

# Amphibian Ark

2006-2016





**Edited by:** Anne Baker, Kevin Johnson, Luis Carrillo

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**Front cover:** In 2015 an Amphibian Ark seed grant was awarded to the Amphibian Conservation Center – Zoo Amaru in Ecuador, and part of this has been used to rescue the Wampukrum Toad, *Atelopus* sp. nov. *wampukrum*. © Carlos C Martínez Rivera

**Inside front cover:** The Panama Amphibian Rescue and Conservation Project manages a program for the Horned Marsupial Frog, *Gastrotheca cornuta*, a species which has disappeared from Costa Rica and western Panama. © Eric Baitchman

**Back cover:** The recovery program for the Southern Corroboree Frog, *Pseudophryne corroboree*, in Australia is supported by a range of organizations, with each one playing a pivotal role in saving the species from extinction. © Kevin Johnson



Frosted Flatwoods Salamander © Pierson Hill

The amphibian extinction crisis is one of the greatest challenges facing the conservation community, with 40% of the 7,500 amphibian species listed as threatened by the IUCN. Without an integrated and world-wide response, much of this entire vertebrate class could be lost.

In 2006, in response to the (then draft) Amphibian Conservation Action Plan (ACAP) the World Association of Zoos and Aquariums (WAZA) passed a resolution calling for the international zoo and aquarium community to respond immediately to the amphibian crisis, and the Amphibian Ark (AArk) was born.



European Green Toad © Claes Andrén

### Our vision

*Amphibians thriving in nature*

### Our mission

*Ensuring the survival and diversity of amphibian species focusing on those that cannot currently be safe-guarded in their natural environments*

## FROM THE EXECUTIVE DIRECTOR

We've come a long way in the past ten years. Since its inception in 2006 AArk has been helping zoos, aquariums, and other *ex situ* conservation organizations address the captive components of the ACAP. The community has responded to the call for action, with nearly 180 *ex situ* rescue and husbandry research programs for threatened species around the world.

With a focus on well-managed, range-country *ex situ* conservation programs, AArk's primary activities center around:

- assessing the conservation needs of amphibian species;
- training and capacity-building where it is most needed;
- providing seed grants to help establish *ex situ* facilities in range countries;
- raising awareness about amphibian declines and the steps being taken to reduce those declines; and
- monitoring the progress of *ex situ* programs.



Rio Chingual Valley Tree Frog © Santiago Ron



Mannophryne collaris © Dr. Enrique La Marca

## CONSERVATION NEEDS ASSESSMENTS

The Conservation Needs Assessment process evaluates and prioritizes species, with a range of both *in situ* and *ex situ* conservation actions subsequently being recommended for each species. The assessment process has proven to be a logical, transparent, and repeatable procedure for guiding amphibian conservation activities within a country or region.

For the *ex situ* conservation community, the most important outcomes from the Conservation Needs Assessments are the recommendations for species requiring urgent captive rescue and species which have been recommended as “surrogate” species - less-threatened species which can be used to develop husbandry and breeding protocols for their more threatened relatives.

The Conservation Needs Assessment process has been used to generate over 2,600 assessments for more than 2,300 species of amphibians (31% of the 7,530 currently known species), in 28 countries. Several more country-wide assessments are currently underway.

The Conservation Needs Assessment process has:

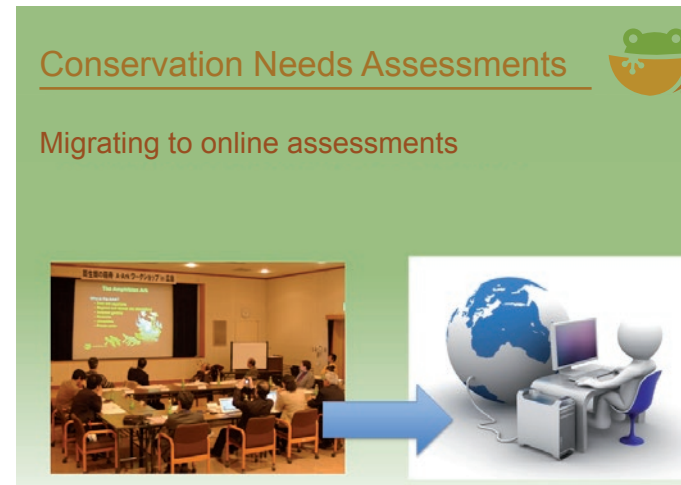
- assessed amphibian conservation needs for 28 countries;
- completed over 2,600 assessments; and
- assessed 31% of the 7,530 currently-known amphibian species.

