

Ethnobotanical Herbariums and Mental Herbals:

Ethnographic research as a means to further bridge knowledge systems, contribute to resilience science, and assess ethno-ecological homeostasis.

Hayley J. Weyers
Northland College
15th January 2015

Keywords.

Ethnobotany. Mental herbals. Herbarium. Knowledge systems. Traditional ecological knowledge. Local ecological knowledge. Indigenous knowledge. Western techno-scientific knowledge. Ecopsychology. Resilience science. Social-ecological systems. Ethno-ecological homeostasis.

Introduction.

The concept of *mental herbals* [italics in original]—developed by Iwona Kolodziejska-Degorska at the University of Warsaw—is used as a means to describe ethnobotanical relationships between an individual or group and the plants with which they interact. “Every plant that is important, remembered, embodied or even imagined by an individual constitutes an element of his/her *mental herbal*.”¹ Cataloging these innumerable relationships is daunting to say the least, particularly as tables and data that fully represent the nuances of a single *mental herbal* are simply implausible. This only becomes truer as *mental herbals* of greater magnitude are studied (i.e. as a person has a larger breadth of botanical knowledge).² Acceptance of this is not intended to be discouraging—rather, it humbly acknowledges a limitation of Western techno-scientific knowledge³ (WTSK) and related methods of inquiry, and at once honors the complexity and context-dependence of various knowledge systems.

Traditional ecological knowledge (TEK) and local ecological knowledge (LEK) are academically established terms used to discuss knowledge systems that were historically devalued by Western culture. To begin, a comparison between TEK and LEK is necessary.

First, according to Nicolas Houde,⁴ TEK can be understood as having five faces that exist against an entire cosmological backdrop. The initial face examines the core of factual observation in TEK (paralleling it with WTSK), which is informed by the desire to meet

¹ Each individual possesses a unique *mental herbal*, which is changeable depending on the literal physical context he/she lives in, the quantity and style of interactions a person has with the plants in the environment, and the cultural knowledge systems that influence ethnobotanical relationships at the personal level (Kolodziejska-Degorska, 2012).

² “The greater the *mental herbal*, the more difficult it is to describe it fully” (Kolodziejska-Degorska, 2012).

³ Western techno-scientific knowledge is characterized by reductionism (von Heland, 2012).

⁴ 1. Factual observations, 2. Management systems, 3. Past and current uses, 4. Ethics and values, 5. Culture and identity, and 6. Cosmology as backdrop or worldview (Houde, 2007).

biological needs and also from basic human curiosity toward phenomena. The second face focuses on resource management strategies that have developed cross-generationally to adequately maintain the ethno-ecological homeostasis⁵ of a people as they interact with the surrounding landscape. Third, TEK involves rich histories and complex narratives that detail long-standing relationships between a culture and aspects of their environment. It acknowledges that humans are inherently part of the environment—they at once shape their surroundings as they are continually shaped by it. The fourth face is the adherence to tried and true ethics and values, or respectful and effective ways of sensing and interacting with the more-than-human natural world.⁶ Fifth, TEK reiterates cultural identity through the use of language. This is an abstract concept, but essentially the *way* in which places or components of an environment are spoken of, and with what *kinds* of evoked contexts, represents how a dynamic natural and cultural history are embedded in the environment. One of the most detailed literary examples of this is Keith H. Basso's text titled *Wisdom Sits in Places*,⁷ which vividly explores how the Western Apache use an efficient means to conjure cultural narratives and complex ethics by simply speaking a place name—their history is intensively associated with natural features. Houde's last face of TEK is cosmology. This is the foundation where the other five faces originate, and is where the greatest difference between TEK and WTSK exists. Cosmology is the worldview a culture has created. It is the basic assumptions of how things work. For example, many traditions use language that honors the autonomy of more-than-human beings, and speaks of humans as akin to these. In the Potawatomi language specifically, the same pronoun is used to reference human relatives as is used for animals, plants, landscapes, and anything considered animate. What's more, animacy is perceived as present in a great deal of the environment.⁸ However, mechanistic WTSK ways of referencing the world have generated a worldview of strict categories, making true and equal integration of TEK extremely difficult.⁹ For this reason, efforts to bridge knowledge systems that proceed with a strong awareness of these disparities are more ideal.

