

Diversity and distribution of amphibians in Bwindi Impenetrable National Park and the incidence of threats

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Background

- Global population decline and species loss
(Gascon *et al.*, 2005)
- 1/3 of about 6500 amphibian species threatened (IUCN)
- Among least studied *cf.* Mammals and birds
- Amphibian Conservation Action Plan 2005 recommended inventories in little known and under-sampled sites

Problem statement

- No baseline data of the status of amphibians in biodiversity rich Bwindi INP
- Baseline data urgently needed about causes and magnitude of species loss and population declines for effective biodiversity monitoring programs

Objectives of the study

To determine the population status of amphibians and the incidence of associated threats to conservation of amphibians in and around Bwindi INP

Specific objectives

- i. To find out amphibian species richness of amphibians in Bwindi INP
- ii. To find out factors influencing the distribution of amphibians in Bwindi INP
- iii. To assess potential and prevailing threats to conservation of amphibians in Bwindi INP

Methods

- Sites selection mainly based on earlier surveys and reconnaissance (i.e Hill tops poor)
- 17 sites sampled (10 inside & 7 outside park)
- Jan – March 2011
- Sampling done in plots of 40X80m and trails

Method cont'd

- Visual encounter survey (TCC) easy monitoring (i.e Sampling 7:30pm-9:30pm using LED torches)
- Capture using hand or dip net
- Photographs taken (sm) and measurements (weight, body length) to aid identification
- Swabbing for Chytrid fungus
- Site characteristics recorded



Site characteristics recorded

- **Location** (elevation, coordinates)
- **Water** (temp, clarity, speed, smell)
- **Soil** (Sand, mud, rock)

- **Vegetation** (Crown cover, dominant veg'n, moss)
- **Habitat disturbance** (signs e.g trails, campsites)

