Please note: this is an archived Conservation Outlook Assessment for Los Glaciares National Park. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Los Glaciares National Park

SITE INFORMATION

Country: Argentina
Inscribed in: 1981
Criteria: (vii) (viii)
The Los Glaciares National Park is an area of exceptional natural beauty, with rugged, towering mountains and numerous glacial lakes, including Lake Argentino, which is 160 km long. At its farthest end, three glaciers meet to dump their effluvia into the milky grey glacial water, launching massive igloo icebergs into the lake with thunderous splashes. © UNESCO

SUMMARY

Conservation Outlook **Good with some concerns**

Los Glaciares National Park is recognized for its exceptional scenic beauty and the impressive display of ongoing and major glaciations and related phenomena. Due to the remoteness of certain areas, the site benefits from a high degree of natural protection. However, climate change has affected and will continue to affect most glaciers, and the lack of climate change adaptation measures is of concern. Additionally, there are some concerns about mass tourism seasonally reaching excessive levels with tourism infrastructure starting to affect the landscape beauty and integrity. Invasive alien species of flora and fauna have been having impacts on the ecosystem, with feral cattle being one of the more obvious examples. Stronger enforcement is needed in areas such as contamination control, managing public use, and tourism planning to address existing gaps. Furthermore, hydropower dam construction in surrounding areas could significantly affect Argentino Lake and the glaciers. Management is currently constrained by human and financial resources and a lack of transparency and involvement of local communities in decision-making processes. However, reports about the Local Advisory Commission being reinstated is positive.

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **Exceptional natural beauty modeled by ongoing glaciation** **Criterion:(vii)**

Los Glaciares National Park is situated in the Argentine part of Southern Patagonia. The landscape is modeled by longstanding and ongoing glaciation against the backdrop of some of the most spectacular Andean peaks, such as the Fitz Roy (Chaltén) and the Torre. Extensive glacial lakes, such as the renowned Argentino and Viedma Lakes, contrast with massive glaciers fed by some of the largest inland ice fields in the world (World Heritage Committee, 2014; UNEP-WCMC, 2011). The natural beauty attracts visitors from around the world. Among these, the dynamic Perito Moreno Glacier is particularly iconic for its striking calving events into Lake Argentino, and is widely recognized as a key visual feature of the site.

▶ **Geological, geomorphic and physiographic phenomenon caused by the advance and retreat of the glaciations** **Criterion:(viii)**

Los Glaciares National Park owes its name to the countless glaciers covering roughly half of the property. The vast South Patagonian Ice Field, the most extensive South American relict of the glaciological processes of the Quaternary Period feeds many of these glaciers, while there are also impressive glaciers independent of the main ice field. The property is thereby an outstanding example of geological, geomorphic and physiographic phenomena caused by dynamic glaciation during the Pleistocene epoch of the Quaternary, as well as ongoing neoglaciations in the Holocene (World Heritage Committee, 2014; UNEP-WCMC, 2011). These events have modeled the landscape and may be recognised by the lacustrine basins of glacial origin, the moraine systems deposited on the plateaux, or by more recent systems pertaining to the current valleys with its spectacular glacier tongues. The arguably most spectacular visual feature are several glaciers calving into the icy and milky waters of the huge Lake Argentino. These include the famous Perito Moreno Glacier, which blocks a narrow channel formed by Lake Argentino thereby temporarily raising the water level. This in turn causes regular thunderous ruptures of the glacier tongue into the lake (World Heritage Committee, 2014).

Other important biodiversity values

▶ **Natural forests and steppes with noteworthy fauna and flora**

While better known for its extraordinary scenic beauty and striking glaciation, Los Glaciares boasts a remarkable landscape diversity encompassing a large altitudinal gradient of more than 3,000 metres and very diverse ecosystems. The property is in particular noteworthy for its forests and steppes. The forests are dominated by various species of Southern Beech (Nothofagus sp.). Charismatic mammals include puma (Puma concolor) and the elusive and endangered Patagonian huemul or South Andean deer (Hippocamelus bisulcus). The avifauna includes the iconic Andean condor (Vultur gryphus, NT), the torrent duck (Merganetta armata, LC) in the fast-flowing clear mountain creeks, and the charismatic Magellanic woodpecker (Campephilus magellanicus, LC) (World Heritage Committee, 2014).So far, 145 bird species are known for the National Park, five of them globally threatened: the rhea (Rhea pennata), the Andean condor (Vultur gryphus), the spectacled duck (Speculanas specularis) and the Patagonian wader (Geositta antarctica) are abundant, resident and nesting. The southern meadowlark (Melanodera melanodera), although considered rare probably has a significant population in the southernmost part of

the Park (Birdlife International, 2024).

- **Massive freshwater reservoir**

  The property is part of an enormous, largely pristine freshwater reservoir volume comprised of vast ice fields (South Patagonian Ice Field) and major glaciers on both sides of the international border between Argentina and Chile (World Heritage Committee, 2014; UNEP-WCMC, 2011).

