

Appendix A Detailed effects assessment

Effects on conservation values

1. On the information before DOC, removing or moderating the Bendigo s77 conservation covenant across the Applicant's proposed uplift area would compromise the covenant's protected values.
2. The risk is most acute for the historic landscape system of Rise and Shine, vegetation values including the *Ceratocephala pungens* stronghold and associated spring annual flora, groundwater-dependent wetlands, and invertebrate assemblages and the significant habitat provided for lizard species.
3. Underpinning the application are several assessments relating to conservation values. DOC has undertaken a thorough assessment of the information provided and concludes that the applicants evidence base is incomplete or uncertain.
4. By design, the covenant safeguards these values in perpetuity. Uplift would therefore undermine the covenant's objectives. Table 1 below provides a detailed assessment of the impacts on values in relation to the covenant.

Table 1: Detailed Assessment of values present and impacts

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
Heritage	Rise and Shine historic landscape (as a connected system)	National	Permanent loss and fragmentation by uplift area's; loss of landscape legibility	<p>Compromise of covenant purposes: values are legible only as a system; management plans don't substitute for values-based boundaries</p> <p>The sequence of sluicing and hard rock mining heritage at Bendigo which stems from the Bendigo Historic Reserve all the way up through the Rise and Shine Creek is preserved. The tangible remains present alongside Dr Lloyd Carpenter's detailed social history of Bendigo (the intangible component of the history of Bendigo) means we have a rare continuous insight into the history of a sluicing, then hard rock gold mining community that lived at Bendigo from the 1860s through to the Depression. The bonus is that members of the public can access this history all the way from the Reserve and up to Thomson's Gorge saddle.</p>

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	Water races, dams, reservoirs (connective fabric)	National	Severance, setting effects, access detours	Must be no-go fabric; access parity under Condition 9 required. None of the mining operations in the landscape such as the sluicing and stamper batteries could operate without water and so were the most important part of the mining system. Plus, clean water was an issue in mining areas as the streams ran filthy, so the water was also used to supply fresh water to the people living in the gullies. The Rise and Shine Syndicate dam (the one we visited) was key to a reliable water source for their sluicing including over colder months when higher altitude water sources froze over.
	Battery terraces & platforms (CIT; Eureka/Alta)	National	Vibration, ground disturbance, route works	Peak particle velocity controls help but do not resolve landscape fragmentation
	Historic routes/tramways & settlement nodes (e.g., Goodall's Hotel flats), Deep Level adit	Regional (within the national landscape)	Severance, visual disconnect	Require values-based no-go and like-for-like interpretation during works
Terrestrial Flora	<i>Ceratocephala pungens</i>	National (Regional stronghold at Shepherds Cr.; International: NZ endemic)	Severe, irreversible impacts from clearance; dust/edge effects. Population within covenant uplift approximately 7800 confirmed individuals (2026 survey data), however survey not comprehensive and more individuals likely. loss of protection	Threatened – Nationally Critical Decline NNL not achievable under open-pit; propagation unproven.

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	<i>Myosotis brevis</i>	National; Regional (large occurrences); International: NZ endemic	Severe, irreversible impacts from clearance; dust/edge effects. Population within covenant uplift area approximately 22,000 confirmed individuals (2026 survey data) however survey not comprehensive, and more individuals likely. Loss of protection.	Threatened – Nationally Vulnerable Decline NNL not achievable under open-pit; propagation unproven. High risk without buffers; multi-year lag ⇒ net loss over mine life
	<i>Pachycladon cheesemani</i>	National; International: NZ endemic	Potentially severe irreversible impacts from clearance; dust/edge effects in rocky mosaics. Not detected by surveys but easily overlooked	Threatened – Nationally Endangered Likely net loss if present
	<i>Senecio dunedinensis</i>	National; International: NZ endemic	Potentially severe irreversible impacts from clearance; dust/edge effects in open dryland. Not detected by surveys but suitable habitat is present	Threatened – Nationally Endangered Adverse if within areas; needs fine-scale checks
	<i>Carex inopinata</i>	National; International: NZ endemic	Potentially large impacts from clearance; dust/edge effects in woody communities. Not detected by surveys but suitable habitat is present.	Threatened – Nationally Vulnerable Adverse if within areas; needs fine-scale checks. Likely decline without micro-avoidance
	<i>Carmichaelia crassicaulis</i>	National; Regional;; International: NZ endemic	Unquantified impacts associated with clearance/dust if uplift proceeds. Not known within DDF but >50 plants sighted within uplift area at Mt Moka (DOC observations). Loss of protection.	Threatened – Nationally Vulnerable Elevated risk; upgrade areas to avoid Uncertain. 10 Nursery plants proposed to be established in DDF however success is uncertain without monitoring

