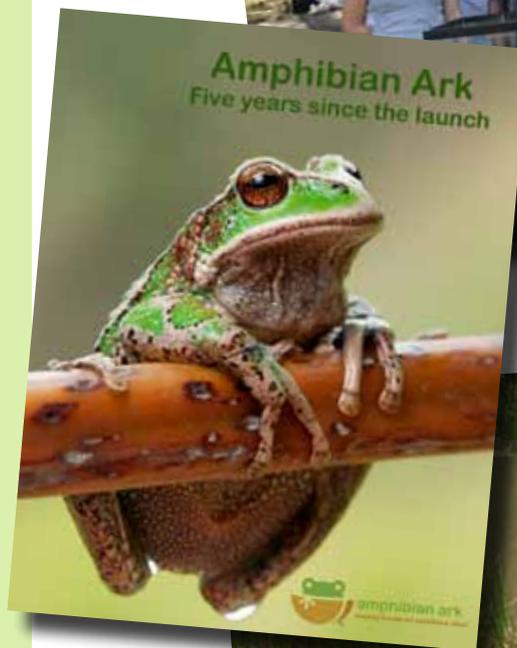


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## Leaping Ahead of Extinction: A celebration of good news for amphibians in 2012

To coincide with Leap Day (February 29), Amphibian Ark launched a new international event, **Leaping Ahead of Extinction: A celebration of good news for amphibians in 2012**. The event was a promotion of the great successes in the conservation of amphibians in captivity and in the wild. The focus was on institutions that are managing amphibian rescue or supplementation programs, recommended either during an AArk conservation needs assessment, or by national governments or field experts.

We especially focussed on *ex situ* programs that have been involved with *in situ* releases, head-starting etc., to show the important connections between *ex situ* and *in situ* conservation activities.



A beautiful poster advertising the Leaping Ahead of Extinction campaign was created for the event, and these are available for download in both English and Spanish versions. If you'd like to order your own 23" x 35" full-color printed copy of the poster, delivered to your door, they are available for just US\$18 from [www.cafepress.com.au/amphibianark/8061631](http://www.cafepress.com.au/amphibianark/8061631). We'd especially like to thank özi and his team from özi's comix studio ([www.oezicomix.com](http://www.oezicomix.com)) in Bonn, Germany, for their help in creating the poster for us, and the wonderful artists who donated their art work for the poster.



### English poster

Low resolution (2 MB) [www.amphibianark.org/pdf/Leaping-Ahead-poster-\(A3\)-low-res.pdf](http://www.amphibianark.org/pdf/Leaping-Ahead-poster-(A3)-low-res.pdf)  
High resolution (10.5 MB) [www.amphibianark.org/pdf/Leaping-Ahead-poster-\(A3\)-high-res.pdf](http://www.amphibianark.org/pdf/Leaping-Ahead-poster-(A3)-high-res.pdf)  
jpeg format (1.5 MB) [www.amphibianark.org/pdf/Leaping-Ahead-poster-\(A3\).jpg](http://www.amphibianark.org/pdf/Leaping-Ahead-poster-(A3).jpg)

### Spanish poster

Low resolution (1.4 MB) [www.amphibianark.org/pdf/Leaping-Ahead-poster-\(A3-Spanish\)-low-res.pdf](http://www.amphibianark.org/pdf/Leaping-Ahead-poster-(A3-Spanish)-low-res.pdf)  
High resolution (15 MB) [www.amphibianark.org/pdf/Leaping-Ahead-poster-\(A3-Spanish\)-high-res.pdf](http://www.amphibianark.org/pdf/Leaping-Ahead-poster-(A3-Spanish)-high-res.pdf)  
jpeg format (1.5 MB) [www.amphibianark.org/pdf/Leaping-Ahead-poster-\(A3-Spanish\).jpg](http://www.amphibianark.org/pdf/Leaping-Ahead-poster-(A3-Spanish).jpg)

Sixty institutions from twenty institutions participated in the event, with many running special activities over a week-long period around February 29th. Some of the special events are included below:

### Amphibian Leap Day in Zoo Zürich - Dr. Samuel Furrer, Curator, Zoo Zürich

On February 29 Zoo Zürich took part in the International Leap Day event. The goal of this event, that was initiated by the Amphibian Ark, was to promote amphibians and all the conservation success stories that have been achieved so far.

In Zoo Zürich, the program included guided tours through the amphibian exhibition as well as behind the scenes tours. An information desk offered specific information on native amphibian fauna. There were feeding sessions with the keepers in the terrarium and aquarium. And for the young visitors, a fairy tail corner was open and quite frequently used. Those visitors attending the events were very interested and eager to hear about amphibian biology as well as the news on conservation activities and successes.



Behind the scenes tours with the curator at Zoo Zürich were popular with zoo visitors. Photo: Samuel Furrer.



An information desk at Zoo Zürich offered specific information on native amphibian fauna. Photo: Samuel Furrer.

### Leaping ahead of extinction day at the Johannesburg Zoo - Candice Segal, Marketing Assistant, Johannesburg Zoo

On Wednesday February 29, Johannesburg Zoo staff celebrated the 1st International Leaping Ahead of Extinction Day. As part of raising awareness for the day marketing assistant Candice Segal visited staff throughout the Zoo encouraging them to wear a frog hat to show their support. Each staff member who participated was given an origami frog gift. The Zoo's education team was also busy and with the help of the Curator of Fish, Amphibians and Reptiles, Mr. Ian Visser, 140 school children enjoyed a talk and demonstration all about amphibian ecology and conservation.

In addition to activities during the day, an evening lecture was presented by Ian Visser about the Johannesburg Zoo's amphibian conservation project. The talk was well received, with thirty-five guests of all ages learning about the hard work and successes of saving endangered amphibians such as Picker's Gill Reed Frog found only in an isolated part of South Africa's coastline. After the lecture guests were taken by the Zoo ferry to "Creature Feature", one of the exhibits which houses amphibians such as African Bull Frogs, Painted Reed Frogs and Guttural Toads.

The day was a great success and it is hoped more events will be held in the future to raise awareness about the plight of amphibians and the good work being done in South Africa to try and save them.



Above: Johannesburg Zoo staff in their special frog hats, showing their support for amphibian conservation. Below: Over 140 school children enjoyed a talk and demonstration about amphibian ecology and conservation by Johannesburg Zoo's Curator of Fish, Amphibians and Reptiles. Photos: Candice Segal.

### Zoo Miami amphibian awareness event - Dustin Smith, Conservation and Research Biologist, Miami-Dade Parks, Recreation and Open Spaces

After speaking with our chapter of American Association of Zoo Keepers (AAZK), the South Florida AAZK chapter, we decided to have an amphibian awareness event on Sunday, 26 February, and we also repeated our efforts on the actual leap day, February 29.

Our day included:

- multiple zoo keeper encounters in front of various amphibian exhibits around the zoo
- a booth set up to promote amphibian conservation and describe Zoo Miami's efforts, as well as global efforts
- a table selling merchandise to raise money for conservation – amphibian shirts, stuffed golden frogs, amphibian buttons, and baked goods – total proceeds raised ~\$275. (Unfortunately, it's not a lot, but we had bad weather on both days)
- a booth with educational facts and fun activities for kids to do related to frogs, including:
  - drawing and coloring frogs
  - hop like a frog – to show guests how far they can leap vs. how far frogs/toads can leap
  - live amphibians on display, along with the prey items they feed on
  - temporary tattoos
  - various educational facts about amphibians, their decline, and conservation
  - frog and tadpole puppets.



Although we were not able to promote the event as much as we would have liked, it went very well and we were able to educate many of our guests during the two-day event.

### "Leap Here!" - Education and public awareness on the native frogs of Singapore - Yap Xinli, Conservation and Research Officer, Wildlife Reserves Singapore

In conjunction with Leap Day, the Singapore Zoo held a frog-themed event from February 25-26, for kids aged twelve and below. The event aimed to create awareness and educate children on the native frogs of Singapore and their conservation through interactive games and activities.

Kids could collect stamps on their learning passport after the completion of frog-related games at five stations. Each participant was given a goody bag and a chance to enter a lucky dip once they had collected all the stamps.

The event ran successfully with a total of 728 participants over the two days. It also provided a good opportunity for the forty-five volunteers who helped out in the event to learn more about native frogs.



#### Game Stations

##### 1. "Frog, three, two, one... Can you save the frogs from extinction?"

Aim: Frog species identification and conservation of frogs

Description: Kids were challenged to finish the frog puzzles as fast as they can and find out what is causing frog numbers to decline.



Children at Singapore Zoo learning about the morphological differences of frogs and their tadpoles. Photo: Singapore Zoo.

**2. “Count the Clutch!” and “Long Leap the King!”**

**Aim:** To educate on the different clutch sizes of different species of frogs and the ability of frogs to leap.

**Description:** Kids learnt about the different clutch sizes of native frogs and got to test their estimation skills by guessing the number of frog eggs in our “clutch”. Kids could then see how they measured up against their new-found frog friends in a leaping challenge by taking part in a standing broad jump contest.

**3. “Ecological Pest Busters!”**

**Aim:** To educate kids on the diet of frogs and importance of frogs in pest control.

**Description:** Kids joined their frog friends to eliminate pests in a shooting game.

**4. “Tadfrog Match”**

**Aim:** To educate people on the morphological differences of different species of frogs and their tadpoles.

**Description:** Have you ever had anyone tell you that you have dad’s nose or mum’s eyes? Frogs however, look quite different from their

young. Kids could see how good they are at piecing the frog family portrait together, and learn more about where and how they live.

young. Kids could see how good they are at piecing the frog family portrait together, and learn more about where and how they live.

**5. “Metamorphosize!”**

**Aim:** To educate kids on the life cycle of frogs and their amazing metamorphosis.

**Description:** By putting the frog stages of growth in the right order, kids got to find out how frogs grow and see how these unique creatures differ from other animals through metamorphosis.



Frog message board: Members of the public were also invited to write their wishes for our local frogs on a message board at the Zoo entrance. Photo: Singapore Zoo.

**Orana Park Leap Day events - Toby Johnson, Education Manager, Orana Wildlife Park**

With our post-earthquake restructure lessening our staffing and diminished visitation we had to take a lower key approach than we had hoped to be able to do. We based our event on a series of “highlight” panels around the Park that drew attention to frogs and the unique features of our native species. Panels were sited in bizarre locations around the Park (including the middle of a waterway) to elicit a ‘treasure hunt’ experience and associated with compatible existing interactive interpretation such as the Tiger Leap, Pest Post, Trampoline and Hopscotch Playground.

The panels were supplemented with quiz sheets that drew on the information presented, Year of the Frog activity sheets for children were distributed, frog masks were distributed to Zoo School classes and the daily Reptile House presentation was refocused to amphibians and their plight.



What are the frogs at Orana Wildlife Park doing for Leap Day? Leaping. Hopping. Photos: Toby Johnson.

**Oklahoma City frog exhibit opening coincides with Leap Day - Matt Patterson, The Oklahoman (www.newsok.com)**

Read more: <http://newsok.com/oklahoma-city-frog-exhibit-opening-coincides-with-leap-day/article/3653159#ixzz10lhJVmqM>

Leap Day is about an extra day in February, but at the Oklahoma City Zoo, it was also a day to educate visitors about four-legged creatures that are important to the environment. The zoo opened a new frog exhibit Wednesday with several additions to its collection. There was some fun and games, too.