- **Number of egg patches**
- **Presence of tadpoles**

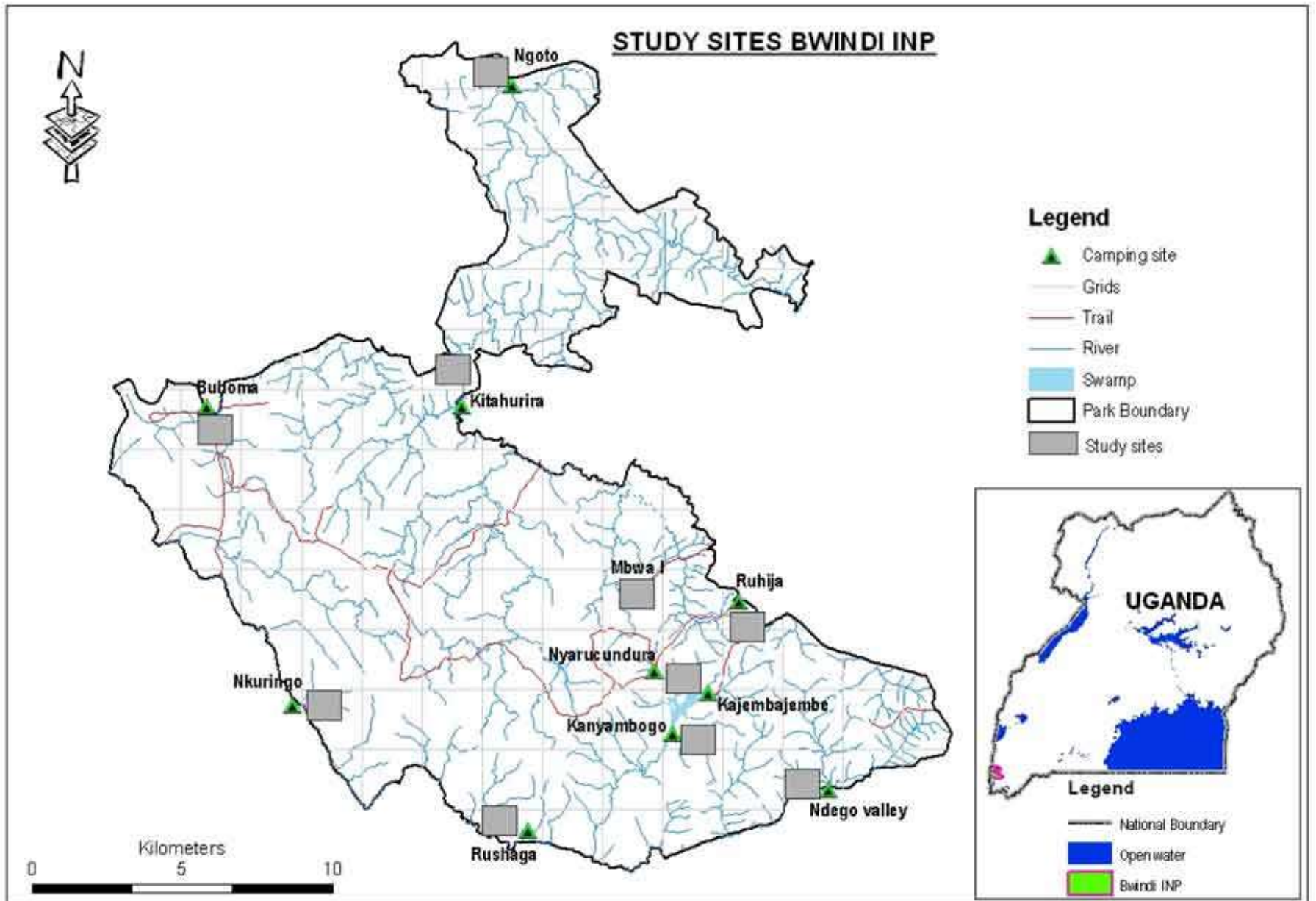
Equipment used



Precautionary measures

- A new pair of gloves when handling each individual
- Equipment and gumboots disinfected between sites





Preliminary results

1. Species richness

- At least 26 amphibian species recorded out of 28 expected (Drewes and Vindum 1992)
- new sites surveyed

Catch rates per site are yet to be computed

Some of the photos



Leptopelis kivuensis



Xenopus wittei



Amietophrynus kisolensis



Leptopelis christyi

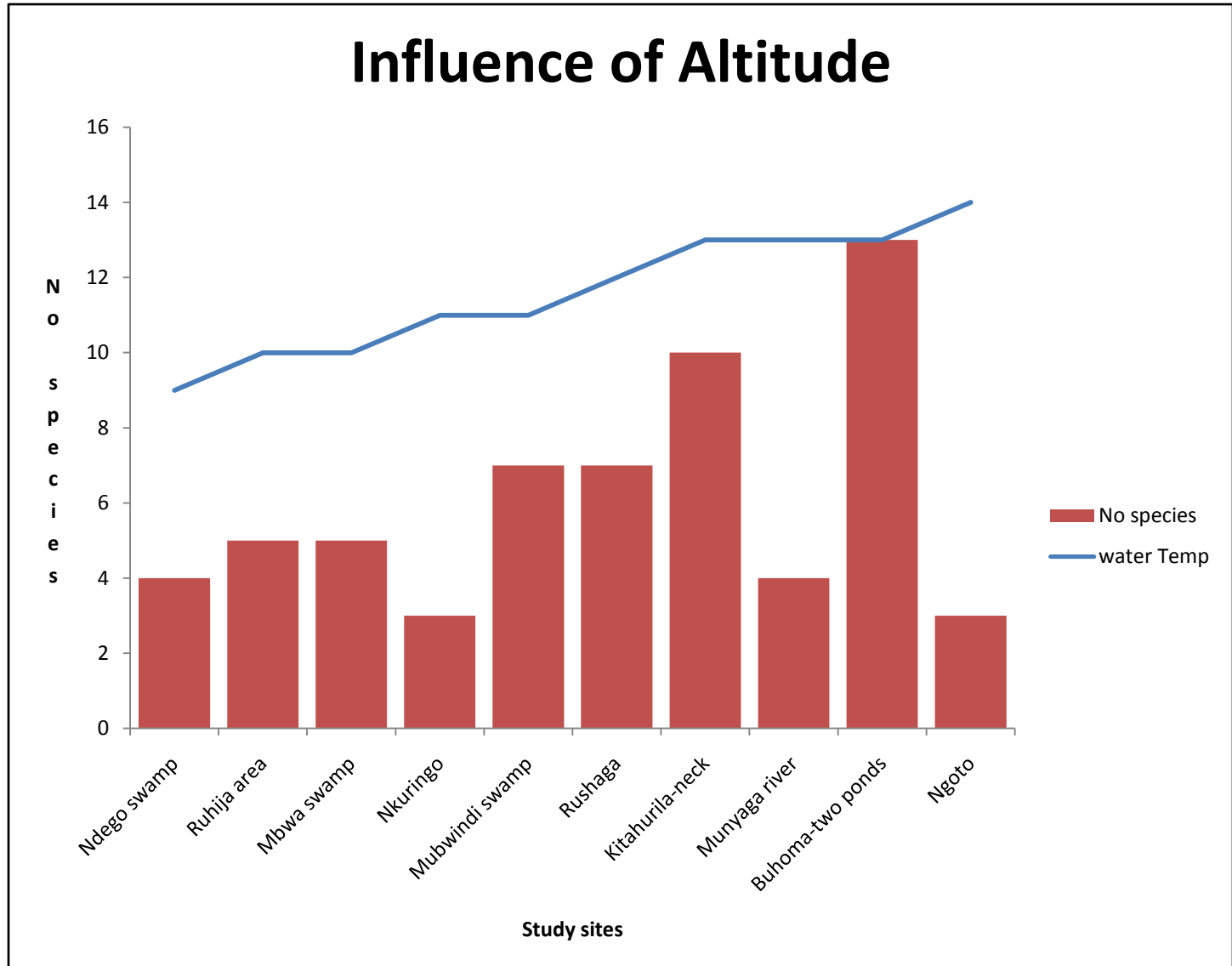


Hopefully new to science



Ptycadena achietae (new record)

