Correspondence

EU needs to ban ivory trade, too

As the 18th Conference of the Parties (COP18) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) approaches, China and its allies in elephant conservation urge the European Union to enact a strict domestic ban on ivory trading. The EU's current proposal merely to restrict trade could derail other hard-won bans across the globe (see L. Zhang *Nature* **527**, 135; 2015 and go.nature.com/2vpek8k).

China and the United States — formerly two of the world's largest ivory markets — imposed domestic ivory bans in 2017 and 2016, respectively. Many other countries, including the United Kingdom, France and Luxembourg, followed.

More than half of EU member states report significant seizures of elephant ivory. Trading and processing of uncarved ivory is still permitted in the EU, and artificially aged or carved ivory items are being legally exported to Asia and elsewhere as 'antiques'. This gross laxity is perpetuating illegal trading worldwide.

The EU could introduce a phasing-out period of a few months for selling raw ivory, as China did, and exempt trading in musical instruments and to accredited museums, for example.

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French cuts could fuel brain drain

In my view, the promises made in France's latest national research strategy to keep funding stable and improve career prospects for young scientists need to be more grounded in reality (see *Nature* **566**, 164; 2019). Funds allocated to academic research projects by France's National Research Agency have steadily decreased since the financial crisis of 2008. The number of permanent research positions available at the National Centre for Scientific Research (CNRS) is also falling, down by 50 from last year. And, although it will cost less than 50 tenured appointments, the research ministry's creation of 300 extra PhD scholarships for this year seems to be a short-sighted move. It will funnel more PhD graduates into less-secure positions, and so could fuel the brain drain of newly qualified researchers.

Concerned scientists met the research minister in March, supported by more than 12,000 signatures on a petition demanding that the 50 positions be reinstated (see go.nature.com/2vcuey). Together, these would cost €5 million (US$5.6 million) per year, much less than the roughly €6 billion given in tax credits to private research companies. So far, there has been no indication that the government is prepared to change course on the issue, or on its strategy for academic research funding in general.

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Don't muddy Munk's legacy

I take issue with Thomas Murphy's implication that the late Walter Munk furthered his career at a cost to marine life (*Nature* **568**, 171; 2019). As the chief scientist in the 1991 programme for monitoring marine mammals that Murphy discusses, it is my view that Munk instead deserves credit for his insight into the climate problem — an unequivocal threat to marine life — and for supporting a much-needed science-based approach to understanding and mitigating the impact of human-generated noise in the ocean.

Murphy cites the original concerns over the Heard Island Feasibility Test (HIFT), but not the contradictory evidence accumulated since. He implies that Munk should have abandoned a large, multi-organizational, state-of-the-art effort to measure ocean temperature on a global scale. He infers that the number of authorized takes in the programme permit reflect the damage the experiment was expected to cause.

This interpretation is incorrect. In fact, the revised number of takes reflects an estimate of the number of animals that might detect the transmissions made during HIFT. With Munk's full backing, HIFT was conducted with onsite marine-mammal monitoring that included permit-agency staff (see A. E. Bowles *et al. J. Acoust. Soc. Am.* **96**, 2469; 1994). Munk also lent his political and scientific support to stepwise disturbance experiments in a sequel to the programme (see A. S. Frankel and C. W. Clark *J. Acoust. Soc. Am.* **108**, 1930 (2000) and A. S. Frankel and C. W. Clark *Mar. Mam. Sci.* **18**, 644–662; 2002).

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Stats: a trillion *P* values on

As someone who has published more than a trillion *P* values, I disagree that testing an association for statistical significance should be banned (see V. Amrhein *et al. Nature* **567**, 305–307; 2019).

We might just as well argue in favour of banning exams. Associations are ranked on *P* values, rather as exams are assigned a pass mark. A student might score just below that grade (equivalent to, say, '$P = 0.051$'), and another just above it ('$P = 0.049$'). The candidates are not so different, but setting a pass/fail threshold indicates who probably needs to study more. And, just as there are ways to stop students cheating in exams, rules can be devised to prevent *P* hacking — for example, by 'pre-registration of studies'. Moreover, if an exam comprises only a small selection of questions (analogous to statistically 'underpowered studies'), other tests ('replication studies') would be necessary to confirm the results. Banning exams entirely could not overcome such pitfalls.

Statistical significance is just one of several criteria — including replication, cost–benefit analysis and synthesis of information from different sources — that need to be met before deciding whether a preclinical lead is worth pursuing. No health-care policy was ever based solely on whether $P < 0.05$.

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Stats: educate *P*-value abusers

The concept of statistical significance is analogous to 'beyond reasonable doubt' in the justice system — it reflects the uncertainty in data that people are prepared to accept. In my view, banning the use of statistical significance would be impractical (see *Nature* **567**, 283 (2019) and V. Amrhein *et al. Nature* **567**, 305–307; 2019). Instead, we need to educate scientists in the proper usage of the term.

Although we strive for perfection in science, we must face the reality that many discoveries are false. Ronald Fisher developed the idea that if only one in 20 trials fails ($P < 0.05$), it is fair to assume that the others did not succeed by chance. Users need to appreciate that statistical significance is a convenient, common-sense — but not absolute — measure. In the pharmaceutical industry, for example, it underpins quality control.

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