Hunting wolves is legal in Slovakia unless it threatens populations, but available data are insufficient to determine its effects.

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# Evidence-based hunting policy needed in Slovakia

The Swiss people recently rejected a law that would have allowed protected animals to be hunted (*1*), but hunting of vulnerable species such as wolves still occurs in Slovakia and elsewhere in Europe. The European Union's Habitats Directive allows deliberate killing of wolves in nine countries (*2*) unless hunting would threaten the sustainability of the population, but population data are inadequate in some countries. Slovakia must implement evidence-based policies to protect wolf populations.

In 2016, Slovakia made changes to increase wolf hunting regulation and improve population monitoring (*3*). However, the changes have not been implemented nationally. Recently, the Slovak Ministry of Agriculture and Rural Development approved a quota of 50 wolves for the upcoming winter season (*4*). Such policies should be based on a scientific assessment of the viability of wolf populations (*5*). Instead, the Ministry justified the number by citing misleading arguments about sheep farming and food security (*4*).

In contrast to the government's claims, wolves kill less than 0.1% of Slovakia's sheep and goats (*3*). The recent policy also fails to acknowledge that sheep breeding in Slovakia declined between 2009 and 2019, when 28 to 158 wolves were killed per year, suggesting that hunting did not mitigate the problem (*6*). The food security justification is also specious: Sheep and goat products are only a small part of Slovak diet and accounted for less than 0.4% of gross agricultural production in the past 10 years (*7*). Instead of relying on misleading justifications for hunting, Slovakia should find alternative methods to minimize the risk of damages from large carnivores. However, the country has so far opted not to use EU funds available for this purpose (*8*).

Policies in Slovakia target wolves as the only source of problems in the agricultural sector and ignore the market-based causes of the sheep decline that have been shown elsewhere in Europe (*9*, *10*). Although wolf numbers are trending positively in Europe (*11*), Slovak hunting affects wolf recovery in neighboring Czechia, where the wolf population is protected (*12*). Without reliable evaluation of hunting impact, Slovakia cannot make informed policy decisions, despite the country's nominal adherence to EU regulations. Slovakia's failure to collect adequate data and base policy on science is a dangerous precedent that undermines biodiversity conservation efforts in Europe and worldwide.

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## COMPETING INTERESTS

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# Computational social science: On measurement

In their Policy Forum "Computational social science: Obstacles and opportunities" (28 August, p. 1060), D. M. J. Lazer *et al.* propose ethical data infrastructures for computational social science research. Concentrating on access to platform trace data, they dismiss third-party market data from such companies as Nielsen and comScore because of "opaque" methods and

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high cost. We believe both have virtues, but their proper use requires a keener appreciation of each measurement regime.

All data result from measurement processes designed and executed to serve a given institutional context (*1*, *2*). Platforms profit from shaping usage and they measure toward that end. Using their trace data to understand human conduct remains problematic as long as platforms are themselves opaque about their methods for managing user behavior (*3*). Social Science One and Twitter's COVID-19 application programming interface may be productive precedents of platform data provision, but computational social science should reckon with the effects of platform measurement.

Unlike platforms, third-party measurement firms are not invested in how users behave. As with public-sector data (such as the U.S. Census), third-party measurement is periodically audited (*4*). Its procedures and consequences are constantly appraised by actors with competing interests (*5*). Serving industries, policy-makers, and academics, third-party market research has invested for decades in refining what Lazer *et al.* aspire to: "an administrative infrastructure… enforcing compliance with privacy and ethics rules," which aligns "with critical research norms" including "transparency, reproducibility, replication, and consent" (*3*, *6*, *7*).

Third-party measurement firms such as Nielsen and comScore supply data to a broad subscriber base of advertising agencies and content publishers, which lowers data costs. Academic institutions worldwide may access numerous such third-party datasets via Wharton Research Data Services and Chicago Booth, brokers that partner with third-party firms for this purpose. Meanwhile, public data can be cost prohibitive (such as CDC's National Death Index).

What ensures data's "public accountability" is not a public-sector origin but how the measurement regime is institutionally arranged (*3*). In addition to expanding data collaborations and data infrastructures, attention to the measurement regimes of "found data" and reflexive triangulation across data sources are indispensable to development of computational social science.

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# Chinese sturgeon needs urgent rescue

China's construction of large hydropower stations on the Yangtze and Jinsha rivers has had a devastating impact on the resources, spawning and reproduction behavior, and migration habits of the Chinese sturgeon (*Acipenser sinensis*), a "living fossil" (*1*) with immeasurable scientific, ecological, social, and economic value. In the 1970s, there were more than 10,000 Chinese sturgeon breeding populations in the Yangtze River, but the number dropped to 2176 in the 1980s when the Yangtze's first dam and hydropower station opened, then to 363 in 2000, and to 57 in 2010 (*2*). The International Union for Conservation of Nature (IUCN) now lists the Chinese sturgeon as Critically Endangered (*3*), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) lists the species under Appendix II (*4*). China must take action to save this vulnerable species.

The Jinsha River, located in the upper reaches of the Yangtze River, is the traditional spawning ground and natural breeding habitat of the Chinese sturgeon (*5*), as well as the largest hydropower base in China (*6*). The construction of the cascade dams on the Jinsha River hinders the Chinese sturgeon's ability to swim upstream to spawn and migrate and damages their habitat (*7*). Moreover, a series of dams on the upper reaches of the Yangtze River and the Three Gorges Reservoir have affected Chinese sturgeon spawning activities by leading to warmer water temperatures (*8*). Since the Three Gorges, Xiangjiaba, and Xiluodu projects began operation in 2008, 2012, and 2013, respectively, the effective reproduction of the Chinese sturgeon has mostly been lost, and the wild population is facing extinction.

China has established three Chinese sturgeon nature reserves (*9*) and implemented a 10-year fishing ban in the Yangtze River (*10*), which began in January 2020. These efforts are not enough. Although China artificially breeds and releases Chinese sturgeon, this strategy is not effectively restoring population numbers (*11*). To save the wild Chinese sturgeon population, targeted measures must be taken to decrease the impact of the Yangtze River dams and restore natural reproduction. The government should immediately reassess the ecological impact of the Jinsha River hydropower project, especially with regard to Chinese sturgeon and other migratory fish habitats. A Chinese sturgeon channel should be built in the hydropower stations along the Jinsha River to ensure the smooth flow of migratory fish in the Yangtze River. China should also prioritize the protection of aquatic organisms in the Yangtze River, increase protection of the habitats of the Chinese sturgeon in the Yangtze River and its coastal areas, strictly control fishing, and increase the number of artificial releases.

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## ERRATA

**Erratum for the Report "Large contribution from anthropogenic warming to an emerging North American megadrought" by A. P. Williams *et al.,*** *Science* **370**, eabf3676 (2020). Published online 30 October 2020; 10.1126/science.abf3676

**Erratum for the Report "Meta-analysis reveals declines in terrestrial but increases in freshwater insect abundances" by R. Van Klink *et al., Science* 370**, eabf1915 (2020). Published online 23 October 2020; 10.1126/science.abf1915

**Erratum for the Report "Generation of influenza A viruses as live but replication-incompetent virus vaccines" by L. Si *et al., Science* 369**, eabe5323 (2020). Published online 4 September 2020; 10.1126/science.abe5323

# Evidence-based hunting policy needed in Slovakia

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