

“Final Project Completion Report” for CEPF-Funded Project No. 1088096640

Primates on Mt. Kasigau, Kaya Rabai, and along the Tana River, Kenya: Preparing for Red List Assessments and Conservation Action

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For ease of reference, the Letter of Inquiry for this CEPF-funded project is attached to the end of this "Final Project Completion Report".

The LOI poses three questions related to the conservation of primates in Kenya, the answers to which are critical to IUCN Red List assessments for the three taxa involved. The next Red List assessments for the primates of Africa will be led by the IUCN/SSC Primate Specialist Group and Conservation International. The assessment is expected to occur in January 2005.

This report is organized around the three questions presented in the LOI.

Main Goal

Prevent the loss of primate biodiversity in the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya Biodiversity Hotspot.

Main Objectives

1. Determine whether the Hotspot endemic Taita Mountain Galago *Galago orinus* subsp.? is present on Mt. Kasigau.
2. Determine whether the Kenya Coast Galago is located in Kaya Rabai, thereby validating the name "*Galago cocos*" for this species and extending its known geographic range.
3. Determine the northern range limit for the Tana River Sykes's Monkey and, thereby, whether it is a subspecies endemic to the EACF Hotspot.
4. Make recommendations for the conservation of these three taxa of primates.

Question 1

Are the Taita Hills the only site in Kenya where the Taita Mountain Dwarf Galago Galagoides orinus occurs? During 2000 - 2003, I undertook a few brief field surveys to better define the limits of the EACF Hotspot and, especially, the distributions of some primate species within this Hotspot. I jointly published a paper on the "Taita Mountain Dwarf Galago" (that is likely the EACF endemic Galagoides orinus) that we discovered on the Taita Hills in 2000 (Perkin et al. 2002). This is certainly a new primate for Kenya...and may prove to be a new taxon of primate. But what is its distribution? If the Taita Mountain Dwarf Galago is present at a second site in Kenya, then that second site is most likely Mt. Kasigau. I will visit Mt. Kasigau to determine if the Taita Mountain Galago is present there.

Mt. Kasigau (1,652 m asl) is ca. 30 km from the nearest other site in the Eastern Arc Mountains (i.e., the Taita Hills). The surrounding landscape is the dry scrubland of Tsavo. Yvonne de Jong, Rob Dodson and I spent two nights (8 – 10 February 2004) in the "cloud forest" near the top of Mt. Kasigau---montane forest dominated near camp (1,555 m) by *Schefflera*. Our hope was to find the Taita Mountain Galago *Galagoides orinus*?) on Mt. Kasigau.

The conditions throughout our time on Mt. Kasigau were terrible for surveying nocturnal primates. It rained and dripped almost constantly, the wind was often strong or in gusts, and there was dense fog much of the time---especially in the evening.

The first evening we searched for galagos from 20:00 – 22:30 h. This survey took us about 1 km downhill from camp. During the next evening and following morning we surveyed close to camp along three trails that led out from camp. During these surveys we heard a few Small-eared Greater Galagos *Otolemur garnettii* calling in the distance---but we saw no *garnettii*---and no other species of galago was heard or seen. A few *garnettii* were heard from camp---and one was

heard very near camp. No other galagos were heard or seen from camp. While we now 'suspect' that no species of *Galagoides* is present on Mt. Kasigau, it is far too soon to be certain.

While we think we visited the habitat in which a *Galagoides* sp. might most be expected to be found, we covered but a tiny part of the mountain. If a *Galagoides* sp. is present and at low densities and/or localized, we could easily have missed finding it. Much more time, under far better survey conditions, needs to be spent searching for *Galagoides* sp. on Mt. Kasigau--- preferably during the drier months from mid-June to mid-September.

Question 2. *Is the Tana River Sykes's Monkey Cercopithecus albogularis albоторquatus endemic to the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya Biodiversity Hotspot as often claimed? I will examine the forest of the middle portion of the Tana River (within Meru National Park & Kora National Reserve) to determine whether this subspecies is present. The presence of the Tana River Sykes's Monkey in these forests will disqualify it as a subspecies endemic to the EACF Hotspot.*

Yvonne de Jong and I spent 9 – 11 September 2004 at Ngaia Forest, an outlier of high ground to the northeast of Mt. Kenya. Here we searched for Galagos, Potto, and Sykes's Monkeys. We obtained good observations of what appeared to be the Mt. Kenya Sykes's Monkey *Cercopithecus albogularis kolbi*. Ngaia is roughly 40 km north of the Tana River.

