Supporting the Scientific Diaspora

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LETTERS

edited by Jennifer Sills

When Science-Based Management Isn't

CREDIT: ANDREW WRIGHT

IN DECEMBER 2013, THE PROvincial government of British Columbia, Canada, approved the expansion of a controversial trophy hunt of at-risk grizzly bears. This decision raises doubts about the rigor of wildlife management and government policy in the region. Similar concerns have been raised in the United Kingdom (*1*) and the United States ("Science behind plan to ease wolf protection is flawed, panel says." V. Morell, News & Analysis, 14 February, p. 719).

We recently found that between 2001 and 2011, in half of all hunted populations, human-caused death of grizzlies exceeded mortality rates deemed sustainable by government biologists. In addition, failure to properly account for uncertainty in estimates of population sizes, poaching rates, and population growth parameters meant that hunting targets might have been too high (*2*). Surprisingly, despite the ensuing media attention, the government reopened hunting in previously overhunted populations, stating, "[b]ecause we recognize inherent uncertainty in our population and harvest rate estimates, conservative mortality targets are used" (*3*). Although the government's justification borrowed our recent study's language about uncertainty, their decision ran counter to its conclusions. Moreover, the government came under fire during debate in the provincial legislature (*4*, *5*) for claiming in a press release that another recent study (*6*) confirmed management sustainability, when in fact the paper made no such claims.

Such outcomes reflect a wider problem that often arises when scientific evidence exposes flaws in preferred government policies. Governments can make "science-based" claims without being held to the same standard of transparency and scrutiny expected from scientific researchers. Similar shortcomings were recognized in the proposed delisting of gray wolves from the U.S. Endangered Species Act (Morell's News & Analysis) and badger culling in Great Britain for disease control (*1*). Given the substantial economic and ecological costs of management failure, it is alarming that purported scientific management often proceeds without the hallmarks of science—transparency, intelligibility, and rigorous evidence.

We propose that wildlife managers be held to the same level of scrutiny as research scientists through independent oversight similar to the peer-review process. This would incorporate science into management, ensure that the best available evidence is used in management decisions, and improve accountability to the public for whom wildlife are ostensibly managed.

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References

1. H. C. J. Godfray *et al.*, *Proc. R. Soc. London Ser. B* **280**, 20131634 (2013).
2. K. A. Artelle *et al.*, *PLOS ONE* **8**, e78041 (2013).
3. S. MacDonald, "Province proposes grizzly hunting around Kimberley, Fernie, Sparwood and Elkford," *Free Press* (26 December 2013); www.thefreepress.ca/news/237171991.html.
4. 2014 Legislative Session: Second Session, 40th Parliament, Committee A Blues (6 March 2014); www.leg.bc.ca/hansard/40th2nd/20140306pm-CommitteeA-Blues.htm.
5. 2014 Legislative Session: Second Session, 40th Parliament, Committee A Blues (10 March 2014); www.leg.bc.ca/hansard/40th2nd/20140310pm-CommitteeA-Blues.htm.
6. G. Mowat *et al.*, *PLOS ONE* **8**, e82757 (2013).

U.S. Policy Impedes Innovators

IN THEIR POLICY FORUM "DOCTORAL STUDENTS and U.S. immigration policy" (1 November 2013, p. 562), K. E. Maskus *et al*. point to the potential economic benefits of expanding opportunities for the brightest international graduate students to remain in this country after graduation. However, the present immigration system creates unnecessary barriers that prevent many international students from obtaining green cards (permanent residency), thus limiting their postgraduation contributions to innovation and job creation in the United States. International graduate students, typically on F-1 visas, are not permitted to declare dual intent (the intent to study and immigrate), and the opportunities for obtaining a green card after graduation are limited regardless of career path.

Graduates who pursue postdoctoral positions in academia are often on exchange visitor J-1 visas that grant, by definition, temporary and nonimmigrant status. In the industry, H-1B visas can lead to employer-sponsored green cards, but the number of available visas is drastically short of demand, as is the number of available employment-based green cards for people born in certain backlogged countries such as India and China.

Moreover, despite the critical role of innovation and job creation in growing our nation's economy, graduates who start companies—whose products may spring from work accomplished at American universities—face the tallest hurdles. Legally, international graduate student entrepreneurs are often not allowed to found their companies under their own names and, instead, must be sponsored to work for a company owned by another party. An alternative pathway for entrepreneurs is a foreign investor EB-5 visa, but the personal investment of up to $1 million required from applicants places this option out of reach for most recent graduates. Meanwhile, other countries have created programs to capitalize on entrepreneurs who were trained in the United States but cannot find a way to stay (*1*).