To date, 212 species (9% of those assessed) have been recommended for urgent *ex situ* rescue and 365 species (16% of those assessed) have been recommended as potential surrogate species which are suitable for developing husbandry protocols.

All species recommended for *ex situ* rescue or research programs are listed on the AArk web site at [www.amphibianark.org/rescue-species/](http://www.amphibianark.org/rescue-species/) and [www.amphibianark.org/species-for-ex-situ-research/](http://www.amphibianark.org/species-for-ex-situ-research/) respectively. Both of these pages are an excellent starting point for institutions which need advice on which species to work with.

Prior to 2015, assessments were completed during a workshop process which gathered a region’s amphibian experts together for several days. The process worked well, but was expensive. In 2015 AArk developed an online version of the Conservation Needs Assessment ([www.conservationneeds.org](http://www.conservationneeds.org)). The online process is being used for current assessments.

During the past nine years, approximately 350 amphibian experts have contributed their knowledge as assessors, either during national or regional Conservation Needs Assessment workshops, or using the online program. Assessors include Amphibian Specialist Group members, scientists, field biologists and researchers, university students, animal husbandry experts and other appropriate stakeholders. Combining and sharing the expertise of such a broad representation of stakeholders is vital to enhance the assessments, ensuring that appropriate recommendations for priority national and global conser-



vation actions are delivered. Representatives of both local and national government wildlife departments are also invited to participate in all assessment workshops to ensure that the assessment process and recommendations are transparent, and to encourage buy-in of the assessments by those who need to authorize or implement actions.

Four training videos support the use of the online process and Spanish versions are currently in development. We are very grateful for the generous support from the European Association of Zoos and Aquaria (EAZA), the Zoo and Aquarium Association (ZAA) and the Association of Zoos and Aquariums (AZA) which enabled the development of the online software and production of the tutorial videos.



Harlequin Frog © Brian Gratwicke



Golden Mantella © Devin Edmonds



Conservation Needs Assessment for Japan © Kevin Johnson



## CAPACITY BUILDING

AArk has a long history and experience in organizing and delivering capacity building training courses in countries with high amphibian diversity but little experience in amphibian husbandry or development of *ex situ* amphibian conservation programs.

Amphibians brought into captivity must have a purpose and must receive the highest standards of care. Our mission for AArk husbandry training programs is to provide range country personnel with the tools and expertise to offer the best care to amphibians under their stewardship and to enable the planning and implementation of successful captive conservation programs that, where appropriate, end with amphibians back in nature.

The goals of our training courses are to create, expand and nurture local, long lasting and useful *ex*

To date AArk and its partners have delivered:

- 62 training courses in
- 33 different countries,
- training to nearly 2,060 students

*situ* conservation action within the country or range of focal amphibian species; with six objectives:

1. To provide technical skills necessary for long-term management of *ex situ* populations of amphibians, from species selection to reintroductions with focus on husbandry, health, biosecurity and population management.



2. To build networking capacity for practitioners in range countries/area/regions to better work together in taking charge of the conservation of their local species.
3. To stimulate interest in amphibian conservation in the region.
4. To provide guidance on developing regional conservation plans and strategies for building connections with *in situ* collaborators and municipal partners in the region.
5. To provide the most useful set of skills and resources to motivate participants to plan future workshops in their region.
6. To assist participants in finding resources for designing, funding and implementing conservation programs in their region.

AArk training courses encompass anuran and salamander husbandry and conservation, *ex situ* population management, and veterinary care. Two courses have focused exclusively on veterinary care and an AArk team of veterinarians has visited facilities in Ecuador and Colombia to advise on veterinary facilities and care.

The Amphibian Ark instructor team consists of experienced professionals from the zoo, academic and private communities from all over the world that donate their time and expertise towards training the new generation of experts.

In addition, we help to develop husbandry manuals and guidelines for the care of amphibians, along with species management plans. AArk *Population Management Guidelines* assist managers with meeting demographic and genetic goals, and the AArk

“ As a graduate student, I found this course very helpful for my research. I was also able to network with individuals in my field which has greatly helped with professional development.”



“ This is a one of a kind course. I found it completely enriching in both a professional and personal context.”

