

# Risks and benefits of dual-use research

Negotiations over a sensitive scientific publication that could be misused by bioterrorists highlight trouble ahead unless appropriate guidelines are developed.

Scientists, security experts and journals have done a great deal to face up to the risk of bioterrorism, but there is still considerable uncertainty over how to handle 'dual use' research with outcomes that might be used to do harm (see page 860). This fact is underscored by confusion about a paper on such research that was accepted for publication last month by the *Proceedings of the National Academy of Sciences (PNAS)*.

The episode began on 25 May, when the journal announced that it would publish a paper by Lawrence Wein, a professor of management at the Stanford University Graduate School of Business, California. Working with a graduate student, Wein had constructed a model of a bioterrorist attack on the US milk supply. Stewart Simonson, assistant secretary for public health emergency preparedness at the US Department of Health and Human Services (HHS), was shown the paper by a reporter, who had obtained a copy under embargo. He promptly asked the National Academy of Sciences, which publishes the journal, not to release it.

Simonson's concern, which was shared by other officials, was that details of the paper could be helpful to terrorists. The National Academy agreed to delay publication of the paper and met with Simonson and other HHS officials on 7 June. As *Nature* went to press, the National Academy had not announced how it would move forward, but seemed inclined to publish the paper essentially unmodified.

Both Wein and the journal were well aware of the sensitive nature of this paper. In fact, Wein briefed Simonson's office on the research last autumn, and Simonson says that he conveyed his concerns about the work to Wein at that time. Wein contradicts that statement, maintaining that the HHS never replied to his briefing. When Wein submitted his paper to *PNAS*, the journal sent it through two layers of review, as specified by many journals, including *Nature*, in 2003 — one for scientific accuracy and one for biosecurity. None of the reviewers opposed publication, and the editors concluded

that the paper's potential to inform biosecurity efforts outweighed the risk of it giving a blueprint to terrorists. So the journal decided to publish.

Each of the parties to this dispute could have acted differently. For instance, the apparent breakdown in initial communication between Wein and the HHS implies a cursory approach to such a sensitive matter on both sides and a lack of a robust system for such alerts by responsible researchers.

The HHS did not fund Wein's work, and has never intervened in a publication in this fashion before. In doing so, however, it has raised the profile of the issue. The department might have accomplished more by working behind the scenes with Wein and the dairy industry to increase safety, instead of taking action against a journal. Much of the information in Wein's paper is readily available on the Internet anyway.

*PNAS* followed its normal procedures but was prudent to allow a brief delay to listen to the HHS. Having previously committed to the paper, in the absence of any significant new security risks being raised, it should now stick to its decision. But there will doubtless follow a broader debate on whether such papers should be submitted to, and accepted by, a high-profile scientific journal.

The greatest concern is in the need for clarity. It is important to develop clear guidelines about what research is considered sensitive, what is expected of researchers whose work produces dual-use outcomes, and how the government should in practice respond without losing the priceless virtues of open scientific scrutiny. Without such clarity, officials insensitive to those virtues may institute precautionary measures that reach far beyond what is appropriate. The US National Science Advisory Board for Biosecurity, which was set up a year ago by the US government to address such concerns, will hold its first meeting at the end of this month, and will need to act promptly. ■

## Save the people, too

Conservationists must pay attention to the needs of local human, as well as animal, populations.

To have real passion for one's work is a wonderful thing. And there are few people more passionate than the biologists who strive to preserve biodiversity across the developing world. Many are prepared endure physical privations, infectious diseases, low pay and threats of violence, all in the name of conservation.

But passion can sometimes distort judgment. Just as starry-eyed lovers may be blind to one another's faults, a true believer in any cause can ignore uncomfortable facts that conflict with its goals. That is

why the motivations and actions of conservation biologists who are working in Myanmar, with the blessing of its brutal military regime, merit close scrutiny.

In the past, such scrutiny has been uncomfortable for some of the individuals concerned — most notably following the 1997 publication of an article in *The Observer*, a UK newspaper, entitled 'Save the rhino, kill the people'. This linked such venerable bodies as the Smithsonian Institution in Washington DC and the Wildlife Conservation Society, based in New York, with abuses of human rights in the southeast Asian nation formerly known as Burma.

The biologists who were singled out for criticism in that article argue, with good cause, that it misrepresented their efforts. And it is apparent from a News Feature on page 870 of this issue that they are working with clear consciences, despite having to engage on

some level with the military regime if they are to achieve their goals.

