IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 10 November 2017

Please note: this is an archived Conservation Outlook Assessment for Te Wahipounamu – South West New Zealand. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Te Wahipounamu – South West New Zealand

SITE INFORMATION

Country:
New Zealand
Inscribed in: 1986
Criteria:
(vii) (viii) (ix) (x)

Site description:
The landscape in this park, situated in south-west New Zealand, has been shaped by successive glaciations into fjords, rocky coasts, towering cliffs, lakes and waterfalls. Two-thirds of the park is covered with southern beech and podocarps, some of which are over 800 years old. The kea, the only alpine parrot in the world, lives in the park, as does the rare and endangered takahe, a large flightless bird. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

The full range of World Heritage natural values enjoy effective legal protection and professional management attention under a strict legal regime and a comprehensive system of management strategies and plans. This is widely consulted with the public and all key stakeholders and is legally binding on all authorities including the Government. The institutional basis of management is strong and highly professional.
However, the threats to the property's natural values and attributes, especially from the impacts of invasive species, have not been fully addressed due to insufficient resourcing of the Department of Conservation, especially in the urgent need to control invasive pests throughout the remote mountainous majority of the site. Until this is done, the long-term prognosis for the more vulnerable components of the indigenous biota is unfavourable.
Rapid growth in tourism numbers has had an impact on the visitor experience at popular sites through increased crowding and use of aircraft to access remote locations. To cope with demand, the Department is expected to continue to invest in new infrastructure to reduce physical impacts and to spread visitors across a greater range of sites. The increased number of aircraft at some locations has had an adverse impact on natural quiet and the appreciation of natural beauty to be experienced by visitors on the ground. Further work on monitoring the effect of this growth and new ways of managing demand is expected (including rationing and dispersal), in response to assessed carrying capacity.

Current state and trend of VALUES

Low Concern
Trend: Deteriorating

The property, to a significant degree, conserves outstanding natural values and attributes under all four natural World Heritage criteria.

Indigenous plant life and birds are severely impacted locally by invasive introduced species of browsing and predatory animals, and there are some problem weed plants. Current controls measures are only adequate in parts of the property and these focus on limiting disbursement.
Some biota, including ancient, endemic and unique species, have already gone extinct while others are endangered because of both direct and indirect human impacts. Their survival requires constant vigilance and carefully considered, science based management interventions.
Geological and landform values are inherently robust and resistant to human disturbance, though the effects of atmospheric warming are readily apparent in the marked reduction of ice fields and glaciers.
Scenery, aesthetic and wilderness values are largely intact. The exception to this general statement are the complex issues related to aircraft access. Rapidly increasing tourist numbers has required DOC and local authorities to embark on the modernisation and expansion of facilities for visitors that require quality design and monitoring to minimise adverse impacts (e.g. Aoraki, Milford).
Fixed wing and helicopters overflying and landing are a recurring concern that have a negative outcome on the wilderness and natural quiet experience that visitors expect.

Overall THREATS

High Threat

Threats to the natural values of the property range from high to very low. The greatest threat, presenting a major management challenge, is from the severe impacts of invasive browsing and predatory animals on indigenous vegetation and wildlife, particularly birds. Current programmes for monitoring and control, aimed at avoiding new incursions and eradicating or controlling invasive species, are effective across key habitats, but are only being applied in localized parts of the property. Throughout the rest of the property, it is not possible under current budgetary restrictions and little is being done to restrict the severity and extent of ecological impacts from invasive pests. Lower threats exist from grazing and mining operations and the potential for water export. Threats also include growing demand for tourism facilities development, including new road corridors and increased aircraft access. High levels of threat exist from the effects of climate change on vegetation distribution, habitat fragmentation, alien species invasion, and the already marked reduction in the volume of permanent ice.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Overall, protection and management of the property can be assessed as effective. About two thirds of the property is strictly protected (as national park or reserve) in perpetuity under national legal statutes; however, the remaining third has a much lower level of protection as ‘stewardship land’. Protection policies, regulations and management intervention are guided by a comprehensive system of management strategies and plans developed through wide public consultation and binding on all authorities including the Crown. The property is administered by the country’s principal conservation agency but currently is not sufficiently staffed and financed to cope with current demands. Principal threats to natural values are well recognized and are subject to management intervention where and when staffing and budgets allow.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **A vast primeval wilderness of mountains and fiords of outstanding scenic beauty**
  Criterion:(vii)

  The property contains many of the natural features that contribute to New Zealand's international reputation for superlative landscapes: its highest mountains, longest glaciers, tallest forests, wildest rivers and gorges, most rugged coastlines, and deepest fiords and lakes. The temperate rainforests of the property are unmatched in their composition, extent and intactness by any such forests elsewhere in the world. Human influences are evident but in relation to the overall scale of the property these are mainly in peripheral areas and in most cases, are related to tourism activities (NZ Government,1990; 2003, Hutching, G. and Potton C., editors. 1987, IUCN, 1990)

- **Many classic examples of the tectonic and glacial features and processes that have shaped the earth**
  Criterion:(viii)

  The property is considered as the best modern representation of the primitive taxa of Gondwanaland. The breakup of this southern super-continent and New Zealand’s long isolation is considered to be among some of the most important events in the earth’s evolutionary history. It enabled the survival of ancient Gondwanan biota to a greater degree than elsewhere, living representatives of which include flightless kiwis, carnivorous land

snails, and 14 species of podocarp and genera of beech. The Great Alpine Fault that bisects the region marks the collision between the Indo-Australian and Pacific tectonic plates resulting in the massive up thrust of the Southern Alps that rise to nearly 4,000m within 30km of the ocean. The property presents remarkable evidence of the impact of Pleistocene glaciations. Spectacular landforms include: 15 fiords carved from plutonic igneous rock; a series of large lake-filled troughs; classic erosion features such as U-shaped and hanging valleys, cirques, and ice-shorn spurs; chronological sequences of moraines and outwash gravels from valley and piedmont glaciers. Many glaciers are currently receding but in recent times these almost extended to the sea. The Franz Josef and Fox glaciers which descend into temperate rainforest are also demonstrating significant recession particularly over the last 15 years. Complementing the glacial landforms is a sequence of 13 marine terraces progressively uplifted more than 1000m over the past 1 million years. The effects of climate change are increasing the pace of change in landform structure. (NZ Government,1990; 2003, Hutching, G. and Potton C., editors. 1987, IUCN, 1990)

► The largest and least modified expanse of New Zealand’s natural ecosystems

Criterion:(ix)

Temperate rainforest, alpine and freshwater ecosystems are all well represented over an extensive array of landforms and across wide climatic and altitudinal gradients. Notable examples of on-going biological processes occur in the large expanses of temperate rainforest, plant succession following glacial retreat, soil/plant chrono-sequences on beach ridges, plant succession on alluvial terraces, vegetation gradients around the margins of glacial lakes and ecotypic differentiation of plants on ultramafic soils. The extensive and little-modified freshwater habitats, the impressive diversity of alpine ecosystems, extensive alpine botanical endemism, and on-going evolution associated with long-standing geographical isolation of animal populations, such as the kiwi taxa, are further examples of on-going biological development (NZ Government, 1990; 2003, Hutching, G. and Potton C., editors., 1987; IUCN, 1990).

