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BEHAVIOUR AND PHYSIOLOGY

Diet composition of sympatric tropical frog species in Amani Nature Reserve regarding niche segregation

Abstract

The high biodiversity in tropical habitats may be the result of species packing due to a high extent of niche segregation or a high overlap of ecological niches facilitated by low densities of species which decreases competition. Our aim is to identify the food items that the frogs in Amani pond are consuming and to assess whether these differ between the most common sympatric species. Therefore a comparison of faecal-content should draw inferences from the composition about the niche segregation. Furthermore, due to the frequent high abundance of fern sporangia in the faeces, an experiment was conducted to assess whether the sporangia were eaten intentionally or accidentally.

Joe Gosling, University of Northampton, UK

Karin Ernst, University of Vienna, Austria

2015

The importance of sex, body size and colours in social interactions of Usambara Three-Horned Chameleons (*Chameleo deremensis*)

Abstract

Chameleo deremensis, more commonly called Usambara Three-Horned Chameleon, is an endemic chameleon species from the Usambara Mountains whom really few information is available. The aim of this short-term study is to provide the basics for any more detailed behavioural studies on this species. We were interested in the social behaviour and how the interactions between two individuals is driven by the sex, the colour expressed, the body size and more importantly the body size difference between these individuals. The individuals that were used for the study, covered adult individuals but mostly consisted of young individuals. Our results show that the weight difference is positively correlated to a less submissive behaviour. Individuals facing males have a tendency to behave in a more submissive way and individuals facing more impressive chameleons are more likely to express a brighter colour (yellow) signalling submission as well.

Karoline Burger, University of Vienna, Austria

Loic Runghen, University of Toulouse III (Paul Sabatier), Mauritius

2015

Call differences and calling site selection between two colour morphs of *Leptopelis flavomaculatus* in Amani pond, Amani Nature Reserve, Tanzania

Abstract

In this study, we sought to investigate the possibility of the two colour morphs of the vocally active males of *Leptopelis flavomaculatus*, being different species or ecotypes by investigating whether there are differences between their calls, call site selection and body sizes. The location of call sites varies between species but is usually fairly consistent within species. In some frogs different colour morphs exist in the adult males. This is the case for some African tree frogs of the genus *Leptopelis* including *L. flavomaculatus*. The study was conducted at Amani Pond in Amani Nature Reserve (ANR), Tanzania. We found significant differences between the SUL, weight, call duration and dominant frequencies of the calls. Our study also reveals a positive correlation between weight and SUL, no significant difference for choice of different plant species as calling sites and no significant difference between the calling heights. The study focused at unveiling the differences between the 2 colour morphs of *L. flavomaculatus*, which it objectively achieved. Complimentary questions have on the taxonomy of the species have come up that should be answered by future research.

Fausto Quattrini, University of Neuchâtel Switzerland

Herbert Kasozi, Makerere University Kampala, Uganda

2014

Is the roosting behaviour of *Kinyongia matschiei* and *Trioceros deremensis* influenced by predation pressure and prey abundance?

Abstract

This study was carried out in Amani Nature Reserve over a period of twelve days. We investigated potential factors that influence roosting behaviour of two endemic chameleon species – *Kinyongia matschiei* and *Trioceros deremensis*. In total, 18 individuals of *T. deremensis* and 2 individuals of *K. matschiei* were recorded. Data of direct distance from the original roosting position to the new roosting position was obtained for 17 out of 20 individuals. Our data revealed that chameleons tend to stay on the same roosting branch throughout the night and during the day move to either an equal or lower height to forage. Results of this study suggest that this behaviour may be explained by the availability of diurnal prey as well as the avoidance of predators.

Maria Dahm, University of Aarhus, Denmark

Elina Ode, University of Turku, Finland

Piotr Tuczapski, University of Warsaw, Poland

2012

Impacts of washing detergents on aquatic invertebrates and on tadpole development in Amani Nature Reserve

Abstract

The aim of this study was to investigate the impact of washing detergent use on aquatic fauna. Three different washing points were chosen as sampling sites along the Emau River in the Amani Nature Reserve, Tanzania and macroinvertebrates were sampled in four points above and below each washing points using kick sampling method. Meanwhile fifty tadpoles of *Bufo brauni* were treated in the laboratory with different simulated detergent concentrations to analyse their development. Results showed the lowest diversity of macroinvertebrates occurred in the first slower downstream

sampling points while the experimental study on tadpoles did not show any significant growth differences across all given treatment conditions.