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	<i>Carmichaelia kirkii</i>	National; International: NZ endemic	Potentially large impacts from clearance; dust/edge effects in shrubland mosaics. Not detected in surveys but suitable habitat is present.	Threatened – Nationally Vulnerable Adverse if within areas; needs fine-scale checks
	<i>Sonchus novae-zelandiae</i>	National; Regional: International: NZ endemic	Potentially large impacts from clearance; dust/edge effects in herbfield and tussock communities. Confirmed by DOC survey to be present within uplift area outside the DDF. Loss of protection	Threatened – Nationally Vulnerable Direct risk; DOC-verified in uplift area
	<i>Acaena buchananii</i>	Regional; National; International: NZ endemic	Very large impacts likely from clearance/edge effects expected– confirmed to be present in all vegetation types except wetlands. More than 500 individuals estimated to be present within DDF (table 7.1, G.07B). Population size in uplift area unknown but likely large.	At Risk – Declining Likely decline; Target of 1000 plants to be re-established in the DDF is ambitious and untested, – requires monitoring. Unclear how estimated population was arrived at and whether target of 1000 individuals is greater than current population. The “stable” populations anticipated to be maintained elsewhere unable to be monitored.
	<i>Anthosachne aprica</i>	National; International: NZ endemic	large impacts from clearance, dust/edge effects. Present in six vegetation communities, and listed as “occasional” in native dominant tussock communities. More than 1 individual estimated to be present within DDF (table 7.1, G.07B) likely to be a significant underestimate of actual population. Population in uplift area unknown.	At Risk – Naturally Uncommon Likely decline; requires monitored translocation. AEE suggests net positive outcome based on salvage (10 plants), weed control and livestock removal however this is speculative. Unclear how estimated 2025 population of > 1 individual was arrived at and whether 10 individuals is greater than current population. Projected “increase” in MRZ unable to be monitored.

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	<i>Carex buchananii</i>	National; International: NZ endemic	Large impacts associated with clearance; dust/ edge effects present in several vegetation communities. More than 100 individuals estimated within DDF (table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Uncertain; Target of 300 nursery-grown plants to be re-established in DDF is unlikely to be achievable – requires monitoring. Unclear how estimated 2025 population was arrived at and whether 300 individuals is greater than current population. Projected “increase” in MRZ unable to be monitored.
	<i>Carex kaloides</i>	National; International: NZ endemic	Large impacts from clearance, dust/edge effects, modification of hydrology. Estimated population in the DDF >100 individuals (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Uncertain; Target of 200 salvaged and nursery-grown plants to be re-established in DDF is unlikely to be achievable – requires monitoring. Unclear how estimated 2025 population was arrived at and whether 200 individuals is greater than current population. Projected “increase” in MRZ unable to be monitored.
	<i>Carex talbotii</i>	National; International: NZ endemic	Large impacts from clearance, dust/edge effects. Found within the mixed tussock scrub community. More than 100 individuals present in DDF (Table 7.1, G07B). Population in uplift area unknown.	At Risk – Declining Decline. No propagation or translocation planned – anticipated to be lost by competitive exclusion once grazing ceases.