► Unique biota in a relatively pristine state

Criterion:(x)

The habitats of Te Wähipounamu contain an extensive range of New Zealand’s remarkable endemic fauna, which reflects a long evolutionary isolation and the absence of mammalian predators. The property contains the entire wild population of the rare and endangered takahë (Notornis mantelli); the entire population of the South Island subspecies of brown kiwi (Apteryx australis); New Zealand’s rarest Kiwi, the rowi (Apteryx rowi); the only significant remaining populations of the seriously declining mohua/yellowhead (Mohoua acrocephaly); the only large populations remaining of kaki and käkäriki/yellow-crowned parakeet; and the only remaining population of partake/Fiordland brown teal in the South Island. The property also contains many of the taonga species of high value to Ngai Tahu that are identified in Schedule 97 of the Ngai Tahu Claims Settlement Act 1998. The world's rarest and heaviest parrot, kakapos Striges aerophiles, survived in Fiordland until the early 1980s. It is now thought to be extinct on the mainland and its survival depends on careful management of a limited number of offshore island populations, including Codfish Island/Whenua Hou near Stewart Island and Anchor Island within Fiordland National Park. (http://www.doc.govt.nz/nature/native-animals/birds/birds-a-z/kakapo/). The property includes nearly 2 million hectares of primary rainforest. These are the best examples in the Southern Hemisphere of one of the most ancient groups of gymnosperms, the Podocarpaceae, ranging from densely packed 50m-high rimu to the world’s smallest conifer, the prostrate pygmy pine (NZ Government,1990; 2003; Hutching, G. and Potton C., editors. 1987, IUCN, 1990, Ngai Tahu Claims Settlement Act 1998).

Assessment information

Threats

Current Threats

High Threat

Threats to the natural values of the property range from high to very low. The

greatest threat, presenting a major management challenge, is from the severe impacts of invasive browsing and predatory animals on indigenous vegetation and wildlife, particularly birds. Current programmes for monitoring and control, aimed at avoiding new incursions and eradicating or controlling invasive species, are effective across key habitats, but are only being applied in localized parts of the property. Throughout the rest of the property, it is not possible under current budgetary restrictions and little is being done to restrict the severity and extent of ecological impacts from invasive pests. Significant concern related to impacts caused by an exponential increase in visitor numbers, particularly international tourism, and associated pressures for intensified aircraft access, new or expanded infrastructure development, and possible new roads all have significant potential to compromise World Heritage and conservation / wilderness values.

► Tourism/ visitors/ recreation

Low Threat
Inside site, widespread(15-50%)
Outside site

The property is a major domestic and international destination and is a focal point for NZ's burgeoning tourism industry which contributes in the order of NZ$34.7 billion annually to the NZ economy (NZ$20.2 billion from domestic tourism, and NZ$14.5 billion international tourism) and makes up 20% of NZ exports. Visitor growth is in the range of 3-5% per annum. Official forecasts for international visitor numbers to New Zealand are predicting an increase to 5 million by 2023. While a significant percentage of international tourists visit the property, this group tend to focus on locations that are promoted by the tourism industry and provide tourism services. Whereas domestic visitors tend to, but not exclusively, venture into areas that are less populated.
NZ Tourism statistics - http://www.mbie.govt.nz/info-services/sectors-industries/tourism/key-tourism-statistics
Major pressure points include: Doubtful and Milford Sounds, Great Walks – Milford, Kepler and Routeburn Tracks, helicopter flights and landings at the Fox, Franz and the Tasman Glaciers (Westland and Aoraki - Mt Cook National Parks). Following a tourism seminar in October 2016, the Chairperson of the Otago Conservation Board, sounded an alarm about the impact of booming visitor numbers and was reported during an interview on the impacts of

tourism on Radio NZ that “New Zealand risks losing a treasure”.
http://www.radionz.co.nz/national/programmes/ninetonoon/audio/201822035/national-parks-under-strain-from-growing-visitor-numbers
As an example of proposed development there are these quotes from the Southland Regional Development Action Plan 2015-2025
P 38 “It is estimated that Milford alone could see a significant increase in the number of visitors from the current level of 650,000 per year to 1.5 million in 10 years”.
- page 40 quote
“DOC estate – an easing of the strictures on development of the DOC estate is required. This will require some sort of measure to ensure that environmental considerations remain paramount. The upcoming review of the Fiordland National Park Plan is the opportunity to do this.”
Southland Regional Development Strategy, November 2016
http://www.sords.co.nz/site/assets/files/1/sords_action_plan.pdf
As well as iconic locations within the property, the sharp increase in visitor numbers has spread to a significant number of other locations throughout the property. Some of this use has put potential and / or actual impact on the property. It is projected that this pressure, and the associated tension between maintaining conservation values and catering for increased visitation, will continue.
The high numbers of visitors have increased management problems including: human waste management at day and overnight sites and tracks; increased aircraft demand – particularly related to recreational use and glacier landings; camp site use and management.
Aircraft Access vs Natural Quiet / Wilderness associated with fixed wing and helicopters overflying and landing are a recurring concern that influence the wilderness and natural quiet experience that some users expect. The rapid increase in tourism numbers is exacerbating tension between user groups, particularly commercial tourism and conservation and recreational groups.
An example of the tension is that landing permits have been issued that would increase the number of landings on the Ngapunatoru ice plateau inside the property from 10 to 80 per day.
https://www.wildernessmag.co.nz/ngapunatoru-heli-landings-nonesense-stilts/
NZ Alpine Club, November 2016, Fiordland aircraft impact study in need of a research programme, https://alpineclub.org.nz/2016/11/.
Federated Mountain Clubs, April 2016, https://fmc.org.nz/2016/04/11/milford-

tourism-deserves-better/
The effects of rising visitor numbers are increasing but site specific. In some cases, the quality of visitor experience to sites has declined through crowding or aircraft noise. Generally, the construction of suitable facilities and site hardening has minimised the negative effect on biotic values.
Otago and Southland Conservation Board 2017 - The Rapid Expansion of Visitor Numbers Where to From Here?

► Invasive Non-Native/ Alien Species

High Threat
Inside site, widespread(15-50%)
Outside site

Introduced browsing animals such as possums, chamois, deer and Himalayan Thar, and avian predators including rodents and mustelids, have triggered vegetation loss that has contributed to, in some cases, caused localized extinctions, range reductions, and a significant decline in the abundance of some indigenous biota, particularly native avifauna.
Control policies within the property seek to prevent further incursions, and eradicate or control the range and impact of non-native invasive species. The Himalayan Thar Management Plan sets numbers for thar and alpine grassland condition parameters to govern the degree of government culling of thar undertaken. A recent report (Cruz J., Thomson C., Parkes J., June 2014, Impact of Himalayan Tahr (Hemitragus jemlahicus) on snow tussocks in the Southern Alps, New Zealand, described decreases in vegetation condition from tahr grazing. This has led to a switch from aerial monitoring to the use of on-ground monitoring plots as part of the DOC national Tier One monitoring programme. DOC is currently revising its aerial control operations as part of the preparation of an ‘Operational Plan for Tahr Control 1 July 2017- 30 June 2020’ (in draft). Heavy seeding during mast events from native forests drive higher than normal rodent and stoat numbers. These, in turn, prey on native avifauna including endangered species. The government-supported ‘Battle for our Birds’ was conceived to protect native wildlife from predators (primarily rats, possums and stoats) and under this programme the Department of Conservation is implementing predator control programmes over some 282,000 ha of the property in 2017. Similar total hectares were covered in 2016 and 2016). Field and scientific staff monitor predator levels

to ensure control is targeted towards priority habitats and species i.e. where it is needed most. (http://www.doc.govt.nz/Documents/conservation/threats-and-impacts/battle-for-our-birds-2017/battle-for-our-birds-brochure-2017.pdf). In 2016/2017 7.9% or 99,892 ha of Fiordland National Park was treated for introduced predators through aerial pest control. Although 'Battle for our Birds' represents a significant increase in both the scope and scale of predator control, resources are still insufficient to control threats over large sections of the property. Unless the measures referred to above are maintained and progressively increased, the indigenous biodiversity in those areas of the property that are not being provided with pest control cannot have a positive long-term outlook. There are, however, grounds for some optimism. In 2016 the Government announced the goal of making the NZ free of predators by 2050. This aspirational target has focused attention on the predators that are impacting on the property's OUV.

