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# Metadata Practices for Canadian Cultural Landscapes

**Bockus-Vanin, Alycia**[1]

[1]*School of Library and Information Studies, University of Alberta, bockusva@ualberta.ca*

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## Abstract

Cultural landscapes are complex, diverse heritage resources that are necessarily localized. This literature review explores what metadata practices are most useful to users of cultural landscapes in Canada, recognizing that as a nation it represents many diverse geographies, landscapes and cultures. During the review, several themes emerged, identifying qualities that metadata should be designed to support to enhance access to cultural landscapes. The themes emphasize localization, flexibility, interoperability, and the ability to collaborate with users in describing and making these resources more broadly accessible.

*Keywords*: metadata, metadata practices, Canadian cultural landscapes, cultural heritage, tangible cultural heritage, intangible cultural heritage

Cultural landscapes are unique and complex embodiments of both tangible and intangible cultural heritage. In their UNESCO handbook, Mitchell et al. (2009) define cultural landscapes as "those where human interaction with natural systems has, over a long period, formed a distinctive landscape. These interactions arise from, and cause, cultural values to develop." In Canada, three cultural landscapes are currently recognized by UNSECO: the Landscape of Grand Pré, Pimachiowin Aki, and Writing-on-Stone / Áísínai'pi (UNESCO World Heritage Centre, 2023). However, many other cultural landscapes exist outside of this formal recognition, located across the country.

By their very nature cultural landscapes are tied to a specific place. They are immovable, though constantly changing. This combined immovability and changeability

creates unique challenges for cultural heritage institutions (CHIs) tasked with preserving, interpreting, and supporting their use. While CHIs connected to cultural landscapes do not house them the way they might a smaller resource, many do include aspects of cultural landscapes in their collections, catalogues, and online presences. Relationships to CHIs can also support preservation, restoration, and a greater understanding of how landscapes change over time, both seasonally and over longer periods (Wijesundara et al., 2015). Further, CHI collections can support place- and land-based teaching and learning by collecting and sharing information about and interpretations of these resources.

Users may not be able to visit cultural landscapes in person for a variety of reasons. For example, users may lack the resources to visit from afar or the building of a dam may render a landscape inaccessible either temporarily or permanently over a human timescale. CHIs can support access despite these barriers, and, in turn, metadata can support organizations in this role. When information related to cultural landscapes is made available online, they become accessible to a broader range of users for a broader range of purposes.

While including cultural landscapes in CHI collections presents many opportunities, there are also challenges. Resources must be discoverable to be useful, and quality metadata is key to improving discoverability. Reflecting something as complex as a landscape in metadata is not simple or straightforward. Librarians and other information and heritage professionals have a role to play in ensuring metadata schemas, applications, and technology are deployed to the greatest benefit in making these resources available to users and doing so in a way that is appropriate and culturally responsive.

This literature review explores what metadata practices are most useful to users of cultural landscapes in Canada, recognizing that as a nation it represents many diverse geographies, landscapes, and cultures. Several themes emerged, identifying qualities that metadata should support to enhance access to cultural landscapes. These themes emphasize localization, flexibility, interoperability, and the ability to collaborate with users in describing and making these resources more broadly accessible.

## Definitions

**Cultural heritage institutions (CHIs):** This review takes a broad view of cultural heritage institutions including any organization with a defined purpose of providing information or resources related to cultural heritage. This may include libraries, museums, or archives but also local history, "Friends of" societies, cultural organizations, or other organized groups which make information about cultural heritage resources available, even if they do not have a collections mandate.

**Cultural landscape**: In their UNESCO handbook, Mitchell et al. (2009) define cultural landscapes as "those where human interaction with natural systems has, over a long period, formed a distinctive landscape. These interactions arise from, and cause, cultural values to develop" (p. 5).

**Metadata**: Woodley (2005) defines metadata as "'data about data;' functionally, 'structured data about data.' Metadata includes data associated with either an information system or an information object for purposes of description, administration, legal requirements, technical functionality, use and usage, and preservation."

**Land-based learning:** Cherpako (2019) provides a useful definition of Land-based learning that helps to distinguish it from place-based learning: "Land-based learning typically uses an Indigenized and environmentally-focused approach to education by first recognizing the deep, physical, mental, and spiritual connection to the land that is part of Indigenous cultures" (p.3).

**Place-based learning:** In contrast to land-based learning, place-based learning is an "education approach that draws on local history, culture, economics, environment, and circumstances as a curriculum source, sometimes with the explicit goal of connecting students to their community and thereby promoting citizenship, entrepreneurship, community sustainability, or environmental stewardship" (Institution of Education Sciences, 2003).