Luyan Wang, University of Siena (Italy), China

Yamenah Gomez, University of Basel, Switzerland

2009

Push-ups as territorial displays in *Nectophrynoides tornieri* in the Amani Nature Reserve, Tanzania

Abstract

Males of *Nectophrynoides tornieri* were observed while displaying a peculiar posture; the males stood with their fore and hind legs stretched (“push-up”). This study examined possible causes for the push-up position and when it is displayed; our findings support the hypothesis that the push-up position is a territorial display. Where the presence of another male only evokes sit-up displays in a majority of the tested males, a playback of male vocalisations evokes a display of the push-up position often accompanied by calling. There was no correlation between the sit-up or the push-up display and the presence of a female *N. tornieri* in a male territory.

Iris Starnberger, University of Vienna, Austria

Pepijn Kamminga, University of Leiden, The Netherlands

Victor Chik Fosah, University of Buea, Cameroon

2009

The effect of invasive milfoil on abundance and predator-prey interactions of water scorpions and tadpoles in Amani Pond, Amani Nature Reserve

Abstract

Effects of invasive plant species on higher trophic level interactions are rarely studied. *Myriophyllum spicatum* is an invasive aquatic weed species that has spread in recent years to dominate Amani Pond in the East Usambara Mountains of Tanzania. Here we present the results of an investigation into the effect of weed density on the abundance and interaction of *Hyperolius* species tadpoles and water scorpions within the pond. Through a series of laboratory experiments we found that scorpions and tadpoles show significant preference for weeded habitats. Tadpoles took longer to resettle when they were subjected to ‘scorpion water’ and predation rate was higher in non-weeded than weeded microcosm habitats. These results indicate that weed encroachment may offer benefits such as provision of refuge from predation but at high density may cause a decrease in anuran abundance in Amani Pond.

Sarah Luke, University of Cambridge, UK

Jenny Sturgeon, University of Edinburgh, UK

2009

Does habitat type influence the rate of evaporative water loss (EWL) in frogs? A multi-species test on Eastern African frogs

Abstract

Frogs are widespread and occur even in water limited environments. As an adaptation, frogs might have evolved reduced water loss via the skin. This study compares water loss for species of five families occurring in different micro-habitats in a montane forest ecosystem. We found that,

regardless of the species identity, large frogs lose more water (in $\text{mg} \cdot \text{cm}^{-2} \cdot \text{sec}^{-1}$) than small frogs. Size-corrected evaporative water loss was higher in stream-side living frogs, followed by ground- and arboreal frogs. This finding suggests that reduced EWL might be an adaptation to a habitat with restricted water access.

Camilla Wadlund, Lund University, Sweden

Janine Hall, University of Zurich, Switzerland

2008

Potential of the yellow throat as an honest indicator for male strength in *Phrynobatrachus krefftii*

Abstract

Phrynobatrachus krefftii is one of the few frog species that uses mainly visual signals for communication rather than acoustic ones. The highly territorial males exhibit their bright yellow throat during male-male antagonistic interactions. This conspicuous signal could provide a certain amount of information of a male's strength, thereby working as an honest indicator. We predicted that there should be correlations between the colour pattern of the throat and body features, explicitly the leg constitution. We found evidence for the potential of the yellow throat to work as an honest indicator in intraspecific communication, as it provides information about the body size and the leg size.

Alexandre Farkas, University of Fribourg, Switzerland

Pedro Patrício, Faculdade de Ciências da Universidade de Lisboa, Portugal

Sylvia Reiter, University of Vienna, Germany

2008

The show must go on, but at what cost? Looking for compensating traits to the conspicuous colouration in *Phrynobatrachus krefftii*

Abstract

Krefft's Puddle Frog (*Phrynobatrachus krefftii*) is over all a cryptic species. However, males use visual signalling in intra-specific communication by exposing their bright yellow vocal sacs. Being conspicuous may as well pose danger to these animals as they are prone to be easily recognized and preyed upon. Therefore we expected to find compensating traits for conspicuousness in Krefft's Puddle Frogs. Comparisons were made between three groups of individuals: yellow-throated males, yellowish-throated females and white-throated females. A second comparison was made between males with differences in throat brightness. In both comparisons we measured wariness and jumping performance. Our results indicate that males which we considered to be more conspicuous showed higher wariness than the less conspicuous males. Also, we found slight differences in wariness between the three groups of individuals (but these results were not in all cases significant). In the comparisons made for jumping performance we found no more correlation than expected by chance. This might suggest that conspicuous individuals did not develop better locomotive traits than less conspicuous individuals.