“We want to share conservation stories and we want to conserve species,” curator Stacey Sekscienski said. “The first step in conservation is making people appreciate what you’re trying to conserve. That’s what we’re doing with this exhibit.”

The exhibit at Island Treasures in Island Life will feature seven new frogs not previously exhibited at the zoo, including the Strawberry Dart Frog, Asian Climbing Toads and the Cinnamon Tree Frog. Some are as small as an eraser head while others are so well camouflaged the untrained eye wouldn't know they are there.

The zoo offered several activities to go along with Leap Day including frog origami, toad abode show-and-tell, amphibian transformers and catch-a-bug frog-style.

Several of the frogs on display are endangered. The Brown Mantella is native to Madagascar. The Puerto Rican Crescent Toad also is endangered. One reason is habitat loss. Frog reproduction is often more complicated than with other animals.



A Blue-legged Mantella in its habitat at the Oklahoma City Zoo.  
Photo By Steve Gooch, The Oklahoman.

**Buffalo Zoo's Leaping Ahead of Extinction event - Jennifer Fields, Public Relations Coordinator, Buffalo Zoo**

The Buffalo Zoo held its Leaping Ahead of Extinction event on February 29 (Leap Day itself!). Because the event took place on a Wednesday during the day, we designed the event to be more appealing to a younger crowd, particularly preschool age.

Our first school group (consisting of approximately fifteen students) arrived at the start of the event and delighted in helping the Zoo's Herpetological Manager, Penny Felski, feed the dart frogs. After Penny spoke to the group about the frogs, she encouraged them to take part in our metamorphosis crafts.

Once the Zoo's Cub Club preschool program ended for the day, the program's participants and their parents arrived at the event in time for the Dress Like a Frog activity. Penny used special props to help enhance her descriptions of the special attributes of frogs, including their eyes, webbed feet, ears and skin so the children could better understand how frogs are well suited for their environment. The kids loved the big googly-eyed glasses she wore!

The event ended with additional keeper talks about the Buffalo Zoo's involvement in the conservation of the Puerto Rican Crested Toad, Panamanian Golden Frog and Eastern Hellbender. Educational posters were also displayed so visitors had the opportunity to read more about the projects. In between talks, visitors were able to talk to some of the Zoo's docents, who were on hand with some amphibian biofacts.

The event offered families a unique and educational way to celebrate Leap Day, and was a big success. The event drew local coverage from The Buffalo News, which sent a photographer. Photos from the event were printed in the newspaper the next day.

The Buffalo Zoo is proud to work in conjunction with Amphibian Ark to help spread the message of amphibian conservation!

**Leaping Ahead of Extinction at Woodland Park Zoo, Seattle - Jenny Pramuk, Curator, North Team, Woodland Park Zoo**



Interactive activities for children illustrating the beauty, natural history, diversity, ecological importance, and conservation of amphibians. Photo: Woodland Park Zoo.

Woodland Park Zoo in Seattle, Washington, USA held three days of Leap Day-themed activities.

Saturday February 25 highlighted the Zoo's new amphibian monitoring project, in which citizen scientists monitor salamander and frog populations in western Washington. This is a collaborative project between Woodland Park Zoo, Washington Department of Fish and Wildlife and Northwest Trek which aims to gather much needed data on local amphibian populations. On this day, we held a hands-on training session in the field where our citizen scientists practiced identifying amphibian egg masses and using GPS technology.

Activities on Leap Day focused on our younger guests with amphibian-themed crafts, keeper chats, puppet shows, and other interactive activities. On the following Saturday, March 3, we hosted more Leap Day activities and also offered lectures by Ron Gagliardo from Amphibian Ark and Jenny Pramuk, the Zoo's curator of Herpetology. Their talks focused on the amazing world of amphibians and what is being done locally and globally to save them from extinction.



On Saturday, the Pacific Northwest Herpetological Society was also on hand to discuss frogs and other amphibians and Webby, the Everett AquaSox baseball team's Red-eyed Tree-frog mascot was here to greet our guests. Children aged 3–12 dressed in green or other frog-themed gear received free admission to the Zoo.

A Seattle Times photographer documented the citizen science monitoring, which resulted in a front local cover photo in the Sunday edition plus an online gallery of fourteen photos.



Citizen scientists at a local wetland near Seattle monitoring for amphibian egg masses. Photo: Woodland Park Zoo.

### Leap Day activities at Jacksonville Zoo, Florida - Dino Ferri, Curator of Herpetology, Jacksonville Zoo and Gardens

The Jacksonville Zoo and Gardens held a Leaping Ahead of Extinction event on February 29. Two local frog-related organizations in the Jacksonville area came out to host booths at this event as well.

The Zoo had a special admission offer in honor of Leap Day and the event that allowed anyone with a birthday on Leap Day to have free admission to the Zoo for the day. There was an amphibian-themed scavenger hunt with prizes as well as prize drawings each hour. Herpetology staff also gave behind-the-scene tours to guests at our Save the Frogs Amphibian Conservation Center. A local artist donated a frog canvas painting for the Zoo to include in a raffle to raise money for amphibian conservation. Herpetology staff also sold art done by the Zoo's own amphibians for donations.

The Zoo raised almost \$200 for amphibian conservation that day. The event was a fun, successful event that allowed the Jacksonville Zoo to reach out to the community about the importance of amphibian conservation.



Visitors to the Jacksonville Zoo on Leap Day were involved in a number of activities and helped to raise funds for amphibian conservation. Photo: Jacksonville Zoo.



Budding amphibian biologists learnt how to use the equipment biologists use to study wild animals. Photo: Houston Zoo.

### Do you have what it takes to be the toad? Hop to the Houston Zoo for our Leap Day Extravaganza! - Rachel Rommel - Conservation Programs Manager, Houston Zoo

Everything is bigger in Texas and our Leap Day celebration on March 3 was no exception! The Houston Zoo partnered with Amphibian Ark's Leaping Ahead of Extinction campaign and our friends at Painted Dog Conservation/Nechilibi Primary School in Zimbabwe to raise awareness and appreciation for amphibians.

We were quite excited to unveil the much anticipated Houston Toad Maze where children play the role of the toad and experience the life cycle of this endangered species while learning about some of the threats they face in their habitat - from fire ants to highway mortality. Students then had the opportunity to meet our live ambassador Houston Toads, learn about our head start program, and chat with our conservation staff. This activity can be adapted for many different amphibian species, is inexpensive, highly interactive and popular with kids and parents. Contact [rrommel@houstonzoo.org](mailto:rrommel@houstonzoo.org) if you are interested using this activity for future frog related events.

After properly falling in love with the toad, families had the opportunity to help wild Houston Toads in their habitat by making native grass seed balls which will go back to landowners managing their property for this endangered species. Native grasses around breeding ponds protect little metamorphs and promote insect diversity for hungry toads. Again, contact us for this recipe if you are interested!

Calling all future amphibian biologists! Another interactive booth helped to promote our one-of-kind program, Toad Trackers, where students get to study a population of wild toads at the Houston Zoo. These budding little frog lovers learn how to use the equipment and technology biologists use to study wild animals, providing an appreciation for science as a career possibility and further promoting their love and stewardship of native wildlife.

Other activities included amphibian keeper chats from our Herpetology staff and frog-related challenges and a Tiny Tadpole Story Safari from our Education staff.

Lastly, our 12,447 visitors at the Zoo that day had the opportunity to make their own unique thumbprint frog on a huge Leaping Ahead of Extinction banner that will go to Painted Dog Conservation and the wonderful students at Nechilibi Primary School in Zimbabwe. Houston Zoo conservation staff visited Zimbabwe in November of 2011 to conduct an amphibian related Kids for Science program which has flowered into students becoming ambassadors for amphibians in their school and local villages.



Visitors to the Houston Zoo had the opportunity to help wild Houston Toads in their wild habitat by making native grass seed balls. Photo: Houston Zoo.

**Activities during Leap Frog Week at the Toronto Zoo - Crystal Robertson, Stewardship and Social Marketing Coordinator, Toronto Zoo**

Leap Frog Week at the Toronto Zoo was celebrated from February 29 through March 4 and included a chance for the public to learn about amphibian declines, Amphibian Ark and some of the behind the scenes work that goes on in our Amphibian Rescue Centre. Both the African Rainforest Pavilion and the Americas Pavilion were host to two species never before on display at the zoo, the Splashback Poison Dart Frog (*Adelphobates galactonotus*) and the Golden Mantella (*Mantella aurantiaca*). These were accompanied by wetland conservation staff who spoke to zoo visitors about the challenges facing frogs worldwide and how they can help locally by getting involved in local citizen naturalist programs to report frog sightings in their own communities.

Staff and volunteers also encouraged visitors to take part in an information scavenger hunt to learn about the frogs that call the Toronto Zoo home. A television interview helped spread the word about our celebration throughout the Greater Toronto area. The public response was fantastic and over 4,100 people were delighted to not only meet our friendly toad mascot and take photos with our new larger than life frog model, but to learn about how the Toronto Zoo is making a difference for amphibians.



Young visitors to the Toronto Zoo during Leap Frog Week. Photo: Toronto Zoo.



**Leaping ahead of extinction**

**Leap Frog Week  
February 29 - March 4**

This week, zoos around the world are celebrating the success of captive breeding programs and how they have helped some of the most endangered amphibians avoid extinction. This initiative, spearheaded by Amphibian Ark and entitled "Leaping Ahead of Extinction," has brought together over 50 zoological institutions to spread the word that amphibians need help.

**What's Happening with Amphibian Conservation at Toronto Zoo?**

The Toronto Zoo is home to several captive breeding programs for amphibians at risk of extinction. The species below are just some of the amphibians we are working with, and for some of them this is their only chance of survival!

|   |   |   |
|---|---|---|
|  |  |  |
| Oregon spotted toad   | Puerto Rican crested toad   | Wyoming toad  |

To celebrate the Leap Year, Toronto Zoo wants you to know about the challenges faced by amphibians around the world and what you can do to help. Join in our Frog-tastic Passport Scavenger Hunt to learn some cool facts about the frogs and toads that call the Toronto Zoo home.

The Toronto Zoo supports amphibian conservation worldwide through the Endangered Species Recovery Fund

amphibian.ark | toronto ZOO | Endangered Species Recovery Fund

**Leaping Ahead of Amphibian Extinction: A celebration of good news for amphibians in 2012 in South Asia coordinated by Zoo Outreach Organisation - R. Marimuthu, Education Officer, Zoo Outreach Organisation**

Amphibian Ark's newest international event, called "Leaping Ahead of Extinction: A celebration of good news for amphibians in 2012" had immense potential to attract and encourage all ages of folks to "think frog". Though this event was focused globally on institutions that are conserving amphibian species in captivity and wild, Zoo Outreach Organisation coordinated this program for many institutions the South Asian region.

Since most South Asian zoos don't keep amphibians in captivity, we focused on creating awareness among visitors and school groups of the importance of amphibians in the ecosystem. Our educator network members were invited to apply for materials and conduct a program. Sixteen institutions from India and one each from Bangladesh, Nepal and Pakistan participated in this event.



