LETTERS

Edited by **Jennifer Sills**

Retraction

We would like to retract the Report "Asymmetric remote C–H borylation of aliphatic amides and esters with a modular iridium catalyst" (*1*) after discovering that the reported enantioselective gamma-selective C–H borylation of *N*,*N*-dibenzylhexamide (**1a**) is not reproducible and that many of the nuclear magnetic resonance (NMR) spectra were manipulated. For example, the signal patterns of the ^{1}H NMR spectra of boronate (*R*)-**2b** (4-boryl-*N*-*tert*-butylhexamide) and (*R*)-**2g** (*tert*-butyl 4-boryl-hexanoate) (S129, S144) are identical, the baselines of the ^{13}C NMR spectra of (*R*)-**2b** and (*R*)-**2g** are identical (S130, S145), duplicative signals are found in the ^{1}H NMR spectrum of boronate (*R*)-**2f** (ethyl 4-boryl-hexanoate) (two triplets in 0.7 to 0.9 ppm and two multiplets in 2.2 to 4.1 ppm) (S141), and the baseline of (*R*)-**2f** (S142) is also identical to those of (*R*)-**2b** and (*R*)-**2g**. These issues undermine our confidence in the integrity of the study as a whole. We regret any confusion and apologize to the scientific community. All authors have agreed to retract this Report, and an institutional investigation of misconduct is underway.

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Evolutionary risks of osprey translocations

The osprey *Pandion haliaetus* is a mostly migratory, cosmopolitan raptor (*1*) that was historically extirpated or highly depleted in southern Europe. Because the species is charismatic, it has garnered public attention that has stimulated broad conservation action, fundraising, and political commitment. Osprey translocation programs have been a primary conservation strategy in Europe since 1996 (*1*). However, because evidence suggests that translocation programs that move individuals without accounting for local adaptations between populations have negative short- and long-term effects (*2*–*5*), this approach should no longer be used to meet conservation goals.

An osprey chick from an endangered population sits in a nest on the rocky cliffs of Corsica.

PHOTO: JEAN-MARIE DOMINICI

Translocations over the past several decades have contributed to increases in southern and western osprey populations (*1*). However, in most cases source populations were from distant geographical areas of central and northern Europe (*6*), from which native Mediterranean osprey populations differ in both genetics (*6*) and migratory behavior (*6*–*8*). Whereas native Mediterranean populations are residents or short-distance migrants within the Mediterranean basin (*7*), breeding birds from reintroduced populations in Spain and Portugal maintained a long-distance migratory pattern, similar to birds from the donor populations (*8*).

Reintroductions that are not consistent with the evolutionary history of a species, and that will likely alter the species' future evolution, could prove detrimental to conservation (*2*–*5*). Evidence suggests that mortality of translocated animals, mixing with neighboring local populations (*2*), and changes in migratory and dispersal behavior (*2*, *5*, *8*) are likely to take place in the short term. Long-term effects could include genetic homogenization that annihilates part of the genetic diversity of the species at broader spatial scales (*2*–*4*) and decreases in the species' ability to adapt to climate change.

In June, the local government of Generalitat Valenciana plans to release near Valencia, Spain, large numbers of ospreys originating in central Europe (*9*). Although the project was conceived as a way to improve conservation, it instead focuses on the short-term social and political benefits associated with the return of a totemic species. By prioritizing short-term goals, the plan disregards the demonstrated risks of such translocations and the recommendations of international conservation agencies (*10*–*12*).

We warn the scientific community and the Spanish authorities against the planned actions and recommend appropriate international assessments to ensure that all future reintroductions adhere to science-based recommendations. Genetic and behavioral processes that occur on evolutionary time scales are at least as important as those that are readily visible at the time scales of most conservation actions (*10–12*).

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How to weaken Russian oil and gas strength

Oil and gas exports represent Russia's key geopolitical strength, as well as its major source of hard currency revenues (*1–3*). At current prices, these are estimated at around US$1 billion per day (*4*), representing an important lifeline for an economy under heavy financial sanctions in response to Russian President Vladimir Putin's invasion of Ukraine. The European Union (EU) buys 75% of Russian gas exports and 50% of Russian oil exports (*5*). An EU embargo on Russia would substantially undermine Putin's geopolitical and economic positions. However, given a full embargo's potential impacts on the EU, securing the approval of all EU countries is difficult. To limit Russia's oil and gas revenues while keeping up the flows, the EU should instead introduce a tariff on Russian oil and gas imports. The tariff can be adapted to the economic and political dynamics of the conflicts.

