Coprosma crassifolia*, prostrate kowhai (*Sophora prostrata*), leafless lawyer (*Rubus squarrosus*), and harebell (*Wahlenbergia* sp.).

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird (*Anthornis melanura*), grey warbler (*Gerygone igata*), welcome swallow (*Hirundo tabitica*), and unidentified skinks. Other birds likely to be present are fantail (*Rhipidura fuliginosa*), silvereye (*Zosterops lateralis*), kereru (*Hemiphaga novaeseelandiae*), rifleman (*Acanthisitta chloris*), and possibly tomtit (*Petroica macrocephala*). The sites provide important habitat for lizards.

Notable Flora, Fauna and Habitats:

The sites provide important fauna habitat and refuges in an area now dominated by open farmland. Taller woody vegetation provides important habitat for birds, and lower-stature woody vegetation provides important habitat for lizards. All sites except SNA 714a lie within the N2.1d or E3.1a Level IV Land Environments (Leathwick *et al*, 2003). Indigenous vegetation in N2.1d is 'acutely threatened' and within E3.1a is 'chronically threatened' (Cieraad *et al*, 2015) (i.e. reduced to less than 10% or 20% of its former extent, respectively).

Boundaries (buffering, fencing, adjoining plant communities and habitats):

Vegetation and habitat at these sites is buffered to some extent by the steep stream banks, terrace scarps and/or stony surface of the stream bed. The sites lie close to more extensive areas of indigenous vegetation and habitat in the upper part of Raules Gully.

Condition and Management

Vegetation is in moderate condition. Fauna habitat is in good condition. Important management issues are protection of the sites from disturbance such as excavation, herbicide use, and grazing by cattle.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation and habitat that is mostly typical and characteristic of the natural diversity of the ecological districts.
Rarity/Distinctiveness	Yes	Indigenous vegetation and habitat that is reduced to less than 20% of its former extent in the land environment and High Plains Ecological District.
Diversity and Pattern	Yes	Good fauna species diversity.
Ecological Context	Yes	Provides important habitat for lizards.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

These sites occupy steep or rocky ground that is generally unsuitable for pastoral development. The sites on the stream banks and terrace scarps are fenced from grazing and have been informally protected by the landowner.

Discussion:

These sites support moderately representative indigenous vegetation, provide refuges for fauna in an otherwise open landscape, and provide important habitat for lizards.



References Cited:

- Cieraad, E.; Walker, S.; Price, R.; Barringer, J. 2015. An updated assessment of indigenous cover remaining and legal protection in New Zealand's land environments. *NZ Journal of Ecology* 39: 309-315.
- Leathwick, J.; Wilson, G.; Rutledge, D.; Wardle, P.; Morgan, F.; Johnston, K.; McLeod, M.; Kirkpatrick, R. 2003. *Land Environments of New Zealand*. David Bateman, Auckland. 184p.

TIMARU DISTRICT SNA SURVEY

SNAs 717a & 717b

Area Name: Boundary Stream South	Property: Mt Peel (Waikari Hills) Station	
Ecological District: Orari	Nearest Locality: Peel Forest	
SNA 717a: Central map ref. (NZTM): 1457064E-5152698N	Area Size (ha): 2.7	Altitude (m): 400-460
SNA 717b: Central map ref. (NZTM): 1457138E-5152557N	Area Size (ha): 2.37	Altitude (m): 400-500
Surveyor (717a): Mike Harding	Survey Time: 1 hour	Survey Date: 21-11-06
Surveyors (717b): Mike Harding and Hermann Frank	Survey Time: 1 hour	Survey Date: 20-12-17

General Description:

These two sites lie on steep rocky slopes and bluffs on the true-right (south) side of Boundary Stream, just above its confluence with the Rangitata River. Site 717b includes a small area of toe slope/terrace, near to Sites 828 and 829.

Plant Communities:

The main plant communities present at these sites are shrubland/scrub and rockland, as described below. Naturalised (exotic) species are indicated by an asterisk*.

