



Ethnobiology Phase VI: Decolonizing Institutions, Projects, and Scholarship

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Table S1. Ways to take action based on reflection questions, key considerations and sources of information along three scales: institutions (1A), research projects (1B), scholars and the scholarship (1C)

Table S1A. Questions and key considerations for **institutions** to reflect upon when embarking on cross-cultural collaborations

Reflection Questions	Sources for Information	Key Considerations
What have been the institution's actions in the past? How can the institution do better in the future?	Scholarly literature, conversations with staff, conversations with communities who have ties with the institution's territory	Reflexivity: self-consciousness about the institution's actions towards human relationships, and social, economic, and environmental justice
How does the institution see, value and respect community knowledge and expertise?	- Code of Ethics - Feedback from community members who are collaborators	Expertise: Treat community knowledge and expertise as true and as real as other privileged forms of knowledge and research
Which methods does the institution have in place to cross-examine and change their own positionality towards cross-cultural collaborations?	- Focus group discussions - Workshops - Feedback from community members	Humility: Accept and expect feedback and cross-examinations that may be critical of institutional assumptions. This engenders "mutual vulnerability", which greatly facilitates relationship building

Table S1A. (Continued).

Reflection Questions	Sources for Information	Key Considerations
How does the institution assist researchers in honoring communities' right of self-determination?	- Discussions with staff members who work with Indigenous and local communities	Dignity: honoring individuals' and Indigenous community/nation self-determination in what they do or do not share with the institution, known as the right to refusal.
How does the institution address community needs?	- Relevant literature - Focus group discussions, with community members	Relationality: Institutions understand the sociopolitical context of the community partners' realities, learn about the community's diversity, and may spend time addressing direct needs that fall outside of the institution's or project's scope (childcare, tutoring, transportation, etc.)

Table S1B. Questions for self-reflection and land-rights-centered research, and for building reciprocity and Indigenous research self-sufficiency that offer a starting point for decolonizing research projects

Reflection Questions	Sources for Information	Key Considerations
What historical and ongoing colonial context can I educate myself on further before embarking on a community research project?	- Decolonization literature - Conversations with key community collaborators - Learning history of the region.	- Read literature from related disciplines including Indigenous studies, education, law. - Read Indigenous and other BIPOC literature on this subject.

Table S1B. (Continued).

Reflection Questions	Sources for Information	Key Considerations
How can I reduce the amount of unnecessary emotional labor that this research could place on community members and collaborators?	<ul style="list-style-type: none"> - Read and integrate any community research protocols and/or agreements. - Read methods sections for projects that centered anti-colonial and decolonizing approaches. 	<ul style="list-style-type: none"> - Develop research relationships with this consideration in mind. - Set up an agreement beforehand with community collaborators that you will check in with them on this subject throughout the research. - Have key conversations with actors/internal authorities within the communities as many of them have not written protocols and instead use community assemblies for validation/probation of any project
Who are the people that I can turn to for guidance on how to conduct myself respectfully?	<ul style="list-style-type: none"> - Key community organizations, groups and leaders. - Community website and other resources to help you familiarize yourself with the community. 	<ul style="list-style-type: none"> - Take time to make meaningful connections within the community. - Integrate reciprocity into these relationships from the start. - Ask questions if you are unsure.
What am I going to gain from this project (financially, professionally) and does that surpass what the community could gain from this project?	<ul style="list-style-type: none"> - Research proposal - Community research protocol and/or prior-informed consultation - Funding applications 	<ul style="list-style-type: none"> - Consider this question from the very beginning. - Write funds into grant applications for supporting community collaborators. - Be transparent.

Table S1B. (Continued).

Reflection Questions	Sources for Information	Key Considerations
Am I remunerating community research collaborators adequately for their time and expertise?	- Community research protocols and/or prior-informed consultation as needed	- Secure funds to hire youth and other community members to assist with field work, interviews, data collection, dissemination and writing.
	- Trusted community advisors	
	- Other researchers	- Recruit and fund students or other members from the community
		- Ask community partners if there is a standard rate and adhere to the community's standard rate. If there is no standard rate, discuss it with community leaders and organizations
		- Often honoraria are still not representative of the level of involvement or contribution community partners are asked to make
		- How much time are you asking for?
What kinds of projects is the community most interested in? Am I addressing the requests and needs of the community?	- Community meetings/focus groups	- Explore community priorities through initial conversations and background research
	- Community leadership - Reports from previous community projects	- Check in with community members often
		- Apply for grants and provide other mentoring outside of the life of your project

Table S1B. (Continued).

