

At last, a book that will allow you to identify most of the amphibians found in the world famous biodiversity hotspots of the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya. This guide allows both the English and the Swahili reader to identify and obtain natural history and conservation information for the 122 species of amphibians found in the hotspots. In addition, the book provides important background information on habitat types and presents a historical perspective for those not familiar with the area and its fauna.

I strongly recommend this book to anyone interested in the conservation of amphibians, as well as those with a specific focus on the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya. Its publication in both English and Swahili will for the first time make such information accessible and widely available in the East African region.

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Amfibia wa Milima ya Tao la Mashariki na Misitū ya Pwani ya Tanzania na Kenya  
Field Guide to the Amphibians of the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya



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of the Eastern Arc Mountains and  
Coastal Forests of Tanzania and Kenya



Elizabeth B. Harper, G. John Measey,  
David A. Patrick, Michele Menegon and  
James R. Vonesh  
with Kiswahili translation by Imani Swilla

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na Misitū ya Pwani ya Tanzania na Kenya

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## Preface

This guide was begun in 2002 as a field guide to the amphibians of the East Usambara Mountains in Tanzania, with a focus on the species found at Amani Nature Reserve. Corodius Sawe, then head conservator of the reserve suggested the idea to James Vonesh who was at Amani conducting research on the ecology of *Hyperolius spinigularis*. At the time, I was in Tanzania working on a project supported by the Watson Foundation to observe and photograph frogs. I was very fortunate to stumble upon Amani Nature Reserve. There I met David Patrick, who was familiar with the amphibian fauna of Amani through his M.Sc. research and he gave me a quick introduction to the species at Amani Pond. Dave and I were married four years later and continue to collaborate on amphibian research. James has been a wonderful mentor to us both and was instrumental in getting this project off the ground. With support from Mr. Sawe, James and I worked on the initial draft of the guide for six weeks at Amani. It remained in the form of a 'preliminary draft' available on the web in pdf form for several years. When CEPF, the Critical Ecosystem Partnership Fund, began investing heavily in efforts aimed at conserving the biodiversity of the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya, we received funding to publish the guide. CEPF requested that we expand the area covered by the guide and incorporate the results of amphibian research supported by CEPF throughout the Eastern Arc and Coastal Forests. Since these efforts were begun in 2004, an overwhelming number of new amphibian species have been discovered, many of which have yet to be named. Fortunately, Michele Menegon and John Measey, who have spent countless hours in the field over the past few years, were willing to collaborate with us as we expanded the guide far beyond its original scope. We are also appreciative of the enthusiastic encouragement and helpful advice from many other herpetologists working in East Africa. It has been a pleasure to work among such a generous and collegial group of people.

Elizabeth Harper

## Utangulizi

Kazi ya kuandika kitabu hiki ilianza mwaka 2001 kama kitabu juu ya amfibia wa Milima ya Usambara Mashariki nchini Tanzania, kilichokuwa kinalenga spishi zinazopatikana kwenye Hifadhi ya Amani. Corodius Sawe, aliyekuwa Mhifadhi Mkuu wa Hifadhi ya Amani alimshauri kuandika kitabu James Vonesh ambaye alikuwa Amani akifanya utafiti juu ya ikolojia ya *Hyperolius spinigularis*. Wakati huu, mimi nilikuwa nchini Tanzania kwenye mradi uliogharimiwa na Watson Foundation, nikifanya utafiti wa vyura na kuwapiga picha. Nilipata bahati kubwa ya kufika Hifadhi ya Amani. Nikiwa Amani, nilikutana na David Patrick, aliyekuwa anawafahamu vizuri amfibia wa Amani kutokana na utafiti wake wa shahada ya uzamili ya sayansi na alinipatia maelezo juu ya spishi za Bwawa la Amani. Dave na mimi tulifunga ndoa miaka minne baadaye na tunaendelea kushirikiana kwenye utafiti wa amfibia. James ameendelea kuwa mwalimu wetu mzuri na alikuwa mtu muhimu sana katika kuanzisha mradi huu wa sasa wa kuandika kitabu. James na mimi, tukisaidiwa na Sawe, tulitayarisha rasimu ya kwanza ya kitabu katika kipindi cha majuma sita tukiwa Amani. Maandiko hayo yalibaki "rasimu ya awali" ya pdf kwenye tovuti kwa miaka kadhaa. The Critical Ecosystem Partnership Fund (CEPF), ilipoanza kufadhili kwa kiasi kikubwa uhifadhi wa Milima ya Tao la Mashariki na Misitu ya Pwani (MTMMP) nchini Kenya na Tanzania, ilitupa fedha kwa ajili ya kuchapisha kitabu. CEPF ilitushauri tupanue eneo linaloshughulikiwa kwenye kitabu na kujumuisha matokeo ya utafiti unaogharimiwa na CEPF kwenye eneo lote la Tao la Mashariki na Misitu ya Pwani. Tangu kazi ilipoanza mwaka 2004, spishi nyingi zimegunduliwa na nyingi bado hazijapewa majina. Bahati nzuri, Michele Menegon na John Measey, ambao wametumia muda mwingi wakifanya utafiti kwa miaka kadhaa, walikuwa tayari kushirikiana nasi tulipokipanua kitabu hiki zaidi ya tulivyokusudia mwanzoni. Aidha tunashukuru sana wataalam wengine wa amfibia na nyoka kwenye eneo la Afrika Mashariki kwa kututia moyo na kutupa ushauri. Tumefurahia sana kuweza kufanya kazi na kundi hili la wataalam ambao wako tayari kushirikiana nasi na kubadilishana nasi uzoefu wao.

Elizabeth Harper

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## Shukrani

Gharama za uchapishaji wa kitabu hiki zimelipwa na Critical Ecosystem Partnership Fund (CEPF). Aidha, utayarishaji wa toleo la awali la kitabu hiki ulifadhiliwa na Watson Foundation (EBH) pamoja na NSF DDIG na EPA STAR Fellowship (JRV). Hifadhi ya Amani na Idara ya Misitu na Nyuki ya Tanzania zilitoa msaada wa fedha na usafiri wakati wa kufanya utafiti. Waandishi wanamshukuru sana Bwana Corodius Sawe kwa msaada wake. Tunawashukuru pia Vanessa Smilansky, John Vanek, Kevin Deitz na Kelly Goodall, wanafunzi kutoka Idara ya Sayansi za Mazingira na Misitu ya Chuo Kikuu cha New York waliosaidia kufanya utafiti kwenye maktaba. Aidha, tunatoa shukrani kwa Imani Swilla wa Chuo Kikuu cha Dar es Salaam kwa kufanya tafsiri ya Kiswahili. Watu wengi walitupatia picha, wakiwemo Dave Blackburn, Alan Channing, Bob Drewes, Luke Mahler, Arne Schiøtz, na Martin Vestergaard. Shukrani za pekee ziwafikie wataalamu wenzetu, hususan Dave Blackburn, Kim Howell na Arne Schiøtz ambao walitoa ushauri muhimu wakati wa kufanya marekebisho ya maandiko ya awali.

## The Eastern Arc Mountains and Coastal Forests - Biodiversity

The Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya (EACF) is a small area with remarkably high biodiversity. In less than 5000 km<sup>2</sup> of remaining natural habitat, it contains one of the highest densities of unique vertebrate and plant species found anywhere in the world (Fig. 1). These endemic species include more than 100 vertebrates and 800 plant species. Of the over 100 amphibians that occur in the EACF, over half are endemic or near-endemic. The EACF ecosystem is also one of the most endangered hotspots, with high rates of forest loss and degradation that threaten the future of these unique species. Updated information on the biodiversity hotspots can be found at: <http://www.biodiversityhotspots.org>.

## Milima ya Tao la Mashariki na Misitu ya Pwani (MTMMP) - Bioanuai

Milima ya Tao la Mashariki na Misitu ya Pwani (MTMMP) ya Tanzania na Kenya ni eneo dogo kuliko yote duniani lenye spishi nyingi ambazo hazipatikani mahali pengine popote. Eneo hili lenye ukubwa chini ya kilomita 5000 za mraba lina msongamano mkubwa wa spishi za wanyama wengi wenye uti wa mgongo na za mimea kuliko eneo lingine lolote duniani (Mchoro 1). Spishi hizi ambazo zinapatikana kwenye eneo hilo tu ni zaidi ya 100 za wanyama wenye uti wa mgongo na zaidi ya spishi 800 za mimea. Kati ya vyura zaidi ya 100 wanaopatikana MTMMP, zaidi ya nusu yake hawapatikani mahali pengine popote au wanapatikana kwa nadra kwenye maeneo mengine. Aidha, eneo hilo la MTMMP ni mojawapo la maeneo ya spishi nyingi yanayotishiwa kutoweka; kasi ya kutoweka kwa misitu na uharibifu wa misitu vinatishia mustakabali wa spishi hizi zinazopatikana kwa nadra. Taarifa za karibuni juu ya maeneo yenye spishi nadra zinapatikana kwenye tovuti hii: <http://www.biodiversityhotspots.org>.



**Figure 1** - The EACF hotspot contains over 50 reptile species found nowhere else in the world, including the West Usambara two-horned chameleon, *Kinyongia multituberculata*.

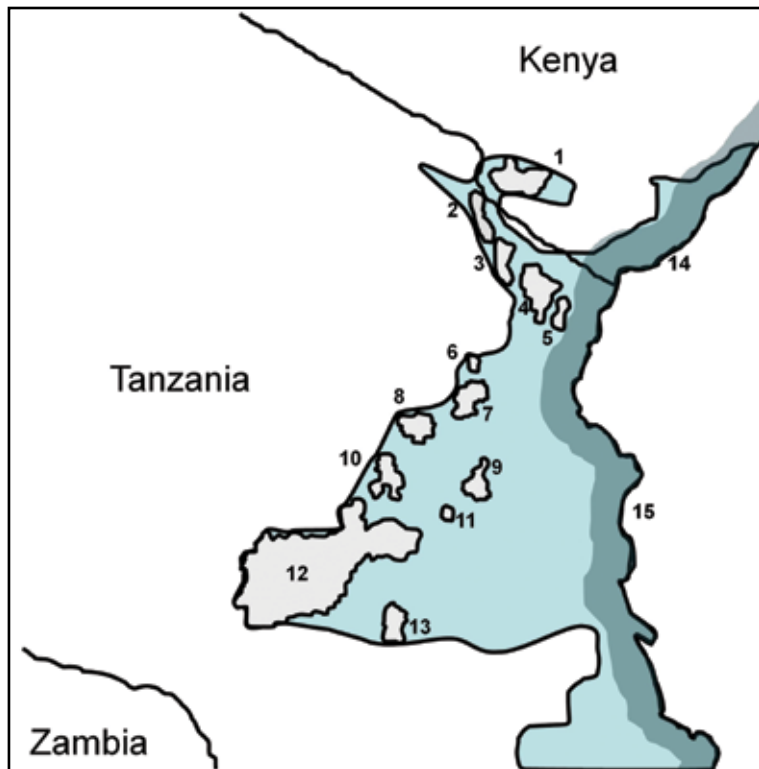
**Mchoro 1** - Eneo la Tao la Mashariki na Misitua ya Pwani (MTMMP) lina zaidi ya spishi 50 za reptilia ambazo hazipatikani mahali popote pengine duniani, ikiwa ni pamoja na kinyonga mwenye pembe mbili, *Kinyongia multituberculata*, wa Usambara Magharibi.

## The Eastern Arc Mountains

The Eastern Arc is made up of 13 separate mountain blocks running in a broken line from north to south, including the Taita Hills, North Pare, South Pare, West Usambara, East Usambara, Nguu, Nguru, Ukaguru, Uluguru, Rubeho, Malundwe, Udzungwa and Mahenge Mountains (Fig. 2). Forests in these mountains extend from 300 m at the base to over 2000 m. These mountains are ancient in origin having been formed by movement in the earth's crust 290-180 million years ago (mya), resulting in the creation of flat-topped mountains. However, the archipelago of Eastern Arc Mountains with which we are familiar today resulted from the most recent faulting some 7 mya at the same time as the formation of the Great Rift Valley. The age of the Eastern Arc can be compared with the much younger Mt. Kilimanjaro and Mt. Meru which were formed from volcanic eruptions within the past 1 million years. This history directly relates to the incredible biodiversity found in the Eastern Arc Mountains. The climate in these mountains is likely to have been relatively stable throughout their history, whereas the climate in the lowland areas between the mountains has fluctuated over time. The constant conditions in the Eastern Arc Mountains allowed them to serve as refugia for forest dependent species during periods when the lowlands became dry savanna rather than wet forest. These mountain top forest refugia have allowed many unique species to evolve and persist in the Eastern Arc.

## Milima ya Tao la Mashariki

Tao la Mashariki lina makundi tofauti 13 ya milima ambayo haijaungana, inayotoka kaskazini hadi kusini. Milima hii ni pamoja na ile ya Taita, Pare Kaskazini, Pare Kusini, Usambara Magharibi, Usambara Mashariki, Nguu, Nguru, Ukaguru, Uluguru, Rubeho, Malundwe, Udzungwa na Mahenge (Mchoro 2). Misitu ya milima hii inaanzia kwenye mita 300 na kufikia zaidi ya mita 2000 kutoka usawa wa bahari. Milima ni ya kale sana na ilitokana na kusogea kwa tabaka la juu la dunia zaidi ya miaka milioni 290 hadi 180 iliyopita; matokeo yake ilikuwa ni milima yenye vilele vilivyo bapa (Tao la Mashariki). Lakini kundi la Milima ya Tao la Mashariki tunalolifahamu leo hii lilitokana na mpasuko wa chini ya ardhi takribani miaka milioni saba iliyopita, wakati Bonde la Ufa linatengenezwa. Umri wa Tao la Mashariki unaweza kulinganishwa na ule wa Milima Kilimanjaro na Meru, yenye umri mdogo zaidi ambayo ilizaliwa na milipuko ya volkano miaka milioni moja iliyopita. Historia hii ina uhusiano wa moja kwa moja na bioanuai nyingi sana iliyopo kwenye Milima ya Tao la Mashariki. Inaelekea kwamba tabia ya milima hii haijabadilika katika historia yao yote, wakati maeneo mengi sana duniani yalikuwepo na mabadiliko makubwa ya tabia, ikiwa ni pamoja na kujitokeza kwa mito ya barafu (Lovett 1993). Kutokuwepo mabadiliko makubwa ya tabia kwenye Tao la Mashariki kuliwezesha spishi nyingi kubadilika taratibu na kutofautiana kwenye kila mlima na hivyo kuzalisha idadi kubwa sana ya spishi za pekee.



**Figure - 2** Map of the Eastern Arc and Coastal Forests in Kenya and Tanzania. Ramani ya TMMP nchini Kenya na Tanzania. 1) Taita Hills; 2) North Pare Mountains; 3) South Pare Mountains; 4) West Usambara Mountains; 5) East Usambara Mountains; 6) Nguu Mountains; 7) Nguru Mountains; 8) Ukaguru Mountains; 9) Uluguru Mountains; 10) Rubeho Mountains; 11) Malundwe Mountains; 12) Udzungwa Mountains; 13) Mahenge Mountains; 14) Kenyan Coastal Forest; 15) Tanzanian Coastal Forest.

**Mchoro - 2** Ramani ya MTMMP nchini Kenya na Tanzania. 1) Vilima vya Taita; 2) Milima ya Pare Kaskazini; 3) Milima ya Pare Kusini; 4) Milima ya Usambara Magharibi; 5) Milima ya Usambara Mashariki; 6) Milima ya Nguu; 7) Milima ya Nguru; 8) Milima ya Ukaguru; 9) Milima ya Uluguru; 10) Milima ya Rubeho; 11) Milima ya Malundwe; 12) Milima ya Udzungwa; 13) Milima ya Mahenge; 14) Milima ya Pwani ya Kenya; 15) Milima ya Pwani ya Tanzania.

## The Coastal Forests

The Coastal Forest portion of the EACF consists of a mosaic of forest blocks and the drier savannah and woodland habitat that occur along the coast from the Kenyan border with Somalia to the Tanzanian border with Mozambique. The largest Coastal Forest patches both occur in Kenya, in the Shimba Hills (63 km<sup>2</sup>) and Arabuko-Sokoke (370 km<sup>2</sup>). Most coastal forests occur below 500 m elevation, but a few in Tanzania extend as high as 1,040 m. The geologic history of the Coastal Forests consists of frequent tectonic activity and shoreline shifts; however the proximity of the Indian Ocean provides a consistently warm and wet climate.

## Misitu ya Pwani

Eneo la Misitu ya Pwani iliyopo katika MTMMP ni mchanganyiko wa vipande vya misitu, savana na miombo ambazo zipo pwani kuanzia kwenye mpaka kati ya Kenya na Somalia hadi mpakani mwa Tanzania na Msumbiji. Misitu ya pwani mikubwa kuliko yote inapatikana Kenya, katika Milima ya Shimba (63 km<sup>2</sup>) na Arabuko-Sokoke (370 km<sup>2</sup>). Idadi kubwa ya misitu inapatikana chini ya mita 500 kutoka usawa wa bahari, lakini misitu michache nchini Tanzania inapatikana hadi kwenye mita 1,040 kutoka usawa wa bahari. Historia ya jiojio ya misitu ya pwani inaonyesha kwamba misitu hii ilitokana na kusogea kwa tabaka la dunia mara kwa mara na mabadiliko ya fukwe; hata hivyo, unyevu na joto la Bahari ya Hindi ulitengeneza mazingira mazuri kwa maendeleo ya spishi nyingi.

## Climate

The climate of the EACF is extremely moist because the mountains collect water coming from the Indian Ocean. Annual rainfall can be as high as 3000 mm on the eastern mountain slopes and typically ranges from 900 – 1400 mm in the Coastal Forests. This rain falls principally in two rainy seasons in the northern Eastern Arc with the long rains occurring from March to May and the short rains from October to December. In the south there is a single rainy season from December to April. The temperature can range widely from 10 – 31°C depending on the season and altitude. The hottest month is January and the coldest month is July. Frosts are not uncommon at high altitudes (>1800 m) in the dry season.



## Tabia ya Nchi

Maeneo ya MTMMP yana hewa yenye unyevunyevu wa kiwango cha juu sana kutokana na milima kukusanya maji ya Bahari ya Hindi. Kiasi cha mvua kwa mwaka kinafikia 3000 mm kwenye miteremko ya milima ya mashariki na kati ya 900 mm hadi 1400 mm kwenye milima ya pwani. Kuna misimu miwili ya mvua kwenye eneo la kaskazini la Tao la Mashariki, ambapo mvua za masika zinanyesha kati ya Machi na Mei na mvua za vuli kati ya Oktoba na Desemba. Eneo la kusini la Tao la Mashariki lina msimu mmoja wa mvua, kuanzia Desemba hadi Aprili. Hali ya joto inatofautiana kati ya 10°C na 31°C, kufuatana na mwinuko kutoka usawa wa bahari; mara nyingi kuna jalidi kwenye maeneo ya juu kutoka usawa wa bahari (zaidi ya 1800 m) wakati wa kiangazi.

## Amphibian Habitat Types

The Eastern Arc Mountains and Coastal Forests encompass a wide range of habitat types that are defined largely by elevation and rainfall patterns which in turn influence vegetation (Table 1; Fig. 3). Each amphibian species in the EACF is found in only a subset of these habitats. Schiøtz (1999), for example, divided the African treefrogs into three categories based on their habitat associations: the savanna fauna, forest fauna, and bushland or farmbush fauna. Amphibian breeding habitats also tend to be species specific (Fig. 4). Some species lay eggs directly in the leaf litter of the forest floor (e.g. *Arthroleptis* species), and other species give birth to live young (e.g. *Nectophrynoides* species) but most of the amphibians in the EACF lay eggs in or near water. These water bodies can include roadside ditches and puddles, streams, flooded grasslands, swamps and permanent ponds.

## Aina za Mazingira wanapopatikana Vyura

Milima ya Tao la Mashariki na Misitu ya Pwani ni maeneo ambayo yana aina mbalimbali za mazingira yenye miinuko na mifumo ya mvua, hali ambayo inaathiri uoto pia (Jedwali 1; Mchoro 3). Kila spishi ya vyura kwenye MTMMP inapatikana kwenye kundi moja tu la mazingira na siyo mengine. Kwa mfano, Schiøtz (1999) aligawanya vyura miti wa Afrika katika makundi matatu kutokana na mazingira yao: vyura miti wa savana, vyura miti wa misituni, vyura miti wa vichakani na vyura miti wa mashambani. Aidha, tabia ya kuzaliana ya vyura ni tofauti kwa kila spishi (Mchoro 4). Baadhi ya spishi zinataga mayai moja kwa moja kwenye majani ya chini ya msituni (kwa mfano spishi ya *Nectophrynoides*), wengine wanazaa watoto (kwa mfano *Nectophrynoides*) lakini idadi kubwa ya vyura wa MTMMP wanataga mayai majini au karibu na maji. Maji hayo ni pamoja na ya mifereji, kandokando ya barabara, vijito, nyika, mabwawa na madimbwi.

Habitat Type Aina ya mazingira	Elevation (m) Urefu kutoka usawa wa bahari (m)	Rainfall (mm/yr) Kiwango cha mvua (mm kwa mwaka)	Vegetation Uoto
Upper montane forest Misitu ya juu, zaidi ya 1200 m kutoka usawa wa bahari	> 1800	> 1200	Trees 10 – 20 m high Miti, urefu wa 10 - 20 m
Montane grassland Nyasi, zaidi ya 1200 m kutoka usawa wa bahari,	> 1800	> 1200	Grasses and sedges Nyasi na mafunjo
Montane forest Misitu, zaidi ya 1200 m kutoka usawa wa bahari,	1200 – 1800	> 1200	Trees 25 – 40 m Miti, urefu wa 25 - 40 m
Dry montane forest Misitu kame, zaidi ya 1200 m kutoka usawa wa bahari,	> 1500	100-1200	Trees 10 – 20 m Miti, urefu 10-20 m
Submontane forest Misitu, takribani 1200 m	800-1400	> 1500	Trees 25 – 40 m Miti, urefu 25-40 m
Lowland forest Misitu ya maeneo tambarare	< 800	> 1500	Trees 25 – 40 m Miti, urefu 25-40 m
Miombo woodland* Miombo*	200 – 900	800 – 1200	Trees 8 – 18 m Miti, urefu 8-18 m
Lowland grassland* Nyasi, maeneo tambarare*	800	500-1000	Grasses and sedges Nyasi na mafunjo
Bushland* Maeneo ya vichaka*	< 800	500-1000	Shrubs < 6 m Vichaka, < 6 m

**Table - 1** General habitat types found in the Eastern Arc Mountains and Coastal Forests.

**Jedwali - 1** Aina za Mazingira ya Tao la Mashariki na Misitu ya Pwani.

\*These habitats are often included in the more general term 'savanna'

\* Mara nyingi, mazingira haya yanajumuishwa chini ya neno 'savanna'





a)



b)



c)

**Figure - 3** Some of the common habitat types found in the EACF: a) Montane forest in the West Usambara Mountains; b) Bushland habitat between the West and East Usambara Mountains; c) Montane grassland.

**Mchoro - 3** Baadhi ya aina ya mazingira ya MTMMP ni: (a) Misitu iliyopo zaidi ya mita 1200 kutoka usawa wa bahari kwenye Milima ya Usambara Magharibi; b) Eneo la vichaka kati ya Milima ya Usambara Magharibi na Usambara Mashariki; (c) nyika zilizopo zaidi ya mita 1200 kutoka usawa wa bahari.



a)



b)



c)

**Figure - 4** Habitats used for breeding by some EACF amphibians: a) a montane forest stream, breeding habitat for *Phrynobatrachus krefftii*; b) *Ptychadena anchietae* in amplexus in a roadside puddle; c) a foam nest of *Chiromantis petersii*.

**Mchoro - 4** Mazingira yanayotumiwa na vyura wa MTMMP wakati wa kuzaliana: (a) vijito vilivyopo zaidi ya mita 1200 kutoka usawa wa bahari kwa ajili ya *Phrynobatrachus krefftii*; (b) dimbwi la barabarani ambapo dume la *Ptychadena anchietae* linampanda jike; (c) nyavu za povu za *Chiromantis petersii* juu ya dimbwi la muda kwenye savanna.

## A Historical Perspective

The history of European involvement in Tanzania and Kenya is reflected in the taxonomic history of the amphibians of the Eastern Arc and Coastal Forests (Fig. 5). European naturalists showed little interest in the forests of the Eastern Arc Mountains until the second half of the 19<sup>th</sup> century. Several of the amphibian species that occur in the region were described as early as 1841, however, these were widespread species described primarily from South Africa, Mozambique and Senegal. The German naturalist and explorer Wilhelm Peters described 6 EACF species collected during his travels from Mozambique to Angola in 1842 – 1848. Later, in 1878, he described three additional EACF species from the Taita Hills in Kenya.

The earliest amphibian specimens from the EACF were collected and described in the mid to late 19<sup>th</sup> century when missionaries and explorers sent specimens to Europe where they were catalogued, described and named by museum zoologists. *Leptopelis flavomaculatus* was the first species described from a specimen collected in the EACF, at Rovuma Bay on the coast of Tanzania. The specimen was brought to the British Museum in London and described by Albrecht Günther in 1864. It is unclear who collected the specimen, but David Livingstone and other members of the Royal Geographic Society of London are known to have explored the Rovuma River around this time.

In the late 1800's the 'Scramble for Africa' began and European interests in the interior of Africa increased. Great Britain and Germany seized strategic ports in Kenya and Tanzania from Omani Arab control. By the late 1880's Kenya was a British colony and mainland Tanzania, then known as Tanganyika, was part of German East Africa. Over the next 20 years the number of amphibian species described in the EACF doubled. In 1880 Albrecht Günther invited George Boulenger to the British Museum in London. Boulenger described 555 amphibian species in his lifetime, seven of which occur in the EACF. The type localities for several of these early specimens are vague, such as "the interior of Africa" and "the vicinity of Lake Tanganyika," reflecting the unfamiliarity of the region to Europeans at the time.

In the early 1900's the Germans established extensive botanical gardens in the Amani area of the East Usambara Mountains in Tanzania. Amani became a center for agricultural and botanical research and is the type locality for 10 EACF amphibians. Some of these specimens were sent to Boulenger in London, others were among seven EACF species described by the German naturalist Fritz Nieden in 1911. Research continues to be carried out at Amani today, and the amphibian fauna of this area is perhaps better studied than that of any other location in the Eastern Arc Mountains.

Arthur Loveridge, often considered the greatest contributor to East African amphibian studies, also described species from Amani, including *Hyperolius mariae*, which he named for his wife Mary. Loveridge was hired at the museum in Nairobi, Kenya in 1914, but due to the outbreak of World War I he joined the British East African Mounted Rifles shortly after. He collected specimens during his three years in the military, but did not describe any EACF species until moving to Harvard's Museum of Comparative Zoology in the United States in 1924. In 1925 he described *Mertensophryne micranotis* and in 1928 he described 9 EACF species in collaboration with museum curator Thomas Barbour. Loveridge led expeditions in Kenya and Tanzania from 1929 – 1939 and continued describing new species until the 1950's. His contribution to the knowledge of the caecilian fauna is particularly noteworthy as his efforts more than doubled the number of known species in the EACF.

A lull in EACF amphibian research began during World War II (1939 – 1945) and did not come to an end until the 1970's. In 1971 and 1972 Jean-Luc Perrett described two *Nectophrynoides* species from the Uluguru Mountains. Alice Grandison conducted research in the EACF in the 1970's and 80's, describing two new EACF species and reporting on the natural history of several EACF toads. Arne Schiøtz wrote "The Treefrogs of Eastern Africa" in 1975. This comprehensive guide described several new species and included the innovation of sound spectrograms of frog vocalizations. Schiøtz continued to describe new EACF species into the 1980's and 1990's and published an important volume, "Treefrogs of Africa" in 1999.

The use of sound spectrograms in the 1970's accompanied a new wave of amphibian research in the region. Advances in research techniques including cladistic analysis in the 1980's and genetic sequencing in the 1990's allowed an increased understanding of species relationships and geographic distributions. Massive taxonomic revisions informed by these techniques began in the 1980s and continue to this day. The early work in these areas included Robert Drewes' cladistic analyses of the treefrogs of Arabuko-Sokoke in Kenya as well as John Poynton's work focusing on the biogeography of sub-Saharan amphibians. Some of the most recent taxonomic revisions are summarized in Frost et al. 2006, "The Amphibian Tree of Life."

In the past 10 years over 20 new species have been described in the EACF and at least that many are still awaiting description. Many of these discoveries were made by volunteers and researchers working on biodiversity surveys for Frontier Tanzania, a collaboration between the University of Dar es Salaam and Britain's Society for Environmental Exploration. Increased research funding from the Critical Ecosystems Partnership Fund (CEPF) has also spurred a wave of new species discoveries in the region. Recent work by Michele Menegon, Simon



Loader, John Measey, Alan Channing, David Moyer and Martin Pickersgill, among others, has rapidly increased the number of species described in the EACF. Kim Howell's forest surveys and database of species distributions have also augmented our understanding of the amphibians in the region.

Although historically there were few local herpetologists in East Africa, an increasing number of Kenyans and Tanzanians are becoming involved in amphibian studies in the EACF. Charles Msuya received a Ph.D. from the University of Dar es Salaam in 2001 for his work on Coastal Forest amphibians. Wilirk Ngalason received an M.Sc. from the University of Dar es Salaam for his research on the Reproductive biology and ecology of anurans on the Lukwangu Plateau, Tanzania. Most recently, Patrick Malonza received a Ph.D. from the University of Mainz (Germany) for his studies of Taita Hills amphibians. He and his colleagues from the National Museums of Kenya, Nairobi, have studied many amphibians in the Kenyan areas of the EACF. Their well curated collection of over 300 000 specimens of reptiles and amphibians is a crown jewel for researchers visiting the region.

In many ways the history of EACF amphibian studies is just beginning. It will likely be decades before new species descriptions become a rarity in the region and even longer before we have a complete understanding of the basic natural history of these species. Unfortunately, the next few decades also have the potential to witness extinctions, especially for those species dependent on small patches of forest that are rapidly being degraded. For all of these reasons, the EACF offers tremendous opportunities for anyone interested in amphibians: locals and visitors, researchers, students and amateur naturalists.