We reprinted AArk's attractive Leap Day posters, plus supplied five kinds of amphibian masks, colouring books, South Asian Amphibian posters and amphibian education packets to Indian participants and for Bangladesh, Nepal and Pakistan participants we had the soft copies of the materials. Overall, we supplied 1000 posters, 250 South Asian Amphibian posters, 1,500 masks and 150 colouring books. The following educators and institutions from India, Nepal and Bangladesh participated in this event and created mass awareness on that day:

**India**

1. Mr. Dilip Chakravarty, Project Officer, CEE, Bhopal, Madhya Pradesh
2. Mr. Vinodkumar Damodar, Conservation of Nature Society, Calicut, Kerala
3. Ms. Jessie Jeyakaran, Volunteer Educator, Ramapuram, Chennai, Tamil Nadu
4. Ms. Rani Kirubairaj, Teacher, C.C.M. Hr. Sec. School, Idayangudi, Tirunelveli. Dist., Tamil Nadu.
5. Dr. S. Sethuramalingam, Scientist E, Regional Museum of Natural History, Bhopal, Madhya Pradesh
6. Dr. Amita Kanaujia, Associate Professor, Lucknow University, Uttar Pradesh
7. Ms. Gayathri Selvaraj, Education Officer, Madras Crocodile Bank Trust, Tamil Nadu
8. Dr. A. Selvin Samuel, Professor, St. Johns College, Palayamkottai, Tamil Nadu
9. Dr. A. Manimozhi, Biologist (SG), Arignar Anna Zoological Park, Vandalur, Tamil Nadu
10. Mr.B. Rathinasabapathy, Project Coordinator, Nilgiri Biosphere Nature Park, Coimbatore, Tamil Nadu
11. Mr. Anand Pendharkar, SPROUTS, Mumbai, Maharashtra
12. Dr. Puja Vijay Sukhija, Executive Director-OASIS, Mumbai, Maharashtra
13. Dr. K. V. Rao, Director, Pilikula Regional Science Center, Mangalore, Karnataka
14. Mr. K. Packianathan, Eco club Co-ordinator, St. Xavier's Hr. Sec. School, Palayamkottai, Tamil Nadu
15. Ms. Pratibha Singh IFS, District Forest Officer, Unnao, Uttar Pradesh
16. R. Marimuthu, Zoo Outreach Organisation (for use in Indian Zoo Educators Workshop at Bhopal)

**Other South Asian countries**

17. Ms. Rachana Shah, Central Zoo, Kathmandu, Nepal
18. Mr. Mongur Morshed Choudhury, Chittagong Zoo, Bangladesh
19. Ms. Bushra Nisar Khan, Lahore, Pakistan



All of them arranged an amphibian awareness program on Leap Day and sent us their reports. Here, a few of their reports are summarized:

**B. Rathinasabapathy, Nilgiri Biosphere Nature Park, Coimbatore, Tamil Nadu**

Nilgiri Biosphere Nature Park organized a program for the Government Tribal Residential School, Anaikatti on February 29. Fifty students of 9th and 10th Standare aged fourteen and fifteen took part in the event. The event comprised of a small brief about the theme "Leaping Ahead of Extinction: Global amphibian diversity and the Western Ghats amphibian diversity. Small interactive sessions were conducted with students, especially to highlight the threats faced by amphibians locally and globally and the necessity to try and conserve them. A "frog walk" event was organized for students to teach them about frog locomotion. All the students have taken a pledge to protect lomphibians. Amphibian colouring books were given to the winners of the frog walk event. AArk posters and masks were given to all the remaining students.



Tribal school students participated in the Leap Day event organized by Nilgiri Biosphere Nature Park. Photo: B. Rathinasabapathy.

**Dr. Amita Kanaujia, Lucknow University, Uttar Pradesh**

The Department of Zoology at Lucknow University organized a Leap Day event with the support of Uttar Pradesh State Biodiversity Board, Regional Science City, Lucknow, Zoo Outreach Organisation, and the Amphibian Network of South Asia, Coimbatore, Tamil Nadu, India. The program was conducted at Regional Science City, Aliganj, Lucknow, involving students of class 5-8. The aim of the program was to raise awareness regarding amphibian conservation among the students through various competitions based on Amphibian topics.

About 162 students participated in a quiz; 190 students wrote slogans on amphibian conservation, more than 50 students participated in frog leap, 126 students participated in an art competition; and eight groups of four students each participated in puzzle making. In all, more than 300 students participated in the events.

More than 200 handouts on amphibians were distributed among the students and teachers. The celebration of Leap Day was a multi-disciplinary and integrated approach for amphibian conservation. The purpose of this day was to teach students the importance of amphibians and the need of every citizen to contribute to what has become a monumental task. This program created mass public



Teachers and students with amphibian education kits at Lucknow. Photo: Dr. Amita Kanaujia.



An amphibian information board was set up in the CCM Higher Secondary School campus. Photo: Ms. Rani Kirubairaj.

awareness and support for amphibian conservation activities through targeted campaigns and formal and non-formal education. The unforgettable objectives were to build partnerships with local and traditional communities for effective amphibian conservation.

**Ms. Rani Kirubairaj, Teacher, CCM Higher Secondary School, Idayangudi, Tirunelveli**

Samariah St. John's Higher Secondary School participated in the international Leap Day event on February 29 by celebrating the Leaping Ahead of Extinction program. After a stimulating inauguration and speeches, science club students conducted a seminar: How to conserve frogs. All wore the frog masks supplied by Zoo Outreach Organisation. National Green Corps girl students belonging to 9 Std enacted a drama. The students chanted slogans about protecting amphibians, and placards and photographs of some rare species of frogs were exhibited. They took all the Leap Day pledge, and it was useful and enlightening for everyone.

CCM Higher Secondary School participated also in the Leaping Ahead of Extinction program on February 29. Chief Guest Dr. Solomon inspired the gathering by explaining how frogs are important in the food chain, their medicinal and aesthetic values and also he talked about poisonous frogs. National Green Corps boys wore masks of different frogs and enacted a drama. The National Green Corps girls sang an awareness song: "On Leap Day let us be glad, sing and dance because the people are going to conserve us, the ponds have stone banks and trees are planted there, water is clean". The Leap Day pledge was acknowledged. Afterwards an evaluation was carried out in which village workers admitted that they used to chase off frogs using brooms and frogs turned upside down. They said that hereafter they will be kind to them. Students confessed some bad behaviour with regard to frogs and said that the event had changed them and they would not do this again. A bulletin board was displayed with information about frogs which taken from ZOO's education materials and this board was visited by all.

**Dr. A. Manimozhi, Biologist (SG), AAZP and Ms. Jessie Jeyakaran, Volunteer Educator, Chennai**

Forty six students from Madras Christian College Campus Matriculation School, thirty-six students from Murray Rabindra School and forty students from Madras Christian College NSS, Tambaram, Chennai attended this cooperative event. Students were appraised about the Amphibian Ark program in 2008 and pamphlets and awareness program were conducted and frog sightings were recorded until 2011. Following that the Leaping Ahead of Extinction campaign was introduced this Leap Day. The chief guest talked to the participants about the importance of February 29 explaining the celebration of amphibians. A great deal of information was shared by the organizers, such as how frogs play a vital role in our environment and in our lives by being a pest controller and a food for other species in the food web. Later, participants were divided into different groups and taught different frog calls with a musical rhythm.



Students with their AArk Leap Day posters and wearing amphibian masks. Photo: Ms. Jessie Jeyakaran.

The special poster printed for Leap Day was explained and distributed and students were asked to share their experience with friends, parents, and neighbours and to the people in the parks

and picnic spots. At the end of the event a quiz program was organized and the winners were provided prizes which were issued by Zoo Outreach Organisation.



Indian Zoo Educators leaping ahead for saving amphibians.  
Photo: R. Marimuthu.

**R. Marimuthu, Zoo Outreach Organisation, Coimbatore, Tamil Nadu**

Indian zoo educators leaping for Amphibian Conservation at Bhopal Workshop: The Second Central Zoo Authority, Government of India “National Workshop for Zoo Educators on Conservation Education” was held at Bhopal from February 27 to March 1.. Twenty-four participants from twenty-two zoos across India participated in this workshop. Most of them are education staff and a few of them were other staff that are also responsible for education.

Discussions included different methods for creating awareness among the public about why we have to conserve amphibians, by publishing and supplying education materials and by handing out different types of printed material. Zoo Outreach Organisation’s education officer gave a good presentation on amphibians ending with a description of this year’s Leap Day program. Participants were then taken out and shown Zoo Outreach Organisation’s various amphibian education materials and activities since 2007, and how they can use these

materials at their own zoos to teach about amphibian conservation, with a variety of audiences.

Subsequently they were introduced to a frog-leap activity. They had to leap like frogs and commit themselves to promote amphibian conservation. All participated in the activity enthusiastically, forgetting about their age and dignity! At the same time they learned new techniques to be followed in their regular education activity and how to be part of international environmental events like this.

**Mittal Gala and Gayathri Selvaraj, Madras Crocodile Bank Trust, Tamil Nadu**

On February 29 Madras Crocodile Bank Trust/Centre for Herpetology conducted a Leap Day amphibian awareness program for twenty children of lower kindergarten Headstart Learning Centre International School, Chennai. The materials provided by Zoo Outreach Organisation were used for the program. The day began with a Power-Point presentation with lots of cartoons, pictures and video clips to support the massive amount of information. The presentation was based mainly on the sample kit from the packet ‘Frogs are part of Biodiversity’.

To ensure that every child received a complete package of items and activities, twenty Amphibian Activity Packs were made using material provided in the package, including masks and reproducing materials like ‘word search’, mazes, arts and crafts from Zoo Outreach Organisation’s Helping Herps booklet. Every kid got a Global Warning patch to color and stick on a candy stick, with this idea taken from the Zoo Outreach ‘Amphibian Ark-2008’ and ‘Amphibian art and craft activities for kids’. The children and the teachers not only enjoyed this presentation, but learnt about amphibians and why we should protect them. The program concluded with the children wearing frog and toad masks and doing a frog leap to celebrate Leap Day and the cause of amphibian conservation. The poster on South Asian Amphibians was left with the teachers for the classroom and library along with two amphibian colouring books.



Kindergarten children wearing amphibian masks and holding the South Asian amphibian posters. Photo: Mittal Gala and Gayathri Selvaraj.

**Mr. Dilip Chakravarthy, CEE and Dr. Sethuramalingam, Royal Museum of Natural History, Bhopal, Madhya Pradesh**

Leap year day comes once every four years. Similarly, frogs are known for their leaping behavior. Hence the same day has been chosen to highlight the leaping animals, frogs, and their importance in the ecosystem. This international event arranged at the Regional Museum of Natural History, jointly with Bhopal and Centre for Environmental Education called “Leaping Ahead of Extinction: A celebration of good news for amphibians in 2012” was conducted to simply create an awareness among people that amphibians are important

to ecosystems, harmless to human beings except in rare cases of disease or allergy. They are declining severely in the wild due to habitat destruction and severe climate change.

The objective of the program was to spread the message of amphibian conservation to everyone, to understand and convey that all have a responsibility to take care of our precious planet. At the Regional Museum of Natural History campus along with few hundred students, the Regional Museum of Natural History, Bhopal along with Centre for Environment Education, CEE observed this Leap Day by conducting activities and programs about amphibians. Resource materials from the Zoo Outreach Organisation in India were distributed to students and to the general public.