## Themes

### Metadata must support different types of users and information-seeking behaviours.

A wide variety of users engage with cultural landscapes. This includes community members, academic researchers, and members of the public who may or may not have an existing relationship to the landscape. CHIs may hold information that is useful to these varied users, but only if they can find and understand it. Different types of users engage in different information-seeking behaviours; Hu et al. (2018) demonstrate the importance of taking a user-centered approach to understanding the needs and behaviours of *all* potential users of a metadata schema applied to immovable cultural heritage. While the murals and stone cave temples discussed by Hu et al. are different from Canadian cultural landscapes, their approach to understanding varied user groups and how to meet their needs is broadly applicable.

In proposing their metadata model Cultural Heritage in Digital Environment (CHDE), Wijesundara and Sugimoto (2018) likewise note the importance of identifying and addressing varied user needs. Their model proposes gathering additional contextual information from external sources to ensure users have the information they require (Wijesundara & Sugimoto, 2018). Cultural heritage resources related to landscapes may be held in other institutions, some of which may be in geographically diverse locations (Wijesundara & Sugimoto, 2018).

This is certainly the case for Canadian cultural landscapes where related resources may be held not just by CHIs in close geographical proximity, but also in dispersed holdings such as the Canadian Museum of History in Ottawa or the British Museum in the United Kingdom. Since not all users begin their search within a CHI's catalogue, looking for opportunities to increase interoperability with other platforms (e.g. search engines) is also important for supporting a wide range of users and information-seeking behaviours.

The ability to connect these diverse holdings is likely to be of value to all types of users by reducing the number of unique institutions they need to engage with, some of

which may be unknown to them as they begin their search. This is in line with what Jai O'Dell (2016) identifies as best practices for Linked Open Data. That is ensuring both that information on holdings can be found outside of an institution, and that users are connected to information from external sources.

In addition to different information-seeking behaviours, different user communities may use different terminology when discussing cultural landscapes (Godby, 2016). Metadata practices related to cultural landscapes need to accommodate this range of terminology, as well as the fact that terminology can change over time. Controlled vocabularies support categorization, discoverability, interoperability, and linked data initiatives. However, the range and fluidity in terminology required by cultural landscapes makes implementation challenging.

In an attempt to resolve this issue Stahmer (2016) outlines a process for controlling vocabularies through first peer- and then expert-review by librarians. While apparently effective, this process may be too complex and resource-intensive for many smaller institutions to easily implement. In another approach, Godby (2016) instead highlights the social nature of words, emphasizing that multiple vocabularies are often needed: those for broad use by the public, and more complex, specific terms for specialized users. Both Stahmer and Godby's approaches reinforce the need for consultation and ongoing relationships with user communities to ensure terminology reflects current and changing language use.

## Metadata must be interoperable because there is no one-size-fits-all schema for cultural landscapes.

One of the challenges of applying metadata to cultural heritage resources is that there is no one-size-fits-all schema that applies universally; there is simply too much variation in the types of resources and the unique needs of user communities. This is also a strength; this diversity resists the harmful effects of globalization and what Johnson (2010) describes as its "gray uniformity" (p. 829). Diversity in schemas allows communities to adapt their use to support unique, local needs instead of trying to impose a uniform structure that may obscure or omit crucial elements or, in the worst cases, perpetuate harms to user communities.

Agathos and Kapidakis (2011) found a range of metadata in just one type of cultural heritage resource (immovable monuments) in one geographic region (Greece). Their study, as well as Von Seggern et al. (2010)'s examination of digital collections, highlight that complex resources benefit from a combination of schemas and vocabularies. As a practical example, Ingram-Monteiro and McKernan (2022) demonstrate using a combination of controlled vocabularies and user-defined fields in their Omeka S-based repository to balance browsability between multiple disciplines and ways of knowing.

While evidently successful in individual instances, this variation poses challenges for interoperability between schemas, a significant component of broader discoverability. Instead of trying to implement a single schema, scholars emphasize that a better approach is to develop methods and tools such as crosswalks and switching mechanisms to support both discoverability and localization (Agathos & Kapidakis, 2011; Von Seggern et al., 2010). Crosswalking is the process of mapping metadata elements from one schema onto another, aiding in interoperability by assisting both users and creators in understanding the equivalence relationships between schema (Joudrey & Taylor, 2018; Mortimer, 2007). Where more than two schemas are involved a "switching" mechanism may be more useful. Instead of creating multiple crosswalks across the individual schemas, this process creates a new schema that acts as an intermediary between the diverse sets of elements (Agathos & Kapidakis, 2011).

Beyond the level of a schema, RDF is a popular metadata model for connecting cultural resources with users because of the flexibility of its entity-relationship model and triples format. Thorsen and Pattuelli (2016) provide several examples of large cultural institutions that have explored converting their metadata into RDF triples, including Europeana and the Smithsonian Museum of American Art. The popularity and widespread deployment of RDF makes a compelling argument for its adoption by institutions, laying the foundation for linked data sharing.