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	<i>Carmichaelia australis</i>	National; International: NZ endemic	Low impact from clearance, dust/edge effects. Only a few individuals found within the mixed tussock scrub community. Population in uplift area unknown.	At Risk – Declining Likely negligible effects. Very small population.
	<i>Carmichaelia monroi</i>	Regional; National; International: NZ endemic	Not known to be directly impacted but potentially within uplift area	At Risk – Declining Uncertain. 10 Nursery plants proposed to be established in DDF however success is uncertain without monitoring.
	<i>Carmichaelia vexillata</i>	Regional; National International: NZ endemic	Unquantified impacts associated with clearance, dust/edge effects. Not found within DDF but confirmed in uplift area, however size of population is unknown. loss of protection	At Risk – Declining Adverse; add area-level avoidance
	<i>Carmichaelia petriei</i>	Regional; National International: NZ endemic	Large impact resulting from clearance, dust/edge effects. Present in all vegetation communities except wetlands. Frequent in depleted herbfield and native dominant shrublands. Estimated population in the DDF is greater than 1000 individuals (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Likely decline. Target of 2000 nursery-grown and direct-seeded plants to be re-established in DDF and kowhai enclosures is unlikely to be achievable – requires monitoring. Unclear how estimated 2025 population was arrived at and whether 2000 individuals is greater than current population.

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	<i>Colobanthus brevisepalus</i>	National; Regional: International: NZ endemic	Very large impacts associated with clearance/edge effects. Confirmed in “depleted herbfield”. Estimated population in DDF >5000 individuals (Table 7.1, G07B). Population in uplift area unknown but likely large.	At Risk – Declining Decline. Proposed to be re-introduced by division into cushionfields as part of Applied Research Programme, however this species is considered “tricky” to propagate, an no establishment targets have been set.
	<i>Coprosma brunnea</i>	Regional; National International: NZ endemic	Not known to be directly impacted but potential within uplift area	At Risk – Declining Possible increase. Proposal to establish 500 individuals within DDF from nursery-raised plants, however monitoring required to ensure compliance. Projected increase in MRZ not possible to monitoring without baseline data.
	<i>Coprosma virescens</i>	Regional; National International: NZ endemic	Low impact associated with clearance, dust/edge effects. Confirmed in several vegetation communities. More than 1 individual estimated to occur within DDF (Table 7.1, G.07B)	At Risk – Declining Possible increase. Proposal to establish 500 individuals within DDF from nursery-raised plants, however monitoring required to ensure compliance. Projected increase in MRZ not possible to monitoring without baseline data.
	<i>Daucus glochidiatus</i>	Regional; National	Very rare and only on Ardour Station outside the ESA but may also be present on Bendigo Station.	Threatened – Nationally Vulnerable Uncertain. No targets for establishment in DDF or MRZ provided.
	<i>Epilobium hectorii</i>	Regional; National	Moderate impacts associated with clearance, dust/edge effects. Confirmed in several vegetation communities. Estimated	At Risk – Declining

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		International; NZ endemic	population in DDF is greater than 50 individuals (Table 7.1, G.07B). Population in uplift area unknown.	Uncertain. Unclear how estimated 2025 population arrived at. Success of proposed target to establish 100 nursery-grown individuals into DDF requires monitoring.
	<i>Geranium aff. microphyllum</i>	Regional; National International: NZ endemic	Moderate impact associated with clearance, dust/edge effects. Confirmed in all vegetation communities. Greater than 1 individual estimated in DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Naturally Uncommon Likely decline. Estimated 2025 population likely a significant underestimate, and survival of proposed 100 seedlings to be established in DDF not certain. Monitoring required.
	<i>Hypericum involutum</i>	Regional; National	Very large impact associated with clearance, dust/edge effects. Common in depleted herbfield community. Estimated population in DDF is greater than 5000 individuals (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Decline. Proposal to establish 1000 seedlings into DDF unlikely to be successful, and not commensurate with losses. Monitoring required to ensure success.
	<i>Lagenophora barkeri</i>	Regional; National	Moderate impact associated with clearance, dust/edge effects. Occasional in wetland seepages community – estimated more than 5 individuals (Table 7.1, G.07B) in DDF. Population in uplift area unknown.	At Risk – Declining Likely decline. No propagation targets proposed. Trend in MRZ population unable to be assessed through monitoring without baseline data.
	<i>Luzula leptophylla</i>	Regional; National;	Moderate impact associated with clearance, dust/edge effects. Present in most	At Risk – Naturally Uncommon