Reflection Questions	Sources for Information	Key Considerations
How can I best (contribute to the work the community wants me to do and how do I) give back in reciprocal ways throughout the project?	<ul style="list-style-type: none"> - Community guidance - Focus groups - Cultural practices of reciprocity 	<ul style="list-style-type: none"> - What are customary ways of upholding reciprocity in addition to remuneration - Incorporate reciprocity into all aspects of research e.g. bring gifts, share food, bring people harvesting on the land, provide transportation to field sites for community - Look for ways to build continuity into the work you do. How will the work you have done in your project continue to benefit the community in positive ways after your project has ended?
Am I striving to be reflexive and inclusive of the community throughout my project?	<ul style="list-style-type: none"> - Community research protocols - Community research agreement - Focus groups/interviews 	<ul style="list-style-type: none"> - Have someone (community member or research collaborator) hold you accountable to regular check-ins with community - Offer frequent opportunities for community involvement, guidance and feedback
Can I list any asymmetries of power or power imbalances at the outset of this project?	<ul style="list-style-type: none"> - Anti-colonial research resources and literature - Exploring regional and internal dynamics of the community, e.g. intersectionality lenses within the community as you conduct research - Community research council or advisory group 	<ul style="list-style-type: none"> - How will I actively attenuate or lessen them? - And if I cannot, is the project worth it?

Table S1B. (Continued).

Reflection Questions	Sources for Information	Key Considerations
Am I being accountable to the community and my collaborators for the work I am doing?	<ul style="list-style-type: none"> - Community research agreement/ Prior informed consent - Community updates 	<ul style="list-style-type: none"> - What does that accountability look like? - Include in your budget funds to bring community members into culturally-important field sites with you.
Did I plan project deliverables throughout the life cycle of the project?	<ul style="list-style-type: none"> - Feedback from community members about engagement with the project 	<ul style="list-style-type: none"> - Short and longer term outcomes that are agreed upon by the project team occur early and often throughout the project's timeline
How will I disseminate this work and my findings in ways that are of the most use to my community partners?	<ul style="list-style-type: none"> - Community advisory group - Guidance from community collaborators 	<ul style="list-style-type: none"> - What is the preferred format for this? - Use strength-based approaches and language. -What formats are the most useful to the community? - Contribute funds to a community event or celebration of the site.
Have I discussed with community members which information is allowable in research publications? Has the community given permission to publish specific TK about their natural resources?	<ul style="list-style-type: none"> - Community discussion and feedback 	<ul style="list-style-type: none"> - Include time and budget in the project for meetings about publications - Honor community decisions

Table S1C. Questions and key considerations for ethnobiology scholars and the scholarship to reflect upon when embarking on community projects and collaborations

Reflection Questions	Sources for Information	Key Considerations
How do my own worldview, privilege and upbringing shape the way I process and handle traditional knowledge?	<ul style="list-style-type: none"> - Read literature on intercultural dialogue - Seek guidance from community collaborators - Learn from experiences of other researchers 	<ul style="list-style-type: none"> - Attitude of respect: Knowing that the researcher's viewpoint will always be subjective, partial and different, not trying to translate. Ethnobiologists are interlocutors, persons who take part in a dialogue or conversation
Have I questioned how the society I grew up in may have perpetuated different forms of oppression?	<ul style="list-style-type: none"> - Read anti-colonial research literature - Seek guidance from community collaborators - Learn from experiences of other researchers 	<ul style="list-style-type: none"> - Perspective: To consider oneself as a member of a system that needs to be continuously questioned in relation to the different forms of oppression
Have I examined and challenged stereotypes about other continents, countries, or people?	<ul style="list-style-type: none"> - Search for literature, including podcasts and articles written for a broader audience - Engage in dialogue with other researchers 	<ul style="list-style-type: none"> - Positioning: Be aware of assuming a position of "savior" of traditional knowledge, or of reinforcing existing stereotypes through choice of country, project, or research objectives
Have I reflected on ways in which I may misrepresent traditional knowledge or other information from the community?	<ul style="list-style-type: none"> - Read literature on intercultural dialogue - Seek guidance from community collaborators - Learn from experiences of other researchers 	<ul style="list-style-type: none"> - Do not assume, re-inquire - Do not homogenize, overgeneralize, de-contextualize cultures
Am I sufficiently aware of the reductionist approach of western science and how this may negatively impact traditional knowledge?	<ul style="list-style-type: none"> - Read literature on intercultural dialogue - Seek guidance from community collaborators - Learn from experiences of other researchers 	<ul style="list-style-type: none"> - Do not fragment the information obtained according to western logic
Am I offering co-authorship to local community members?	<ul style="list-style-type: none"> - Seek guidance from community collaborators 	<ul style="list-style-type: none"> - Participants must be co-authors in research if this is significant for them
Am I open to being a student of different forms of knowing and knowledge (than the scientific way of knowing)?	<ul style="list-style-type: none"> - Seek guidance from community collaborators 	<ul style="list-style-type: none"> - To engage in mutual learning