► Temperature extremes

High Threat
Inside site, throughout(>50%)
Outside site

The 2014 IUCN World Heritage Outlook Assessment reported that the property is demonstrating unmistakable evidence of climate change and associated global warming. These trends are continuing. Visual indications include measurable reductions in permanent ice fields and glaciers (e.g. Fox, Franz and Tasman).
The western part of the property is projected to have increased rainfall and the eastern part significantly higher summer temperatures. Under current temperature projections, it is predicted that up to 50% of the indigenous alpine species may become endangered or extinct by 2100 because of shrubland and forest encroachment, habitat fragmentation, alien species invasion and direct and severe climate and weather-related events.
McGlone M., Walker, S., 2011, Potential effects of climate change on New Zealand's terrestrial biodiversity and policy recommendations for mitigation, adaptation and research, Science for Conservation Report 312, Department of Conservation, Wellington
http://www.doc.govt.nz/our-work/climate-change-and-biodiversity/impacts-on-native-biodiversity/

The sheer size, diversity and basically unmodified nature of the property provides some resilience to catastrophic events as well as maintaining connections across landscapes that allow plants and animals to move as they adapt to the inevitable disruptions caused by a changing climate.

► Avalanches/ Landslides

Low Threat
Inside site, scattered(5-15%)
Outside site

The property is subject to low-frequency high-magnitude events such as earthquakes, snow avalanches, landslides and flooding. These have caused deaths and damage or loss of property. Safety planning and management intervention have focused on major tourist access routes and facilities, reducing the hazard considerably but vigilance and on-going controls are required (NZ Government, 1990, 2003; UNEP/WCMC, 2011).

► Livestock Farming / Grazing

Low Threat
Inside site, localised(<5%)

Historic grazing licences exist on conservation land on the outer edge of the property (e.g. South Westland river valleys). Freshwater systems, water quality, valley floor vegetation and forest margins are detrimentally affected by the grazing of domestic stock particularly cattle within the National Parks and conservation land contained within the property. Some of this grazing was guaranteed under NZ law when Mt Aspiring National Park was established. Other areas (e.g. Haast Valley) have been subject to short term grazing lease renewal so there is an opportunity to terminate these leases to protect water and forest margins from further degradation. The protection of freshwater values throughout NZ has since 2014 become a major issue because of the deterioration of water quality with a large increase in the cattle population, particularly dairy cows. The Government’s Nature Heritage Fund has since 1990 been negotiating through business agreements, the destocking of many of the highest profile valley systems within Mt Aspiring and Fiordland National Parks to return these areas to natural condition. The de-stocked Park areas include the Eglinton Valley, Dart Valley, Siberia-Wilkin-Makarora Valley and the Landsborough-Upper Haast Valleys. This process is

ongoing and that there is some farming pressure to issue new grazing leases over some of the areas where grazing had ceased, or had been negotiated to stop (e.g. Upper Haast Valley).
(Molloy, L. 2016, Nature Heritage Fund - Celebrating 25 years, Wellington, Department of Conservation Pages 34-38).
http://www.doc.govt.nz/get-involved/apply-for-permits/business-or-activity/grazing/

► Mining/ Quarrying

Low Threat
Inside site, localised(<5%)

A small number of mining operations exist on lower value stewardship land (mostly alluvial gold extraction and gravel extraction). Rehabilitation of the licence area is a requirement of consent.
Mining is prohibited in the following areas: Any national park (within the meaning of section 2 of the National Parks Act 1980). Any reserve classified as a nature reserve under section 20 of the Reserves Act 1977. Any reserve classified as a scientific reserve under section 21 of the Reserves Act 1977. Any part of a reserve set apart as a wilderness area under section 47(1) of the Reserves Act 1977. Any conservation area declared under section 18AA or 18(1) of the Conservation Act 1987 as—a wilderness area; or a sanctuary area. Any area declared a wildlife sanctuary under section 9(1) of the Wildlife Act 1953. http://www.doc.govt.nz/get-involved/apply-for-permits/mining/
In 2017 an opposition members bill was introduced to Parliament to prevent mining in NZ World Heritage Areas, but did not proceed as it lacked government support.
Crown Minerals (Protection of World Heritage Sites) Amendment Bill, defeated 7 June 2017,
http://www.legislation.govt.nz/bill/member/2017/0252/latest/d56e2.html

► Invasive Non-Native/ Alien Species

High Threat
Inside site, scattered(5-15%)

When weeds compete with native flora and fauna for sunlight and water, they can severely alter natural landscapes and threaten the survival of native plants and animals. In many locations on the periphery of the property native vegetation continues to be threatened and modified from a wide range of

introduced plant species. These include a variety of conifers and wilding pines, lupin, broom, non-native grasses, and buddleia. In part, owing to a lack of resources, the control of introduced plant species has, until relatively recently, not received the degree of priority of this threat deserves.
'War on Weeds' a recent DOC national weed control programme focusses on twelve priority species some of which are present within the property.
http://www.doc.govt.nz/nature/pests-and-threats/war-on-weeds/
Wilding conifers are widespread in some eastern areas of the property and are a focus of national effort, with additional funding provided in 2016.
http://www.wildingconifers.org.nz/

Potential Threats

High Threat

Anticipated increases in road and aircraft access, if not carefully managed and controlled to current locations, might adversely affect scenic qualities and natural quiet.
There is a low likelihood and high consequence potential for a Haast – Hollyford Road. The consented Okuru water export facility and pipeline would set an unfortunate precedent, with the intrusion of industrial infrastructure into endangered kiwi habitat and a currently lightly developed coastline.
Potential threats also include a possible spread of new and extremely virulent diseases. There is a significant climate change impact on glaciers – adversely affecting glacial features and scenic beauty. Climate change will also have effects on on vegetation patterns and can result in habitat alterations and alien species invasion.