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		International; NZ endemic	vegetation communities– estimated more than 5 individuals (Table 7.1, G.07B) in DDF. Population in uplift area unknown.	Likely decline. No propagation targets proposed. Trend in MRZ population unable to be assessed through monitoring without baseline data.
	<i>Myosotis antarctica</i> subsp. <i>antarctica</i>	National; Regional (large occurrences)	Large impact associated with clearance, dust/edge effects across herbfield/cushionfield. Confirmed population in uplift area likely greater than 300 individuals (2026 survey data). Survey not comprehensive and additional individuals likely.	At Risk – Naturally Uncommon Likely decline if not buffered and staged. Unknown propagation requirements. No targeted outcomes for ARP.
	<i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i>	Regional; National; International: NZ endemic	Very large impact associated with clearance, dust/edge effects. Present in depleted herbfields. Confirmed population in uplift area likely greater than 30,000 individuals (2026 survey data). Survey not comprehensive and additional individuals likely.	At Risk – Declining Decline. Unknown propagation requirements. No targeted outcomes for ARP.
	<i>Olearia lineata</i>	Regional; National; International: NZ endemic	Moderate impact associated with clearance, dust/edge effects. Occasional in native dominated shrubland. More than 50 individuals estimated in the DDF (Table 7.1, G.07B)	At Risk – Declining Uncertain. Proposal to establish 500 nursery-raised plants into DDF and 50 plants into the MRZ. Requires monitoring.
	<i>Olearia odorata</i>	Regional; National;	Very large impact arising from clearance, dust/edge effects. Present in several vegetation communities, abundant in	At Risk – Declining

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		International; NZ endemic	indigenous shrubland. Estimated population in the DDF >5000 individuals (Table 7.1, G.07B). Population in uplift area unknown.	Uncertain. Proposal to establish 10,000 nursery-raised plants into DDF rock stacks and rubble pits requires long time lags and monitoring to ensure success. Further unquantified increases in MRZ not possible to assess without quantitative outputs and baseline data.
	<i>Pellaea calidirupium</i>	Regional; National	Very large impacts arising from clearance, dust/edge effects. Occasional in depleted herbfield. Estimated population within DDF greater than 1000 plants (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Naturally Uncommon Decline. Unclear how 2025 population estimate has been arrived at. Proposed that this species will naturally establish from existing plants, with a target of 100 individuals in the DDF and “present” populations in MRZ. Not possible to determine without monitoring.
	<i>Pimelea aridula aridula</i>	Regional; National; International; NZ endemic	Large impact arising from clearance, dust/edge effects. Present in all vegetation communities except exotic pasture and wetland, common in depleted herbfield. Estimated 200 individuals in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Uncertain. Unclear how 2025 population estimate has been arrived at. Success of proposal to establish 500 individuals into DDF rock stacks and rubble pits not assured. Increase of population in MRZ not possible to determine without monitoring.
	<i>Poa incrassata</i>	Regional; National; International; NZ endemic	Not known to be directly impacted but may occur in uplift area.	At Risk – Naturally Uncommon Uncertain.

