Appendix S1: Study site descriptions

1. Nahuel Huapi National Park

1.1. General background: Nahuel Huapi NP (hereafter Nahuel Huapi), one of Argentina's initial PA's along with Iguazú NP, spans 7173 km^2 and ranks as the country's third most visited national park, attracting around one million visitors annually (Administración de Parques Nacionales de Argentina; APN, 2019). It encompasses mountain, glacier, lake, wetland, forest and steppe habitats. It is the park with the most research project registrations and activity by external researchers among Argentina's national parks. A wide range of themes are researched: species biology, ecological interactions, climate change, phylogeny, taxonomy, parasitology, limnology, morphology, physiology, geology, genetics, anthropology, and archaeology (APN, 2019).

1.2. Dedicated research staff complement: There are 256 permanent employees distributed across nine departments (APN, 2019). This includes 29 technicians working in the Conservation Department, typically with a four-year diploma and mostly involved with planning, preparing reports, and collecting field data for monitoring purposes, and six field-work support staff, mainly "conservation territorial rangers", with typically secondary education level (APN, 2019).

1.3. Process for external researchers to conduct research in the park: External researchers interested in conducting studies within the park must submit an online proposal, subject to review and approval by regional technicians. The evaluation considers institutional research priorities, alignment with the park's values, plans and conservation objectives, legal categories, zoning, methodologies, and potential environmental impact of any proposed collections or activities. Approved proposals grant researchers free access, with occasional fieldwork support from park personnel (APN, 2022).

2. Kruger National Park

2.1. General background: Kruger NP (hereafter Kruger), South Africa's premier national park, spans nearly 20 000 km^2 and attracts approximately 2 million visitors annually. Renowned as a hub for research within South Africa and across Africa, Kruger attracts studies on diverse themes, including wildlife, ecological processes, and social-ecological aspects of conservation (van Wilgen et al., 2016; Smit et al., 2017).

2.2. Dedicated research staff complement: The park employs over 2,200 permanent staff (SANParks, 2018), with most of these involved in running the tourism operations in the park. Research staff include scientists, bio-technicians, and research support staff. The 11 scientists or science managers typically have a Masters or Doctorate level qualification and are involved in knowledge generation, dissemination, and integration. The seven bio-technicians typically have a 4-year diploma and are involved with collecting field data for research and monitoring purposes. The 24 research support staff have typically completed secondary school and mostly provide field assistance for protecting researchers against dangerous animals and servicing research infrastructure like research camps, fire experiments, and herbivore exclosures. The in-house scientists mentioned above are involved in conducting their own, mostly applied, research to inform conservation management, but also facilitate research with or by external collaborators.

2.3. Process for external researchers to conduct research in the park: External researchers seeking to conduct projects in the park submit online proposals, reviewed by park scientists and management. Feedback is given to the applicant, often in terms of ideas on making the research more relevant to management, more robust, making suggestions for suitable field sites within the park, connecting the researcher with other researchers working on similar topics or making the researcher aware of relevant datasets or literature. The review committee also considers the potential impact of the project on the environment or any people involved (e.g., staff or stakeholders). Approved projects grant researchers free access to the park, data sources, and research infrastructure, including

extensive fire experiments, herbivore exclosures, Geographic Information Systems (GIS) databases, and historical monitoring data. Registration is cost-free, and researchers enjoy subsidized accommodation in strategically located research camps (< US $10/p/night). It is a condition of the research permit that researchers make the data and results of research available to the Park.

3. Kakadu National Park

3.1. General background: Kakadu NP (hereafter Kakadu) is one of Australia's largest parks, spanning 19 000 km^2, is a UNESCO World Heritage Site known for its rich natural and cultural values, and attracts over 200,000 visitors annually. The park is a living cultural landscape, jointly managed by the Traditional Owners of the land, the Bininj and Mungguy peoples, and the Australian Government. Kakadu is a hotspot for endemic and threatened flora and fauna and is a Ramsar site because of its important freshwater ecosystems (Director of National Parks, 2016). Kakadu occurs in a largely untransformed landscape, with a surrounding population density of less than 1 person per 100 hectares.

3.2. Dedicated research staff complement: Kakadu has a staff of 72 (32% Indigenous), including a small natural resource management team that includes ecologists with postgraduate qualifications. Some research and monitoring is done in-house; other work commissioned or delivered through linkages with external agencies, often with the participation or support of Kakadu staff and Traditional Owners. In recent years, significant research in the park has been done through major national government research programs, most recently the National Environmental Science Program (NESP 2023), by the Northern Territory Government, by various Australian universities, and by the Supervising Scientist Section of the Australian Department of Climate Change, Energy, the Environment and Water. Topics studied have included invasive species management, fire management, river and wetland ecology, threatened species management, and ecological monitoring, along with cultural management practices.

3.3. Process for external researchers to conduct research in the park: A key goal for Kakadu is to foster partnerships with institutions and organisations to ensure that research priorities are funded and addressed (Director of National Parks, 2016). Any research or monitoring conducted within the park requires a permit approved by the Director of National Parks and must have research ethics approval. All research requires consultation with the Traditional Owners under the joint management agreement and must be consistent with the Indigenous research protocols for the Park (Director of National Parks, 2016). This includes protocols for how the Traditional Owners will be engaged in the research. In securing a research permit, precedence is given to research that fills strategic knowledge gaps and aligns with research priorities. It is a condition of the research permit that researchers make the data and results of research available to the Park, including plain language summaries for Traditional Owners and park staff.

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