# The Tree of Life Web Project: First Generation Tools for Treehouse Builders

Katja-Sabine Schulz, Lisa H. Schwartz, and David R. Maddison.  University of Arizona, Tucson, AZ 85721    NSDL 0333715 • Collections Track

## The Tree of Life Web Project

http://tolweb.org

The Tree of Life Web Project (ToL) is an open-access, database-driven system providing information over the internet about the diversity of organisms on Earth, their evolutionary history (phylogeny), and characteristics.

The project currently provides over 3000 web pages with scientific content to about 120,000 visitors per month.

Each ToL page contains information about one particular group of organisms, and the pages are linked together hierarchically, in the form of the evolutionary tree of life.

The navigational structure of the project thus illustrates the structure of the > 3 billion-year-old tree that connects all life on Earth.

Most of the current ToL materials consist of technical contributions authored by expert researchers. Administration of ToL scientific content follows a hierarchical, community-based model, with work on a particular group coordinated by experts on those organisms.

## ToL Treehouses

The ToL **NSDL** project focuses on collecting materials specifically aimed at K-16 learners.

ToL content designed for children and the young at heart is presented on special pages called treehouses, which are attached to relevant groups of organisms throughout the Tree of Life.

Scientific core content pages authored by expert biologists feature a treehouses menu with links to treehouse pages providing information about a given group of organisms.  Similarly, each treehouse has prominent links to core content pages about the organisms featured in the treehouse.

While all ToL core scientific content is authored by professional researchers, participation as treehouse builders is open to students, teachers, and lifelong learners with an interest in writing and publishing information about organisms.

## Learning with the Tree of Life

The ToL project encourages the development of treehouses in the following categories:

### Investigations

Treehouse investigations provide a platform for the communication of students' questions, ideas and findings, thus supporting inquiry-based teaching and learning.

### Teacher Resources

These pages provide lesson plans and units that present activities, strategies, and learning materials together with national and local science education standards.

## Tools for Treehouse Builders

To facilitate contributions by students, teachers, and lifelong learners, the ToL recently released a new set of tools allowing non-scientists to register as treehouse builders and to upload treehouse contributions through a web-based data entry interface.

While building treehouses, learners interact with the project's core scientific content in a variety of different ways, including:
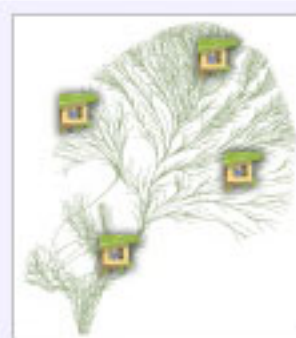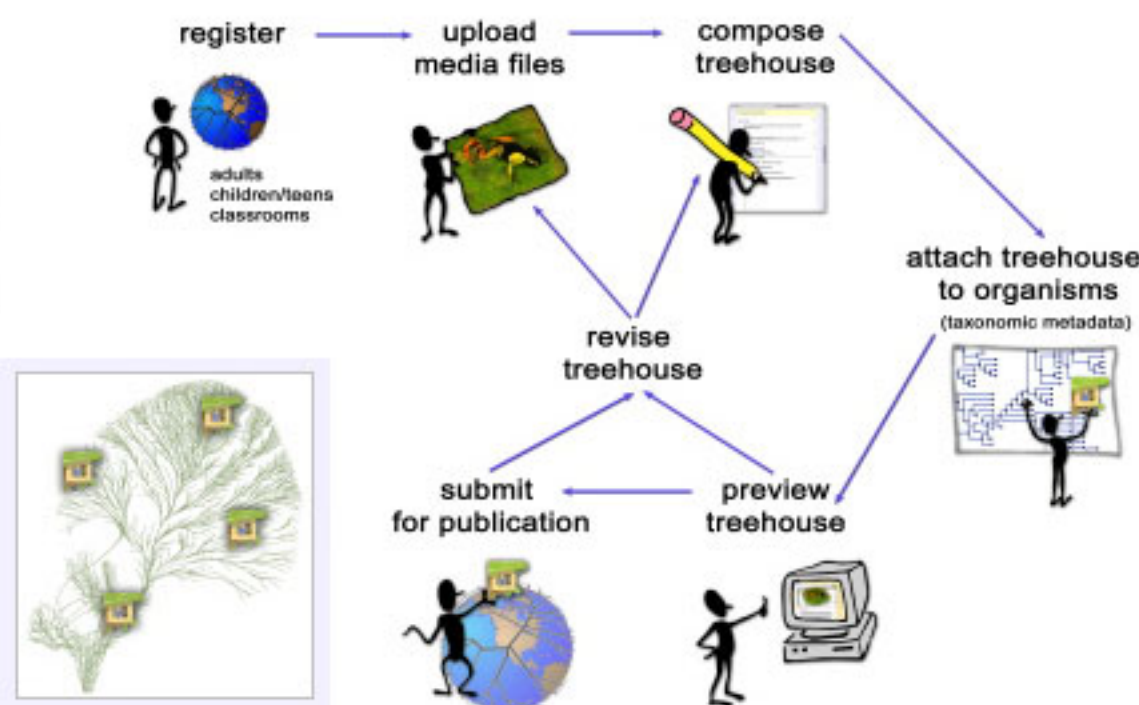
### Phylogenetic Relevance

By attaching their media and treehouse contributions to relevant groups in the tree of life, treehouse builders actively participate in the construction of a phylogenetically structured collection.

During the process of compiling taxonomic metadata, treehouse builders become familiar with the conceptual and navigational structure of the ToL web site; they are thus instilled with a vision of the genetic connectedness of all life, which is the cornerstone of modern biological knowledge and its organization.

### Sharing Media Files

The ToL media submission interface encourages scientific contributors and treehouse builders to make their media files (images, sounds, movies) available to other ToL contributors for use on their ToL web pages.

### Scientists Biographies

ToL biographies will illustrate different circumstances and motivations that can inspire a passion for the exploration of life's forms and features.

### Stories · Fun & Games · Art & Culture

Several treehouse categories invite contributors and visitors to connect information about organisms to other subjects and activities, thus expanding the boundaries of traditional science learning.



register — upload media files — compose treehouse — attach treehouse to organisms (taxonomic metadata) — revise treehouse — preview treehouse — submit for publication

adults
children/teens
classrooms

## Next Steps ...

The introduction of tools for treehouse builders is our first step in making the ToL web site a place where students, teachers, lifelong learners, and scientists come together to build an open-access digital library about biodiversity and the evolutionary history of organisms.

In addition to improving the treehouse data entry tools and documentation, our current development efforts focus on the following projects:

- Discussion forums for visitors and contributors
- User recommendation and ranking systems
- Developing the ToL metadata schema
- Expanding ToL customization options for visitors
- Importing content from partner projects