**Supplementary Information 4 – Supplementary tables**

Appendix to:

Klenk et al. Charting a path for respectful and collaborative mapping and modelling of caribou (*Rangifer tarandus*) between Indigenous knowledge systems and western science approaches: A systematic map of global best practices. *Ecological Solutions & Evidence*.

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Table SI4.1: List of the lead institutions of the included items.

| **Institution Category** | **Institution Name** | **Count** |
| --- | --- | --- |
| Co-management board (n=2) | Beverly and Qamanirjuaq Caribou Management Board | 2 |
| Torngat Wildlife, Plants and Fisheries Secretariat | 2 |
| Consulting company (n=3) | AMEC Environment & Infrastructure | 1 |
| Gagos Social Analysts, Inc. | 1 |
| Golder Associates Ltd | 1 |
| Government department or agency (federal or state/provincial) (n=6) | Abisko Scientific Research Station | 1 |
| Canadian Wildlife Service | 1 |
| Department of Indian and Northern Affairs | 1 |
| Government of Nunavut | 1 |
| Government of the Northwest Territories | 4 |
| Yukon Land Use Planning Council | 1 |
| Indigenous organization, community or government (n=8) | Athabasca Chipewyan First Nation | 1 |
| Fort Nelson First Nation | 1 |
| Gwich'in Social and Cultural Institute | 2 |
| Inuit Tapirisat of Canada | 1 |
| Naskapi Nation of Kawawachikamach | 1 |
| The Dehcho Land Use Planning Committee | 1 |
| Tłı̨chǫ Government | 1 |
| Ungava Peninsula Caribou Aboriginal Round Table | 1 |
| NGO/Non-profit/charity (n=1) | Wildlife Conservation Society Canada | 1 |
| Other: Research Institution (n=1) | Smithsonian Institution | 1 |
| Unable to tell (n=1) | Unknown | 1 |
| University (n=17) | Carleton University | 2 |
| Lehman College | 1 |
| Queen's University | 1 |
| Ryerson University | 2 |
| Trent University | 1 |
| Université de Montréal | 1 |
| Université du Québec À Rimouski | 2 |
| University of Manitoba | 1 |
| University of Alaska | 5 |
| University of Alberta | 4 |
| University of Laval | 1 |
| University of Manitoba | 4 |
| University of Montana | 2 |
| University of Ottawa | 1 |
| University of Saskatchewan | 1 |
| University of Victoria | 1 |
| Yukon University | 2 |

Table SI4.2: List of funders of the included items.