**Figure - 5** Species accumulation curve for amphibians in the Eastern Arc and Coastal Forests, including dates of historically significant events.

**Mchoro - 5** Idadi ya spishi zinazokamatwa katika muda maalum kwenye MTMMP, pamoja na tarehe za matukio makubwa kihistoria.

## Mtazamo wa Kihistoria

Historia ya uainishaji wa vyura kwenye Tao la Mashariki na Misitu ya Pwani (MTMMP) inaaki kwa sehemu kubwa historia ya Wazungu nchini Tanzania na Kenya (Mchoro 5). Wazungu ambao walikuwa siyo wanasayansi lakini walivutiwa na elimu ya wanyama na mimea, hawakuwa na raghba na misitu ya Milima ya Tao la Mashariki mpaka kwenye nusu ya pili ya karne ya 19, ingawa spishi kadhaa za vyura katika eneo hilo zilifanyiwa utafiti mnamo 1841. Spishi hizo zilikuwa zinapatikana mahali pengi na zilizofanyiwa uainishaji zilitoka Afrika ya Kusini, Msumbiji na Senegal. Kwa mfano Mjerumani aliyependa wanyama na mimea na mvumbuzi, Wilhelm Peters alitayarisha maelezo ya spishi sita za MTMMP alizokamata wakati wa safari zake kutoka Msumbiji hadi Angola kati ya mwaka 1842 na 1848. Baadaye, mwaka 1878, alitoa maelezo ya spishi zingine tatu za MTMMP kutoka Milima ya Taita, nchini Kenya.

Vielelezo vya kwanza kabisa kutoka MTMMP vilikamatwa na kuainishwa katikati hadi mwishoni mwa karne ya 19 wakati wamisionari na wavumbuzi walipotuma vielelezo Ulaya, ambapo viliainishwa na kupewa majina na wataalam wa wanyama kwenye majumba ya kumbukumbu. *Leptopelis flavomaculatus* ilikuwa spishi ya kwanza kutolewa maelezo, kutokana na kielelezo kilichokamatwa MTMMP, kwenye ghuba ya Rovuma iliyopo pwani ya Tanzania. Kielelezo kilipelekwa Jumba la Kumbukumbu la Uingereza mjini London na kuelezewa na kupewa jina na Albrecht Gunther mwaka 1864. Haijulikani nani alikamata kielelezo hicho lakini David Livingstone na watu wengine wa Royal Geographical Society ya London walifanya uchunguzi wa Mto Ruvuma katika kipindi hicho.

Mwishoni mwa miaka ya 1880, kugawanywa kwa bara la Afrika kulianza na Wazungu wakavutiwa na Afrika. Nchi za Uingereza na Ujerumani zilitwaa bandari muhimu Kenya na Tanzania kutoka utawala wa Waarabu wa Omani. Ilipofika mwishoni mwa miaka ya 1880, Kenya ilikuwa koloni la Uingereza, Tanzania Bara, iliyokuwa inaitwa Tanganyika wakati huo, ikawa sehemu ya nchi za Afrika Mashariki chini ya Ujerumani. Katika kipindi cha miaka 20 iliyofuata, idadi ya spishi za vyura zilizotolewa maelezo na kupewa majina kwenye MTMMP ziliongezeka maradufu. Mwaka 1880, Albrecht Günther alimwalika George Boulenger kwenye Jumba la Kumbukumbu la Uingereza mjini London. Boulenger alizielezea na kupata majina spishi za amfibia zaidi ya 555 katika uhai wake, saba zikitoka MTMMP. Taarifa hazionyeshi mahali vilikotoka vielelezo hivyo vya mwanzo, kwa mfano zinasema “ndani kabisa ya bara la Afrika” na “karibu na Ziwa Tanganyika”; taarifa hizi zinaaki namna ambavyo Wazungu walikuwa hawalifahamu eneo hilo.

Mapema miaka ya 1900, Wajerumani walianzisha bustani za mimea kubwa sana katika eneo la Amani, katika Milima ya Usambara Mashariki ya Tanzania.

Amani iligeuzwa kitovu cha utafiti wa kilimo na mimea na ni eneo wanapopatikana vyura kumi wa MTMMP. Baadhi ya vielelezo hivi vilipelekwa kwa Boulenger mjini London, vingine vilikuwa miongoni mwa vielelezo saba vilivyotolewa maelezo mwaka 1911 na Mjerumani aliyelitwa Fritz Nieden, ambaye alikuwa anavutiwa na elimu ya wanyama na mimea. Bado utafiti unaendelea kufanywa Amani hadi leo; huenda vyura wa eneo hili wamefanyiwa utafiti zaidi kuliko vyura wa eneo lingine lolote katika Milima ya Tao la Mashariki.

Arthur Loveridge, anayejulikana kama mtu aliyetoa mchango mkubwa kuliko mtu yeyote kwenye utafiti wa amfibia wa Afrika Mashariki, alizieleza na kuzipa majina pia spishi kutoka Amani, pamoja na *Hyperolius mariae*, spishi aliyoipa jina la mke wake Mary. Loveridge aliajiriwa kwenye Jumba la Makumbusho la Nairobi, nchini Kenya mwaka 1914, lakini muda mfupi baada ya hapo, alijiunga na British East African Mounted Rifles, Vita ya Kwanza ya Dunia ilipoanza. Aliendelea kukamata vielelezo katika miaka mitatu aliyokuwa jeshini lakini hakufanya utafiti wa spishi yoyote ya MTMMP hadi alipohamia Harvard's Museum of Comparative Zoology nchini Marekani mwaka 1924. Mwaka 1925, alitoa maelezo ya *Mertensophryne micranotis* na 1928, alielezea spishi tisa za MTMMP akishirikiana na Thomas Barbour, aliyekuwa mtunzaji wa vielelezo kwenye jumba la makumbusho. Loveridge aliongoza misafara nchini Kenya na Tanzania tangu 1929 hadi 1939 na kuendelea kutafiti spishi mpya hadi miaka ya 1950. Mchango wake kwa ufahamu wa wanyama caecilian ni muhimu sana, hasa kwa sababu juhudi zake ziliongeza maradufu idadi ya spishi za MTMMP zilizoainishwa.

Utafiti wa vyura kwenye eneo la MTMMP ulisimama wakati wa Vita ya Pili ya Dunia (1939-1945) na haukuanza tena hadi mwishoni mwa miaka ya 1970. Miaka 1971 na 1972, Jean-Luc Perritt alitoa maelezo ya spishi mbili za *Nectophrynoides* kutoka Milima ya Uluguru. Alice Grandison alifanya utafiti MTMMP miaka ya 1970 na 1980 na kutayarisha maelezo ya spishi mbili mpya za MTMMP na kuelezea historia asilia (natural history) ya vyura kadhaa wa MTMMP. Mwaka 1975, Arne aliandika kitabu kinachoitwa "The treefrogs of eastern Africa", yaani vyura miti wa Afrika Mashariki. Kitabu hiki kinatoa maelezo juu ya spishi mpya kadhaa na kinatumia njia mpya ya kuchanganua miito ya vyura kwa kutumia "spectrograms". Schioz aliendelea kutayarisha maelezo ya spishi mpya za MTMMP hadi miaka ya 1980 na 1990 na mwaka 1999 alichapisha kitabu maarufu cha "Treefrogs of Africa", yaani vyura miti wa Afrika.

Matumizi ya "spectrograms" katika miaka ya 1970 yaliambatana na mvuvumko mpya wa utafiti wa vyura katika eneo hili. Maendeleo ya mbinu za utafiti ikiwa ni pamoja na uchambuzi unaonyesha mahusiano kati ya makundi wa miaka ya 1980 na mchanganuo unaonyesha mpangilio wa sehemu za vinasaba wa miaka ya 1990 yaliboresha uelewa wa mahusiano baina ya spishi mbalimbali na maeneo zinapoishi. Katika miaka ya 1980, marekebisho makubwa ya uainishaji wa

spishi ulianza, ukisaidiwa na mbinu hizi mpya na unaendelea hadi sasa. Tafiti za awali katika maeneo haya ni pamoja na uchambuzi wa Bob Drewes unaonyesha mahusiano kati ya makundi ya vyura miti wa Arabuko-Sokoke nchini Kenya na wa John Poyton anayelenga biolojiografia ya vyura wa Afrika Kusini mwa Sahara. Baadhi ya marekebisho ya uainishaji wa spishi ya hivi karibuni yanapatikana katika kitabu cha Frost et al (2006), "The Amphibian Tree of Life."

Katika miaka kumi iliyopita, zaidi ya spishi 20 mpya za MTMMP zimeainishwa na angalau 20 zingine zinasubiri zifanyiwe maelezo. Spishi nyingi kati ya hizi mpya zilikamatwa na watu wa kujitolea na watafiti wa bioanuai chini ya Frontier Tanzania, ambao ni ushirikiano kati ya Chuo Kikuu cha Dar es Salaam na Society for Environmental Exploration ya Uingereza. Fedha zaidi kwa ajili ya utafiti kutoka Critical Ecosystems Partnership Fund (CEPF) zimechochea uvumbuzi wa spishi zingine mpya katika eneo hili. Utafiti wa hivi karibuni uliofanywa na baadhi ya watafiti kama Michele Menegon, Simon Loader, John Measey, Alan Channing, David Moyer na Martin Pickersgill umeongeza haraka idadi ya spishi ambazo zimeainishwa katika eneo la MTMMP. Utafiti wa misitu wa Kim Howell na kuanzishwa kwa "database" ya spishi katika Idara ya Zuolojia na Uhifadhi wa Wanyamapori ya Chuo Kikuu cha Dar es Salaam ni vitu ambavyo vimetupatia ufahamu zaidi wa amfibia katika eneo hili.

Ingawa kihistoria wataalam wa nyoka wa Afrika Mashariki walikuwa wachache, idadi ya Wakenya na Watanzania wanaofanya utafiti juu ya vyura MTMMP inaongezeka. Mwaka 2001, Charles Msuya alipata shahada ya falsafa kutoka Chuo Kikuu cha Dar es Salaam kutokana na utafiti juu ya vyura wa msituni. Wilirk Ngalsalon alipata shahada ya uzamili kutoka Chuo Kikuu cha Dar es Salaam kutokana na utafiti wake juu ya biolojia ya uzazi na ikolojia ya vyura wa Uwanda wa Lukwangule nchini Tanzania. Hivi karibuni, Patrick Malonza alipata shahada ya falsafa kutoka Chuo Kikuu cha Mainz, Ujerumani kutokana na utafiti wake juu ya vyura wa Milima ya Taita. Yeye na wenzake kutoka National Museums of Kenya, Nairobi, wamefanya utafiti mwingi juu ya vyura wa eneo la MTMMP la Kenya. Vielelezo zaidi ya 300 vya nyoka na vyura vinavyotunzwa vizuri ni kito kikubwa kwa watafiti wanaokuja kwenye eneo hili.

Kwa sehemu kubwa, historia ya utafiti wa vyura wa MTMMP ndiyo kwanza unianza. Huenda ikachukua miongo mingi kabla ya kumaliza uainishaji wa spishi mpya na itachukua muda mrefu zaidi kabla hatujapata ufahamu kamili wa historia asilia ya spishi hizi. Kwa bahati mbaya, miongo michache ijayo huenda ikashuhudia pia kutoweka kwa baadhi ya spishi, hasa zile ambazo zinategemea misitu midogo ambayo inaharibiwa kwa kasi kubwa. Kutokana na sababu zote hizi, MTMMP inatoa fursa kubwa kwa mtu yeyote anayevutiwa na vyura, wageni na wenyeji, watafiti, wanafunzi na wasiokuwa wataalam wa wanyama na mimea, kuweza kufanya utafiti katika eneo hili.

## Amphibian Conservation in the Eastern Arc

Conservation efforts in the EACF are extremely important because of the incredibly high biodiversity in the region and the fact that so many of these species are found nowhere else in the world. Many of these endemics are dependent on closed-canopy forests which are rapidly being lost and degraded. Only a very small proportion of the original forest of the EACF remains. Over 80% of the forest cover in the Taitas, Ukagurus and Mahenge has been lost. This loss has also resulted in the fragmentation of large forest blocks into small patches of lower quality habitat. Protecting the remaining habitat in the EACF is essential to the continued survival of many amphibian species.

The forests of the EACF are currently protected in Kenya through a national system that includes national parks, national reserves, forest reserves, nature reserves and national monuments. Tanzanian protected areas include national parks (Fig. 6), game reserves, catchment forests, game controlled areas, forest reserves and nature reserves. The level of protection, and resources for protection, vary among these different systems. For example, national reserves patrolled by armed rangers of the Kenya Wildlife Service are well protected,



**Figure - 6** The boundaries of the well-protected Udzungwa National Park are clearly visible in contrast to the surrounding areas.

**Mchoro - 6** Mipaka inayolindwa vizuri ya Hifadhi ya Udzungwa inaonekana vizuri, kinyume ya maeneo yanayopakana nayo.

whereas other 'protected' forests have been cleared for agriculture. Much of the Eastern Arc forests in Tanzania are protected as catchment forest reserves, also with variable levels of enforcement.

Within the remaining EACF habitat there are over 120 amphibian species, approximately one third of which are endemic or near-endemic. Of these species, nearly half are either threatened or lack sufficient data for their conservation status to be evaluated (Fig. 7). The greatest threat to these species is habitat loss, due largely to agricultural expansion including tea and coffee plantations. Development projects have also resulted in habitat loss and degradation, including the Kihansi hydropower project which drastically altered the habitat of the Kihansi spray toad, *Nectophrynoides asperginis*. The spray toad is now thought to be extinct in the wild, persisting only in captive zoo populations. The future of this species and many of the other endemic EACF amphibians is uncertain.

Conservation of amphibians in the EACF is reliant on the preservation of their habitat, which also protects a large number of other endemic species (known and unknown to science). There is growing understanding in the EACF that the indigenous forests provide much more than remarkable biodiversity of interest to scientists. Indigenous forests also provide "ecosystem services" such as providing a constant supply of water for communities living downstream, or medicinal plants and fruits. This appreciation of the use of the forests by those who manage and live around them are their only hope for future survival.

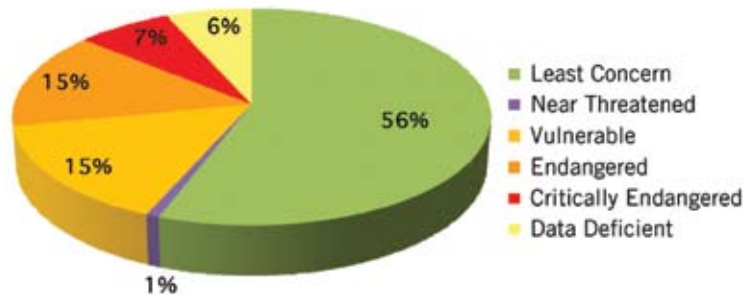
In the most deforested of the Eastern Arc Mountains, the Taita Hills, there is a new and exciting prospect for the future of indigenous forests and their biodiverse amphibians. Local peoples have long since known of the negative impacts of pine plantations which senesce and cause huge fires which engulf whole villages. Eucalyptus plantations have changed the face of the area by lowering the water table and stopping the flow of streams that provided water for people, crops and livestock. Now there is an opportunity to turn these plantations back into indigenous forests and no one is more enthusiastic than the people who have to live right next to them. Forest Participatory Management plans are being drawn up, nurseries have thousands of growing indigenous seedlings and there is genuine excitement that one day plantations will be restored to indigenous forests.

For the amphibians, restored forests will be not only a habitat in which to live, but a means of moving from one area to the next without the risk of desiccation or predation. Restoring and maintaining the indigenous forests of the EACF is the key to the conservation of their frogs and caecilians. This will require a long term commitment on the part of governments, local authorities and most of all, the local people who live and work in one of the most beautiful and biodiverse places on earth.

## Uhifadhi wa Vyura kwenye Tao la Mashariki na Misitu ya Pwani (TMMP)

Jitihada za uhifadhi za MTMMP ni muhimu sana kwa sababu ya bioanuai ya hali ya juu iliyopo kwenye eneo hilo na kwa sababu spishi nyingi zilizopo hazipatikani mahali pengine popote duniani. Spishi nyingi zinazopatikana eneo hilo tu zinaishi kwenye misitu yenye matawi na majani yaliyofunika juu mithili ya mwamvuli, ambayo inatoweka haraka sana au kuharibiwa. Kwa sasa, sehemu ya misitu asilia ya MTMMP iliyosalia ni ndogo sana. Zaidi ya asilimia 80 ya misitu ya Taita, Ukaguru na Mahenge imetoweka. Kutokana na hali hii, maeneo makubwa ya misitu yamegawanyika katika vipande vidogo vyenye mazingira ambayo yana kiwango cha chini cha ubora. Ni muhimu kuhifadhi mazingira yaliyobaki kwenye MTMMP ili kuhifadhi uhai wa spishi za vyura.

Kwa sasa, misitu ya Tao la Mashariki na Misitu ya Pwani inahifadhiwa nchini Kenya kutokana na mfumo wa kitaifa unaohusisha hifadhi za taifa, hifadhi za misitu, hifadhi za maeneo asilia na maeneo ya kitaifa ya kumbukukumbu. Maeneo ya hifadhi nchini Tanzania yanajumuisha hifadhi za taifa (Mchoro 6), mapori ya wanyama, misitu yenye vyanzo vya maji, maeneo tengefu ya wanyama, hifadhi za misitu na hifadhi za maeneo asilia. Viwango vya uhifadhi na rasilimali



**Figure - 7** Conservation status of amphibians in the Eastern Arc and Coastal Forests hotspot based on IUCN Red List assessments.

**Mchoro - 7** Hali ya uhifadhi wa vyura kwenye Tao la Mashariki na Misitu ya Pwani kufuatana na Orodha ya tathmini ya IUCN ya spishi zilizo hatari kutoweka.

zinazotengwa kwa ajili ya uhifadi zinatofautiana kati ya mifumo mbalimbali. Kwa mfano, hifadhi za taifa zinazolindwa na askari wa maliasili wa Kenya Wildlife Service zinalindwa vizuri wakati ambapo maeneo mengine ya hifadhi za misitu yamesafishwa kwa ajili ya kilimo. Sehemu kubwa ya misitu ya Tao la Mashariki nchini Tanzania inalindwa kama vyanzo vya maji lakini usimamizi unatofautiana pia.

Katika mazingira ya MTMMP yaliyobaki, kuna spishi za vyura zaidi ya 120 na takribani theluthi moja ya hizo zinapatikana eneo hilo tu au maeneo mengine machache sana. Kati ya spishi hizo, nusu yake zinatishiwa kutoweka au hakuna taarifa za kutosha kuweza kutathmini hali ya uhifadhi wao (Mchoro 7). Tishio kubwa kabisa kwa spishi hizi ni kutoweka kwa mazingira yao kutokana na upanuzi wa mashamba ya chai na kahawa. Aidha, miradi ya maendeleo imechangia kwenye upotevu na uharibifu wa mazingira, kwa mfano mradi wa umeme wa Kihansi ambao umebadilisha sana mazingira ya chura wa Kihansi ajulikanaye kama *Nectophrynoidea asperginis*. Inadhaniwa kwamba chura huyo wa Kihansi ametoweka katika mazingira yake asilia na amebakia tu kwenye bustani za wanyama. Mustakabali wa spishi hii na nyingine zinazopatikana kwenye MTMMP haujulikani.

Uhifadhi wa vyura kwenye MTMMP unategemea uhifadhi wa mazingira yao, kama ilivyo kwa idadi kubwa ya spishi zinazopatikana eneo hilo tu (spishi ambazo wanasayansi wanazijua au hapana). Uelewa kwenye eneo la MTMMP unazidi kukua, kwamba misitu asilia inawavutia wana sayansi si kwa ajili ya bioanuai tu bali vitu vingine. Misitu asilia inatoa pia huduma za mifumo ya ikolojia kwa mfano maji kwa ajili ya jamii zinazoishi maeneo yaliyopo chini ya mito au mimea ya tiba na matunda. Tumaini la amfibia kuendelea kuwepo ni pale ambapo wasimamizi wa misitu na jamii zinazoizunguka zitakapotambua matumizi muhimu ya misitu hiyo.

Kwenye Milima ya Taita, eneo la Milima ya Tao la Mashariki ambalo limepoteza sana misitu, kuna matumaini mapya na ya kufurahisha kuhusu mustakabali wa misitu asilia na bioanuai ya vyura wake. Wakazi wa maeneo hayo wanajua kwa muda mrefu juu ya athari mbaya za mashamba ya misindano au misonobari ambayo inasababisha mioto mikubwa inayovamia vijiji vizima. Mashamba ya mkaratusi yamebadilisha sura ya maeneo husika kwa kuteremsha tabaka la maji na kuzuia mtiririko wa vijito vilivyokuwa vinawapatia maji watu lakini pia mazao na mifugo. Sasa kuna fursa ya kuyageuza mashamba haya na kuyarejesha kuwa misitu asilia; watu wanaoishi katika maeneo haya wana shauku kubwa ya kuona hilo likifanyika. Mipango ya Uendeshaji Shirikishi ya Misitu inaandaliwa, bustani za mimea zina maelfu ya mimea ya miti asilia na kuna matumaini makubwa kwamba siku moja misitu asilia itarudi tena.

Misitu asilia ikifufuliwa tena, itawapatia vyura mazingira ya kuishi lakini pia itawezesha vyura kutoka eneo moja hadi linalofuata bila ngozi zao kukauka au



bila kuliwa na wanyama wengine. Kufufua na kuhifadhi misitu asilia kwenye MTMMP ni muhimu katika kuhifadhi vyura na amfibia minyoo (caecilians). Kazi hii inahitaji wito kwa upande wa serikali, mamlaka za maeneo husika na watu wanaoishi au kufanya kazi katika mojawapo ya maeneo yenye kuvutia na yenye bioanuai nyingi ulimwenguni.

## Using This Book

This guide includes descriptions and photographs of over one hundred amphibian species that occur in the Eastern Arc and Coastal Forests. There are, however, many species that are currently awaiting description and many more that have yet to be discovered. Likewise, the taxonomy of many of these species is in a process of continual revision as more data become available. These are some of the reasons that studying amphibians in the Eastern Arc is so exciting; but they also make writing a field guide for the region incredibly challenging. We have done our best to include a comprehensive list of the species currently described, as well as the most up to date taxonomy, but there will inevitably be some omissions. The most current taxonomy can be found online at the Amphibian Species of the World Electronic Database accessible at: <http://research.amnh.org/herpetology/amphibia/index.php>

Further information can be found at tanzaniaherps website [www.tanzaniaherps.org](http://www.tanzaniaherps.org), a long-term project of the Museo Tridentino di Scienze Naturali, Trento, Italy (MTSN), the Wildlife Conservation Society, New York, US (WCS), the University of Dar es Salaam, Tanzania (UDSM), with the collaboration of the Institute of Biogeography of the University of Basel, Switzerland.

In each species account we include the currently accepted scientific name (according to Frost 2007 with a few exceptions based on more recent publications). We also include the author who first described the species and the year that the description was published. We include some of the common names for each species. These names can be interesting because they often provide a physical description, geographic location, or describe a behavioral characteristic of the species. However, because there may be ten or more different common names for each species, and because some of the names can be misleading, we include only a subset of common names and recommend using only the scientific names. Even these names can be difficult to keep track of given the extent of the taxonomic revisions that are currently underway.

We include estimates of the snout to vent length (SVL; Fig. 8) for each species. Females of most species are typically larger than males. We use the symbol ♂ to denote male and ♀ to denote female. All SVL measurements are given in millimeters. It is important to recognize that the range given for the SVL

is based on a limited number of adult specimens and that it may be possible to encounter much smaller juveniles or somewhat larger adults.

We did not include dichotomous keys in the guide because of the number of undescribed species. However, we have tried to include sufficiently detailed descriptions to allow distinctions to be made among all of the species covered in the guide. We also include a description of similar species and tips on how to tell them apart. Descriptions of the habitat where each species can be found are also included and can be helpful in the identification of specimens in the field. For each species we also include a set of symbols that provides basic natural history information at a glance (Table 2).

The vocalizations of male frogs can be very helpful in identifying species and some audio clips are available on the internet. Unfortunately it is difficult to describe frog calls in print. Sonograms offer a visual way of 'printing' frog calls, but are not easily read by non-experts. We have attempted to describe the calls in words and to quote from previously published descriptions. Some calls are so distinct that they are easily recognized from a description, others are more difficult.

We include notes on the distribution and elevational range of each species within the Eastern Arc and Coastal Forests, although many species occur outside of this area as well. For several species there is debate over the extent of their geographic range and new records will likely extend the known ranges of species in the future. We also provide a range map for each species showing which of the 13 mountain blocks and areas of coastal forest they have been reported from.

The type locality is included for each species. These are historically interesting, and can also provide useful information about the likelihood of future taxonomic revisions. For example, a photo of *Callulina kreffti* taken at Amani, the type locality, is less likely to need re-labeling in the future than a photo of what appears to be the same species from the Udzungwa Mountains.

## Matumizi ya Kitabu Hiki

Kitabu hiki ni mwongozo unaojumuisha maelezo na picha za spishi za vyura zaidi ya mia moja zinazopatikana kwenye Tao la Mashariki na Milima ya Pwani. Lakini kuna spishi nyingi ambazo bado maelezo yake hayajakamilika na nyingi ambazo bado hazijagunduliwa. Aidha, uainishaji wa spishi nyingi unaendelea kurekebisha kadri taarifa mpya zinapopatikana. Ndiyo maana utafiti wa vyura katika Tao la Mashariki ni wa kusisimua, lakini hali hii inaleta changamoto kubwa katika utayarishaji wa kitabu juu ya eneo hili. Tumejitahidi kuandaa orodha kamili za spishi ambazo tayari zimefanyiwa utafiti na kutolewa maelezo na pia uainishaji wao mpya, lakini inawezekana baadhi ya spishi zimeachwa. Uainishaji wa hivi karibuni unapatikana kwenye tovuti ya Amphibian Species of the World Electronic Database: <http://research.amnh.org/herpetology/amphibia/index.php>

Taarifa zaidi zinaweza kupatikana kwenye tovuti [www.tanzaniaherps.org](http://www.tanzaniaherps.org), mradi wa muda mrefu wa Museo Tridentino di Scienze Naturali, Trento, Italia (MTSN), Wildlife Conservation Society, New York, Marekani (WCS), Chuo Kikuu cha Dar es Salaam, Tanzania (UDSM), kwa kushirikiana na Institute of Biogeography ya Chuo Kikuu cha Basel, Uswisi.

Katika maelezo ya kila spishi, tumeonyesha jina la kisayansi linalokubalika kwa sasa (kufuatana na Frost 2007), isipokuwa kwa spishi chache ambazo zimechapishwa hivi karibuni. Aidha, tumetaja jina la mwandishi aliyeelezea na kuipa jina spishi kwa mara ya kwanza na mwaka ambapo spishi ilichapishwa. Vilevile, tumeorodhesha majina ya kawaida ya kila spishi. Majina haya ni muhimu kwa sababu mara nyingi yanaelezea maumbile ya spishi, mahali inapopatikana au yanaelezea tabia yake. Hata hivyo, kwa vile inawezekana spishi moja ikawa na majina kumi au zaidi na kwa sababu baadhi ya majina yanaweza kupotosha, tumeonyesha baadhi tu ya majina ya kawaida na tunapendekeza kutumia majina ya kisayansi tu. Ni vigumu hata kuyakumbuka majina ya kisayansi haya kutokana na marekebisho ya uainishaji yanayoendelea sasa.

Aidha, tunaonyesha makadirio ya urefu wa kutoka pua hadi tundu la kutolea haja na kutoa na kupokelea mbegu za uzazi (SVL; Mchoro 8) wa kila spishi. Kwa kawaida, majike ni makubwa kuliko madume katika idadi kubwa za spishi. Tunatumia alama ♂ kwa ajili ya madume na ♀ kwa ajili ya majike. Vipimo vyote vya SVL viko kwenye sentimita. Ikumbukwe kwamba tofauti kubwa za SVL zinatokana na idadi ndogo ya vielelezo vya wanyama wazima na huenda wapo wanyama wadogo zaidi au wanyama wazima ambao ni wakubwa zaidi kimaumbile.

Katika kitabu hiki, hatukuonyesha mwainisho unaolazimu kuchagua kitu kimoja kati ya viwili kwa sababu ya idadi kubwa ya spishi ambazo hazina maelezo bado. Lakini, tumejitahidi kutoa maelezo kamili kwa kila spishi ili kuweza kuona tofauti kati ya spishi zilizomo kwenye kitabu hiki. Aidha, tunatoa maelezo ya spishi

zinazofanana na kuonyesha namna ya kuzitofautisha. Kitabu kina maelezo ya mazingira ambapo kila spishi inapatikana, maelezo ambayo yanasaidia kuainisha vielelezo wakati wa kufanya utafiti. Kwa kila spishi, tunaonyesha pia alama zinazotoa taarifa za msingi za historia asilia mara moja (Jedwali 2).

Miito ya madume inasaidia sana kuainisha spishi na baadhi ya miito inapatikana kwenye tovuti. Bahati mbaya, ni vigumu kueleza miito ya vyura kwa maandishi. Mfumo wa “sonogram” unawezesha kuona kwa macho namna ya “kuchapisha” miito ya vyura, lakini ni vigumu kwa watu ambao siyo wataalam kuisoma. Tumejitahidi kuelezea miito kwa kutumia maneno na kunukuu maelezo yaliyomo kwenye machapisho ya awali. Baadhi ya miito ni ya pekee kiasi na kwa hiyo rahisi kuitambua kutokana na maelezo, wakati mingine ni migumu zaidi.

Aidha, tumeweka taarifa juu ya mahali zinapopatikana spishi na pia kutoka usawa gani wa bahari kwenye eneo la Tao la Mashariki na Misitu ya Pwani, ingawa spishi nyingi kati ya hizi zinapatikana nje ya eneo hili pia. Bado kuna utata kuhusu maeneo zinapopatikana baadhi ya spishi na tunatarajia kwamba taarifa mpya zitabainisha maeneo mengine katika siku za mbele. Aidha, kuna ramani inayoonyesha maeneo ya kila spishi na kwenye milima ipi kati ya 13 na maeneo ya misitu ya pwani ambapo spishi imepatikana.

