

GLOBALLY THREATENED BIODIVERSITY OF THE EASTERN ARC MOUNTAINS AND COASTAL FORESTS OF KENYA AND TANZANIA

Roy E. Gereau

Missouri Botanical Garden
P.O. Box 299, St. Louis, MO 63116-0299, USA
roy.gereau@mobot.org

Neil Cumberlidge

Department of Biology, Northern Michigan University
Marquette, MI 49855-5376, USA
neilcumberlidge@gmail.com

Claudia Hemp

Department of Animal Ecology & Tropical Biology Biocenter
University of Würzburg am Hubland
97074 Würzburg, Germany
claudia.hemp@uni-wuerzburg.de

Axel Hochkirch

Biogeography, Trier University
54286 Trier, Germany
hochkirch@uni-trier.de

Trevor Jones

Southern Tanzania Elephant Program
P.O. Box 2494, Iringa, Tanzania
trevor.udzungwa@gmail.com

Mercy Kariuki

Africa Partnership Secretariat, BirdLife International
P.O. Box 3502-00100, Nairobi, Kenya
mercy.kariuki@birdlife.org

Charles N. Lange

Zoology Department, National Museums of Kenya
P.O. Box 40658, Nairobi, Kenya
clange@museums.or.ke

Simon P. Loader

Department of Life Sciences, University of Roehampton
London, SW15 4JD, United Kingdom
simon.loader@roehampton.ac.uk

Patrick K. Malonza

Zoology Department, National Museums of Kenya

P.O. Box 40658, Nairobi, Kenya
malonzapk@gmail.com

Michele Menegon

Tropical Biodiversity Section, MUSE—Museo delle Scienze
Corso del Lavoro e della Scienza 3
38122 Trento, Italy
michele.menegon@muse.it

P. Kariuki Nding'ang'a

Africa Partnership Secretariat, BirdLife International
P.O. Box 3502-00100, Nairobi, Kenya
kariuki.ndganganga@birdlife.org

Francesco Rovero

Tropical Biodiversity Section, MUSE—Museo delle Scienze
Corso del Lavoro e della Scienza 3
38122 Trento, Italy
Udzungwa Ecological Monitoring Centre
Udzungwa Mountains National Park
P.O. Box 99 Mang'ula, Tanzania
francesco.rovero@muse.it

Philip Shirk

Department of Biology, University of Florida
Gainesville, FL 32611, USA
philip.shirk@gmail.com

ABSTRACT

We present an account of the 909 globally threatened taxa (793 species, 74 subspecies, 42 varieties) of animals and plants in the Eastern Arc Mountains and Coastal Forests of Kenya and Tanzania and the sites in which they occur based upon a review of the 2015 IUCN Red List of Threatened Species. Results for animals are summarised by Class (Amphibia, Aves, Gastropoda, Insecta, Malacostraca, Mammalia, Reptilia) and presented for plants as a whole (Classes Bryopsida, Cycadopsida, Jungermanniopsida, Liliopsida, Lycopodiopsida, Magnoliopsida, Pinopsida, Polypodiopsida). We analyse the status of previously known and newly identified sites in which globally threatened biodiversity occurs and summarise the current state of research on the globally threatened and ecologically critical biodiversity of the EACF. We then provide recommendations for future research, environmental regulations, and management regimes based upon comprehensive and reliable data to ensure the continued survival of the EACF's biodiversity within the context of sustainable resource utilisation.

Keywords: biodiversity, conservation, endemism, hotspot, IUCN Red List

INTRODUCTION AND BACKGROUND

The Eastern Arc Mountains and Coastal Forests of Kenya and Tanzania (EACF) region (figure 1) is characterised by a high level of species endemism, a severe degree of threat, and the exceptional diversity of its plant and animal communities (Critical Ecosystem Partnership Fund, 2003a, 2007). Myers *et al.* (2000) recognised the EACF as one of the world's 25 Global Biodiversity Hotspots on the basis of its having at least 1500 endemic plant species and having lost at least 70% of its original primary vegetation. Brooks *et al.* (2002) concluded that the EACF is the one Hotspot likely to suffer the most extinction events from a given loss of habitat. Mittermeier *et al.* (2004), however, later separated the Eastern Arc Mountains (EAMs) as part of a newly recognised Eastern Afrotropical Hotspot and included the Coastal Forests of Kenya and Tanzania in an expanded Coastal Forests of Eastern Africa Hotspot.

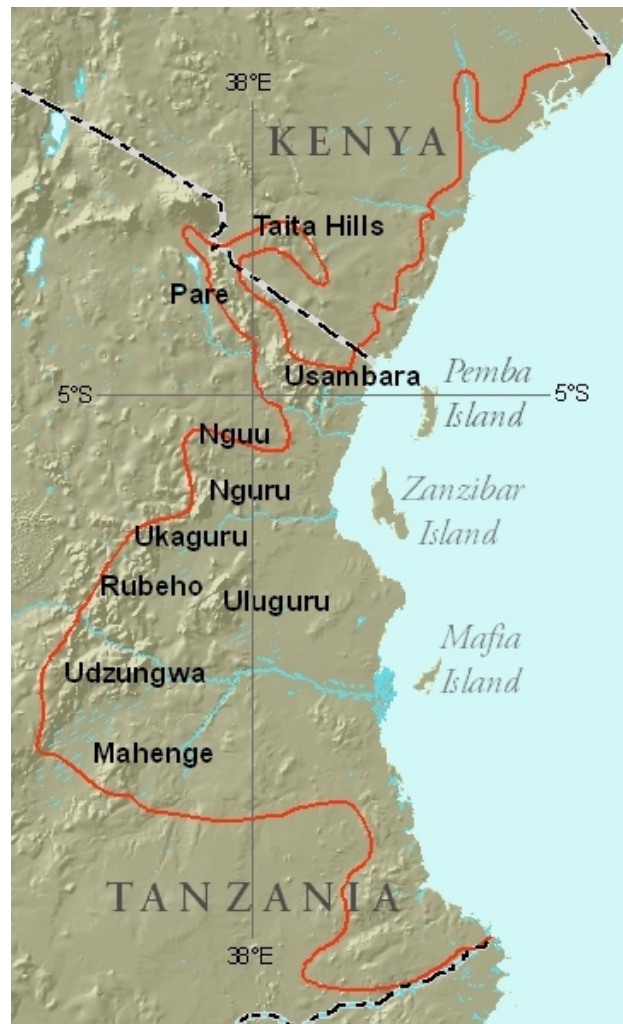


Figure 1. Eastern Arc and Coastal Forests Project Area, with Eastern Arc mountain blocs and major offshore islands labelled. Map courtesy of Conservation Mapping Program—CI/CABS.

The Critical Ecosystem Partnership Fund (CEPF) conducted an exhaustive survey of the EACF region, its natural resources, its threatened species, and their protection status, as presented in the EACF Ecosystem Profile (Critical Ecosystem Partnership Fund, 2003a). Its Appendices (Critical Ecosystem Partnership Fund, 2003b) constituted its Outcomes Database, with a list of the 333 globally threatened species of the EACF from the 2002 IUCN Red List of Threatened Species, a list of sites in the EACF with the total number of globally threatened species that each contained, and a list of sites in the EACF that host globally threatened species, restricted range birds, and globally significant congregations of birds. At the beginning of 2004, CEPF made a five-year investment of US \$7 million allocated to 103 projects in the EACF region. The investment focused on improving human wellbeing and scientific knowledge and reducing the extinction risk for the area's globally threatened species through improved protection for the sites where these species are found. Beyond this investment, biodiversity research and conservation work continue in the region due to its biological value and the ecosystem services it provides for millions of people. As part of an effort to assemble and provide information for conservation workers, governments, and other stakeholders in the EACF, Ndang'ang'a *et al.* (2008) produced a status report for the EACF, updating the Ecosystem Profile and the status of its globally threatened species and increasing the total number of threatened species from 333 to 343. BirdLife International (2013) further updated the Ecosystem Profile and Outcomes Database for the years 2008-2012, increasing the total number of globally threatened species to 346. Here we update the Outcomes Database again, raising the total to 793 threatened species.

MATERIALS AND METHODS

Gereau *et al.* (2014) undertook a thorough review of the 2013 IUCN Red List of Threatened Species (IUCN, 2013) in March 2014 to ascertain the current status of the globally threatened species on the 2012 EACF Outcomes Database and identify any additional threatened species or infraspecific taxa (subspecies, varieties) from the EACF that had been added to the Red List since the 2012 status and trends report (BirdLife International, 2013). In December 2015 Gereau undertook a subsequent review of the 2015 Red List (IUCN, 2015) to identify any further threatened taxa from the EACF that had been added in 2014 and 2015. A total of 386 globally threatened taxa (species, subspecies, and varieties) from the EACF were newly posted on the Red List in 2013-2015, dominated by 324 assessments of plant taxa mostly performed by the Eastern African Plant Red List Authority (EAPRLA). The EAPRLA was constituted in 2006 under a grant from CEPF for the primary purpose of assessing the Red List status of plants of the EACF (Gereau *et al.*, 2007), and has continued until the present with an expanded coverage in the larger Eastern African region but maintaining a central focus on the EACF (Gereau *et al.*, 2009; Luke *et al.*, 2014).

RESULTS

A thorough review of the IUCN Red List of Threatened Species (IUCN, 2013, 2015) revealed a total of 909 globally threatened taxa (793 species, 74 subspecies, 42 varieties) in the EACF, listed in appendix 1 and distributed taxonomically as in table 1. Of these 909 globally threatened taxa, 386 were listed for the first time in 2013-2015 and 25 were re-assessed in 2013-2015 in a different threatened category than in 2012. Of the 909 taxa, 639

Table 1. Number of globally threatened taxa assessed in the EACF by major taxonomic group and Red List version.

Kingdom	Class	Ver. 3.1	Ver. 2.3	Total taxa
Animalia	Amphibia	61	0	61
Animalia	Aves	43	0	43
Animalia	Gastropoda	8	2	10
Animalia	Insecta	43	0	43
Animalia	Malcostraca	4	0	4
Animalia	Mammalia	33	0	33
Animalia	Reptilia	24	0	24
Plantae	Bryopsida	0	1	1
Plantae	Cycadopsida	3	0	3
Plantae	Jungermanniopsida	0	1	1
Plantae	Liliopsida	105	0	105
Plantae	Lycopodiopsida	1	0	1
Plantae	Magnoliopsida	293	266	559
Plantae	Pinopsida	1	0	1
Plantae	Polypodiopsida	20	0	20
TOTAL		639	270	909

(70%) were assessed between 2003 and 2015 under the current Red List Categories and Criteria Version 3.1 (IUCN, 2012a) and 270 (30%) were assessed between 1996 and 2000 under the previous Version 2.3 (IUCN, 1994).

Distributions of the 909 globally threatened taxa were tabulated for a series of 163 named sites in the EACF, mostly Important Bird Areas (IBAs) and/or Key Biodiversity Areas (KBAs) (BirdLife International 2014a,b). For consistency with previous versions of the EACF Outcomes Database, Udzungwa Mountains National Park is listed as a site (IBA and KBA) separately from the rest of the Udzungwa Mountains, although the two areas are not biogeographically distinct.

Numbers of threatened taxa per site are shown in appendix 2. The ten sites in the EACF with the largest numbers of threatened taxa are: Uluguru Mountains (250), East Usambara Mountains (216), West Usambara Mountains (187), Udzungwa Mountains (excluding Udzungwa Mountains National Park; see above) (184), Udzungwa Mountains National Park (157), Nguru Mountains (141), Lindi District coastal forests (93), Shimba Hills (90), South Pare Mountains (76), and Selous Game Reserve (75) (figure 2). We summarise below the chief results for threatened taxa of the various taxonomic groups assessed, followed by a summary of changes in numbers of threatened taxa per site between the 2012 and 2015 Outcomes Database.

Amphibians

On the 2015 Red List there are 61 globally threatened species of amphibians occurring in the EACF, with five of these listed for the first time in 2013-2015 and 16 species re-assessed in 2013-2015 in a different threatened category than in 2012. The complete assessment of all East African amphibians is due in 2016 (Loader, pers. obs.), which will mean that the assessments of 17 species will be updated from those on the current list (see appendix 1), in

addition to any other newly described species (*e.g.* Loader *et al.*, 2015). The eight sites in the EACF with the largest numbers of threatened amphibian species are: Udzungwa Mountains (21), Nguru Mountains (18), Uluguru Mountains (17), East Usambara Mountains (14), West Usambara Mountains (14), Nguu Mountains (9), Ukaguru Mountains (8), and Udzungwa Mountains National Park (7).

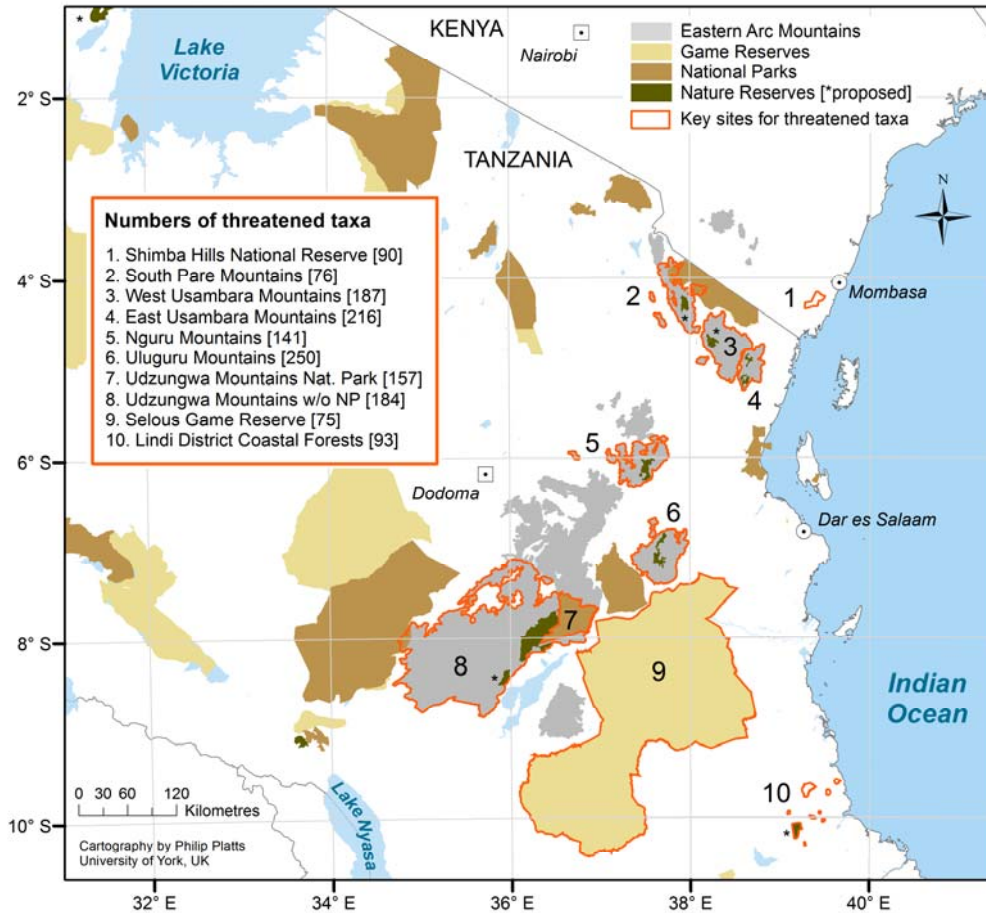


Figure 2. Sites within the Eastern Arc and Coastal Forests with the largest numbers of threatened taxa. Eastern Arc mountain bloc boundaries follow Platts *et al.* (2011); Lindi District Coastal Forests boundaries follow BirdLife International (2014b).

Birds

On the 2015 Red List there are 43 globally threatened species of birds occurring in the EACF, with six of these listed for the first time in 2013-2015 and five species re-assessed in 2013-2015 in a different threatened category than in 2012. The ten sites in the EACF with the largest numbers of threatened bird species are: Udzungwa Mountains (16), Udzungwa Mountains National Park (14), Uluguru Mountains (14), East Usambara Mountains (12),

Bagamoyo District coastal forests (10), Rubeho Mountains (10), South Pare Mountains (10), West Usambara Mountains (10), Selous Game Reserve (9), and Taita Hills Forests (9).

Gastropods

On the 2015 Red List there are ten globally threatened species of gastropods occurring in the EACF, with no species listed for the first time in 2013-2015 and no changes of status between 2012 and 2015. The eight sites in the EACF with threatened gastropod species are: Taita Hills Forests (4 species), River Wami (2), Arabuko-Sokoke Forest (1), Kyngani [Kingani, lower Ruvu] River (1), Muheza District coastal forests (1), Pangani District coastal forests (1), Shimba Hills (1), and Zanzibar coast (1). Two threatened species, *Lanistes alexandri* and *Gulella amboniensis*, were assessed under Version 2.3 of the IUCN Red List Categories and Criteria (IUCN, 1994), and should therefore be reassessed under the current Version 3.1 (IUCN, 2012a).

Insects

On the 2015 Red List there are 43 globally threatened species of insects occurring in the EACF, with 35 of these listed for the first time in 2013-2015 and no changes of status between 2012 and 2015. The seven sites in the EACF with the largest numbers of threatened insect species are: East Usambara Mountains (17), Uluguru Mountains (14), Ukaguru Mountains (5), West Usambara Mountains (5), Zanzibar coast (4), Nguru Mountains (3), and Udzungwa Mountains National Park (3). Invertebrates are generally still underrepresented on the Red List and most insect taxa have not yet been assessed. Currently, there are efforts to assess the endemic Orthoptera species of Tanzania, so that it can be expected that a more comprehensive picture of this order of insects will become available in the future. A total of 33 threatened species of grasshoppers were added to the Red List in 2013 and 2014: nine of them Vulnerable, ten Endangered, and 14 Critically Endangered.

Freshwater crabs

The IUCN Red List of Threatened Species 2008 included 209 globally threatened species of freshwater crabs, with 28 of these listed for the Afrotropical region (16 Vulnerable, 10 Endangered, 2 Critically Endangered), and nine species for East Africa (7 Vulnerable, 2 Endangered) (Cumberlidge *et al.*, 2009; Cumberlidge, 2014a,b). The EACF includes four species of *Potamonautes* assessed as Vulnerable, and these are the only threatened members of the Class Malacostraca in the EACF. The four threatened species are found in four sites in the EACF: East Usambara Mountains (3 species), West Usambara Mountains (2), Shimba Hills (1), and Uluguru Mountains (1). Two of the threatened species (*P. infravallatus* and *P. xiphoidus*) are endemic to the East and West Usambara Mountains, one species (*P. unisulcatus*) is endemic to the Uluguru Mountains, and one species (*P. raybouldi*) is found in the Shimba Hills in Kenya and the East Usambara Mountains in Tanzania (Bayliss, 2002; Cumberlidge & Vannini, 2004).

Mammals

On the 2015 Red List there are 33 globally threatened taxa (species, subspecies) of mammals occurring in the EACF, with one taxon listed for the first time in 2014 and no changes of status between 2012 and 2015. The seven sites in the EACF with the largest numbers of threatened mammal taxa are: Udzungwa Mountains (13), East Usambara Mountains (8), Boni and Dodori (7), Rubeho Mountains (7), Uluguru Mountains (7), West Usambara Mountains (7), and Udzungwa Mountains National Park (6).

Reptiles

On the 2015 Red List there are 24 globally threatened species of reptiles occurring in the EACF, with 15 of these listed for the first time in 2013-2015 and one species re-assessed in 2014 in a different threatened category than in 2012. The nine sites in the EACF with the largest numbers of threatened reptile species are: East Usambara Mountains (11 species), Uluguru Mountains (8), West Usambara Mountains (7), Nguru Mountains (5), Udzungwa Mountains (4), North Pare Mountains (2), Shimba Hills (2), South Pare Mountains (2), and Udzungwa Mountains National Park (2).

Plants

On the 2015 Red List there are 691 globally threatened taxa (species, subspecies, varieties) of plants (Classes Bryopsida, Cycadopsida, Jungermanniopsida, Liliopsida, Lycopodiopsida, Magnoliopsida, Pinopsida, and Polypodiopsida) occurring in the EACF, with 324 of these listed for the first time in 2013-2015 and four taxa re-assessed in 2013 in a different threatened category than in 2012. Since 2008, the list of globally threatened plant taxa in the EACF has grown by 392 newly assessed taxa, including all Liliopsida (105), Lycopodiopsida (1), and Polypodiopsida (20). The ten sites in the EACF with the largest numbers of threatened plant taxa are: Uluguru Mountains (189), East Usambara Mountains (151), West Usambara Mountains (142), Udzungwa Mountains (129), Udzungwa Mountains National Park (125), Nguru Mountains (103), Lindi District coastal forests (87), Shimba Hills (73), Selous Game Reserve (61), and South Pare Mountains (55). A total of 268 threatened taxa (1 Bryopsida, 1 Jungermanniopsida, 266 Magnoliopsida) were assessed under Version 2.3 of the IUCN Red List Categories and Criteria (IUCN, 1994). In keeping with the directive that all species should be re-assessed at least once every ten years (IUCN, 2012b), the Eastern African Plant Red List Authority (EAPRLA) is in the process of re-assessing the 266 vascular plant taxa originally assessed under Version 2.3 (Luke *et al.*, 2014).

Change in site status

Comparing the 2012 and 2015 Outcomes Database, many changes in the numbers of threatened taxa reported from 163 sites within the EACF have resulted from new distribution records of previously known and newly added threatened taxa together with the loss of taxa no longer listed in threatened categories. Based on these changes in numbers of threatened taxa by site, 16 sites in the EACF not previously classified as Key Biodiversity Areas (KBAs) may now qualify as such due to the presence of globally threatened taxa (see appendix 2 and appendix 3). These are:

1. Kilifi District (Kenya) coastal forests (*e.g.* Bamba, Bonje Village, Casuarina Point, Dakabuka Hill, Dakawachu, Giriama, Gotani North, Kachararoni Gorge, Kaloleni, Kanamai, Kaya Dagamara, Kaya Fimboni, Kikambala, Magarini, Malindi, Mariakani, Mida, Mitangoni, Mnarani, Mtwapa, Mwahera, Vitengeni River, Watamu, Vipingo, Vuma): 33 taxa (11 Endangered; 1 Critically Endangered: *Saintpaulia ionantha* subsp. *rupicola*)
2. Lamu District (Kenya) coastal forests (*e.g.* Haiwani Forest, Kanwe Mayi, Kiunga, Kiwayu, Kui Island, Lake Mukunguya, Lamu Island, Nairobi Ranch, Ras ya Mwana, Shamba Ziwa, Utwani Forest Reserve): 31 taxa (8 Endangered)
3. Kwale District (Kenya) coastal forests (*e.g.* Chale Peninsula, Golini, Gulanza, Kaya Bogowa, Kilibasi, Duruma, Jogo, Mackinnon Road, Maweni Rocks, Mkongani West, Mukurumudzi, Taru, Twiga, Ukunda, Vigurangani): 32 taxa (12 Endangered;

- 4 Critically Endangered: *Aloe classenii*, *Justicia drummondii*, *Saintpaulia ionantha* subsp. *rupicola*, *Marsilea fadeniana*)
4. Mahenge (areas not otherwise specified, e.g. Igundalamlungu, Issongo, Isyaga Village, Muhulu Mountains, Mzelezi Forest Reserve, Nawenge Forest Reserve, Ndororo Mountain): 23 taxa (10 Endangered)
 5. Tanga District (Tanzania) coast (e.g. Amboni Caves, Kange Gorge, Kwamba Forest Reserve, Pongwe, Steinbruch Gorge, Tanga): 13 taxa (6 Endangered)
 6. Masasi District (Tanzania) forests (e.g. Chidya, Chivirikiti Village, Chiwale Village, Chiwata Ngatala Rock, Kwa-Mkopo, Masasi Hill, Mbangala River, Mtandi Hill, Ndanda Mission, Pangani Hill): 12 taxa (5 Endangered)
 7. Mombasa coast (e.g. Changamwe, Gazi, Likoni, Mirtini, Nyali Beach, Port Tudor, Shanzu Beach, Shimo la Tewa): 9 taxa (2 Endangered)
 8. Mtwara District (Tanzania) coastal forests (e.g. Mahurunga, Mkunya River proposed Forest Reserve, Mtiniko, Nyangarama, Ruvuma Bay): 9 taxa (3 Endangered)
 9. Taita District (Kenya) coastal forests (e.g. Kighombo Village, Kitobo Forest, Kizima [Kirima] Hill, Lake Kandere [Kandiri], Lumi River, Rukinga Ranch, Taveta): 7 taxa (3 Endangered; 1 Critically Endangered: *Aloe classenii*)
 10. Mahenge (Nambiga Forest Reserve): 5 taxa
 11. Nachingwea District (Tanzania) (e.g. Lukeledi, Namanga): 5 taxa (3 Endangered)
 12. Kaya Timbwa (Kenya): 2 taxa (1 Endangered)
 13. Malundwe (Tanzania): 2 taxa (1 Endangered)
 14. Kaya Bura (Kenya): 1 taxon
 15. Kyngani [Kingani] River (lower reaches of Ruvu River in Bagamoyo District, Tanzania [Polhill, 1988]): 1 taxon
 16. Ruangwa District (Tanzania) coastal forests: 1 taxon (1 Endangered)

See appendix 3 for a complete listing of Endangered and Critically Endangered taxa present in the above sites. These sites include the entire geographic ranges of three globally threatened EACF plant taxa: *Blepharis kenyensis* (Endangered: Kilifi District coastal forests and Lamu District coastal forests), *Lepidagathis plantaginea*. (Endangered: Masasi District forests and Nachingwea District), and *Marsilea fadeniana* (Critically Endangered: Kwale District coastal forests).

