

Conservation Management Strategy

Bay of Plenty 2020, Volume III, Draft appendices



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Bay of Plenty 2020, Volume III Draft appendices

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Appendix 1

Treaty of Waitangi relationships in the Bay of Plenty region

Post-settlement governance entity	Document
Ngāti Hauā	www.govt.nz/treaty-settlement-documents/ngati-haua/ www.legislation.govt.nz/act/public/2014/0075/latest/DLM5657916.html?src=qs
Affiliate Te Arawa Iwi and Hapū	www.govt.nz/treaty-settlement-documents/affiliate-te-arawa/ www.legislation.govt.nz/act/public/2008/0098/latest/DLM1375528.html?src=qs
Waitaha	www.govt.nz/treaty-settlement-documents/waitaha/ www.legislation.govt.nz/act/public/2013/0038/latest/DLM4732308.html?src=qs
Ngāti Rangiwewehi	www.govt.nz/treaty-settlement-documents/ngati-rangiwewehi/ www.legislation.govt.nz/act/public/2014/0014/latest/DLM5992403.html?src=qs
Tapuika	www.govt.nz/treaty-settlement-documents/tapuika/ www.legislation.govt.nz/act/public/2014/0015/latest/DLM5992903.html?search=ts_act%40bill%40regulation%40deemedreg_tapuika_resele_25_a&p=1
Waikato-Tainui	www.govt.nz/treaty-settlement-documents/waikato-tainui-raupatu/ www.legislation.govt.nz/act/public/2010/0024/latest/DLM1630002.html?src=qs
Te Arawa River Iwi	www.govt.nz/treaty-settlement-documents/co-management-of-waikato-and-waipara-rivers/ www.legislation.govt.nz/act/public/2010/0119/latest/DLM2921819.html?src=qs
Te Arawa Lakes Trust	www.govt.nz/treaty-settlement-documents/te-arawa-lakes/ www.legislation.govt.nz/act/public/2006/0043/latest/DLM381398.html?src=qs
Raukawa	www.govt.nz/treaty-settlement-documents/rauikawa/ www.legislation.govt.nz/act/public/2014/0007/latest/DLM5323415.html?src=qs
Ngāti Mākino	www.govt.nz/treaty-settlement-documents/ngati-makino/ www.legislation.govt.nz/act/public/2012/0053/latest/DLM4062622.html?src=qs
Ngāti Tūwharetoa (Bay of Plenty)	www.govt.nz/treaty-settlement-documents/ngati-tuwharetoa-bay-of-plenty/ www.legislation.govt.nz/act/public/2005/0072/latest/DLM349702.html?src=qs

Post-settlement governance entity	Document
Ngāti Awa	www.govt.nz/treaty-settlement-documents/ngati-awa/ www.legislation.govt.nz/act/public/2005/0028/latest/DLM338761.html?search=ts_act%40bill%40regulation%40deemedreg_ngati+awa_resele_25_a&p=1
Ngāti Manawa	www.govt.nz/treaty-settlement-documents/ngati-manawa/ www.legislation.govt.nz/act/public/2012/0027/latest/DLM3276804.html?src=qs
Ngāti Whare	www.govt.nz/treaty-settlement-documents/ngati-whare/ www.legislation.govt.nz/act/public/2012/0028/latest/DLM4339902.html?search=ts_act%40bill%40regulation%40deemedreg_ngati+whare_resele_25_a&p=1
Central North Island Forestry Iwi Collective	www.govt.nz/treaty-settlement-documents/central-north-island-forests/ www.legislation.govt.nz/act/public/2008/0099/latest/DLM1378405.html?src=qs
Ngāti Porou	www.govt.nz/treaty-settlement-documents/ngati-porou/ www.legislation.govt.nz/act/public/2012/0031/latest/DLM3548725.html?src=qs
Ngāti Rangiteaorere	www.govt.nz/treaty-settlement-documents/ngati-rangiteaorere/ www.legislation.govt.nz/act/public/2014/0013/latest/DLM5324134.html?src=qs
Ngāti Hineuru (Taupō)	www.govt.nz/treaty-settlement-documents/ngati-hineuru/ www.legislation.govt.nz/act/public/2016/0033/latest/DLM6491615.html?src=qs
Ngāi Tuhoe	www.govt.nz/treaty-settlement-documents/ngai-tuhoe/ www.legislation.govt.nz/act/public/2014/0050/latest/DLM5481230.html?src=qs
Ngāti Pāhauwera	www.govt.nz/treaty-settlement-documents/ngati-pahauwera/ www.legislation.govt.nz/act/public/2012/0030/latest/DLM3562516.html
Ngāti Pūkenga	www.govt.nz/treaty-settlement-documents/ngati-pukenga/
Ngāi Te Rangi and Ngā Pōtiki	www.govt.nz/treaty-settlement-documents/ngai-te-rangi-and-nga-potiki/
Ngāti Ranginui	www.govt.nz/treaty-settlement-documents/ngati-ranginui/
Ngāti Tūwharetoa (Taupō)	www.govt.nz/treaty-settlement-documents/ngati-tuwharetoa/
Ngāi Tai ki Tāmaki	www.govt.nz/treaty-settlement-documents/ngai-tai-ki-tamaki/

Appendix 2

Work or activities of the Department of Conservation that may meet the requirements of section 4(3) of the Resource Management Act 1991 for exemptions from land use consents in the Bay of Plenty region

This table is presented to meet the requirements for enabling exemptions under section 4(3) of the Resource Management Act 1991. It does not exclude the need to meet all departmental requirements for the assessment of effects or responsibilities under other

legislation (e.g. Building Act 2004, Heritage New Zealand Pouhere Taonga Act 2014). This table does not imply that the facilities included within it will be managed in perpetuity.

Activity scope	Management actions	Environmental impacts	Location
Tracks, roads and car parking areas for visitor purposes			
<ol style="list-style-type: none"> Upgrade of existing tracks and roads to meet current departmental service standards using current alignment. Service standard upgrades of existing tracks and roads through partial or complete realignment to take advantage of better grades and terrain features, or to incorporate elements of the natural or historic landscape. Construction of new tracks as agreed in consultation with the community. Improvements to any existing track as considered necessary to mitigate any environmental impact, health and safety concern or visitor risk, or to provide improved access for any management purpose. 	<ol style="list-style-type: none"> Construction of tracks and roads using cut to fill excavation, cut to waste excavation, and levelling with hand tools, motorised equipment and machinery. Excavation of batter slopes to a maximum height of 1.5 m. Removal of vegetation from the full width of the track corridor, and discretionary removal of any vegetation beyond the track and road corridor that is considered hazardous or that may adversely impact on track components such as batter slopes, drainage or track surface materials. Aggregate surfacing, including the placement and compaction of local and imported materials (from approved pest-plant-free sources). Use of local materials in the vicinity of the asset corridor for filling/surfacing where necessary. 	<ol style="list-style-type: none"> Soil disturbance, including disturbance of the duff layer and subsoil. Soil disturbance and soil compaction in fill areas. Surface water run-off, including modification of existing natural watercourses, and the control and redirection of surface water using various means, such as culvert pipes, drainage sumps, cut-outs and cross boards. Alterations to land contours and slopes during track construction and upgrade. Removal of vegetation from the track corridor and from immediately adjacent to the asset corridor. Disturbance of archaeological and historic features, including historic plants on or in the immediate vicinity of the track or road. 	<p>Existing tracks, roads and car parks Tauranga/Rotorua District</p> <ul style="list-style-type: none"> Anaha/Kepa tracks, roads and car parks Arahiwi Railway Scenic Reserve Athenree Wildlife Refuge Blue Lakes Scenic Reserve Tikitapu Scenic Reserve Hinehopu Scenic Reserve Kaharoa track and car park Kaharoa Kōkako Track Karangahake tracks, roads and car park Waikino Victoria Battery Lake Okareka Scenic Reserve and Conservation Area Lake Rotoiti Scenic Reserve Mokaihaha Ecological Reserve Mokoia Island Okataina Scenic Reserve Orokawa track

Activity scope	Management actions	Environmental impacts	Location
	<p>6. Ground works of in-ground timber steps, including formation and levelling, drainage, and timber construction.</p> <p>7. Construction of drainage and redirection of surface water from the track surface to existing natural contours using various means, such as culvert pipes, drainage sumps, cut-outs and cross roads.</p> <p>8. Re-formation and widening of roads to provide safe access for two vehicles and road stability to the required standards.</p> <p>9. Improvement of drainage to prevent erosion and deterioration of the road surface and structure, and to provide safe vehicle access.</p> <p>10. Maintenance of historic heritage features associated with the track or road to ensure they are not adversely impacted.</p>		<ul style="list-style-type: none"> • Okere Falls Scenic Reserve • Old Kaimai Road car park and picnic area • Owharoa track, roads and car parks • Otawa Scenic Reserve • Onaia Ecological Area • Maunga Kākaramea / Rainbow Mountain Scenic Reserve <p><i>Rotorua Lakes District</i></p> <ul style="list-style-type: none"> • Woods Mill to Waiomou Stream track • Mokaihaha track • Tikitapu/Blue Lake • Lake Rotoma Scenic Reserve • Rerewhakaaitu • Rongomai • Mount Ngongotaha Scenic Reserve • Lake Tarawera Scenic Reserve • Te Akau Recreation Reserve • Te Kopia Scenic Reserve • Te Puke walks <ul style="list-style-type: none"> - Otanewainuku tracks / car park - Kaituna Wetland • Kaimai Mamaku Conservation Park • King Hill Reserve • Torepatutahi Conservation Area • Waihi walks and campsites • Wright Falls track • Mt Karangahake Walkway and tracks • Dickey Flat Campsite

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • Dean Track • Dubbo 96 Track • Crown Track • Eastern Stream Walk • Scotsman's Gully Track • Waiorongomai Historic Reserve • Tuhua (Mayor Island) Marine Reserve • Waitawheta track • Waitawheta Tramway track • Waiotapu Scenic Reserve • Whakarewarewa Forest • Waimangu Stewardship Area <p>Whakatāne District</p> <ul style="list-style-type: none"> • Latham's track • Mangamate Road • Kokomoka Forest <ul style="list-style-type: none"> - Kokomoka Road - Waipunga Road • Kutarere Recreation Reserve <ul style="list-style-type: none"> - Kutarere Wharf Road • Marawaiwai Scenic Reserve <ul style="list-style-type: none"> - Marawaiwai Track - Marawaiwai amenity area • Matata Wildlife Refuge Reserve <ul style="list-style-type: none"> - Matatā Lagoon Track - Matata Campsite road • Matata Scenic Reserve • Moutohorā (Whale Island) Wildlife Management Reserve

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> - Hut to McEwans Bay track - Hut to saddle track • Ohope Scenic Reserve • Ngā Tapuwāe o Toi walkway • Okorero – Thornton Lagoon Wildlife Management Reserve <ul style="list-style-type: none"> - Thornton access road • Pakihi Stream Conservation Area <ul style="list-style-type: none"> - Pakihi Road - Pakihi Roadend amenity area • Raukumara Conservation Park <ul style="list-style-type: none"> - East–West traverse - Otipi access road • Tauwhare Pa Scenic Reserve <ul style="list-style-type: none"> - Tauwhare Pā historic site / walk • Tirohanga Dunes Conservation Area <ul style="list-style-type: none"> - Tirohanga mountain bike track • Tokata Scenic Reserve <ul style="list-style-type: none"> - Tokata Track • Urutawa Conservation Area <ul style="list-style-type: none"> - Manganuku river track - Pakihi Track - Te Waiti Nature Trail - Te Waiti Track - Tokenui to Te Waiti route - Te Waiti Road • Waioeka Conservation Area <ul style="list-style-type: none"> - Kotepato Track - Nikau Flat Track - Te U Route

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • Waioeka Gorge Scenic Reserve <ul style="list-style-type: none"> - Little Manganuku Track - Manganuku Track - Mangapumarumaruru Track - Brills Track - Tauranga track - Tauranga Loop Track - Manganuku Campsite Access Road - Tauranga Service Area Road - Waioeka Journey – Manganuku Campsite Amenity area - Waioeka Journey – Monument Amenity area - Waioeka Journey – Oponae Amenity area - Waioeka Journey – Goldsmiths Amenity area - Waioeka Journey – Tauranga Valley Amenity area - Waioeka Journey – Matahanea Amenity area • Waipunga Forest <ul style="list-style-type: none"> - Matakuhia track - Lower Matakuhia track - Opureke track - Matakuhia toad - Matakuhia car park • White Pine Bush Scenic Reserve <ul style="list-style-type: none"> - White Pine Bush Walk - White Pine Bish track - White Pine Bush car park

Activity scope	Management actions	Environmental impacts	Location
			<p>Proposed future developments Tauranga/Rotorua District</p> <ul style="list-style-type: none"> • Multi-day Tarawera Walk <ul style="list-style-type: none"> - Lake Tarawera Scenic Reserve - Rotomahana Conservation Area <p>Whakatāne District</p> <ul style="list-style-type: none"> • Matata Scenic Reserve track • Moutohora Island saddle to Raetihi Pā track
Structures and buildings for visitor purposes			
<ol style="list-style-type: none"> 1. Upgrade of existing structures and buildings to meet departmental service standards so that visitor group requirements are met, such as minimum access widths and safety barrier heights. 2. Scheduled 'like for like' replacement of existing structures and buildings (with substantially similar structures and buildings built on the same footprint or within the immediate vicinity) as they reach the end of their projected/economic life. 3. Construction of new structures and buildings required to meet service standards for existing tracks, roads, amenity areas and campsites. 4. Construction of new structures and buildings as a component of development work for new tracks, roads, amenity areas and campsites. 	<ol style="list-style-type: none"> 1. Preparatory site works, such as vegetation removal, formation and levelling of structure and building footprints, and excavation of piles and footings. 2. Works associated with water reticulation and sewage containment/treatment. 3. Construction of drainage and redirection of surface water from the structure and building footprint to existing natural contours using various means, such as culvert pipes, drainage sumps and cut-outs. 4. Construction of structures and buildings, such as bridges, boardwalks, stairs, handrails, safety barriers, viewing platforms, huts, shelters, toilets, signage and ladders. 	<ol style="list-style-type: none"> 1. Soil disturbance, including disturbance of the duff layer and subsoil. Disturbance and soil compaction in fill areas. 2. Surface water run-off, including modification of existing natural watercourses, and the control and redirection of surface water using various means, such as culvert pipes, drainage sumps, cut-outs and cross boards. 3. Alterations to land contours and slopes during track construction and upgrade. 4. Removal of vegetation from the track corridor and from immediately adjacent to the asset corridor. 5. Aesthetic impact and altered sight-lines from man-made structures in natural areas. 	<p>Existing structures and buildings Tauranga/Rotorua District</p> <ul style="list-style-type: none"> • Hinehopu Scenic Reserve platform • Kaharoa tracks and huts • Karangahake tracks and historic buildings • Mokaihaha Ecological Area bridge • Orokawa Track • Old Kaimai Road car park and picnic area • Owharoa Falls track, roads and car parks • Otawa Scenic Reserve • Onaia Ecological Area • Maunga Kākaramea / Rainbow Mountain Scenic Reserve • Woods Mill to Waiomou Stream track • Mokaihaha Track • Tikitapu/Blue Lake

Activity scope	Management actions	Environmental impacts	Location
<p>5. Improvements to any existing structures and buildings where considered necessary to mitigate any environmental impact or health and safety concern, or to provide improved access for any management purpose.</p>	<p>5. Maintenance of historic heritage features associated with the structure or building to ensure their integrity is not adversely impacted.</p>	<p>6. Disturbance of archaeological and historic features, including historic botanicals, on or in the immediate vicinity of the track or road.</p>	<ul style="list-style-type: none"> • Lake Rotoma Scenic Reserve • Mangorewa Track • Rerewhakaaitu • Rongomai • Mount Ngongotaha Scenic Reserve • Lake Tarawera Scenic Reserve • Te Puke walks • Otanewainuku tracks and car park • Kaituna Wetland • Kaimai Mamaku Conservation Park • King Hill Reserve • Torepatutahi • Waihi walks and campsites <ul style="list-style-type: none"> - Orokawa Bay Track - Homunga Bay and William Wright Falls track - Mt Karangahake walk and track - Dickey Flat Campsite - Dean Track - Dubbo 96 Track - Crown Track - Eastern Stream Walk - Scotsman's Gully Track • Waiorongomai Historic Reserve • Tuhua (Mayor Island) Marine Reserve • Waitawheta Track • Waiotapu Scenic Reserve • Whakarewarewa Conservation Area • Waimangu Stewardship Area

Activity scope	Management actions	Environmental impacts	Location
			<p>Whakatāne District</p> <ul style="list-style-type: none"> • Lathams Track • Marawaiwai Scenic Reserve <ul style="list-style-type: none"> - Marawaiwai Track - Marawaiwai amenity area • Matata Wildlife Refuge Reserve <ul style="list-style-type: none"> - Matatā Campsite - Matatā Lagoon Track • Moutohora (Whale Island) Wildlife Management Reserve <ul style="list-style-type: none"> - Hut to McEwans Bay Track - Hut to Saddle Track • Ohope Scenic Reserve <ul style="list-style-type: none"> - Ngā Tapuwae o Toi walkway • Pakihi Stream Conservation Area <ul style="list-style-type: none"> - Pakihi Roadend amenity area • Tauwhare Pa Scenic Reserve <ul style="list-style-type: none"> - Tauwhare Pā historic site / walk - Tauwhare Pā car park • Tirohanga Dunes Conservation Area <ul style="list-style-type: none"> - Tirohanga Mountain Bike Track • Tokata Scenic Reserve <ul style="list-style-type: none"> - Tokata Track • Urutawa Conservation Area <ul style="list-style-type: none"> - Boulders Campsite - Manganuku River Track - Pakihi Track - Te Waiti Nature Trail - Te Waiti Track - Tokenui to Te Waiti route

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • Waioeka Conservation Area <ul style="list-style-type: none"> - Kotepato Track - Nikau Flat Track - Te U Route • Waioeka Gorge Scenic Reserve <ul style="list-style-type: none"> - Manganuku Campsite - Little Manganuku Track - Manganuku Track - Mangapumarumaruru Track - Brills Track - Tauranga Loop Track - Waioeka Journey – Manganuku Campground amenity area - Waioeka Journey – Monument amenity area - Waioeka Journey – Oponaea amenity area - Waioeka Journey – Goldsmiths amenity area - Waioeka Journey – Tauranga Valley amenity area - Waioeka Journey – Matahanea amenity area • Kokomoka Forest <ul style="list-style-type: none"> - Matakuhia Track - Lower Matakuhia Track - Opureke Track

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • White Pine Bush Scenic Reserve <ul style="list-style-type: none"> - White Pine Bush Walk - White Pine Bush car park • Raukumara Conservation Park <ul style="list-style-type: none"> - Whiti kau Campsite • Murupara Visitor Centre car park • Kutarere Recreation Reserve • Matata Scenic Reserve • Okorero – Thornton Lagoon Wildlife Management Reserve • Hine Rae Historic Reserve • Matekerepu Historic Reserve • Paparoa Pa Historic Reserve • Te Paripari Pa Historic Reserve • Tokitoki Historic Reserve • Waitahe Spit Historic Reserve

Activity scope	Management actions	Environmental impacts	Location
Campsites and amenities for visitor purposes			
<ol style="list-style-type: none"> 1. Upgrade of existing campsites and amenities to meet departmental service standards so that visitor group requirements for campsites and amenity areas are met. 2. Scheduled 'like for like' replacement of existing campsites and amenities (with substantially similar campsites and amenities built on the same footprint or within the immediate vicinity) as these reach the end of their projected/economic life. 3. Construction of new campsites and amenities where required to meet service standards for existing campsites and amenity areas. 4. Construction of new assets, such as structures and buildings, as a component of development work for new campsites and amenity areas. 5. Improvements to any existing assets or the establishment of new assets that are considered necessary to manage, meet regulatory requirements and mitigate any environmental impact or health and safety concern, or to provide improved access for any management purpose. 	<ol style="list-style-type: none"> 1. Preparatory site works, such as vegetation removal, formation and levelling of campsite and amenity footprints, and excavation of piles and footings. 2. Works associated with water reticulation and sewage containment/treatment, including effluent dispersal fields and in-ground waste tanks. 3. Construction of drainage and redirection of surface water from building and structural campsite and amenity footprints to existing natural contours using various means, such as culvert pipes, drainage sumps and cut-outs. 4. Construction of campsites and amenities, such as bridges, boardwalks, stairs, handrails, safety barriers, shelters, toilets, showers, signage and ladders. 5. Maintenance of historic heritage features, including historic botanicals, associated with the campsite or amenity to ensure they are not adversely impacted. 	<ol style="list-style-type: none"> 1. Soil disturbance, including disturbance of the duff layer and subsoil. Disturbance and soil compaction in fill areas. 2. Surface water run-off, including modification of existing natural watercourses, and the control and redirection of surface water using various means, such as culvert pipes, drainage sumps, cut-outs and cross boards. 3. Alterations to land contours and slopes during track construction and upgrade. 4. Removal of vegetation from the track corridor and from immediately adjacent to the asset corridor. 5. Aesthetic impact and altered sight-lines from man-made structures in natural areas. 6. Noise from increased usage of the campsite and amenities. 7. Increased water take for operation of the campsite and amenities. 	<p>Existing campsites and amenities</p> <p><i>Tauranga/Rotorua District</i></p> <ul style="list-style-type: none"> • Dickey Flat Campsite • Hot Water Beach Campsite • Humphries Bay Campsite • Lake Okareka Campsite • Lake Tarawera Outlet (Te Tapahoro) Campsite • Rerewhakaaitu, Ash Pit Road Campsite <ul style="list-style-type: none"> - Rerewhakaaitu, Brett Road Campsite - Putia car park - Anaha car park • Aongatete car park / Wright Road end • Athenree car park • Dickey Flat car park • Hendersons North car park • Hendersons West car park • Hinehopu East amenity area • Hinehopu West amenity area • Hinehopu Tree Viewpoint amenity area • Ngatitangata Road car park • Kaharoa car park • Kaimai Summit car park • Kaituna Wetland car park

Activity scope	Management actions	Environmental impacts	Location
		<p>8. Disturbance of archaeological and historic features, including historic botanicals, on or in the immediate vicinity of the track, road, campsite or amenity.</p>	<ul style="list-style-type: none"> • Karangahake Walkway upper car park • Talisman Battery Amenity area • Karangakake Gorge Main amenity area • Victoria Road picnic area • Waikino underpass car park • Lindemann Road • Manawahe Picnic Area

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • Mokaihaha North car park • Mount Eliza / Thompsons track and end • Ngahopua car park • Ngamuwahine Road end • Waipungapunga car park • Okataina Road end amenity area • Okere Falls car park • Otanewainuku Lookout amenity area • Ottawa – Te Puke Quarry Road car park • Ottawa – Manoeka Road car park • Ottawa – Demeter Road car park • Owharoa Falls track car park • Paehinahina Picnic Area • Maunga Kākarama / Rainbow Mountain car park • Rapurapu car park • Tarawera Falls car park • Tarawera Trail car park • Hawaiki Bay amenity area • Te Wairua amenity area • Handcock Road car park (Te Kopia Access) • Te Tuhi Track car park • Tuahu car park • Upland Road end car park • Victoria Battery car park • Waikino Railway Station car park • Waiorongomai car park • Waiotapu car park

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • Wairere Falls car park • Waitawheta – Franklin Road end car park • Waitengaue Track car park (woodlands) • Millar Road car park • Ngāpuka Bay car park • Education Centre car park • Bull Ring car park • Whakamārama car park • Whangaikorea amenity area • Wharawhara Road end car park • Woods Mill car park <p><i>Whakatāne District</i></p> <ul style="list-style-type: none"> • Boulders Campsite • Manganuku Campsite • Matatā Campsite • Mid Okahu Road Campsite • Sanctuary Campsite • Verns Camp • Whirinaki Recreation Camp • Whitikau Campsite • Marawaiwai amenity area • Old Fort Road Picnic Area • Pakihi Roadend amenity area • Rec Camp amenity area • Sanctuary amenity area • Taupiri Lookout amenity area • Waioeka Journey – Matahanea amenity area • Waioeka Journey – Tauranga Valley amenity area

Activity scope	Management actions	Environmental impacts	Location
			<ul style="list-style-type: none"> • Waioeka Journey – Goldsmiths amenity area • Waioeka Journey – Oponae amenity area • Waioeka Journey – Monument amenity area • Waioeka Journey – Manganuku Campground amenity area • Arohaki Lagoon car park • Matakuhia car park • Murupara Visitor Centre car park • Okahu Road end car park • Okui car park • Old Te Whaiti Road Bridge car park • Plateau Road end • Pukahunui car park • River Road car park • Tauwhare Pā car park • White Pine Bush car park
Historic assets – remedial work and maintenance			
<ol style="list-style-type: none"> 1. Maintenance of historic places to departmental service standards and to International Council on Monuments and Sites (ICOMOS) and Heritage New Zealand Pouhere Taonga standards and guidelines. 2. Stabilisation of the condition of historic assets through conservation treatments and land stabilisation (e.g. the construction of retaining walls). 	<ol style="list-style-type: none"> 1. Management of vegetation around historic places, maintenance of drainage channels and management of safety issues, including barrier construction and the installation of interpretative panels. 2. Repairs and conservation treatments to concrete, masonry, metal, timber and earthwork structures as scheduled. 	<ol style="list-style-type: none"> 1. Minor soil disturbance of the duff layer and subsoil. Disturbance and soil compaction in fill areas. 2. Surface water run-off, including modification of existing natural watercourses, and the control and redirection of surface water using various means, such as culvert pipes and drainage sumps. 	<p>Tauranga/Rotorua District</p> <ul style="list-style-type: none"> • Karangahake tracks and historic buildings • Victoria Battery historic sites <p>Whakatāne District</p> <ul style="list-style-type: none"> • Hine Rae Historic Reserve • Manganuku Stream Bridge • Matekerepu Historic Reserve • Moutohora Island

Activity scope	Management actions	Environmental impacts	Location
	3. Maintenance of historic heritage features, including historic botanicals, associated with the historic asset to ensure they are not adversely impacted.	3. Removal of vegetation from assets and their immediate vicinity.	<ul style="list-style-type: none"> • Raetihi Pā • Te Rawhiti kūmara gardens • Ōhope archaeological sites • Paparoa Pa Historic Reserve • Rogers Hut (Te Wairoa) • Taupiri Fire Lookout • Tauranga Bridge • Tauwhare Pā historic site / walk • Te Paripari Pa Historic Reserve • Tokitoki Historic Reserve • Waiotaha Spit Historic Reserve
Signs			
<ol style="list-style-type: none"> 1. Erection of signage on public conservation lands and waters for the purpose of providing information and interpretation to the public. 2. Erection of signage on public conservation lands and waters for the purpose of informing people about fire lighting restrictions. 	<ol style="list-style-type: none"> 1. Works associated with the erection of signage. 	<ol style="list-style-type: none"> 1. Aesthetic impact from man-made structures in natural areas. 2. Removal of vegetation from the sign footprint and immediate vicinity. 	<ul style="list-style-type: none"> • All public conservation lands and waters in the region where conservation management programmes are being undertaken.