From 12 – 19 September we surveyed Meru National Park and Kora National Reserve for Galagos and Sykes's Monkeys. The Tana River forms the boundary between these two protected areas. In riverine forest along the Tana River we observed what appeared to be the Tana River Sykes's Monkey. This extends the range for this subspecies up the Tana River ca. 100 km. As such, the Tana River Sykes's Monkey is not a subspecies endemic to the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya Biodiversity Hotspot. This also means that this primate is considerably more abundant than previously thought. There should be little concern over the short-term future of this fairly widespread taxon.

Somewhere between Nagai Forest and the Tana River there must be sites where *C. a. kolbi* and *C. a. albоторquatus* come close to one another...or, perhaps occur together. It would be interesting to locate a site of sympatry in order to see whether these two taxa interbreed.

Question 3. *Is "Galagoides cocos" a valid name for the Kenya Coast Galago? For various historical reasons, this question has emerged and needs to be answered before this taxon can be entered into the IUCN/SSC Red List. What we previously thought was one species of galago (the Zanzibar Galago Galagoides zanzibaricus) is now certainly two species (the Zanzibar Galago and the Kenya Coast Galago), both of which are endemic to the EACF Hotspot. But what binomial name should be applied to the Kenya Coast Galago? The name 'cocos' is available...but does it apply? I will visit Kaya Rabai near Mazeras town on the Kenya coast to attempt to locate and tape record the calls of the "Kenya coastal galago". This is a prerequisite to confirming that the scientific name of this species should be 'Galagoides cocos'.*

The following draft manuscript was prepared based upon our findings as they relate to Question 3. This manuscript is now under review by colleagues. Once reviewed and revised accordingly, it will be submitted for publication, probably to *Primate Conservation*.

Confirmation of 'Galagoides cocos' (Heller, 1912) as the Name for the 'Kenya Coast Galago'

Abstract

The Kenya coast galago *Galagoides cocos* is a recently designated species, and one with a complicated history of binomial and trinomial name changes, and synonymy. This article provides a summary review of these name changes. The upgrading of *Galagoides zanzibaricus cocos* to a species is based primarily upon the great difference recently found between the species-specific loud call of lesser galagos at Diani, Kenya (that were assumed to be *G. cocos* but for which identity needed confirmation), and the loud call of the nominotypical Zanzibar galago *G. zanzibaricus zanzibaricus*. The loud call of *C. cocos* at the type locality, Mazeras, remained unknown. Diani and Mazeras are ca. 40 km apart. Here we confirm that the loud call of *G. cocos* at Mazeras is the same as that for the lesser galago at Diani. In short the lesser galagos at these two localities are conspecific. As such, the name 'cocos' is the correct name to apply to the Kenya coastal galago.

Introduction

Many of the species and subspecies in Galagonidae (galagos or bushbabies) have been subjected to several taxonomic revisions and name changes over the past century (Groves 2001, Grubb et al. 2003). The Kenya coast galago is no exception (Fig. 1). The Kenya coast galago (or Diani small galago) is a highly cryptic species of the coastal forest of Kenya and of Tanzania south to the East Usambara Mountains (Bearder et al. 2003, Grubb et al. 2003). This species also probably occurs in the coastal forests of Somalia, as far north as the Webi Shabeelle River (Nash et al. 1989), but this requires confirmation (Fig. 2). This paper (1) reviews the 'nomenclature history' for the Kenya coast galago, and (2) provides new information that confirms that 'cocos' is the valid name for this newly recognized species.

Nomenclature History for the Kenya Coast Galago

On 16 December 1911, Edmund Heller (1912) collected an adult male lesser galago (one of six specimens) in the Mazeras Forest, Kenya, which he named *Galago moholi cocos*. Today, this taxon is tentatively referred to as '*Galagoides cf. cocos*' (Bearder et al. 2003, Grubb et al. 2003). This binomial name is 'tentative' because the validity of the use of the name 'cocos' here requires confirmation.