Assessment information

Threats

Current Threats

High Threat

From a conventional protected area perspective, the national park faces considerable threats despite the relatively remote location and sparse population density of Southern Patagonia. Intensive past livestock grazing, introduced plants and mammals, feral livestock, climate change, fires and poorly controlled tourism development have caused significant impacts on the steppes and forests. However, when solely focussing on the values for which the site was inscribed, the most important aspects affected relate to the exceptional natural beauty modelled by ongoing glaciation. Although the geological, geomorphic and physiographic phenomenon caused by the advance and retreat of the glaciations is not facing the same degree of threat, natural disasters, impacted by climate change and infrastructure developments present high threats to attributes underpinning both these heritage values. Projections of glacier evolution in Los Glaciares National Park illustrate that if green house gas emissions remain similar to the current rate (2.6%), in the year 2100 there would be a reduction in the volume of glaciers in the National Park of between 20-40%. Furthermore, unregulated tourism, increasing real estate demand, and insufficient basic infrastructure are threatening the site’s exceptional natural beauty.

- **Invasive / Other Problematic Species, Genes & Pathogens, Invasive Non-Native/ Alien Species, Problematic Native Species**

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

  (Invasive alien and feral species)
  Invasive/problematic species
  Bos taurus
  Equus caballus
  Lepus europaeus
  Neovison vison
  Oncorhynchus tshawytscha
  Oncorhynchus mykiss
  Salvelinus namaycush
  Rosa rubiginosa
  Other invasive species names
  Psalm trutta, Didimosphenia geminata

  The main non-native mammal species within the site include populations of cattle (Bos taurus) and feral equines (Equus caballus), European hare (Lepus europaeus) and American mink (Neovison vison). Invasive American mink is a severe threat to endangered waterbird populations, such as the torrent duck (Merganetta armata). Mink has a proven acute impact on the Hooded Grebe (Podiceps gallardoi), a critically endangered specialist of highland plateau lakes in Patagonia where a single mink attack can deplete up to 4% of the global population (Fasola and Roesler, 2018). Likewise, the invasions of exotic fish represent a significant loss of biodiversity for the site. Native species are completely excluded from some sectors (Testoni, 2018). In the Santa Cruz river basin, whose headwaters are located within the site, four exotic salmonids species have been registered: chinook salmon (Oncorhynchus tshawytscha), rainbow trout (Oncorhynchus mykiss), lake trout (Salvelinus namaycush) and brown trout (Psalm trutta).The presence of the diatom algae (Didimosphenia geminata) in some water bodies represents the

main conservation problem of these environments, mainly affecting their quality (Testoni, 2018). Invasions caused by exotic plants, such as Rosa rubiginosa, constitute one of the most relevant conservation problems of the site. The presence of domestic dogs that roam without the control of their owners is a problem of particular concern in the Northern Zone, especially in the areas where the huemul is present (Administración de Parques Nacionales, 2019). Although invasive species pose a high threat to the important biodiversity values of the site, they do not impact the natural beauty and geomorphic processes for which the site was inscribed.

► Recreational Activities

High Threat

(Growing visitation)

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

There is an important seasonality factor in the tourism of Los Glaciares National Park - the high season occurs between September and April. Between September 2022 and April 2023, there were 781,823 registered entrances to the National Park (Secretaria de Turismo de El Calafate, 2023), compared to less than 80,000 in the early 1990s (UNEP-WCMC, 2011). And this is considering that the northern area of the Park lacks data since no registration was required to enter the Park in El Chaltén until 2024. Negative impacts derived from tourism have been detected in the site in recent years, such as the increasing use by tourists and residents of spontaneous trails, progressive damage to soil and vegetation, pollution of water courses caused by inadequate local infrastructure such as the El Chaltén overloaded waste-water plant (condemned in September 2024 by Camara Federal De Comodoro Rivadavia), and excessive use of some areas, such as the Perito Moreno Glacier area (Administración de Parques Nacionales, 2019).

► Changes in Temperature Regimes, Changes in Precipitation & Hydrological Regime

Very High Threat

(Risk of natural disasters increased by climate change)

Inside site, throughout(>50%)
Outside site

Climate change is causing the majority of the glaciers in the national park to recede significantly. According to available climatic models, a significant change in regional average temperatures and precipitation patterns could lead to important changes in river dynamics (Villalba et al., 2017). Annual average temperature increase (especially in the summer) has had an effect on the position of the regional snow line, forcing its elevation. This has caused a general retreat of most of the Patagonian glaciers (Administración de Parques Nacionales, 2019). In 2015, the Viedma glacier showed the highest retreat rates over the last 40 years (Lo Vecchio et al., 2018).

Even for optimistic scenarios of drastic greenhouse gas emission reductions (low-emission scenarios, such as RCP2.6), projections show that tropical glaciers are likely to lose between 30-98% of their ice by 2100, while glaciers in the rest of the southern Andes would also experience significant losses (~8-35%). If emissions continue to increase under a less optimistic climate scenario (RCP8.5), glacier ice loss will increase, projected to reach between ~70-100% and ~30-58% for the low-latitude and southern Andes, respectively. Preserving many low-latitude glaciers is likely to be an insurmountable challenge: recent projections of a +2°C warming scenario show that this region of the Andes will be completely, or almost completely, ice-free by 2100. Such ice loss in the Andes will increase stress on freshwater resources on which communities and major cities in the lower reaches of the watersheds depend, especially during periods of drought (Davies et al. 2025). Projections of glacier evolution in Los Glaciares National Park illustrate the slow response time of large glaciers. The low accumulation area ratio (AAR) values (50%) modelled for the glaciers in this site at the end of the 21st century indicate a strong imbalance between the remaining large ice volume and climatic conditions and thus the continuation of ice loss beyond 2100 (Bosson et al., 2019). If the green house gas emissions remain similar to the current rate (2.6%), in the year 2100 there would be a reduction in the volume of glaciers in the National Park of between 20-40% (Administración de Parques Nacionales, 2019). On the other hand, events of heavy rainfalls, combined with deglaciation could provoke a Glacial Lake Outburst Flood (GLOF). The vulnerability of the region is assessed by SEGEMAR. Main processes active in the area correspond to rockfalls, landslides, fluvial erosion and, to a lesser extent, flooding erosion and overflowing of rivers. Massive landslide phenomena are widely distributed in the studied area due to the high relative relief available and to the weathering processes linked to glacial activity (Balbi et al. 2019).