Activity scope	Management actions	Environmental impacts	Location
Tracks, roads and facilities used for management purposes (including staff accommodation and wardens' quarters)			
<ol style="list-style-type: none"> 1. Refer to the activity scopes for 'Tracks, roads and car parking areas for visitor purposes', 'Structures and buildings for visitor purposes' and 'Campsites and amenities for visitor purposes' above. 	<ol style="list-style-type: none"> 1. Refer to the management actions for 'Tracks, roads and car parking areas for visitor purposes', 'Structures and buildings for visitor purposes' and 'Campsites and amenities for visitor purposes' above. <p>NB: Not all visitor standards noted above will apply to biodiversity tracks, roads and structures (including staff accommodation). In some cases, a lesser standard may apply.</p>	<ol style="list-style-type: none"> 1. Refer to the environmental impacts for 'Tracks, roads and car parking areas for visitor purposes', 'Structures and buildings for visitor purposes' and 'Campsites and amenities for visitor purposes' above. 	<ul style="list-style-type: none"> • All public conservation lands and waters in the region where conservation management programmes are being undertaken.
Other management-related activities			
<ol style="list-style-type: none"> 1. Erection of fences on and along the boundaries of public conservation lands and waters. 2. Enhancement of habitat. 3. Control and/or eradication of pests. 4. Construction of airstrips for firefighting purposes. 	<ol style="list-style-type: none"> 1. Removal of vegetation to provide clear lines for fences. 2. Some pest animal operations (note: discharge permits will be required for operations utilising pesticides). 3. Earthworks and vegetation clearance associated with habitat enhancement, i.e. pond/drain creation or re-alignment and fire management. 4. General access required to undertake the activity. 	<ol style="list-style-type: none"> 1. Vegetation removal. 2. Soil disturbance, including disturbance of the duff layer and subsoil. 3. Death and likely eradication of target pest mammals; possible death of non target species. 	<ul style="list-style-type: none"> • All public conservation lands and waters in the region where conservation management programmes are being undertaken
Hazardous goods			
<ol style="list-style-type: none"> 1. Use, transportation, storage and disposal of hazardous substances. 	<ol style="list-style-type: none"> 1. Use, transportation, storage and disposal of hazardous substances including, but not limited to, flammable liquids, pesticides, herbicides and treated timber. 	<ol style="list-style-type: none"> 1. Will comply with all relevant legislative requirements. 	<ul style="list-style-type: none"> • All public conservation lands and waters in the region where conservation management programmes are being undertaken.

Appendix 3

Terrestrial and freshwater ecosystem and habitat types within the Bay of Plenty region

The following information has been obtained from the Department of Conservation's national list of around 1000 terrestrial and freshwater ecosystem units,¹ which represent the full range of terrestrial and freshwater ecosystems in New Zealand (including priority and non-priority units both on and off public conservation lands and waters).²

The management of ecosystem units on public conservation lands and waters within the Bay of Plenty region is addressed in section 3.1 in Part One and in the natural values table for each Place in Part Two in Volume I of this Conservation Management Strategy (CMS), which address the Department's work to advocate for the protection and restoration of ecosystems and habitats that occur outside public conservation lands and waters and to manage threats to them. Additional information on ecosystem priority units and the species and threats within these is provided in Appendix 5.

The information in this Appendix is correct at the time of publishing. Its contents may be amended or reviewed during the term of this CMS, in accordance with section 171 of the Conservation Act 1987. It is likely to change as the threats and priorities for action are updated. Management responses may also change as new techniques and more effective methods are developed and new threats arise. For information on the specific management responses that are being used at the time of reading, please contact the relevant district office.

Note: The information in each column applies to all of the ecosystems/habitats under that heading. For example, the information in the location, significant values & pressures/threats, management responses, and priority sites for action under the 'Cool Forest and Scrub' heading applies to CF3, CF8, CF11, CF13, CF15, CH16, CF17 and CF18.

¹ For marine habitats and ecosystems, see Appendix 8.

² For more information on the classification of New Zealand's terrestrial ecosystems, refer to: Singers, N.J.D.; Rogers, G.M. 2014: A classification of New Zealand's terrestrial ecosystems. Science for Conservation 325. Department of Conservation, Wellington. 87 p. www.doc.govt.nz/documents/science-and-technical/sfc325entire.pdf

Ecosystem/habitat type: Dunes	
Description	Place(s)
<p>DN2: Spinifex, pīngao grassland or sedgeland</p> <p>Sedgeland or grassland of abundant spinifex (<i>Spinifex</i> spp.) and pīngao (<i>Desmoschoenus spiralis</i>), with occasional shore bindweed (<i>Calystegia soldanella</i>), sand coprosma (<i>Coprosma acerosa</i>), tauhinu (<i>Ozothamnus leptophyllus</i>) and sand daphne (<i>Pimelea villosa</i>), grading into rear semi-stable dunes with open, scattered dune scrub of bracken (<i>Pteridium esculentum</i>), <i>Muehlenbeckia complexa</i>, toetoe (<i>Austroderia</i> spp.), harakeke/flax (<i>Phormium tenax</i>) and cabbage trees (<i>Cordyline australis</i>). Locally includes matagouri (<i>Discaria toumatou</i>), mānuka (<i>Leptospermum scoparium</i>), kānuka (<i>Kunzea ericoides</i>), tutu (<i>Coriaria</i> spp.) and <i>Olearia solandri</i>.</p>	<ul style="list-style-type: none"> • Coastal and Marine
Significant values & pressures/threats	
<p>Managed: Cats (<i>Felis catus</i>), stoats (<i>Mustela erminea</i>), ferrets (<i>Mustela putorius furo</i>), weasels (<i>Mustela nivalis vulgaris</i>), rats (<i>Rattus</i> spp.), mice (<i>Mus musculus</i>), hedgehogs (<i>Erinaceus europaeus</i>), possums (<i>Trichosurus vulpecula</i>), rabbits (<i>Oryctolagus cuniculus</i>), hares (<i>Lepus europaeus</i>), deer (<i>Cervidae</i>), goats (<i>Capra aegagrus hircus</i>), cattle (<i>Bos taurus</i>), sheep (<i>Ovis aries</i>), pioneer woody pest plants, shade-tolerant woody pest plants, climbers, groundcover, habitat loss, human impacts and vehicles.</p> <p>Not managed: Illegal harvest – land based; impeded fish passage; climate change; habitat loss.</p>	
Management responses	
<ul style="list-style-type: none"> • Pest plant and animal control • Biosecurity surveillance and management • Advocacy, consultation and partnership • Threatened species management, including replanting programmes for threatened plants such as <i>Pimelea actea</i> or invertebrate host plants • Investigation of Foxton–Himatangi regional park with Horizons Regional Council • Maintenance of natural processes • Management of vehicles on dunes, as per the New Zealand Coastal Policy Statement • Management of human impacts, such as disturbance 	
Priority sites for action	
<ul style="list-style-type: none"> • Moutohora Island 	

Ecosystem/habitat type: Geothermal	
Description	Place(s)
<p>GT1: Geothermal kānuka scrub</p> <p>Geothermal kānuka scrub and <i>Campylopus</i> spp. moss field on heated ground, with occasional tall mingimingi (<i>Leucopogon fasciculatus</i>) and prickly mingimingi (<i>Leptocophylla juniperina</i> subsp. <i>juniperina</i>) scrub on acidic soils, and a margin of geothermally influenced (predominantly kāmahi <i>Weinmannia racemosa</i>) forest. Locally includes areas of hydrothermally altered ground, mineral deposits and sinter terraces (now cool), dry eruption craters, and old stream beds.</p>	<ul style="list-style-type: none"> • Waiariki • Coastal and Marine
Significant values & pressures/threats	
Mining; heat extraction; tourism development; weeds; fire; forestry; farming.	
Management responses	
<ul style="list-style-type: none"> • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
Priority sites for action	
<ul style="list-style-type: none"> • Maunga Kākaramea / Rainbow Mountain • Te Kopia • Moutohora Island • Waikete Valley • Waimangu 	

Ecosystem/habitat type: Geothermal Lake	
Description	Place(s)
<p>LK2.1: Geothermal-A Geothermal; warm, shallow, moderate–large.</p> <p>LK2.3: Geothermal-C Geothermal; warm, shallow, very small.</p> <p>LK6.2: Riverine B Riverine; warm, shallow, small.</p> <p>LK10.2: Volcanic-B Volcanic; warm, shallow, small.</p>	<ul style="list-style-type: none"> • Waiariki • Te Mauri o te Wai • Kaimai Mamaku
Significant values & pressures/threats	
Pest plants and animals; adjacent land uses; catchment impacts; human impacts; hydrological alteration; impeded fish passage; lake macrophytes; pest fishes; salmonids; river nutrients; sediments and nutrients; water and gravel extraction.	
Management responses	
<ul style="list-style-type: none"> • Pest animal and plant control • Active fish capture • Fencing • Advocacy, consultation and partnership • Biosecurity surveillance and management 	
Priority sites for action	
<ul style="list-style-type: none"> • Lake Pupuwaharau • Waikite Valley • Waimangu 	
<ul style="list-style-type: none"> • Maunga Kākaramea / Rainbow Mountain • Mokaihaha • Lake Rotokawau 	

Ecosystem/habitat type: Mild Forest	
Description	Place(s)
<p>MF2: Kahikatea forest</p> <p>Kahikatea (<i>Dacrycarpus dacrydioides</i>) forest, locally with mataī (<i>Prumnopitys taxifolia</i>) and a sparse sub-canopy of ribbonwood (<i>Plagianthus regius</i>) and houhere (<i>Hoheria</i> spp.), and locally kōwhai (<i>Sophora</i> spp.), pōkākā (<i>Elaeocarpus hookerianus</i>), māhoe (<i>Melicytus ramiflorus</i>), tarata/lemonwood (<i>Pittosporum eugenioides</i>) and divaricating shrubs on alluvial Holocene flood plains.</p> <p>MF7: Tawa, kāmahi, podocarp forest</p> <p>Tawa (<i>Beilschmiedia tawa</i>)- and kāmahi-dominant podocarp–broadleaved forests with at least three local variants:</p> <p>i) Northland, with scattered emergent rimu (<i>Dacrydium cupressinum</i>), northern rātā (<i>Metrosideros robusta</i>) and miro (<i>Prumnopitys ferruginea</i>), abundant tōwai (<i>Weinmannia silvicola</i>), occasional tawa, tāwari (<i>Ixerba brexioides</i>) and hīnau (<i>Elaeocarpus dentatus</i>), and locally hutu (<i>Ascarina lucida</i> var. <i>lucida</i>).</p> <p>ii) Waikato/Bay of Plenty, with occasional emergent rimu, miro, kahikatea, mataī, tōtara (<i>Podocarpus totara</i>) and northern rātā, abundant tawa and kāmahi, occasional mangeao (<i>Litsea calicaris</i>), hīnau and rewarewa (<i>Knightia excelsa</i>), and locally pukatea (<i>Laurelia novae-zelandiae</i>).</p> <p>iii) Central, Eastern and Southern, with emergent rimu, miro, kahikatea, mataī, tōtara and northern rātā, and abundant tawa, kāmahi, hīnau, rewarewa and pukatea (as well as locally tāwari in the north of the range on non-volcanic soils).</p> <p>MF8: Kāmahi, broadleaved, podocarp forest</p> <p>Kāmahi-dominant podocarp–broadleaved forests with two main variants:</p> <p>i) Rimu, mataī, miro and tōtara, with abundant kāmahi, occasional hīnau, rewarewa, maire (<i>Nestegis</i> spp.) and kahikatea, and locally Hall’s tōtara (<i>Podocarpus cunninghamii</i>) and pāhautea (<i>Libocedrus bidwillii</i>) at higher altitudes.</p> <p>ii) Abundant rimu, northern rātā and kāmahi, and occasional miro, hīnau, rewarewa, maire and Hall’s tōtara at higher altitudes.</p> <p>Early successional derivatives on recent volcanic surfaces (e.g. Mount Taranaki) include abundant māhoe and northern rātā. Large areas of this forest have suffered canopy collapse since the 1950s and are now dominated by a low forest derivative of broadleaved trees, tree ferns and scattered emergent podocarp trees.</p>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Waiariki • Kaimai Mamaku

<p>MF9: Tānekaha forest locally with <i>Nothofagus</i></p> <p>Abundant tānekaha (<i>Phyllocladus trichomanoides</i>), with stunted tōtara, Hall's tōtara, rimu, rewarewa, kāmahī and hard beech (<i>Fuscospora truncata</i>) locally on the Mamaku Plateau. On very steep sites, grades into scrub consisting of stunted tānekaha, kānuka, tanguru (<i>Olearia furfuracea</i>), tōtorohiti (<i>Dracophyllum strictum</i>), tall and prickly mingimingi, and <i>Gaultheria</i> species.</p> <p>MF10: Tōtara, mataī, kahikatea forest</p> <p>Tall mixed podocarp forest of tōtara, mataī and kahikatea, with occasional miro and rimu and a sparse understorey of broadleaved trees growing on free-draining volcanic pumice soils.</p> <p>MF22: Tawa, rimu, northern rātā, beech forest</p> <p>Tawa, rimu, northern rātā and mixed beech forest (including red beech (<i>Fuscospora fusca</i>), hard beech, black beech (<i>F. solandri</i>) and locally silver beech (<i>Lophozonia menziesii</i>) generally on ridges). Locally includes toatoa (<i>Phyllocladus glaucus</i>), Hall's tōtara, miro, hīnau and rewarewa.</p>	
<p>Significant values & pressures/threats</p>	
<p>Pest plants and animals; fire; human impacts; quarrying; vegetation clearance.</p>	
<p>Management responses</p>	
<ul style="list-style-type: none"> • Pest animal and plant control • Fencing • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
<p>Priority sites for action</p>	
<ul style="list-style-type: none"> • Mokaihaha • Whirinaki – northern • Whirinaki – southern • Waimana – west • Waimana – east 	
<ul style="list-style-type: none"> • Waipare/Kuhatahi streams (Mamaku) • Mangorewa Ecological Area • Opuaiaki • Puketoetoe–Mōtū • Manganuku 	

Ecosystem/habitat type: Secondary	
Description	Place(s)
NF2: Mānuka or kānuka scrub	<ul style="list-style-type: none"> • Coastal and Marine • Waiariki
NF3: Broadleaved scrub and shrubland	
Significant values & pressures/threats	
Pest plants and animals; fire; grazing leases; human impacts; vegetation clearance; vehicles.	
Management responses	
<ul style="list-style-type: none"> • Pest animal and plant control • Fencing • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
Priority sites for action	
<ul style="list-style-type: none"> • Matatā • Moutohora Island • Whirinaki – northern • Whirinaki – southern • Maunga Kākarama / Rainbow Mountain 	

Ecosystem/habitat type: River	
Description	Place(s)
<p>OW: Open water Provides habitat for threatened species.</p> <p>RV: River Provides habitat for threatened species.</p>	<ul style="list-style-type: none"> Te Mauri o te Wai
Significant values & pressures/threats	
Lack of legal protection (straightening, stop banking); sediment from catchment activities; stock damage; catchment land uses reducing water quality; removal of overhanging vegetation changing the water temperature; abstraction (if high); willows choking the watercourse; discharges; leachates; barriers to fish migration (e.g. dams, culverts that are too small or too high, weirs); dumping; exotic aquatic weeds.	
Management responses	
<ul style="list-style-type: none"> Pest animal and plant control Fencing Advocacy, consultation and partnership Biosecurity surveillance and management (including for didymo <i>Didymosphenia geminata</i>) 	
Priority sites for action	
<ul style="list-style-type: none"> Ōhiwa Harbour Puketoetoe–Mōtū 	

Ecosystem/habitat type: Coastal and Inland Cliffs	
Description	Place(s)
<p>CL1: Pōhutukawa treeland/rockland</p> <p>Pōhutukawa (<i>Metrosideros excelsa</i>) treeland on coastal cliffs with occasional houpara (<i>Pseudopanax lessonii</i>), taupata (<i>Coprosma repens</i>), karo (<i>Pittosporum crassifolium</i>), <i>Carmichaelia</i> spp., <i>Hebe</i> spp., harakeke, rengarenga (<i>Arthropodium cirratum</i>), kōwharawhara (<i>Astelia banksii</i>), northern tussock and halophytic herbs (e.g. ice plant <i>Disphyma australe</i> subsp. <i>australe</i>, pigweed <i>Einadia</i> spp.).</p> <p>CL2: Ngaio, taupata treeland/herbfield/rockland</p> <p>Ngaio (<i>Myoporum laetum</i>) and taupata treeland, and harakeke and/or wharariki (<i>Phormium cookianum</i>) flaxland with scattered patches of low forest of locally tītoki (<i>Alectryon excelsus</i>), puka (<i>Meryta sinclarii</i>), wharangi (<i>Melicope ternata</i>), ngaio, akeake (<i>Dodonaea viscosa</i>) and a wide range of halophytic herbs.</p>	<ul style="list-style-type: none"> • Coastal and Marine
Significant values & pressures/threats	
Goats; pioneer woody pest plants; climbers; ground cover and herbaceous weeds; human impacts.	
Management responses	
<ul style="list-style-type: none"> • Pest animal and plant control • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
Priority sites for action	
<ul style="list-style-type: none"> • Moutohora Island • Karewa Island 	

Ecosystem/habitat type: Cool Forest and Scrub	
Description	Place(s)
<p>CF5: Mataī, Hall's tōtara, kāmahī forest</p> <p>Mataī forest with occasional or local kahikatea, Hall's tōtara, miro, tōtara, maire, kāmahī and pōkākā, as well as locally pāhautea, mountain toatoa / celery pine (<i>Phyllocladus alpinus</i>) and silver pine (<i>Manoao colensoi</i>) on the coldest sites.</p>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Eastern Catchments • Kaimai Mamaku • Coastal and Marine
<p>CF10: Rimu, kāmahī, beech forest</p> <p>Rimu-dominant podocarp–broadleaved beech forest of abundant rimu, silver beech and kāmahī with occasional Hall's tōtara and miro, and locally kahikatea and southern rātā (<i>Metrosideros umbellata</i>). Mountain beech (<i>Fuscospora cliffortioides</i>), mountain toatoa, yellow silver pine (<i>Lepidothamnus intermedius</i>), silver pine and pink pine (<i>Halocarpus biformis</i>) are abundant on wetland margins.</p>	
<p>CF11: Hall's tōtara, pāhautea, kāmahī forest</p> <p>North Island montane beech gap forests. Dominants may include Hall's tōtara, mountain toatoa, pāhautea, silver pine, pink pine, bog pine (<i>Halocarpus bidwillii</i>), yellow silver pine, tāwheowheo (<i>Quintinia serrata</i>), kāmahī, broadleaf (<i>Griselinia littoralis</i>) and tāwari.</p>	
<p>CF15: Red beech, podocarp forest</p> <p>Red beech forest of at least two types:</p> <ol style="list-style-type: none"> i) Hill-slope forest of red beech and, locally, kāmahī (in wetter parts of the range), scattered rimu, Hall's tōtara, miro and mataī, as well as hīnau and maire in the north. ii) Tall red beech on alluvial stony terraces with, locally, silver beech, kāmahī, southern rātā and podocarp trees (rimu, kahikatea, mataī and tōtara). 	
<p>CF16: Red, silver beech forest</p> <p>Forest of red and silver beech and, locally, podocarp–broadleaved species, with at least three local variants:</p> <ol style="list-style-type: none"> i) Raukūmara – Urewera ranges, with red and silver beech, tāwari and, locally, tāwheowheo, kāmahī and Hall's tōtara, as well as rimu and miro at lower altitudes. ii) North Island red and silver beech forest with, locally, black/mountain beech, Hall's tōtara, pāhautea, kāmahī and hard beech, as well as rimu, miro and mataī at lower altitudes. 	

<p>iii) Red, silver and black/mountain beech.</p> <p>CF17: Mountain beech, silver beech, podocarp forest Beech, podocarp and beech, and broadleaved forest of at least two variants:</p> <p>i) Stunted mountain beech and/or silver beech plus, locally, montane podocarp trees (Hall's tōtara, pāhautea, and pink, bog and silver pine).</p> <p>ii) Lower altitude mountain/silver beech with, locally, yellow silver pine, silver pine, rimu, kahikatea, pāhautea, Hall's tōtara and pōkākā.</p> <p>CF18: Silver beech forest Silver beech forest of two local variants:</p> <p>i) Northern, with silver beech, tāwari, tāwheowheo and kāmahi.</p> <p>ii) Silver beech on the upper mountain slopes with, locally, mountain beech and mountain toatoa.</p>	
<p>Significant values & pressures/threats</p>	
<p>Managed: Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, possums, rabbits, hares, deer, goats, cattle, sheep, pioneer woody pest plants, shade-tolerant woody pest plants, climbers, groundcover, human impacts, vehicles and boundary effects.</p>	
<p>Not managed: Illegal harvest – land based; impeded fish passage; lake macrophyte threats; water quality threats.</p>	
<p>Management responses</p>	
<ul style="list-style-type: none"> • Pest animal and plant control • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
<p>Priority sites for action</p>	
<ul style="list-style-type: none"> • Whirinaki – northern • Whirinaki – southern • Ngatukituki Forest Sanctuary • Manganuku • Opuaiaki • Waimana – east • Puketoetoe–Mōtū • Te Aroha 	

Ecosystem/habitat type: Saline	
Description	Place(s)
<p>SA1: Mangrove forest and scrub</p> <p>Mangrove (<i>Avicennia marina</i> subsp. <i>australasica</i>) forest and scrub, often with areas of saltmarsh rushland, including sea rush (<i>Juncus kraussii</i> subsp. <i>australiensis</i>) and oioi (<i>Apodasmia similis</i>), and locally <i>Machaerina juncea</i>, <i>Bolboschoenus</i> spp. and salt marsh ribbonwood (<i>Plagianthus divaricatus</i>), grading to seagrass (<i>Zostera muelleri</i> subsp. <i>novozelandica</i>) herbfields on tidal flats. Locally, may also include shell barrier beaches with a scattered cover of glasswort (<i>Sarcocornia quinqueflora</i>), buggar grass (<i>Austrostipa stipoides</i>), knobby clubrush (<i>Ficinia nodosa</i>), sea rush, sea primrose (<i>Samolus repens</i>) and sea blite (<i>Suaeda novae-zelandiae</i>).</p> <p>SA7: Ice plant, glasswort herbfield/loamfield</p> <p>Mosaic of herbfield consisting of glasswort, ice plant, pigweed, shore groundsel (<i>Senecio lautus</i> subsp. <i>lautus</i>), sea primrose, New Zealand celery (<i>Apium prostratum</i>) and <i>Lepidium</i> spp., and locally silver tussock (<i>Poa cita</i>), with a scattered scrub/vineland of locally taupata, ngaio, shrubby <i>Melicytus</i>, <i>Hebe</i> spp. and <i>Muehlenbeckia complexa</i> interspersed with bare ground, bird burrows and guano deposits.</p>	<ul style="list-style-type: none"> • Coastal and Marine
Significant values & pressures/threats	
Pest plants and animals; human impacts; quarrying; sediments and nutrients; vegetation clearance; vehicles.	
Management responses	
<ul style="list-style-type: none"> • Pest animal and plant control • Fencing • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
Priority sites for action	
<ul style="list-style-type: none"> • Ōhiwa Harbour • Motunau Island 	

Ecosystem/habitat type: Warm Forest	
Description	Place(s)
<p>WF5: Pōhutukawa, pūriri, karaka broadleaved forest</p> <p>Coastal broadleaved forest of at least two variants:</p> <p>i) Pōhutukawa forest.</p> <p>i) Mixed broadleaved forest of pōhutukawa, pūriri (<i>Vitex lucens</i>), kohekohe (<i>Dysoxylum spectabile</i>), tītoki (<i>Alectryon excelsus</i>), mangeao, rewarewa, karaka (<i>Corynocarpus laevigatus</i>), tawa, puka, ngaio and nīkau (<i>Rhopalostylis sapida</i>), and locally taraire (<i>Beilschmiedia taraire</i>), kauri (<i>Agathis australis</i>), kōwhai and tānekaha in the northern range, and hard beech along the Bay of Plenty coast and East Cape (along with black beech). Kānuka is also often present on dry, steep ridges. Includes local endemic species and varieties on some northern offshore Islands, especially Manawatāwhi/Three Kings Islands.</p> <p>WF11: Kauri, podocarp, broadleaved forest</p> <p>Kauri, podocarp, broadleaved forest of rimu, miro, kahikatea and occasional kauri, with taraire, tawa, tōwai, kohekohe, pūriri and rewarewa. Altitudinal variants also occur, with a greater dominance of taraire at lower altitudes and tōwai at higher altitudes.</p> <p>WF13: Kauri, podocarp, broadleaved, beech forest</p> <p>Kauri, podocarp, broadleaved and hard beech forest, with tānekaha and Hall's tōtara / lowland tōtara, and occasional rimu, miro and broadleaved trees, including tawa, hīnau and rewarewa, and locally narrow-leaved maire (<i>Nestegis montana</i>), tāwari and hard beech.</p> <p>WF14: Tawa, kohekohe, mangeao broadleaved podocarp forest</p> <p>Occasional emergent rimu, miro and northern rātā, and locally kahikatea, with abundant tawa, kohekohe, hīnau, rewarewa and pukatea.</p> <p>WF16: Kāmahi, tawa, podocarp and beech forest</p> <p>Mosaics of podocarp, broadleaved and beech forest with abundant kāmahi and tawa, occasional northern rātā, rewarewa, supplejack (<i>Ripogonum scandens</i>), rimu, miro, Hall's tōtara, tāwheowheo and tāwari, locally abundant hard beech, and kohekohe, pukatea, nīkau and kiekie (<i>Freycinetia banksii</i>) at low altitudes.</p>	<ul style="list-style-type: none"> • Coastal and Marine • Eastern Catchments • Kaimai Mamaku

Significant values & pressures/threats
Pest plants and animals; fire; grazing leases; human impacts; vegetation clearance; vehicles.
Management responses
<ul style="list-style-type: none"> • Pest animal and plant control • Biosecurity surveillance and management • Advocacy, consultation and partnership
Priority sites for action
<ul style="list-style-type: none"> • Moutohora Island • Ōhope & Makorua • Ngatukituki Forest Sanctuary • Kaharoa • Rotoehu • Matatā • Puketoetoe–Mōtū

Ecosystem/habitat type: Cold Air Temperature Inversion Topography	
Description	Place(s)
<p>TI3: Monoao scrub/lichenfield</p> <p>Frost flats of monoao and abundant lichens, silver tussock and pinātoro (<i>Pimelea prostrata</i>), locally with ecotone margins of mountain celery pine and bog pine. Likely to have included mountain celery pine, toatoa and bog pine in the least disturbed examples, though now rare. Early successional derivatives include short tussock grasslands of <i>Poa</i>, <i>Festuca</i>, <i>Deyeuxia</i> and <i>Rytidosperma</i> species, with inter-tussock prostrate herbfield species.</p>	<ul style="list-style-type: none"> • Te Mauri o te Wai

Ecosystem/habitat type: Wetland	
Description	Place(s)
<p>WL10: Oioi restiad rushland/reedland</p> <p>Oioi restiad rushland, locally with large <i>Baumea</i> spp., <i>Bolboschoenus</i> spp., kuta (<i>Eleocharis sphacelata</i>) and lake clubrush (<i>Schoenoplectus tabernaemontani</i>), often with occasional raupō (<i>Typha orientalis</i>) and scattered harakeke grading into wetland scrub on the margins.</p>	
<p>WL14: ‘Ephemeral wetland’ – herbfield</p> <p>Herbfield and/or low sedgeland dominated by a wide range of predominantly montane, short-statured herbs, grasses and sedges. Species of <i>Leptinella</i>, <i>Lobelia</i>, <i>Hydrocotyle</i>, <i>Euchiton</i>, <i>Epilobium</i>, <i>Plantago</i>, <i>Ranunculus</i>, <i>Myriophyllum</i>, <i>Elatine</i>, <i>Glossostigma</i>, <i>Isolepis</i>, <i>Eleocharis</i>, <i>Carex</i> and <i>Deschampsia</i> may be dominant.</p>	
<p>WL16: Red tussock, Schoenus tussockland</p> <p>Red tussockland, locally with cushionfield, sedgeland and shallow pools containing sedge tussock (<i>Schoenus pauciflorus</i>), <i>Oreobolus</i> spp., <i>Carpha alpina</i>, toetoe rautahi (<i>Carex coriacea</i>) and <i>Carex sinclairii</i>, and locally sphagnum (<i>Sphagnum cristatum</i>), wire rush (<i>Empodisma minus</i>) and scattered shrubs (e.g. <i>Hebe odora</i> and bog pine).</p>	
Significant values & pressures/threats	
Drainage (lack of water); weeds, including willow; stock grazing; stop banking; lack of legal protection; small size of remnants; wood waste dumping; landfills; loss of ecosystems and habitats; nutrient enrichment from surrounding land and waterways; reduction of indigenous vegetation buffers.	
Management responses	
<ul style="list-style-type: none"> • Pest animal and plant control • Biosecurity surveillance and management • Advocacy, consultation and partnership 	
Priority sites for action	
<ul style="list-style-type: none"> • Ōhiwa Harbour • Whirinaki – northern • Puketoe-toe–Mōtū 	

Appendix 4

Islands over 1 ha administered by the Department of Conservation in the Bay of Plenty region

Island	Administrative status	Desired island classification (10-year goal)*	Pest species	Particular issues	Notes/comments
Coastal and Marine Place					
Moutohora Island	Wildlife Management Reserve	Open Sanctuary	Wasps (<i>Vespula</i> spp.).	Nationally significant for its biodiversity values. Biosecurity operations have focused on enhancing and maintaining the recovery of the island ecosystem, including wildlife and habitats, while maintaining its pest-free status. The community appreciates the island's cultural values and archaeological sites.	Joint Management Committee (Ngāti Awa and the Department of Conservation). Pest-free biosecurity protocols apply.
Motuotau Island	Scientific Reserve	Special Character		Little blue penguins (<i>Eudyptula minor</i>) are present.	
Karewa Island	Wildlife Sanctuary	Ecosystem Recovery	Pest free.	Nationally significant for its biodiversity values. Biosecurity operations have focused on enhancing and maintaining the recovery of the island ecosystem, including wildlife and habitats, while maintaining its pest-free status.	Access must be accompanied by departmental staff and go through biosecurity checks.

