SCIENCE

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LETTERS

Conservation Research and the Legal Status of PCR Products

The challenge of obtaining biological material for conservation genetic research has always been daunting. There was some justification for tight regulatory control when genetic analysis required that a few organisms be killed to provide samples for the study of threatened or endangered populations. Polymerase chain reaction (PCR)–based genetic assays, however, can be performed with a single drop of blood, a scrap of skin, or a dried fragment of muscle. The forensic identification of whale products in commercial Japanese markets (C. S. Baker and S. R. Palumbi, Policy Forum, 9 Sept., p. 1538) is an example of molecular genetic analysis used in the service of conservation. But even as this new era in conservation biology unfolds, developments of a bureaucratic nature have cast a troubling shadow across the field.

Ironically, the first development stems from the 1993 Convention on Biological Diversity. One of its more controversial passages endorses financial compensation to developing nations for genetic resources. This initiative was aimed primarily at pharmaceutical companies prospecting for biological resources on foreign territory, but unfortunately it also has been applied to nonprofit conservation efforts. For example, two developing nations recently rejected our requests to export scientific samples (typically a few drops of blood) for genetic analysis, citing the compensation principle of the biodiversity convention.

The second development involves a mid-1994 decision by the Office of Management Authority (OMA, a branch of the U.S. Fish and Wildlife Service) to include PCR products within its jurisdiction over material from endangered species. If enforced, this new policy would place synthetic DNA under the same restrictions as apply to rhinoceros horns and elephant tusks, but the tiny synthetic pieces of DNA produced by the PCR themselves do not have monetary or aesthetic value that might invite commercial abuse. Furthermore, because PCR methodology requires preexisting knowledge of portions of the target sequence, there is little possibility that the technique could be improperly used to somehow purloin genetic resources. Instead, synthetic copies of DNA may be likened to a biological microfilm. The OMA might just as reasonably seek control over photographs or other likenesses of endangered species. To regulate this form of biological data serves only to further extend the reach of OMA into scientific arenas, at draconian cost to conservation efforts (*1*). If DNA products for scientific research were allowed to cross political boundaries freely, without cumbersome regulations being imposed by the Convention on International Trade in Endangered Species or the U.S. Endangered Species Act, the resulting genetic information highway would undoubtedly increase the pace of critically important conservation genetic research.

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Notes

1. The Society for the Study of Amphibians and Reptiles and the Herpetologists' League issued a joint resolution in August 1994 calling on the OMA to (i) provide scientific access to endangered species in a timely and efficient manner and (ii) rescind the policy of regulating synthetic DNA.

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Free Electron Lasers Fettered?

As managers of two leading research programs that use free electron lasers (FELs), we are disturbed by the factual inaccuracies and conservative philosophy of the recently released National Research Council (NRC) report on FELs (Eliot Marshall, News & Comment, 16 Sept., p. 1651). The NRC report (*1*) reflects a political agenda rather than an evaluation of the real situation. It is disturbing for one of us (G.M.) to be listed as a contributor to a report that states, for example, that "valence transitions of chemical bonds fall in the visible and ultraviolet, and band gaps of solids fall in the visible or near infrared" (*1*, p. 3). We suggest that Donald Levy and his co-authors act consistently with this opinion by renouncing forever the use of kitchen salt, windows, and eyeglasses.

On a more serious note; the NRC report mixes the analysis of three different energy ranges—visible, ultraviolet, and near infrared. Not surprisingly, its corresponding findings and recommendations