DISCUSSION

We discuss separately each of the seven main taxonomic groups (Classes) of animals, discuss plants as a whole, and examine some of the known and potential threats to IBA and KBA sites. We review literature, primarily from the period 2008-2015 but sometimes earlier when relevant, pertinent to the presence and distribution of endemic and globally threatened taxa in the EACF, changes in Red List categories, new species descriptions, extraction of key taxa and other natural resources, invasive species, actions and research targeting EACF biodiversity and its conservation, and policy development based on the above information. Length and detail of discussions vary greatly among taxonomic groups depending on available information.

Amphibians

The Kihansi spray toad *Nectophrynoides asperginis*, listed as Extinct in the Wild on the 2009 IUCN Red List, was successfully reintroduced into its native habitat in the Uzungwa Scarp Nature Reserve in October 2012 (IUCN, 2012c). However, because a species is required to remain in its original category for a time period of five years from the time it no longer meets the criteria for that category (IUCN Standards and Petitions Subcommittee, 2014), it remains listed as Extinct in the Wild on the 2015 Red List (IUCN SSC Amphibian Specialist Group, 2015). The Critically Endangered *Nectophrynoides wendyae* (figure 3), also endemic to the Uzungwa Scarp Nature Reserve, was reported in 2011 from a second site, 0.5 km from the original site (BirdLife International, 2013), while the other Critically Endangered species of the genus from the Udzungwas, *N. poyntoni*, is only known from one locality and last seen in 2003 despite recent surveying (Menegon, pers. obs.).



Figure 3. The Critically Endangered *Nectophrynoides wendyae*, endemic to the Uzungwa Scarp Nature Reserve. Photograph by M. Menegon.

Across the EACF region, predominantly in the EAMs, numerous new species and changes in species ranges have been reported in the past decade and these include species that are pending assessment, but given their highly localised distribution, are likely to be threatened. North to South this includes threatened or potentially threatened species in: Taita Hills (*Boulengerula niedeni*; *Callulina dawida*); North Pare (*Arthroleptis fichika*; *Callulina laphami*); South Pare (*Arthroleptis anotis* Loader, Poynton, Lawson, Blackburn & Menegon, 2010 [listed as Data Deficient in 2013]; *Arthroleptis fichika*; *Callulina shengena* [figure 4]; *Callulina stanleyi*); West Usambara (*Arthroleptis fichika*; *Callulina kisiwamsitu*; *Nectophrynoides vestergaardi*); East Usambara (*Nectophrynoides frontierei* Menegon, Salvidio & Loader, 2004 [Data Deficient 2014]); Nguru (*Callulina hanseni*; *Callulina kanga*;

Callulina meteora); Ukaguru (*Churamiti maridadi*; *Nectophrynoides laticeps*; *Nectophrynoides paulae*); Uluguru (*Arthroleptides yakusini*; *Nectophrynoides laevis* Menegon, Salvidio & Loader, 2004 [Data Deficient 2014]; *Nectophrynoides pseudotornieri*); Udzungwa (*Arthroleptides yakusini*; *Nectophrynoides poyntoni*); and Mahenge (*Arthroleptides yakusini*).



Figure 4. The Critically Endangered *Callulina shengena*, endemic to the South Pare Mountains. Photograph by M. Menegon.

Loader *et al.* (2011) reported range extensions of amphibian species from the northwestern EAMs of Tanzania, and similarly Menegon *et al.* (2003, 2008, 2011a) reported range extensions for the Nguu, Nguru, and Mahenge Mountains. The 2012 status and trends report (BirdLife International, 2013) listed 19 new herpetofauna species described from the South Nguru Mountains (Menegon *et al.*, 2008), and indicated new species yet to be named including *Nectophrynoides* species and many species of tree frogs. Loader *et al.* (2014) outlined the diversity of Brevicipitids across the whole of the EAMs.

Malonza & Veith (2012) evaluated the relationship of amphibian composition with human habitat disturbance and elevation along 29 transects in the Taita Hills, distributed among terrestrial (forest and plantation) and aquatic (streams and dams) habitats. A total of 23 amphibian species were recorded, including the Endangered Taita African caecilian *Boulengerula taitana*. Total amphibian species richness increased with increased habitat disturbance but decreased with increasing elevation. However, abundance of species that reproduce by direct development, which are restricted to forested habitats, decreased with increased habitat disturbance. In addition to the Taita Hills endemic species *Boulengerula taitana*, two other Taita endemics and direct developers are the Endangered Sagalla caecilian *Boulengerula niedeni*, which was not found along the transects, and the Critically Endangered Taita Hills warty frog *Callulina dawida*, which was found in the transects. For

amphibian conservation in the Taita Hills, Malonza & Veith (2012) recommended continued maintenance of a set of forest fragments together with human modified habitats, some form of habitat connectivity, and replacement of exotic plantations with indigenous plants.

Zancolli *et al.* (2013) compared the anuran (frog and toad) fauna of Mount Kilimanjaro with that of Mount Meru and the EAMs, concluding that the young geographical age of the northern volcanoes has not provided enough time for most montane frogs to colonise them. Species richness per mountain bloc in the EAMs increased from north to south, with the lowest in North Pare and the highest in Udzungwa and Mahenge. Loader *et al.* (2014) produced a dated phylogeny of Brevicipitid frogs throughout the Eastern Afromontane Biodiversity Region, including the eight threatened species of *Callulina* and the five threatened species of *Probreviceps* on the updated 2015 Outcomes Database. Ancestral-area reconstructions indicate the presence of Brevicipitids since the Oligocene, with the central EAMs as the initial centre of diversification of the forest species. Due to persistence and stability of forest habitats, the Eastern Arc is an area that has accumulated Brevicipitid frog species over a long span of geological time.

A number of EACF amphibians are offered for sale through the pet trade, including threatened endemic species. Often the species traded are not included in any official quotas, highlighting the illegal trade of amphibians. Carpenter *et al.* (2014) recently published a comprehensive review of the global trade in CITES-listed amphibian species. Among the 18 genera reported in the CITES import data (collated August 2008), the only Tanzanian genus reported was *Nectophrynoides*. In general, very few data are available on trade in East African amphibians and an accurate monitoring of the species collected in the wild and available on the market is of primary importance.

Birds

During the last decade, the list of globally threatened birds in the EACF has grown by 18 species, including six species of vultures, other larger and relatively widespread birds (steppe eagle *Aquila nipalensis*; martial eagle *Polemaetus bellicosus*; grey crowned crane *Balearica regulorum*; southern ground hornbill *Bucorvus leadbeateri*; Somali ostrich *Struthio molybdophanes*; and secretary bird *Sagittarius serpentarius*), and the Rubeho akalat *Sheppardia aurantiithorax*.

Since vultures are mostly found in open areas of woodland, dry wooded grassland, and grassland, they are generally widespread and not restricted to particular KBAs in the EACF. Four species of vulture (Rueppell's vulture *Gyps rueppelli*; lappet-faced vulture *Torgos tracheliotos*; Egyptian vulture *Neophron percnopterus*; and white-headed vulture *Trigonoceps occipitalis*), however, have a preference for montane regions, slopes and cliffs, and thus can sometimes be found in mountainous sites such as East and West Usambara Mountains, North and South Pare Mountains, and Taita Hills. The hooded vulture *Necrosyrtes monachus*, white-backed vulture *Gyps africanus*, and Rueppell's vulture were listed as Endangered in 2012. This was due to very rapid population declines across their ranges associated with habitat loss and degradation, hunting, persecution, collisions, and poisoning (BirdLife International, 2014c). All three of these vulture species were up-listed to Critically Endangered in 2015 due to severe continuing population declines in various parts of their broad geographic ranges (BirdLife International, 2015a,b,c). The Egyptian vulture (Endangered) and white-headed vulture (Vulnerable) were listed as threatened in 2012 due to declines caused by various threats across their ranges; the white-headed vulture has subsequently been up-listed to Critically Endangered due to extremely rapid population decline (BirdLife International, 2015d).

The Rubeho akalat was recently described as new to science by Beresford *et al.* (2004) and listed as Endangered in 2012 owing to ongoing habitat loss and fragmentation thought to be reducing its already very small range (BirdLife International, 2014c). The east coast akalat *Sheppardia gunningi* Haagner, 1909 was down-listed from Vulnerable to Near Threatened in 2007.

The montane white-eye *Zosterops poliogaster* Sibley & Monroe, 1990 was split into *Z. poliogastrus* Heuglin, 1861, *Z. kulalensis* Williams, 1948, *Z. winifredae* Sclater, 1934, and *Z. silvanus* Peters & Loveridge, 1935 by Collar *et al.* (1994), but the plumage differences on which this was based were not considered sufficient to justify the separation of these species (BirdLife International, 2014c). As a result, the previously globally threatened Taita white-eye *Z. silvanus* (figure 5) and the South Pare white-eye *Z. winifredae* were lumped into the montane white-eye, now listed as Least Concern (as *Z. poliogastrus*; BirdLife International, 2012). However, recent molecular evidence (Cox *et al.*, 2014) strongly suggests that the Taita white-eye and the South Pare white-eye are good species separate from the montane white-eye; if accepted this new evidence would result in the restoration of these two species to the EACF Outcomes Database.



Figure 5. The Taita white-eye *Zosterops silvanus*. Photograph by L. Borghesio.

In addition to the four Critically Endangered vulture species discussed above, the four other Critically Endangered bird species in the EACF are of particular note: Taita apalis *Apalis fuscigularis* (figure 6); Uluguru bush-shrike *Malaconotus alius*; long-billed tailorbird *Artisornis moreaui*; and Taita thrush *Turdus helleri* (figure 7). Borghesio *et al.* (2010) estimated the total population size of the Taita apalis (figure 6), endemic to the Taita Hills Forests in Kenya, to range from 310 to 654 individuals. The northern section of Ngangao forest fragment of the Taita Hills hosted 65% of the global population of the species and thus protecting the subpopulation in this section is a priority. Between 2009 and 2014, Borghesio

et al. (2014b) conducted playback surveys that have slightly expanded the known range of the species with previously unreported subpopulations in various small forest fragments in Taita Hills (Msidunyi, Yale, and Mbololo) and a reconfirmed old record in Fururu. However, these range extensions and rediscovery have added fewer than 15 pairs to the total population, and monitoring of the three main subpopulations at Ngangao, Vuria, and Chawia forest fragments shows a steady decline in range and numbers.



Figure 6. The Critically Endangered Taita apalis *Apalis fuscigularis*. Photograph by L. Borghesio.

Since its discovery in 1927, the Uluguru bush-shrike was thought to be confined to one of the main forest blocks of the Ulugurus, the Uluguru North Forest Reserve, within an area of 84 km². Surveys in 1999-2000 estimated about 1200 breeding pairs found only in Uluguru North Forest Reserve (Burgess *et al.*, 2001). A new record of two pairs of Uluguru bush-shrike in Uluguru South Forest Reserve in a 2006-2007 survey was a significant milestone highlighting the importance of reconnecting these two forests to allow for the exchange of genetic diversity (John & Mazengo, 2010). However, the subpopulation in Uluguru South is likely to be very small and restricted to the northeastern part of the forest, which highlights the important of Uluguru North for this species.



Figure 7. The Critically Endangered Taita thrush *Turdus helleri*. Photograph by L. Borghesio.

The long-billed tailorbird occurs at low density in two widely separated forests, the East Usambaras in the EACF, Tanzania, and the Njesi Plateau in northern Mozambique, with its global population tentatively estimated at 50-250 individuals (BirdLife International, 2014c). Borghesio *et al.* (2014a) studied the habitat use of the long-billed tailorbird and showed that it only occurs inside or along the edges of continuous forest, rarely in forest fragments, and that its abundance is significantly depressed in sites invaded by the exotic tree *Maesopsis eminii* Engl. (Rhamnaceae) in the East Usambaras. Borghesio (2012) suggested that invasion by *M. eminii* had highly significant negative effects on frequency for 5 out of 11 rare bird species, including the long-billed tailorbird and the Near Threatened Fischer's turaco, *Tauraco fischeri* (Reichenow, 1878); however, it remains to be determined what factor associated with *Maesopsis eminii* may contribute to reduced abundances of various threatened bird species.

The Taita thrush (figure 7) is confined to four tiny forest patches in the Taita Hills, Kenya: Mbololo (ca. 200 ha), Ngangao (ca. 92 ha), Chawia (ca. 50 ha), and Yale (2 ha). Waiyaki *et al.* (2001) estimated the population to number ca. 1350 individuals, roughly equivalent to 930 mature individuals. The population is suspected to be in decline as the species' montane forest habitat has been severely fragmented and continues to decline in both extent and quality; however, the rate of decline has not been quantified (BirdLife International, 2014c). The decline is suspected to be due to habitat loss, continuing human disturbance, unsustainable collection of firewood and timber, and grazing of domestic herbivores in the forest (Muoria *et al.*, 2013).

The Endangered Clarke's weaver *Ploceus golandi*, is known only from Dakatcha woodlands and Arabuko-Sokoke Forest; the *Brachystegia* woodland at Dakatcha was previously considered to be the main breeding site for this species (Nature Kenya, 2008; Ruuska, 2013), but Ng'weno (2013) clarified that the birds are breeding in seasonal wetlands

at Dakatcha. Other threatened species in Dakatcha woodlands likely to be impacted by forest degradation and habitat fragmentation are the Endangered Sokoke pipit *Anthus sokokensis* and the Vulnerable Sokoke scops owl *Otus ireneae*. The Vulnerable white-winged apalis *Apalis chariessa* is suspected to be no longer present in Lower Tana River forests (Nature Kenya, 2014).

Hassan *et al.* (2013) assessed the influence of human-induced disturbance on bird communities along permanent transects in four coastal forests in the Pangani-Saadani ecosystem of Tanzania. A total of 88 bird species were recorded, including the Endangered Sokoke pipit *Anthus sokokensis*, the Near Threatened Fischer's turaco *Tauraco fischeri*, and the Near Threatened plain-backed sunbird *Anthreptes reichenowi* Gunning, 1909. Bird abundance was highest in the forest with the highest level of disturbance, while bird species richness and diversity were highest in the least disturbed forests.

Werema *et al.* (2013) conducted a preliminary study of the bird species composition of Ikokoto Forest Reserve in the northeast part of the Udzungwa Mountains. A total of 64 species of birds were reported, including the Near Threatened Moreau's sunbird *Nectarinia moreaui* (Sclater, 1933). All species belonged to the known assemblage of species present in the larger Udzungwa forests, 61% of the species were forest dependent, and six species were range-restricted forest understory taxa. Therefore, despite the small size (ca. 110 ha.) and high degree of fragmentation of this forest, it has significant conservation value for birds and possibly other groups of organisms.

Gastropods

In 2010 the freshwater gastropods *Lanistes farleri* and *L. stuhlmanni* Von Martens, 1897, both previously assessed as Endangered, were downgraded to Vulnerable and Near Threatened, respectively, both due to distributional data showing more ample geographic distributions than previously recorded. In 2004, *Gulella taitensis* and *Thapsia buraensis* were downgraded from Critically Endangered to Endangered due to both species' having an Extent of Occurrence in excess of 100 km² (Lange, 2006).

The site "Southeast coastal Kenya" includes only the Vulnerable species *Lanistes ciliatus*, with range cited as "between Mombasa and Taita" with no further information (Ngereza, 2010).

Insects

A database of dragonfly specimen collections in the EACF (Clausnitzer *et al.*, 2012; Kipping, Clausnitzer & Dijkstra, pers. comm.) expanded the range of the Vulnerable *Coryphagrion grandis* to include six Kenyan coastal forests (Arabuko-Sokoke, Buda, Gongoni, Kaya Muhaka, Kaya Rabai, and the Shimba Hills), and in Tanzania to the East Usambara Mountains, Udzungwa Mountains National Park, Kimboza Forest Reserve, and Pugu Forest Reserve. The same database revealed the presence of the Vulnerable *Nepogomphoides stuhlmanni* in the East Usambara Mountains and Kimboza Forest Reserve; expanded the range of the Vulnerable Seychelles fineliner damselfly *Teinobasis alluaudi* to Jozani Forest on Zanzibar Island; and showed that the range of the Vulnerable montane demoiselle *Umma declivum* includes the East Usambara, Nguru, Ukaguru, and Uluguru Mountains, as well as Udzungwa Mountains National Park.

The Critically Endangered Zanzibar giant forest grasshopper *Allaga ambigua* (figure 8) was described from Zanzibar and not seen again until its rediscovery in 2013 on the eastern slopes of Mount Kilimanjaro, about 400 km from the type locality (Hemp, pers. obs.). Major entomological collections harbour only a few specimens of this species and no further

information existed until recently for this flightless species of Acrididae subfamily Catantopinae. On Mount Kilimanjaro it was collected in savanna habitats, where it was caught at night from bushes and small trees. Nymphs appear in May and adults were found from May to October. It may have been overlooked because of its seasonality and because it is nocturnal and living on bushes and trees. This species has rarely been collected and might occur in similar habitats, *e.g.* in the North and South Pare Mountains and/or elsewhere in northern and central Tanzania. Another Critically Endangered species of Catantopinae, the fully winged Usambara splendid grasshopper *Anischnansis burtti*, seems to be restricted to the wet evergreen forests of the East Usambara Mountains (Sigi and Mlingano). It was last collected in 1966 and has not been recorded since then. The Critically Endangered Uluguru forest grasshopper *Burtia sylvatica* is also in Acrididae subfamily Catantopinae. Only a few specimens have been collected, all from forests of the Uluguru Mountains, where Hochkirch (1998) reported it from the Uluguru North Forest Reserve. The latter two species are both in monotypic genera, indicating that they are relicts having survived in the geologically old forests of the EAMs.



Figure 8. The Critically Endangered Zanzibar giant forest grasshopper *Allaga ambigua* (male) was recently discovered on the eastern slopes of Mount Kilimanjaro. Photograph by C. Hemp.

Mainly due to habitat loss and degradation (particularly by land use change and urbanization) and their restricted ranges, the Uluguru slender grasshopper *Acanthoxia aculeus*, the Tanzanian coast grasshopper *Acteana alazonica*, three species of *Afroplaeoba* and two species of *Aresceutica* are listed as Endangered. *Acanthoxia aculeus* (Acrididae subfamily Hemiacridinae) is recorded from only two localities on the northwestern slopes of the Uluguru Mountains. *Acteana alazonica* (subfamily Acridinae) is known from five localities on the island of Zanzibar and the Tanzanian

coast. All four species of the flightless genus *Afrophlaeoba* (Acridinae) are listed as globally threatened. The Uluguru forest edge grasshopper *A. euthynota* (endemic to the Uluguru Mountains), the Rubeho forest edge grasshopper *A. longicornis* (endemic to the Rubeho Mountains), and the Nguru forest edge grasshopper *A. nguru* (endemic to the the Nguru Mountains) are all listed as Endangered. The Vulnerable Usambara forest edge grasshopper *A. usambarica*, occurs in the East Usambara Mountains, along the Tanzanian coast (Hemp, 2005), and was recently recorded in Lutindi Forest in the West Usambaras (near Lutindi Mental Hospital at ca. 5°04'S, 38°22'E, not the former Lutindi FR that is now part of Nilo NR) (Hemp *et al.*, 2014a). All these species dwell in the herb layer of forest clearings and edges. They tolerate a certain degree of land use change and also occur in ruderal and agricultural areas as long as evergreen trees still occur and the land is not too intensively used. The flightless genus *Aresceutica* (subfamily Catantopinae) has similar preferences, but is more closely associated with natural forests. Two of the three *Aresceutica* species are listed as Endangered. The Usambara dusky grasshopper *A. subnuda* was previously only known from the Shimba Hills in southern Kenya and the East Usambaras, but was recently also discovered in Lutindi Forest (Hemp *et al.*, 2014a). The Uluguru dusky grasshopper *A. morogorica* is only known from the Uluguru and Nguru Mountains.

Species of the genus *Acrida* (Acrididae subfamily Acridinae) are usually associated with grass-rich, open habitats, and are often characteristic of ruderal and degraded areas. Little is known about the Usambara slant-faced grasshopper *A. bara*, listed as Vulnerable. This species was described from the Lushoto area of the West Usambara Mountains and has not been collected again since its description. Similar is the situation for the Usambara burrowing grasshopper *Acrotylus apicalis*. *Acrotylus* species usually inhabit dry habitats with large amounts of bare ground. The genera *Acrida* and *Acrotylus* are both in need of revision and the taxonomic status of the two endemic species needs to be verified. Both species were listed as Vulnerable because their areas of occurrence are restricted, each being known from only a single locality, entomological collections only hold a few specimens, and the areas from which they were described have experienced dramatic land use changes. The fully winged Tanzanian miombo grasshopper *Cardeniopsis regalis* (subfamily Catantopinae), is also listed as Vulnerable. It is only known from Zanzibar, Kilosa, and the Tanzanian coast on the Korogwe-Msala road.

Hochkirch (1995, 1996) conducted detailed studies on the ecology of grasshopper species from the East Usambara Mountains and on the ecology, behaviour, and phylogenetics of grasshoppers of the genus *Afrophlaeoba* (Hochkirch, 2001, 2010). Hochkirch (1998) compared the grasshopper fauna of the Uluguru and East Usambara Mountains and found a marked similarity in the species composition of degraded areas, whereas the natural forest regions had different species compositions, but a high overlap at the genus level. Hemp (2005) recorded 61 species of grasshoppers, locusts, and bushcrickets in burned coastal grasslands, fire-disturbed forest remnants, and undisturbed coastal forests in the vicinity of Pangani, Tanzania, and found that the majority (81%) of species in open-land habitats were widespread in distribution, while 60% of the species in undisturbed forests were endemic to the coastal forests.

In 2015 Red List assessments of some Orthoptera suborder Ensifera (bushcrickets) were performed and are expected to be published on the 2016 Red List. In the family Tettingoniidae (Hemp, 2013), 36 taxa (35 species and one subspecies) were proposed for Red Listing in threatened categories (3 Critically Endangered, 22 Endangered, 11 Vulnerable)

(Hemp *et al.*, 2014b, 2015), including the Vulnerable great ridgeback *Tropidonotacris grandis* Ragge, 1957 (figure 9) and the Endangered inflated tree bushcricket *Euryastes jagoi* Ragge, 1980 (figure 11), both of subfamily Phaneropterinae. Two species of subfamily Conocephalinae tribe Angraeciini from the small Lutindi Forest in the West Usambara Mountains (Hemp *et al.*, 2014a, 2015) are assessed as Critically Endangered, as is one species of Phaneropterinae, the Taita plump bushcricket *Peronura hildebrandtiana* Karsch, 1899 (Hemp, 2011; figure 10) from the forest remains of the Taita Hills. The majority of the proposed threatened Ensifera taxa come from the East and West Usambara Mountains and the North and South Pare Mountains. Several other taxa occur in the forest reserves of the Taita Hills, Nguru and Uluguru Mountains. In addition to these Ensifera, nine species of Orthoptera suborder Caelifera superfamily Acridoidea will also be listed in threatened categories.



Figure 9. The giant ridgeback *Tropidonotacris grandis* (here a female) was known only from the male holotype coming from Little Mahenge until recently it was collected in deciduous dry forest on the eastern slopes of Mount Kilimanjaro and the southern slopes of the North Pare Mountains. Photograph by C. Hemp.