| **Funder** | **Count** |
| --- | --- |
| Aboriginal Affairs and Northern Development Canada (AANDC) | 10 |
| Academy of Finland | 1 |
| Alaska Department of Fish and Game | 2 |
| Alberta Innovates | 2 |
| Alberta Network Environments for Aboriginal Health Research (AB NEAHR) | 1 |
| Angmarlik Visitor Centre | 2 |
| ARCO Alaska | 1 |
| Arctic Institute of North America (AINA) | 2 |
| AREVA Resources Canada Inc. | 1 |
| Association of Canadian Universities for Northern Studies (ACUNS) | 1 |
| Athabasca Denesuline Negotiation Team | 1 |
| Athabasca Land Use Office | 1 |
| Auyuittuq National Park Reserve | 2 |
| Beverly and Qamanirjuaq Caribou Management Board (BQCMB) | 2 |
| Cameco Corporation | 1 |
| Canada Research Chairs Program (CRCP) | 4 |
| Canadian Boreal Forest Agreement Secretariat (CBFA) | 1 |
| Canadian Boreal Initiative (CBI) | 1 |
| Canadian Circumpolar Institute (CCI) | 1 |
| Carleton University | 2 |
| Centres of Excellence of Canada | 3 |
| Circum-Arctic Rangifer Monitoring and Assessment (CARMA) network | 1 |
| DIALOG | 1 |
| Diavik Diamond Mines Inc. (DDMI) | 1 |
| District Education Authority | 1 |
| Dominion Diamond Ekati Corporation | 1 |
| Elders' Qaggivik | 1 |
| Environment and Climate Change Canada (ECCC) | 14 |
| Environmental Studies Research Fund (ESRF) | 3 |
| Ernest S. (Tiger) Burch Endowment | 1 |
| Forest Products Association of Canada (FPAC) | 1 |
| Fort Nelson First Nation (FNFN) | 1 |
| Garfield Weston Foundation | 1 |
| Gjoa Haven Tahiurtiit Justice Committee | 1 |
| Global Affairs Canada | 1 |
| Golder Associates Ltd. | 1 |
| Government of Canada | 1 |
| Government of Newfoundland & Labrador | 1 |
| Government of Northwest Territories | 1 |
| Government of Northwest Territories Department of Environment and Climate Change | 9 |
| Government of Nunavut | 2 |
| Government of Nunavut Department of Environment | 1 |
| Government of Quebec | 1 |
| Groupe Hémisphère | 1 |
| Gwich'in Renewable Resources Board (GRRB) | 1 |
| Hamlet of Gjoa Haven | 1 |
| Hooper Institute | 1 |
| Hunters and Trappers Association | 1 |
| Imperial Oil Resources Ventures Limited | 1 |
| Indigenous Leadership Initiative | 1 |
| International Model Forest Network (IMFN) | 1 |
| Inuit Heritage Trust (IHT) | 1 |
| Kativik Regional Government (Nunavik Parks) | 1 |
| Kitikmeot Inuit Association | 2 |
| KTH Royal Institute of Technology | 1 |
| Liz Clairborne and Art Ortenberg Foundation | 1 |
| Makivvik Corporation | 1 |
| Manitoba Conservation | 1 |
| Ministry of Education of the Czech Republic | 1 |
| Mitacs Accelerate Program | 1 |
| National Aeronautics and Space Administration (NASA) | 1 |
| National Fish and Wildlife Foundation | 1 |
| National Oceanic and Atmospheric Administration (NOAA) | 1 |
| National Park Service (NPS) | 1 |
| National Science Foundation (NSF) | 5 |
| Nattilik Heritage Center | 1 |
| Natural Environment Research Council (NERC) | 1 |
| Natural Resources Canada (NRCan) | 2 |
| Natural Sciences and Engineering Research Council of Canada (NSERC) | 8 |
| New Zealand Foundation for Research, Science, and Technology | 1 |
| Nunasi Corporation | 1 |
| Nunatsiavut Government | 1 |
| Nunavut Research institute (NRI) | 2 |
| Nunavut Wildlife Management Board (NWMB) | 2 |
| Ouranos | 1 |
| Parks Canada | 5 |
| Polar Knowledge Canada (POLAR) | 5 |
| Prince Albert Grand Council (PAGC) | 1 |
| Qikiqtaaluk Wildlife Board (QWB) | 1 |
| Qiqirtaq High School | 1 |
| Quebec Centre for Biodiversity Science | 1 |
| Queen's University | 1 |
| Resources and Sustainable Development in the Arctic (ReSDA) | 2 |
| Round River Conservation Studies (RRCS) | 2 |
| Sahtú Renewable Resources Board (SRRB) | 3 |
| Saskatchewan Ministry of Environment | 1 |
| Smithsonian Institution | 1 |
| Social Sciences and Humanities Research Council of Canada (SSHRC) | 4 |
| Swedish Environmental Protection Agency | 1 |
| Swedish Forest Agency | 1 |
| Swedish Research Council | 1 |
| Taku River Tlingit First Nation (TRTFN) | 2 |
| Tata Steel (New Millennium Iron Corp. “NML”) | 1 |
| The Wildlife Society | 1 |
| Torngat Wildlife, Plants and Fisheries Secretariat | 2 |
| Toward Environmentally Responsible Resource Extraction Network (TERRE-NET) | 1 |
| U.S. Fish and Wildlife Service | 2 |
| United Nations Educational, Scientific and Cultural Organization (UNESCO) | 2 |
| Université de Montréal | 1 |
| Université Laval | 1 |
| University of Alaska Fairbanks | 2 |
| University of Alberta | 2 |
| University of Manitoba | 4 |
| University of Montana | 2 |
| University of Oulu | 1 |
| University of Saskatchewan | 2 |
| University of the Arctic | 1 |
| University of Umeå | 1 |
| University of Victoria | 1 |
| Unknown | 11 |
| Waterhen First Nation | 1 |
| Wilburforce Foundation | 2 |
| Wildlife Conservation Society of Canada (WCS) | 1 |
| Wildlife Management Institute (WMI) | 1 |
| World Wildlife Fund - Canada (WWF-Canada) | 1 |
| World Wildlife Fund (WWF) | 1 |

