A Country-level Strategic Plan to Mitigate the Threat of Chytridiomycosis in Panama 2010 - 2015

Implemented by the Panama Amphibian Rescue and Conservation Project, including centers at El Valle (EVACC) and Gamboa

Panamanian Golden Frog—*Atelopus zeteki*

MISSION

Our mission is to rescue and establish assurance colonies of amphibian species that are in extreme danger of extinction throughout Panama. We will also focus our efforts and expertise on developing methodologies to reduce the impact of the amphibian chytrid fungus (*Bd*) so that one day captive amphibians may be re-introduced to the wild.

VISION

The Panamanian Amphibian Rescue and Conservation Project will be a sustainably financed, Panamanian-led organization that has stemmed the tide of extinctions caused by amphibian chytrid fungus and other threats to amphibians. We will lead successful recovery programs for Panama's endangered amphibians and serve as an exemplary model that can be replicated to address the threat of chytridiomycosis to the survival of amphibians worldwide.

Limosa Harlequin Frog, upland color form —*Atelopus limosus*

GOAL 1: Create assurance colonies of Panama's most vulnerable amphibian species

Objectives

- Rescue founding populations of 20 of the 54 identified priority rescue species and establish assurance colonies by 2012.

- Breed at least 70% of founding populations to obtain F2 generations.

Strategies

- Maximize probability of finding priority species by getting ahead of the chytrid wave and monitoring post-decline sites for survivors.

- Maximize survival rates in captivity by consulting with veterinary and husbandry experts, sharing lessons learned and developing proper record-keeping and husbandry plans for each species. Employees will spend at least one week every six months at their sister facility to aid in information sharing.

- Minimize the risk of *Bd* infecting the assurance colony by the establishment and adoption of rigorous quarantine and risk-management protocols.

- Use the Amphibian Ark prioritization tool to maximize the probability of selecting species most likely to go extinct.

- Collaborate with molecular and population geneticists to ensure the proper identification of species which are the basic unit of conservation, and to ensure that the genetic integrity of founders is maintained over the long term.

Pristimantis 'Red Tomato' — *Pristimantis* sp nov

GOAL 2: Re-establish healthy wild populations of Panamanian amphibians

Objectives

- Actively explore potential methods to re-establish wild populations of amphibians from assurance colonies e.g. probiotics, captive-release of surplus-bred amphibians, or other novel developments in the field.

Strategies

- Conduct lab trials to examine effectiveness, persistence, transmission and safety of candidate probiotic species, and investigate host-specificity.

- Conduct experiments on at least one amphibian species to test the potential value of probiotic approaches in the field.

- Develop professional relationships within the *Bd* research community and prospect for any promising alternative approaches to probiotics.

Toad Mountain Harlequin Frog— *Atelopus certus*

GOAL 3: Build capacity in Panama to safeguard the nation's amphibian fauna over the long-term

Objectives

- Secure a combined 5,000 sq ft of biosecure holding space at EVACC and Gamboa locations in Panama by 2012.
- Secure a combined 1,200 sq ft for food production facilities and additional wild collecting methods for a variety of prey types with at least one full-time keeper specializing in insect care and collection at each location by 2012.
- Train and provide employment for dedicated Panamanian amphibian conservation staff, retain them by providing adequate long-term prospects for career-development and growth.
- Cultivate and foster an appreciation for amphibians in the public mindset.
- Ensure the financial sustainability of the project beyond 2012.

Strategies

- Expand facilities by constructing new center at Gamboa by outfitting and establishing seven 400sq ft amphibian rescue pods.
- Conduct and facilitate nutritional and cost-benefit analyses on rearing of different food types, using native insects wherever possible, and collaborate closely with entomologists.
- Identify and facilitate priority, non-invasive research projects to address relevant in-situ and ex-situ nutritional, husbandry and behavioral questions.
- Conduct annual staff performance reviews and use them as an opportunity to evaluate performance, learn career goals and set expectations.
- Develop and implement a communications plan to reach out to the wider public in Panama and the USA, plan events, develop joint communications materials, and work with the media in local and national markets, including exhibits at both locations in Panama.
- Develop and run an effective local and international volunteer program that provides a rewarding volunteer experience and adds value to the project.
- Develop a business and implement a marketing plan to secure longer-term conservation finance mechanism.


AMPHIBIAN RESCUE & CONSERVATION PROJECT
PANAMA


E.V.A.C.C.
EL VALLE AMPHIBIAN
CONSERVATION CENTER


Africam
safari
PUEBLA-MÉXICO


Smithsonian
Institution


HOUSTON
ZOO


ZOO
NEW ENGLAND
Franklin Park Zoo ♦ Stone Zoo


PARQUE MUNICIPAL
SUMMIT


CHEYENNE
MOUNTAIN
ZOO


DEFENDERS
OF WILDLIFE


anam