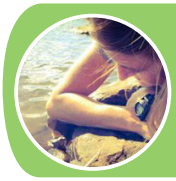
progress report

December 2020
AMPHIBIAN SURVIVAL ALLIANCE
NEWSLETTER

Stories from our partners around the world



Got a story you want to share?
Drop Candace an email today!
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Reactivating the Lake Junín Giant Frog monitoring program

By Rogger Angel Moreno Lino, Luis Castillo Roque and Roberto Elias Piperis. Grupo RANA (Peru) and Denver Zoological Foundation (U.S.)
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The world is going through difficult times due to the COVID-19 pandemic (WWF, 2020). Many people have been affected in their health and economy; businesses and NGOs have stopped their activities and reduced their budgets among other things (Smith-Bingham & Harlharan, 2020; Crothers, 2020). However, solidarity among people and institutions has allowed activities to be progressively reactivated, though following rigorous biosecurity measures.

In this way, ASA partner Grupo RANA participated in a project for the monitoring and surveillance of populations of the Lake Junín Giant Frog (*Telmatobius macrostomus*) and the Junín 'Wanchas' (*Telmatobius brachydactylus*) in three protected natural areas (Junín National Reserve, Historic Sanctuary of Chacamarca and Huayllay National

Sanctuary). These activities were led by the Denver Zoological Foundation and funded by the National Geographic Society and followed the biosecurity measures recommended by the Ministry of Health of Peru (D.S. Nº 157-2020-PCM, 2020), the National Forest and Wildlife Service (SERFOR, 2020) and the National Service of Natural Areas Protected by the State (SERNANP).

The field work took place between October 16 and 24, 2020. The group dedicated to the study of the frog populations was led by Luis Castillo Roque, assisted by Henry Tinoco Vega and Rogger Angel Moreno Lino, while the group dedicated to the study of water quality using benthic macroinvertebrates was led by Manuel Silva Poma and assisted by Pablo Miñano Lecaros. The park rangers Winy Arias López, Eduardo Ruiz and Duane Martínez supported the activities.

As part of the preliminary results, we report three adults of the Junín 'Wanchas' found in two localities and five adults of the Lake Junín Giant Frog found in three localities. We also found tadpoles of both species in 9 of the 12 localities evaluated. A frog was found dead from unknown causes, which will be examined at the Wildlife Laboratory of the Universidad Peruana Cayetano Heredia.

The number of adult individuals has been stable since 2015. In addition, thanks to a casual observation by residents of the 'Parcialidad de Huarmipuquio' Farming Community (CCPH), the presence of six adult frogs was recorded around 500 meters from our monitoring point at the south of the Junín National Reserve.

It should be noted that the CCPH is an organization of local dwellers who have been working with us in promoting the conservation of the Lake Junín Giant Frog in the project "Guardians of the Chinchaycocha Frogs" funded by the Amphibian Survival Alliance, so that soon we will have more news on how the local communities provide scientific information to specialists.

Editorial

By Candace Hansen-Hendrikx, Amphibian Survival Alliance
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Welcome to the final edition of the Frogress Report for 2020! As we look forward to 2021, many of us may feel that we would like to leave this entire year behind and forget all about it. And while it has been an extremely challenging year (physically, emotionally, financially and more) on so many fronts, perhaps it would be helpful to just ground ourselves for a short moment and remember the good things that this past year has brought us.

If you read back through the previous editions of the Frogress Report over the past year, you will see many success stories and reasons to look forward to what 2021 might have in store. And this edition is no different. As you flip through the pages you will join the celebrations of AmphibiaWeb's 20th Anniversary, the release of more than 400 captive-bred frogs and tadpoles into the wild in South Africa, and the successful breeding of the last remaining Loa Water Frogs! And that is just for starters! (Read on, and you will see what I mean!)

And the ASA is really going to hit the ground running in the New Year! I hope you will join me in welcoming Helen Meredith back to the ASA Secretariat! She is returning in the role of ASA's Chief Development Officer, with the kind support of Synchronicity Earth, GWC and the rest of the ASA Global Council. We are excited to have her back on the team and we look forward to working with Helen on her efforts to support our strategy, partners and Future Leaders of Amphibian Conservation!