Dominant species in the shrubland/scrub community are mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*) and, in places, prostrate kowhai (*Sophora prostrata*). Other species present are *Coprosma rigida*, porcupine shrub (*Melicactus alpinus* agg.), sweet brier* (*Rosa rubiginosa*), broom* (*Cytisus scoparius*), scrub pohuehue (*Muehlenbeckia complexa*), pohuehue (*Muehlenbeckia australis*), native bindweed (*Calystegia tuguriorum*), native jasmine (*Parsonsia capsularis*), lawyer (*Rubus schmidelioides*), *Clematis quadribracteolata*, woolly mullein* (*Verbascum thapsus*), mouse-ear hawkweed* (*Pilosella officinarum*), fescue tussock (*Festuca novae-zelandiae*) and bracken (*Pteridium esculentum*).

Emergent from this shrubland/scrub are trees of broadleaf (*Griselinia littoralis*), cabbage tree/ti (*Cordyline australis*), and kowhai (*Sophora microphylla*).

Additional plant species at rockland sites are korokio (*Corokia cotoneaster*), native broom (*Carmichaelia australis*), mountain akeake (*Olearia avicenniifolia*), *Helichrysum intermedium*, *Chenopodium allanii*, *Asplenium appendiculatum* and patotara (*Leucopogon fraseri*).

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler (*Gerygone igata*), bellbird (*Anthornis melanura*) and harrier/kahu (*Circus approximans*). Unidentified skinks were observed at rocky sites. The sites are likely to provide important habitat for lizards.

Notable Flora, Fauna and Habitats:

The site supports a relatively large population of prostrate kowhai, a locally-uncommon species. It also supports a plant species listed as 'at risk' (naturally uncommon) by de Lange *et al* (2012): *Chenopodium allanii* (previously known as *Einadia allanii*). The combined area of the two sites provides useful habitat for birds and high-quality habitat for lizards.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

Vegetation and habitat at this combined site is buffered by its location on steep rocky slopes. The sites lie close to more extensive areas of indigenous vegetation and habitat in the lower part of Boundary Stream and along the Rangitata River gorge.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation and habitat that is representative vegetation in this part of the ecological district.
Rarity/Distinctiveness	Yes	Supports good populations of an 'at risk' plant species, and a locally-uncommon plant species.
Diversity and Pattern	Yes	Species diversity is moderate/typical.
Ecological Context	Yes	Provides important habitat for lizards.

Condition and Management

Vegetation and fauna habitat is in good condition. Important management issues are protection of the sites from disturbance such as clearance, herbicide use, and grazing by cattle.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

These sites occupy rocky ground that is generally unsuitable for pastoral development. The sites have not been developed and therefore informally protected by the landowner.

Discussion:

These sites support representative indigenous vegetation, provide refuges for fauna in an otherwise open landscape, and provide important habitat for lizards.



Reference Cited:

de Lange, P.J; Rolfe, J.R; Champion, P.D; Courtney, S.P; Heenan, P.B; Barkla, J.W; Cameron, E.K; Norton, D.A; Hitchmough, R.A. 2012. *Conservation status of New Zealand indigenous vascular plants, 2012*. Department of Conservation, Wellington, New Zealand. 70p.

Area Name: Waikari Hills Gully and Stonefield	Property: Mt Peel (Waikari Hills) Station	
Ecological Districts: Orari/High Plains	Nearest Locality: Peel Forest	
SNA 825a: Central map ref. (NZTM): 1457600E-5150350N	Area Size (ha): 1.23	Altitude (m): 420-440
SNA 825b: Central map ref. (NZTM): 1457290E-5150550N	Area Size (ha): 9.38	Altitude (m): 450-600
Surveyors: Mike Harding and Hermann Frank	Survey Time: 1 hour	Survey Date: 20-12-17

General Description:

These two sites lie on the lower eastern slopes of Waikari Hills, north of Raules Gully, and adjacent to the Rangitata River terraces. SNA 825b lies in a steep incised gully and includes areas of shrubland below that gully. SNA 825a lies on lower slopes just south of the gully.