Kitabu hiki kinaonyesha eneo ambapo kielelezo cha kwanza kupewa jina kilikamatwa. Kihistoria, maeneo haya yanavutia na yanaweza kutupa taarifa muhimu zinazoweza kutusaidia kufanya marekebisho ya uainishaji wa spishi. Kwa mfano, kuna uwezekano mdogo kwa picha ya *Callulina kreffti* iliyochukuliwa Amani kuhitaji marekebisho baadaye kuliko picha ya spishi inayofanana nayo ambayo inaweza kukamatwa kwenye Milima ya Udzungwa.

## Symbol - Alama

## Use - Matumizi



Found only at high elevations  
Inapatikana maeneo ya juu tu



Found only at low elevations  
Inapatikana maeneo ya chini tu



Typically seen only during the rainy season  
Anaonekana msimu wa mvua tu.



Often found in villages and smallholdings  
Anapatikana vijijini na mashamba madogo tu.



Fossorial – lives underground  
Anaishi chini ya ardhi.



Typically found on reeds or other vegetation at the edge of water  
Anapatikana kwenye matete na uoto mwingine kando kando ya maji



Fully aquatic  
Anaishi majini tu



Arboreal – found on trees and shrubs  
Anaishi mtini na vichakani



Riparian – found on the banks of rivers and streams  
Anaishi kando ya mito na vijito



Found in the leaf litter of the forest floor  
Anaishi msituni kwenye majani chini ya miti



Found in grasslands and/or savannah  
Anaishi kwenye nyika na /au savana



Forest dependent  
Inapatikana kwenye misitu



Male  
Madume



Female  
Majike

**Table - 2** Habitat symbols  
used in species accounts.

**Jedwali - 2** Alama za  
mazingira zilizotumika kwenye  
maelezo ya spishi.

## Conservation Status

Conservation status is based on the current (at the time of printing) IUCN criteria. Updated red-lists can be found on the internet at [www.red-list.org](http://www.red-list.org). The conservation status categories are defined by the IUCN as follows:

Hali ya uhifadhi imetokana na vigezo vya IUCN vilivyokuwa vinatumika wakati tunachapisha kitabu hiki. Orodha nyekundu za sasa zinapatikana kwenye tovuti: [www.red-list.org](http://www.red-list.org). Makundi ya hali ya uhifadhi yaliyoainishwa na IUCN ni kama yafuatavyo:

### CRITICALLY ENDANGERED

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

### SPISHI IKO HATARINI SANA

Spishi iko hatarini sana iwapo kuna ushahidi wa juu kabisa kwamba imetimiza kigezo chochote kati ya A na E cha kuwa Hatarini Sana (angalia Kifungu V), na kwa hiyo inatishiwa kabisa kutoweka porini.

### ENDANGERED

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild.

### SPISHI IKO HATARINI

Spishi iko hatarini iwapo imetimiza kigezo chochote kati ya A na E cha kuwa Hatarini na kwa hiyo inatishiwa sana kutoweka porini.

### VULNERABLE

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild.

### SPISHI INAZEWA KUATHIRIWA

Spishi Inaweza Kuathiriwa iwapo kuna ushahidi wa juu kabisa kwamba imetimiza kigezo chochote kati ya A na E cha kuweza kuathiriwa (angalia Kifungu V), na kwa hiyo inatishiwa kutoweka porini.

## NEAR THREATENED

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

## SPISHI INAKARIBIA KUWA HATARINI

Spishi Inakaribia kuwa Hatarini iwapo imefanyiwa tathmini kwa kufuata vigezo lakini haiko hatarini kabisa, hatarini au kuweza kuathiriwa wakati huo, lakini inakaribia kuwa hatarini au inaweza kuwa hatarini siku zijazo.

## LEAST CONCERN

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

## SPISHI HAIKO HATARINI

Spishi Haiko Hatarini iwapo imefanyiwa tathmini kwa kufuata vigezo lakini haiko hatarini kabisa, hatarini au kuweza kuathiriwa au karibu maathiriwa. Spishi nyingi ziko katika kundi hili.

## DATA DEFICIENT

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

## HAKUNA TAARIFA ZA KUTOSHA

Spishi Haina Taarifa za Kutosha iwapo hakuna taarifa za kutosha kuweza kufanya tathmini ya moja kwa moja au isiyo moja kwa moja kuhusu kuwa hatarini kutoweka, kutokana na maeneo inapokatikana au ukubwa wa idadi yake. Inawezekana kwamba spishi katika kundi limefanyiwa utafiti mwingi na biolojia yake inajulikana vizuri, lakini hakuna taarifa nyingi juu ya maeneo inapokatikana au ukubwa wa idadi yake. Kwa hiyo kundi hili halimo hatarini. Kuorodheshwa kwa spishi katika kundi hili kuna maana kwamba taarifa zaidi zinahitajika na kukiri kwamba utafiti wa baadaye unaweza kuonyesha kwamba iko hatarini. NI muhimu kutumia vizuri taarifa zozote zilizopo. Mara nyingi, ni lazima kuwa mwangalifu katika kuamua kama spishi haina taarifa za kutosha au iko hatarini. Iwapo eneo spishi inapokatikana ni dogo na kumepita muda mrefu tangu ilipoonekana mara ya mwisho, inawezekana iko hatarini.

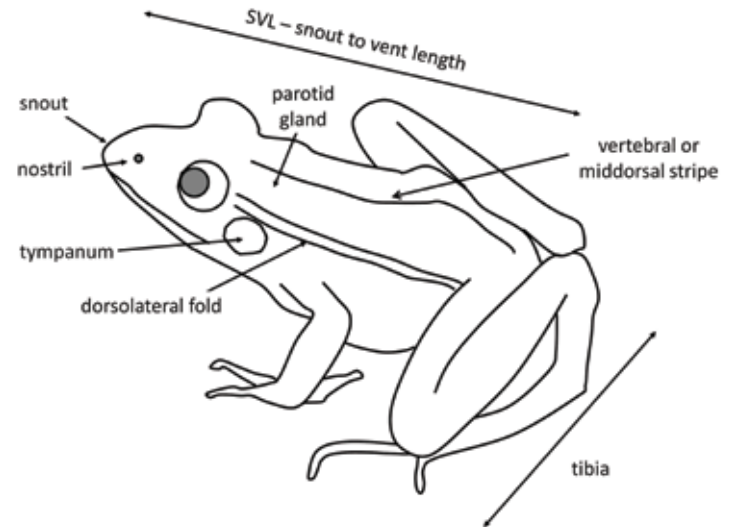
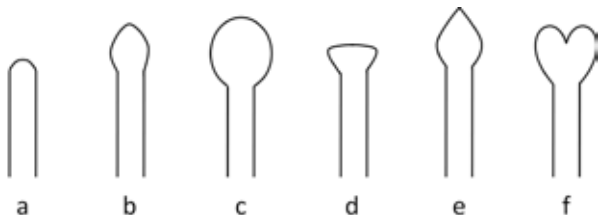


Figure - 8 External diagnostic features of frogs and toads.

Mchoro - 8 Maumbile ya vyura.



**Figure - 9** Toe tip morphologies typical of Eastern Arc and Coastal Forest amphibians: a) not expanded; b) slightly expanded but without distinct disks; c) expanded with distinct disks; d) truncate e) papillate; f) bifurcate or heart-shaped.

**Mchoro - 9** Maumbile ya ncha za kucha za vyura wa MTMMP: a) siyo pana; b) pana kidogo lakini siyo mviringo; c) pana na mviringo; d) butu; e) zimechochongoka f) zinagawanyika au zina umbo la moyo.

### Translator's Note

The English version of the species accounts includes a section on “Calls” of the amphibians. We did not translate these into Kiswahili because even in English, descriptions of animal vocalizations largely depend on the experience of the reader to interpret. For example, can a reader understand a call represented as a “burrrr” or is it a “churrrr”? A loud call to one reader may not be to another. Therefore, the description of a call as a loud “burr” by one person may sound entirely different to another. Similarly, we did not translate common names of species into Kiswahili, except where translations such as “chura miti” for “tree frogs” exist.

I am grateful to Elizabeth Harper for inviting me to translate the book and her cooperation.

Imani Swilla

### Ujumbe wa Mfasiri

Sehemu ya Kiingereza ya kitabu hiki ina kipengele kinachoelezea miito ya kila spishi ya amfibia. Hatukutafsiri sehemu hii katika Kiswahili kwa sababu hata kwenye Kiingereza, maelezo ya miito ya wanyama inategemea sana uzoefu wa msomaji. Kwa mfano, je msomaji ataelewa nini anaposoma kuwa mwito ni “burrrr”? Mwito huo unaweza kuwa ni “churrrr”? Kwa hiyo mwito huo huo wa “burr” kwa msomaji mmoja huenda usiwe hivyo kwa mwingine. Aidha, hatukutafsiri majina ya kawaida (common names) ya spishi katika Kiswahili, isipokuwa pale tu ambapo tayari kuna tafsiri inayotumika, kwa mfano “chura miti” badala ya “tree frogs”.

Napenda kumshukuru Elizabeth Harper kwa kunipa fursa ya kutafsiri kitabu hiki na kwa ushirikiano wake.

Imani Swilla

### Identification and Terminology

This guide is designed to be used for the identification of live amphibians in the field. The size, external physical features, geographic location, habitat type, vocalization and behavior of each amphibian encountered can all contribute toward species identification. It is important to remember that looks can be deceiving. Individual amphibians of the same species can vary in color pattern and therefore do not always match in appearance with the photograph in the guide. In some species, males and females or adults and juveniles have different color patterns from one another. In other species there may be multiple distinct color morphs, as in many of the *Hyperolius* species, or there may be a range of dorsal patterns that are common across a genus, as in many of the *Arthroleptis* species. Traits that are usually constant within a species and easy to see in the field include the shape of the toe and finger tips (Fig. 9), the amount of webbing on the toes, the presence or absence of a visible tympanum, and the presence or absence of dorsolateral folds (Fig. 8). The location where an individual is found can also be useful in species identification. By noting both the geographic location and the habitat type it is possible to rule out unlikely species. Observations of reproductive behavior, including male calls and the location of egg deposition, can also help to rule out many species.

### Uainishaji na Istilahi

Kitabu hiki kimeandaliwa ili kitumike katika kuainisha vyura walio hai kwenye maeneo ya utafiti. Ukubwa, maumbile, mahali wanapoishi, aina ya mazingira, sauti na tabia ya kila chura ni vitu ambavyo vinaweza kusaidia uainishaji wa spishi. Lakini ni muhimu pia kuzingatia kwamba taswira inaweza ikadanganya. Vyura wa spishi moja wanaweza wakatofautiana katika mpangilio wa rangi na kwa hiyo hawafanani siku zote na picha iliyoko kitabuni. Katika baadhi ya spishi, madume na majike au vyura wazima na watoto wana mpangilio tofauti wa rangi. Katika spishi zingine, inawezekana kuwepo rangi nyingi tofauti, kama ilivyo katika spishi nyingi za *Hyperolius* au inawezekana pakawa na mipangilio mingi ya sehemu ya juu ambayo ipo kwenye vyura wa jenasi moja, kama ilivyo kwa spishi za *Arthroleptis*. Vitu ambavyo vinapatikana kwenye spishi zote na rahisi kuona kwenye maeneo ya utafiti ni pamoja na umbile la ncha za vidole vya miguuni na mikononi (Mchoro 9), uwingi wa utando kwenye vidole vya mguuni, kuwepo au kutokuwepo kwa kiwambo cha sikio kinachoonekana, na kuwepo au kutokuwepo kwa mikunjo ya ngozi pembeni na sehemu ya juu (Mchoro 8). Eneo analoishi chura ni muhimu pia katika kuainisha spishi. Ukizingatia eneo na mazingira anapoishi chura, inakuwa rahisi kutambua kuwa spishi fulani hazipatikani eneo fulani. Tabia ya kuzaliana pamoja na miito ya madume na mahali mayai yanapotagwa ni vitu ambavyo vinaweza kusaidia pia kutambua kuwa spishi fulani hazipatikani eneo fulani.

## Arthroleptidae

The family Arthroleptidae is confined to sub-Saharan Africa. Two genera are found in the Eastern Arc Mountains: *Arthroleptis* and *Leptopelis*. There is a great deal of taxonomic confusion within the genus *Arthroleptis*. *Arthroleptis* species are small to medium-sized brown frogs that live and breed in the leaf litter of the forest floor. Their eggs are laid in moist soil or leaves and develop directly into small frogs without passing through a free-swimming tadpole stage. Males in breeding condition typically have a distinctly elongated third finger. The genus *Leptopelis* includes species that are morphologically and ecologically quite different from the *Arthroleptis* species. *Leptopelis* species are medium to large-sized tree frogs with vertical pupils. Until recently they were included in the family Hyperoliidae. Females of some *Leptopelis* species are known to lay their eggs in mud cavities and the tadpoles move into water after hatching.

Familia ya Arthroleptidae inapatikana tu kanda ya Afrika kusini mwa jangwa la Sahara. Jenasi mbili za *Arthroleptis* na *Leptopelis* zinapatikana kwenye Milima ya Tao la Mashariki. Kuna utata mkubwa juu ya uainishaji kwenye jenasi ya *Arthroleptis*. Spishi za *Arthroleptis* ina vyura wenye rangi ya kahawia ambao ni wadogo au wana ukubwa wa kati; wanaishi na kuzaliana msituni, kwenye majani yaliyoanguka chini. Vyura hawa hutaga mayai kwenye udongo au majani yenye unyevunyevu na hugeuka kuwa vyura bila kupitia hatua ya viluwilwi wanaoogelea. Kidole cha tatu kinarefuka sana kwenye madume yanapokuwa kwenye msimu wa kupandana. Jenasi ya *Leptopelis* ina spishi ambazo ni tofauti sana na za *Arthroleptis*, kimaumbile na kiikolojia. Spishi ya *Leptopelis* inajumuisha spishi za vyuramiti ambao ni wakubwa kiasi hadi wakubwa kabisa na wana mboni za wima. Spishi hizi zilikuwa zimewekwa kwenye familia ya Hyperoliidae hadi hivi karibuni. Majike yanataga mayai kwenye mashimo na viluwilwi vinaingia kwenye maji baada ya kutotolewa.



*Leptopelis parkeri*



***Arthroleptis affinis*** (Ahl, 1939)

Amani Screeching Frog, Ahl's Squeaker

Chura filimbi wa Amani,



E. Harper

SVL: ♀ 35 – 40 mm; ♂ 33 – 45 mm  
DESCRIPTION: A small frog with a broad head and long legs. The dorsum is light brown, and typically lacks the hourglass pattern common in many other *Arthroleptis* species. A dark black mark curves from the eye to the arm over the tympanum and may appear like a mask in some individuals. The lower lip is barred and the undersides of the feet are dark black. The belly is yellowish near the groin and the undersides of the legs are reddish orange. The tips of the toes are

slightly expanded and have a groove along the edge. There is some variation in morphology among individuals from the northern to the southern part of the range.

SIMILAR SPECIES: The legs of *A. affinis* are long (tibia greater than  $\frac{1}{2}$  SVL) in contrast to many other *Arthroleptis* species. Adult female *A. affinis* are smaller than *A. nikeae*, which reach 54 – 56 mm SVL.

HABITAT: *A. affinis* is a very common species that can be found in the leaf-litter of montane and submontane forests as well as grasslands and a range of degraded habitat types.

NATURAL HISTORY: Eggs are laid in moist soil or leaves and develop directly into small frogs without passing through a free-swimming tadpole stage. Males in breeding condition have serrations on the second and third fingers.

CALL: Unknown

DISTRIBUTION IN THE EACF: North Pare, South Pare, West Usambara, East Usambara, Nguu, Nguru, Rubeho, Uluguru, Udzungwa, Mount Rungwe

TYPE LOCALITY: Amani, East Usambaras

ELEVATIONAL RANGE: 850 – 2050 m

CONSERVATION STATUS: Least Concern

UREFU WA MWILI: ♀ 35 – 40 mm; ♂ 33 – 45 mm

MAELEZO: Chura huyu ni mdogo na ana kichwa kipana na miguu mirefu. Sehemu ya chini ni kahawia iliyofifia na haina umbo la “V” mbili zinazogusana moja ikiwa chini juu, umbo ambalo kwa kawaida lipo kwenye spishi nyingi za *Arthroleptis*. Kuna alama nyeusi ambayo inatoka kwenye jicho mpaka kwenye mkono, juu ya kiwambo cha sikio na inaonekana kama barakoa kwenye vyura hao. Kuna mistari kwenye mdomo wa chini na sehemu ya chini ya miguu ni nyeusi sana. Sehemu ya tumbo karibu na kinena ni njano na sehemu ya chini ya miguu ni njano nyekundu. Ncha za vidole vya miguuni ni pana kidogo na zina mfuo pembeni. Umbo la vyura hao linatofautiana kiasi kutoka kaskazini hadi kusini mwa eneo husika.

SPISHI INAZOFANANA NAZO: Miguu ya *A. affinis* ni mirefu (muundi goko ni zaidi ya  $\frac{1}{2}$  ya SVL), tofauti na spishi nyingi za *Arthroleptis*. Majike mazima ya *A. affinis* ni madogo kuliko ya *A. nikeae*, ambayo yanafikia 54 - 56 mm SVL.

MAZINGIRA: *A. affinis* ni spishi inayopatikana katika mazingira mengi: kwenye majani yaliyoanguka ya misitu iliyopo karibu au zaidi ya mita 1200m kutoka usawa wa bahari, nyika na aina mbalimbali za mazingira yaliyoharibiwa.

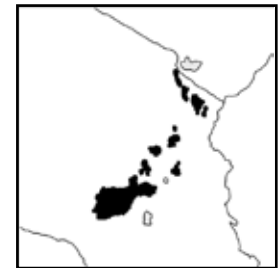
HISTORIA ASILIA: Mayai yanatagwa kwenye udongo au majani yenye unyenyevu na hugeuka kuwa vyura bila kupitia hatua ya viluwiluwu viwanavyoogelea. Vidole vya mkononi vya pili na vya tatu vya madume vinakuwa na mistari yanapokuwa kwenye msimu wa kupandana.

ENEO SPISHI INAPOPATIKANA KWENYE MILIMA YA TAO LA MASHARIKI NA MISITU YA PWANI (MTMMP): Milima ya Pare Kaskazini, Pare Kusini, Usambara Magharibi, Usambara Mashariki, Nguu, Nguru, Rubeho, Uluguru, Udzungwa na Rungwe.

MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA: Amani, Usambara Mashariki

ENEO LA SPISHI KUTOKA USAWA WA BAHARI: 850 – 2050 m

HALI YA UHIFADHI: Haiko hatarini.





***Arthroleptis fichika*** (Blackburn, 2009)

Hidden squeaker frog

Chura filimbi anayejificha



L. Mahler

SVL: ♀ 15 mm

**DESCRIPTION:** A very small *Arthroleptis* with a broad head. The tympanum is round and distinctly visible, less than  $\frac{1}{2}$  the diameter of the eye, and lacks a fold of skin over the top. There is a distinct dark brown spot in the groin and on the front of each thigh. The undersurface of the thighs is dark with lighter gray spots. The throat is orange-red and not mottled. The ventral surface is yellow and the underside of the thighs is red. The finger tips are not expanded. Toe tips are slightly expanded and faintly pointed. Toes lack webbing.

**SIMILAR SPECIES:** *A. fichika* and *A. kidogo* are very similar. Both are very small (< 15mm), have a dark spot in the groin and are darkly colored on the undersurfaces of the thighs. *A. fichika* has a dark band that runs from the snout, through the eye, over the tympanum and stops at the base of the arm. In *A. kidogo* this band continues beyond the base of the arm.

**HABITAT:** Leaf litter in forest

**NATURAL HISTORY:** Very little is known about the natural history of this species.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Currently known only from the West Usambara Mountains

**TYPE LOCALITY:** Mazumbai Forest Reserve, West Usambara Mountains

**ELEVATIONAL RANGE:** 1383 - 1900 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♀ 15 mm

**MAELEZO:** Chura huyu ni mdogo sana lakini ana kichwa kipana. Kiwambo cha sikio lake ni mvingo na kinaonekana vizuri, ni chini ya  $\frac{1}{2}$  ya kipenyo cha jicho na hakina mkunjo kwenye ngozi ya juu. Kuna doa lenye rangi ya kahawia iliyokolea kwenye kinena na sehemu ya mbele ya kila paja. Sehemu ya chini ya mapaja ni nyeusi na ina madoa kijivu yaliyoffia. Koo lina rangi ya njano nyekundu na halina madoa. Sehemu ya chini ni njano na sehemu ya chini ya mapaja ni nyekundu. Ncha za vidole vya mkononi siyo pana. Ncha za vidole vya miguuni ni pana kidogo na zimechongoka kidogo sana. Aidha, vidole vya miguuni havina utando.

**SPISHI INAZOFANANA NAZO:** *A. fichika* na *A. kidogo* wanafanana sana. Vyura wa spishi hizi ni wadogo sana (< 15mm), wana doa jeusi kwenye kinena na wana rangi nyeusi kwenye sehemu ya chini ya mapaja. *A. fichika* ana mstari mweusi unaotoka kwenye pua, unapita kwenye jicho, juu ya kiwambo cha sikio hadi sehemu ya chini ya mkono. Mstari huu unavuka sehemu ya chini ya mkono kwenye *A. kidogo*.

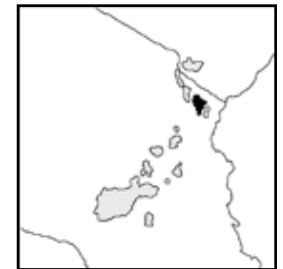
**MAZINGIRA:** Msituni kwenye majani yaliyoanguka.

**HISTORIA ASILIA:** Taarifa juu ya historia asilia ya spishi hii ni chache mno.

**ENEO SPISHI INAPOPATIKANA KWENYE (MTMMP):** Milima ya Usambara Magharibi

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Mazumbai, Milima ya Usambara Magharibi. ENEO LA SPISHI KUTOKA USAWA WA BAHARI: 1383 - 1900 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



***Arthroleptis kidogo*** (Blackburn, 2009)

Tiny Squeaker Frog

Chura filimbi mdogo sana



SVL: ♀ ≤ 15 mm

**DESCRIPTION:** A very small *Arthroleptis* with a broad head. The undersurfaces of the thighs are dark with light gray spots. The tympanum is visible and less than ½ the diameter of the eye. A dark mark runs above the tympanum and past the arm. There is a very dark brown spot in the groin. The throat and ventral surface are mottled with light and dark gray markings. Toe tips are expanded and pointed. Finger tips are pointed, but not expanded.

**SIMILAR SPECIES:** *A. kidogo* is one of the smallest *Arthroleptis* species with SVL < 15 mm. It is very similar to *A. fichika*, but has a strongly reticulated dark and light pattern on the throat.

**HABITAT:** Leaf litter in forest

**NATURAL HISTORY:** Unknown, presumed to be similar to other species in the genus.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Known only from the Nguru Mountains

**TYPE LOCALITY:** Nguru South Forest Reserve, Nguru Mountains

**ELEVATIONAL RANGE:** Type locality is at 830 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♀ ≤ 15 mm

**MAELEZO:** Chura huyu ni *Arthroleptis* mdogo sana ila ana kichwa kipana. Sehemu ya chini ya mapaja ni nyeusi na ina madoa ya kijivu iliyofifia. Kiwambo cha sikio kinaonekana na ni chini ya ½ ya kipenyo cha jicho. Kuna alama nyeusi kutoka juu ya kiwambo cha sikio hadi baada ya mkono. Kuna doa jeusi sana kwenye kinena. Koo na sehemu ya chini zina madoamadoa yenye rangi ya kijivu iliyofifia na iliyokolea. Vidole vya mguu na ncha ni vipana na vimechongoka. Ncha za vidole vya mikono zimechongoka lakini siyo pana.

**SPISHI INAZOFANANA NAZO:** *A. kidogo* ni mojawapo ya spishi ndogo sana za *Arthroleptis* na ana < 15mm SVL. Inafanana sana na *A. fichika* ila ana mpangilio tofauti wa rangi, mchanganyiko wa rangi nyeusi na iliyofifia kwenye koo.

**MAZINGIRA:** Msituni kwenye majani yaliyoanguka.

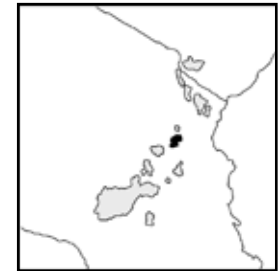
**HISTORIA ASILIA:** Haijulikani, inaweza kuwa sawa na ya spishi zingine za jenasi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Nguru

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Nguru Kusini, Milima ya Nguru.

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 830 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



***Arthroleptis nguruensis*** (Poyton, Menegon, & Loader, 2008)  
Nguru Squeaker



Chura filimbi wa Nguru



M. Menegon

SVL: ♂ ≤ 52 mm; ♀ ≤ 58 mm

**DESCRIPTION:** A large *Arthroleptis* with a broad head and long legs (tibia greater than  $\frac{1}{2}$  SVL). The tympanum is visible and typically has a dark mark above it running from the snout to the arm. This dark band is edged by a thin light stripe above. The lower jaw is white without markings. The throat and chest are dark. Fingertips are slightly expanded, but lack disks. Toe tips are expanded and pointed. Toes lack webbing. Arms and legs have dark bands. Some individuals have light spots on the sides.

**SIMILAR SPECIES:** The continuously white lower jaw of *A. nguruensis* distinguishes this species from other *Arthroleptis* species in the Nguru Mountains.

**HABITAT:** Montane forest, including bamboo and areas near agriculture

**NATURAL HISTORY:** The natural history of this species is not well known.

**CALL:** Described by Poynton et al. 2008 as “a series of whistling notes that are repeated at regular intervals”

**DISTRIBUTION IN THE EACF:** Known only from the Nguru Mountains

**TYPE LOCALITY:** Nguru South Forest Reserve, Tanzania

**ELEVATIONAL RANGE:** 1790 – 2100 m

**CONSERVATION STATUS:** Critically endangered

UREFU WA MWILI: ♂ ≤ 52 mm; ♀ ≤ 58 mm

**MAELEZO:** Chura huyu mkubwa ni *Arthroleptis* mwenye kichwa kipana na miguu mirefu (muundi goko ni zaidi ya  $\frac{1}{2}$  ya SVL). Kiwambo cha sikio kinaonekana na kina mstari mweusi juu yake, toka puani hadi mkononi. Kuna mstari mwembamba wenye rangi iliyofifia juu ya kiwambo cha sikio. Taya ya chini ni nyeupe bila alama yoyote. Koo na kifua vina rangi nyeusi. Ncha za vidole vya mkononi ni pana kidogo lakini siyo mviringo. Ncha za vidole vya miguuni ni pana na zimechongoka. Vidole vya miguuni havina utando. Mikono na miguu ina mistari mieusi. Baadhi ya vyura wana madoa yaliyofifia kila upande.

**SPISHI INAZOFANANA NAZO:** Taya ya chini nyeupe inaitofautisha spishi hii na spishi zingine za *Arthroleptis* kwenye Milima ya Nguru

**MAZINGIRA:** Misitu iliyopo karibu au zaidi ya mita 1200 m kutoka usawa wa bahari mianzi na maeneo karibu na kilimo

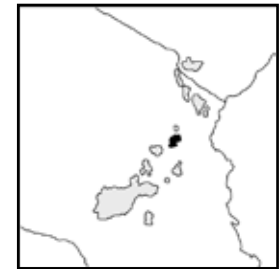
**HISTORIA ASILIA:** Haijulikani vizuri

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Nguru tu.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Nguru Kusini, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1790 – 2100 m

**HALI YA UHIFADHI:** Spishi iko hatarini sana



## *Arthroleptis nikeae* (Poynton, 2003)

Nike's Squeaker

Chura filimbi wa Nike



M. Menegon

SVL: ♀ 54-56 mm

**DESCRIPTION:** A large *Arthroleptis* with a broad head and long legs. The tibia is longer than  $\frac{1}{2}$  SVL. The dorsum is brown with darker brown chevrons pointing toward the head. There is a light triangle on the snout between the eyes. The legs are barred. A dark mark runs from behind the eye to the arm. The tympanum is visible. Finger tips are at most very faintly expanded. Toe tips are expanded, but lack distinct disks.

**SIMILAR SPECIES:** The large size, long legs and broad head of *A.*

*nikeae* distinguish this species from other *Arthroleptis* species in the Rubeho Mountains.

**HABITAT:** Montane forest

**NATURAL HISTORY:** Assumed to lay eggs terrestrially that hatch directly into small frogs.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Known only from the type locality

**TYPE LOCALITY:** Mafwemiro Catchment Forest Reserve, Rubeho Mountains

**ELEVATIONAL RANGE:** 1900 m

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: ♀ 54-56 mm

**MAELEZO:** Chura huyu mkubwa ni *Arthroleptis* mwenye kichwa kipana na miguu mirefu. Urefu wa miguu ni zaidi ya  $\frac{1}{2}$  ya SVL. Sehemu ya juu ni kahawia na ina alama zenye umbo la "V" zenye rangi ya kahawia iliyokolea zaidi na zinaelekea kichwa. Kuna pembetatu yenye rangi iliyofifia kwenye pua kati ya macho. Miguu ina mistari. Alama nyeusi inatoka nyuma ya jicho hadi mkononi. Kiwambo cha sikio kinaonekana. Ncha za vidole vya mkononi ni pana kidogo sana. Ncha za vidole vya miguuni ni pana lakini siyo mviringo.

**SPISHI INAZOFANANA NAZO:** Tofauti ya spishi hii na spishi zingine za *Arthroleptis* zinazopatikana Milima ya Rubeho ni kwamba vyura wake ni wakubwa, wana miguu mirefu na vichwa vipana.

**MAZINGIRA:** Misitu iliyopo karibu au zaidi ya mita 1200m kutoka usawa wa bahari

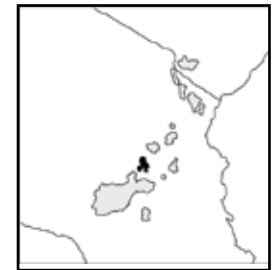
**HISTORIA ASILIA:** Inadhaniwa inataga mayai chini ya ardhi ambayo yanatolewa kuwa vyura wachanga moja kwa moja.

