

# nature

22 July 2004 Volume 430 Issue no 6998

## Ignorance is not bliss

**We are witnessing a catastrophic loss of species that is the direct result of human activities. Yet we remain scandalously ill informed about the processes that give rise to biodiversity, and the consequences of its loss.**

If variety is the spice of life, we face an increasingly bland future. There are perhaps 10 million species of organism on Earth, of which at most 1.8 million have been described. In some taxonomic groups, up to 20% of known species face extinction, and countless more are disappearing unnoticed. This should concern us all because we don't know what the consequences will be. In general, the less diverse an ecosystem, the less productive and stable it is. But ecologists are currently unable to make specific predictions that could help inform decisions about development and conservation.

If this is to change, we must reinvigorate taxonomy and describe the vast ranks of unnamed species. We need more passionate field workers, like Peter Ng of the National University of Singapore, whose efforts to catalogue neglected faunas are profiled on page 396. And we must ensure that the results of their endeavours don't languish on dusty shelves.

We also need to answer practical questions about the consequences of biodiversity loss. How many species are needed for an ecosystem to function? Will the loss of certain key species have disproportionate knock-on effects? This research must be done on appropriate scales of time and space: consider biodiversity over too short a time, or too small an area, and you can get the wrong answers.

Many interested scientists say gloomily that governments are not interested in this work. Given the stakes, this defeatism isn't good enough. Taxonomists and ecologists should look to the visionaries in their own midst, and to what their colleagues in genetics and climatology have achieved by understanding how to cast a research agenda in a light that can inspire — and if necessary, alarm — politicians.

Few have a clearer vision than Charles Godfray, director of the UK Natural Environment Research Council's Centre for Population Biology at Silwood Park, west of London. He argues that taxonomy must emerge from museums to become a web-based information science (H. C. J. Godfray *Nature* 417, 17–19; 2002). Some initiatives of this ilk are under way, but the call has been short-sightedly rejected by much

of the taxonomic community, notably the Linnean Society of London.

Godfray was also instrumental in setting up one of the few long-term ecological projects investigating the consequences of declining biodiversity in a developing country where the problem is particularly acute. With backing from Britain's Royal Society, the Sabah Biodiversity Project in Malaysian Borneo is investigating ecosystem function and timber production in felled forests planted with varying numbers of species of dipterocarp — the main type of tree found in the rainforests of southeast Asia.

More projects of this type are needed, but they won't be forthcoming unless ecologists can take a leaf from the book of the geneticists whose lobbying in the late 1980s led to the Human Genome Project. There are parallels between the two research agendas. Like taxonomy, genome sequencing is purely descriptive, while the Sabah study of ecosystem function is conceptually related to systems biology, the probing of the function of gene networks that has followed in genomics' wake. Taxonomists and ecologists need to dispel the notion that their work — which involves dirty boots, rather than gleaming lab machinery — is somehow less scientific.

The cheerleaders of genomics promised gains in terms of human health and economic output. The economic consequences of ecosystem management are harder to quantify, but they are no less real: sustainable forestry, agriculture and tourism can all put developing economies on a sounder footing, to the benefit of us all.

Climatologists faced similar problems in explaining the economics of their case. After global warming was identified as a threat, some leading climatologists became highly effective lobbyists, pounding the corridors of power to stress the importance of their work. They won increased research funding and the establishment of the influential Intergovernmental Panel on Climate Change.

So far, taxonomists and ecologists have failed to muster a comparable response to the galloping loss of our planet's biodiversity. It's time that they did. ■

## Drug research abused

**Political pressures threaten to undermine a key agency involved in tackling the problems posed by drugs.**

If you listen to the US government, drugs are bad — end of story. That shallow drag on a passing joint will launch you on a slippery slope towards social exclusion, jail and general misery. But if you listen to scientists instead, your outlook on drugs may be more nuanced. Not everyone becomes addicted, and exactly how drugs such as marijuana and ecstasy affect the brain over time, for example, are questions that only painstaking research can resolve.

In a rather uncomfortable spot between these two standpoints sits the US National Institute on Drug Abuse (NIDA) — tasked by Congress with providing the science that guides drug treatment and prevention, and under heavy pressure from its political paymasters to reinforce their war on drugs. Many critics say the agency's research agenda has occasionally been biased as a result (see page 394).

It takes a strong leader to maintain the integrity of research in the

face of such political pressure. Nora Volkow, the agency's director, radiates passion about science — and asserts that experiments, not politics, will guide her decisions.

A report last week from the Union of Concerned Scientists discusses the case of a researcher who, when being considered for a position on NIDA's advisory council, was questioned by a White House staffer about whether she supported "faith-based" drug treatment programmes, or voted for President Bush. This and other examples illustrate how the influence of politics has made itself felt in NIDA, and the tough task that Volkow faces to keep the agency clean.

NIDA's goal is to figure out the risks posed by drugs and how best to help those who suffer from taking them. It is not to reinforce politicians' ideas that we should lock up those who try drugs. When it comes to politics, NIDA should just say no. ■