Plant Communities:

SNA 825a:

This site is dominated by stonefield and shrubland. The shrubland is dominated by mingimingi (*Coprosma propinqua*). Other canopy species are matagouri (*Discaria toumatou*), sweet brier* (*Rosa rubiginosa*), scrub pohuehue (*Muehlenbeckia complexa*), native bindweed (*Calystegia tuguriorum*), pohuehue (*Muehlenbeckia australis*), *Clematis marata*, and lawyer (*Rubus schmidelioides*). Additional plant species present, especially at the shrubland margins, are porcupine shrub (*Melicactus alpinus* agg.), *Hypolepis ambigua*, bracken (*Pteridium esculentum*), nodding thistle* (*Carduus nutans*), Californian thistle* (*Cirsium arvense*), hedge mustard* (*Sisymbrium officinale*), woolly mullein* (*Verbascum thapsus*), hemlock* (*Conium maculatum*), and occasional emergent cabbage trees (*Cordyline australis*).

SNA 825b:

Upper parts of this site support forest dominated by broadleaf (*Griselinia littoralis*), kowhai (*Sophora microphylla*), and five-finger (*Pseudopanax arboreus*). Other canopy species are cabbage tree, lancewood (*Pseudopanax crassifolius*), wineberry (*Aristotelia serrata*), mountain ribbonwood (*Hoheria lyallii*), native bindweed, and pohuehue. Additional species at the forest margin are mountain akeake (*Olearia aviceniifolia*), Himalayan honeysuckle*¹ (*Leycesteria formosa*), koromiko (*Hebe salicifolia*), matipo (*Pittosporum tenuifolium*), mingimingi, Khasia berry* (*Cotoneaster simonsii*), broom* (*Cytisus scoparius*), and bush lily (*Astelia fragrans*).

Scattered forest is present in the lower gully. This grades further down the gully and on lower slopes to shrubland dominated by mingimingi and matagouri. Other plant species present are scrub pohuehue, porcupine shrub, and emergent cabbage tree and kowhai.

Birds/Fauna Observed:

Native birds observed during this brief survey were fantail (*Rhipidura fuliginosa*) and grey warbler (*Gerygone igata*). Other birds likely to be present are bellbird (*Anthornis melanura*), silvereye (*Zosterops lateralis*), kereru (*Hemiphaga novaeseelandiae*), rifleman (*Acanthisitta chloris*), and possibly tomtit (*Petroica macrocephala*). Boulder copper butterflies (*Lycena* sp.) were observed on stonefield at Site 825a. Both sites provide important habitat for lizards.

Notable Flora, Fauna and Habitats:

Both sites provide important fauna habitat and refuges in an area now dominated by open farmland. Taller woody vegetation provides important habitat for birds, and lower-stature woody vegetation provides important habitat for lizards. Lower parts of SNA 825b and nearly all parts of SNA 825a lie within the E3.1a Level IV Land Environment (Leathwick *et al*, 2003); a land environment in which indigenous vegetation is 'chronically threatened' (Cieraad *et al*, 2015) (i.e. reduced to less than 20% of its former extent).

Boundaries (buffering, fencing, adjoining plant communities and habitats):

Vegetation and habitat in the upper gully (SNA 825b) is buffered by steep slopes and is fenced from grazing. Vegetation at lower altitudes is protected to some extent by uneven and rocky ground. The sites lie close to more extensive areas of indigenous vegetation and habitat in lower Raules Gully.