Motunau (Plate Island)	Nature Reserve	Ecosystem Recovery	Ground cover, herbaceous weeds and rats (<i>Rattus</i> spp.).	Biosecurity operations have focused on enhancing and maintaining the recovery of the island ecosystem, including wildlife and habitats.	Pest-free island biosecurity protocols apply.
Mayor Island (Tuhua)	Wildlife Refuge Reserve	Ecosystem Recovery	Pest free.	Biosecurity operations have focused on enhancing and maintaining the recovery of the island ecosystem, including wildlife and habitats, while maintaining its pest-free status.	Collaborative ecological restoration agreement between Te Whānau a Tauwhao ki Tūhua and the Department. Pest-free island biosecurity protocols apply.

* The desired island classification is aligned with the 10-year term of this Conservation Management Strategy (CMS) and represents the desired future state of the island. It is intended for guidance only and needs to be read in conjunction with the outcomes and policies for the Places in Part Two of this CMS. For further information, see: Department of Conservation 2010: The island strategy: guidelines for managing islands administered by the Department of Conservation. Department of Conservation, Christchurch. 69 p. www.cbd.int/islands/doc/idr/voluntary-reports/New-zealand-island-strategy-en.pdf

Appendix 5

Priority management units on public conservation lands and waters in the Bay of Plenty region identified by the Department of Conservation through natural heritage prioritising processes

This list has been compiled from the Department's national list of around 1300 ecosystem and species management units, which represent the full range of New Zealand's terrestrial and freshwater ecosystems but exclude units or parts of

units on private land. Marine reserves are also included as priority management units.

The list represents those ecosystem and species management units that have been ranked in the top 850 nationally. This ranking is designed to maximise ecosystem representation while providing for the long-term persistence of as many species as possible. Please note that the table does not necessarily list all nationally significant ecosystems that are present in the region.

This list is correct as at the date of publication of this Conservation Management Strategy (CMS). Its contents may be amended or reviewed during the term of this CMS.

Name of ecosystem unit	Predominant ecosystem and habitat types*	Place(s)	Threatened/at-risk species†	Threats/issues
Waipare/Kuhatahi Streams (Mamaku) Mangorewa Ecological Area	MF4, MF6, MF7, MF19 MF4, MF6, MF19	Kaimai Mamaku and Te Mauri o te Wai Kaimai Mamaku	North Island kākā (<i>Nestor meridionalis septentrionalis</i>). North Island kākā, whio / blue duck (<i>Hymenolaimus malacorhynchos</i>), giant kōkopu (<i>Galaxias argenteus</i>) and thick-leaved kohukohu (<i>Pittosporum kirkii</i>).	Cats (<i>Felis catus</i>), stoats (<i>Mustela erminea</i>), ferrets (<i>Mustela putorius furo</i>), rats (<i>Rattus</i> spp.), mice (<i>Mus musculus</i>), hedgehogs (<i>Erinaceus europaeus</i>), pigs (<i>Sus scrofa</i>), possums (<i>Trichosurus vulpecula</i>), dama wallabies (<i>Macropus eugenii</i>), deer (<i>Cervidae</i>), goats (<i>Capra aegagrus hircus</i>), pioneer woody pest plants, shade-tolerant woody pest plants, and groundcover and herbaceous weeds.
Mangorewa Ecological Area	MF4, MF6, MF19	Kaimai Mamaku	North Island kākā, whio / blue duck (<i>Hymenolaimus malacorhynchos</i>), giant kōkopu (<i>Galaxias argenteus</i>) and thick-leaved kohukohu (<i>Pittosporum kirkii</i>).	Cats, stoats, ferrets, weasels (<i>Mustela nivalis vulgaris</i>), rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, rabbits (<i>Oryctolagus cuniculus</i>), hares (<i>Lepus europaeus</i>), goats, cattle (<i>Bos taurus</i>), eastern rosellas (<i>Platycercus eximius</i>), pioneer woody pest plants, and groundcover and herbaceous weeds.

Name of ecosystem unit	Predominant ecosystem and habitat types*	Place(s)	Threatened/at-risk species†	Threats/issues
Kaharoa	WF14	Kaimai Mamaku	North Island kōkako (<i>Callaeas wilsoni</i>).	Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, rabbits, hares, goats, cattle, pioneer woody pest plants, climbers, groundcover and herbaceous weeds, and roading.
Ngatukituki Forest Sanctuary	WF12, WF13, MF4, CF11, CF16, CF17, CF18	Kaimai Mamaku	North Island kākā and forest gecko (<i>Mokopirirakau granulatus</i>).	Cats, stoats, ferrets, weasels, rats, mice, possums, dama wallabies, deer, goats, cattle, pioneer woody pest plants, climbers, groundcover and herbaceous weeds, invasive species, mining, and partial logging.
Rangitaiki Conservation Area Rotoehu	WF14	Kaimai Mamaku	North Island kōkako.	Cats, stoats, ferrets, rats, mice, pigs, possums, dama wallabies, deer, goats, cattle, and groundcover and herbaceous weeds.
Moutohora Island	DN2, CL1, GT2, NF2, WF5	Coastal and Marine	Tuatara (<i>Sphenodon punctatus</i>), crenulate skink (<i>Oligosoma</i> aff. <i>infrapunctatum</i> “crenulate”), Moutohora kānuka (<i>Kunzea salterae</i>) and māwhai / ambush vine (<i>Sicyos mawhai</i>).	Cats, rats, mice, rainbow skinks (<i>Lampropholis delicata</i>), Argentine ants (<i>Linepithema humile</i>), pioneer woody pest plants, shade-tolerant woody pest plants, climbers, groundcover and herbaceous weeds, invasive species, and fire.
Puketoetoe–Mōtū	WF16, MF4, MF19, CF16, CF17, RV	Eastern Catchments	North Island kākā, whio / blue duck, North Island kōkako and pekapeka / central lesser short-tailed bat (<i>Mystacina tuberculata rhyacobia</i>).	Cats, stoats, weasels, rats, mice, pigs, possums, deer, goats, cattle, pioneer woody pest plants, shade-tolerant woody pest plants, climbers, and groundcover and herbaceous weeds.

Name of ecosystem unit	Predominant ecosystem and habitat types*	Place(s)	Threatened/at-risk species†	Threats/issues
Waiotapu	GT2, LK2.2, LK2.3	Waiariki		Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, hares, sheep (<i>Ovis aries</i>), cattle, pioneer woody pest plants, shade-tolerant woody pest plants, climbers, groundcover and herbaceous weeds, and human impacts.
Maunga Kākarama / Rainbow Mountain	GT1, LK2.2, NF2, NF3	Waiariki		Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, cattle, pioneer woody pest plants, climbers, groundcover and herbaceous weeds, and human impacts.
Waimangu	GT1, GT2, LK2.1, LK2.2	Waiariki		Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, rabbits, hares, pioneer woody pest plants, shade-tolerant woody pest plants, climbers, groundcover and herbaceous weeds, and human impacts.
Te Kopia	GT1, GT2	Waiariki	Pua o Te Rēinga / wood rose (<i>Dactylanthus taylorii</i>).	Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, rabbits, hares, cattle, pioneer woody pest plants, climbers, groundcover and herbaceous weeds, and human impacts.
Waikite	GT2, LK2.1, WL19	Waiariki	<i>Christella</i> aff. <i>dentata</i> (b) (AK 126902; “thermal”), giant hypolepis (<i>Hypolepis dicksonioides</i>), <i>Cyclosorus interruptus</i> and <i>Nephrolepis flexuosa</i> .	Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, rabbits, hares, cattle, pioneer woody pest plants, groundcover and herbaceous weeds, hydrological alteration, sediment and nutrients, vegetation clearance, and human impacts.

Name of ecosystem unit	Predominant ecosystem and habitat types*	Place(s)	Threatened/at-risk species†	Threats/issues
Mokaihaha	LK6.2, MF4, MF5	Kaimai Mamaku	North Island kākā and North Island kōkako.	Cats, stoats, ferrets, weasels, rats, mice, hedgehogs, pigs, possums, dama wallabies, deer, rabbits, hares, cattle, pioneer woody pest plants, climbers, and groundcover and herbaceous weeds.
Lake Kiriopukae	LK4.2, WL14, WL15	Whirinaki Surrounds and Te Mauri o te Wai	Lady's tresses orchid (<i>Spiranthes novae-zelandiae</i>), tāpia / pirita / white mistletoe (<i>Tupeia antarctica</i>) and curly sedge (<i>Carex cirrhosa</i>).	Rats, mice, hedgehogs, pigs, possums, goats, pioneer woody pest plants, climbers, groundcover and herbaceous weeds, hydrological alteration, habitat limitations, and human impacts.
Karewa Island	CL2	Coastal and Marine	Nau / Cook's scurvy grass (<i>Lepidium oleraceum</i>), flesh-footed shearwater (<i>Puffinus carneipes</i>), tuatara, Raukawa gecko (<i>Woodworthia maculata</i>) and Pacific gecko (<i>Dactylocnemis pacificus</i>).	Pioneer woody pest plants, climbers, groundcover and herbaceous weeds, invasive species, interspecific interactions, plant diseases, habitat limitations, mining, and human impacts.
Tuhua (Mayor Island) Marine Reserve	DREE, DSND, MOSREE, MOSSND	Coastal and Marine		Invasive species, anchoring damage, boundary effects, discharge/pollution from vessels, illegal harvest from boats and inappropriate research/collection.
Te Paepae o Aotea (Volkner Rocks) Marine Reserve	DREE, DSND, MOSREE, USLOPE	Coastal and Marine		Invasive species, anchoring damage, discharge/pollution from vessels, fish feeding, high visitation (underwater), illegal harvest from boats and inappropriate research/collection.

* Refer to Appendix 3 for descriptions of the predominant ecosystem and habitat types.

† Refer to Appendix 6 for further information on threatened/at-risk species in the Bay of Plenty region.

Appendix 6

Threatened and at-risk flora and fauna in the Bay of Plenty region

Several thousand indigenous species are present in the Bay of Plenty region. This Appendix lists those species of vascular plants, non-vascular plants, freshwater fishes, marine animals, land vertebrates and invertebrates that have been classified as ‘threatened’ or ‘at risk’ under the New Zealand Threat Classification System Manual 2008 and in taxon status lists published between 2008 and 2016.

The management of threatened and at-risk species and of important ecosystems within the Bay of Plenty region is addressed in section 3.1 in Part One and in the natural values tables for each Place in Part Two of this Conservation Management Strategy (CMS), which outline the Department of Conservation’s work to advocate for the protection of threatened and at-risk flora and fauna that occur outside public conservation lands and waters and to manage threats to them. Additional information on ecosystem priority units and the species and threats within these is provided in Appendix 5.

The information provided within this Appendix is correct at the time of publishing. However, due to the nature of conservation, this information is likely to change. Many key datasets relating to the status of threatened species and the location and status of ecosystems are continually being improved and updated within the Department’s systems on a rolling basis. It is also likely that management responses will change as new techniques and more effective methods are developed. The ongoing invasion of pests and recognition of new threats to biodiversity are a reality in New Zealand. For information on the management responses that are being used at the time of reading, please contact the relevant departmental district office.

If there are changes to key datasets (such as the New Zealand Threat Classification status lists), the contents of this Appendix may be amended or reviewed during the term of this CMS.

Table A6.1: Vascular plants.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Threatened species				
Nationally Critical	Small duck orchid	<i>Caleana minor</i>	• Waiariki	Insect and dama wallaby (<i>Macropus eugenii</i>) browsing; collection; trampling; extreme fluctuations; one location; weeds; vegetation succession.
Nationally Critical	Puarangi / bladder hibiscus	<i>Hibiscus richardsonii</i>	• Coastal and Marine	Weeds; extreme fluctuations; vegetation succession.
Nationally Critical	Small-flowered creeping hypericum	<i>Hypericum minutiflorum</i>	• Whirinaki Surrounds	Weeds; habitat loss; extreme fluctuations; vehicles.
Nationally Critical	(Aquatic or wetland sedge)	<i>Isolepis lenticularis</i>	• Te Mauri o te Wai	Weeds; trampling; browsing.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Critical	Dwarf mistletoe	<i>Korthalsella salicornioides</i>	<ul style="list-style-type: none"> • Waiariki • Coastal and Marine 	Felling of host trees for firewood and land clearance; land-use change; potential of myrtle rust (<i>Austropuccinia psidii</i>) affecting host; track maintenance; vegetation succession; fire.
Nationally Critical	Thornton kānuka	<i>Kunzea toelkenii</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Fire; habitat destruction; subdivision; myrtle rust; grazing; firewood collection; weeds.
Nationally Critical	Ramarama / bubble leaf	<i>Lophomyrtus bullata</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki Place • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Myrtle rust.
Nationally Critical	Rōhutu / New Zealand myrtle	<i>Lophomyrtus obcordata</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Myrtle rust.
Nationally Critical	Potts' forget-me-not	<i>Myosotis pottsiana</i>	<ul style="list-style-type: none"> • Eastern Catchments 	Extreme fluctuations; sparse distribution; erosion; browsing; trampling; track maintenance; weeds; vegetation succession.
Nationally Critical	Rōhutu	<i>Neomyrtus pedunculata</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Myrtle rust.
Nationally Critical	Thick-leaved tree daisy	<i>Olearia pachyphylla</i>	<ul style="list-style-type: none"> • Coastal and Marine Place 	Coastal development; weeds; browsing; one location; fire; track maintenance.
Nationally Critical	Stalked adder's tongue	<i>Ophioglossum petiolatum</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Deer trampling; habitat destruction; recruitment failure

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Critical	Australian cliff brake	<i>Pellaea</i> aff. <i>falcata</i> (b) (AK 330788; “Auckland volcanoes”)	<ul style="list-style-type: none"> Coastal and Marine 	Fire.
Threatened species				
Nationally Critical	Pinātoro	<i>Pimelea orthia</i> subsp. <i>orthia</i>	<ul style="list-style-type: none"> Coastal and Marine 	Fire; vegetation succession; weeds; track maintenance.
Nationally Critical	Koheriki/kohepiro	<i>Scandia rosifolia</i>	<ul style="list-style-type: none"> Kaimai Mamaku Eastern Catchments Whirinaki Surrounds 	Ungulate browsing; weeds; vegetation succession.
Nationally Critical	Bog rush	<i>Schoenus carsei</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Wetland alteration and eutrophication; weeds; restricted range.
Nationally Critical	Fireweed	<i>Senecio scaberulus</i>	<ul style="list-style-type: none"> Coastal and Marine 	Weeds; habitat destruction; grazing; hybridisation with <i>Senecio hispidulus</i> ; extreme fluctuations; coastal development; vegetation succession.
Nationally Critical	Maire tawake / swamp maire	<i>Syzygium maire</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Coastal and Marine Eastern Catchments 	Myrtle rust; possum (<i>Trichosurus vulpecula</i>) browsing; habitat destruction; fragmentation.
Nationally Critical	Bladderwort	<i>Utricularia australis</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Competition from <i>Utricularia gibba</i> and other introduced aquatic weeds; habitat modification; drainage; browsing by Canada geese (<i>Branta canadensis</i>) and black swans (<i>Cygnus atratus</i>); recruitment failure.
Nationally Endangered	Curly-tipped sedge / curly sedge	<i>Carex cirrhosa</i>	<ul style="list-style-type: none"> Waiariki Whirinaki Surrounds 	Weeds; changes in lake levels; weed spraying; mowing.
Nationally Endangered	Sneezeweed	<i>Centipeda minima</i> subsp. <i>minima</i>	<ul style="list-style-type: none"> Whirinaki Surrounds Waiariki 	Weeds; ungulate browsing; trampling; water level fluctuations; extreme population fluctuations.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Endangered	Soft fern (thermal)	<i>Christella</i> aff. <i>dentata</i>	<ul style="list-style-type: none"> Waiariki 	Weeds; stock browsing; vegetation competition; geothermal heat extraction.
Nationally Endangered	Thermal umbrella fern	<i>Dicranopteris linearis</i>	<ul style="list-style-type: none"> Waiariki 	Geothermal extraction; weeds; trampling.
Nationally Endangered	Moutohora prostrate kānuka	<i>Kunzea salterae</i>	<ul style="list-style-type: none"> Coastal and Marine 	Fire; myrtle rust; track maintenance; vegetation succession; weeds.
Nationally Endangered	Prostrate kānuka	<i>Kunzea tenuicaulis</i>	<ul style="list-style-type: none"> Waiariki 	Geothermal extraction; hybridisation with <i>Kunzea</i> adjacent to geothermal fields; fire; myrtle rust; weeds.
Nationally Endangered	Nau / Cook's scurvy grass	<i>Lepidium oleraceum</i>	<ul style="list-style-type: none"> Coastal and Marine 	Loss of guano habitat; extreme population fluctuations; white rust (<i>Albugo candida</i>) infestation; introduced invertebrate browsing.
Nationally Endangered	Swamp greenhood orchid	<i>Pterostylis micromega</i>	<ul style="list-style-type: none"> Waiariki Coastal and Marine 	Wetland destruction and alteration; weeds; stock grazing and trampling; habitat succession; extreme population fluctuations.
Nationally Vulnerable	Kauri	<i>Agathis australis</i>	<ul style="list-style-type: none"> Kaimai Mamaku 	Kauri dieback (<i>Phytophthora agathidicida</i>).
Nationally Vulnerable	Water brome	<i>Amphibromus fluitans</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Weeds; habitat destruction; stock grazing and trampling; extreme population fluctuations.
Nationally Vulnerable	Kohurangi / Kirk's tree daisy	<i>Brachyglottis kirkii</i> var. <i>kirkii</i>	<ul style="list-style-type: none"> Kaimai Mamaku Eastern Catchments Waiariki 	Browsing.
Nationally Vulnerable	Red sedge	<i>Carex rubicunda</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	Trampling; weeds; vehicles; extreme population fluctuations.
Nationally Vulnerable	Pua o Te Rēinga / dactylanthus / wood rose	<i>Dactylanthus taylorii</i>	<ul style="list-style-type: none"> Kaimai Mamaku Whirinaki Surrounds Waiariki 	Browsing; collection; habitat destruction; decline of natural pollinators; vegetation succession.
Nationally Vulnerable	Purple plume grass	<i>Dichelachne micrantha</i>	<ul style="list-style-type: none"> Kaimai Mamaku Coastal and Marine 	Weeds; vegetation succession; browsing.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Vulnerable	Leafless rush	<i>Juncus pauciflorus</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Eastern Catchments • Coastal and Marine 	Habitat destruction; grazing; browsing; weeds.
Threatened species				
Nationally Vulnerable	Kānuka	<i>Kunzea robusta</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Myrtle rust.
Nationally Vulnerable	Kānuka/makahikatoa	<i>Kunzea serotina</i>	<ul style="list-style-type: none"> • Waiariki • Whirinaki Surrounds 	Myrtle rust.
Nationally Vulnerable	(Aquatic monocot herb)	<i>Lepilaena bilocularis</i>	<ul style="list-style-type: none"> • Te Mauri o te Wai 	Extreme population fluctuations; weeds; water level fluctuations.
Nationally Vulnerable	(Divaricating shrub)	<i>Melicytus flexuosus</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Weeds; habitat destruction and modification; fire; ungulate browsing.
Nationally Vulnerable	Akatea / white rātā	<i>Metrosideros albiflora</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Myrtle rust.
Nationally Vulnerable	Crimson rātā	<i>Metrosideros carminea</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments • Waiariki 	Myrtle rust.
Nationally Vulnerable	Rātā	<i>Metrosideros colensoi</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Eastern Catchments • Kaimai Mamaku • Waiariki 	Myrtle rust.
Nationally Vulnerable	White rātā	<i>Metrosideros diffusa</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Eastern Catchments • Kaimai Mamaku • Waiariki • Coastal and Marine 	Myrtle rust.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Vulnerable	Pōhutukawa	<i>Metrosideros excelsa</i>	<ul style="list-style-type: none"> • Coastal and Marine • Waiariki • Eastern Catchments 	Myrtle rust.
Nationally Vulnerable	Akatawhiwhi / scarlet rātā	<i>Metrosideros fulgens</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Myrtle rust.
Nationally Vulnerable	Akatorotoro / akatea / small white rātā	<i>Metrosideros perforata</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Myrtle rust.
Nationally Vulnerable	Northern rātā	<i>Metrosideros robusta</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Myrtle rust.
Nationally Vulnerable	Southern rātā	<i>Metrosideros umbellata</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Myrtle rust.
Nationally Vulnerable	Scrobic / native paspalum	<i>Paspalum orbiculare</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Weeds; vegetation succession; fire.
Nationally Vulnerable	Native oxtongue	<i>Picris burbidgeae</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Vegetation succession; weeds; track maintenance; extreme population fluctuations.
Nationally Vulnerable	Scrub daphne	<i>Pimelea tomentosa</i>	<ul style="list-style-type: none"> • Waiariki • Coastal and Marine • Eastern Catchments 	Fire; habitat destruction; land development; vegetation succession; weeds; track maintenance.
Nationally Vulnerable	Turner's kōhūhū / tent pole tree	<i>Pittosporum turneri</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Waiariki 	Possums; ungulate browsing; fire; weeds; habitat succession.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Vulnerable	Matangaoa / New Zealand watercress	<i>Rorippa divaricata</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku • Coastal and Marine • Eastern Catchments 	Weeds; vegetation succession; habitat destruction; trampling; ungulate browsing; cabbage white butterfly (<i>Pieris rapae</i>); extreme population fluctuations.
Nationally Vulnerable	Poroporo	<i>Solanum aviculare</i> var. <i>aviculare</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Vegetation succession; weeds; habitat destruction.
At-risk species				
Declining	Taramea / spear grass	<i>Aciphylla</i> aff. <i>squarrosa</i> (a) (AK 44773; Volcanic Plateau)	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Fire; lagomorph browsing; habitat destruction; vegetation succession; weeds.
Declining	Pirita / piriraki / yellow mistletoe	<i>Alepis flavida</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Possums; declines in pollinators and seed dispersers.
Declining	(Sedge)	<i>Carex fascicularis</i>	<ul style="list-style-type: none"> • Waiariki 	Weeds; water level fluctuations; habitat destruction.
Declining	Sand coprosma	<i>Coprosma acerosa</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Habitat modification; weeds; vehicles; trampling.
Declining	–	<i>Coprosma brunnea</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Waiariki 	Weeds; vegetation succession; ungulate browsing.
Declining	(Thermal fern)	<i>Cyclosorus interruptus</i>	<ul style="list-style-type: none"> • Waiariki • Coastal and Marine 	Habitat destruction and modification; land-use change; grazing; weeds.
Declining	Giant umbrella sedge	<i>Cyperus insularis</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Decline in nesting seabird areas; weeds; vegetation succession.
Declining	New Zealand carrot	<i>Daucus glochidiatus</i>	<ul style="list-style-type: none"> • Eastern Catchments 	Weeds; vegetation succession; browsing.
Declining	Spotted leaf orchid	<i>Drymoanthus flavus</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Waiariki • Kaimai Mamaku 	Collection.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	Waiū o Kahukura / shore spurge / sea spurge / sand milkweed	<i>Euphorbia glauca</i>	<ul style="list-style-type: none"> Coastal and Marine 	Trampling; possums; habitat succession; coastal development; habitat destruction, modification and fragmentation.
Declining	Pīngao / golden sand sedge	<i>Ficinia spiralis</i>	<ul style="list-style-type: none"> Coastal and Marine 	Weeds; habitat destruction and modification; harvesting; human trampling; vehicles; browsing and trampling by stock; fragmented populations; rodent seed destruction; fire.
Declining	Solander's geranium	<i>Geranium solanderi</i>	<ul style="list-style-type: none"> Coastal and Marine Waiariki Eastern Catchments 	Trampling; ungulate browsing; weeds; vegetation succession.
Declining	Grass-leaved rush	<i>Juncus caespiticus</i>	<ul style="list-style-type: none"> Coastal and Marine Waiariki 	Weeds; trampling; ungulate browsing; water level fluctuations; habitat destruction.
Declining	Quillwort	<i>Isoetes kirkii</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Habitat destruction and modification; weeds; lake level fluctuations.
Declining	Mānuka	<i>Leptospermum scoparium</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments Coastal and Marine 	Myrtle rust.
Declining	New Zealand linen flax	<i>Linum monogynum</i>	<ul style="list-style-type: none"> Coastal and Marine Whirinaki Surrounds Kaimai Mamaku 	Vegetation succession; weeds; habitat destruction; fire.
Declining	North Island hypsela	<i>Lobelia carens</i>	<ul style="list-style-type: none"> Kaimai Mamaku Whirinaki Surrounds 	Weeds; habitat destruction and modification; water level fluctuations; trampling; ungulate browsing.
Declining	Hihoi / New Zealand mint	<i>Mentha cunninghamii</i>	<ul style="list-style-type: none"> Coastal and Marine Eastern Catchments 	

