

Christine Heller's Legacy and the Potential for Integration of



Traditional Knowledge Labels

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Abstract

Christine A. Heller (1907-1989) was a nutritionist, author, and botanist whose work in the 1960s-1970s had a lasting impact on Alaska's botanical and cultural landscapes. Her research focused on the nutritional and medicinal qualities of native plants, making important contributions to the understanding of Alaska's wild flora and its role in human health. Heller's work is particularly relevant to contemporary discussions on subsistence living, the health of Alaskan communities, and the integration of Indigenous knowledge into memory institutions, which emphasize the interconnectedness of human well-being, ecological sustainability, and cultural knowledge. In honoring Heller's legacy it is important to recognize that her research, while valuable, was conducted at a time when Indigenous knowledge systems were not widely respected or acknowledged as legitimate forms of science. The historical lack of protection for Indigenous cultural practices and knowledge has perpetuated the belief that Indigenous communities are incapable of making autonomous decisions regarding their development. This colonial mindset has contributed to the treatment of Indigenous heritage and knowledge as artifacts of the past, rather than as thriving, evolving systems that remain vital within the communities that steward them. One emerging solution to this challenge is the implementation of TK Labels, which seek to safeguard Indigenous knowledge and provide guidelines for its ethical use in knowledge institutions such as museums, archives, and botanical collections.

Heller's Education and Background

Christine Heller attended Cornell University earning a B.S., an M.S. in 1937, and a Ph.D. in Nutrition with a minor in Botany in 1952. She worked as a nutritionist in NM and CA before relocating to Juneau, AK in 1945. From 1956-1965, she conducted extensive research on Native Alaskan foodways, traveling to communities such as Allakaket, Huslia, Point Hope, Noatak, Shishmaref, and Newtok (Valentine 2023).

Juneau Botanical Club

Heller was a part of the Juneau Botanical Club and amassed over 5,000 specimens. Her frequent travel across Alaska for her work as a nutritionist expanded the club's collection. In 1949, she embarked on a five-week expedition with club members Amy Rude, Lucille Stonehouse, and Maxcine Williams, collecting over 1,100 specimens. Heller's interest in subsistence practices added an ethnobotanical perspective to the herbarium. Over 500 of her collections reside at the UA Museum in Fairbanks and 19 are located in the Smithsonian herbarium. Heller's work remains vital to AK's botanical and ethnobotanical history (Swedell, 1999).

Heller's Published Works

Heller book, *Wild, Edible, and Poisonous Plants of Alaska* (1953), was a comprehensive guide to the AK's flora. She revised it in 1981, ensuring its continued relevance (Heller 1953, 1981; Swedell 1999). She then co-authored *Wildflowers of Alaska* (1966). Heller also contributed to nutritional studies in *The Alaska Dietary Survey* (1956–1961), co-authored with E.M. Scott, which examined the role of traditional foods in nutrition (Heller, Scott, 1967).



Photographs from "Scrapbook 1" taken by Maxine M. Williams, 1965-1970 showcasing C. Heller and colleagues from the Juneau Botanical Club collecting in the field throughout Alaska (Alaska Digital Archives, identifier ASL-P121-3-1). (A) C. Heller shown pointing from Eagle Summit. (B) *Claytonia tuberosa* specimen with ethnobotanical notes on the edible tubers of spring beauty. (C) Photographing *Mertensia paniculata* in the field. (D) Heller together with colleagues. From left to right, Lucile Stonehouse, Amy Rude, Christine Heller, Maxcine Williams. (E) Distribution map of Heller's collections as of November 2024 archived at the Herbarium, UA Museum of the North. (F) *Taraxacum* specimen with ethnobotanical notes on the nutritional value of dandelions. (G) *Heracleum lanatum* specimen with ethnobotanical notes on the edible portion of cow parsnip. (H) Examples of Traditional Knowledge Labels used for the digital Passamaquoddy Ancestral Voices curation via the Library of Congress.

TK and BC Labels

Traditional Knowledge (TK) is a culture dependent way of understanding and interacting with the environment and ecological systems. Western Modern Science (WMS) has historically misinterpreted this, stripping it of cultural context and applying colonial perspectives. A lack of protection for Indigenous cultural practices has perpetuated the belief that Indigenous people are incapable of autonomous development, treating their knowledge as static and from the past rather than as living systems (Reijerkerk 2020). Often, Indigenous contributions have been misattributed or erased, and Western intellectual property frameworks have complicated ethical attribution (Anderson & Christen 2019). One solution is TK and Biocultural (BC) Labels, developed Local Contexts (founded in 2010 by Jane Anderson, Kim Christen, and Alexander Hage) ("Labels"). TK and Labels apply to materials such as cultural artifacts, specimens, and media. BC Labels govern genetic and scientific information in fields like genomics, biodiversity research, and, by extension, botany. BC Labels emerged in response to concerns about the misuse of Indigenous resources in research, allowing Indigenous communities to establish governance over their genetic data (Liggins et al. 2021). These labels are a tool for communities to articulate cultural and ethical conditions regarding how their knowledge is accessed, shared, and represented. ("Labels").

Museum and Archival Research

- UA Museum of the North (Fairbanks, AK)
- UAA Archives (Anchorage, AK)
- Library of Congress (Washington, DC.)
- Smithsonian Institution Library (Washington, DC.)
- Upcoming: Alaska State Archives (Juneau, AK)

Impact on Alaska's Botanical and Cultural Landscape and Labels in an Alaskan Botanical Context

Apart from Heller's contribution to understanding Alaska's food sources, her work also shows the need for ethical engagement with Traditional knowledge. Conducted during a time when Indigenous contributions were often overlooked, her documentation lacks cultural context and community specificity. This raises the question: **How can historical botanical research, such as Heller's, be revisited and respectfully integrated into Indigenous knowledge systems and memory institutions today?** One solution is the implementation of TK or BC Labels, a framework developed by the organization Local Contexts. These enable Indigenous communities to reclaim authority over their cultural and scientific heritage. Applying Labels to Heller's work could allow Alaska Native communities to add or correct information in her records, so that plants are understood not just for their nutritional or medicinal value, but also for their cultural significance. Ethnobotanical collections often contain plant materials collected from a WMS perspective, without input from historical Indigenous stewards. An herbarium sheet may document a plant's scientific traits while omitting cultural protocols such as seasonal restrictions, ceremonial roles, or gender-specific knowledge. This has led to ethical dilemmas, particularly when knowledge has been used commercially without Indigenous consent (Anderson & Christen 2013). Archives frequently attribute knowledge to Western scientists, ignoring the fact that Indigenous communities have cultivated and shared it for generations (Anderson & Christen 2019). Labels address this issue by providing a pathway for institutions to acknowledge Indigenous governance, ensuring it is not misappropriated (Anderson & Francis 2021). However, implementation in Alaska presents challenges. Local Contexts requires a subscription fee, which may be a barrier for smaller institutions. Extensive collaboration is also needed to determine whether Alaska Native communities find the initiative pertinent; communities may choose not to use Labels, regardless of institutional interest. Institutions may need to rethink attribution models and metadata systems grounded in Western legal frameworks. Implementing Labels also requires education, planning, and labor, which may be limited by funding or experience. Despite these challenges, the benefits are significant. TK Labels restore agency to Indigenous knowledge holders and ensure that plant knowledge is preserved within proper cultural context. Future research should prioritize working with Alaska Native communities to explore culturally and financially sustainable ways of safeguarding Indigenous ethnobotanical knowledge.

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