Higher summer temperatures coinciding with decreasing precipitation increases the vulnerability of

native steppes and forests to wildfires (World Heritage Committee, 2014). For northern Patagonia in Argentina, studies show a 0.53°C increase in annual temperature during the 20th century (Villalba et al., 2005) and a decrease in mean annual precipitation (Masiokas et al., 2008). These changes have led to direct impacts on forest ecosystems, such as reduced growth and tree mortality (Amoroso et al., 2015, Rodríguez-Catón et al., 2016, Suarez et al., 2004, Villalba and Veblen, 1998). Future projections of climate change in the region, based on the HasCM3 model, predict that temperatures will continue to increase at the same rate as in the last 60 years and that precipitation will decrease by about 30% in the Andes (Centro de Investigaciones del Mar y la Atmósfera, 2014). Nothofagus trees are negatively affected by prolonged high temperatures and will increase with climate change (Bonada et al. 2022). The decrease in precipitation in recent decades has influenced the number of fires in drier years and the size of fires, which increased along the northwest-southeast gradient of decreasing precipitation (Bianchi et al. 2023). Fire regimes are largely human-driven, and conditioned by climate and landscape characteristics.

▶ **Terrestrial Animal Farming, Ranching & Herding** — **High Threat**

(Livestock grazing) — Inside site, widespread(15-50%)
Outside site

Cattle and sheep grazing have been modifying the native steppes and forests long before the World Heritage inscription (State Party of Argentina, 1981) with impacts on native flora, fauna and habitat quality. Perilake and wet-meadows (mallines) are disturbed by trampling and grazing, leading to loss of vegetation cover and soil, water pollution and affecting water retention capacity. This in turn favours exotic species establishment and affects species that use those ecosystems, such as nesting birds like Rallus antarticus (Administración de Parques Nacionales, 2019; Testoni, 2018). While some areas have since been naturally recovering, pressure continues to exist, including in some areas from feral cattle (World Heritage Committee, 2014). Feral cattle is considered one of the most serious conservation problems, as it affects 20% of the World Heritage site (Administración de Parques Nacionales, 2019; Testoni, 2018). The threat is ranked as high due to the potential effects on the exceptional natural beauty and on the other important biodiversity values of the site.

▶ **Hunting, Collecting & Controlling Terrestrial Animals** — **Low Threat**

(Poaching) — Inside site, extent of threat not known

Other targeted species names
Puma concolor, Lycalopex culpaeus, Lama guanicoe, Hippocamelus bisulcus

Historically, there has been intense hunting of puma (Puma concolor), fox (Lycalopex culpaeus, L. griseus) and guanaco (Lama guanicoe). Ranches continue to operate in the surroundings of the site and both retaliation killings of predators and poaching of guanaco have been reported (IUCN, 2014). Hunting of huemul (Hippocamelus bisulcus) from the roads and trails is circumstantial, specially in the area of influence of Provincial Route No. 41, both within the protected area and beyond its northern boundary (Administración de Parques Nacionales, 2019). This is a low threat from a World Heritage perspective due to the focus on landscape beauty and geological values.

▶ **Water-borne & other effluent Pollution, Garbage & Solid Waste** — **Low Threat**

Inside site, extent of threat not known

(Discharge from water treatment plant and untreated sewage)

The wastewater treatment plant in the village of El Chaltén is inadequate for both the 2,000 residents and the approximately 10,000 visitors it hosts annually. Between 2021 and 2023, results from a participatory research project showed the presence of faecal bacteria and the development of antibiotic-resistant bacteria (Crosa, 2022; Dominguez, 2023). Additionally, the plant's toxic waste is stored at an unlined landfill, located near the Viedma Lake area. In November 2023, an emergency environmental lawsuit was filed by local residents (Martin, EXPTE. N° FCR - 16722/2023). As part of the lawsuit, the provincial judge acknowledged the importance of preserving rivers, especially in World Heritage sites, and ordered the expansion of the treatment plant and remediation of contamination. There are also significant uncertainties about the extent of contamination due to the lack of adequate faecal waste treatment infrastructure in the camping areas and along the trails in the northern zone of Los Glaciares

National Park. No information exists regarding the impact of the lack of treatment on groundwater and soils. Progress is partly dependent on inter-institutional coordination and funding for the necessary works (Anière, 2024). While overall, the pollution presents a high threat to the freshwater reservoir, it does not present a high threat on the key attributes of the World Heritage values.

▶ **Residential Areas, Recreation & Tourism Areas** — **High Threat**

(Infrastructure expansion) — Inside site, scattered(5-15%)
Outside site

Even though infrastructure expansion has mostly been occurring outside the World Heritage site, the visual impacts are striking nonetheless (UNEP-WCMC, 2011). There is a mismatch between tourism growth and corresponding planning and management (Auditoría General de la Nación, 2015; Despouy, 2015; Administración de Parques Nacionales, 2019).