► Roads/ Railroads

Low Threat
Inside site, extent of threat not known
Outside site

The Haast-Hollyford road is a long-standing proposal to link Haast via the Hollyford Valley to Milford Sound. Proposals for this road have been mooted since the since the 1870s. This threat posed by this 60km road has progressed in that the Southland District Council took a formal step to support the road.
('Road would cost closer to $2b —opponents', Otago Daily Times 2 July,

2016).
The road proposal has also been noted in a recent West Coast regional development action plan.
(West Coast Regional Council, 2017, Strategic case for the Haast to Hollyford Road http://www.wcrc.govt.nz/our-council/news/Pages/West-Coast-Economic-Development-Action-Plan-2017.aspx)
The Otago Conservation Management Strategy (CMS) makes a definitive policy statement to: Seek the stopping or resumption of the unformed legal road in the Pyke River valley remote visitor management setting in the Mount Aspiring National Park. The threat assessment is low as although the impacts would be high the likelihood of any road being constructed, is low due to the costs and natural hazards associated with the route.
(Department of Conservation, 2016, Otago Conservation Management Strategy, http://www.doc.govt.nz/about-us/our-policies-and-plans/statutory-plans/statutory-plan-publications/conservation-management-strategies/otago/)

► Invasive Non-Native/ Alien Species

Data Deficient
Outside site

Myrtle rust is a fungal disease that severely attacks plants in the myrtle family including pohutukawa, mānuka and rātā. It is a very recent arrival and was detected in New Zealand in May 2017. To date there are no reported occurrences in the South Island. Myrtle rust spores are microscopic and can easily spread across large distances by wind, or via insects, birds, people, or machinery.
The Ministry for Primary Industries (MPI) and the Department of Conservation (DOC), with assistance from other organisations are running an operation to determine the scale of the situation and attempt to contain and control myrtle rust in the areas it has been found.
The property contains significant area of mānuka (Leptospermum scoparium) and Southern rātā (Embroiders umbellata) both of these species are a major food source for native avifauna including Kākā, tui, and bellbirds.
(http://www.mpi.govt.nz/protection-and-response/finding-and-reporting-pests-and-diseases/pest-and-disease-search?article=1484)

► Dams/ Water Management or Use

High Threat
Inside site, localised(<5%)

The Westland Regional Council and Westland District Council have recently approved a proposal to construct and operate a water export facility on the boundary of Mt Aspiring National Park and in other areas within the property. There is a pipeline easement granted by the Department of Conservation in 1994 and that will require renewal in May 2019, if the project has not commenced by that date. The proposed water intake is almost immediately adjacent to the national park boundary and the proposal shows the pipeline directly traverses through the Department of Conservation Haast Tokoeka kiwi sanctuary and the World Heritage Area.
The consent provides for the export of 800,000 tonnes per month in 100,000 tonne tankers. The developer also notes that as demand increases they will apply for consents delivering additional quantities of water and for loading of larger tankers — possibly up to 250,000 metric tonnes.
The promotional material offered by the proponent states “Alpine Pure water originates from the pristine mountains of Mount Aspiring National Park, a protected UNESCO World Heritage Site”.
http://www.stuff.co.nz/environment/91525027/Key-consent-for-West-Coast-water-scheme-will-not-renew-automatically-as-it-allows-pipe-to-go-through-Kiwi-Sanctuary
(Alpine Pure Company Website: http://www.alpinepure.com/)

► Earthquakes/ Tsunamis

High Threat
Inside site, throughout(>50%)
Outside site

New Zealand lies at the edge of both the Australian and Pacific tectonic plates. The South Island and a significant part of the property the two plates are moving toward each other and the Australian Plate is being subducted under the Pacific Plate. These two plates generally don't move smoothly but shift in a series of small rapid motions each of which is accompanied by one or more earthquakes. The Institute of Geological and Nuclear Sciences (GNS) estimates that there is 30-50 per cent chance of a large earthquake on the Alpine Fault in the next 50 years which could cause horizontal movement of

up to eight metres. Over the last thousand years, there have been four major ruptures along the Alpine Fault causing earthquakes of about magnitude 8 and in 2003, 2009 earth quakes estimated at magnitude 7.1 and magnitude 7.8 respectively were recorded within the property. A rupture of the Alpine Fault will produce one of the biggest earthquakes since European settlement of New Zealand, and it will have a major impact on the lives of many people and a significant influence on the natural landscape, flora and fauna. Between earthquakes, the Alpine Fault is locked. All these factors definitively indicate that the Alpine Fault is a globally significant geological structure (https://www.gns.cri.nz/Home/Learning/Science-Topics/Earthquakes/Major-Faults-in-New-Zealand/Alpine-Fault).

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

All key stakeholders, including the indigenous Ngai Tahu Maori people, support the property and its World Heritage status. Management strategies and plans are widely consulted with the public (NZ Government, 1990, 2003). In more recent times some managers in Ngai Tahu have expressed concerns which the State Party is addressing.
The relationship with West Coast Councils that have a regional development focus, requires close dialogue over any resource use proposals (IUCN Consultation, 2017).

► Legal framework

Mostly Effective

The property is protected under three major national legal statutes (Conservation Act 1987, National Parks Act 1980 and Reserves Act 1977). Regional Conservation Management Strategies (CMS) have been formulated for the four DOC management regions that the property covers (Southland, Otago, Westland and Canterbury). Management Plans for Fiordland and Mount Aspiring Tititea National Parks will be reviewed during 2017 – 2018.

Westland Tai Poutini and Aoraki Mount Cook National Parks have operational management plans. The Conservation and National Parks Act lays down statutorily binding stakeholder consultation processes. Approximately, one third of the property is stewardship land. These are areas that were allocated to DOC when it was formed in 1987. This land was formally State Forest and Crown land areas that were considered to be more appropriately managed for their conservation values. The intention was that DOC would act as a steward of these areas until they were assessed and reclassified. Stewardship land is one of several areas within the conservation estate with the weakest legal protection. Apart from a few specific examples the government has failed to assess the value of stewardship areas and, where this is warranted, upgrade their legal status. The NZ Conservation Authority is leading a process to reclassify the protected status of selected high value conservation lands. (PCE, 2013, NZ Government, 1990, 2003, DOC CMS 2010, 2016; http://www.doc.govt.nz/about-us/statutory-and-advisory-bodies/nz-conservation-authority/meetings/).

► Enforcement

Highly Effective

Compliance and public education are undertaken by the operational staff of the Department based at the District Offices, backed by a nationally coordinated specialist enforcement and investigation team. (Department of Conservation, August 2017, National Compliance Strategy, http://www.doc.govt.nz/national-compliance-strategy)

► Integration into regional and national planning systems

Highly Effective

Plans for strategic and operational management of the property are integrated with local and regional Council plans for protection, use and sustainable conservation of natural resources (NZ Government, 1990, 2003).