Banner made for the Leap Day amphibian program.



Students tying amphibian rakhi pledging to conserve amphibians. Photo: Mr. Dilip Chakravarthy and Dr. Sethuramalingam.



### Leap Day celebration: "Conserving Our Frogs" at Zoo Negara - Nik Nuradzimah Nik Adnan, Enrichment & Research Unit, Zoo Negara

Leap Day Celebration: Conserving Our Frogs was an event put on by the Enrichment and Research Unit at Zoo Negara Malaysia in conjunction with the Amphibian Ark event. To coincide with Leap Day (February 29th), Amphibian Ark is coordinating an international event, Leaping Ahead of Extinction: A celebration of good news for amphibians in 2012.



The event at Zoo Negara lasted for two days, filled with activities like frogs exhibitions, Amphibians of Peninsular Malaysia seminar, frog conservation pledge, frog puzzle, coloring activities, frog and ladder and pin the frog.

The event was held on Saturday, 25 and Sunday, 26 February at the Zoo Negara entrance. This event was run on the weekend to ensure maximum exposure of the frog conservation awareness to our visitors. It was two days filled with informative and fun activities at two separate booths.

Activities on the first day were interactive with the visitors at an informative booth that was decorated to mimic the natural forest environment, filled with live and preserved frog specimens, posters of frogs, trees and ponds with tadpoles. In the afternoon there was a seminar given by Associate Professor Dr Norhayati Ahmad from the National University of Malaysia entitled "Amphibians of Peninsular Malaysia" at the Tunku Abdul Rahman theatre, Zoo Negara. During the seminar, there was one statement that caught our audience's



attention which was "I don't know why are people afraid of frogs?" Frogs are the safest animal because they don't have teeth to bite and they are not slimy, they are just wet. In the evening, activities continued with a frog conservation pledge, frog and ladder, frog puzzle and pin the frog for kids throughout the day.

It was fun to see visitors, mostly parents with their children, explore the exhibition booth, searching for the live frogs hiding near or below trees, rocks or moss in the aquarium, live frog life cycle from the egg to adult and information about frog conservation.

On the second day, Secret Recipe mock cheque presentation took place at the beginning of the day. A cake-cutting ceremony was held between representatives of the Zoo and Secret Recipe respectively. Our event was expanded with the inclusion of a Paya Indah Wetlands booth located at the activity booth. Paya Indah Wetlands is the main place for Malaysian ecotourism, covering with 3,100 hectares, and located in Kuala Langat, Selangor.

Above and below: An informative booth that was decorated to mimic the natural forest environment and filled with live and preserved frog specimens was set up at Zoo Negara for Leap Day. Photos: Zoo Negara.



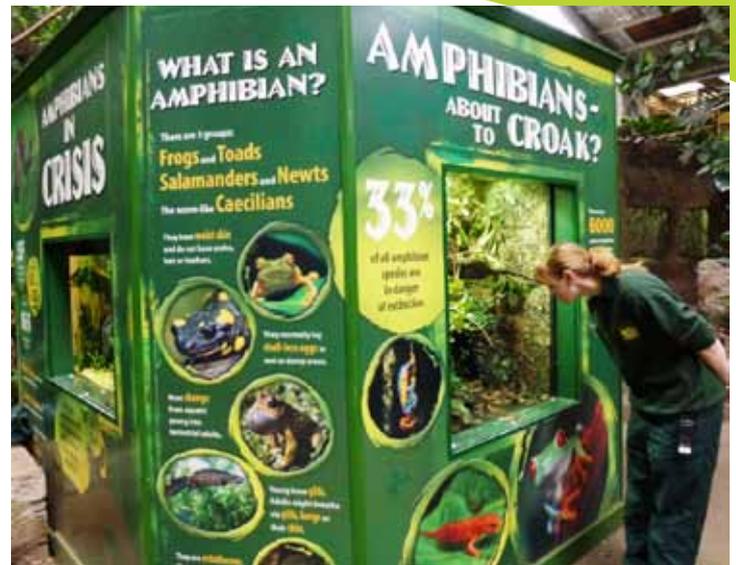
There was very positive feedback from our visitors, with many suggest we have this event for a longer period. The event overall was a complete success. The frog conservation pledge will hang at the Amphibian World, Zoo Negara Malaysia.

**Chester Zoo leapt into action for Leap Day - Catherine Barton, Assistant Conservation Officer, Chester Zoo**  
At Chester Zoo we launched our online Amphibian Project ([www.actforwildlife.org.uk/projects/amphibian](http://www.actforwildlife.org.uk/projects/amphibian)) to coincide with the Leaping Ahead of Extinction campaign, maximising exposure during the event. As part of our support for the campaign, we wanted to inspire members of the public to learn more about our amphibian conservation work.

Our most innovative activity was the production of our mobile phone ringtone. The mating calls of the Green-eyed Frog (*Lithobates vibicarius*) were recorded and made available as a ringtone, which is downloadable from our website ([www.actforwildlife.org.uk/get-involved/ringtone](http://www.actforwildlife.org.uk/get-involved/ringtone)). Chester Zoo maintains the world's only population of Green-eyed Frogs outside of its native Costa Rica. We hoped to inspire an interest in the plight of the frogs by giving people the chance to hear their unusual calls every time their mobile phone rang.

We held special events at Chester Zoo leading up to Leap Day. This included education presenters and members of our amphibian team interacting with visitors at our amphibian exhibits and talking to them about our work. Our lead keeper Ben Baker had just returned from Montserrat where he was involved in the Mountain Chicken Recovery Program and visitors were fascinated by his stories. One lucky visitor was rewarded with her very own mountain chicken adoption after successfully completing our specially designed Leaping Ahead of Extinction quiz ([www.chesterzoo.org/~media/Files/Conservation/Leaping%20Ahead%20Quiz\\_Joint%20logo.ashx](http://www.chesterzoo.org/~media/Files/Conservation/Leaping%20Ahead%20Quiz_Joint%20logo.ashx)).

Visitors to Chester Zoo, both online and in person, couldn't help but notice amphibians at Chester Zoo on Leap Day 2012.



Above: An amphibian display in the Tropical Realm at Chester Zoo. Below: Lead keeper Ben Baker, with a Green-eyed Frog (*Lithobates vibicarius*). Chester Zoo maintains the world's only population of this species outside of its native Costa Rica. Photos: Chester Zoo.



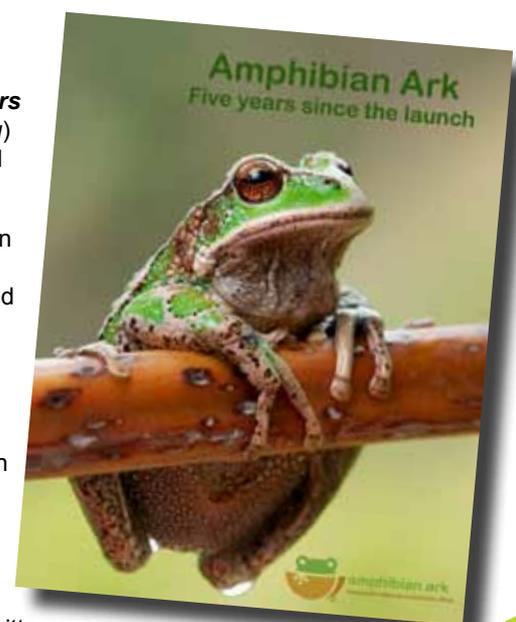
## Amphibian Ark - Five years since the launch

The AArk has just produced a new, 44-page publication called "**Amphibian Ark - Five years since the launch**". This report celebrates many of the achievements of the captive (*ex situ*) amphibian conservation community over the past five years, and it contains many beautiful photographs.

The IUCN/SSC Conservation Breeding Specialist Group (CBSG) and the World Association of Zoos and Aquariums (WAZA) both discussed the amphibian crisis at their 2005 annual meetings and pledged to help launch the rescue effort. Realizing the need for an urgent and coordinated response to the crisis from the *ex situ* community, both organizations worked together to establish an appropriate coordinating body. Within eighteen months, and with the partnership of the IUCN/SSC Amphibian Specialist Group (ASG), they launched the Amphibian Ark.

The Amphibian Ark is an umbrella organization under which *ex situ* amphibian conservation organizations from around the world aim to improve and expand their efforts to safeguard species in need. AArk partners work together with their wild (*in situ*) partners to assist mitigating threats and securing species in the wild. Ideally, these *ex situ* programs should only be temporary measures with species headed back to nature as soon as possible.

The five-year report has already been circulated to the AArk Executive and Steering Committees, our leading donors, regional zoo and aquarium associations, and all those photographers who's amazing images were used in the publication. You can download either a low resolution version (3.8 MB) from: [www.amphibianark.org/AArk-5-year-report.pdf](http://www.amphibianark.org/AArk-5-year-report.pdf) or a high resolution version (12.9 MB) from: [www.amphibianark.org/pdf/AArk-5-year-report-high-res.pdf](http://www.amphibianark.org/pdf/AArk-5-year-report-high-res.pdf). A full-color, printed copy of the report can also be purchased for just US\$15.00 from [www.lulu.com/content/paperback-book/aark-5-year-report/12692926](http://www.lulu.com/content/paperback-book/aark-5-year-report/12692926).



## Amphibian Ark *ex situ* conservation training for the Caribbean

**Ron Gagliardo, Training Officer, Amphibian Ark; Adrell Nunez, Veterinarian, ZooDom; and Andy Odum, Curator of Herpetology, Toledo Zoological Society**

Why is the Caribbean important in terms of amphibian conservation? Because this region contains the countries with the highest percentage of threatened or extinct amphibian species: Haiti, Dominican Republic, Jamaica, Cuba and Puerto Rico.

### Workshop goals

Amphibian Ark *Ex Situ* Training Workshops are engineered to help facilitate professionals in the Caribbean to engage in properly planned, implemented and maintained *ex situ* amphibian programs through comprehensive training of key stakeholders and to further stimulate in-country, regional and international partnerships that will support successful *ex situ* programs.

This workshop was held at the Dominican Republic National Zoo (ZooDom) in Santo Domingo, from February 6-10, 2012, where there are excellent classroom and lab practical facilities. This was a central location for participants from many places in the region and thus there were students from Cuba, Puerto Rico, Trinidad and Tobago, Dominica, Mexico and the Dominican Republic. Staff of ZooDom and also of Barrick Pueblo Viejo Dominicana Corporation attended the workshop, which is important and timely in light of the amphibian facilities being developed at their institutions. Local scientists from the Natural History Museum and Aquarium were also in attendance.

### Objectives

1. To provide hands-on and stimulating training that will help in-country personnel successfully care for amphibians in captivity covering subjects such as:

1. basic husbandry (enclosures, light, water, climate)
2. food and nutrition
3. captive reproduction
4. veterinary care
5. biosecurity and quarantine needs
6. population management.

2. To provide specific information on proper planning and program development for *ex situ* programs including:

7. *ex situ* program planning
8. review of existing programs and facilities
9. facilitating open discussions between students and instructors on *ex situ* program planning and implementation
10. assessment and objective measures of success/failure
11. linking captive programs with *in situ* efforts.

