



# progress report

Stories from our partners around the world

FEBRUARY 2018  
AMPHIBIAN SURVIVAL ALLIANCE  
NEWSLETTER



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## First release trial of captive-bred Variable Harlequin Frogs in Panama

Once common along highland streams from western Costa Rica to western Panama, the Variable Harlequin Frog is endangered throughout its range, decimated by a disease caused by the amphibian chytrid fungus. On Jan. 17, Smithsonian researchers released approximately 500 frogs at Cobre Panama concession site in Panama's Colon province as a first step toward a potential full-scale reintroduction of this spe-

cies. The Variable Harlequin Frog, *Atelopus varius*, takes its name from the variety of neon colors—green, yellow, orange or pink—juxtaposed with black on its skin. The frogs were produced as part of a captive-breeding colony managed by Heidi Ross as part of the Panama Amphibian Rescue and Conservation Project. This study begins implementation of some key reintroduction goals identified in the 2013 species

conservation plan developed by key stakeholders, including Panama's Ministry of Environment.

The primary aim of this study is to observe reintroductions and understand disease dynamics in a way that might inform population viability models and future reintroduction efforts. It will be one of several *Atelopus* release trials at multiple sites and elevations throughout

their range. Some frogs have persisted with the disease at similar 100m elevations, and the researchers are trying to understand whether some sites may have potential to act as climatic refuges from the fungus. The scientific team marked individual frogs using an elastomer toe marking that glows under UV light and the frogs will be re-surveyed once monthly for the next 6 months to understand population changes and disease dynamics. Additionally, 15 male and 15 female frogs are wearing miniature radio transmitters to understand dispersal patterns of the newly released animals that

may help inform and improve future study designs.

The PARC project thanks Cobre Panama, National Geographic Society, Mohammed bin Zayed Species Conservation Fund the Smithsonian Women's Committee and The WoodTiger Fund for their generous support. PARC is a partnership between the Cheyenne Mountain Zoo, the Houston Zoo, the Smithsonian Tropical Research Institute, the Smithsonian Conservation Biology Institute and Zoo New England. The project is based at the Smithsonian Tropical Research Institute in Gam-

boa and has full-time staff caring for a collection of 12 endangered species.



- We hope that 2018 is off to a good start for all of our ASA partners. This edition highlights how some ASA partners have wrapped up 2017 and started 2018 with important and creative amphibian conservation work.

In KwaZulu-Natal, South Africa, a partnership with local governments is helping to meet a wetland action plan through implementation of a citizen science project that focuses on building capacity among local communities to monitor and report on the ecological integrity of wetlands. The Endangered Pickersgill's Reed Frog (*Hyperolius pickersgilli*) is acting as a flagship for wetland conservation in this project.

In Georgia, USA, the development of a private outdoor area that holds aquatic mesocosms which mimic ephemeral wetlands but under controlled conditions will be giving Flatwoods Salamanders (*Ambystoma cingulatum*) a chance.

This is part of a recovery plan where salamanders will be reared, bred, and experimentally released into protected habitat.

2017 was the year with highest number of amphibian extinction risk assessments completed and submitted to the IUCN Red List of Threatened Species since 2009, and this has been made possible thanks to the generous support of three key ASA partners, allowing for the operation of a core full-time team and the reassessment and assessment of many known and newly described amphibians.

In January, a first release trial of several hundred captive bred Variable Harlequin Frogs (*Atelopus varius*) in Panama's Colon province is a fundamental first step toward a potential full-scale reintroduction of this frog.

This month we also saw the development of a joint Conservation Needs Assessment (CNA) and IUCN Red List assessment workshop, held in Peninsular Malaysia and with promising results for similar future joint workshops.

We continue to miss and remember our mentor and staunchest supporter George Rabb, and an obituary will be published shortly

in the publication *Herpetologia Brasileira*.

Finally, the ASA Secretariat, with support from the ASA Global Council, has made good progress with the new ASA governance documents, and we look forward to finalizing and formally adopting them next month. Once this takes place, we will be in touch with ASA partners to renew membership in the ASA.

We look forward to being in touch in the near future and would like to take this opportunity to thank all of our ASA partners in our quest to advance amphibian conservation in 2018 and beyond.