► Management system

Mostly Effective

The Department of Conservation is the principal central government conservation agency responsible for day-to-day management. The National Parks and Conservation Acts provide for the establishment and functions of

Conservation Boards. These boards are independent bodies, established by statute and each board represents the public interest in the work of DOC, and conservation in general, within the area of jurisdiction of that board. They are advisors to DOC and the New Zealand Conservation Authority. The functions of boards are set out in Section 6M of the Conservation Act 1987 and in the National Parks and Reserves Acts. The focus for Conservation Boards is directed towards management planning and strategic direction. Day-to-day field management and operations are the mandate of DOC. A key responsibility for each board is overseeing implementation of Conservation Management Strategies for each region. A Conservation Management Strategy is a 10-year plan for managing and protecting the natural and historic features and wildlife of the region. Conservation Management Strategies are prepared by a board and the Department in consultation with interested parties. Once a Conservation Management Strategy has been approved by the New Zealand Conservation Authority, boards advise on implementation. Regional Conservation Management Strategies provide a coherent framework for an integrated management approach of the property. There are four Conservation Management Strategies for DOC management areas (Southland, Otago, Westland and Canterbury) and National Park Management Plans for Fiordland, Mount Aspiring Tititea, Westland Tai Poutini and Aoraki Mount Cook National Parks.
Westland Tai Poutini and Aoraki Mount Cook National Parks have operational management plans which were formulated in an integrated process under the National Parks Act 1980. These management plans are formulated through public consultation and are legally binding on all parties, including the government. Both plans are currently under review.
Completion of the Aoraki Mount Cook National Park management plan review is scheduled for late 2018 (http://www.doc.govt.nz/about-us/statutory-and-advisory-bodies/nz-conservation-authority/meetings/). Management Plans for Fiordland and Mount Aspiring Tititea National Parks will be reviewed during 2017 – 2018. A significant message to emerge from a joint Otago and Southland Conservation board workshop was the “importance and value of achieving consistency (where possible) across the Mt Aspiring National Park and Fiordland National Park Management Plans”. It was noted that this approach will require a collaborative approach not only between the DOC planners but also between the two Conservation Boards.

(NZ Government, 1990, 2003).
A visionary concept, which received general endorsement from most stakeholders, was presented during the Otago and Southland Conservation Board - Tourism Forum (October 2016). This proposed that the feasibility of an Integrated World Heritage Management Strategy (IWHMS) be considered. This was further discussed at a Department of Conservation Te Wahipounamu Workshop in August 2017.

► Management effectiveness

Highly Effective

The property is protected by national law and managed by the principal central government conservation agency under statutory management strategies and plans (NZ Government, 1990, 2003). The Department of Conservation is the principal central government conservation agency responsible for day-to-day management. The National Parks and Conservation Acts provide for the establishment and functions of Conservation Boards. These boards are independent bodies, established by statute and each board represents the public interest in the work of DOC, and conservation in general, within the area of jurisdiction of that board. They are advisors to DOC and the New Zealand Conservation Authority. The functions of boards are set out in Section 6M of the Conservation Act 1987 and in the National Parks and Reserves Acts. The focus for Conservation Boards is directed towards management planning and strategic direction. Day-to-day field management and operations are the mandate of DOC. A key responsibility for each board is overseeing implementation of Conservation Management Strategies for each region. A Conservation Management Strategy is a 10-year plan for managing and protecting the natural and historic features and wildlife of the region. Conservation Management Strategies are prepared by a board and the Department in consultation with interested parties. Once a Conservation Management Strategy has been approved by the New Zealand Conservation Authority, boards advise on implementation. Other board work can include: developing and reviewing national park and other management plans for lands administered by the Department; advising on proposals for marine reserves; considering the impact of concessions for tourism and other activities on conservation land; looking at the range of recreational opportunities in the region; advising on proposals to change the protective status or classification of areas of national

or international importance. Overall, management is considered highly effective. However, World Heritage performance monitoring can increase the overall effectiveness of all facets of management.

► Implementation of Committee decisions and recommendations

Mostly Effective

There have been no Decisions or recommendations from the World Heritage Committee in the recent years. With regards to earlier Decisions, the following can be noted. In 2005, eight marine reserves were created in the fiords and in 2008 the waters and seabed of the fiords were added to New Zealand's tentative list of prospective WH properties (as an addition to Te Wahipounamu). However, limited steps to advance areas on the tentative list for full inscription have been taken.
4. The Committee was informed of governmental approval for an application from a private company to export water from the World Heritage site, which would require the construction of a dam, a buried pipeline and four large reservoirs. The Committee noted that the visual and ecological impacts of the proposed development were not clearly known and that the legal and economic considerations which guided the decision to approve the project are being actively debated (UNESCO, 16 COM.VIII). Application was declined by Environment Southland.
Both the tunnel (July 2014) and monorail (May 2013) projects were declined by the Conservation Minister.

► Boundaries

Some Concern

Generally, the boundaries of the property are well-defined and are consistent with the boundaries of Fiordland, Mount Aspiring Tititea, Westland Tai Poutini and Aoraki Mount Cook National Parks which account for some 67% of the property. As well as the national park, there are a mixture of other protected areas within the property. The lack of inclusion within the property of the seabed and waters of the fiords is a significant deficiency. The 'Waters and Seabed of Fiords of Fiordland
(Te Moana o Atawhenua) – An addition to
Te Wahipounamu (South-West New Zealand) World Heritage Area' are areas are on the World Heritage tentative list. There has been little apparent

administrative endeavour to formulate a supplementary nomination that would add these areas since NZs tentative list was formally submitted in 2007.
NZ Government, 2006, Our World Heritage: A Tentative List of New Zealand Cultural and Natural Heritage Sites, http://www.doc.govt.nz/ourworldheritage
UNESCO, 2007, Waters and seabed of Fiordland (Te Moana O Atawhenua), http://whc.unesco.org/en/tentativelists/5121
Department of Conservation, 2016, Southland Murihiku Conservation Management Strategy, p16, p38.
Department of Conservation, Fiordland Marine Reserves http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-protected-areas/fiordland-marine-reserves.pdf
Ministry for Primary Industries, Department of Conservation, Environment Southland and Ministry for the Environment, Beneath the Reflections, July 2017, A user's guide to the Fiordland (Te Moana o Atawhenua) Marine Area - Fiordland Marine Guardians, New Zealand.

► Sustainable finance

Some Concern

Vote Conservation provides the financial resources for capital expenditure, and operational management. There is also supplementary financial support for specific interventions such as Battle for Our Birds; grants for infrastructure related to tourism; and recreational activities and programmes to control introduced plants. The existing budget is insufficient to control the full range of introduced pests that are impacting on the biodiversity richness of the property. (NZ Government, 1990, 2003, DOC 2016; http://www.doc.govt.nz/nature/pests-and-threats/)

► Staff training and development

Mostly Effective

There are well-qualified staff at all levels of administration and management; and training opportunities are available (NZ Government, 1990, 2003). However, the major restructuring of the management agency, the Department of Conservation, in 2013 reduced the number (and knowledge) of staff managing the property (Confidential comment, 2013). A subsequent restructuring in 2015 reinstated the operational management of the property

within one division of the Department.
Department of Conservation, May 2013, Restructure, http://www.doc.govt.nz/news/issues/archive/new-structure-for-doc/summary-of-structure-changes/

► Sustainable use

Mostly Effective

Uses include fishing (e.g. white baiting), animal grazing under short-term pastoral leases, small-scale gold mining in rivers and on beaches, sphagnum moss collection and traditional use of plants by Maori (NZ Government, 1990, 2003).

► Education and interpretation programs

Highly Effective

Regional Conservation Management Strategies have been formulated for the four DOC management regions that the property covers (Southland, Otago, Westland and Canterbury). These provide “Prescriptions for management of visitor management zones” these zones include Urban, Rural, Frontcountry, Remote and Wilderness. Various levels of conservation education and interpretation are designed and implemented within each zone and the emphasis for these is generally, but not exclusively, within the Frontcountry zone.
(DOC, CMS 2010, 2016).