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	<i>Poa maniototo</i>	Regional; National; International: NZ endemic	Very large impact resulting from clearance, dust/edge effects. Abundant in depleted herbfield community. More than 5000 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Decline. Reestablishment via division of plants into DDF planned as part of ARP., but no establishment targets provided.
	<i>Pterostylis tristis</i>	Regional; National; International: NZ endemic	Moderate impact associated with clearance, dust/edge effects. Occasional in herbfield communities – confirmed by DOC survey.	At Risk – Declining Uncertain. No reestablishment targets specified, and uncertain distribution within the site and uplift area.
	<i>Raoulia australis</i>	Regional; National; International: NZ endemic	Very large impact resulting from clearance, dust/edge effects. Present in most vegetation communities, abundant depleted herbfield. More than 5000 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Decline. 500 Nursery-grown plants proposed to be reestablished in DDF and predicted to reduce in extent where grazing is removed. Long-term and uncertain outcome. Monitoring required to determine success.
	<i>Raoulia beauverdii</i>	Regional; National; International: NZ endemic	Very large impact resulting from clearance, dust/edge effects. Areas of high densities and abundance in several vegetation communities. More than 5000 individuals Population in uplift area unknown. estimated in the DDF (Table 7.1, G.07B).	At Risk – Declining Decline. 500 Nursery-grown plants proposed to be reestablished in DDF and predicted to reduce in extent where grazing is removed. Long-term and uncertain outcome. Monitoring required to determine success.
	<i>Raoulia parkii</i>	Regional; National; International: NZ endemic	Large impact from clearance, dust/edge effects. Present in several vegetation communities. More than 500 individuals	At Risk – Declining Decline. 100 Nursery-grown plants proposed to be reestablished in DDF, and predicted to reduce in extent where grazing is

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			estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	removed. Long-term and uncertain outcome. Monitoring required to determine success.
	<i>Rytidosperma buchananii</i>	Regional; National; International: NZ endemic	Moderate impact resulting from clearance, dust/edge effects. Present in depleted herbfield and mixed tussock shrubland. More than 50 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Uncertain. Nursery-grown plants proposed to be used to re-establish 500 plants in DDF, however outcomes are uncertain with long time lags and requires monitoring. Likely to decline where grazing is removed.
	<i>Rytidosperma maculatum</i>	Regional; National; International: NZ endemic	Large impact resulting from clearance, dust/edge effects. Occasionally present in depleted herbfield. More than 100 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Decline. No management proposed and likely to decline with removal of grazing.
	<i>Styphelia nana</i>	Regional; National; International: NZ endemic	Very large impact resulting from clearance, dust/edge effects. Present in all vegetation communities except wetlands. More than 500 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Declining Decline. Proposal to plant 500 nursery-grown plants into DDF rock stacks is a “trial”. Species is difficult to propagate and slow-growing. Long time lags, monitoring required.
	<i>Carex diandra</i>	Regional	Large impact resulting from clearance, dust/edge effects and modification to hydrology. Present in wetlands. More than 200 individuals estimated to be currently	At Risk – Regionally Naturally Uncommon Uncertain; Target of 400 nursery-grown plants to be re-established in DDF is unlikely to be achievable – requires monitoring and long time lags.

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			present within the DDF (Table 7.1, G.07B). Population in uplift area unknown.	Unclear how estimated 2025 population was arrived at and whether 400 individuals is greater than current population. Projected “increase” in MRZ unable to be monitored or quantified
	<i>Colobanthus strictus</i>	Regional	Moderate impact from clearance, dust/edge effects. Present in most vegetation communities, frequent in depleted herbfield. Estimated population in DDF >10 individuals (Table 7.1, G.07B). Population in uplift area unknown.	At Risk – Regionally Declining Likely decline. Proposed for 50 individuals to be re-established in DDF, however is a difficult species to propagate. Likely to decline with removal of grazing.
	<i>Agrostis mucosa</i>	Regional	Large impact resulting from clearance, dust/edge effects. Occasionally present in depleted herbfield. Estimated population >100 individuals (Table 7.1, G.07B) within the DDF. Population in uplift area unknown.	At Risk – Regionally Declining Uncertain; Target of 200 nursery-grown plants to be re-established in DDF is unlikely to be achievable – requires monitoring. Unclear how estimated 2025 population was arrived at and whether 200 individuals is greater than current population. Projected “decrease” in MRZ unable to be monitored or quantified
	<i>Myriophyllum pedunculatum</i> subsp. <i>novae-zelandiae</i>	Regional	Moderate impact resulting from clearance, dust/edge effects, hydrological modification. Found within wetland habitats. More than 10 individuals	At Risk - Regionally Naturally Uncommon Likely Declines. No propagation targets, and trends within the MRZ not possible to assess without baseline data and monitoring.