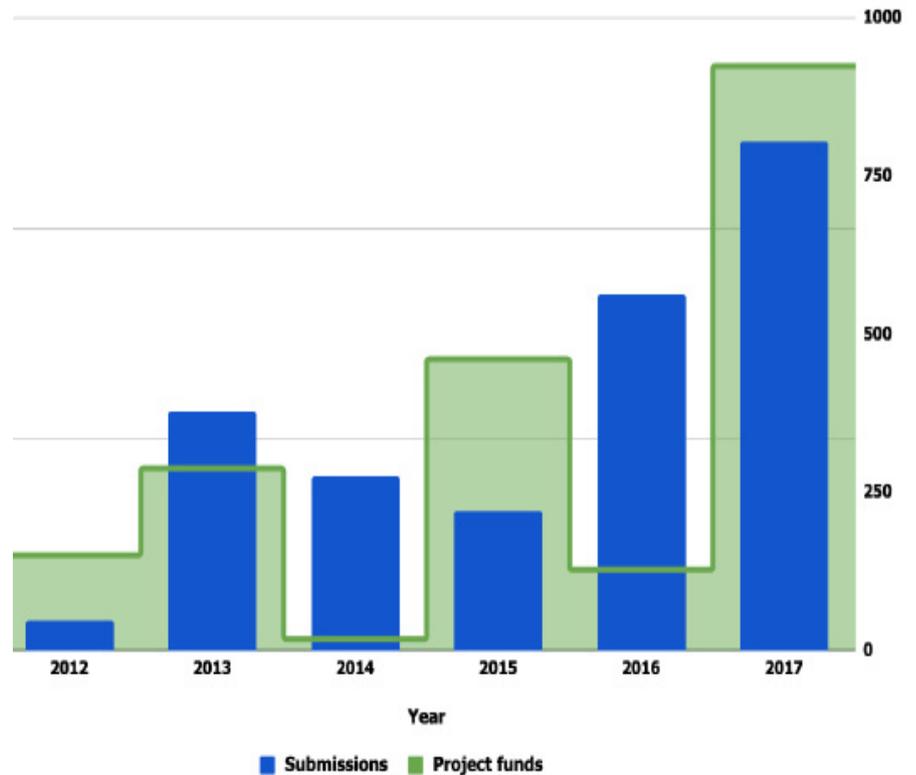
Ariadne Angulo, PhD  
Interim Executive Director  
Amphibian Survival Allianc

# Green is the new red(list)

The Amphibian Red List Authority (ARLA) is pleased to report that 2017 was our most productive year since its establishment in 2009. With a total of 805 assessments from 16 regions submitted for publication during the calendar year—and many more assessed—we have achieved a 43% increase over publications in 2016, which was our second highest year. We are also proud that the quality and consistency of assessments is much improved, and that they are in compliance with the current version of the Guidelines.

This encouraging achievement is in no small part thanks to the generous financial support we received in 2017 from Global Wildlife Conservation, Rainforest Trust, and Synchronicity Earth. Our operating budget of US\$186k was our highest ever and represents a 32% increase over our 2016 budget. These funds provided the ARLA with a full-time Global Coordinator and two Programme Officers, and funded five “mini” workshops. As shown in the graph, the gradual increase in project funds raised by the ARLA annually since 2012 (total of US\$59,002 over 6 years) and used towards workshops and paid internships, has had a positive cumulative impact on our productivity, with the highest submission rate correlating with the greatest amount of available funds.

We believe an additional factor in our success is our structure, which was established during the 2013-2016 IUCN Quadrennium by the former ARLA Coordinator, Ariadne Angulo. As a result, the ARLA consists of the aforementioned central team of full-time paid staff who collaborate with our volunteer leadership: the ARLA Regional Coordinators. These Coordinators in turn recruit their colleagues to the ARLA, contribute data, and assess species against the IUCN Categories and Criteria. Their leadership has multiplied the efforts and resources of the



ARLA. Of course, true to the nature of IUCN’s Species Survival Commission, the vast majority of the work is done on a voluntary basis and we are immensely grateful for the time and energy our colleagues continue to offer.