**Eneo SPISHI INAPOPATIKANA KWENYE MTMMP NA MISITU YA PWANI:** Mafwemiro tu.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Mafwemiro, Milima ya Rubeho.

**ENEo LA SPISHI KUTOKA USAWA WA BAHARI:** 1900 m

**HALI YA UHIFADHI:** Spishi iko hatarini



***Arthroleptis reichei*** (Nieden, 1911)

Poroto Screeching Frog, Reiche's Squeaker, Large-toed Squeaker

Chura filimbi wa Uporoto,  
Mwenye vidole vya UREFU  
mguuni vikubwa



M. Menegon

SVL: ♂ 21 – 27mm; ♀ 21 – 31mm

**DESCRIPTION:** A small frog with a narrow head and long legs. The dorsal pattern is brown, usually with a darker hour glass pattern and a pale line or triangle between the eyes. The toes are long and end in small but distinct disks. The tympanum is small and is oval rather than round.

**SIMILAR SPECIES:** The long toes with distinct disks distinguish this species from other *Arthroleptis* species of similar size within its range.

**HABITAT:** Leaf-litter of moist evergreen montane forests

**NATURAL HISTORY:** Assumed to breed by direct development

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Poroto Mountains, Mount Rungwe, Udzungwa, and Uluguru Mountains

**TYPE LOCALITY:** Kratersee des Ngosi Vulcans, Poroto Mountains, Tanzania

**ELEVATIONAL RANGE:** 1500 – 2000 m

**CONSERVATION STATUS:** Near Threatened

UREFU WA MWILI: ♂ 21 – 27mm; ♀ 21 – 31mm

**MAELEZO:** Chura huyu ni mdogo, ana kichwa chembamba na miguu mirefu. Sehemu ya juu ni kahawia, na kawaida ina umbo la “V” mbili zinazogusana moja ikiwa chini juu na mstari uliofifia au pemetatu kati ya macho. Ncha za vidole vya miguuni ni ndogo na mviringo. Kiwambo cha sikio ni kidogo na siyo mviringo ila kina umbo la tufe.

**SPISHI INAZOFANANA NAZO:** Spishi hii inatofautiana na zingine za *Arthroleptis* kwa kuwa na vidole vya mguuni virefu vyenye ncha mviringo zinazoonekana.

**MAZINGIRA:** Majani yaliyoanguka kwenye misitu iliyopo karibu au zaidi ya mita 1200 m kutoka usawa wa bahari na iliyo kijani wakati wote

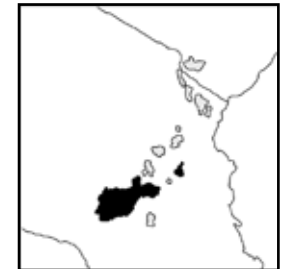
**HISTORIA ASILIA:** Inadhaniwa mayai yanatagwa na yanatolewa moja kwa moja na kugeuka vyura bila kupitita hatua ya viluwiluwi

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Uporoto, Rungwe, Udzungwa, na Uluguru

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Kratersee des Ngosi Vulcans, Milima ya Uporoto, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1500 – 2000 m

**HALI YA UHIFADHI:** Inakaribia kuwa hatarini.



***Arthroleptis stenodactylus*** (Pfeffer, 1893)  
Shovel-footed Squeaker, Common Squeaker

Chura filimbi mwenye mguu  
kama koleo



E. Harper

SVL: ♂ 28 – 35mm; ♀ 28 – 40mm

**DESCRIPTION:** A stocky litter frog with a large broad head and short legs (tibia less than  $\frac{1}{2}$  SVL). The dorsum is brown, usually with a darker three-lobed figure, and occasionally with a light middorsal stripe. Most individuals have two distinct dark sacral spots. The tympanum is oval and distinct. A dark mark curves from the eye to the arm over the tympanum. The ventral surface is light, often with gray mottling in the pectoral region of females, and on the throat of males. Males can be distinguished from females by the elongated third finger. In both males and females the inner metatarsal tubercle is at least as large as the first toe. Toes do not end in disks.

**SIMILAR SPECIES:** *A. stenodactylus* has a large flat inner metatarsal tubercle that is absent in the other *Arthroleptis* species currently recognized in the Eastern Arc.

**HABITAT:** One of the most common species found in leaf litter in a wide range of habitat types including forest, savannas and degraded habitat including suburban areas.

**NATURAL HISTORY:** Unpigmented eggs are deposited directly in the leaf litter where they develop into small frogs without passing through a free-swimming tadpole phase. Clutches consist of 33 – 80 eggs 2 mm in diameter. Emerging frogs are 20 – 28 mm in length.

**CALL:** Males call from leaf litter during the day and at night. The call is a quick high-pitched whistle repeated at a rate of two per second.

**DISTRIBUTION IN THE EACF:** Coastal Kenya, eastern and southern Tanzania including Zanzibar

**TYPE LOCALITY:** Kihengo, Tanzania

**ELEVATIONAL RANGE:** < 1500 m

**CONSERVATION STATUS:** Least Concern

UREFU WA MWILI: ♂ 28 – 35 mm; ♀ 28 – 40 mm

**MAELEZO:** Chura huyu mnene anayeishi msituni kwenye majani yaliyoanguka ana kichwa kikubwa na kipana na miguu mifupi (chini ya  $\frac{1}{2}$  ya SVL). Sehemu ya juu ni kahawia, na ina umbo jeusi lenye ndewe tatu na wakati mwingine ana mstari uliofifia katikati ya sehemu ya chini. Idadi kubwa ya vyura hawa wana madoa mawili yanayoonekana sehemu ya chini ya mgongo. Kiwambo cha sikio kina umbo la tufe na kinaonekana. Kuna alama nyeusi inayopinda kutoka jichoni hadi mkononi juu ya kiwambo cha sikio. Sehemu ya chini ina rangi iliyofifia. Kuna madoa ya kijivu kwenye kifua cha majike na koo la madume. Tofauti kati ya madume na majike ni kwamba kidole cha tatu cha mkononi cha madume ni kirefu zaidi kuliko cha majike. Aidha, madume na majike yote yana sehemu ya ngozi ngumu iliyoinuka kwenye sehemu ya ndani ya mguu. Vidole vya miguuni havina ncha mviringo.

**SPISHI INAZOFANANA NAZO:** *A. stenodactylus* ana ngozi ngumu, kubwa na pana na iliyoinuka nyuma ya mguu, ambayo haiyo kwenye spishi zingine za *Arthroleptis* ambazo zinafahamika kwenye Tao la Mashariki.

**MAZINGIRA:** Spishi hii ni mojawapo ya zile zizonapatikana sana kwenye majani yaliyoanguka chini katika mazingira mbalimbali, pamoja na misitu, savana, na mazingira yaliyoharibiwa, pamoja na pembezoni mwa miji.

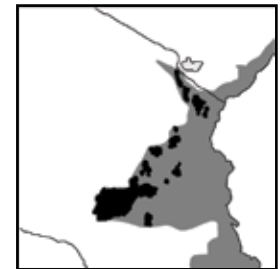
**HISTORIA ASILIA:** Mayai yasiyokuwa na rangi yanatagwa moja kwa moja kwenye majani yaliyoanguka ambapo yanageuka kuwa vyura bila kupitia hatua ya viluwiwi vinavyoogelea. Makundi ya mayai yanaweza kuwa na mayai 33-80 yenye kipenyo cha 2mm. Vyura wanaotolewa wanakuwa na urefu wa mita 20 - 28.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMP:**  
Pwani ya Kenya, kusini na mashariki mwa Tanzania na Zanzibar

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Kihengo, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:**  
< 1500 m

**HALI YA UHIFADHI:** Haiko hatarini





***Arthroleptis stridens*** (Pickersgill, 2007)  
Pickersgill's Squeaker

Chura filimbi wa Pickersgill



SVL: 18 – 19 mm

**DESCRIPTION:** Very small brown frog with variable markings. Usually with a light triangle on the snout and darker diamonds on the dorsum. The tympanum is visible and approximately  $\frac{1}{2}$  the diameter of the eye in adults. The diameter of the eye is roughly the same as the distance from the eye to the tip of the snout. The nostrils are closer to the tip of the snout than to the eyes. Toes and fingers are distinctly swollen, with round disks on the fingers and on the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> toes. Toe disks are slightly oval rather than round. The toes lack webbing. In males the 3<sup>rd</sup> finger can be as much as 3.5 times the length of the 4<sup>th</sup> finger.

**SIMILAR SPECIES:** Similar to *A. xenodactylus* and *A. xenodactyloides*, but in *A. stridens* the head is not distinctly wedge-shaped as in *A. xenodactylus*. *A. stridens* lacks the papillate toe tips seen in *A. xenodactyloides*.

**HABITAT:** Found in vegetation in forest clearings.

**NATURAL HISTORY:** Unknown, likely similar to *A. xenodactylus* and *A. xenodactyloides*.

**CALL:** Pickersgill (2007) describes the call as “musical, high-pitched and insect-like” in comparison to the more rasping call of *A. xenodactyloides*.

**DISTRIBUTION IN THE EACF:** Recorded in the Longuza and Kambai Forest Reserves in the East Usambara Mountains, but likely more widespread

**TYPE LOCALITY:** Kambai Forest Reserve, Tanzania

**ELEVATIONAL RANGE:** 300 m

**CONSERVATION STATUS:** Data deficient

UREFU WA MWILI: 18 – 19 mm

**MAELEZO:** Chura huyu ni mdogo sana. Aidha, ana alama zinazotofautiana; kwa kawaida, ana pembetatu iliyofifia kwenye pua na alama nyeusi zenye umbo la almasi kwenye sehemu ya chini. Kiwambo cha sikio kinaonekana na ni takribani  $\frac{1}{2}$  ya kipenyo cha jicho kwenye vyura wazima. Kipenyo cha jicho ni takribani sawa na umbali kati ya jicho hadi kwenye ncha ya pua. Matundu ya pua ni karibu zaidi na ncha ya pua kuliko macho. Vidole vya miguuni na mikononi vimevimba. Aidha kuna ncha za mviringo kwenye vidole vya mkononi na vidole vya mguuni vya tatu, nne na tano. Ncha za vidole vya miguuni zina umbo linalofanana kidogo na tufe na siyo mviringo. Vidole vya miguuni havina utando. Kwenye madume, kidole cha mkononi cha tatu kinaweza kufikia urefu ambao ni mara tatu na nusu zaidi ya urefu wa kidole cha nne.

**SPISHI INAZOFANANA NAZO:** Spishi hii inafanana na *A. xenodactylus* na *A. xenodactyloides*, lakini kichwa cha *A. stridens* hakina umbo la kabari kama *A. xenodactylus*. Aidha, *A. stridens* hana ncha za vidole vya mguuni kama vya *A. xenodactyloides*.

**MAZINGIRA:** Uoto wa misitu iliyokatwa

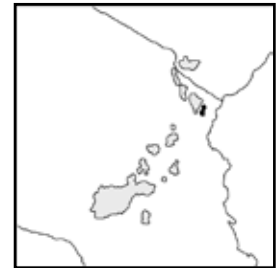
**HISTORIA ASILIA:** Haijulikani lakini huenda inafanana na ya *A. xenodactylus* na *A. xenodactyloides*,

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Hifadhi za Misitu za Longuza na Kambai za Milima ya Usambara Mashariki, lakini huenda inapatikana maeneo mengine zaidi.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Kambai, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 300 m

**HALI YA UHIFADHI:** Hakuna taarifa za kutosha





***Arthroleptis tanneri*** (Grandison, 1983)

Tanner's Squeaker

Chura fillimbi wa Tanner



E. Harper

SVL: ♂ 42 mm; ♀ 37 – 55 mm

**DESCRIPTION:** This is one of the larger of the *Arthroleptis* species. It has a broad head and relatively long legs (tibia roughly ½ SVL or greater). The dorsum is gray-brown, often without distinct darker markings. A fold of skin runs from the eye over the tympanum ending at the arm. Raised dorsolateral skin folds are faintly visible. The tympanum is round and distinct, less than ½ the diameter of the eye. The eyes are gold on top and dark beneath. The finger tips are faintly expanded and the toe tips are distinctly expanded, though

both lack distinct disks. A groove runs along the base of the toe tips. There is a small amount of webbing on the toes. The first finger is distinctly longer than the second.

**SIMILAR SPECIES:** This is the only large *Arthroleptis* species known to occur in the West Usambaras. The large size, long legs and broad head distinguish it from other *Arthroleptis* species in the West Usambaras.

**HABITAT:** Leaf litter in montane forest

**NATURAL HISTORY:** Assumed to lay eggs in the leaf litter of the forest floor that hatch directly into small frogs.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** West Usambaras (there is some disagreement as to the extent of the range)

**TYPE LOCALITY:** Mazumbai Natural Forest, West Usambara Mountains, Tanzania

**ELEVATIONAL RANGE:** Type specimen was collected at 1530 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ 42 mm; ♀ 37 – 55 mm

**MAELEZO:** Chura huyu ni mmoja wa vyura wakubwa katika spishi za *Arthroleptis*. Ana kichwa kipana na miguu mirefu (muundi goko ni takribani ½ ya SVL au zaidi). Sehemu ya chini ni kijivu kahawia na kwa kawaida haina alama nyeusi zinazoonekana. Kuna mkunjo wa ngozi ambao unatoka jichoni, juu ya kiwambo cha sikio hadi mkononi. Kuna mikunjo ya ngozi sehemu ya mgongoni na pembeni inayoonekana kwa mbali. Kiwambo cha sikio ni mvingo, kinaonekana na ni chini ya ½ ya kipenyo cha jicho. Sehemu ya juu ya macho ni njano na sehemu ya chini ni nyeusi. Ncha za vidole vya mikononi ni pana kidogo sana, ncha za vidole vya miguuni ni pana; aidha vidole vya mkononi na miguuni havina ncha za mvingo. Kuna mfuo kwenye sehemu ya chini ya ncha za vidole vya miguuni. Aidha, kuna utando kidogo kwenye vidole vya miguuni. Kidole cha pili cha mkononi ni kirefu sana kuliko cha pili.

**SPISHI INAZOFANANA NAZO:** Hii ndiyo spishi kubwa peke yake ambayo imepatikana Usambara Magharibi. Saizi yake kubwa, miguu mirefu na kichwa kipana ni vitu vinavyoitofautisha na spishi zingine za Usambara Magharibi.

**MAZINGIRA:** Majani yaliyoanguka chini kwenye misitu iliyopo karibu au zaidi ya mita 1200 m kutoka usawa wa bahari

**HISTORIA ASILIA:** Inadhaniwa chura anataga mayai kwenye majani yaliyoanguka ya msituni na kutotoa vyura moja kwa moja.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Usambara Magharibi (kuna utata juu ya maeneo ambapo spishi hii hupatikana)

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Msitu asilia wa Mazumbai, Milima ya Usambara Magharibi, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1530 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



***Arthroleptis xenodactyloides*** (Hewitt, 1933)

Dwarf Squeaker, Hewitt's Bush Squeaker, Chirinda Screeching Frog, Nyika Squeaker



E. Harper

SVL: ♂ 16 – 20 mm; ♀ 19 – 23 mm

**DESCRIPTION:** A small leaf litter frog with short legs and a narrow head. The dorsum is orange-brown usually with brighter orange tinges around the groin. Faint light dorsolateral stripes are present in some individuals while others have a darker hourglass figure on the dorsum. The snout is pointed. The small tympanum is distinctly visible. Toe and finger tips are expanded into small rounded disks. As in other members of this family, the male has an elongated third finger. Females often have bright red-orange on the groin and thigh area.

**SIMILAR SPECIES:** *A. xenodactyloides* may be confused with *A. xenodactylus* and *A. stridens*, however *A. xenodactylus* never has dorsolateral stripes, and has papillate rather than rounded finger tips as in *A. xenodactyloides*. The wedge shaped profile of the snout in *A. xenodactyloides* distinguishes it from *A. stridens*.

**HABITAT:** Lowland and montane forests, swamps, woodland and wet grasslands.

**NATURAL HISTORY:** Clutches of around 20 unpigmented eggs are deposited beneath moist leaf litter. Eggs undergo direct development, and tiny frogs emerge without passing through a free-swimming tadpole stage. Adults can be found in discrete patches in forest habitat. This species is known to travel large distances through unsuitable habitat to neighboring mountains in the Taita Hills.

**CALL:** Males call from leaf litter or perched on low vegetation during the day and at night. The call consists of three short high-pitched clicks.

**DISTRIBUTION IN THE EACF:** Southeastern and northeastern Tanzania and the Taita Hills in Kenya.

**TYPE LOCALITY:** Chirinda Forest, Zimbabwe

**ELEVATIONAL RANGE:** Sea level to 2100 m

**CONSERVATION STATUS:** Least Concern

Chura filimbi kibushuti wa Hewitt, wa Chirinda, na wa Nyika



UREFU WA MWILI: ♂ 16 – 20 mm; ♀ 19 – 23 mm

**MAELEZO:** Chura huyu mdogo anayepatikana chini kwenye majani ya msituni ana urefu chini ya 22 mm, miguu mifupi na kichwa chembamba. Sehemu ya juu ni njano kahawia na ina madoa madogo sana ya njano iliyokolea kwenye eneo la kinena. Baadhi ya vyura wana mistari iliyofia mgongoni na pembeni wakati wengine wana umbo la “V” mbili zinazogusana, moja ikiwa chini juu, kwenye sehemu ya juu. Pua imechongoka. Kiwambo cha sikio ni kidogo na kinaonekana. Vidole vya miguuni na mikononi ni vipana na vina ncha mviringo. Kama ilivyo kwa vyura wengine wa familia hii, kidole cha mkononi cha tatu cha madume ni kirefu kuliko vingine. Mara nyingi, majike yana rangi nyekundu inayong’aa kwenye kinena na kwenye paja.

**SPISHI INAZOFANANA NAZO:** Inawezekana kumchanganya *A. xenodactyloides* na *A. xenodactylus* na *A. stridens*, lakini *A. xenodactylus* kamwe hana mistari katikati ya sehemu ya juu na hana ncha mviringo kwenye vidole vya mikononi kama *A. xenodactyloides*. Pua yenye umbo la kabari ya *A. xenodactyloides* inatofautisha spishi hii na ile ya *A. stridens*.

**MAZINGIRA:** Maeneo tambarare na misitu iliyopo karibu au zaidi ya mita 1200 m kutoka usawa wa bahari, mabwawa, maeneo yenye miti na nyika zenye unyevu.

**HISTORIA ASILIA:** Makundi ya mayai 20 yasiyokuwa na rangi yanatagwa chini ya majani yaliyoanguka na yenye unyevunyevu. Mayai yanatolewa chura wachanga na wadogo sana bila kupitia hatua ya viluwiluwi vinavyoogelea. Chura wazima wanapatikana kwenye sehemu zilizojificha za msituni. Spishi hii inaweza kusafiri umbali mkubwa kwenye mazingira yasiyofaa hadi kwenye milima jirani ya Taita.

**ENEO SPISHI INAPOPATIKANA KWENYE**

**MTMMP:** Tanzania Kusini na Kaskazini na Milima ya Taita, Kenya.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Misitu ya Chirinda, Zimbabwe

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:**

0 - 2100 m

**HALI YA UHIFADHI:** Haiko hatarini



***Arthroleptis xenodactylus*** (Boulenger, 1909)  
Amani Screeching Frog, Eastern Squeaker

Chura filimbi wa Amani, wa Mashariki



E. Harper

SVL: ♂ 13 – 17 mm

**DESCRIPTION:** A very small leaf litter frog with a narrow wedge-shaped head and short legs. Dorsal pattern is variable among individuals, but often consists of a darker hourglass figure on a brown background, sometimes with dark sacral spots as well. In most individuals a dark band begins at the tip of the snout and passes under the eye to the tympanum. A small dark patch is usually present around the vent. The ventral surface is dark and evenly speckled with light mottling from the throat to the undersides of the legs. Digit tips are

slightly expanded, with a distinct pointed papillate projection. The third finger of males is elongated and edged with small spines which presumably aid in grasping the female during mating.

**SIMILAR SPECIES:** *A. xenodactylus* may be confused with *A. xenodactyloides* and *A. stridens*, but can be distinguished by its distinctly papillate digit tips.

**HABITAT:** Leaf litter of lowland and montane forest. Often found under logs and in banana leaves.

**NATURAL HISTORY:** Eggs are laid in moist soil or leaves and develop directly into frogs without passing through a free-swimming tadpole stage. Emerging frogs can be as small as 5 mm.

**CALL:** Males call from exposed sites among leaf litter. The call is a high-pitched chirp.

**DISTRIBUTION IN THE EACF:** East Usambara and Nguru Mountains

**TYPE LOCALITY:** Amani, East Usambaras, Tanzania

**ELEVATIONAL RANGE:** Sea level to 2000 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ 13 – 17 mm

**MAELEZO:** Chura huyu mdogo anayepatikana chini kwenye majani ya msituni ana kichwa chenye umbo la kabari na miguu mifupi. Mpangilio wa sehemu ya juu unatofautiana kati ya vyura lakini mara nyingi kuna umbo la “V” mbili zinazogusana, moja ikiwa chini juu kwenye usuli wa kahawia na wakati mwingine kuna madoa sehemu ya chini ya mgongo. Idadi kubwa ya vyura hawa wana mstari mweusi unaoanzia kwenye ncha ya pua, unapita chini ya jicho na kuishia kwenye kiwambo cha sikio. Kawaida, kuna eneo dogo jeusi linalozunguka tundu la kutolea haja na kutoa na kupokelea mbegu za uzazi. Sehemu ya chini ni nyeusi na ina madoa kutoka kooni hadi sehemu ya nyuma ya miguu. Ncha za vidole ni pana kidogo na zina eneo lilichochongoka na linaloonekana. Kidole cha mkononi cha tatu cha dume ni kirefu kuliko vingine na pembeni kuna miiba midogo ambayo huenda inatumika kumkamata jike wakati wa kupandana.

**SPISHI INAZOFANANA NAZO:** *A. xenodactylus* anafanana na *A. xenodactyloides* na *A. stridens* lakini tofauti yake ni kuwa ana ncha za vidole zilizovimba na kujitokeza

**MAZINGIRA:** Majani yaliyoanguka kwenye eneo tambarare au misitu iliyo karibu au zaidi ya 1200 m. Mara nyingi chura wanapatikana chini ya magogo au kwenye majani ya ndizi.

**HISTORIA ASILIA:** Mayai yanatagwa kwenye udongo wenye unyevunyevu au majani na vyura wanatolewa moja kwa moja bila kupitia hatua ya viluwiwi wanaoogelea. Vyura wanaotolewa wanaweza kuwa na urefu wa 5 mm.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Usambara Mashariki na Milima ya Nguru

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Amani, Usambara Mashariki, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 0 - 2000 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



## *Leptopelis argenteus* (Pfeffer, 1893)

Bagomoyo Forest Treefrog, Silvery Tree Frog, Triad Tree Frog, Broadley's Tree Frog



E. Harper

SVL: ♂ 45mm; ♀ 52 mm

**DESCRIPTION:** A light brown *Leptopelis*, typically with four broad darker brown stripes on the dorsum, although some individuals lack any markings. The snout is short and rounded and there is usually a dark triangle between the eyes. The tympanum is visible and less than half the diameter of the eye. The legs are short (tibia less than 1/2 SVL). The pupils are vertical. Males lack pectoral glands. The fingers end in small disks. Toes have a small amount of webbing.

**SIMILAR SPECIES:** *Leptopelis argenteus* and *Leptopelis concolor* differ in their dorsal markings and distribution, but have identical advertisement calls and should possibly be considered subspecies rather than separate species.

**HABITAT:** Coastal savanna woodlands. Tolerates some degree of habitat degradation

**NATURAL HISTORY:** Males call while perched on trees or grass, often away from water. Eggs are buried in mud and larvae enter water after hatching.

**CALL:** A combination of whistles and clacks

**DISTRIBUTION IN THE EACF:** Eastern Tanzania, inland to the Kilombero Valley

**TYPE LOCALITY:** Marsh south of Bagamoyo, Tanzania

**ELEVATIONAL RANGE:** < 800 m

**CONSERVATION STATUS:** Least Concern

Chura miti wa Bagamoyo



UREFU WA MWILI: ♂ 45 mm; ♀ 52 mm

**MAELEZO:** Chura huyu ni *Leptopelis* mwenye rangi ya kahawia iliyofifia, ana mistari minne kahawia iliyokolea na mipana sehemu ya chini, lakini baadhi ya vyura hawana alama zozote. Pua yake ni fupi na mviringo na kawaida, ana pembetatu nyeusi kati ya macho yake. Kiwambo kinaonekana na ni chini ya nusu ya kipenyo cha jicho. Miguu ni mifupi – chini ya 1/2 ya SVL. Mboni zake ni za wima. Madume hayana tezi kifua. Vidole vya mikononi vina ncha mviringo. Vidole vya mguuni vina utando kidogo sana.

**SPISHI INAZOFANANA NAZO:** Spishi za *Leptopelis argenteus* na *Leptopelis concolor* zinatofautiana kwenye alama za sehemu ya juu na maeneo zinapatikana lakini miito yao ni sawa na huenda ni vizuri zikachukuliwa kama spishi ndogo za spishi moja kubwa na siyo spishi tofauti

**MAZINGIRA:** Savana ya pwani yenye miti. Inavumilia kiasi kwenye mazingira yaliyoharibiwa kiasi.

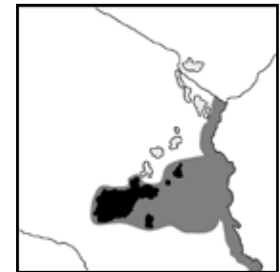
**HISTORIA ASILIA:** Madume yanaita yanapokuwa juu ya miti au kwenye majani, mara nyingi yanapokuwa mbali na maji. Mayai yanafukiwa kwenye tope na viluwiluwi vinaingia majini baada ya kutotolewa.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Tanzania Mashariki na bara hadi Bonde la Kilombero.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Maeneo ya matope kusini mwa Bagamoyo, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** < 800 m

**HALI YA UHIFADHI:** Haiko hatarini



***Leptopelis barbouri*** (Ahl, 1929)  
Barbour's Forest Treefrog

Churamiti wa Msituni wa Barbouri



E. Harper

SVL: ♂ 32 – 39 mm; ♀ 38 – 58 mm

**DESCRIPTION:** A slender frog with a translucent green dorsum, often with yellow flecking. The eyes are white with red-orange variegations and are edged with black. The tympanum is small and barely visible. The snout is sharply pointed. In males the throat is bluish green. Toes end in large disks and are roughly half webbed. Males have pectoral glands.

**SIMILAR SPECIES:** *Leptopelis parkeri* has similar eyes, but differs substantially from *L. barbouri* in dorsal coloration.

**HABITAT:** Montane rainforest, especially along streams

**NATURAL HISTORY:** Eggs are laid in burrows, sometimes as far as 10 m from a stream. Tadpoles move to water upon hatching.

**CALL:** Males call from vegetation overhanging streams. Schiøtz (1999) describes the call as “a brief buzzing”

**DISTRIBUTION IN THE EACF:** East Usambara and Udzungwa Mountains and Mount Rungwe

**TYPE LOCALITY:** Mount Lutindi, Usambara Mountains, Tanzania

**ELEVATIONAL RANGE:** 700 – 2100 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ 32 – 39 mm; ♀ 38 – 58 mm

**MAELEZO:** Chura huyu ni mwembamba na sehemu ya chini ni kijani, angavu na yenye madoa njano madogo sana. Macho ni meupe na yana rangi mbalimbali, nyekundu, njano na nyeusi pembeni. Kiwambo cha sikio ni kidogo na kinaonekana kwa shida. Pua imechongoka sana. Koo la dume ni kijani bluu. Vidole vya miguuni vinaishia kwenye ncha za vidole mvingo na vina utando kwenye nusu ya sehemu. Madume yana tezi kifuani.

**SPISHI INAZOFANANA NAZO:** Macho yake yanafanana na ya *Leptopelis parkeri* lakini rangi ya sehemu ya juu ya spishi hizi mbili ni tofauti sana.

**MAZINGIRA:** Misitu iliyo karibu au zaidi ya 1200 m kutoka usawa wa bahari, hususan pembeni mwa mito.

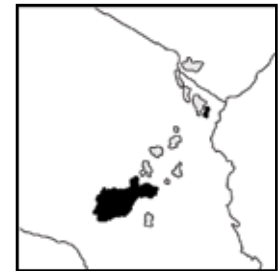
**HISTORIA ASILIA:** Mayai yanatagwa kwenye mashimo, wakati mwingine umbali wa 10 m kutoka mtoni. Viluwilwi vikitolewa vinaingia majini.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara Mashariki, Udzungwa na Rungwe

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Milima ya Lutindi, Usambara, nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 700 – 2100 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa





***Leptopelis concolor*** (Ahl, 1929)  
Triad Tree Frog, Witu Forest Treefrog

Vyura miti wa Triad, Vyura  
miti wa Msitu wa Witu



E. Harper

SVL: ♂ 31 – 38 mm

**DESCRIPTION:** A relatively small, light brown *Leptopelis* with a broad head and short snout. The dorsum can be green or cream colored in juveniles. There is a darker brown triangle between the eyes and an inverted 'V' or 'Y' on the dorsum. The legs are short – tibia slightly less than ½ SVL. Pupils are vertical. Toes have only a very small amount of webbing. Males lack pectoral glands.

**SIMILAR SPECIES:** *Leptopelis argenteus* and *Leptopelis concolor* differ in their dorsal markings and

distribution, but have identical advertisement calls and should possibly be considered subspecies rather than separate species.

**HABITAT:** Savanna woodland and grassland in coastal lowlands. Tolerates some degree of habitat degradation, but requires vegetation.

**NATURAL HISTORY:** Breeding starts at the beginning of each rainy season. Males call while perched 1 – 2 m above the ground several meters distance from each other on vegetation, often far from water. Eggs are laid in cavities in the mud. Larvae hatch into the water when the nest is inundated with water.