► Tourism and visitation management

Highly Effective

National Park Management Plans make provision for public use and enjoyment including facilities for interpretation, education and visitor information services. The following National Parks provide visitor information and interpretive facilities (i) Fiordland National Park - 1 visitor centre, (ii) Mount Aspiring Tititea -1 visitor centre, (iii) Westland Tai Poutini - 2 visitor centres and (iv) Aoraki Mount Cook National Park 1 visitor centre. A dedicated World Heritage Visitor Centre is located at a strategic location on the western side of the Southern Alps near the township of Haast. As well as visitor centres where staff offer interpretive services there are countless static interpretive signs located at strategic points particularly in conjunction

with 30min – 4 hr nature walks.
(NZ Government, 1990, 2003).

► Monitoring

Mostly Effective

Monitoring programmes exist for biodiversity, endangered birds, pest animal numbers, tree canopy cover, vegetation condition, glacier ice volume, visitor numbers and aircraft over flights (NZ Government, 1990, 2003). Additional monitoring of rare ecosystems and endangered species could be undertaken. http://www.doc.govt.nz/our-work/monitoring-and-reporting-system/

► Research

Highly Effective

There is an extensive programme of on-going research, including good collaborative arrangements with national science agencies (NZ Government, 1990, 2003).

Overall assessment of protection and management

Mostly Effective

Overall, protection and management of the property can be assessed as effective. About two thirds of the property is strictly protected (as national park or reserve) in perpetuity under national legal statutes; however, the remaining third has a much lower level of protection as ‘stewardship land’. Protection policies, regulations and management intervention are guided by a comprehensive system of management strategies and plans developed through wide public consultation and binding on all authorities including the Crown. The property is administered by the country’s principal conservation agency but currently is not sufficiently staffed and financed to cope with current demands. Principal threats to natural values are well recognized and are subject to management intervention where and when staffing and budgets allow.

► Assessment of the effectiveness of protection and management in

addressing threats outside the site

Highly Effective

The property is well-buffered from external influences, especially because of its remoteness and rugged alpine topography. The management agency has an excellent collaborative relationship with land and resource managers outside the property, which avoids conflict and enables any threats to be jointly addressed and eliminated.

▶ **Best practice examples**

Battle for the Birds / 1080 Planning, Management and Operations;
Aerial 1080 pest control industry guidelines. The National Pest Control Agencies (NPCA) have produced a best practice guideline to assist those who plan and manage aerial 1080 operations to understand and manage the critical risks in undertaking aerial 1080 operations and to ensure regulatory compliance. It has been endorsed as a statement of preferred work practices and arrangements for ensuring the health and safety of the persons to whom this guideline applies.
http://www.worksafe.govt.nz/worksafe/information-guidance/all-guidance-items/aerial-1080-pest-control-industry-guidelines
http://www.doc.govt.nz/our-work/battle-for-our-birds/

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **A vast primeval wilderness of mountains and fiords of outstanding scenic beauty**

Low Concern
Trend:Stable

Scenic and aesthetic values and attributes are largely intact, apart from some localized intrusion for tourist facilities and services. There is however rapid growth in tourism numbers causing some pressure prime visitor

locations and demand for additional aircraft landings and overflights (NZ Government, 1990, 2003).
Otago and Southland Conservation Boards, 2017 - The Rapid Expansion of Visitor Numbers Where to From Here?

► Many classic examples of the tectonic and glacial features and processes that have shaped the earth

Good
Trend:Stable

Geological and geomorphological features and processes are robust and resilient to change under human influences. There is evidence of the effects of changing climate on icefields and glaciers. Increased precipitation is forecast on the western parts of the property leading to accelerated rates of erosion and riparian instability (NZ Government, 1990, 2003).
https://www.niwa.co.nz/natural-hazards/hazards/climate-change

► The largest and least modified expanse of New Zealand’s natural ecosystems

Low Concern
Trend:Deteriorating

The national biodiversity monitoring and reporting programme (Tier 1) is designed to provide timely, robust information for evidence-based decisions and reporting on terrestrial biodiversity across public conservation land. Sampling takes place on an 8 km grid where a random selection of the > 1,400 sites are measured on a 5-year rotation. Birds, vegetation and mammal (possums, rabbits, hares, deer, chamois, goats, and tahr) occupancy and abundance are systematically assessed using standard methods. This programme provides DOC and others with consistent, comprehensive information about biodiversity across New Zealand. This programme is in its 5th year of full implementation. Reporting is achieved through specific stories/topics, as well as the state and trends of particular indicators and measures.
DOC's monitoring and reporting system
http://www.doc.govt.nz/our-work/monitoring-and-reporting-system/
Department of Conservation, National terrestrial monitoring data explorer
https://docnewzealand.shinyapps.io/tier1_plotmetrics/
Department of Conservation. 2016: Field protocols for DOC Tier 1 Inventory &

Monitoring and LUCAS plots, Version 11. Department of Conservation, Wellington.

The natural biodiversity and wildlife habitats are severely locally impacted by alien species of browsing and predatory animals and by some weed plants. Active monitoring and management intervention can contain these threats within reasonable limits, but only in key parts of the property. Predator free offshore islands within the property are vital for species survival e.g. Resolution, Secretary, Anchor, Chalky and Breaksea Islands.
Since 2014, an additional three marine reserves have been established on West Coast coastline of the property, in addition to the ten adjacent to Fiordland National Park.
http://www.doc.govt.nz/nature/habitats/marine/marine-reserves-a-z/marine-reserves-map/
(NZ Government, 1990, 2003; PCE, 2011, 2017).

► Unique biota in a relatively pristine state

Low Concern
Trend:Deteriorating

Ancient, unique, threatened and endangered biota are of international significance for science and conservation. The survival of some species within the property presents a major management challenge requiring constant vigilance, innovative management intervention, and improved budgets. Some species are in decline within the property.
The following species have current active management programmes through all or part of their range within the property: Takahe (porphyrio [notornis] hochstetteri), Kakapo (Strigops habroptilus), Haast Tokoeka (Apteryx haastii), Fiordland Tokoeka (Apteryx australis), Little spotted kiwi (Apteryx owenii), saddleback (Philesturnus carunculatus), mohua (Mōhoua ochrocephala), South Island robin (Petroica australis australis), Rock Wren (Xenicus gilviventris), Blue Duck (Hymenolaimus malacorhynchos), Kaka (Nestor meridionalis meridionalis), Kea (Nestor Notabilis), Short-tailed Bat (Mystacina tuberculata) and Long-tailed Bat (Chalinolobus tuberculatus).
(NZ Government, 1990, 2003, 2017) (PCE, 2011, 2017)
Department of Conservation - Conservation status of plants and animals
http://www.doc.govt.nz/nature/conservation-status/
Examples of bird species present in the property that have changed in

national threat status between 2012-2016 are Rowi, Okarito brown kiwi (Apteryx rowi) - nationally critical to vulnerable, Takahe (Porphyrio hochstetteri) – critical to vulnerable, Bittern (Botaurus poiciloptilus) – endangered to critical, Fiordland crested penguin (Eudyptes pachyrhynchus) – endangered to vulnerable, Yellowhead mohua (Mohoua ochrocephala) – vulnerable to recovering, Marsh crake (Porzana pusilla affinis) - relict to declining, Spotless Crake (Porzana tabuensis tabuensis) – relict to declining, South Island robin (Petroica australis australis) – not threatened to declining. Where there have been improvements in status these generally reflect the involvement of DOC intensive management recovery programmes. Declines in status reflect ongoing predation pressure.