Table S2. Selected additional resource list on decolonization; ethics; activism, advocacy and allyship; collaboration with local and Indigenous communities; inclusivity, accessibility, and representation

Decolonization

- Boke, C. 2020. *Regrounding Practice, Unsettling Knowledge Plant Medicine in Settler Colonial Contexts*. The Ethnobotanical Assembly. Available at: <https://www.tea-assembly.com/issues/2020/10/4/regrounding-practice-unsettling-knowledge>. Accessed December 3, 2020.
- Mignolo, W. 2012. *Local Histories/Global Designs: Coloniality, Subaltern Knowledge and Border Thinking*. Princeton University Press, Princeton, NJ.
- Mignolo, W., and C. Walsh. 2018. *Decoloniality: Concepts: Analytics, Praxis*. Duke University Press, Durham, NC.
- Newberry, T., and O. Trujillo. 2018. Decolonizing Education Through Transdisciplinary Approaches to Climate Change Education. In *Indigenous and Decolonizing Studies in Education*, edited by L. T. Smith, E. Tuck and K. W. Yang, pp. 204–214. Routledge, New York, NY. DOI:10.4324/9780429505010-14.
- O'Brien, J.M. 2010. *Firsting and Lasting: Writing Indians Out of Existence in New England*. University of Minnesota Press, Minneapolis, MN.
- Smith, L.T., 2013. *Decolonizing methodologies: Research and indigenous peoples*. Zed Books Ltd.
- Tuck, E., McKenzie, M., and McCoy, K. 2014. Land education: Indigenous, Post-colonial, and Decolonizing Perspectives on Place and Environmental Education Research. *Environmental Education Research*, 20:1–23. DOI:10.1080/13504622.2013.877708
- Wolfe, P. 2006. Settler colonialism and the elimination of the native. *Journal of Genocide Research*, 8(4), 387–409. DOI:10.1080/14623520601056240
- Wong, E., Ballegooyen, K, Ignace, L, Johnson, M.J., and Sawnsen H. (2020). Towards reconciliation: 10 calls to action to natural scientists working in Canada. *Facets* 5(1): 769-783.
- Zavala, M. 2013. What Do We Mean by Decolonizing Research Strategies? Lessons from Decolonizing, Indigenous Research Projects in New Zealand and Latin America. *Decolonization: Indigeneity, Education and Society* 2:55–71.

Ethics

- Bannister, K., Solomon, M. Part I: Appropriation of Traditional Knowledge: Ethics in the Case of Ethnobiology. 2009. In: Young, J.O. and Brunk, C.G., editors. *The Ethics of Cultural Appropriation*. Massachusetts: Wiley-Blackwell; p 140 –172.
- Fowler, C. T. 2018. Emerging Environmental Ethics for Living with Novel Fire Regimes in the Blue Ridge Mountains. *Ethnobiology Letters*, 9: 90-100. DOI:10.14237/ebl.9.1.2018.1049
- Hardison, P. and Bannister, K., 2011. Ethics in ethnobiology: history, international law and policy, and contemporary issues. In *Ethnobiology*, edited by EN Anderson, DM Pearsall, ES Hunn, and NJ Turner, 18, pp.27-49.
- McCune, L. M. 2018. The Protection of Indigenous Peoples' Seed Rights during Ethnobotanical Research. *Ethnobiology Letters*, 9:67-75. DOI:10.14237/ebl.9.1.2018.1076.
- Medinaceli, A. 2018. Taking an Early Step in Ethnobiological Research: A Proposal for Obtaining Prior and Informed Consent from Indigenous Peoples. *Ethnobiology Letters*: 9:76-85. DOI:10.14237/ebl.9.1.2018.1054.
- Tuladhar-Douglas, W., and Tuladhar-Douglas, B. 2018. Working Together to Carry Water: Research Ethics when One of Two Parents is Indigenous. *Ethnobiology Letters*, 9:44-58. DOI:10.14237/ebl.9.1.2018.1064.
- Shebitz, D., and Oviedo, A. 2018. Learning from the Past: Reflecting on the Maya-ICBG Controversy in the Classroom. *Ethnobiology Letters*, 9(1), 59-66. DOI: 10.14237/ebl.9.1.2018.1095.

