

## Biopiracy rules hinder conservation efforts

SIR — The summits of the neotropical Guayana Highlands in Venezuela have a unique biodiversity that is under serious threat because of habitat loss resulting from climate warming. Although conservation studies are urgently needed, these are blocked by official bodies that will not grant permits for fieldwork in the region.

The bureaucratic process starts with the Venezuelan government's agency for science and technology, FONACIT, and involves a network of different organizations controlled by the ministry of the environment. These include the national tepui (table-mountain) commission, the biodiversity office, the office of indigenous affairs and the national institute of parks.

We have been involved since July 2005 in an international conservation project, funded by the Spanish BBVA Foundation, on the Guayana Highlands flora, in collaboration with several Venezuelan universities, research institutes and other organizations. It took us two years to obtain permits from FONACIT and for sample collection to be authorized. For unspecified reasons, the permits do not allow genetic studies, so molecular phylogenetic analysis is impossible. We are still trying to obtain approval from the office of indigenous affairs, but the people are reluctant to comply: they consider themselves owners of the summits, which are sacred lands to them.

The lengthy bureaucratic procedures have prevented scientific fieldwork in the Guayana Highlands for almost twenty years, when permissions to visit the summits for any purpose were suspended to avoid human disturbance and biopiracy (see below, 'Biopiracy: conservationists have to rebuild lost trust' *Nature* 453, 26; 2008). It is to be hoped that the situation may be reversed before it is too late to undertake suitable conservation strategies.

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## Biopiracy: conservationists have to rebuild lost trust

SIR — Working just south of Valentí Rull and Teresa Vegas-Vilarrúbia, we share the frustrations they describe on this page over obtaining permits — even though we only collect observations ('Biopiracy rules hinder

conservation work' *Nature* 453, 26; 2008). However, we disagree with the implications they draw for conservation.

Biopiracy is a matter of deep concern for indigenous peoples, who all too often have had their heritage abused. Practical conservation actions must adapt accordingly.

In 2001–02, a Japanese company controversially registered the common name of the fruit 'cupuaçu' (*Theobroma grandiflorum*) as a trademark. This aroused a great deal of alarm.

Brazil's national justice secretary, Romeu Tuma, is now asking Congress to consider a bill requiring foreigners — individuals, religious groups and environmentalists — to have a permit before visiting the Amazon (see <http://tinyurl.com/6kygfm>).

Contact with indigenous peoples is also contentious for other reasons. Whatever the merits of scientific exploration, indigenous peoples need to know how to evaluate researchers' requests and find out what is in it for them. After all, outside contact sometimes means massive cultural disruption — as with oil exploration in the western Amazon.

Conservation professionals can do much to improve the situation. They can start by acknowledging the rights of indigenous peoples, as recognized by Article 31 of the United Nations Declaration on the Rights of Indigenous Peoples (see <http://tinyurl.com/5okbd7>). Then, they can investigate indigenous people's needs through personal contact.

Practical actions that can be undertaken by researchers include providing Global Positioning System units and training in how to use them so that peoples can define their territories, helping to market traditional handicrafts or ecotourism, and building schools. Free, informed consent, obtained in advance through the proper channels, can ensure meaningful participation of indigenous peoples in project design and implementation. This should also minimize confrontations and the delays they cause.

Such actions are not a *quid pro quo*, but arise from a sense of justice. They can provide an important framework of trust for the ultimate conservation question: will indigenous groups manage their own lands, their own biodiversity, in sustainable ways?

Scientific needs are one small step on the way to that dialogue. We should not miss that step by focusing only on completing research projects.

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## Spain should implement a model that's known to work

SIR — Your Editorial about the current state of Spanish science (*Nature* 451, 1029; 2008) suggests that 'A new Silver Age' is possible. Although Spain's research investment, at 1.1% of gross domestic product, is still below the European average (1.8%), the recent boost in the science budget has funded plans such as the Ramón y Cajal programme, intended to recover young scientists from abroad, and the creation of independent research institutes. But unless there are radical policy changes, the increased funding will not be sufficient to reduce the science chasm between Spain and other countries.