Freshwater crabs

Potamonautes infravallatus is endemic to the East and West Usambara Mountains and has been collected from seven localities (Reed & Cumberlidge, 2006). This small-sized highland species (adults measure only 23 mm across the carapace at its widest point) has been known to science since 1898 but it has only been collected sporadically during this time. This species is threatened because parts of its natural habitat (streams draining forested highlands)



Figure 10. The Taita plump bushcricket *Peronura hildebrandtiana* (here a male) was described based on a single female and rediscovered in 2011 along forest edges at montane elevations in the Taita Hills. Photograph by C. Hemp.



Figure 11. The inflated tree bushcricket *Euryastes jagoi* (male) is restricted to forests of the West Usambara Mountains; a second population was detected in 2014 in Lutindi Forest. Photograph by C. Hemp

species is threatened because parts of its natural habitat (streams draining forested highlands) have been altered for agriculture, leaving it in cultivated areas with almost no surface water, where it has been collected from holes dug in mud and from under stones. Crabs were also collected from a tiny spring in an area cleared for cultivation that was covered with weeds and ground vegetation. The result is that *P. infravallatus* has a relatively limited Extent of Occurrence (probably less than 20 000 km²), a fragmented distribution, a low number of known localities (fewer than 10), and a presumed small population size (fewer than 1000 specimens are known). The threats to this species from increasing habitat disturbance and deforestation by the expanding human populations are expected to reduce further the already fragmented distribution of *P. infravallatus* and negatively affect its long-term survival. The combination of these factors has led to its listing as Vulnerable B1ab(i); D2. No conservation measures are known to be in place for this species, it is not found in a protected area, and the most recent specimens were collected in 1975.

The East African tree hole crab *Potamonautes raybouldi* is a recently-discovered Vulnerable species found in the East Usambara Mountains at Amani, as well as in the Shimba Hills in Kenya (Bayliss, 2002; Cumberlidge & Vannini, 2004). This species is threatened because it has highly specialised ecological requirements, occupying water-filled tree holes in deciduous forests, and this limits its Area of Occupancy to less than 2000 km² because forests with suitable trees are only patchily distributed across its range. The result is that it has a relatively narrow, fragmented distribution, a low number of known localities (fewer than 10), and a presumed small population size (fewer than 1000 specimens are known). The threats to this species come from increasing habitat disturbance and deforestation by the expanding human populations that are further reducing the already fragmented range of *P. raybouldi* and negatively affecting its long-term survival. The combination of these factors has led to its listing as Vulnerable B2ab(iii). No conservation measures are known to be in place for this species, it is not found in a protected area, and the most recent specimens were collected in 2002. Cumberlidge & Vannini (2004) and Reed & Cumberlidge (2006) provided detailed comparisons to other species of *Potamonautes*, as well as notes on its distribution, natural history and colour, and Cumberlidge *et al.* (2005) compared this species with other freshwater crabs that live in phytotelmic habitats.

Potamonautes unisulcatus is endemic to the forested slopes of the Uluguru Mountains and has been collected from just two localities, Bagilo and Bunduki (Reed & Cumberlidge, 2006). This highland species has been known to science since 1921 but has rarely been encountered during this time. This species is threatened because parts of its natural habitat (streams draining forested highlands) have been altered for agriculture. *Potamonautes unisulcatus* has a small Extent of Occurrence (probably less than 20 000 km²), and its population size is presumed to be small. It is only known from two localities because the localities from Selous GR and Nyange Island in Tanzania reported by Reed & Cumberlidge (2006) are considered doubtful following a re-examination of these specimens. The threats to this species from human-induced degradation driven by human population increases and industrial and agrarian development in this region are likely to limit further the already narrow distribution of *P. unisulcatus* and negatively affect its long-term survival. The combination of these factors has led to its listing as Vulnerable B1ab(i,ii,iii); D2. No conservation measures are known to be in place for this species, it is not found in a protected area, and the most recent specimens were collected in 1966.

Potamonautes xiphoidus is a recently-discovered Vulnerable species found on forested slopes of the East and West Usambara Mountains (Reed & Cumberlidge, 2006). This highland species has been known to science since 2006 and was described from specimens

collected in the 1970s. In the West Usambara Mountains it is found at Herkulu Estate, a tea plantation at 1666 m a.s.l. situated in the montane forest zone, in Lushoto District of Tanga Region. This species was found living in streams and behind dams in those areas where patches of forest have been retained to prevent soil erosion, but it has also been found living away from water in a cultivated area, as well as in a forested area at 1493.5 m a.s.l. under a rotten log near a bridge over a fast flowing river. Two new specimens have come to light since the work of Reed & Cumberlidge (2006) from Mazumbai in the West Usambara Mountains, although these were in the unidentified collection of the Natural History Museum in London and were collected in October 1973. *Potamonautes xiphoidus* has a relatively narrow Area of Occupancy (probably less than 2000 km²), because it is only known from three localities in two separated mountain ranges, and its population size is presumed to be small. The threats to this species from human-induced degradation driven by human population increases and industrial and agrarian development in this region are likely to limit further its already limited distribution, and negatively affect its long-term survival. The combination of these factors has led to its listing as Vulnerable VU B1ab(iii)+2ab(iii); D2. No conservation measures are known to be in place for this species, it is not found in a protected area, and the most recent specimens were collected in 1973.

Mammals

Among the carnivores, the Endangered African wild dog *Lycaon pictus*, the Vulnerable African lion *Panthera leo*, and the Near Threatened leopard *Panthera pardus* (Linnaeus, 1758) have been recorded from the Boni-Dodori National Reserves, Kenya (Mwinami *et al.*, 2013), and in a number of EACF sites in coastal Tanzania extending to the Selous Game Reserve and Mikumi National Park. An extensive study in Udzungwa found that distribution of the leopard within the montane forests was strongly predicted by distance to nearest village, distance to nearest ranger post, the protective status of the forest, and to a lesser extent but still significantly, canopy cover (Jones, 2013).

In addition to these large carnivores, smaller species like the Near Threatened African golden cat *Caracal aurata* (Temminck, 1827) may possibly be found in Maungu Hills and Arabuko-Sokoke Forest on the Kenya coast, but these observations need confirmation (Butynski *et al.*, 2012). The Vulnerable Sokoke dog mongoose *Bdeogale omnivora* is known from five sites in southern coastal Kenya including Arabuko-Sokoke Forest, Diani Forest, Shimba Hills (Engel & Van Rompaey, 1995), and the Dakatcha woodlands, with a putative record from the East Usambaras in Tanzania (Göller, 2005); in general, it has been rarely recorded and its conservation status requires updating. Other narrowly distributed populations of small carnivores include the Zanzibar race of the servaline genet *Genetta servalina* Pucheran, 1865 subsp. *archeri* Van Rompaey & Colyn, 1998 and Lowe's servaline genet *G. servalina* subsp. *lowei* Kingdon, 1977 of several Eastern Arc Mountain blocs (Van Rompaey & Colyn, 1998; Rovero *et al.* 2008a), which both require an evaluation of conservation status. A recently discovered population of this species was located in the East Usambara Mountains (Cordeiro & Seltzer, 2012), further illustrating how little we know about the small carnivores.

Among the ungulates, recent extensive surveys of Udzungwa forests have confirmed the presence of the Endangered Abbott's duiker *Cephalophus spadix* (figure 12) in six previously known forest sites and three additional sites (Jones & Bowkett, 2012; Jones, 2013). Rovero *et al.* (2013a) confirmed that this Tanzanian endemic and poorly known giant duiker has its stronghold population in Udzungwa, otherwise being present only in the Southern Highlands, Rubeho, West Usambara, and Kilimanjaro. Its presence in the Ulugurus has not been

confirmed over the last decade. The Critically Endangered Aders' duiker *Cephalophus adersi*, another small ungulate, is confined to Zanzibar coral rag thickets (Finnie, 2002) and coastal forest in Arabuko-Sokoke and Boni and Dodori, Kenya. The latter population was only recently discovered (Andanje *et al.*, 2011) and while the population is sizeable, habitat degradation and unsustainable hunting remain severe threats (as on Zanzibar). Finally, in a survey of the poorly explored Boni and Dodori National Reserves, northeastern Kenya, Mwinami *et al.* (2013) reported the presence of the Vulnerable Haggard's oribi *Ourebia ourebi* subsp. *haggardi* in cultivated areas near Mangai. The Vulnerable common hippopotamus *Hippopotamus amphibius* and the Near Threatened coastal topi *Damaliscus lunatus* (Burchell, 1824) subsp. *topi* Blaine, 1914 were other notable records from this region (Mwinami *et al.*, 2013).



Figure 12. The Endangered Abbott's duiker *Cephalophus spadix*; only hand photo existing. Photograph by F. Rovero.

Mwinami *et al.* (2013) reported Sykes' monkey *Cercopithecus mitis* as uncommon in the Boni-Dodori Reserves area, with the Vulnerable Pousargues' Sykes' monkey *C. mitis* subsp. *albatorquatus* as the most likely subspecies. In the Udzungwa Mountains, Araldi *et al.* (2014) conducted the first comprehensive population density estimation for the arboreal primates, including the endemic and Endangered Udzungwa red colobus *Procolobus gordonorum* (figure 13). Using systematic distance sampling, the authors estimated the global population of this monkey to be 60 000-65 000 individuals. While this may seem a large number, several subpopulations are vulnerable to hunting and degradation, and their habit of

preferring lowland to medium-elevation forest zones makes them especially at risk in the near future due to fast-increasing agricultural intensification in the Kilombero Valley.



Figure 13. The Endangered Udzungwa red colobus *Procolobus gordonorum*. Photograph by Raffaele Merler.

The Udzungwa subpopulation of the Critically Endangered kipunji *Rungwecebus kipunji* is confined to only one forest, Ndundulu, in the Kilombero Nature Reserve (Davenport *et al.*, 2008). A re-census in 2013 confirmed that the subpopulation does not exceed 200 individuals, and its range covers approximately 13 km² of southern Ndundulu (T. Jones, unpublished data). It is not known from the Udzungwa Mountains National Park, although it has been recorded ca. 1 km from the boundary. Hunting of this species is currently a rare occurrence, but its extremely small subpopulation size of dubious viability renders it vulnerable to disturbance, disease, and potentially even natural depredation.

Rovero *et al.* (2012) contrasted the population relative abundance of diurnal primates in two forest blocks in the Udzungwa Mountains, one in Udzungwa Mountains National Park that is regularly patrolled by park rangers, and one in Uzungwa Scarp Forest Reserve (now Natue Reserve) that lacks any law enforcement measures on the ground. The five species studied included the Endangered Udzungwa red colobus *Procolobus gordonorum* and the Endangered Sanje mangabey *Cercocebus sanjei*. The authors measured how abundance changed between 2004 and 2009, assessed habitat and disturbance parameters, and evaluated hunting practices in the unprotected forest. They found that increased hunting in the unprotected forest has greatly reduced the population of the canopy-dwelling colobine monkeys (*P. gordonorum* and *Colobus angolensis* Sclater, 1860 subsp. *sharpei* Thomas, 1902). For primate conservation in the Udzungwa Mountains, Rovero *et al.* (2012) recommended increased law enforcement measures at Uzungwa Scarp Nature Reserve,

raising community awareness, supporting communities to establish livelihood alternatives to bush meat hunting, upgrading the forest reserve to a nature reserve (see EAMCEF, 2013), and restoring connectivity between Uzungwa Scarp Nature Reserve and protected areas to the north through the “Mngeta” conservation corridor.

Connectivity between isolated forest patches may also be imperative to other threatened EACF primates, such as the Endangered Tana River crested mangabey *Cercocebus galeritus*. Many primates are important for forest regeneration, as Kimuyu *et al.* (2012) showed for the Tana River crested mangabey in habitat gaps of fragmented Tana River gallery forests. Implementing restoration of tree species that they feed on may passively help to allow forest regeneration and connectivity of fragmented patches in this area as well as other fragmented forests in the EACF.

As previously circumscribed, the East African black-and-white colobus *Colobus angolensis* subsp. *palliatu*s Peters, 1868 was considered to be discontinuously distributed in the southern Eastern Arc Mountains and Lake Nyasa highlands of Tanzania and in the coastal forests of eastern Tanzania and southeastern Kenya (Kingdon *et al.*, 2008). A recent reassessment has shown that the montane and coastal populations are evolutionarily distinct, with subsp. *palliatu*s confined to the coastal forests and the montane population belonging to subsp. *sharp*ei, with a proposed status of Vulnerable (F. Rovero, pers. obs.).

Among the Afrotheria, Rovero *et al.* (2008b) described the grey-faced sengi *Rhynchocyon udzungwensis* (figure 14) from the Udzungwa Mountains as the fourth species of giant sengi. It was assessed as Vulnerable on the IUCN Red List due its confinement to only two forests in the area, Ndundulu-Luhomero to the west and Mwanihana to the east (Area of Occupancy estimated at 390 km²) and their susceptibility to human disturbance (Rovero *et al.*, 2013b). In addition, a previously unknown population of *Rhynchocyon* was reported in Boni and Dodori forests in 2010 (Andanje *et al.*, 2010) and its taxonomic status is currently under investigation. The geographically closest species is the Endangered golden-rumped sengi, *Rhynchocyon chrysopygus*, and because the animals in Boni-Dodori appear to have a different pelage pattern, detailed morphological and genetic analysis are on-going. Unsustainable hunting for commercial exploitation and subsistence in Kenyan coastal forests threaten this newly discovered sengi population as well as the golden-rumped sengi (BirdLife International, 2013).

Nielsen *et al.* (2014) conducted an experiment asking respondents in the Kilombero Valley to choose between hunting or trading of bush meat and alternative salary-paying work in a set of hypothetical scenarios to determine the conditions under which they would change their current occupations. Economic considerations (donation of livestock, price of substitute meat, salary of alternative occupation) significantly outweighed the effect of costly enforcement measures (wildlife patrol frequency, size of fines), indicating that the creation of better alternative economic activities is a more cost-effective means of reducing poaching than punitive measures. These are important considerations in the Kilombero Valley, which has seen substantial declines of the Vulnerable common hippopotamus and the Vulnerable African elephant *Loxodonta africana*, as well as the puku antelope *Kobus vardoni* (Livingstone, 1857), which is scattered throughout eastern and central Africa but with an estimated 75% of its total population restricted to the Kilombero Valley (Jenkins *et al.*, 2003).



Figure 14. The Vulnerable grey-faced sengi *Rhynchocyon udzungwensis*. Photograph by F. Rovero.

Elephants have been hard hit throughout East Africa, largely through direct persecution for ivory. Locations as far north in the EACF as Boni-Dodori in northeastern Kenya (Mwinami *et al.*, 2013) and through eastern Tanzania down to the south harbour this Vulnerable species. In the Udzungwas, the distribution and abundance of this enigmatic species were significantly predicted by distance to village and protective status (Jones, 2013). Overall among the large mammals of the Udzungwa forests, higher protective status (national park over nature reserve over forest reserve) and proximity to a ranger post are significant predictors of distribution, abundance, and species richness, arguing for increased ranger capacity and law enforcement and for upgrading of the most important sites' protective status in order to sustain the most threatened subpopulations. This is especially imperative because of the recent loss of corridors between the Udzungwa Mountains and the ecosystems of Ruaha-Rungwa to the northwest. In particular, the Selous-Mikumi corridors to the east have blocked historical movements of the Udzungwa subpopulation of the Vulnerable elephant and other large mammals such as buffalo and the Vulnerable African lion (Jones *et al.*, 2007, 2012). Conflict between elephants and farmers has also increased in the Udzungwas since 2008. The greatest immediate threat to this subpopulation, however, is increased poaching for ivory since around 2008 (J. Ponzoli, pers. comm.). As with other subpopulations in eastern Tanzania and Kenya, the subpopulation of the Udzungwas is below 1000 and likely declining.

KWS (2013) produced an action plan for elephant conservation in Arabuko-Sokoke Forest, with the overall goal to maintain a viable elephant population in Arabuko-Sokoke, enhance the connectivity and quality of habitat and the security of elephants while

safeguarding against human-elephant conflict, and increase the value of elephants to people and habitats. An action plan for elephants in the EACF in Tanzania is urgently needed.

Reptiles

The precise number of reptile species in the EACF is unknown, as new species continue to be described (*e.g.* Bauer & Menegon, 2006; Mariaux & Tilbury, 2006; Menegon *et al.*, 2009, 2011b, 2015; Fisseha *et al.*, 2013; Malonza & Bauer, 2014). Myers *et al.* (2000) reported 188 reptile species in the EACF, 50 of which were endemic. Seven years later, Burgess *et al.* (2007) reported 29 species of endemic reptiles in the EAMs, up from 26 in Broadley & Howell (2000), but many more species have been described since then (see above) and there are more candidate species awaiting description (*e.g.* Fisseha *et al.*, 2013).

In general, the number of species will likely continue to increase steadily with better sampling of the EAMs and molecular phylogenies facilitating our understanding of species diversity (*e.g.* Gravlund, 2002; Ceccarelli *et al.*, 2014). As a consequence of a more “even” geographic sampling and finer-scale understanding of species diversity, taxa are likely to be increasingly characterised as having more restricted ranges, often restricted to single mountain fragments. Previously, species’ ranges were generally overestimated as species’ delimitations were poorly characterised. The general reduction of ranges is likely to impact conservation assessments of reptiles on the basis of range size, with many species’ ranges restricted and therefore meeting geographic range criteria for threatened categories. A general pattern is emerging of ‘one mountain-one species’ and is likely applicable to many of the montane, forest-associated reptile species restricted to the EAMs. For example, the *Kinyongia oxyrhina* (Klaver & Boehme, 1988) complex contains cryptic chameleon species awaiting formal description, as suggested by recently published phylogenies (Menegon *et al.*, 2009; Tolley *et al.*, 2011). The same is true for the *Trioceros deremensis* (Matschie, 1892) (figure 15) and *Trioceros weneri* (Tornier, 1899) species complexes, which consist of multiple candidate species occurring in separated mountains (Ceccarelli *et al.*, 2014). Menegon *et al.* (2014) investigated the phylogenetic relationships and historical biogeography of the East African species of the viper genus *Atheris*, including the Vulnerable Udzungwa Mountain bush viper *A. barbouri* and the Vulnerable Usambara eyelash viper *A. ceratophora* (figure 16). The latter, a relatively widespread EAM endemic, displays considerable genetic variation across its range, and may include cryptic taxa. Clearly further research across all reptile groups is required before species diversity can be fully evaluated, and this will have a substantial impact on conservation priorities.

The 24 globally threatened reptile species on the 2015 Red List all face very similar threats. All have relatively small ranges (the Area of Occupancy for the 17 species with listed areas varies from 8 km² to 1631 km², with a mean of 392 km²) and are threatened by habitat loss. These species are largely forest-associated, although four species—the Vulnerable montane rock agama *Agama montana*; the Vulnerable *Atheris barbouri*; the Endangered West Usambara blade-horned chameleon *Kinyongia multituberculata*; and the Endangered spiny-sided chameleon *Trioceros laterispinis*—occur in modified habitats, even far from true forests (Menegon, pers. obs.). Another six species appear to utilise modified habitat close to forests: the Endangered giant East Usambara blade-horned chameleon *Kinyongia matschiei*; the Endangered Usambara flap-nosed chameleon *Kinyongia tenuis*; the Endangered Vosseler’s blade-horned chameleon *Kinyongia vosseleri*; the Endangered Uluguru worm snake *Letheobia uluguruensis*; the Endangered Uluguru limbless skink *Melanoseps emmrichi*; and the Critically Endangered ornate shovel-snout *Prosymna ornatissima*. The other 14 species do not appear to tolerate habitat modification. All of the 24 threatened reptiles are found in the EAMs,



Figure 15. *Trioceros deremensis*. Photograph by M. Menegon.

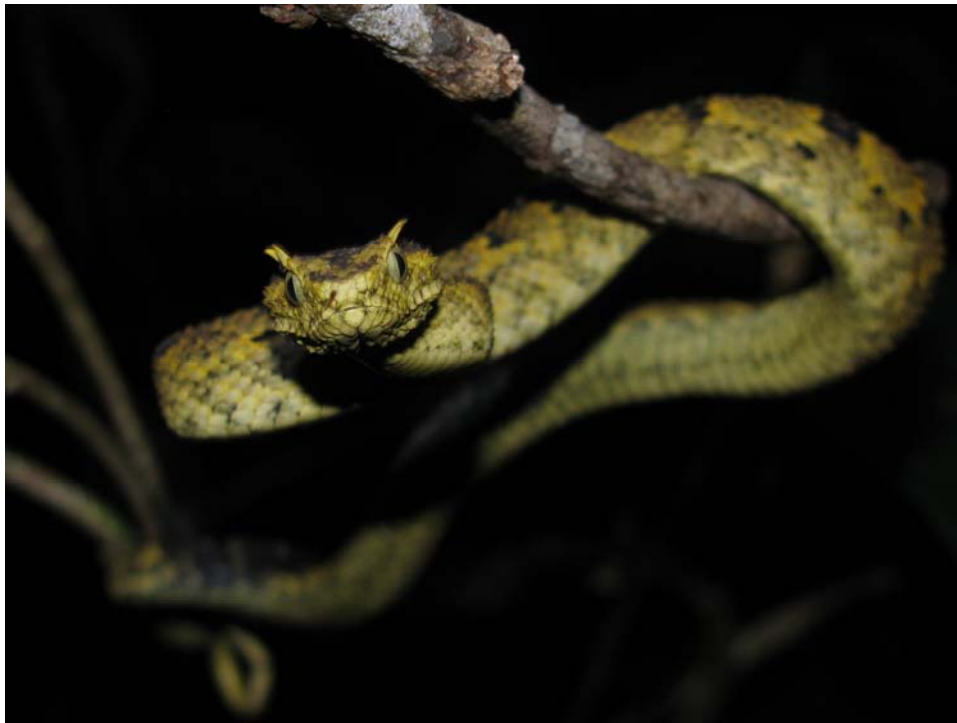


Figure 16. The Vulnerable Usambara eyelash viper *Atheris ceratophora*. Photograph by P. Shirk.

with four species also occurring outside the EAMs: the Endangered Magombera chameleon *Kinyongia magomberae* in the lowland Magombera Forest; the Endangered *Kinyongia tenuis* and the Endangered Usambara garter snake *Elapsoidea nigra* in the Shimba Hills of Kenya; and the Vulnerable Usambara vine snake *Thelotornis usambaricus* at Kaya Kambe on the Kenya coast.

Altogether 14 threatened species are in the international pet trade: *Agama montana*; *Atheris ceratophora*; *Kinyongia matschiei*; *Kinyongia multituberculata*; *Kinyongia tenuis*; *Kinyongia vosseleri*; the Vulnerable Usambara dwarf gecko *Lygodactylus gravis*; the Critically Endangered turquoise dwarf gecko *Lygodactylus williamsi*; *Melanoseps emmrichi*; the Critically Endangered Nguru pygmy chameleon *Rhampholeon acuminatus*; the Endangered Usambara spiny pygmy chameleon *Rhampholeon spinosus*; the Endangered East Usambara pygmy chameleon *Rhampholeon temporalis*; the Endangered Pare pygmy chameleon *Rhampholeon viridis*; and *Trioceros laterispinis*. Also in the pet trade are species closely related to the Endangered *Elapsoidea nigra* and the Vulnerable *Atheris barbouri*. Of the above, only the four *Kinyongia* species, *Rhampholeon spinosus* (as *Bradypodion spinosum* (Matschie, 1892)), and *Trioceros laterispinis* are CITES listed (CITES, 2015a). *Trioceros laterispinis* has an export quota of 20 F1 individuals in 2015, slightly below the annual average of 23 individuals from 2000 to 2015 (excluding 2002, when no quota was specified) (CITES, 2015b). *Kinyongia matschiei*, *K. multituberculata*, and *K. vosseleri* are somewhat more complicated because they were considered subspecies of the Near Threatened *K. fischeri* (Reichenow, 1887) until 2008 (Mariaux *et al.*, 2008). From 2000 through 2012, none of these species were listed separately from *K. fischeri*, which had an average export quota of 3230 individuals per year. Since 2013, *K. multituberculata* has had an annual export quota of 120 individuals, while *K. vosseleri* has had an annual export quota of 20 individuals. *Kinyongia matschiei* was not listed in 2013, but had an annual export quota of 20 individuals in 2014 and 2015. *Kinyongia tenuis* had an annual export quota of 18 individuals in 2015, down from an average of 21 per year from 2002 to 2015. Of the *Rhampholeon* species, only *R. spinosus* has been legally exported (through its previous listing as *Bradypodion spinosum*). It averaged 25 individuals per year from 2000 to 2011 (CITES, 2015b). However, many *Rhampholeon* species are still occasionally exported as species of *Rieppeleon* or similar genera (C.V. Anderson, pers. comm.).