¹ Naturalised (exotic) species are indicated by an asterisk*

Condition and Management

Vegetation in the upper gully is in good condition; vegetation at lower altitudes is in moderate condition. Fauna habitat is in good condition. Important management issues are protection of the sites from disturbance such as excavation, herbicide use, and grazing by heavy animals such as cattle.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation and habitat that is typical and characteristic of the natural diversity of the ecological districts.
Rarity/Distinctiveness	Yes	Indigenous vegetation and habitat that is reduced to less than 20% of its former extent in the land environment and High Plains Ecological District.
Diversity and Pattern	Yes	Good fauna species diversity.
Ecological Context	Yes	Provides important habitat for lizards.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

These two sites occupy steep and rocky ground that is generally unsuitable for pastoral development. The upper part of SNA 825b is fenced from grazing and has been informally protected by the landowner.

Discussion:

These sites support representative indigenous vegetation, provide refuges for fauna in an otherwise open landscape, and provide important habitat for lizards.



References Cited:

Cieraad, E.; Walker, S.; Price, R.; Barringer, J. 2015. An updated assessment of indigenous cover remaining and legal protection in New Zealand's land environments. *NZ Journal of Ecology* 39: 309-315.

Leathwick, J.; Wilson, G.; Rutledge, D.; Wardle, P.; Morgan, F.; Johnston, K.; McLeod, M.; Kirkpatrick, R. 2003. *Land Environments of New Zealand*. David Bateman, Auckland. 184p.

Area Name: Upper Boundary Stream

Ecological District: Orari

SNA 826: Central map ref. (NZTM): 1453180E-5150436N

Surveyors: Mike Harding and Hermann Frank

Property: Mt Peel (Waikari Hills) Station

Nearest Locality: Peel Forest

Area Size (ha): 8.48

Altitude (m): 450-900

Survey Time: 1 hour

Survey Date: 20-12-17

General Description:

This site lies on steep slopes on the true-left (north) side of Boundary Stream, above Rangitata Gorge Road. It includes a large eroding gully/scree and the valley floor below that gully.

Plant Communities:

The main plant communities present at this site are shrubland and stonefield/scree, as described below. Naturalised (exotic) species are indicated by an asterisk*.

Dominant canopy species in the shrubland community are mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*), mountain wineberry (*Aristotelia fruticosa*), lawyer (*Rubus schmidelioides*), and scrub pohuehue (*Muehlenbeckia complexa*), with emergent trees of mountain ribbonwood (*Hoheria lyallii*) and, less commonly, broadleaf (*Griselinia littoralis*). Other species commonly present are mountain akeake (*Olearia avicenniifolia*), *Coprosma rigida*, *Olearia bullata*, pohuehue (*Muehlenbeckia australis*), native jasmine (*Parsonsia capsularis*), *Clematis marata*, tutu (*Coriaria sarmentosa*), mountain flax (*Phormium cookianum*), golden speargrass (*Aciphylla aurea*), cotton daisy (*Celmisia spectabilis*), harebell (*Wahlenbergia albomarginata*), narrow-leaved snow-tussock (*Chionochloa rigida*), fescue tussock (*Festuca novae-zealandiae*), prickly shield fern (*Polystichum vestitum*), necklace fern (*Asplenium flabellifolium*), *Hypolepis ambigua*, *Blechnum penna-marina*, and male fern* (*Dryopteris filix-mas*).

Open ground between the shrubland patches is dominated by pasture grasses and scattered shrubs. Other species present are oxeye daisy* (*Leucanthemum vulgare*), Californian thistle* (*Cirsium arvense*), Scotch thistle* (*Cirsium vulgare*) and mouse-ear hawkweed* (*Pilosella officinarum*).

Areas of open stonefield/scree are sparsely vegetated. Additional plant species commonly present are creeping pohuehue (*Muehlenbeckia axillaris*), harebell, patotara (*Leucopogon fraseri*) and porcupine shrub (*Meliclytus alpinus* agg.). Additional plant species on the valley floor or stream side are *Coprosma rugosa*, *Hebe traversii*, broom* (*Cytisus scoparius*), and creeping pohuehue.

