



A data management proposal to connect in a hierarchical way nodes of the Spanish Long Term Ecological Research (LTER) network

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The Long Term Ecological Research (LTER) network aims to provide the scientific community, policy makers, and society with the knowledge and predictive understanding necessary to conserve, protect, and manage the ecosystems. LTER is organized into networks ranging from the global to national scale. In the top of network, the International Long Term Ecological Research (ILTER) Network coordinates among ecological researchers and LTER research networks at local, regional and global scales.

In Spain, the Spanish Long Term Ecological Research (LTER-Spain) network was built to foster the collaboration and coordination between longest-lived ecological researchers and networks on a local scale. Currently composed by nine nodes, this network facilitates the data exchange, documentation and preservation encouraging the development of cross-disciplinary works.

However, most nodes have no specific information systems, tools or qualified personnel to manage their data for continued conservation and there are no harmonized methodologies for long-term monitoring protocols. Hence, the main challenge is to place the nodes in its correct position in the network, providing the best tools that allow them to manage their data autonomously and make it easier for them to access information and knowledge in the network.

This work proposes a connected structure composed by four LTER nodes located in southern Spain. The structure is built considering hierarchical approach: nodes that create information which is documented using metadata standards (such as Ecological Metadata Language, EML); and others nodes that gather metadata and information. We also take into account the capacity of each node to manage their own data and the premise that the data and metadata must be maintained where it is generated. The current state of the nodes is as follows: two of them have their own information management system (Sierra Nevada-Granada and Doñana Long-Term Socio-ecological Research Platform) and another has no infrastructure to maintain their data (The Arid Iberian South East LTSER Platform). The last one (Environmental Information Network of Andalusia-REDIAM) acts as the coordinator, providing physical and logical support to other nodes and also gathers and distributes the information “uphill” to the rest of the network (LTER Europe and ILTER).

The development of the network has been divided in three stages. First, existing resources and data management requirements are identified in each node. Second, the necessary software tools and interoperable standards to manage and exchange the data have been selected, installed and configured in each participant. Finally, once the network has been set up completely, it is expected to expand it all over Spain with new nodes and its connection to others LTER and similar networks. This research has been funded by ADAPTAMED (Protection of key ecosystem services by adaptive management of Climate Change endangered Mediterranean socioecosystems) Life EU project, Sierra Nevada Global Change Observatory (LTER-site) and eLTER (Integrated European Long Term Ecosystem & Socio-Ecological Research Infrastructure).