“ It is imperative that researchers, aquarists, and zookeepers learn as much about this taxa as possible in order to bolster their representation in conservation efforts.”

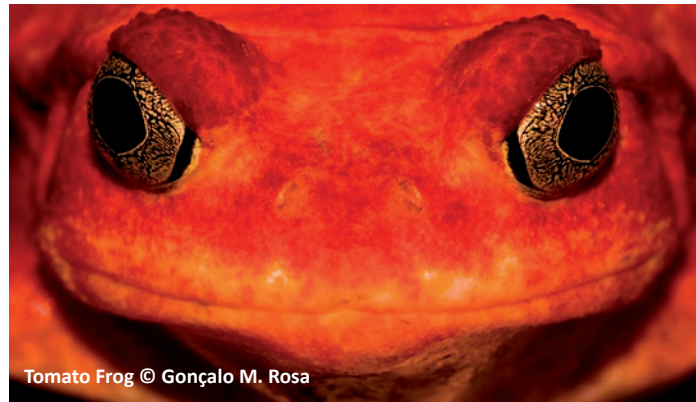
“ This course was a great experience that I would recommend to anyone wanting to learn a lot and make connections in the field.”

*Manual for Control of Infectious Diseases in Amphibian Assurance Colonies and Reintroduction Programs* minimizes the potential for inadvertent disease transmission.

Along with the different manuals and guidelines produced by AArk related to amphibian husbandry, we have also created a resource library on our web site containing hundreds of articles, manuals and guidelines that can be downloaded at any time.

The quotes on these pages are from former students.





## SEED GRANTS

In 2009, AArk initiated a yearly seed grant program to encourage and support small rescue projects for species whose threats cannot be mitigated in the wild in time to prevent their extinction and which therefore require *ex situ* intervention to persist.

To be eligible for one of these \$5,000 grants, projects must be based within the range country of the target species; involve range-country biologists; follow recommended biosecurity standards; should include strong linkages with *in situ* conservation measures; and involve partnerships to maximize the likelihood of the program's long-term sustainability and success.

The concept of a "seed" grant is to fund projects at the very beginning of their lives in order to help them attract larger and/or long-term funding for the duration of the program.

While the majority of seed grants have gone to organizations in Latin American countries, seeds grants have also helped develop captive-breeding facilities in Madagascar and in New Zealand.

Although many of the seed grants support facilities for a single species, some of the programs that were initiated by seed grants have subsequently attracted additional funding and evolved into Amphibian Conservation Centers, housing a number of endangered and threatened species.

From 2009-2016, AArk seed grants:

- helped fund 22 facilities in 14 countries; and
- totaled over \$108,000.



Amphibian breeding facility, Mitsinjo, Madagascar © Devin Edmonds

## SEED GRANT RECIPIENTS 2009-2016

### 2016

- An *ex situ* initiative to rescue Merida's Whistling Frog, an endangered undescribed *Leptodactylus* species - Venezuelan Andean Reptile and Amphibian Conservation Center
- Aromobates meridensis*, an endangered Venezuelan frog in need of conservation efforts - University of Los Andes at Merida, Venezuela
- Ex situ* conservation project for the Lake Patzcuaro Salamander (*Ambystoma dumerilii*) - Zacango Zoo, Mexico
- Establishment of the *ex situ* supporting program for vanished frog species that reappeared in Costa Rica: taking as model *Lithobates vibicarius* from Juan Castro Blanco National Park - University of Costa Rica

### 2015

- Rescuing the endangered Merida's Collared Frog - Venezuelan Andean Reptile and Amphibian Conservation Center
- Establishing a breeding laboratory specializing in *Pristimantis* species - Fundación Zoológico Santacruz, Colombia
- Saving endangered frogs from Cordillera del Condor - Amphibian Conservation Center - Zoo Amaru, Ecuador

### 2014

- Developing a captive breeding facility at Parc Ivoloïna - Parc Ivoloïna, Madagascar
- Construction of a breeding room at Centre Valbio for endangered frogs from Ranomafana National Park in south-east Madagascar - Centre Valbio, Madagascar
- The first amphibian rescue center in Argentina: An *ex situ* conservation program for *Telmatobius pisanoi* and *T. stephani* - La Plata University, Argentina