**CALL:** Schiøtz (1999) describes the call as “an un-melodious clack followed by two or three shrill screams, or sometimes the screams followed by the clack, or clacks or screams alone”

**DISTRIBUTION IN THE EACF:** Taita Hills and coastal areas of southern Kenya and northeastern Tanzania

**TYPE LOCALITY:** Witu, Kenya

**ELEVATIONAL RANGE:** < 1700 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: ♂ 31 – 38 mm

**MAELEZO:** Chura huyu ni *Leptopelis* mdogo kiasi mwenye rangi ya kahawia, kichwa kipana na pua fupi. Sehemu ya chini ya vyura wadogo inaweza kuwa kijani au rangi ya malai. Sehemu ya chini, kuna pembetatu kahawia iliyokolea kati ya macho na 'V' au 'Y' zilizogeuzwa chini juu. Miguu ni mifupi, chini ya ½ ya SVL. Mboni ni za wima. Vidole vya miguuni vina utando kidogo sana. Madume yana tezi kifuani.

**SPISHI INAZOFANANA NAZO:** Spishi za *Leptopelis argenteus* na *Leptopelis concolor* zinatofautiana kwenye alama za sehemu ya juu na maeneo zinapopatikana lakini miito yao ni sawa na huenda ni vizuri zikachukuliwa kama spishi ndogo za spishi moja kubwa na siyo spishi tofauti

**MAZINGIRA:** Maeneo ya savana yenye miti na nyika za maeneo tambarare ya pwani. Inavumilia kiasi kwenye mazingira yaliyoharibiwa lakini inahitaji uoto.

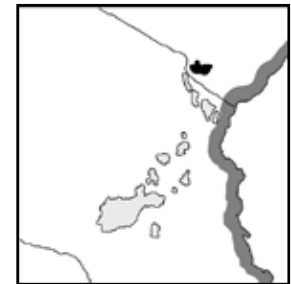
**HISTORIA ASILIA:** Msimu wa kuzaliana unaanza mwanzo wa kila kipindi cha mvua. Madume yanaita yakiwa kwenye uoto, mita 1-2 juu ya ardhi na mita kadhaa kutoka madume mengine na mara nyingi mbali na maji. Mayai yanatagwa kwenye mashimo yaliyo kwenye matope. Viluwiluwi vinatolewa majini kiota kinapokuwa kimejaa maji.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Taita na maeneo ya pwani ya Kenya Kusini na Tanzania Kaskazini

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Witu, Kenya

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** < 1700 m

**HALI YA UHIFADHI:** Haiko hatarini



***Leptopelis flavomaculatus*** (Günther, 1864)

Brown-backed Tree Frog, Yellow-spotted Tree Frog, Brown Forest Treefrog, Johnston's Treefrog



E. Harper

SVL: ♂ 44 – 50 mm; ♀ 60 – 70 mm

**DESCRIPTION:** Two color phases exist. Juveniles and some adult males are bright green with yellow flecks. Adult females and some adult males are gray-brown with a darker brown triangle pointing forward on the dorsum and a dark band running below the eye and covering the tympanum. Bright white patches are distinctly visible on the heels and elbows of individuals in the green phase, but are less distinct in the gray-brown phase. Adult males have pectoral glands. The snout is short and

rounded. The tympanum is large and distinct, greater than ½ the diameter of the eye.

**SIMILAR SPECIES:** *L. flavomaculatus* adults in the gray-brown phase may easily be confused with adult *L. vermiculatus* which have a nearly identical adult color phase. The most reliable means of differentiating between the two species is to compare the toe webbing which is more extensive in *L. vermiculatus*, with the inner web reaching the disks of the first three digits.

**HABITAT:** *L. flavomaculatus* is primarily found in semideciduous forest in coastal areas, but also occurs in lowland and montane forest. It tolerates some degree of habitat degradation.

**NATURAL HISTORY:** Very little is known about the breeding habits of *L. flavomaculatus*. Males call from vegetation approximately 3-4 m above ground and from burrows on the ground. It is assumed to lay eggs in burrows near water and larvae are thought to hatch and develop in water. Emerging metamorphs are commonly seen on vegetation at Amani Pond in the East Usambaras and are around 15 mm.

**CALL:** Males call from dense vegetation as high as four meters above the ground, or from the mouth of burrows in the ground. Schiøtz (1999) describes the call as “a clack with a peculiar tonal quality”

Vura miti wenye mgongo kahawia, Vyura miti wenye madoa njano, Vyura miti kahawia wa msituni, Vyura miti wa Johnson

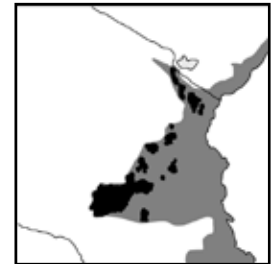


**DISTRIBUTION IN THE EACF:** Eastern Tanzania including the island of Zanzibar, Shimba Hills and coastal Kenya including Arabuko-Sokoke Forest

**TYPE LOCALITY:** Rovuma Bay, Tanzania

**ELEVATIONAL RANGE:** < 1600 m

**CONSERVATION STATUS:** Least concern





*Leptopelis flavomaculatus* (Continued)



Juvenile *L. flavomaculatus*  
J. Vonesh

UREFU WA MWILI: ♂ 44 – 50 mm; ♀ 60 – 70 mm

MAELEZO: Chura huyu ana mifumo miwili ya rangi. Vyura wadogo na baadhi ya madume mazima wana rangi ya kijani inayong'aa na madoa ya njano. Majike mazima na baadhi ya madume mazima yana rangi ya kijivu kahawia na pembetatu kahawia iliyokolea, inayoelekea mbele kwenye sehemu ya juu na mstari mweusi unaotoka chini ya jicho na kufunika kiwambo cha sikio. Aidha, kuna madoa meupe yanayoonekana wazi na yanayong'aa kwenye kisigino na kiwiko cha vyura wanapokuwa na rangi ya kijani lakini hayaonekani vizuri wanapokuwa na rangi ya kijivu kahawia. Madume mazima yana tezi kifuani. Pua ni fupi na mviringo. Kiwambo cha sikio ni kikubwa, kinaonekana na kinazidi ½ ya kipenyo cha jicho.

SPISHI INAZOFANANA NAZO: Ni rahisi kuwachanganya vyura wazima wa *Leptopelis flavomaculatus* wakiwa kwenye hatua ya rangi ya kijivu kahawia na vyura wazima wa *L. vermiculatus* ambao wana rangi karibu sawa. Njia nzuri ya kutofautisha spishi hizi mbili ni kulinganisha utando kwenye vidole vya mguuni ambao umeenea zaidi kwenye *L. vermiculatus* ambapo utando wa ndani unafika kwenye ncha mviringo za vidole vya kwanza vitatu.

MAZINGIRA: *L. flavomaculatus* anapatikana zaidi kwenye misitu ya pwani ambayo baadhi ya miti yake huangusha majani yote kila, lakini pia kwenye misitu ya maeneo tambarare na iliyo karibu au mita 1200 kutoka usawa wa bahari. Inavumilia kiasi mazingira yaliyoharibiwa.

HISTORIA ASILIA: Kuna taarifa chache sana juu ya kuzaliana kwa spishi hii. Madume yanaita kutoka kwenye uoto ulio mita 3-4 juu ya ardhi na kutoka mashimoni. Inadhaniwa mayai yanatagwa mashimoni na viluwiluwi wanatolewa na kukua majini. Vyura wachanga hawa wanaotoka kupata umbile la chura mzima wanaonekana mara nyingi kwenye uoto wa Bwawa la Amani, Usambara Mashariki na wana urefu wa takribani 15 mm.

ENEO SPISHI INAPOPATIKANA KWENYE MTMMP: Tanzania Mashariki pamoja na kisiwa cha Zanzibar, Milima ya Shimba na pwani ya Kenya ikijumuisha Msitu wa Arabuko-Sokoke.

MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA: Ghuba ya Ruvuma, Tanzania

ENEO LA SPISHI KUTOKA USAWA WA BAHARI: < 1600 m

HALI YA UHIFADHI: Haiko hatarini

***Leptopelis parkeri*** (Barbour & Loveridge, 1928)  
Parker's Forest Treefrog, Parker's Tree Frog



J. Vonesh

SVL: ♂ 34 – 43; ♀ 56 mm.

**DESCRIPTION:** A slender *Leptopelis* with bright red eyes. Males are typically dark gray or brown with an irregular pattern of yellow bars, while females are uniform olive- brown or gray. In both sexes the ventral surface is light in color and the toes and undersides of the limbs are yellow. The throat is white in males and orange in females. The tympanum is visible, but small and indistinct. Pupils are vertical. Toes are half webbed.

**SIMILAR SPECIES:** *L. barbouri* has similar eyes, but differs substantially from *L. parkeri* in dorsal coloration.

**HABITAT:** Montane forest. Does not tolerate severely modified habitat.

**NATURAL HISTORY:** Eggs are laid in mud cavities near slowly flowing streams

**CALL:** Schiøtz (1999) describes the call as "a quiet buzzing."

**DISTRIBUTION IN THE EACF:** East and West Usambara, Udzungwa, Uluguru and South Pare Mountains

**TYPE LOCALITY:** Vituru, Uluguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 200 – 2000 m

**CONSERVATION STATUS:** Vulnerable

Vyura miti wa mstuni wa Parker,  
Vyura miti wa Parker



UREFU WA MWILI: ♂ 34 – 43; ♀ 56 mm.

**MAELEZO:** Chura Huyu ni *Leptopelis* mwembamba mwenye macho mekundu yanayong'aa. Madume wana rangi ya kijivu iliyokolea au kahawia na wana mistari ya njano inayotofautiana, wakati majike yana rangi ya mzeituni kahawia au kijivu. Sehemu ya chini ya madume na majike ina rangi iliyofifia wakati vidole vya miguuni, sehemu ya chini ya miguu na mikono ni njano. Koo la madume ni jeupe na la majike ni njano. Kiwambo cha sikio ni kidogo na kinaonekana kwa shida. Mboni ni za wima na vidole vya miguuni vina utando kiasi (½).

**SPISHI INAZOFANANA NAZO:** *L. barbouri* ana macho yanayofanana na spishi hii lakini rangi yake ya sehemu ya juu ni tofauti sana na ya *L. parkeri*

**MAZINGIRA:** Misitu iliyopo zaidi ya 1200 m kutoka usawa wa bahari. Haivumilii mazingira yaliyobadilishwa sana.

**HISTORIA ASILIA:** Mayai yanatagwa kwenye mashimo ya matope karibu na vijito vinavyokwenda polepole.

**SPISHI INAZOFANANA NAZO:** Spishi hii ina macho yanayofanana na ya *L. barbouri* lakini anatoftautiana naye sana kwenye rangi ya sehemu ya juu.

**MAZINGIRA:** Misitu iliyo karibu au zaidi ya 1200 m. Haivumilii mazingira yaliyoharibiwa sana.

**HISTORIA ASILIA:** Mayai yanatagwa kwenye mashimo matopeni karibu na mito inayokwenda polepole.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara Magharibi, Usambara Mashariki, Udzungwa, Uluguru na Pare Kusini

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Vituru, Milima ya Uluguru nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 200 – 2000 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



***Leptopelis uluguruensis*** (Barbour & Loveridge, 1928)  
Uluguru Forest Treefrog, Uluguru Tree Frog

Vyura miti wa Msitu ya Uluguru, Vyura  
miti wa Uluguru



E. Harper



J. Vonesh

SVL: ♂ 28 – 38 mm; ♀ 46 – 48 mm

**DESCRIPTION:** A small *Leptopelis* with an indistinct tympanum. The dorsum is blue-green in some individuals and yellow-brown in others, often with light spots or rings. In males the throat is translucent blue. Pupils are vertical. The iris may be brown or silver. Toes are only about ½ webbed. Pectoral glands are not present in males.

**SIMILAR SPECIES:** Individuals with the blue-green dorsal color are never the same bright green color of *L. flavomaculatus* or *L. vermiculatus*. The eyes of *L. uluguruensis* are never red or orange as in *L. barbouri*.

**HABITAT:** Submontane rainforest. Tolerates slightly disturbed habitat including banana patches near mature forest.

**NATURAL HISTORY:** Mode of reproduction is unknown, but it is assumed that eggs are laid in mud cavities near water.

**CALL:** Schiøtz (1999) describes the call as “a brief, rather unremarkable clack.”

**DISTRIBUTION IN THE EACF:** East

Usambara, Nguu, Nguru, Udzungwa and Uluguru Mountains

**TYPE LOCALITY:** Nyange, Uluguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 900 – 1650 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ 28 – 38 mm; ♀ 46 – 48 mm

**MAELEZO:** Chura huyu ni *Leptopelis mdogo* mwenye kiwambo cha sikio kisichoonekana. Baadhi ya vyura wana rangi ya bluu kijani na wengine njano kahawia kwenye sehemu ya chini na mara nyingi wana madoa au michoro ya miviringo iliyo na rangi iliyofifia. Koo la madume ni bluu angavu. Mboni ni za wima na airisi ni kahawia au rangi ya fedha. Vidole vya miguuni vina utando kiasi (½). Madume hayana tezi kifuani.

**SPISHI INAZOFANANA NAZO:** Vyura wenye rangi ya bluu kijani sehemu ya juu hawana rangi ya kijani inayong'aa kama ya *L. flavomaculatus* au *L. vermiculatus*. Macho ya *L. uluguruensis* kamwe hayawi mekundu au rangi ya machungwa kama ya *L. barbouri*.

**MAZINGIRA:** Misitu yenye mvua nyingi iliyo karibu au zaidi ya 1200 m kutoka usawa wa bahari. Inavumilia mazingira yaliyoharibiwa kidogo, ikiwa ni pamoja mashamba madogo ya ndizi karibu na misitupatikana tu kwenye misitu ambayo haijaguswa.

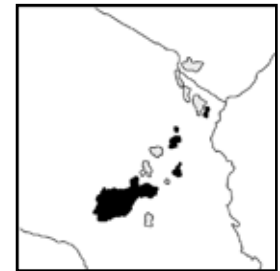
**HISTORIA ASILIA:** Hakuna taarifa juu ya namna ya kuzaliana lakini inadhaniwa mayai yanatagwa mashimoni kwenye matope karibu na maji.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara Mashariki, Nguu, Nguru, Udzungwa na Uluguru

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Nyange, Milima ya Uluguru, nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 900 – 1650 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



***Leptopelis vermiculatus*** (Boulenger, 1909)  
Amani Forest Treefrog, Vermiculated Tree Frog

Vyura miti wa msituni Amani



J. Vonesh

SVL: ♂ 39 – 50 mm; ♀ 61 – 85 mm

**DESCRIPTION:** A large *Leptopelis* with two color phases. Juveniles and some adult males are bright green with black vermiculations. Adult females and some adult males are gray-brown with a darker triangle pointing forward on the dorsum and a dark area below the eye extending to the tympanum. In both phases bright white patches appear on the heels and elbows, and the sides are marbled black and white. Pectoral glands are present in males.

**SIMILAR SPECIES:** *L. vermiculatus* adults in the gray-brown phase may easily be confused with adult *L. flavomaculatus* which have a nearly identical adult color phase. The toe webbing on *L. vermiculatus* is extensive, but never reaches the disks of the first three digits as it does in *L. flavomaculatus*.

**HABITAT:** Submontane and montane forest. Found only in undisturbed forest.

**NATURAL HISTORY:** Unknown, but assumed to lay eggs in mud nests on land near water.

Males call near streams and pools. Metamorphosing larvae have been observed emerging from Amani pond in the East Usambaras.

**CALL:** Schiøtz (1999) describes the call as “a single clack with a peculiar tonal quality.”

**DISTRIBUTION IN THE EACF:** Eastern Arc endemic, including the Usambara, Nguu, Udzungwa and Rungwe Mountains of Tanzania.

**TYPE LOCALITY:** Amani, East Usambara Mountains, Tanzania

**ELEVATIONAL RANGE:** 900 – 1800 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ 39 – 50 mm; ♀ 61 – 85 mm

**MAELEZO:** Chura huyu ni *Leptopelis* mkubwa na ana mifumo miwili ya rangi tofauti. Vyura wadogo na baadhi ya madume mazima yana rangi ya kijani inayong’aa na mistari iliyopindapinda. Majike mazima na baadhi ya madume mazima ni kijivu kahawia na yana pembetatu nyeusi inayoelekea mbele kwenye sehemu ya juu na yana sehemu nyeusi inayotoka chini ya jicho hadi kiwambo cha sikio. Kwenye mifumo yote miwili ya rangi, kuna madoa meupe yanayong’aa, kwenye visigino na viwiko na vyura wana mchanganyiko wa rangi nyeusi na nyeupe pembeni. Madume yana tezi kifuani.

**SPISHI INAZOFANANA NAZO:** Ni rahisi kuwachanganya vyura wazima wa *L. vermiculatus* wakiwa kwenye hatua ya rangi ya kijivu kahawia na wale wa *L. flavomaculatus* ambao wana rangi karibu sawa. Lakini utando kwenye vidole vya mguuni vya *L. vermiculatus* umeenea zaidi ila kamwe haufiki kwenye vidole vitatu vya mwanzo kama ilivyo kwa *L. flavomaculatus*

**MAZINGIRA:** Mimitu iliyo karibu au zaidi ya 1200 kutoka usawa wa bahari. Inapatikana tu kwenye misitu ambayo haijaguswa.

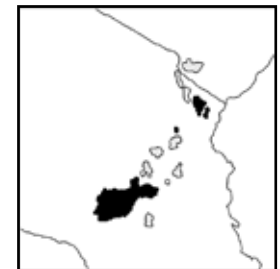
**HISTORIA ASILIA:** Haijulikani, lakini inadhaniwa kwamba vyura wanataga mayai kwenye viota matopeni kwenye ardhi karibu na maji. Madume yanaita karibu na mito na madimbwi. Viluwilwi vimeonekana vikitoka kwenye bwawa la Amani, Usambara Mashariki.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara, Nguu, Udzungwa na Rungwe, nchini Tanzania.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Amani, Milima ya Usambara Mashariki, nchini Tanzania.

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 900 – 1800 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa





## Brevicipitidae

The family Brevicipitidae occurs only in eastern and southern sub-Saharan Africa. They were previously considered to be in the family Microhylidae, but recent genetic analysis suggests that they share a common ancestor and are more closely related to Hyperoliidae, Hemisotidae and Arthroleptidae. Four genera are found in the Eastern Arc, including *Breviceps*, *Probreviceps*, *Callulina*, and *Spelaeophryne*. The latter two are endemic to the Eastern Arc. All have small narrow heads and short hind limbs. Males are typically much smaller than females and some species rely on a sticky substance produced by skin glands to glue themselves to females during mating. Females lay eggs in underground cavities and the eggs hatch directly into small frogs without a free-swimming tadpole phase.

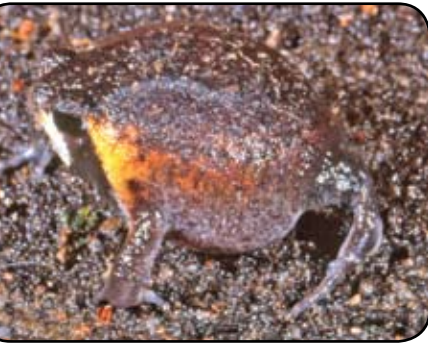
Familia ya Brevicipitidae inapatikana tu mashariki na kusini mwa Afrika, kusini mwa Sahara. Awali, ilidhaniwa kwamba vyura hawa walikuwa kwenye familia ya Microhylidae, lakini utafiti wa kijenetiki wa hivi karibuni unaonyesha kwamba wanatokana na mhenga mmoja na wana uhusiano wa karibu na Hyperoliidae, Hemisotidae na Arthroleptidae. Kuna jenasi nne zinazopatikana Tao la Mashariki ambazo ni *Breviceps*, *Callulina*, *Probreviceps* na *Spelaeophryne*. Aidha, *Callulina* na *Spelaeophryne* zinapatikana tu kwenye Tao la Mashariki. Madume ni madogo kuliko majike na baadhi ya spishi zinatimia kitu kinachotoka kwenye tezi na kinachonata ili kuweza kujishikilia kwa majike wakati wa kupandana. Majike yanataga mayai kwenye mashimo chini ya ardhi na vyura wadogo wanatotolewa bila kupitia hatua ya viluwiluwi wanaoogelea.



*Breviceps mossambicus*  
V. Mercurio

***Breviceps fichus*** (Channing and Minter, 2004)  
Highland Rain Frog

Vyura Waitamvua wa  
Milimani



A. Channing

SVL: ♂ 35 mm; ♀ 43 mm

**DESCRIPTION:** A rotund frog with a very small head and short limbs. The dorsum is dark brown and the ventral surface is lightly colored. A distinct black mark runs from the eye to the base of each arm. The throat is brown in females and dark black in breeding males. Toes lack webbing.

**SIMILAR SPECIES:** Very similar in appearance to *B. mossambicus*, but the calls are distinctly different. It is thought that the two species do not overlap in range.

**HABITAT:** Grasslands at high elevations

**NATURAL HISTORY:** Males call during the day from burrows in dense grass. The breeding period is short, lasting only a few weeks at the start of the rainy season. Because they are underground most of the year, very little is known about their natural history. They are assumed to lay eggs terrestrially that hatch directly into small frogs without passing through a free-swimming larval stage. Juveniles have been observed in March.

**CALL:** Channing and Howell (2006) describe the call as “a pulsed whistle” with “12 pulses in a typical call.”

**DISTRIBUTION IN THE EACF:** Iringa region including the Udzungwa Mountains

**TYPE LOCALITY:** Kigwembimbi, Iringa District, Tanzania

**ELEVATIONAL RANGE:** Above 1500 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: ♂ 35 mm; ♀ 43 mm

**MAELEZO:** Chura huyu ni mviringo, ana kichwa kidogo sana na miguu mifupi. Sehemu ya juu ni kahawia iliyokolea na sehemu ya chini ina rangi iliyofifia. Kuna alama nyeusi inayotoka jichoni hadi mwanzo wa kila mkono. Koo la majike ni kahawia na ni jeusi sana kwenye madume yaliyofikia hali ya kuzaliana. Vidole miguuni havina utando.

**SPISHI INAZOFANANA NAZO:** Spishi hii inafanana sana kimaumbile na *B. mossambicus* lakini miito yao ni tofauti sana. Inadhaniwa kwamba spishi hizi mbili zinapatikana kwenye maeneo tofauti.

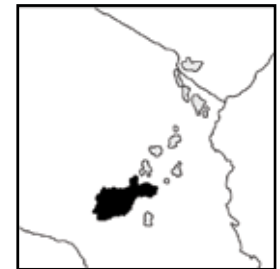
**MAZINGIRA:** Nyika zilizoko sehemu za miinuko mirefu.

**HISTORIA ASILIA:** Madume yanaita mchana kutoka kwenye mashimo yaliyopo kwenye nyasi nyingi. Musimu wa kuzaliana ni mfupi, majuma machache mwanzoni mwa msimu wa mvua. Taarifa zao ni chache sana kwa sababu wanakuwa chini ya ardhi karibu mwaka wote. Inadhaniwa vyura wanataga mayai chini ya ardhi na vyura wanatotolewa moja kwa moja bila kupitia hatua ya viluwilwi viwanavyoogelea. Vyura wachanga wanaonekana mwezi wa Machi. **ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Maeneo ya Iringa pamoja na Milima ya Udzungwa.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Kigwembimbi, Wilaya ya Iringa, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** > 1500 m

**HALI YA UHIFADHI:** Haiko hatarini





***Breviceps mossambicus*** (Peters, 1854)

Flat-faced Frog, Mozambique Rain Frog, Mozambique Short-headed Frog



V. Mercurio

SVL: ♀ < 52 mm

**DESCRIPTION:** A robust frog with extremely short legs and a short snout. The dorsal color is variable, but is usually gray-brown with dark specks. A dark mark extends from the eye to the arm, obscuring the tympanum. The ventral surface is smooth with a marbled brown pattern on a white background. In males the throat is darkly pigmented. Toes are unwebbed and the two outer toes of each foot are reduced.

**SIMILAR SPECIES:** see account for *B. fichus*

**HABITAT:** *B. mossambicus* is primarily a savanna species, but can be found in a wide range of habitat types including open woodland and mountain sides. Tolerates a degree of habitat alteration.

**NATURAL HISTORY:** A sticky substance is secreted during amplexus, allowing the male to become temporarily glued to the female. Large unpigmented eggs are laid in terrestrial burrows. Clutches are relatively small, usually consisting of no more than twenty eggs. Non-feeding tadpoles hatch six to eight weeks later and complete their development in the nest. Emerging metamorphs are 8-9 mm.

**CALL:** Males call at ground level from leaf litter or from the mouth of burrows. Channing and Howell (2006) describe the call as “a short chirp, 0.05 s long”

**DISTRIBUTION IN THE EACF:** Eastern and southern Tanzania.

**TYPE LOCALITY:** Cape of Good Hope, Western Cape Province, Rep. South Africa

**ELEVATIONAL RANGE:** < 1800 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: ♀ < 52 mm

**MAELEZO:** Chura huyu mwenye nguvu ana miguu mifupi sana na pua fupi. Rangi ya sehemu ya chini inatofautiana lakini, kwa kawaida, ni kijivu kahawia na ina madoa meusi. Kuna alama nyeusi inayotoka jichoni hadi mkononi na kufunika kiwambo cha sikio. Sehemu ya chini ni laini yenye mchanganyiko wa weupe na weusi na usuli mweupe. Koo la madume lina rangi nyeusi. Vidole vya miguuni havina utando na vidole viwili vya nje vya kila mguu ni vidogo.

**SPISHI INAZOFANANA NAZO:** Angalia taarifa za *B. fichus*

**MAZINGIRA:** Kwa ujumla, *Breviceps mossambicus* ni spishi ya savana lakini inaweza kupatikana kwenye aina mbalimbali za mazingira, pamoja na maeneo ya miombo na kando ya milima. Inavumilia mazingira yaliyoharibiwa kiasi.

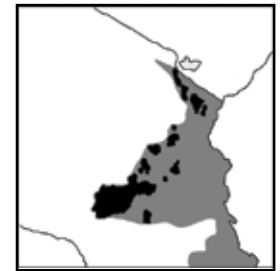
**HISTORIA ASILIA:** Madume wanatoa kitu kinachonata ili kuweza kujishikilia kwa majike wakati wa kupandana. Mayai makubwa yasiyokuwa na rangi yanatagwa kwenye mashimo ardhini. Makundi ya mayai ni madogo na hayazidi mayai 20. Viluwilwi vinatolewa majuma 6 hadi 8 baadaye na wanamalizia hatua ya kukua wakiwa kwenye viota. Vyura wadogo wanaotoka kupata umbile la chura mzima wanaojitokeza wanakuwa na urefu wa 8-9 mm.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Mashariki na Kusini mwa Tanzania.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Rasi ya Tumaini Jema (Cape of Good Hope), Afrika ya Kusini

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** < 1800 m

**HALI YA UHIFADHI:** Haiko hatarini



***Callulina dawida*** (Loader, Measey, de Sá and Malonza, 2009)  
Taita Warty Frog



G. J. Measey

SVL: ♂ 21-33 mm, ♀ 39 – 50 mm

**DESCRIPTION:** A robust *Callulina* with variable dorsal coloring from shades of light yellow through orange, brown to dark brown. In darker individuals, the sides and legs are normally lighter sometimes with white-tipped tubercles. The ventrum is pale but occasionally spotted.

**SIMILAR SPECIES:** This is the only *Callulina* known to occur in the Taita Hills

**HABITAT:** Dependent on indigenous forest. Found in thick leaf litter and rotting logs on the forest floor

**NATURAL HISTORY:** Assumed to breed by direct development. Males call from the ground or from low (1-2 m) perches in small trees. The call can be heard in indigenous Taita forests during the dry months (June to October). Females have been found brooding clutches of eggs in nests in the leaf litter.

**CALL:** Five to seven short buzzes interspersed with differing periods of silence.

**DISTRIBUTION IN THE EACF:** Dawida and Mbololo in the Taita Hills

**ELEVATIONAL RANGE:** 1200 - 2200 m

**TYPE LOCALITY:** Taita Hills

**CONSERVATION STATUS:** Critically Endangered

UREFU WA MWILI: ♂ 21 – 33 mm, ♀ 39 – 50 mm

**MAELEZO:** Chura huyu ni *Callulina* mwenye rangi tofauti sehemu ya juu, kati ya njano iliyofifia, rangi ya machungwa, kahawia na kahawia iliyokolea. Kwenye vyura wenye rangi iliyokolea zaidi, rangi ya pembeni na miguu ya nyuma na mbele inakuwa imefifia na wakati mwingine vipande vya ngozi vigumu na vilivyoinuka vinakuwa na ncha nyeupe. Sehemu ya chini ina rangi iliyofifia na wakati mwingine inakuwa na madoa.

**SPISHI INAZOFANANA NAZO:** Hii ndiyo spishi peke yake inayopatikana kwenye Milima ya Taita

**MAZINGIRA:** Misitu asilia. Inapatikana kwenye majani mengi yaliyoanguka na magogo yanayooza, kwenye ardhni msituni.

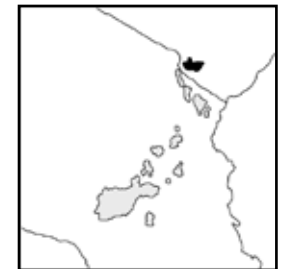
**HISTORIA ASILIA:** Inadhaniwa vyura wachanga wanatolewa moja kwa moja kutoka kwenye mayai. Madume yanaita kutoka ardhini au kutoka 1-2 m juu ya miti midogo. Mwito unaweza kusikika kwenye misitu asilia ya Taita wakati wa miezi ya kiangazi (Juni – Oktoba). Majike yameonekana yakiatamia makundi ya mayai kwenye viota vilivyo kwenye majani yaliyoanguka.