Furthermore, other literature on TEK adds appropriate emphasis to the changeable nature of what has come to be known in a culture. Oral traditions, from which TEK often arises, are especially equipped to adapt to variable demands, threats, and resource abundance.¹⁰ This

⁵ Ethno-ecological homeostasis is an original concept, ecopsychological in nature, I use to describe how groups of people ultimately rely on the fortitude of their surroundings to meet basic needs. When these interactions are sustainable, biological needs are met. As a species, it is possible for humans to be overly exploitative or destructive, in which case the health of an entire environmental community diminishes and needs cannot be completely met—this describes poor ethno-ecological homeostasis.

⁶ "It seems to be that those of us who work to preserve wild nature must work as well for a return to our senses, and for a renewed respect for sensorial modes of knowing. For the senses are our most immediate access to the more-than-human natural world (Abrams, 2001)."

⁷ "Statements pertaining to the landscape may be employed to convey tacit messages about the organization of face-to-face relationships and the normative footings on which those relationships are currently being conducted (Basso, 1996)."

⁸ "This is the grammar of animacy... So it is that in Potawatomi and most other indigenous languages, we use the same words to address the living world as we use for our family. Because they are our family (Kimmerer, 2013)."

⁹ "A consequence of this divergence [between place-based communities and WTSK] and the recent hegemony of the western-based worldview has been the establishment of protected areas that limit or exclude humans from land they have long inhabited (Adams, 2014)," as an example of how Western management has tended to operate, even while attempting to incorporate other knowledge systems.

¹⁰ "It is adaptive because it acknowledges that environmental conditions will always change, requiring societies to respond by adjusting and evolving (Berkes, 2000)."

is a suitable strategy, and has likely influenced the permanence of indigenous peoples despite colonialism. Indeed, the inclusion of the *dynamic* attribute by Charles R. Menzies¹¹ embodies TEK resiliency qualities and, in conjunction with oral modes of passing knowledge to others, can help bring merit to a worldview-immersive, context-laden approach to bridging. Essentially, integration of TEK and WTSK will not be completely fair without a relativistic understanding of the traditional culture, the ecological information, and the context of how it came to be known. This requires in-depth ethnographic research.

Comparably, LEK is similar to TEK in many respects. However, it lacks the same kind of storied history and generational connection to a landscape. There are two primary components to LEK,¹² where the first is the literal interaction between a person and their surroundings, and the second is centered on how information about the environment has been communicated and retained. Nevertheless, I am seeking to discuss both systems together without criteria setting them apart—more simplified as a community's ecological knowledge. To avoid a lengthy acronym, I have chosen to call this integration IEK, or indigenous ecological knowledge. Indigenous is not being used in the typical sense of indicating an aboriginal group or person (though it could). Rather, it is indicative of having an established sense of place in a particular location or landscape.

These IEK systems have arisen from prolonged interactions between a given people and a certain environment. This relationship is effectively creating—and being created by—the collective worldview of the culture. Likewise, WTSK at once originates from and informs an industrial, mechanistic society. Similarities between knowledge systems have been recognized and reiterated, yet the knowledge making, retaining, and proliferating modes of IEK and WTSK are proving difficult to marry. This largely involves the power of language as it exists in variable worldviews, and how this influences perceptions toward the environment. It is like trying to weave a blanket of conflicting materials—one the receptive foundational warp threads on the loom that inform the basic shape but do not dictate the pattern, whereas many of the weft are like cumbersome and jagged machine-cut steel beams that tear many of the original line. They stack to create a wall, rather than a work of functional art that can be appreciated by anyone found wrapped safely within.

In an attempt to adequately bridge or *weave* knowledge systems, the following project has been conducted in the same spirit as other more integrated texts from this region. This includes *Plants Used by the Great Lakes Ojibwa*,¹³ and *How Indians Use Wild Plants for Food, Medicine & Crafts*.¹⁴ This ethnobotanical journal was an attempt to display a small part of

¹¹ “The following attributes can be said to typically describe the central definition of TEK: cumulative and long-term, dynamic, historical, local, holistic, embedded, and moral and spiritual (Menzies, 2006).”

¹² “Hands-on experience through engagement with the surroundings (‘environmental perception’) and thanks to different communication forms—outside the context of everyday life (‘environmental knowledge’)[parenthesis in original] (Kolodziejska-Degorska, 2012).”