Table SI4.3: Indigenous words used to refer to caribou in the included items.

| **Short citation** | **Indigenous word** | **Western scientific name** | **Common name** |
| --- | --- | --- | --- |
| Beaulieu 2012 | ɂetthën | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| Ljubicic et al. 2018 | iluiliup tuktuit (inland/mainland caribou) | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| kingailaup tuktuit (island caribou) | *Rangifer tarandus pearyi* | Peary caribou |
| qungniit (reindeer) | *Rangifer tarandus tarandus* | reindeer/Alaskan caribou |
| Legat 2013 | tǫdzı | *Rangifer tarandus caribou* | boreal caribou |
| Polfus et al. 2016 | shúhta ɂepę | *Rangifer tarandus caribou* | mountain caribou |
| tǫdzı | *Rangifer tarandus caribou* | boreal woodland caribou |
| ɂekwę́ | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| Legat et al. 2019 | tǫdzi | *Rangifer tarandus caribou* | boreal caribou |
| Polfus 2016 | shúhta ɂepe | *Rangifer tarandus caribou* | mountain caribou |
| tǫdzı | *Rangifer tarandus caribou* | boreal woodland caribou |
| ɂekwę | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| Athabasca Chipewyan First Nation 2012 | et'thén | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| thunzea | *Rangifer tarandus caribou* | woodland caribou |
| Polfus et al. 2017 | nǫ́dılǝ | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| shúhta ɂepę́ | *Rangifer tarandus caribou* | mountain caribou |
| tǫdzı | *Rangifer tarandus caribou* | boreal caribou |
| ɂedǝ | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| ɂekwę́ | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| ɂepę́ | *Rangifer tarandus groenlandicus* | barren-ground caribou |
| Dokis-Jansen 2015 | etthën | *Rangifer tarandus groenlandicus* | barren-ground caribou |

Table SI4.4: Indigenous knowledge system definitions used in the included items.