### 2013

- Ex situ* conservation program for the Ecuadorian Tiger Frog - Gustavo Orcés Herpetological Foundation, Ecuador
- Ex situ* methodology building for Neotropical caudates - Costa Rican Amphibian Research Center
- Ex situ* management of *Centrolene buckleyi* in Ecuador - Centro Jambatu, Ecuador
- Ex situ* reproduction and *in situ* conservation of *Alsodes vanzolinii* - Universidad de Concepción, Chile

### 2012

- Honduras Amphibian Rescue and Conservation Center - Honduras Amphibian Rescue and Conservation Center
- Conservation Plan for *Eleutherodactylus portoricensis* - University of Puerto Rico at Humacao

### 2011

- Conservation of *Scinax alcatraz* - Fundação Parque Zoológico de São Paulo, Brazil

### 2010

- Conservation of the Cuban Long-nosed Toad - Museo Nacional de Historia Natural de Cuba
- Frogs and toads from south-eastern Colombia - Jonh Jairo Mueses-Cisneros, Colombia
- Bolivian Amphibian Initiative - Museo de Historia Natural Alcide d'Orbigny, Bolivia
- Maude Island Frog Habitat - Orana Wildlife Park, New Zealand

### 2009

- Establishing a captive breeding facility for Malagasy Amphibians - Association Mitsinjo, Madagascar

## Argentina Amphibian Rescue Center in Argentina



Amphibian Rescue Center, Argentina  
© Federico Kacoliris

With support from an AArk seed grant in 2014 and with collaboration from the Museum of La Plata the first rescue and captive breeding center for threatened amphibians in Argentina was created in Buenos Aires. This project is establishing captive breeding and survival colonies of highly threatened and endemic Argentinean species, including Valcheta's Frog (*Pleurodema somuncurenensis*), an endemic species with a very small distributional range of less than 20 km<sup>2</sup> at the Valcheta stream in the north of the Somuncura plateau.

This conservation program has had a great start, with the founder animals breeding at the center, and an experimental release of captive-bred frogs in early 2017 into an area which is now free of threats and protected. Ongoing monitoring of the released animals shows they are doing well, and have migrated along the stream where they were released. Although it is early days after the release, these results look very promising for the species.



Valcheta's Frog © Federico Kacoliris

## Honduras Honduras Amphibian Rescue and Conservation Center

An AArk seed grant in 2012 to the Honduras Amphibian Rescue and Conservation Center (HARCC), combined with funding from a couple of other grants, provided the funds required to commence development of a biosecure amphibian rescue facility to build captive assurance populations for long-term protection and reintroduction for three Critically Endangered amphibian species. All three species are found in the Cusuco National Park and are threatened by habitat destruction, climate change and the presence of chytrid fungus.

Additional support has been received from an ASA Seed Grant, the Chicago Zoological Society-Chicago Board of Trade Endangered Species Fund, Rufford Small Grants for Nature Conservation, Omaha's Henry Doorly Zoo & Aquarium, and a generous donation from the Omaha Zoo Foundation.

The program's development was augmented in 2015 by assistance from the Omaha Zoo Foundation and Slobodnik Construction Group, Inc., with two shipping containers being equipped as amphibian breeding laboratories in Omaha and sent to Honduras. After arriving at the HARCC they were fitted out with plumbing, electricity and air conditioning to provide the perfect environment for maintaining and breeding these threatened species.



Spikethumb Frog © Jonathan Kolby



Amphibian laboratory being prepared at Henry Doorly Zoo © Brandon Greaves

## Costa Rica Costa Rican Amphibian Research Center



Striated Salamander © Brian Kubicki



Costa Rican Amphibian Research Center © Luis Carrillo

In 2013 the Costa Rican Amphibian Research Center (CRARC) was awarded \$4,700 through an AArk seed grant for a project titled *Ex situ* methodology building for Neotropical caudates, with a special emphasis on three species of Costa Rican Moss Salamanders of the genus *Nototriton*, including *Nototriton major*. This *ex situ* aspect is part of a larger project by the CRARC to obtain a better understanding of Costa Rican salamanders through research efforts both in the wild and captivity.

The CRARC was established on 125 acres of private land in Guayacán de Siquirres, which is one of the richest known sites in Costa Rica with regards to amphibian diversity - almost 70 species have been identified in the area. Frogs and salamanders are maintained in naturalistic enclosures at the CRARC, with environmental parameters which replicate wild conditions as closely as possible and this has led to a number of species being bred in captivity for the first time, including several species of the moss salamanders.