Sofya Dolotovskaya, Lomonosov Moscow State University, Russia

Oluwakayode Michael Coker, University of Ibadan, Nigeria

Joris Jan Willem Buis, University of Wageningen, The Netherlands

2008

Characterisation of the vocalisations of *Nectophrynoides tornieri* Roux, 1906 (Anura: Bufonidae)

Abstract

We studied the vocalisation of *Nectophrynoides tornieri* by analysing the different components of their calls. We report that the predominant element of their vocalisations, a series of single-pulse calls progressing into double-pulse calls, is most likely to be under sexual selection. However, with the exception of a tendency for larger males to have a faster double-pulse rate, the size of a male does not appear to be correlated with call characteristics.

Donal Smith, University College Dublin, Ireland

Vinodkumar Saranathan, Yale University, USA

Tenna Kragh Boye, Aarhus University, Denmark

2006

Differential tadpole response to pond and stream predators

Abstract

Tadpoles have adopted different strategies to escape predators. In this study we examined tadpole response to predators. *Hyperolius spinigularis* was found in a pond and *Rana angolensis* and *Bufo brauni* were collected from a stream. All tadpoles were exposed to a pond predator (water scorpion) and a stream and pond predator (dragonfly larvae). *H. spinigularis* reacted to the water scorpion by lowering its activity level whereas *B. brauni* reacted by raising its activity level. *R. angolensis* did not respond to the water scorpion. *H. spinigularis* and *B. brauni* are both found in ponds with water scorpions and it is therefore no surprise that both species react to this predator. *R. angolensis* is never found in ponds and has no adaptations to the predator. No tadpoles changed their activity level in the presence of the dragonfly larvae. It is possible that dragonflies are too common or too rare for the tadpoles to evolve any specific adaptation to this predator.

Jennifer Sun, University of California Los Angeles, USA

Nina Kirkegaard, University of Aarhus, Denmark

2005

Does the Puddle Frog, *Phrynobatrachus krefftii*, return to the same place every night?

Abstract

Mark-recapture technique was used to answer the question whether *Phrynobatrachus krefftii*, Boulenger, 1909 (Ranidae) return to the same resting place night after night. *P. krefftii* spends the day on ground and the night on plant leaves. The study was carried out in two different localities in the Amani Nature Reserve over a period of seven nights. In total 82 individuals were marked and 158 recaptures were recorded. *P. krefftii* showed a high tendency of returning to the same place. Seventy-five percent of the recaptured frogs had moved less than one metre within the period of five days. Only eight frogs (9 %) had moved a distance of two meter or more, no frogs had moved more than six metres. We noticed a significant difference in the height of the resting places between the two localities.

Markus Franzén, Swedish University of Agricultural Science, Uppsala, Sweden

Walter Hirschmann, University of Vienna, Austria

2001

Spacing and calling patterns among males of *Hyperolius puncticulatus* and *Hyperolius mitchelli*

Abstract

Two different morphs of *Hyperolius* frogs (*H. puncticulatus* and *H. mitchelli*) were studied at Amani Pond to determine the factors that influence their calling behaviour. Several individuals were located in different areas of the pond and their calling patterns were described recording frequency, intensity and choice of the calling sites. No correlation was found between the measured parameters and the spacing, suggesting that there are particular behaviours influencing the distance between calling males which still need investigation. Size showed no correlation with any of the other variables. Differences between the two morphs were also investigated to find out whether they belong to different species. Size and calling intensity were very similar whereas frequency and the choice of calling site showed some variation. The variations notwithstanding, we believe that the two morphs could be two different colour forms of the same species.

Andrea Benocci, University of Siena, Italy

Juliet Nansikombi, Makerere University, Kampala, Uganda

Peter C. K. Atuora, University of Ghana

2000

Spacing between calling males of the African Reed Frog, *Hyperolius puncticulatus* (Pfeffer, 1893) in Amani Pond

Abstract

Intermale spacing in calling males of the African Reed Frog, *Hyperolius puncticulatus* (Pfeffer, 1893), was investigated in Amani Pond. Call amplitude, frequency, and rate were investigated for the possible effects they might have on male spacing. The study showed that there is definite spacing of calling males in the pond, as determined by nearest calling neighbour distance. This distance could however not be explained by any of the call parameters investigated in the study. The distance between nearest calling neighbours range between 36 cm and 332 cm. Most calling males (62% of individuals counted in the first period) exhibited fidelity to call site in the study.