3. To encourage and facilitate regional networks and partnerships.

Students were provided with course materials which were distributed electronically before the course. These included reading materials on the forthcoming subjects, participant lists and a pre-course quiz that students were required to return prior to the workshop. Utilizing fifteen lectures and eight interactive sessions, the five-day training focused on four important aspects of *ex situ* population management: husbandry, hygiene, health and heredity; subjects crucial to protecting species within range country. In addition, local and regional aspects of amphibian conservation were covered along with *ex situ* planning aspects. At the beginning of the course was a group session where students shared their current experiences in the field amongst their peers, facilitating further discussions and possible collaborations through the duration of the course and beyond. The course utilized working groups where the students participated in planning conservation programs including facilities, enclosures and educational outputs. The comprehensive plans were presented at the end of the workshop. Groups were selected to maximize the interaction of participants from different regions and minimize the potential impact of local professional relationships, familiar students and other biases. The concept here was to promote student interaction and discussion, allowing students to learn from each other as well as from the instructors.



A student behind the microscope during the veterinary practical session. Photo: Andy Odum.



The enclosure-building exercise in groups provided many opportunities for the students to take academic information to a practical level. Photo: Ron Gagliardo.

Our instructor team consisted of seasoned veterans: Andy Odum, Brad Wilson, Diego Almeida and Edgardo Griffith. Sam Dubois from Loja, Ecuador masterfully handled all translation services for the week and completely erased any language barriers.

### Outcomes

This workshop brought together fifty-two students from seven countries in the Caribbean region to share their experiences among each other and to learn what it really means to save amphibian species. After careful review of the post-course evaluations, it is very clear that the participants assimilated many important aspects:

- the need for proper planning before a program begins
- the importance of natural history research
- the careful delineation of the needs and role of each species considered for *ex situ* management
- how the physical enclosures, climate control and water quality affect success
- the need for attention to health as a function of diet and environment
- how working together, utilizing multiple perspectives and talents can contribute to a better conservation strategy.



One of the groups of students proudly presenting the amphibian exhibit they created during the practical sessions. Photo: Ron Gagliardo.

The enclosure-building exercise in groups provided many opportunities for the students to take academic information to a practical level along with facilitating communications between students from a wide variety of backgrounds.

At the end of the course, groups presented their work. Included were natural history of the species, conservation needs, specific role for the particular group. This was followed by information on facility and enclosure design (with attention to biosecurity and quarantine as needed) along with plans for educational materials, which ranged from graphic panels to brochures and posters.

### Next steps

Upon leaving, each student was provided with a DVD containing all course materials and many committed to using these materials in planning their own course in their own countries. We strongly encouraged this activity and made it very clear where the students could go for any additional help. We will create a listserve for the participants to utilize and will be sending periodic communications in an attempt to assess how the students are putting this newly-acquired knowledge to good use! Students were encouraged to use all Amphibian Ark resources available to them for program planning, funding and other useful information that is at their fingertips.

### Acknowledgments

We wish to thank the following for their financial, logistical and technical support:

- Pedro Galvis, Gail Ross, and the Barrick Pueblo Viejo Corporation
- The Toledo Zoo
- Robin Moore and Conservation International
- Patricia Toribio, Executive Director, Zoologico Nacional
- Peter Tolson, Director of Conservation, Toledo Zoo
- Local contributors: all of the staff at ZooDom, Dr. Sixto J. Inchaustegui, Dr. Luis Diaz.

## New Amphibian Ark video released!

Amphibian Ark is pleased to announce the release of a new promotional video (<http://youtu.be/-3fyM1ZwNks>), featuring some spectacular images and video footage. The three-minute video clip can be used by any institution or individual that wants to promote *ex situ* amphibian conservation, to educate people about the plight of amphibians, and some of the work that is being done to help conserve threatened species.

We'd like to thank Bryan Maltais ([www.WildernessShots.com](http://www.WildernessShots.com)) for producing the video, Amarevois ([www.amarevois.com](http://www.amarevois.com)) for the soundtrack and narration, and the many photographers who contributed images and video for the project.

Use these links to download a high definition copy of the video (600 MB, [www.amphibianark.org/video/Amphibian-Ark-PSA-2012.mp4](http://www.amphibianark.org/video/Amphibian-Ark-PSA-2012.mp4)) or a medium definition version (300 MB, [www.amphibianark.org/video/Amphibian-Ark-PSA-2012.mpg](http://www.amphibianark.org/video/Amphibian-Ark-PSA-2012.mpg)) and feel free to present the video in your amphibian displays, during workshops, or at amphibian meetings to help spread the word about *ex situ* amphibian conservation.

Why not watch the video on our YouTube channel (<http://youtu.be/-3fyM1ZwNks>), and **share it with your friends on Facebook** - let all your friends know about the importance of amphibian conservation!



## Tools for implementing new *ex situ* amphibian conservation programs

Two significant challenges for *ex situ* programs relate to ensuring that all programs are adequately supported for their duration, and beginning the program with sufficient founder animals. AArk has developed two online tools, both available in English and Spanish, to help with these aspects of new *ex situ* programs. The tools can also be used with existing *ex situ* programs to check their integrity.

### Sufficient resources

Establishing facilities and collecting rescue populations is only the first, albeit perhaps the single greatest expense. However, it is insufficient to support only those first-year expenses without operational support for the long-term, which may amount to years or even decades. In addition to financial planning, *ex situ* programs should establish at the onset a plan for working with partners to mitigate threats in the wild and, where necessary, getting animals back into the wild, as well as how to distribute the progeny of captive animals in the interim.

Given these potential complications, the AArk recommends that *ex situ* management is implemented:

- only when necessary, as determined by IUCN/SSC Amphibian Specialist Group field experts through AArk Conservation Needs Assessment Workshops ([www.amphibianark.org/conservation\\_needs\\_workshops.htm](http://www.amphibianark.org/conservation_needs_workshops.htm)) or similar processes (see [www.amphibianark.org/assessmentresults.htm](http://www.amphibianark.org/assessmentresults.htm))
- as near to the species' range as possible, preferably by nationals in the same country
- in isolation from populations of the same species in the wild
- with linkage to *in situ* threat mitigation in order to minimize duration of the *ex situ* program and therefore risks
- through a management plan including all stakeholders and detailing long-term project strategies, including a business plan, measures of success and criteria for program termination, and distribution/ownership issues.

As part of our Conservation Needs Assessment process, we have developed an easy to use checklist that should be utilized **prior** to the commencement of any *ex situ* conservation breeding program for amphibians. If, and only if, all of the critical program aspects can be met for a species, should a new program be implemented.

You can use our program implementation tool online ([www.amphibianark.org/tools/Program\\_implementation\\_tool.htm](http://www.amphibianark.org/tools/Program_implementation_tool.htm)) or download the tool and use it offline ([www.amphibianark.org/tools/AArk\\_Program\\_implementation\\_tool.xls](http://www.amphibianark.org/tools/AArk_Program_implementation_tool.xls)). The tool is also available in Spanish ([www.amphibianark.org/tools/program\\_implementation\\_tool\\_es.htm](http://www.amphibianark.org/tools/program_implementation_tool_es.htm)). Data should be entered for each species that is being considered for an *ex situ* conservation program.

When considering the implementation of a new *ex situ* program the species should be added to the tool, and then questions 1-21 are answered. All questions have Yes/No answers. Before implementing a new program, it is important that most questions have Yes answers, and when this is the case, the chances of a successful *ex situ* program are much greater. The questions that require a Yes answer in order for the program to proceed are marked with an \*.

When the answers to all questions are Yes, all the criteria have been met for the implementation of an *ex situ* program for that species. If the answer to any question is No, additional resources or expertise are required.

For additional advice for on establishing or managing amphibian conservation programs, please contact Ron Gagliardo ([ron@amphibianark.org](mailto:ron@amphibianark.org)).

### Sufficient founder animals

One of the most important aspects of establishing a new *ex situ* population is obtaining sufficient founder animals (unrelated individuals that help establish a population), but unfortunately, this is often over-looked when new programs are established.

Amphibian Ark recommends that **at least twenty pairs of animals** (or groups of individuals) are collected as founder animals. Ideally these would be unrelated and will successfully reproduce, but of course that cannot be guaranteed. Realize that many more than this number may have to be captured to ensure that twenty pairs actually survive and successfully reproduce.

Collection of founders should be targeted towards obtaining as many unique lineages as possible (e.g., collect from different locations and, if possible, different sites at each location to reduce the probability of collecting related animals).

Amphibian Ark has developed a tool to help calculate the number of founders that should be collected, based on the reproductive biology of the species being considered. The tool uses data from our Amphibian Population Management Guidelines ([www.amphibianark.org/population\\_management\\_guidelines.htm](http://www.amphibianark.org/population_management_guidelines.htm)).

Please use our online founder calculation tool ([www.amphibianark.org/tools/Founder\\_calculation\\_tool.htm](http://www.amphibianark.org/tools/Founder_calculation_tool.htm)) or download the tool ([www.amphibianark.org/tools/AArk\\_Founder\\_calculation\\_tool.xls](http://www.amphibianark.org/tools/AArk_Founder_calculation_tool.xls)) and use it offline. The tool is also available in Spanish ([www.amphibianark.org/tools/Founder\\_calculation\\_tool\\_es.htm](http://www.amphibianark.org/tools/Founder_calculation_tool_es.htm)). Data should be entered for each species that is being considered for an *ex situ* conservation program.

Enter the species name in the tool, and then select the appropriate biological values and management type from the options listed. Then click the Show Results button to display the number of founders that should be collected, and target population sizes for that type of reproductive model.

For additional population management advice for amphibians, please contact Kristine Schad ([kschad@lpzoo.org](mailto:kschad@lpzoo.org)) or Kristin Leus ([kristin@cbsgeurope.eu](mailto:kristin@cbsgeurope.eu)).

## Abstracts from the 2010 Amphibian Ark Biobanking workshop

In September 2010, the Amphibian Ark Biobanking workshop was co-hosted by ZSL and the EXRC (University of Portsmouth). Abstracts from the workshop have now been published in *Biopreservation and Biobanking*, and the article can be downloaded from the AArk web site, [www.amphibianark.org/pdf/Amphibian-Ark-Biobanking-Workshop-Sept-2010.pdf](http://www.amphibianark.org/pdf/Amphibian-Ark-Biobanking-Workshop-Sept-2010.pdf)

The main outcome of this workshop will be an amphibian biobanking strategy document for presentation to the wider conservation community, within which will be guidelines on which species and samples should be biobanked, which biobanking methodologies are most appropriate in each case, and which places can process and/or store samples.

This abstract document should significantly aid those engaged or looking to engage in amphibian biobanking, boosting the number of amphibian biobanks worldwide. This in turn should help abate the ongoing catastrophic loss of amphibian biodiversity.

