

LETTERS

Edited by Jennifer Sills

Editorial Expression of Concern

On 27 March 2020, *Science* published the Research Article “Flux-induced topological superconductivity in full-shell nanowires” by S. Vaitiekėnas *et al.* (1). Pursuant to a reader request, the authors released additional data—archived at Zenodo (2)—taken in association with the project that led to their paper. After the release of the additional data, two readers expressed a joint concern that the tunneling spectroscopy data published in the original paper are not representative of the entirety of the data released in association with this project. While we await the outcome of a full investigation commenced by the authors’ academic institution (Niels Bohr Institute, University of Copenhagen), we are alerting our readers to this concern.

H. Holden Thorp
Editor-in-Chief

REFERENCES AND NOTES

1. S. Vaitiekėnas *et al.*, *Science* **367**, eaav3392 (2020).
2. S. Vaitiekėnas *et al.*, “Replication data for: Flux-induced topological superconductivity in full-shell nanowires,” Zenodo (2019); <http://doi.org/10.5281/zenodo.4263106>.

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Mitigate human-wildlife conflict in China

Since passing a wildlife protection law in 1989, China has made great strides in wildlife conservation (1). Protection in natural habitats, conservation in zoos, and release of captive wildlife back into nature have all facilitated the population growth of species such as the Siberian tiger (*Panthera tigris ssp. altaica*) and Amur leopard (*Panthera pardus orientalis*) (2). These animals, in search of additional food and space, enter areas developed by humans, leading to human-wildlife conflicts (3, 4). From the late 1990s through 2010, there were more than 6000 cases of compensation for wildlife damage nationwide (5). Yet, local populations and governments remain unprepared to deal with wildlife in populated areas.

Since March, 2020, a herd of wild Asian elephants (*Elephas maximus*)—an endangered species that originally inhabited the Xishuangbanna National Nature Reserve

in Yunnan’s southernmost prefecture—has been on the move, causing great damage to human interests and attracting international attention (6). Other large endangered wildlife, such as the gray wolf (*Canis lupus*), the Tibetan brown bear (*Ursus arctos pruinosus*), and the snow leopard (*Panthera uncia*), have also frequently left their established habitats and appeared in China’s urban and rural areas in recent years (7–9). In response, local governments have enacted temporary emergency plans and evacuations and, in some cases, rounded up or hunted the animals (10).

These measures threaten the safety and property of local residents and cause irreparable damage to wildlife (11). Instead, China should build on previous successes in ecological restoration and environmental governance. For example, the 13th Five-Year Plan included an ecological monitoring system based on community participation and an intelligent early warning platform that effectively protected 90% of the country’s plants and 85% of its wild animals (12).

To protect both humans and wildlife, local governments should invest in additional wildlife monitoring and biological diversity research. In addition, the National Forestry and Grassland Administration should provide the public with information about how to behave when confronted with wild animals, emphasizing the need to avoid personal injury and minimize economic loss while also keeping the animals

safe. News organizations should curb their tendency to sensationalize wildlife news and instead disseminate accurate information about endangered species and conflict prevention. To address wildlife encounters, the government should establish consistent emergency plans that include early evacuation when appropriate and the prompt notification of wildlife professionals, who can decide how to proceed based on the condition of the wild animals. Finally, a compensation mechanism should be put in place that incentivizes animal protection by providing more support for damages to property if the animal who caused them was not harmed.

Duo Yin, Zhenjie Yuan, Jie Li, Hong Zhu*

School of Geography and Remote Sensing, Guangzhou University, Higher Education Mega Center, Guangzhou, 510006, China.

*Corresponding author.
Email: zhuhong@gzhu.edu.cn

REFERENCES AND NOTES

1. Q. Huang *et al.*, *Biol. Conserv.* **254**, 108937 (2021).
2. G. Huang *et al.*, *Natl. Sci. Rev.* **10**, 1093/1093/nr/nwab042 (2021).
3. J. Yang *et al.*, *Science* **364**, 1242 (2019).
4. Z. Wang *et al.*, *Science* **367**, 373 (2020).
5. J. Xu, J. Wei, W. Liu, *Ecol. Evol.* **9**, 7273 (2019).
6. C. Fandi, W. Lin, “Kunming well prepared as 15 wild elephants intrude after 500km journey,” *Global Times* (2021).
7. J. D. Farrington, D. Tsering, *Biol. Conserv.* **237**, 504 (2019).
8. Y. Dai *et al.*, *Glob. Ecol. Conserv.* **22**, e01039 (2020).
9. J. Wang *et al.*, *Rangeland Ecol. Manag.* **72**, 210 (2019).
10. J. Li *et al.*, *Biol. Conserv.* **166**, 118 (2013).
11. J. M. Grande, S. Zuluaga, S. Marchini, *Science* **360**, 1309 (2018).
12. Y. Wanli, “Protection efforts bring wildlife back from brink,” *China Daily* (2021).