Viviane V. Hoveka, Desert Research Foundation, Namibia

Robstein L. Chidavaenzi, Natural History Museum, Zimbabwe

2000

DISTRIBUTION

Microhabitat use by *Hyperolius* and *Leptopelis* amphibians in Amani Pond

Abstract

This study investigated microhabitat usage by *Hyperolius mitchelli*, *H. puncticulatus*, *Leptopelis vermiculatus* and *L. flavomaculatus* amphibians in Amani Nature Reserve, located in the East Usambara Mountains. For adults of each of the four study species, some differences in perching height and use of vegetation structures as perching sites was found and no difference in the effect of surrounding vegetation composition on the incidence of any species was found. Effects of age group were investigated using *L. flavomaculatus* as this was the only species with an adequate number of adults and juveniles recorded. Juvenile *L. flavomaculatus* used lower perching sites and had less variation in the plant structures used as perching sites compare to adults of the same species and some surrounding vegetation composition features had an effect on the incidence of adults compared to juveniles. This study provides some information about microhabitat use in these species but would benefit from a larger sample size to have a clearer understanding of the relevant variables affecting microhabitat use.

Vanessa Berrie, Scotland

Petra Knutson, Gothenburg University, Sweden

2015

Big frogs in a small pond: illegal gold mining provides suitable breeding habitat for *Xenopus borealis* in Amani Nature Reserve, Tanzania

Abstract

Amani Nature reserve lies within the smallest global biodiversity hotspot, and supports a host of endemic plant and animal species. However, the region's biodiversity is threatened by alluvial gold panning which has become widespread in the area despite being declared illegal in 2004. Among the numerous disturbances incurred by gold panning is the creation of holes adjacent to rivers which form standing water bodies. These pools provide potentially suitable habitat for numerous aquatic taxa. Here we present the results of a field study investigating the abundance of the Northern Clawed frog (*Xenopus borealis*) in these ponds in comparison to naturally occurring pond habitats. It was found that there is no significant difference in the density of *Xenopus borealis* individuals between artificial and natural pools. However, there is a trend towards higher density in recently excavated pools at the active mining site. Adults (as defined in this study) were found only at the active gold mine showing that despite regular human disturbance the active gold mine is used as a breeding site by *Xenopus borealis*.

James Mudie, University of Nottingham, England

Leah Farquharson, University of Edinburgh, Scotland

2014

Comparative study of chameleons (Chameleoniae): are species composition and abundance influenced by trail edge effects in Amani Nature Reserve?

Abstract

As a leading cause of global animal population decline, habitat alteration has aroused concern among conservation communities. The effects of forest edges have been numerous documented as a factor contributing to reduction in population size. What is unclear is how human-made trails further divide forest patches while creating edges that may influence the distribution of species with limited home ranges. Chameleon species of the East Usambara Mountains are among those that may be subject to trail edge effects. Night surveys were conducted to search for the presence of chameleon across transects that compared trail edges with forest interiors. The aim of this study was to assess differences in chameleon species abundance and composition, potentially influenced by trail edges. No significant difference was found in chameleon abundance whereas significant variations were observed in species composition between edges and locations at furthest distances into the forest. Suggestions are made based on these results to promote the conservation of these species in spite of harvesting pressure.

Damien Bontemps, University of Puerto Rico

Mukhtar Hassan, University of Khartoum, Sudan

2013

Preferences of *Hyperolius* and *Leptopelis* for microhabitat characteristics at the Amani Pond

Abstract

This study focuses on juvenile frogs of the *Hyperolius* and the *Leptopelis* genera. It took place at Amani Nature Reserve in Tanzania and its main goal was to investigate frogs' preferences for certain microhabitat characteristics at the Amani Pond. For this, eight transects were established perpendicularly to the main stream of this montane wetland. During eight days data on 896 individuals were collected by visual encounter survey. Significant results show *Leptopelis* prefer to perch further away from the stream and *Hyperolius* closer. This might reflect the preference we found that each genus has for a certain type of vegetation. In addition, the observed *Leptopelis* perched at higher positions. This may be due to the *Leptopelis*' green colour which enables them to be better camouflaged. Indeed, this genus showed a less vigilant behaviour in human presence when compared to the mainly brown *Hyperolius*.