Blatant 'inbreeding' practices still thrive. Some 90% of Spanish scientists continue to occupy positions at the institutions where they obtained their PhDs, a situation that hinders the mobility and exchange of ideas that underpin strong science (see *Nature* 410, 14; 2001; *Nature* 411, 132; 2001). The Popular (conservative) Party, which governed from 1996 to 2004, brought in a national committee to replace the local committees that had previously been responsible for appointments. Although this maintained high standards for selection, it has failed to reduce academic endogamy. And although vacancies at most institutions are now publicized, this usually happens only after an in-house candidate has been unofficially chosen for the job.

A proposal by the current socialist government allows national evaluation of a candidate exclusively on the grounds of a detailed CV. However, that will still not solve the problem, as universities and research centres — which retain control of the final selection process — continue to favour their own candidates. Many of the Spanish regional governments have set up local evaluation agencies, often with different criteria: a positive report is mandatory when applying for a position in that particular region.

An even more flagrant practice favours candidates who are fluent in the local language, in addition to Castilian, irrespective of their scientific merits. This discriminates against non-local and foreign scientists trying to build a career in Spain. This is common practice and is in violation of the European Charter for Researchers (<http://tinyurl.com/42zbdg>).

Spanish policy-makers should stop reinventing the wheel in every four-year term. Instead, they should implement models that have worked for decades in countries with a long-standing tradition in science, such as the Max Planck institutes in Germany or the Medical Research Council in the United Kingdom.

Increased funding must be accompanied

by changes that, so far, Spanish politicians have ignored or failed to tackle.

The creation of a ministry of science and innovation and the appointment of a respected scientist, Cristina Garmendia, to head it, give us hope for a change in direction.

Unless the necessary changes are implemented, the careers of Spanish scientists, particularly the younger ones, cannot flourish.

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SIDNEY HARRIS

## Spain: leading role of scientists is heartening

SIR — In your Editorial 'A new Silver Age?' (*Nature* 451, 1029; 2008), you highlight the urgent need for reforms in the organization of science, after science funding in Spain has been increased during the past four years. The socialist government has since been re-elected. What changes is this likely to bring?

Scientific and academic interests will be served by the newly created ministry of science and innovation, headed by biologist Cristina Garmendia, who runs a biotechnology company. The new government's composition is heartening news for scientists — for example, the minister of health is a professor of physiology, the minister of industry is an economist with a strong interest in science, and even the minister of the interior is a professor of chemistry.

Leading up to the general election of 9 March, the socialist party held out the carrots of more funding and structural reforms for science. Implementation of their programme will modernize a system that stems from one designed by the first socialist government in 1982, which first introduced grants and evaluation procedures.

Thirty years ago, I wrote an article about science in newly democratic Spain (*Nature* 274, 8–9; 1978). The situation has changed radically since that time, and it promises to continue to do so under a forward-looking stewardship.

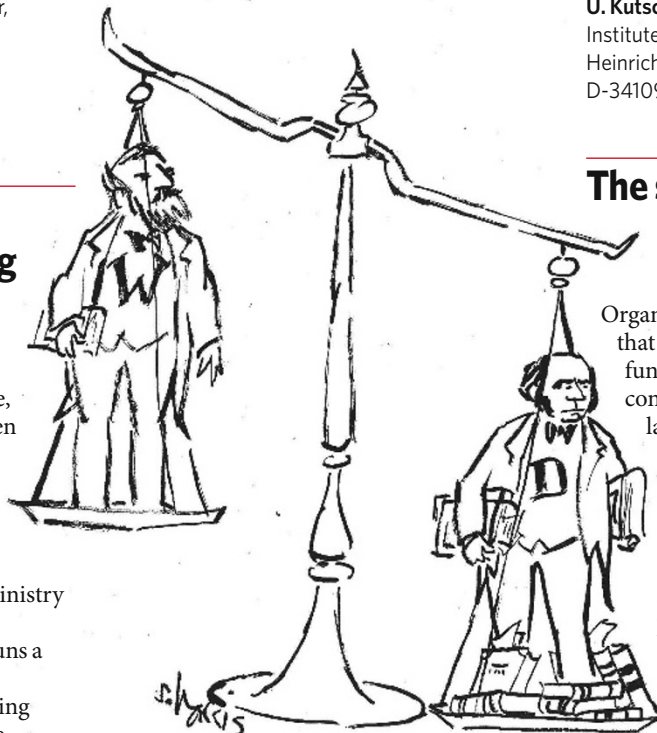
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## Darwin-Wallace principle of natural selection