**ENEO SPISHI INAPOPATIKANA SPISHI KWENYE MTMMP:** Dawida na Mbololo ya Milima ya Taita

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Milima ya Taita

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1200 - 2200 m

**HALI YA UHIFADHI:** Spishi iko hatarini sana



***Callulina kisiwamsitu*** (de Sá, Loader and Channing, 2004)  
Mazumbai Warty Frog



E. Harper

SVL: ♂ < 32 mm; ♀ < 41 mm

**DESCRIPTION:** A stout arboreal frog. The tympanum is visible in most individuals and slightly oval. Legs are short. The dorsum is brown with small white-tipped warts. The ventral surface is cream colored with brown marbling on the sides. Toe and finger tips are not expanded.

**SIMILAR SPECIES:** *C. kisiwamsitu* is very similar in appearance to *C. dawidae* and *C. kreffti*, however *C. kisiwamsitu* is found only in the West Usambara Mountains where the other species do not occur.

**HABITAT:** Forest dependent

**NATURAL HISTORY:** Assumed to breed by direct development. Males call from vegetation up to 2 m above the ground.

**CALL:** A long trill with 8 – 18 notes per call

**DISTRIBUTION IN THE EACF:** West Usambara Mountains, including Mazumbai Forest Reserve, Ambangula Forest Reserve, Shume-Mugambo Forest Reserve and Lushoto.

**ELEVATIONAL RANGE:** 1200 - 1500 m

**TYPE LOCALITY:** Mazumbai, West Usambara Mountains, Tanzania

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: ♂ < 32 mm; ♀ < 41 mm

**MAELEZO:** Chura huyu ana nguvu na anaishi mtini. Kiwambo cha sikio kinaonekana katika idadi kubwa ya vyura na kina umbo la tufe kidogo. Miguu ni mifupi. Sehemu ya juu ni kahawia na ina chunjua ndogo zenye ncha nyeupe. Sehemu ya chini ina rangi ya malai na mchanganyiko wa rangi nyeusi na nyeupe pembeni. Vidole vya miguuni na mikononi siyo vipana.

**SPISHI INAZOFANANA NAZO:** Spishi hii inafanana sana na *C. dawidae* na *C. kreffti*, lakini *Callulina kisiwamsitu* anapatikana kwenye Milima ya Usambara Magharibi tu wakati spishi zingine hazipatikani hapo.

**HISTORIA ASILIA:** Inadhaniwa vyura wachanga wanatolewa moja kwa moja kutoka kwenye mayai. Madume yanaita kutoka kwenye uoto mita 2 juu ya ardhi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara Magharibi pamoja na Hifadhi ya Misitu ya Mazumbai, Hifadhi ya Misitu ya Ambangula, Hifadhi ya Misitu ya Shume-Mugambo na Lushoto.

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1200 - 1500 m

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Mazumbai, Milima ya Usambara Magharibi, nchini Tanzania

**HALI YA UHIFADHI:** Spishi iko hatarini



***Callulina krefftii*** (Nieden, 1911)  
Krefft's Secret Frog, Krefft's Warty Frog



E. Harper

SVL: < 38 mm

**DESCRIPTION:** *C. krefftii* is a stout arboreal frog with expanded tips on the fingers and toes. The dorsum is gray-brown and warty without distinct markings. The legs are short. The tympanum is visible and is smaller than ½ the diameter of the eye

**SIMILAR SPECIES:** *C. krefftii* is not found in the West Usambara Mountains where *C. kisiwamsitu* occurs. *C. krefftii* is a complex of several species that are in the process of being split. The populations in the North and South

Pares are comprised of three different species.

**HABITAT:** On forest floor often under rocks and logs, most active during rain. Tolerates a moderate degree of habitat degradation.

**NATURAL HISTORY:** Breeding mode is unknown, but is assumed to be by direct development. Frequently observed on low vegetation 1 – 2 m high.

**CALL:** Described by Channing and Howell (2006) as “a rolling trill” with 2 seconds between calls.

**DISTRIBUTION IN THE EACF:** Taita Hills, North Pare, South Pare, East Usambara, Uluguru, Nguu, Nguru, Ukaguru and Udzungwa Mountains

**TYPE LOCALITY:** Amani, East Usambara Mountains, Tanzania

**ELEVATIONAL RANGE:** 300 – 2200 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: < 38 mm

**MAELEZO:** *C. krefftii* ni chura mwenye nguvu, anaishi mitini na ana ncha pana kwenye vidole vya mikononi na miguuni. Sehemu ya juu yenye chunjua ni kijivu kahawia na haina alama maalum. Miguu ni miembamba. Kiwambo cha sikio kinaonekana na ni chini ya ½ ya kipenyo cha jicho.

**SPISHI INAZOFAN ANA NAZO:** *C. krefftii* haipatikani kwenye Milima ya Usambara Magharibi anakopatikana *C. kisiwamsitu*. *C. krefftii* ni mchanganyiko wa spishi kadhaa zilizopo kwenye mchakato wa kuzigawa. Vyura wa spishi hii waliopo Pare Kaskazini na Kusini wanagawanyika katika spishi tatu tofauti.

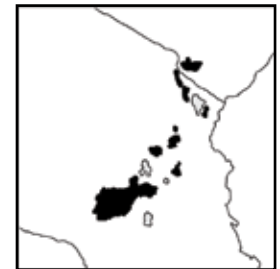
**MAZINGIRA:** Msituni, kwenye ardhi, mara nyingi chini ya miamba na magogo. Vyura wanafanya shughuli zao wakati wa mvua. Wanavumilia kiasi mazingira yaliyoharibiwa kiasi.

**HISTORIA ASILIA:** Hakuna taarifa juu ya kuzaliana lakini inadhaniwa mayai yanatolewa vyura wachanga bila kupitia hatua ya viluwiluvi vinavyoogelea. Mara nyingi huonekana kwenye uoto wa chini, 1-2 m kutoka ardhini. ENEO SPISHI INAPOPATIKANA KWENYE MTMMP: Milima ya Taita, Milima ya Pare Kaskazini na Pare Kusini, Usambara Mashariki, Uluguru, Nguu, Nguru, Ukaguru na Milima ya Udzungwa

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Amani, Milima ya Usambara Mashariki, Tanzania

**ENE LA SPISHI KUTOKA USAWA WA BAHARI:** 300 – 2200 m

**HALI YA UHIFADHI:** Haiko hatarini



## *Probreviceps durostris*

(Loader, Channing, Menegon, and Davenport, 2006)



M. Menegon

SVL: ♀ < 35 mm

**DESCRIPTION:** The dorsum is brown with angled gray bands. The snout is protruding and pointed, ending in a blue-gray tip. A dark mark extends from the eye to the arm. The tympanum is distinctly visible and is very large in males.

**SIMILAR SPECIES:** Most closely related to *Probreviceps rungwensis*, however the geographic location and pointed blue-gray snout of *P. durostris* are distinct.

**HABITAT:** Leaf litter in montane forest

**NATURAL HISTORY:** Assumed to lay eggs in the leaf litter that hatch directly into small frogs.

**CALL:** Described by Channing and Howell (2006) as “a slow series of clicks” with a 2 second interval.

**DISTRIBUTION IN THE EACF:** Endemic to the Ukaguru Mountains, found in the Mamiwa-Kisara and Ikwamba Forest Reserves

**TYPE LOCALITY:** Ikwamba Forest Reserve, Ukaguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 1500 – 1900 m

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: ♀ < 35 mm

**MAELEZO:** Sehemu ya juu ni kahawia na ina mistari kijivu yenye umbo la pembe. Pua imejitokeza na kuchongoka na inaishia kwenye ncha ya bluu kijivu. Alama nyeusi inatoka kwenye jicho hadi mkononi. Kiwambo cha sikio kinaonekana wazi na ni kikubwa sana kwenye madume.

**SPISHI INAZOFANANA NAZO:** Ina uhusiano wa karibu sana na *Probreviceps rungwensis* lakini eneo inapopatikana ni tofauti na ana pua bluu kijivu iliyo chongoka.

**MAZINGIRA:** Msituni kwenye majani yaliyoanguka, zaidi ya 1200 m kutoka usawa wa bahari.

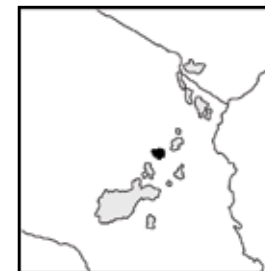
**HISTORIA ASILIA:** Inadhaniwa chura anataga mayai kwenye majani yaliyoanguka na yanatolewa vyura bila kupitia hatua ya viluwiluwi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Inapatikana tu kwenye Milima ya Ukaguru, Hifadhi za Misitu za Mamiwa-Kisara na Ikwamba

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Ikwamba, Milima ya Ukaguru, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1500 – 1900 m

**HALI YA UHIFADHI:** Spishi iko hatarini



## *Probreviceps loveridgei* (Parker, 1931)

### Loveridge's Forest Frog

### Chura wa Misituni wa Loveridge



SVL: ♂ < 33 mm; ♀ < 45 mm

**DESCRIPTION:** A stout burrowing frog with short legs and a blunt snout. The dorsum is brown with darker brown on the sides of the face and body. Toe tips are not expanded. A fold of skin angles from the eye down to the arm. The tympanum is distinctly visible and smaller than the eye.

**SIMILAR SPECIES:** Previously lumped with *Probreviceps macrodactylus*. In the Udzungwa Mountains the range may overlap with *Probreviceps rungwensis*, but the snout of *P. loveridgei* does not protrude as in *P. rungwensis*. Range may also overlap with *P. uluguruensis* in the Uluguru Mountains, but *P. uluguruensis* lacks a visible tympanum, whereas the tympanum is visible in *P. loveridgei*.

**HABITAT:** Common in montane and submontane forest. Requires vegetation for cover.

**NATURAL HISTORY:** *P. loveridgei* is semi-fossorial. Males call from burrows. Eggs are laid in burrows in the leaf litter of the forest floor and hatch directly into small frogs.

**CALL:** Channing and Howell (2006) describe the call as consisting of “4 or 5 notes in 0.6 seconds. Each note consists of 2 – 5 pulses.”

**DISTRIBUTION IN THE EACF:** Uluguru Mountains and escarpment of the Udzungwa Mountains

**TYPE LOCALITY:** Bagilo, Uluguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 900 – 2100 m in the Udzungwa Mountains and 1200 – 1500 m in the Uluguru Mountains

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ < 33 mm; ♀ < 45 mm

**MAELEZO:** Chura huyu ana nguvu na anafukua mashimo ardhini; ana miguu mifupi na pua butu. Sehemu ya juu ni kahawia na kuna kahawia iliyokolea pembeni mwa uso na mwilini. Ncha za vidole vya miguuni siyo pana. Kuna mkunjo wa ngozi kutoka jichoni hadi mkononi. Kiwambo cha sikio kinaonekana na ni kidogo kuliko jicho.

**SPISHI INAZOFANANA NAZO:** Awali, spishi hii iliwekwa pamoja na *Probreviceps macrodactylus*. Kwenye Milima ya Udzungwa, spishi hii inaweza kupatikana kwenye maeneo sawa na ya *Probreviceps rungwensis*, lakini pua ya *Probreviceps loveridgei* haijitokezi kama ya *P. uluguruensis*. Aidha, spishi hii inaweza ikapatikana kwenye maeneo sawa na *P. uluguruensis* ya Milima ya Uluguru lakini *P. uluguruensis* hana kiwambo cha sikio kinachoonekana, wakati kinaonekana kwenye *Probreviceps loveridgei*.

**MAZINGIRA:** Inapatikana sana kwenye misitu iliyo karibu au zaidi ya 1200 m kutoka usawa wa bahari. Inahitaji uoto ambamo inaweza kujificha

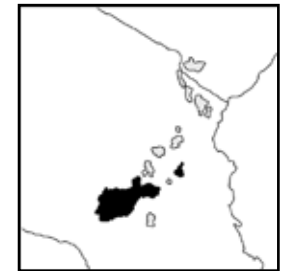
**HISTORIA ASILIA:** *Probreviceps loveridgei* anaishi chini ya ardhi kwenye mashimo muda mwingi. Madume yanaita kutoka mashimoni. Mayai yanatagwa kwenye mashimo yaliyopo kwenye majani yaliyoanguka chini msituni na yanatolewa vyura bila kupitia hatua ya viluwilwi vinavyoogelea.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Uluguru na ya Udzungwa

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Bagilo, Milima ya Uluguru, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 900 – 2100 m (Milima ya Udzungwa) na 1200 – 1500 m (Milima ya Uluguru)

**HALI YA UHIFADHI:** Inaweza kuathirika





***Probreviceps macrodactylus*** (Nieden, 1926)

Usambara Big-fingered Frog



E. Harper

SVL: ♂ < 40 mm; ♀ < 65 mm

**DESCRIPTION:** A stout frog with short legs and a blunt snout. The dorsum is brown with yellow-brown on the sides. The arms and legs are dark brown. A fold of skin slants down from the eye to the arm and the area below the fold is dark brown. The tympanum is visible and equal to or less than ½ the diameter of the eye. The toe tips are not expanded and the toes are almost completely without webbing.

**SIMILAR SPECIES:** Can be distinguished from other members of

the genus by its geographic location, lack of strongly protruding snout and its small but visible tympanum.

**HABITAT:** Moist montane and sub-montane forest. Requires vegetation for cover.

**NATURAL HISTORY:** Terrestrial to semi-fossorial, frequently found under logs in forest. May move through open habitats following rains. Eggs are laid in burrows on the forest floor during the short rains and hatch directly into small frogs. One clutch of eggs found at Amani during the dry season contained both fertilized (32) and infertile (21) eggs.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** East and West Usambara Mountains, North Pares

**TYPE LOCALITY:** Usambaras, Tanzania

**ELEVATIONAL RANGE:** 900 – 2100 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ < 40 mm; ♀ < 65 mm

**MAELEZO:** Chura huyu ana nguvu, miguu mifupi na pua butu. Sehemu ya juu ni kahawia na pembeni ni njano kahawia. Mikono na miguu ni kahawia iliyokolea. Kuna mkunjo wa ngozi kutoka jichoni hadi mkononi na eneo chini ya mkunjo huo ni kahawia iliyokolea. Kiwambo cha sikio kinaonekana na ni sawa au chini ya ½ ya kipenyo cha jicho. Ncha za vidole vya miguu ni siyo pana na utando kwenye vidole hivyo ni kidogo mno.

**SPISHI INAZOFANANA NAZO:** Spishi hii inatofautishwa na spishi zingine za jenasi kwa eneo lake la kijiografia, kukosekana kwa pua inayojitokeza sana na kiwambo cha sikio kidogo na kinachoonekana.

**MAZINGIRA:** Misitu yenye unyevunyevu iliyo karibu au zaidi ya 1200 m kutoka usawa wa bahari. Inahitaji uoto ambamo inaweza kujificha

**HISTORIA ASILIA:** Inaishi chini ya ardhi muda mwingi na mara nyingi hupatikana mstuni, chini ya magogo. Inaweza kupita kwenye maeneo yasiyokuwa na uoto mwingi baada ya mvua. Mayai yanatagwa kwenye mashimo chini msituni wakati wa mvua za vuli na vyura wanatolewa moja kwa moja bila kupitia hatua ya viluwilwi. Kundi moja la mayai lililopatikana Amani wakati wa kiangazi lilikuwa na mayai 32 yenye mbevu za kiume na 21 bila mbevu za kiume.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara Magharibi na Mashariki, Milima ya Pare Kaskazini

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Usambara, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 900 – 2100 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



*Probreviceps rungwensis* (Loveridge, 1932)



M. Menegon

SVL: ♂ < 48 mm; ♀ < 60 mm

**DESCRIPTION:** A stout burrowing frog with short legs. The snout is pointed and protrudes beyond the lower jaw. The dorsum is brown without distinct markings. The sides, arms and legs are dark brown with white-tipped warts. The tympanum is distinctly visible below a fold of skin that runs from the eye to the arm. The tympanum is large, typically greater than ½ the diameter of the eye in females and ½ to 1 ½ times the diameter of the eye in males.

**SIMILAR SPECIES:** Can be

distinguished from other members of the genus by its geographic location, large tympanum and protruding snout.

**HABITAT:** Montane and submontane forest.

**NATURAL HISTORY:** A semi-fossorial species. Eggs are laid in burrows in the leaf litter and hatch directly into small frogs.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Mount Rungwe and the Udzungwa Mountains

**TYPE LOCALITY:** Nkuka Forest, Rungwe Mountain, Tanzania

**ELEVATIONAL RANGE:** 1050 – 2100 m in the Udzungwa Mountains and 1550 m on Mt. Rungwe.

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♂ < 48 mm; ♀ < 60 mm

**MAELEZO:** Chura huyu ana nguvu na anafukua mashimo ardhini; ana miguu mifupi. Pua imechongoka na inajitokeza mbele ya taya la chini. Sehemu ya juu ni kahawia na haina alama zinazoonekana. Pembeni, mikono na miguu ni kahawia iliyokolea na kuna chunjua zenye ncha nyeupe. Kiwambo cha sikio kinaonekana wazi chini ya mkunjo wa ngozi unaotoka jichoni hadi mkononi. Kiwambo cha sikio ni kikubwa na zaidi ya ½ ya kipenyo cha jicho kwa majike na kati ya ½ hadi 1 ½ ya kipenyo cha jicho kwa madume.

**SPISHI INAZOFANANA NAZO:** Spishi hii inatofautishwa na spishi zingine za jenasi kutokana na eneo lake la kijiografia inapopatikana, kiwambo cha sikio kikubwa na pua inayojitokeza. Inafanana na *Probreviceps loveridgei*, *P. macrodactylus*, na *P. uluguruensis*

**MAZINGIRA:** Mimitu iliyo karibu au zaidi ya 1200 m kutoka usawa wa bahari.

**HISTORIA ASILIA:** Spishi hii inaishi chini ya ardhi muda mwingi. Mayai yanatagwa msituni kwenye mashimo yaliyopo kwenye majani yaliyoanguka na vyura wanatolewa moja kwa moja bila kupitia hatua ya viluwiluwi

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Rungwe na Udzungwa

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Mimitu ya Nkuka, Mlima Rungwe, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** Milima ya Udzungwa (1050 – 2100 m) na Mlima Rungwe (1550 m).

**HALI YA UHIFADHI:** Inaweza kuathiriwa



***Probreviceps uluguruensis*** (Loveridge, 1925)  
Uluguru Big-fingered Frog, Uluguru Forest Frog



W. Ngalason

SVL: ♂ < 30 mm; ♀ < 43 mm

**DESCRIPTION:** A stout burrowing frog with a brown dorsum and dark sides. Females may have a reddish band on the sides. The tympanum is not visible. The legs are short. Toes lack webbing.

**SIMILAR SPECIES:** Can be distinguished from other members in the genus by its geographic location and lack of a visible tympanum.

**HABITAT:** Montane grasslands and in forest near grassland habitat.

**NATURAL HISTORY:** A semi-fossorial species. Approximately 20 eggs with

white yolks are laid in burrows in the ground and hatch directly into small frogs.

**CALL:** Channing and Howell (2006) describe the call as “a low-pitched chirp”

**DISTRIBUTION IN THE EACF:** Known only from a single site in the Uluguru Mountains

**TYPE LOCALITY:** Bagilo, Uluguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 1800 – 2500 m

**CONSERVATION STATUS:** Vulnerable

Chura wa Misituni  
wa Uluguru



UREFU WA MWILI: ♂ < 30 mm; ♀ < 43 mm

**MAELEZO:** Chura huyu ana nguvu na anachimba mashimo ardhini; sehemu ya juu ni kahawia na pembeni ni nyeusi. Majike yana mstari mwekundu pembeni. Kiwambo cha sikio hakionekani. Miguu ni mifupi na vidole vya miguuni havina utando.

**SPISHI INAZOFANANA NAZO:** Inafanana na *Probreviceps loveridgei*, *P. macrodactylus*, na *P. rungwensis*. Spishi hii inatofautiana na spishi zingine za jenasi kutokana na eneo lake la kijiografia na kiwambo cha sikio kisichoonekana

**MAZINGIRA:** Nyika zilizopo zaidi ya 1200 m kutoka usawa wa bahari na msituni karibu na nyika.

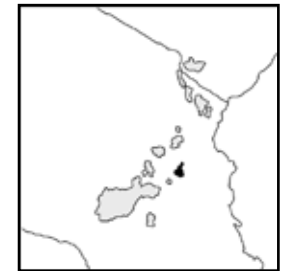
**HISTORIA ASILIA:** Spishi hii inaishi chini ardhini muda mwingi. Takaribani mayai 20 yenye kiini cheupe yanatagwa kwenye mashimo chini ya ardhi na vyura wanatolewa moja kwa moja bila kupitia hatua ya viluwilwi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Imepatikana kwenye eneo moja tu kwenye Milima ya Uluguru.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Bagilo, Milima ya Uluguru, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1800 – 2500 m

**HALI YA UHIFADHI:** Inaweza kuathiriwa



## Bufonidae

Bufonids are common on nearly all continents, but the Eastern Arc contains many unique toads, including two entire genera that are found nowhere else in the world. These genera include *Churamiti*, and *Nectophrynoides*. The genus *Churamiti* was erected in 2002 and consists of a single unusual and brightly colored species, *Churamiti maridadi*, which is known from only a few specimens. There are several species of *Nectophrynoides* in the Eastern Arc, many of which have only recently been described. Many more have been collected and photographed, but are still awaiting formal description. The Eastern Arc also contains several small forest toads in the genus *Mertensophryne*. Many of these species were previously in the genus *Stephopaedes* which is no longer recognized. The genus *Amietophrynus* includes species that were previously lumped in the genus *Bufo*. *Amietophrynus* species are stout, warty, short-legged toads that are widespread especially in lowland areas. The single species of *Schismaderma* found in the Eastern Arc and coastal forests, is also a large toad commonly found in lowland areas.

## Vyura Matomvu

Bufonids wanapatikana kwenye mabara yote duniani lakini Tao la Mashariki lina spishi nyingi za pekee pamoja na jenasi mbili kamili ambazo hazipatikani mahali pengine popote ulimwenguni. Jenasi hizo ni *Churamiti* na *Nectophrynoide*. Jenasi ya *Churamiti* ilipewa jina mwaka 2002 na ina spishi moja isiyo ya kawaida na yenye rangi inayong'aa, inayoitwa *Churamiti maridadi*; vielelezo vyake vilivyokamatwa ni vichache. Kuna spishi kadhaa za *Nectophrynoides* kwenye Tao la Mashariki na ni hivi karibuni tu ndiyo sifa za spishi nyingi zimebainishwa na spishi hizi kupewa majina. Spishi nyingi zaidi zimekamatwa na kupigwa picha zikisubiri kuelezewa sifa zao na kupewa majina. Aidha, Tao la Mashariki lina vyura wadogo wa misituni waliopo kwenye jenasi ya *Mertensophryne*. Awali, spishi nyingi hizi zilikuwa kwenye jenasi ya *Stephopaedes*, jina ambalo halitumiki tena. Jenasi ya *Amietophrynus* inajumuisha spishi ambazo awali zilikuwa kwenye jenasi ya *Bufo*. Spishi za *Amietophrynu* ni nene, zina chunjua, miguu mifupi na zinapatikana kwenye maeneo mengi, hasa yaliyo tambarare. *Schismaderma*, spishi pekee inayopatikana Tao la Mashariki na Misitu ya Pwani, ni kubwa sana na inapatikana sana kwenye maeneo tambarare.



Female *Amietophrynus brauni*  
J. Vonesh

***Amietophrynus brauni*** (Nieden, 1911)

Dead-leaf Toad, Braun's Toad



E. Harper

SVL: ♂ 65 -70 mm; ♀ 80 - 110 mm

**DESCRIPTION:** A large toad. The dorsum is warty and brown with darker brown patches. Some individuals have reddish tinges. A black band begins on the snout and passes above the eye, under the large parotid gland and along the side of the body. A single light line runs vertically from the eye to the mouth. The arms and legs are banded with darker brown. The tympanum is distinctly visible, greater than ½ the diameter of the eye and may be slightly oval in larger individuals. The first finger is longer than the second. Toes are webbed only slightly at the base.

**SIMILAR SPECIES:** The black band along the side of the head and body distinguish this species from most others in the genus. *A. reesi* also has the dark stripe, but has more extensive toe webbing than *A. brauni*. *Schismaderma carens* also has a dark stripe, but lacks parotid glands.

**HABITAT:** Leaf litter in submontane and montane forest. May be found in villages and smallholdings near forest. Breeds in streams.

**NATURAL HISTORY:** Long strings of thousands of small, darkly pigmented eggs are laid directly in streams.

**CALL:** A single long deep note. Described by Channing and Howell (2006) as “a loud rattling snore” with 72 pulses per second.

**DISTRIBUTION IN THE EACF:** East and West Usambara, Uluguru Nguru, and Udzungwa Mountains.

**TYPE LOCALITY:** Amani, East Usambara Mountains, Tanzania

**ELEVATIONAL RANGE:** 750-1800 m

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: ♂ 65 -70 mm; ♀ 80 - 110 mm

**MAELEZO:** Chura huyu ni mkubwa. Aidha, sehemu ya juu ni kahawia na ina chunjua na madoa yenye kahawia iliyokolea. Baadhi ya vyura wana alama ndogondogo nyekundu. Kuna mstari mweusi kutoka puani, unapita juu ya jicho, nyuma ya jicho na chini ya tezi kubwa iliyopo nyuma ya jicho na pembeni mwa mwili. Mstari mmoja uliofifia na ulio wima unatoka jichoni hadi mdomoni. Mikono na miguu ina mistari yenye rangi ya kahawia iliyofifia. Kiwambo cha sikio kinaonekana na ni zaidi ya ½ ya kipenyo cha jicho na kinaweza kuwa na umbo la tufe kiasi kwenye vyura wakubwa. Kidole cha mkononi cha kwanza ni kirefu kuliko cha pili. Vidole vya miguuni vina utando kiasi kidogo mwanzoni.

**SPISHI INAZOFANANA NAZO:** *Amietophrynus reesi*, *Schismaderma carens*. Mstari mweusi pembeni mwa kichwa na mwili unatofautisha spishi hii na zingine za jenasi. Aidha, *A. reesi* naye ana mstari mweusi lakini ana utando zaidi kwenye vidole vya miguuni kuliko *A. brauni*. *Schismaderma carens* anao mstari mweusi pia lakini hana tezi nyuma chini ya jicho.

**MAZINGIRA:** Majani yaliyoanguka chini kwenye misitu iliyopo karibu au zaidi ya 1200 m kutoka usawa wa bahari. Spishi hii inapatikana pia kwenye vijiji na mashamba madogo karibu na misitu. Inazaliana kwenye vijito.

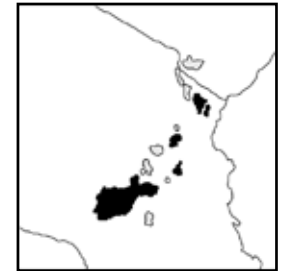
**HISTORIA ASILIA:** Mistari mirefu ya maelfu ya mayai madogo yenye rangi nyeusi yanatagwa kwenye vijito.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Usambara Magharibi na Mashariki, Uluguru, Nguru, na Udzungwa.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Amani, Milima ya Usambara Mashariki, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 750-1800 m

**HALI YA UHIFADHI:** Spishi iko hatarini





***Amietophrynus garmani*** (Meek, 1897)

Garman's Square-backed Toad, Eastern Olive Toad



SVL: ♂ 63 -72 mm; ♀ 55 - 74 mm

DESCRIPTION: A large toad with long, distinct parotid glands. The dorsum is warty and light brown with paired, regular darker square patches. Some of the markings may have a reddish tinge. The tympanum is visible. Toes are webbed only slightly at the base.

SIMILAR SPECIES: *A. garmani* can be confused with *A. maculatus*, *A. xeros* and *A. gutturalis*. Juveniles of all members of this genus are difficult to distinguish. *A. garmani* lacks the light cross on the head or light band between the eyes that is typically seen in *A. maculatus*, and *A. xeros*. *A. garmani* also lacks dark markings on the snout in contrast to many other *Amietophrynus* species.

HABITAT: Savannas, grasslands and agricultural areas.

NATURAL HISTORY: Females lay copious black eggs in long strings during the onset of short rains in November. Males can be found calling from the water edge at night and hidden areas during the day.

CALL: Described by Channing and Howell (2006) as "a loud 'kwaak'"

DISTRIBUTION IN THE EACF: Found in disjunct populations throughout eastern Africa. Within the Eastern Arc, this species can be found in the Shimba Hills and Taita Hills.

TYPE LOCALITY: Haileh, Somalia

ELEVATIONAL RANGE: 0 – 2000 m

CONSERVATION STATUS: Least Concern

UREFU WA MWILI: ♂ 63 – 72 mm; ♀ 55 – 74 mm

MAELEZO: Chura huyu ni mkubwa sana na ana tezi ndefu zinazoonekana, nyuma ya jicho. Sehemu ya juu ina chunjua, ni kahawia iliyoifia na ina madoa ya mraba meusi yaliyo mawili mawili. Baadhi ya alama zina wekundu. Kiwambo cha sikio kinaonekana. Vidole vya miguuni vina utando kidogo sana mwanzoni.

SPISHI INAZOFANANA NAZO: Ni rahisi kuchanganya spishi hii na *A. maculatus*, *A. xeros* na *A. gutturalis*. Ni vigumu kutofautisha vyura wadogo wa spishi zote za jenasi hii. *A. garmani* haina msalaba kwenye kichwa wala mstari kati ya macho ambayo upo kwenye *A. maculatus* na *A. xeros*. Aidha, *A. garmani* hana alama nyeusi puani tofauti na spishi zingine za *Amietophrynus*.

MAZINGIRA: Savana, nyika na maeneo ya kilimo.

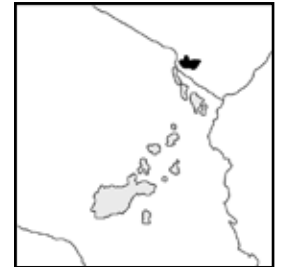
HISTORIA ASILIA: Majike yanataga mayai mengi meusi kwenye mitungo mirefu wakati mvua za vuli zinaanza mwezi Novemba. Madume yanaita kutoka pembeni mwa maji nyakati za usiku na yanajificha usiku.

ENE SPISHI INAPOPATIKANA KWENYE MTMMP: Milima ya Shimba na ya Taita.

MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA: Haileh, Somalia

ENEO LA SPISHI KUTOKA USAWA WA BAHARI: 0 – 2000 m

HALI YA UHIFADHI: Haiko hatarini



## *Amietophrynus gutturalis* (Power, 1927)

Marbled Toad, Common Toad, Common African Toad, Guttural Toad, Square-marked Toad, Leopard Toad, Greater Cross-marked Toad, Flat-backed Toad



SVL: ♂ 64 – 90mm; ♀ 62 - 120 mm

**DESCRIPTION:** A large toad. Individual markings can be highly variable. The dorsum is yellow-brown with irregular darker brown blotches, and red patches on the back of the thigh. A light middorsal stripe is often present. Between the eyes, a pale cross is formed by two sets of dark patches. The forearm is edged with a row of conspicuous white tubercles. The parotid glands are large and distinct. Toes are webbed only very slightly at the base. The ventral surface is pale and granular, and the throat of the male is darkly pigmented. Males in breeding condition have distinct dark nuptial pads.

**SIMILAR SPECIES:** *A. maculatus* and *A. xeros* can also have a light cross or stripe between the eyes. The parotid glands are distinctly elevated in *A. gutturalis* but are level with the head in *A. maculatus*. *A. maculatus* also lacks the red infusions on the thigh that are present in *A. gutturalis*. *A. xeros* often has red markings on the thigh and vent as in *A. gutturalis*, but lacks distinct dark dorsal markings.

**HABITAT:** Savannas, grasslands and agricultural areas. *A. gutturalis* is a widespread disturbance tolerant species that can be found in towns and cities.

**NATURAL HISTORY:** Clutches are laid by amplexant pairs throughout the year, but especially during peak rainy periods. Small black eggs are laid in two parallel strings containing a total of 15,000 to 25,000 small black eggs. Small dark tadpoles with bright specks emerge after 2 - 3 days and reach metamorphosis after 75 days.

This is a very common and familiar species which can be found in small-holdings, around and even in houses. These toads often congregate around lights in the evenings to pick up insects which are attracted to them. In addition to the usual invertebrate prey, adult *B. gutturalis* are able to consume lizards and even frogs as large as *Leptopelis spp.* When attacked by predators *B. gutturalis* exudes a toxin from the parotid glands which contains epinephrine and can be fatal to small mammals. Despite this defense, adults may still be preyed upon.

**CALL:** Males call while floating in bodies of water, including garden pools. The call is a loud extended snore repeated at three second intervals. Males call alternately with one another or with males of different species.

**DISTRIBUTION IN THE EACF:** common throughout East Africa.

**TYPE LOCALITY:** Dombe, Benguela, Angola

**ELEVATIONAL RANGE:** 0 – 1900 m

**CONSERVATION STATUS:** Least Concern

**UREFU WA MWILI:** ♂ 64 – 90mm; ♀ 62 – 120 mm

**MAELEZO:** Chura huyu ni mkubwa sana. Alama zinaweza kutofautiana sana. Sehemu ya juu ni njano kahawia na ina madoa kahawia iliyokolea na mengine mekundu nyuma ya paja. Mara nyingi kuna mstari uliofifia katikati ya sehemu ya juu. Aidha, kuna msalaba unaotokana na seti mbili za madoa meusi katikati ya macho. Pembeni mwa sehemu ya mbele ya mkono kuna mstari wenye vipande vya ngozi vigumu na vilivyoinuka vinavyoonekana. Tezi zilizopo nyuma ya jicho ni kubwa sana na zinaonekana. Vidole vya miguuni vina utando kidogo sana mwanzoni. Madume yanapokuwa kwenye msimu wa kupandana yanakuwa na maeneo magumu ya ngozi yanayotumika kumkamata jike wakati wa kupandana.

**SPISHI INAZOFANANA NAZO:** *A. maculatus* na *A. xeros* wanaweza pia kuwa na msalaba au mstari kati ya macho. Tezi nyuma ya macho ziko juu kwenye *A. gutturalis* lakini ziko kwenye mstari mmoja na kichwa kwenye *A. maculatus* ambaye pia hana eneo jekundu kwenye paja, zilizomo kwenye *A. gutturalis*. Mara nyingi, *A. xeros* anakuwa na alama nyekundu kwenye paja na tundu la kutolea haja na kutoa na kupokelea mbegu za uzazi, kama ilivyo kwenye *A. gutturalis* lakini hana alama nyeusi zinazoonekana sehemu ya juu.

**MAZINGIRA:** Savana, nyika na maeneo ya kilimo. *A. gutturalis* ni spishi inayovumilia mazingira yaliyoharibiwa na inapatikana mijini pia.



***Amietophrynus gutturalis*** (Power, 1927)

Marbled toad, Common toad, Common African Toad, Guttural Toad, Square-marked Toad, Leopard Toad, Greater cross-marked Toad, Flat-backed Toad



G.J. Measey

**HISTORIA ASILIA:** Mistari ya mayai inatagwa mwaka mzima lakini hasa wakati wa kilele cha msimu wa mvua. Mayai madogo meusi yanatagwa kwenye mistari miwili sambamba ikiwa na jumla ya mayai 15,000 hadi 25,000. Viluwiluwu wadogo wenye madoa yanayong'aaa hujitokeza baada ya siku 2-3 na wanapata umbile la chura lililokamilika baada ya siku 75.

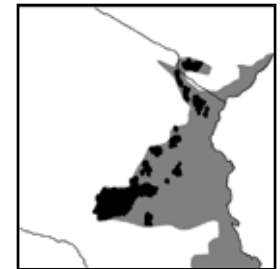
Spishi hii inaonekana mahali pengi na inapatikana kwenye mashamba madogo na hata kwenye nyumba au maeneo yanayoizunguka. Mara nyingi, vyura mapovu hawa wanakusanyika kwenye mwanga wakati wa jioni ili kukamata wadudu ambao wanavutiwa na mwanga. Wanakula wanyama wasiokuwa na uti wa mgongo lakini *A. gutturalis* wazima wanakula pia mijusi na hata chura wakubwa kama *Leptopelis spp.* Inapochokozwa na wanyama, *A. gutturalis* inatoa sumu kutoka tezi nyuma ya jicho ambayo ina epinephrine na inaweza kuuwa wanyama wadogo. Mbali na kujilinda huku, vyura mapovu wazima wanaweza kuuawa.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** inapatikana mahali pengi Afrika ya Mashariki pote.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Dombe, Benguella, Angola

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 0 – 1900 m

**HALI YA UHIFADHI:** Haiko hatarini



## *Amietophrynus maculatus* (Hallowell, 1854)

Merten's Striped Toad, Lesser Square-marked Toad, Flat-backed toad, Striped Toad, Lesser Cross-marked Toad, Hallowell's Toad



E. Harper

SVL: ♂ < 64 mm; ♀ < 80 mm

**DESCRIPTION:** The dorsum is tan with darker blotches and a light patch just below the eye. A light middorsal stripe is usually present and a pale cross is formed on the top of the head between the eyes. The parotid glands are distinct, but are not elevated as in *A. gutturalis*. Black tipped warts cover the dorsum and the parotid glands. A row of white tubercles is present on the forearm. Toes are webbed only slightly at the base. The ventral surface is granular and light with some gray mottling.

**SIMILAR SPECIES:** *A. maculatus* and *A. gutturalis* are similar in build and dorsal markings, but *A. maculatus* does not have the distinctly raised parotid glands seen in *A. gutturalis*, and also lacks the reddish markings on the thigh. *A. maculatus* is also smaller than *A. gutturalis*, with females reaching 80 mm rather than 120 mm.

**HABITAT:** *A. maculatus* is a widespread species associated with lowland rivers, forest edges and humid savanna. Tolerates degraded habitat including agricultural fields.

**NATURAL HISTORY:** Long strings of darkly pigmented eggs are laid directly in water including rivers, streams, pools and ditches. Tadpoles are 14 – 17 mm in length.

**CALL:** Males call from partially concealed positions among vegetation at the edge of streams and pools. The call is a rapid trill half a second in duration.

**DISTRIBUTION IN THE EACF:** throughout East Africa

**TYPE LOCALITY:** Liberia

**ELEVATIONAL RANGE:** < 1700 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: ♂ < 64 mm; ♀ < 80 mm

**MAELEZO:** Sehemu ya chini ina rangi ya hudhurungi lakini kuna madoa meusi na sehemu ndogo yenye rangi iliyofifia chini kidogo ya jicho. Kwa kawaida, kuna mstari wenye rangi iliyofifia katikati ya sehemu ya chini na kuna msalaba uliofifia juu ya kichwa katikati ya macho. Tezi nyuma ya jicho zinaonekana lakini haziko juu kama ilivyo kwa *A. gutturalis*. Chunjua zenye ncha nyeusi zinafunika sehemu ya juu na tezi nyuma ya jicho. Sehemu ya mbele ya mkono ina sehemu ya ngozi ngumu iliyoinuka. Mwanzoni mwa vidole vya mguuni kuna utando kidogo sana. Sehemu ya chini ina chembec hembe na ina rangi iliyofifia na mchanganyiko wa weupe na weusi.

**SPISHI INAZOFANANA NAZO:** *A. maculatus* na *A. gutturalis* zinafana kimaumbile na kwa alama sehemu ya juu lakini *A. maculatus* hana tezi juu ya macho zilizopanda juu sana kama *A. gutturalis* na hana alama nyekundu kwenye paja. Aidha, *A. maculatus* ni mdogo kuliko *A. gutturalis*, huku majike yake yakiwa na urefu wa 80 mm na siyo 120 mm.

**MAZINGIRA:** *A. maculatus* anapatikana sana kwenye mito iliyo kwenye maeneo tambarare, pembezoni mwa misitu na savana yenye unyevu. Inavumilia mazingira yaliyoharibiwa na inapatikana hata kwenye mashamba ya kilimo.

**HISTORIA ASILIA:** Mistari mirefu ya mayai meusi yanatagwa kwenye maji, mito, vijito, mabwaa na madimbwi. Viluwiluwi vina urefu kati ya 14 - 17 mm.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** inapatikana mahali pengi Afrika ya Mashariki pote.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA**

**MARA YA KWANZA:** Liberia

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:**  
< 1700 m

**HALI YA UHIFADHI:** Haiko hatarini



*Amietophrynus reesi* (Poynton, 1977)

Merera Toad, Rees' Toad



SVL: ♂ < 57mm; ♀ < 63mm

DESCRIPTION: The dorsum is warty, spiny in males and marked with paired dark patches. A dark mark runs under the eye to the arm. The tympanum is visible and larger than ½ the diameter of the eye. Parotid glands are flat but visible. The ventral surface is yellow. Toes are extensively webbed.

SIMILAR SPECIES: *A. reesi* has a dark stripe along the side of the head that is similar to *A. brauni*, but *A. brauni* has less extensive webbing and lacks the yellow ventral surface of *A. reesi*.

HABITAT: Floodplain grasslands

NATURAL HISTORY: Unknown

CALL: Unknown

DISTRIBUTION IN THE EACF: The only records of this species are from Merera, Mbega and the Kihansi-Kilombero floodplain.

TYPE LOCALITY: Kihansi-Kilombero floodplain, Merera, Tanzania

ELEVATIONAL RANGE: 200 – 500 m

CONSERVATION STATUS: Data deficient

UREFU WA MWILI: ♂ < 57mm; ♀ < 63mm

MAELEZO: Sehemu ya juu ina chunjaa zenye miiba kwenye madume na pia madoa meusi yaliyokaa mawili mawili. Alama nyeusi inatoka chini ya jicho hadi mkononi. Kiwambo cha sikio kinaonekana na ni zaidi ya ½ ya kipenyo cha jicho. Tezi nyuma ya jicho ni pana na zinaonekana. Sehemu ya chini ni njano. Vidole vya miguuni vina utando sana.

SPISHI INAZOFANANA NAZO: *A. reesi* ana mstari mweusi pembeni mwa kichwa unaofanana na wa *A. brauni*, lakini *A. brauni* hana utando ulioenea na siyo njano kwenye sehemu ya chini kama *A. reesi*

MAZINGIRA: Nyika za maeneo tambarare yanayofurika maji

HISTORIA ASILIA: Haijulikani

ENEO SPISHI INAPOPATIKANA KWENYE MTMMP: Maeneo tambarare ya Merera, Mbega na Kihansi-Kilombero

MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA: Maeneo tambarare ya Kihansi-Kilombero, Merera, Tanzania

ENEO LA SPISHI KUTOKA USAWA WA BAHARI: 200 – 500 m

HALI YA UHIFADHI: Hakuna taarifa za kutosha



***Amietophrynus xeros*** (Tandy, Keith & Duffy-MacKay, 1976)

Sub-Saharan Toad, Waza Toad, Savanna Toad, Desert Toad



A. Channing

SVL: ♀ 57 - 97 mm; ♂ 59 - 82 mm

**DESCRIPTION:** The parotid glands are smooth, and the dorsal coloration is cream with pairs of dark blotches. Towards the sides the warty skin has distinctive dark spines, while the ventrum is cream to white with bright red venation around the upper legs and vent. The tympanum is visible, oval and slightly greater than ½ the diameter of the eye. The first finger is longer than the second. Glands on forearm form a distinct continuous ridge.

**SIMILAR SPECIES:** *A. xeros* may be confused with *A. gutturalis* and *A. maculatus*, but the dorsal markings on *A. xeros* are not as dark in contrast with the dorsum. Also, *A. xeros* has distinctly raised parotid glands and red markings on the thighs that are absent in *A. maculatus*.

**HABITAT:** Found in a wide range of arid habitat types including dry savannas, woodlands, dry riverbeds and near oases. Within the Eastern Arc this species is most often found between mountain blocks or in their rain shadows.

**NATURAL HISTORY:** Breeding occurs in permanent bodies of water or during seasonal flooding

**CALL:** Like a loud "hoot"

**DISTRIBUTION IN THE EACF:** Throughout the Eastern Arc and coastal forests in Kenya and Tanzania

**TYPE LOCALITY:** Ghinda, Eritrea, Ethiopia

**ELEVATIONAL RANGE:** 200 - 1800 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: ♀ 57 – 97 mm; ♂ 59 – 82 mm

**MAELEZO:** Tezi nyuma ya jicho ni laini na sehemu ya juu ni hudhurungi na ina madoa meusi yaliyokaa mawili mawili. Kuelekea pembeni mwa chura huyo, ngozi ina chunjua na miiba mieusi inayoonekana na, sehemu ya chini ina rangi ya hudhurungi hadi nyeupe na alama nyekundu zinayong'aa kwenye sehemu za juu za miguu na tundu la kutolea haja na kutoa na kupokelea mbegu za uzazi. Kiwambo cha sikio kinaonekana, kina umbo la tufe na ni zaidi kidogo ya ½ ya kipenyo cha jicho. Kidole cha kwanza cha mkononi ni kirefu zaidi ya cha pili. Tezi zilizoko sehemu ya mbele ya mkono zinaunda tuta mfululizo linaoonekana.

**SPISHI INAZOFANANA NAZO:** Ni rahisi kumchanganya *A. xeros* na *A. gutturalis* na *A. maculatus*, lakini alama zilizopo sehemu ya juu kwenye *A. xeros* zina rangi iliyofifia ukilinganisha na rangi ya sehemu hiyo nzima. Aidha, tezi juu ya macho za *A. xeros* zimeinuka sana ukilinganisha na alama nyekundu kwenye paja, vitu ambavyo havipo kwenye *A. maculatus*.

**MAZINGIRA:** Spishi hii inapatikana kwenye mazingira mbalimbali kame pamoja na savana kame, maeneo ya miombo, mito iliyokauka na karibu na oasisi. Kwenye MTMMP, mara nyingi spishi hii hupatikana kati ya makundi ya milima au kwenye upande usiopata mvua wa milima

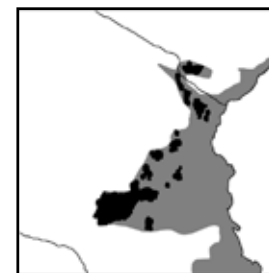
**HISTORIA ASILIA:** Spishi hii huzaliana kwenye maji ya kudumu au wakati wa msimu wa mafuriko.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Maeneo yote ya MTMMP ya Tanzania na Kenya

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Ghinda, Eritrea, Ethiopia

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 200 - 1800 m

**HALI YA UHIFADHI:** Haiko hatarini



*Churamiti maridadi* (Channing & Stanley, 2002)

Beautiful Forest Toad



M. Menegon

SVL: ♀ < 53 mm

**DESCRIPTION:** An unusual toad with a bright metallic yellow-green dorsum (females) or black dorsum with silvery vermiculations (males) and red-orange arms and legs. The back is smooth and glandular, but the parotid glands are not distinct. The eyes are large and protruding with horizontal pupils. The toes end in distinct truncated disks.

**SIMILAR SPECIES:** The appearance is distinct and not easily confused with other species. It is the only species in the genus.

**HABITAT:** Wet montane forest, especially in wet valleys

**NATURAL HISTORY:** Assumed to be arboreal because of its large toe pads. Reproductive mode is unknown, but eggs are large and pigmented.

**CALL:** Unknown (males have never been observed or collected)

**DISTRIBUTION IN THE EACF:** Ukaguru Mountains. The species is known only from four specimens from the type locality.

**TYPE LOCALITY:** Morogoro Region, Kilosa District, Ukaguru Mts, Mamiwa-Kisara Forest Reserve, Tanzania

**ELEVATIONAL RANGE:** 1840 m

**CONSERVATION STATUS:** Critically endangered

UREFU WA MWILI: ♀ < 53 mm

**MAELEZO:** Chura huyu si wa kawaida, sehemu ya juu ina rangi ya njano kijani ya chuma inayong'aa, mikono na miguu ni miekundu njano. Mgongo ni laini na una chembechembe, lakini hauna tezi nyuma ya jicho zinazoonekana. Macho ni makubwa, yanajichomoza na mboni ni za mlalo.

**SPISHI INAZOFANANA NAZO:** Umbo lake ni tofauti na haliwezi kuchanganywa na la spishi zingine, Hii ndiyo spishi pekee kwenye jenasi yake.

**MAZINGIRA:** Misitua yenye unyevu, zaidi ya 1200 m kutoka usawa wa bahari, hususan kwenye mabonde yenye maji

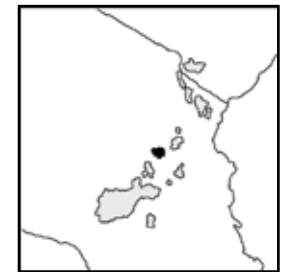
**HISTORIA ASILIA:** Inadhaniwa kwamba spishi hii inaishi kwenye miti, kutokana na sehemu zenye ngozi ngumu kwenye vidole vya miguuni. Mfumo wake wa kuzaliana haujulikani lakini mayai yake ni makubwa na yana rangi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Ukaguru. Spishi hii inajulikana tu kutokana na vielelezo vine kutoka mahali vilipokamatwa na spishi kupewa jina kwa mara ya kwanza

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Mkoa wa Morogoro, Wilaya ya Kilosa, Milima ya Ukaguru, Hifadhi ya Misitu ya Mamiwa-Kisara, nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1840 m

**HALI YA UHIFADHI:** Spishi iko hatarini sana



***Mertensophryne lindneri*** (Mertens, 1955)

Lindner's Dwarf Toad



SVL: ♂ < 23 mm; ♀ 34 mm

**DESCRIPTION:** A small toad with spiny skin and a pointed head. The dorsum is gray-brown with small reddish brown spots. The parotid glands are long and flattened. The ventral surface is light, usually with a distinct dark line from the throat to the vent. Toe and finger tips are pointed, but not expanded and toes are slightly webbed.

**SIMILAR SPECIES:** *M. lindneri* is similar to other species in the genus, but can be distinguished by the dark line on the ventral surface. The long flat parotid glands also distinguish it from several other species in the genus.

**HABITAT:** Coastal lowlands including woodland, dry forest and farmland. Often associated with areas of sandy soil or rocks. Tolerates a small amount of habitat degradation and can be found in areas of low-intensity agriculture.

**NATURAL HISTORY:** Mode of breeding is unknown, but it is thought to breed in streams or ponds.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Coastal areas of Tanzania, Malundwe, Udzungwas, Mahenge, Uluguru

**TYPE LOCALITY:** Dar es Salaam, Tanzania

**ELEVATIONAL RANGE:** < 650 m

**CONSERVATION STATUS:** Least concern

UREFU WA MWILI: ♂ < 23 mm; ♀ 34 mm

**MAELEZO:** Chura huyu ni mdogo, ana ngozi yenye miiba na kichwa kilichochoongoka. Sehemu ya juu ni kijivu kahawia na kuna madoa madogo mekundu kahawia. Tezi nyuma ya jicho ni ndefu na bapa. Sehemu ya chini ina rangi ya kufifia na kawaida ina msitari mweusi unaonekana kutoka kooni hadi kwenye tundu la kutolea haja na kutoa na kupokelea mbegu za uzazi. Ncha za vidole vya miguuni na mikononi zimechongoka lakini siyo pana na vidole vya miguuni havina utando.

**SPISHI INAZOFANANA NAZO:** Inafanana na spishi zingine kwenye jenasi lakini ina mstari mweusi kwenye sehemu ya chini. Tezi ndefu na bapa juu ya jicho inaitofautisha pia na spishi kadhaa za jenasi.

**MAZINGIRA:** Maeneo tambarare ya pwani pamoja na miombo, misitu kame na maeneo ya kilimo. Mara nyingi, spishi hii inapatikana kwenye udongo wenye mchanga au miamba. Inavumilia uharibifu mdogo wa mazingira na naweza kupatikana kwenye maeneo yanayolimwa kidogo.

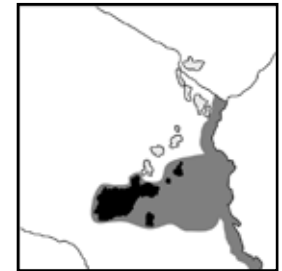
**HISTORIA ASILIA:** Mfumo wa uzalianaji haujulikani lakini inadhaniwa spishi hii inazaliana kwenye vijito au madimbwi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Maeneo ya pwani ya Tanzania, Malundwe, Udzungwas, Mahenge na Uluguru

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Dar es Salaam, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** < 650 m

**HALI YA UHIFADHI:** Haiko hatarini



***Mertensophryne loveridgei*** (Poynton, 1991)

Mahenge Toad, Loveridges Forest Toad



SVL: ♂ < 35 mm; ♀ < 38 mm

DESCRIPTION: The dorsum is dark brown with a darker brown chevron and is covered in small spines. There is often a thin light middorsal stripe. The tympanum is not visible. The ventral surface is light, sometimes with a dark blotch on the chest. Toes are partially webbed.

SIMILAR SPECIES: Similar to other species in the genus. Like *M. uzunguensis*, there is a dark spot on the chest, but *M. loveridgei* does not occur in the high elevation grasslands where *M. uzunguensis* is found. *M. loveridgei* can be distinguished from other species in the genus by its wide parotid gland that extends from behind the eye down to the corner of the mouth.

HABITAT: Coastal forest and woodland

NATURAL HISTORY: Unknown

CALL: Unknown

DISTRIBUTION IN THE EACF: Mahenge, the Kilombero Valley and coastal areas from the Kichi Hills south to the Rondo Plateau.

TYPE LOCALITY: Mahenge, Tanzania

ELEVATIONAL RANGE: < 1000 m

CONSERVATION STATUS: Least concern

UREFU WA MWILI: ♂ < 35 mm; ♀ < 38 mm

MAELEZO: Sehemu ya chini ni kahawia iliyokolea na ina alama zenye umbo la "V" kahawia iliyokolea zaidi na sehemu hii imefunikwa na miiba midogo. Mara nyingi, kuna mstari mwembamba uliofifia katikati ya sehemu ya juu. Kiwambo cha sikio hakionekani. Sehemu ya chini ina rangi iliyofifia na wakati mwingine kuna doa jeusi kifuani. Vidole vya miguuni vina utando kiasi.

SPISHI INAZOFANANA NAZO: Spishi hii inafanana na spishi zingine za jenasi. Ina doa jeusi kifuani kama *M. uzunguensis* lakini *M. loveridgei* hapatikani kwenye nyika za miinuko ya juu ambapo *M. uzunguensis* inapatikana. *M. loveridgei* inatofautiana na spishi zingine kwenye jenasi kwa kuwa na tezi pana inayotoka nyuma ya jicho hadi kwenye kona ya mdomo.

MAZINGIRA: Misitua na miombo ya pwani.

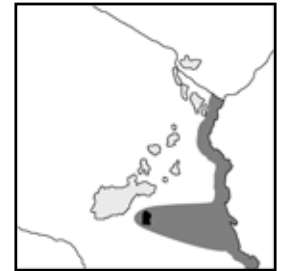
HISTORIA ASILIA: Haijulikani

ENEO SPISHI INAPOPATIKANA KWENYE MTMMP: Mahenge, Bonde la Kilombero na pwani kutoka Milima ya Kichi hadi kusini kwenye Uwanda wa Rondo.

MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA: Mahenge, Tanzania

ENEO LA SPISHI KUTOKA USAWA WA BAHARI: < 1000 m

HALI YA UHIFADHI: Haiko hatarini



## *Mertensophryne micranotis* (Loveridge, 1925)

Loveridge's Snouted Toad, Woodland Toad



E. Harper

SVL: < 24 mm

**DESCRIPTION:** A small toad. The dorsum is dark brown with conspicuous light patches on the scapular and sacral regions. There is no tympanum and the parotid glands are indistinct. The ventral surface is heavily marked. Males have rough thumbs that aid in clasping the female during mating. The outer toe is reduced. Toes lack webbing.

**SIMILAR SPECIES:** *M. micranotis* is very similar to all other species in the genus, but can be distinguished from the other species because it lacks toe

webbing, does not have distinctly raised parotid glands and has a dark belly and mottled throat.

**HABITAT:** Lowland coastal forest, and woodland. Tolerates some degree of habitat alteration if adequate cover is available.

**CALL:** Unknown

**NATURAL HISTORY:** Considered a 'tree toad' for its ability to climb. The vent of the male is spiny and protruding. Fertilization is internal. Eggs are laid in clutches of 8 – 12 often in tree holes, snail shells or coconut shells. Tadpoles have a fleshy circular crown that allows them to float on the surface of the water. This unusual structure may also aid in respiration, providing greater surface area for gas exchange.

**DISTRIBUTION IN THE EACF:** Coastal areas of southeastern Kenya including the Arabuko-Sokoke Reserve and Shimba Hills. Eastern Tanzania including the foothills of the East Usambara Mountains, the Uluguru Mountains, Zanzibar and Songo Songo Islands, also inland areas of Tanzania including Kilosa and the Kihansi Gorge in the Udzungwa Mountains.

**TYPE LOCALITY:** Kilosa, Morogoro District, Tanzania

**ELEVATIONAL RANGE:** < 800 m

**CONSERVATION STATUS:** Least concern

**UREFU WA MWILI:** < 24 mm

**MAELEZO:** Chura huyu ni mdogo. Sehemu ya juu ni kahawia iliyokolea na ina madoa yaliyofifia na yanayoonekana sana kwenye maeneo ya kombe la mkono na sehemu ya chini ya mgongo. Hakuna kiwambo cha sikio na tezi nyuma ya jicho hazionekani. Sehemu ya chini ina alama nyingi. Madume yana vidole gumba vinavyokwaruza ambavyo vinasaidia kushikilia jike mwanamke wakati wa kupandana. Kidole cha mguuni cha nje ni kidogo. Vidole vya mguuni havina utando.

**SPISHI INAZOFANANA NAZO:** *M. micranotis* inafanana sana na spishi zingine za jenasi lakini ni tofauti nazo kwani haina utando kwenye vidole vya miguuni, haina tezi zilizo inuka nyuma ya jicho, lakini ina tumbo jeusi tumbo jeusi na koo lenye mchanganyiko wa rangi.

**MAZINGIRA:** Misitua ya maeneo tambarare ya pwani na miombo. Inavumilia uharibifu kiasi wa mazingira kama kuna uoto anapoweza kujificha.

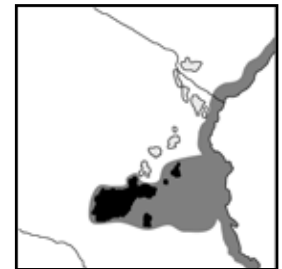
**HISTORIA ASILIA:** Spishi hii inaitwa chura miti kutokana na uwezo wake wa kukwea. Tundu la kutolea haja na kutoa na kupokelea mbegu za uzazi la dume lina miiba na linajitokeza. Dume linaweka mbegu zake ndani ya jike. Mayai yanatagwa kwenye makundi ya 8-12, mara nyingi kwenye mashimo ya mti, nyumba ya konokono na vifuu vya nazi. Kuna eneo mviringo juu ya viluwilwi lenye nyama nyingi na linalowezesha viluwilwi kuelea juu ya maji. Eneo hili lisilo la kawaida huenda linasaidia pia kupumua kwa kutoa nafasi kubwa ya kubadilisha gesi.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMP:** Maeneo ya pwani ya Kenya kusini mashariki pamoja na Hifadhi ya Arabuko-Sokoke na Milima ya Shimba, Tanzania Mashariki pamoja na milima midogo ya Milima ya Usambara Mashariki, Milima ya Uluguru, Zanzibar na Visiwa vya Songo Songo, maeneo ya Kilosa na Kihansi Gorge kwenye Milima ya Udzungwa.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Kilosa, Wilaya ya Morogoro, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** < 800 m

**HALI YA UHIFADHI:** Haiko hatarini





## *Mertensophryne taitana* (Peters, 1878)

### Black-chested Dwarf Toad



G.J. Measey

SVL: ♂ 25 – 31 mm; ♀ 32 – 35 mm

DESCRIPTION: A small thin toad.

Both sexes are light brown to grey with darker markings. The tympanum is not visible. The parotid glands are long and flat. The ventrum is pale. Males have a conspicuous black chest. The first finger is shorter than the second. Toes are only slightly webbed. Males in breeding condition have distinct dark nuptial pads.

SIMILAR SPECIES: *M. taitana* is very similar to other members of the genus, but can be distinguished by the black

chest of the males and by the distinctly long raised parotid glands.