Here is a summary review of the nomenclature changes that this galago has undergone:

Heller (1912), Allen (1939): *Galago moholi cocos*

Allen & Loveridge (1927): *Galago gallarum cocos*

Schwarz (1931), Hill (1953), Hill & Meester (1971): *cocos* a synonym of *Galago senegalensis zanzibaricus*.

Kingdon (1971, 1997): *cocos* a synonym of *Galago zanzibaricus*

Groves (1993): *Galagoides zanzibaricus cocos*

Groves (2001): *Galago zanzibaricus cocos*

Bearder et al. (2003), Grubb et al. (2003): *Galagoides cocos*

Need for Confirmation of the name 'cocos' for the Kenya Coast Galago

Until recently, *G. zanzibaricus* was considered polytypic (two subspecies in this case) with a distribution through the coastal forests of eastern Africa from southern Somalia through Kenya to central Tanzania (Groves 2001). The ecology, behaviour and vocal repertoire of the mainland subspecies *G. z. cocos* is well known, having been the focus of several field studies (Harcourt 1986, Harcourt & Nash 1986a, b) at Diani and Gedi Forests, Kenya. Far less well known is the nominotypical subspecies *G. z. zanzibaricus* which, until recently, was believed to be endemic to Zanzibar. It was not until A. Perkin visited Zanzibar in 1999 and recorded the loud, species-specific ('advertising'), call of toptotypical *G. zanzibaricus* that it was discovered:

- (1) that the species-specific loud call of *G. z. zanzibaricus* is identical, or nearly so, to the loud call of the recently named Udzungwa (or Matundu) galago *Galago udzungwensis* (A. Perkin, unpubl., cited in Bearder 1999). This led to the realization that *G. udzungwensis* is not a new species, but rather a synonym of *G. zanzibaricus* (Perkin et al. 2002, Grubb et al. 2003, Bearder et al. 2003).
- (2) that the species-specific loud call of *G. z. zanzibaricus* is extremely different from that of *G. z. cocos*. *G. z. zanzibaricus* is a 'roller caller', while *G. z. cocos* is an 'incremental caller' (Perkin et al. 2002, Grubb et al. 2003, Bearder et al. 2003).

Based on a considerable body of knowledge concerning the species-specific loud calls of the Galagonidae, and their wide use and acceptance as species recognition and taxonomic tools (Zimmermann et al. 1988, Harcourt & Bearder 1989, Nash et al. 1989, Zimmermann 1990, Masters 1991, Bearder et al. 1995, 2003, Butynski et al. 1998, Bearder 1999, Groves 2001, Perkin et al. 2002, Ambrose 2003), it was judged that the observed level of difference between the two loud calls is far greater than can be accommodated at the subspecies level. As such, *G. z. cocos* was assigned species status, *G. cocos* (Grubb et al. 2003, Bearder et al. 2003)

Here is the overview that Grubb et al. (2003) give for this complex situation.

p. 1315. "Galagos at Diani, which were thought to be *Galagoides zanzibaricus* (Harcourt & Nash, 1986a, b) are vocally distinct from true or toptotypical *G. zanzibaricus* of Zanzibar. They are provisionally identified as *Galagoides cf. cocos*, and we assign them to the Granti group. Galagos from the Udzungwa Mtns and other localities in Tanzania have been named *Galagoides udzungwensis* (Honest, 1996) but, on the basis of their vocalization, do not differ from those of toptotypical *G. zanzibaricus* of Zanzibar (A. Perkin, unpubl., cited in Bearder 1999). The form *udzungwensis* may prove to be a valid taxon at the subspecific level but until the systematics is clarified, we relegate it to the synonymy of *Galagoides zanzibaricus*.