From a practical standpoint, these restrictions dissuade future innovators from pursuing careers in this country and thereby encourage the development of new technologies elsewhere in the world. Some straightforward reforms that would improve the situation include: (i) authorizing dual intent for student visa holders, (ii) increasing the number of H-1B visas available to recent graduates and increasing the number of green cards awarded to highly educated immigrants in STEM fields, and (iii) creating a new immigration pathway to encourage entrepreneurship.

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References and Notes

1. "Where creators are welcome," *The Economist* (9 June 2012); www.economist.com/node/21556636.
2. The authors are writing on behalf of the Legislative Action Subcommittee of the Graduate Student Council at the Massachusetts Institute of Technology.

Letters to the Editor

Letters (~300 words) discuss material published in *Science* in the past 3 months or matters of general interest. Letters are not acknowledged upon receipt. Whether published in full or in part, Letters are subject to editing for clarity and space. Letters submitted, published, or posted elsewhere, in print or online, will be disqualified. To submit a Letter, go to www.submit2science.org.

Supporting the Scientific Diaspora

IN THEIR EDITORIAL "MEETING GLOBAL CHALlenges" (7 February, p. 579), P. A. Sharp and A. I. Leshner urge scientific institutions and funders to adjust to the increasingly global context of research, policy, and applications. In particular, the authors recognize that more opportunities are needed for scientists "to collaborate in international settings and participate in global science projects during their training years." To advance this aim, we should provide better support for the scientific diaspora—those scientists working outside their native countries.

Scientists working abroad, such as myself, often maintain strong personal and professional connections with our home countries. We have linguistic and cultural sensitivities that enable us to serve as bridges and foster trust between cultures and nations (*1*). This can pave the way for long-term relationships.

International scientists can be a valuable resource for both U.S. institutions and the countries of origin, especially among developing nations, counterbalancing historic "brain drain" (*2*).

In many disciplines, from field biologists to engineers, scientists working abroad are already extensively engaged internationally. The United States has benefited from the global pool of STEM graduate and postdoctoral researchers of foreign origin (*3*). Yet, at the training stage, we fall between the cracks. For instance, grants such as the Fulbright and National Science Foundation International Research Fellowship aim to provide applicants experience in a novel environment, thus explicitly excluding endeavors in applicants' countries of origin. Non-U.S. citizens are severely limited in funding options before the principal investigator stage. These deficiencies should be recognized and compensated with complementary programs that encourage interaction with countries of origin. Strengthening the capacity of diaspora scientists to do what we are uniquely positioned to do would go a long way toward meeting global challenges.

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References

1. N. P. Anand, K. J. Hofman, R. I. Glass, *Acad. Med.* **84**, 525 (2009).
2. D. Kapur, J. McHale, *Give Us Your Best and Brightest: The Global Hunt for Talent and Its Impact on the Developing World* (Brookings Institution Press, Baltimore, MD, 2005).
3. J. E. Lane, K. Kinser, "The US relies heavily on foreign students to support STEM fields and the knowledge economy: Could the foreign talent bubble burst?" (2013); www.rockinst.org/observations/lanej/2013-05-Is_Bubble_Bursting.aspx.

CORRECTIONS AND CLARIFICATIONS

News & Analysis: "Major conservation group guts science team in strategy shift" by E. Stokstad (7 March, p. 1069). The Luc Hoffmann Institute was launched with a nearly $23 million grant; the $20 million figure previously cited was not in U.S. dollars. Additionally, the source of the grant has been clarified. The funding came from the MAVA Foundation, which was founded by Hans Lukas "Luc" Hoffmann, not from Hoffmann himself. The HTML and PDF versions online have been corrected.

Review: "Cutting-edge techniques used for the structural investigation of single crystals" by J. A. K. Howard and M. R. Probert (7 March, p. 1098). In the Fig. 1 legend, the credit for the benzene structure (inset) was missing. It is from reference 28: A. E. Goeta, J. A. K. Howard, *Chem. Soc. Rev.* **33**, 490 (2004). The HTML and PDF versions are correct.

News & Analysis: "Neandertals and moderns made imperfect mates" by A. Gibbons (31 January, p. 471). This article said that a "Neandertal allele may have helped our ancestors adapt rapidly to the colder habitats in Europe and Asia." In fact, the allele has been found so far only in people of Eurasian descent, not in those of African descent. The HTML and PDF versions online have been corrected.

News Focus: "A pancreas in a box" by D. Clery (10 January, p. 133). The marginal credits failed to note that the small image of a cellphone and its display that appeared over the highlighted quotation was provided by Boris Kovatchev, Director of the UVA Center for Diabetes Technology at the University of Virginia School of Medicine in Charlottesville. The original draft of the article noted that Dr. Kovatchev's research group had facilitated testing of insulin-controlling devices by developing an artificial-pancreas operating system for Android smartphones and a system of "virtual patients." The HTML and PDF versions online have been corrected.

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