

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.

Brewster C. Denny

University of Washington, Seattle, WA 98195

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 over-exploitation 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)?

Gary E. Belovsky

Department of Fisheries and Wildlife, and
Ecology Center,
Utah State University,
Logan, UT 84322-5210

References

1. G. E. Belovsky, in *Viable Populations for Conservation*, M. Soule, Ed. (Cambridge Univ. Press, Cambridge, United Kingdom, 1987), pp. 35-57.
2. E. O. Wilson, *Biodiversity of Life* (Harvard Univ. Press, Cambridge, MA, 1992).
3. A. M. Joseph, Jr., Ed., *America in 1492* (Vintage, New York, 1991).
4. R. S. Nicholson, *Science* 261, 143 (1993).
5. P. R. Ehrlich, in *Perspectives in Ecological Theory*, J. Roughgarden, R. M. May, S. A. Levin, Eds. (Princeton Univ. Press, Princeton, NJ, 1989), pp. 306-318.

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.

Reed F. Noss

7310 NW Acorn Ridge Drive,
Corvallis, OR 97330

QUALITY ANTIBODIES

FOR

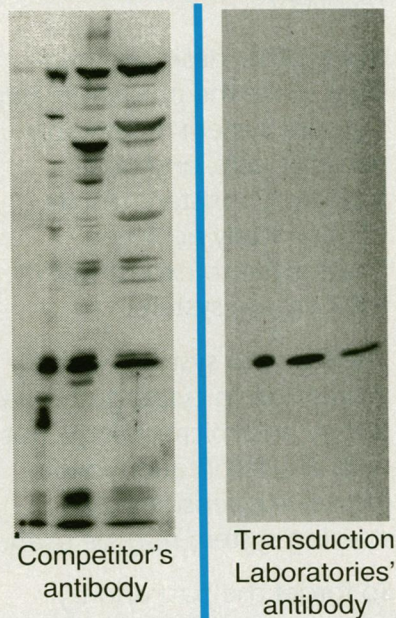
SIGNAL TRANSDUCTION RESEARCH

Monoclonal antibodies to:

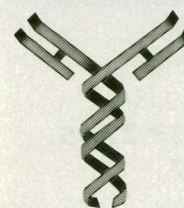
- Map kinases (ERKs), Map ERK kinases (MEKs), and ERK kinase kinase (MEK kinase)
- SH2 containing proteins: GRB2, SHC, PI3 kinase, GAP, VAV, NCK, PLC γ , ISGF3, PTP1C, PTP1D
- Receptor tyr. kinases: EGF, insulin, PDGF, FGF receptors
- Phosphotyrosine: monoclonal PY20, polyclonal, recombinant antibody RC20
- Many other signalling proteins

Don't compromise your research with inferior antibodies!

Anti-Grb2 Western Blot



Affordably priced under \$200



**Transduction
Laboratories**

1-800-227-4063
Lexington, Kentucky
Tel: 606-277-1399
Fax: 606-276-2251

In Europe, contact:
Affiniti Research Products
Tel: (44) 602-436100
Fax: (44) 602-436300

In Japan, contact:
Funakoshi Co., LTD.
Tel: 81-3-5684-1622
Fax: 81-3-5684-1633

Circle No. 47 on Readers' Service Card