Speaking of these Future Leaders of Amphibian Conservation, I am now going to ask you to help me welcome two of them to the Frogress Report Editorial Team! Previous awardees Kaya Klop-Toker and Kirsty Kyle will be starting in the New Year as Copy Editors. They will join me and ASA's Communications and Partnership Officer and Frogress Report's Assistant Editor Luis Fernando Marin da Fonte on the team. We look forward to working with them and continuing to improve and grow Frogress Report for the partnership! They will be an invaluable part of making sure Frogress Report is the publication that the partnership is coming to rely on.

As for the partnership, stay tuned for some exciting developments in the New Year. We have already started rolling out much of what you have asked for in the recent strategic planning partnership survey to help you learn more about other partners and to facilitate collaboration amongst partners on our website. And stay tuned for an on-call list being developed for the partners shortly! We want to make it as easy as possible for you to not just get the help you need, when you need, but to also help other partners, because we are all in this together!

I could go on and on about all the developments and things planned but I am going to hand Frogress Report over now to you, the partners. This is what Frogress Report is all about!

Thank you everyone for your dedication to amphibian conservation this past year and for all that you have done! We cannot wait to see what we can all accomplish together next year!

AmphibiaWeb celebrates 20th anniversary in 2020

By Michelle Koo, David Wake. AmphibiaWeb/ Museum of Vertebrate Zoology, University of California Berkeley (U.S.)
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AmphibiaWeb celebrates its 20th anniversary this year, which is remarkable for an online resource. Our mission remains the same: we connect people around the world by synthesizing and sharing information about amphibians to enable better research, education and conservation. Our team has grown over the years; we now have 13 steering committee members and 9 additional associates from universities and museums around the US and Australia, which includes three of our founders, Director David Wake, Associate Director Vance Vredenburg and Database Administrator Joyce Gross. We have adapted our operational strategy over the years to sustain our mission by responding to changing research needs and new technologies. We are in the midst of planning new changes to AmphibiaWeb and note a few major milestones here.

Most recently, we created and launched a repository for *Batrachochytrium* (Bd and Bsal) fungal data, chytridiomycosis being one of the most devastating infectious wildlife diseases in amphibians. As part of the North American Bsal Task Force, Associate Director Michelle Koo collaborated with the Deanna Olson, US Forest Service, to solve two challenges: 1) create a repository to aggregate and share data on the newly discovered Bsal fungus; and 2) upgrade and migrate the Bd Maps database, which was left without sustainable means to update and share data. Thus, AmphibiaWeb built the Amphibian Disease portal, where users can access a growing database for over 500 species from 47 countries. It includes the first US survey for Bsal (from May 2014 through August 2017) conducted by the USGS (Waddle et al 2020). More than 11,000 samples are recorded from reserves nationwide, all thankfully negative for Bsal, which forms a valuable baseline for the US. We link each species in the Disease portal to the respective species accounts. The repository will be critical for serving as both an archive for researchers (important for scientific reproducibility) and as a resource to understand disease dynamics and predict threats. Contact us if you or a colleague are embarking or have chytrid samples and would like to learn more.

From our beginning, AmphibiaWeb has been an important educational resource and activity.

Recently, we have produced original Primers on Amphibians and on Phylogeny & Taxonomy written by steering committee members. We offer lesson plans for educators, and activity sheets and Spanish language comics for younger children. Much of our material, both research and educational outreach, is due to the work of UC Berkeley undergraduate apprentices in conjunction with staff. Each spring semester, US herpetology classes participate by having their students research and submit original species accounts. To date, we have had 41 classes and 546 students contribute to AmphibiaWeb! We always welcome inquiries and new classes.

We recognize that it can be challenging to keep up with all the progress and news posted on AmphibiaWeb, so we are launching a quarterly newsletter starting in December 2020 and invite you to subscribe. We look forward to more years of service to the amphibian biology community and the public.