In 2018, the ARLA will press on with assessments in a collaborative manner, working region-by-region with our network of Regional Coordinators and experts. To deliver a fully-updated GAA we must finish updating the remaining 3,567 species from 2004-2008 and submit first-time assessments for 1,170 Not Evaluated species since 2004. We have begun the year without funds for workshops or internships and are interested in partnering with institutions working on species in Bolivia, Venezuela, Brazil, Caribbean, Mesoamerica, Mexico and USA; Europe; India and Sri Lanka; Mainland Southeast Asia; China; and New Guinea.

As we seek ways to clear the funding shortfall, we are also working to identify solutions to procedural roadblocks; ensure data on the Red

List feed more seamlessly into KBA identification; increase collaboration with Amphibian Ark’s Conservation Needs Assessments; provide feedback into the development of the IUCN “Green List of species”; and how best to use the cycle of Red List assessments to catalyse species and regional action planning.

If you are interested in partnership opportunities, contact ARLA Global Coordinator, Jennifer Luedtke.





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## Making Metamorphosis Meadow, a salamander community

This winter, the Amphibian Foundation made tremendous progress towards our comprehensive recovery plan for one of our priority species – the imperiled Frosted Flatwoods Salamander (*Ambystoma cingulatum*). We hold the world’s only captive population, and our captive breeding program allows us to raise the amphibians in captivity and produce offspring that can be experimentally released into protected habitat in the wild. The salamanders are currently housed in a biosecure lab at our facility in Atlanta, but we are building a one-of-a-kind conservation resource for these salamanders—nicknamed Metamorphosis Meadow— through a generous donation from the Sabin Family Foundation.

Metamorphosis Meadow is a private outdoor area that holds 20 aquatic mesocosms that mimic the natural environment under controlled conditions. More specifically, we are mimicking ephemeral wetlands. Flatwoods Salamanders are temporary wetland breeding amphibians, and breed in fish-less wetlands that dry out periodically throughout the year. The salamanders are endemic to the Long Leaf Pine ecosystem, which has been

reduced to 3 percent of its original range in the southeastern U.S. coastal plain.

In 2017, we received water-stressed eggs collected from Florida. Consistent with recent years, there was not enough rain to fill the ponds holding the eggs. We successfully hatched nearly 90 of these larvae in our Atlanta salamander lab. This winter, we received and hatched around 340 eggs. The mesocosms will assist more than 300 salamanders through metamorphosis this winter.

We will introduce invertebrates and aquatic bugs after the mesocosms fill naturally with rain water. These tiny endangered animals are hungry all the time, and the self-contained system will have all the substrate of a natural ephemeral wetland to help them thrive as they grow. The imperiled amphibian species will be reared, bred, and experimentally released into protected habitat in partnership with Georgia Department of Natural Resources and the U.S. Fish and Wildlife Service.

The Amphibian Foundation works towards comprehensive recovery plans for three of the four endangered amphibians native to Georgia.