Abstracts include:

History of Biobanking in Zoos and Applications in Conservation. Gordon McGregor Reid, North of England Zoological Society, UK

Prioritizing Amphibians for Biobanking. Richard Gibson, Amphibian Ark, UK

Fundamental Aspects of Cryobiology: Sample, Individual, and Species Differences. Bill Holt, Zoological Society of London, UK

Databank Systems for Biobanks. Haiko Wick, Fraunhofer-Institut für biomedizinische Technik, Germany

Biobanks: Genetic Resources for Informing Conservation Strategy. Jim Groombridge, Durrell Institute of Conservation & Ecology, University of Kent, UK

Disease Risk Analysis for Biobanking. Tony Sainsbury, Zoological Society of London, UK

Initiating the Biobanking of Caribbean Amphibians. Blair Hedges, Pennsylvania State University, USA

Progress Towards Amphibian Biobanking in Australia and New Zealand: Roadblocks, Strategies, Opportunities, and Target Taxa, John Clulow. University of Newcastle, Australia and Helen Robertson, Perth Zoo, Australia

Assisted Reproductive Technologies and Cryobanking Genetic Resources at the Toronto Zoo: Past, Present, and (Amphibian-Friendly) Future. Stacey Hayden, Toronto Zoo, Canada

Establishing a Genome Resource Bank for the Panamanian Golden Frog (*Atelopus zeteki*). Gina Della Togna, Center for Species

**Establishing** and Cryopreserving Cell Cultures: Procedures Developed for the Frozen Zoo. Marlys Houck, San Diego Zoo's Institute for Conservation Research, USA

**Spermic Urine** (Collection, Short-Term Storage, Cryopreservation and Use in In Vitro Fertilization). Andy Kouba, Memphis Zoo, USA

The European *Xenopus* Resource Centre. Matt Guille, European *Xenopus* Resource Centre, UK

**Transgenesis Procedures** in *Xenopus* Now and in the Future. Shoko Ishibashi, University of Manchester, UK

**Gynogenesis and Genome Manipulations**: Strategies and Applications for Amphibian Conservation. Lyle Zimmerman, MRC National Institute for Medical Research, UK

Fish Biobanking: Current Activities, Lessons, and Opportunities. David Rawson, LIRANS Research Institute, University of Bedfordshire, UK

**Embryo Vitrification** and Primordial Germ Cell Transfer in Fish. Shogo Higaki, Tottori University, Japan

The Role of the Frozen Ark Project. Ann Clarke, Frozen Ark, University of Nottingham, UK

Considerations and Screening of Biobanked Amphibian Gametes from Chytrid Positive Animals: Implication for Conservation Programs. Carrie Vance, Mississippi State University, USA

**Cryopreservation** of Oocytes and Follicular Cells of the Cane Toad (*Bufo marinus*). John Clulow, University of Newcastle, Australia

## Breeding the Long-nosed Toad at the Cuban Museum of Natural History

**Dr. Luis M. Díaz, Cuban Museum of Natural History**

Our captive breeding and conservation program for the Cuban Long-nosed Toad (*Peltophryne longinasus*) began in 2003. First attempts to create husbandry protocols, were only partially successful due to some problems in toads apparently linked to water quality (hard water in captivity versus soft water in the wild) or UVB suppression. Hypercalcemia developed in toads after two or three years of maintenance in captivity. With support from Amphibian Ark, a new facility is being created for this and other endangered species.

Water quality is assured by the use of a deionizer, which provides soft water. Water is reconstituted by adding salts (Zippel's formulae), and kept soft and slightly acidic like that found in the natural habitat. The first step for the starting facility was the creation of a small insect room to breed tropical house crickets (*Gryllobates sylvestris*), cockroaches (*Blattella orientalis*), lesser-mealworms (*Alphitobius diaperinus*), springtails, and other species.

Long-nosed Toads require an aquatic habitat, with well-filtered and slightly moving water. In the new facility we are combining a fluorescent lamp designed to aid plant growth (Flora Glo) with a UV lamp (Repti Glo 5.0). Terrariums are equipped with HOBO data loggers, for long-term monitoring of humidity and temperature. Draining systems and automatic control of lights has been installed throughout the facility.

Female toads are ready to lay eggs every one or two months, with reproduction occurring throughout the entire year, but especially during the summer time (April to October). Contrary to other frogs and toads, Long-nosed Toads avoid breeding on rainy days, probably because it represents a risk when stream water flow increases in speed. Eggs are attached to submerged roots, plant stems, and pine needles. Each female can lay up to 350 eggs. Tadpoles develop in one or two months and sexual maturity is reached in six to eight months.



One of the vivariums created to house Cuban Long-nosed Toads at the Cuban Museum of Natural History. Photo: Luis M. Díaz.

## Ecuafrog of Wikiri and the amphibian trade

**Lola Guarderas, Wikiri S.A.**

Wikiri S. A. is a bio-commerce enterprise born from the necessity to help fund amphibian research and conservation in Ecuador. Wikiri commercialize amphibians and other related products for the pet and educational markets (see <http://english.wikiri.com.ec/productos/>).

The amphibian extinction crisis that currently threatens about 700 species in Ecuador is unparalleled by any biodiversity crisis in human history. This crisis requires action now with new, imaginative, integrative, large magnitude and multifaceted societal efforts in order to stop and reverse the current catastrophic trends.

Wikiri is deeply committed as one of the players in this challenging task. Thus, Wikiri is a monumental and pioneering private effort striving to incorporate science, social, and environmental responsibility into the global amphibian pet trade. Wikiri profits are fully dedicated to fund amphibian research and conservation projects, forest conservation, and to support the education of children and youth in frog-diverse areas (see <http://english.wikiri.com.ec/>).

The current amphibian pet market has its flaws and during past decades has been tarnished mainly by bad practices, the "phantom farming" and other illegitimate methods of procuring specimens for the trade. Because of the latter, actual prices of some species in the amphibian pet trade do not accurately reflect the real value of the species but represent a distortion due to the aforementioned factors. Low prices might result from either smuggling, or over-collecting large amounts to satiate the demand, while avoiding the often costly and cumbersome bureaucracy and paperwork (CITES and others), which are necessary controls involved with the legal amphibian trade. It should be added that smuggling causes high mortality rates and most illegal specimens are exposed to "horrendous shipping and living conditions on the way to the market" (see Brown et al. 2011, [www.mapress.com/zootaxa/taxa/Amphibia.html](http://www.mapress.com/zootaxa/taxa/Amphibia.html)).

The Ecuafrog component of Wikiri (<http://english.wikiri.com.ec/productos/ecuafrog/index.html>) aims to reverse this situation, serve the needs of the responsible amphibian trade, as well as



The *ex situ* program for endangered amphibians at Arca de los Sapos in Quito, Ecuador is partially supported by Wikiri S.A. Photo: Wikiri S.A.



Pacific Big-mouthed Toad (*Ceratophrys stolzmanni*) bred by Wikiri S. A.

based on environmentally friendly habitat enrichment techniques, which also help in the restoration of degraded areas and the conservation of forests under serious threat. They also have applied and developed technologies for breeding highly endangered species under laboratory conditions. Among best technological practices developed, and used by Wikiri, are also the maintenance of chytrid-free frogs (a fungus that causes high mortality rates in frogs), and the use of proper diets for amphibians, especially those that can combat metabolic bone disease, which affects many species under captive conditions.

An example of one of Wikiri's *ex situ* efforts is the work being done at the Otokiki tropical rainforest reserve on the Pacific side of the Andes (near Alto Tambo, Esmeraldas province), in the Chocoan region. This reserve is a high risk region for personnel working at the site and for any activity because of the following issues:

- the presence of trespassing forces from Colombia (FARC), as well as paramilitary forces in conflict (see [www.elcomercio.com/seguridad/Ecuador-comandos-militares-frontera-Colombia\\_0\\_584341584.html](http://www.elcomercio.com/seguridad/Ecuador-comandos-militares-frontera-Colombia_0_584341584.html))
- the current presence and development of gold mining (at the artisanal and industry levels) that is devastating the forest and destroying and contaminating the river courses (see [www.elcomercio.com/seguridad/FFAA-vigilan-minas-solo-dia\\_0\\_523747754.html](http://www.elcomercio.com/seguridad/FFAA-vigilan-minas-solo-dia_0_523747754.html) and [www.lahora.com.ec/index.php/noticias/show/1101151445](http://www.lahora.com.ec/index.php/noticias/show/1101151445))
- the presence of drug trafficking activities that destroy the forest for illegal harvesting (see [www.eluniverso.com/2008/05/10/0001/10/76F64A4B5973420C9A90DF6E0AB71636.html](http://www.eluniverso.com/2008/05/10/0001/10/76F64A4B5973420C9A90DF6E0AB71636.html))
- the continuous deforestation caused by the timber industry and agriculture (see [www.biodiversityreporting.org/article.sub?docId=23113&c=Ecuador&cRef=Ecuador&year=2007&date=October%202006](http://www.biodiversityreporting.org/article.sub?docId=23113&c=Ecuador&cRef=Ecuador&year=2007&date=October%202006)), including the expansion of African palm monocultures (see [www.accionecologica.org/index2.php?option=com\\_content&task=emailform&id=94](http://www.accionecologica.org/index2.php?option=com_content&task=emailform&id=94)).

The Otokiki reserve is managed by Foundation Otonga ([www.otonga.org/](http://www.otonga.org/)), a non-profit Ecuadorian research and conservation organization and is home to four of the species currently managed by Wikiri: *Dendrobates (Oophaga) sylvaticus* (morph Paru), *Agalychnis spurrelli*, *Cruziohyla calcarifer*, and *Hypsiboas picturatus*. These frogs are currently studied and managed at this reserve. Studies of natural history and population dynamics of these species under conditions of habitat enrichment are being conducted. The first results of essays are encouraging and recruitment rates at the juvenile stage are much higher than normal rates, allowing the sustainable ranching of F2 individuals for the trade and also to repopulate restored areas. A careful genetic management of these populations is being planned in order to maintain the genetic variability and viability of them.

Ecuafrog of Wikiri is setting out in the right direction. For example, so far Wikiri currently funds the discovery and description of new species to science, the study of their distribution, evolution, ecology and natural history (see <http://english.wikiri.com.ec/investigacion.html> for more details), conservation at the Otokiki reserve (see <http://english.wikiri.com.ec/conservacion/otokiki.html> for more details) and at Sapoparque La Florida (see more details), and research and conservation projects of the Arca de los Sapos *ex situ* program of Jambatu center (see <http://english.wikiri.com.ec/conservacion/laflovida.html> for more details). Future, growth and persistence in the long term will depend on political, social, economic, and technical issues, as well as how the pet market and trade improves its current practices, and how the amphibian hobbyist community throughout the world supports efforts such as Wikiri's. Complex issues such as obtaining permits from government agencies, fear of spreading of pathogens, fears of biopiracy, bans, inability to work on conflictive areas (such as the Chocoan region in Esmeraldas province) are some of the most important threats to the amphibian trade for the hobbyist, education and research activities. These threats are challenging and are being faced by enterprises such as Wikiri - which has received Ecuadorian government permits and support after a several year-long process - and which needs the full backing and participation of the amphibian community and many other members of society.

For more information, please contact: Wikiri S.A. Geovanni Farina 566 y Baltra, San Rafael, Quito, Ecuador. E-mail: [info@wikiri.com.ec](mailto:info@wikiri.com.ec)

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## Release of Green and Golden Bell Frog tadpoles from Taronga Zoo

**Michael McFadden, Unit Supervisor, Herpetofauna Division, Taronga Zoo**

The Green and Golden Bell Frog (*Litoria aurea*) was formerly one of the most common amphibians in south-east Australia, including throughout the Sydney region. In recent decades though, its numbers have declined markedly and there are now only 30-40 small populations remaining. The remaining populations are continuing to decline or disappear due to a combination of chytrid fungus, habitat degradation and introduced predators.