Marta Sólveig Palmeirim, University of Lisbon, Portugal

Nadja Wipf, University of Zurich, Switzerland

2013

Microhabitat preference of frogs in a floodplain wetland

Abstract

Logging and erosion caused the 'Amani Pond', a floodplain wetland in the East Usambara Mountains, to almost dry out within a relatively short period. Different frog populations are still breeding in the area. This study investigated the use of space by the frogs in the wetland area. Visual encounter surveys were conducted along 220 m of the floodplain. Frogs of the two genera *Leptopelis* and *Hyperolius* were found. The results show that both genera have a clear preference

for rather thick shrub, fern and high sedge vegetation, which is at risk of vanishing because of use of floodplain for grazing. Furthermore our observations support the results of earlier studies showing a clumped spatial distribution of calling males of *Hyperolius puncticulatus* within the floodplain.

Nicola Kerr, University of Nottingham, UK

Alexandra Mangold, University of Vienna, Austria

Liselott Nilsson Lund University, Sweden

2012

Effect of edge on distribution of leaf litter amphibians in Amani Nature Reserve, Tanzania

Abstract

Habitat disturbance is one of the key drivers of amphibian population declines. Disturbance involves among others opening up several forest edges by cutting roads and trails through already fragmented habitats. The trails and roads are frequently used by researchers, tourists and local people. In this study, we examine the effect of edge on the distribution of leaf litter amphibians in Amani nature reserve, Eastern Usambara. We laid 46 5 m x 5 m quadrants in three different forest stands distributed from the edge to the interior and separated by 15 m. We counted leaf litter amphibians encountered in each quadrant for every one man hour search effort. Our results suggest that there are fewer leaf litter amphibians along the edge than the forest interior although the difference is not statistically significant. We recommend further studies in bigger and less fragmented forests to investigate the effect of edge on amphibians and other taxa several meters away from the edge to the interior.

Robert S. Sekisambu, Makerere University, Uganda

David Amaning Kwarteng, Kwame Nkrumah University of Science and Technology, Ghana

2011

The effect of monoculture tree stands on leaf litter frog diversity and abundance in Amani Nature Reserve, Tanzania

Abstract

The study was carried out to assess the effect of monoculture tree stands on leaf litter frog diversity and abundance in Amani Nature Reserve, Tanzania. Systematic quadrat sampling was used to sample three different habitats with distinct vegetation composition. Two of the study habitats were monoculture tree stands of *Cinnamomum camphora* and *Cephalosphaera usambarensis*. The third habitat was a pristine forest. In total 9 species of leaf litter frogs belonging to two genera *Arthroleptis* (8) and *Probreviceps* (1). The three habitats showed variation in diversity and abundance though it was not significant. Therefore, there is a need for further in depth investigation to answer the perception that monoculture stands are always associated with low faunal diversity.

Edwin Tambara, University of Zimbabwe, Zimbabwe

Yared Debebe Desta, Mekelle University, Ethiopia

2011

Biogeography of pond-breeding amphibians in Amani Nature Reserve, Tanzania

Abstract

Anthropogenic disturbances can shape natural habitats, and thus species composition and abundance. We determined the distribution and abundance of amphibian species in the Amani Nature Reserve across these human modified gradients by investigating how wetland size, proximity and other habitat/anthropogenic variables can influence amphibian communities. We used Nocturnal Visual Encounter Surveys in 10 selected wetlands. There was no correlation between species richness or abundance with wetland size and proximity. In addition, there was no correlation with anthropogenic variables. This may have implications for amphibian conservation in wetland habitats irrespective of size and proximity with other wetlands.

Gilbert Adum, Kwame Nkrumah University of Sci. and Tech., Ghana

Joana Ribeiro, Faculty of Sciences, University of Lisbon, Portugal

Kiros Welegerima, Mekelle University, Ethiopia

2010

Spatial distribution patterns of two hyperolid frog species in Amani Pond

Abstract

We studied the spatial pattern in calling males of two closely related frog species *Hyperolius mitchelli* and *Hyperolius punctitulatus* in the Amani Pond and found this to be an aggregated pattern within the two habitats studied. Clustering was strongly associated with thick clumps of vegetation in one habitat and sedges in the other. Even though the location of clusters was not constant within habitats, the clusters were always associated with vegetation. There may be a behavioural influence on spatial distribution in these species; however, results indicate that this may still be associated with habitat.