Building on that, Wijesundara and Sugimoto (2018)'s CHDE model can be expressed in RDF and accommodates both tangible and intangible cultural heritage, aggregating metadata from various sources into curated digital instances. As they encompass both tangible and intangible heritage, cultural landscapes would benefit

from the CHDE model as it allows the same model to be deployed for both. However, a review of the literature does not reflect any applications of CHDE to Canadian cultural landscapes or at Canadian CHIs at this time.

## Metadata must accommodate changes in cultural landscapes.

Landscapes are not static. They change due to natural processes like the changing of the seasons, erosion, earthquakes, floods, or fires. They also change due to human action, such as the building of a dam or mine. These acts do not destroy cultural landscapes but transform them and the human relationships that make them significant. These changes may be reflected in tangible materials included in historical collections such as drawings, maps, photographs, or satellite images. They may also be captured in intangible ways, such as oral histories or within the landscape itself (Gagnon et al., 2021; Johnson, 2010).

Cultural resources and the metadata that describe them are not static either. A common example is changes to place names, or variations in names in different languages or communities. As Barbuti (2021) explains, metadata become digital artifacts in and of themselves as time passes and relationships and descriptors shift in response. To better reflect this, Barbuti proposes expanding the “Reusable” in the FAIR Guiding Principles (GO FAIR) into $R^4$: Reusable, Relevant, Reliable and Resilient. By acknowledging that metadata will form part of the cultural resource’s story as it is told over time, organizations are better positioned to ensure metadata captures changes both in landscapes and how users and stewards relate to them past, present, and future.

## Metadata must support different ways of knowing.

As Wijesundara et al. (2015) emphasize, it is important for CHIs to capture both tangible and intangible aspects of cultural heritage. Metadata schemas must therefore be able to support the use of both types of cultural heritage to meet the needs of a range of users. This can be challenging as communities may envision time, history, memory and/or personhood in diverse ways (Dobreski & Kwasnik, 2021). Metadata creators and users must recognize the worldviews embedded in the models and

schemas they implement and the types of searching, learning, and knowing that they support – as well as those they do not.

In their case study of the Uamashkatan portage trail in Quebec, Gagnon et al. (2021) highlight the complexity of trying to capture, understand, and express the cultural relevance of a landscape throughout time, in the face of significant changes to the landscape itself (including rendering some areas inaccessible), and across different cultures and understandings of what is meant by history and memory. For some communities, the landscape itself is an archive, a place where knowledge and memories are held and created (Gagnon et al., 2021; Johnson, 2010).

From this perspective, the inclusion of a cultural landscape in a CHI's holdings becomes a relationship *between* archives as collections of knowledge and resources, not simply a relationship between archives (as institutions) and resources in their possession. This shift may impact how resources are collected, described, displayed, and otherwise stewarded.

## Metadata must support user contributions.

Engaging with users and including user input is a significant practice by which resources can be made more discoverable as well as supporting other ways of learning and knowing. This can take many forms, such as the inclusion of user tags or more structured fields like user-informed controlled vocabularies. Ingram-Monteiro and McKernan (2022) describe how their institution worked with users to create a repository to support place- and land-based teaching and learning on the Omeka S platform but emphasize that tools like Local Contexts' Traditional Knowledge labels must be used alongside more meaningful relationship-building.

Von Seggern et al. (2010) also highlight the involvement of users and communities in their discussion of how place-based digital collections attempt to convey a "sense of place." Their review of digital collections demonstrates that many organizations – and users – are already engaging in the essential work of making the various essential elements of cultural landscapes available online, a process supported by metadata. Metadata fields and CHI platforms must be able to engage with community members to support the shared goal of varied and meaningful engagement with cultural landscapes.

## Conclusion

To date, the literature reflects little research on user metadata preferences and needs as they relate specifically to Canadian cultural landscapes. Canadian cultural heritage institutions can build on their community connections to understand how their users are seeking information about cultural landscapes (and why, when, from where, etc.). They are also well-positioned to explore how users can become involved in metadata creation and management. Work by Farnel et al. (2017) and communities in the North to develop a metadata framework provides an example of how these collaborations can take shape.

A review of literature does not support attempting to meet user needs by adhering to or enforcing a single metadata schema. Instead, interoperability is emphasized as a key component of ensuring resources are broadly discoverable. This may be particularly relevant in the Canadian context where resources may be distributed over a wide geographic area. Further research could establish if there are common elements or vocabularies to employ at a national or regional level, or other ways of promoting searchability and interoperability.

Given the significance of localized community use for this type of resource, the lack of Canadian-focused literature represents an opportunity for further research. While the findings from other countries are informative, they cannot be relied on to formulate best practices or guidelines in the Canadian context. Further research and community involvement could contribute to more practical guidelines for Canadian cultural heritage institutions involved in stewarding these important, complex resources.

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