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PHOTO: GETTY IMAGES



A herd of wild Asian elephants (*Elephas maximus*) has been migrating north through China for more than a year.

Iran's alarmingly mismanaged zoos

Instead of providing a sanctuary for rare species, Iran's zoos, aviaries, and wildlife conservation centers have been the sites of repeated instances of animal suffering (1, 2). Animals at some of these centers have recently been mistreated, burned, stoned, and slaughtered (3, 4), and those being imported from other regions have suffered high mortality rates (5). These atrocities negate any potential benefit conferred through captive animal management, and it is, thus, essential for Iran to improve zoo monitoring, licensing, and operation.

Iran has more than 80 "conservation centers," but only 53 of them are licensed by the country's Department of Environment (DoE) (4, 6). The others, which include some of the largest zoos in the country, are operating illegally. Shiraz Zoo and Vakilabad Zoo are unlicensed due to noncompliance with the DoE's instructions (7), yet they remain open. Iran's DoE has a responsibility to shut down centers that do not meet its criteria, including adequate space for each animal, sanitary conditions, diet, and transporting standards (7, 8).

Unfortunately, the conditions in Iran's 53 licensed centers are not better (7). Despite their permits claiming otherwise, animals at these centers suffer from malnutrition, poor health, and insufficient

space. For example, each lion requires 300 square meters according to both Iranian and international standards, yet many of Iran's licensed zoos keep four to five lions in just 100 square meters (9, 10).

Worse still, because many of Iran's 80 conservation centers are located in remote areas and do not have many visitors, they resort to animal trafficking, including exotic species, and the production of domestic animals, such as puppies, to raise funds for operations (4, 11). The demand in Iran for nonnative animals such as lions, tigers, chimpanzees, kangaroos, elephants, giraffes, and zebras has led to higher rates of mortality and suffering in captive conditions (4) because administrators lack the ecological and biological knowledge required to properly care for them. Moreover, Iran does not have the infrastructure to import or care for these animals.

Iran's DoE and Veterinary Organization jointly manage oversight of captive facilities, which increases the complexity and reduces the transparency of monitoring. Given the serious and concerning conditions that exist at captive facilities within Iran, we argue that no new centers should be established and that import of animals to existing centers should be prohibited. Furthermore, a deadline must be set by which Iranian DoE protocols and center standardization should occur. Captive facilities should be required to increase security and monitoring using current technologies such as surveillance cameras and sensors, to implement regulatory systems that are managed online and up to date, and in some cases to merge so that resources and specialist care can be better implemented [as recently occurred with the Barajin Zoo and Pardisan (12)]. The keeping of captive animals requires resources, regulation, and responsibility. We urge the Iranian authorities to play a more active role in order to protect the welfare of its captive animals and improve its conservation centers.

Yasin Orooji^{1,2,3*} and Hassan Karimi-Maleh^{4,5}

¹Nanjing Forestry University, Nanjing, China.

²Nanjing Tech University, Nanjing, China. ³Nanjing

Institute of Environmental Sciences, Nanjing,

China. ⁴University of Electronic Science and

Technology of China, Chengdu, China. ⁵Quchan

University of Technology, Quchan, Iran.

*Corresponding author. Email: yasin@njfu.edu.cn

REFERENCES AND NOTES

1. M. Kheshti, *Science* **369**, 1066 (2020).
2. F. Amiraslani, D. Dragovich, *Animals* **11**, 1487 (2021).
3. S. Esmaeili, M.-R. Hemami, J. R. Goheen, *PLOS One* **14**, e0220702 (2019).
4. S. S. Khabbaz, "The need for monitoring the performance of zoos and gardens of birds," *Mehr News*, (2021); www.mehrnews.com/news/5208489/ [in Farsi].

5. A. Ershad, "Video of zebras being mistreated during journey to Iranian zoo sparks outrage," *France24* (2021); <https://observers.france24.com/fr/moyen-orient/20210514-video-zebre-maltraitance-iran-zoo-safadasht-teheran> [in French].
6. S. M. Ghazimarashi et al., *Archives of Razi Institute* **10**, 22092/ari.2020.341897.1441 (2020).
7. "There is no legal problem for the closure of non-standard zoos," *Tasnim News* (2017); www.tasnimnews.com/fa/news/1395/10/15/1286203/ [in Farsi].
8. M. Bazghandi, Y. Bostan, J. Sarhangzadeh, A. Teimouri, in *Research and Management Practices for Conservation of the Persian Leopard in Iran*, A. Sanei, Ed. (Springer International Publishing, Cham, 2020), pp. 189–211.
9. Foundation and Management Protocols of Conservation Centers, Department of Environment (2012); <https://en.doe.ir/portal/file/?659909/> [in Farsi].
10. A. Hillermann G. Phipps, J. Salkeld, B. Walker, "Husbandry guidelines for African lion *Panthera leo* (Class: Mammalia Felidae)" (Western Sydney Institute of Technical and Further Education, Richmond, 2009); <https://aszk.org.au/wp-content/uploads/2020/05/Mammals-AfricanLion-2010AH.pdf>.
11. S. Aghanajafi, *Hum. Environ.* **3**, 50 (2006) [in Farsi].
12. A. Ghasrafakhri, *Feasibility of Establishing HSE Management System in Wildlife Care Centers*, Islamic Azad University, thesis (2018) [in Farsi].

