



progress report



Stories from our partners around the world

December 2018

AMPHIBIAN SURVIVAL ALLIANCE

NEWSLETTER



Got a story you want to share?
Drop Candace an email today!
cmhansen@amphibians.org



© SAVE THE FROGS! Ghana

Saving frogs leads to record academic performance in Ghana



SAVE THE FROGS! Ghana is pleased to announce that a school they are supporting has set a historic record in this year's (2018) Basic Education Certificate Examination (BECE), a nationwide exam that junior high school students write to gain admission to senior high school. The school, Sefwi-Yawkrom Junior High School is in Yawkrom village, surrounded by the Sui forest, the only remaining home of the Giant

Squeaker Frog (*Arthroleptis krokosua*). From obscurity, the school placed among the best performing public schools in the region. In particular, four students (two girls and two boys) scored distinctions; furthermore, they beat off tough competition at the national level to gain admissions to prestigious senior high schools such as Prempeh College, Yaa Asantewaa Senior High School and Sefwi Wiawso Senior

High School. Among notable alumni of these elite schools include Ghana's former president John Agyekum Kufour, Otumfuo Osei Tutu II (one of Africa's most powerful kings), Professor Kwadwo Asenso Okyere (former Vice Chancellor of University of Ghana), and Dr. Matthew Opoku Prempeh (MP and Minister for Education).

To avert the extinction of Giant Squeaker Frog, one of Earth's most threatened species, SAVE THE FROGS! Ghana sees education of local children to be a promising tool. As in the words of Nelson Mandela, *"Education is the most powerful weapon you can use to change the world."* Accordingly, SAVE THE FROGS! Ghana has implemented several educational interventions, for instance, establishing the Sui Amphibian Conservation Education Centre (SACEC). SACEC is stocked with desktop and laptop computers and resourceful academic materials such as examination past questions and answers booklets.

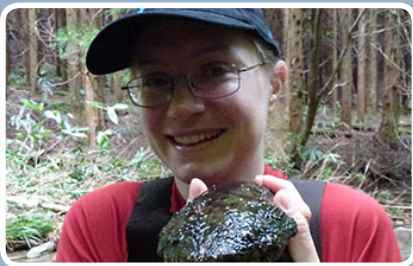
SAVE THE FROGS! Ghana regularly helps to organise quizzes and essay writing competitions, with competitive awards given to deserving contestants. The SAVE THE FROGS! Ghana staff also personally get involved in teaching and helping some students with their homework. Further, SAVE THE FROGS! Ghana has enrolled some teachers of the school on livelihood projects to motivate them to give off their best.

2019 APPEAL

Can you or a company you know help to sponsor the education and upkeep of these top four scholars

in question, or otherwise donate to help SAVE THE FROGS! Ghana to increase the scope and sustainability of their great effort? Without any external support, parents will have no alternative but to resort to felling trees or making farms in the only habitat of the Giant Squeaker Frog.

SACEC also has only 11 computers, with over 30 kids having to crowd around a computer during lessons. SAVE THE FROGS! Ghana would be pleased to receive used or new computers, iPads, tablets and any educational gadgets as well as books. Please contact ghana@savethefrogs.com if you can assist.



EDITORIAL

As 2018 draws to a close, we look back on another busy year for our wonderful partners around the world. This issue highlights yet more of the fantastic variety of approaches being undertaken to promote amphibian conservation globally, including: promoting education initiatives for school children in the Sui Forest Ghana, which is the only remaining habitat of the Giant Squeaker Frog (**Save The Frogs! Ghana**: page 1-2); Trinity Favazza's (outgoing Mayor of the **Detroit Zoological Society's** Amphibiville) successful lobbying for a statewide "Amphibian Conservation Awareness Week" in Michigan, USA (page 3); conserving threatened Malagasy amphibians through the pet trade (**Josh's Frogs** and **Operation Mitsinjo**: page 4); seeking the protection of Ghana's Atewa Forest as a National Park – home to the Critically Endangered

Togo Slippery Frog (**Global Wildlife Conservation**: page 5); and the most comprehensive survey ever conducted of wild Chinese giant salamanders, leading to information crucial for the conservation of the world's largest amphibian (page 7-8). We also interview our Director of International Disease Mitigation, Dr Reid Harris, to learn about his role with ASA and key disease-related challenges currently facing amphibians (page 6).