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler (*Gerygone igata*), and welcome swallow (*Hirundo tabitica*). The site provides important habitat for lizards.

Notable Flora, Fauna and Habitats:

The site provides useful habitat for birds, and high-quality habitat for lizards.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

Vegetation and habitat at this site is buffered at most parts by its location on steep rocky slopes. The sites lie close to other areas of indigenous vegetation and habitat along Boundary Stream.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation and habitat that is representative of vegetation in this part of the ecological district.
Rarity/Distinctiveness	Yes	Provides habitat for lizards.
Diversity and Pattern	No	Species diversity is moderate and probably reduced from its former state.
Ecological Context	Yes	An important habitat for lizards in otherwise open country.

Condition and Management

Vegetation and fauna habitat is in relatively good condition. Important management issues are protection of the site from clearance, herbicide use, and grazing by cattle. The small infestation of broom should be removed.



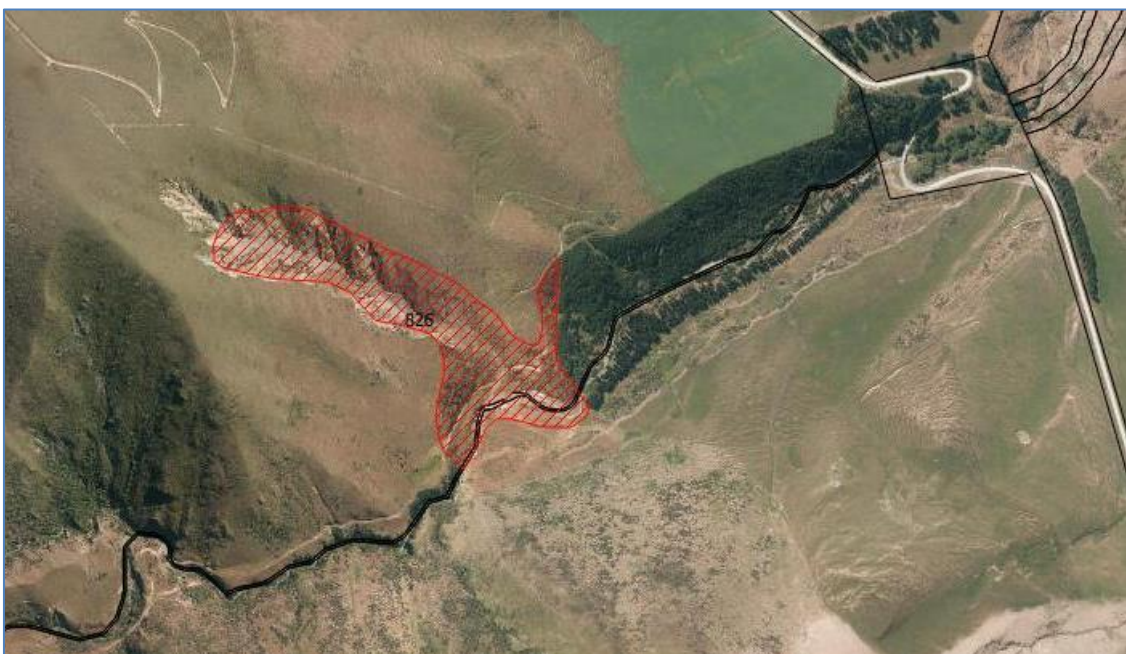
SNA 826

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

The site occupies mostly steep and rocky ground that is generally unsuitable for pastoral development. The site has not been developed and therefore informally protected by the landowner.

Discussion:

This site supports representative indigenous vegetation, provides refuge for fauna in an otherwise open landscape, and provides important habitat for lizards.