## Bolivia Bolivian Amphibian Initiative

Using seed grant funding received from the AArk in 2010, along with funding from other international organizations, the Bolivian Amphibian Initiative (BAI), based at the Museo de Historia Natural Alcide d'Orbigny in Bolivia, was able to establish a captive breeding facility for threatened species of the genus *Telmatobius*. Since then the BAI has continued working with the Titicaca Water Frog both *in situ* at Lake Titicaca to evaluate the threats faced by this species and its natural history; and *ex situ*, perfecting husbandry techniques to keep and breed the species. The founder animals have subsequently produced offspring on a number of occasions.

In 2016 a team of amphibian conservationists gathered in Bolivia to help with the project, including setting up a new breeding facility for the frogs, collecting additional founder animals from Lake Titicaca, and participating in several field trips. The new founder animals settled in well, and have subsequently produced offspring. Support for this international partnership came from Kansas City Zoo, Zoo Atlanta and Jacksonville Zoo in the US, Durrell Wildlife Conservation Trust in Jersey, AArk and the IUCN, as well as individuals from Bolivia and Belgium.

This program is an excellent example of a holistic approach to amphibian conservation and the development of international partnerships.



New facilities for Titicaca Water Frog  
© Tim Steinmetz



Titicaca Water Frog © Arturo Muñoz



Prince Charles with children and AArk and WAZA representatives © Arthur Edwards

## RAISING AWARENESS

In 2008 the Amphibian Ark worked with the zoo and aquarium community to launch The Year of the Frog campaign. This campaign was successful in raising international awareness of the amphibian crisis as well as generating funding for new amphibian conservation programs. While tracking the precise impact of the campaign was difficult, over 67 new programs have begun since 2008.

As part of the Year of the Frog the plights of amphibians came to the attention of the United States Congress when Kermit the Frog, accompanied by Dr. Jeffrey Bonner, then Chairman of AZA, and Gordon McGregor Reid, then President of WAZA, testified before a joint session.

Amphibians received royal recognition in 2012, when a newly discovered Ecuadorian frog was named after Prince Charles in recognition of his commitment to halt tropical deforestation and to mitigate the impacts of climate change. The public announcement of this new species brought considerable international media attention, with Prince Charles being presented with a commemorative gold medallion and a beautiful glass replica of his namesake.



Scinax alcatraz display at Sao Paulo Zoo © Cybelle Lisboa

Perereca-de-Alcatraz  
Scinax alcatraz  
Alcatraz Spotted Tree Frog

An AArk Newsletter in both English and Spanish editions is distributed quarterly to more than 5,500 subscribers and highlights current amphibian conservation activities, important publications on amphibian disease and other articles of interest.



The AArk website, [www.amphibianark.org](http://www.amphibianark.org), provides current information on Conservation Needs Assessment results, on-going *ex situ* conservation programs, amphibian conservation education materials, and over 200 documents relating to amphibian husbandry and veterinary care. While most of the husbandry documents are in English, additional documents in Spanish are added regularly to help support amphibian programs in Latin America.

AArk also posts regular updates on amphibian programs to our Facebook page, [www.facebook.com/AmphibianArk](http://www.facebook.com/AmphibianArk).



Monitoring frogs in Lake Titicaca © Arturo Muñoz

Species that are in imminent danger of extinction (locally or globally) and require *ex situ* management as part of an integrated program to ensure their survival are brought into rescue programs. *Ex situ* research programs may utilize non-threatened “surrogate” species to develop husbandry guidelines for related lesser-known endangered species, or may identify information that directly contributes to the conservation of species in the wild.

Since its beginning in 2006 AArk has been documenting the progress of *ex situ* amphibian rescue and research programs around the world. Monitored programs include those recommended via a Conservation Needs Assessment as requiring urgent *ex situ* rescue or research, as well as similar *ex situ* programs in countries where a Conservation Needs Assessment has not yet been undertaken. Through the [amphibianark.org](http://www.amphibianark.org) web site and by providing opportunities to connect with amphibian experts around the world AArk provides husbandry and research advice, mentoring, and opportunities to develop additional partnerships.

AArk recommends, wherever possible, that all *ex situ* amphibian programs that will ultimately result in re-introduction or translocation to the wild be operated within the native range of the species. Maintaining these populations within the range country generally results in lower disease risks than programs that are located outside the native range of the species, helping to reduce the risks of introducing non-native pathogens into the environment around the facility holding the amphibians, and the possibility of introducing novel local pathogens to amphibians that are collected and housed outside of the range country.