p. 1317. "The galago recorded from Diani is vocally distinct from *Galagoides zanzibaricus* and has been recorded elsewhere in Kenya and in Tanzania, where Perkin (in litt.) reported it from the northern tip of the East Usambara Mtns, seemingly close to *G. zanzibaricus* (Table IV). The form *Galago moholi cocos* Heller, 1912, was described from Mazeras (Manzeras), relatively close to Diani (Table IV). Groves (2001) recognized *cocos* as a mainland form of *Galagoides zanzibaricus*. Vocalizations typical of *G. zanzibaricus* have not been recorded in Kenya. Therefore, it seems highly likely that the Diani galago is a separate species, *Galagoides cf. cocos*. Nevertheless it is important to confirm this. Vocalizations recorded from as near to the type locality of *Galagoides cocos* as possible should be compared with the voice of the Diani galago. The forest of the type locality (Kaya Manzeras) has been destroyed, but forests 5 km and 20 km distant (Kaya Mtswakana and Kaya Fungo, respectively) and some others might be visited (Butynski, unpubl., including information from Q. Luke). Museum specimens of *Galagoides cocos* should be compared with the Diani galago further to ensure that we are dealing with a single taxon. We provisionally consider the Diani galago to be conspecific with *Galagoides cocos*, under the vernacular name Kenya coast galago."

In other words, in advancing the Kenya coast galago to the species level, one important question remains---the confirmation of the name 'cocos' for this newly designated species. This

confirmation is necessary because the tape recordings used to describe the loud call for the Kenya coast galago were made at Diani, Kenya (04° 18'S; 39° 35'E) (Zimmermann 1990, Bearder et al. 1995), about 40 km south of the type locality for *Galagoides cocos* (i.e., Mazeras Forest). There are three rivers between these two sites that are potential barriers to dispersal (Maji ya Chumvi, Mambome, Pemba/Cha Shimba). Is the lesser galago at Diani the same taxon as the lesser galago at Mazeras---or might there be two taxa of lesser galago involved here? Since *G. zanzibaricus* and *G. cocos* are, at present, differentiated primarily upon their loud calls, what was required was a visit to Mazeras to assess whether the species-specific loud call of the lesser galago at the type locality is the same as that of the lesser galago at Diani.

Confirmation of the name 'cocos' for the Kenya Coast Galago

We visited the Mazeras area from 10–12 February 2004. The first night was spent camping and searching for *G. cocos* in the Mazeras Botanical Garden (134 m asl, 03° 57' 58"S; 39° 33' 05"E). No lesser galagos were heard or seen, although the small-eared greater galago *Otolemur garnettii* was common with about eight individuals seen and/or heard.

The second night was spent on the edge of Kaya Rabai (210 m asl, 03° 56' 42"S; 39° 34' 54"E), a relatively large forest located ca. 4 km NE of the Mazeras Botanical Garden, ca. 17 km from the Indian Ocean, and ca. 39 km north of Diani. Here we heard numerous *G. cocos* and recorded the species' loud call and other vocalizations. To our ears, the loud call matched that recorded for the lesser galago at Diani, as well as the loud call that one of us (TMB) had heard on many occasions over the past decade at others sites on the coast of Kenya (e.g., Kilifi, Watamu, Malindi), and many hundreds of times in more than 20 forests along the lower Tana River (02° 30'S; 40° 30'E), ca. 150 km to the north.

We heard roughly 100 series of *G. cocos* loud calls during our one night at Kaya Rabai. As at other sites where *C. cocos* is similarly common, there was a distinct 'dusk chorus' of loud calls from ca. 19:05 - 19:15 h, a scattering of loud calls given throughout the night, and a slight 'dawn chorus' of loud calls at ca. 05:45 – 05:55 h.

We heard several *O. garnettii* at Kaya Rabai. Thus, only two species of galagos were seen or heard in the Mazeras/Kaya Rabai area---*G. cocos* and *O. garnettii*.

We conclude that there is now no doubt that the type of *G. cocos* that Heller (1912) described from Mazeras is conspecific with the lesser galago found all along the coast of Kenya and well into northern Tanzania. In short, the name 'cocos' can be safely applied to the Kenya coast galago.

Searching for Differences between *Galagoides cocos* and *Galagoides zanzibaricus*?

