

Appendix 2.

Table A2.1. Theory versus practise: a review of the methods and approaches used for ethnoveterinary research conducted in Mongolia.

Methods used (chronologically ordered)	Theoretical Approach	Practical Reality	Comments on outcomes
Participation in the Mongol derby (1000 km self-supported endurance horse ride)	Establish rapport with local knowledge holders (Martin 2004). Understanding the 'human context' in which the traditional knowledge is embedded (Shackeroff and Campbell 2007).	Riding Mongolian horses and staying with local herder families allowed me to gain insight into Mongolian herder way of life, especially in terms of livestock.	Highly beneficial: increased my understanding of the context in which ethnoveterinary knowledge is embedded. Enabled the establishment of important relationships with knowledge holders, interpreters and local guides.
Collaboration with local university	Establish local research partners (CBD 1992, International Society of Ethnobiology 2006).	Administrative benefits (research visa and local university affiliation), but little fieldwork and data collection support. Use of university herbarium was very helpful.	Although more about administrative steps, this was a crucial part of the research process, and it is hoped it will play a role in dissemination of findings in Mongolia.
Ethical clearance and prior informed consent	Prior informed consent (International Society of Ethnobiology 2006, Nagoya Protocol 2010).	Obtained from two universities. This was instrumental in explaining intention and motivation of the research project. Proof of ethical clearance offered protection from a false accusation of biopiracy.	It proved invaluable to receive ethical clearance from a local institution, as it offers protection to both respondents and researchers.
Employing a local vehicle driver and local interpreters	Local involvement in research team and research logistics (International Society of Ethnobiology 2006).	There was a dependence on the driver, and cultural sensitivity was misused by him. The driver became aggressive. Good interpreters are in high demand and easily find other jobs. The interpreter also brought her personal agenda into interviews. There was some interpreter bias towards research and respondents.	The importance of a driver is often underrated, especially where a language barrier exists. The driver used in this study made the experience more difficult. 'The mere fact that interviewers, enumerators or extension agents are from the local area does not mean they have that requisite local knowledge, language skills and cultural sensitivities for studying local knowledge systems' (Grandin and Young 1996).
Recording	Use of recorder during interviews (Martin 2004), only if consent was given.	Seventy percent (n=35) of interviews were recorded. In retrospect, the manner in which the interpreter explained the recording influenced respondents' reaction towards recording.	Transcription and translation of recordings gave insight into interpreter bias.

Snowball sampling	A nonprobability sampling method, often employed in field research, whereby each person interviewed may be asked to suggest additional people for interviewing (Babbie 2004).	Mongolian pastoralists have an extensive social network, which was key to locating knowledge holders and to establishing trust. Both contacts from the Mongol derby and from the horse guide assisted with snowball sampling.	Suggestion from respondent translated incorrectly due to personal agenda of driver and interpreter (n=1).
Free listing	Free listing can provide insight into culturally important plants and ailment categories (Martin 2004). Because free lists are not exhaustive (Quinlan 2005), where possible, inventories from free listing were supplemented and cross-checked using a plant reference book (see following row).	Free listing allowed respondents to become comfortable with the interview situation and encouraged a more balanced positionality of power between researcher and respondents.	Using position of mention and frequency of mention also enabled the researcher to ascertain, through an emic approach, what categories and plants are seen as important and useful.
The use of photographs in a reference book <i>Flowers of Mongolia</i> (Hauck and Solongo 2010) for ethnoveterinary medicinal plant inventories	Interviews held <i>ex situ</i> with plant photographs as a reference tool (Thomas et al. 2007).	A high adult literacy rate of 97.8% in Mongolia (Yembuu and Munkh-Erdene 2006) substantiated the use of the reference book method. In general herders reacted positively and with much interest to the book. However, four respondents mentioned having poor eyesight and chose not to use the reference book.	In the reference book, two species of the same genus are frequently shown on one page. Respondents often indicated (by vaguely pointing at all photographs on the page) that both species (sharing the same common name) were used, although not both voucher specimens could be collected.
Voucher specimens	Good quality herbarium specimens are crucial to ethnobotanic (and ethnoveterinary) studies (Alexiades 1996, Cunningham 2001, Martin 2004). Researchers must take into account sensitivity to conservation and local cultural concerns (Cunningham 2001).	In general, voucher specimens were difficult to collect for all mentioned plant species due to an ongoing drought (FAO 2016), herders being too busy, distance between interview location and medicinal plant location and cultural objections.	Concerns were raised about the use of a GPS to mark voucher specimen coordinates, possibly due to suspicions related to similar technology used by geologists prior to mining, and possible fears around bioprospecting.
Use of GPS	Used to determine geographical distance and to record interview and voucher specimen location.	Not everyone uses the 'western' approach to map reading and direction. Locally, time and distance measures were done taking horseback travel and jeep tracks into consideration. Compass directions can be interpreted in different ways. Concerns were raised around the use of a GPS to record voucher specimens, based on fears of bioprospecting.	One needs to be flexible in terms of when and how to get to a specific area, and prepare for cultural differences in map reading. Cultural sensitivity around voucher specimen location needs to be considered. The horse guide was fascinated with the GPS after time was taken to explain to him how it works.

