



Establishing A Captive Breeding Facility For Malagasy Amphibians

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ABSTRACT

Madagascar is ranked 12th in amphibian species richness by the IUCN and is considered one of the highest priority countries for amphibian conservation by the IUCN Amphibian Ark and the Amphibian Specialist Group¹. Slightly more than one quarter of the island's amphibian species are threatened with extinction. Habitat destruction and over-harvesting are the greatest factors contributing to this dramatic decline. The impending threat of amphibian chytrid fungus *Batrachochytrium dendrobatidis* (*Bd*), which is responsible for many of the world's recent amphibian population declines and extinctions, is also of great concern. Establishing captive assurance colonies of threatened amphibians has been identified as an urgently-needed conservation action, particularly in light of the global *Bd* epidemic. With the generous financial assistance of the AZA Conservation Endowment Fund, the Amphibian Ark, the Wildlife Conservation Society, Cleveland Metroparks Zoo, Cleveland Zoological Society, and Woodland Park Zoo, the community-run Malagasy organization Association Mitsinjo has constructed a captive breeding facility in Andasibe, east-central Madagascar. This facility will house captive populations of threatened

amphibians to safeguard against current threats as well as the future introduction of *Bd*.

Despite the recent political unrest in Madagascar and related delays in commencing the project, much progress has been made in the past year including the construction of a captive breeding facility in Andasibe; training of local people on amphibian husbandry techniques, vivarium building, and culturing feeder insects; and training of members of Association Mitsinjo in techniques for monitoring *Bd*. This is the first in-country captive breeding and amphibian conservation project of its kind. Our hope is that it will become a center for training and education in an area of Madagascar that contains tremendous amphibian diversity and endemism. This project also has begun to develop additional value-added components including collaborative efforts with the Amphibian Specialist Group (ASG) to perform local and country-wide *Bd* testing as a first line of detection for the disease in Madagascar.



Mantidactylus betsileanus photo by Franco Andreone



Boophis tasymena photo by Devin Edmonds

METHODS

Amphibian and insect propagation and husbandry research will be performed at the *ex-situ* amphibian conservation facility located in the Mitsinjo-managed Analamazotra Forest, two kilometers outside of Andasibe village. This building recently was renovated for the specific purpose of housing assurance colonies of local amphibian species (Fig. 1). It measures 185 square meters and contains three separate biosecure rooms designated for culturing live foods, maintaining captive frogs and conducting husbandry research, and for quarantine (Fig. 2).

Four frog species have been selected for this project through discussions with colleagues from A Conservation Strategy for the Amphibians of Madagascar (ACSAM) and the Amphibian Specialist Group of Madagascar: *Blommersia blommersae*, *Boophis tasymena*, *Heterixalus betsileo*, and *Mantidactylus betsileanus*. These species are absent from zoological collections and little or nothing is known of their captive care. They were selected based on their varied life histories and presumed correlated differences in captive care parameters to provide technicians with a diverse set of husbandry experience during training.

With government permission, all frogs will be hand collected from the Analamazotra Forest. No more than 40 and no fewer than 16 individuals will be collected per species, with collectors aiming for an equal sex ratio. Upon collection, each individual will be sexed and voucher photographs will be taken in dorsal and

ventral views for later identification of individuals. For the first two months, frogs will be kept in the facility's quarantine room, initially in plastic storage containers in small groups or individually. We will train technicians in proper quarantine, biosecurity, and acclimation protocols, in addition to evaluating the health of each frog before being transferred to permanent housing. The project's second phase will involve development of educational materials and graphics to accompany an exhibit that will display some of the frogs for the public. Tourists will be charged a nominal fee to view the exhibit. Admission funds will augment the livelihoods of Malagasy technicians running the facility.