G. cocos and *G. zanzibaricus* are among the most cryptic of primate species. That these two species are extremely similar morphologically is demonstrated by the inability of some of the foremost primate taxonomist of their time to differentiate between them. For example, Schwarz (1931), in reference to *G. s. zanzibaricus*, states (p. 56), "There can be no doubt that Heller's *cocos* is identical with this race. The size, coloration, and the large upper M³ are found both in the series at Berlin and the one of *cocos* studied by Heller and Hollister. By the identification of the two the known range of *zanzibaricus* is considerably extended. There is no difference between the island and coast specimens."

What next needs to be undertaken is a detailed comparison of large samples of *G. cocos* and *G. zanzibaricus* specimens in search of morphological differences, coupled with ecological, behavioural, acoustic, and molecular studies. The only difference, other than the highly distinctive species-specific loud call, noted to date is that the body length measurements for *G.*

cocos are, on average, slightly larger than *G. zanzibaricus* (Groves 2001). For example, Groves (2001) found the range of head + body lengths for *G. cocos* to be 150–160 mm (n = 13), and for *G. zanzibaricus* to be 140–150 mm (n = 11). This difference in size does not, however, apply to body weight. The mean weight of adult *G. cocos* is 143 g (n = 73) (Harcourt & Nash 1986b), while the mean body weight of adult *G. zanzibaricus* is 149 g (n = 23) (Honest & Bearder 1996). Thus, *G. cocos* may be a more gracile species than *G. zanzibaricus*.

G. cocos and *G. zanzibaricus* appear to meet in the region of the East Usambara Mountains and may be sympatric at some sites in this region. In contrast to the great similarity between *G. cocos* and *G. zanzibaricus*, *G. cocos* is readily distinguished from the other three species of galagos with which it is sympatric or nearly so. These are *O. garnettii*, the Somali Lesser Galago *Galago gallarum*, and the Northern Lesser Galago *Galago senegalensis*. The main morphological characters for distinguishing *G. cocos*, *G. gallarum* and *G. senegalensis* are summarized in Butynski and De Jong (in press).

Conservation status of *Galagoides cocos* and *Galagoides zanzibaricus*

It now appears that *G. cocos* is the most abundant and widespread dwarf galago in the coastal forests of Kenya, with densities of > 170 individuals/km² at some sites (Harcourt & Nash 1986a). *G. cocos* is found at elevations from 0–200 m. Similarly, *G. zanzibaricus* is probably the most abundant and widespread dwarf galago in the coastal forests of Tanzania, with densities of 2,000 individuals/km² at some sites (Butynski et al. 1996). In addition to coastal forest, *G. zanzibaricus* also occurs at sites located at least 370 km inland from the coast (e.g., the western edge of the Udzungwa Mountains) to elevations of ca. 1,000 m (Honest & Bearder 1996, Butynski et al. 1998).

Although both species have probably declined in numbers over the past several decades due to habitat loss, both are able to persist in secondary forest and in areas of mixed agriculture where a good tree cover is present. As such, neither species is threatened at this time. In terms of *IUCN Red List Categories*, both species should be listed as of 'Least Concern'. In short, there appears to be no reason at present for the international conservation community to undertake specific conservation actions on behalf of these two species.