¹³ “Plants were to be treated in a respectful way with ceremony, prayer, and an offering. While gathering only a few and praying, an offering of tobacco was often made as thanks and in recognition of the sacrifice that the plant was being asked to make. In this dignified manner, the plant was honored, the medicine obtained, the Creator thanked, and the cycle of the life ensured (Meeker, 1993).”

¹⁴ “The remedies are individual, not general, and an individual when questioned invariably replies, ‘I can tell you about my own medicines. I do not know about other peoples’ medicines nor their uses of the same plants.’ Thus it is frequently found that different people have different names and uses for the same plant (Densmore, 1974).”

my own mental herbal in the context of the larger communities in which I live. Ethnobotany was selected as the focus because in IEK systems, environmental factors that are consistently interacted with include plants. In fact, they are a prominent aspect, necessary for food, medicine, shelter & utilities, entertainment, and art.

Methods.

Between July and October 2014, I collected numerous samples of species endemic to the greater Chequamegon Bay area of Lake Superior, which also have a clear place in my *mental herbal*.¹⁵ These samples were preserved, with variable success, using a BioQuip standard plant press. Certain pressed species deemed too difficult or delicate to work with were omitted—*Juniperus communis*, *Tsuga canadensis*, *Impatiens patens*, etc. The remaining ten samples were stitched to 9 x 17 inch herbarium paper, and labels with the following information were adhered to each herbarium mount: scientific name, common name, region, habitat, date of collection, sample number, and collector. The mounts were placed in acid-free herbarium folders marked with each sample's family and genus name, as well as the Northland College Herbarium Collection family number.¹⁶ This is the present organizational technique of the Northland College Herbarium Collection, and was included to increase continuity between this partial *mental herbal* and the aforementioned collection upon integration.

The second phase of the ethnobotanical herbarium collection [i.e. my partial *mental herbal*], involved a more contextualized approach to examining a given herbarium mount's inclusion in my collection. I employed panels of the DeLorme 2011 Wisconsin Gazetteer¹⁷ as mapping, and circled a specific collection location on each one that relates to a given specimen. The augmented maps were pasted inside the herbarium folders on the right-hand panel. On the inside left-hand panel, I glued in a document detailing categorical information on each plant. The format was essentially as follows:

Genus species

Genus: etymology

species: etymology

Anishinabemowin name, if available. English common name.

Botanical description:

- This is an original articulation of plant characteristics. By nature of this style of writing, parallels between descriptions in field guides and my own are not only possible, they are probable.

Ecology:

- This section explores habitat and range, and is dependent on citations.

Preparation and uses:

- It often begins with my personal relationship to this species. From there, I utilize information from TEK and LEK sources, herbalism texts, and dialog from informants.

Footnotes that list appropriate MLA citations.

¹⁵ The timing of collection prevented inclusion of spring ephemerals.

¹⁶ The exception being *Shepherdia canadensis*, belonging to the family *Elaeagnaceae*, which has no present samples in the Northland College Herbarium Collection, and has not subsequently received a number.

¹⁷ Locations could have been documented with greater precision by using a GPS at the time of collection. However, this tool was not available during the July-October 2014 collection period.

For this phase, several texts were critical to my examination of each species. A complete bibliography of sources used in the ethnobotanical herbarium collection are listed below:

