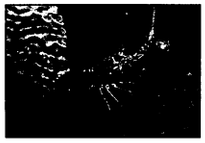
A reader points out that replenishing marine populations in the Florida Keys will require much larger reserve areas than are currently planned. A letter writer deems the lack of career paths for young scientists in biomedical research a more serious problem than the decline in the number of physician-researchers. A group representing anatomists opposes an effort to redefine rats, mice, and birds as animals protected under the Animal Welfare Act. Field primatologists support "collaboration between biomedical scientists and field-workers to investigate the natural epidemiology of retroviruses in nonhuman primates." Fluorescent lamps are said to have been used in photocopy machines since 1959. And the finding that feeding cattle hay for a brief period before slaughter can reduce the risk of foodborne *E. coli* infection is questioned and defended.

Replenishing Marine Populations

A recent note in the Random Samples section ("Payoffs seen from Keys fishing ban" 12 Mar., p. 1631) describing preliminary findings of studies within no-take zones of the Florida Keys National Marine Sanctuary concludes that "[i]t is still too early, however, to measure a hoped-for benefit of such preserves: serving as spawning grounds to replenish populations outside their boundaries." Replenishing populations outside their boundaries, however, is not an expected benefit of these small reserve areas. The small (0.3 to 30.8 square kilometers) no-take zones within the Florida Keys National Marine Sanctuary were established to minimize human impacts to particularly high-risk habitats, promote scientific research, and maintain natural assemblages of living resources within their borders, but they are likely to be too small to provide significant replenishment outside their boundaries.



Spiny lobsters could be replenished.

CREDIT: FLORIDA KEYS MARINE SANCTUARY

Larger reserves encompassing known spawning areas were originally proposed and widely supported by scientists and conservationists, but they were not created by the sanctuary's management plan (J. C. Ogden, Perspective, 21 Nov. 1997, p. 1414). Nevertheless, a process known as Tortugas 2000 was implemented to create such a reserve by the year 2000. The Dry Tortugas Ecological Reserve (DTER) that is being created may be large enough to serve this function. In addition, several species of fish are known to spawn in this upstream area of the Florida Keys, suggesting that a DTER may provide the hoped-for benefit of replenishing populations outside of its boundaries. Preliminary findings that populations are rebounding and individual size is increasing within small no-take areas in the Keys are consistent with the global experience with marine reserves and suggest that they are functioning as expected. Moreover, the results support the development of larger, well-designed reserves such as the DTER that can conserve biodiversity and protect fisheries.

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Young Scientists in Biomedical Research

I am somewhat bemused by the 5 March correspondence lamenting the "physician-scientist" as an endangered species (Letters, *Science's* Compass, p. 1455). We are told that M.D.'s who pursue laboratory research full-time are doing as well as anyone, as are those whose research is intimately associated with their clinical responsibilities. It is those trying to divide their time who are apparently endangered. In this respect they are no worse off than harried university professors trying to balance research with increasing teaching and administrative responsibilities. The loss of physican-researchers would be unfortunate if there were evidence that patient-based, disease-oriented research is in decline. But where is that evidence? There may be a decline in quantity, but is there a decline in quality?

Patient-based research is increasingly being supervised by full-time professional scientists. The physician-researcher, like the teacher-researcher, is being squeezed out because it is not possible to compete on a part-time basis. I can see no justification for any action to shift the goalposts in that competition. Scientifically rigorous patient-based research has an inherent advantage anyway because of the relevance criterion. The way to further encourage high-quality patient-based research is not to encourage part-timers, it is to make it more attractive to the best professional scientists. It may be desirable for both patient care and research for clinicians to get their hands dirty in the lab occasionally, but it is neither necessary, nor possible, for them to run the lab as well as the clinic. A genuine partnership with a professional scientist, based on mutual respect and equivalent status, is a much better option all around. So, while we are lamenting, spare a thought for the lack of career paths for young scientists in biomedical research. To me, that is a vastly more serious problem.

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Redefining Rats, Mice, and Birds

It was recently reported (D. Malakoff, News of the Week, 5 Feb., p. 767) that a coalition of animal rights advocates has petitioned the U.S. Department of Agriculture (USDA) to redefine rats, mice, and birds as animals protected under the Animal Welfare Act. We believe that this move would not only result in a duplication of effort and waste of federal resources, but would also have a strong negative impact on biomedical research.