Creating a SAFE haven for Mountain Chickens on Montserrat

By Rachel Haynes, Luke Jones, Jeff Dawson, Izabela Barata, Mike Hudson. Durrell Wildlife Conservation Trust (U.K.)
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For the Critically Endangered Mountain Chicken Frog (*Leptodactylus fallax*), 2020 has been a year of small but significant successes. The Mountain Chicken Recovery Programme, a partnership of international zoos, local NGO's and Government stakeholders including Durrell, ZSL, Chester Zoo, Bristol Zoo and Norden's Ark alongside the Governments of Montserrat and Dominica, the Montserrat National Trust and Wild Dominique have been working to secure and restore populations of the once-abundant mountain chicken to its native islands of Montserrat and Dominica. After the arrival of chytridiomycosis in Montserrat, the Mountain Chicken Recovery Programme established a captive bio-secure safety-net population across partner zoos. Over the following decade, successful breeding in captivity has facilitated four reintroduction attempts. Unfortunately, each of these ended with the population being lost within a year due to chytridiomycosis. There was, however, evidence of strong seasonality in the chytrid fungus risk, with much lower risk in the warm, wet seasons of these releases.

Last year the project carried out a 5th release, led by Durrell Wildlife Conservation Trust and Montserrat's Department of Environment, of 27 captive-bred Mountain Chickens from Jersey Zoo and the ZSL into a semi-wild safe haven in Montserrat, designed to test the efficacy of novel habitat manipulation techniques to raise the temperature of areas within the SAFE haven throughout the year, mirroring the warm, wet season of low chytrid risk. This will take the form of a three-year study to assess if this intervention will enable the survival of this susceptible species in the presence of chytrid fungus. Whilst it is too early to tell whether the intervention will be successful on Montserrat, we have seen some encouraging signs in the first 12 months that the frogs are enjoying being home. After release, the frogs improved in condition, gained weight and males established and maintained territories. Whooping calls were filling the void they had left for so many years in the nighttime soundscape of Montserrat. The first foam nests appeared and just two weeks after, a writhing mass of tadpoles were seen in one nest, quickly followed by a second fertile nest. These represented the first confirmed fertile nests in Montserrat in over a decade! Unfortunately, with the greatest drought the Caribbean region in 80 years, the tadpole nests were abandoned by their parents. Given time, the project hopes to see its first juvenile Mountain Chickens returning to the island.

Durrell's Luke Jones, Project Coordinator on Montserrat, says "to have successfully reached this milestone in the first year since release is absolutely phenomenal. There is still plenty of work to be done, as we look to determine whether our environmental manipulation techniques, can prevent or limit future outbreaks of the disease". In a year fraught with global hardships, the achievements from the Mountain Chicken Recovery Programme offer a glimmer of hope. The first tentative steps have been taken in ensuring the survival of this species. Hope persists that it may one day assist in the development of tools to overcoming the impacts of *Batrachochytrium dendrobatidis* on amphibian populations.

DURRELL

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With fewer than 20 Loa Water Frogs left in the world, hatching of tadpoles revives hope for critically endangered species

By Lindsay Renick Mayer
Global Wildlife Conservation (U.S.)
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Nearly 200 Loa water frog (*Telmatobius dankoi*) tadpoles hatched in October of this year at the National Zoo of Chile, a little more than a year after a team of conservationists in Chile swiftly evacuated the last-known 14 frogs from perilously dry habitat and brought them to the zoo.

"The zoo's specialists not only nursed the animals back to health after they were discovered malnourished and near-death in the wild last year, but they have now succeeded in breeding a new generation of a species that has very nearly vanished," said Lina Valencia, Global Wildlife Conservation's Andes conservation officer. "While the zoo rears these tadpoles and breeds additional pairs, it is important that the government continues the great work it started in rescuing the animals by restoring and protecting the frogs' habitat so that they can return to their home in the wild."

In June of 2019, a team of conservationists and indigenous leaders discovered that the habitat of the Loa water frog outside of the city of Calama, located in the middle of the Atacama desert, had dried up as the result of extraction of water for mining, agriculture and real estate development, in a region where water is a scarce resource. All of the frogs had been pushed into a tiny pool of muddy water.

The team collected the last 14 individuals and brought them to the National Zoo of Chile—which belongs to the Metropolitan Park of Santiago, a public service of Chile's Ministry of Housing and Urbanism—to improve their health, learn to care for them, and establish a conservation breeding program. Now the zoo will navigate the challenging task of rearing a species that nobody has tried to care for before.