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			estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown	
	<i>Rumex flexuosus</i>	Regional	Low impact resulting from clearance, dust/edge effects, hydrological modification. Found within exotic pasture and wetland habitats. Estimated population >2 individuals (Table 7.1, G.07B) within the DDF. Population in uplift area unknown	At Risk - Regionally Naturally Uncommon Likely Decline. Re-establishment of 10 individuals within the DDF relies on transplanting and direct seeding.
	<i>Acaena inermis</i>	Regional	Moderate impact resulting from clearance, dust/edge effects. Present within three vegetation communities. Estimated population >10 individuals (Table 7.1, G.07B) within the DDF. Population in uplift area unknown	At Risk - Regionally Declining Uncertain; Target of 50 nursery-grown plants to be re-established in DDF is unlikely to be achievable – requires monitoring. Unclear how estimated 2025 population was arrived at and whether 50 individuals is greater than current population. Projected “increase” in MRZ unable to be monitored.
	<i>Acaena dumicola</i>	Regional	Moderate impact from clearance, dust/edge effects, hydrological modification. DOC survey found this species in Rise and Shine Catchment. Population in uplift area unknown	At Risk - Regionally Declining Likely decline. No management targets proposed.

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	<i>Poa lindsayi</i>	Regional	Moderate impacts resulting from clearance, dust/edge effects. Present in several vegetation types. More than 50 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown	At Risk - Regionally Declining Decline. No propagation proposed – predicted to decrease in abundance in response to grazing removal.
	<i>Rytidosperma pumilum</i>	Regional	Large impact resulting from clearance, dust/edge effects. Present in several vegetation types. More than 500 individuals estimated in the DDF (Table 7.1, G.07B). Population in uplift area unknown	At Risk - Regionally Declining Decline. Trial planting of 500 nursery-grown plants proposed into DDF rock stacks. Likely to decline with grazing removal. Trial planting success uncertain with long time lags. Requires monitoring.
	<i>Cheilanthes sieberi sieberi</i>	Regional	Very large impact resulting from clearance, dust/edge effects. Present in several vegetation types, abundant in depleted herbfield. Estimated population in DDF >5000 individuals (Table 7.1, G07B). Population in uplift area unknown	At Risk - Regionally Naturally Uncommon Likely decline. Salvage of plants into rock stacks unlikely to be successful and requires monitoring, and even if successful is proposed to result in only 500 individuals. Predicted increase in populations with MRZ unable to be monitorerd.
	<i>Cystopteris tasmanica</i>	Regional	Large impact from clearance, dust/edge effects. Present in several vegetation types. More than 500 individuals estimated within DDF (Table 7.1, G.07B). Population in uplift area unknown	At Risk - Regionally Naturally Uncommon Decline. Unclear how 2025 population estimate has been arrived at. Proposed that this species will naturally establish from existing plants, with a target of ten individuals in the DDF and “increased” populations in MRZ. Neither outcome is possible to determine without monitoring.
	<i>Vittadinia australis</i>	Regional	Moderate impact from clearance, dust/edge effects. Present in all vegetation	At Risk - Regionally Naturally Uncommon