Furthermore, real estate development in the contiguous national reserve, which serves as a de facto buffer zone, is an increasing risk due to the tourism boom and demand for secondary homes in Patagonia. In addition to conversion of habitat and disturbance (BirdLife International, 2017), it could cause important visual impacts. El Chaltén municipality is requesting the degazettement of 200 hectares of the World Heritage site in order to extend the urban area. This would ultimately lead to the downsizing of the protected area. Civil society organizations submitted a note to Santa Cruz Provincial Government, requesting the withdrawal of the initiative. In 2021 National Park’s authorities agreed on the cession of some 11 hectares in the northern part of the protected area, which will be destined to the expansion of the urban area of the town of El Chaltén; through a new sector of land for the installation of infrastructure and equipment for tourist and institutional activities in the town (Parques Nacionales, Noticias, 2021). Local organizations expressed their concern regarding potential environmental impacts of urban encroachment, such as soil erosion, spontaneous opening of new trails; inadequate waste and waste-water management and non-authorized wood extraction (ACEN, 2020). The threat is ranked as high, as it would potentially impact on the beauty of the overall landscape as well on other important biodiversity values. The evolution of the urbanized area is visible through satellite views of El Chaltén between 2014 and 2024 (World Imagery ESRI Wayback 2024-09-19 / 2014-02-20).

Potential Threats — Very High Threat

The construction of hydropower dams on the Santa Cruz River, which originates in the World Heritage site, would fundamentally modify one of the last free-flowing major rivers in Argentine Patagonia and possibly affect the iconic Lago Argentino. This, along with the climate change impacts, pose a serious threat to the extraordinary landscape beauty, the glaciers surface and the freshwater reservoir.

▶ **Dams & Water Management/Use** — **Very High Threat**

(Dam construction) — Outside site

Past plans to construct a hydropower dam on the La Leona River raised concerns about the water level of Lago Viedma and anticipated changes to sensitive habitats along its shore (BirdLife International, 2017). In 2012, the hydropower plans on the La Leona River appeared to have been abandoned. There is, however, ongoing concern about the construction of major dams on the formerly free-flowing Santa Cruz River, known as La Barrancosa-Condor Cliff hydropower complex. Controversial planning of these dams raised public concern and media attention. Construction was suspended until 2017 due to the lack of environmental impact assessment (Corte Suprema de Justicia de la Nación, 2016). However, the government authorities approved the Environmental Impact Study presented in 2017 and started building the complex in 2020. Due to financial constraints, the project is currently on hold (2023, HCDN, Pedido de informes). There are other small hydropower plants projects being assessed at the moment like the mini-hydro power plant in Las Vueltas River. Possible effects on glaciers´ dynamic, in particular glaciers calving, constitutes a potential risk. The hydraulic decoupling between the Argentino Lake and the artificial reservoir located upstream of the river and the possible impact of the maximum level of operation of the dam (La Barrancosa) on the dynamics of glaciers remains uncertain (Administración de Parques Nacionales, 2019; IANIGLA, 2017; IUCN Consultation, 2020a). While outside of the World Heritage site, the reservoir could reach into the site according to some scenarios, thereby affecting the

level of the iconic Argentino Lake and consequently both sensitive aquatic and coastal habitats but also one of the major tourism attractions. A rise in the lake level would accelerate the retreat of the glaciers in the context of global warming, as the glaciers would melt faster in contact with the waters and would slide towards the lake at a greater speed (IUCN Consultation, 2020a). The annual advance of the Perito Moreno Glacier front typically leads to an ice-dam formation, which is a complex process, and there is a feedback mechanism between the Glacier and Argentino Lake that primarily controls the oscillations of the glacier front around the otherwise quite stable position (Lenzano et al. 2018). In June 2023, Energía Argentina proposed a pre-feasibility study for a small hydroelectric power plant in El Chaltén as part of the compensation fund for the Barrancosa-Condor Cliff hydropower complex (Boana Association, 2023).

Overall assessment of threats

High Threat

Livestock grazing, invasive species, climate change and uncontrolled tourism have significantly impacted the steppes, forests and water quality. Rising contamination from inadequate infrastructure threatens water and soil quality in the protected area. From a conventional protected area perspective, the national park therefore faces considerable threats despite the relatively remote location and sparse population density of Southern Patagonia. However, when solely focussing on the values for which the site was inscribed, the most important aspects affected relate to the exceptional natural beauty modelled by ongoing glaciation. The geological, geomorphic and physiographic phenomenon caused by the advance and retreat of the glaciations is mostly impacted by climate change and infrastructure developments. Projections of glacier evolution in Los Glaciares National Park illustrate that if green house gas emissions remain similar to the current rate (2.6%), in the year 2100 there would be a reduction in the volume of glaciers in the National Park of between 20-40%. Furthermore, unregulated tourism, increasing real estate demand, and insufficient basic infrastructure are threatening the site’s exceptional natural beauty. The construction of hydropower dams on the Santa Cruz River, which originates in the World Heritage site, would fundamentally modify one of the last free-flowing major rivers in Argentine Patagonia and possibly affect the iconic Lago Argentino. This, along with the climate change impacts, pose a serious threat to the extraordinary landscape beauty, the glaciers surface and the freshwater reservoir.