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	Willow-leaved maire	<i>Mida salicifolia</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds 	Possum and ungulate browsing.
At-risk species				
			<ul style="list-style-type: none"> • Eastern Catchments • Coastal and Marine 	
Declining	Stout water milfoil	<i>Myriophyllum robustum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Weeds; habitat destruction and modification; sedimentation.
Declining	Pirita / scarlet mistletoe	<i>Peraxilla colensoi</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments • Whirinaki Surrounds 	Possums; declines in pollinators and seed dispersers.
Declining	Pikirangi / pirita / red mistletoe	<i>Peraxilla tetrapetala</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments • Whirinaki Surrounds 	Possums; declines in pollinators and seed dispersers.
Declining	Tāraua	<i>Pimelea longifolia</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Eastern Catchments 	Vegetation succession; weeds; fire; track maintenance.
Declining	Autetaranga / sand daphne	<i>Pimelea villosa</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Weeds; vehicle damage; fire; loss of pollinators; coastal erosion; trampling; housing subdivision.
Declining	Thick-leaved kohukohu	<i>Pittosporum kirkii</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Possum and ungulate browsing.
Declining	Hinarepe / sand tussock	<i>Poa billardiarei</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Stock grazing; weeds; vehicles; habitat destruction and modification; human trampling.
Declining	Swamp leek orchid	<i>Prasophyllum hectorii</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Waiariki Place 	Weeds; habitat destruction and modification; collection.
Declining	Swamp greenhood orchid	<i>Pterostylis paludosa</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Habitat destruction and modification; weeds; collection; habitat succession.
Declining	Para / king fern	<i>Ptisana salicina</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments 	Stock; ungulate browsing; collection; weeds.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	Pūhā / shore pūhā / New Zealand sow thistle	<i>Sonchus kirkii</i>	<ul style="list-style-type: none"> Coastal and Marine 	Weeds; coastal erosion; lagomorph browsing; habitat succession.
Declining	Lady's tresses	<i>Spiranthes novae-zelandiae</i>	<ul style="list-style-type: none"> Whirinaki Surrounds Waiariki 	Habitat destruction and modification; habitat succession; weeds.
Declining	Tāpia / pirita / white mistletoe	<i>Tupeia antarctica</i>	<ul style="list-style-type: none"> Waiariki Kaimai Mamaku Whirinaki Surrounds 	Possum and insect browsing; habitat destruction; loss of dispersers; collection; habitat succession.
Declining	Swamp nettle	<i>Urtica perconfusa</i>	<ul style="list-style-type: none"> Waiariki 	Habitat destruction and modification; weeds; stock grazing.
Declining	Nana/seagrass/eelgrass	<i>Zostera muelleri</i> subsp. <i>novazelandica</i>	<ul style="list-style-type: none"> Coastal and Marine 	Sedimentation; poor water quality of estuaries.
Recovering	Hairy willowherb	<i>Epilobium hirtigerum</i>	<ul style="list-style-type: none"> Eastern Catchments 	Weeds; land-use change; stock grazing and trampling.
Naturally Uncommon	(Small herb)	<i>Anaphaloides subrigida</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki 	Habitat succession; weeds; habitat modification.
Naturally Uncommon	(Upland herb)	<i>Azorella allanii</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	Ungulate browsing; weeds.
Naturally Uncommon	Mokimoki	<i>Blechnum molle</i>	<ul style="list-style-type: none"> Kaimai Mamaku 	Habitat destruction.
Naturally Uncommon	(Fern)	<i>Blechnum norfolkianum</i>	<ul style="list-style-type: none"> Coastal and Marine 	Weeds; hybridisation.
Naturally Uncommon	Rasp fern	<i>Blechnum zeelandicum</i>	<ul style="list-style-type: none"> Coastal and Marine 	Weeds; coastal erosion; stock browsing; habitat modification.
Naturally Uncommon	Pātōtara / parsley fern	<i>Botrychium australe</i>	<ul style="list-style-type: none"> Whirinaki Surrounds Waiariki Eastern Catchments Kaimai Mamaku 	Weeds; ungulate browsing; habitat succession; vegetation competition.
Naturally Uncommon	Bulb leaf orchid	<i>Bulbophyllum tuberculatum</i>	<ul style="list-style-type: none"> Eastern Catchments 	Collection; habitat loss.
Naturally Uncommon	Pink fingers (orchid)	<i>Caladenia alata</i>	<ul style="list-style-type: none"> Waiariki Kaimai Mamaku 	Weeds; habitat succession; habitat modification.
Naturally Uncommon	(Orchid)	<i>Caladenia atradenia</i>	<ul style="list-style-type: none"> Waiariki Whirinaki Surrounds 	Weeds; habitat succession; vegetation competition; collection; track maintenance.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Naturally Uncommon	(Orchid)	<i>Caladenia bartletti</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Coastal and Marine 	Weeds; habitat succession; vegetation competition; collection; track maintenance.
Naturally Uncommon	(Orchid)	<i>Caladenia variegata</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Unknown.
Naturally Uncommon	Copper beard orchid	<i>Calochilus paludosus</i>	<ul style="list-style-type: none"> • Waiariki 	Weeds; habitat succession; vegetation competition; collection; track maintenance.
Naturally Uncommon	Red bearded orchid	<i>Calochilus robertsonii</i>	<ul style="list-style-type: none"> • Waiariki 	Weeds; habitat succession; vegetation competition; collection; track and grounds maintenance; trampling.
Naturally Uncommon	Clematis	<i>Clematis quadibracteolata</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds • Waiariki 	Habitat succession; weeds.
Naturally Uncommon	Red leek orchid	<i>Corunastylis nuda</i>	<ul style="list-style-type: none"> • Waiariki • Whirinaki Surrounds 	Habitat destruction, modification and fragmentation; habitat succession; weeds.
Naturally Uncommon	Leek orchid	<i>Corunastylis pumila</i>	<ul style="list-style-type: none"> • Waiariki • Whirinaki Surrounds • Kaimai Mamaku 	Habitat destruction, modification and fragmentation; habitat succession; weeds.
Naturally Uncommon	Common cotula / soldier's button	<i>Cotula australis</i>	<ul style="list-style-type: none"> • Coastal and Marine • Waiariki • Kaimai Mamaku 	Habitat destruction, modification and fragmentation; habitat succession; weeds; trampling.
Naturally Uncommon	Crassula	<i>Crassula mataikona</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Weeds; coastal erosion; habitat succession.
Naturally Uncommon	Short-hair plume grass	<i>Dichelachne inaequiglumis</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Habitat destruction, modification and fragmentation; habitat succession; weeds; trampling.
Naturally Uncommon	Dichondra	<i>Dichondra</i> aff. <i>brevifolia</i> (a) (AK 166328; Volcanic Plateau)	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Ungulate browsing; weeds; trampling; land-use change.
Naturally Uncommon	Dichondra	<i>Dichondra</i> aff. <i>brevifolia</i> (c) (AK 250307; "large flower")	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Ungulate browsing; weeds; trampling; land-use change.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Naturally Uncommon	Great Barrier inaka	<i>Dracophyllum patens</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Habitat succession.
Naturally Uncommon	(Sedge)	<i>Fimbristylis velata</i>	<ul style="list-style-type: none"> • Waiariki 	Weeds; track maintenance; trampling.
Naturally Uncommon	Central North Island gentian	<i>Gentianella chathamica</i> subsp. <i>memorosa</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments 	Trampling; ungulate browsing; habitat succession.
Naturally Uncommon	Small-leaved cranesbill	<i>Geranium microphyllum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Whirinaki Surrounds • Eastern Catchments 	Trampling; ungulate browsing; habitat succession; habitat loss.
Naturally Uncommon	Mauku / filmy fern	<i>Hymenophyllum australe</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Weeds; extreme floods.
Naturally Uncommon	Filmy fern	<i>Hymenophyllum cupressiforme</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki Place 	Weeds; habitat loss.
Naturally Uncommon	Filmy fern	<i>Hymenophyllum pluviatile</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Weeds; trampling; extreme floods.
Naturally Uncommon	Giant hypolepis	<i>Hypolepis dicksonioides</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku • Coastal and Marine 	Weeds; vegetation competition; hybridisation; geothermal heat extraction.
Naturally Uncommon	–	<i>Isolepis crassiuscula</i>	<ul style="list-style-type: none"> • Whirinaki Surrounds 	Weeds; trampling; vegetation competition; ungulate browsing.
Naturally Uncommon	Two-storey rush	<i>Juncus distegus</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Whirinaki Surrounds • Waiariki 	Weeds; trampling; vegetation competition; ungulate browsing.
Naturally Uncommon	Button daisy	<i>Leptinella dispersa</i> subsp. <i>dispersa</i>	<ul style="list-style-type: none"> • Waiariki • Coastal and Marine • Whirinaki Surrounds 	Habitat destruction and modification; weeds; trampling; vegetation competition.
Naturally Uncommon	(Fern)	<i>Lindsaea viridis</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku 	Collection; weeds.
Naturally Uncommon	New Zealand ladder fern	<i>Nephrolepis flexuosa</i>	<ul style="list-style-type: none"> • Waiariki • Coastal and Marine 	Weeds; habitat destruction and modification; geothermal heat extraction.
Naturally Uncommon	Cheesemans tree daisy / streamside tree daisy	<i>Olearia cheesemanii</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments 	Weeds; future hydroelectric power schemes; trampling; vegetation competition.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Naturally Uncommon	(Succulent herb)	<i>Peperomia tetraphylla</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku • Eastern Catchments 	Weeds; collection.
Naturally Uncommon	Pimelea	<i>Pimelea sporadica</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Weeds; vegetation competition; habitat succession.
Naturally Uncommon	Oval-leaved pittosporum	<i>Pittosporum ellipticum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments 	Weeds; hybridisation.
Naturally Uncommon	Hutton's kōhūhū	<i>Pittosporum huttonianum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Weeds; track maintenance; erosion; extreme floods.
Naturally Uncommon	Grassland greenhood	<i>Pterostylis foliata</i>	<ul style="list-style-type: none"> • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Weeds; collection; vegetation competition; habitat succession.
Naturally Uncommon	(Greenhood orchid)	<i>Pterostylis</i> aff. <i>graminea</i> (CHR 513330; "sphagnum")	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki 	Weeds; collection; vegetation competition; habitat succession.
Naturally Uncommon	(Greenhood orchid)	<i>Pterostylis humilis</i>	<ul style="list-style-type: none"> • Eastern Catchments 	Weeds; collection; vegetation competition; habitat succession.
Naturally Uncommon	Shrimp-flowered greenhood	<i>Pterostylis porrecta</i>	<ul style="list-style-type: none"> • Eastern Catchments 	Weeds; collection; vegetation competition; habitat succession.
Naturally Uncommon	Horses mane weed	<i>Ruppia megacarpa</i>	<ul style="list-style-type: none"> • Te Mauri o te Wai 	Aquatic weeds; vegetation competition; lake water quality; aquatic herbicide application.
Naturally Uncommon	Fan fern	<i>Schizaea dichotoma</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku • Coastal and Marine • Eastern Catchments 	Habitat destruction and modification; weeds; vegetation competition; habitat succession.
Naturally Uncommon	Floating schoenus	<i>Schoenus fluitans</i>	<ul style="list-style-type: none"> • Te Mauri o te Wai 	Weeds; vegetation competition; trampling; ungulate browsing.
Naturally Uncommon	–	<i>Senecio banksii</i>	<ul style="list-style-type: none"> • Coastal and Marine • Eastern Catchments 	Habitat destruction and modification; weeds; vegetation competition; habitat succession.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Naturally Uncommon	Māwhai / ambush vine	<i>Sicyos australis</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki 	Habitat destruction and modification; weeds; vegetation competition; habitat succession.
Naturally Uncommon	Kōwhai	<i>Sophora fulvida</i>	<ul style="list-style-type: none"> • Waiariki 	Habitat destruction and modification; weeds; fire.
Naturally Uncommon	(Herb)	<i>Stellaria decipiens</i> var. <i>decipiens</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku • Coastal and Marine • Eastern Catchments 	Habitat destruction and modification; weeds; vegetation competition; habitat succession; ungulate browsing.
Naturally Uncommon	Fennel-leaved pondweed	<i>Stuckenia pectinata</i>	<ul style="list-style-type: none"> • Te Mauri o te Wai 	Habitat destruction and modification; weeds; sedimentation.
Naturally Uncommon	Kōkihi / tūtae ikamoana / New Zealand spinach	<i>Tetragonia tetragonioides</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Weeds; coastal erosion; vegetation competition.
Naturally Uncommon	Sun orchid	<i>Thelymitra formosa</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Whirinaki Surrounds • Waiariki 	Collection; vegetation competition; habitat succession.
Naturally Uncommon	Spotted sun orchid	<i>Thelymitra ixioides</i>	<ul style="list-style-type: none"> • Waiariki • Kaimai Mamaku 	Collection; vegetation competition; habitat succession.
Naturally uncommon	Domed sun orchid	<i>Thelymitra tholiformis</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Collection; vegetation competition; habitat succession.
Naturally Uncommon	Swamp fern	<i>Thelypteris confluens</i>	<ul style="list-style-type: none"> • Waiariki 	Habitat destruction and modification; weeds; vegetation competition.
Naturally Uncommon	(Saprophytic herb)	<i>Thismia rodwayi</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Trampling; track maintenance; vegetation competition; collection.
Naturally Uncommon	Māori musk	<i>Thyridia repens</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Habitat destruction and modification; weeds; vegetation competition.
Naturally Uncommon	Druce's trisetum	<i>Trisetum drucei</i>	<ul style="list-style-type: none"> • Eastern Catchments 	Ungulate browsing; trampling; weeds; vegetation competition.
Naturally Uncommon	Motu hebe	<i>Veronica angustissima</i>	<ul style="list-style-type: none"> • Eastern Catchments 	Weeds; habitat succession; ungulate browsing.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Naturally Uncommon	Wairoa koromiko / eastland hebe	<i>Veronica tairawhiti</i>	<ul style="list-style-type: none"> Eastern Catchments 	Weeds; habitat succession; ungulate browsing; coastal erosion.
Naturally Uncommon	Horned pondweed	<i>Zannichellia palustris</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Aquatic weeds; water quality; habitat loss.
Relict	Giant-flowered broom	<i>Carmichaelia williamsii</i>	<ul style="list-style-type: none"> Coastal and Marine 	Rats (<i>Rattus</i> spp.); coastal erosion; lemon tree borer (<i>Oemona hirta</i>); loss of pollinators; stock grazing.
Relict	Parapara / bird catcher tree	<i>Pisonia brunoniana</i>	<ul style="list-style-type: none"> Coastal and Marine 	Drought; coastal erosion; fire.
Relict	Māwhai / native cucumber / ambush vine	<i>Sicyos mawhai</i>	<ul style="list-style-type: none"> Coastal and Marine 	Introduced mosaic viruses; weeds; habitat succession; fire.
Relict	Tūrepo / large-leaved milk tree	<i>Streblus banksii</i>	<ul style="list-style-type: none"> Coastal and Marine 	Small population size; one location in the Bay of Plenty region; weeds; drought.

Table A6.2: Non-vascular plants.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Threatened species				
Data Deficient	(Liverwort)	<i>Cephaloziella invisita</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	Unknown.
Nationally Critical	(Moss)	<i>Erpodium glaucum</i>	<ul style="list-style-type: none"> Coastal and Marine 	Habitat destruction and modification; collection.
Nationally Critical	(Moss)	<i>Hampeella pallens</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Coastal and Marine 	Unknown.
Nationally Critical	(Liverwort)	<i>Isopaches pumicicola</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	Unknown.
Nationally Critical	Septate-spored polypore	<i>Polyporus septosporus</i>	<ul style="list-style-type: none"> Eastern Catchments 	Unknown.
At-risk species				
Declining	(Fungus)	<i>Marthamyces desmoschoeni</i>	<ul style="list-style-type: none"> Kaimai Mamaku 	

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	(Liverwort)	<i>Ricciocarpos natans</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Declining	(Fungus)	<i>Truncatella</i> sp.	<ul style="list-style-type: none"> Eastern Catchments 	
Naturally Uncommon	(Liverwort)	<i>Cephaloziella subspinoso</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	
Naturally Uncommon	(Liverwort)	<i>Chiloscyphus erosus</i>	<ul style="list-style-type: none"> Waiariki 	
Naturally Uncommon	(Moss)	<i>Cratoneuron filicinum</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Moss)	<i>Fissidens hyophilus</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Liverwort)	<i>Harpalejeunea filicuspis</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Liverwort)	<i>Heteroscyphus argutus</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Moss)	<i>Ischyrodon lepturus</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Liverwort)	<i>Lepidozia acantha</i>	<ul style="list-style-type: none"> Waiariki 	
Naturally Uncommon	(Liverwort)	<i>Plagiochila bazzanioides</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Moss)	<i>Pyrrhobryum paramattense</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Liverwort)	<i>Schistochila pellucida</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	
Naturally Uncommon	(Moss)	<i>Syrrhopodon armatus</i>	<ul style="list-style-type: none"> Coastal and Marine 	
Naturally Uncommon	(Moss)	<i>Zygodon rufescens</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	
Sparse	(Fungus)	<i>Phyllosticta</i> sp.	<ul style="list-style-type: none"> Coastal and Marine 	

Table A6.3: Freshwater fishes.

Threat status*	Common name	Scientific name	Place(s)	Notable catchments†	Diadromous (Y/N)‡
Threatened species					
Nationally Vulnerable	Shortjaw kōkopu	<i>Galaxias postvectis</i>	<ul style="list-style-type: none"> Coastal and Marine Kaimai Mamaku Waiariki Eastern Catchments 	<ul style="list-style-type: none"> Wainui River Mangakaiwhiria and Kaiate streams (all surrounding Tauranga) Maraetotara Stream (immediately southeast of Whakatāne) Subcatchment of the Waioeka River (immediately south of Ōpōtiki) Waihapokopoko Stream (immediately north of the Mōtū River mouth) 	Y

Threat status*	Common name	Scientific name	Place(s)	Notable catchments†	Diadromous (Y/N)‡
Nationally Vulnerable	Lamprey	<i>Geotria australis</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Eastern Catchments 	<ul style="list-style-type: none"> • Wairapukao and Waiari streams (both tributaries of the Kaituna River, near Te Puke) • Karaponga and Waikamihi streams (both immediately east of Lake Rotomā) • Kereu River and Kaumaro Stream (both far east) 	Y
At-risk species					
Declining	Tuna / longfin eel	<i>Anguilla dieffenbachii</i>	<ul style="list-style-type: none"> • Coastal and Marine • Kaimai Mamaku • Waiariki • Eastern Catchments • Whirinaki Surrounds 	<ul style="list-style-type: none"> • Kaituna River • Rawea Stream (tributary of the upper Mōtū River) • Waikaretāheke River (downstream of the outflow from Lake Waikaremoana) • Upper Mōtū River 	Y
Declining	Torrentfish	<i>Cheimarrichthys fosteri</i>	<ul style="list-style-type: none"> • Coastal and Marine • Kaimai Mamaku • Waiariki • Eastern Catchments 	<ul style="list-style-type: none"> • Waiotahi and Waioeka Rivers (both close to Ōpōtiki) • Waiopoahu Stream (immediately west of the Mōtū River mouth) 	Y
Declining	Dwarf galaxias	<i>Galaxias</i> aff. <i>divergens</i> “northern”	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki 	<ul style="list-style-type: none"> • Waihou River • Kopuriki Stream • Horomanga River 	N
Declining	Giant kōkopu	<i>Galaxias argenteus</i>	<ul style="list-style-type: none"> • Coastal and Marine • Kaimai Mamaku • Waiariki • Eastern Catchments 	<ul style="list-style-type: none"> • Waihaere Stream (Raungaehe Range) • Waitawake Stream (immediately south of Whangaparāoa) 	Y
Declining	Kōaro	<i>Galaxias brevipinnis</i>	<ul style="list-style-type: none"> • Coastal and Marine • Kaimai Mamaku • Waiariki • Eastern Catchments • Whirinaki Surrounds 	<ul style="list-style-type: none"> • Rivers and streams surrounding Lake Ōkareka and draining into Lake Waikareiti • Headwaters of the Onematariki Stream (catchment dissected by eastern boundary) 	Y§

Threat status*	Common name	Scientific name	Place(s)	Notable catchments†	Diadromous (Y/N)‡
Declining	Īnanga	<i>Galaxias maculatus</i>	<ul style="list-style-type: none"> Coastal and Marine Kaimai Mamaku Waiariki Eastern Catchments 	<ul style="list-style-type: none"> Rivers and streams surrounding Lake Ōkareka and draining into Lake Waikareiti Headwaters of the Onematariki Stream (catchment dissected by eastern boundary) 	Y§
Declining	Bluegill bully	<i>Gobiomorphus hubbsi</i>	<ul style="list-style-type: none"> Coastal and Marine Kaimai Mamaku Eastern Catchments Whirinaki Surrounds 	<ul style="list-style-type: none"> Widespread in lowland coastal waterways 	Y
Declining	Redfin bully	<i>Gobiomorphus huttoni</i>	<ul style="list-style-type: none"> Coastal and Marine Kaimai Mamaku Waiariki Eastern Catchments 	<ul style="list-style-type: none"> Waitao Stream (immediately west of Te Puke) Pikowai and Mimia streams (both northeast of Lake Rotomā) Waioeka River Kereu River (far east) Headwaters of the Mangatutara Stream (catchment dissected by eastern boundary) 	Y

* The most recent listing of the conservation status of New Zealand freshwater fish taxa under the New Zealand Threat Classification System was published in 2014.⁶ At the time of writing this document, the conservation status listing of New Zealand freshwater fishes is being reviewed.

† Notable catchments (termed optimisation polygons) are based on a New Zealand-wide mapping analysis by the Department of Conservation's freshwater staff to identify management sites that will ensure the persistence of nine threatened or at-risk migratory freshwater fishes.⁷

‡ See McEwan (2015)⁸ and Water Ways Consulting Limited (2017)⁹ and references therein.

§ These taxa can also form non-diadromous populations (i.e. they are facultatively diadromous) – for example, in several of the Te Arawa lakes.

⁶ Goodman, J.M.; Dunn, N.R.; Ravenscroft, P.J.; Allibone, R.M.; Boubée, J.A.T.; David, B.O.; Griffiths, M.; Ling, N.; Hitchmough, R.A.; Rolfe, J.R. 2014: Conservation status of New Zealand freshwater fish, 2013. *New Zealand Threat Classification Series 7*. Department of Conservation, Wellington. 12 p. www.doc.govt.nz/globalassets/documents/science-and-technical/nztcs7entire.pdf

⁷ Goodman, J.; West, D.; Pomeroy, E.; Dunn, N. 2016: Development of migratory freshwater fish species optimisation polygons. Department of Conservation memo (unpublished). docCM 2778765.s

⁸ McEwan, A. 2015: Native fish habitat requirements. Department of Conservation, Wellington (unpublished). 70 p.

⁹ Water Ways Consulting Limited 2017: National Environmental Standard – Plantation Forestry – Additional Fisheries Advice. Prepared for the Ministry for Primary Industries. *MPI Technical Paper No: 2017/27*.

Table A6.4: Marine animals.

Threat status	Common name	Scientific name	Location(s)	Threats/issues
Threatened species				
Nationally Critical	Bryde's whale	<i>Balaeneoptera edeni brydei</i>	All coastal waters.	Vessel strike; vessel disturbance.
Nationally Critical	Southern elephant seal	<i>Mirounga leonina</i>	Occasional visitor; hauls out on beaches.	Harassment by humans or dogs while ashore; vessel strike; fisheries interaction; depleted prey stocks.
Nationally Critical	Orca / killer whale	<i>Orcinus orca</i> Type A	All coastal waters.	Vessel strike; vessel disturbance; fisheries interaction.
Nationally Endangered	Great white shark / white pointer	<i>Carcharodon carcharias</i>	Occur throughout New Zealand's Territorial Sea and Exclusive Economic Zone. Juveniles and subadults (1.5–3.6 m length) common in Tauranga Harbour, particularly the Bowentown entrance, and inshore in eastern Bay of Plenty between Ōhiwa and Cape Runaway.	Fishing (coastal set netting and demersal longlining).
Nationally Endangered	Hector's dolphin	<i>Cephalorhynchus hectori hectori</i>	Occasionally reported in Bay of Plenty coastal waters.	Fisheries interaction; vessel strike; vessel disturbance; predation.
Nationally Endangered	Basking shark	<i>Cetorhinus maximus</i>		Fishing.
Nationally Endangered	Bamboo coral	<i>Chathamisis bayeri</i>	Rare visitors.	Fisheries interaction; climate change.
Nationally Endangered	Southern right whale	<i>Eubalaena australis</i>	All coastal waters.	Vessel strike; vessel disturbance; fisheries interaction.
Nationally Endangered	Bottlenose dolphin	<i>Tursiops truncatus</i>	Individuals from the Bay of Islands population visit the Bay of Plenty region, including Tauranga Harbour, mostly in summer and often in association with false killer whale (<i>Pseudorca crassidens</i>) pods.	Tourism; vessel strike; fisheries interaction; predation.

Threat status	Common name	Scientific name	Location(s)	Threats/issues
At-risk species				
Declining	Golden limpet	<i>Cellana flava</i>	Eastern Bay of Plenty – Cape Runaway.	Fisheries interaction; climate change; shell collection.
Declining	Stony coral	<i>Enallopsammia rostrata</i>		Fisheries interaction; climate change.
Declining	Stony coral	<i>Goniocorella dumosa</i>		Fisheries interaction; climate change.
Declining	Basket star	<i>Gorgonocephalus dolichodactylus</i>		Fisheries interaction; climate change.
Declining	Basket star	<i>Gorgonocephalus pustulatum</i>		Fisheries interaction; climate change.
Declining	Stony coral	<i>Madrepora oculata</i>		Fisheries interaction; climate change.
Declining	Octopus	<i>Octopus kaharoa</i>		Fisheries interaction; climate change.
Declining	Mero's umbrella octopus	<i>Opisthoteuthis mero</i>		Fisheries interaction; climate change.
Declining	Stony coral	<i>Solenosmilia variabilis</i>		Fisheries interaction; climate change.
Naturally Uncommon	Southern mandarin dogfish	<i>Cirrhigaleus australis</i>	The Bay of Plenty region is a hotspot for this species, particularly near deep water reefs and knolls around Mayor Island (Tuhua) and Whakaari/White Island.	Fishing.
Naturally Uncommon	Sharpnose sevengill shark	<i>Heptranchias perlo</i>	Deep water – eastern Coromandel Peninsula, shelf break south of East Cape.	Fishing.
Naturally Uncommon	Smalltooth sand tiger	<i>Odontaspis ferox</i>	Deep reefs around Volkner Rocks and Whakaari/White Island. Aggregation site at Volkner Rocks at around 118–130 m depth. Aggregates on outer shelf and upper slope reefs, but also found over soft sediments.	Fishing (deep water set netting and trawling).