HABITAT: Wooded grassland and open savanna. Tolerates some degree of habitat alteration and can be found in agricultural areas. Typically associated with sandy soil.

NATURAL HISTORY: Breeds in streams and temporary pools especially road puddles where adults congregate for only a few days of the year (typically November). Males congregate at pools and many can ambush females on arrival forming small balls of individuals. Eggs are laid in strings (up to 350 eggs). Larvae have distinctive crown on their heads and can reach metamorphosis in as little as 13 days. During this time they feed on the soft mud at the edges of their temporary puddles with only their flickering tails visible from above.

CALL: This species has no advertisement call although both males and females will emit a distress call.

DISTRIBUTION IN THE EACF: Southern Kenya and throughout Tanzania

TYPE LOCALITY: Taita, Kenya

ELEVATIONAL RANGE: < 1300 m

CONSERVATION STATUS: Least concern

UREFU WA MWILI: ♂ 25 – 31 mm; ♀ 32 – 35 mm

MAELEZO: Chura huyu ni mdogo na mwembamba. Vyura wa jinsia zote mbili ni kahawia iliyofifia hadi kijivu na wana alama zenye rangi iliyokolea zaidi. Tezi nyuma ya jicho ni ndefu na pana. Sehemu ya chini ina rangi iliyofifia. Madume yana kifua cheusi na imara. Kidole cha kwanza cha mkononi ni kifupi kuliko cha pili. Vidole vya miguuni vina utando mdogo sana. Madume yanapokuwa kwenye msimu wa kupandana, yanakuwa na maeneo magumu ya ngozi yanayotumika kumkamata jike.

SPISHI INAZOFANANA NAZO: *Spishi ya M. taitana* inafanana sana na spishi zingine za jenasi lakini tofauti yake ni kwamba madume yana kifua cheusi na tezi nyuma ya jicho ndefu na zilizo inuka sana.

MAZINGIRA: Nyika zenye miombo na savana. Inavumilia uharibifu kiasi wa mazingira na inapatikana pia kwenye maeneo ya kilimo. Lakini zaidi inapatikana kwenye maeneo yenye mchanga.

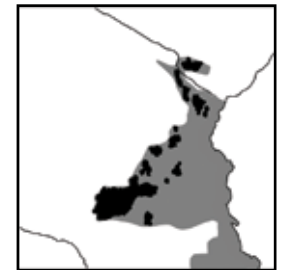
HISTORIA ASILIA: Spishi hii inazaliana kwenye vijito na madimbwi ya muda barabarani ambapo vyura wazima wanakusanyika kwa siku chache tu kila mwaka (hasa Novemba). Spishi hii haina kiwambo cha sikio. Madume yanakusanyika kwenye madimbwi na yanaweza kuvamia majike yanayofika. Mayai yanatagwa kwenye mistari yenye hadi mayai 350. Sehemu ya juu ya kichwa cha viluwiluwi ni ya pekee, viluwiluwi vinaweza kufikia umbile kamili la chura katika siku 13. Vinakula matope laini pembezoni mwa madimbwi ya muda na ni sehemu ya pezi tu inayoonekana juu ya ardhi.

ENEO SPISHI INAPOPATIKANA KWENYE MTMMP: Kusini mwa Kenya na mahali pote Tanzania

MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA: Taita, Kenya

ENEO LA SPISHI KUTOKA USAWA WA BAHARI: < 1300 m

HALI YA UHIFADHI: Haiko hatarini



*Metensophryne usambarae* (Poynton & Clarke, 1999)

Usambara Forest Toad



SVL: ♂ < 35 mm; ♀ < 45 mm

**DESCRIPTION:** A small toad with wide, flat, spiny parotid glands. The dorsum is brown with light colored spines and variable darker markings. The upper lip is pale. This species lacks a tympanum. The legs are short (tibia less than ½ SVL). The ventral surface has some mottling.

**SIMILAR SPECIES:** *M. usambarae* is very similar to the other species in the genus, but the ventral surface is light with darker mottling and lacks the distinct chest spot, ventral stripe or black belly found in the other species. *M. usambarae* is ecologically similar to *M. micranotis*, and the two species often occur together.

**HABITAT:** Lowland forest. Tolerates some degree of habitat degradation including selective logging.

**NATURAL HISTORY:** Breeding behavior has not been observed. Tadpoles have a conspicuous circular crown that is thought to aid in respiration. A similar structure is found in the tadpoles of *M. micranotis* and *M. taitana*.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Known only from the East Usambara foothills including the Kwangumi, Segoma and Mtai Forest Reserves

**TYPE LOCALITY:** Kwangumi Forest Reserve, East Usambara foothills, Tanzania

**ELEVATIONAL RANGE:** < 410 m

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: ♂ < 35 mm; ♀ < 45 mm

**MAELEZO:** Chura huyu ni mdogo; ana tezi pana nyuma ya jicho, bapa na yenye miiba. Sehemu ya juu ni kahawia na ina miiba yenye rangi iliyofifia na alama zinazotofautiana zenye rangi iliyokolea. Mdomo wa juu una rangi iliyofifia. Spishi hii haina kiwambo cha sikio. Miguu ni mifupi (chini ya ½ SVL). Sehemu ya chini ina madoa.

**SPISHI INAZOFANANA NAZO:** *M. usambarae* inafanana sana na spishi zingine za jenasi lakini sehemu yake ya chini ina rangi iliyofifia yenye madoa yenye mchanganyiko wa rangi iliyokolea zaidi. Aidha, spishi hii haina doa kifuani, mstari sehemu ya chini wala tumbo jeusi kama spishi zingine. Spishi hii inafanana na *M. micranotis* kiikolojia na mara nyingi, spishi hizi mbili hupatikana mahali pamoja.

**MAZINGIRA:** Misitu ya maeneo tambarare. Inavumilia uharibifu kiasi wa mazingira na hata ukataji yakinifu wa miti ya magogo.

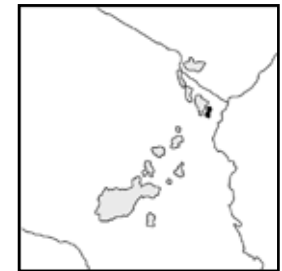
**HISTORIA ASILIA:** Tabia ya kuzaliana haijafanyiwa utafiti. Sehemu ya juu ya kichwa ni mvingo na kahawia; inadhaniwa sehemu hiyo inasaidia wakati wa kupumua; sehemu hiyo inapatikana pia kwenye viluwiluvi vya *M. micranotis* na *M. taitana*.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Spishi inapatikana tu kwenye milima midogo ya Usambara Mashariki pamoja na Hilfadhi za Misitu za Kwangumi, Segoma na Mtai

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Kwangumi, milima midogo ya Usambara Mashariki, nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** < 410 m

**HALI YA UHIFADHI :** Spishi iko hatarini



***Mertensophryne uzunguensis*** (Loveridge, 1932)

Udzungwa Toad



M. Menegon

SVL: ♀ < 30 mm

**DESCRIPTION:** A small toad. The dorsum is brown, often with a thin light vertebral stripe and paired darker markings. There is typically a small dark blotch on the middle of the chest. The legs are barred. The parotid glands are long and thin. The species lacks a tympanum. The first finger is shorter than the second. Toes have only a very small amount of webbing. Males in breeding condition have dark nuptial pads.

**SIMILAR SPECIES:** Similar in

appearance to many of the other species in the genus, but *M. uzunguensis* is the only *Mertensophryne* species known to occur in high elevation grasslands in the Udzungwas and southern highlands.

**HABITAT:** Swampy grasslands at high elevations

**NATURAL HISTORY:** Breeds in wet grasslands

**CALL:** Unlikely to have an advertisement call

**DISTRIBUTION IN THE EACF:** Udzungwa Mountains and Southern Highlands

**TYPE LOCALITY:** Kigogo, Uzungwe [Udzungwa] Mountains, Tanzania

**ELEVATIONAL RANGE:** > 1800 m

**CONSERVATION STATUS:** Vulnerable

UREFU WA MWILI: ♀ < 30 mm

**MAELEZO:** Chura huyu ni mdogo. Sehemu ya juu ni kahawia na mara nyingi ina mstari mwembamba mgongoni uliofifia na madoa yaliyokaa mawili mawili yenye rangi iliyokolea. Miguu ina mistari. Tezi nyuma ya jicho ni fu na nyembamba. Spishi hii haina kiwambo cha sikio. Kidole cha kwanza cha mkononi ni kifupi kuliko cha pili. Vidole vya miguuni vina utando mdogo sana. Madume yanapokuwa kwenye msimu wa kupandana, yanakuwa na maeneo magumu ya ngozi yanayotumika kumkamata jike wakati wa.

**SPISHI INAZOFANANA NAZO:** Spishi hii inafanana na spishi nyingi za jenasi lakini *M. uluguruensis* ni spishi ya *Mertensophryne* pekee ambayo inapatikana kwenye nyika zilizopo kwenye miinuko ya juu sana ya Milima ya Udzungwa na ya nyanda za kusini.

**MAZINGIRA:** Nyika za kwenye kinamasi kwenye miinuko ya juu sana.

**HISTORIA ASILIA:** Inazaliana kwenye nyasi zenye unyevu.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Milima ya Udzungwa na nyanda za Kusini

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Kigogo, Milima ya Uzungwe [Udzungwa], Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** > 1800 m

**HALI YA UHIFADHI:** Inaweza kuathirika



## *Nectophrynooides asperginis*

(Poynton, Howell, Clarke and Lovett, 1999)

Kihansi Spray Toad



A. Channing

This species is likely extinct in the wild, with the last confirmed sighting in 2005. The small area of habitat used by the toads was severely altered by the construction of a dam on the Kihansi River as part of the Lower Kihansi Hydropower Project. Sprinkler systems intended to imitate the natural spray of the waterfall were not sufficient to maintain the quality of the habitat. A fungal pathogen, chytridiomycosis is also thought to have contributed to the ultimate population crash. Some toads were collected from the wild population and are now housed at captive breeding facilities in the Toledo and Bronx Zoos.

Breeding facilities for this species are currently being developed in Tanzania.

SVL: ♂ 15 - 17 mm; ♀ 18 - 20 mm

**DESCRIPTION:** A small frog. The dorsum is yellow-brown with a pair of darker brown stripes that run from behind the eye to the groin. Some irregular dark markings may be present on the dorsum. There are no dark markings on the ventral surface. The tympanum is not visible. The snout is short, and the eyes are large with horizontal pupils. This species lacks distinct parotid glands. Finger tips are rounded and not expanded. Toes and fingers are webbed.

**SIMILAR SPECIES:** The dorsal stripes are distinctive and the fingers are webbed.

**HABITAT:** A wetland area of approximately 2 hectares created in the spray zone of the Kihansi River Gorge falls in the Udzungwa Mountains

**NATURAL HISTORY:** Fertilization is internal and females give live birth to approximately 16 - 18 young.

**CALL:** Two calls are known – an advertisement call and an aggression call. Calls can be heard during the day as well as at night. The advertisement call is described by Channing and Howell as “a single note with 1 – 4” pulses and the aggression call is “a series of advertisement calls”.

**DISTRIBUTION IN THE EACF:** Known only from the type locality

**TYPE LOCALITY:** Kihansi River Gorge, Udzungwa Mountains, Tanzania

**ELEVATIONAL RANGE:** 600 – 940 m

**CONSERVATION STATUS:** Critically endangered

Inawezekana spishi hii imetoweka porini kwani, ilionekana mwaka 2005 kwa mara mwisho. Eneo dogo ilimokuwa inaishi liliharibiwa vibaya wakati bwawa lilipojengwa kwenye Mto wa Kihansi, kama sehemu ya Mradi wa Umeme wa Kihansi. Mfumo wa kunyunyizia maji ambao ulitengenezwa kama mbadala wa mfumo asilia wa maporomoko haukuweza kudumisha ubora wa mazingira. Inasadikiwa kwamba, kuku inayosababisha ugonjwa wa “chytridiomycosis” ulichangia pia kutoweka kwa spishi hiyo ya vyura. Baadhi ya vyura walichukuliwa kutoka porini na sasa wanahifadhiwa kwenye maeneo maalum ya kuzaliana ya bustani za wanyama za Toledo na Bronx nchini Marekani. Aidha, kwa sasa, makazi ya kuzaliana ya spishi hizi yanaandaliwa nchini Tanzania.

UREFU WA MWILI: ♂ 15 - 17 mm; ♀ 18 - 20 mm

**MAELEZO:** Chura huyu ni mdogo. Sehemu ya juu ni njano kahawia na kuna mistari miwili kahawia iliyokolea, inayotoka nyuma ya jicho hadi kinena. Inawezekana pia yakawepo madoa meusi kwenye sehemu ya juu. Hakuna madoa meusi kwenye sehemu ya chini. Kiwambo cha sikio hakionekani. Pua ni fupi, macho ni makubwa na yana mboni za mlalo. Hakuna tezi nyuma ya jicho zinazoonekana. Ncha za vidole vya mkononi ni mvingo na sio pana. Vidole vya mguuni na mkononi havina utando.

**SPISHI INAZOFANANA NAZO:** Spishi hii inatofautiana na zingine kwa kuwa na mistari ya sehemu ya juu na utando kwenye vidole vya mikononi.

**MAZINGIRA:** Ardhi oevu yenye takribani hekta mbili zilizotengenezwa kwenye maporomoko ya Mto wa Kihansi kwenye Milima ya Udzungwa.

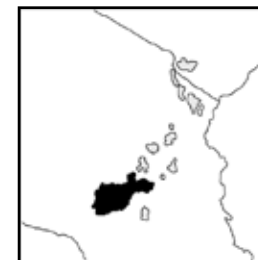
**HISTORIA ASILIA:** Dume linaweka mbegu zake ndani ya jike ambalo linazaa takribani vyura wachanga 16-18.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Kihansi tu

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Kihansi kwenye Milima ya Udzungwa, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 600 – 940 m

**HALI YA UHIFADHI:** Iko hatarini sana



***Nectophrynoides cryptus*** (Perret, 1971)

Uluguru Forest Toad

This species has not been observed since it was originally collected in 1926 and 1927

SVL: ♂ < 26 mm; ♀ 34 mm

**DESCRIPTION:** A small thin toad with a pointed snout. Tympanum is not visible, although there is an indentation in that region. The first finger is shorter than the second. The toe and finger tips are not expanded. There is a moderate amount of webbing on the toes and fingers. Parotid glands are located in the scapular region.

**SIMILAR SPECIES:** This species has more extensive webbing than other species in the genus that occur in the Uluguru Mountains.

**HABITAT:** Forest including banana patches

**NATURAL HISTORY:** Fertilization is internal. Females retain eggs and give live birth.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Known only from the type locality

**TYPE LOCALITY:** Nyingwa, Uluguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 600 – 2200 m

**CONSERVATION STATUS:** Endangered

Spishi hii haijaonekana tangu ilipokamatwa mwaka 1926 na 1927



UREFU WA MWILI: ♂ < 26 mm; ♀ 34 mm

**MAELEZO:** Chura huyu ni mdogo na ana pua iliyochongoka. Kiwambo cha sikio kinaonekana ingawa kuna mbonyeo. Kidole cha mkono cha kwanza ni kifupi kuliko cha pili. Ncha za vidole vya mkononi na mguuni siyo pana. Kuna utando kiasi kwenye vidole vya miguuni na mikononi. Tezi nyuma ya jicho ziko kwenye eneo la kombe la mkono.

**SPISHI INAZOFANANA NAZO:** Spishi hii ina utando ulioenea zaidi kuliko spishi zingine zilizopo Milima ya Uluguru.

**MAZINGIRA:** Misitu na mashamba ya ndizi

**HISTORIA ASILIA:** Dume linaweka mbegu zake ndani ya jike. Mayai yanabaki ndani ya jike, na linazaa vyura wachanga.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Nyingwa tu

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Nyingwa, kwenye Milima ya Uluguru, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 600 – 2200 m

**HALI YA UHIFADHI:** Spishi iko hatarini





## *Nectophrynoides frontierei*

(Menegon, Salvadio, and Loader, 2004) Frontier Forest Toad



SVL: ♂ < 18 - 19 mm

**DESCRIPTION:** A very small toad with a broad head. The dorsum is brown with lighter blotches. The tympanum is only weakly visible. Parotid glands are absent, although a few small glands may be present in the parotid area. The upper eyelid has a distinctly glandular ridge. The snout extends slightly beyond the lower lip. Finger and toe tips are not expanded. Toes have a small amount of webbing at the base, fingers lack webbing.

**SIMILAR SPECIES:** *N. frontierei* can be distinguished from most other species in the genus by its lack of clearly visible tympanum and parotid glands. *N. asperginis*, has much more extensive webbing than *N. frontierei*.

**HABITAT:** Submontane forest

**NATURAL HISTORY:** Known only from two males that were captured in pitfall traps near a stream in 1999. Reproduction is assumed to be similar to that of other species in the genus with internal fertilization and live birth.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Known only from the type locality

**TYPE LOCALITY:** Amani-Sigi Forest, Amani Nature Reserve, East Usambara Mountains, Tanzania

**ELEVATIONAL RANGE:** 920 - 950 m

**CONSERVATION STATUS:** Data deficient

UREFU WA MWILI: ♂ < 18 - 19 mm

**MAELEZO:** Chura huyu ni mdogo sana na ana kichwa kipana. Sehemu ya juu ni kahawia na ina madoa yenye rangi iliyofifia. Kiwambo cha sikio hakionekani vizuri. Hakuna tezi kubwa nyuma ya jicho, ingawa inawezekana tezi chache ndogo zikawepo. Kigubiko cha jicho la juu kina tuta lenye tezi. Pua inaendelea kidogo mbele ya mdomo wa chini. Vidole vya miguuni na mikononi siyo vipana. Vidole vya miguuni vina utando kidogo mwanzoni lakini vidole vya mikononi havina.

**SPISHI INAZOFANANA NAZO:** Tofauti kati ya *N. frontierei* na spishi zingine za jenasi ni kuwa spishi hii haina kiwambo cha sikio kinachoonekana wala tezi chini ya jicho. Aidha, utando umeenea zaidi kwenye *N. asperginis* kuliko kwenye *N. frontierei*.

**MAZINGIRA:** Misitua karibu na 1200 m kutoka usawa wa bahari.

**HISTORIA ASILIA:** Taarifa za spishi hii zilizopo zinatokana na madume mawili yaliyokamatwa kwenye mitego karibu na kijito mwaka 1999. Inadhaniwa kwamba mfumo wa kuzaliana unafanana na wa spishi zingine za jenasi; dume linaweka mbegu zake ndani ya jike ambalo linazaa vyura wachanga

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Spishi imeonekana tu mahali kielelezo kilipopewa jina kwa mara ya kwanza.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Misitu ya Amani-Sigi, Hifadhi ya Misitu ya Amani na Milima ya Usambara Mashariki, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:**  
920 - 950 m

**HALI YA UHIFADHI:** Hakuna taarifa za kutosha



***Nectophrynoides laevis*** (Menegon, Salvidio, and Loader, 2004)  
Smooth Forest Toad



SVL: ♂ = 24.8 mm

**DESCRIPTION:** Lacks a tympanum. The dorsum is light gray with irregular dark markings and is smooth with small warts. Parotid glands are twice as long as their width. A very small amount of webbing is present on the toes. Fingers lack webbing. Finger tips are expanded and slightly truncate. A thin dark line runs along the center of the ventral surface. A pale vertebral stripe was present on the single individual collected; however this is a trait that varies among individuals in other species.

**SIMILAR SPECIES:** Can be distinguished from other members of the genus by its lack of tympanum and the presence of expanded toe tips and a distinct parotid gland.

**HABITAT:** Upper montane forest

**NATURAL HISTORY:** This species is known from a single specimen collected in 2002. Reproduction is assumed to be similar to that of other species in the genus with internal fertilization and live birth.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Known only from the type locality

**TYPE LOCALITY:** Uluguru South Forest Reserve, Uluguru Mountains, Morogoro Region, Tanzania

**ELEVATIONAL RANGE:** a single specimen was collected at 2000 m

**CONSERVATION STATUS:** Data deficient

UREFU WA MWILI: ♂ = 24.8 mm

**MAELEZO:** Chura huyu haina kiwambo cha sikio. Sehemu ya juu ni kijivu kilichofifia, ina alama bila mpangilio, iko laini na ina chunjua ndogo. Tezi nyuma ya jicho zina urefu maradufu ya upana wao. Vidole vya miguuni vina utando kidogo sana. Vidole vya mikononi havina utando. Ncha za vidole vya mikononi ni pana na mvingo kidogo. Kuna mstari mwembamba na mweusi unaotoka mwanzo hadi mwisho wa sehemu ya chini. Kulikuwa na msitari mmoja mwembamba wenye rangi iliyofifia mgongoni mwa chura mmoja aliyekamatwa; lakini hali hii hutofautiana katika spishi zingine.

**SPISHI INAZOFANANA NAZO:** Tofauti na spishi zingine za jenasi, *N. laevis* hana kiwambo cha sikio, ina ncha za vidole vya miguuni pana na tezi juu ya jicho inayoonekana.

**MAZINGIRA:** Misitu iliyopo zaidi ya 1200 m. kutoka usawa wa bahari.

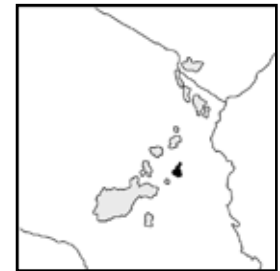
**HISTORIA ASILIA:** Kielelezo kimoja tu kilikamatwa mwaka 2002. Inadhaniwa kwamba mfumo wa kuzaliana unafanana na wa spishi zingine za jenasi; dume linaweka mbegu zake ndani ya jike ambalo linazaa vyura wachanga

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Mahali kielelezo kilipopewa jina kwa mara ya kwanza

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Uluguru Kusini, Milima ya Uluguru, nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 2000 m

**HALI YA UHIFADHI:** Hakuna taarifa za kutosha



## *Nectophrynoides laticeps*

(Channing, Menegon, Salvadio, and Akker, 2005)



M. Menegon

SVL: < 24 mm

**DESCRIPTION:** A small frog with slender limbs. The tympanum is visible, but not distinct. It is smaller than  $\frac{1}{2}$  the diameter of the eye. The dorsum is brown with raised bumps. The sides are slightly darker, but there are no distinct markings on the dorsum or sides. There is a light band that runs from the eye to the corner of the mouth. Toe and finger tips are rounded and not expanded. Toes and fingers lack webbing.

**SIMILAR SPECIES:** *N. paulae* and *N. tornieri* also occur in the Ukaguru

Mountains, but *N. laticeps* lacks the conical dorsal spines of *N. paulae* and has rounded finger tips unlike the truncate finger tips of *N. tornieri*.

**HABITAT:** Leaf litter in montane forest.

**NATURAL HISTORY:** Reproduction is assumed to be similar to that of other species in the genus with internal fertilization and live birth.

**CALL:** Described by Channing et al. (2005) as “a whistle followed by a short chirp, although later in the year only the chirp is produced.”

**DISTRIBUTION IN THE EACF:** Ukaguru Mountains

**TYPE LOCALITY:** Mamiwa-Kisara Forest Reserve, Ukaguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 1800 – 2200 m

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: < 24 mm

**MAELEZO:** Chura huyu ni mdogo na ana miguu na mikono miembamba. Kiwambo cha sikio kinaonekana na ni kidogo kuliko  $\frac{1}{2}$  ya kipenyo cha jicho. Sehemu ya juu ni kahawia na ina nundu zilizojitokeza. Sehemu za pembeni ni nyeusi kidogo lakini hakuna alama maalum kwenye sehemu ya juu au pembeni. Kuna mstari uliofifia unaotoka jichoni hadi kwenye kona ya mdomo. Ncha za vidole vya miguuni na mikononi ni mvingo lakini siyo pana. Hakuna utando kwenye vidole vya miguuni wala mikononi.

**SPISHI INAZOFANANA NAZO:** *N. paulae* na *N. tornieri* zinapatikana pia Milima ya Ukaguru lakini *N. laticeps* hana miiba sehemu ya juu yenye umbo la pia na ana ncha mvingo za vidole vya mikononi, tofauti na *N. tornieri* mwenye ncha butu

**MAZINGIRA:** Majani yaliyoanguka chini kwenye misitu iliyopo zaidi ya 1200 m kutoka usawa wa bahari.

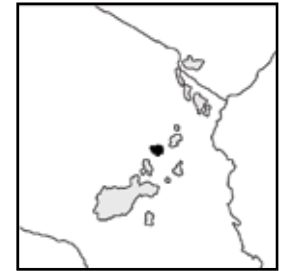
**HISTORIA ASILIA:** Inadhaniwa kwamba mfumo wa kuzaliana unafanana na wa spishi zingine za jenasi. Dume linaweka mbegu zake ndani ya jike ambalo linazaa vyura wachanga

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Ukaguru Milima.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Mamiwa-Kisara, Milima ya Ukaguru, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1800 – 2200 m

**HALI YA UHIFADHI:** Spishi iko hatarini



***Nectophrynoides minutus*** (Perret, 1972)

Minute Tree Toad, Dwarf Forest Toad



SVL: ♂ < 19 mm; ♀ < 22 mm

**DESCRIPTION:** A small slender frog. The tympanum is visible. Lacks a distinct parotid gland, although some small glands are present in the parotid region. Finger and toe tips are not expanded. Toes have only a very small amount of webbing. The first finger is shorter than the second.

**SIMILAR SPECIES:** Similar to *N. asperginis*, but the tympanum is visible in *N. minutus*. Also, *N. minutus* is not known to occur in the Udzungwa Mountains.

**HABITAT:** Undisturbed montane forest and montane grassland

**NATURAL HISTORY:** Fertilization is internal and females give birth to 20 – 31 young.

**CALL:** Unknown

**DISTRIBUTION IN THE EACF:** Uluguru North and South Forest Reserves and the Ukwiva Forest Reserve in the Rubeho Mountains

**TYPE LOCALITY:** Bagilo, Uluguru Mountains, Tanzania

**ELEVATIONAL RANGE:** > 1200 m

**CONSERVATION STATUS:** Endangered

UREFU WA MWILI: ♂ < 19 mm; ♀ < 22 mm

**MAELEZO:** Chura huyu ni mdogo na mwembamba. Kiwambo cha sikio kinaonekana. Hana tezi kubwa nyuma ya jicho inayoonekana ingawa kuna tezi ndogo ndogo. Ncha za vidole vya miguuni na mikononi siyo pana. Vidole vya miguuni vina utando kidogo sana. Kidole cha kwanza ni kifupi kuliko cha pili.

**SPISHI INAZOFANANA NAZO:** Spishi hii inafanana na *N. asperginis* lakini kiwambo cha sikio cha *N. minutus* kinaonekana. Aidha, *N. minutus* haijawahi kupatikana kwenye Milima ya Udzungwa.

**MAZINGIRA:** Misitu na nyasi zilizopo zaidi ya 1200 m kutoka usawa wa bahari, lakini kwenye mazingira ambayo hayajaguswa.

**HISTORIA ASILIA:** Dume linaweka mbegu zake ndani ya jike ambalo linazaa vyura 20-31.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Hifadhi zya Misitu ya Uluguru Kaskazini na Uluguru Kusini, Hifadhi ya Misitu ya Ukwiva ya Milima ya Rubeho.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Bagilo, Milima ya Uluguru, nchini Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** > 1200 m

**HALI YA UHIFADHI:** Spishi iko hatarini



## *Nectophrynooides paulae*

(Menegon, Salvadio, Ngalason, and Loader, 2007)



M. Menegon

SVL: 15 – 24 mm

**DESCRIPTION:** A small dark toad with slender limbs. The dorsum is covered in large conical spines. The tympanum is distinctly visible. Parotid glands are absent. Finger and toe tips are rounded and not expanded.

**SIMILAR SPECIES:** The large conical spines on the dorsum are distinctive.

**HABITAT:** Montane forest, typically found on vegetation

**NATURAL HISTORY:** Known only from 10 specimens collected at the

type locality and a single subsequent record. These individuals were found on vegetation near a stream with standing water. Males call on rainy nights while perched on vegetation approximately 1 m off the ground. Reproduction is assumed to be similar to that of other species in the genus with internal fertilization and live birth.

**CALL:** The call consists of 3 – 5 pulses

**DISTRIBUTION IN THE EACF:** Known only from the type locality

**TYPE LOCALITY:** Mamiwa-Kisara North Forest Reserve, Ukaguru Mountains, Tanzania

**ELEVATIONAL RANGE:** 1800 m

**CONSERVATION STATUS:** Critically endangered

UREFU WA MWILI: 15 – 24 mm

**MAELEZO:** Chura huyu ni mdogo, mweusi na ana miguu na mikono midogo. Sehemu ya juu ina miiba mikubwa yenye umbo la pia. Kiwambo cha sikio kinaonekana wazi. Hakuna tezi nyuma ya jicho. Ncha za vidole vya miguuni na mikononi siyo pana.

**SPISHI INAZOFANANA NAZO:** Spishi hii inajitofautisha na zingine kwa kuwa na miiba mikubwa yenye umbo la pia.

**MAZINGIRA:** Misitu iliyopo zaidi ya 1200 m kutoka usawa wa bahari

**HISTORIA ASILIA:** Taarifa zinatokana na vielelezo 10 vilivyokamatwa mahali spishi ilipopewa jina na baada ya hapo ilipatikana tena mara moja. Vyura hawa walipatikana kwenye uoto karibu na kijito chenye maji yaliyosimama. Madume yanaita usiku mvua inaponyesha, yakiwa juu kwenye uoto takribani 1 m kutoka ardhini. Mfumo wa kuzaliana unadhaniwa kuwa sawa na wa spishi zingine za jenasi; dume linaweka mbegu zake ndani ya jike ambalo linazaa vyura wachanga.

**ENEO SPISHI INAPOPATIKANA KWENYE MTMMP:** Mahali ilipopewa jina kwa mara ya kwanza.

**MAHALI KIELELEZO KILIPOPEWA JINA KWA MARA YA KWANZA:** Hifadhi ya Misitu ya Mamiwa-Kisara Kaskazini, Milima ya Ukaguru, Tanzania

**ENEO LA SPISHI KUTOKA USAWA WA BAHARI:** 1800 m

**HALI YA UHIFADHI:** Spishi iko hatarini sana