2. Species distribution in 10 sites

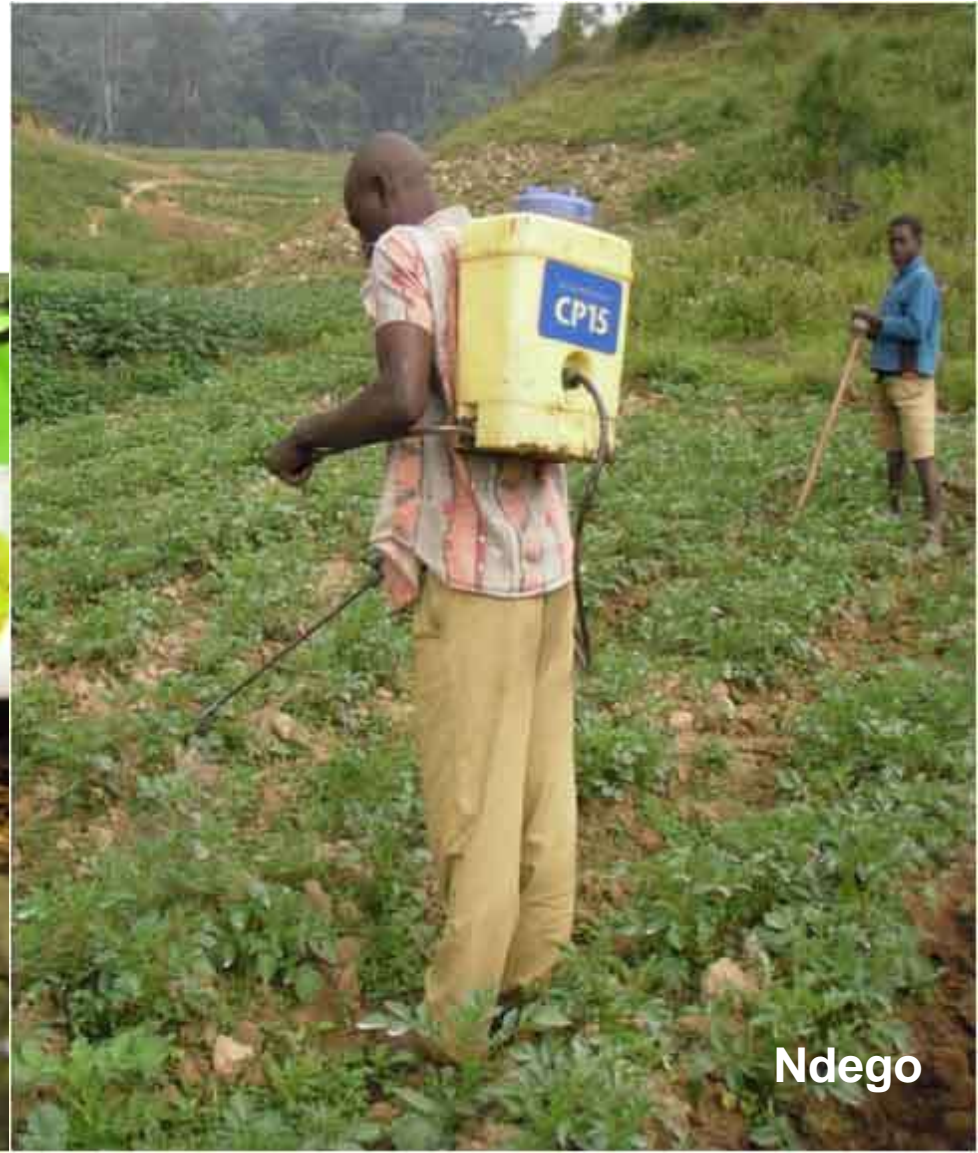


Cont'n...

- **Buhoma and neck richest** (factor of elevation and presence of permanently flooded ponds (breeding))
- **ITFC and Ndego poorest**

Threats

- **Habitat loss** – clearing
- **Pollution** – agrochemicals/ erosion) especially in unprotected areas



Threats cont'd...

- Symptoms of Chytridiomycosis and ranavirus infection observed (Hyper-keratinized skin and weakness) around Ruhija
- Easy spreading of Chytridiomycosis from one area to another in case of outbreak (elephants and people)



- About 300 swab samples collected and yet to be analyzed for presence of Chytrid fungus using the real-time taqman singlicate PCR technique
- No dead frogs encountered (ranavirus)

Challenges

- Snakes, elephants and wild gorillas
- Accessibility (steep, water logged, lianas, remoteness)
- Conflicting taxonomy (*Amietia* & *Leptopelis*)
- No single standard survey technique VSV species and sites
- Limited funds (N_o sites, seasons & replication)



Conclusion

- Species richness not much affected by seasons (cf Drewes 1992)
- Altitude affects distribution (temp, veg'n)
- Sites outside park are generally poor (degradation)
- Chytrid fungus highly suspected

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Plyctimantis veruscosus