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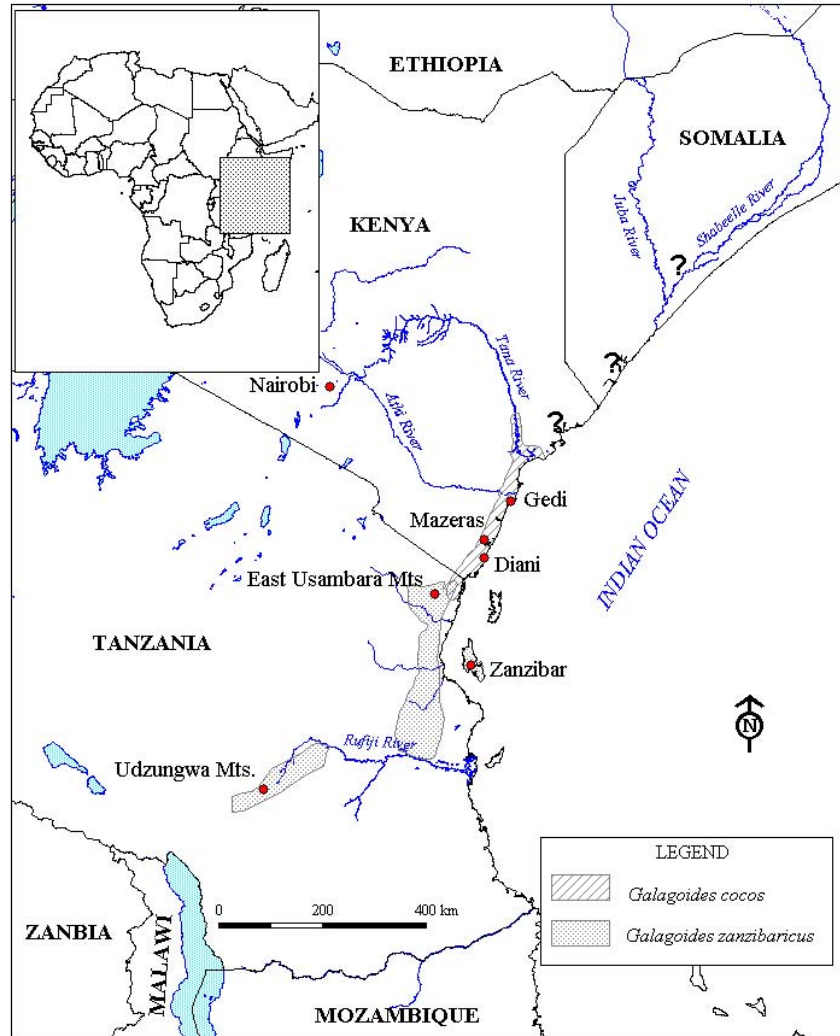
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Figure 1. Adult Kenya coast galago *Galagoides cocos* in Arabuko-Sokoke Forest, Kenya. Photo by Harald Schuetz



Figure 2. Approximate geographic distributions of the Kenya coast galago *Galagoides cocos* and the Zanzibar galago *Galagoides zanzibaricus*. The distributions of both of these species remains poorly known.



CEPF Letter of Inquiry

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Mission Statement: Conservation International believes that the Earth's natural heritage must be maintained if future generations are to thrive spiritually, culturally and economically. Our mission is to conserve the Earth's living heritage, our global biodiversity, and to demonstrate that human societies are able to live harmoniously with nature.

Project Title and Request

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Primates on Mt. Kasigau, Kaya Rubai, and Along the Tana River, Kenya: Preparing for Red List Assessments and Conservation Action

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Atlantic Forest

- Central Corridor
- Serra do Mar Corridor
- Multiple

Cape Floristic Region

- Cape Floristic Region

Caucasus

- Greater Caucasus Corridor
- Caspian Corridor
- West Lesser Caucasus Corridor
- East Lesser Caucasus Corridor
- Hyrcan Corridor
- Multiple

Chocó-Darién-Western Ecuador

- Colombia
- Ecuador
- Multiple

Eastern Arc Mountains

- Lower Tana River Forests
- Taita Hills
- East Usambaras/Tanga
- Udzungwas
- Jozani Forest
- Multiple

Guinean Forests of West Africa

- Côte D'Ivoire
- Ghana
- Guinea
- Liberia
- Sierra Leone
- Togo
- Multiple

Madagascar and Indian Ocean Islands

Mountains of Southwest China

- Gansu Province
- Qinghai Province
- Sichuan Province
- Tibet Province
- Yunnan Province
- Multiple

The Philippines

- Eastern Mindanao Corridor
- Palawan Corridor
- Sierra Madre Corridor
- Multiple

Succulent Karoo

- Namibia
- South Africa
- Multiple

Sundaland

- Siberut
- Bukit Barisan Selatan
- North Sumatra
- Tesso Nilo-Bukit Tigapuluh
- Multiple

Tropical Andes

- Bolivia
- Peru
- Multiple

Madagascar

Mesoamerica

Costa Rica

Nicaragua

Panama

Multiple

* **Strategic Direction from the Ecosystem Profile** – Enter the single strategic direction this proposal aims to address. Use the exact number, such as 1, 2, etc. and wording from the ecosystem profile, which can be found on our Web site at www.cepf.net or in the ecosystem profile itself.