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			types except wetlands. More than 50 individuals estimated within DDF (Table 7.1, G.07B). Population in uplift area unknown	Likely decline. Nursery-grown plants proposed to be used to re-establish 100 plants in DDF. Unclear how relatively small estimated population in DDF has been arrived at given wide distribution. Planting outcomes uncertain, requires monitoring.
	<i>Euchiton traversii</i>	Regional	Not known to be directly impacted but may occur within the uplift area.	At Risk - Regionally Naturally Uncommon Uncertain. No targets for re-establishment in DDF or trends in MRZ.
	<i>Isolepis praetextata</i>	Regional	Not known to be directly impacted but may occur within the uplift area.	At Risk - Regionally Naturally Uncommon Unknown
	<i>Juncus distegus</i>	Regional	Large impacts associated with clearance, dust/edge effects and modification to hydrology. Present in several vegetation types. More than 100 individuals estimated in the DDF (Table 7.1, G.07B). Population in the uplift area unknown.	At Risk - Regionally Declining Uncertain. 500 Nursery grown plants proposed to be established into DDF wetlands however time-lags for this are very long and require monitoring.
	<i>Olearia bullata</i>	Regional	Low impact resulting from clearance, dust/edge effects. Present in native dominant tussock and mixed tussock shrubland. Greater than 1 individual estimated in the DDF (Table 7.1, G.07B). Population in the uplift area unknown	At Risk - Regionally Naturally Uncommon Uncertain. Unclear how estimated 2025 population was arrived at. Establishment of 10 individuals in the DDF and increased abundance in MRZ required monitoring.
	<i>Olearia cymbifolia</i>	Regional	Not known to be directly impacted, but may be present in uplift area	At Risk - Regionally Naturally Uncommon

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				Uncertain. Proposed for an unquantified number to be established within the MRZ but not possible to verify without monitoring.
	<i>Pimelea notia</i>	Regional	Moderate impact resulting from clearance, dust/edge effects. Present in native dominant tussock and native dominant shrubland communities. More than 10 individuals estimated in the DDF (Table 7.1, G.07B). Population in the uplift area unknown	At Risk - Regionally Naturally Uncommon Uncertain. Proposed for 50 nursery-grown individuals to be established in DDF in rock stacks and rubble pits and an unquantified number to be established in MRZ. Exclusion fences proposed to promote natural seedling established. Long time lags and monitoring required to determine success. Unclear how estimate of >10 individuals in 2025 was made.
	<i>Pimelea prostrata</i> subsp. <i>prostrata</i>	Regional	Large impact resulting from clearance, dust/edge effects. Present in several vegetation communities. More than 50 individuals estimated in the DDF (Table 7.1, G.07B). Population in the uplift area unknown	Threatened - Regionally Vulnerable Uncertain. Proposed for 500 nursery-grown individuals to be established in DDF in rock stacks and rubble pits and an unquantified number to be established in MRZ. Exclusion fences proposed to promote natural seedling established. Long time lags and monitoring required to determine success. Unclear how estimate of >50 individuals in 2025 was made.
	<i>Veronica rakaiensis</i>	Regional	Not known to be directly impacted, but may be present in uplift area	At Risk - Regionally Naturally Uncommon Possible increase. Proposal for 50 individuals to be re-established within DDF. Requires monitoring.
Ecosystems	Seepage wetlands	National	Groundwater drawdown, local water table lowering, edge desiccation; not addressed by flow augmentation alone	High risk without type-specific connectivity model; performance standards (WL percentiles, soil moisture, redox) needed; otherwise compromise likely