Oluwashola Olaniyan, University of Jos, Nigeria

Severine Buechel, University of Fribourg, Switzerland

2006

Diversity and abundance variations of anurans with habitat strata across Amani swamp, East Usambara Mountains, Tanzania

Abstract

A comparative study to investigate diversity and abundance of anurans in habitat strata was conducted from 16–27 September, 2005 at Amani swamp within the Amani Nature Reserve. Anurans were studied in three habitat types using both acoustic and visual 50 m × 10 m strip transects. Habitat types were classified according to the vegetation types. Anuran assemblages were highest in fern complex, followed by *Cyperus* reeds, while *Myriophyllum* ranked last. The Shannon Wiener index strikingly showed that species diversity was higher in *Cyperus* reed ($H' = 1.25$) than in *Myriophyllum* ($H' = 1.20$) and in the fern complex ($H' = 1.05$).

Stephen Mahinya, Sokoine University, Tanzania

Gilbert Razafimanjato, The Peregrine Fund, Madagascar

2005

Vegetation and height preference of juvenile frogs (*Hyperolius*) in the Amani

Pond, Amani Nature Reserve, Tanzania

Abstract

Like other amphibians, anurans (frogs and toads) are usually restricted to moist or humid areas. *Hyperoliidae*, a common frog family of East Africa needs emergent vegetation as well. In this study the frog abundance on vegetation in Amani Pond, situated in Amani Nature Reserve was investigated. Transects were analysed and two cage set-ups were built in the Amani Pond. It was found that a high diversity of plants, increased frog abundance. Another finding was that *Myriophyllum aquaticum*, an invasive water weed, can become a problem, since it reduces habitat for the juvenile frogs.

Josephine Scott-Manga, University of Sierra Leone, Sierra Leone

Jacob Beeuwkes, Wageningen University, The Netherlands

2005

Factors determining the diversity and abundance of hyperolid frogs in the emergent vegetation in Amani Pond, Tanzania

Abstract

Amphibians have diverse habitats and are universally threatened as a result of human activities. This study was carried out on the emergent Cyperacean reeds in the Amani Pond. The main objective was to investigate the factors which could determine the diversity and abundance of hyperolid frogs in the pond. Investigations revealed that cutting of the Cyperaceans resulted in a complete absence of frogs. Density of the Cyperaceans, water depth, height and time (day or night) were found to have a positive correlation with the abundance and diversity of the hyperolid frogs. Our results also showed an invasion of the Cyperaceans by *H. spinigularis* during the second week of the study.

Victoria Nneoma Ujoh, University of Benin, Nigeria

Geert van de Wiel, Wageningen University and Research Centre, The Netherlands

2003

Is there a relationship between leaf litter habitat and *Arthroleptis* frog abundance in Amani Botanical Garden?

Abstract

Five sites with *Arthroleptis* frogs were studied in Amani Botanical Gardens. Sixty-seven frogs were observed from four different species belonging to this genus. Site A was found to have the highest mean number of *Arthroleptis*. This is thought to be partly because of ground-dwelling termites in the area, giving a plentiful food supply. No significant correlation was found to exist between the number of *Arthroleptis* found and the leaf litter variables studied. It was found that the numbers of frogs appeared to be higher where canopy cover was denser.

Elizabeth Carabine, University College London, UK

Rita McGrath, National University of Ireland, Ireland

2002

The effect of harvesting of water weed (*Myriophyllum*) on the frogs and other fauna of Amani Pond, Tanzania

Abstract

Amani Pond is an artificial pond located in Amani Nature Reserve, East Usambara Mountains, Tanzania. It contains a high diversity and abundance of frogs, and is almost completely covered in water weed of the genus *Myriophyllum*, which the local people harvest on a regular basis. The aim of our study was to investigate whether this harvesting has an effect on the frogs and other selected inhabitants of the pond. This question was addressed by comparing random samples of harvested and unharvested areas of the pond and by conducting an experimental harvest of the weed. We were unable to conclude whether the harvesting was having an effect and further work is necessary before any management recommendations can be made, although it is tentatively suggested that the biotic diversity of the pond could be enhanced by actively managing the vegetation.

Elizabeth Akinyi Odhiambo, National Museums of Kenya, Kenya

Ben Dixon, University of Cambridge, UK

2000

Do anuran species show preference for certain sites in the Amani Pond?

Abstract

The aim of the project was to determine whether different species of anuran show a preference for particular sites in the Amani Pond. Data collection was carried out by means of visual identification surveys at night. For each individual encountered we recorded the species, their length, height above water level and the species of plant on which they were found. Results showed that there is very little preference for specific heights, except for the largest species which was always at water level. Preference for plant species has been found for *Hyperolius pusillus* alone. Possible consequences of species being in close proximity are discussed with reference to their evolution and behavioural ecology.

Anna Durrans, University of Liverpool, UK

Natalia Giorgini Riva, University of Siena, Italy

1998
