



Proposed regulations in Germany would allow increased lethal control of wolves.

Achieving a sustainable human-wolf coexistence in Germany is possible. It requires a science-based policy that facilitates the implementation of existing nonlethal livestock protection measures and promotes the mitigation of the negative impact of wolves as well as an appreciation of the possible benefits that wolves provide (9).

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Protect African vultures from poison

Of the 16 Old World vulture species, 81% are globally threatened or near-threatened (1). Most of these species are declining, particularly in Asia and Africa, mainly due to anthropogenic activities such as the illegal use of poisons (2, 3). In Africa during the past 30 years, populations of eight vulture species declined by an average of 62% (4). Ivory poachers are partly to blame. In an act known as sentinel poisoning, poachers use poison to kill elephants or to contaminate their carcasses in an effort to eliminate vultures that, by flying overhead, would reveal the poachers' presence (5). Deliberate killing of vultures to trade body parts for belief-based uses (such as traditional medicine) also poses a substantial threat to African vulture populations (6). From January 2018 to date there have been more than 1000 vultures poisoned in Africa, including incidents in Mozambique, South Africa, Botswana,

LETTERS

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Germany's wolves in the crosshairs

The German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety submitted in June an amendment to the Nature Conservation Act (1). The change would relax lethal control of wolves (*Canis lupus*), which returned to the country in 2000 (2) and are protected under the European Union's Habitats Directive (3). Assuming the German parliament passes the amendment as expected, the regulations governing wolf conservation in Germany would depart from the Habitats Directive by failing to explicitly mention that lethal control can only be implemented in cases that lack a "satisfactory alternative" mitigation method (4).

The amendment permits lethal removal of wolves by private hunters after livestock depredation and "in the interest of human health" until no further damages occur, which allows for the possibility of eliminating entire packs. The omission of nonlethal methods in the amendment

discourages the use of nonlethal, possibly more effective, conflict mitigation methods (5). The amendment also lacks guidelines for monitoring the effectiveness of the suggested interventions, thereby preventing an objective assessment of the policy. This policy change may set a dangerous precedent toward legalizing hunting of other protected species.

There is no evidence that lethal removal of wolves is likely to meet the goals (such as increased safety of livestock and citizens) stated in the Nature Conservation Act amendment. Scientific studies have not supported the hypothesis that lethal removal of wolves and other wild canids effectively and enduringly reduces livestock depredation at large spatial scales (6), unless entire wolf packs are removed (7) or population sizes are substantially reduced. However, these methods conflict with the current EU Habitats Directive's key objective of "maintaining [populations] in a favorable conservation status" (3). Lethal removal of predators may cause unintended effects, including the disruption of social structures and dispersal behavior, which may lead to resurgence of livestock depredation events (8).

Zambia, Namibia, Tanzania, and Kenya (7).

For millennia, vultures have provided ecosystem services by removing animal carcasses and other human waste (thereby controlling diseases), recycling nutrients, and providing cultural inspiration and recreational value (8, 9). The sustainability of free-ranging vulture populations depends on our ability to identify and mitigate existing and future threats. African governments should prioritize the reduction of illegal poisoning related to traditional medicine and poaching, as well as the education of their citizens about the dangers of pesticide misuse.

Urgent action is needed to harmonize human development in Africa with vulture conservation. The implementation of national and regional vulture conservation strategies, such as the Multispecies Action Plan to Conserve African-Eurasian Vultures (Vulture MsAP) (10), adopted by African and other range countries in October 2017, was an important first step. Although some actions recommended by the Vulture MsAP to reduce the impact of poisoning on the continent's vultures have been implemented in some areas in southern, east, and west Africa, a lot more needs to be done (3, 11). For example, better coordination of such activities in identified poisoning hotspots is needed. Efforts to curb the impact of poisoning and to establish vulture safe zones are underway in southern and east Africa, but limited action has been taken elsewhere (10, 11). For the plan to succeed, its implementation will also need more substantive material and financial support from African governments.

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Waste on the roof of the world

In February, China closed its Everest base camp on the Qinghai-Tibetan Plateau due to waste accumulation (1). Improper garbage disposal and related hazards are not limited to Mount Everest. The Qinghai-Tibetan highway has brought waste generated from packaged goods and other commodities to the plateau for decades, and it has been accumulating even more rapidly since the railway began to bring tourists and consumer products to the region in 2006 (2).

From 2000 to 2018, the number of tourists visiting the Tibetan Autonomous Region increased 200-fold, reaching 33.7 million (3, 4). The increased local population and urbanized lifestyle (5) have also contributed to garbage accumulation. Meanwhile, the local people have gradually replaced their traditions, which produce little waste, with the western diet and lifestyle (5, 6). As a result, nonbiodegradable and toxic waste has damaged the Qinghai-Tibetan Plateau's fragile environment, including its water (7, 8).

Given the fragile environment, extreme weather conditions, and limited infrastructure, the waste produced on the plateau has been beyond the local capacity to handle. The Tibetan Autonomous Region is capable of treating 256,000 tons of domestic solid waste per year (9, 10), yet its two major cities alone produced more than that in 2014 (10). Garbage sorting, which became compulsory in Shanghai recently (11), may serve as the initial step toward a solution.

The Chinese government announced plans to organize waste sorting efforts in 2017 (12), but progress on the Qinghai-Tibetan Plateau has been slow. The implementation of an effective sorting program will require joint efforts by local governments, local communities, and nongovernmental organizations to provide sufficient resources for regulation, enforcement, and education. Given the limited local capacity for handling waste, the majority of the sorted garbage may need to be delivered to the lowland for recycling. The Qinghai-Tibetan railway and highway, as well as a new expressway under construction, all allow waste to reach the region; they can help the environment by now providing the routes for trash removal.

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TECHNICAL COMMENT ABSTRACTS

Comment on "Spin coating epitaxial films"

Chaojing Lu and Lingli Tang

Kelso *et al.* (Reports, 12 April 2019, p. 166) claim that inorganic epitaxial films were deposited onto single-crystal or single-crystal-like substrates by spin coating. The epitaxial relationships were determined by x-ray diffraction. According to their pole figures, we estimate that each of their films contains only 4.1% to 25.5% epitaxial grains. None of their films can be considered epitaxial.

Full text: dx.doi.org/10.1126/science.aay3894

Response to Comment on "Spin coating epitaxial films"

Meagan V. Kelso, Naveen K.

Mahenderkar, Qingzhi Chen, John Z.

Tubbesing, Jay A. Switzer

Lu and Tang claim that the spin-coated films in our study are not epitaxial. They assume that all of the background intensity in the x-ray pole figures of the spin-coated materials is due to randomly oriented grains. There is no evidence for randomly oriented grains in the 2θ x-ray patterns. The background intensity in the pole figures is also comparable to the background from the single-crystal substrates, which is inconsistent with their assumption.

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Science

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