| **Covidence #** | **Short Citation** | **Term(s)** | **Definition** |
| --- | --- | --- | --- |
| 268 | Dokis-Jansen 2015 | Indigenous knowledge | "I [as Anishinaabekwe (an Ojibway woman)] understand Indigenous knowledge to be a complex interrelationship between Indigenous peoples and the animate and inanimate world. Embedded in our knowledge systems and cultural practice is an understanding of how species interact, how our behaviour and actions affect other species and the spiritual realm. Indigenous knowledge is our way of life and connection to the land -all that is living and non-living- and how we use that way of life and connection to develop a broad understanding of how to survive." |
| 260 | Bali 2016 | Traditional ecological knowledge; Local knowledge | "[…] traditional ecological knowledge (TEK), a component of LK, is passed on as an oral tradition in stories attached to people and events over generations, and contemporary LK is usually shared as stories describing personal experiences." |
| Local knowledge | "Local observations and experiences are embedded in specific contexts, times, and spaces. We regard that context as a critical component of LK in maintaining local community member perspectives, i.e., what is changing, what the effects are, and what people’s concerns are, because the knowledge holders are an integral part of the system undergoing change." |
| 220 | Robertson 2017 | Traditional knowledge | "Traditional knowledge and traditional ecological knowledge (TEK) are often used synonymously. Berkes (2009) defines TEK as a subset to TK. Berkes suggested it is nested within the system. Traditional knowledge is the term used in the planning portion of this research. Although the dataset is ecological in nature the term TK has been used to ensure continuity throughout the project. For this research, the definition of traditional knowledge has been synthesized from all the literature to one that is best suited for this purpose as a body of knowledge that is passed on from generation to generation through an oral transmission that is unique to the knowledge holders and society. It is more than knowledge, it is a way of being, a oneness with the earth with a holistic view of the world as they know it. It is a collective and an adaptive process that is a view of living." |
| 202 | Folliott 2006 | Traditional ecological knowledge | "Indigenous populations have developed an intimate knowledge (which is unique, traditional and local) of the distribution of resources, the functioning of ecosystems and the relationship between the environment and their culture and are therefore aware of the ways in which northern landscapes are changing (CEAA, 2004; Chambers et al., 2004; Grenier, 1998). This knowledge is referred to as traditional environmental knowledge (TEK) and is the outcome of complex interactions between a culture and the natural environment developed through everyday activities such as harvesting and hunting." |
| "Caribou knowledge from a First Nation perspective includes knowing the relationships between the spiritual, cultural, ecological, and physical characteristics of the environment (Thorpe, 1997). Collectively, this knowledge of the environment is referred to as TEK." |
| 188 | Ferguson 1999 | Traditional ecological knowledge | "In this thesis, "traditional ecological knowledge" denotes the insights that indigenous peoples, through their traditional methods, have gained about the interrelationships between animals, plants, and the physical environment. I use "traditional" ("indigenous", 'Inuit" or "aboriginal") and "scientific" to indicate how and why the knowledge was acquired. I do not imply any connotation about the intrinsic value of each form of knowledge or the validity of the terminology." |
| 180 | Taylor 2005 | Inuit Qaujimajatuqangit | "Inuit Qaujimajatuqangit is directly translated as “what has always been known” (Thorpe et al., 2001: 4)." |
| "Arnakak's (2001: 2) definition, that states that Inuit Qaujimajatuqangit is “...a living technology [of the Inuit]. It is a means of rationalizing thought and action, a means of organizing tasks and resources, a means of organizing family and society into coherent wholes”." |
| 159 | Beverly and Qamanirjuaq Caribou Management Board 2014 | Traditional knowledge | "Cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission. (NIRB 2013) - Knowledge and values which have been acquired through experience, observations, from the land or from spiritual teachings, and headed down from one generation to another. (GNWT 2005)." |
| Inuit Qaujimajatuqangit | "Inuit Traditional Knowledge and guiding principles of Inuit social values including: respecting others, relationships, and caring for people; development of skills through practice, effort and action; working together for a common cause; fostering good spirits by being open, welcoming, and inclusive; serving and providing for family and/or community; decision making through discussion and consensus; being innovative and resourceful; and respect and care for the land, animals and the environment. (NIRB 2013)" |
| 155 | Ungava Peninsula Caribou Aboriginal Round Table 2017 | Indigenous science and knowledge | "Indigenous Science and Knowledge is not limited to experiential knowledge of the environment, but is also understood to include knowledge of past and present use of the environment, an ethical code shaping the relationship between humans and the environment, and a unifying worldview. Indigenous Science and Knowledge is also not a static body of knowledge isolated forever in the past, but is constantly being combined with, and contrasted with, new observations and non-traditional knowledge to form contemporary understandings. Indigenous Science and Knowledge is contemporary, and it is comprehensive. [...] Indigenous Science and Knowledge is often moral, relative to long time scales, holistic, inclusive, qualitative, relative, and inductive." |
| Inuit traditional knowledge | "[historical knowledge of caribou] is passed down orally from generation to generation and is continuously verified and updated based on new observations" |
| 141 | Legat et al. 2019 | Indigenous knowledge system | "Indigenous knowledge system: spirituality, values and beliefs, environmental knowledge, transmission of knowledge, and the code of practices. All parts of the knowledge system are interconnected." |
| 134 | The Dehcho Land Use Planning Committee 2005 | Traditional knowledge | "The collective intellectual property of Dehcho First Nations’ members Stories, Customs, Experiences, Knowledge, Practices, Beliefs and Spiritual Teaching passed on by their parents from their ancestors." |
| 124 | Ferguson & Messier 1997 | Traditional ecological knowledge | "In this paper, "traditional ecological knowledge" denotes the insights that indigenous peoples, through their traditional methods, have gained about the interrelationships among animals, plants, and the physical environment." |
| 115 | Ferguson et al. 1998 | Indigenous/Inuit ecological knowledge | “Freeman (1985), Feit (1988), Gunn et al. (1988), and Berkes (1993) have discussed the characteristics that distinguish indigenous ecological knowledge from scientific knowledge. Despite these differences, many parallels exist between the two forms of knowledge. Individual Inuit have mentally recorded empirical data about wildlife distributions, movements, and abundance that could be useful in the management of wildlife populations. The Inuit understanding of ecology is distinct from the scientific understanding partly because of the rationale for its collection: human survival.” |
| 85 | Polfus et al. 2014 | Traditional ecological knowledge | "TEK is often defined as an understanding of the environment that comes from a historical continuity in resource use in a particular place (Berkes 1999). In this context, the term traditional implies knowledge handed down through generations in the form of oral history, in contrast to local ecological knowledge (LEK) that is based on direct experiences (Anadon et al. 2009). However, because LEK is regularly embedded within cultural practices, distinguishing LEK from TEK can be difficult, especially when referring to knowledge of indigenous peoples. Thus, TEK and LEK can both represent a significant source of high quality information about ecological relationships. Though fundamental differences between TEK, LEK, and western science exist, all are empirical knowledge systems established through observation and experience (Berkes et al. 2000). All have the ability to test predictions, interpret results within a cultural framework, and adjust expectations when presented with new data (Davis and Ruddle 2010). As a result, TEK and western science often have related questions, predictions, and goals in relation to the management of natural resources." |