Table A6.5: Land vertebrates.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Threatened species				
Nationally Critical	Grey duck	<i>Anas superciliosa</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Predation; game bird shooting; hybridisation with mallards (<i>Anas platyrhynchos</i>); habitat destruction and modification.
Nationally Critical	Kōtuku / white heron	<i>Ardea modesta</i>	<ul style="list-style-type: none"> Waiariki Coastal and Marine 	Disturbance; insufficient food sources and predation during winter visitation period to the Bay of Plenty.
Nationally Critical	Australasian bittern	<i>Botaurus poiciloptilus</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Habitat destruction and modification; starvation; land-use change and intensification; insufficient winter foraging habitat; predation; lake level alteration; vehicle strike; shooting; ramping in hydroelectric river wetlands.
Nationally Critical	Pekapeka / long-tailed bat (North Island)	<i>Chalinolobus tuberculatus</i>	<ul style="list-style-type: none"> Waiariki Eastern Catchments Whirinaki Surrounds Kaimai Mamaku 	Competition and predation from introduced mammals; habitat destruction and fragmentation; habitat degradation and disturbance; vespid wasps; storm damage to roosts; masting-induced predator irruptions; roads; exotic forestry harvesting.
Nationally Critical	Orange-fronted parakeet	<i>Cyanoramphus malherbi</i>	<ul style="list-style-type: none"> Coastal and Marine 	Biosecurity; low breeding success; insufficient suitable habitat.
Nationally Critical	Black stilt	<i>Himantopus novaezelandiae</i>	<ul style="list-style-type: none"> Coastal and Marine 	Disturbance; insufficient food sources and predation during winter visitation period to the Bay of Plenty.
Nationally Critical	Black-billed gull	<i>Larus bulleri</i>	<ul style="list-style-type: none"> Waiariki 	Predation; disturbance; lake level fluctuations.
Nationally Critical	Whirinaki skink	<i>Oligosoma</i> "Whirinaki"	<ul style="list-style-type: none"> Whirinaki Surrounds 	Predation by mustelids and rodents.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Nationally Critical	New Zealand fairy tern	<i>Sternula nereis davisae</i>	<ul style="list-style-type: none"> Kaimai Mamaku 	Disturbance, insufficient food sources and predation during winter visitation period to the Bay of Plenty.
Nationally Endangered	Black-fronted tern	<i>Chlidonias albostriatu</i>	<ul style="list-style-type: none"> Kaimai Mamaku 	Disturbance, insufficient food sources and predation during winter visitation period to the Bay of Plenty.
Nationally Endangered	Reef heron	<i>Egretta sacra sacra</i>	<ul style="list-style-type: none"> Coastal and Marine 	Disturbance; habitat change; coastal development.
Nationally Vulnerable	Ngutu parore / wrybill	<i>Anarhynchus frontalis</i>	<ul style="list-style-type: none"> Coastal and Marine 	Disturbance, insufficient food sources and predation during winter visitation period to the Bay of Plenty.
Nationally Vulnerable	Lesser knot	<i>Calidris canutus rogersi</i>	<ul style="list-style-type: none"> Coastal and Marine 	Disturbance, insufficient food sources and predation during winter visitation period to the Bay of Plenty.
Nationally Vulnerable	Banded dotterel	<i>Charadrius bicinctus bicinctus</i>	<ul style="list-style-type: none"> Coastal and Marine Waiariki 	Predation; disturbance; habitat change.
Nationally Vulnerable	Caspian tern	<i>Hydroprogne caspia</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation; disturbance; habitat change; storm impacts.
Nationally Vulnerable	Whio / blue duck	<i>Hymenolaimus malacorhynchos</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Predation by mustelids; flooding events; human disturbance; land-use change; hydroelectric development.
Nationally Vulnerable	Small-scaled skink	<i>Oligosoma microlepis</i>	<ul style="list-style-type: none"> Whirinaki Surrounds 	Predation; habitat modification.
Nationally Vulnerable	Flesh-footed shearwater	<i>Puffinus carneipes</i>	<ul style="list-style-type: none"> Coastal and Marine 	Biosecurity.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
At-risk species				
Declining	North Island rifleman	<i>Acanthisitta chloris granti</i>	<ul style="list-style-type: none"> Whirinaki Surrounds Eastern Catchments Kaimai Mamaku 	Predation; habitat modification.
Declining	New Zealand pipit	<i>Anthus novaeseelandiae novaeseelandiae</i>	<ul style="list-style-type: none"> Waiariki Whirinaki Surrounds Kaimai Mamaku Eastern Catchments 	Predation; land-use change and farming intensification; habitat destruction and succession; disturbance.
Declining	North Island brown kiwi	<i>Apteryx mantelli</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Predation by mustelids and dogs; vehicle strike; exotic forestry harvesting.
Declining	North Island fernbird	<i>Bowdleria punctata vealeae</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments Coastal and Marine 	Predation; habitat destruction; habitat succession.
Declining	Northern blue penguin	<i>Eudyptula minor</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation; disturbance; climate-induced starvation; marine algal blooms.
Declining	Banded rail	<i>Gallirallus philippensis assimilis</i>	<ul style="list-style-type: none"> Coastal and Marine Te Mauri o te Wai 	Predation; habitat modification and destruction; housing development.
Declining	South Island pied oystercatcher	<i>Haematopus finschi</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; disturbance; vehicles; land development.
Declining	Red-billed gull	<i>Larus novaehollandiae scopulinus</i>	<ul style="list-style-type: none"> Coastal and Marine Te Mauri o te Wai 	Predation by introduced mammals; disturbance; land development; human refuse.
Declining	Hochstetter's frog	<i>Leiopelma hochstetteri</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Predation by introduced mammals; exotic forestry harvest; destruction of riparian margins; trampling by feral ungulates; disease.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	Eastern bar-tailed godwit	<i>Limosa lapponica baueri</i>	<ul style="list-style-type: none"> Coastal and Marine 	Disturbance; insufficient food sources and predation during summer visitation period to the Bay of Plenty; overseas coastal development.
Declining	Whitehead	<i>Mohoua albicilla</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments Coastal and Marine 	Predation by introduced mammals; translocated to Mayor Island (Tuhua).
Declining	Forest gecko	<i>Mokopirirakau granulatus</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments Coastal and Marine 	Predation by introduced mammals; habitat destruction and modification; land-use change.
Declining	Pekapeka / central lesser short-tailed bat	<i>Mystacina tuberculata rhyacobia</i>	<ul style="list-style-type: none"> Waiariki Whirinaki Surrounds Eastern Catchments Kaimai Mamaku 	Competition and predation from introduced mammals; habitat destruction and fragmentation; habitat degradation and disturbance; vespid wasps; storm damage to roosts; masting-induced predator irruptions.
Declining	Elegant gecko	<i>Naultinus elegans</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Predation by introduced mammals; habitat destruction and modification; land-use change; habitat succession.
Declining	Barking gecko	<i>Naultinus punctatus</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Predation by introduced mammals; habitat destruction, modification and fragmentation; land-use change; habitat succession.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	Ornate skink	<i>Oligosoma ornatum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Predation by introduced mammals; habitat destruction, modification and fragmentation; land-use change.
Declining	Striped skink	<i>Oligosoma striatum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Predation by introduced mammals; habitat destruction, modification and fragmentation; land-use change.
Declining	North Island robin	<i>Petroica longipes</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Predation by introduced mammals; habitat destruction, modification and fragmentation; exotic forestry harvesting.
Declining	Marsh crake	<i>Porzana pusilla affinis</i>	<ul style="list-style-type: none"> • Te Mauri o te Wai • Coastal and Marine 	Predation by introduced mammals; habitat destruction and modification; land-use change.
Declining	Spotless crake	<i>Porzana tabuensis</i>	<ul style="list-style-type: none"> • Te Mauri o te Wai • Coastal and Marine 	Predation by introduced mammals; habitat destruction and modification; land-use change.
Declining	Sooty shearwater	<i>Puffinus griseus</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Biosecurity; fishing industry impacts.
Declining	White-fronted tern	<i>Sterna striata</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Predation by introduced mammals; disturbance; vehicles; land development.
Recovering	Brown teal	<i>Anas chlorotis</i>	<ul style="list-style-type: none"> • Coastal and Marine • Te Mauri o te Wai 	Biosecurity; predation by introduced mammals.
Recovering	North Island kōkako	<i>Callaeas wilsoni</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Predation by introduced mammals; habitat modification by browsing mammals; habitat loss and fragmentation; small population genetics.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Recovering	Northern New Zealand dotterel	<i>Charadrius obscurus aquilonius</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; disturbance; vehicles; coastal development; coastal storms.
Recovering	Bush falcon	<i>Falco novaeseelandiae ferox</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Predation by introduced mammals; land-use change; human persecution; vehicles; harvest of exotic forestry.
Recovering	North Island weka	<i>Gallirallus australis greyi</i>	<ul style="list-style-type: none"> Eastern Catchments Waiariki Coastal and Marine 	Predation by mustelids and dogs; vehicles; human persecution; illegal transfers; land-use change; disease; drought impacts; human-made hazards; biosecurity; nuisance weka; predation by weka on native species.
Recovering	Variable oystercatcher	<i>Haematopus unicolor</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; disturbance; vehicles; coastal development; coastal storms.
Recovering	North Island kākā	<i>Nestor meridionalis septentrionalis</i>	<ul style="list-style-type: none"> Coastal and Marine Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Predation by introduced mammals; storm impacts on breeding trees; habitat destruction, modification and fragmentation.
Recovering	Pied shag	<i>Phalacrocorax varius varius</i>	<ul style="list-style-type: none"> Coastal and Marine Kaimai Mamaku Waiariki Eastern Catchments 	Habitat destruction and modification.
Recovering	North Island saddleback	<i>Philesturnus rufusater</i>	<ul style="list-style-type: none"> Waiariki Coastal and Marine 	Severe predation by introduced mammals.
Recovering	Weweia / New Zealand dabchick	<i>Poliiocephalus rufopectus</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Predation by introduced mammals; lake water quality; pleasure boat disturbance and wake impacts; lake weeds; pest fish incursion; lake level; storm events.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
At-risk species				
Relict	Red-crowned parakeet	<i>Cyanorhamphus novaezelandiae novaezelandiae</i>	<ul style="list-style-type: none"> Whirinaki Surrounds Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation.
Relict	Pacific gecko	<i>Dactylocnemis pacificus</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation; biosecurity.
Relict	Duvaucel's gecko	<i>Hoplodactylus duvaucelii</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation; biosecurity.
Relict	Crenulate skink	<i>Oligosoma</i> aff. <i>Infrapunctatum</i> "crenulate"	<ul style="list-style-type: none"> Waiariki Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation; biosecurity.
Relict	Moko skink	<i>Oligosoma moco</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation; biosecurity.
Relict	Northern diving petrel	<i>Pelecanoides urinatrix urinatrix</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction; biosecurity; fishing impacts.
Relict	Fluttering shearwater	<i>Puffinus gavia</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction; biosecurity; fishing impacts.
Relict	Tuatara	<i>Sphenodon punctatus</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction; biosecurity.
Naturally Uncommon	Long-tailed cuckoo	<i>Eudynamys taitensis</i>	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Summer migrant; decline of host species by introduced predatory mammals.
Naturally Uncommon	Australian coot	<i>Fulica atra australis</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Predation by introduced mammals; habitat destruction; lake water quality; pleasure boat disturbance and wake impacts.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Naturally Uncommon	Shore skink	<i>Oligosoma smithi</i>	<ul style="list-style-type: none"> Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation; vehicles.
Naturally Uncommon	Black shag	<i>Phalacrocorax carbo novaehollandiae</i>	<ul style="list-style-type: none"> Te Mauri o te Wai Coastal and Marine 	Disturbance; lake and waterway habitat quality; riparian margin destruction and modification; pungent breeding sites in human-populated areas.
Naturally Uncommon	Little black shag	<i>Phalacrocorax sulcirostris</i>	<ul style="list-style-type: none"> Te Mauri o te Wai Coastal and Marine 	Disturbance; lake and waterway habitat quality; riparian margin destruction and modification; pungent breeding sites in human-populated areas.
Naturally Uncommon	Royal spoonbill	<i>Platalea regia</i>	<ul style="list-style-type: none"> Te Mauri o te Wai Coastal and Marine 	

Table A6.6: Land invertebrates.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Threatened species				
Nationally Endangered	(Bird louse; hosted by whio / blue duck)	<i>Acidoproctus gottwaldhirschi</i>	<ul style="list-style-type: none"> Te Mauri o te Wai 	Predation of host.
Nationally Endangered	(Bird louse; hosted by kōkako)	<i>Brueelia</i> sp.	<ul style="list-style-type: none"> Kaimai Mamaku Waiariki Whirinaki Surrounds Eastern Catchments 	Predation of host.
Nationally Endangered	(Bird louse; hosted by tieke/saddleback)	<i>Brueelia</i> sp.	<ul style="list-style-type: none"> Waiariki Coastal and Marine 	Biosecurity.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Threatened species				
Nationally Endangered	Kea head louse (hosted by kākā)	<i>Forficuloecus meinertzhageni</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Predation of host.
Nationally Endangered	(Bird louse; hosted by kākā)	<i>Heteromenopon (Keamenopon) kea</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Predation of host.
Nationally Endangered	(Bird louse; hosted by kākā)	<i>Neopsittaconirmus kea</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments • Coastal and Marine 	Predation of host.
Nationally Endangered	Kōkako head louse (hosted by kōkako)	<i>Philopterus novaezealandiae</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Predation of host.
At-risk species				
Declining	(Bird louse; hosted by North Island brown kiwi)	<i>Apterygon mirum</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Waiariki • Whirinaki Surrounds • Eastern Catchments 	Predation of host.
Declining	Katipō spider	<i>Latrodectus katipo</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Habitat destruction; disturbance; Australian redback spider (<i>Latrodectus hasselti</i>).
Declining	Northern pimelea cutworm moth / owlet moth	<i>Meterana pictula</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Coastal and Marine 	Predation by introduced mammals; habitat destruction, modification and fragmentation.

Threat status	Common name	Scientific name	Place(s)	Threats/issues
Declining	Kauri snail	<i>Paryphanta busbyi busbyi</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Introduced mammal predation; transferred population; collection.
Declining	(Snail)	<i>Succinea archeyi</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Introduced mammal predation; habitat destruction and modification.
Relict	Forest ringlet butterfly	<i>Dodonidia helmsii</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Introduced social wasps; habitat destruction and modification.
Naturally Uncommon	(Moth)	<i>Thambotricha vates</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Habitat destruction and modification.
Range Restricted	(Nematode; hosted by tuatara)	<i>Hatterianema hollandei</i>	<ul style="list-style-type: none"> • Coastal and Marine 	Conservation of host.
Sparse	Te Aroha stag beetle	<i>Geodorcus auriculatus</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Introduced mammal predation; habitat destruction and modification.
Sparse	(Ground beetle)	<i>Mecodema atrox</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Introduced mammal predation; habitat destruction and modification.
Sparse	(Longhorn beetle)	<i>Nesoptychias simpliceps</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Introduced mammal predation; habitat destruction, modification and fragmentation.
Sparse	Paua slug	<i>Schizoglossa worthyae</i>	<ul style="list-style-type: none"> • Kaimai Mamaku • Eastern Catchments 	Introduced mammal predation; habitat destruction, modification and fragmentation.
Sparse	(Carabid beetle)	<i>Tangarona pensus</i>	<ul style="list-style-type: none"> • Kaimai Mamaku 	Introduced mammal predation; habitat destruction, modification and fragmentation.

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Appendix 7

Threats, pests and wild animals in the Bay of Plenty region

The management of threats, pests and wild animals in the Bay of Plenty region is addressed in section 3.1 in Part One and in the natural values tables for each Place in Part Two in Volume I of this Conservation Management Strategy. The information provided within this Appendix is correct at the time of publishing. However, due to the nature of conservation, this information is likely to change, as many key datasets are being continually improved and updated within the Department of Conservation's systems on a rolling basis. It is also likely that management responses will change as new techniques and more effective

methods are developed. For information on the management responses that are being used at the time of reading, please contact the relevant district office.

It should be noted that if a herd of chamois (*Rupicapra rupicapra*), deer (*Cervidae*), tahr (*Hemitragus jemlahicus*) or feral pigs (*Sus scrofa*) is designated as a herd of special interest under section 16 of the Game Animal Council Act 2013, the animals within that herd are no longer considered wild animals.

Table A7.1: Animal pests.

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Birds				
Eastern rosella	<i>Platycersus eximius</i>	Widespread and increasing	Competition with native species	n/a
Magpie	<i>Gymnorhina tibicen tibicen</i> , <i>G. tibicen hypoleuca</i>	Widespread	Predation on native species; attacks on visitors	High visitor-use sites
Red-vented bulbul	<i>Pycnonotus cafer</i>	Rare	Omnivorous – feeds on flowers, vegetation, fruits, insects and reptiles	As located
Rook	<i>Corvus frugilegus</i>	Scattered in nearby Waikato	Minor	As located
Southern black-backed gull	<i>Larus dominicanus</i>	Widespread	Flight-path hazard for aircraft; predation on and competition with native species	Sulphur Point Wildlife Sanctuary and Motutara Wildlife Refuge
Invertebrates				
Argentine ant	<i>Linepithema humile</i>	Scattered, with risks associated with the Port of Tauranga	Predation on, competition with and displacement of native invertebrate species	Department of Conservation infrastructure (workshops and depots) and offshore islands

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
(Australian subterranean termite)	<i>Coptotermes acinaciformis</i>	Local; occasional; previously found in Te Aroha, with risks associated with the Port of Tauranga	Predation on, competition with and displacement of native invertebrate species	Departmental infrastructure (workshops and depots) and offshore islands
Darwin's ant	<i>Doleromyrma darwinia</i>	Local; occasional; previously found in Mount Maunganui, with risks associated with the Port of Tauranga	Predation on, competition with and displacement of native invertebrate species	Departmental infrastructure (workshops and depots) and offshore islands
Redback spider	<i>Latrodectus hasselti</i>	Local; occasional but increasing	Minor; of concern only in coastal areas; may hybridise with katipō (<i>Latrodectus katipo</i>)	Coastal Bay of Plenty
German and common wasps	<i>Vespula germanica</i> , <i>V. vulgaris</i>	Widespread	Predation on, competition with and displacement of native invertebrate species; nuisance threat	Mayor Island (Tuhua); high visitor-use sites; reserves and covenants where nests are reported
Mammals				
Cat	<i>Felis catus</i>	Widespread throughout public conservation land (PCL)	Predator – eats invertebrates, lizards, birds' eggs and fledglings; threat to native biodiversity in forest, shrubland and open habitats	n/a
Dama wallaby	<i>Macropus eugenii</i>	Widespread around Rotorua	Herbivorous; can threaten native vegetation populations	Outlying populations; threatened plant habitats
Fallow deer	<i>Dama dama</i>	Widespread in scattered pockets largely on private land; found in and around areas such as the Ngatukituki Forest Sanctuary, Ottawa Stewardship Area, Ottawa Scenic Reserve, Raparapahoe Stream Marginal Strip, Otanewainuku Forest, Te Matai Stewardship Area and Waiari Gorge Stewardship Area	Threat to native biodiversity in forest and shrubland habitats	n/a
Ferret	<i>Mustela furo</i>	Widespread in open habitats; areas of interest include:	Predation on threatened birds and reptiles	n/a
Goat	<i>Capra hircus</i>	Widespread, though occasional throughout PCL	Threat to native biodiversity in forest and shrubland habitats	n/a

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Hare	<i>Lepus europaeus</i>	Widespread in scattered pockets largely on private land	Herbivorous; can threaten native vegetation populations; sustains populations of feral cats and ferrets; can impact on restoration programmes	Threatened plant habitats
Hedgehog	<i>Erinaceus europaeus occidentalis</i>	Widespread throughout PCL (absent from islands)	Predator – eats invertebrates, lizards, birds' eggs and fledglings	n/a
Mouse	<i>Mus musculus</i>	Widespread throughout PCL (absent from islands)	Omnivorous – eats vegetation, seeds, invertebrates and small reptiles	Islands
Pig	<i>Sus scrofa</i>	Widespread throughout PCL (absent from islands)	Omnivorous – eats vegetation, invertebrates, reptiles and birds' eggs; threat to native biodiversity in forest, shrubland and open habitats	Threatened plant habitats
Possum	<i>Trichosurus vulpecula</i>	Widespread throughout PCL (absent from islands)	Omnivorous – eats vegetation (often browsing to plant senescence), invertebrates, birds, birds' eggs and fledglings	Threatened plant habitats
Rabbit	<i>Oryctolagus cuniculus cuniculus</i>	Widespread in open habitat	Herbivorous; can threaten native vegetation populations; sustains populations of feral cats and ferrets; can impact on restoration programmes	Threatened plant habitats
Rat	<i>Rattus</i> spp.	Widespread throughout PCL (absent from islands for majority of the year – e.g. occasional incursions on Mokoia Island)	Omnivorous – eats vegetation, seeds, invertebrates, reptiles, birds' eggs and fledglings	Islands; threatened plant habitats
Red deer	<i>Cervus elaphus</i>	Widespread throughout PCL	Threat to native biodiversity in forest and tussockland habitats	n/a
Rusa deer	<i>Cervus timorensis</i>	Occasional; in and around areas such as the Awakeri Forest	Threat to native biodiversity in forest and shrubland habitats	n/a

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Sambar deer	<i>Rusa unicorn</i>	Scattered; in and around areas such as the Awakeri Forest, Waimangu Scenic Reserve and Waitotane Scenic Reserve	Threat to native biodiversity in forest and shrubland habitats	n/a
Sika deer	<i>Cervus nippon</i>	Rare	Threat to native biodiversity in forest and shrubland habitats	Eradication as required
Stoat	<i>Mustela erminea</i>	Widespread throughout PCL (absent from Islands for majority of the year – e.g. occasional incursions on Mokoia Island)	Predator – eats invertebrates, lizards, birds' eggs and fledglings	Islands
Weasel	<i>Mustela nivalis vulgaris</i>	Widespread throughout PCL (absent from islands)	Predator – eats invertebrates, lizards, birds' eggs and fledglings	Islands
Reptiles and frogs				
Alpine newt	<i>Ichthyosaura alpestris</i>	Localised around agricultural/rural areas near Katikati	Serious threat for transmitting the chytrid fungus <i>Batrachochytrium dendrobatidis</i> and other pathogens to native frogs	n/a
Green frog	<i>Litoria aurea</i>	Widespread throughout northern PCL	Potential predator of native frogs if present; potential vector of amphibian diseases; food source for predators	n/a
Plague or 'rainbow' skink	<i>Lampropholis delicata</i>	Widespread throughout northern PCL	Competition with native skinks; predation on native invertebrates; reproduces rapidly (more than five times as fast as native lizards), laying up to eight eggs three times per year, and matures in less than half the time of native lizards	Islands; known sites of large populations
Southern bell frog	<i>Litoria raniformis</i>	Widespread throughout northern PCL	Potential predator of native frogs if present; potential vector of amphibian diseases; food source for predators	n/a
Whistling or brown tree frog	<i>Litoria ewingii</i>	Scattered	Potential vector of amphibian diseases; food source for predators	n/a

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Marine animals				
Asian paddle crab	<i>Charybdis japonica</i>	Tauranga coastlines; Tuhua (Mayor Island) Marine Reserve	Preys on native shellfish; outcompetes native crabs	As required
Clubbed tunicate / leathery sea squirt	<i>Styela clava</i>	Unknown	Outcompetes native and aquaculture species; nuisance species as fouls marine infrastructure assets	As required
Mediterranean fanworm	<i>Sabella spallanzanii</i>	Unknown	Forms dense beds, outcompeting other benthic species	As required
Freshwater fishes				
Brown bullhead	<i>Ameiurus nebulosus</i>	Scattered sites around Lake Rotoiti/ Te Roto kite ā Ihenga i ariki ai Kahu	Biodiversity decline; reduced water quality; loss of habitat	All freshwater sites managed by the Department
Common carp	<i>Cyprinus carpio</i>	Scattered sites	Biodiversity decline; reduced water quality; loss of habitat	All freshwater sites managed by the Department
Gambusia / mosquito fish	<i>Gambusia affinis</i>	Widespread though scattered	Attacks and competes with freshwater species for food and territory; preys on insect larvae, eggs of other fish and crustaceans; may significantly alter native freshwater communities	All freshwater sites managed by the Department
Goldfish	<i>Carassius auratus</i>	Widespread throughout PCL	Biodiversity decline; competition with native species.	All freshwater sites managed by the Department
Grass carp	<i>Ctenopharyngodon idella</i>	Scattered sites	Biodiversity decline; reduced water quality; loss of habitat	All freshwater sites managed by the Department
Rudd	<i>Scardinius erythrophthalmus</i>	Scattered sites	Biodiversity decline; competition with native species	All freshwater sites managed by the Department

Table A7.2: Plant pests.

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Freshwater plant pests				
Eelgrass	<i>Vallisneria spiralis, V. gigantea</i>	Unknown	Competition with native species, particularly at lake margins, wetlands and river systems; suppression of native regeneration	Streams, rivers and wetlands where there are risks associated with public use
Hornwort	<i>Ceratophyllum demersum</i>	Unknown	Competition with native species, particularly at lake margins, wetlands and river systems; suppression of native regeneration	Streams, rivers and wetlands where there are risks associated with public use
Oxygen weed	<i>Lagarosiphon major, Elodea canadensis, Egeria densa</i>	Widespread	Competition with native species in lakes, ponds and some river margins	As required
Parrot's feather	<i>Myriophyllum aquaticum</i>	Unknown	Competition with native species, particularly at lake margins, wetlands and river systems; suppression of native regeneration	Streams, rivers and wetlands where there are risks associated with public use
Senegal tea	<i>Gymnocoronis spilanthoides</i>	Unknown	Competition with native species, particularly at lake margins, wetlands and river systems; suppression of native regeneration	Streams, rivers and wetlands where there are risks associated with public use
Marine/estuarine plant pests				
Asian kelp	<i>Undaria pinnatifida</i>	Unknown	Competition with native species, particularly in coastal and estuarine systems; suppression of native regeneration	As located
Spartina	<i>Spartina spp.</i>	Unknown	Competition with native species, particularly in coastal and estuarine systems; suppression of native regeneration	As located

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Terrestrial plant pests				
Absinthe	<i>Artemisia absinthium</i>	Rare	Competition with native species	
African feather grass	<i>Cenchrus macrourus</i>	Widespread	Competition with native species	
Agapanthus	<i>Agapanthus praecox</i>	Widespread	Competition with native species	
Alder	<i>Alnus glutinosa</i>	Occasional and localised	Competition with native species	
Alpine ash	<i>Eucalyptus delegatensis</i>	Occasional and localised	Competition with native species	
Aluminium plant	<i>Lamium galeobdolon</i>	Rare	Competition with native species	
Apple	<i>Malus x domestica</i>	Rare	Competition with native species	
Arrow bamboo	<i>Pseudosasa japonica</i>	Rare	Competition with native species	
Arum lilly	<i>Zantedeschia aethiopica</i>	Zantedeschia aethiopica	Competition with native species	Islands
Asian or Japanese knotweed	<i>Fallopia japonica</i>	Rare	Competition with native species	
Asparagus	<i>Asparagus officinalis</i>	Widespread	Competition with native species	
Australian fireweed	<i>Senecio bipinnatisectus</i>	Occasional and localised	Competition with native species	
Bamboo	<i>Bambusa</i> spp.	Occasional and localised	Competition with native species	
Banana passionfruit	<i>Passiflora mixta</i> , <i>P. tripartita</i> var. <i>mollissima</i> , <i>P. tripartita</i>	Occasional and localised	Competition with native species; suppression of native regeneration	
Banksia	<i>Banksia integrifolia</i>	Occasional and localised	Competition with native species	
Barberry	<i>Berberis glaucocarpa</i> , <i>Berberis</i> spp.	Widespread	Competition with native species; ecosystem modification; suppression of native regeneration	
Bay tree	<i>Laurus nobilis</i>	Rare	Competition with native species	
Bear's britches	<i>Acanthus mollis</i>	Rare	Competition with native species	
Beggars' ticks	<i>Bidens frondosa</i>	Widespread	Competition with native species	
Bell heather	<i>Erica cinerea</i>	Occasional and localised	Competition with native species	
Belladonna lily	<i>Amaryllis belladonna</i>	Occasional and localised	Competition with native species	
Bell-flowered cherry	<i>Prunus campanulata</i>	Occasional and localised	Competition with native species	
Bermuda grass	<i>Cynodon dactylon</i>	Occasional and localised	Competition with native species	
Blackberry	<i>Rubus</i> spp. (barbed cultivars)	Widespread and abundant	Competition with native species; suppression of native regeneration	

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Black locust	<i>Robinia pseudoacacia</i>	Rare	Competition with native species	
Black passionfruit	<i>Passiflora edulis</i>	Rare	Competition with native species	
Black wattle	<i>Acacia mearnsii</i>	Widespread	Competition with native species	
Bladder hibiscus	<i>Hibiscus trionum</i>	Rare	Competition with native species	
Bleeding heart tree	<i>Lamprocapnos spectabilis</i>	Occasional and localised	Competition with native species	
Blue gum	<i>Eucalyptus globulus</i>	Occasional and localised	Competition with native species	
Blue morning glory	<i>Ipomoea indica</i>	Occasional and localised	Competition with native species; suppression of native regeneration	
Blue passionflower	<i>Passiflora caerulea</i>	Occasional and localised	Competition with native species; suppression of native regeneration	
Boneseed	<i>Chrysanthemoides monilifera</i>	Occasional and localised	Competition with coastal native species; suppression of native regeneration	Islands
Bottlebrush	<i>Callistemon</i> spp.	Occasional and localised	Competition with native species	
Bougainvillea	<i>Bougainvillea glabra</i>	Occasional and localised	Competition with native species	
Box	<i>Buxus sempervirens</i>	Occasional and localised	Competition with native species	
Boxthorn	<i>Lycium ferocissimum</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Bright bead cotoneaster	<i>Cotoneaster glaucophyllus</i>	Widespread	Competition with native species	
Broad-leaved fleabane	<i>Erigeron floribundus</i>	Occasional and localised	Competition with native species	
Broad-leaved painted-lady	<i>Gladiolus carneus</i>	Occasional and localised	Competition with native species	
Broom	<i>Cytisus scoparius</i> , <i>Cytisus</i> spp.	Widespread and abundant	Competition with native species	
Broomsedge	<i>Andropogon virginicus</i>	Occasional and localised	Competition with native species	
Brown barrel	<i>Eucalyptus fastigata</i>	Occasional and localised	Competition with native species	
Brush cherry	<i>Syzygium australe</i>	Occasional and localised	Competition with native species	
Brush wattle	<i>Paraserianthes lophantha</i>	Widespread and abundant	Competition with native species; suppression of native regeneration	
Buddleia	<i>Buddleja davidii</i> , <i>B. globosa</i>	Widespread and abundant	Competition with native species; suppression of native regeneration	