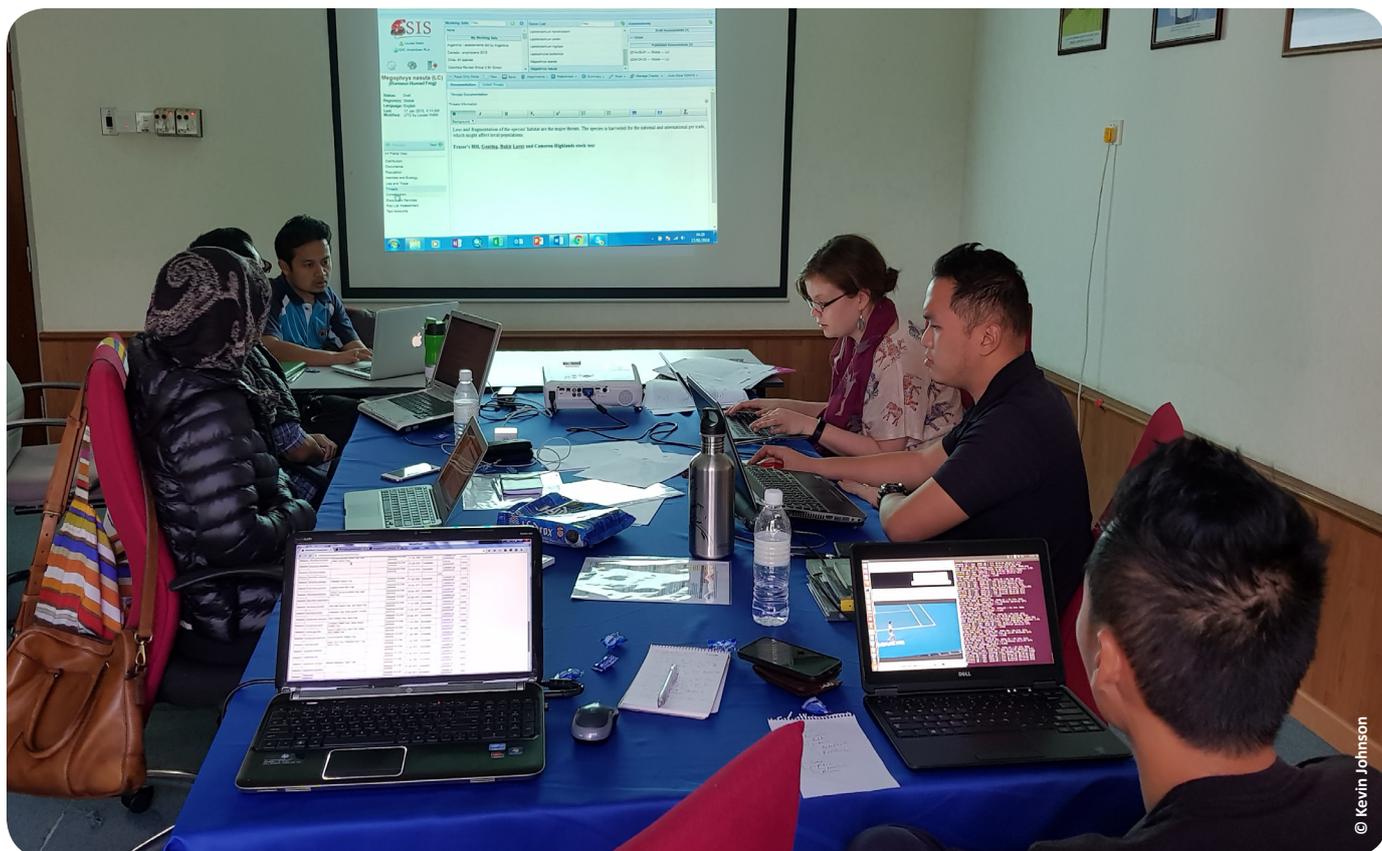
In addition to the Flatwoods Salamander, we are working with the Gopher Frog, Georgia’s rarest frog, and the Striped Newt, a federally threatened species. We and many partners across the globe are putting in a lot of time, effort, and hope into this work, and setting up Metamorphosis Meadow is a huge piece of putting the puzzle together.

For updates on these project and more, sign up for the Amphibian Foundation mailing list: [StayInformed.amphibianfoundation.org](https://stayinformed.amphibianfoundation.org).



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# Conservation assessments for Malaysian amphibians



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In January this year, seven Malaysian amphibian experts met with Programme Officers from the IUCN Amphibian Red List Authority and Amphibian Ark, to undertake Red List Assessments and Conservation Needs Assessments for Malaysian amphibians. This joint assessment workshop with the IUCN Red List Authority and the Amphibian Ark was a great opportunity for both groups to see each other's processes, as well as the outcomes from each set of assessments, and to make the best use of resources, and of course, the participants' time.

Red List assessments ([www.iucn-redlist.org](http://www.iucn-redlist.org)) determine the relative risk of extinction, to highlight those species that are facing a high risk of extinction, while the Conservation Needs Assessments ([www.conservationneeds.org](http://www.conservationneeds.org)) produce prioritized recommendations for a range of conservation actions, which will hopefully help to prevent further extinctions.