- Angier, Bradford. Field Guide to Medicinal Wild Plants. Harrisburg: Stackpole Books, 1978.
- Argus, George, et al. Plants of Northern British Columbia. Ed. Jim Pojar, and Ray Coupe Andy MacKinnon. Second Edition. Vancouver: Lone Pine Publishing, n.d.
- Arora, David. All That the Rain Promises, and More... First Edition. New York: Random House, Inc., 1991.
- Black, Merel R. and Emmet J. Judziewicz. Wildflowers of Wisconsin and the Great Lakes Region. Second Edition. Madison: The University of Wisconsin Press, 2009.
- Brown, Tom, Jr. Tom Brown's Field Guide: Wild Edible and Medicinal Plants. New York: Berkley Books, 1985.
- DeLorme. Wisconsin Atlas & Gazetteer. Twelfth Edition. Yarmouth: DeLORME, 2011.
- Densmore, Frances. How Indians Use Wild Plants for Food, Medicine & Crafts. Toronto: Dover Publications, Inc., 1974.
- Edwards, Victoria H. The Aromatherapy Companion. Ed. Deborah Balmuth. North Adams: Storey Publishing, 1999.
- Fassett, Norman C. Spring Flora of Wisconsin. Fourth Edition. Madison: The University of Wisconsin Press, 1978.
- Lust, John. The Herb Book. Sini Valley: Benedict Lust Publications, 1974.
- Meeker, James E., Joan E. Elias and John A. Heim. Plants Used By The Great Lakes Ojibwa. Abridged Version. Odanah: Great Lakes Indian Fish and Wildlife Commission, 1993.
- Smith, Welby R. Trees and Shrubs of Minnesota. Minneapolis: University of Minnesota Press, 2008.
- Soper, James H. and Margaret L. Heimbarger Shrubs of Ontario. Fourth Edition. Toronto: Royal Ontario Museum Publications in Life Sciences, 1994.
- Thayer, Samuel. Nature's Garden: A Guide to Identifying, Harvesting, and Preparing Edible Wild Plants. Birchwood: Forager's Harvest Press, 2010.
- Thayer, Samuel. The Forager's Harvest: A Guide to Identifying, Harvesting, and Preparing Edible Wild Plants. Birchwood: Forager's Harvest Press, 2006.
- Wagner, Burton V. Barnes and Warren H. Michigan Trees: A Guide to the Trees of Michigan and the Great Lakes Region. Ann Arbor: University of Michigan Press, 1989.

In actuality, should my entire *mental herbal* be cataloged—influenced by collegiate courses focused on learning the dominant species in two major North American ecotones, and a long-standing interest in herbalism, foodie culture, and foraging—it would certainly not be as complex as some, but it would probably more diverse than others. Such an undertaking would require a great deal of time, and might be a project I continue in the future.

Discussion.

In creating this ethnobotanical herbarium collection to represent my partial *mental herbal*, I realized that if I would truly like to take this project in the direction I most want, it will take me years. And many herbarium samples, and many written pages. It may start to resemble a book. However, if that will happen, this experience has been essential to refining my direction and methods. I found that working with pressed samples is a tedious experience, particularly when stitching them to herbarium paper. The end product certainly has an aesthetic feel, but on a larger scale a faster method would be critical. Moreover, the field guide resources used for analysis are excellent texts, but using online sources would have expedited the endeavor. Lastly, using a GPS to mark exact location sites

would be ideal in the future. This data could then be used with ARC GIS or a comparable program to create maps with greater cohesion.

Considering my limited *mental herbal* represented in this project, patterns that arose should be seen as initial findings only. In working with my samples, there were categories to my ethnobotanical relationships that reoccurred. This included plants for nourishment, medicine, aromatic plants, and esoteric connection based on experience. Conclusions are difficult to draw as information gathered is not abundant, and I feel like the study has just begun. What I can extrapolate is that I have strong preferences about locations, as certain sites were frequented more than the others—Pine Barrens and Big Bay Park for example. Furthermore, I have a fairly intensive relationship with these species, as I have had notable experiences with the plants and the landscapes they grow within. My ten samples mostly consist of plants that are ingestible, and I think this visceral interaction does connect me to certain ecosystems. There is reciprocation at work—I come along as a disturbance and will hopefully spread seeds, and the plant provides me with an important morsel for my body. For these reasons, my ethno-ecological homeostasis appears to be moderate. Moreover, I think the broader nested human communities in which I live maintain a moderate to high ethno-ecological homeostasis as well. This is evident by the numerous field guides I employed in analyzing my specimens. The collection of texts are well-rounded, from natural resources specific, to Native American perspectives, to foraging in surrounding ecological communities. In that these resources are available to this region alludes to high levels of ethno-ecological homeostasis.

On the whole, I consider the outcome of this project a success—several facets of it exceeded my own expectations, but there were also obstacles along the way. My intention for this project was loftier than I had realized. I did not fully anticipate the level of analysis I would want to take the project to. Still, I have strong interest in continuing this type of ethnographic research. Ideally, two kinds of samples of participants within a community could be interviewed at length to catalogue *mental herbals*. The first would be individuals within the group that self-identify as having a strong grasp on botanical knowledge. However, this would only provide information for one end of the spectrum. The second, perhaps more accurate method, would involve a representative sample of individuals in a community. Both options intrigue me, but the best opportunity for gathering novel information is probably the second study with the more diverse demographics and personalities likely to appear. Either study would be particularly viable if pursued at the graduate level.