Only two studies have investigated the abundances of any of these threatened species. Flecks *et al.* (2012) observed an average of 1.6 adults of *Lygodactylus williamsi* per screwpine (the Near Threatened *Pandanus rabaiensis* Rendle), the only plant that this species inhabits, in Kimboza Forest Reserve, one of only two areas with significant *L. williamsi* populations. The authors estimate a total of $148\,684 \pm 112\,365$ individuals, or 353 adults ha⁻¹, but suggest that the habitat could support a population 58% higher, and note that ca. 15% of the population was harvested for the international pet trade between 2004 and 2009.

Shirk *et al.* (2014) estimated population densities of three chameleon species (*Rhampholeon spinosus*, *R. temporalis*, and *Trioceros deremensis*) at elevations above 850 m in the East Usambara Mountains and the impact of forest fragmentation on these populations. Of the 1262 observed chameleons of the three target species, just 46 were the Endangered *Rhampholeon spinosus*, which greatly limited model precision. However, they were able to estimate the current *R. spinosus* population in the study area to be 17 117 (78 to 8 903 549). The study area is estimated to have lost ca. 46% of its forest cover over the past few millennia, but all three species avoid forest edges, resulting in an estimated population decline of 60% (69% decline to 97% increase) for the *R. spinosus* population. Similarly, the authors estimated that the Endangered *R. temporalis* population declined by 58% (63% decline to 52% decline), with a current population of 1 569 116 (278 541 to 18 289 404). The study area includes a large proportion of these species' known ranges, and is thus likely

representative of overall population trajectories. The same authors also estimated overall population densities for *Kinyongia matschiei* (0.6 per ha; 95% CI = 0.4 to 1.0), *K. tenuis* (0.5 per ha; 95% CI = 0.3 to 0.9), and *K. vosseleri* (0.9 per ha; 95% CI = 0.6 to 1.4) in forested habitat in the East Usambara Mountains (Shirk, unpublished data).

Obtaining population estimates for all of the threatened reptile species will be very difficult, however, because 5 of the 24 are fossorial (the Endangered Usambara spotted worm snake *Afrotrophlops gierrai*; the Critically Endangered *Prosymna ornatissima*; the Endangered *Melanoseps emmrichi* [presumed to be fossorial by Howell *et al.* (2015)]; and the Endangered *Letheobia uluguruensis*) or partly fossorial (the Endangered *Elapsoidea nigra*). Fossorial species are notoriously difficult to survey. Although standardised methods do exist (*e.g.* Measey *et al.*, 2003), even large survey efforts often meet with limited success (*e.g.* Maritz & Alexander, 2009). The EACF is home to at least 60 species of fossorial reptiles, half of which are endemic to the EACF (Spawls *et al.*, 2002; Broadley *et al.*, 2006). Seven species are known only from a few collections (*Letheobia uluguruensis*, *Scolecoseps acontias* (Werner, 1913), *Melanoseps pygmaeus* Broadley, 2006) or a single collection (*Afrotrophlops platyrhynchus* (Sternfield, 1910); *Chirindia mpwapwaensis* (Loveridge, 1932); *Amblyodipsas teitana* Loveridge, 1936; *Scolecoseps litipoensis* Broadley, 1995). Currently, only two EACF reptile species, *Amblyodipsas teitana* and *Scolecoseps acontias*, are listed as data deficient on the IUCN Red List, despite many species known from a single or very few specimens (*e.g.* those listed above; *Lygodactylus broadleyi* Pasteur, 1995; *Lygodactylus inexpectatus* Pasteur, 1965; *Leptosiphos rhomboidalis* Broadley, 1989; *Kinyongia magomberae*).

One of the better-studied groups of EACF reptiles are the chameleons, although, as with other taxa, ranges and phylogenies are currently in flux (see above) and very few population or ecological studies have been done (but see Patrick *et al.*, 2011; Shirk *et al.*, 2014). In addition to the threats of habitat loss and fragmentation facing all EACF species, many chameleon species are exported for the international pet trade. Although Kenya led the world in chameleon exports from 1978 to 1981, legislation passed in 1981 effectively shut down the export of chameleons (Carpenter *et al.*, 2004; Jenkins *et al.*, 2014). From 1977 (the earliest export records) to 2010, Tanzania has led the world in chameleon exports, accounting for 25% of total legal exports. Recently, Tanzania's share of the global trade in chameleons has increased: between 2004 and 2010, Tanzania accounted for 44% of world exports (Jenkins *et al.*, 2014). Although Tanzania does set CITES export quotas for many of its chameleon species, some of these quotas may be unsustainable; *e.g.* 2014 and 2015 quotas allow for the annual export of 10 *Kinyongia magomberae*, a species that is known from only four observations, despite continuing efforts to find it; and 10 *Kinyongia uluguruensis* (Loveridge, 1957), another very rarely observed species (CITES, 2015b). In addition to legal chameleon exports, considerable illegal trade also occurs throughout Africa, and is difficult to control (Jenkins *et al.*, 2014).

Another group of interest is the genus *Lygodactylus*, the dwarf geckos, with 62 currently recognised species (Uetz & Hošek, 2014) although the taxonomy is in flux (Röll *et al.*, 2010; Castiglia & Annesi, 2011; Portik *et al.*, 2013). Thirteen of these species occur in the EACF, and eight are likely to be endemic to the EACF (*L. broadleyi*; *L. conradti* Matschie, 1892 [possibly also in Cameroon]; *L. gravis*; *L. howelli* Pasteur & Broadley, 1988; *L. inexpectatus*; *L. kimhowelli* Pasteur, 1995 [possibly not a distinct species *fide* Röhl *et al.*, 2010]; *L. luteopicturatus* Pasteur, 1964; and *L. williamsi*) (Spawls *et al.*, 2002; Uetz & Hošek, 2014). Dwarf geckos are active during the day and tend to be territorial, but beyond this, very little natural history is known for many species (Spawls *et al.*, 2002). Apart from

the previously mentioned population density estimates for *L. williamsi* (Flecks *et al.*, 2012), abundances are anecdotal.

Plants

Beginning in 2008, re-assessments of plant taxa already on the Red List resulted in downgrading of seven plant taxa to non-threatened status and removal from the 2013 EACF Outcomes Database either because of improved distributional data showing them to be more widespread than previously believed (*Lettowianthus stellatus* Diels, *Erythrina sacleuxii* Hua, *Strychnos mellodora* S. Moore, *Lovoa swynnertonii* Baker f., *Mesogyne insignis* Engl.) or to be well protected throughout their limited ranges (*Memecylon greenwayi* Brenan, *Trichilia lovettii* Cheek). *Ficus faulkneriana* was downgraded from Critically Endangered to Vulnerable, and therefore remains on the Outcomes Database. *Erythrina schliebenii* (figures 17, 18), previously assessed as Extinct, was reassessed as Critically Endangered following its rediscovery (see below). Thirteen plant taxa were upgraded to higher threat status because of improved data showing them to be highly restricted in distribution with continuing threats to their habitats: *Annickia kummerae*, *Greenwayodendron suaveolens* subsp. *usambaricum*, *Isolona cauliflora*, *Polyceratocarpus scheffleri*, *Toussaintia orientalis*, *Uvariadendron gorgonis*, *Uvariadendron oligocarpum*, *Uvariadendron usambarensis*, *Uvariopsis bisexualis*, *Schefflera lukwangulensis*, *Millettia micans*, *Lijndenia brenanii*, and *Afrocarpus usambarensis*.

Two plant species previously thought to be extinct, the Lake Lutamba coral tree *Erythrina schliebenii* (Fabaceae), and *Karomia gigas*, have been rediscovered in the Namatimbili-Ngarama forest patch located about 35 km inland of Kilwa in southeastern Tanzania (Clarke *et al.*, 2011; BirdLife International, 2013). The EAPRLA has re-assessed both species as Critically Endangered. *Erythrina schliebenii* (figures 17, 18), recognised as one of the world's 100 most threatened species (Baillie & Butcher, 2012), has been propagated at State House Gardens in Tanzania and President Kikwete ceremonially planted a seedling of this species at State House (Ikulu) on 26 April 2014 as part of the celebration marking Union Day, the 50th anniversary of the unification of Tanganyika and Zanzibar to form the United Republic of Tanzania (Shaw, 2014).

Chase *et al.* (2013) described *Dorstenia christenhuizii* M.W. Chase & M.F. Fay (Moraceae), a new plant species endemic to Mbololo Hill in the Taita Hills of Kenya, also the only known locality of the Critically Endangered *Saintpaulia teitensis* (Gesneriaceae; figure 19). Kenfack *et al.* (2015) described *Crotonogynopsis australis* Kenfack & Gereau (Euphorbiaceae) from the Mahenge Scarp Forest Reserve and the Udzungwa Mountains National Park, localities in which many threatened EACF taxa occur.

Miya *et al.* (2012) indicated that the primary drivers of forest degradation and deforestation in Kilwa District, Tanzania, are timber extraction, charcoal burning, and fire. Among the tree species most strongly affected by these factors, only the Vulnerable African/white mahogany *Khaya anthotheca* is globally threatened, and is among the most harvested timber species in the villages surveyed. However, a number of these heavily impacted species are ecologically important for maintenance of the structure and integrity of their vegetation communities and/or are under considerable environmental pressure without rising to the level of being globally threatened. The Near Threatened African blackwood [mpingo (Swahili)] *Dalbergia melanoxylon* Guill. & Perr. is heavily extracted for artisanal carvings and manufacture of musical instruments. The Near Threatened bleedwood tree [mninga (Swahili)] *Pterocarpus angolensis* DC. is among the most harvested timber species,



Figure 17. The Critically Endangered *Erythrina schliebenii*, branches with foliage, flowers, and fruits. Photograph by Cosmas Mligo.



Figure 18. The Critically Endangered *Erythrina schliebenii*, leaf and flowers. Photograph by Cosmas Mligo.



Figure 19. The Critically Endangered *Saintpaulia teitensis*. Photograph by L. Borghesio.

as is the Near Threatened *mvule* (Swahili) *Milicia excelsa* (Welw.) C.C. Berg. The Near Threatened *Brachylaena huillensis* O. Hoffm. is among the tree species most preferred for charcoal, and its wood is also heavily exploited in the wood carving industries of Kenya and Tanzania (World Conservation Monitoring Centre, 1998). The dominant trees in Miombo woodland, species of *Brachystegia* and *Julbernardia*, are fire-sensitive at young age, and regular fire tends to decrease their number and thus alter the vegetation structure; *Julbernardia globiflora* (Benth.) Troupin is also among the species most preferred for charcoal. In Kilengwe Forest, a forest in Morogoro Rural District that is dominated by *J. globiflora*, many of these same species (*Khaya anthotheca*, *Dalbergia melanoxylon*, *Milicia excelsa*) are logged below their minimum required harvestable diameter (Kacholi, 2014).

Schaafsma *et al.* (2013) used market surveys and household census data to estimate extraction volumes of timber from the EAMs of Tanzania, and found clear signs of unsustainable hardwood harvesting. Using the timber classification by Ahrends (2011), they showed that in class I (the highest quality species), *Khaya anthotheca* is particularly difficult for carpenters, sawyers, and dealers to obtain, as are *Pterocarpus angolensis* and *Milicia excelsa*. In class II, the Endangered *Afrocarpus usambarensis* is increasingly scarce. Data on charcoal production in the EAMs of Tanzania (Schaafsma *et al.*, 2012) show a similar potential contribution to forest degradation, but without an explicit analysis of the species involved.

Ruuska (2013) reported that more than 40 tree species are used as firewood and charcoal in Dakatcha woodlands, and although the most commonly used species are not globally threatened with extinction, unsustainable charcoal production is a major factor in the decline of forest cover and habitat fragmentation in this area, with concentrations of thickets of the Vulnerable *Cynometra webberi* and woodlands of *Brachystegia spiciformis* Benth. no longer coinciding with the boundaries of the IBA on the site.

Burgess *et al.* (2010) identified the 20 vascular plant species that are invasive in the EAMs of Tanzania, as summarised in the 2012 status and trends report (BirdLife International, 2013). EAMCEF (2013) reported serious invasive species problems at Amani Nature Reserve and Udzungwa Mountains National Park involving species listed by Burgess *et al.* (2010), with the addition of common bamboo *Bambusa vulgaris* Schrad. ex J.C. Wendl. and the Asian bramble *Rubus niveus* Thunb. *Maesopsis eminii* is the most serious threat to Amani Nature Reserve.

Dimitrov *et al.* (2012) used the African violet genus, *Saintpaulia*, as a study system to elucidate factors and processes behind the accumulation of species in tropical montane areas of high biodiversity concentration. This genus is strictly endemic to the EACF, with seven of its eight species and all ten subspecies of *S. ionantha* currently listed as globally threatened. Results of the study support the hypothesis of climatically stable montane habitats acting as climatic refugia by preventing extinctions in lowland lineages during the Pleistocene. This confers particular importance to the conservation of these montane habitats for the continued survival of regional biodiversity in the face of future impacts of climate change.

IBA and KBA sites

Of the 64 currently recognised and proposed IBA and KBA sites in Kenya (BirdLife International, 2014a; appendix 2), all but three (Mount Kasigau, Taita District coastal forests, and Taita Hills forests) fall within designated Petroleum Exploration Blocks (Ministry of Energy, 2006). Plans for oil exploration in Arabuko-Sokoke Forest, which falls within Block L16, were put on hold due to opposition from conservation leaders and the local community (Good, 2014; The Star, 2014). The LAPPSET Corridor Project (World Resources Institute, 2015; Official Website of the President, 2016) proposes a new transport corridor including rail, road, and an oil pipeline from Lamu connecting Kenya with Ethiopia and South Sudan, and could pose threats to IBA and KBA sites in Lamu District (Boni and Dodori, Lamu District coastal forests, Lunghi Forest, Witu Forest Reserve). Mining projects in Tanzania (Tanzanian Ministry of Energy and Minerals & Spatial Dimensions, 2016) pose current and potential threats to IBA and KBA sites throughout the EACF of Tanzania, but information on which of these projects are currently operating and presenting threats to the environment is difficult to obtain.

RECOMMENDATIONS

The importance of the EACF, whether or not it is recognised as a global biodiversity hotspot in itself, continues to be enhanced by the discovery of new species, expanded and improved knowledge of the geographic and ecological distribution of its globally threatened taxa, new and revised IUCN Red List assessments, biodiversity inventories of currently recognised and potential new IBAs and KBAs, studies of forest health and fragmentation, improvement of environmental quality and natural resource allocation through application of Participatory Forest Management (PFM) and REDD+ projects, and mainstreaming of biodiversity into policy at local, regional, and national levels. At the same time threats continue to increase as a result of rapidly growing human populations, unsustainable development and resource extraction, environmental damage by invasive species, and uneven and often inadequate management of protected areas. Measures that can be taken to address the existing gaps in the knowledge needed to address these and other threats include the following:

- i. Expanded use of standardised monitoring protocols to assess environmental status and management effectiveness of protected areas throughout the EACF;
- ii. Enumeration and analysis of protected areas that could benefit by being upgraded to a higher protective status (*e.g.* from forest reserve to nature reserve);
- iii. Clarification of the taxonomic status of rare and/or threatened fauna, particularly of isolated populations. Among the mammals, this should include the subspecies status of: servaline genet *Genetta servalina* (subsp. *lowei*?) in East Usambara; and Sykes' monkey *Cercopithecus mitis* (subsp. *albotorquatus*?) in Boni-Dodori landscape;
- iv. Incorporation of accurate population estimates into sustainable CITES export quotas for rare and threatened species subject to international trade;
- v. Intensive biodiversity inventories of undercollected areas throughout the EACF;
- vi. More studies of extent and intensity of extraction activities of threatened and ecological keystone species and the impact of resource extraction (*e.g.* charcoal, fuelwood) on environmental health.

The successful reintroduction of the Kihansi spray toad *Nectophrynoides asperginis* into its native habitat after being listed as Extinct in the Wild should encourage *ex situ* propagation and reintroduction of other rare and threatened taxa. The Critically Endangered Lake Lutamba coral tree *Erythrina schliebenii*, now in cultivation at Tanzania State House (Ikulu), is a good candidate for reintroduction, and should serve as a flagship plant species for such efforts.

The 16 sites in the EACF that now qualify as IBAs or KBAs due to the presence of globally threatened taxa (see above under “RESULTS: Change in site status”) should be appropriately added to the lists of protected sites in the EACF of Kenya and Tanzania (BirdLife International 2014a,b). Sites grouped together as *e.g.* “Lamu District coastal forests” could be listed as KBAs either collectively (as *e.g.* “Bagamoyo District coastal forests” in Tanzania), or individual sites could be singled out to be listed individually.

Tumbatu Island (Tanzania) has been considered a KBA due to the presence of the eastern tree hyrax *Dendrohyrax validus* True, 1890, which was listed as Vulnerable on the IUCN Red List until its re-assessment as Least Concern in 2006. With the loss of its only globally threatened species, Tumbatu Island should no longer be considered a KBA. Likewise, Kisiju Island (Tanzania) has been considered a KBA due to the presence of the Mafia writhing skink *Mochlus mafianum* (Broadley, 1994), which was listed as Endangered on the IUCN Red List until its re-assessment as Least Concern in 2014. With the loss of its only globally threatened species, Kisiju Island should no longer be considered a KBA.

Seven other sites currently listed as KBAs have no threatened taxa on the 2015 Outcomes Database. Bungu Forest Reserve has been merged into West Usambara, Lango ya Simba into Lower Tana River forests, and Mikindani (Mnima) into Lindi (Mkindani). Latham Island, Mtwara, Tanga North-Kibo Salt Pans, and Tanga South had no threatened taxa listed on the 2012 Outcomes Database, and still have none in 2015. These sites should also no longer be considered KBAs.

In addition to the above, 40 sites currently listed as KBAs have one to three globally threatened taxa, all of which were assessed only under Red List Categories and Criteria Version 2.3 (IUCN, 1994) and should therefore be re-assessed (IUCN, 2012b). The KBA status of these sites should be considered tentative until such re-assessment has been performed.

Environmental impact assessments for oil and gas exploration and mining projects should involve appropriate researchers with knowledge of the biodiversity values of the IBAs and

KBAs that may be impacted by these developments. The conservation community must provide adequate information to the relevant governmental authorities concerned with these extractive industries. The 2015 EACF Outcomes Database provides a wealth of information suitable for these purposes, and similar resources should be developed for other parts of Kenya and Tanzania.

The updated analysis of forest vertebrate importance and drivers of species richness for the EAMs recently conducted by Rovero *et al.* (2014) provides important recommendations for the conservation of the EAM forests by stressing, in particular, the need for re-presenting the proposal for inclusion of selected sites in the UNESCO World Heritage Site by the Tanzanian Government (Ministry of Natural Resources and Tourism, 2010). The authors recognise that the network of formally protected forests in the EAM is an asset, especially in view of a number of recently established or proposed nature reserves; however, they acknowledge that the long-term capacity to protect the forests needs enhancement to be effective. Besides the continued input of foreign donors, novel mechanisms of income generation will need to be explored by the Government of Tanzania, such as Payment for Ecosystem Services related to water use, pilot REDD+ schemes, and boosting tourism to the area. Although the value of nature-based tourism to the EAM is lower than that generated by Tanzania's large savannah and grassland reserves, the potential revenues from this sector are considerable and enhance the case for sustainable forest management (Bayliss *et al.*, 2014).

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Appendix 1. Globally threatened animal and plant taxa of the EACF.

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Animalia			
Amphibia			
Arthroleptidae			
<i>Arthroleptis fichika</i> Blackburn, 2009	EN	3.1	2010
<i>Arthroleptis kidogo</i> Blackburn, 2009	CR	3.1	2011
<i>Arthroleptis nguruensis</i> Poynton, Menegon & Loader, 2008	VU	3.1	2012
<i>Arthroleptis nikeae</i> Poynton, 2003	CR	3.1	2014
<i>Arthroleptis tanneri</i> Grandison, 1983	EN	3.1	2015
<i>Arthroleptis xenodactylus</i> Boulenger, 1909	EN	3.1	2015
<i>Leptopelis grandiceps</i> Ahl, 1929	VU	3.1	2013
<i>Leptopelis parkeri</i> Barbour & Loveridge, 1928	EN	3.1	2013
<i>Leptopelis uluguruensis</i> Barbour & Loveridge, 1928	EN	3.1	2013
<i>Leptopelis vermiculatus</i> (Boulenger, 1909)	EN	3.1	2014
Brevicipitidae			
<i>Callulina dawida</i> Loader, Measey, de Sá & Malonza, 2009	CR	3.1	2014
<i>Callulina hanseni</i> Loader, Gower, Müller & Menegon, 2010	CR	3.1	2012
<i>Callulina kanga</i> Loader, Gower, Müller & Menegon, 2010	CR	3.1	2012
<i>Callulina kisiwamsitu</i> de Sá, Loader & Channing, 2004	EN	3.1	2014
<i>Callulina laphami</i> Loader, Gower, Müller & Menegon, 2010	CR	3.1	2012
<i>Callulina meteora</i> Menegon, Gowder & Loader, 2011	CR	3.1	2013
<i>Callulina shengena</i> Loader, Gower, Ngalason & Menegon, 2010	CR	3.1	2012
<i>Callulina stanleyi</i> Loader, Gower, Ngalason & Menegon, 2010	CR	3.1	2012
<i>Probreviceps durirostris</i> Loader, Channing, Menegon & Davenport, 2006	EN	3.1	2013
<i>Probreviceps loveridgei</i> Parker, 1931	EN	3.1	2013
<i>Probreviceps macrodactylus</i> (Nieden, 1926)	EN	3.1	2013
<i>Probreviceps rungwensis</i> Loveridge, 1932	EN	3.1	2013
<i>Probreviceps uluguruensis</i> (Loveridge, 1925)	EN	3.1	2013
Bufonidae			
<i>Churamiti maridadi</i> Channing & Stanley, 2002	CR	3.1	2015
<i>Mertensophryne howelli</i> (Poynton & Clarke, 1999)	EN	3.1	2004
<i>Mertensophryne usambarae</i> (Poynton & Clarke, 1999)	EN	3.1	2004
<i>Mertensophryne uzunguensis</i> (Loveridge, 1932)	VU	3.1	2015
<i>Nectophrynoides asperginis</i> Poynton, Howell, Clarke & Lovett, 1999	EW	3.1	2015