The workshop was hosted by the School of Biological Sciences, Universiti Sains Malaysia, in Penang, and was funded by Rainforest Trust and Amphibian Ark. We worked in two groups, split geographically, with one group focussing on species from Peninsular Malaysian, and the other group working on species from Malaysian Borneo. The focal species were those which either had not previously been Red Listed, or those whose Red List assessments were quite out of date, or those where significant changes had occurred in the wild populations since the last Red List Assessment was made.

This joint approach to assessments was very successful, and the participants were happy to see recommendations being made for future conservation actions. Some of the assessments require additional input from experts who were not present during the workshop, and this will hopefully be completed within the

next couple of months. The Red List Assessments will be reviewed within the next few months, with the final Red List category being determined, and the assessment information being published online. The Conservation Needs Assessments will also be reviewed, and once approved, will also be available online.

We hope that the Amphibian Red List Authority and AArk staff have the opportunity to follow this joint approach to assessments in the future, and both groups are currently reviewing their priority countries and regions to determine potential overlap with future assessments.





## Assessment of coastal wetland ecology and alien vegetation risk through local community citizen science

The Endangered Wildlife Trust (EWT) is proud to be partnering with ICLEI – Local Governments for Sustainability in the Ilembe District Municipality on the KwaZulu-Natal north coast towards meeting the objectives of the Ilembe Wetland Strategy and Action Plan. This project aims to improve the understanding of the value of selected wetland systems across three areas within the Ilembe District Municipality (Nyoni, Groutville and Kwadukuza) to feed into the Ilembe Wetland Biodiversity and Ecological Goods and Services (EGS) knowledge bank through development of local citizen science capacity, as well as to develop an Alien Invasive Plant Eradication (AIP) plan for these areas. This project is being implemented by EWT's Threatened Amphibian Programme and the work is in line with the objective of implementing the Biodiversity Management Plan for the Endangered Pickersgill's Reed Frog, which was gazetted in June 2017. This species occurs only along the KwaZulu-Natal coast and is representative of coastal wetlands. Currently, the species exists at only 25 sites, which receive very little protection or management. The species has been prioritised for conservation action due to its Endangered status,

its endemism and the ongoing deterioration in, and loss of, its habitat. Alien invasive plant infestations pose a threat to water and biodiversity by causing sedimentation and drying that changes wetland structure and function. The costs of recapturing wetlands is high and it is imperative that local community members are capacitated to provide solutions. Local community members contracted as citizen scientists will monitor and report on the ecological integrity of wetlands, thus provide a significant saving for the municipality as well as help address poverty within communities. Finally, development of an alien invasive plant eradication plan that facilitates local employment and capacity development would promote economic efficiency. The overall outcome of this project is for ecologically important wetlands to be prioritised by the municipality and incorporated into their spatial and conservation planning strategies. Using an Endangered species as a flagship for wetland conservation will contribute to overall wetland management objectives as well as contribute to the fulfilment of a government-recognised conservation plan for this species, and the important coastal habitat that it represents.

On 1 December 2017, with the help of the Ilembe District Municipality Environmental Department, we interviewed 30 candidates from the Kwadukuza, Nyoni and Groutville communities for the position of Biodiversity Officers to carry out the work required for these wetland assessments. The interview comprised of a three-step process, including an interactive wetland game, a hands-on practical assessment and one-on-one interviews. In total, 18 candidates were selected and commenced training at the respective sites on 4 December. The teams have also received training in data collection, mini SASS and snake awareness. It was identified that the teams, especially Kwadukuza, have a fear for snakes. In response, EWT requested Nick Evans to conduct a snake awareness demonstration with all the teams. Although there were a few team members that were not responsive to the snakes, most of them interacted with the snakes after the demonstration.



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# George B. Rabb (1930–2017)

By Phillip J. Bishop, Co-Chair IUCN SSC Amphibian Specialist Group/ Chief Scientist Amphibian Survival Alliance, Department of Zoology, University of Otago, Dunedin, New Zealand

The amphibian conservation community is deeply saddened by the loss of one of its greatest and most supportive pioneers. George B. Rabb, President Emeritus of the Chicago Zoological Society, Brookfield Zoo's Director from 1976 to 2003 and one of the most influential leaders of amphibian conservation, died on 27 July 2017, aged 87. Dr. George Rabb, with his focus on amphibians, stands equal in our conservation world among other "giants" such as Jane Goodall and David Attenborough.

