Supplementary Material 1: Examples of discrepancies between endangered species laws or criteria and culturally-meaningful recovery

Canada - The Species at Risk Act of Canada (SARA) (*1*) states that "nothing in this Act shall be construed so as to abrogate or derogate from the protection provided for existing aboriginal or treaty rights of the aboriginal peoples of Canada." Nevertheless, neither the Act itself nor the 2020 "Policy on Survival and Recovery" (*2*) include traditional Indigenous use specifically in the definition of recovery or the criteria used to determine whether a species is recovered. In the Policy document, recovery is defined to be a "return to a state in which the risk of extinction or extirpation is within the normal range of variability for the species, as indicated in part by its population and distribution characteristics. This is informed by the species' natural condition in Canada, which is defined as its condition prior to the significant impact of human activities that led to the species being listed as Endangered, Threatened, or Extirpated under SARA." Taking post-colonial human activities to be those threatening the species, a return to the conditions prior to these activities could be seen to be consistent with defining recovery when a population is able again to support Indigenous Traditional use and sustain Indigenous ways of life. Yet, none of the Recovery Strategies analyzed by (*3*). aimed to restore populations to historic levels (explicitly stated). Instead, to date, the focus of SARA with respect to Indigenous peoples has been on consultation with Indigenous communities and incorporation of Traditional Knowledge, rather than aiming for recovery that ensures Indigenous Traditional use (*4*).

IUCN - The IUCN acknowledges "Indigenous peoples' rights to the lands, territories and

natural resources they have traditionally owned, occupied and used, and the need to ensure the full and effective participation of Indigenous peoples in all conservation initiatives and policy developments that affect them". Nevertheless, the ability of a population to sustain these rights are not incorporated in the definition of a species conservation status under the IUCN red list (*5*). Consequently, a species that was traditionally an important food source could be defined as recovered (e.g., passing from vulnerable to near threatened), despite the fact that Indigenous harvest and cultural connections may still be prevented or hindered. Higher standards of recovery would be needed to ensure such access.

Supplementary Material 2: Data and citations for Fig 2.

Table S1. Species abundance estimates, ranges, and citations for Figure 2. In cases where no error was given for the population estimate, we used +/-15% for the plot in Figure 2.

SPECIES	REGION	YEAR	N	LOWER	UPPER	CITATION	COMMENT
AMERICAN BISON	Range-wide (North America)	1700	45000000	30000000	60000000	(*6*)	
AMERICAN BISON	Range-wide (North America)	1890	200			(*7*)	
AMERICAN BISON	Range-wide (North America)	2022	30000			(*8*)	
CARIBOU (KLINSE-ZA)	Klinse-Za	1700	3500	1000	6000	(*9*)	translated "sea of caribou" into a number (thousands) with uncertainty
CARIBOU (KLINSE-ZA)	Klinse-Za	2013	38			(*10*)	
CARIBOU (KLINSE-ZA)	Klinse-Za	2022	114			(*10*)	
PACIFIC SALMON (COLUMBIA RIVER)	Columbia River	1700	12000000	7500000	16000000	(*11*)	
PACIFIC SALMON (COLUMBIA RIVER)	Columbia River	1938	1500000			(*11*)	
PACIFIC SALMON (COLUMBIA RIVER)	Columbia River	2022	2300000			(*11*)	

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