

# Chytrid Fungus Detection in Wild & Captive Amphibians of the United Arab Emirates

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## INTRODUCTION

- Chytridiomycosis is an infectious disease of amphibians, caused by the chytrid *Batrachochytrium dendrobatidis*, a non-hyphal zoosporic fungus which has been linked to dramatic population declines or even extinctions of amphibian species worldwide. The fungus is capable of causing sporadic deaths in some amphibian populations and 100% mortality in others.
- The disease is contributing to a worldwide decline in amphibian populations that has affected 30% of the amphibian species of the world.
- A UAE sampling survey using skin swabs with PCR analysis has assessed both wild and captive amphibians.
- The native species are the Arabian toad (*Bufo arabicus*) and Dhofar toad (*Bufo dhofarensis*) tested in wild populations mainly in the Northern Emirates and in some captive collections.
- The five non-native species are African Clawed Frog (*Xenopus* spp.), Floating Frog (*Occidozyga lima*), Hoplobatrachus spp., Skittering Frog (*Euphlyctis ehrenbergii*) and Green Toad (*Bufo viridis*) found mainly in pet shops and zoological gardens.

## METHODS

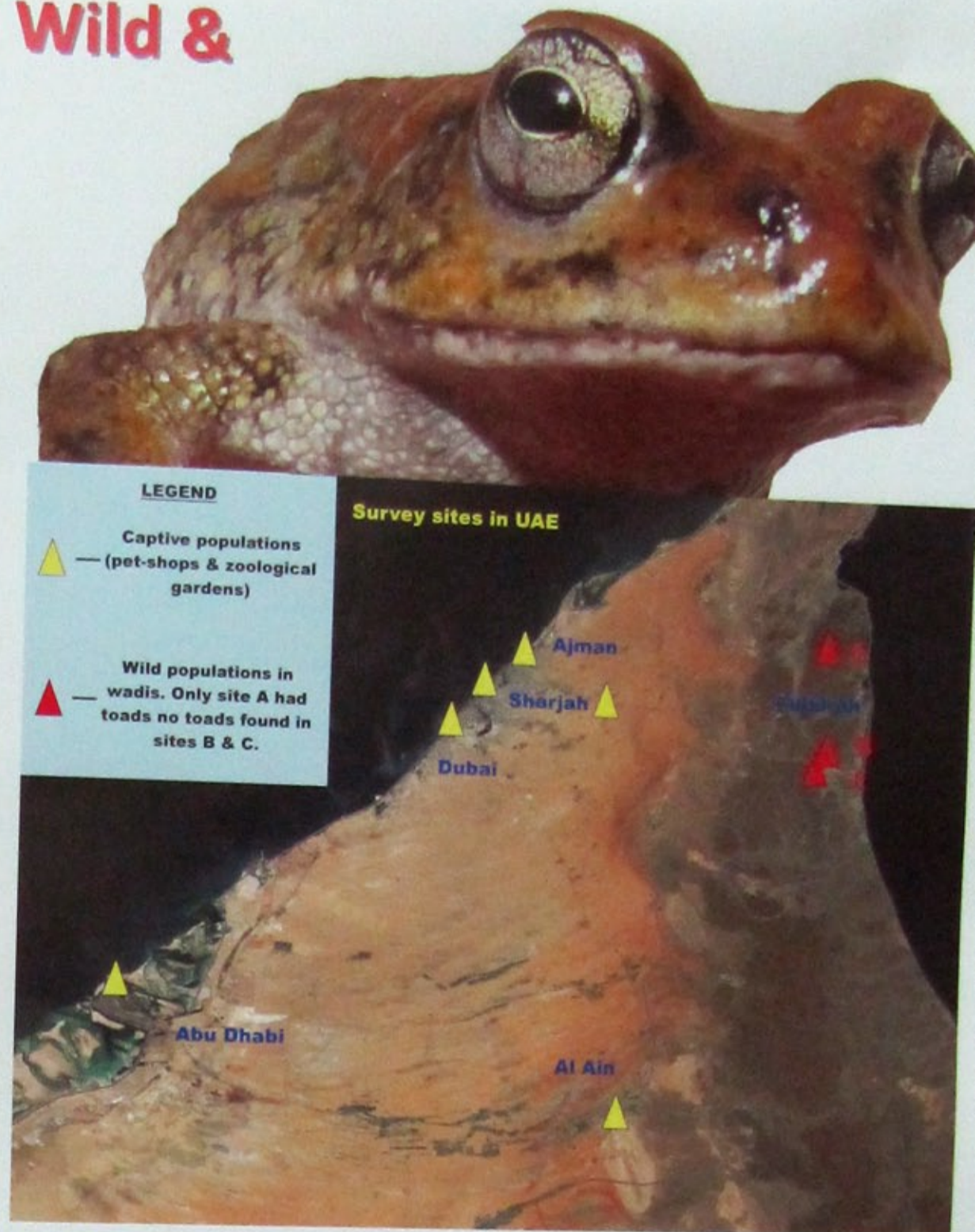
The main method used for detecting Chytrid is by taking skin swab samples for PCR testing. The sample collection involves the following steps:

- The live specimen is handled with latex gloves and a swab sample is taken of the ventral surface and limbs.
- The swab is placed in a tightly closed vial which is kept in ice packs in the field and then in a refrigerator in the lab.
- Once samples have been collected the whole shipment is securely packed and couriered to a Pisces Molecular LLC in Denver, Colorado, USA for testing for the presence or absence of Bd fungus.
- The testing is done by a PCR assay and uses the presence of the *Batrachochytrium dendrobatidis* ribosomal RNA Intervening Transcribed Sequence (ITS) region by 45 cycle single-round PCR amplification using an assay. Each PCR run includes the following controls - Positive DNA, Negative DNA & No DNA.

Sampling has been done in the following places:



- Captive populations in pet shops (Abu Dhabi, Dubai, Sharjah and Ajman) & Zoological gardens (Abu Dhabi and Sharjah)
- Wild populations in wadis of the Northern Emirates in Fujairah.



## RESULTS

Out of a total of 19 samples collected and analyzed for Chytrid the results were all negative and no diseased toads were observed in the wild.

## CONCLUSIONS

- One of the possible routes of Chytrid infection into the UAE could be via the pet trade in imported exotic amphibians which come from various countries.
- It is important to maintain surveillance of Chytrid in imported amphibians and also to educate the public on the dangers of releasing any freshwater amphibians and/or fish into wadi systems to prevent the introduction of Chytrid.
- We still have some sites to be sampled in Fujairah, Ras Al Khaimah and Sharjah Emirate and once these surveys are completed we will be able to provide a complete picture of the absence or presence of Chytrid in the UAE.
- Since results have so far been negative it is a good sign but still emphasis has to be placed on the import of exotic amphibians for the pet trade.



Looking for toads in Wadi Wurrayah, Fujairah Emirate

## ACKNOWLEDGMENTS

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