"When we brought these animals to the zoo, I didn't even know if they were going to survive the transfer from Calama on the plane to Santiago," said rescue team member Andrés Charrier, a herpetologist affiliated with the Chilean Herpetological Society. "Now we have the great news that these animals were able to reproduce, though we have a tremendous new challenge now to learn how to feed and care for the tadpoles. There is an incredible group of specialists—including all of the people at the National Zoo—working to save these frogs and making history."

The Loa Water Frog is considered Critically Endangered by the IUCN Red List of Threatened Species™ and was once found only in a single

stream in Chile. Experts say there may be between five and eight individuals still living in the wild. Returning the species to the wild someday will require identifying a safe home for the frogs and protecting that habitat from the threat of illegal water extraction and habitat destruction.

"We are very happy that we have already achieved two of our three objectives," said Martin Andrade, director of Metropolitan Park of Santiago. "The first was the survival of the frogs that arrived from Calama as part of an emergency rescue operation, the second was the reproduction of these animals, and the third objective, which will take longer, is the reintroduction of this species back into its natural habitat."

There are at least 63 known species of Water Frogs, or *Telmatobius* species, found from Ecuador to Chile, including in Peru, Bolivia and Argentina. Many of these species, like the Loa Water fFog, are microendemic, which means they live in just one small place. Water frogs are semi-aquatic or entirely aquatic, making them very sensitive to any changes in their environment. Habitat destruction, pollution, disease and invasive trout are among the biggest threats they face. About 10 species of water frog live in Chile, and many of them are likely facing the same threats as the Loa Water Frog.

"This would not have been possible if it had not been for the tireless work of the National Zoo staff, who even had to replicate the exact conditions of the water in the streams of the deserts in the northern part of our country in order to keep them alive," said Alejandra Montalba, director of the National Zoo of Chile.

Global Wildlife Conservation, the IUCN SSC Amphibian Specialist Group, the Amphibian Survival Alliance, and the Santiago Metropolitan Park are asking people around the world to spread the word about the Loa water frogs using the hashtags #SaveTheLoaFrog and #SalvemosLasRanitasDelLoa to show their international support for these and other species of endangered frogs.

GLOBAL WILDLIFE CONSERVATION

SAVE THE FROGS! Ghana is now Save Ghana Frogs

By Sandra Owusu-Gyamfi, Save Ghana Frogs
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We are announcing to the ASA partnership and to the entire scientific community of our organizational name change from SAVE THE FROGS! Ghana to Save Ghana Frogs. The name change came about after long deliberations in our desire to own a trademark that depicts our new vision and identity which makes us autonomous at the same time, maintain our traditions and values as an amphibian conservation organization.

For nine years, we have been pivotal in amphibian research and conservation and chalked many successes which have made us an icon and giant in African conservation. For example, we rediscovered the Giant Squeaker Frog (*Arthroleptis krokosua*) at southwestern Ghana's Sui River Forest Reserve and had its conservation status appropriately updated to Critically Endangered. We also found first national records of Allen's Slippery Frog (*Conraua alleni*); reclaimed over 20-ha of degraded forest lands with +50,000 native tree seedlings at Sui Forest Reserve; helped to alleviate poverty and reduced overdependence on forest resources by providing beekeeping as an alternative livelihood to 50 local people; continue to push back government's plans to mine bauxite at the last viable home of the Critically Endangered Togo Slippery Frog (*Conraua derooi)* among several actions. Learn more here.

Nonetheless, we have undergone a significant transformation and we felt it was time for a change. Our new identity has been designed to satisfy all the existing expectations of our original mission, "to protect Ghana's amphibian populations and to promote a society that respects and appreciates nature and wildlife" while simultaneously moving the brand to embody broader research areas. In that regard, our tentacles have now extended to include reptile research, landscape-scale habitat assessment, and consultancy. Thus, the name Save Ghana Frogs represents an evolution from our previous experiences, origins and roots which we will continue to spread out to the rest of the continent.

Thank you to our sponsors: British Ecological Society, Conservation Leadership Programme, LUSH, Mohammed bin Zayed Species Conservation Fund, People and Wildlife Ghana, Prince Bernhard Nature Fund, Rufford Foundation, Turtle Conservation Fund, and Whitley Fund for Nature for believing in us. To the entire ASA community and our supporters, we appreciate you for being part of this wonderful journey.