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Nectophrynoides cryptus</i> Perret, 1971	EN	3.1	2004
<i>Nectophrynoides laticeps</i> Channing, Menegon, Salvidio & Akker, 2005	CR	3.1	2015
<i>Nectophrynoides minutus</i> Perret, 1972	EN	3.1	2015
<i>Nectophrynoides paulae</i> Menegon, Salvidio, Ngalason & Loader, 2007	CR	3.1	2015
<i>Nectophrynoides poyntoni</i> Menegon, Salvidio & Loader, 2004	CR	3.1	2015
<i>Nectophrynoides pseudotornieri</i> Menegon, Salvidio & Loader, 2004	CR	3.1	2015
<i>Nectophrynoides vestergaardi</i> Menegon, Salvidio & Loader, 2004	EN	3.1	2015
<i>Nectophrynoides viviparus</i> (Tornier, 1905)	VU	3.1	2004
<i>Nectophrynoides wendyae</i> Clarke, 1988	CR	3.1	2015
Herpelidae			
<i>Boulengerula changamwensis</i> Loveridge, 1932	EN	3.1	2013
<i>Boulengerula niedeni</i> Müller, Measey, Loader & Malonza, 2005	EN	3.1	2013
<i>Boulengerula taitana</i> Loveridge, 1935	EN	3.1	2013
Hyperoliidae			
<i>Afrixalus dorsimaculatus</i> (Ahl, 1930)	VU	3.1	2008
<i>Afrixalus morerei</i> Dubois, 1986	VU	3.1	2004
<i>Afrixalus sylvaticus</i> Schiøtz, 1974	EN	3.1	2004
<i>Afrixalus uluguruensis</i> (Barbour & Loveridge, 1928)	EN	3.1	2008
<i>Hyperolius kihangensis</i> Schiøtz & Westergaard in Schiøtz, 1999	EN	3.1	2004
<i>Hyperolius minutissimus</i> Schiøtz, 1975	VU	3.1	2004
<i>Hyperolius puncticulatus</i> (Pfeffer, 1893)	EN	3.1	2008
<i>Hyperolius rubrovermiculatus</i> Schiøtz, 1975	EN	3.1	2004
<i>Hyperolius tanneri</i> Schiøtz, 1982	CR	3.1	2015
<i>Hyperolius watsonae</i> Pickersgill, 2007	CR	3.1	2008
<i>Kassina jozani</i> Msuya, Howell & Channing, 2006	EN	3.1	2008
<i>Phlyctimantis keithae</i> Schiøtz, 1975	EN	3.1	2015
Microhylidae			
<i>Hoplophryne rogersi</i> Barbour & Loveridge, 1928	EN	3.1	2013
<i>Hoplophryne uluguruensis</i> Barbour & Loveridge, 1928	EN	3.1	2013
<i>Parhoplophryne usambarica</i> Barbour & Loveridge, 1928	CR	3.1	2014
Petroedetidae			
<i>Arthroleptides martiensseni</i> Nieden, 1911	EN	3.1	2013
<i>Arthroleptides yakusini</i> Channing, Howell & Moyer, 2002	EN	3.1	2013
Phrynobatrachidae			
<i>Phrynobatrachus krefftii</i> Boulenger, 1909	EN	3.1	2013
<i>Phrynobatrachus pakenhami</i> Loveridge, 1941	EN	3.1	2008
<i>Phrynobatrachus ungujae</i> Pickersgill, 2007	EN	3.1	2008

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Phrynobatrachus uzungwensis</i> Grandison & Howell, 1984	VU	3.1	2004
Aves			
Accipitridae			
<i>Aquila nipalensis</i> Hodgson, 1833	EN	3.1	2015
<i>Gyps africanus</i> Salvadori, 1865	CR	3.1	2015
<i>Gyps rueppelli</i> (Brehm, 1852)	CR	3.1	2015
<i>Necrosyrtes monachus</i> (Temminck, 1823)	CR	3.1	2015
<i>Neophron percnopterus</i> (Linnaeus, 1758)	EN	3.1	2015
<i>Polemaetus bellicosus</i> (Daudin, 1800)	VU	3.1	2013
<i>Sagittarius serpentarius</i> (Miller, 1779)	VU	3.1	2013
<i>Torgos tracheliotos</i> (Forster, 1791)	EN	3.1	2015
<i>Trionocephs occipitalis</i> (Burchell, 1824)	CR	3.1	2015
Ardeidae			
<i>Ardeola idae</i> (Hartlaub, 1860)	EN	3.1	2012
Bucorvidae			
<i>Bucorvus leadbeateri</i> (Vigors, 1825)	VU	3.1	2012
Cisticolidae			
<i>Apalis chariessa</i> Reichenow, 1879	VU	3.1	2012
<i>Apalis fuscigularis</i> Moreau, 1938	CR	3.1	2015
Columbidae			
<i>Treron pembaensis</i> Pakenham, 1940	VU	3.1	2012
Falconidae			
<i>Falco fasciinucha</i> Reichenow & Neumann, 1895	VU	3.1	2014
Glareolidae			
<i>Glareola ocularis</i> Verreaux, 1833	VU	3.1	2012
Gruidae			
<i>Balearica regulorum</i> (Bennett, 1834)	EN	3.1	2013
Hirudinidae			
<i>Hirundo atrocaerulea</i> Sundevall, 1850	VU	3.1	2012
Laniidae			
<i>Malaconotus alius</i> Friedmann, 1927	CR	3.1	2012
Motacillidae			
<i>Anthus sokokensis</i> van Someren, 1921	EN	3.1	2012
Muscicapidae			
<i>Modulatrix orostruthus</i> (Vincent, 1933)	VU	3.1	2013
<i>Sheppardia aurantiithorax</i> Beresford, Fjeldså & Kiwe, 2004	EN	3.1	2012
<i>Sheppardia lowei</i> (Grant & Mackworth-Praed, 1941)	VU	3.1	2012
<i>Sheppardia montana</i> (Reichenow, 1907)	EN	3.1	2012
<i>Swynnertonia swynnertoni</i> (Shelley, 1906)	VU	3.1	2013
Nectariniidae			
<i>Anthreptes pallidigaster</i> Sclater & Moreau, 1935	EN	3.1	2012

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Anthreptes rubritorques</i> Reichenow, 1905	VU	3.1	2012
<i>Nectarinia loveridgei</i> (Hartert, 1922)	EN	3.1	2012
<i>Nectarinia rufipennis</i> Jensen, 1983	VU	3.1	2012
Phasianidae			
<i>Xenoperdix udzungwensis</i> Dinesen, Lehmberg, Svendsen, Hansen et al., 1994	EN	3.1	2012
Ploceidae			
<i>Ploceus burnieri</i> Baker & Baker, 1990	VU	3.1	2012
<i>Ploceus golandi</i> (Clarke, 1913)	EN	3.1	2012
<i>Ploceus nicolli</i> Sclater, 1931	EN	3.1	2012
Strigidae			
<i>Otus ireneae</i> Ripley, 1966	EN	3.1	2012
<i>Otus pambaensis</i> Pakenham, 1937	VU	3.1	2012
Struthionidae			
<i>Struthio molybdophanes</i> Reichenow, 1883	VU	3.1	2014
Sturnidae			
<i>Cinnyricinclus femoralis</i> (Richmond, 1897)	VU	3.1	2012
Sylviidae			
<i>Acrocephalus griseldis</i> (Hartlaub, 1891)	EN	3.1	2012
<i>Artisornis moreaui</i> (Sclater, 1931)	CR	3.1	2015
<i>Bathmocercus winifredae</i> (Moreau, 1938)	VU	3.1	2012
<i>Hyliota usambara</i> Sclater, 1932	EN	3.1	2012
Turdidae			
<i>Turdus helleri</i> (Mearns, 1913)	CR	3.1	2015
<i>Zoothera guttata</i> (Vigors, 1831)	EN	3.1	2012
Gastropoda			
Ampullariidae			
<i>Lanistes alexandri</i> Bourguignat, 1850	EN	2.3	1996
<i>Lanistes ciliatus</i> von Martens, 1898	VU	3.1	2010
<i>Lanistes farleri</i> Craven, 1880	VU	3.1	2010
Bithyniidae			
<i>Gabiella verdcourti</i> (Mandahl-Barth, 1968)	EN	3.1	2010
<i>Incertihydrobia teesdalei</i> (Verdcourt, 1958)	CR	3.1	2010
Helicarionidae			
<i>Zingis radiolata</i> von Martens, 1878	CR	3.1	2004
Paludomidae			
<i>Cleopatra exarata</i> (von Martens, 1878)	VU	3.1	2010
Streptaxidae			
<i>Gulella amboniensis</i> Tattersfield, 1998	VU	2.3	2000
<i>Gulella taitensis</i> Verdcourt, 1963	EN	3.1	2004
Urocyclidae			
<i>Thapsia buraensis</i> Verdcourt, 1982	EN	3.1	2004

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Insecta			
Acrididae			
<i>Acanthoxia aculeus</i> Grunshaw, 1986	EN	3.1	2013
<i>Acrida bara</i> Steinman, 1963	VU	3.1	2013
<i>Acrotylus apicalis</i> Bolívar, 1908	VU	3.1	2013
<i>Acteana alazonica</i> Karsch, 1896	EN	3.1	2013
<i>Afrophaeoba euthynota</i> Jago, 1983	EN	3.1	2013
<i>Afrophaeoba longicornis</i> Jago, 1983	EN	3.1	2013
<i>Afrophaeoba nguru</i> Jago, 1983	EN	3.1	2013
<i>Afrophaeoba usambarica</i> (Ramme, 1929)	VU	3.1	2013
<i>Allaga ambigua</i> Karsch, 1896	CR	3.1	2013
<i>Anischnansis burtti</i> (Uvarov, 1941)	CR	3.1	2013
<i>Aresceutica morogorica</i> Dirsh, 1954	EN	3.1	2013
<i>Aresceutica subnuda</i> Karsch, 1896	EN	3.1	2013
<i>Burtia sylvatica</i> Dirsh, 1951	CR	3.1	2013
<i>Cardeniopsis regalis</i> (Karny, 1907)	VU	3.1	2013
<i>Cyphocerastis uluguruensis</i> Johnsen, 1987	CR	3.1	2014
<i>Eupropacris abbreviata</i> Miller, 1929	CR	3.1	2014
<i>Eupropacris pompalis</i> (Karsch, 1896)	EN	3.1	2014
<i>Eupropacris uniformis</i> Ramme, 1929	VU	3.1	2014
<i>Heteracris trimaculata</i> Grunshaw, 1991	VU	3.1	2014
<i>Ixalidium sjostedti</i> Kevan, 1950	VU	3.1	2014
<i>Ixalidium transiens</i> Ramme, 1929	VU	3.1	2014
<i>Physocrobylus tessa</i> Hochkirch, 1996	CR	3.1	2014
Calopterygidae			
<i>Umma declivum</i> Förster, 1906	VU	3.1	2010
Chlorocyphidae			
<i>Platycypha auripes</i> (Förster, 1906)	VU	3.1	2010
Coenagrionidae			
<i>Coryphagrion grandis</i> Morton, 1924	VU	3.1	2010
<i>Teinobasis alluaudi</i> (Martin, 1896)	VU	3.1	2006
Euschmidtidae			
<i>Chromomastax jagoi</i> Descamps, 1973	EN	3.1	2014
<i>Chromomastax movogovodia</i> Descamps, 1964	CR	3.1	2014
<i>Euschmidtia bidens</i> Descamps, 1964	CR	3.1	2014
<i>Euschmidtia burtti</i> Descamps, 1964	CR	3.1	2014
<i>Euschmidtia dirshi</i> Descamps, 1964	CR	3.1	2014
<i>Euschmidtia phippii</i> Descamps, 1964	CR	3.1	2014
<i>Euschmidtia tangana</i> Descamps, 1964	EN	3.1	2014
<i>Euschmidtia uvarovi</i> Descamps, 1964	CR	3.1	2014
<i>Euschmidtia viridifasciata</i> Descamps, 1964	CR	3.1	2014
Gomphidae			
<i>Nepogomphoides stuhlmanni</i> Karsch, 1899	VU	3.1	2010

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Lentulidae			
<i>Chromousambilla burtti</i> Jago, 1981	CR	3.1	2014
Libellulidae			
<i>Micromacromia miraculosa</i> (Förster, 1906)	CR	3.1	2010
Megapodagrionidae			
<i>Amanipodagrion gilliesi</i> Pinhey, 1962	CR	3.1	2010
Platycnemididae			
<i>Platycnemis pembipes</i> Dijkstra, Clausnitzer & Martens, 2007	CR	3.1	2007
Scarabaeidae			
<i>Clypeodrepanus striatus</i> (Boucomont, 1921)	VU	3.1	2013
<i>Proagoderus uluguru</i> (Frey, 1975)	EN	3.1	2013
Thericleidae			
<i>Acanthothericles bicoloripes</i> Descamps, 1977	CR	3.1	2014
Malacostraca			
Potamonautidae			
<i>Potamonautes infravallatus</i> (Hilgendorf, 1898)	VU	3.1	2008
<i>Potamonautes raybouldi</i> Cumberlidge & Vannini, 2004	VU	3.1	2008
<i>Potamonautes unisulcatus</i> (Rathbun, 1921)	VU	3.1	2008
<i>Potamonautes xiphoidus</i> Reed & Cumberlidge, 2006	VU	3.1	2008
Mammalia			
Bovidae			
<i>Cephalophus adersi</i> Thomas, 1918	CR	3.1	2008
<i>Cephalophus spadix</i> True, 1890	EN	3.1	2008
<i>Ourebia ourebi</i> (Zimmermann, 1783) subsp. <i>haggardi</i> (Thomas, 1895)	VU	3.1	2008
Canidae			
<i>Lycaon pictus</i> (Temminck, 1820)	EN	3.1	2012
Cercopithecidae			
<i>Cercocebus galeritus</i> Peters, 1879	EN	3.1	2008
<i>Cercocebus sanjei</i> Mittermeier, 1986	EN	3.1	2008
<i>Cercopithecus mitis</i> Wolf, 1822 subsp. <i>albotorquatus</i> de Pousargues, 1896	VU	3.1	2008
<i>Procolobus gordonorum</i> (Matschie, 1900)	EN	3.1	2008
<i>Procolobus kirkii</i> (Gray, 1868)	EN	3.1	2008
<i>Procolobus rufomitratu</i> s (Peters, 1879) subsp. <i>rufomitratu</i> s	EN	3.1	2008
<i>Rungwecebus kipunji</i> (Ehardt, Butynski, Jones & Davenport, 2005)	CR	3.1	2008
Elephantidae			
<i>Loxodonta africana</i> (Blumenbach, 1797)	VU	3.1	2008
Emballonuridae			
<i>Taphozous hildegardeae</i> Thomas, 1909	VU	3.1	2008

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Felidae			
<i>Panthera leo</i> (Linnaeus, 1758)	VU	3.1	2015
Galagonidae			
<i>Galagoides rondoensis</i> Honess in Kingdon, 1997	CR	3.1	2008
Herpestidae			
<i>Bdeogale omnivora</i> Heller, 1913	VU	3.1	2008
Hippopotamidae			
<i>Hippopotamus amphibius</i> Linnaeus, 1758	VU	3.1	2008
Macroscelididae			
<i>Rhynchocyon chrysopygus</i> Günther, 1881	EN	3.1	2015
<i>Rhynchocyon petersi</i> Bocage, 1880	VU	3.1	2008
<i>Rhynchocyon udzungwensis</i> Rathbun & Rovero, 2008	VU	3.1	2015
Manidae			
<i>Smutsia temminckii</i> (Smuts, 1832)	VU	3.1	2014
Pteropodidae			
<i>Myonycteris relicta</i> Bergmans, 1980	VU	3.1	2008
<i>Pteropus voeltzkowi</i> Matschie, 1909	VU	3.1	2008
Rhinocerotidae			
<i>Diceros bicornis</i> (Linnaeus, 1758)	CR	3.1	2012
Soricidae			
<i>Congosorex phillipsorum</i> Stanley, Rogers & Hutterer, 2005	CR	3.1	2008
<i>Crocidura desperata</i> Hutterer, Jenkins & Verheyen, 1991	EN	3.1	2008
<i>Crocidura tansaniana</i> Hutterer, 1986	EN	3.1	2008
<i>Crocidura telfordi</i> Hutterer, 1986	EN	3.1	2008
<i>Crocidura usambarae</i> Dippenaar, 1980	EN	3.1	2008
<i>Myosorex geata</i> (Allen & Loveridge, 1927)	EN	3.1	2008
<i>Myosorex kibaulei</i> Stanley & Hutterer, 2000	EN	3.1	2008
<i>Suncus aequatorius</i> Heller, 1912	CR	3.1	2008
<i>Sylvisorex howelli</i> Jenkins, 1984	EN	3.1	2008
Reptilia			
Agamidae			
<i>Agama montana</i> Barbour & Loveridge, 1928	VU	3.1	2015
Chamaeleonidae			
<i>Kinyongia magomberae</i> Menegon, Tolley, Jones, Rovero, Marshall & Tilbury, 2009	EN	3.1	2014
<i>Kinyongia matschiei</i> (Werner, 1895)	EN	3.1	2014
<i>Kinyongia multituberculata</i> (Nieden, 1913)	EN	3.1	2014
<i>Kinyongia tenuis</i> (Matschie, 1892)	EN	3.1	2014
<i>Kinyongia vosseleri</i> (Nieden, 1913)	EN	3.1	2014
<i>Rhampholeon acuminatus</i> Mariaux & Tilbury, 2006	CR	3.1	2014
<i>Rhampholeon beraduccii</i> Mariaux & Tilbury, 2006	VU	3.1	2014
<i>Rhampholeon spinosus</i> (Matschie, 1892)	EN	3.1	2014

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Rhampholeon temporalis</i> (Matschie, 1892)	EN	3.1	2014
<i>Rhampholeon viridis</i> Mariaux & Tilbury, 2006	EN	3.1	2014
<i>Trioceros laterispinis</i> (Loveridge, 1932)	EN	3.1	2014
Colubridae			
<i>Thelotornis usambaricus</i> Broadley, 2001	VU	3.1	2015
Elapidae			
<i>Elapsoidea nigra</i> Günther, 1888	EN	3.1	2010
Gekkonidae			
<i>Lygodactylus gravis</i> Pasteur, 1965	VU	3.1	2014
<i>Lygodactylus williamsi</i> Loveridge, 1952	CR	3.1	2012
Gerrhosauridae			
<i>Tetradactylus udzungwensis</i> Salvidio, Menegon, Sindaco & Moyer, 2004	EN	3.1	2014
Prosymnidae			
<i>Prosymna ornatissima</i> Barbour & Loveridge, 1928	CR	3.1	2015
Pseudoxyrophiidae			
<i>Buhomea procterae</i> (Loveridge, 1922)	VU	3.1	2014
Scincidae			
<i>Melanoseps emmrichi</i> Broadley in Broadley, Whiting & Bauer, 2006	EN	3.1	2015
Typhlopidae			
<i>Afrotyphlops gierrai</i> (Mocqard, 1897)	EN	3.1	2010
<i>Letheobia uluguruensis</i> (Barbour & Loveridge, 1928)	EN	3.1	2014
Viperidae			
<i>Atheris barbouri</i> Loveridge, 1930	VU	3.1	2010
<i>Atheris ceratophora</i> Werner, 1895	VU	3.1	2010
Plantae			
Bryopsida			
Pterobryaceae			
<i>Renauldia lycopodioides</i> Bizot ex Pócs	EN	2.3	2000
Cycadopsida			
Zamiaceae			
<i>Encephalartos kanga</i> Pócs & Q.Luke	CR	3.1	2010
<i>Encephalartos kisambo</i> Faden & Beentje	EN	3.1	2010
<i>Encephalartos sclavoi</i> De Luca, D.W.Stev. & A.Moretti	CR	3.1	2010
Jungermanniopsida			
Lejeuneaceae			
<i>Cladolejeunea aberrans</i> (Steph.) Zwickel	EN	2.3	2000
Liliopsida			
Aloaceae			
<i>Aloe ballyi</i> Reynolds	EN	3.1	2009
<i>Aloe boscawenii</i> Christian	CR	3.1	2009
<i>Aloe brachystachys</i> Baker	VU	3.1	2009

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Aloe brandhamii</i> S.Carter	VU	3.1	2009
<i>Aloe bussei</i> A.Berger	VU	3.1	2009
<i>Aloe classenii</i> Reynolds	CR	3.1	2009
<i>Aloe dorotheae</i> A.Berger	CR	3.1	2009
<i>Aloe flexilifolia</i> Christian	CR	3.1	2009
<i>Aloe kilifiensis</i> Christian	EN	3.1	2009
<i>Aloe leachii</i> Reynolds	VU	3.1	2009
<i>Aloe leptosiphon</i> A.Berger	CR	3.1	2009
<i>Aloe massawana</i> Reynolds	VU	3.1	2009
<i>Aloe pembana</i> L.E.Newton	CR	3.1	2009
<i>Aloe penduliflora</i> Baker	EN	3.1	2009
<i>Aloe ukambensis</i> Reynolds	VU	3.1	2013
Araceae			
<i>Amorphophallus stuhlmannii</i> (Engl.) Engl. & Gehrm.	EN	3.1	2009
<i>Gonatopus marattioides</i> (Peter) Bogner	EN	3.1	2009
<i>Gonatopus petiolulatus</i> (Peter) Bogner	VU	3.1	2009
<i>Stylochaeton bogneri</i> Mayo	EN	3.1	2009
<i>Stylochaeton crassispatus</i> Bogner	VU	3.1	2009
<i>Stylochaeton euryphyllus</i> Mildbr.	VU	3.1	2009
<i>Stylochaeton milneanus</i> Mayo	VU	3.1	2009
Asparagaceae			
<i>Asparagus usambarensis</i> Sebsebe	EN	3.1	2009
Asphodelaceae			
<i>Kniphofia goetzei</i> Engl.	VU	3.1	2009
Burmanniaceae			
<i>Afrothismia baerae</i> Cheek	CR	3.1	2009
<i>Afrothismia insignis</i> Cowley	VU	3.1	2009
<i>Gymnosiphon usambaricus</i> Engl.	EN	3.1	2009
Cyperaceae			
<i>Cyperus afrodunensis</i> Lye	EN	3.1	2013
<i>Cyperus microumbellatus</i> Lye	CR	3.1	2010
Dioscoreaceae			
<i>Dioscorea longicuspis</i> R.Knuth	VU	3.1	2009
Eriocaulaceae			
<i>Eriocaulon selousii</i> S.M.Phillips	EN	3.1	2012
Gramineae			
<i>Alloochaete uluguruensis</i> Kabuye	VU	3.1	2013
<i>Eragrostis ambleia</i> Clayton	VU	3.1	2013
<i>Eragrostis muerensis</i> Pilg.	CR	3.1	2013
<i>Eragrostis perbella</i> K. Schum.	VU	3.1	2013
<i>Eragrostis pseudopoa</i> C.E.Hubb.	EN	3.1	2013
<i>Eragrostis usambarensis</i> Napper	VU	3.1	2013
<i>Hickelia africana</i> S.Dransf.	EN	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Humbertochloa greenwayi</i> C.E.Hubb.	CR	3.1	2013
<i>Hylebates chlorochloe</i> (K.Schum.) Napper	VU	3.1	2013
<i>Panicum nudiflorum</i> Renvoize	EN	3.1	2013
<i>Panicum pinifolium</i> Chiov.	VU	3.1	2013
<i>Panicum vollesenii</i> Renvoize	VU	3.1	2013
Iridaceae			
<i>Moraea callista</i> Goldblatt	VU	3.1	2009
Orchidaceae			
<i>Ancistrorhynchus laxiflorus</i> Mansf.	VU	3.1	2013
<i>Ancistrorhynchus refractus</i> (Kraenzl.) Summerh.	EN	3.1	2013
<i>Angraecopsis parva</i> (P.J.Cribb) P.J.Cribb	VU	3.1	2013
<i>Ansellia africana</i> Lindl.	VU	3.1	2013
<i>Bulbophyllum concatenatum</i> P.J.Cribb & P.Taylor	EN	3.1	2013
<i>Cynorkis buchwaldiana</i> Kraenzl. subsp. <i>braunii</i> (Kraenzl.) Summerh.	VU	3.1	2013
<i>Cynorkis buchwaldiana</i> Kraenzl. subsp. <i>buchwaldiana</i>	CR	3.1	2013
<i>Cynorkis uncatata</i> (Rolfe) Kraenzl.	VU	3.1	2013
<i>Cynorkis usambarae</i> Rolfe	CR	3.1	2013
<i>Diaphananthe orientalis</i> (Mansf.) F.N.Rasm.	CR	3.1	2013
<i>Diaphananthe tanneri</i> P.J.Cribb	EN	3.1	2013
<i>Disa tanganyikensis</i> Summerh.	EN	3.1	2013
<i>Disperis aphylla</i> Kraenzl.	VU	3.1	2013
<i>Disperis aphylla</i> Kraenzl. subsp. <i>bifolia</i> Verdc.	EN	3.1	2013
<i>Disperis egregia</i> Summerh.	CR	3.1	2013
<i>Disperis kerstenii</i> Rchb.f.	EN	3.1	2013
<i>Habenaria isoantha</i> Schltr.	EN	3.1	2013
<i>Habenaria leucoceras</i> Schltr.	EN	3.1	2013
<i>Habenaria plectromaniaca</i> Rchb.f. & S.Moore	VU	3.1	2013
<i>Habenaria richardsiae</i> Summerh.	EN	3.1	2013
<i>Habenaria stylites</i> Rchb.f. & S.Moore	VU	3.1	2013
<i>Habenaria stylites</i> Rchb.f. & S.Moore subsp. <i>stylites</i>	EN	3.1	2013
<i>Mystacidium nguruense</i> P.J.Cribb	CR	3.1	2013
<i>Mystacidium pulchellum</i> (Kraenzl.) Schltr.	EN	3.1	2013
<i>Neobenthamia gracilis</i> Rolfe	VU	3.1	2013
<i>Polystachya acuminata</i> Summerh.	CR	3.1	2013
<i>Polystachya albescens</i> Ridl. subsp. <i>kraenzlinii</i> (Rolfe) Summerh.	VU	3.1	2013
<i>Polystachya caespitifolia</i> Kraenzl. subsp. <i>caespitifolia</i>	EN	3.1	2013
<i>Polystachya caespitifolia</i> Kraenzl. subsp. <i>latilabris</i> (Summerh.) P.J.Cribb & Podz.	VU	3.1	2013
<i>Polystachya canaliculata</i> Summerh.	CR	3.1	2013
<i>Polystachya caudata</i> Summerh.	EN	3.1	2013
<i>Polystachya disiformis</i> P.J.Cribb	EN	3.1	2013
<i>Polystachya fischeri</i> Kraenzl.	EN	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Polystachya holstii</i> Kraenzl.	EN	3.1	2013
<i>Polystachya isochiloides</i> Summerh.	EN	3.1	2013
<i>Polystachya longiscapa</i> Summerh.	EN	3.1	2013
<i>Polystachya mazumbaiensis</i> P.J.Cribb & Podz.	EN	3.1	2013
<i>Polystachya porphyrochila</i> J.L.Stewart	CR	3.1	2013
<i>Polystachya praecipitis</i> Summerh.	EN	3.1	2013
<i>Polystachya pudorina</i> P.J.Cribb	EN	3.1	2013
<i>Polystachya rugosilabia</i> Summerh.	CR	3.1	2013
<i>Polystachya serpentina</i> P.J.Cribb	EN	3.1	2013
<i>Polystachya shega</i> Kraenzl.	EN	3.1	2013
<i>Polystachya subdiphylla</i> Summerh.	EN	3.1	2013
<i>Polystachya teitensis</i> P.J.Cribb	EN	3.1	2013
<i>Polystachya uluguruensis</i> P.J.Cribb & Podz.	EN	3.1	2013
<i>Polystachya xerophila</i> Kraenzl.	EN	3.1	2013
<i>Stolzia angustifolia</i> Mansf.	EN	3.1	2013
<i>Stolzia atrorubra</i> Mansf.	EN	3.1	2013
<i>Stolzia christopheri</i> P.J.Cribb	EN	3.1	2013
<i>Stolzia leedalii</i> P.J.Cribb	EN	3.1	2013
<i>Stolzia moniliformis</i> P.J.Cribb	EN	3.1	2013
<i>Stolzia oligantha</i> Mansf.	EN	3.1	2013
<i>Stolzia viridis</i> P.J.Cribb	EN	3.1	2013
<i>Tridactyle brevifolia</i> Mansf.	EN	3.1	2013
<i>Tridactyle cruciformis</i> Summerh.	EN	3.1	2013
<i>Tridactyle minuta</i> P.J.Cribb	EN	3.1	2013
<i>Tridactyle sarcodantha</i> Mansf.	CR	3.1	2013
<i>Tridactyle tanneri</i> P.J.Cribb	EN	3.1	2013
Palmae			
<i>Dypsis pembana</i> (H.E.Moore) Beentje & J.Dransf.	VU	3.1	2009
Zosteraceae			
<i>Zostera capensis</i> Setch.	VU	3.1	2010
Lycopodiopsida			
Lycopodiaceae			
<i>Huperzia dacrydioides</i> (Baker) Pic.Serm. subsp. <i>dura</i> (Pic.Serm.) Verdc.	VU	3.1	2013
Magnoliopsida			
Acanthaceae			
<i>Anisotes spectabilis</i> (Mildbr.) Vollesen	EN	3.1	2015
<i>Anisotes tangensis</i> Baden	EN	3.1	2015
<i>Anisotes umbrosus</i> Milne-Redh.	EN	3.1	2015
<i>Asystasia linearis</i> S. Moore	EN	3.1	2015
<i>Asystasia minutiflora</i> Ensermu & Vollesen	VU	3.1	2015
<i>Asystasia schliebenii</i> Mildbr.	EN	3.1	2015
<i>Asystasia tanzaniensis</i> Ensermu & Vollesen	EN	3.1	2015