Fig. 1

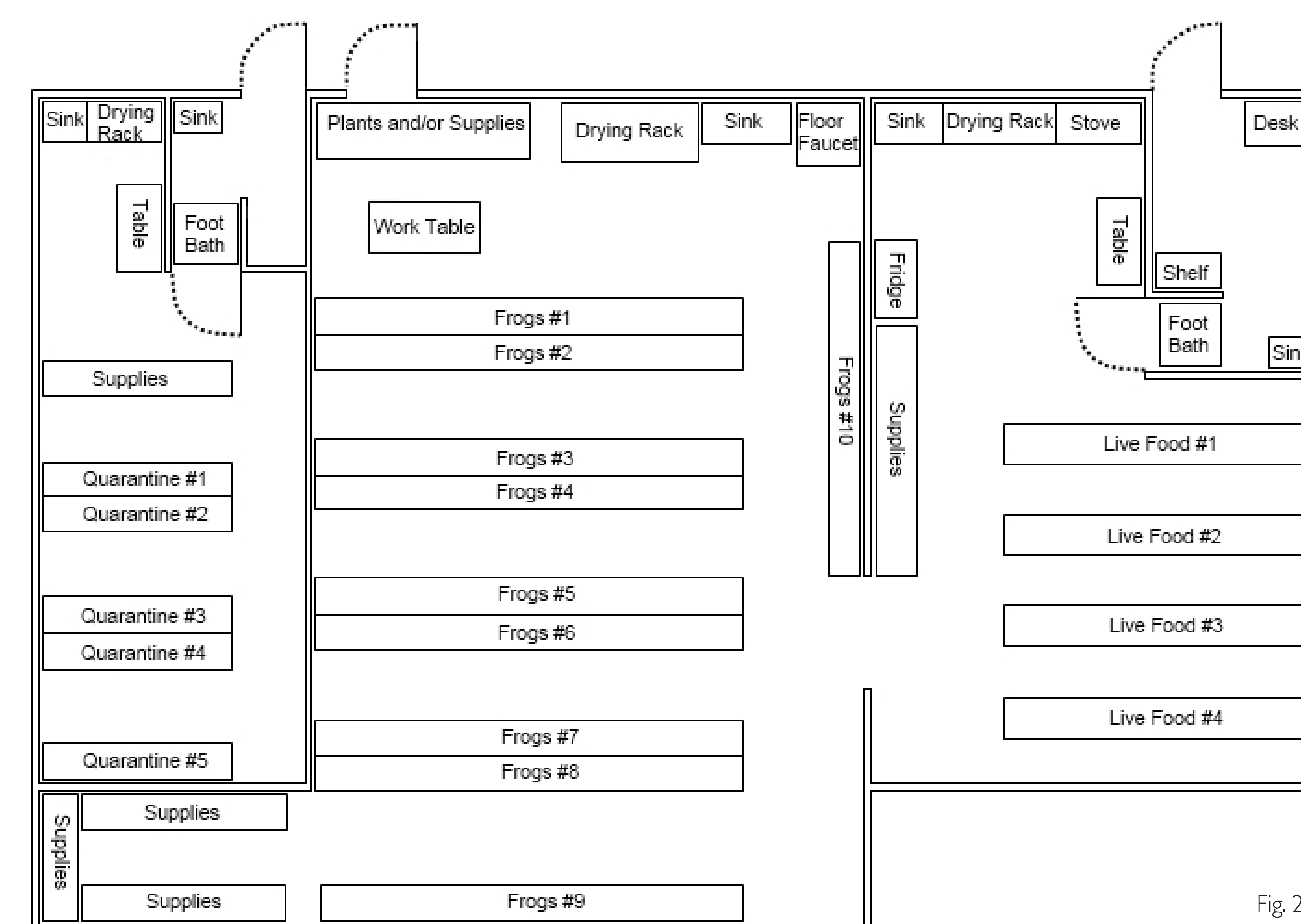


Fig. 2

CONCLUSION

Basic husbandry science is lacking for the more than 91% of global amphibian species not kept in captivity and as of 2008 only 23 of Madagascar's frog species were represented in zoological collections worldwide. Amphibian husbandry data gathered from this project will help fill the knowledge gap, which is perceived as a major obstacle in future *ex-situ* conservation efforts in Madagascar. This project also addresses goals outlined in the Sahonagasy Action Plan² by: 1) conducting husbandry research on amphibian species from varied ecological guilds and 2) building in-country capacity to maintain captive assurance populations of threatened amphibian species.

This initiative, a long-term commitment to the conservation of Madagascar's threatened amphibians, is seeking additional funding and conservation partners. If you are interested in collaborating, please contact Jennifer Pramuk (jenniferpramuk@zoo.org) or Devin Edmonds (devin@amphibiancare.com).

Blommersia blommersae photo by Axel Srouss



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