## MONITORING RESCUE AND RESEARCH CONSERVATION PROGRAMS



Wampukrum Toad  
© Carlos C Martínez Rivera

Elegant Stubfoot Toad  
© Santiago Ron

AArk staff currently follow:

- 107 rescue programs;
- 66 *ex situ* research programs;
- 10 head-start or supplementation programs;
- in 32 countries

[www.amphibianark.org/progress-of-programs](http://www.amphibianark.org/progress-of-programs)



Montsey Brook Newt  
© Francesc Carbonell



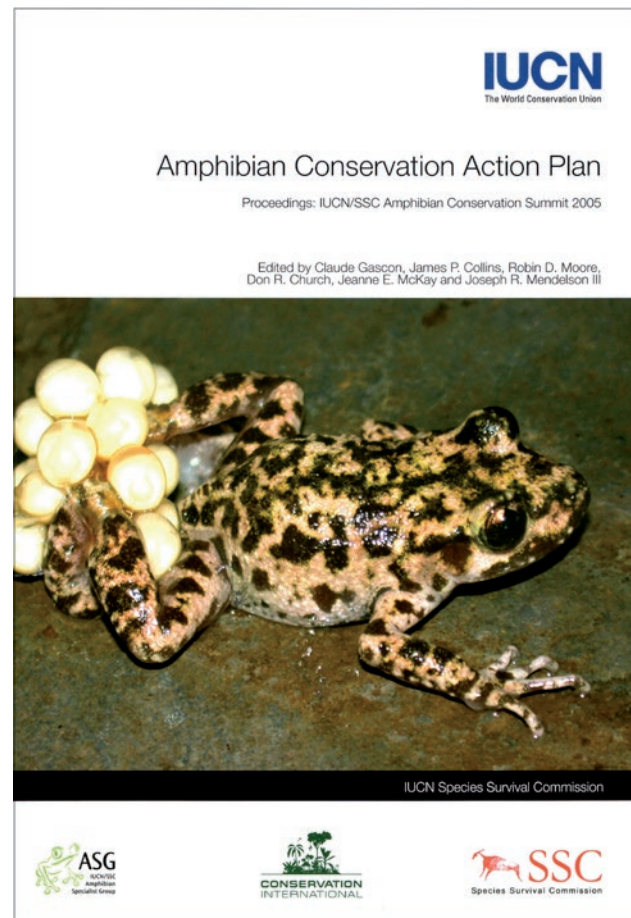
## LOOKING AHEAD

Over the past several years AArk has been working to forge stronger partnerships with the IUCN SSC Amphibian Specialist Group (ASG) and the Amphibian Survival Alliance (ASA), resulting in better coordination of activities and more efficient use of resources. We anticipate that these partnerships will continue to strengthen as we work together to implement the Amphibian Conservation Action Plan (ACAP) and develop a new awareness campaign. As a first step the three organizations have identified a common vision: *Amphibians thriving in nature*.

AArk is an integral partner in furthering the goals articulated in the Captive Breeding chapter of the ACAP. Our focal areas directly reflect the goals identified in that chapter. The Conservation Needs Assessment tool addresses the need to identify species priorities for *ex situ* conservation and a second tool, currently being developed, will ensure that appropriate knowledge and resources are available for species ultimately selected. AArk's seed grants and training programs support the goals of capacity building and captive husbandry, and our work to identify partners supports the goals of program implementation and effective partnerships.

Challenges lie ahead in a number of areas:

- The conservation actions required to secure a future for many amphibian species have not been identified, with 70% of the world's amphibian species still to be assessed through AArk's Conservation Needs Assessment



process. We have identified the top priority countries for future Conservation Needs Assessments and are surveying facilities in these countries to determine their interest and capacity in establishing captive breeding programs.

- The number of range-country programs at present does not reflect the number of trained amphibian husbandry experts in those countries. A survey is currently underway to identify the barriers to establishing programs in range countries. A better understanding of these barriers will help AArk more precisely identify resources to overcome them. Our goal is to develop partnerships between those interested organizations that may lack experience and funding in countries with high amphibian diversity and those organizations with expertise and potential funding in countries that are looking to expand beyond their well-established captive programs for native species.
- Recognizing that captive programs are valuable only insofar as they ultimately result in reintroduction or augmentation, we've been working with managers of captive programs to develop integrated, comprehensive conservation plans that address mitigating the threats to the species in the wild.
- Perhaps the biggest challenge is securing sufficient resources to move from Conservation



Needs Assessments, through the development of *ex situ* programs with reliable reproduction, to securing and protecting habitat for reintroductions, and finally to monitoring to ensure that reintroduction efforts are successful. It is only through collaborative partnerships that we will be able to realize our vision of *Amphibians thriving in nature*.