Protection and management

Assessing Protection and Management

▶ **Involvement of stakeholders and rightsholders, including indigenous peoples and local communities, in decision-making processes** — **Serious Concern**

There is increasing tension between nature conservation and tourism development which at times results in conflicts between the national management agency APN, the local conservation agents, inhabitants of El Chaltén and Calafate, touristic operators and other actors at the provincial level (IUCN Consultation, 2024). Similarly, livestock husbandry on adjacent private land can cause conflict when livestock enters the national park (Administración de Parques Nacionales, 1997). There is no official initiative to include or involve local communities into management plans and this generates tensions. The protected area had a Local Advisory Commission in operation from 2004 to 2007, which is not currently functioning, and there is no formal communication channel between the park, the local community and other sectors. In 2024 it was announced that the Local Advisory Commission (CAL) would be re-created (Luque, 2024). The consultative body will be made up of national, provincial, municipal entities, as well as NGOs, and group tourism providers. It aims to address transcendental issues for the protected area to reach consensus on the most appropriate decisions. With various projects and initiatives planned for Los Glaciares National Park, the establishment and functioning of the CAL is critical to inform e.g. the definition of visitor carrying capacities in the North Zone and in the Perito Moreno Glacier, hiking in the South and Central Zone, the creation of new tourism products, among

others.

► Legal framework — Some Concern

Los Glaciares National Park is a unit of the National System of Protected Areas in Argentina (Law No. 22.351). Created in 1937 (Law No. 13.895) its current boundaries were defined in 1971 (National Law No. 19.292), including the division of the area into a national park and a national reserve, as is common in Argentina (World Heritage Committee, 2014). The park does not have a registered and approved zoning plan. Furthermore, there is uncertainty as to the legal norm to be applied for the definition of the boundary E in the sector of the Vueltas river. As long as this issue is not resolved, there are doubts as to whether or not the personnel's actions in the sector located on the west bank of the Vueltas river are appropriate.

► Governance arrangements — Serious Concern

The transparency of governance and decision-making processes could be improved to allow for greater stakeholder engagement and input and to enhance information sharing. There are some tensions between the different authorities in the region that impedes effective collaboration in areas where different institutions should be involved in decision-making processes (buffer urban areas, property management close to the park, and sites under provincial administration at the frontiers of the park).

► Integration into local, regional and national planning systems (including sea/landscape connectivity) — Some Concern

Los Glaciares National Park is legally part of Argentina's National System of Protected Areas, as established by Law No. 22.351 (UNESCO World Heritage Centre, n.d.). However, there is limited evidence of effective integration into broader regional or national land-use planning frameworks. The park's management plan outlines conservation objectives and management programs (Administración de Parques Nacionales, 2019), but it remains unclear how these align with other regional or national planning instruments. Regarding landscape connectivity, a project has been proposed to establish a 75 km binational hiking trail connecting Villa O’Higgins (Chile) and El Chaltén (Argentina), traversing the northern part of the World Heritage site (Administración de Parques Nacionales, 2019). This initiative is promoted by the Santa Cruz Province Tourism Secretary, the National Tourism Service of Chile (SERNATUR) in the Aysén Region, and the Chambers of Tourism of Villa O’Higgins and El Chaltén (El Mediador, 2020; Municipalidad de El Chaltén, 2019). However, there is no available information indicating that environmental or heritage impact assessments have been conducted for this project, nor is there evidence of formal involvement of the National Parks Administration in its planning. Furthermore, it is unclear how this initiative aligns with the park's conservation objectives or contributes to the ecological connectivity of the area. Therefore, while initiatives exist that could enhance the park's integration into broader planning systems, the lack of evidence regarding their effective implementation and alignment with conservation goals raises some concern.

► Boundaries — Some Concern

Los Glaciares National Park does not have a registered and approved land registry (Administración de Parques Nacionales, 2019). There is uncertainty as to the legal norm to be applied for the definition of the E boundary in the sector of the Vueltas river. As long as this issue is not resolved, there are doubts as to whether or not the personnel's actions in the sector located on the west bank of the Vueltas river are appropriate. In the central sector of the park, there are sectors of the eastern boundary that are difficult to recognise on the ground, as they are not demarcated. Boundaries (wire fences) between the National Park and private properties in the central area are in poor or non-existent condition, allowing domestic livestock to enter the valleys (Administración de Parques Nacionales, 2019).

► Overlapping international designations — Data Deficient

No overlap was identified.

► Implementation of World Heritage Committee decisions and recommendations — Mostly Effective

The review carried out in 2014 by the World Heritage Committee points out the following protection and management requirements: the revision and updating of the preliminary management plan, with the aim of responding to emerging demands; maintaining the Local Advisory Commission, constituted by the World Heritage Committee; the need for adequate planning for public use due to the climatic conditions prevailing in the sector; and the removal of the bagual cattle present in Península Avellaneda and Bahía Onelli, and the continuity of the Research and Monitoring Programme, including the Huemul conservation project (Administración de Parques Nacionales, 2019).

The management plan was updated accordingly and the Action Plan for the Conservation of the Huemul was updated in 2018.
Regarding the Local Advisory Commission, the recommendations have not been implemented so far. However, according to reports, the formation of the Local Advisory Commission will be effective soon. It will act as a consultative body that should be made up of national, provincial and municipal entities, non-governmental organisations, and tourism providers (Luque, 2024).

