

Edited by Jennifer Sills

Salamander protection starts with the newt

IN THEIR REPORT “Recent introduction of a chytrid fungus endangers Western Palearctic salamanders” (31 October, p. 630), A. Martel *et al.* warned that a newly discovered pathogenic chytrid fungus *Batrachochytrium salamandrivorans* (*Bs*) likely originated in Asia and poses a threat to naïve European and North American salamander populations. However, they did not address the conservation crisis facing the apparent vector of *Bs*, Asian salamanders in the family Salamandridae (“newts”).

Eight years ago, one of us expressed concern for the fate of the Lao Newt (now *Laotriton laoensis*), a newly discovered species in Laos that was targeted by commercial collectors from Germany and Japan after it was inadvertently “advertised” by its formal description in a scientific journal (1). The species is now endangered in the wild (2), primarily due to continued overharvesting for the international pet trade (3). *Laotriton* is a member of the same phylogenetic clade that contains the three Asian

species [genera *Paramesotriton* and *Cynops* (4)] that were identified by Martel *et al.* as being reservoirs for *Bs*. Our efforts to curb the commercial trade of *Laotriton* in Laos have had limited success.

In 2008, the Lao government commendably listed it as the first amphibian species in the country to be protected from commercial trade (3). Unfortunately, *Laotriton* are small and easily smuggled across Laos’s porous international borders, and wildlife law enforcement in this relatively poor country is hindered by lack of resources (5). More than one-third of all Southeast and East Asian newt species are at risk of extinction (2). Many of these are threatened by overharvesting for the international pet trade (6), as interest in keeping Asian newts, particularly in the West, continues to grow (7). Last year, *Laotriton* was promoted as a pet on the cover of a U.S.-based amphibian and reptile hobbyist magazine that has wide international readership (8).

Martel *et al.*’s findings are foreboding for wild populations of European and North American salamanders. At the same time, wild *Laotriton* and other Asian newt populations are in dire need of better protection from international trade. Perhaps Martel *et al.*’s findings provide a glimmer of hope that exporting and importing countries can simultaneously address these threats,



albeit for different reasons. By stemming the trade of Asian newts to Europe and North America, risk of catastrophic extirpations of global salamander populations decreases: Asian newts remain in the wild, and naïve European and North American salamanders are not exposed (at least further) to a pathogenic fungus that Martel

et al. inferred has been restricted to Asia since the Paleogene. Source countries in Asia and destination countries in the West should work hand in hand to control the international trade of Asian newts. No Asian newt species are currently protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), an international agreement that is intended to safeguard certain species from over-exploitation (9), but many probably should be. And importation of live Asian newts should be controlled in the same manner as livestock and poultry that pose disease threats to domestic populations. Persistence of wild salamanders on both sides of the planet may depend on it.

Bryan L. Stuart,^{1*} Jodi J. L. Rowley,²
Somphouthone Phimmachak,³ Anchalee
Aowphol,³ Niane Sivongxay⁴

¹North Carolina Museum of Natural Sciences, Raleigh, NC 27601, USA. ²Australian Museum Research Institute, Sydney, NSW 2010, Australia.

ONLINE BUZZ: HUMAN EVOLUTION

Roots of self-domestication

IN HER IN DEPTH NEWS story “How we tamed ourselves—and became modern” (24 October, p. 405), A. Gibbons reported on a symposium about human self-domestication, a process that allowed increased cooperation and the development of cognitive skills such as complex language. Readers expressed interest in the topic in the online comments section. Excerpts from their responses are below. Read the full comments, and add your own, at <http://comments.sciencemag.org/content/10.1126/science.346.6208.405>.

A selection of your thoughts:

...the idea that the process of killing sexually aggressive men was a driver [of self-domestication] seems flawed, in that many societies need to tolerate aggression as a protective factor, and dominance of one male over others has been a selection process for community leadership...

Philip Benjamin

...One of the story’s main conclusions is that “selection favored males who could work together?...In my opinion, advantage (in strength or in intelligence) over others..., not

cooperation, is the feature favored by selection. Cooperation is one possible tool to achieve private aims (...for instance, politicians in democratic countries have to participate in elections [rather than making war as a way of attaining office]...). Maybe we are less aggressive (in a physical sense) in population centers but...our “self-domestication”...involves controlling the behaviors of other humans.