Conclusion.

Ultimately, different knowledge sources all have much to offer within their own contexts, and through integration and sharing between communities. This is well accepted in academia. However, there persists a fractured awareness of the tendency for IEKs to be objectified, often leading to a utilitarian usage of information. Additionally, this usually means that as WTSK enjoys a further expansion of its knowledge system to benefit its members, IEK groups rarely experience adequate benefits from the West in return. The niche then that I recognize—and am attempting to contribute to—stems precisely from this

inequality and the need for relativism as knowledge systems meld. It will enable us to better understand each other as people, and will provide a more adaptive approach to facing environmental shifts of the future. I will close with a quote from a 2014 article titled *Toward increased engagement between academic and indigenous community partners in ecological research*.¹⁸

Academic ecological research questions are founded on established theory and relevant literature and pursued by empirical or experimental methods. In contrast, indigenous approaches are contextualized by local and traditional knowledge of biodiversity and sustainable resource management as part of complex social-ecological systems. Although ample attention has been given to these differences, few studies explore establishing productive relationships that bridge these different knowledge systems and/or knowledge holders.

Acknowledgements.

The late James E. (Jim) Meeker. Charles Wiggins. John Ruff. Greta, from Kuthai. Nan Love. Sarah Johnson. David Saetre. Erica Hannickel. Matt O’Laughlin. Jon Martin. Jim Pete. Clayton Russell. Robin Wall Kimmerer. Greg Weiss. Northland College. Round River Conservation Studies. Jules Dim. Rose Spieler-Sandberg. Anne Noel. Anna Trickey. Blake Romenesko. Ashley Coenen. Bob Frankenberg. The greater Weyers family. The greater Chequamegon Bay community of human and more-than-human beings.

¹⁸ “Moreover, indigenous communities have often not been included in the research process adequately. Instead, communities have often been regarded only as a source of local knowledge for the sake of extraction and integration into research design or resource management. Ultimately, such research outcomes serve the state or researchers rather than local or traditional knowledge holders (Adams, 2014).”

Works Cited.

- Abram, D. (2001, November-December). Awakening What's Wild Within Us: The fate of the earth depends on a return to our senses. *UTNE Reader* , 59-62.
- Adams, M. S., Carpenter, J., Housty, J. A., Neasloss, D., Paquet, P. C., Service, C., et al. (2014). Toward increased engagement between academic and indigenous community partners in ecological research. *Ecology and Society* , 19 (3).
- Basso, K. H. (1996). *Wisdom Sits in Places: Landscape and language among the Western Apache*. Albuquerque, New Mexico: University of New Mexico Press.
- Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of Traditional Ecological Knowledge as Adaptive Management. *Ecological Applications* , 10 (5), 1251-1262.
- Densmore, F. (1974). *How Indians Use Wild Plants for Food, Medicine & Crafts*. Toronto, Ontario: Dover Publications, Inc.
- Houde, N. (2007). The Six Faces of Traditional Ecological Knowledge: Challenges and Opportunities for Canadian Co-Management Arrangements. *Ecology and Society* , 12 (2).
- Kimmerer, R. W. (2013). *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and The Teachings of Plants*. Milkweed Editions.
- Kolodziejska-Degorska, I. (2012). Mental Herbals - A context-sensitive way of looking at local ethnobotanical knowledge: examples from Bukovina (Romania). *Trames* , 16 (66/61), pp. 287-301.
- Meeker, J. E., Elias, J. E., & Heim, J. A. (1993). *Plants Used By The Great Lakes Ojibwa: Abridged Version*. Odanah, Wisconsin: Great Lakes Indian Fish and Wildlife Commission.
- Menzies, C. R., & Butler, C. *Traditional Ecological Knowledge and Natural Resource Management*. (C. R. Menzies, Ed.) Nebraska: University of Nebraska Press.
- von Heland, J., & Sorlin, S. (2012). Works of Doubt and Leaps of Faith: An Augustinian Challenge to Planetary Resilience. *JSRNC* , 6 (2), 151-175.