Activism, advocacy, and allyship

Eberhardt, J. L. (2020). *Biased: Uncovering the Hidden Prejudice that Shapes what we See, Think, and Do*. Penguin Books, London.

Harnish, A., J. A. Hazlewood, A. Bedker, and S. Roeder. 2016. A Wonderfully Incomplete Bibliography of Action-Oriented Anthropology and Applied Environmental Social Science. In *The Environment in Anthropology: A Reader in Ecology, Culture, and Sustainable Living*, edited by N. Haenn, R. R. Wilk, and A. Harnish, pp. 482–508. New York University Press, New York, NY.

Raphael. 2019. *Engaged scholarship for environmental justice: A guide*. Santa Clara, CA: Santa Clara University.

Sault, N., 2018. Condors, water, and mining: Heeding voices from Andean communities. *Ethnobiology Letters*, 9:pp.13-29.

Thomas-Muller, C. 2014. *The Rise of Native Rights-Based Strategic Framework: Our Last Best Hope to Save Our Water, Air, and Earth*. In *A Line in the Tar Sands: Struggles for Environmental Justice*. PM Press, Toronto, ON.

Collaboration with local and Indigenous communities

David-Chavez and Gavin. 2018. A global assessment of Indigenous community engagement in climate research. *Environmental Research Letters* 13: 123005.

Gewin, V., 2021. How to include Indigenous researchers and their knowledge. *Nature* 589:315-317.

Kalafatis, S.E., Neosh, J., Libarkin, J.C., Whyte, K.P. and Caldwell, C., 2019. Experiential Learning Processes Informing Climate Change Decision Support. *Weather, Climate, and Society* 11:681-694.

Kirby, C.K., Haruo, C., Whyte, K.P., Libarkin, J.C., Caldwell, C. and Edler, R., 2019. Ethical collaboration and the need for training: Partnerships between Native American Tribes and climate science organisations. *Gateways: International Journal of Community Research and Engagement* 12:ID-5894.

Reo, N.J., Whyte, K.P., McGregor, D., Smith, M.A. and Jenkins, J.F., 2017. Factors that support Indigenous involvement in multi-actor environmental stewardship. *AlterNative: An International Journal of Indigenous Peoples* 13:58-68.

Vandebroek, I. 2016. Ethical aspects of working with local communities and their biological resources. In *Pharmacognosy: Fundamentals, Applications and Strategy*, edited by S. Badal and R. Delgoda, pp. 645-651. Academic Press, Elsevier, London, UK.

Woodward et al. 2020. Our Knowledge Our Way in Caring for Country: Indigenous-led Approaches to Strengthening and Sharing our Knowledge for Land and Sea Management. Best Practice Guidelines from Australian experiences. NAILSMA and CSIRO.

Inclusivity, accessibility, and representation

Bailey et al. 2020. Inclusive conservation requires amplifying experiences of diverse scientists. *Nature Ecology and Evolution* 4: 1294–1295.

Brainard. 2019. Scientific societies worry about threat from Plan S. *Science* 363: 332–333.

Chaudhury and Colla 2020. Next steps in dismantling discrimination: lessons from ecology and conservation science. *Conservation Letters*: e12774.

McNutt. 2019. “Plan S” falls short for society publishers—and for the researchers they serve. *Proceedings of the National Academy of Sciences* 116:2400–2403.

Miriti, M.N., Bailey, K., Halsey, S.J. and Harris, N.C., 2020. Hidden figures in ecology and evolution. *Nature Ecology and Evolution*, 4(10), pp.1282-1282.

Pfeiffer and Butz. 2005. Assessing Cultural and Ecological Variation in Ethnobiological Research: The Importance of Gender. *Journal of Ethnobiology* 25: 240–278.

Schell et al. 2020. Recreating Wakanda by promoting Black excellence in ecology and evolution. *Nature Ecology and Evolution* 4: 1285–1287.