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Buffalo grass	<i>Stenotaphrum secundatum</i>	Occasional and localised	Competition with native species	
Burdock	<i>Arctium minus</i>	Occasional and localised	Competition with native species	
Bushy asparagus	<i>Asparagus aethiopicus</i>	Occasional and localised	Competition with native species	
Buttercup bush	<i>Senna multiglandulosa</i>	Occasional and localised	Competition with native species	
Canadian pondweed	<i>Elodea canadensis</i>	Occasional and localised	Competition with native species	
Cape gooseberry	<i>Physalis peruviana</i>	Occasional and localised	Competition with native species	
Cape honeysuckle	<i>Tecomaria capensis</i>	Occasional and localised	Competition with native species	
Cape ivy	<i>Senecio angulatus</i>	Occasional and localised	Competition with native species	
Caper spurge	<i>Euphorbia lathyris</i>	Occasional and localised	Competition with native species	
Cathedral bells	<i>Cobaea scandens</i>	Occasional and localised	Competition with native species; suppression of native regeneration	
Catsear	<i>Hypochaeris radicata</i>	Occasional and localised	Competition with native species	
Cestrum	<i>Cestrum</i> spp.	Rare	Competition with native species	
Cherry	<i>Prunus</i> spp.	Occasional and localised	Competition with native species	
Chilean fire bush	<i>Embothrium coccineum</i>	Occasional and localised	Competition with native species	
Chilean rhubarb	<i>Gunnera tinctoria</i>	Widespread	Competition with native species; suppression of native regeneration	
Chinese boxthorn	<i>Lycium barbarum</i>	Occasional and localised	Competition with native species	
Chinese fairy grass	<i>Miscanthus sinensis</i>	Occasional and localised	Competition with native species	
Chinese lantern	<i>Abutilon darwinii</i> x <i>Abutilon pictum</i>	Occasional and localised	Competition with native species	
Chinese privet	<i>Ligustrum sinense</i>	Widespread and abundant	Competition with native species	
Chinese windmill palm	<i>Trachycarpus fortunei</i>	Occasional and localised	Competition with native species	
Chinese woodland poppy	<i>Eomecon chionantha</i>	Occasional and localised	Competition with native species	
Chocolate vine	<i>Akebia quinata</i>	Occasional and localised	Competition with native species	
Choko	<i>Sechium edule</i>	Occasional and localised	Competition with native species	
Clematis	<i>Clematis montana</i>	Occasional and localised	Competition with native species	
Climbing asparagus	<i>Asparagus scandens</i>	Occasional and localised	Competition with native species; suppression of native regeneration	
Climbing dock	<i>Rumex sagittatus</i>	Occasional and localised	Competition with native species	

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Climbing spindleberry	<i>Celastrus orbiculatus</i>	Widespread	Competition with native species; suppression of native regeneration	
Common alder	<i>Alnus glutinosa</i>	Widespread	Competition with native species, particularly in wetlands and river systems	
Coral tree	<i>Erythrina crista-galli</i> , <i>Erythrina x sykesii</i>	Occasional and localised	Competition with native species	
Corsican pine	<i>Pinus nigra</i>	Occasional and localised	Competition with native species	
Cotoneaster	<i>Cotoneaster glaucophyllus</i> , <i>Cotoneaster</i> spp.	Widespread	Competition with native species; suppression of native regeneration	
Crack willow	<i>Salix x fragilis</i>	Widespread	Competition with native species	
Crassula	<i>Crassula</i> spp.	Rare	Competition with native species	
Crocoshmia	<i>Crocoshmia paniculata</i>	Occasional and localised	Competition with native species	
Cyperus	<i>Cyperus alternifolius</i> subsp. <i>flabelliformis</i>	Occasional and localised	Competition with native species	
Cypress	<i>Cupressus</i> spp.	Occasional and localised	Competition with native species	
Daisy	<i>Bellis perennis</i>	Occasional and localised	Competition with native species	
Dandelion	<i>Taraxacum officinale</i> agg.	Occasional and localised	Competition with native species	
Darwin's barberry	<i>Berberis darwinii</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Douglas fir	<i>Pseudotsuga menziesii</i>	Widespread and abundant	Competition with native species	
Egeria	<i>Egeria densa</i>	Occasional and localised	Competition with native species	
Elaeagnus	<i>Elaeagnus x reflexa</i>	Widespread	Competition with native species; suppression of native regeneration	
Elephants ear	<i>Alocasia brisbanensis</i>	Occasional and localised	Competition with native species	
Evergreen buckthorn	<i>Rhamnus alaternus</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Fatsia	<i>Fatsia japonica</i>	Occasional and localised	Competition with native species	
Fennel	<i>Foeniculum vulgare</i>	Occasional and localised	Competition with native species	

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Fig	<i>Ficus carica</i> , <i>Ficus</i> spp.	Rare	Competition with native species	
Floating sweet grass	<i>Glyceria fluitans</i> , <i>Glyceria</i> spp.	Widespread and abundant	Competition with native species	
Forget-me-not	<i>Myosotis sylvatica</i>	Occasional and localised	Competition with native species	
Formosan lily	<i>Lilium formosanum</i>	Rare	Competition with native species	
Foxglove	<i>Digitalis purpurea</i>	Occasional and localised	Competition with native species	
Fox sedge	<i>Carex vulpinoidea</i>	Occasional and localised	Competition with native species	
Franchet cotoneaster	<i>Cotoneaster franchetii</i>	Occasional and localised	Competition with native species	
German ivy	<i>Delairea odorata</i>	Occasional and localised	Competition with native species; suppression of native regeneration	
Giant gum	<i>Eucalyptus regnans</i>	Occasional and localised	Competition with native species	
Giant reed	<i>Arundo donax</i>	Occasional and localised	Competition with native species, particularly in wetlands and river systems	
Goat willow	<i>Salix caprea</i>	Occasional and localised	Competition with native species	
Gorse	<i>Ulex europaeus</i>	Widespread and abundant	Competition with native species; ecosystem modification; suppression of native regeneration	
Gossamer wattle	<i>Acacia floribunda</i>	Occasional and localised	Competition with native species	
Granny's bonnets / columbine	<i>Aquilegia vulgaris</i>	Occasional and localised	Competition with native species	
Great bindweed	<i>Calystegia silvatica</i>	Widespread	Competition with native species	
Green goddess	<i>Zantedeschia aethiopica</i> 'Green Goddess'	Occasional and localised	Competition with native species	
Grey willow	<i>Salix cinerea</i>	Widespread and abundant	Competition with native species	
Groundsel	<i>Senecio vulgaris</i>	Occasional and localised	Competition with native species	
Gum	<i>Eucalyptus</i> spp.	Occasional and localised	Competition with native species	
Harestail	<i>Lagurus ovatus</i>	Occasional and localised	Competition with native species	
Hawkweed	<i>Pilosella officinarum</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Hawthorn	<i>Crataegus monogyna</i>	Widespread	Competition with native species	

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Heather	<i>Calluna vulgaris</i>	Widespread	Competition with native species; ecosystem modification; suppression of native regeneration	
Heavenly bamboo	<i>Nandina domestica</i>	Occasional and localised	Competition with native species	
Hemlock	<i>Conium maculatum</i>	Occasional and localised	Poisonous	As located
Hen and chickens	<i>Chlorophytum comosum</i>	Occasional and localised	Competition with native species	
Herb Robert	<i>Geranium robertianum</i>	Occasional and localised	Competition with native species	
Himalayan fairy grass	<i>Miscanthus nepalensis</i>	Occasional and localised	Competition with native species	
Himalayan honeysuckle	<i>Leycesteria formosa</i>	Widespread and abundant	Competition with native species	
Holly	<i>Ilex aquifolium</i>	Occasional and localised	Competition with native species	
Hops	<i>Humulus lupulus</i>	Occasional and localised	Competition with native species	
Horned poppy	<i>Glaucium flavum</i>	Occasional and localised	Competition with native species	
Hornwort	<i>Ceratophyllum demersum</i>	Occasional and localised	Competition with native species	
Hydrangea	<i>Hydrangea macrophylla</i>	Occasional and localised	Competition with native species	
Hypericum	<i>Hypericum</i> spp.	Widespread	Competition with native species	
Ice plant	<i>Carpobrotus edulis</i>	Occasional and localised	Competition with native species; ecosystem modification of sand dunes and associated landforms; suppression of native regeneration	Islands
Indian shot	<i>Canna indica</i>	Occasional and localised	Competition with native species	
Inkweed	<i>Phytolacca octandra</i>	Occasional and localised	Competition with native species	
Iris	<i>Iris</i> spp.	Widespread	Competition with native species	
Italian arum	<i>Arum italicum</i>	Rare	Competition with native species	Islands
Ivy	<i>Hedera helix</i>	Widespread and abundant	Competition with native species	
Ivy-leaved toadflax	<i>Cymbalaria muralis</i>	Occasional and localised	Competition with native species	
Japanese cedar	<i>Cryptomeria japonica</i>	Occasional and localised	Competition with native species	
Japanese hill cherry	<i>Prunus serrulata</i>	Occasional and localised	Competition with native species	
Japanese honeysuckle	<i>Lonicera japonica</i>	Occasional and localised	Competition with native species; suppression of native regeneration	

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Japanese spindle tree	<i>Euonymus japonicus</i>	Widespread	Competition with native species	
Japanese walnut	<i>Juglans ailantifolia</i>	Widespread	Competition with native species	
Japanese wineberry	<i>Rubus phoenicolasius</i>	Occasional and localised	Competition with native species	
Jasmine	<i>Jasminum polyanthum</i>	Widespread and abundant	Competition with native species	
Jerusalem cherry	<i>Solanum pseudocapsicum</i>	Occasional and localised	Competition with native species	
Juncus	<i>Juncus fockei</i>	Occasional and localised	Competition with native species	
Kahili ginger	<i>Hedychium gardnerianum</i>	Widespread	Competition with native species	As required
Kangaroo acacia	<i>Acacia paradoxa</i>	Occasional and localised	Competition with native species	
Kerria	<i>Kerria japonica</i>	Occasional and localised	Competition with native species	
Khasia berry	<i>Cotoneaster simonsii</i>	Occasional and localised	Competition with native species	
Kikiyu grass	<i>Cenchrus clandestinus</i>	Occasional and localised	Competition with native species	
Kiwifruit	<i>Actinidia chinensis</i> var. <i>deliciosa</i>	Occasional and localised	Competition with native species	
Kudzu vine	<i>Pueraria lobata</i>	Occasional and localised	Competition with native species	
Lantana	<i>Lantana camara</i>	Widespread	Competition with native species	
Larch	<i>Larix decidua</i>	Occasional and localised	Competition with native species	
Lawson's cypress	<i>Chamaecyparis lawsoniana</i>	Occasional and localised	Competition with native species	
Leersia	<i>Leersia oryzoides</i>	Occasional and localised	Competition with native species	
Lilly pilly	<i>Syzygium smithii</i>	Occasional and localised	Competition with native species	
Lily of the valley vine	<i>Salpichroa origanifolia</i>	Occasional and localised	Competition with native species	
Lodgepole pine	<i>Pinus contorta</i>	Widespread	Competition with native species	
Lombardy poplar	<i>Populus nigra</i>	Occasional and localised	Competition with native species	
Loquat	<i>Rhaphiolepis bibas</i>	Occasional and localised	Competition with native species	
Lotus	<i>Lotus pedunculatus</i>	Widespread	Competition with native species	
Macrocarpa	<i>Cupressus macrocarpa</i>	Occasional and localised	Competition with native species	
Madeira vine	<i>Anredera cordifolia</i>	Widespread	Competition with native species	
Magellan fuchsia	<i>Fuchsia magellanica</i>	Occasional and localised	Competition with native species	
Male fern	<i>Dryopteris filix-mas</i>	Occasional and localised	Competition with native species	
Manchurian wild rice	<i>Zizania latifolia</i>	Rare	Competition with native species	

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Mānuka	<i>Leptospermum laevigatum</i> , <i>Leptospermum</i> spp.	Occasional and localised	Competition with native species	
Maritime pine	<i>Pinus pinaster</i>	Occasional and localised	Competition with native species	
Marram grass	<i>Ammophila arenaria</i>	Widespread and abundant	Competition with native species; ecosystem modification of sand dunes and associated landforms; suppression of native regeneration	Islands
Mercer grass	<i>Paspalum distichum</i>	Occasional and localised	Competition with native species	
Mexican cypress	<i>Cupressus lusitanica</i>	Occasional and localised	Competition with native species	
Mexican daisy	<i>Erigeron karvinskianus</i>	Widespread	Competition with native species	
Mexican devil	<i>Ageratina adenophora</i>	Occasional and localised	Competition with native species	
Mexican orange blossom	<i>Choisya ternata</i>	Occasional and localised	Competition with native species	
Mexican water lily	<i>Nymphaea mexicana</i>	Occasional and localised	Competition with native species	
Michaelmas daisy	<i>Symphotrichum lanceolatum</i>	Occasional and localised	Competition with native species	
Mile-a-minute	<i>Dipogon lignosus</i>	Widespread	Competition with native species	
Mint	<i>Mentha</i> spp.	Occasional and localised	Competition with native species	
Mist flower	<i>Ageratina riparia</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Monkey musk	<i>Erythranthe guttata</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Montbretia	<i>Crocasmia × crocosmiiflora</i>	Occasional and localised	Competition with native species	
Montpellier broom	<i>Genista monspessulana</i>	Occasional and localised	Competition with native species	
Moth plant	<i>Araujia sericifera</i>	Occasional and localised	Competition with native species and suppression of native regeneration	As required
Mouse-ear hawkweed	<i>Pilosella officinarum</i>	Occasional and localised	Competition with native species	
Narrow-leaved plantain	<i>Plantago lanceolata</i>	Occasional and localised	Competition with native species	
Nasturtium	<i>Tropaeolum majus</i>	Occasional and localised	Competition with native species	

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Needlebush	<i>Hakea sericea</i>	Occasional and localised	Competition with native species	
Old man's beard	<i>Clematis vitalba</i>	Widespread	Competition with native species; suppression of native regeneration	
Orache	<i>Atriplex prostrata</i>	Occasional and localised	Competition with native species	
Orange firethorn	<i>Pyracantha angustifolia</i>	Occasional and localised	Competition with native species	
Oxeye daisy	<i>Leucanthemum vulgare</i>	Occasional and localised	Competition with native species	
Palm grass	<i>Setaria palmifolia</i>	Widespread	Competition with low-stature native species; suppression of native regeneration	
Pampas grass	<i>Cortaderia jubata, C. selloana</i>	Widespread and abundant	Competition with low-stature native species; suppression of native wetland tree and shrub species	
Parrot's feather	<i>Myriophyllum aquaticum</i>	Widespread	Competition with native species	
Patula pine	<i>Pinus patula</i>	Occasional and localised	Competition with native species	
Paulownia	<i>Paulownia tomentosa</i>	Rare	Competition with native species	
Pennyroyal	<i>Mentha pulegium</i>	Occasional and localised	Competition with native species	
Peppermint	<i>Mentha x piperita</i>	Occasional and localised	Competition with native species	
Periwinkle	<i>Vinca major</i>	Widespread	Competition with native species; ecosystem modification of sand dunes and associated landforms; suppression of native regeneration	Islands
Phoenix palm	<i>Phoenix canariensis</i>	Occasional and localised	Competition with native species	
Pigeon grass	<i>Setaria pumila</i>	Widespread and abundant	Competition with low-stature native species; suppression of native regeneration	
Pine	<i>Pinus spp.</i>	Occasional and localised	Competition with native species	
Pink bindweed	<i>Calystegia sepium</i>	Widespread and abundant	Competition with native species, particularly at lake margins, wetlands and river systems	
Pink headed knotweed	<i>Persicaria capitata</i>	Occasional and localised	Competition with native species	

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Pink ragwort	<i>Senecio glastifolius</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Plectranthus	<i>Plectranthus ciliatus</i> , <i>Coleus barbatus</i> var. <i>grandis</i> , <i>Plectranthus</i> spp.	Widespread	Competition with native species	
Plum	<i>Prunus x domestica</i>	Occasional and localised	Competition with native species	
Ponderosa pine	<i>Pinus ponderosa</i>	Occasional and localised	Competition with native species	
Poplar	<i>Populus</i> spp.	Occasional and localised	Competition with native species	
Potato	<i>Solanum tuberosum</i>	Rare	Competition with native species	
Privet	<i>Ligustrum ovalifolium</i>	Occasional and localised	Competition with native species	
Purple cestrum	<i>Cestrum elegans</i>	Occasional and localised	Competition with native species	
Purple groundsel	<i>Senecio elegans</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Purple linaria	<i>Linaria purpurea</i>	Occasional and localised	Competition with native species	
Purple loosestrife	<i>Lythrum salicaria</i>	Rare	Competition with native species, particularly at lake margins, wetlands and river systems	As required
Purple pampas grass	<i>Cortaderia jubata</i>	Widespread	Competition with native species	
Queen of the night	<i>Cestrum nocturnum</i>	Occasional and localised	Competition with native species	
Radiata pine	<i>Pinus radiata</i>	Occasional and localised	Competition with native species	
Ragwort	<i>Jacobaea vulgaris</i>	Occasional and localised	Competition with native species	
Red cestrum	<i>Cestrum fasciculatum</i>	Occasional and localised	Competition with native species	
Red escallonia	<i>Escallonia rubra</i>	Occasional and localised	Competition with native species	
Red hot poker	<i>Kniphofia uvaria</i> , <i>Kniphofia</i> spp.	Occasional and localised	Competition with native species	
Redroot	<i>Amaranthus retroflexus</i>	Occasional and localised	Competition with native species	
Reed sweet grass / floating sweet grass	<i>Glyceria maxima</i>	Occasional and localised	Competition with native species, particularly at lake margins, wetlands and river systems	

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Rhododendron	<i>Rhododendron</i> spp.	Occasional and localised	Competition with native species	
Rose	<i>Rosa</i> spp.	Widespread	Competition with native species	
Rose campion	<i>Silene coronaria</i>	Occasional and localised	Competition with native species	
Royal fern	<i>Osmunda regalis</i>	Widespread	Competition with native species, particularly at lake margins, wetlands and river systems	Wetlands
Rye	<i>Secale cereale</i>	Occasional and localised	Competition with native species	
Sallow sedge	<i>Carex lurida</i>	Widespread and abundant	Competition with native species, particularly at lake margins, wetlands and river systems	
Saltwater paspalum	<i>Paspalum vaginatum</i>	Occasional and localised	Competition with native species	
Salvia	<i>Podalyria sericea</i>	Occasional and localised	Competition with native species	
Satin bush	<i>Saxifraga stolonifera</i>	Rare	Competition with native species; ecosystem modification; suppression of native regeneration	As located
Saxifraga	<i>Saxifraga stolonifera</i>	Occasional and localised	Competition with native species	
Scotch thistle	<i>Cirsium vulgare</i>	Widespread and abundant	Competition with native species	
Sea couch	<i>Elytrigia pycnantha</i>	Occasional and localised	Competition with native species	
Sea rocket	<i>Cakile maritima</i>	Occasional and localised	Competition with native species	
Selaginella / African club moss	<i>Selaginella kraussiana</i>	Widespread	Competition with native species; ecosystem modification; suppression of native regeneration	
Shepherd's purse	<i>Capsella bursa-pastoris</i>	Occasional and localised	Competition with native species	
Shrub balsam / impatiens	<i>Impatiens sodenii</i>	Occasional and localised	Competition with native species	
Silver birch	<i>Betula pendula</i>	Occasional and localised	Competition with native species	
Silver poplar	<i>Populus alba</i>	Occasional and localised	Competition with native species	
Silver wattle	<i>Acacia dealbata</i>	Occasional and localised	Competition with native species	
Silver willow	<i>Salix alba</i> var. <i>alba</i>	Occasional and localised	Competition with native species	
Sitka spruce	<i>Picea sitchensis</i>	Occasional and localised	Competition with native species	

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Smilax / bridal creeper	<i>Asparagus asparagoides</i>	Widespread	Competition with native species; suppression of native regeneration	
Spanish heath	<i>Erica lusitanica</i>	Widespread and abundant	Competition with native species; ecosystem modification; suppression of native regeneration	
Spartina / cord grass	<i>Sporobolus alterniflorus</i> , <i>Spartina</i> spp.	Occasional and localised	Competition with native species	
Spruce	<i>Picea</i> spp.	Occasional and localised	Competition with native species	
Stinking iris	<i>Iris foetidissima</i>	Occasional and localised	Competition with native species	
Stonecrop	<i>Sedum acre</i>	Occasional and localised	Competition with native species	
Strawberry dogwood	<i>Cornus capitata</i>	Occasional and localised	Competition with native species	
Strobilus pine	<i>Pinus strobus</i>	Occasional and localised	Competition with native species	
Swamp lily	<i>Ottelia ovalifolia</i>	Occasional and localised	Competition with native species	
Sweet briar	<i>Rosa rubiginosa</i>	Widespread	Competition with native species	
Sweet cherry	<i>Prunus avium</i>	Occasional and localised	Competition with native species	
Sweet pea shrub	<i>Polygala myrtifolia</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Sweet pittosporum	<i>Pittosporum undulatum</i>	Rare	Competition with native species	As required
Sycamore	<i>Acer pseudoplatanus</i>	Widespread	Competition with native species	
Sydney golden wattle	<i>Acacia longifolia</i>	Occasional and localised	Competition with native species	
Tasmanian blackwood	<i>Acacia melanoxylon</i>	Occasional and localised	Competition with native species	
Tasmanian ngaio	<i>Myoporum insulare</i>	Occasional and localised	Competition with native species	
Thornapple	<i>Datura stramonium</i>	Rare	Competition with native species	
Three-cornered garlic	<i>Allium triquetrum</i>	Rare	Competition with native species	
Tiarella	<i>Tiarella cordifolia</i>	Occasional and localised	Competition with native species	
Tiger lily	<i>Lilium lancifolium</i>	Rare	Competition with native species	
Torrey pine	<i>Pinus torreyana</i>	Rare	Competition with native species	
Tortured willow	<i>Salix matsudana</i>	Rare	Competition with native species	

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Tree dahlia	<i>Dahlia excelsa</i>	Occasional and localised	Competition with native species	
Tree heath	<i>Erica arborea</i>	Occasional and localised	Competition with native species	
Tree lucerne	<i>Chamaecytisus palmensis</i>	Occasional and localised	Competition with native species	
Tree lupin	<i>Lupinus arboreus</i>	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Tree privet	<i>Ligustrum lucidum</i>	Occasional and localised	Competition with native species	
Tuber ladder fern / tuber sword fern	<i>Nephrolepis cordifolia</i>	Widespread	Competition with native species	
Tutsan	<i>Hypericum androsaemum</i>	Widespread	Competition with native species; ecosystem modification; suppression of native regeneration	
Umbrella sedge	<i>Cyperus eragrostis</i>	Occasional and localised	Competition with native species	
Velvet groundsel	<i>Roldana petasitis</i>	Occasional and localised	Competition with native species	
Vetch	<i>Vicia sativa</i>	Occasional and localised	Competition with native species	
Victorian Christmas bush	<i>Prostanthera lasianthos</i>	Occasional and localised	Competition with native species	
Violet	<i>Viola odorata</i>	Occasional and localised	Competition with native species	
Viper's bugloss	<i>Echium vulgare</i>	Occasional and localised	Competition with native species	
Wandering Willie	<i>Tradescantia fluminensis</i>	Widespread and abundant	Competition with native species; ecosystem modification; suppression of native regeneration	
Water buttercup	<i>Ranunculus trichophyllus</i>	Occasional and localised	Competition with native species	
Water figwort	<i>Scrophularia auriculata</i>	Occasional and localised	Competition with native species	
Water forget-me-not	<i>Myosotis scorpioides</i>	Occasional and localised	Competition with native species	
Water lily	<i>Nymphaea alba</i>	Occasional and localised	Competition with native species	
Water net	<i>Hydrodictyon reticulatum</i>	Occasional and localised	Competition with native species	
Water speedwell	<i>Veronica anagallis-aquatica</i>	Occasional and localised	Competition with native species	
Watsonia	<i>Watsonia meriana</i> 'Bulbillifera'	Occasional and localised	Competition with native species	
Wattle	<i>Acacia</i> spp.	Occasional and localised	Competition with native species	
Weeping willow	<i>Salix babylonica</i>	Occasional and localised	Competition with native species	

Common name	Scientific name	Location(s)	Pressures/threats posed	Priority sites for action
Western red cedar	<i>Thuja plicata</i>	Occasional and localised	Competition with native species	
White bryony	<i>Bryonia alba</i>	Rare	Competition with native species; ecosystem modification; suppression of native regeneration	
Wild radish	<i>Raphanus raphanistrum</i>	Widespread	Competition with native species	
Wilding pines	<i>Pinus</i> spp. (includes <i>P. radiata</i>)	Occasional and localised	Competition with native species; ecosystem modification; suppression of native regeneration	
Willow	<i>Salix</i> spp.	Widespread and abundant	Competition with native species, particularly at lake margins, wetlands and river systems	
Willow-leaved hakea	<i>Hakea salicifolia</i>	Occasional and localised	Competition with native species	
Willow weed	<i>Persicaria maculosa</i>	Occasional and localised	Competition with native species	
Wisteria	<i>Wisteria sinensis</i>	Occasional and localised	Competition with native species	
Woolly nightshade	<i>Solanum mauritianum</i>	Widespread and abundant	Competition with native species; ecosystem modification; suppression of native regeneration	
Yarrow	<i>Achillea millefolium</i>	Occasional and localised	Competition with native species	
Yellow flag iris	<i>Iris pseudacorus</i>	Widespread	Competition with native species	
Yellow ginger	<i>Hedychium flavescens</i>	Widespread	Competition with native species	
Yellow sedge	<i>Carex demissa</i>	Occasional and localised	Competition with native species	
Yorkshire fog	<i>Holcus lanatus</i>	Widespread and abundant	Competition with native species	
Yunnan poplar	<i>Populus yunnanensis</i>	Occasional and localised	Competition with native species	

Appendix 8

Marine habitats and ecosystems in the Bay of Plenty region

The Coastal Classification and Mapping Scheme depth zones are as follows: shallow: 0–30 m; deep: 30–200 m; upper slope: 200–500 m; mid-slope: 500–1000 m; lower slope: 1000–4000 m.

Note: The areas listed under ‘Protected areas’ may not all qualify as marine protected areas under the Marine protected areas: classification, protection standard and implementation guidelines (Ministry of Fisheries & Department of Conservation 2008),¹⁰ depending on the management controls being implemented for that particular area.

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
North Eastern Coastal and Marine Place Bioregion				
Tauranga Harbour	<ul style="list-style-type: none"> • Saltmarsh • Mangrove • Seagrass • Estuarine mudflats • Estuarine sandflats • Estuarine channel • Estuarine beach 	<p>This large (21 800 ha), shallow estuarine harbour is roughly divided into two tidal compartments at Matahui Point. It contains numerous islands and intertidal flats supporting extensive seagrass (<i>Zostera muelleri</i> subsp. <i>novazelandica</i>) beds, mātawaka / mangrove (<i>Avicennia marina</i> subsp. <i>australasica</i>) and saltmarsh habitats. Collectively, Tauranga and Ōhiwa harbours contain c. 93% of all estuarine wetlands and c. 95% of palustrine wetlands in the region. The size of the seagrass beds makes them nationally significant (Morrison et al. 2014).</p> <p>The harbour is of international significance for migratory and indigenous coastal birds. The</p>	<ul style="list-style-type: none"> • Downstream effects of activities in the catchment on water quality, sedimentation and sea lettuce (<i>Ulva</i> spp.) blooms. • Coastal development, including habitat loss, sediment discharges and altered hydrology arising from flood control works, reclamations and capital works, and maintenance dredging. • Chronic disturbance of wildlife. • Bycatch of protected and non-target species. • Barriers to fish passage. 	<ul style="list-style-type: none"> • Te Maunga Mauao

¹⁰ Bibliographic details of all publications cited in this Appendix are provided in the References section.

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>tidal flats are used year-round by wading birds, with 6500 to more than 10300 individuals foraging here during summer, and 1200 to 3800 individuals remaining in winter (Owen 2013). Wetlands, saltmarsh and mangroves provide important habitats for Australasian bittern (<i>Botaurus poiciloptilus</i>), North Island fernbird (<i>Bowdleria punctata vealeae</i>) and banded rail (<i>Gallirallus philippensis assimilis</i>). There are approximately 20 high-tide wading bird roosts and several red-billed gull (<i>Larus novaehollandiae scopulinus</i>) colonies in and around the harbour. Overall, 23 threatened bird species occur here, and the harbour supports at least 1% of the national population of six native bird species (Owen 2013).</p> <p>The harbour supports regionally important customary and recreational fisheries, and has a moderate estuarine fish diversity (Francis et al. 2011). Additional large fishes that occur in the harbour but were not sampled with the methods used by Francis et al. (2011) include kingfish (<i>Seriola lalandi</i>), rig (<i>Mustelus lenticulatus</i>), juvenile great white shark (<i>Carcharodon carcharias</i>), bronze whaler (<i>Carcharhinus brachyurus</i>), shorttail stingray (<i>Dasyatis brevicaudata</i>) and eagle ray (<i>Myliobatis tenuicaudatus</i>).</p>	<ul style="list-style-type: none"> • Exotic marine species. • Introduced mammalian predators. • Weeds. • Unregulated mangrove removal. • Sea level rise. 	