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Barleria amanensis</i> Lindau	EN	3.1	2015
<i>Barleria aristata</i> I.Darbysh.	EN	3.1	2015
<i>Barleria faulknerae</i> I.Darbysh.	EN	3.1	2015
<i>Barleria laceratiflora</i> Lindau	EN	3.1	2015
<i>Barleria lukei</i> I.Darbysh.	EN	3.1	2015
<i>Barleria lukwangulensis</i> Mildbr. ex I.Darbysh.	VU	3.1	2015
<i>Barleria maculata</i> S.Moore	EN	3.1	2015
<i>Barleria maritima</i> I.Darbysh	VU	3.1	2015
<i>Barleria pseudosomalia</i> I.Darbysh	EN	3.1	2015
<i>Barleria rynchocarpa</i> Klotzsch	VU	3.1	2015
<i>Barleria scandens</i> I.Darbysh.	VU	3.1	2015
<i>Barleria subregularis</i> I.Darbysh.	VU	3.1	2015
<i>Barleria vollesenii</i> I.Darbysh.	EN	3.1	2015
<i>Barleria whytei</i> S.Moore	EN	3.1	2015
<i>Blepharis chrysotricha</i> Lindau	VU	3.1	2015
<i>Blepharis ilicifolia</i> Napper	EN	3.1	2015
<i>Blepharis kenyensis</i> Vollesen	EN	3.1	2015
<i>Blepharis pratensis</i> S.Moore	VU	3.1	2015
<i>Blepharis refracta</i> Mildbr.	CR	3.1	2015
<i>Blepharis tanzaniensis</i> Vollesen	EN	3.1	2015
<i>Brachystephanus schliebenii</i> (Mildbr.) Champl.	CR	3.1	2015
<i>Brillantaisia stenopteris</i> Sidwell	EN	3.1	2015
<i>Cephalophis lukei</i> Vollesen	EN	3.1	2015
<i>Crabbea longipes</i> Mildbr.	EN	3.1	2015
<i>Crossandra cephalostachya</i> Mildbr.	EN	3.1	2015
<i>Crossandra friesiorum</i> Mildbr.	VU	3.1	2015
<i>Dicliptera grandiflora</i> Gilli	EN	3.1	2015
<i>Dicliptera inconspicua</i> I.Darbysh.	VU	3.1	2015
<i>Duosperma longicalyx</i> (Deflers) Vollesen subsp. <i>mkomaziense</i> Vollesen	EN	3.1	2015
<i>Duosperma subquadrangulare</i> Vollesen	VU	3.1	2015
<i>Duosperma trachyphyllum</i> (Bullock) Dayton	EN	3.1	2015
<i>Dyschoriste keniensis</i> Malombe, Mwachala & Vollesen subsp. <i>glandulifera</i> Malombe, Mwachala & Vollesen	VU	3.1	2015
<i>Dyschoriste kitongaensis</i> Vollesen	EN	3.1	2015
<i>Dyschoriste subquadrangularis</i> (Lindau) C.B.Clarke	VU	3.1	2015
<i>Ecbolium tanzaniense</i> Vollesen	VU	3.1	2015
<i>Isoglossa anisophylla</i> Brummitt	EN	3.1	2015
<i>Isoglossa asystasioides</i> I.Darbysh. & Ensermu	CR	3.1	2015
<i>Isoglossa bondwaensis</i> I.Darbysh.	EN	3.1	2015
<i>Isoglossa candelabrum</i> Lindau	EN	3.1	2015
<i>Isoglossa faulknerae</i> I.Darbysh.	EN	3.1	2015
<i>Isoglossa oreacanthoides</i> Mildbr.	EN	3.1	2015

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Isoglossa substrobilina</i> C.B. Clarke subsp. <i>tenuispicata</i> I. Darbysh.	VU	3.1	2015
<i>Isoglossa variegata</i> I. Darbysh.	EN	3.1	2015
<i>Isoglossa ventricosa</i> I. Darbysh.	EN	3.1	2015
<i>Justicia beloperonoides</i> Lindau	EN	3.1	2015
<i>Justicia brevipila</i> Hedrén	VU	3.1	2015
<i>Justicia breviracemosa</i> Vollesen	EN	3.1	2015
<i>Justicia callopoidea</i> Vollesen	CR	3.1	2015
<i>Justicia drummondii</i> Vollesen	CR	3.1	2015
<i>Justicia euosmia</i> Lindau	EN	3.1	2015
<i>Justicia faulknerae</i> Vollesen	EN	3.1	2015
<i>Justicia galeata</i> Hedrén	VU	3.1	2015
<i>Justicia heterotricha</i> Mildbr.	VU	3.1	2015
<i>Justicia kiborianensis</i> (Hedrén) Vollesen	VU	3.1	2015
<i>Justicia lukei</i> Vollesen	VU	3.1	2015
<i>Justicia migeodii</i> (S. Moore) V.A.W. Graham	VU	3.1	2015
<i>Justicia mkungweensis</i> Vollesen	CR	3.1	2015
<i>Justicia rodgersii</i> Vollesen	VU	3.1	2015
<i>Justicia roseobracteata</i> Vollesen	EN	3.1	2015
<i>Justicia sulphuriflora</i> Hedrén	VU	3.1	2015
<i>Justicia ukagurensis</i> Hedrén	VU	3.1	2015
<i>Lepidagathis plantaginea</i> Mildbr.	EN	3.1	2015
<i>Megalochlamys tanaensis</i> Vollesen	CR	3.1	2015
<i>Mimulopsis macrantha</i> (Mildbr.) E. Tripp	EN	3.1	2015
<i>Mimulopsis volleseniana</i> E. Tripp & T.F. Daniel	VU	3.1	2015
<i>Neuracanthus tephrophyllus</i> Bidgood & Brummitt subsp. <i>tsavoensis</i> Bidgood & Brummitt	EN	3.1	2015
<i>Phaulopsis pulchella</i> M. Manktelow	EN	3.1	2015
<i>Pseuderanthemum campylosiphon</i> Mildbr.	VU	3.1	2015
<i>Pseuderanthemum usambarense</i> Vollesen	VU	3.1	2015
Achariaceae			
<i>Dasylepis integra</i> Warb.	VU	2.3	1998
Anacardiaceae			
<i>Rhus brenanii</i> Kokwaro	EN	2.3	1998
<i>Sorindeia calantha</i> Mildbr.	CR	2.3	1998
Annonaceae			
<i>Annickia kummerae</i> (Engl. & Diels) Setten & Maas	EN	3.1	2009
<i>Artabotrys modestus</i> Diels subsp. <i>modestus</i>	CR	3.1	2009
<i>Artabotrys rupestris</i> Diels	EN	3.1	2009
<i>Asteranthe lutea</i> Vollesen	EN	3.1	2009
<i>Greenwayodendron suaveolens</i> (Engl. & Diels) Verdc. subsp. <i>usambaricum</i> Verdc.	EN	3.1	2009
<i>Huberantha stuhlmannii</i> (Engl.) Chaowasku	VU	3.1	2009
<i>Huberantha tanganyikensis</i> (Vollesen) Chaowasku	EN	3.1	2009

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Huberantha verdcourtii</i> (Vollesen) Chaowasku	EN	3.1	2009
<i>Isolona cauliflora</i> Verdc.	EN	3.1	2009
<i>Isolona heinsenii</i> Engl. & Diels	EN	3.1	2009
<i>Isolona linearis</i> Couvreur	VU	3.1	2009
<i>Mkilua fragrans</i> Verdc.	VU	3.1	2009
<i>Monanthataxis dictyoneura</i> (Diels) Verdc.	EN	3.1	2009
<i>Monanthataxis discolor</i> (Diels) Verdc.	EN	3.1	2013
<i>Monanthataxis discrepantinervia</i> Verdc.	EN	3.1	2009
<i>Monanthataxis faulknerae</i> Verdc.	EN	3.1	2009
<i>Monanthataxis trichantha</i> (Diels) Verdc.	VU	3.1	2009
<i>Monodora carolinae</i> Couvreur	EN	3.1	2009
<i>Monodora hastipetala</i> Couvreur	CR	3.1	2009
<i>Polyceratocarpus scheffleri</i> Engl. & Diels	EN	3.1	2009
<i>Sanrafaelia ruffonammari</i> Verdc.	EN	3.1	2009
<i>Toussaintia orientalis</i> Verdc.	EN	3.1	2009
<i>Toussaintia patriciae</i> Q.Luke & Derooin	EN	3.1	2009
<i>Uvaria decidua</i> Diels	CR	3.1	2009
<i>Uvaria dependens</i> Engl. & Diels	EN	3.1	2009
<i>Uvaria faulknerae</i> Verdc.	EN	3.1	2009
<i>Uvaria lungonyana</i> Vollesen	VU	3.1	2009
<i>Uvaria pandensis</i> Verdc.	EN	3.1	2009
<i>Uvaria puguensis</i> D.M.Johnson	CR	3.1	2009
<i>Uvaria tanzaniae</i> Verdc.	VU	3.1	2009
<i>Uvari dendron gorgonis</i> Verdc.	EN	3.1	2009
<i>Uvari dendron kirkii</i> Verdc.	VU	3.1	2009
<i>Uvari dendron oligocarpum</i> Verdc.	EN	3.1	2009
<i>Uvari dendron pycnophyllum</i> (Diels) R.E.Fr.	EN	3.1	2009
<i>Uvari dendron usambarensense</i> R.E.Fr.	EN	3.1	2009
<i>Uvariopsis bisexualis</i> Verdc.	EN	3.1	2009
<i>Xylopi a arenaria</i> Engl.	VU	3.1	2009
<i>Xylopi a collina</i> Diels	EN	3.1	2009
<i>Xylopi a mwasumbii</i> D.M.Johnson	EN	3.1	2009
Aquifoliaceae			
<i>Ilex mitis</i> (L.) Radlk. var. <i>schliebenii</i> Loes.	VU	2.3	1998
Araliaceae			
<i>Polyscias albersiana</i> Harms	EN	3.1	2009
<i>Polyscias stuhlmannii</i> Harms	EN	3.1	2009
<i>Schefflera lukwangulensis</i> (Tennant) Bernardi	EN	3.1	2009
Asclepiadaceae			
<i>Pentarrhinum ledermannii</i> (Schltr.) Goyder & Liede	VU	3.1	2014
Bignoniaceae			
<i>Fernandoa lutea</i> (Verdc.) Bidgood	EN	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Boraginaceae			
<i>Ehretia glandulosissima</i> Verdc.	EN	2.3	1998
Buxaceae			
<i>Buxus obtusifolia</i> (Mildbr.) Hutch.	VU	2.3	1998
Canellaceae			
<i>Warburgia elongata</i> Verdc.	EN	2.3	1998
<i>Warburgia stuhlmannii</i> Engl.	VU	3.1	2013
<i>Warburgia ugandensis</i> Sprague subsp. <i>longifolia</i> Verdc.	VU	2.3	1998
Celastraceae			
<i>Platypterotheca tanganyikensis</i> Dunkley & Brenan	CR	2.3	1998
Chrysobalanaceae			
<i>Hirtella zanzibarica</i> Oliv. subsp. <i>megacarpa</i> (R.A.Graham) Prance	VU	2.3	1998
<i>Magnistipula butayi</i> De Wild. subsp. <i>greenwayi</i> (Brenan) F.White	VU	2.3	1998
Combretaceae			
<i>Combretum tenuipetiolatum</i> Wickens	CR	2.3	1998
Convolvulaceae			
<i>Ipomoea flavivillosa</i> Schulze-Menz	EN	3.1	2013
Dipterocarpaceae			
<i>Monotes lutambensis</i> Verdc.	EN	2.3	1998
Ebenaceae			
<i>Diospyros amaniensis</i> Gürke	VU	2.3	1998
<i>Diospyros greenwayi</i> F.White	VU	2.3	1998
<i>Diospyros magogoana</i> F.White	EN	2.3	1998
<i>Diospyros shimbaensis</i> F.White	EN	2.3	1998
Euphorbiaceae			
<i>Aristogeitonia monophylla</i> Airy Shaw	VU	2.3	1998
<i>Croton dictyophlebodes</i> Radcl.-Sm.	VU	2.3	1998
<i>Croton jatrophioides</i> Pax	VU	2.3	1998
<i>Croton longipedicellatus</i> J.Léonard subsp. <i>austrotanzanicus</i> Radcl.-Sm.	VU	2.3	1998
<i>Drypetes gerrardinoides</i> Radcl.-Sm.	VU	2.3	1998
<i>Drypetes sclerophylla</i> Mildbr.	VU	2.3	1998
<i>Drypetes usambarica</i> (Pax) Hutch. var. <i>mirimae</i> Radcl.-Sm.	VU	2.3	1998
<i>Drypetes usambarica</i> (Pax) Hutch. var. <i>rugulosa</i> Radcl.-Sm.	CR	2.3	1998
<i>Drypetes usambarica</i> (Pax) Hutch. var. <i>stylosa</i> Radcl.-Sm.	EN	2.3	1998
<i>Drypetes usambarica</i> (Pax) Hutch. var. <i>trichogyna</i> Radcl.-Sm.	VU	2.3	1998
<i>Drypetes usambarica</i> (Pax) Hutch. var. <i>usambarica</i>	VU	2.3	1998
<i>Euphorbia biselegans</i> Bruyns	VU	2.3	1998
<i>Euphorbia greenwayi</i> P.R.O.Bally & S.Carter	EN	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Euphorbia greenwayi</i> P.R.O. Bally & S.Carter subsp. <i>breviaculeata</i> S.Carter	EN	3.1	2013
<i>Euphorbia greenwayi</i> P.R.O.Bally & S.Carter subsp. <i>greenwayi</i>	CR	3.1	2013
<i>Euphorbia lividiflora</i> L.C.Leach	VU	2.3	1998
<i>Euphorbia neoarborescens</i> Bruyns	VU	2.3	1998
<i>Euphorbia tanaensis</i> P.R.O.Bally & S.Carter	CR	2.3	1998
<i>Euphorbia wakefieldii</i> N.E.Br.	EN	2.3	1998
<i>Julbernardia hildebrandtii</i> Radcl.-Sm.	VU	3.1	2013
<i>Julbernardia hildebrandtii</i> Radcl.-Sm. var. <i>hildebrandtii</i>	EN	3.1	2013
<i>Lingelsheimia sylvestris</i> (Radcl.-Sm.) Radcl.-Sm.	EN	2.3	1998
<i>Macaranga conglomerata</i> Brenan	VU	2.3	1998
<i>Meineckia nguruensis</i> (Radcl.-Sm.) Radcl.-Sm.	VU	2.3	1998
<i>Meineckia ovata</i> (E.A.Bruce) Radcl.-Sm.	VU	2.3	1998
<i>Meineckia paxii</i> Brunel ex Radcl.-Sm.	VU	2.3	1998
<i>Meineckia stipularis</i> (Radcl.-Sm.) Brunel ex Radcl.-Sm.	VU	2.3	1998
<i>Micrococca scariosa</i> Prain	VU	2.3	1998
<i>Mildbraedia carpinifolia</i> (Pax) Hutch.	VU	2.3	1998
<i>Necepsia castaneifolia</i> (Baill.) Bouchot & J.Léonard subsp. <i>kimbozensis</i> (Radcl.-Sm.) Bouchot & J.Léonard	EN	2.3	1998
<i>Paranecepsia alchorneifolia</i> Radcl.-Sm.	VU	2.3	1998
<i>Phyllanthus kaessneri</i> Hutch. var. <i>kaessneri</i>	VU	3.1	2013
<i>Pycnocomma littoralis</i> Pax	VU	2.3	1998
<i>Pycnocomma macrantha</i> Pax ex Engl.	VU	2.3	1998
<i>Shirakiopsis trilocularis</i> (Pax & K.Hoffm.) Esser	VU	2.3	1998
<i>Sibangea pleioneura</i> Radcl.-Sm.	VU	2.3	1998
<i>Suregada lithoxyla</i> (Pax & K.Hoffm.) Croizat	VU	2.3	1998
<i>Tannodia swynnertonii</i> (S.Moore) Prain	VU	2.3	1998
<i>Tetrorchidium ulugurense</i> Verdc.	VU	2.3	1998
Gesneriaceae			
<i>Saintpaulia goetzeana</i> Engl.	EN	3.1	2014
<i>Saintpaulia inconspicua</i> B.L.Burtt	EN	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>grandifolia</i> (B.L.Burtt) I.Darbysh.	CR	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>grotei</i> (Engl.) I.Darbysh.	VU	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>ionantha</i>	VU	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>mafiensis</i> I.Darbysh. & Pócs	VU	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>nitida</i> (B.L.Burtt) I.Darbysh.	EN	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>occidentalis</i> (B.L.Burtt) I.Darbysh.	VU	3.1	2014
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>orbicularis</i>	EN	3.1	2014