Taronga Zoo has been working with the Green and Golden Bell Frog (*Litoria aurea*) since 1994. Since that time, almost 30,000 tadpoles and metamorphs have been released around the Sydney area. Photo: Michael McFadden.

In early 2012, Taronga Zoo released just over 6,300 tadpoles of this species into artificially created wetlands in the Woonona area, about an hour south of Sydney. The tadpoles were released into four ponds, with the effort conducted in partnership with Village Building Company and environmental consultant Arthur White, who will monitor the survival of the released animals. The tadpoles were obtained from four spawn produced by the Zoo's captive population that was originally sourced from this locality. The tadpoles were reared until a few weeks prior to metamorphosis and the release was conducted after pre-release disease screening was completed.

A small population of Green and Golden Bell Frogs from this provenance is currently housed at Taronga Zoo, with the purpose of providing offspring for reintroduction. This captive population was established in 2002, when a housing development was to be established in the vicinity of a small extant population. To offset the risk to the population, a series of artificially created wetlands were created as potential habitat, which the bell frogs quickly moved to and began to breed. Although the population quickly grew, recent years have seen a rapid decline in frog numbers due to habitat changes at the site. With restoration work now complete, it was determined that additional animals were required from the captive

population to bolster the wild numbers and prevent the local disappearance of the species.

Taronga Zoo has had a long history of working with this species, initially establishing a captive breeding program in 1994. Between 1996 and 2004, just over 20,000 tadpoles and metamorph frogs, including fourth generation captive-bred individuals, were released at five sites within the greater Sydney area. Captive breeding has been very successful, though previous reintroduction attempts at some sites have had only limited success. This program has also previously had a large educational focus, with schools and community groups actively involved in the releases, habitat restoration and monitoring.



Biologist Arthur White releasing Green and Golden Bell Frog tadpoles at Woonona. Photo: Adam Skidmore.

## The bold, the beautiful and the Baw Baw Frog

**Raelene Hobbs, Amphibian Keeper, Melbourne Zoo, and Chris Banks, Manager of International Conservation Partnerships, Zoos Victoria**

The Baw Baw Frog (*Philoria frosti*), is one of Australia's most cryptic species of amphibian. Classified by the IUCN as Critically Endangered, it has declined from its former range by over 95%, with the population currently at approximately 7,000.

It is Victoria's (south-east Australia) only endemic species of amphibian and is restricted to Mt Baw Baw Plateau and adjoining escarpment about 120km east of Melbourne. Here it inhabits seepage lines alongside streams at an altitude of 1080m - 1560m above sea level. This frog has many weird yet wonderful traits, including no free-swimming tadpole stage (the tadpoles remain in the jelly mass for their entire duration), the larvae rarely feed through their mouth parts and rely on their yolk sac reserve as nourishment. They are also unpigmented, making them extremely sensitive to light. The adult frog ranges in size from 43-55mm in length and the female can produce anywhere from 50-180 eggs per clutch.

In 2011, Zoos Victoria made a commitment to save twenty native terrestrial vertebrate species from extinction, including the Baw Baw Frog. In November 2011, staff from Melbourne Zoo visited the area to gain an understanding of the general conditions and the micro-habitats that the frogs occupy, in order to replicate these in the Zoo. A week later, with the expertise of the annual survey team and the support of Dr Greg Hollis (a leading Baw Baw frog specialist), we managed to collect one egg mass containing ninety-three eggs. This was uncovered about 70cm below ground amongst a mass of leaf litter, mud and tree roots, through which water constantly flowed, at 5°C. Without the experience of the survey team, who had marked this site where two male frogs were calling the week before, we would never have found this egg mass. This egg mass was brought back to the Zoo and placed into a specialized tank in our climate controlled Endangered Amphibian Complex at 7-10°C.



The Baw Baw Frog (*Philoria frosti*) is Victoria's only endemic species of amphibian, and is now found in a very restricted habitat, 120km east of Melbourne. Photo: Greg Hollis.

Many challenges have arisen in the short time that we have had this species at the Zoo, among them the egg mass collapsing, due probably to inadequate oxygen flow, and periods of very high external temperatures causing the roof-based refrigeration units to struggle to maintain the appropriate temperatures in the Baw Baw Frog tanks. Fifteen tadpoles emerged or were 'removed' from the collapsing egg mass and nine are now progressing well. Limb buds are starting to appear and we are hopeful of having metamorphs in the next two months.



Every step so far with this species has been a learning curve and we have added significantly to our knowledge of this species. It has been a challenge for the keeping staff, but we are committed to overcoming each hurdle and reaching the goal of captive breeding this unique frog.

Baw Baw Frog (*Philoria frosti*) tadpoles remain in the jelly mass for their entire duration and they and rely almost entirely on their yolk sac reserve as nourishment. Photo: Damian Goodall.

## The Darwin's Frog Conservation Initiative

Danté Fenolio, Ph.D., Department of Conservation, Atlanta Botanical Garden

Bordered by the Andes Mountains to the east, the Pacific Ocean to the west, and the Atacama Desert to the north, a narrow strip of southern Chile is swathed in temperate rainforest. The region is biologically unique owing to isolation dating back to the Tertiary Period. Chile's humid forests contain significant numbers of endemic plants and animals, including amphibians, many of which are IUCN listed and are in decline. The Darwin's Frog Conservation Initiative works toward conserving some of these critically imperiled species.

The Darwin's Frog Conservation Initiative is a collaboration of the Atlanta Botanical Garden (the Garden), The National Zoo of Chile in Santiago, the Center for Advanced Studies of Ecology and Biodiversity at the Catholic University of Chile, and several biologists including William W. Lamar and Martha Crump. The initiative seeks to elucidate the reasons behind the declines of Darwin's Frogs (*Rhinoderma* spp.) and other endemic amphibians in southern Chile. Further goals include curbing the declines using techniques such as the development of captive assurance colonies within Chile, *ex situ* breeding of endangered amphibians within Chile, and monitoring of diseases in wild populations. Over the last three years, a laboratory has been developed on the grounds of the National Zoo of Chile; it is modeled after an amphibian laboratory at the Garden. The laboratory has thirty-two front-opening enclosures with automated misting systems and climate control, pre-filtered water, a backup generator and a gravity-fed backup water supply (both proved necessary after the Chilean earthquake of 2010). One wall of the laboratory is glass, accommodating the visiting public. Bilingual signage in front of the facility explains the project.



A laboratory has been developed on the grounds of the National Zoo of Chile, where Darwin's Frog (*Rhinoderma darwini*), has been successfully bred since 2010. Photo: Danté Fenolio.

Darwin's Frogs were the initial focus. Of the two known species, Chile's Darwin Frog (*Rhinoderma rufum*) hasn't been seen since the 1970s, and the Darwin's Frog (*R. darwini*) has declined across much of its range. The usual suspects come into play: habitat loss, conversion of native forests to cultivate exotic trees, invasive species, agrochemicals, and emergent infectious amphibian disease. Breeding groups of Darwin's Frogs were collected from wild populations and added to the facility in 2010. Reproductive activity and the first babies were produced a few months later; and more juveniles were produced in 2011.

With this success, the project now looks to expand the amphibian conservation program within Chile to include four new goals:

1. implement another cost-effective amphibian conservation breeding laboratory, made from two re-purposed cargo shipping containers
2. increase the capacity of our existing in-country project to accommodate six more imperiled Chilean amphibian species
3. work toward assurance colonies of 50-65 individuals in size to maximize available space, numbers, and genetic diversity
4. train two additional National Zoo of Chile staff members in captive amphibian management.



*Telmatobufo venustus* is one of the threatened species in Chile that will be established at the National Zoo of Chile. Photo: Danté Fenolio.

None of the six species we propose to work with have any conservation assurance or captive breeding colonies associated with them and all are imperiled. Based on current rates of decline, if drastic conservation actions are not immediately taken, all species are at serious risk. Our target species are: *Telmatobufo venustus*, *T. bullocki*, *T. australis*, *Insuetophrynus acarpicus*, *Alsodes montanus*, and *Eupsophus contulmoensis*.

Another step in our proposed conservation project is to convey the details of the effort to the general public. The issue of amphibian declines is complicated. In fact, there are so many issues involved with global amphibian declines that important messages might get lost in the mix. We feel that our website and blog ([www.savedarwinsfrogs.org](http://www.savedarwinsfrogs.org)) help to deliver the complex issue of amphibian declines to the public by focusing on a regional case study and relating issues that are impacting Chilean amphibians. The website also allows us to bring our message to the public quickly and efficiently, in Spanish and in English. These tools will also help to deliver the project in a form widely used by younger generations, accustomed to this media delivery system.

The breeding facility and additional capacity developed during this project at the National Zoo of Chile is sustainable. The importance of sustainability has always been our focus through developing capacity within Chile. The additional capacity in facilities and personnel will allow for the maintenance of assurance colonies of additional native and endangered amphibian species. The sustainability of the amphibian conservation facility and the assurance colonies of endangered amphibians that we have proposed to develop are of crucial importance. The critical need for sustainability comes from three problems:

5. Rapid declines and habitat loss have been observed in and with the target species, some of which already had limited ranges to begin with.
6. An emergent infectious amphibian disease, amphibian chytrid fungus, has been detected in southwestern Chile's forests by our research and the research of others.
7. No other conservation program implementing assurance colonies has been developed in Chile to work with any of the target species.

Sustainability is demonstrated through the commitment of the involved institutions with the already developed Darwin's Frog conservation breeding program.



Plans are underway to establish *ex situ* breeding colonies of *Telmatobufo bullocki* at the National Zoo of Chile. Photo: Danté Fenolio.

## Boxes for frogs on the move!

**Jeremy Holmes, FROGBOX**

Cardboard moving boxes are used on average less than two times before being recycled or disposed of. The US Environmental Protection Agency states that re-use is much better than recycling because recycling takes a lot of energy.

In 2008, after one to many moves using cardboard Doug Burgoyne decided to do something about it and started FROGBOX, a low environmental impact moving system. FROGBOXES are environmentally friendly, plastic moving boxes that can be re-used hundreds of times. They are made of easy to recycle High Density Poly Ethylene, that is strong sturdy and all around the best choice for moving boxes. FROGBOX will deliver the boxes right to your door and pick them up from your new home. FROGBOX launched in Vancouver in 2008 and quickly opened locations in Toronto, and Seattle. In 2011 they had their biggest year yet growing from three to twenty-two locations (four in the US), and are now ready to take the big "leap" into the US.



FROGBOX donates 1% of gross revenues to frog habitat restoration including the Woodland Park Zoo, Vancouver Aquarium, and BC Conservation Foundation. Frogs are the most threatened vertebrate group on Earth, with nearly one-third of the world's 6,468 amphibian species in danger. At their current rate, frogs are disappearing faster than the dinosaurs did. Certain frog species in the Pacific Northwest are at high risk of becoming extinct, such as the Oregon Spotted Frog.