Table SI4.5: Items which ranked fourth or higher out of ten when scored across the element of ‘Respect’.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Covidence #** | **Short citation** | **Item raw score** | **Item normalized score** | **Item rank** |
| 268 | Dokis-Jansen 2015 | 9.0 | 1.00 | 1 |
| 130 | Polfus et al. 2016 | 8.0 | 0.89 | 2 |
| 144 | Polfus 2016 | 8.0 | 0.89 | 2 |
| 260 | Bali 2016 | 8.0 | 0.89 | 2 |
| 223 | Polfus et al. 2017 | 7.0 | 0.78 | 3 |
| 150 | Benson 2011 | 7.0 | 0.78 | 3 |
| 278 | Mearns 2017 | 6.0 | 0.67 | 4 |
| 124 | Ferguson & Messier 1997 | 6.0 | 0.67 | 4 |
| 242 | Halas 2015 | 6.0 | 0.67 | 4 |
| 149 | Athabasca Chipewyan First Nation 2012 | 6.0 | 0.67 | 4 |
| 247 | Gagnon 2018 | 6.0 | 0.67 | 4 |

Table SI.6: Items which ranked third or higher out of seven when scored across the elements of ‘Responsibility’.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Covidence #** | **Short citation** | **Item raw score** | **Item normalized score** | **Item rank** |
| 223 | Polfus et al. 2017 | 6.0 | 1.00 | 1 |
| 132 | Fort Nelson First Nation 2017 | 5.0 | 0.83 | 2 |
| 130 | Polfus et al. 2016 | 4.0 | 0.67 | 3 |
| 150 | Benson 2011 | 4.0 | 0.67 | 3 |
| 149 | Athabasca Chipewyan First Nation 2012 | 4.0 | 0.67 | 3 |
| 155 | Ungava Peninsula Caribou Aboriginal Round Table 2017 | 4.0 | 0.67 | 3 |
| 160 | Beverly and Qamanirjuaq Caribou Management Board 2011 | 4.0 | 0.67 | 3 |
| 239 | Thomas & Beverly and Qamanirjuaq Caribou Management Board 1996 | 4.0 | 0.67 | 3 |

Table SI4.7: Items which ranked second or higher out of eight when scored across the elements of ‘Representation’.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Covidence #** | **Short citation** | **Item raw score** | **Item normalized score** | **Item rank** |
| 223 | Polfus et al. 2017 | 7.0 | 1.00 | 1 |
| 130 | Polfus et al. 2016 | 7.0 | 1.00 | 1 |
| 150 | Benson 2011 | 7.0 | 1.00 | 1 |
| 132 | Fort Nelson First Nation 2017 | 6.0 | 0.86 | 2 |
| 155 | Ungava Peninsula Caribou Aboriginal Round Table 2017 | 6.0 | 0.86 | 2 |
| 160 | Beverly and Qamanirjuaq Caribou Management Board 2011 | 6.0 | 0.86 | 2 |
| 239 | Thomas & Beverly and Qamanirjuaq Caribou Management Board 1996 | 6.0 | 0.86 | 2 |
| 144 | Polfus 2016 | 6.0 | 0.86 | 2 |