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
(B.L.Burtt) I.Darbysh.			
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>pendula</i>	VU	3.1	2014
(B.L.Burtt) I.Darbysh.			
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>rupicola</i>	CR	3.1	2014
(B.L.Burtt) I.Darbysh.			
<i>Saintpaulia ionantha</i> H.Wendl. subsp. <i>velutina</i>	EN	3.1	2014
(B.L.Burtt) I.Darbysh.			
<i>Saintpaulia pusilla</i> Engl.	VU	3.1	2014
<i>Saintpaulia shumensis</i> B.L.Burtt	EN	3.1	2014
<i>Saintpaulia teitensis</i> B.L.Burtt	CR	3.1	2014
<i>Saintpaulia ulugurensis</i> Haston	CR	3.1	2014
<i>Saintpaulia watkinsii</i> Haston	CR	3.1	2014
<i>Streptocarpus albus</i> (E.A.Bruce) I.Darbysh.	EN	3.1	2014
<i>Streptocarpus albus</i> (E.A.Bruce) I.Darbysh. subsp. <i>albus</i>	EN	3.1	2014
<i>Streptocarpus albus</i> (E.A.Bruce) I.Darbysh. subsp. <i>edwardsii</i> (Weigand) I.Darbysh.	EN	3.1	2014
<i>Streptocarpus bambuseti</i> B.L.Burtt	EN	3.1	2014
<i>Streptocarpus bullatus</i> Mansf.	EN	3.1	2014
<i>Streptocarpus burtianus</i> Pócs	CR	3.1	2014
<i>Streptocarpus compressus</i> B.L.Burtt	VU	3.1	2014
<i>Streptocarpus euanthus</i> Mansf.	CR	3.1	2014
<i>Streptocarpus gonjaensis</i> Engl.	EN	3.1	2014
<i>Streptocarpus heckmannianus</i> (Engl.) I.Darbysh.	EN	3.1	2014
<i>Streptocarpus heckmannianus</i> (Engl.) I.Darbysh. subsp. <i>gracilis</i> (E.A.Bruce) I.Darbysh.	EN	3.1	2014
<i>Streptocarpus heckmannianus</i> (Engl.) I.Darbysh. subsp. <i>heckmannianus</i>	EN	3.1	2014
<i>Streptocarpus holstii</i> Engl.	VU	3.1	2014
<i>Streptocarpus kimbozanus</i> B.L.Burtt	CR	3.1	2014
<i>Streptocarpus kungwensis</i> Hilliard & B.L.Burtt	VU	3.1	2014
<i>Streptocarpus parensis</i> B.L.Burtt	VU	3.1	2014
<i>Streptocarpus schliebenii</i> Mansf.	VU	3.1	2014
<i>Streptocarpus stomandrus</i> B.L.Burtt	EN	3.1	2014
<i>Streptocarpus subscandens</i> (B.L.Burtt) I.Darbysh.	EN	3.1	2014
<i>Streptocarpus thysanotus</i> Hilliard & B.L.Burtt	CR	3.1	2014
Guttiferae			
<i>Allanblackia ulugurensis</i> Engl.	VU	2.3	1998
<i>Garcinia acutifolia</i> N.Robson	VU	2.3	1998
<i>Garcinia bifasciculata</i> N.Robson	EN	2.3	1998
<i>Garcinia semseii</i> Verdc.	VU	2.3	1998
<i>Garcinia tanzaniensis</i> Verdc.	CR	3.1	2013
<i>Mammea usambarensis</i> Verdc.	VU	2.3	1998
<i>Vismia pauciflora</i> Milne-Redh.	EN	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Hamamelidaceae			
<i>Trichocladus goetzei</i> Engl.	VU	2.3	1998
Hydrostachyaceae			
<i>Hydrostachys angustisecta</i> Engl.	EN	3.1	2013
Icacinaceae			
<i>Alsodeiopsis schumannii</i> Engl.	VU	2.3	1998
Labiatae			
<i>Plectranthus orbicularis</i> Gürke	EN	3.1	2013
<i>Plectranthus platyphyllus</i> A.J.Paton	EN	3.1	2013
<i>Plectranthus scopulicola</i> A.J.Paton	CR	3.1	2013
<i>Plectranthus strangulatus</i> A.J.Paton	EN	3.1	2013
<i>Plectranthus trullatus</i> A.J.Paton	VU	3.1	2013
<i>Tinnea mirabilis</i> (Bullock) Vollesen	EN	3.1	2013
<i>Tinnea vesiculosa</i> Gürke	VU	3.1	2013
Lauraceae			
<i>Beilschmiedia kweo</i> (Mildbr.) Robyns & R.Wilczek	VU	2.3	1998
<i>Ocotea kenyensis</i> (Chiov.) Robyns & R.Wilczek	VU	2.3	1998
Leguminosae			
<i>Adenopodia rotundifolia</i> (Harms) Brenan	VU	2.3	1998
<i>Angylocalyx braunii</i> Harms	VU	2.3	1998
<i>Baikiaea ghesquiereana</i> J.Léonard	EN	2.3	1998
<i>Baphia kirkii</i> Baker	VU	2.3	1998
<i>Baphia macrocalyx</i> Harms	VU	3.1	2013
<i>Baphia pauloi</i> Brummitt	EN	2.3	1998
<i>Baphia puguensis</i> Brummitt	EN	3.1	2013
<i>Baphia punctulata</i> Harms subsp. <i>punctulata</i>	VU	2.3	1998
<i>Baphia semseiana</i> Brummitt	VU	2.3	1998
<i>Bauhinia loeseneriana</i> Harms	VU	2.3	1998
<i>Bauhinia mombassae</i> Vatke	EN	2.3	1998
<i>Berlinia orientalis</i> Brenan	VU	2.3	1998
<i>Bussea eggelingii</i> Verdc.	EN	2.3	1998
<i>Cordyla densiflora</i> Milne-Redh.	VU	3.1	2013
<i>Craibia brevicaudata</i> (Vatke) Dunn subsp. <i>schliebenii</i> (Harms) J.B.Gillett	VU	2.3	1998
<i>Crotalaria hemsleyi</i> Milne-Redh.	EN	3.1	2013
<i>Crotalaria laburnoides</i> Klotzsch var. <i>nudicarpa</i> Polhill	EN	3.1	2012
<i>Crotalaria schliebenii</i> Polhill	VU	3.1	2013
<i>Cynometra brachyrrhachis</i> Harms	VU	2.3	1998
<i>Cynometra engleri</i> Harms	VU	2.3	1998
<i>Cynometra filifera</i> Harms	CR	2.3	1998
<i>Cynometra gillmanii</i> J.Léonard	CR	2.3	1998
<i>Cynometra longipedicellata</i> Harms	VU	2.3	1998
<i>Cynometra lukei</i> Beentje	EN	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Cynometra suaheliensis</i> (Taub.) Baker f.	VU	2.3	1998
<i>Cynometra ulugurensis</i> Harms	EN	2.3	1998
<i>Cynometra webberi</i> Baker f.	VU	2.3	1998
<i>Dalbergia acariiantha</i> Harms	VU	2.3	1998
<i>Dalbergia gloveri</i> Q.Luke, ined.	EN	3.1	2013
<i>Dalbergia vacciniifolia</i> Vatke	VU	2.3	1998
<i>Dialium holtzii</i> Harms	VU	2.3	1998
<i>Englerodendron usambarensis</i> Harms	VU	2.3	1998
<i>Erythrina haerdii</i> Verdc.	VU	3.1	2012
<i>Erythrina schliebenii</i> Harms	CR	3.1	2012
<i>Gigasiphon macrosiphon</i> (Harms) Brenan	EN	2.3	1998
<i>Guibourtia schliebenii</i> (Harms) J.Léonard	VU	3.1	2013
<i>Intsia bijuga</i> (Colebr.) Kuntze	VU	2.3	1998
<i>Isobertinia scheffleri</i> (Harms) Greenway	VU	2.3	1998
<i>Julbernardia magnistipulata</i> (Harms) Troupin	VU	2.3	1998
<i>Kotschya platyphylla</i> (Brenan) Verdc.	VU	2.3	1998
<i>Kotschya recurvifolia</i> (Taub.) F.White subsp. <i>longifolia</i> Verdc.	VU	3.1	2012
<i>Microcharis microcharoides</i> (Taub.) Schrire var. <i>latistipulata</i> (J.B.Gillett) Schrire	EN	3.1	2012
<i>Millettia bussei</i> Harms	VU	2.3	1998
<i>Millettia elongatistyla</i> J.B.Gillett	VU	3.1	2012
<i>Millettia eriocarpa</i> Dunn	VU	2.3	1998
<i>Millettia impressa</i> Harms subsp. <i>goetzeana</i> (Harms) J.B.Gillett	VU	3.1	2013
<i>Millettia micans</i> Taub.	EN	3.1	2013
<i>Millettia oblata</i> Dunn subsp. <i>oblata</i>	VU	2.3	1998
<i>Millettia oblata</i> Dunn subsp. <i>teitensis</i> J.B.Gillett	VU	2.3	1998
<i>Millettia sacleuxii</i> Dunn	VU	2.3	1998
<i>Millettia schliebenii</i> Harms	VU	2.3	1998
<i>Millettia semseii</i> J.B.Gillett	VU	2.3	1998
<i>Millettia sericantha</i> Harms	VU	2.3	1998
<i>Newtonia erlangeri</i> (Harms) Brenan	EN	3.1	2012
<i>Newtonia paucijuga</i> (Harms) Brenan	VU	2.3	1998
<i>Ormocarpum sennooides</i> (Willd.) DC. subsp. <i>zanzibaricum</i> Brenan & J.B.Gillett	VU	2.3	1998
<i>Oxystigma msoo</i> Harms	VU	2.3	1998
<i>Platysepalum inopinatum</i> Harms	VU	3.1	2013
<i>Pterocarpus mildbraedii</i> Harms subsp. <i>usambarensis</i> (Verdc.) Polhill	VU	2.3	1998
<i>Sesbania speciosa</i> Taub.	VU	3.1	2012
<i>Stuhlmannia moavi</i> Taub.	VU	2.3	1998
<i>Tessmannia densiflora</i> Harms	EN	2.3	1998
<i>Tessmannia martiniana</i> Harms var. <i>martiniana</i>	VU	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Zenkerella capparidacea</i> (Taub.) J.Léonard subsp. <i>capparidacea</i>	VU	2.3	1998
<i>Zenkerella capparidacea</i> (Taub.) J.Léonard subsp. <i>grotei</i> (Harms) Temu	VU	2.3	1998
<i>Zenkerella egregia</i> J.Léonard	VU	2.3	1998
<i>Zenkerella perplexa</i> Temu	VU	2.3	1998
Loranthaceae			
<i>Agelanthus atrocoronatus</i> Polhill & Wiens	EN	3.1	2013
<i>Agelanthus igneus</i> (Danser) Polhill & Wiens	EN	3.1	2013
<i>Agelanthus longipes</i> (Baker & Sprague) Polhill & Wiens	VU	3.1	2013
<i>Agelanthus microphyllus</i> Polhill & Wiens	EN	3.1	2013
<i>Agelanthus pennatulus</i> (Sprague) Polhill & Wiens	VU	3.1	2013
<i>Agelanthus rondensis</i> (Engl.) Polhill & Wiens	CR	3.1	2013
<i>Agelanthus uhehensis</i> (Engl.) Polhill & Wiens	EN	3.1	2013
<i>Agelanthus validus</i> Polhill & Wiens	EN	3.1	2013
<i>Englerina drummondii</i> Balle ex Polhill & Wiens	VU	3.1	2013
<i>Englerina heckmanniana</i> (Engl.) Polhill & Wiens subsp. <i>heckmanniana</i>	VU	3.1	2013
<i>Englerina longiflora</i> Polhill & Wiens	EN	3.1	2013
<i>Englerina macilenta</i> Polhill & Wiens	EN	3.1	2013
<i>Englerina ramulosa</i> (Sprague) Polhill & Wiens	EN	3.1	2013
<i>Englerina triplinervia</i> (Baker & Sprague) Polhill & Wiens	VU	3.1	2013
<i>Erianthemum alveatum</i> (Sprague) Danser	VU	3.1	2013
<i>Erianthemum lindense</i> (Sprague) Danser	VU	3.1	2013
<i>Erianthemum occultum</i> (Sprague) Danser	VU	3.1	2013
<i>Oncella curviramea</i> (Engl.) Danser	VU	3.1	2013
<i>Oncella gracilis</i> Polhill & Wiens	VU	3.1	2013
<i>Oncella schliebeniana</i> Polhill & Wiens	EN	3.1	2013
<i>Taxillus wiensii</i> Polhill	CR	3.1	2013
Lythraceae			
<i>Ammannia aurita</i> (Koehne) S.A.Graham & Gandhi	EN	3.1	2013
<i>Ammannia linearis</i> (Hiern) S.A.Graham & Gandhi	EN	3.1	2013
<i>Ammannia mauritiana</i> S.A.Graham & Gandhi	EN	3.1	2013
<i>Ammannia maxima</i> (Koehne) S.A.Graham & Gandhi	EN	3.1	2013
<i>Ammannia parkeri</i> (Verdc.) S.A.Graham & Gandhi	EN	3.1	2013
<i>Ammannia parkeri</i> (Verdc.) S.A.Graham & Gandhi var. <i>longifolia</i> (Verdc.) S.A.Graham & Gandhi	VU	3.1	2013
<i>Ammannia parkeri</i> (Verdc.) S.A.Graham & Gandhi var. <i>parkeri</i>	EN	3.1	2013
<i>Ammannia pedicellata</i> (Hiern) S.A.Graham & Gandhi	VU	3.1	2013
<i>Ammannia stuhlmannii</i> (Koehne) S.A.Graham & Gandhi	EN	3.1	2013
Malpighiaceae			
<i>Acridocarpus alopecurus</i> Sprague var.	EN	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>machaeropterus</i> Nied.			
<i>Acridocarpus congestus</i> Launert	EN	3.1	2013
<i>Acridocarpus pauciglandulosus</i> Launert	EN	3.1	2013
<i>Acridocarpus scheffleri</i> Engl.	EN	3.1	2013
<i>Triaspis schliebenii</i> A.Ernst	CR	3.1	2013
Malvaceae			
<i>Hibiscus greenwayi</i> Baker f.	VU	3.1	2013
<i>Hibiscus holstii</i> Mwachala	VU	3.1	2013
<i>Hibiscus masasianus</i> Mwachala	VU	3.1	2013
Melastomataceae			
<i>Dissotis aprica</i> Engl.	EN	3.1	2013
<i>Dissotis arborescens</i> A.Fern & R.Fern.	EN	3.1	2013
<i>Gravesia hylophila</i> (Gilg) A.Fern & R.Fern	EN	3.1	2013
<i>Gravesia pulchra</i> (Gilg) Jacq.-Fél. ex Wickens	VU	3.1	2013
<i>Gravesia pulchra</i> (Gilg) Jacq.-Fél. ex Wickens var. <i>glandulosa</i> (A.Fern & R.Fern.) Jacq.-Fél. ex Wickens	EN	3.1	2013
<i>Gravesia pulchra</i> (Gilg) Jacq.-Fél. ex Wickens var. <i>pulchra</i>	EN	3.1	2013
<i>Gravesia riparia</i> A.Fern & R.Fern.	EN	3.1	2013
<i>Lijndenia brenanii</i> (A.Fern & R.Fern.) Jacq.-Fél.	CR	3.1	2013
<i>Lijndenia procteri</i> (A.Fern. & R.Fern.) Borhidi	EN	3.1	2013
<i>Memecylon buxoides</i> Wickens	CR	3.1	2013
<i>Memecylon cogniauxii</i> Gilg	VU	3.1	2013
<i>Memecylon dryadum</i> R.D.Stone, ined.	EN	3.1	2013
<i>Memecylon fragrans</i> A.Fern & R.Fern.	VU	3.1	2013
<i>Memecylon magnifoliatum</i> A.Fern & R.Fern.	EN	3.1	2013
<i>Memecylon myrtilloides</i> Markgr.	VU	3.1	2013
<i>Memecylon semseii</i> A.Fern & R.Fern.	EN	3.1	2013
<i>Memecylon teitense</i> Wickens	VU	3.1	2013
<i>Memecylon verruculosum</i> Brenan	VU	3.1	2013
<i>Tristemma schliebenii</i> Markgr.	EN	3.1	2013
<i>Warneckea amaniensis</i> Gilg	VU	3.1	2013
<i>Warneckea maritima</i> (A.Fern & R.Fern.) R.D.Stone & Luke, ined.	EN	3.1	2013
<i>Warneckea melindiensis</i> (A.Fern. & R.Fern.) R.D.Stone & Q.Luke	EN	3.1	2013
<i>Warneckea mouririifolia</i> (Brenan) Borhidi	VU	3.1	2013
<i>Warneckea schliebenii</i> (Markgr.) Jacq.-Fél.	EN	3.1	2013
Meliaceae			
<i>Khaya anthotheca</i> (Welw.) C.DC.	VU	2.3	1998
<i>Turraea kimbozensis</i> Cheek	EN	3.1	2013
<i>Turraea mombassana</i> C.DC. subsp. <i>schliebenii</i> (Harms) Styles & F.White	CR	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
Melianthaceae			
<i>Bersama rosea</i> Hoyle	VU	2.3	1998
Menispermaceae			
<i>Anisocycla blepharosepala</i> Diels subsp. <i>tanzaniensis</i> Vollesen	VU	3.1	2013
<i>Cissampelos nigrescens</i> Diels	VU	3.1	2013
<i>Cissampelos nigrescens</i> Diels var. <i>cardiophylla</i> Troupin	CR	3.1	2013
<i>Cissampelos nigrescens</i> Diels var. <i>nigrescens</i>	VU	3.1	2013
Montiniaceae			
<i>Grevea eggelingii</i> Milne-Redh. var. <i>echinocarpa</i> Mendes	EN	3.1	2013
<i>Grevea eggelingii</i> Milne-Redh. var. <i>keniensis</i> (Verdc.) Verdc.	EN	3.1	2013
Moraceae			
<i>Dorstenia bicaudata</i> Peter	CR	3.1	2013
<i>Dorstenia dionga</i> Engl.	EN	3.1	2013
<i>Dorstenia holstii</i> Engl.	VU	3.1	2013
<i>Dorstenia holstii</i> Engl. var. <i>holstii</i>	EN	3.1	2013
<i>Dorstenia holstii</i> Engl. var. <i>longestipulata</i> Hijman	VU	3.1	2013
<i>Dorstenia tayloriana</i> Rendle var. <i>tayloriana</i>	VU	3.1	2013
<i>Dorstenia tenuiradiata</i> Mildbr.	VU	3.1	2013
<i>Dorstenia ulugurensis</i> Engl.	VU	3.1	2013
<i>Ficus faulkneriana</i> C.C.Berg	VU	3.1	2013
Myristicaceae			
<i>Cephalosphaera usambarensis</i> Warb.	VU	2.3	1998
Myrtaceae			
<i>Eugenia mufindiensis</i> Verdc.	VU	3.1	2013
<i>Eugenia scheffleri</i> Engl. & Brehmer	CR	3.1	2013
<i>Eugenia tanaensis</i> Verdc.	EN	3.1	2013
<i>Eugenia toxanatica</i> Verdc.	VU	3.1	2013
<i>Syzygium cordatum</i> Hochst. subsp. <i>shimbaense</i> Verdc.	EN	3.1	2013
<i>Syzygium micklethwaitii</i> Verdc. subsp. <i>micklethwaitii</i>	VU	3.1	2013
<i>Syzygium micklethwaitii</i> Verdc. subsp. <i>subcordatum</i> Verdc.	VU	3.1	2013
<i>Syzygium parvulum</i> Mildbr.	EN	3.1	2013
Ochnaceae			
<i>Campylospermum scheffleri</i> (Engl. & Gilg) Farron	VU	2.3	1998
<i>Ouratea schusteri</i> Engl.	VU	2.3	1998
Olacaceae			
<i>Octoknema orientalis</i> Mildbr.	VU	2.3	1998
Passifloraceae			
<i>Adenia dolichosiphon</i> Harms	EN	3.1	2013
<i>Adenia kigogoensis</i> Hearn	EN	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Adenia racemosa</i> W.J.de Wilde	EN	3.1	2013
<i>Adenia schliebenii</i> Harms	EN	3.1	2013
<i>Basananthe zanzibarica</i> (Mast.) W.J.de Wilde	VU	3.1	2013
<i>Paropsia grewoides</i> Welw. ex Mast. var. <i>orientalis</i> Sleumer	EN	3.1	2013
Pittosporaceae			
<i>Pittosporum goetzei</i> Engl.	VU	2.3	1998
Rhamnaceae			
<i>Lasiodiscus pervillei</i> Baill. subsp. <i>ferrugineus</i> (Verdc.) Figueiredo	VU	2.3	1998
<i>Ziziphus robertsoniana</i> Beentje	EN	2.3	1998
Rosaceae			
<i>Prunus africana</i> (Hook.f.) Kalkman	VU	2.3	1998
Rubiaceae			
<i>Afrocanthium keniense</i> (Bullock) Lantz	VU	2.3	1998
<i>Afrocanthium kilifiense</i> (Bridson) Lantz	VU	2.3	1998
<i>Afrocanthium shabanii</i> (Bridson) Lantz	VU	2.3	1998
<i>Afrocanthium siebenlistii</i> (K. Krause) Lantz	VU	2.3	1998
<i>Afrocanthium vollesenii</i> (Bridson) Lantz	VU	2.3	1998
<i>Aorantho penduliflora</i> (K.Schum.) Somers	VU	2.3	1998
<i>Bertiera pauloi</i> Verdc.	VU	2.3	1998
<i>Canthium impressinervium</i> Bridson	VU	2.3	1998
<i>Canthium oligocarpum</i> Hiern subsp. <i>intermedium</i> Bridson	VU	2.3	1998
<i>Canthium robynsianum</i> Bullock	VU	2.3	1998
<i>Canthium rondoense</i> Bridson	EN	2.3	1998
<i>Chassalia albiflora</i> K.Krause	VU	2.3	1998
<i>Coffea costatifructa</i> Bridson	VU	2.3	1998
<i>Coffea fadenii</i> Bridson	VU	2.3	1998
<i>Coffea mongensis</i> Bridson	VU	2.3	1998
<i>Coffea pocsii</i> Bridson	VU	2.3	1998
<i>Coffea pseudozanguebariae</i> Bridson	VU	2.3	1998
<i>Coffea schliebenii</i> Bridson	VU	3.1	2014
<i>Coffea zanguebariae</i> Lour.	VU	2.3	1998
<i>Craterispermum longipedunculatum</i> Verdc.	VU	2.3	1998
<i>Cuviera migeodii</i> Verdc.	VU	2.3	1998
<i>Cuviera schliebenii</i> Verdc.	EN	2.3	1998
<i>Cuviera tomentosa</i> Verdc.	VU	2.3	1998
<i>Didymosalpinx callianthus</i> J.E.Burrows & S.M.Burrows	EN	3.1	2014
<i>Empogona acidophylla</i> (Robbr.) Tosh & Robbr.	VU	2.3	1998
<i>Empogona ovalifolia</i> (Hiern) Tosh & Robbr. var. <i>glabrata</i> (Oliv.) Tosh & Robbr.	VU	2.3	1998
<i>Empogona ovalifolia</i> (Hiern) Tosh & Robbr. var. <i>taylorii</i> (S. Moore) Tosh & Robbr.	VU	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Gardenia transvenulosa</i> Verdc.	VU	2.3	1998
<i>Heinsenia diervilleoides</i> K.Schum. subsp. <i>mufindiensis</i> (Verdc.) Verdc.	VU	2.3	1998
<i>Ixora albersii</i> K.Schum.	VU	2.3	1998
<i>Ixora scheffleri</i> K.Schum. & K.Krause subsp. <i>scheffleri</i>	VU	2.3	1998
<i>Keetia koritschoneri</i> Bridson	VU	2.3	1998
<i>Keetia purpurascens</i> (Bullock) Bridson	VU	2.3	1998
<i>Kraussia speciosa</i> Bullock	VU	2.3	1998
<i>Lasianthus grandifolius</i> Verdc.	VU	2.3	1998
<i>Lasianthus laxinervis</i> (Verdc.) Jannerup	VU	2.3	1998
<i>Lasianthus pedunculatus</i> E.A.Bruce	VU	2.3	1998
<i>Lasianthus wallacei</i> E.A. Bruce	VU	2.3	1998
<i>Leptactina delagoensis</i> K.Schum. subsp. <i>bussei</i> (K.Schum. & K.Krause) Verdc.	VU	2.3	1998
<i>Leptactina papyrophloea</i> Verdc.	EN	2.3	1998
<i>Morinda asteroscepa</i> K.Schum.	VU	2.3	1998
<i>Multidentia castaneae</i> (Robyns) Bridson & Verdc.	VU	2.3	1998
<i>Multidentia sclerocarpa</i> (K.Schum.) Bridson	VU	2.3	1998
<i>Mussaenda microdonta</i> Wernham subsp. <i>microdonta</i>	VU	2.3	1998
<i>Mussaenda monticola</i> K.Krause var. <i>glabrescens</i> Bridson	VU	2.3	1998
<i>Mussaenda monticola</i> K.Krause var. <i>monticola</i>	VU	2.3	1998
<i>Oxyanthus biflorus</i> J.E.Burrows & S.M.Burrows	EN	3.1	2014
<i>Oxyanthus lepidus</i> S.Moore subsp. <i>kigogoensis</i> Bridson	VU	2.3	1998
<i>Oxyanthus pyriformis</i> (Hochst.) Skeels subsp. <i>longitubus</i> Bridson	EN	2.3	1998
<i>Oxyanthus pyriformis</i> (Hochst.) Skeels subsp. <i>tanganyikensis</i> Bridson	VU	2.3	1998
<i>Pavetta axillipara</i> Bremek.	VU	2.3	1998
<i>Pavetta holstii</i> K.Schum.	VU	2.3	1998
<i>Pavetta johnstonii</i> Bremek. subsp. <i>breviloba</i> Bridson	VU	2.3	1998
<i>Pavetta kyimbilensis</i> Bremek. var. <i>iringensis</i> (Bremek.) Bridson	VU	2.3	1998
<i>Pavetta lindina</i> Bremek.	EN	3.1	2014
<i>Pavetta linearifolia</i> Bremek.	VU	2.3	1998
<i>Pavetta lynesii</i> Bridson	VU	2.3	1998
<i>Pavetta macrosepala</i> Hiern var. <i>macrosepala</i>	VU	2.3	1998
<i>Pavetta macrosepala</i> Hiern var. <i>puberula</i> K.Schum.	VU	2.3	1998
<i>Pavetta manyanguensis</i> Bridson	VU	2.3	1998
<i>Pavetta nitidissima</i> Bridson	VU	2.3	1998
<i>Pavetta sepium</i> K.Schum. var. <i>sepium</i>	VU	2.3	1998
<i>Pavetta sparsipila</i> Bremek.	VU	2.3	1998
<i>Pavetta sphaerobotrys</i> K.Schum. subsp. <i>lanceisepala</i> (Bremek.) Bridson	VU	2.3	1998
<i>Pavetta sphaerobotrys</i> K.Schum. subsp. <i>sphaerobotrys</i>	VU	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Pavetta sphaerobotrys</i> K.Schum. subsp. <i>tanaica</i> (Bremek.) Bridson	VU	2.3	1998
<i>Pavetta subumbellata</i> Bremek. var. <i>subcoriacea</i> Bridson	VU	2.3	1998
<i>Pavetta tarennoides</i> S.Moore	VU	2.3	1998
<i>Pavetta tendagurensis</i> Bremek. var. <i>glabrescens</i> Bridson	VU	2.3	1998
<i>Pavetta tendagurensis</i> Bremek. var. <i>tendagurensis</i>	VU	2.3	1998
<i>Polysphaeria macrantha</i> Brenan	VU	2.3	1998
<i>Psychotria alsophila</i> K.Schum.	VU	2.3	1998
<i>Psychotria crassipetala</i> E.M.A.Petit	VU	2.3	1998
<i>Psychotria cyathicalyx</i> E.M.A.Petit	VU	2.3	1998
<i>Psychotria elachistantha</i> (K.Schum.) E.M.A.Petit	VU	2.3	1998
<i>Psychotria megalopus</i> Verdc.	VU	2.3	1998
<i>Psychotria megistantha</i> E.M.A.Petit	VU	2.3	1998
<i>Psychotria peteri</i> E.M.A.Petit	VU	2.3	1998
<i>Psychotria petiti</i> Verdc.	VU	2.3	1998
<i>Psychotria pseudoplatyphylla</i> E.M.A.Petit	VU	2.3	1998
<i>Psychotria taitensis</i> Verdc.	VU	2.3	1998
<i>Psydrax faulknerae</i> Bridson	VU	2.3	1998
<i>Psydrax kibuwae</i> Bridson	VU	2.3	1998
<i>Psydrax micans</i> (Bullock) Bridson	VU	2.3	1998
<i>Rhipidantha chlorantha</i> (K.Schum.) Bremek.	VU	2.3	1998
<i>Rothmannia macrosiphon</i> (Engl.) Bridson	VU	2.3	1998
<i>Rytigynia adenodonta</i> (K.Schum.) Robyns var. <i>reticulata</i> (Robyns) Verdc.	VU	2.3	1998
<i>Rytigynia binata</i> (K.Schum.) Robyns	VU	2.3	1998
<i>Rytigynia bugoyensis</i> (K. Krause) Verdc. subsp. <i>glabriflora</i> Verdc.	VU	2.3	1998
<i>Rytigynia caudatissima</i> Verdc.	VU	2.3	1998
<i>Rytigynia celastroides</i> (Baill.) Verdc. var. <i>nuda</i> Verdc.	VU	2.3	1998
<i>Rytigynia eickii</i> (K.Schum. & K.Krause) Bullock	VU	2.3	1998
<i>Rytigynia hirsutiflora</i> Verdc.	VU	2.3	1998
<i>Rytigynia lichenoxenos</i> (K.Schum.) Robyns subsp. <i>glabrituba</i> Verdc.	VU	2.3	1998
<i>Rytigynia lichenoxenos</i> (K.Schum.) Robyns subsp. <i>lichenoxenos</i>	VU	2.3	1998
<i>Rytigynia longipedicellata</i> Verdc.	EN	2.3	1998
<i>Rytigynia nodulosa</i> (K.Schum.) Robyns	VU	2.3	1998
<i>Rytigynia pseudolongicaudata</i> Verdc.	VU	2.3	1998
<i>Sericanthe odoratissima</i> (K.Schum.) Robbr. var. <i>odoratissima</i>	VU	2.3	1998
<i>Sericanthe odoratissima</i> (K.Schum.) Robbr. var. <i>ulugurensis</i> Robbr.	VU	2.3	1998
<i>Tapiphyllum schliebenii</i> Verdc.	EN	2.3	1998
<i>Tarenna drummondii</i> Bridson	VU	2.3	1998