For your holiday-reading pleasure, we share news of EAZA's latest edition of *Zooquaria*, which is devoted to the past decade of amphibian conservation efforts since 2008's Year of the Frog, as well as our very own *FrogLog* (page 5). The latest edition of *FrogLog* is a Special Issue in honour of Professor Tim Halliday. Tim was International Director of the Declining Amphibian Populations Task Force from 1992 to 2006, and through his considerable efforts he helped stimulate and support much action throughout these early years of the global amphibian conservation movement. Tim was one of my inspirations as an undergraduate, when I first learned that there was a passionate and fascinating community of ardent

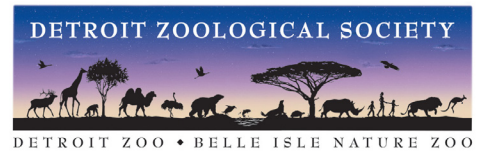
amphibian conservationists operating around the world. Fast-forward to today, and it is evident from the contributions we received to *FrogLog* 120 that this community continues to grow and flourish.

People often tell me that amphibians are not considered charismatic animals, and as such receive much less attention and support. As amphibian lovers, it is sometimes difficult for us to understand what others are not seeing when they gaze at the same beautiful, amazing creatures that we spend our days (and often nights....) celebrating. It is so important to keep sharing stories and news from the incredible world of amphibians to help everyone see amphibians as we do.

As we move into 2019 and beyond, it is our mission to keep shining a light on amphibians and the conservation initiatives dedicated to them. We hope the New Year brings peace, happiness and hope to you and all the amphibians in your life!

Helen Meredith, PhD
Executive Director
Amphibian Survival Alliance

Governor accepts amphibian proclamation from mayor of Amphibiville



Trinity Favazza's amphibian proclamation was adopted by Governor Rick Snyder and he declared a Michigan, statewide "Amphibian Conservation Awareness Week" for December 1-7, 2018. Her proposal was one of the last to be proclaimed during his governorship.

Trinity, who is 11 years old, is the outgoing Mayor of Detroit Zoological Society's Amphibiville. Amphibiville is a 2-acre wetland village that is home to the Detroit Zoo's National Amphibian Conservation Center. In a previous edition of the Froggress Report, you will have read about Trinity's trip from her home town of Shelby Township, Michigan to Washington, D.C. back in September as one of ten students nationally to

receive the U.S. Environmental Protection Agency's 2018 President's Environmental Youth Award. She was recognized for her work to protect local wetlands and raise awareness of amphibian conservation as Mayor of Amphibiville.

Trinity celebrated "the week at her school by bringing in a frog-themed item each of the five school days (i.e. chocolate frog treats/pencils/squishy toys/coloring sheets, and bookmarks) to share with her class. She also created and presented "frog awareness cards" that highlight a different frog each day with fun facts and pictures and an awareness brochure for her classmates to take home and help spread the word.



Conserving Mantellas through the pet trade



Josh's Frogs was started for one simple reason – Josh liked frogs. He grew up catching them in a nearby swamp. Over time, this grew into a fascination with exotic species, and eventually led to a small collection of Poison Dart Frogs. In order to support his growing hobby, Josh began to purchase husbandry supplies in bulk and resell them. Over time, that business grew to the 50+ employee organization we are today.

That fascination with frogs has never left the company. If anything, each success breeding a new species and bringing healthy, captive bred animals to the masses has nurtured it and allow it to grow. One of our core values is conservation through commercialization – the idea that if we can produce animals in captivity at a low enough price point, we can reduce (and eventually eliminate) the demand for wild caught animals. The logical next step was

to somehow link sales of captive bred animals directly with conserving populations in the wild. We first took that step 4 years ago.

