Introduction

Primate field research involves collecting and managing diverse kinds of data, including behavioral observations, digital media, morphometrics, climatological records, biological sample information, and qualitative notes, all of which are usually associated with key contextual information such as time or space. A key challenge is how to streamline and standardize collection and transfer of this information for analysis and use in comparative studies.

As part of the Ethoinformatics project, we are developing a framework of software tools and digital services designed to facilitate field data collection and subsequent management, analysis, archiving, and sharing of data. The framework builds on a standard vocabulary (EthoCore) and data model (EthoGrammar). Central to this framework is a customizable mobile application for collecting research data in real time that is designed to run on various platforms and to work even in field sites where wireless access is inconsistent.

Software Development Goal

A mobile app that . . .

- is built on open source and standard web technologies
- is configurable, modular, and allows for collection of multiple types of data
- runs on different mobile platforms and on older devices
- works offline or with an intermittent internet connection
- is flexible enough to support different existing data schemas
- complies with community-derived standards and is linked-data friendly

Design Principles

1. Customizable data structures
   - Information that goes together is packaged into user-defined documents made up of key/value pairs, where keys have well-defined relationships with EthoCore terms
   - Documents contain a unique global ID (a URI) and key metadata

2. Automated geotagging of documents

3. Flexible linking between documents

4. Preservation of document revisions

5. Development using open source tools

Example Screenshots

This app instance has a top-level data structure called a DIARY, one for each team member on a given date. Nested in each diary is another structure called a CONTACT, an encounter with one or more animals.

Take Home Points

- Our software framework emphasizes modularity and allows for custom data structures and user interfaces
- Use of a standard vocabulary facilitates comparability and data sharing
- Alternative views of data and metadata provide the user with real-time visual feedback
- A robust open-source framework built on well-supported web technologies expedites creation of custom apps by others
- Our approach promotes digital data collection while allowing compatibility with existing data structures and workflows

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