## STAFF & PARTNERS

As an organization with an excellent, but small staff, AArk relies heavily on the contributions of advisors and volunteers. Without them we could not accomplish all that we do, and they have our deepest gratitude.

**Executive Committee:** An Executive Committee comprised of representatives of the three Founding Partners oversees the work of AArk. The current Executive Committee members are:

- Conservation Breeding Specialist Group (CBSG): Dr. Onnie Byers (Executive Committee Chair)
- World Association of Zoos and Aquariums (WAZA): Damien Pellandini
- Amphibian Specialist Group (ASG): Dr. Phil Bishop

Past Executive Committee members include Gordon McGregor Reid (WAZA), Chris West (WAZA), Lena Lindén (WAZA), Bob Lacy (CBSG), Jeffrey Bonner (WAZA) and Don Church (ASG).

### Current staff:

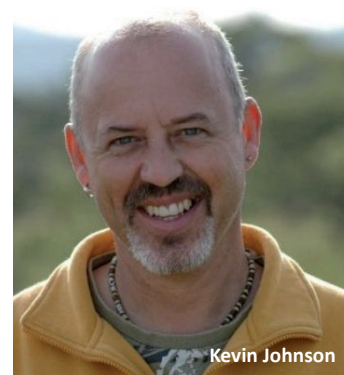
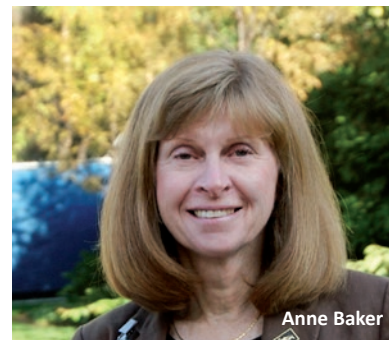
- Anne Baker, Ph.D., AArk Executive Director, Co-convenor of CBSG North America
- Luis Carrillo, Training Officer, Convenor of CBSG Mexico
- Kevin Johnson AArk Taxon Officer, Co-chair of the ASG Captive Breeding Working Group
- Elizabeth Townsend, Administrative Assistant, CBSG staff member with one quarter time dedicated to Amphibian Ark

**Past Staff:** Kevin Zippel (Amphibian Program Director, 2006-2014); Ron Gagliardo (Training Officer 2008-2014); Joe Mendelson (Research and Fundraising Officer, 2012-2014); Robert Browne (Research Officer 2008-2010); Richard Gibson (Taxon Officer 2007-2011), Lissette Pavajeau (Communications and Development Officer, 2007-2008).

### Thanks to our loyal volunteers:

- Dr. Joe Mendelson, Scientific Advisor
- Rachel Rommel, Community Education Advisor
- Danny Beckwith, Creative Advisor
- Ron Gagliardo, Scientific Advisor

Special thanks to Dr. George Rabb who has been with us every step of the way, constantly challenging us to “get on with it!”.



## Thanks to our Instructors and Partners

The AArk is fortunate to have a large group of associates who regularly offer their services to support our mission. The team of AArk husbandry instructors includes experienced professionals from the zoo, academic and private communities. All instructors make their services available at no cost to AArk or course participants. Collectively these volunteers have contributed many hundreds of hours of their time to share their expertise. We sincerely thank them and their respective institutions for their support.