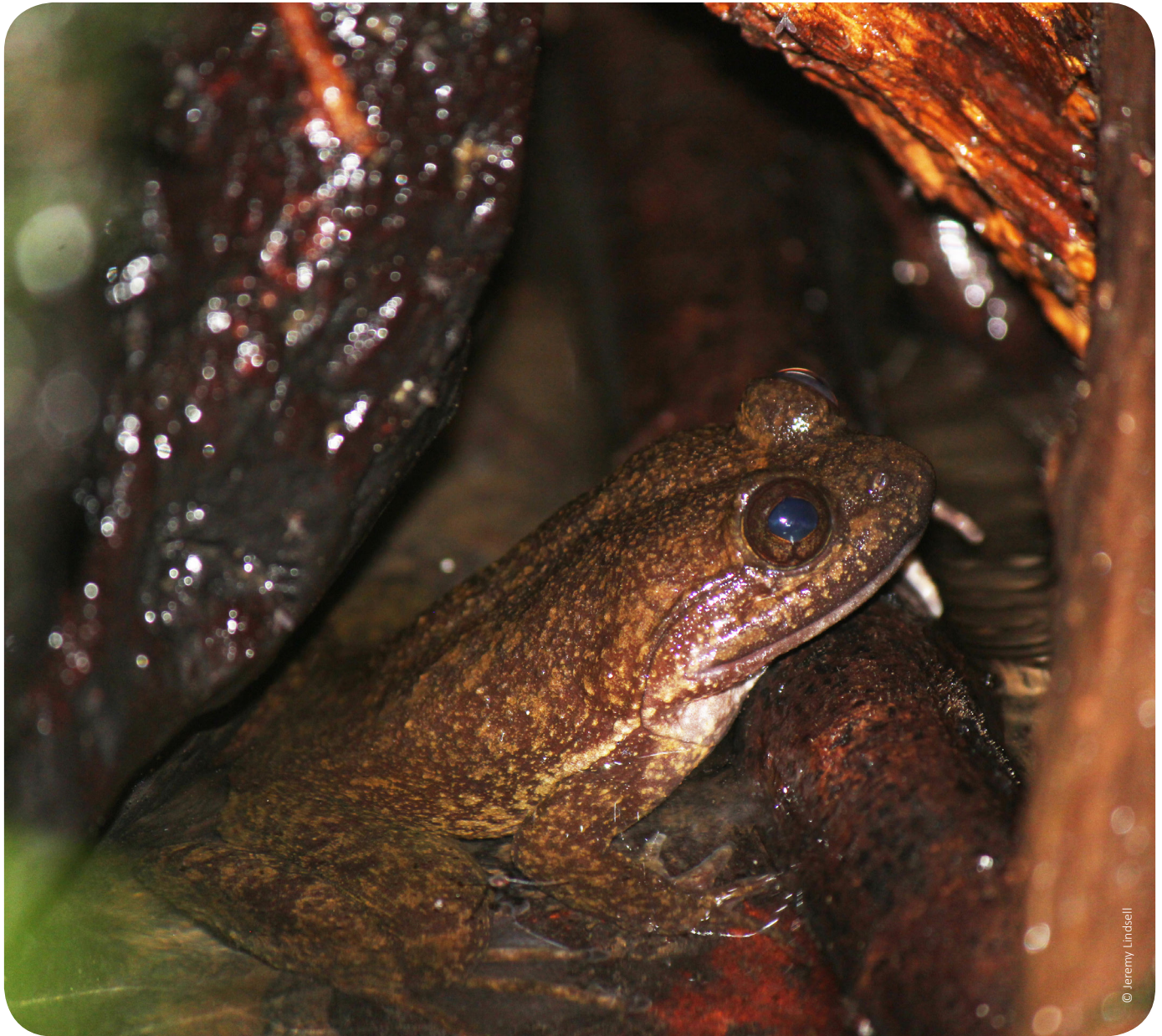
Our first effort to directly fund conservation was with Mantellas – those colorful, poison dart frog-like anurans native to Madagascar. Many populations have been decimated by habitat loss, and, to a lesser extent, the pet trade. They are highly sought after in the pet industry, as they make attractive and simple to care for captives. Breeding can be challenging, as it is seasonal – making sure the adults receive the proper environmental cues to reproduce takes planning, and offspring are exceptionally small – some species are barely larger than a fruit fly when first leaving the water.

Fortunately, our success with the genus has increased over the past several years, and we've been

able to donate hundreds of dollars directly to conservation in Madagascar through Operation Mitsinjo (an Amphibian Survival Alliance partner), and amphibian-centric non-profit based in Andohahelo. This year, in lieu of cash, we sent some much needed supplies, including supplements, batteries, flashlights, and a mobile weather station.