Department of Conservation, May 2017, Threat Classification Series http://www.doc.govt.nz/about-us/science-publications/series/new-zealand-threat-classification-series/
Walker, S. 2017, Tipping Points for New Zealand’s Native Land Birds. EDS Conference Presentation - Unpublished Report

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Low Concern

Trend: Deteriorating

The property, to a significant degree, conserves outstanding natural values and attributes under all four natural World Heritage criteria.
Indigenous plant life and birds are severely impacted locally by invasive introduced species of browsing and predatory animals, and there are some problem weed plants. Current controls measures are only adequate in parts of the property and these focus on limiting disbursement.
Some biota, including ancient, endemic and unique species, have already gone extinct while others are endangered because of both direct and indirect human impacts. Their survival requires constant vigilance and carefully considered, science based management interventions.
Geological and landform values are inherently robust and resistant to human disturbance, though the effects of atmospheric warming are readily apparent in the marked reduction of ice fields and glaciers.

Scenery, aesthetic and wilderness values are largely intact. The exception to this general statement are the complex issues related to aircraft access. Rapidly increasing tourist numbers has required DOC and local authorities to embark on the modernisation and expansion of facilities for visitors that require quality design and monitoring to minimise adverse impacts (e.g. Aoraki, Milford).
Fixed wing and helicopters overflying and landing are a recurring concern that have a negative outcome on the wilderness and natural quiet experience that visitors expect.

Additional information

Benefits

Understanding Benefits

► Outdoor recreation and tourism

The property is a nationally and internationally renowned destination for visitors, including tourists, seeking an outdoor recreation experience in a wilderness setting.
The property includes: three of the New Zealand is Great Walks; is the major landscape for non-commercial wilderness recreation by New Zealanders.
There are numerous private commercial tourist concessions providing employment and income that support local economies, communities and residents
No aggregate of the economic value of the property is available.

► Cultural and spiritual values

The property holds deep cultural and traditional values to local Maori (Ngai Tahu) people, as a taonga, as a source of pounamu (nephrite jade), and of plant and animal products taken sustainably for traditional uses.

► Wilderness and iconic features

The property contains 5 gazetted wilderness areas (Glaisnock, Pembroke, Adams, Olivine, Hooker-Landsborough).

► Water provision (importance for water quantity and quality)

The property provides important ecosystem services both within the site and for adjacent land and water resource management and usage.
The property provides much of the high-quality water supply and water catchment control for the south-eastern South Island. Maintenance of the ecosystem structure (e.g. trees, shrublands) by control of introduced browsers is vital component of this service.
Failure to appreciate non-market values such as ecosystem services carries a risk of deterioration of natural capital, with consequences including increased flood risk, reduced whitebait catches, impoverished tourism experience, and damage NZs image.
DOC has recognised that steps are needed for preventing further decline in ecosystems (and the services they provide) and recognition of their economic values.

Summary of benefits

The property is a major landscape for a wide range of wilderness outdoor recreation, with many globally-renown tourism opportunities. It protects a huge expanse of natural wilderness terrain and provides a wide range of environmental services such as headwater catchment conservation, and it protects areas of significance to the culture and traditional practices of local indigenous peoples.

Projects

Compilation of active conservation projects

№	Organization/individuals	Project duration	Brief description of Active Projects
1	Department of Conservation	From: 2017 To: 2017	Predator Free 2050 is the high level strategic government goal that the Te Wahipounamu Battle for the Birds (BfoB) and Zero Invasive Pest (ZIP) Programmes are working within to deliver. The objective of the BfoB programme within Te Wahipounamu is to ensure that no species extinctions occur due to mast year sequences of rat and stoat eruptions. The BfoB programme is well established with landscape scale animal pest control. This has been in place across Te Wahipounamu for a number of years. The BfoB programme is ramping and scaling this work up over multiple years. The goal is Predator Free South Westland. The ZIP trial work that began in Te Wahipounamu this year is testing techniques for reducing pests to zero densities. This testing is of the effectiveness of big river valleys and high snow-covered mountains as natural barriers to reinvasion. This trial work is giving very encouraging results. Planning is advancing to scale this up to landscape scale in the coming years with the goal of predator Free South Westland.
2	Department of Conservation		The Himalayan Tahr Control Plan 1993 sets out the objectives for management of this species within set zones within Te Wahipounamu. This includes the southern and northern exclusion zones. Landscape and catchment scale control programmes and work are in place. Monitoring the effectiveness of the control programme and the health of the ecosystems across this place are in place. Reporting to the Conservation Boards and the NZ Conservation Authority is carried out on an annual basis.
3	Department of Conservation		Work is occurring across Te Wahipounamu in regard to the natural hazard scape especially focused on the Alpine Fault Rupture hazard and risk to both visitors and residents across the place. This work is being led by the Institute of Geological and Nuclear Sciences (GNS), Ministry of Civil Defence and Emergency Management (MCDEM), the three Regional Councils and the Department of Conservation. The objective is to have an integrated readiness and response plan for key sites across Te Wahipounamu in place by the end of 2018.

REFERENCES

№	References
1	Alpine Pure Company Website: http://www.alpinepure.com/
2	Biodiversity and Human Welfare available from: https://www.researchgate.net/publication/242687971_Biodiver… [accessed Aug 7, 2017].
3	Crown Minerals (Protection of World Heritage Sites) Amendment Bill, defeated 7 June 2017, http://www.legislation.govt.nz/bill/member/2017/0252/latest…
4	Cruz J., Thomson C., Parkes J., June 2014, Impact of Himalayan Tahr (Hemitragus jemlahicus) on snow tussocks in the Southern Alps, New Zealand, Landcare Research.
5	Department of Conservation - Conservation status of plants and animals http://www.doc.govt.nz/nature/conservation-status/
6	Department of Conservation 2016, Canterbury (Waitaha) Conservation Management Strategy, Christchurch, New Zealand http://www.doc.govt.nz/about-us/our-policies-and-plans/stat…
7	Department of Conservation 2016, Otago Conservation Management Strategy, Dunedin, New Zealand. http://www.doc.govt.nz/about-us/our-policies-and-plans/stat…)
8	Department of Conservation, 2016, Southland Murihiku Conservation Management Strategy, p16, p38. http://www.doc.govt.nz/southlandcms
9	Department of Conservation, 2017, Battle for our Birds in Fiordland National Park, DOC-3111427.
10	Department of Conservation, 2017, Thar Management Plan Annual Report 2016-2017
11	Department of Conservation, August 2017 National Compliance Strategy, http://www.doc.govt.nz/national-compliance-strategy
12	Department of Conservation, Fiordland Marine Reserves http://www.doc.govt.nz/Documents/conservation/marine-and-co…
13	Department of Conservation, May 2013, Restructure, http://www.doc.govt.nz/news/issues/archive/new-structure-fo…

