LETTERS

Creating a European Research Council

IT IS A VERY POSITIVE DEVELOPMENT IN THE EU that many governments now recognize that basic, not just targeted, research is vital for a knowledge-based society. This realization lays the foundations for innovation, long-term growth, and improvement of quality of life. The enlarged EU, a newly elected European Parliament, and a new Commission should now grasp the historic opportunity to establish without delay a European Research Council (ERC), with full participation of the scientific community.

Many learned societies, organizations of scientists, universities, European research organizations, and large laboratories have contributed extensively to the emerging consensus that Europe needs to fund basic research, including the social sciences and humanities, not only at a national level but also at the European level. An ERC supported by the scientific community is needed to ensure that the best research is funded, to combat the prevailing fragmentation of research efforts, and to provide long-term commitment of science policy in Europe toward the development of its science base at the highest level. Such an ERC must be independent and must adhere to strict criteria of scientific excellence and originality. Its budget must be commensurate with the ambition of achieving a proper balance with European targeted programs.

Expanding and strengthening basic research in Europe is also in the interest of industrial innovation and competitiveness. Europe’s knowledge society requires a strong science base in all countries, new human resources for science and technology, better science education, and a renewed priority for science communication and scientific culture, and it will benefit from a wider dialogue between scientists and citizens and, hence, a broader social constituency for its scientific and technological development. The role of the universities in this respect should be recognized.

Basic science has no frontiers. With only national and no significant European mechanisms for the support of basic research, universities and research institutes have not been able to muster the resources to provide the necessary scale and scope for their best scientists and their teams. Stronger cooperation across Europe is needed in most areas. In the recent past, Europe has lost significant ground vis-à-vis the United States. For instance, Europe’s share in high-impact publications is deteriorating in most areas, its performance in Nobel prizes is fading, and its capability to attract top scientists from abroad, or even to retain its own talents, is dangerously declining. It is therefore a matter of urgency to strengthen basic research in Europe and to provide the next generation of scientists with the proper means and working environment. Failure to do so may lead to an irreparable loss of talent.

The Commission has done much preparatory work on the ERC. A first communication on Basic Science was published in January and a second in June. We welcome these important initiatives and in particular the very positive role that the EC Commissioner for Research, Philippe Busquin, has played in this respect. New opportunities, however, also carry the danger of fostering complacency. That would be a grave mistake, as much work lies ahead of us. In times of uncertain and possibly more limited financial prospects than hoped for, other important, highly visible political issues may easily obscure the long-term benefits of basic research. Furthermore, governments should not be tempted to reduce national funding for basic science if an ERC is established.

We call upon those who are entrusted by Europe’s people to create the conditions for Europe’s long-term future to act on the conviction that science is a cornerstone of European society. Providing funds for researchers, engaged in basic research, at the European level through an ERC is an important milestone in achieving a knowledge-based society. Scientists and their organizations, universities, and research institutes are today united and ready to continue their efforts to make the ERC a reality. This appeal, launched by the Initiative for Science in Europe (ISE), is endorsed in a personal capacity by the Presidents, Chairs, and Directors General of 52 European organizations in all scientific disciplines.

LETTERS TO THE EDITOR

Letters (300 words) discuss material published in Science in the previous 6 months or issues of general interest. They can be submitted through the Web (www.submit2science.org) or by regular mail (1200 New York Ave., NW, Washington, DC 20005, USA). Letters are not acknowledged upon receipt, nor are authors generally consulted before publication. Whether published in full or in part, letters are subject to editing for clarity and space.

The enlarged EU, a newly elected European Parliament, and a new Commission should now grasp the historic opportunity to establish without delay a European Research Council (ERC)...”
Predators and Prey in the Channel Islands

IN THEIR BREVIA, "REMOVING PROTECTED populations to save endangered species" (28 Nov., p. 1532), F. Courchamp et al. use a predator-prey model on Santa Cruz Island to make the case for lethal removal of golden eagles (*Aquila chrysaetos*) from Channel Islands National Park. In the model, as nonnative feral pigs (*Sus scrofa*) are removed, eagles increasingly target native foxes (*Urocyon littoralis*) and could drive them to extinction if mitigating measures are not taken. But in fact, some of the underlying factors in this model do not represent actual conditions.