► Climate action — Serious Concern

Despite the fact that climate change is identified as one of the greatest threats to the landscapes and ecosystems within the property, the 2019 management plan does not outline any measures taken by the administration to conduct a climate vulnerability assessment, nor to develop a climate change adaptation plan. Due to the projected significant glacial retreat and the evolution of large bodies of water, there is a significant risk to the values of the park, to the surrounding tourist activity and to the inhabitants of El Chaltén.
Moreover, current climate risks are not fully integrated into public decision-making. Several studies have identified a Glacial Lake Outburst Flood (GLOF) risk at Laguna Torre, one of the park's most visited lakes, and have established flood susceptibility maps (Schmidt 2025, Balbi 2019, Liscia 2021, Fernández 2022, Fernández 2023). However, it seems no measures have been implemented to monitor these risks or establish early warning systems.

► Management plan and overall management system — Some Concern

The management plan was updated in 2019 and is effective to date (Administración de Parques Nacionales, 2019). It analyses natural values, strengths, weaknesses, opportunities, and threats, and defines technical and operative guidelines for the conservation and management of the site. It also sets management objectives, and desired management outcomes.
However, as mentioned above, the planning process does not provide sufficient opportunity for stakeholder input since consultative bodies have not been implemented so far.

► Law enforcement — Some Concern

The current staff structure is insufficient to manage a protected area of such large extent, with two large urban nuclei and different public use modalities (State Party of Argentina, 2023). The increase in visitation and the trends in public use require greater efficiency in processing permits, as well as in the tasks of control, surveillance, conservation, communication and education (Administración de Parques Nacionales, 2019).

► Sustainable finance — Serious Concern

The management plan analyses the level of financial resources required to ensure the national park's effective management, however financial resources are currently not adequate to implement the management measures required to maintain the site’s values (State Party of Argentina, 2023). During the last decade and up to 2016, the national park's budget was composed of National Government allocations plus 5 percent of the income derived from visitor's access fees. This mechanism changed from 2017 onwards, resulting in a significant reduction of the park´s financial capacity. The budget received in 2019 was considered insufficient for managing the area and implementing the operative plan (Administración de Parques Nacionales, 2019). In 2024, the National Parks Administration introduced measures to generate additional revenue from several National Parks, including Los Glaciares National Park, by increasing entrance fees and establishing a new fee for previously free areas, such as the

Northern Zone. However, it is unclear whether a percentage of the funds will be directly reinvested into the park, and the criteria for their allocation remain undefined (Resolution 228/2024 of APN).

► Staff capacity, training and development — Some Concern

Although the current staff numbers are unknown, there is an identified need to reinforce staff training in the short and medium term objectives. Although a capacity building plan has not been developed for the site, a survey of training needs has been carried out. Trainings delivered up to this date partially meet the needs identified by the staff (Administración de Parques Nacionales, 2019).
A substantial part of contracts of the conservation agents of the Park are temporary contracts, which makes their work situation precarious and also increases the vulnerability of the management of the protected area. The recent regional and national political change has led to tensions among the staff of the National Parks Administration, with the dismissal of some staff members and the non-renewal of temporary contracts. Particularly contracts for the trail maintenance unit of the Northern Zone in the National Park have not been renewed. There are growing concerns about the design and maintenance of trails in the Northern Zone, as there is no public information regarding the Administration's decisions on trail upkeep or the opening of new trails within the forests (IUCN Consultation, 2024).

► Education and interpretation programmes — Mostly Effective

Since 2016 the site has a Comprehensive Environmental Education Plan that guides the formal and non-formal education activities with the neighboring communities. Among the training activities for the community, since 2008, courses have been organized, like the Training Course for Tourist Hosts of the PNLG. Training activities have also been carried out for guides, in collaboration with staff from the Conservation and Public Use departments of the PNLG and the DRPA (Administración de Parques Nacionales, 2019)

► Tourism and visitation management — Serious Concern

Highly seasonal tourism is the major use of the national park with annual visitor numbers regularly exceeding half a million (Administración de Parques Nacionales, 2015). Infrastructure developments (hotels, lodges, campgrounds, hiking and horse trails, mountain huts, tour boat and glacier hike facilities) are growing but not always following environmental regulations. Monitoring of the touristic infrastructures and activities is lacking. This leads to overloaded infrastructure like the El Chaltén waste-water treatment plant, recently condemned for polluting the Las Vueltas river (Sentenced in September 2024 by Camara Federal De Comodoro Rivadavia, Martín et al., 2024). Non-authorized use of spontaneous trails and circuits in remote areas by residents and tourists has also been identified as a threat to the site's key biological attributes (Administración de Parques Nacionales, 2019). Auditoría General de la Nación (2015) noted an absence of up-to-date and approved public use plans. Long-term and systematic monitoring of visitors, authorized trails and areas use and tourism impacts is also needed (Administración de Parques Nacionales, 2019).

► Sustainable use — Data Deficient

The major use of the national park is tourism, the management of which has some deficits as mentioned above (Auditoría General de la Nación, 2015; Despouy, 2015; UNEP-WCMC, 2011; Martin et al., 2001). There are no assessments of the type and level of resources that could be used from the site without negatively impacting on the site’s natural values. Some issues with livestock entering the site has been mentioned in the past.