Yet it is important to ask whether the distorting lens of passion has come into play. The imminent threat to Myanmar's biodiversity is not in doubt, nor is the desire of Burmese conservationists for foreign assistance. It is also good to hear that some biologists working in Myanmar have sought the views of ordinary Burmese people.

But some statements do give cause for concern. Attempts to justify engaging with a government guilty of atrocities by arguing that other regimes are just as bad are not compelling. The suggestion that Burmese exiles have exaggerated the abuses in Myanmar is discomfiting, as is the notion that conservation biologists need to use 'charm and guile' to convince suspicious politicians back in the United States that they are not abetting the Burmese junta.

These may just be poorly chosen words. But it is hard not to wonder, on hearing the stories of those working in Myanmar, whether some conservation biologists are prone to rush to the aid of threatened biota first, and to wrestle with the wider political and humanitarian implications only later. If that's the case, it is a dangerous tendency. As any psychologist will tell you, the human mind is adept at conjuring up post hoc justifications for a course of action that has already been decided.

We should also heed the lessons of history. Today it is widely accepted that effective conservation requires the involvement of local

people, and should bring them tangible benefits. But the annals of conservation are littered with instances of people being seen as obstacles that must be removed to make way for parks and reserves. This isn't even limited to undemocratic countries: in the United States, decades ago, conservationists pursued projects such as the Shenandoah National Park in Virginia, whose creators portrayed local mountain farmers as backward and hounded them off their land.

Given this legacy, conservation biologists have a responsibility to ensure that their efforts do not conflict with local peoples' rights, or lend legitimacy to regimes that have dismal human-rights records. This doesn't mean that they shouldn't work at all in countries such as Myanmar. But they should set out for their field sites with their eyes wide open, having researched the humanitarian issues and engaged with parties who may not share their view that conserving biodiversity is the overwhelming priority for the region in question. That will build more confidence that saving the rhino doesn't require unacceptable compromises on human rights. ■

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## Much whaling and gnashing of teeth

The International Whaling Commission may be messy, but it's the only game in town.

Marine biologists at this month's annual meeting of the International Whaling Commission (IWC) at Ulsan in South Korea will require considerable patience and fortitude. "It's like banging your head against the wall," complained one scientist there for the preliminary scientific-committee meeting.

The main bone of contention at this year's meeting is a proposal by Japan to double the scope of its 'research whaling' programme — its thinly disguised arrangement to continue some whaling despite a moratorium on commercial whaling that the IWC implemented in 1986 (see *Nature* 435, 550; 2005). The plan may get a sympathetic hearing at Ulsan because pro-whaling nations now seem to have a majority on the IWC for the first time (see page 861). This has come about because 23 new members — some with a dubious interest in whales, dead or alive — have joined the IWC in the past five years, taking its total membership to 62. Whaling opponents whisper that Japan "goes shopping", as one of them puts it, for small, poor countries such as Kiribati and Tuvalu in the south Pacific to join the body in exchange for aid.

It is unlikely, however, that the new composition of the IWC will lead to radical changes in whaling rules, which would require a three-quarters majority. Japan's research programme was never actually approved by the body in the first place; Japan has sometimes chosen to brush the IWC's non-binding views on the matter aside.

"Resolutions adopted by the IWC against Japan's whale research programmes are political statements that have nothing to do with science," sniffed Joji Morishita, a spokesman for Japan's fisheries agency, in a statement issued during the meeting.

Opponents of whaling continue to regard Japan's research programme as an affront to conservation efforts, and Japan has been hard-pressed to come up with convincing, peer-reviewed articles supporting it. Now it says it needs an even larger programme to address the demands of the IWC's scientific committee. More sophisticated analysis requires a greater sample size — who can argue with that?

Given all this chicanery, one might be tempted to ask why researchers should bother to spend so many long days and nights in South Korea engaging in the IWC process.

But buffeted by criticism as it may be, the IWC continues to implement the international regime that stands in the way of unregulated whaling — and of the probable extinction of several whale species. Before the moratorium, Japan's yearly quota of minke whale in the Southern Hemisphere was 1,941; under its proposed research programme, it would catch 935.

And despite its grouching, Japan wants to be seen as a good international citizen; it is unlikely to pack up its marbles and go home. It will remain at the table, infuriating its opponents at times but basically conforming with an imperfect international process. Conservation biologists should do likewise, cajoling more friendly nations to sign on and grimly adhering to the only path that can, in its convoluted way, save the whales. ■

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