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	Fen wetlands	National/ Regional	Drawdown, chemistry/thermal mismatch from augmentation; catchment mass-balance shifts reduce baseflow	Adverse and potentially enduring; require like-for-like offsets if avoidance not possible; define chemistry/thermal envelopes and post-closure end-state
	Swamp wetlands	Regional	Surface water regime alteration, buffer loss, constant augmentation may not match seasonal hydroperiod	Uncertain maintenance of ecological functions without eco-hydrological regime + monitoring (water table + soil moisture); risk of net loss of condition
	Marsh wetlands	Regional	Overland flow interception, dust/edge effects, hydrological simplification	Risk of contraction; need type-specific triggers and buffers; integrate with catchment hydrology accounting
	Cushionfield and depleted grassland	National	Large scale and permanent loss of habitat Additional and unquantified degradation of adjacent habitat through indirect effects; loss of protection and increased vulnerability to disturbance.	Loss of habitat type and associated diversity currently under-represented within the Conservation Covenant; loss of protection for a land environment with less than 20% indigenous vegetation cover remaining. Impacts are unable to be offset or compensated for and must be avoided to achieve NNL
	Coprosma-tree-daisy shrubland	Regional	Moderate scale loss of habitat. Additional and unquantified degradation of adjacent habitat through indirect effects; loss of protection and increased vulnerability to disturbance	Loss of habitat type and associated diversity currently under-represented within the Conservation Covenant. Calculated offsets overestimate positive impact of management activities. More precise vegetation classification and transparent offsetting calculations required,

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	Matagouri scrub	Regional	Large scale loss of habitat. Additional and unquantified degradation of adjacent habitat through indirect effects; Large scale loss of protection and increased vulnerability to disturbance	Calculated offsets overestimate positive impact of management activities. More precise vegetation classification and transparent offsetting calculations required,
	Depleted short tussock grassland	Regional	Large scale loss of habitat. Additional and unquantified degradation of adjacent habitat through indirect effects; large scale loss of protection and increased vulnerability to disturbance	Calculated offsets overestimate positive impact of management activities. More precise vegetation classification and transparent offsetting calculations required,
	Tall tussock grassland	Regional	Small scale loss of habitat. Unquantified degradation of adjacent habitat through indirect effects; large scale loss of protection and increased vulnerability to disturbance	Calculated offsets overestimate positive impact of management activities. More precise vegetation classification and transparent offsetting calculations required,
Lizards	Kawarau gecko	National	Clearance/fragmentation of rocky micro-habitats; traffic/edge; very large-scale salvage reliance	At Risk – Declining The effects for the species are anticipated to be high with up to 7% of the species national habitat effected. The proposed salvage effort to mitigate effects is considered high risk without a pre-built pest-exclusion fenced receiver, appropriate pest

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
				management (mouse control); rehabilitation unproven for geckos over consent term
	Southern grass skink	National; International: NZ endemic	Disturbance envelope ~700 ha across components; dust/edge	At Risk – Declining Substantial residual effects; outcomes-based LMP and avoidance of high-value micro-habitats required
	McCann’s skink	Regional	Clearance/edge in stony herbfield/shrubland mosaics	Manageable with avoidance/micro-siting; ensure correct ID vs southern grass skink
	Lake’s skink	National/International (if present)	Under surveyed rocky gullies; risk of undetected occupancy	Threatened – Vulnerable Targeted surveys + stop-work triggers before works in likely habitat
	Jewelled gecko	National/International (if present)	Shrubland/gully micro-habitats not fully surveyed	At Risk – Declining Avoidance if detected; Lizard Management Plan to include species-specific protocols
Invertebrates	<i>Rhypodis anceps</i>	Regional	Clearance, dust, edge; hotspot loss inside uplift area	Much higher abundances than reported; map & avoid hotspots; probability-based NNL needed if intervention proposed
	<i>Neoramia</i> spp.	Regional	Micro-habitat loss in cushionfield/rocky herbfield	Inventory incomplete; require hotspot mapping + avoidance
	“New” <i>Megadromus</i> beetles	Regional (taxonomy unresolved)	Unknown (depends on true ID and range)	Likely mis-IDs; independent taxonomy & vouchers required before decisions

Value Category	Values present	Significance	Likely impact on those values	DOC assessment
	Red-coat damselfly	Regional	Dust/edge in wetland margins	Presence indicates broader assemblage; treat as indicator for wetland-linked invertebrates