**Appendix 4 – Data analysis codebook**

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 1: Research and/or relationship-building methods used to identify, collect, or include Indigenous knowledge (variable code: IK\_METHODS; questionnaire Q7).

| Category | Description |
| --- | --- |
| Community consultation | Indigenous persons, communities, and/or Nations given the opportunity to give feedback on the research through meetings, workshops, or commenting on drafts, etc. |
| Focus group | Specifically-recruited group of knowledge holders to provide input and information. |
| Indigenous knowledge system methodology | A method applied from Indigenous knowledge systems, usually based in understandings in and from Indigenous languages, experiences, and worldviews (e.g., Qaggiq model). |
| Informal | Mention of unstructured conversations or informal means of receiving information, or accompanying hunters or other knowledge holders into the field ("field impressions"). |
| Interviews | Conduct of interviews with knowledge holders. |
| Oral history | Elders and knowledge holders sharing stories with researchers. |
| Participant observation | The researcher is immersed in the day-to-day activities of the participants and records information about their conduct. |
| Participatory GIS/Mapping | Community members are involved and engaged with GIS & mapping, or the mapping may be led by the community. This is not the same as interviews where questions about geospatial information was asked of knowledge holders, and then either mapped during the interview or later. |
| Participatory videography/photovoice/visual art | Indigenous community members engaged in producing photographs, videos, or art related to the research endeavours. |
| Research team integration | Indigenous personnel are part of the primary research team and/or collecting data (including scientific data and/or data related to Indigenous knowledge) for research or monitoring. |
| Secondary data | Using IK collected for and presented in previous studies/reports/databases. Includes literature review, compiling databases, and use of archival documents. |
| Surveys | Written questionnaires. |

Table 2: Research methods used for Western scientific data collection (variable code: WEST\_METHODS; questionnaire Q8).

|  |  |
| --- | --- |
| Category | Description |
| Body condition study | Use of physical samples (tissue, hair) to study animal body condition. |
| Dendroecology | Study of ecological and environmental changes as depicted in tree rings. |
| Ecological modelling | Mathematical and statistical modelling of future distributions of species, habitat, connectivity, fire regime or other ecological and landscape factors. May or may not be spatially explicit. |
| Field surveys (aerial) | Conduct of survey of flora or fauna from the air (helicopter or plane) through direct observation (counting individuals) or indirect observation (e.g., trails). |
| Field surveys (ground) | Conduct of survey of flora and fauna on the ground, either through direct observation (counting individuals) or indirect observation (e.g., scat). |
| Genetic analysis | Using genetic information from live animals, scat, or other sources of DNA to analyse and monitor populations. |
| GIS | Compiling original and/or secondary geographic information systems data for mapping (cartography) or modelling. |
| Interviews | Interview-based methodologies conducted with western scientists/managers. |
| Secondary data | Literature review, meta-analysis, synthesis of existing information. |
| Telemetry | Use of GPS radio collars, satellite tags, or other physical trackers placed on wildlife. |

Table 3: Level of involvement that Indigenous community members had on conducting the research for the study/document (variable code: INVOLVEMENT; questionnaire Q14).

|  |  |
| --- | --- |
| Category | Description |
| Project lead or co-lead | The project was initiated and led or co-led by an Indigenous community themselves (including co-management boards). |
| Project development | Explicit mention that community members were given authority, input, and/or leadership over the research design, methods, and implementation. |
| Other personnel | Knowledge-holders/community members were involved for various roles (research assistant, interpreter, translator, etc.). |
| Fieldwork/Data collection | Paid or unpaid field assistants, whether by providing assistance to other researchers or collecting data. May include ‘community-based monitoring programs’. |
| Consultation | Community members and/or knowledge holders had input on various elements of the research process and/or the results solicited through workshops or other forms of consultation. |
| Participants | Community members were not involved in conducting the research but were interviewed or surveyed or otherwise the subject of the research. (Note: This was captured in the data extraction but was not counted as a method of research co-production.) |
| Not applicable | Indigenous communities or knowledge-holders were not engaged in the research (e.g., meta-analysis, literature review, description of a network). |

Table 4: Methods used to share research or project findings with communities (when findings were made accessible) (variable code: ACCESS\_METHOD; questionnaire Q17).

|  |  |
| --- | --- |
| Category | Description |
| Educational tools | Materials provide by researchers to the community for their use for education purposes. |
| In-person event | Findings were shared or presented in person, for example with in-person meetings, workshops, or sessions with Indigenous community members, or through school presentations or talks given in local schools. |
| Newsletter/News media | Community or project newsletters used to communicate findings with the community. |
| Not applicable | Findings were not shared and made readily accessible to Indigenous community members (questionnaire Q16). |
| Photos/videos | Photo and video documentation (e.g., using a slideshow) are used to present findings or the project to the community. |
| Report/Summary | A written final report, summary, curriculum material, or data product/manual was shared with the community. |
| Return of media | Media created during the project, such as videos, photos, maps, etc., were shared with the community. Media that were made freely available or published but were not deliberately shared with or returned to the community do not qualify. |
| Translation | Portions or the entirety of documents, presentations, or media containing results were translated into relevant the Indigenous language(s). |
| Unclear/Not indicated | The document doesn’t specify how findings were shared with communities. |

Table 5: Ways in which knowledge-holders were recognized for their contribution (variable code: RECOGNITION; questionnaire Q18).

|  |  |
| --- | --- |
| Category | Description |
| Acknowledgements section | Knowledge-holders were recognized in the Acknowledgements section, Dedication, or relevant Appendix of the study/report. |
| Attribution to knowledge | An individual knowledge holder or group holding knowledge is attributed and credited by name in the text for the knowledge they have shared (e.g., attribution of a quote). |
| Compensation | Compensation was offered to knowledge holders/community members, including financial compensation, pay, gifts, honoraria, and/or other unspecified compensation. |
| Not recognized | Knowledge holders were not recognized in any way. They may have been mentioned as subject of research (e.g., interviewee, receiving surveys) but were not recognized formally for their contributions. |