Visit our new website and contact us on:

Website: www.saveghanafrogs.org
Email: info@saveghanafrogs.com
Facebook: Save Ghana Frogs
Instagram: Save Ghana Frogs
Twitter: @ghanafrogs

SAVE GHANA FROGS

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Amphibian population impacts from swimming pools

By Rich Mason, FrogLog Co. (U.S.)
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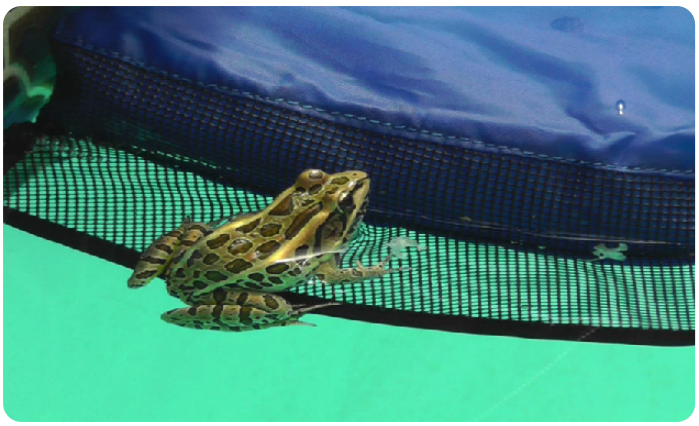
The owner of Osprey LLC/FrogLog Co. (an Amphibian Survival Alliance parter), Rich Mason, is a wildlife biologist and became aware of the issue of amphibians being attracted to swimming pools and dying due to poisoning by chlorinated water. With almost 5 million in ground pools and 6 million above ground pools in the US alone, amphibian casualties by swimming pools likely number in the tens or hundreds of millions. However, we really don't know the exact impact as nobody has ever attempted to quantify the impact. This number comes from our experience with developing and distributing a product called FrogLog. Feedback from customers, as well as the over 4,000 reviews on Amazon lead one to believe that many millions of amphibians die in pools each year. There are many comments similar to this one:



Review by Clair E. on 17 Aug 2019: *I thought this thing would probably save a few of the frogs that were getting in the pool every day, but it actually seems to have prevented like 99% of the frog deaths that were happening. The frogs thank you.*

We are interested in collaborating with a researcher to model the impact of pools on amphibians. We can provide some limited funding to this effort.

Please contact: Rich Mason. rich@froglog.us. Phone: 410-588-6007

FROG LOG®
Critter Saving Escape Ramp

400 frogs released!

By Jeanne Tarrant, Endangered Wildlife Trust (South Africa)
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On 10 November 2020, the Joburg Zoo transported 450 captive-bred frogs and tadpoles from their Pickersgill's Reed Frog breeding program for release at two sites in Durban, South Africa. This forms part of the work that has been laid out in the Biodiversity Management Plan for *Hyperolius pickersgilli*, which Jeanne Tarrant of the Endangered Wildlife Trust's Threatened Amphibian Programme co-authored with Dr. Adrian Armstrong from Ezemvelo KZN Wildlife, the provincial conservation agency. The plan was published in 2017 after extensive consultation with all stakeholders to guide actions to address the key threats facing this species.

The release on 10 November marks the fourth release since the captive breeding component of the project began in earnest in 2015, with over

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1000 frogs having been released in total. So far these have mostly been to known sites where the species occurs, so what makes this year's release exciting was that it was to two recently rehabilitated sites where the species does not currently occur, although that are within its natural historic range. During post-release monitoring so far conducting in November, we have confirmed the species to be active at both sites.

We also assisted the zoo in the collection of 30 breeding adults (comprising the same numbers of each gender) from a site at Adam's Mission to be taken back into the breeding program. Adam's Mission is an extensive coastal wetland and swamp forest system we are working with the local community to formally secure as a protected area. On average, each breeding pair produces 40 offspring that can be released back into the wild, so we end up replacing more than are collected. Already the collected adults from Adam's Mission are breeding back at the zoo in Johannesburg and the next release is planned for March 2021.

This work is also done in collaboration with Ezemvelo KZN Wildlife and the South African National Biodiversity Institute (SANBI).