► Monitoring — Some Concern

The inventory and status of glaciers is monitored by the Argentine Institute of Nivology, Glaciology and Environmental Sciences (IANIGLA) in coordination with the Ministry of Environment and Sustainable Development, as mandated by the Law No. 26,639 / 2010. Some priority native species are being monitored, such as the torrent duck (Merganetta armata), the Patagonian Huemul (Hippocamelus bisulcus), the guanaco (Lama guanicoe) and neotropical birds (through the Neotropical Birds Census). The status and distribution of some exotic invasive species, such as Lupinus polyphyllus and Didymosphenia geminata, are also being tracked (Administración de Parques Nacionales, 2019). Water

monitoring was conducted from 2021 to 2023 through a citizen science project, revealing the development of antibiotic-resistant bacteria in Las Vueltas River. However, there is currently a lack of systematized monitoring of surface and groundwater (Crosa, 2022; Dominguez, 2023).
While the 2019 management plan establishes a monitoring system, there is limited information on its implementation or use of results in site management.

► Research — Some Concern

Between 2016 and 2018, 21 research projects on glaciers, biodiversity and geology of the region were carried out in the site (Administración de Parques Nacionales, 2019). Regular studies of the glaciers are conducted as part of a national governmental effort in addition to a wealth of academic research, much of which is published in peer-reviewed journals. Partial inventories of fauna exist, with a focus on birds (see for example BirdLife, 2017) and longstanding work of the endangered huemul deer within a national programme dedicated to this species recognized as a "national monument" in Argentina. While there are neither integrated, on-going research programs for the national park nor research facilities, a Regional Office of the National Parks Administration provides scientific support for management (World Heritage Committee, 2014; UNEP-WCMC, 2011).
Nevertheless, there is a lack of information concerning the characteristics of the natural values of the park. The informational gaps are identified in the management plan as the following: hydrological and glaciological studies in general, studies of the flora and fauna distribution, composition, impacts and their effects, the conservation status of the vegetation and species, biological interactions; archaeology in the central sector of the NP, and other historical information (Administración de Parques Nacionales, 2019).
Small-scale projects are being conducted with some researchers from IANIGLA, but a lack of resources constrains assessments to a very small area of the park.

► Effectiveness of management system and governance in addressing threats outside the site — Some Concern

There is limited evidence of effective integration into broader regional or national land-use planning frameworks. The park's management plan outlines conservation objectives and management programs (Administración de Parques Nacionales, 2019), but it remains unclear how these align with other regional or national planning instruments. The impact from infrastructure developments, including urban, tourism and dam-related infrastructure is of some concern to key attributes of the site and there is limited information to assess the extent to which environmental impact assessment processes have informed such developments.

► Effectiveness of management system and governance in addressing threats inside the site — Some Concern

Management effectiveness assessments carried out between 2011 to 2019 indicate that average management is basic, with minor deficiencies (Administración de Parques Nacionales, 2019). Since 2019 there have been no assessments showing the evolution of the plan nor if the objectives of the management plan are being achieved.

Overall assessment of protection and management — Some Concern

Protection and management of the national park has some deficits, lacking adequate public use planning and financial and human resources despite growing tourism in some parts of the World Heritage site. Nevertheless, large areas of the site are remote and hardly accessible and thereby naturally protected. Challenges remain in terms of law enforcement and governance. The lack of transparency and involvement of local communities in decision-making processes creates tensions between stakeholders, although there are reports that the Local Advisory Commission is being reinstated. In view of the serious impact of climate change on the OUV of the site, the lack of climate vulnerability diagnosis, or a climate change adaptation plan is of concern.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Exceptional natural beauty modeled by ongoing glaciation**

Low Concern
Trend:Deteriorating

The natural beauty of the site has been affected by the receding glaciers. Scholars suggest that Perito Moreno Glacier, previously considered stable, may be showing early signs of retreat (Bosson et al, 2019; Greenfield, 2025). Climate change is a threat to the longevity of the glaciers and will certainly transform the landscape. A 2024 government report confirmed that although the glacier was stable for 50 years, since 2015 it has lost mass at its fastest rate in nearly five decades, declining by 0.85 meters per year on average (Greenfield, 2025).
Impacts on the natural forest and steppe vegetation and endangered species partially predating the World Heritage inscription stem from past sheep and cattle grazing, feral livestock and exotic species like European hare, wildfires, and uncontrolled tourism development in the buffer zone (BirdLife International, 2017; UNEP-WCMC, 2011; State Party of Argentina, 1981). There are some concerns about mass tourism seasonally reaching excessive levels with tourism infrastructure starting to affect the landscape beauty despite being located outside of the site for the most part. There are also concerns that ongoing downstream dam construction on the Santa Cruz River could affect the lake levels in the site and thereby the visually stunning phenomenon of the calving of the Perito Moreno glacier (Aves Argentinas, 2016; Administración de Parques Nacionales, 2019).

▶ **Geological, geomorphic and physiographic phenomenon caused by the advance and retreat of the glaciations**

Low Concern
Trend:Stable

Climate change is causing the majority of the glaciers in the national park to recede severely. According to available climatic models, a significant change in regional average temperatures and precipitation patterns could lead to important changes in river dynamics (Villalba et al., 2017). Annual average temperature increase (especially in the summer) has had an effect on the position of the regional snow line, forcing its elevation. This has caused a general retreat of most of the Patagonian glaciers (Administración de Parques Nacionales, 2019). If the greenhouse gas emissions remain similar to the current rate (2.6%), in the year 2100 there would be a reduction in the volume of glaciers in the National Park of between 20-40% (Administración de Parques Nacionales, 2019).

The SOUV includes that the property “provides fertile ground for scientific research on climate change“ and reflects the dynamism of glaciers. Therefore, retreating glaciers cannot be considered of high concern, however if the glaciers were to disappear as some predictions indicate, this would diminish the attribute. Currently, however, the attribute can be considered of loc concern.

