Dublin Core to Ensure Interoperability between Models Generated by Tools of Species Distribution Modeling

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Keywords: species distribution modeling; connection between tools; biodiversity informatics; ecological Informatics.

Abstract

This poster presents the use of the Dublin Core for tools that make species distribution modeling. As a case study, this poster proposes the use of the Dublin Core for there to be a connection between the models generated by tools of species distribution, contributing to the area for biodiversity informatics.

1. Introduction

The area of scientific research called Biodiversity Informatics is a new area of research that has received much attention in recent years because their results and innovations assist in decision making for conservation and preservation of biodiversity. According to Peterson et al (2010) this area is "challenged to meet the demand for support to biodiversity conservation technology".

The species distribution modeling makes it possible to verify the changes in species distribution, changes in populations and their diversity for a given period. However, studies show that currently modeling species distribution has become more complex (Soberón, Nakamura, 2009). And equally modeling tools require improvements to the application of new techniques and modeling strategies (Peterson et al. 2011).

One of the requirements is to ensure data interoperability between modeling tools. Interoperability means the ability of information exchange through a metadata standard. In this context the Dublin Core could help being adopted as a standard of data between models generated by the modeling tools distribution of species.

2. Dublin Core and their use in species distribution modeling

Currently the main link between the modeling of species distribution and Dublin Core is that modeling tools access different database platforms that use the Dublin Core standard for publishing and standardization of information.

The use of metadata standards such as Dublin Core also assists in collecting biodiversity data process because the data becomes public and through standardization is possible that the data is available on various platforms.

At this stage, display and availability of data collected, this poster proposes the use of the Dublin Core is further explored and used between models generated by modeling tools distribution of species.

3. Application of Dublin Core for connection between models of species distribution

The current structure of species distribution modeling tools is that they generate independent models and may not be used or reused by other tools. This makes the researcher / user having to use more than one tool to reach your goal.

DCPAPERS

Proc. Int'l Conf. on Dublin Core and Metadata Applications 2014

The idea is that with the Dublin Core standard, other standards, and an ontology, it is possible to create a connection between the tools, ensuring interoperability between them, as we can see in Figure 1.
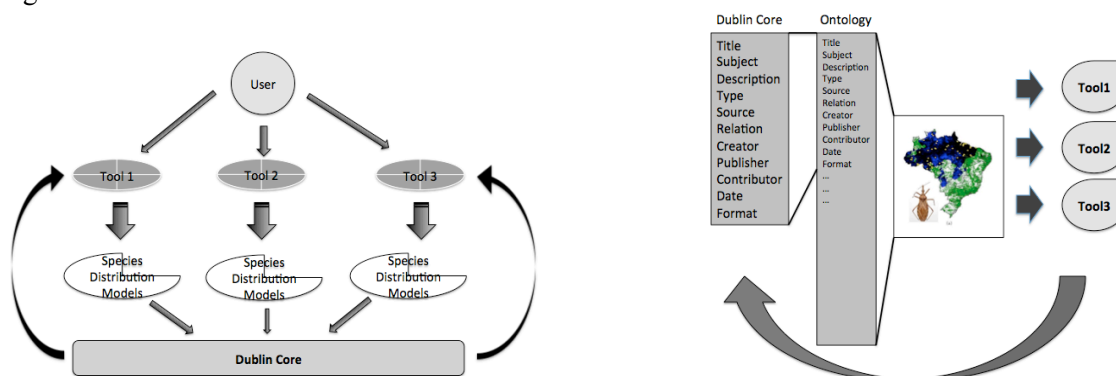

FIG. 1. Using Dublin Core for connection between modeling species distribution tools.

The proposed use of the Dublin Core standard for interoperability between models generated by tools of species distribution modeling is the use of the main elements of the Dublin Core. Every model generated must have a title, subject, description, type, source, relation, creator, publisher, contributor, date, format, etc.; this will ensure interoperability of basic information between the generated models. From this information an ontology with the main elements of the model should be a priority for the connection between modeling tools.

4. Conclusion

In conclusion of this part of the research it is possible to realize that the use of the Dublin Core can assist in the process to ensure interoperability between models generated by modeling tools distribution of species.

The Dublin Core standard has been one of the references regarding standardization for data availability and data visualization, and this would have a strong acceptance of the researchers for this standard is adopted as a party basis for a connection between modeling tools distribution species.

4.1. Future research

As future work, we suggest: creating an ontology based on the Dublin Core standard to ensure interoperability between tools; evaluation of the use of the Dublin Core in the tools and portals that help biodiversity conservation.

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