George was an intensely private person and when asked in an interview what his favourite animal was, he evaded the question by stating that there are three animals that are commonly associated with his name; the olf, the okapi and the Surinam toad (*Pipa pipa*). It is with this latter species that I first came to know the name George B. Rabb. As a passionate student studying amphibian behavioural ecology for my PhD, it was with great delight that I read George's articles on the very interesting and unusual breeding behaviour of *Pipa pipa*.

George first described the development of the young *Pipa pipa* on the mother's back from some captive animals held at Brookfield Zoo in the late 1950s (Rabb and Snedigar, 1960). Perhaps the most interesting observations they made were the feeding of the young frogs while still in the maternal pouches and the apparent recognition of the young by the mother, who allowed the young to swim close to her mouth and forearms without attempting to eat them – usually a fatal manoeuvre for any similarly sized prey



item. Early in 1960 this same pair of Surinam toads bred again and this time George and his wife camped out in front of the tank and managed to observe and film the whole oviposition procedure. During these observations the Rabbs described, for the first time, the unusual and unique upside-down egg-laying process in this fairly common species (a fascinatingly detailed account, with photographs and diagrams, can be found in Rabb and Rabb, 1960). George also went on to reveal the mechanism for the unusual sound production technique used by *Pipa pipa* (Rabb, 1960) and the first record of chemical attraction in amphibians (Rabb and Rabb, 1963). I can clearly remember reading these papers for the first time and feeling a sense of awe, not only for

the amazingly complex and unusual behaviour of these fascinating toads but also with respect to the classical detailed description and interpretation by a world class naturalist. From that moment onwards George Rabb was one of my heroes!

Two species of amphibians have been named after George.

1. The Guatemalan Bromeliad Salamander (*Chiropterotriton rabbi*) from western Guatemala was described by Lynch and Wake (1975) and reclassified as *Dendrotriton rabbi* by Wake and Elias (1983). Although locally common, it is described as an Endangered species and breeds by direct development in the subtropical-temperate forest transition zone.

2. Rabbs' Fringe-limbed Treefrog (*Ecnomiophyla rabborum*) was described by Mendelson *et al.* (2008) for George and his wife Mary, in respect of all the efforts that the pair had made to conserve the thousands of species of frogs and salamanders threatened mainly by the active negligence of our own species. This species is a spectacular large gliding frog from the Panamanian forests of El Valle where it is believed to be endemic. George felt very honoured to have such an amazing species of frog named after him and his late wife. Unfortunately, this species is listed as Critically Endangered and is probably Extinct, and George was very dismayed when the last remaining specimen (named 'Toughie') died in 2016 in captivity—it was most likely the last one of the species—just as George was the last one of a kind. On hearing about the frog's death, George ensured me that the body was quickly transferred to the Frozen Zoo at San Diego Zoo and asked me to convey his thanks to Joe Mendelson and his co-authors Jay Savage, Edgardo Griffith, Heidi Ross, Brian Kubicki and Ron Gagliardo for naming this species in his honour in their wonderfully illustrated description in the Journal of Herpetology.

*"George was the first person in the conservation movement to draw attention to the global phenomenon of amphibian declines and was instrumental in establishing the SSC DAPTF. Now, amphibian extinctions are widely seen as the most serious and visible expression of the worldwide extinction crisis."*

David Brackett (Chair IUCN SSC, 1996-2004)

Many of us will know George's name in relation to amphibian conservation where he made his largest contribution. George was extremely passionate about saving amphibians from extinction, and despite being quite shy and reserved, he managed to play a significant leadership role in amphibian conservation. George was involved with amphibian con-

servation from the very beginning – he was one of the first herpetologists to respond to the crisis when it was first mooted at the First World Congress of Herpetology in 1989. While the news about dramatic global amphibian declines might have shocked or paralysed many amphibian biologists, George quietly went into action and working closely with David Wake, they formed the Declining Amphibian Populations Task Force (DAPTF) in 1990 to determine if the amphibian declines were a real phenomenon and, if so, what were the main drivers. George has subsequently been actively involved (many times by supporting these efforts with generous funding from his own pocket) in every aspect of amphibian conservation. He was involved in the Global Amphibian Assessment, the founding of the Amphibian Ark, the transformation of the DAPTF into the IUCN SSC Amphibian Specialist Group, numerous Amphibian Conservation Summits, the production of the Amphibian Conservation Action Plan (ACAP), the formation of the Amphibian Survival Alliance (ASA) and shortly before his death the updating of the latest ACAP.