FROGBOX participates with different active organizations in the Pacific Northwest such as the Woodland Park Zoo to help preserve these perishing amphibians. Frogs and other amphibians are considered indicator species. FROGBOX believes that we should all encourage change to help protect and restore the habitat and livelihood of frogs in our own backyard. Wetlands are an important part of our ecosystem and provide a number of benefits besides habitat for frogs and other amphibians.



FROGBOX uses a low environmental impact moving system of environmentally friendly, plastic moving boxes that can be re-used hundreds of times. Photo: FROGBOX.

For more information, please visit [www.frogbox.com](http://www.frogbox.com).

## An update on the amphibian programs at Perth Zoo

Kay Bradfield, Supervisor Native Species Breeding Program, Perth Zoo

### *Geocrinia* spp.

We currently have fifty-two White-bellied Frog (*Geocrinia alba*) and fifty-one Orange-bellied Frog (*G. vitellina*) metamorphs housed at Perth Zoo. All are in good condition and exhibiting good growth rates. Nine of the White-bellied Frog metamorphs were bred in captivity, and the others were collected in the wild as eggs and brought back to the Zoo for heading-starting. They will all be released back to the wild later this year.

We are currently in the process of getting ready for this year's breeding season, with adult frogs being moved into breeding chambers in May and June.

### *Spicospina flammocaerulea*

In conjunction with the Western Australian Department of Environment and Conservation, we released 30 adult and 251 larval Sunset Frogs (*Spicospina flammocaerulea*) into the wild in the south-west of Western Australia in December 2011. Most of the adults were reared at the Zoo, and all of the tadpoles were bred at the Zoo. There are only thirty known populations of the species in a relatively small area, so they were released into a peat swamp outside the known species distribution in order to extend the species range. The Department of Environment and Conservation will conduct regular monitoring of the site. If the frogs breed successfully at this site, it will provide a measure of insurance against a single environmental catastrophe causing the extinction of the species.



## Amphibian conservation husbandry course in Jersey

11-15 June 2012

The Amphibian Conservation Husbandry (ACH) course is a five day intensive course held at Durrell's headquarters in Jersey, designed to expose participants to the latest theory and practice of amphibian husbandry. Participants will be equipped to establish and manage captive populations and breeding programmes for some of the world's most threatened amphibians.

### Who is the course for?

The ACH course is designed specifically for zoo keepers, curators, and others interested in the captive management of amphibians.

The course will include the following topics:

- Understanding the natural history of your species
- Water quality, testing and filtration
- Temperature, lighting and UV
- Enclosure design and decoration
- Nutrition and breeding live foods
- Healthcare, disease and biosecurity
- Breeding difficult species
- Supporting *in situ* conservation

### What is the course content?

The course involves lectures, guided tours and plenty of practical sessions to try out newly learnt skills. The course is co-directed by leading amphibian experts from Durrell Wildlife Conservation Trust and Chester Zoological Gardens, with help from additional external lecturers.

### What is the cost?

The course fee is £700 (discounted to £560 if paid at least eight weeks in advance). Optional full board on-site accommodation is available for £210 for six nights.

For further information please contact:

International Training Centre  
Durrell Wildlife Conservation Trust,  
Les Augrès Manor, La Profonde Rue,  
Trinity, Jersey, JE3 5BP

+44 (0)1534 860037 or [itc@durrell.org](mailto:itc@durrell.org)



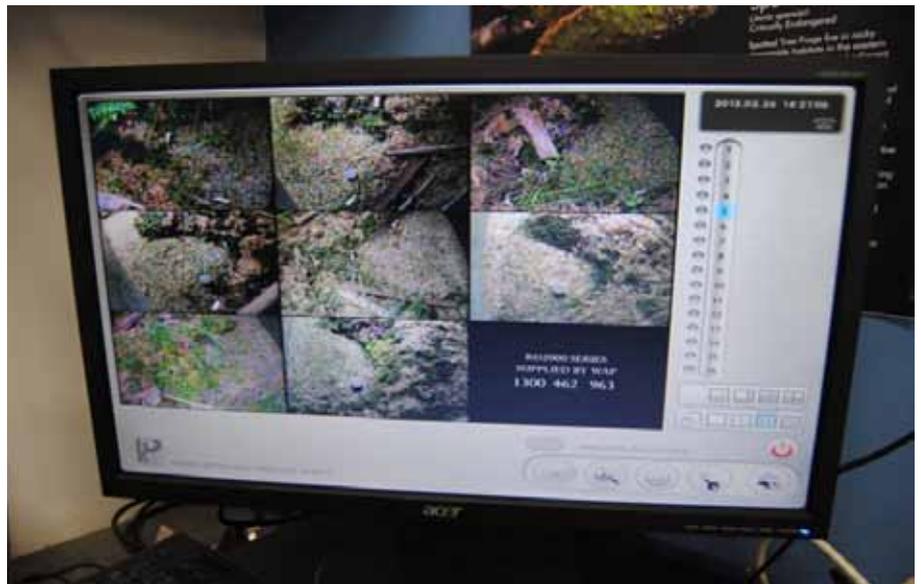
## Using an audio-visual recording system to monitor Southern Corroboree Frog, Northern Corroboree Frog and Spotted Tree Frog behavior at Healesville Sanctuary

**Mason Hill, Threatened Species Keeper, Healesville Sanctuary**

Healesville Sanctuary currently holds breeding colonies of the Southern Corroboree Frog (*Pseudophryne corroboree*), the Northern Corroboree Frog (*Pseudophryne pengilleyi*) and the Spotted Tree Frog (*Litoria spenceri*).

Although we continue to have reliable success in breeding these species, the opportunity exists for us to gain a better understanding of their captive behaviors. In an attempt to do just this, we have recently installed a sixteen channel digital video recording (DVR) system that has the ability not only to record video footage from cameras located in the breeding enclosures, but also allows for one audio channel to be allocated to each camera. The system has been hard-wired into two adjacent rooms, one housing the Corroboree Frogs and one housing Spotted Tree Frogs. With the intention of providing the greatest possible flexibility, the sixteen audio and video channels were divided evenly between the two rooms. Due to there being minimal overlap between the captive breeding seasons of the Spotted Tree Frog and the two Corroboree Frogs, we have the small luxury of focusing our attentions on one breeding room at a time.

The initial focus for us will be on the two species of Corroboree Frogs. Particular attention will be paid to the frequency of calling behavior, including the time of day, duration, seasonal peaks, attraction to females and any differences between the two species. We also hope to investigate the possibility of identifying individual calling males using specialist audio software. We currently have two breeding enclosures for each species, each containing ten breeding individuals. Two cameras are located in each enclosure along with two microphones. Although the males generally call from within the sphagnum moss nests and are hidden from view, initial observations have shown that we can use the call volume during playback to get a good idea of the location of the calling frog. This is invaluable for us, as it will enable us to observe the behavioral responses of the nearby females and hopefully also give us an insight into the effect that a calling male will have on the behavior of other calling males.



Live view of the frog breeding enclosures at Healesville Sanctuary.  
Photo: Mason Hill.

Until now, our knowledge of calling activity in our captive population has been limited to our observations whilst we are working within earshot of the enclosures. We will now be able to gain a much clearer picture of the progression of each breeding season and better gauge the frogs' behavioral responses to any changes in the environmental conditions of the breeding facility. We can also look to see if there are any effects on behavior as a result of interference during keepers entering the room or the enclosures directly. We could possibly use this to find out what level of interference is tolerated during the breeding season and we could potentially modify our routines accordingly.



Northern Corroboree Frog (*Pseudophryne pengilleyi*) breeding enclosure showing camera setup. Photo: Mason Hill.

Although last year we had a successful Spotted Tree Frog breeding season, we saw a significant number of infertile clutches deposited. This technology has the exciting potential to provide a valuable insight into whether these eggs are being dumped by gravid females due to lack of a suitable mate, deposited during amplexus or something entirely different.

We are looking forward to using this system and hope that it proves to be a valuable tool in enhancing our knowledge and success in captive breeding and ultimately improve the long-term outlook for these amazing frogs.

## An update from the Association of Zoos & Aquariums: January-February 2012



**Shelly Grow, Senior Conservation Biologist, AZA**

### It's not easy being green: An extinction update on AZA's blog

Two stories, one hopeful and one sad, related to amphibian conservation and AZA members were featured on AZA's blog on 23 February 2012 (<http://wildexplorer.org/2012/02/23/its-not-easy-being-green-an-extinction-update/>).

### International funding opportunities from U.S. Fish and Wildlife Service

The U.S. Fish & Wildlife Service has announced the call for proposals for two different species funds administered by the Division of International Conservation: the 2012 Wildlife Without Borders (WWB)-Critically Endangered Animals Conservation Fund (CEACF), and the 2012 WWB-Amphibians in Decline Fund. Each fund supports projects that conserve the world's most threatened species, while the Amphibians in Decline program specifically supports activities addressing threats to frogs, toads, salamanders, newts, and caecilians that face an unprecedented threat of extinction. CEACF proposals are due April 1, 2012, and Amphibian proposals are due May 1, 2012.

For 2012 proposal requirements, submission instructions (note that domestic applicants must now apply through [Grants.gov](http://Grants.gov)), and eligibility criteria for species and projects, please refer to: [www.fws.gov/international/DIC/howtoapply.html](http://www.fws.gov/international/DIC/howtoapply.html). Notices of Funding Availability are available in English, French, and Spanish, but proposals must be submitted in English.



### FrogWatch USA continues to expand

FrogWatch™ USA is a citizen science program managed by the AZA that allows individuals and families to learn about the wetlands in their communities and help conserve amphibians. Volunteers register a wetland site and make multiple evening visits from February through August to collect data on the calls of frogs and toads.

With support from the National Science Foundation, AZA is able to offer chapter coordinator training workshops throughout the country in 2012 and 2013. Please consider joining the network of over forty FrogWatch USA chapters by hosting or attending a regional chapter coordinator training workshop and opening a local chapter to promote amphibian conservation and connect with your community. Learn more at [www.aza.org/frogwatch](http://www.aza.org/frogwatch). Or follow FrogWatch USA on Facebook at: [www.facebook.com/frogwatchusa](http://www.facebook.com/frogwatchusa).

## Treefrogs...prehistoric survivors with a global message

**Special offer! I Ted Schiffman is offering his beautiful book "Treefrogs... prehistoric survivors with a global message" at a \$5 discount for the "Leap Year" event from January 29th until June 29th, 2012. Order your copy now!**

***Treefrogs...prehistoric survivors with a global message***, takes us on a photographic journey visiting the lilliputian world of treefrogs living in the backyard habitats we share.

The author, Ted Schiffman, has been a photographer for forty years. He developed an interest and direction in color photography as a natural outlet for his many years of training and study as an artist.

Photographic instruction, information, and guidance are provided for the reader and the aspiring wildlife photographer in the section, "How the photographs were made." This book will encourage any photographer to pursue macro photography of treefrogs with confidence.

Ted will donate 10% of all sales made through Amphibian Ark to AArk conservation programs. When ordering, please add a space after your name, and then the code AA10 e.g. John Doe AA10. This beautiful book can be ordered online at [www.imageartisan.com/treefrogs.html](http://www.imageartisan.com/treefrogs.html) – be sure to add the AA10 code to your name when you order!