This partnership will hopefully be one of many. Ultimately, our goal is to match each successful breeding program directly with in-situ conservation efforts. Until then, we'll continue on supporting Mantella conservation and fulfilling the demand for exotic amphibians with healthy, captive bred stock, thus pushing pressure off of wild caught animals. Our hope is to keep wild animals where they belong – in the wild.





© Jeremy Lindell

Protecting Atewa: A wild wonderland

In his recent book, *Half Earth: Our Planet's Fight for Life*, acclaimed biologist and author E.O. Wilson lists Ghana's Atewa Forest as one of the 38 most important places on Earth that should be set aside for nature's benefit. The forest is teeming with life, home to at least 50 mammal species, more than 1,000 species of plants, at least 230 species of birds, and a number of amphibians, including the Togo Slippy Frog, found nowhere else in the world. Atewa's impressive biodiversity has earned it the designation of a Key Biodiversity Area, a site of global importance to the planet's overall health.

For these reasons, Global Wildlife Conservation and the Amphibian Survival Alliance, as part of the Key Biodiversity Area Partnership, sent a letter to Ghana President Nana Addo Dankwa Akufo Addo asking him to establish Atewa as a National Park, forever protecting it from the looming threat of bauxite mining. Bauxite is the chief ingredient in aluminum and sits beneath the forest floor—mining it would require tearing up the forest and leaving it permanently barren. Nearly 130,000 individuals have also signed a petition calling for Atewa Forest to be designated a national park.



**GLOBAL
WILDLIFE
CONSERVATION**

The Togo Slippy Frog is a close relative of the world's largest frog, the Goliath Frog, and known only to live in Atewa Forest and Ghana's Togo-Volta Hills. The frog is considered Critically Endangered as the result of ongoing bauxite mining, logging and hunting. Biologists believe there are only about 300 left in the wild and that they primarily live in a small stretch of a single stream in Atewa Forest.

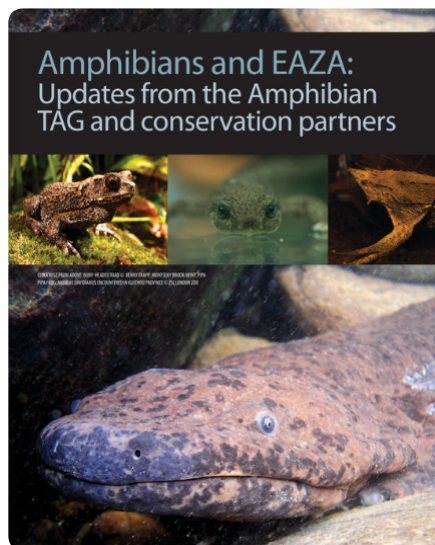
Now Available: Zooquaria amphibian special issue



Issue 102 of *Zooquaria*, the quarterly magazine of **European Association of Zoos and Aquaria (EAZA)** has just been published and celebrates amphibian conservation! Inside the pages of this special issue, you will:

- Look back over a decade of amphibian conservation across the globe;
- Discover how a collaborative global partnership is creating a better world for amphibians;
- Learn why effective publicity management is a crucial part of amphibian conservation;
- And so much more!

Download your copy, or flip through the pages by [clicking here](#).



Special edition *FrogLog* - Tim Halliday: Amphibian ambassador

Together the Amphibian Survival Alliance and Amphibian Specialist Group took the opportunity to highlight Professor Tim Halliday's tremendous contributions to amphibian conservation over the decades by dedicating a special edition of *FrogLog* to his achievements and passion for amphibians.

What you will see inside these pages are a selection of perspectives from his friends and colleagues that capture what a fantastic champion Tim is for amphibians around the world. We have also profiled Tim's incredibly beautiful amphibian-themed artwork throughout its pages.

We felt it would be a wonderful tribute if Tim could see how much his efforts have meant to the conservation community, and how much he is continuing to inspire us all to do our best to make the world a better place for amphibians.

You can download your copy [here](#).



Q&A with Reid Harris



Meet Reid Harris, ASA's Director of International Disease Mitigation. Reid is an expert in amphibian diseases and is working to reduce their impact on global amphibian populations. Reid developed the idea of using skin probiotics to combat a lethal chytrid fungus that has decimated amphibian populations globally. He was a delegate to the 2005 Amphibian Conservation Summit that led to the development of the Amphibian Conservation Action Plan, and continues to contribute to this road map for global action through the Emerging Infectious Diseases Working Group. He was recently elected a fellow of the American Association for the Advancement of Science for his research in amphibian microbial ecology and probiotics. We are extremely fortunate to have him as part of our team!