SNA 826

TIMARU DISTRICT SNA SURVEY

SNA 827, 828 & 829

Area Name: Rangitata Gorge terraces	Property: Mt Peel (Waikari Hills) Station	
Ecological District: High Plains	Nearest Locality: Peel Forest	
SNA 827: Central map ref. (NZTM): 1457784E-5152497N	Area Size (ha): 1.68	Altitude (m): 370
SNA 828: Central map ref. (NZTM): 1457533E-5152507N	Area Size (ha): 1.23	Altitude (m): 390
SNA 829: Central map ref. (NZTM): 1457511E-5152409N	Area Size (ha): 0.86	Altitude (m): 410
Surveyors: Mike Harding and Hermann Frank	Survey Time: 1 hour	Survey Date: 20-12-17

General Description:

These three sites lie on gentle risers (scarps) between river terraces on the true-right (south) side of Rangitata River, just below the gorge.

Plant Communities:

The main plant community present at these sites is shrubland/scrub, as described below. Naturalised (exotic) species are indicated by an asterisk*.

Shrubland/scrub at these sites is mostly dominated by matagouri (*Discaria toumatou*). Other woody species present are mingimingi (*Coprosma propinqua*), mountain wineberry (*Aristotelia fruticosa*), porcupine shrub (*Meliclytus alpinus* agg.), and scrub pohuehue (*Muehlenbeckia complexa*). Ground-cover within the shrubland/scrub is dominated by pasture species, notably sweet vernal* (*Anthoxanthum odoratum*).

Other plant species recorded during this brief inspection were creeping pohuehue (*Muehlenbeckia axillaris*), *Dichondra repens*, harebell (*Wahlenbergia albomarginata*), white clover* (*Trifolium repens*), Scotch thistle* (*Cirsium vulgare*), black nightshade* (*Solanum nigrum*), velvety nightshade (*Solanum chenopodioides*), necklace fern (*Asplenium flabellifolium*), and cocksfoot* (*Dactylis glomerata*).

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler (*Gerygone igata*) and harrier/kahu (*Circus approximans*). Southern Alps gecko (*Woodworthia* "Southern Alps") were observed at rocky sites. The sites are likely to provide important habitat for lizards.

Notable Flora, Fauna and Habitats:

The sites provide useful fauna habitat and refuges in an area now dominated by open farmland. The woody vegetation provides habitat for birds and lizards. All sites lie within the N2.1d Level IV Land Environment (Leathwick *et al*, 2003). Indigenous vegetation in N2.1d is 'acutely threatened' (Cieraad *et al*, 2015) (i.e. reduced to less than 10% of its former extent).

Boundaries (buffering, fencing, adjoining plant communities and habitats):

Vegetation and habitat at these sites is buffered to some extent by their locations on terrace risers and the stony substrate. The sites lie close to more extensive areas of indigenous vegetation and habitat in the lower part of Boundary Stream and along the Rangitata River gorge.

Condition and Management

Vegetation is in moderate condition. Fauna habitat is in good condition. Important management issues are protection of the sites from disturbance such as excavation, herbicide use, and grazing by cattle.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation and habitat that is typical of young regenerating vegetation in this part of the ecological district.
Rarity/Distinctiveness	Yes	Indigenous vegetation and habitat that is reduced to less than 10% of its former extent in the land environment and High Plains Ecological District.
Diversity and Pattern	No	Species diversity appears low/reduced.
Ecological Context	Yes	Provides important habitat for lizards.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

These sites occupy rocky ground that is generally unsuitable for pastoral development. The sites have not been developed and therefore informally protected by the landowner.

Discussion:

These sites support moderately representative indigenous vegetation, provide refuges for fauna in an otherwise open landscape, and provide important habitat for lizards.



References Cited:

- Cieraad, E.; Walker, S.; Price, R.; Barringer, J. 2015. An updated assessment of indigenous cover remaining and legal protection in New Zealand's land environments. *NZ Journal of Ecology* 39: 309-315.
- Leathwick, J.; Wilson, G.; Rutledge, D.; Wardle, P.; Morgan, F.; Johnston, K.; McLeod, M.; Kirkpatrick, R. 2003. *Land Environments of New Zealand*. David Bateman, Auckland. 184p.