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
Ōngātoto / Maketu Estuary	<ul style="list-style-type: none"> • Saltmarsh • Estuarine mudflats • Estuarine sandflats • Estuarine channel 	<p>In the 1950s, the Kaituna River (which drains a 125 000-ha catchment that includes Lake Rotorua/Te Rotorua nui ā Kahumatamomoe and Lake Rotoiti/Te Roto kite ā Ihenga i ariki ai Kahu) was diverted to flow straight out to sea at Te Tumu. This change to the flow regime affected the extent and composition of saltmarsh vegetation and sedimentation rates within the estuary and caused erosion of the spit. A connection to the Kaituna River was re-established in the mid-1990s through the diversion of a small part of the flow into the estuary via Ford's Cut.</p> <p>Diversion of the river, poor water quality, invasive species and the development of marginal wetlands and saltmarsh have significantly impacted the natural and cultural heritage values of the estuary. However, despite this, it remains a feeding and roosting area for migratory waders and coastal birds of national and international importance, including northern New Zealand dotterel (<i>Charadrius obscurus aquilonius</i>), New Zealand fairy tern (<i>Sternula nereis davisae</i>), Caspian tern (<i>Hydroprogne caspia</i>), ngutu parore / wrybill (<i>Anarhynchus</i></p>	<ul style="list-style-type: none"> • Downstream effects of activities in the catchment on water quality and sedimentation. Water quality in the lower part of the Kaituna River has been adversely affected by discharges of contaminants and bacteria and the run-off of nutrients (nitrate, phosphorus) and sediments. • Coastal development, including habitat loss, sediment discharges and altered hydrology arising from flood control works and the reclamation/infilling of wetlands. • Erosion of the spit. • Chronic disturbance of wildlife. • Overharvesting of shellfish. • Barriers to fish passage. • Introduced mammalian predators. • Weeds. • Sea level rise. 	<ul style="list-style-type: none"> • Recreation reserve • Maketu Taiapure

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p><i>frontalis</i>), banded rail, North Island fernbird, Australasian bittern, spotless crane (<i>Porzana tabuensis</i>) and royal spoonbill (<i>Platalea regia</i>). New Zealand dotterels nest on the spit.</p> <p>The estuary supports regionally important cultural and recreational fisheries for shellfish (mainly pipi <i>Paphies australis</i>), with some recreational fishing for fin fish, including whitebait (predominantly īnanga <i>Galaxias maculatus</i>).</p>		
<p>Little Waihi Estuary</p>	<ul style="list-style-type: none"> • Saltmarsh • Estuarine mudflats • Estuarine sandflats • Mangrove • Estuarine channel 	<p>The Waihi Estuary Wildlife Management Reserve contains high-quality saltmarsh vegetation, as well as c. 45 ha of former farmland that is dominated by exotic grasses and pampas (<i>Cortaderia</i> spp.). The reserve and wider estuary represent a regionally significant coastal and migratory wading bird habitat. Species present include bar-tailed godwit (<i>Limosa lapponica</i>), lesser/red knot (<i>Calidris canutus</i>), royal spoonbill, Australasian bittern and North Island fernbird.</p> <p>The estuary supports regionally important cultural and recreational fisheries for shellfish (mainly pipi), with some commercial and non-commercial fishing for fin fish, including whitebait (predominantly īnanga).</p>	<ul style="list-style-type: none"> • Downstream effects of activities in the catchment on water quality and sedimentation. • Coastal development, including habitat loss, sediment discharges and altered hydrology arising from flood control works and the reclamation/infilling of wetlands. • Chronic disturbance of wildlife. • Overharvesting of shellfish. • Barriers to fish passage. • Introduced mammalian predators. • Weeds. • Sea level rise. 	<ul style="list-style-type: none"> • Waihi Estuary Wildlife Management Reserve • Maketu Taiapure

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
Whakatāne Harbour	<ul style="list-style-type: none"> • Saltmarsh • Estuarine mudflats • Estuarine sandflats • Estuarine rocky reef • Estuarine channel 	<p>Whakatāne Harbour has been extensively modified to serve as a port and is characterised by extreme flows during periods of intensive rainfall in the upper catchment. It is essentially a narrow, strongly tidal channel. Under normal river flows, a bar system forms at its entrance, but this is periodically breached by floods. Hard substrates at and near the harbour mouth are subject to considerable sand scour.</p> <p>The sandy beach at the end of the sandspit is a high-tide roost for southern black-backed gull (<i>Larus dominicanus</i>), red-billed gull, pied stilt (<i>Himantopus himantopus</i>), variable oystercatcher (<i>Haematopus unicolor</i>), South Island pied oystercatcher (<i>Haematopus finschi</i>), northern New Zealand dotterel and white-fronted tern (<i>Sterna striata</i>). Species foraging on the tidal flats include gulls, oystercatchers and mallards (<i>Anas platyrhynchos</i>), while shags (<i>Phalacrocorax</i> spp.) feed in the channel. Species breeding on the spit and sand islands in the harbour include variable oystercatcher, northern New Zealand dotterel, and red-billed and black-backed gulls.</p> <p>Fishes occurring in the lower Whakatāne River include tuna / shortfin eel (<i>Anguilla australis</i>), īnanga, common smelt (<i>Retropinna</i></p>	<ul style="list-style-type: none"> • Downstream effects of activities in the catchment on water quality and sedimentation. • Infrastructure development (habitat loss, changes to the hydrology of the harbour, erosion). • Capital works and maintenance dredging. • Chronic disturbance of wildlife. • Barriers to fish passage. • Orini Stream and Kopeopeo Canal wood waste sites (pentachlorophenol (PCP) contamination). • Sea level rise. 	<ul style="list-style-type: none"> • Piripai Wildlife Management Reserve

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p><i>retropinna</i>), yelloweye mullet (<i>Aldrichetta forsteri</i>), snapper (<i>Chrysophrys auratus</i>), kahawai (<i>Arripis trutta</i>), common bully (<i>Gobimorphus cotidianus</i>) and flounders (<i>Rhombosolea</i> spp.).</p> <p>The Otamarakau-Matata-Whakatane Dunes complex is considered a nationally significant coastal habitat (Wildland Consultants Ltd 2009).</p>		
<p>Ōhiwa Harbour</p>	<ul style="list-style-type: none"> • Saltmarsh • Mangrove • Seagrass • Estuarine mudflats • Estuarine sandflats • Estuarine channel 	<p>Ōhiwa Harbour and the Ōhope Spit dunes form an outstanding natural landscape. The harbour covers 26.4 km², 80% of which is exposed at low water, and contains ten small islands. Among these, Ohakana Island is permanently inhabited and divided into small lifestyle blocks. Twelve streams and the Nukuhou River flow into the harbour, draining a catchment area of c. 171 km². The margins support significant indigenous coastal vegetation sequences, including terrestrial, wetland and saltmarsh communities (Ohiwa Harbour Partners 2015). Collectively, Tauranga and Ōhiwa harbours contain c. 93% of all estuarine wetlands and c. 95% of all palustrine wetlands in the region (Wildland Consultants Ltd 2003).</p> <p>Wetland birds that are likely to be breeding in these areas include North Island fernbird, banded rail,</p>	<ul style="list-style-type: none"> • Downstream effects of activities in the catchment (including discharges from septic tanks) on water quality, sedimentation and sea lettuce blooms. • Development of the coastal margin (including infrastructure and aquaculture). • Chronic disturbance of wildlife. • Bycatch of protected and non-target species. • Exotic marine species. • Introduced mammalian predators. • Weeds. • Unregulated mangrove removal. • Barriers to fish passage. • Sea level rise. 	<ul style="list-style-type: none"> • Whangakopikopiko (Tern Island) Government Purpose Wildlife Reserve • Pataua Island Scientific Reserve • Uretara Island Scenic Reserve • Motuotu Island Nature Reserve • Hokianga Island Māori Reserve • Onekawa Te Mawhai Regional Park • Ohope Spit Wildlife Refuge Reserve • Nukuhou Saltmarsh Conservation Area

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
	<p>spotless crane and Australasian bittern. The harbour is also an important roosting and feeding site for migratory waders and coastal birds such as bar-tailed godwit, red knot, Pacific golden plover (<i>Pluvialis fulva</i>), banded dotterel (<i>Charadrius bicinctus bicinctus</i>), northern New Zealand dotterel, white-fronted tern, South Island pied oystercatcher, royal spoonbill, variable oystercatcher, white-faced heron (<i>Egretta novaehollandiae</i>) and gulls (<i>Larus</i> spp.). It is also a breeding site for banded dotterel, northern New Zealand dotterel, variable oystercatcher, black-billed gull (<i>Larus bulleri</i>), red-billed gull, Caspian tern and white-fronted tern.</p> <p>The tidal flats and channels contain 3.5% of the seagrass found in the region, as well as regionally significant populations of shellfish, including tuangi/cockle (<i>Austrovenus stutchburyi</i>), pipi and green-lipped mussel (<i>Perna canaliculus</i>) (Ohiwa Harbour Partners 2015).</p> <p>Īnanga spawn in the Tunanui and Waiotane streams and the Nukuhou River, and banded kōkopu (<i>Galaxias fasciatus</i>) spawn in Waiotane Stream. There is limited information on the marine fishes that occur in the harbour.</p>			

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
Waiotaha Estuary	<ul style="list-style-type: none"> • Saltmarsh • Estuarine mudflats • Mangrove • Estuarine channel 	<p>Dense beds of tuangi and pipi occur on the sandflats and in the channel near the mouth of Waiotaha Estuary (Berkenbusch et al. 2015).</p> <p>There are areas of remnant indigenous coastal vegetation, including a small mānawa population.</p> <p>Coastal birds recorded in the estuary include pied shag (<i>Phalacrocorax varius varius</i>), black shag (<i>Phalacrocorax carbo novaehollandiae</i>), Caspian tern, southern black-backed gull, banded rail, variable oystercatcher, Australasian bittern, North Island fernbird, white-faced heron, reef heron (<i>Egretta sacra</i>), cattle egret (<i>Ardea ibis</i>), white heron (<i>Ardea modesta</i>), pied stilt, northern New Zealand dotterel and bar-tailed godwit. Variable oystercatcher and northern New Zealand dotterel breed on Waiotaha Spit.</p> <p>Waiotaha Spit is an important spawning area for īnanga.</p> <p>This small harbour was formed by the confluence of the Waioeka and Ōtara rivers. Both of these rivers have large, steep catchments and are prone to flooding. Consequently, their lower reaches have been extensively modified by flood control works, including a network of stop banks.</p>	<ul style="list-style-type: none"> • Levels of sediments, nutrients and bacteria reaching the estuary in run-off from the catchment are the primary environmental pressures (Bay of Plenty Regional Council 2011). • Chronic disturbance of wildlife. • Off-road vehicles. • Introduced mammalian predators. • Livestock. • Weeds. • Sea level rise. 	<ul style="list-style-type: none"> • Waiotaha Spit Scenic and Historic Reserves • Waiotaha Estuary Scenic Reserve

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>Despite its highly modified nature, this system retains a number of significant ecological features, including inanga spawning sites in Huntress Creek and the Waioeka and Ōtara rivers; regionally significant indigenous coastal vegetation (4.0 ha of estuarine rushland, 13.8 ha of reedland and 2.9 ha of palustrine reedland); and the presence of at least 21 indigenous coastal bird species, including populations of five threatened species (Wildland Consultants Ltd 2008).</p> <p>The largest area of saltmarsh occurs in Huntress Creek on the western side of the harbour (Wildland Consultants Ltd 2008).</p> <p>Northern New Zealand dotterel and variable oystercatcher breed on Waioeka Spit (the eastern side of the river mouth) and forage on the intertidal sand and mud flats in the estuary.</p>		
Ōpōtiki Harbour	<ul style="list-style-type: none"> • Saltmarsh • Estuarine mudflats • Estuarine channel 	<p>This small harbour was formed by the confluence of the Waioeka and Ōtara rivers. Both of these rivers have large, steep catchments and are prone to flooding. Consequently, their lower reaches have been extensively modified by flood control works, including a network of stop banks.</p>	<ul style="list-style-type: none"> • Downstream effects of activities in the catchment on water quality and sedimentation. • Flood control works. • Coastal development. • Weeds. • Sea level rise. 	<ul style="list-style-type: none"> • Huntress Creek Conservation Area

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>Despite its highly modified nature, this system retains a number of significant ecological features, including īnanga spawning sites in Huntress Creek and the Waioeka and Ōtara rivers; regionally significant indigenous coastal vegetation (4.0 ha of estuarine rushland, 13.8 ha of reedland and 2.9 ha of palustrine reedland); and the presence of at least 21 indigenous coastal bird species, including populations of five threatened species (Wildland Consultants Ltd 2008).</p> <p>The largest area of saltmarsh occurs in Huntress Creek on the western side of the harbour (Wildland Consultants Ltd 2008).</p>		
Inner continental shelf (0–30 m)	<ul style="list-style-type: none"> • Moderately exposed sandy beach • Moderately exposed rocky shore • Shallow gravel • Shallow sand • Shallow mud • Moderately exposed shallow rocky reef • Shallow hydrothermal vent field 	<p>The coastline from Waihi to the Mōtū River predominantly consists of exposed sandy beach that is broken by rocky headlands at Maunganui (Tauranga Entrance), Okurei Point, Kōhī Point, Opape and Haurere Point, Pehitairi, and Te Uritukituki. East of the Mōtū River, the coastline becomes increasingly rocky.</p> <p>Shallow rocky reef systems surround Karewa and Mōtītī islands, Rūrīma Rocks, and Moutohora Island, extend offshore from Maketu and Little Waihi estuaries, and fringe the coastline east of the Mōtū River.</p>		

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>These reef systems are highly productive and sustain regionally significant customary, recreational and commercial fisheries. They are characterised by a fucoid algal fringe that extends from low water to a depth of 3–5 m and then grades into kelp forest (predominantly <i>Ecklonia radiata</i>). At moderately sheltered sites, there are often extensive urchin barrens between 3 and 10 m depth, which are characterised by high densities of kina (<i>Evechinus chloroticus</i>) and an extensive cover of encrusting and turfing coralline algae.</p> <p>Sea floor sediments are predominantly sands and gravels.</p> <p>The infaunal invertebrate diversity is moderate, with some species of shellfish (e.g. <i>tuatua Paphies subtriangulata</i>) occurring at high densities.</p> <p>Fishers have reported sponges growing on shallow gravelly sands between Karewa and Matakana islands; large beds of algae between Mount Maunganui and Maketu; a green-lipped mussel bed off Ōhiwa Harbour at c. 25–30 m depth; and horse mussel (<i>Atrina zelandica</i>) beds off Mōtītī Island and Haurere Point at similar depths (Morrison et al. 2014; Jones et al. 2016). Horse mussels sampled</p>		

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>southwest of Mōtītī Island had macroalgae, including the kelp <i>Ecklonia radiata</i>, attached to their shells, greatly increasing the benthic habitat diversity in this area (Morrison et al. 2014).</p> <p>Southern right whales (<i>Eubalaena australis</i>), including cow–calf pairs, occur in shallow water close to shore throughout the region in winter and spring (Patenaude 2003).</p> <p>Shallow hydrothermal vents occur around Rūrima Rocks and Moutohora Island that are associated with high rates of microbial chemosynthesis and biomass (Sorokin et al. 1998). To date, no macrofaunal species or assemblages have been identified as being unique to these vents.</p>		
<p>Mid–outer continental shelf (30–200 m)</p>	<ul style="list-style-type: none"> • Deep gravel • Deep sand • Deep mud • Deep reef • Hydrothermal vents 	<p>Extensive deep rocky reef systems occurring around Mayor Island (Tuhua) and Tuhua Reef, Penguin Shoal, Astrolabe Reef, Pudney Rock, Okaparū Reef, Motuhaku Island (Schooner Rocks), Motunau Island, and Volkner Rocks – Whakaari/White Island, with the deep reefs around Tuhua and Whakaari extending on to the upper slope. These offshore reef systems support highly diverse reef fish and invertebrate assemblages that are characterised by abundant large</p>	<ul style="list-style-type: none"> • Sections of the mid-shelf closest to the mainland are vulnerable to fine sediment discharges from rivers and estuaries. 	<ul style="list-style-type: none"> • Tuhua (Mayor Island) Marine Reserve • Te Paepae o Aotea (Volkner Rocks) Marine Reserve • Rena Exclusion Zone

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>predatory fishes (e.g. kingfish and several species of shark) and subtropical species. Below 30m depth, the encrusting fauna is dominated by large sponges, black coral, gorgonians and bryozoans (Jones & Garrick 1991; Froude 2001).</p> <p>The Volkner Rocks – Whakaari kingfish population exhibits very limited connectivity with kingfish populations elsewhere, including those in coastal Bay of Plenty. Some fish that were tagged at Volkner Rocks have been recaptured at Ranfurly Bank off East Cape.</p> <p>The deep reefs around Tuhua and Volkner Rocks – Whakaari are national hot spots for southern Mandarin dogfish (<i>Cirrhigaleus australis</i>) and smalltooth sand tiger (<i>Odontaspis ferox</i>), respectively.</p> <p>Large schools of jack mackerel (<i>Trachurus novaezelandiae</i>), minke whale (<i>Balaenoptera acutorostrata</i>), sei whale (<i>Balaenoptera borealis</i>) and Bryde’s whale (<i>Balaenoptera edeni</i>) feed on zooplankton during spring in the area between Karewa, Mayor and Motuhaku islands. In addition, humpback whales (<i>Megaptera novaeangliae</i>) migrate through the region to their Antarctic feeding grounds during October–November, while short-beaked</p>	<ul style="list-style-type: none"> • Offshore aquaculture development. • Disturbance by mobile fishing gears (Baird et al. 2011). • Fishing down of keystone species. • Fisheries bycatch of protected and non-target species. 	

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p>common dolphins (<i>Delphinus delphis</i>) are most abundant during summer and autumn and New Zealand fur seals (<i>Arctocephalus forsteri</i>) are most abundant in winter and spring. Furthermore, higher densities of both of the latter species occur over reefs, suggesting that they forage in these areas (Meissner 2015).</p> <p>Hydrothermal vents occur at Rūrima Rocks and along cross-shelf faults extending from Moutohora Island towards Whakaari/White Island, as well as on Rungapapa Knoll. The Calypso Vents are located at the end of the Rūrima Ridge between 150 and 200m depth, and significant rates of microbial chemosynthesis and high microbial biomasses have been recorded in the water column above these (Duncan & Pantin 1969; Sarano et al. 1989; Sorokin et al. 1998). The sediments around the Calypso Vents are characterised by high levels of arsenic, antimony, mercury, thallium, uranium and molybdenum, and the epifauna is sparse, whereas some vents appear to have abundant infauna. Rock outcrops support sponges, hydrozoans, anemones, alcyonaceans, small scleractinian corals (<i>Flabellidae</i>) and sea stars (Sarano et al. 1989).</p>		

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
Upper continental slope (200–500 m)	<ul style="list-style-type: none"> • Gravel • Calcareous gravel • Silty sand • Sandy mud • Deep reef • Hydrothermal vents 	<p>The upper slope sediments are predominantly sandy silt and mud, except on Whakaari High and the summits of the surrounding knolls, where they are predominantly sands and gravels. Hard volcanic rocks are exposed on the summits and upper slopes of seamounts surrounding Whakaari/White Island which, along with the Rungapapa, Tuatoru, Tumokemoke and Māhina knolls, is volcanically active (Duncan & Pantin 1969; Sarano et al. 1989; Kelly 2007).</p> <p>Large areas of ‘coral’ and sponges have been reported on the upper slope near Mayor Knolls (Jones et al. 2016). Antipatharian, gorgonian, scleractinian and stylasterid corals have been recorded on the upper slope and on seamounts surrounding Whakaari/White Island.</p> <p>Almost half of the lithistid sponges reported from New Zealand have been collected from knolls and seamounts in the Bay of Plenty. Two of these sponges, <i>Awhiowhio osheai</i> and <i>Leiodermatium linea</i>, are only known from Rungapapa and Tuatoru knolls (Kelly 2007).</p> <p>At least 163 species of large invertebrates have been recorded in research trawls on the upper slope. New Zealand scampi (<i>Metanephrops challengerii</i>) are abundant, as are the crustaceans</p>	<ul style="list-style-type: none"> • Disturbance by mobile fishing gears (Cryer et al. 2002; Baird et al. 2011). • Fishing down of keystone species. • Fisheries bycatch of protected and non-target species. 	<ul style="list-style-type: none"> • Tuhua (Mayor Island) Marine Reserve • Te Paepae o Aotea (Volkner Rocks) Marine Reserve

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		<p><i>Ibacus alticrenatus</i>, <i>Aristaeomorpha foliacea</i>, <i>Haliporoides sibogae</i>, <i>Plesionika martia</i>, <i>Notopandalus magnoculus</i>, <i>Munida gracilis</i>, <i>Paguristes barbatus</i> and <i>Uroptychus</i> sp.; the starfishes <i>Pseudarchaster garricki</i> and <i>Psilaster acuminatus</i>; the brittle star <i>Ophiomyxa brevirima</i>; the sea urchins <i>Ogmocidaris benhami</i> and <i>Phormosoma bursarium</i>; and the sea pen <i>Anthoptilum murrayi</i> (Cryer et al. 2002).</p> <p>The demersal fish diversity over the upper slope is moderate. Northern spiny dogfish (<i>Squalus griffini</i>), tarakihi (<i>Nemadactylus macropterus</i>), hoki (<i>Macruronus novaezealandiae</i>), gemfish (<i>Rexea solandri</i>), frost fish (<i>Lepidopus caudatus</i>) and rattails (<i>Macrouridae</i>) are common from c. 200–600 m depth, while bass (<i>Polyprion americanus</i>), bluenose (<i>Hyperoglyphe antarctica</i>), alfonsino (<i>Beryx</i> spp.) and rubyfish (<i>Plagiogeneion rubiginosum</i>) occur on upper slope reefs and knolls. The deep reefs around Mayor Island (Tuhua) and Volkner Rocks – Whakaari/White Island are national hot spots for the rare deep-water southern Mandarin dogfish and smalltooth sand tiger, respectively. Pilot whales (probably <i>Globicephala melas</i>), bottlenose dolphins (<i>Tursiops truncatus</i>), common</p>		

Ecosystem	Habitat types	Description	Pressures/threats	Protected areas
		dolphins and New Zealand fur seals appear to feed along the shelf break and over the upper shelf (Duffy et al. 2015; Meissner 2015).		
Mid-lower continental slope (500 to > 1000 m)	<ul style="list-style-type: none"> • Sandy muds • Mud 	<p>Depths exceeding 500 m occur close to the outer limit of the Territorial Sea, with the most extensive and topographically complex area of mid-slope habitat occurring around Whakaari/White Island. The only area where depths exceed 1000 m is to the north and east of Whakaari. The head of the White Island Trench, which runs parallel to the Whakaari/White Island and Ngātoro ridges, is at the shelf break c. 30 km northeast of Whakatāne Heads and is likely to be an area of relatively high habitat complexity and possibly enhanced benthic productivity. The sea floor sediments are predominantly mud and sandy mud below 500 m depth.</p> <p>The fauna of this ecosystem is poorly known. Research trawls and baited underwater cameras have indicated that shovelnose dogfish (<i>Deania calcea</i>), hoki, ling (<i>Molva molva</i>) and orange roughy (<i>Hoplostethus atlanticus</i>) predominate from 400 to 1000 m depth, while orange roughy and small scaled brown slickhead (<i>Alepocephalus australis</i>) are the most abundant species below 1000 m. Lantern fishes, squids and salps are the most abundant midwater taxa (Clark & King 1989).</p>	<ul style="list-style-type: none"> • Disturbance by mobile fishing gears (Cryer et al. 2002; Baird et al. 2011). 	

