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ZSL Projects: Climate Change

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Amphibians and Climate Change

Trenton Garner (IoZ Senior Research Fellow)

- Amphibians' main problems:
  - Can't travel long distances to escape
  - Ectotherms
  - Dry out easily
  - Very sensitive to change

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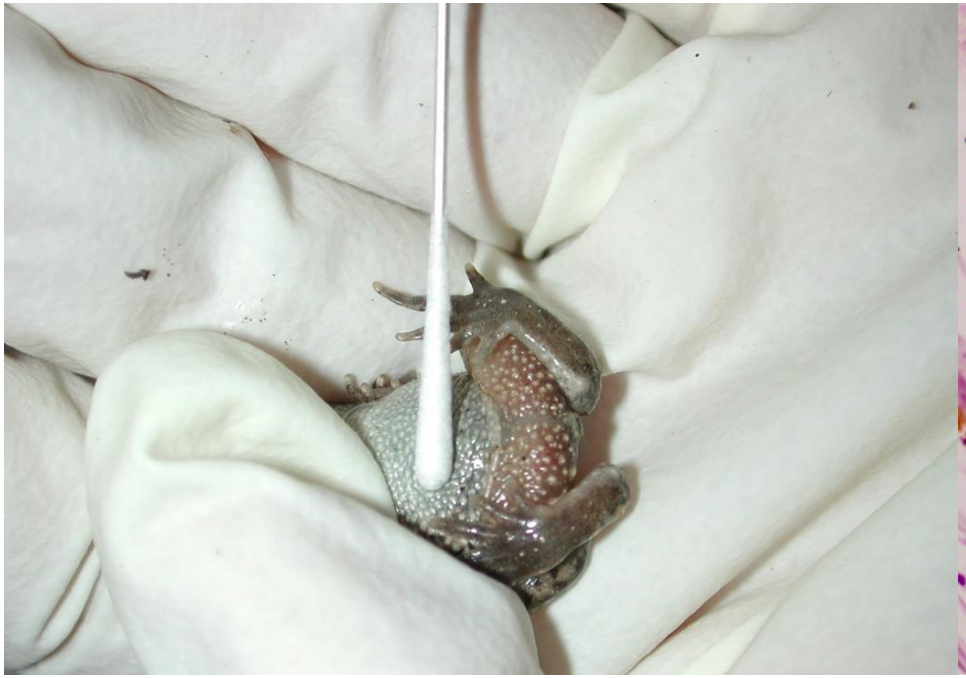
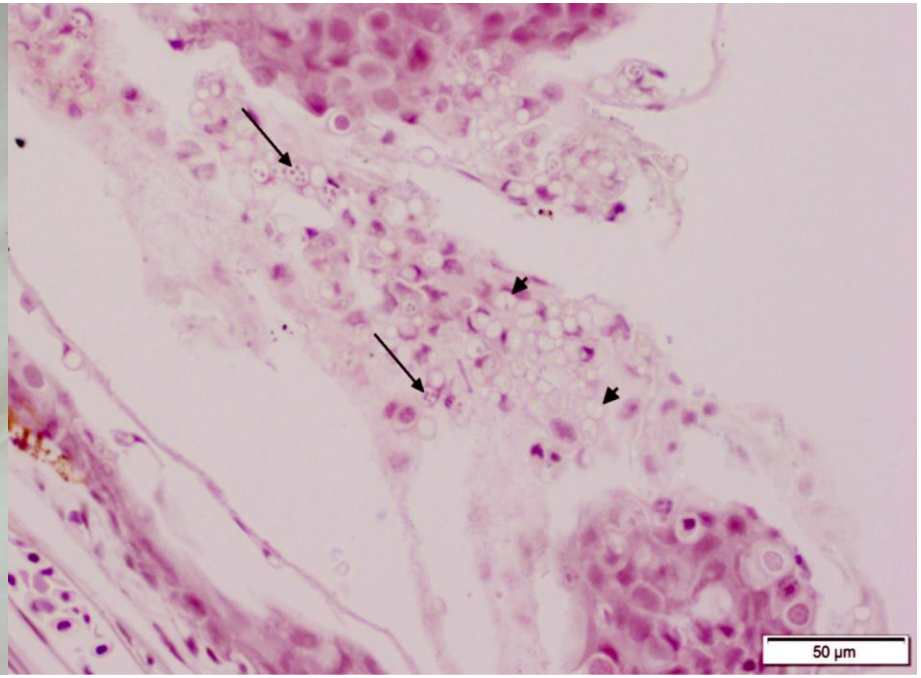
Chytrid Fungus

- A fungal disease in amphibians
- Associated with the decline and extinction of amphibians worldwide
- Trenton and team swab amphibians to test for chytrid fungus





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Amphibians and Climate Change

Trenton Garner (IoZ Senior Research Fellow)

- Experimental work has shown that extreme changes in temperature increases the presence of chytrid fungus, but how?
  - Is the pathogen being affected (conditions favour the disease spreading)?
  - Or is the host animal affected (the amphibian is less healthy is extreme temperatures, so the disease has less ‘work’ to do)?

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Trenton's 7 year research…

The impact of climate change on lake ice thaw at Lac Arlet, in the French Pyrenees

- Habitat for the midwife toad, common frog and common toad

- Climate change → average temperatures are rising → lake thaws earlier in spring each year

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Findings…

- Midwive toads maintained a high prevalence of infection independent of time of spring thaw

- A strong association between the earlier timing of the spring thaw and the increase of chytrid fungus in common frogs and common toads

- Common frogs had never before been recorded to suffer from chytrid fungus!

Mass deaths of amphibians because of chytrid fungus

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Mauritian Birds and Climate Change

Joseph Taylor (PhD Student of Reading University and ZSL)

How weather conditions impact three endangered species in Mauritius:

1. Mauritius kestrel
2. Mauritius fody
3. Echo parakeet

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Monitoring breeding success and survival

- Breeding sites and nest boxes are visited to track laid/hatched eggs
- Birds are ringed when their legs are long enough
- Whilst being ringed, birds are weighed and checked for disease
- Birds are remotely tracked with binoculars

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Findings so far…

- Since the 1960s temperatures have increased and rainfall generally decreased
  - However rainfall increased in kestrel habitat

- Impact on the Mauritus kestrel:
  - Temperature and rainfall affect time of breeding
  - Increased rainfall during nesting lowers breeding success
  - Juveniles suffer reduced survival during continuous rainy days whilst they fledge

- Wider implications
  - People also affected by droughts and the increased severity of cyclones
  - Extreme weather issue for both human society and wildlife
  - Joe can make recommendations to the Mauritian government based on his findings (more forest to prevent landslides with increased rainfall)