Project Update: June 2014



Project activities began in 2013 with a season of field surveys in Cusuco National Park, Honduras (CNP), to continue monitoring the population dynamics and amphibian chytrid fungus (Batrachochytrium dendrobatidis, Bd) infection levels in populations of our three critically endangered target species: Duellmanohyla soralia, Plectrohyla dasypus and Plectrohyla exquisita. Several hundred amphibians were sampled from July to August 2013, and results again displayed alarmingly high infection prevalence, especially in larvae

and recently metamorphosed animals. For the first time, severe enigmatic skin lesions were observed in all three species, whereas previous surveys only detected similar lesions in P.

dasypus. For this reason, we also investigated the possible co-infection of chytrid and ranavirus as a potential cause. Therefore, we performed additional surveys to detect the presence of ranavirus in CNP, which also represents the first ranavirus survey in Honduras. Ranavirus is also a globally emerging pathogen responsible for amphibian mass mortality events and more often produces skin lesions than Bd, as is similarly associated with cool, wet amphibian habitats. The results of this preliminary surveillance effort was



inconclusive, as all animals with lesions tested negative for both Bd and ranavirus. Although this was surprising, the lack of ranavirus detection may be partly due to the lower sensitivity of our non-lethal sampling methods. Therefore, whether ranavirus represents and additional threat to the amphibians of CNP remains in question and deserves further attention.



After fieldwork was completed, a series of meetings were held to promote communication and awareness about the Honduras Amphibian Rescue and Conservation Center (HARCC) at key Honduran institutions. First, we traveled to Tegucigalpa, the capital city, and held a meeting with José Antonio Galdames the Vice Minister of the Instituto Nacional de Conservación y Desarrollo Forestal, Áreas Protegidas y Vida Silvestre (ICF), of the Honduran government. Although we already possessed government support and endorsement for this project through electronic communications, we felt it was still important to demonstrate our commitment by meeting with the government in person. We provided a PowerPoint presentation and had a discussion about our work in CNP and with HARCC, which was received with great enthusiasm.

After meeting with the government, we traveled to the national university, Universidad Nacional Autónoma de Honduras (UNAH), to meet with Julio Enrique Mérida, curator of the Museum of Natural History and professor of biology. We provided another presentation about the HARCC project and discussed opportunities for future involvement of university students in this program, both for developing wildlife husbandry/management skills and laboratory research projects.

In late August 2013, a pre-construction visit was made to Lancetilla Botanic Garden and Research Institute (Lancetilla), in the city of Tela, Honduras, where HARCC will be constructed. The purpose of this trip was to take additional final measurements and photographs of the building space provided onsite by Lancetilla where the biosecure Isolated Amphibian Rooms were to be fabricated and stationed, in preparation for a construction initiation trip in October.



In October 2013, Jonathan Kolby traveled with Brandon Greaves, Lead Herpetology Keeper with Omaha's Henry Doorly Zoo & Aquarium (HDZ), for a 2-week stay at Lancetilla. The purpose of this visit was to begin developing HARCC headquarters and initiate construction of the Isolated Amphibian Rooms, where all of the amphibian ex situ head-start programme activities would be performed and the longterm captive assurance populations would be maintained. A building provided by Lancetilla was earmarked for the two Isolated Amphibian

Rooms and a feeder insect rearing facility. The interior of this building was cleared, cleaned, sealed and coated with mold and fungal resistant paint to facilitate sanitation and resistance to

the high humidity of the region. A series of scouting trips were made between the cities of Tela and San Pedro Sula to identify sources of necessary construction materials and determine what materials would need to be improvised with suitable locally sourced alternatives.

Unfortunately, during this process, the structural integrity of the building at Lancetilla came into question and it became necessary to call in a professional contractor to make an





evaluation. It was determined that significant repairs were needed to the building's roof, frame, and walls and these unexpected repairs became cost-prohibitive for our project budget. Lancetilla was unable to offer the funds needed to repair their building, and so we had to improvise the structure of our intended amphibian facility. Rather than constructing the two biosecure Isolated Amphibian Rooms inside this building, which would also require the building to be structurally intact for our biosecurity and climate control requirements,

we have since determined the next best course of action is to instead purchase two 20-foot ocean shipping containers to be stationed adjacent to this building, that we will transform into our two biosecure amphibian laboratories, a method adopted by similar rescue operations in Panama and Costa Rica. Meanwhile, with minimal repairs, the building will be fashioned into the feeder insect culturing facility and the HARCC office headquarters.

While at Lancetilla, meetings were held with Ciro Navarro Cruz, Director of Lancetilla, to further solidify HARCC's long-term presence in Honduras and Lancetilla's conservation vision. To strengthen HARCC's infrastructure, Cruz extended project partnership to an additional Honduran government agency, the Escuela Nacional de Ciencias Forestales (ESNACIFOR), who also signed onto HARCC's Memorandum of Agreement. Therefore, HARCC now represents an international collaboration of efforts contributed by Jonathan Kolby (USA), Lancetilla Botanic Garden and Research Institute (Honduras), Omaha's Henry Doorly Zoo & Aquarium (USA), Departamento de Vida Silvestre del Instituto Nacional de Conservacion y Desarollo Forestal Areas protegidas y Vida Silvestre (Honduras), Operation Wallacea (UK), Expediciones y Servicios Ambientales de Cusuco (Honduras) and Escuela Nacional de Ciencias Forestales (Honduras). HARCC also recently joined the Amphibian Survival Alliance (ASA) to position itself within this global coordination of amphibian rescue efforts and is now an ASA Associate Partner.

In response to the unexpected construction delay and change in facility design, we have spent the past few months researching shipping container sources, prices and shipping modes to Lancetilla. We currently plan to purchase one container in the USA and have it transported to the Henry Doorly Zoo & Aquarium, where Jessi Krebs, Brandon Greaves, and additional zoo staff members will work together to modify the interior of the container into the biosecure amphibian laboratory and then this container will be shipped to Lancetilla. The second shipping container will be purchased locally in Honduras to save significant shipping costs. The first container will be used as a model from which Kolby and Greaves will then construct the second laboratory onsite at Lancetilla. We are also currently researching alternative power options to reduce long-term operational costs, such as solar power versus a conventional gasoline-based generator for the emergency power source to operate HARCC's climate control systems during common storm-induced power outages at Lancetilla.