**Instructors:** Alonso Aguirre, Eric Baitchman, Mark Beshel, Phil Bishop, Rosie Booth, Jennifer Burchel, Luis Carrillo, Rogelio Cedeño, Jamie Copsey, Germán Corredor, Devin Edmonds, Angie Estrada, Penny Felski, Bill Flanagan, Padu Franco, Gerardo García, Ron Gagliardo, Richard Gibson, Linda Greene, Edgardo Griffiths, Jorge Guerrel, Peter Harlow, Nor Hayati, Tim Herman, Robert Hill, Sarah Horstley, Jake Hutton, Roberto Ibañez, Bob Johnson, Kevin Johnson, Brian Kubicki, Enrique La Marca, Bob Lacy, Margarita Lampo, Michael Lanoo, Karn Lekagul, Kristin Leus, John Maerz, Gerry Maranteli, Jesús Manzanilla, Michael McFadden, Krysten Marchese, Joe Mendelson, Felix Michael, Chris Michaels, César Molina, Arturo Muñoz, Khairul Mat Naim, Andy Odum, Allan Pessier, Scott Pfaff, Todd Pierson, Jenny Pramuk, Carolina Proaño, Mike Ready, Diego Almeida Reinoso, Sam Rivera, Argelia Rodriguez, Carlos Rodriguez, Rachel Rommel, Nestor Roncancio, Crystal Rubble, Dinora Sánchez, Georgina Santos, Celsa Señaris, Krisitine Shad, Adam Skidmore, Ahmad Sudi, John Sykes, Julian Velasco, Simone Vitali, Brad Wilson, Kevin Zippel.



**Partners:** Africam Safari, Amphibian Network of South Asia, Amphibian Taxon Advisory Group – AZA, Antwerp Zoo, ARTIS-Amsterdam Royal Zoo, Atlanta Botanical Garden, Auckland Zoo, Canada’s Accredited Zoos and Aquariums, Central Zoo Authority, Chester Zoo, Colombian Association of Zoological Parks and Aquariums, Denver Zoo, Durrell Wildlife Conservation Trust, European Association of Zoos and Aquaria, Fuengirola Zoo, German Federation of Zoo Directors, German Herpetological Society, Gustavo Orcés Herpetological Foundation, Latin-American Zoo and Aquarium Association, Lisbon Zoo, Mesoamerican and Caribbean Association of Zoos and Aquariums, Natural History Museum Alcydes d’Orbigny, Nordens Ark, Panama Amphibian Rescue and Conservation Project, Riga Zoo, Rotterdam Zoo, Singapore Zoo, Society of Brazilian Zoos, South East Asian Zoo Association, Thoiry Zoo, Toledo Zoo, Universidad Católica de Quito, Venezuelan Zoos and Aquariums Association, Wildlife Conservation Society, Wildlife Institute of India, World Association of Zoos and Aquariums, Zoo and Aquarium Association, Zoo Atlanta, Zoo Outreach Organization, Zoological Society of London – London Zoo.





## A SPECIAL THANK YOU TO OUR DONORS

As a not-for-profit organization we rely heavily on donors and foundations to support and help coordinate captive conservation efforts for threatened amphibians around the world. From AArk's beginnings in 2006 we have been fortunate to have continued support from a range of zoos, aquariums, and private individuals.

### AArk Long-time Zoo Donors

#### 10 years (since founding)

Bristol Zoo  
Chester Zoo  
Chicago Zoological Society  
Columbus Zoo and Aquarium  
Leipzig Zoo  
Norden's Ark  
Ocean Park Conservation Foundation  
Paignton Zoo  
Rosamond Gifford Zoo

St. Louis Zoo  
Sacramento Zoo  
Sedgwick County Zoo

#### 5 or more years

Alwetter Zoo Munster  
Barcelona Zoo  
Buffalo Zoo  
Cleveland Zoo  
Denver Zoo  
Kansas City Zoo  
Living Desert

Minnesota Zoo  
Nashville Zoo  
New Mexico BioPark Society  
Omaha Zoo  
Philadelphia Zoo  
Singapore Zoo  
Toledo Zoo  
Wildlife Conservation Society  
Woodland Park Zoo  
Zoo Zurich  
Zoos South Australia

### AArk Long-time Individual Donors

#### 10+ years

George Rabb

#### 9 years

Julia Hertl  
Chandra Jesse  
Georgette Taylor  
Alistair Ward  
David & Marvalee Wake

#### 5 years and over

John Adams  
Anne Baker and Robert Lacy  
Roman Bodnick  
Chris Carvalho  
Melvin Davis  
Ronna Erickson  
Ron Gagliardo & Paul Huggett  
Lee Hall  
Lisa Johnson & Scott Barolo  
Elizabeth Lisiecki (ITW Foundation)

Josie Lowman  
Margaret Marshall  
Helen Medley  
James & Andrea Ross  
Louis Schauer  
Susan Seger  
Christopher Simmons  
Tremont Elementary School 2nd Grade  
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