Eagles are protected under the Bald and Golden Eagle Protection Act and the Endangered Species Act. In March, the fox subspecies on each of the northern Channel Islands was listed as endangered, and measures to prevent fox extinction and ultimately provide for recovery are being taken. Between 1999 and 2002, foxes were captured and brought into captivity on all three of the northern Channel Islands, to be held until the threat from eagles is further reduced or eliminated, and to increase wild fox populations through captive breeding and release. A working group of 90 professionals advises the fox recovery effort. Since 1999, 35 golden eagles have been captured and relocated to northern California. Despite employment of the most effective known golden eagle capture techniques, some eagles evade capture and continue to breed and prey on foxes.

Running a captive breeding program on three island locations is not without its own risks, particularly from disease, loss of genetic variation, and changes in behavior. For those reasons, and to learn more about the efficacy of restoration in the face of a novel predator, foxes were released from the breeding facilities on Santa Cruz and Santa Rosa Islands starting in December 2003. On Santa Cruz, five of the nine foxes released were killed by golden eagles, and the remaining four were returned to captivity. On Santa Rosa, one of the released foxes died of eagle predation, seven remain in the wild, and a pair of the released foxes has produced two pups. Captive-bred foxes seem much more susceptible to eagle predation. In contrast, annual survivorship of the remaining wild foxes on Santa Cruz was 80% in 2003, as determined by radiotelemetry.

Even with a high population of pigs present, the island foxes released from captivity experienced a high predation rate, suggesting that they were the preferred food for some eagles or the more accessible food in some areas. Moreover, the removal of the pigs on Santa Cruz is necessary for the recovery of nine endangered or threatened plants. Bald eagles (*Haliaeetus leucocephalus*), which were the dominant raptor species on the islands until the 1950s, coexisted with abundant fox populations. They have recently been reintroduced to Santa Cruz Island. Mature bald eagles and the absence of all feral prey should make the northern Channel Islands less attractive to golden eagles.

The original human settlers of Polynesia encountered islands with rich avifaunas, limited reptile and bat faunas, and plentiful inshore marine resources. These resources alone were probably insufficient to sustain resident human populations. Instead, humans spread throughout Polynesia by translocating horticulture and animal husbandry from Near Oceania, introducing many plants and several animals (pigs, dogs, and chickens) throughout the Pacific. Subsequently, pigs were the only large nonhuman mammal in Pacific ecosystems, existing on various islands in domesticated and feral states. They were certainly exploited for food, but the extent to which humans relied on them is uncertain. Nevertheless, they were intentionally translocated throughout Polynesia in tandem with human expansion and may have played a role in successful human establishment throughout the region.

Anthropogenic impacts of human colonization and expansion in the Pacific ulti-
Letters

KRISTOFER M. HELGEN
Department of Environmental Biology, University of Adelaide, Adelaide, SA 5000, Australia. E-mail: kristofer.helgen@adelaide.edu.au.

References

Response

DRATCH ET AL. ARGUE THAT OUR MODEL OF apparent competition involving golden eagles, feral pigs, and critically endangered island foxes “has limited application,” because “underlying factors...do not represent actual conditions.” We contend that its implications for island fox conservation are crucial.

Our model—like all models—is an abstraction that cannot predict what will happen, but only suggests what may happen. Our model was derived from another that accurately depicted fox decline following golden eagle colonization (1). We took great care to parameterize it to reflect conditions both before and after the translocation of golden eagles. Hence, our model was based on the best available data. We acknowledge that our formulation ignored the recent reintroduction of bald eagles, but we caution that deterrence of golden eagles by bald eagles is speculative (2). Although we support bald eagle reintroduction, we do not believe that decisions concerning fox recovery should hinge on the assumption that this undocumented management action will work.