What got you interested in amphibians?

I got interested in amphibians as a child when I flipped a rock near my parent's cabin in the Blue Ridge Mountains of the US and found a red eft, which is the terrestrial juvenile stage of the Eastern Newt. From there, I was fascinated to find a lot of different terrestrial and stream-breeding species in the mountains. While an undergraduate, I discovered the lab of Dr. Henry Wilbur at

Duke University, who studies the ecology and evolution of amphibians. He and his graduate students took me under their wing. At that point, it was clear that making a career out of teaching and ecological research with amphibians at a university was possible.

What are you currently working on for ASA?

In general, I advise the ASA secretariat about disease issues and funding decisions related to research on disease mitigation. Most of my time has been involved with helping to coordinate a response to the lethal salamander pathogen *Batrachochytrium salamandrivorans* (*Bsal*) if and when it invades North America. It is currently spreading in Europe, but does not appear to be in North America as yet. I was chair of the North American *Bsal* Task Force for two years, and as part of that role I spearheaded the completion of "A North American Strategic Plan to Control Invasions of the Lethal Salamander Pathogen *Batrachochytrium salamandrivorans*." This plan includes as its centerpiece a response plan to *Bsal* that can be customized by local management authorities to meet their needs. This effort has been highly collaborative with members from academia, governments, NGOs and the private sector participating and represents a rare situation where advance planning to a disease threat is possible.

Why should we worry about amphibian diseases?

We have seen from *Bd*, which is related to *Bsal*, that amphibian diseases can cause massive population declines and extinctions. About 40% of amphibian species at a site in the mountains of Panama were lost to *Bd*, although some may be rediscovered. *Bsal* is leading to extirpation of Fire Salamander populations in Europe. Amphibian species have a number of beneficial effects in ecosystems. For example,

terrestrial salamanders control the abundance of leaf-shredding insects. If these salamanders decline, leaf shredding increases, which leads to more rapid leaf decomposition on the forest floor. The decomposition is due to microbial action, and these microbes give off CO₂ as they respire. Some estimates suggest that a drastic reduction of terrestrial salamanders could lead to large increases of CO₂ from the forest floor with concomitant effects on climate change. As another example, salamander species, such as the Eastern Newt, are keystone species in pond communities where their presence keeps weaker tadpole species from going extinct.

What are some of the most promising techniques to help mitigate amphibian diseases?

There are several types of action that can be taken. With regard to *Bsal*, ASA has long advocated for a "clean trade" program, so that amphibians in the pet trade are certified as disease free. A clean trade program has the potential to keep *Bsal* out of North America. To control pathogens in a local area, several strategies show some promise including treatment with anti-fungal probiotics, anti-fungal chemicals and vaccinations. More research is needed into disease mitigation options.

How are ASA partners responding to amphibian disease threats?

One example is the Mountain Chicken Recovery Programme's SAFE project. This species of frog was almost driven to extinction by *Bd*, but the frog has been bred in survival assurance colonies. Reintroductions have focused on areas that are warm enough to kill *Bd* during part of the year, and this plan is showing signs of success.

Thank you Reid for all your contributions to ASA!



© Benjamin Tapley / ZSL

A sustainable future for the Chinese Giant Salamander

ZSL | **LET'S WORK FOR WILDLIFE**

The Chinese Giant Salamander (*Andrias davidianus*) is the world's largest amphibian and a global priority for conservation due to its evolutionary history and high extinction risk. This Critically Endangered species is endemic to China. This species is eaten and has a high economic value, leading to the unsustainable and unregulated harvesting from the wild and the relatively recent development of an intensive salamander farming industry.

