



## LETTERS

edited by Jennifer Sills

### Funding Should Come to Those Who Wait



**Long-term studies.** Studies spanning decades have yielded insights into red deer and other species.

WE APPLAUD THE PERSPECTIVE BY T. CLUTTON-BROCK AND B. C. Sheldon (“The Seven Ages of *Pan*,” 5 March, p. 1207) on the value of long-term behavior and ecological research. We pick up where they left off: funding.

Long-term research has cumulative value that far exceeds its annual rate of return. Sadly, quick empirical studies trump long-term research in the reward system for academic promotion in ecology and behavior. If long-term research is to flourish, we must build a reward system for studies characterized by deferred gratification. A sea change in these values must precede attempts to address funding.

To secure the future of long-term field projects, we must act on three fronts:

(i) We must devise funding mechanisms for “legacy” projects deemed too valuable to falter. Whereas the National Science Foundation’s (NSF’s) National Ecological Observatory Network and Long-Term Ecological Research programs support long-term collaborative, site-based research, there is a compelling need to support the diversity of long-term investigator-initiated programs. As implemented, NSF’s Long-Term Research in Environmental Biology program is a first step, but has insufficient support to maintain many valuable projects.

(ii) We must develop mechanisms to fund the establishment of new programs with long-term potential. Such potential may not be initially appreciated, but with vision and support, new systems studied over the long run will produce novel insights.

(iii) Support for ecological research must be increased. We do not advocate robbing Peter (short-term research) to pay Paul (long-term research). However, we maintain that Paul has already been robbed and some balance needs to be restored.

Most of us involved in long-term research have a story to share, in which time-limited funding shortages took our programs to the edge of a precipice. Investigators that succeed and become known for long-term research, almost by definition, have found a way to adapt to funding shortfalls, usually at great personal sacrifice. A recent case at the Los Amigos Biological Station in the Peruvian Amazon speaks to the value of funding continuity (1). During a 4-year period of programmatic support, the scientific productivity of the station surged, producing many valuable findings and building substantial scientific capacity for the region. Since the funding evaporated, the station has failed to return to its former glory, at great loss to our ability to make scientific inroads into understanding the ecology of this area, characterized by unrivaled biodiversity.

Of course, long-term programs must remain intellectually vibrant and methodologically rigorous if they are to be supported. In the end, the onus is on ecologists to convince ourselves, society, and funding agencies that long-term research has unique and irreplaceable value.

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#### Reference

1. N. C. A. Pitman, *Trends Ecol. Evol.* 25, 381 (2010).

### Brazilian Law: Full Speed in Reverse?

IS IT POSSIBLE TO COMBINE MODERN TROPICAL agriculture with environmental conservation? Brazilian agriculture offers encouraging examples that achieve high production together with adequate environmental protection (1, 2). However, these effective practices may soon lose ground to the conventional custom of resource overexploitation and environmental degradation.

A revision to the Forest Act, the main Brazilian environmental legislation on private land, has just been submitted to Congress, and there is a strong chance that it will be approved. The proposed revision raises serious concerns in the Brazilian scientific community, which was largely ignored during its elaboration. The new rules will benefit sectors that depend on expanding frontiers by clear-cutting forests and savannas and will reduce mandatory restoration of native vegetation illegally cleared since 1965. If approved, CO<sub>2</sub> emissions may increase substantially, instead of being reduced as was recently pledged in Copenhagen. Simple species-area relationship analyses also project the extinction of more than 100,000 species, a massive loss that will invalidate any commitment to biodiversity conservation. Proponents of the new law, with well-known ties to specific agribusiness groups, claim an alleged shortage of land for agricultural expansion, and accuse the current legislation of being overprotective of

#### Letters to the Editor

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