Although we are reassured by the persistence of foxes in captivity and acknowledge the National Park Service’s (NPS) efforts in averting extinction, captive populations are no substitute for wild ones. Further, the NPS has delayed several conservation measures that could have improved the chances of recovery (3), and the recent unsuccessful releases of captive foxes on Santa Cruz Island described by Dratch et al. were conducted against the advice of the “working group of 90 professionals” (4). Finally, the NPS already had information on the “efficacy of restoration in the face of a novel predator.” In 2002, they released three captive-born foxes on Santa Cruz Island and two were killed by golden eagles (3). Such decisions point to the need for the NPS to base resource management in the National Parks on sound science (5).

We have previously advocated—with great regret—the lethal removal of golden eagles that have proven too elusive to capture (6). We are encouraged that Dratch et al. agree that this measure may be necessary, but we are concerned that they may not view this action as urgent. Whether pig eradication alone will prompt the extinction or recovery of wild foxes can only be known for certain by trying it—our research shows that the risk of extinction is high. The precautionary principle therefore suggests that immediate, and complete, removal of golden eagles is the measure needed to spur recovery of the critically endangered island fox.

Helgen suggests that domestic/feral pigs “may have played a role in successful human establishment” throughout Polynesia and “may have played an indirect role” in the declines of insular bird and reptile species via apparent competition. We find Helgen’s hypothesis both clever and thought provoking, but we also note that apparent competition is difficult to elucidate and often overlooked as an important process in communities and ecosystems (7, 8). We considered the case on the Channel Islands to be “unique” because we were able to show that apparent competition was responsible for the trophic reorganization of this vertebrate community and that it ultimately led to the near extinction of an endemic insular carnivore (1). In contrast, although it is highly likely that pigs played some role in the extinctions of insular fauna in the Polynesian region, it is difficult to be sure whether these past extinction events were due to apparent competition, or to direct effects such as predation and habitat modification (9–11).

The value of our study was essentially threefold: We were able to reveal the mechanism responsible as it occurred, we linked this mechanism with a loss in biodiversity that resulted from the introduction of an exotic species, and we then projected possible effects of management actions. The community reorganization was “unexpected”: No one predicted that golden eagles would colonize the islands as a consequence of the pigs’ presence. Our model projections were likewise “unexpected”: Removing pigs at first seemed a logical solution to the problem, yet our model suggested that this might cause eagles to focus more on the remaining foxes, increasing the latter’s probability of extinction.

GARY W. ROEMER, ROSIE WOODROFFE,*FRANCK COURCHAMP*

*Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, NM 88003, USA.
2Department of Wildlife, Fish and Conservation Biology, University of California, Davis, CA 95616, USA.
3Ecologie, Systématique & Évolution, Université Paris-Sud, 91405 Orsay, France.

References

Corrections and clarifications

Letters: “The health benefits of eating salmon” by C. M. Rembold (23 July, p. 475). The credit for the image accompanying this letter was inadvertently omitted. The credit should be Pat Wellenbach/AP.

Technical comment abstracts

Comment on “Observation of the Inverse Doppler Effect”

Evan J. Reed, Marin Soljacic, Mihai Ibanescu, John D. Joannopoulos

Seddon and Bearpark (Reports, 28 November 2003, p. 1537) presented a creative and exciting observation of a reversed Doppler effect when an electromagnetic shock propagates through a transmission line. We find that the physical origin of this anomalous effect is fundamentally different from the one suggested by Seddon and Bearpark (that νnaive/group < 0) but that the experimental results can be properly validated with the correct theory.

Full text at www.sciencemag.org/cgi/content/full/305/5685/778b

Response to Comment on “Observation of the Inverse Doppler Effect”

N. Seddon, T. Bearpark

We thank Reed et al. for their comments and alternative interpretation of the experimentally observed inverse Doppler shift. However, we believe that the wave propagation and reflection processes presented in the original paper accurately describe the physical mechanisms in this experiment. Full text at www.sciencemag.org/cgi/content/full/305/5685/778c