ment income of their public universities. Public higher education in the United States is essential to the functioning of our republic, to our dedication to equality, and to the quality of our work force. The only way the United States can be competitive in a global economy is to retain and enhance its leadership in technology and the brain industries. That leadership has been in significant measure the product of generous support of public higher education.

Readers of *Science* will face a special argument. The uninformed will say, "You guys aren't worried, are you? All those expensive, high-quality research programs are paid for by federal grants and foundation gifts and the top professors are supported by endowment, right?" Wrong! The quality research programs rest on the fundamental institution itself. They depend on the supporting and related disciplines, on the quality of undergraduate teaching, on the access of students to educational opportunity at an affordable cost, and on an expensive educational infrastructure, laboratories, and buildings. For the most part, money in the public research institutions comes from the states. Governments built much of the "home of science." And now governments are dismantling it.

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How Much Wilderness?

The Wildlands Project's plan to protect biodiversity in the U.S. by resettling the nation, as described by Charles C. Mann and Mark L. Plummer ("The high cost of biodiversity," News & Comment, 25 June, p. 1868), threatens other actions to protect biodiversity. No matter how romantically appealing the idea of converting 50% of the United States into wildlands may be to me or others, proposals like this will not help. How can scientists advocate such a massive program when smaller conservation plans, like that proposed for the spotted owl, create extensive debate, litigation, and social foment? The news article misconstrues the conclusion of my research (*1*), which is that the increasing fragmentation of habitats [which creates small populations and threatens them with extinction (*2*)] requires that we respond with more intensive management to guarantee the persistence of these populations, because protection of larger tracts of land is not likely.

Perhaps the idea of wilderness where there is no management by humans is invalid, given the evidence that many ecological communities in North America, as first seen by European explorers, may have been the product of intensive management by Native Americans (*3*). In a practical vein, the important questions may be, what types of ecological landscapes does society desire (*4*), and what science-based management will be necessary to achieve these? The way to preserve biodiversity is not to move people, but to curtail development, which results from people moving into "wild" areas to escape the consequences of existing development; and to prevent overexploitation of resources that are needed to support a fragile economy. This leads to a question that was glossed over in the article: how can conversion of as much as 50% of the U.S. landscape into wildlands be advocated without also addressing the size of the human population, the ultimate threat to biodiversity (*5*)?

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I was delighted to read the informative and entertaining article on the Wildlands Project. As Science Director for the project, I offer only a clarification. It is stated parenthetically that "[i]n fact, the Wildlands plan has not yet been peer reviewed" (p. 1869). As a grand strategy made up of many components, the Wildlands Project is not amenable to peer review in the ordinary sense. However, the land conservation component of the project is based on a synthesis (*1*) of scientific work in conservation biology. Most of the papers cited are in peer-reviewed journals. Furthermore, several specific regional projects (including the Florida and Oregon Coast Range plans illustrated in the article by Mann and Plummer) have been published in peer-reviewed journals (*2*) or are in press. Finally, our symposium at the 1993 Society for Conservation Biology meeting was designed to expose the Wildlands Project to scientific scrutiny, a peer review of sorts. Our invited panel of scientists representing several universities, agencies, and organizations was specifically asked to critique the project, which they happily did.

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"Millisecond" Pulsars

In the article "A new way to rev up a fast pulsar" by Ray Jayawardhana (Research News, 18 June, p. 1720), the "new way" in the title refers to producing millisecond pulsars by accretion-induced collapse (AIC) of a white dwarf.

The general idea of AIC making neutron stars has been around for some time (*1*), and pinpointing it as perhaps *the* source of millisecond pulsars was to my knowledge first suggested by myself (*2*) and Chanmugam and Brecher (*3*) several years ago. We both noted growing evidence that pulsar magnetic fields may not actually decay away (*4*), as popularly believed, which is essential if the clever but somewhat convoluted "recycling" model is to work; the "millisecond" pulsars are actually distinguished by having magnetic fields that are orders of magnitude weaker than any previously discovered pulsar; consequently, they are born fast and stay that way.

The crucial discovery (*5*) was that of a weak-field pulsar in the globular cluster M28, because the events believed to produce strong-field pulsars (type II supernovae) are unknown in such old stellar populations (but possibly did take place when the clusters first formed). Thus, a second mechanism for making pulsars was required, which most people assumed to be recycling (and still do; almost every discovery of a new weak-field pulsar is interpreted by observers as confirming recycling). These arguments are fully reviewed in a recent book on pulsars, *Theory of Neutron Star Magnetospheres* (*6*).

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