In 2010, ZSL brought stakeholders together to identify the evidence base that was needed to inform the conservation of this enigmatic species. This evidence was then gathered by ZSL and partner organisations: the Kunming Institute of Zoology, Shaanxi Normal University and Guiyang University, with support from the Darwin Initiative. The team, which included four EDGE Fellows, conducted the most exten-

sive wildlife survey seen in China to date. Standardised ecological field surveys and interviews were carried out at 97 sites in 16 of the country's 23 provinces over four years. Fieldwork represented over seven person-years of effort. We detected just 24 Giant Salamanders at four sites. As the species is economically significant and easily identifiable, these findings were verified using local ecological knowledge. Standardised questionnaire surveys were undertaken near surveyed rivers. Of the 2,872 respondents, 85.5% recognised Giant Salamanders and 46.9% reported sightings, but mean last-sighting date was 18.96 years earlier. This extensive effort revealed that populations of this once-widespread species are now critically depleted or extirpated across all surveyed areas of their range, and illegal poaching is widespread.

Our work revealed that the Chinese Giant Salamander is a species complex composed of at least five distinct, species-level lineages. Some of these lineages are now exceedingly rare and possibly extinct in the wild. Chinese legislation prohibits the harvesting of wild populations of giant salamander, yet widespread "conservation" releases of farmed animals are endorsed by the Chinese government. This may be detrimental to wild populations as it risks mixing genetic lineages. Indeed, the salamanders we encountered during the ecological surveys in the Yangtze and Pearl watersheds had a Yellow River matriline, indicating they were farm releases/escapes. Our low detection rate provides little evidence that government-supported releases establish viable populations. Also, we found dead salamanders following known releases and released animals might be unlikely to persist with the evident level of poach-

ing. The establishment of captive populations of genetically distinct lineages for the specific purpose of conservation breeding is warranted.

References

- Chen, S., Cunningham, A.A., Wei, G., Yang, J., Liang, Z., Wang, J., Wu, M., Yan, F., Xiao, H., Harrison, X.A. and Pettorelli, N. 2018. Determining threatened species distributions in the face of limited data: Spatial conservation prioritization for the Chinese giant salamander (*Andrias davidianus*). *Ecology and evolution*, 8(6): 3098-3108.
- Cunningham, A.A., Turvey, S.T., Zhou, F., Meredith, H.M., Guan, W., Liu, X., Sun, C., Wang, Z. and Wu, M. 2016. Development of the Chinese giant salamander *Andrias davidianus* farming industry in Shaanxi Province, China: conservation threats and opportunities. *Oryx*, 50(2): 265-273.
- Pan, Y., Wei, G., Cunningham, A.A., Li, S., Chen, S., Milner-Gulland, E.J. and Turvey, S.T. 2016. Using local ecological knowledge to assess the status of the Critically Endangered Chinese giant salamander *Andrias davidianus* in Guizhou Province, China. *Oryx*, 50(2): 257-264.
- Tapley, B., Chen, S., Turvey, S.T., Redbond, J., Okada, S., and Cunningham, A.A. 2017. A sustainable future for Chinese giant salamanders: Chinese giant salamander field survey manual. Technical report, Zoological Society of London. Available at: <http://www.amphibians.org/wp-content/uploads/2017/11/CGS-field-manual-final.pdf>
- Tapley, B., Okada, S., Redbond, J., Turvey, S.T., Chen, S., Lü, J., Wei, G., Wu, M.Y., Pan, Y., Niu, K.F. and Cunningham, A.A. 2015. Failure to detect the Chinese giant salamander (*Andrias davidianus*) in Fanjingshan National Nature Reserve, Guizhou Province, China. *Salamandra* 51: 206-208.
- Turvey, S.T., Chen, S., Tapley, B., Wei, G., Xie, F., Yan, F., Yang, J., Liang, Z., Tian, H., Wu, M., Okada, S., Wang, J., Lü, J., Zhou, F., Papworth, S.K., Redbond, J., Brown, T., Che, J. and Cunningham, A.A. 2018. Imminent extinction in the wild of the world's largest amphibian. *Current Biology*, 28(10): R592-R594.
- Yan, F., Lü, J., Zhang, B., Yuan, Z., Zhao, H., Huang, S., Wei, G., Mi, X., Zou, D., Xu, W. Chen, S., Wang, J., Feng, X., Wu, M., Xiaou, H., Liang, Z., Jin, J., Wu, S., Xu, C., Tapley, B., Turvey, S.T., Papenfuss, T.J., Cunningham, A.A., Murphey, R.W., Zhang, Y. and Che, J. 2018. The Chinese giant salamander exemplifies the hidden extinction of cryptic species. *Current Biology*, 28(10): R590-R592.



Seasons Greetings