Interviews	Semi-structured interview with open- and closed-ended questions (Martin 2004).	Conducting interviews of good ethical, social and scientific quality is challenging, especially when dealing with non-interview related issues that come up during the interview. Questions around herd size and demographic information made some respondents feel uncomfortable (also briefly reported by Heffernan et al. (1996) and, in this case, were left out.	Researchers should receive specific training, from the social sciences, in conducting interviews.
Travelling on horse back	Establish rapport with local knowledge holders and participant observation (Alexiades 1996, Martin 2004). Reduce imbalance in position of power (Shackeroff and Campbell 2007).	Although this meant a decrease in the daily distance covered, it soon became clear that this was the appropriate mode of transport, with respondents feeling more at ease. This led to naturally stimulated conversation around livestock care. It enabled the research team to establish good rapport with herders and allowed for valuable insight into life on the steppes.	This had a very positive effect on the success of the project. It allowed me to place ethnoveterinary knowledge in the context of Mongolian herders (Shackeroff and Campbell 2007).
Local horse guide as part of research team	Place ethnoveterinary knowledge in context (Shackeroff and Campbell 2007). Local involvement in research team and research logistics (International Society of Ethnobiology 2006); Establish rapport with local knowledge holders (Martin 2004).	The horse guide was a well-known and respected community member. He suggested which families to visit, and introduced the research team and project to these families. He also assisted with voucher specimen collection.	The assistance of the horse guide with horse-care, logistics and introductions to knowledge holders was invaluable during field work.
Support of having my partner as field assistant.	Ensuring researcher health and well-being (Moncur 2013, Kara 2015). Partner was introduced as my husband.	Help and support from my partner during the often strenuous fieldwork provided crucial support, motivation and understanding. The presence of my 'husband' prevented any untoward responses, increased my status in a patrilineal society and reduced vulnerability associated with doing fieldwork as a foreigner.	Gender issues (Howard 2003) and vulnerability are important to consider before and during fieldwork. Especially the vulnerabilities associated with alcohol, untoward advances and general safety of a young female foreign researcher should be considered.
Keeping a journal and observation schedules	Daily entries into a fieldwork journal, and observation schedules (Appendix C) for interviews and other noteworthy experiences (Martin 2004).	This allowed me to record and keep track of finer, often crucial, details. In addition, time spent on this offered an opportunity to de-brief and reflect on fieldwork.	This proved to be instrumental for later analysis. However, it was challenging to add qualitative data to a largely quantitative research project in a meaningful way.

Market surveys	Interviews were conducted with market sellers at two major markets following guideline described by Martin (2004) and Cunningham (2001).	Market sellers reacted with suspicion to questions relating in any way to plant sales and popularity. The <i>ca.</i> 60 years of being a Soviet satellite state could be a factor in suspicions related to interviews and questions. A relationship was established with only one market seller.	Performing market-related research can be difficult due to the informal, varied and somewhat hidden nature of the medicinal plant trade (Etkin et al. 2011). I needed more time to establish relationships prior to conducting market research.
Assistance from boundary organisations	Boundary organisations bridge the gap between research and practise (Guston 2001, Cook et al. 2013) and are familiar and experienced with the local context.	Staff from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Biodiversity and Adaptation of Key Forest Ecosystems to Climate Change Programme, offered valuable support in terms of interpreters, horses and fieldwork logistics.	It is important to identify and receive support from the correct and genuinely supportive boundary organisations. This takes time and should be factored into research planning.
Support	There is a need for researchers, especially young and novice researchers, to have support systems in place that offer support before fieldwork commences and to allow for debriefing after the fieldwork period (Hallowell et al. 2005, Kara 2015).	Academic and motivational support was received from my supervisors before, during and after fieldwork. Professional psychological support was sought after fieldwork had been completed. The help from a psychologist in dealing with post-traumatic stress (main sources of stress: problems with driver, politicization of the intellectual property rights issue) played a critical role in finishing the research project.	From my experience, I recommend that researchers performing ethnobotanical studies in a foreign country for the first time, receive psychological support (of some form) pre- and post-fieldwork.

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