ENDANGERED WILDLIFE TRUST

Colombian biogeographical Chocó forests are being razed

By Paula Stella, Fundación ProAves (Colombia)
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Selective illegal logging in the El Pangán ProAves Reserve, located in the department of Nariño, Co-lombia, is devastating one of the most important ecosystems on the planet and the species that live there: 21 species of amphibians distributed in 6 families and 17 species of reptiles distributed in 7 families, 360 species of birds, and 36 species of mammals.

The Colombian bio-geographic Chocó has one of the most significant biodiversities in the country and has a great variety of endemisms in the various biological groups. For this reason, this site is among the 25 regions of the world classified as a priority for nature conservation, which is why it has been called a Biodiversity Hotspot and is also part of the Key Biodiversity Areas (KBAs).

ProAves Reserve, critically endangered

The ProAves El Pangán Reserve, home to the spectacular sky blue morph of Oophaga sylvatica, has one of the most diverse and spectacular species richness in Colombia. To date, a diversity of 25 species of frogs, 9 species of lizards and 12 different species of snakes have been registered. Moreover, 29 species of threatened birds and 53 are endemic to the biogeographic Chocó, which constitutes the largest con-centration of endemic birds in the world. Additionally, there are 94 species of butterflies, of which 28 are endemic to the region, and 19 known as the rarest species in the country.

The Reserve also has populations of one of the finest trees on the planet, the Chanul (*Humiriastrum procerum*), a species native to Colombia

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and Ecuador categorized as Critically Endangered according to the Red Book of timber species. Although Colombian regulations prohibit the exploitation and com-mercialization of any endangered species, Chanul continues to be heavily exploited because its wood is very hard.

Colombian biodiversity under serious threat

Due to the great biodiversity found in the ProAves El Pangán Reserve, unscrupulous people have seen the natural resources of all Colombians as a great business opportunity and have invaded the Reserve to cut down the Chanul and commercialize it illegally. Every day these people enter the farms heavily armed, extract Chanul wood from the interior of the forest and transport it by means of a handmade winch to the outside of the forests, as you can see in this video.

Fundación ProAves has denounced the constant attacks on different occasions to the Nariño Regional Autonomous Corporation (CORPONARIÑO), the Nariño Government, the Ministry of Environment and Sustainable Development, the National Army and the National Police. Even though, these actions have not been enough to stop the serious environmental damage against the tropical rainforests of the Pacific Nariñense, so the biological heritage of all Colombians is rapidly disappearing.

ProAves makes an agonizing call to the competent authorities and the entire community to support us by signing this petition and stop this great threat to the environment and the thousands of species that live there.

ProAves
www.proaves.org

Mitsinjo captive breeding program update

By Justin Claude Rakotoarisoa, Association Mitsinjo (Madagascar)
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Between October and November 2020, substantial progress was made towards achiveing the objectives of the amphibian captive breeding at ASA partner Mitsinjo research center. In total, there are currently more than 150 terraria occupied with 11 common species and 1 Critically Endangered species. All frog species are active and are in breeding season. Even in captivity, all captive bred have adapted to this season.

Over the past two months, we have also produced a new generation of the Golden Mantella Frog (*Mantella aurantiaca*). By the end of November, we have saved 45 egg clutches, with 300 tadpoles already in the water. These will be reintroduced into the wild between March and April, 2021.

Species monitored in captivity

90% of those individuals previously caught in the wild are old and need to be changed in the next few years to prevent mortality. Even though some species bred with lower fertility rates during this breeding season, all the captive species are again selected for husbandry by using/improving new technics. They are based on the tree Frog, the top hill species and, of course, the Golden Mantella Frog, which have been prepared for the next release. With regard to the next generations, we have found some clutches from F2, but these are not fertile. When this happens, Mitsinjo's technician find

Species	Individuals	Deaths	Egg clutches
Mantidactylus betsileanus	53	3	5
Blommersia blommersae	50	0	3
Boophis Pyrrhus	12	0	0
Boophis bottae	16	1	0
Heterixalus betsileo	4	0	0
Guibementis albolineatus	6	0	0
Guibementis pulcher	8	0	0
Platypelis barbouri	7	0	0
Anodontohyla policaris	5	0	0
Pletodontohyla mihanika	30	0	1
Gephyromantis boulengeri	10	0	0
Mantella aurantiaca	812	5	45

a way to improve this F2 husbandry to produce F3 for the various frog species kept in the center.