Table SI4.8: Items which ranked second or higher out of four when scored across the elements of ‘Relationship’.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Covidence #** | **Short citation** | **Item raw score** | **Item normalized score** | **Item rank** |
| 268 | Dokis-Jansen 2015 | 3.0 | 1.00 | 1 |
| 130 | Polfus et al. 2016 | 2.0 | 0.67 | 2 |
| 141 | Legat et al. 2019 | 2.0 | 0.67 | 2 |
| 146 | Couturier et al. 2018 | 2.0 | 0.67 | 2 |
| 115 | Ferguson et al. 1998 | 2.0 | 0.67 | 2 |
| 188 | Ferguson 1999 | 2.0 | 0.67 | 2 |
| 12 | Beaulieu 2012 | 2.0 | 0.67 | 2 |

Table SI4.9: Items which ranked third or higher out of nine when scored across the elements of ‘Relevance’.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Covidence #** | **Short citation** | **Item raw score** | **Item normalized score** | **Item rank** |
| 223 | Polfus et al. 2017 | 9.0 | 1.00 | 1 |
| 130 | Polfus et al. 2016 | 7.0 | 0.78 | 2 |
| 144 | Polfus 2016 | 7.0 | 0.78 | 2 |
| 75 | Parlee et al. 2014 | 7.0 | 0.78 | 2 |
| 260 | Bali 2016 | 7.0 | 0.78 | 2 |
| 242 | Halas 2015 | 7.0 | 0.78 | 2 |
| 268 | Dokis-Jansen 2015 | 6.0 | 0.67 | 3 |
| 278 | Mearns 2017 | 6.0 | 0.67 | 3 |

Table SI4.10: Items which ranked third or higher out of five when scored across the elements of ‘Reciprocity’.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Covidence #** | **Short citation** | **Item raw score** | **Item normalized score** | **Item rank** |
| 268 | Dokis-Jansen 2015 | 4.0 | 1.00 | 1 |
| 223 | Polfus et al. 2017 | 3.0 | 0.75 | 2 |
| 130 | Polfus et al. 2016 | 2.0 | 0.50 | 3 |
| 160 | Beverly and Qamanirjuaq Caribou Management Board 2011 | 2.0 | 0.50 | 3 |
| 150 | Benson 2011 | 2.0 | 0.50 | 3 |
| 231 | Russell et al. 2015 | 2.0 | 0.50 | 3 |
| 217 | Polfus 2010 | 2.0 | 0.50 | 3 |

Table SI4.11: Recommendations regarding knowledge co-production extracted from the included items.

