

[Implementing Ecological Metadata Language in a Cross-Disciplinary Environmental Monitoring Database \[1\]](#)

Submitted by jimduncan4 on Fri, 2014-12-19 10:37 **Event:** [Winter Meeting 2015](#) [2]

Abstract:

The [Vermont Monitoring Cooperative](#) [3], a collaboration of the University of Vermont's Rubenstein School of Environment and Natural Resources, the US Forest Service and the Vermont Agency of Natural Resources, has been collecting and federating a range of data about Vermont's forested ecosystems since the early 1990s. As part of its central mission, the VMC maintains a database ranging from near-real-time air-borne mercury sampling to avian demographic surveys to forest health measurements to long-term soil monitoring data, among others. In addition to the data, a documentation system developed over the years has driven a website to expose metadata and, in most cases, data downloads, but a need for more standardization in this metadata documentation led to the implementation of [Ecological Metadata Language \(EML\)](#) [4]. EML was developed for use in the ecological sciences, necessitating a fairly flexible standard to deal with the wide range of potential datasets, and is the standard employed by the Long-Term Ecological Research Network in the United States. This poster describes the process of upgrading VMC's data documentation to EML, the gains realized in delivering discoverable data via VMC's metadata-driven website, future plans for federation to other catalogs, and the resulting status of the VMC database and website, which can be used to discover millions of records of ecological monitoring information in the state.

Implementing Ecological Metadata Language in a cross-disciplinary environmental monitoring database
James Duncan
Vermont Monitoring Cooperative and University of Vermont Rubenstein School of Environment and Natural Resources

A Need for Better Metadata
The Vermont Monitoring Cooperative (VMC) has been collecting, archiving, and documenting data about Vermont's forested ecosystems since the early 1990s. As part of its central mission, the VMC maintains a database ranging from near-real-time air-borne mercury sampling to avian demographic surveys to forest health measurements to long-term soil monitoring data, among others. In addition to the data, a documentation system developed over the years has driven a website to expose metadata and, in most cases, data downloads, but a need for more standardization in this metadata documentation led to the implementation of Ecological Metadata Language (EML) [4]. EML was developed for use in the ecological sciences, necessitating a fairly flexible standard to deal with the wide range of potential datasets, and is the standard employed by the Long-Term Ecological Research Network in the United States. This poster describes the process of upgrading VMC's data documentation to EML, the gains realized in delivering discoverable data via VMC's metadata-driven website, future plans for federation to other catalogs, and the resulting status of the VMC database and website, which can be used to discover millions of records of ecological monitoring information in the state.

Ecological Metadata Language in the VMC Database
The Vermont Monitoring Cooperative (VMC) has been collecting, archiving, and documenting data about Vermont's forested ecosystems since the early 1990s. As part of its central mission, the VMC maintains a database ranging from near-real-time air-borne mercury sampling to avian demographic surveys to forest health measurements to long-term soil monitoring data, among others. In addition to the data, a documentation system developed over the years has driven a website to expose metadata and, in most cases, data downloads, but a need for more standardization in this metadata documentation led to the implementation of Ecological Metadata Language (EML) [4]. EML was developed for use in the ecological sciences, necessitating a fairly flexible standard to deal with the wide range of potential datasets, and is the standard employed by the Long-Term Ecological Research Network in the United States. This poster describes the process of upgrading VMC's data documentation to EML, the gains realized in delivering discoverable data via VMC's metadata-driven website, future plans for federation to other catalogs, and the resulting status of the VMC database and website, which can be used to discover millions of records of ecological monitoring information in the state.

About the Ecological Metadata Language
EML is an XML-based metadata standard developed by the Ecological Metadata Language Working Group (EMLWG) in 2002. It is designed to be a simple and flexible standard for describing and documenting data in the ecological sciences. EML is based on the Dublin Core metadata standard and is designed to be a simple and flexible standard for describing and documenting data in the ecological sciences. EML is based on the Dublin Core metadata standard and is designed to be a simple and flexible standard for describing and documenting data in the ecological sciences.

Lessons Learned
Current structural problems in database early, and budget cuts for EMLWG members are one structure. Special case in database design for data sets to try to get an average. Metadata structure for web display - getting the average can take time and they're. Build a network for others and as soon as possible as they can help with transition.

Next Steps
With the transition to the new database structure of the new website, there are several key projects that VMC will have to leverage the implementation of EML. Continue refining metadata to increase the capacity of building with high-quality metadata at the temporal level of EML. Look for federation and progress through other catalogs, such as that maintained by the Science-Data-Service. For documentation around an existing data structure on the VMC site by learning metadata from other catalogs. Develop metadata web development and eventually make it to make more progress with access to EML data resources. Begin working on data standards and integrative content.

Further Information
James Duncan
Data and Web Coordinator
Vermont Monitoring Cooperative
101 North Main Street
Waterbury, VT 05671-0001
Phone: 802-241-5100
Email: james.duncan@uvm.edu
Knowledge Center for Ecological Analysis and Synthesis
www.kceas.org

Acknowledgments
The Vermont Monitoring Cooperative is grateful to the following individuals for their contributions to the development and implementation of the VMC database and website: [List of names]

References
Duncan, J. B., et al. (2014). Implementing Ecological Metadata Language in a Cross-Disciplinary Environmental Monitoring Database. *Proceedings of the Ecological Metadata Language Working Group Meeting, 2014*.
Duncan, J. B., et al. (2013). Implementing Ecological Metadata Language in a Cross-Disciplinary Environmental Monitoring Database. *Proceedings of the Ecological Metadata Language Working Group Meeting, 2013*.
Duncan, J. B., et al. (2012). Implementing Ecological Metadata Language in a Cross-Disciplinary Environmental Monitoring Database. *Proceedings of the Ecological Metadata Language Working Group Meeting, 2012*.

Images:

[5]

Creative Common License: Creative Commons Attribution 3.0 License

Author(s):

Name: [James Duncan](#) [6]

Organization(s): [Vermont Monitoring Cooperative](#) [7]

Email: james.duncan@uvm.edu [8]

Keywords: [metadata](#) [9]
[documentation](#) [10]

[Ecological informatics](#) [11]

Source URL: <https://commons.esipfed.org/node/7750>

Links

[1] <https://commons.esipfed.org/node/7750>

[2] <https://commons.esipfed.org/2015WinterMeeting>

[3] <http://www.uvm.edu/vmc>

[4] <https://knb.ecoinformatics.org/#external//emlparser/docs/index.html>

[5] https://commons.esipfed.org/sites/default/files/2015_VMC_ESIP_poster.png

[6] <https://commons.esipfed.org/node/7749>

[7] <https://commons.esipfed.org/taxonomy/term/1480>

[8] <mailto:james.duncan@uvm.edu>

[9] <https://commons.esipfed.org/tags/metadata>

[10] <https://commons.esipfed.org/taxonomy/term/924>

[11] <https://commons.esipfed.org/taxonomy/term/1420>