The success of captive breeding depends on being able to provide the necessities for the species. Live food cultures, such as insect production, play important roles for these amphibian species. We expanded the production of our living food cultures every week. We would also like to improve other living food husbandry cultures such as termites, isopod and other insect (larvae), since these would be the best food sources for some frog species, as mentioned in our previous article in the Frogress Report.

Problems and concerns

Financial resources are some of the greatest needs to improve our activities and personnel who are in charge of the captive breeding program. Since 2011 until now, we have not received advice, technical support or field training from the ASG Madagascar. Moreover, it has also become difficult to receive permits from the Malagasy government.

Recommendations

We will present these concerns to all stakeholders, for the stability of the captive breeding program in Madagascar, which is the first of its kind.

IUCN Red List update!

By Kelsey Neam & Amaël Borzée. Global Wildlife Conservation and IUCN SSC Amphibian Specialist Group.
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The IUCN Red List update 2020-3 is now online! This update is a huge accomplishment for the Amphibian Red List Authority (ARLA) as a record number of 1,333 amphibian assessments was published, an historical update in the history of the ARLA. This comes with some sad news, as three species are now listed as Extinct (EX) and a total of 99 species are in a higher threat category than in the past, 32 of which are uplistings due to genuine worsening of threats. Not everything is gloomy, however. The genuine improvement of 16 species in Mesoamerica gives us hope that some amphibians are showing resilience. Habitat loss and degradation, chytridiomycosis and climate change remain the main factors of declines.

Newly declared EX frogs:

Chiriqui Harlequin Toad (*Atelopus chiriquiensis*), changed from CR(PE) to EX. (Costa Rica & Panama). This once abundant toad has not been recorded since 1996, and extensive searches in the appropriate habitat, during the appropriate season and within the known range, have failed to locate this species. Its disappearance has been attributed, at least in part, to chytridiomycosis-related declines.

Wizened Harlequin Toad (*Atelopus senex*), changed from CR to EX. (Costa Rica). This formerly common species has not been recorded since 1986, and extensive searches in the appropriate habitat, during the appropriate season and within the known range, have failed to locate this species. Its disappearance has

been attributed, at least in part, to chytridiomycosis-related declines. Climate change or the synergistic effects of multiple factors cannot be ruled out as playing a role.

Craugastor myllomyllon (no common name), changed from DD to EX. (Guatemala). This species is known from only a single female specimen collected in 1978. Numerous surveys between 1998 and 2019 have been unsuccessful in finding any other individuals, whereas other related species have been observed. The cause of its disappearance is unknown but we know that the habitat at the only known site has been destroyed by agriculture. Chytrid may have played a role, as it has affected many other robber frogs, but we just don't know for sure.

Genuine improvements (Possible recovery from *Batrachochytrium dendrobatidis* (Bd)-related declines and/or habitat protection):

Oaxaca Treefrog (*Sarcohyla celata*), changed from Critically Endangered to Near Threatened. (Mexico). This species is apparently recovering from a severe population decline and has recently been recorded at several sites. Its continued survival is entirely dependent on the protection and rigorous management provided by local communities. The municipality of Santiago Comaltepec has assigned a conservation area for La Esperanza where an area of cloud forest is protected and no agriculture or logging activities can take place. Without this level of protection, it is very likely that the species' habitat would be degraded and fragmented resulting in major population declines, and would likely warrant an immediate uplisting.

American Cinchona Plantation Treefrog (*Isthmohyla rivularis*). This Mesoamerican tree frog species seemingly disappeared from most of its range in the 1980s probably as a result of infection with the chytrid fungus. In 2007, a population was rediscovered and as of 2019, the species has been recently recorded in five localities in Costa Rica, which suggests that it is beginning to rebound from the edge of extinction. However, this species remains rare and the surviving population is considered to be relatively small, so even though it may be recovering it's still facing all sorts of pressures including habitat loss and disease.

Adler's Mottled Treefrog (*Sarcohyla thorectes*). This Mexican tree frog species experienced a dramatic decline in the 1980s, probably due to chytridiomycosis, and had not been seen for around 30 years until a surviving population was found in 2007. From 2012-2019, it continued to be common within its small range and it seems that it avoided extinction (at least for now)!