In announcing the proposed change (*1*), the USDA Animal and Plant Health Inspection Service points out that 90% of the rats, mice, and birds being used for research in the United States are already covered by voluntary accreditation and/or the Public Health Service Policy on Humane Care and Use of Laboratory Animals, which requires compliance both with the principles of the Animal Welfare Act and the National Research Council's *Guide for the Care and Use of Laboratory Animals*. And, according to USDA, the *Guide* standards often exceed those in the Animal Welfare Act.

At a 2 February hearing sponsored by the Scientists Center for Animal Welfare and the Institute for Laboratory Animal Research, most of the speakers represented animal rights and alternative testing advocates. Representatives from three scientific societies—the American Association of Anatomists (AAA), the American Physiological Association, and the American Psychological Association—presented strong arguments opposing the introduction of additional regulations. They argued that the proposed regulations will

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not improve conditions or standards. Rather, they will increase the costs and regulatory burden of researchers and their institutions by introducing redundant or inconsistent regulations, all the way from the supplier to the end user—from the cost of animals, to training of lab personnel, to procedures of animal care committees. Representatives of animal supply companies (Taconic and Harlan) concurred that the added regulatory costs would be borne by the research community.

We fully support the humane care and treatment of laboratory animals. We strongly oppose efforts to achieve this by means of duplicative and expensive new regulations.

A *Science* editorial about animal rights (P. M. Conn and J. Parker, *Science*'s Compass, 20 Nov., p. 1417) urged that "[s]cientists need to respond forcefully to animal rights advocates, whose arguments are confusing the public and thereby threatening advances in health knowledge and care." The biomedical research community can begin by making its voice heard in response to this issue. Comments can be submitted until 28 May to the USDA's Web site at http://comments.aphis.usda.gov.

AAA Public Affairs Committee (Joseph C. Besharse, Bruce M. Carlson, Donald P. Jenkins, David S. Lester, James L. Olds, Peter Satir)
American Association of Anatomists/Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD, 20814–3998, USA

References

1. *Fed. Regist.* **64,** 4356 (1999).

Field Primatology and Biomedical Research

The article by Jon Cohen (News of the Week, 5 Feb., p. 772) reporting that human immunodeficiency virus–type 1 (HIV-1) probably originated in central African chimpanzees has prompted calls for collaboration between biomedical scientists and field-workers to investigate the natural epidemiology of retroviruses in nonhuman primates. As field primatologists, we find this development gratifying. Our own studies entail repeated capture, sampling, and release, as well as observation, of African green monkeys (vervets and grivets: *Cercopithecus aethiops*) and baboons (*Papio hamadryas*). Materials drawn from these populations [naturally infected with simian immunodeficiency virus (SIV)] and shared with AIDS researchers have documented the rare occurrence of SIV in Tanzanian yellow baboons in the wild (*1*) and cross-species transmission of SIV between vervets and baboons (*2*) and have confirmed horizontal transmission as the primary mechanism for SIV spread in wild Ethiopian green monkeys (*3, 4*).

Our studies of Ethiopian baboons and grivet monkeys began in 1973. Typically, in a field season we capture animals, take blood, collect morphometric data, determine the age of the animals from dental casts, and record reproductive features. Thus, we have been able to show that female grivets become SIV seropositive before they are adult, while males become SIV positive only when they are fully grown. Recapture of individually recognized animals has allowed us to document instances of seroconversion.

Chimpanzee retroviral ecology may provide a key to the origin of AIDS.

CREDIT: DANU/JESKE/ANIMALS ANIMALS

For chimpanzee retroviral epidemiology to be similarly understood, it will be necessary to sample (preferably without capture) a population that has been subject to the long-term observation that enables individual animals to be recognized and their life histories charted. Such information requires laborious accumulation in often dangerous, and generally underfunded, long-term field programs. Perhaps the research needed to understand the zoonotic origins of HIV could accomplish the remarkable: benefit the primate species, the discipline of primatology, and biomedical research.

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References

1. T. Kodama *et al.*, *AIDS Res. Hum. Retrovir.* **5**, 337 (1989).
2. M. J. Jon, *J. Virol.* **68**, 8454 (1994).
3. J. E. Phillips-Conroy, C. J. Jolly, B. Petros, J. S. Allan, R. C. Desrosiers, *J. Med. Primatol.* **23**, 9 (1994).
4. C. J. Jolly, J. E. Phillips-Conroy, T. R. Turner, S. Broussard, J. Allan, *ibid.* **25**, 78 (1996).

Fluorescent Lamps in Photocopiers

Meher Antia (News of the Week, 29 Jan., p. 617) comments that the startup lag in mercury-containing fluorescent tubes keeps them from being used as brake lights for cars and in fax and photocopy machines. Actually, fluorescent exposure