SIR — In their Correspondence 'Celebrations for Darwin downplay Wallace's role' (*Nature* 451, 1050; 2008), G. W. Beccaloni and V. S. Smith question why Alfred Russel Wallace's achievements have been overshadowed by those of Charles Darwin, despite their discovery together of natural selection and its significance for the transformation of species (C. Darwin & A. R. Wallace *J. Proc. Linn. Soc. Lond.* 3, 45–62; 1858). I think the reasons for this are threefold.

First, Darwin's 1859 book *On the Origin of Species* describes the theory of descent with



modification by means of natural selection in much more detail than is found in his short essay with Wallace, published the previous year. The book became a bestseller and was translated into many languages. *Nature's* archives reveal the immediate impact of Darwin's monograph — see, for instance, T. H. Huxley's anniversary Editorial ('The coming of age of *The Origin of Species*' *Nature* 22, 1–4; 1880), but this made no mention of Wallace's contribution.

Second, Wallace had always acknowledged the priority of Darwin with respect to their joint discovery published in 1858. He used the term 'darwinism' as a synonym for 'the darwinian theory of natural selection' and popularized it (A. R. Wallace *Darwinism* Macmillan, London, 1889). To my knowledge, 'wallaceism' is a term that has never been coined.

Finally, Wallace was heavily involved with spiritualism by the 1860s. He confirmed his

belief in miracles and defended so-called supernatural phenomena, such as 'table-tapping', for the rest of his long life. This seriously undermined his credibility as a scientist, and cast a shadow over his brilliant theoretical work of 1858 on the struggle for existence in wild animal populations.

What can we do to rehabilitate Wallace and to acknowledge his important contributions to evolutionary biology? The 'Darwin-Wallace principle of natural selection' could be substituted for the old-fashioned 'darwinism', which smacks more of a political ideology than a modern scientific theory. This simple change in terminology might restore balance to the Darwin-dominated view of the history of the life sciences.

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## The status of science in Muslim nations

SIR — The decision made by the Organization of the Islamic Conference, that only countries committed to donating funds will be allowed to join its standing committee on science and technology, is laudable and newsworthy. However, it hardly justifies the News in Brief headline 'Muslim nations raise status of science' (*Nature* 452, 517; 2008). A News Feature in the same issue reports the establishment of a research centre in Lisbon, made possible by the donation of half a billion euros (US\$782 million) by a single Portuguese philanthropist ('Navigating new waters' *Nature* 452, 528–529; 2008).

Nations are made up of individuals as well as governments. If governments in some Muslim states are not supporting science, why don't a few wealthy individuals step in? And if they did, would competent researchers, securely employed in a scientifically vigorous milieu, be willing to take up residence in the organization's member countries?

As your News Feature suggests, good scientists will go to Lisbon only if conditions are better than those elsewhere. The same applies even more forcefully to the Islamic countries, because conditions conducive to intellectual autonomy and scientific progress require more than a mere injection of capital. In Portugal, democracy needed to mature after the bloodless 'carnation revolution' in the 1970s ended a long spell of dictatorship.

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