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ASA'S Future Leaders of Amphibian Conservation updates

The Future Leaders of Amphibian Conservation program is an award to a number of early-career conservationists from around the world that have been identified by the Amphibian Survival Alliance as the next generation of amphibian conservationists. So far we have awarded 19 Future Leaders from 12 countries (Bolivia, Brazil, Peru, Mexico, Ghana, South Africa, Uganda, India, Nepal, Pakistan, Australia and United States). You can learn more about some of the Future Leaders of Amphibian Conservation here.

Getting to know Pedro Poloso

Can you tell us a little bit about yourself, Pedro?

I am a biologist, focused on the discovery, documentation and protection of global biodiversity. I have dedicated most of my career to the systematics of Neotropical amphibians and lizards, and have named species from several places (mostly from Amazonia). I am also a nature photographer, with a special interest in the documentation of rare or endangered species. Most importantly, I am married and father of two beautiful kids.

What projects have you been involved in to promote amphibian conservation?

A while ago I had an idea to finally combine my scientific goals, enthusiasm for photography and passion for wildlife. I created the Documenting Threatened Species (DoTS) project, which is a bold initiative to study and document all amphibian species threatened with extinction in Brazil. I have dedicated a good portion of the last couple of years to this project, with a fair amount of success, but also many challenges. Brazil has 42 species officially listed as threatened, and we have already documented 13 of them, many of which are critically endangered. We have helped raise awareness about these species in Brazil but have also collected invaluable data on threats and infectious diseases in these species.

What is your favourite amphibian species and why?

There are probably too many and it is really hard to choose one, but I will try. I am really connected to the Restinga Toadlet (*Melanophryniscus setiba*). I discovered this species while still an undergraduate student in Brazil (around 2005 or 2006) and described it a few years later with colleagues and mentors. The species was formally described in 2012, and in 2014 was already included in the Brazilian list of threatened species, in the highest category (Critically Endangered). This species initiated both my career as an amphibian taxonomist, but also made me more aware of my duty, as a biologist and photographer, to do something for the conservation of animals and habitats. In January 2020 I had the opportunity to visit this species again in its natural habitat with DoTS. It was a magical moment when we found the animal there. This is one of my favorite amphibians, but there are many others that I also like a lot. The Pará's Lungless Salamander (*Bolitoglossa paraensis*) being one of very few salamanders in Brazil, is also one of my favorites. Finally, because of their

beauty, three other favorites are the Mapinguari Clown Treefrog (*Dendropsophus mapinguari*), and the two critically endangered species, Spotted Casqueheaded Treefrog (*Nyctimantis pomba*) and Admirable Red-bellied Toad (Melanophryniscus admirabilis).

Has being recognized as a Future Leader of Amphibian Conservation by ASA made a difference in your career so far?

Absolutely yes! First and foremost, it gave me additional confidence to invest time and resources into conservation, and especially in the DoTS project. Moreover, I met several talented amphibian conservationists through ASA, which enabled me to participate in global discussions and initiatives about the conservation of amphibians.

Australia Awards – Pakistan Professional Development Opportunity 2020

By Muhammad Rais (Pakistan)
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I feel honoured to have won the professional development award granted by the Government of Australia to sponsor me to attend the five-week long (November 4th to December 9th) online course titled "Data Analysis in Ecology: Statistics for Ecology and Field Biologist" offered by the Department of Continuing Education at University of Oxford, UK.

We are living in the world of data science. Be it economic valuation of biodiversity and ecosystems, conservation of natural resources or sustainable development, the output of research largely depends on how the data were collected and analyzed. A good data analysis separates good research from substandard and trivial one. The knowledge of statistical principles and methods could enhance our understanding of the system being studied and impacts on the local community and stakeholders.

Currently I am involved in research on ecology and conservation of amphibians associated with forested montane freshwater streams. The endemic, found only in one particular locality and nowhere else in the world, frog species are associated with unique set of environmental conditions in northern mountainous areas of Pakistan. I am integrating conservation of wildlife with sustainable development and local community awareness programs. By learning the use of descriptive and inferential statistics, using QED statistics and the R statistical programming language, to analyze the results from field surveys and experiments, I can greatly improve my ability to display and interpret the data and get scientific articles published in reputable periodicals as well as disseminate the quality information. I am indebted with thanks to the Government of Australia (Australia Global Alumni, Australia Awards Program) for this opportunity.