Bio-Inventory in Oz

Australia's famous Great Barrier Reef has no trouble attracting the world's marine scientists to catalog its riches. But the country has only 100 native marine scientists, and the biota on the remote 14,000-kilometer west coast remains largely unknown. To tackle the problem, an international team of 40 scientists converged last month on the town of Dampier. During an 18-day biodiversity blitz, they explored every niche to inventory the local biota, fossicking among the mangroves, combing the sandy shores, and diving the warm waters of the Dampier archipelago, a 35-kilometer-long island cluster in Australia's northwest corner that easily matches the diversity of the Great Barrier Reef.

As-yet-unnamed sea slug found in Dampier.

Organizer Fred Wells, curator of aquatic biology at the Western Australian Museum in Perth, got the idea for the strike force from Sydney's Australian Museum, which did a similar inventory on Queensland's Lizard Island in 1975. So far, five such surveys, held near remote coastal areas around the country, have produced a treasure trove of new data: 260 new species, 36 new genera, and two new families. These include Western Australia's first members of the marine mite family, its first species of a wormlike mollusk called aplacophoran, and an unusual species of benthic ctenophore, a bottom-dwelling comb jelly.

Findings from the most recent outing, which was funded by a local liquid natural gas company, will eventually be published in the proceedings of the Western Australian Museum. Wells says the work may also help establish a marine park to protect the Dampier archipelago.

Fighting Cancer at the Keyboard

The idea of using idle time on personal computers to sift through huge data sets was pioneered by SETI@home, in which more than 2 million computers are processing radio astronomy data in the Search for Extraterrestrial Intelligence. But now medical research is getting into the distributed computing act.

Last month Parabon Computation Inc., a firm based in Fairfax, Virginia, and the National Cancer Institute invited PC users to "Compute Against Cancer." So far, about 5000 people have signed up to help analyze data on how various anticancer drugs affect gene expression in cells. Parabon breaks up large computational problems into smaller tasks and sends them out to computers that have downloaded the proper software. Processing goes on while the computer is idle, and results are sent back to the company's server. "We're doing this gratis to demonstrate our capability to them," says Parabon CEO Steve Armentrout.

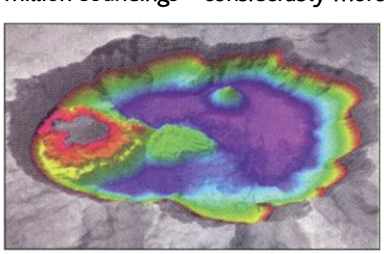
There's "a vast reservoir of power" out there waiting to be tapped, says Armentrout. "Modern computers are so fast that even if you're typing as fast as you can, the processor is yawning." But using PCs for a wide variety of computation and modeling jobs has only recently become practical, he says, because it requires a high degree of Internet connectivity and a secure platform such as that offered by Java.

So far, there is at least one other distributed health research project, run by Popular Power in San Francisco; it started business early this year. The company has several thousand PCs testing flu vaccines and vaccination strategies on a model of the human immune system.

Armentrout says when the cancer job is over next month, Parabon will be starting a protein-folding gig for a researcher at the University of Maryland. He sees a huge future in distributed computing. "There are 100 million Internet-connected PCs in the U.S. and 300 million worldwide. There's a whole lot of computation being wasted."

Portrait of a Caldera

Oregon's famous Crater Lake, at about 600 meters one of the two deepest lakes in North America and seventh deepest in the world, has just had a thorough picture taken of its bottom. Using a state-of-the-art multibeam transponder that sends out a fan of sound energy, government scientists have obtained more than 30 million soundings—considerably more fine-grained than the last survey, in 1959, which used echoes to collect depth information from 6000 locations. Formed by volcanic eruption 7700 years ago, the lake lies in the crater of an ancient volcano, Mount Mazuma.



$91 Million for the Developing Brain

A telecommunications billionaire is subsidizing the creation of a new research center in Seattle focused exclusively on early human brain development. Bruce McCaw, one of the four brothers who founded Cellular Communications Inc., and his wife Jolene are putting $91 million into a multidisciplinary venture called the Talaris Research Institute.

The initiative is a "hybrid partnership," says Patricia Kuhl of the University of Washington, between the university and the new Talaris nonprofit corporation. She and her husband, psychologist Andrew Meltzoff, are co-directors of a new Center for Mind, Brain, and Learning at the university, which, says Kuhl, is the "research arm" of the institute. Talaris will build a $50 million research facility on a site near the university.

"I think we're unique" as a neuroscience center in focusing just on the first 5 years of life, says Meltzoff. "That's where the mother lode is." Headed by molecular biologist John Modina, the institute is aiming for a staff of 14 researchers and about 100 support personnel working in developmental psychology, neuroscience, education, molecular biology, and computer science.

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