| **Topic** | **Recommendation** | **Short citation** |
| --- | --- | --- |
| Art | "Future research should prioritize indigenous art as a way to express knowledge and improve collaborative and interdisciplinary social-ecological projects (Rathwell and Armitage 2016)." | Polfus et al. 2017 |
| "We propose that investing in collaborations with artists is an effective way to enhance and improve biocultural or social-ecological research outcomes." |
| Bridging knowledge | "More research on the potential for weaving dendrochronology methods and those associated with Traditional Knowledge research is needed" | Baydack 2018 |
| "To successfully adapt and carry out this methodology with other indigenous peoples or for other wildlife species, researchers need a sound understanding of the cultural basis of aboriginal knowledge. Whenever ecologists undertake such efforts**, the onus will be on researchers to conserve the accuracy and precision of aboriginal knowledge**, and to understand the assumptions in each culture that could lead to either enlightenment or misunderstanding." | Ferguson & Messier 1997 |
| "To successfully adapt and carry out this methodology with other indigenous peoples and/or for other wildlife species, researchers need a sound understanding of the cultural basis of aboriginal knowledge. Whenever ecologists undertake such efforts, **the onus will be to conserve the accuracy and precision of aboriginal knowledge**, and to understand the cross-cultural assumptions that could lead to either enlightenment or misunderstanding." | Ferguson 1999 |
| "To facilitate the exchange of information between conservation biologists and communities, **we suggest developing co-operative working groups with government agencies and other organizations that are linked to communities** to better understand community interests. By forging these relationships, conservation planners will be able to design protected areas that will more effectively capture both cultural and natural features" | Leroux et al. 2007 |
| Collaboration | Implementation and monitoring: "Tasks should include establishing and maintaining: - Research involving collaboration between ACFN knowledge holders and scientists to document thunzea, et'thén and dechen yághe ejere use of range, including radio collaring, or other methods as appropriate;" | Athabasca Chipewyan First Nation 2012 |
| "The co-management of caribou would benefit from the joint application of scientific and traditional knowledge (Kofinas et al., 2003). It is important, therefore, to establish collaborative processes that accommodate guardianship practices and ideologies from both aboriginal and eurocentric cultures." | Lyver & Lutsël K'É Dene First Nation 2005 |
| Co-management | "Community representatives should be involved in developing land use plans and mapping areas that they want to see protected. Traditional knowledge must be used in management." | Beverly and Qamanirjuaq Caribou Management Board 2011 |
| "Wildlife management relies upon management of human behavior (e.g. hunting) as well as management of the animals and their habitat. Research that documents the knowledge and values of hunters, in their own words, may aid wildlife managers by revealing how hunters decide which animals to harvest, what characteristics they value, and the words they use to communicate about the animals. **I suggest that collaboration with local knowledge-holders on wildlife research can improve wildlife science and management**." | Mager 2012 |
| Indigenous-led or Indigenous-engaged long-term monitoring | "Governments should work with communities and individuals to conduct long-term monitoring and predict the arrival of new species, diseases and parasites. **Governments should involve communities in research** and tell residents how to stay safe despite unpredictable weather. **Industry could create partnerships for monitoring changes to habitat and wildlife**, and share information with communities and governments." | Beverly and Qamanirjuaq Caribou Management Board 2011 |
| "Importantly, our novel approach indicates that ecological research and global assessments […] could greatly benefit from more investment in long-term ILK monitoring. Long-term ILK monitoring allows innovative quantitative analyses that were never used to bridge ILK and science. Such approaches increase our understanding of SES beyond what is possible from ILK or scientific knowledge alone." | Gagnon 2018 |
| "[…] community-based monitoring programmes, if truly inclusive of indigenous communities, offer opportunities to move forward. They can act as venues for scientists and land users to co-produce knowledge and to build long-term relationships based on trust and respect, the latter being a prerequisite for successful caribou conservation in northern Canada (Parlee et al., 2018)." | Gagnon et al. 2019 |
| "These [interview participants] observations are an important contribution to local cumulative effects monitoring because they highlight local accounts of environmental change, which are often missed in broad-scale assessments, and they emphasize the concerns of local land-users. This underscores the importance of including indigenous insights in cumulative effects monitoring and suggests that **combining quantitative assessments of environmental change with the knowledge of local land-users can improve regional cumulative effects monitoring**." | Tyson 2015 |
| "Ongoing environmental monitoring should involve continued dialogue between researchers, land-users, and land-managers to incorporate multiple perspectives in cumulative effects research and explore the wide-ranging impacts of Arctic environmental change." |
| Knowledge co-production | "For the monitoring of the Torngat Herd, it is recommended to: - Work with Inuit Knowledge-Holders in Kangiqsualujjuaq and Nain to identify research priorities and strategies;" | Couturier et al. 2018 |
| "Integration of science-based wildlife research and TEK is a frontier in knowledge co-production that is worthy of more effort." | Halas 2015 |
| "[... a transdisciplinary] approach requires co-development with active community participation in a way that is congruent with Indigenous cultural values, is based on a combination of traditional knowledge, local observations, and scientific information, and affirms Indigenous Peoples' rights to harvest and culture." | Kenny et al. 2018 |
| "Invite harvesters to share their experiences more formally with a community researcher, such as Camilla Nitsiza and the youth assistance, to document the information on maps and in a database, for longevity and for other relevant applications." | Legat et al. 2019 |
| "Regularly send the community’s knowledge to the Chief and Council, and other relevant decision-making bodies, for consideration." |
| "Discuss with male and female harvesters what Tłįchǫ methods of respecting and caring for tǫdzi needs to be enhanced in practise, and needs to be taught to the youth." |
| "Current approaches by the Canadian Government to collect TEK to inform SARA recovery planning for woodland caribou could benefit from adopting a collaborative community-based approach" | Polfus et al. 2014 |
| Participatory research approach | "[…] we recommend strongly that participatory techniques are used (throughout the research process) and argue that a diversity of backgrounds and perspectives is likely to enrich the research results." | Löf and Carrière 2011 |