

Supporting respectful cross-cultural relationships for the sharing of traditional Indigenous ecological research with plant sciences: a new step for *Botany*¹

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For millennia, First Nations have been living on this land called Turtle Island. They lived and thrived on this land and continue to do so where colonialism has not interfered with their sacred relationships to the land and water, through a world view that supports a deep understanding of its ecology and how to use the various elements that make up these ecosystems. Through their understanding of the interconnectedness of all life, they develop and maintain their knowledge, cultural practices, and languages that are appropriate for their communities living within the limits of these ecosystems and climate conditions.

Plants have been an essential part of the ecosystem for human survival, not only in terms of food but also shelter, medicines, and including emotional and spiritual well-being through respectful relationships. Many cultural practices and ceremonies are centred on the knowing of the ecology and empathetic, spiritual, ecological, and material relationships of these plants. Such Traditional Knowledge was passed from one generation to the next...until the arrival of the Europeans.

With colonization and for a long time with the introduction of the Western culture that was forced on this land through assimilation, many Indigenous communities and their Traditional Knowledge and languages as well as other iterations of Indigenous cultures have been marginalized and even forbidden to be practiced. The darkest period in attempting to assimilate Indigenous Peoples was most likely the era of the residential school, in which children were forced to forget their traditions and learn the Western culture and language.

In 2015, the Truth and Reconciliation Commission (TRC) report Calls to Action was released. This was a major step in Canada to acknowledge the wrongdoings of the past (and even the present) and injustice done to Indigenous Peoples. One of the important contributions of the TRC has been to initiate the process to increase/improve the education of all Canadians. This includes relationship building, the sharing of British Common Law and Indigenous legal systems based on natural law at the Treaty of Niagara in 1764, and assisting Canadians in understanding the past and current injustices being imposed on the Indigenous Peoples in the land we call Canada. This is stated formally in TRC Principle 8:

Supporting Aboriginal peoples' cultural revitalization and integrating Indigenous knowledge systems, oral histories, laws, protocols, and connections to the land into the reconciliation process are essential.

Another aspect essential for reconciliation is the urgency to ensure that Traditional Knowledge and cultural practices are supported and not further undermined. Indigenous Peoples have been working very hard to protect the legacy of their ancestors. There is a role for researchers to support and learn from them in a respectful way as they chart their path to reclaim their culture and preserve languages and knowledge for the continuation of all life. Combining scientific data with Traditional Knowledge can be powerful to demonstrate the importance of species and ecosystem conservation efforts as well as cultural practices that are connected to these elements. The "two-eyed seeing" guiding principle suggested by Mi'kmaw Elder Albert Marshall can be a posi-

Received 15 March 2019. Accepted 16 March 2019.

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*Liette Vasseur currently serves as an Associate Editor; peer review and editorial decisions regarding this manuscript were handled by Christian Lacroix.

[†]This paper is one of two companion papers published in this issue of *Botany* (Cuerrier et al. 2019. *Botany*. This issue. [dx.doi.org/10.1139/cjb-2018-0195](https://doi.org/10.1139/cjb-2018-0195)).

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tive step to further understanding how to work with the culturally diverse Indigenous communities of the land we call Canada (<http://www.integrativescience.ca/Principles/TwoEyedSeeing/>). But this is also applicable across the world as underlined within the Aichi Target 18 of the Convention on Biological Diversity (<https://www.cbd.int/sp/targets/rationale/target-18/>), with the goal that by 2020, indigenous knowledge, innovations, and practices are respected and integrated in natural resource management and production of knowledge for conservation. New Zealand scientists, for instance, have also embarked on this path by applying Māori indigenous knowledge in science and even in some journals, encouraging the publication of abstracts in Māori (Mariotte 2018). In Nigeria, Abdullahi et al. (2013) report that for ecologists, traditional knowledge can improve research as well as ecosystem management and therefore underline the importance of their connection.

Botany is pleased to open its doors to ensure that knowledge about plants and their sciences in all forms can be preserved, not only science as usually defined but including Traditional Knowledge. This means that the journal will accept manuscripts written by Indigenous Traditional Knowledge keepers working on these aspects to ensure the protection of Traditional Knowledge with/for/by Indigenous Peoples. As usual, not all manuscripts will automatically be published as *Botany* remains a peer-reviewed journal. Submitted manuscripts examining Indigenous knowledge or languages will have to demonstrate that the research was ethically conducted with respect of Indigenous Peoples. The papers will have to follow these principles: (i) research has received appropriate Indigenous Research Ethics approval, (ii) true and open consent was a priori sought before the start of the research, and (iii) data were returned to the People where they belong for the protection and preservation of their Indigenous knowledge. Ideally, as most research may

have been done in close partnership with Indigenous Peoples, they should be or at least asked whether they want to be part of the authorship. They have the full right to be acknowledged as the keepers of the knowledge. Such questions will be asked of researchers wishing to publish Indigenous knowledge. It is also important that Indigenous knowledge keepers become part of this peer-review process or Two-Eyed Seeing will have a dominant eye! This means that manuscripts should be first presented for review where the data belong.

Through this effort, *Botany* acknowledges the importance to move forward with the Principles and Calls to Action of the TRC and the International Year of Indigenous Languages. The two-eyed seeing principle is a good way to start sharing and protecting all knowledges that have been accumulated over millennia in the world. It also means that we not only invite manuscripts to be submitted but also invite people who have experience with peer review of publications with Indigenous knowledge to ensure that the basic principles enunciated above are respected.

Language is the gateway to culture, and to understand culture, we must embrace the language. To create a place in science for people who identify as indigenous to a country, “cultural safety” is a key concern, and this means creating a place for traditional knowledge and understanding to be heard.

(Mariotte 2018)

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