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Iran's protected areas need more rangers

The Protection Unit of Iran's Department of Environment (DoE) has long experienced a shortage of wildlife rangers (1), resulting in severely limited enforcement capabilities for the more than 191,000 km² of protected areas nationally (2). This chronically inadequate administration of Iran's natural resource laws has resulted in unsustainable and illicit resource extraction, including tree smuggling [e.g., (3)] and wildlife trafficking (4), with corresponding increases in wildlife poaching (5) and harassment [e.g., (6)] in protected areas.

The head of DoE's Protection Unit has recently made this issue public, including the goal of hiring 250 rangers annually (1) to address the 50% dearth in enforcement capacity. A new Iranian government will take charge on 3 August, and we encourage this government to support the hiring of rangers. This goal could be achieved by working with the Iranian Parliament as quickly as possible to allocate necessary budgets and revise current laws to allow Iran's Administrative and Recruitment Organization to remove unnecessary barriers to ranger recruitment (1). Effective natural resource protection would benefit Iran's people as well as its wildlife. The country's 32 national parks, 40 national natural





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heritage sites, 53 wildlife refuges, and 184 protected areas cannot meet conservation goals without fully staffed enforcement (2).

Jamshid Parchizadeh* and Jerrold L. Belant

Global Wildlife Conservation Center, State University of New York College of Environmental Science and Forestry, Syracuse, NY 13210, USA.

*Corresponding author.

Email: jamshid.parchizadeh@gmail.com

REFERENCES AND NOTES

1. "The Head of Iran's Department of the Environment's Protection Unit: We are 50% short of wild-life rangers," *Tasnim News Agency* (2021); www.tasnimnews.com/fa/news/1400/03/31/2525493/ [in Farsi].
2. "Fourteen areas were added to the protected areas under Iran's Department of the Environment's management," *Iranian Students' News Agency* (2021); www.isna.ir/news/99110806128/ [in Farsi].
3. "A truck carrying smuggled trees was seized in the Abdolrazaq Protected Area," Kurdistan Provincial Office of Iran's Department of the Environment (2021); <https://kordestan.doe.ir/portal/home/?news/192183/1019044/1256396/> [in Farsi].
4. S. Khabaz, "Iran's Department of the Environment's silence about wildlife trafficking," *Mehr News Agency* (2021); <http://mehrnews.com/xVgnf> [in Farsi].
5. A. Ghoddousi *et al.*, *Oryx* **53**, 151 (2019).
6. "A two year-old Persian leopard was killed by humans in the Zharf No Hunting Area," Razavi Khorasan Provincial Office of Iran's Department of the Environment (2021); <https://doe.ir/portal/home/?news/196210/1270789/1281814/> [in Farsi].

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TECHNICAL COMMENT ABSTRACTS

Comment on "Nicotinamide mononucleotide increases muscle insulin sensitivity in prediabetic women"

Charles Brenner

Yoshino *et al.* (Reports, 11 June 2021, p. 1224) have reported that nicotinamide mononucleotide (NMN) increases muscle insulin sensitivity in prediabetic women. However, the 13 women who received NMN had hepatic lipid content of $6.3 \pm 1.2\%$, whereas the 12 in the placebo group had $14.8 \pm 2.0\%$ ($P = 0.003$). Given that a target of NMN is liver fat clearance, this was not an effectively randomized trial.

Full text: [dx.doi.org/10.1126/science.abj1696](https://doi.org/10.1126/science.abj1696)

Response to Comment on "Nicotinamide mononucleotide increases muscle insulin sensitivity in prediabetic women"

Samuel Klein and Mihoko Yoshino

In evaluating any randomized clinical trial, it is important to determine whether baseline differences between groups could have affected the primary outcome. In our study, muscle insulin sensitivity, which was identical in both groups at baseline, improved after nicotinamide mononucleotide (NMN), not placebo, therapy. Differences in baseline intrahepatic triglyceride content between groups do not negate the effects of NMN observed in muscle.

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Mitigate human-wildlife conflict in China

Duo Yin, Zhenjie Yuan, Jie Li and Hong Zhu

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