№	References
14	Department of Conservation, May 2017, Threat Classification Series http://www.doc.govt.nz/about-us/science-publications/series…
15	Department of Conservation, National terrestrial monitoring data explorer https://docnewzealand.shinyapps.io/tier1_plotmetrics/
16	Department of Conservation, November 2006, Our World Heritage: A Tentative List of New Zealand Cultural and Natural Heritage Sites, http://www.doc.govt.nz/ourworldheritage
17	Department of Conservation. 2010, West Coast Conservation Management Strategy, Hokitika, New Zealand http://www.doc.govt.nz/about-us/our-policies-and-plans/stat…
18	Department of Conservation. 2016: Field protocols for DOC Tier 1 Inventory & Monitoring and LUCAS plots, Version 11. Department of Conservation, Wellington.
19	Federated Mountain Clubs, April 2016, https://fmc.org.nz/2016/04/11/milford-tourism-deserves-bett…
20	Hutching, G. and Potton C., editors. 1987. Forests, Fiords and Glaciers, New Zealand’s World Heritage. Royal Forest and Bird Protection Society of New Zealand. Wellington.
21	IUCN 2017. Red List of Threatened Species. IUCN, Gland, Switzerland and Cambridge, United Kingdom.
22	IUCN, 1990. Technical evaluation of the Te Wahipounamu –South West New Zealand World Heritage nomination.
23	IUCN-CMP Unified Classifications of Direct Threats and Conservation Actions IUCN-CMP Threats and Actions https://www.conservationgateway.org/ExternalLinks/Pages/iuc…
24	McGlone M., Walker, S., 2011, Potential effects of climate change on New Zealand’s terrestrial biodiversity and policy recommendations for mitigation, adaptation and research, Science for Conservation Report 312, Department of Conservation, Wellington
25	McSweeney, Gerry. pers. comm. September 2017 (Conservation Ambassador Royal Forest and Bird Protection Society, Eco-Tourism Operator in South Westland)
26	Ministry for Primary Industries, Department of Conservation, Environment Southland and Ministry for the Environment, Beneath the Reflections, July 2017, A user’s guide to the Fiordland (Te Moana o Atawhenua) Marine Area - Fiordland Marine Guardians, New Zealand.
27	Molloy, L. 2016, Nature Heritage Fund - Celebrating 25 years, Wellington, Department of Conservation.

№	References
28	Mount Aspiring National Park Management Plan 2011 Department of Conservation Dunedin, New Zealand http://www.doc.govt.nz/about-us/our-policies-and-plans/stat…
29	NZ Alpine Club, November 2016, Fiordland aircraft impact study in need of a research programme https://alpineclub.org.nz/2016/11/
30	NZ Conservation Authority Minutes, 2017 http://www.doc.govt.nz/about-us/statutory-and-advisory-bodi…
31	NZ Government, 1990. World Heritage Nomination of Te Wahipounamu –South West New Zealand.
32	NZ Government, 2003. Periodic Report for Te Wahipounamu-South West New Zealand.
33	NZ Government, 2006, Our World Heritage: A Tentative List of New Zealand Cultural and Natural Heritage Sites, http://www.doc.govt.nz/ourworldheritage
34	National Parks Act 1980. Reprint, 21 March 2017 version, http://www.legislation.govt.nz/act/public/1980/0066/latest/…
35	Ngai Tahu Claims Settlement Act 1998, 3 May 2017 version, http://www.legislation.govt.nz/act/public/1998/0097/latest/…
36	Otago and Southland Conservation Boards 2017 - The Rapid Expansion of Visitor Numbers Where to From Here?
37	Otago and Southland conservation boards float idea of one management plan for four major national parks - http://www.stuff.co.nz/environment/85946434/Otago-and-South…, November 2016
38	PCE - Parliamentary Commissioner for the Environment, 2011. Evaluating the Use of 1080: predators, poisons and silent forests – Wellington New Zealand
39	PCE - Parliamentary Commissioner for the Environment, 2013. Investigating the Future of Conservation: the case of Stewardship Land – Wellington New Zealand
40	PCE - Parliamentary Commissioner for the Environment, May 2017 Taonga of a nation: Saving New Zealand’s birds
41	PCE - Parliamentary Commissioner for the Environment, Update Report 2016, Evaluating the Use of 1080: predators, poisons and silent forests.

№	References
42	Southland Regional Development Strategy, November 2016 http://www.sords.co.nz/site/assets/files/1/sords_action_pla…
43	Tourism Forum - A Partnership Between the Otago And Southland Conservation Boards Queenstown NZ, 27 October 2016 - Unpublished Report
44	UNEP/WCMC, 2011. Datasheet for Te Wahipounamu-South West New Zealand World Heritage Property.
45	UNESCO, 16 COM.VIII
46	UNESCO, 18 COM.IX
47	UNESCO, 2004, Te Wahipounamu – South West New Zealand, State of Conservation Report http://whc.unesco.org/en/soc/1409/
48	UNESCO, 2007, Waters and seabed of Fiordland (Te Moana O Atawhenua), http://whc.unesco.org/en/tentativelists/5121
49	UNESCO, 2008, Enhancing our Heritage Toolkit http://whc.unesco.org/en/series/23/
50	UNESCO, 2016, The Operational Guidelines for the Implementation of the World Heritage Convention http://whc.unesco.org/en/guidelines
51	UNESCO, 28 COM.15B.17
52	UNESCO, 36 COM
53	Walker, S. 2017, Tipping Points for New Zealand’s Native Land Birds. EDS Conference Presentation - Unpublished Report
54	West Coast Regional Council, 2017, Strategic case for the Haast to Hollyford Road http://www.wcrc.govt.nz/our-council/news/Pages/West-Coast-E…
55	http://www.doc.govt.nz/Documents/conservation/threats-and-i…
56	http://www.doc.govt.nz/about-us/our-policies-and-plans/stat…)
57	http://www.doc.govt.nz/about-us/science-publications/series…

№	References
58	http://www.doc.govt.nz/get-involved/apply-for-permits/busin…
59	http://www.doc.govt.nz/get-involved/apply-for-permits/minin…
60	http://www.doc.govt.nz/nature/conservation-status/
61	http://www.doc.govt.nz/nature/habitats/marine/marine-reserv…
62	http://www.doc.govt.nz/nature/native-animals/birds/birds-a-…
63	http://www.doc.govt.nz/nature/pests-and-threats/
64	http://www.doc.govt.nz/nature/pests-and-threats/war-on-weed…
65	http://www.doc.govt.nz/our-work/battle-for-our-birds/
66	http://www.doc.govt.nz/our-work/climate-change-and-biodiver…
67	http://www.doc.govt.nz/our-work/fiordland-species-monitorin…
68	http://www.doc.govt.nz/our-work/monitoring-and-reporting-sy…
69	http://www.doc.govt.nz/parks-and-recreation/places-to-go/ca…
70	http://www.mbie.govt.nz/info-services/sectors-industries/to…
71	http://www.mpi.govt.nz/protection-and-response/finding-and-…
72	http://www.radionz.co.nz/national/programmes/ninetonoon/aud…
73	http://www.stuff.co.nz/environment/91525027/Key-consent-for…
74	http://www.stuff.co.nz/southland-times/82875123/Five-potent…. August 2016.
75	http://www.wcrc.govt.nz/our-council/news/Pages/West-Coast-E…
76	http://www.wildingconifers.org.nz/
77	http://www.worksafe.govt.nz/worksafe/information-guidance/a…

№	References
78	https://en.wikipedia.org/wiki/Alpine_Fault#Earthquakes_in_h…
79	https://www.gns.cri.nz/Home/Learning/Science-Topics/Earthqu…
80	https://www.niwa.co.nz/natural-hazards/hazards/climate-chan…
81	https://www.niwa.co.nz/our-science/climate/information-and-…
82	https://www.wildernessmag.co.nz/ngapunatoru-heli-landings-n…