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Appendix 9

Significant geological features, landforms and landscapes in the Bay of Plenty region

These values are identified to help fulfil policies 4.5(a) and (b) of the Conservation General Policy 2005.¹¹

Type	Feature	Significance (international, national or regional)	Place	Pressures/threats
Public conservation lands and waters of international and national significance	Motuotu Island Nature Reserve	Nationally significant because of its protected land status	Coastal and Marine	
	Lake Rotowau Road section	National	Waiariki	Human actions: quarries and mining; development projects; reclamation; geothermal exploitation; subdivisions; erosion protection; hydroseeding and restoration of cuttings; farming; forestry; fossicking; visitor damage
	Lake Rotomahana explosion craters	International	Waiariki	
	Lake Rotomahana steaming cliffs and Pink Terraces site	National	Waiariki	
	Mamaku ignimbrite tors	National	Kaimai Mamaku	
	Matatā Pleistocene marine sequence and fossils	National	Coastal and Marine	
	Maungakakamea lava dome (Maunga Kākamea / Rainbow Mountain)	National	Waiariki	
	Mayor Island (Tuhua) 8-ka lava flow	National	Coastal and Marine	
	Mayor Island (Tuhua) caldera		Coastal and Marine	
	Mayor Island (Tuhua) northeastern lava shield segment	National	Coastal and Marine	
	Mayor Island (Tuhua) obsidian sources	National	Coastal and Marine	
	Mayor Island (Tuhua) 'Overhang' section		Coastal and Marine	

¹¹ Department of Conservation 2005: Conservation General Policy. Department of Conservation, Wellington. 69 p. www.doc.govt.nz/globalassets/documents/about-doc/role/policies-and-plans/conservation-general-policy.pdf

Type	Feature	Significance (international, national or regional)	Place	Pressures/threats
	Mayor Island (Tuhua) post-Caldera A lava shield and domes	National	Coastal and Marine	
	Mayor Island (Tuhua) tualite	International	Coastal and Marine	
	Mayor Island (Tuhua) volcano	International	Coastal and Marine	
	Mayor Island (Tuhua), Northwest Bay tree moulds	International	Coastal and Marine	
	Mayor Island (Tuhua), Oira pumice cone	National	Coastal and Marine	
	Mayor Island (Tuhua), Oira pumice cone section	International	Coastal and Marine	
	Mayor Island (Tuhua), O Mapu Bay Tuhua ignimbrite	National	Coastal and Marine	
	Mayor Island (Tuhua), Opo Bay tuff cone	National	Coastal and Marine	
	Mayor Island (Tuhua), Opo Bay tuff cone section	National	Coastal and Marine	
	Mayor Island (Tuhua), Ruamata pumice cone	National	Coastal and Marine	
	Mayor Island (Tuhua), Ruamata pumice cone section	National	Coastal and Marine	
	Mayor Island (Tuhua), Ruru Pass tephra section	International	Coastal and Marine	
	Mayor Island (Tuhua), Ruru Pass welded airfall tuff	International	Coastal and Marine	

Type	Feature	Significance (international, national or regional)	Place	Pressures/threats
	Mayor Island (Tuhua), Taratimi Bay Tuhua ignimbrite	International	Coastal and Marine	
	Mayor Island (Tuhua), Te Horu tephra section	National	Coastal and Marine	
	Mōtū gorge	National	Eastern Catchments	
	Ōhiwa Harbour Pleistocene fossils	National	Coastal and Marine	
	Ōhope Beach Pleistocene marine sediments and Ōhope shell bed	National	Coastal and Marine	
	Ōpōtiki cliffs Pleistocene tephra	National	Coastal and Marine	
	Rotokawau basalt	National	Waiariki	
	Rotomā Volcanic Complex	National	Waiariki	
	Rotomahana pyroclastics section	International	Waiariki	
	Rotorua Geothermal Field	International	Waiariki	
	Tarawera 1886 fissure	International	Waiariki	
	Tarawera basalt	International	Waiariki	
	Tarawera Road quarry ignimbrite section	National	Waiariki	
	Tarawera Volcanic Complex	International	Waiariki	
	Waimangu Geothermal Field	International	Waiariki	
	Waimangu Valley 1886 craters	International	Waiariki	
	Waimangu Valley, Black Crater	National	Waiariki	
	Waimangu Valley, Echo Crater (Frying Pan Lake)	International	Waiariki	

Type	Feature	Significance (international, national or regional)	Place	Pressures/threats
	Waimangu Valley, Inferno Crater	International	Waiariki	
	Waimangu Valley, Southern Crater	National	Waiariki	
	Waimangu Valley, Warbrick Terrace	National	Waiariki	
	Waiotapu Geothermal Field	International	Waiariki	
	Waiotapu, Artist's Palette – Primrose Terraces	International	Waiariki	
	Waiotapu, Champagne Pool geothermal sinter	International	Waiariki	
	Waiotapu, Lady Knox Geyser	National	Waiariki	
	Waiotapu, Loop Road mud volcano	National	Waiariki	
	Waiotapu, Rainbow Crater mudpools	National	Waiariki	
	Whakaari/White Island 1914 debris avalanche deposit	International	Coastal and Marine	
	Whakaari/White Island 1978–90 crater complex	International	Coastal and Marine	
	Whakaari/White Island Donald Mound	International	Coastal and Marine	
	Whakaari/White Island Geothermal Field	International	Coastal and Marine	
	Whakaari/White Island Noisy Nellie Crater	National	Coastal and Marine	
	Whakaari/White Island sulphur workings	National	Coastal and Marine	
	Whakaari/White Island volcano	International	Coastal and Marine	

Appendix 10

Actively conserved historic places that are on public conservation lands and waters or managed by the Department of Conservation in the Bay of Plenty region

Historic site	Place	Heritage topics and significance	Pressures/threats	Key reference
Maungaruahine Pa Historic Reserve	Kaimai Mamaku	Māori pā	Erosion	Heritage assessment (hard copy only)
Piako Country tramway (Waiorongomai)	Kaimai Mamaku	Gold industry	Decay; regrowth; washouts; slips	HNZ Category 1 Place
Waitawheta Tramway Heritage Icon site	Kaimai Mamaku	Kauri (<i>Agathis australis</i>) timber industry	Washouts; slips	DM-483920; DM-1084652
Matata Scenic Reserve	Kaimai Mamaku	Māori occupation site	Washouts; slips	n/a
Ohope Scenic Reserve	Coastal and Marine	Māori pā	Erosion	DM-2512368
Tauwhare Pā Heritage Icon site	Coastal and Marine	Māori pā	Erosion; slips	DM-1084465 AMIS-65403
Paparoa Pā	Coastal and Marine	Māori pā	Erosion; slips	DM-1252227
Matekerepu Pa Historic Reserve	Coastal and Marine	Māori pā	Erosion; slips	DM-2512353
Manganuku Truss Bridge (Waioeka Gorge)	Eastern Catchments	Timber truss highway bridge	Washouts; slips; maintenance	HNZ Category 2 Place DM-666519
Tokitoki Historic Reserve	Coastal and Marine	Māori occupation site	Erosion; slips	DM-1023547
Waiotahi Scenic Reserve	Coastal and Marine	Māori occupation site	Erosion; slips	AMIS-066209
Hine Rae Scenic Reserve	Waiariki	Māori pā	Erosion; slips	Site Record W16/54
Okere Falls Power Station	Waiariki	Electricity generation	Erosion and corrosion	DM-[8]883679
Lake Tarawera Trail Proposed Heritage Icon	Waiariki	Tourism heritage	n/a	n/a
Raetihi Pā	Coastal and Marine	Māori pā	Erosion; slips	AMIS-65948

Historic site	Place	Heritage topics and significance	Pressures/threats	Key reference
Rogers Hut (Te Wairoa)	Waiariki	Wild animal control (deer culling)	Vandalism; fire	DM-483873
Taupiri Fire Lookout	Whirinaki Surrounds	Plantation forestry	Decay; access; future use	DM-2724720
Te Tapiri Pā	Eastern Catchments	Māori pā	Erosion; slips	n/a
Te Rawhiti kūmara gardens	Coastal and Marine	Māori pā	Erosion; slips	n/a
Tauranga Bridge (Waioeka Gorge)	Eastern Catchments	Timber suspension bridge	Decay; erosion; slips; flooding	Heritage NZL Category 1
Karangahake Gold Heritage Icon site	Kaimai Mamaku	Goldmining history	Erosion; slips	DM--3098151 DM-78920 Heritage NZL Category 1
Victoria Battery	Kaimai Mamaku	Goldmining history	Vandalism	DM-483911
Karangahake Rail Trail	Kaimai Mamaku	Railway history	Erosion; slips; maintenance	DM-483905
Waikino Railway Station	Kaimai Mamaku	Historic railway station	Fire	DM-1291888

Appendix 11

Icon and Gateway destinations in the Bay of Plenty region

Recreation opportunities on public conservation lands and waters have been categorised into four different destination types to reflect known and potential demand and to capture people's outdoor leisure preferences as part of an approach known as 'destination management'.

'Icon destinations' are destinations that the Department has identified as high profile and popular, underpinning national and international tourism and providing memorable

visitor experiences in New Zealand. 'Gateway destinations' are destinations that introduce New Zealanders to the outdoors and allow them to learn about conservation. These destinations may provide for a diverse range of activities but include many traditional camping and tramping opportunities.

Icon destinations	Place
Waitawheta Tramway	Kaimai Mamaku
Tauwhare Pa Historic Reserve	Coastal and Marine (see Te Tāpui Tokotoru Conservation Management Plan ¹²)
Lake Tarawera Trail	Waiariki
Karangahake Gorge	Kaimai Mamaku
Gateway destinations	Place
Butlers Incline	Kaimai Mamaku
Lower Whirinaki Track	Whirinaki Surrounds
Matatā Campsite	Coastal and Marine
Matata Wildlife Refuge	Coastal and Marine
Okere Falls car park	Waiariki
Okere Falls walks	Waiariki
River Road, Whirinaki	Whirinaki Surrounds
Waiorongomai – High Level Track	Kaimai Mamaku
Waiorongomai – Low Level Loop Walk	Kaimai Mamaku

¹² Te Tapatoru ā Toi (Joint Management Committee) 2008: Te Tāpui Tokotoru Conservation Management Plan. Department of Conservation, Wellington. 35 p. www.doc.govt.nz/globalassets/documents/conservation/land-and-freshwater/land/jmc/ttt--management-plan-final.pdf

Appendix 12

Proposed reclassification of land in the Bay of Plenty region

Name of conservation area or reserve	NaPALIS number	Place	Proposed status change/review
Te Kopia Road Conservation Area	2793320	Waiariki	Scientific Reserve
Rangitaiki Conservation Area	2793773	Whirinaki Surrounds	Scientific Reserve
Otangimoana Conservation Area	2793272	Waiariki	Scientific Reserve
SH2 Conservation Area	2793876	Coastal and Marine	Scientific Reserve
Nukuhou Saltmarsh Conservation Area	2793924	Coastal and Marine	Wildlife Management Reserve

Appendix 13

Te Ture Whaimana o Te Awa o Waikato – The Vision and Strategy for the Waikato River

The Vision

Tōku awa koiora me ōna pikonga he kura tangihia o te mātāmuri.
The river of life, each curve more beautiful than the last.

Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.

Objectives and Strategies

The Objectives and Strategies of the Vision and Strategy for the Waikato River are listed below. Relevant sections and provisions of this Conservation Management Strategy (CMS) are also listed to demonstrate how the Department's responsibilities under legislation to implement the Vision and Strategy will be realised.

Sections and provisions of the Bay of Plenty CMS that implement the Vision and Strategy for the Waikato River

CMS section	Relevant CMS provisions and/or explanation
Introduction	
Relationship with legislation and other statutory documents	States that the Vision and Strategy for the Waikato River has the status of a general policy.
Part One	
Treaty of Waitangi relationships	<p>Includes specific reference to the Waikato River Vision and Strategy – Te Ture Whaimana o Te Awa o Waikato as a statement of Conservation General Policy. The CMS must not derogate or be inconsistent with this Vision and Strategy.</p> <p>References the Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010 and the Vision and Strategy for the Waikato River – Te Ture Whaimana o Te Awa o Waikato.</p> <p>References the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.</p> <p>References the integrated river management plan for the Upper Waikato River required under the Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010.</p> <p>References that particular regard must be given to environmental plans prepared by Trusts under the Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010.</p> <p>References Te Rautaki Taiao Raukura – the Raukawa Environmental Management Plan – 2015, which includes the Raukawa Fisheries Plan and Raukawa's objectives for the Waikato River.</p>

CMS section	Relevant CMS provisions and/or explanation
	<p>References the Te Arawa River Iwi Trust Environmental Plan 2015 and the Te Arawa River Iwi Trust Fisheries Plan 2015, which are environmental plans under the Act and include aspirations for the Waikato River and its tributaries and environs.</p> <p>References the Ngāti Tuwharetoa Environmental Iwi Management Plan 2003.</p> <p>Objective 2.3.1.1 and Policies 2.3.2.1 to 2.3.2.10 are relevant.</p>
Natural values	Sets out objectives and policies in relation to natural values. Objective 3.1.1.1 and Policies 3.1.2.2–3.1.2.4, 3.1.2.6–3.1.2.9 and 3.1.2.14 are relevant.
Historic values	Sets out objectives and policies in relation to historic values. Objective 3.2.1.1 and Policies 3.2.2.1, 3.2.2.2, 3.2.2.4, 3.2.2.6, 3.2.2.8 and 3.2.2.9 are relevant.
Recreation values	Sets out objectives and policies in relation to recreation values. Objective 3.3.1.1 and Policies 3.3.2.1 and 3.3.2.4 are relevant.
Regional milestones	Regional milestones 3.5.11 and 3.5.12 are relevant in regard to the Upper Waikato River Integrated Management Plan.
Part Two: Places	
Te Mauri o te Wai Place	<p>The Description and Outcome sections recognise the Waikato River and the contribution of this CMS to achieving the Vision and Strategy for this river.</p> <p>The Treaty of Waitangi table references the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 and the Ngāti Tuwharetoa, Raukawa, Te Arawa River Iwi Waikato River Act 2010, which provide for the establishment of co-governance and co-management arrangements over the Waikato River, with an overarching purpose to restore and protect its health and wellbeing for future generations.</p> <p>References the requirement for an integrated river management plan for the Upper Waikato River.</p> <p>References the Vision and Strategy for the Waikato River – Te Ture Whaimana o Te Awa o Waikato.</p> <p>References the values of the Waikato River.</p> <p>Lists policies in relation to the Waikato River (10.3.1–10.3.5).</p> <p>The natural values table identifies values of the Waikato River, and issues and opportunities for the restoration and protection of its health and wellbeing. Policies 10.4.1, 10.4.2, 10.4.3, 10.4.6 and 10.4.8 are relevant.</p> <p>The recreation table identifies values of the Waikato River. Policies 10.6.1 and 10.6.2 are relevant.</p>
Part Three: Regional policy requirements	
Policies	Throughout the policies in this section, there is a frequent requirement for assessment of the impacts of activities on cultural and historic values. These policies also relate to eeling and whitebaiting uses.

The Vision and Strategy for the Waikato River: Objectives

Objectives for the Waikato River		Relevant sections and provisions of the Bay of Plenty CMS
a)	The restoration and protection of the health and wellbeing of the Waikato River.	<ul style="list-style-type: none"> • Relationship with legislation and other statutory documents • Part One: Treaty of Waitangi relationships • Part One: Natural values • Part One: Historic values • Part One: Recreation values • Part Two: Te Mauri o te Wai Place • Part Three: Regional policies
b)	The restoration and protection of the relationships of Waikato-Tainui with the Waikato River, including their economic, social, cultural and spiritual relationships.	<ul style="list-style-type: none"> • Part One: Treaty of Waitangi relationships • Part Two: Te Mauri o te Wai Place
c)	The restoration and protection of the relationships of Waikato River iwi with the Waikato River according to their tikanga/values and kawa/customs, including their economic, social, cultural and spiritual relationships.	<ul style="list-style-type: none"> • Part One: Treaty of Waitangi relationships • Part Two: Te Mauri o te Wai Place
d)	The restoration and protection of the relationships of the Waikato region's communities with the Waikato River, including their economic, social, cultural and spiritual relationships.	<ul style="list-style-type: none"> • Part One: Treaty of Waitangi relationships • Part Two: Te Mauri o te Wai Place
e)	The integrated, holistic and coordinated management of the natural, physical, cultural and historic resources of the Waikato River.	<ul style="list-style-type: none"> • Part One: Treaty of Waitangi • Part Two: Te Mauri o te Wai Place
f)	The adoption of a precautionary approach when making decisions that may result in significant adverse effects on the Waikato River, particularly those effects that threaten serious or irreversible damage to the river.	<ul style="list-style-type: none"> • Part Two: Te Mauri o te Wai Place
g)	The recognition and avoidance of adverse cumulative effects, and potential cumulative effects, on the health and wellbeing of the Waikato River from activities undertaken both on the river and within its catchments.	<ul style="list-style-type: none"> • Part Two: Te Mauri o te Wai Place
h)	The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities.	<ul style="list-style-type: none"> • Part Two: Te Mauri o te Wai Place

Objectives for the Waikato River		Relevant sections and provisions of the Bay of Plenty CMS
i)	The protection and enhancement of significant sites, fisheries, flora and fauna.	<ul style="list-style-type: none"> • Part One: Treaty of Waitangi relationships • Part One: Natural values • Part One: Historic values • Part Two: Te Mauri o te Wai Place • Part Three: Regional policies • Volume II: Appendices
j)	The recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental and economic wellbeing is subject to the restoration and protection of its health and wellbeing.	<ul style="list-style-type: none"> • Relationship with legislation and other statutory documents • Part One: Treaty of Waitangi relationships • Part Two: Te Mauri o te Wai Place
k)	The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.	<ul style="list-style-type: none"> • Part Two: Te Mauri o te Wai Place • Part Three: Regional policies
l)	The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities.	<ul style="list-style-type: none"> • Part One: Recreation values • Part Two: Te Mauri o te Wai Place
m)	The application of both mātauranga Māori / traditional knowledge and the latest available scientific methods to meet the above objectives.	<ul style="list-style-type: none"> • Part One Treaty of Waitangi relationships

Strategies for the Waikato River		Relevant sections and provisions of the Bay of Plenty CMS
a)	Ensure that the highest level of recognition is given to the restoration and protection of the Waikato River.	<ul style="list-style-type: none"> Relationship with legislation and other statutory documents Part One: Treaty of Waitangi relationships Part Two: Te Mauri o te Wai Place
b)	Establish what the current health status of the Waikato River is by utilising mātauranga Māori and the latest available scientific methods.	<ul style="list-style-type: none"> Part One: Treaty of Waitangi relationships Part Two: Te Mauri o te Wai Place
c)	Develop targets for improving the health and wellbeing of the Waikato River by utilising mātauranga Māori and the latest available scientific methods.	<ul style="list-style-type: none"> Part One: Treaty of Waitangi relationships Part Two: Te Mauri o te Wai Place
d)	Develop and implement a programme of action to achieve the targets for improving the health and wellbeing of the Waikato River.	<ul style="list-style-type: none"> Part One: Treaty of Waitangi relationships Part Two: Te Mauri o te Wai Place
e)	Develop and share local, national and international expertise, including indigenous expertise, on rivers and activities within their catchments that may be applied to the restoration and protection of the health and wellbeing of the Waikato River.	<ul style="list-style-type: none"> Part One: Treaty of Waitangi relationships Part Two: Te Mauri o te Wai Place
f)	Recognise and protect wāhi tapu / sacred sites and sites of significance to Waikato-Tainui and other Waikato River iwi (where they so decide) to promote their cultural, spiritual and historic relationships with the Waikato River.	<ul style="list-style-type: none"> Part One: Historic values
g)	Recognise and protect appropriate sites associated with the Waikato River that are of significance to the Waikato regional community.	<ul style="list-style-type: none"> Part One: Historic values
h)	Actively promote and foster public knowledge and understanding of the health and wellbeing of the Waikato River among all sectors of the Waikato regional community.	<ul style="list-style-type: none"> Part One: Engagement Part Two: Te Mauri o te Wai Place
i)	Encourage and foster a 'whole of river' approach to the restoration and protection of the Waikato River, including the development, recognition and promotion of best practice methods for restoring and protecting its health and wellbeing.	<ul style="list-style-type: none"> Part Two: Te Mauri o te Wai Place
j)	Establish new, and enhance existing, relationships between Waikato-Tainui, other Waikato River iwi (where they so decide) and stakeholders with an interest in advancing, restoring and protecting the health and wellbeing of the Waikato River.	<ul style="list-style-type: none"> Part One: Treaty of Waitangi relationships Part One: Engagement Part Two: Te Mauri o te Wai Place

Strategies for the Waikato River		Relevant sections and provisions of the Bay of Plenty CMS
k)	Ensure that cumulative adverse effects of activities on the Waikato River are appropriately managed in statutory planning documents at the time of their review.	<ul style="list-style-type: none"> • Part Two: Te Mauri o te Wai Place
l)	Ensure appropriate public access to the Waikato River while protecting and enhancing its health and wellbeing.	<ul style="list-style-type: none"> • Part One: Recreation values • Part Two: Te Mauri o te Wai Place

Appendix 14

Prescriptions for visitor management zones in the Bay of Plenty region

Setting	Urban	Rural	Front country	Backcountry – accessible and walk-in	Remote	Wilderness
General description	<ul style="list-style-type: none"> • Areas inside or on the periphery of urban areas. • Typically includes a historic or cultural site. 	<ul style="list-style-type: none"> • Remnant native forest, wetlands, marine reserves and historic or cultural sites in areas dominated by farmland and plantation forest. 	<ul style="list-style-type: none"> • Where the majority of visitation occurs; typically, small areas, scattered within or on the periphery of large relatively natural areas. • Includes the vicinity of main ‘scenic’ roads passing through public conservation lands and waters. • Often focused on a particular attraction. 	<ul style="list-style-type: none"> • Large-scale natural settings that are generally accessed through the front country first. • Includes popular walks and tramps set within large-scale natural settings and/or that access other settings. 	<ul style="list-style-type: none"> • Catchments beyond the backcountry zone, forming the wild lands in the interior of large protected areas, with basic low-use tracks, marked routes and huts in some places. 	<ul style="list-style-type: none"> • Gazetted wilderness
Accessibility	<ul style="list-style-type: none"> • Enabled for people of most ages and abilities. 	<ul style="list-style-type: none"> • Typically, via sealed and unsealed roads and, in some cases, by boat. • Enabled for people of most ages or abilities. 	<ul style="list-style-type: none"> • Readily accessible areas, usually via sealed roads, or scheduled ferry or air services. 	<ul style="list-style-type: none"> • People will have travelled some distance to reach these settings. 	<ul style="list-style-type: none"> • Typically, 5 or more hours travel on foot from the front country. • Access supported by air or water craft in some areas. 	<ul style="list-style-type: none"> • Typically requires passing through backcountry and remote areas to reach the boundary.

Setting	Urban	Rural	Front country	Backcountry – accessible and walk-in	Remote	Wilderness
			<ul style="list-style-type: none"> • Mostly by car, but also tour buses and guided parties to some sites. • Enabled for people of most ages and abilities. 	<ul style="list-style-type: none"> • ‘Backcountry accessible’ focuses on unsealed roads, four-wheel-drive roads, navigable waters and aircraft landing sites. • Motorised ground access generally restricted to roads and designated routes. • ‘Backcountry walk-in’ is focused beyond the influence of motorised access. 		
Predominant visitor groups ¹³	<ul style="list-style-type: none"> • Short-stop travellers and day visitors. 	<ul style="list-style-type: none"> • Short-stop travellers, day visitors and over-nighters. 	<ul style="list-style-type: none"> • Predominantly short-stop travellers, day visitors and over-nighters. • Other visitors in transition to backcountry and remote settings. 	<ul style="list-style-type: none"> • Predominantly ‘backcountry comfort seekers’ and ‘backcountry adventurers’. 	<ul style="list-style-type: none"> • ‘Backcountry adventurers’ and ‘remoteness seekers’. 	<ul style="list-style-type: none"> • ‘Remoteness seekers’.

¹³ Visitor groups relate to the Department of Conservation’s Visitor Strategy 1996: www.doc.govt.nz/Documents/about-doc/role/policies-and-plans/visitor-strategy.pdf

Setting	Urban	Rural	Front country	Backcountry – accessible and walk-in	Remote	Wilderness
Predominant destination categories	<ul style="list-style-type: none"> Icon, Gateway and Local Treasure. 			<ul style="list-style-type: none"> Predominantly Icon, Gateway and Backcountry. 	<ul style="list-style-type: none"> Predominantly Backcountry. 	<ul style="list-style-type: none"> If present, Backcountry.
Facility setting	<ul style="list-style-type: none"> High-standard footpaths, cycleways and modified landscapes. High degree of control via information and direction signs, and barriers. 	<ul style="list-style-type: none"> Short walks, campsites and picnic areas for a range of ages and abilities. High degree of control via information and direction signs, and barriers. 	<ul style="list-style-type: none"> Good-quality facilities, services and easy access. Sometimes the origin for tramping tracks and routes, with signs and information to make this transition clear. High degree of control via information and direction signs, and barriers. 	<ul style="list-style-type: none"> A range of facility standards, including any designated vehicle routes, and popular walks and tramping tracks. Evidence of control limited to essential directional signs and barriers on Great Walks, and areas where there are significant hazards. 	<ul style="list-style-type: none"> Basic huts, bridges, low-use tracks and marked routes. Evidence of control is limited to essential signs. 	<ul style="list-style-type: none"> No facilities.
Desired visitor experience and interactions	<ul style="list-style-type: none"> Varies from activities with large groups to time with small groups/families, some time away from other groups and, in some cases, solitude. 			<ul style="list-style-type: none"> Some time away from other groups and, in some cases, solitude. Occasional encounters with organised groups. Generally accepting of the occasional intrusion of noise. 	<ul style="list-style-type: none"> Reasonable expectation of isolation from the sights, sounds and activities of other people. Interactions with few other groups. Considerable self-reliance on backcountry skills. 	<ul style="list-style-type: none"> Maximum interaction with only one other group is generally acceptable.

Setting	Urban	Rural	Front country	Backcountry – accessible and walk-in	Remote	Wilderness
Preferred maximum party size	<ul style="list-style-type: none"> • Whatever is socially appropriate. • Conforming concessions schedule – 15 people. 	<ul style="list-style-type: none"> • 50 people. • Conforming concessions schedule – 15 people. 	<ul style="list-style-type: none"> • 15 people. • 50 people for periodic tour bus parties. • Conforming concessions schedule – 15 people. 	<ul style="list-style-type: none"> • 15 people. 	<ul style="list-style-type: none"> • 8 people. 	<ul style="list-style-type: none"> • 4 people.
Typical visitor interaction levels	<ul style="list-style-type: none"> • Whatever is socially appropriate. 	<ul style="list-style-type: none"> • 20 or less other people seen per hour. 	<ul style="list-style-type: none"> • 30 or less other people seen per visit duration. 	<ul style="list-style-type: none"> • 15 or less other people seen per day for ‘backcountry adventurer’ tracks or routes. • 40 or less other people seen per day for ‘backcountry comfort seeker’ tracks or routes. 	<ul style="list-style-type: none"> • One other party seen per day. 	<ul style="list-style-type: none"> • Less than one other party seen per week.
Concessions operations	<ul style="list-style-type: none"> • Concessionaire activity may be permitted in all of these visitor management zones, subject to conditions to avoid, remedy or mitigate adverse effects, including compliance with criteria within this table; the outcome, objectives and policies in the Plan apply. • Concessionaire client activities should not be advantaged or disadvantaged compared with those for non-concessionaire visitors, unless there is a reason specified in the Plan for adopting a different management approach. 					<ul style="list-style-type: none"> • Concessions are rare and only occur where activity is not contrary to policies for wilderness areas.

Setting	Urban	Rural	Front country	Backcountry – accessible and walk-in	Remote	Wilderness
Concessions effects management	<ul style="list-style-type: none"> Avoid, remedy or mitigate adverse effects. 		<ul style="list-style-type: none"> Avoid or mitigate adverse effects. 	<ul style="list-style-type: none"> Avoid adverse effects. 		<ul style="list-style-type: none"> Avoid adverse effects. Concessions must demonstrate that the activity is necessary or desirable for the preservation of the wilderness area's indigenous natural resources.
Aircraft management	<ul style="list-style-type: none"> Aircraft access for visitor use purpose should not be approved other than in accordance with Policies 10.2.1–10.2.10 (Aircraft) in Part One, and the outcomes and policies in Part Two – Places. 					<ul style="list-style-type: none"> Aircraft access for visitor use must be necessary or desirable for the preservation of the wilderness area's indigenous natural resources.

Appendix 15

Aircraft use zones for the Bay of Plenty region

To manage the effects of aircraft landings on public conservation lands and waters, four nationally consistent aircraft access zones are applied (as shown on Map 4 in Volume III of this Conservation Management Strategy (CMS)). These zones reflect the different management methodologies required, and the likelihood of granting concessions, for aircraft landings as follows:

- **Red Zone** – Areas where a concession application to land an aircraft should be declined. However, concessions may be granted for aircraft landings associated with the construction, operation or maintenance of equipment (e.g. meteorological, seismic) or utilities (e.g. communication systems, transmission lines) that have been authorised by the Department of Conservation, or to support research authorised by the Department. This zone may apply where:
 - i) legislation provides strong direction that concessions should not be granted for aircraft landings (e.g. gazetted wilderness areas);
 - ii) an area is adjacent to (parts of) a national park where there are no aircraft landings;
 - iii) adverse effects on conservation, including recreation, values need to be avoided (e.g. nature and scientific reserves, threatened species habitat, high-use picnic and camping areas);
 - iv) the area is readily accessible by other means; or
 - v) aircraft activity may interfere with management activities.
- **Yellow Zone** – Areas where a concession application to land an aircraft should be granted where it meets the nationally consistent limits for this zone. This zone may apply where there is a need to restrict aircraft use because either visitors expect a low level of encounters with aircraft or values of natural quiet predominate, particularly in backcountry and remote areas.
- **Green Zone** – Areas where a concession application to land an aircraft should be granted, provided it complies with any relevant outcome and/or the criteria in the relevant policies. This zone may apply where:
 - i) conservation, including recreation, values are unlikely to be affected by landings;
 - ii) there are natural limits on sites where landings can actually occur (e.g. forest cover, steep terrain); or
 - iii) there is likely to be little demand for aircraft access over the life of this CMS.
- **Orange Zone** – Areas where there are complex issues to be managed that require the use of limits and/or other criteria to guide whether concessions for aircraft landings can be granted. This zone may apply:
 - i) in situations that involve limited opportunities, areas of intensive aircraft activity or where a precautionary approach is required;
 - ii) where there are historic or legal reasons for an approach that does not fit within the other three zones;
 - iii) to provide for a specific recreational activity (e.g. heli-skiing, heli-fishing, ground-based hunting);
 - iv) to only allow specific types of aircraft (e.g. non-powered aircraft);
 - v) where there are variations in seasonal use;
 - vi) to protect visitor experiences; or
 - vii) where landings do not fit within the circumstances described in the other three zones.

The application of these aircraft access zones manages aircraft landings on public conservation lands and waters. As a result, a spectrum of aircraft landings and overflights (aircraft encounters) may be experienced by visitors to public conservation lands and waters, as described in section 10.2: Aircraft in Part Three of Volume I.

Outcomes and/or policies may specify numeric limits for aircraft landings (e.g. daily, monthly, annually), or may use the words ‘rare’, ‘occasional’, ‘regular’ or ‘frequent’ to describe the overall level of aircraft encounters and therefore the visitor experience expected in each aircraft access zone (or part thereof).

This spectrum does not consider aircraft landings associated with the construction, operation and/or maintenance of equipment or utilities authorised by the Department, or wild animal control activities. Neither can the Department directly manage overflights (while aircraft are in the airspace above public conservation lands and waters).

A concession to land an aircraft does not include any other activities, such as vegetation removal or earthworks, associated with maintaining an airstrip or designated landing site.

Spectrum of aircraft encounters on public conservation lands and waters

	Low		High	
Average percentage of time aircraft are likely to be encountered	1% or less	5%	25%	50% or more
Likely visitor management zone	Remote and/or backcountry zones		Backcountry and/or front-country zones	
Word used in outcomes/policies to describe and achieve this	Rare	Occasional	Regular	Frequent