



Conference Abstract

When Data Management Meets Project Management

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Received: 12 Jun 2019 | Published: 19 Jun 2019

Citation: Meyke E (2019) When Data Management Meets Project Management. Biodiversity Information Science

and Standards 3: e37224. https://doi.org/10.3897/biss.3.37224

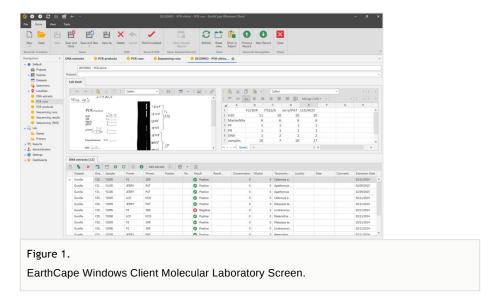
Abstract

Complex projects that collect, curate and analyse biodiversity data are often presented with the challenge of accommodating diverse data types, various curation and output workflows, and evolving project logistics that require rapid changes in the applications and data structures. At the same time, sustainability concerns and maintenance overheads pose a risk to the long term viability of such projects.

We advocate the use of flexible, multiplatform tools that adapt to operational, day-to-day challenges while providing a robust, cost efficient, and maintainable framework that serves the needs data collectors, managers and users.

EarthCape is a highly versatile platform for managing biodiversity research and collections data, associated molecular laboratory data (Fig. 1), multimedia, structured ecological surveys and monitoring schemes, and more. The platform includes a fully functional Windows client as well as a web application. The data are stored in the cloud or onpremises and can be accessed by users with various access and editing rights. Ease of customization (making changes to user interface and functionality) is critical for most environments that deal with operational research processes. For active researchers and curators, there is rarely time to wait for a cycle of development that follows a change or feature request. In EarthCape, most of the changes to the default setup can be implemented by the end users with minimum effort and require no programming skills.

2 Meyke E



High flexibility and a range of customisation options is complemented with mapping to <u>Dar win Core</u> standard and integration with <u>GBIF</u>, <u>Geolocate</u>, <u>Genbank</u>, and <u>Biodiversity Heritage Library</u> APIs. The system is currently used daily for rapid data entry, digitization and sample tracking, by such organisations as Imperial College, University of Cambridge, University of Helsinki, University of Oxford.

Being an operational data entry and retrieval tool, EarthCape sits at the bottom of Virtual Research Environments ecosystem. It is not a software or platform to build data repositories, but rather a very focused tool falling under "back office" software category. Routine label printing, laboratory notebook maintenance, rapid data entry set up, or any other of relatively loaded user interfaces make use of any industry standard relational database back end. This opens a wide scope for IT designers to implement desired integrations within their institutional infrastructure. APIs and developer access to core EarthCape libraries to build own applications and modules are under development.

Basic data visualisation (charts, pivots, dashboards), mapping (full featured desktop GIS module), data outputs (report and label designer) are tailored not only to research analyses, but also for managing logistics and communication when working on (data) papers. The presentation will focus on the software platform featuring most prominent use cases from two areas: ecological research (managing complex network data digitization project) and museum collections management (herbarium and insect collections).

Keywords

collection management, software, database, research data, molecular laboratory, GIS, mapping, species, taxonomy, labels, museum, natural history, ecology, data management

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Presented at

Biodiversity_Next 2019

Funding program

EarthCape is self sustainable providing consulting services and hosting/support based on a subscription model. In operation since 2011.

Author contributions

Evgeniy Meyke is a lead software developer of EarthCape and prepared the presentation