A tariff's effect on domestic prices depends on the relative elasticities of supply and demand—i.e., on whether sellers and buyers have relatively better alternatives. The more inelastic the supply (e.g., because Russian exports cannot be diverted) and the more elastic the demand (e.g., because the EU can replace Russian supplies), the more of the tariff will be paid by the supplier (*6*). Russian oil and gas exports to Europe are inelastic in the medium term because infrastructural bottlenecks prevent a substantial redirection to Asia. The EU therefore has a real chance to ensure that tariff revenues are mostly paid by Russia.

To improve its position, the EU needs to increase its demand elasticity. This can be done by incentivizing a reduction of oil and gas demand in Europe and by increasing the use of all available alternative energy resources. By implementing a bold energy strategy, Europe can credibly threaten to cut Russia's oil and gas revenue while minimizing the domestic economic consequences of a tariff.

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A global plastic treaty must cap production

In March, the UN Environment Assembly adopted a resolution to combat plastic pollution with a global and legally binding plastics treaty by 2024 (*1*). In his News In Depth story "United Nations to tackle global plastics pollution" (25 February, p. 801), E. Stokstad discusses many of the ambitious provisions that were included, such as a consideration of the whole plastic life cycle and binding targets. However, it is unclear whether the treaty will include a cap on production or cover plastic chemicals. Despite interventions by the industry (*2*) and objections from the United States and other delegations, reducing plastics at the source by curbing production is critical.

The current mass of plastic production is at about 450 million tons annually and set to double by 2045 (*3*). The immense quantity and diversity of both plastics and plastic chemicals, the total weight of which exceeds the overall mass of all land and marine animals (*4*), already poses enormous challenges. Ensuring the safety of every available plastic and chemical is impossible, as their rates of appearance in the environment exceed governments' capacities to assess associated risks and control problems (*5*). Plastic pollutants have altered vital Earth system processes to an extent that exceeds the threshold under which humanity can survive in the future (i.e., the planetary boundary) (*5*). Because legacy plastics in the environment break down into micro- and nanoparticles (*6*), this form of pollution is irretrievable and irreversible (*6*). In addition to the risks for human and environmental health, the whole life cycle of plastic accounts for 4.5% of our current greenhouse gas emissions (*7*) and could consume 10 to 13% of our remaining CO_2 budget by 2050 (*8*). The growing production and inevitable emissions of plastics will exacerbate these problems (*6*).

Failing to address production will lead to more dependence on flawed and insufficient strategies. Some waste management technologies, such as forms of thermal and chemical recycling, cause socioeconomic and environmental harm (*9*). Much of the plastic waste is currently exported from the North to the Global South, which poses a substantial threat to marginalized and vulnerable communities and their environments (*10*). Even when applying all political and technological solutions available today, including substitution, improved recycling, waste management, and circularity, annual plastic emissions to the environment can only be cut by 79% over 20 years; after 2040, 17.3

million tons of plastic waste will still be released to terrestrial and aquatic environments every year (*11*). To fully prevent plastic pollution, the path forward must include a phaseout of virgin plastic production by 2040 (*12*).

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COMPETING INTERESTS

S.M.B. has served as a cochair and microplastics expert on an advisory panel for the California Ocean Science Trust.

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ERRATA

Erratum for the Research Article "Copper induces cell death by targeting lipoylated TCA cycle proteins," by P. Tsvetkov *et al.*, *Science* **376**, eabq4855 (2022). Published online 22 April 2022; 10.1126/science.abq4855

Erratum for the Report "A ubiquitous tire rubber–derived chemical induces acute mortality in coho salmon," by Z. Tian *et al.*, *Science* **375**, eabo5785 (2022). Published online 18 February 2022; 10.1126/science.abo5785

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How to weaken Russian oil and gas strength

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