From an email George sent to me a couple of years ago.....

*"Thanks Phil. As I recall, we all agreed the ACAP itself needs re-vamping, especially in terms of fundable programs and projects and the new knowledge that has been gained in the last 7 years. And my great appreciation of your own commitment of time and energy to the cause for which ASA was created! THANKS! -- George"*

George was also particularly worried about the amphibian chytrid fungus and it was remarkable that even in his final years he would stay on top of the scientific literature and would often send me subtle reminders, asking me if I had seen the latest chytrid paper and attaching it 'just in case' I had missed it! After I sent him the proposal I had

prepared for a brainstorming session on Amphibian Conservation to be held at the IUCN World Conservation Congress in Hawai'i in 2016 George simply replied *"Thanks, Phil. I still feel we need to get disease organisms in there. -- George"*! We continue to encourage research on emerging infectious amphibian diseases and this important aspect is recognised in the ASA Strategic Plan as one of the five key priorities for amphibian conservation.

There is no doubt that George Rabb was the founding father, and greatest supporter, of the Amphibian Conservation movement. To recognise the huge impact that George had on amphibian conservation, Synchronicity Earth has set up an Amphibian Fund in George's name (with his blessing shortly before he died) and will use this money to continue with George's dreams "for the conservation of a wonderful class of animals" (see <https://www.synchronicityearth.org/our-work/funding/expendable-endowments/the-amphibian-fund/> for more details).

George was always ahead of his time and during his career he worked hard to change zoos from natural history collections to holistically engaged conservation centres. He felt that zoos had an important role to play in *ex situ* conservation and in engaging young people to care for the natural world. At Brookfield Zoo he established the Hamill Family Play Zoo which was designed to engage children in a playful setting to find out about the natural world and how they relate to it – this has been emulated by other zoos around the world like London Zoo. In an unusually entitled paper 'God, Unicorns, and Toilets: Mission Inspired evaluation' George says *"If one cares enough to provide clean restrooms for the zoo's guests, welcoming them to return, should we not also care enough to really serve our conservation mission by examining how to manifest*

it throughout our strategic thinking and operations? If not we may be flushing both our energies and ideals down the toilet. And, in that case, whatever feelings He may have held on evaluation of His works, God help us!" (Rabb and Saunders, 1999 p.359).

In an interview with George he was asked about what he would like to be remembered for and he replied that he wanted to be "remembered fondly, and as a mentor, in particular he was proud of Richard Bodmer and his remarkable efforts in South America.....". I contacted Bodmer and asked him to say a few words about George - "In my early career he was the greatest influence to me and he was my most important mentor who guided me to focus on tropical conservation" (Dr. Richard Bodmer, Honorary Professor in Conservation Ecology, DICE, University of Kent). I feel that for those of us who were lucky enough to know George he is always remembered fondly and always as a great mentor; George inspired me and challenged me to do better, and I know this is true for so many other people.

On a personal note, while I read a lot of George's papers during my PhD studies, unfortunately, I only got to know him in the last 10 years. When I visited him in Chicago in 2011 I was very impressed that at the age of 81 he collected me from the airport in his own car, lined up the large American beast of a car so that the centre line was in the middle of the hood (bonnet), and off we went through the Chicago traffic! George had a very quiet, unassuming personality but he was incredibly sharp and always knew the exact time to make the most significant point during a meeting.

The amphibians have lost a champion, the greatest and most passionate champion they have ever had, and it's up to us to carry on in the legacy of the Great Dr. George Rabb.



A detailed account of George's life can be found in the excellent Historical Perspective written by Mitchell *et al.* (2015).

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