

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 publi-

cations 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.

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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

Letters to the Editor

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Directors General of 52 European organizations in all scientific disciplines.

INITIATIVE FOR SCIENCE IN EUROPE (ISE): EUROPEAN LIFE SCIENCES FORUM (ELSF), EUROPEAN MOLECULAR BIOLOGY LABORATORY (EMBL), EUROPEAN MOLECULAR BIOLOGY ORGANIZATION (EMBO), EUROPEAN PHYSICAL SOCIETY (EPS), EUROPEAN PLANT SCIENCE ORGANIZATION (EPSO), EUROPEAN SCIENCE FOUNDATION (ESF), EUROPEAN UNIVERSITY ASSOCIATION (EUA), EUROSCIENCE, FEDERATION OF EUROPEAN BIOCHEMICAL SOCIETIES (FEBS), GROUP OF EUROPEAN NOBEL LAUREATES, STIFTERVERBAND FÜR DIE DEUTSCHE WISSENSCHAFT (CHAIRIED BY PROFESSOR JOSÉ MARIANO GAGO, FORMER PORTUGUESE MINISTER OF SCIENCE AND TECHNOLOGY). OTHER SUPPORTING ORGANIZATIONS: ACADEMIA EUROPAEA, ALL EUROPEAN ACADEMIES (ALLEA), ASSOCIATION OF EUROPEAN GEOLOGICAL SOCIETIES (AEGS), EUROPEAN ANTHROPOLOGICAL ASSOCIATION (EAA), EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS (EAA), EUROPEAN ASSOCIATION OF EXPERIMENTAL SOCIAL PSYCHOLOGY (EAESP), EUROPEAN ASSOCIATION OF LAW AND ECONOMICS (EAL), EUROPEAN ASSOCIATION OF PHARMA BIOTECHNOLOGY (EAPB), EUROPEAN ASSOCIATION OF RESEARCH AND TECHNOLOGY ORGANIZATIONS (EARTO), EUROPEAN ASSOCIATION OF SOCIAL ANTHROPOLOGISTS (EASA), EUROPEAN ASTRONOMICAL SOCIETY (EAS), EUROPEAN BIOPHYSICAL SOCIETIES ASSOCIATION (EBSA), EUROPEAN CYSTIC FIBROSIS SOCIETY (ECFS), EUROPEAN COLLOID AND INTERFACES SOCIETY (ECIS), EUROPEAN CONSORTIUM FOR POLITICAL RESEARCH (ECPR), EUROPEAN FEDERATION OF BIOTECHNOLOGY (EFB), EUROPEAN FEDERATION OF IMMUNOLOGICAL SOCIETIES (EFIS), EUROPEAN FEDERATION OF ORGANIZATIONS FOR MEDICAL PHYSICS (EFOMP), EUROPEAN FEDERATION OF PSYCHOLOGISTS' ASSOCIATIONS (EFPA), EUROPEAN GEOSCIENCES UNION (EGU), EUROPEAN GROUP FOR ATOMIC SPECTROSCOPY (EGAS), EUROPEAN HIGH PRESSURE RESEARCH GROUP (EHPRG), EUROPEAN LIFE SCIENTIST ORGANIZATION (ELSO), EUROPEAN MATHEMATICAL SOCIETY (EMS), EUROPEAN MATERIALS RESEARCH SOCIETY (E-MRS), EUROPEAN NETWORK OF IMMUNOLOGY INSTITUTES (ENII), EUROPEAN NUCLEAR SOCIETY (ENS), EUROPEAN OPTICAL SOCIETY (EOS), EUROPEAN SOCIETY OF GENE THERAPY (ESGT), EUROPEAN SOCIETY OF HUMAN GENETICS (ESHG), EUROPEAN SOCIETY FOR NEUROCHEMISTRY (ESN), EUROPEAN SOCIOLOGICAL ASSOCIATION (ESA), EUROPEAN SOUTHERN OBSERVATORY (ESO), EUROPEAN SYNCHROTRON RADIATION FACILITY

(ESRF), FEDERATION OF EUROPEAN CHEMICAL SOCIETIES (FECS), FEDERATION OF EUROPEAN MATERIALS SOCIETIES (FEMS), FEDERATION OF EUROPEAN MICROBIOLOGICAL SOCIETIES (FEMS), FEDERATION OF EUROPEAN NEUROSCIENCE SOCIETIES (FENS), FEDERATION OF EUROPEAN PHARMACOLOGICAL SOCIETIES (EPHAR), MARIE CURIE FELLOWSHIP ASSOCIATION (MCFA), "SAUVONS LA RECHERCHE" (SLR).

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 were 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.

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In the California Channel Islands, golden eagles (*Aquila chrysaetos*) prey on feral pigs (*Sus scrofa*) and island foxes (*Urocyon littoralis*). The fox population is in decline.

Island foxes were brought into captivity because of predation by golden eagles. Because foxes are successfully breeding in captivity, the immediate threat of extirpation is low, even with pig removal. Although Courchamp *et al.*'s model there-

fore has limited application, the policy issue of lethally removing a protected predator is entirely relevant to fox recovery. Such lethal removal of golden eagles may be the only management action which, in the end, permits recovery of island foxes. It can now be reviewed and evaluated under the process by which federal agencies safeguard species and landscapes.

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IN THEIR BREVIA "REMOVING PROTECTED populations to save endangered species" (28 Nov., p. 1532), F. Courchamp *et al.* describe a remarkable ecological scenario from California's Channel Islands, where the introduction of pigs enabled colonization by golden eagles, resulting in the decline of an endemic island fox via eagle predation. Courchamp *et al.* predict that without the complete removal of eagles, eradication of pigs would amplify threats posed by the eagles to the foxes. They have called the actual and predicted dynamics of this system "unexpected" and "unique" (1). Although highly illuminating, this example may represent a special case of a scenario more common than the authors appreciate.

The original human settlers of Polynesia encountered islands with rich avifaunas, limited reptile and bat faunas, and plentiful inshore marine resources (2, 3).

These resources alone were probably insufficient to sustain resident human populations (3). Instead, humans spread throughout Polynesia by transporting horticulture and animal husbandry from Near Oceania, introducing many plants and several animals (pigs, dogs, and chickens) throughout the Pacific (3).

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 (4, 5). Nevertheless, they were intentionally translocated throughout Polynesia in tandem with human expansion (4) and may have played a role in successful human establishment throughout the region.

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