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**

Low Concern
Trend: Deteriorating

The exceptional natural beauty of most glaciers of the park is endangered by climate change effects and tourism growth, along with associated infrastructure in the absence of adequate planning and management. Although climate change due to changes in temperature and precipitation patterns is causing the majority of the glaciers in the national park to recede severely, this supports the attribute relating to the property “providing fertile ground for scientific research on climate change“ .

▶ **Assessment of the current state and trend of other important biodiversity values**

Low Concern
Trend: Stable

The natural steppe and forest vegetation was in a degraded state at the time of World Heritage inscription from fires and livestock grazing (State Party of Argentina, 1981). Despite partial natural recovery, tourism pressure, exotic species, feral livestock and fires continue to put pressure on flora and fauna (UNEP-WCMC, 2011). Despite concerns about anticipated impacts from climate change, the ice fields and glaciers continue to constitute a major and high-quality freshwater reservoir.

Additional information

Benefits

Understanding Benefits

▶ **Outdoor recreation and tourism, Natural beauty and scenery**

The national park attracts and inspires more than half a million of tourists per year. In these past years the park received around 700,000 visitors. The latest available figures are 662,000 (2017); 687,190 (2018) and 771,521 (2019) (IUCN Consultation, 2020b).

▶ **Fishing areas and conservation of fish stocks, Livestock grazing areas**

Regulated, recreational fishing takes place, but plays no meaningful role in food provision. Large areas of what is today the national park and property were grazed by sheep and cattle, the feral cattle still living in the property being one reminder (State Party of Argentina, 1981).

▶ **Sacred natural sites or landscapes, Wilderness and iconic features**

The iconic peaks of Fitz Roy or Chaltén and Torre attract climbers and other outdoor enthusiasts from around the world. The name Chaltén is of indigenous origin; the highest peak of the area Chaltén continues to be considered a sacred mountain in indigenous cosmovision.

▶ **Importance for research**

The massive glaciers and ice fields of Patagonia are subject to important research, including on climate change (Consejo Nacional de Investigaciones Científicas y Técnicas, n.d.). The site´s ecosystems are home to endangered and threatened species of fauna and flora, thus being relevant for research (Administración de Parques Nacionales, 2019).

▶ **Water provision (importance for water quantity and quality)**

The vast transboundary ice fields and glaciers are a major freshwater reservoir (UNEP-WCMC, 2011). The World Heritage site overlaps to a large extent with the Southern Patagonian Ice Field, with approximately 2420 glaciers (National Glacier Inventory, 2018). About 10% of the area is occupied by western sectors of the Lakes Viedma and Argentino. In addition, innumerable temporary and permanent water courses that are located inside the park. The waters of the tributaries of the Viedma and Argentino lakes provide drinking water to the towns bordering the site, while Comandante Luis Piedrabuena and Puerto Santa Cruz (both towns located further East) obtain their water from intakes on the Santa Cruz river, to which the lakes previously contributed (Administración de Parques Nacionales, 2019).

Visitors' waste on trails inside the Park (human faeces and packaging waste) along with poor waste-water treatment in El Chaltén from overloading of infrastructures is having impacts on the quality of

water of river Fitz Roy and Las Vueltas river in this precious water reserve.

Summary of benefits

Besides globally significant conservation values under the World Heritage Convention, the site conserves - and permits the natural regeneration of - important remnants of Patagonian forests and steppes. Water stands out as an overarching while under-protected environmental service and benefit whereas tourism has developed into a pillar of the local economy.

Projects

Compilation of active conservation projects

№	Organization	Brief description of Active Projects	Website
1	APN/PNLG	- Programa de Monitoreo, Detección Temprana y Prevención de la Invasión de Didymosphenia Geminata en el Parque Nacional Los Glaciares DI-2023-137-APN-DRPA#APNAC. - Programa de Manejo de Plantas Exóticas Invasoras en el Parque Nacional Los Glaciares DI-2021-77-APN-DRPA#APNAC. - Plan de Restauración ecológica del bosque magallánico en los brazos Rico y Sur del Lago Argentino, Parque Nacional Los Glaciares DI-2022-118-APN-DRPA#APNAC and DI-2022-124948269-APN-DRPA#APNAC - Monitoreos de las poblaciones de guanacos y choiques en la Patagonia austral IF-2024-88977080-APN-DRPA#APNAC. - Evaluación, Monitoreo y Conservación de pato de los torrentes en el PNLG RESFC-2020-40-APN_D#APNAC. - Monitoreo del Sitio Arqueológico Bloque Errático 2 – Alero Lago Roca (RC 133). - Programa de conservación del Huemul (PCH) en PN Los Glaciares y Perito Moreno (Planes de Acción y monitoreos) DISP. CONJ. 1-2014 DNI-DNCAP, DI-2019-49-APN-DRPA (IF-2019-68476938-APN-DRPA#APNAC). - Recuperación ecológica de los ambientes afectados por la invasión de ganado bagual en el Parque Nacional Los Glaciares 2023 - 2033, DI-2023-101-APN-DRPA#APNAC.	
2	APN/Aves Argentinas	- Control Visón Americano en PNP, PNPM, PNLG y PNTDF. Planificación. - Actividades de manejo y/o monitoreo de fauna en APs de la Patagonia Austral (Censo Neotropical de Aves Acuáticas (CNAA))	

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