Konrad Szocik

...Research in this area should be heavily funded in order to help us to understand and mitigate the catastrophic deleterious effects of some...human communities [today]...

Silvio Pitlik

I think it may be important to consider the possibility that “selection for...facial feminization” can be rephrased as “selection for retention of facial (and other) traits of the young of the species in general, whether female or male.” My reasoning is that retention of such general “childlike” traits (neotony), which engender stronger feelings and behaviors of tenderness, care, and bonding in adults of the species toward their children, would itself go a long way toward reducing intraspecies aggression and increasing the possibilities of cooperation, even far outside the usual family unit...

Gene Partlow

³Department of Zoology, Faculty of Science, Kasetsart University, Bangkok, 10900, Thailand.

⁴Department of Biology, Faculty of Sciences, National University of Laos, Vientiane, Lao PDR.

*Corresponding author. E-mail: bryan.stuart@naturalsciences.org

REFERENCES

1. B. L. Stuart *et al.*, *Science* **312**, 1139 (2006).
2. IUCN, *The IUCN Red List of Threatened Species, Version 2014.2* (www.iucnredlist.org).
3. S. Phimmachak, B. L. Stuart, N. Sivongxay, *J. Herpetol.* **46**, 120 (2012).
4. P. Zhang *et al.*, *Mol. Phylogenet. Evol.* **49**, 586 (2008).
5. H. Nooren, G. Claridge, *Wildlife Trade in Laos: The End of the Game* (Netherlands Committee for IUCN, Amsterdam, 2001).
6. J. Rowley *et al.*, *Biol. Lett.* **6**, 336 (2010).
7. F. Pasmans *et al.*, *Salamanders: Keeping and Breeding* (Natur und Tier-Verlag, Münster, Germany, 2014).
8. F. Reves, *Reptiles* **21**, 30 (2013).
9. The CITES Secretariat, *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (www.cites.org).

China's ecological steps forward

IN THEIR REPORT "A mid-term analysis of progress toward international biodiversity targets" (10 October, p. 241; published online 2 October), D. P. Tittensor and

colleagues concluded that despite accelerating policy and management responses to the biodiversity crisis on a global scale, these efforts are unlikely to improve the state of biodiversity by 2020. They did not acknowledge that sustained national policies in China have already produced positive effects on biodiversity.

The Chinese government initiated in 1999 the Natural Forest Resources Conservation Program and the Restoring Farmland into Forest Program. Logging has been prohibited in most natural forests, and cultivated land on areas with slopes of more than 25 degrees must be restored to forests or grasslands (1). The central government subsidized forest management and conservation, as well as seedling cultivation and reforestation (2, 3). Households that have returned their cultivated land to forests received subsidies from the central government (2, 3). Recently, the State Council updated the policies and increased subsidies to further promote ecosystem restoration (2).

A number of other key ecological programs continue to be implemented, such as forest belt construction in the Yangtze River basin. More than US\$80 billion

has been invested in these programs (1). Ecological conditions have improved (2). Forest area, growing stock (the total stock volume of trees growing in land), and coverage rate (the percentage of area of afforested land compared with total land) all increased between 2009 and 2013 (4–6). These programs have contributed to progress toward Aichi Targets 5, 14, and 15 (2), although these policies need to be fine-tuned to best fit the local environment.

Haigen Xu

Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection of China, Nanjing, 210042, China. E-mail: xhg@nies.org

REFERENCES

1. Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 4* (Montreal, 2014).
2. Ministry of Environmental Protection, "China's 5th national report to the CBD" (www.cbd.int/doc/world/cn/cn-nr-05-en.pdf).
3. P. W. Leadley *et al.*, "Progress towards the aichi biodiversity targets: An assessment of biodiversity trends, policy scenarios, and key actions" (Secretariat of the Convention on Biological Diversity, Montreal, 2014).
4. State Forestry Administration, "China Forestry Statistics" (China Forestry Press, Beijing, 2013).
5. State Forestry Administration, "The promulgation of the eighth national forest resource inventory" (www.forestry.gov.cn/).
6. H. Xu *et al.*, *BioScience* **59**, 843 (2009).