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Tarenna luhomeroensis</i> Bridson	VU	2.3	1998
<i>Tarenna quadrangularis</i> Bridson	VU	2.3	1998
<i>Tricalysia anomala</i> E.A.Bruce var. <i>anomala</i>	VU	2.3	1998
<i>Tricalysia anomala</i> E.A.Bruce var. <i>montana</i> Robbr.	VU	2.3	1998
<i>Tricalysia pedicellata</i> Robbr.	VU	2.3	1998
<i>Tricalysia schliebenii</i> Robbr.	VU	2.3	1998
<i>Vangueria bicolor</i> K.Schum.	VU	2.3	1998
<i>Vangueria loranthifolia</i> K.Schum. subsp. <i>loranthifolia</i>	VU	2.3	1998
<i>Vangueria pallidiflora</i> (Bullock) Lantz	VU	2.3	1998
<i>Vangueria randii</i> S.Moore subsp. <i>vollesenii</i> Verdc.	VU	2.3	1998
<i>Vangueria rufescens</i> (E.A.Bruce) Lantz subsp. <i>angustiloba</i> (Verdc.) Lantz	VU	2.3	1998
<i>Vangueriopsis longiflora</i> Verdc.	VU	2.3	1998
Rutaceae			
<i>Calodendrum eickii</i> Engl.	CR	2.3	1998
<i>Diphasiopsis fadenii</i> Kokwaro	VU	2.3	1998
<i>Vepris sansibarensis</i> (Engl.) Mziray	VU	2.3	1998
<i>Zanthoxylum deremense</i> (Engl.) Kokwaro	VU	2.3	1998
<i>Zanthoxylum holtzianum</i> (Engl.) P.G.Waterman	VU	2.3	1998
<i>Zanthoxylum lindense</i> (Engl.) Kokwaro	VU	2.3	1998
Salicaceae			
<i>Casearia engleri</i> Gilg	VU	2.3	1998
<i>Dovyalis xanthocarpa</i> Bullock	VU	2.3	1998
<i>Homalium gracilipes</i> Sleumer	VU	2.3	1998
<i>Populus ilicifolia</i> (Engl.) Rouleau	VU	2.3	1998
Sapindaceae			
<i>Allophylus chirindensis</i> Baker f.	VU	2.3	1998
<i>Camptolepis ramiflora</i> (Taub.) Radlk.	VU	2.3	1998
<i>Chytranthus obliquinervis</i> Radlk.	VU	2.3	1998
Sapotaceae			
<i>Mimusops acutifolia</i> Mildbr.	VU	2.3	1998
<i>Mimusops penduliflora</i> Engl.	EN	2.3	1998
<i>Mimusops riparia</i> Engl.	VU	2.3	1998
<i>Neohemsleya usambarensis</i> T.D.Penn.	VU	2.3	1998
<i>Pouteria alnifolia</i> (Baker) Roberty var. <i>sacleuxii</i> (Lecomte) L. Gaut.	VU	2.3	1998
<i>Pouteria pseudoracemosa</i> (J.H.Hemsl.) L. Gaut.	VU	2.3	1998
<i>Synsepalum kaessneri</i> (Engl.) T.D.Penn.	VU	2.3	1998
<i>Synsepalum subverticillatum</i> (E.A.Bruce) T.D.Penn.	EN	2.3	1998
<i>Vitellariopsis cuneata</i> (Engl.) Aubrév.	VU	2.3	1998
<i>Vitellariopsis kirkii</i> (Baker) Dubard	VU	2.3	1998
Sterculiaceae			
<i>Cola lukei</i> Cheek	EN	3.1	2003

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Cola octoloboides</i> Brenan	EN	2.3	1998
<i>Cola porphyrantha</i> Brenan	EN	2.3	1998
<i>Cola scheffleri</i> K.Schum.	VU	2.3	1998
<i>Dombeya amaniensis</i> Engl.	VU	2.3	1998
<i>Sterculia schliebenii</i> Mildbr.	VU	2.3	1998
Theaceae			
<i>Ternstroemia polypetala</i> Melchior	VU	2.3	1998
Umbelliferae			
<i>Cryptotaenia calycina</i> C.C.Towns.	EN	3.1	2009
<i>Cryptotaenia polygama</i> C.C.Towns.	EN	3.1	2009
<i>Lefebvrea droopii</i> C.C.Towns.	VU	3.1	2009
Verbenaceae			
<i>Clerodendrum lutambense</i> Verdc.	VU	3.1	2014
<i>Karomia gigas</i> (Faden) Verdc.	CR	2.3	1998
<i>Premna hans-joachimii</i> Verdc.	VU	2.3	1998
<i>Premna schliebenii</i> Werderm.	VU	2.3	1998
<i>Premna tanganyikensis</i> Moldenke	VU	2.3	1998
<i>Vitex amaniensis</i> W.Piep.	VU	2.3	1998
<i>Vitex keniensis</i> Turrill	VU	2.3	1998
<i>Vitex zanzibarensis</i> Vatke	VU	2.3	1998
Pinopsida			
Podocarpaceae			
<i>Afrocarpus usambarensis</i> (Pilg.) C.N.Page	EN	3.1	2013
Polypodiopsida			
Cyatheaceae			
<i>Cyathea fadenii</i> Holttum	EN	3.1	2013
<i>Cyathea schliebenii</i> Reimers	EN	3.1	2013
Dennstaedtiaceae			
<i>Blotiella coriacea</i> Verdc.	CR	3.1	2013
<i>Blotiella hieronymi</i> (Kümmerle) Pic.Serm.	EN	3.1	2013
<i>Microlepia fadenii</i> Pic.Serm.	EN	3.1	2013
Grammitidaceae			
<i>Lellingeria strangeana</i> (Pic.Serm.) A.R.Sm. & R.C.Moran	VU	3.1	2013
<i>Zygophlebia major</i> (Reimers) Parris	EN	3.1	2013
Marsileaceae			
<i>Marsilea botryocarpa</i> F.Ballard	EN	3.1	2013
<i>Marsilea fadeniana</i> Launert	CR	3.1	2013
Polypodiaceae			
<i>Pyrrosia liebuschii</i> (Hieron.) Schelpe	EN	3.1	2013
Pteridaceae			
<i>Cheilanthes deboeri</i> Verdc.	EN	3.1	2013
<i>Pteris albersii</i> Hieron.	VU	3.1	2013

Globally Threatened Taxon accepted name	Status 2015	RL version	Year assessed
<i>Pteris albersii</i> Hieron. subsp. <i>albersii</i>	EN	3.1	2013
<i>Pteris mkomaziensis</i> Verdc.	EN	3.1	2013
<i>Vittaria schliebenii</i> Reimers	EN	3.1	2013
Thelypteridaceae			
<i>Pneumatopteris usambarensis</i> Holttum	EN	3.1	2013
Woodsiaceae			
<i>Athyrium rondoense</i> Verdc.	CR	3.1	2013
<i>Callipteris ulugurica</i> Verdc.	EN	3.1	2013
<i>Diplazium pseudoporrectum</i> Hieron.	EN	3.1	2013
<i>Diplazium ulugurense</i> Verdc.	CR	3.1	2013

Site name	Country	IBA	KBA	# threatened taxa 2015	RL vers. 2.3	RL vers. 3.1	Amphibia	Aves	Gastropoda	Insecta	Malacostraca	Mammalia	Reptilia	Plantae
Kaya Chonyi	KE	No	Yes	3	3	0								3
Kaya Dzombo	KE	No	Yes	1	0	1						1		
Kaya Fungo	KE	No	Yes	4	0	4								4
Kaya Gandini	KE	Yes	Yes	7	3	4		2						5
Kaya Gonja	KE	No	Yes	1	1	0								1
Kaya Jibana	KE	No	Yes	15	8	7	1							14
Kaya Kambe	KE	No	Yes	6	5	1							1	5
Kaya Kauma	KE	No	Yes	5	3	2								5
Kaya Kinondo	KE	No	Yes	6	5	1								6
Kaya Kivara	KE	No	Yes	5	4	1								5
Kaya Lunguma	KE	No	Yes	5	3	2								5
Kaya Miungoni	KE	No	Yes	3	2	1								3
Kaya Msambweni	KE	No	Yes	1	0	1								1
Kaya Mtwakara	KE	No	Yes	9	6	3								9
Kaya Muhaka	KE	No	Yes	13	8	5				1				12
Kaya Mwarakaya	KE	No	Yes	1	0	1								1
Kaya Puma	KE	No	Yes	2	1	1								2
Kaya Rabai	KE	No	Yes	16	11	5				1				15
Kaya Ribe	KE	No	Yes	12	9	3								12
Kaya Segá	KE	No	Yes	1	1	0								1
Kaya Teleza	KE	No	Yes	2	2	0								2
Kaya Timbwa	KE	No	No	2	1	1								2
Kaya Tiwi	KE	No	Yes	3	1	2						2		1

Site name	Country	IBA	KBA	# threatened taxa 2015	RL vers. 2.3	RL vers. 3.1	Amphibia	Aves	Gastropoda	Insecta	Malacostraca	Mammalia	Reptilia	Plantae
Pangani (Hale-Makinjumbe)	TZ	No	Yes	2	1	1								2
Pangani (Mauri)	TZ	No	Yes	1	1	0								1
Pangani (Mwera)	TZ	No	Yes	7	1	6								7
Pangani Dam	TZ	No	Yes	1	1	0								1
Pangani District coastal forests	TZ	Yes	Yes	21	5	16	1	2	1	1		3		13
Panza Island	TZ	No	Yes	1	1	0								1
Pemba Island	TZ	Yes	Yes	16	2	14	3	2		2		1		8
Ras Kituani	TZ	No	Yes	1	1	0								1
River Wami	TZ	No	Yes	4	3	1			2					2
Ruangwa District coastal forests	TZ	No	No	1	0	1								1
Rubeho Mountains	TZ	Yes	Yes	73	25	48	5	10		1		7		50
Rufiji Delta	TZ	Yes	Yes	1	0	1				1				
Rufiji District coastal forests	TZ	Yes	Yes	58	28	30		7		1		4		46
Sabaki River Mouth	KE	Yes	Yes	2	0	2		1						1
Sangerawe	TZ	No	Yes	5	3	2								5
Selous GR	TZ	Yes	Yes	75	31	44		9				5		61
Semdoe	TZ	No	Yes	2	0	2	1	1						
Shikurufumi FR	TZ	No	Yes	9	2	7	2							7
Shimba Hills	KE	Yes	Yes	90	41	49	5	2	1	2	1	4	2	73
Shimoni forests	KE	No	Yes	5	1	4						1		4
Sinza River - near UDSM	TZ	No	Yes	1	1	0								1
South Pare Mountains	TZ	Yes	Yes	76	27	49	4	10		1		4	2	55
Southeast coastal Kenya	KE	No	No	1	0	1			1					

Site name	Country	IBA	KBA	# threatened taxa 2015	RL vers. 2.3	RL vers. 3.1	Amphibia	Aves	Gastropoda	Insecta	Malacostraca	Mammalia	Reptilia	Plantae
Taita District coastal forests	KE	No	No	7	0	7	1							6
Taita Hills forests	KE	Yes	Yes	63	22	41	3	9	4			1		46
Tana River Delta	KE	Yes	Yes	3	0	3		1				2		
Tanga (Duga)	TZ	No	Yes	1	1	0								1
Tanga (Gombero FR)	TZ	No	Yes	1	1	0								1
Tanga (Morongo)	TZ	No	Yes	1	1	0								1
Tanga (Nyamaku)	TZ	No	Yes	1	1	0								1
Tanga (Pangani)	TZ	No	Yes	1	1	0								1
Tanga (Sigi River)	TZ	No	Yes	1	1	0								1
Tanga District coast	TZ	No	No	13	2	11								13
Udzungwa Mountains	TZ	Yes	Yes	184	46	138	21	16		1		13	4	129
Udzungwa Mountains National Park	TZ	Yes	Yes	157	65	92	7	14		3		6	2	125
Ukaguru Mountains	TZ	Yes	Yes	68	18	50	8	4		5		4		47
Ukwama FR	TZ	No	Yes	1	1	0								1
Uluguru Mountains	TZ	Yes	Yes	250	76	174	17	14		14	1	7	8	189
Utete (Kibiti)	TZ	No	Yes	3	3	0								3
Uvidunda Mountains	TZ	Yes	Yes	3	1	2		1						2
Uzaramo (Dar to Morogoro)	TZ	No	Yes	2	0	2								2
Uzaramo (Msua)	TZ	No	Yes	2	2	0								2
Verani South West	TZ	No	Yes	1	1	0								1
Vigola	TZ	No	Yes	1	1	0								1
West Usambara Mountains	TZ	Yes	Yes	187	56	131	14	10		5	2	7	7	142
Witu FR	KE	No	Yes	21	12	9						3		18

Site name	Country	IBA	KBA	# threatened taxa 2015	RL vers. 2.3	RL vers. 3.1	Amphibia	Aves	Gastropoda	Insecta	Malacostraca	Mammalia	Reptilia	Plantae
Zanzibar (Kituani)	TZ	No	Yes	1	1	0								1
Zanzibar (Muyuni)	TZ	No	Yes	2	2	0								2
Zanzibar coast	TZ	Yes	Yes	21	3	18	1		1	4		1		14

Appendix 3. Potential KBA sites with distribution of Endangered and Critically Endangered taxa.

Site Name, Taxon name	IUCN status	Localities
Kaya Timbwa		
Plantae		
Magnoliopsida		
Montiniaceae		
<i>Grevea eggelingii</i> var. <i>keniensis</i>	EN	
Kilifi District coastal forests		
Animalia		
Amphibia		
Herpetidae		
<i>Boulengerula changamwensis</i>	EN	Bonje Village
Plantae		
Liliopsida		
Aloaceae		
<i>Aloe kilifiensis</i>	EN	Kilifi Creek
Araceae		
<i>Stylochaeton bogneri</i>	EN	Dzitsoni to Jaribuni
Cyperaceae		
<i>Cyperus afrodunensis</i>	EN	Malindi
Orchidaceae		
<i>Polystachya fischeri</i>	EN	Rabai Hills
Magnoliopsida		
Acanthaceae		
<i>Blepharis kenyensis</i>	EN	Kilifi; Magarini; Malindi
<i>Justicia breviracemosa</i>	EN	Vipingo
Gesneriaceae		
<i>Saintpaulia ionantha</i> subsp. <i>rupicola</i>	CR	Kachararoni Gorge; Kaloleni; Mwarakaya
Loranthaceae		
<i>Englerina ramulosa</i>	EN	Malindi
Lythraceae		
<i>Ammannia stuhlmannii</i>	EN	NE of Malindi
Myrtaceae		
<i>Eugenia tanaensis</i>	EN	Kaya Fimboni; Kombeni River
Rubiaceae		
<i>Oxyanthus pyriformis</i> subsp. <i>longitubus</i>	EN	Upriver from Pangani
Kwale District coastal forests		
Animalia		
Amphibia		
Herpetidae		
<i>Boulengerula changamwensis</i>	EN	Mukurumudzi River

Site Name, Taxon name	IUCN status	Localities
Hyperoliidae		
<i>Afrivalus sylvaticus</i>	EN	Mukurumudzi River
<i>Hyperolius rubrovermiculatus</i>	En	Mukurumudzi River
Plantae		
Liliopsida		
Aloaceae		
		i
<i>Aloe classenii</i>	CR	Kilibas
<i>Aloe penduliflora</i>	EN	Kilibasi
Araceae		
<i>Stylochaeton bogneri</i>	EN	Between Umba and Mwena River
Orchidaceae		
<i>Habenaria stylites</i> subsp. <i>stylites</i>	EN	Duruma, W of Mombasa
<i>Polystachya fischeri</i>	EN	Near Vigurugani
Magnoliopsida		
Acanthaceae		
<i>Barleria maculata</i>	EN	Mackinnon Road
<i>Barleria whytei</i>	EN	Kaya Bogowa
<i>Justicia drummondii</i>	CR	Lungalunga-Msambweni road; Maluganji FR
Gesneriaceae		
<i>Saintpaulia ionantha</i> subsp. <i>rupicola</i>	CR	Maweni Rocks
Leguminosae		
<i>Microcharis microcharoides</i> var. <i>latistipulata</i>	EN	Lungalunga-Msambweni road
Loranthaceae		
<i>Agelanthus microphyllus</i>	EN	Vigurugani Scheme
Polypodiopsida		
Marsileaceae		
<i>Marsilea botryocarpa</i>	EN	Taru
<i>Marsilea fadeniana</i>	CR	5.7 km from Samburu towards Nairobi
Lamu District coastal forests		
Plantae		
Magnoliopsida		
Acanthaceae		
<i>Blepharis kenyensis</i>	EN	Witu Mudirate
Euphorbiaceae		
<i>Jatropha hildebrandtii</i> var. <i>hildebrandtii</i>	EN	Kiunga; Kiwayu; Lamu Island; Nairobi Ranch
Leguminosae		
<i>Newtonia erlangeri</i>	EN	Mokowe to Bodhei
<i>Oxystigma msoo</i>	VU (proposed EN by EAPRLA)	Haiwani Forest
Loranthaceae		

Site Name, Taxon name	IUCN status	Localities
<i>Englerina ramulosa</i>	EN	Near Mangai
Lythraceae		
<i>Ammannia mauritiana</i>	EN	Shamba Ziwa; Badar water pan
<i>Ammannia parkeri</i> var. <i>parkeri</i>	EN	Near Milimani
<i>Ammannia stuhlmannii</i>	EN	Mokowe to Bodhei
Mahenge (areas not otherwise specified)		
Animalia		
Amphibia		
Brevicipitidae		
<i>Probreviceps rungwensis</i>	EN	
Mammalia		
Bovidae		
<i>Cephalophus spadix</i>	EN	
Plantae		
Liliopsida		
Orchidaceae		
<i>Angraecopsis parva</i>	EN	Muhulu Mts.
<i>Habenaria isoantha</i>	EN	
Magnoliopsida		
Acanthaceae		
<i>Barleria amanensis</i>	EN	
Annonaceae		
<i>Artabotrys rupestris</i>	EN	Issongo
<i>Isolona heinsenii</i>	EN	
Lythraceae		
<i>Ammannia aurita</i>	EN	Madi
Melastomataceae		
<i>Warneckea schliebenii</i>	EN	Muhulu Mts.
Polypodiopsida		
Woodsiaceae		
<i>Callipteris ulugurica</i>	EN	Muhulu Mts.
Malundwe		
Animalia		
Amphibia		
Brevicipitidae		
<i>Probreviceps loveridgei</i>	EN	
Masasi District forests		
Plantae		
Magnoliopsida		
Acanthaceae		
<i>Barleria vollesenii</i>	EN	Chivirikiti Village
<i>Crabbea longipes</i>	EN	Masasi Hill

Site Name, Taxon name	IUCN status	Localities
<i>Lepidagathis plantaginea</i>	EN	Chiwale Village
Leguminosae		
<i>Bauhinia loeseneriana</i>	VU (proposed EN by EAPRLA)	Kwa-Mkopo
Passifloraceae		
<i>Adenia dolichosiphon</i>	EN	Chiwale-Masasi track
Mombasa coast		
Animalia		
Amphibia		
Herpeliidae		
<i>Boulengerula changamwensis</i>	EN	Changamwe
Plantae		
Magnoliopsida		
Leguminosae		
<i>Crotalaria laburnoides</i> var. <i>nudicarpa</i>	EN	Nyali; Shanzu Beach
Mtwara District coastal forests		
Plantae		
Magnoliopsida		
Leguminosae		
<i>Cynometra gillmanii</i>	CR (proposed EN by EAPRLA)	Mkunya River proposed FR
Montiniaceae		
<i>Grevea eggelingii</i> var. <i>echinocarpa</i>	EN	Mahurunga
Rubiaceae		
<i>Pavetta macrosepala</i> var. <i>macrosepala</i>	VU (proposed EN by EAPRLA)	Ruvuma Bay; Mnazi Mmoja- Mtwara road
Nachingwea District		
Plantae		
Magnoliopsida		
Acanthaceae		
<i>Crabbea longipes</i>	EN	
<i>Lepidagathis plantaginea</i>	EN	Lukeledi
Lythraceae		
<i>Ammannia aurita</i>	EN	
Ruangwa District coastal forests		
Plantae		
Magnoliopsida		
Loranthaceae		
<i>Englerina macilenta</i>	EN	Kiwetu
Taita District coastal forests		
Animalia		
Amphibia		

Site Name, Taxon name	IUCN status	Localities
Hyperoliidae		
<i>Hyperolius puncticulatus</i>	EN	Kitobo Forest
Plantae		
Liliopsida		
Aloaceae		
<i>Aloe classenii</i>	CR	Kizima [Kirima] Hill
Gramineae		
<i>Panicum nudiflorum</i>	EN	Lake Kandere [Kandiri]
Magnoliopsida		
Leguminosae		
<i>Microcharis microcharoides</i> var. <i>latistipulata</i>	EN	W of Mackinnon Road; Buchuma Range Research Station
Tanga District coast		
Plantae		
Liliopsida		
Araceae		
<i>Stylochaeton bogneri</i>	EN	Kange Gorge
Magnoliopsida		
Acanthaceae		
<i>Isoglossa anisophylla</i>	EN	Kange Gorge; Steinbruch Gorge
<i>Isoglossa faulknerae</i>	EN	Kange Gorge; Steinbruch Gorge
Annonaceae		
<i>Uvaria faulknerae</i>	EN	Tanga
Lythraceae		
<i>Ammannia mauritiana</i>	EN	Tanga-Pangani road
Rubiaceae		
<i>Pavetta sphaerobotrys</i> subsp. <i>lanceispala</i>	VU (proposed EN by EAPRLA)	Amboni to Pande