

## Biodiversity Initiatives Make Good Use of Technology

A new megaproject, like the Human Genome Project only more ambitious, was launched at a summit recently held by the ALL Species Foundation, a group of prominent scientists and Silicon Valley visionaries (*Science* 294: 759-760). Their mission is to identify and count every living species on Earth within the next 25 years.

Whether or not it can be done is almost beside the point. Simply aiming for such a lofty goal could kindle the public's imagination and inspire many people to become naturalists or taxonomists, particularly in developing countries, where much of the funding will be spent.

"Voices in the taxonomic community have been promoting something similar [to an all-species inventory] for years," says Bruce Stein, vice president of programs for the nonprofit organization NatureServe. "In order for taxonomy to be perceived both as modern and as big science, it needs what the late John Sawhill, former head of The Nature Conservancy, used to call a 'big, hairy, audacious goal.'"

NatureServe, one of many species-cataloging ventures already in progress, sprouted from the data-collecting endeavor begun more than 25 years ago by the Conservancy. To effectively target its conservation efforts, TNC worked with state agencies to establish inventory programs, called natural heritage programs, and coordinated their efforts by providing the tools, techniques, and software needed to network the databases. The natural heritage programs now operate in all 50 US states, 10 Canadian provinces, and about a dozen Latin American countries. Two years ago, TNC helped establish NatureServe to take over managing this effort, transferring over 65 members of its staff and an extensive set of biodiversity databases, and committing \$35 million over seven years. Originally christened the Association for Biodiversity Information (ABI), the organization changed its name in November to NatureServe to attract a broader audience.

In October 2000, NatureServe launched its flagship Web site, now known as NatureServe Explorer ([www.natureserve.org](http://www.natureserve.org)). This well-organized, information-packed "online encyclopedia of life" is a searchable database comprising data gathered by NatureServe and its member programs on more than 50,000 North American species and ecological communities. The goal is to provide accessible and reliable information on which to base conservation and environmental management plans. That means identifying what species are in a given area, which are at risk, and where they are found. The site contains information on rare as well as common species, with especially detailed infor-

mation about those that are imperiled or endangered. NatureServe also establishes standards for collecting and managing data so they can be compared and combined across states and countries, and it minimizes redundancy by centrally developing information that is key to multiple programs.

Stein sees strong linkages between NatureServe and other biodiversity-based initiatives, whose Web sites are accessible through NatureServe's Web site and whose activities are grouped by topic and by type of organization. With numerous species lists currently under construction, such as Species 2000 and the Global Biodiversity Information Facility (GBIF), there is a strong need for maintaining taxonomic credibility and comparability among various databases. As one example of how these linkages can work, NatureServe recently signed on as a partner to the Integrated Taxonomic Information System ([www.itis.usda.gov](http://www.itis.usda.gov)) and provides data to help ensure compatibility with this federal standard. NatureServe is also an active participant in an alphabet soup of other information networks, including GBIF, the National Biological Information Infrastructure (NBII), North American Biodiversity Information Network (NABIN), Inter-American Biodiversity Information Network (IABIN), and the Convention on Biological Diversity's Clearinghouse Mechanism (CHM).

Mark Schaefer, NatureServe's president and CEO, also attended the recent summit convened by the ALL Species Foundation. Schaefer notes that the fast pace of technological change is dramatically increasing our ability to understand species and put that information to work protecting the ecosystems on which they depend. And what better purpose for promising new technology than a "big, hairy, audacious goal"?

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### Here are two new Web sites that have potential to make technology worth the hassle:

- TerraFly ([www.terrafly.com](http://www.terrafly.com)), produced by the US Geological Survey and Florida International University, allows you to explore, virtually, anyplace in the United States from the air. Fly over your community, zoom in on your study site, or get a bird's-eye view of a place you've never been using new technology that combines satellite images, aerial photography, and geographic information.
- GeoCommunicator ([www.geocommunicator.gov](http://www.geocommunicator.gov)), created by the Bureau of Land Management and the USDA Forest Service, is designed to facilitate networking and information sharing based on geographic locality. Users can find out about land-based activities going on in an area, get current geographic data directly from the source, and communicate with other interested parties, including the agencies that have jurisdiction there.