3. Improve biological knowledge in the hotspot

Eligibility Questions

CEPF funds may not be used to directly fund government agency activities. In addition, they may not be used for the purchase of land, involuntary resettlement of people, the capitalization of a trust fund or the alteration of any physical cultural property. If your proposed project involves any of these, CEPF is not in a position to fund your proposal. Where possible, you may revise your strategy to avoid these elements or you may wish to consult the “Resources” section at www.cepf.net that provides links to additional funding sources and resource sites.

* Do you represent, or is your organization, a government agency?

Yes

No

* Do you plan to use any of the potential project funds to purchase land?

Yes

No

* Does the project you wish to propose involve the removal or alteration of any physical cultural property (includes sites having archeological, paleontological, historical, religious, and unique natural values)?

Yes

No

* Does the project you wish to propose involve the relocation of people or any other form of involuntary resettlement?

Yes

No

* Do you plan to use any of the potential project funds to capitalize a trust fund(s)?

Yes

No

Letter of Inquiry

The letter of inquiry has no set structure but is meant to provide CEPF with an overview of the project concept. Please compose your letter of inquiry in the section below.

A letter of inquiry is typically a two- to three-page document that includes:

- A clear explanation of how the proposal relates to a specific strategic direction as outlined in the ecosystem profile
- The geographic area of the proposed work
- A brief project description (objectives, expected results and project deliverables)
- Key organizational qualifications (how your organization is best qualified to carry out the project)
- A description of any potential partners to be involved in the project.

Primates on Mt. Kasigau, Kaya Rabai, and Along the Tana River, Kenya: Preparing for Red List Assessments and Conservation Action

Introduction & Background

Primates are of particular interest and importance because (1) they are essential components (often “keystone species”) of the ecosystems in which they occur, affecting the composition of the vegetation and accounting for a significant portion of the mammalian biomass; (2) they are vital to our understanding of human evolution and human diseases; (3) they are among the best indications of the health of ecosystems, and (4) they are among the most important “flagship species” for those sites in which they are found. Indeed, the endemic and highly threatened primates have been highly instrumental in bringing the biological importance and plight of the Eastern Arc Mountains and the coastal forests of East Africa to the attention of the conservation community over the past 20 years.

Primates are an especially important taxonomic group for the focus of conservation actions in the “Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya Biodiversity Hotspot” (EACF Hotspot). The EACF Hotspot supports no fewer than nine endemic species and five endemic (or near-endemic) subspecies of primates. Several of these primate taxa are listed in the *IUCN/SSC Red List* as “Critically Endangered” or “Endangered”. Others are listed as “Data Deficient”. This means that, “...there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status”. In addition, there are many important taxonomic questions related to the primates in this Hotspot. Until we know how many species and subspecies of primates occur in the Hotspot, where they occur, and the level of extinction risk each taxon faces, we cannot be said to be undertaking effective primate conservation in the Hotspot.

Although primates represent one of the best-known taxonomic groups found in the Hotspot, numerous important questions remain concerning taxonomy, distribution, abundance, conservation status, and priorities for conservation actions. In fact, there is probably no species or subspecies of primate in this Hotspot for which important questions do not exist that are relevant to the assessment of its conservation status and, ultimately, to its long-term survival.

Preparations are now being made by the Africa Section of the IUCN/SSC Primate Specialist Group to undertake *Red List* “degree of threat assessments” in December 2004 for all taxa of African primates. The results of this process have had important implications for the conservation of the primates of the EACF Hotspot, yet many questions remain that need to be answered if these taxa are to be assessed in 2004. These include questions of taxonomy and distribution.

Three Questions Critical to Primate Conservation in the Hotspot

1. Are the Taita Hills the only site in Kenya where the Taita Mountain Dwarf Galago *Galagoides orinus* occurs? During 2000 - 2003, I undertook a few brief field surveys to better define the limits of the EACF Hotspot and, especially, the distributions of some primate species within this Hotspot. I jointly published a paper on the "Taita Mountain Dwarf Galago" (that is likely the EACF endemic *Galagoides orinus*) that we discovered on the Taita Hills in 2000. This is certainly a new primate for Kenya...and may prove to be a new taxon of primate. But what is its distribution? If the Taita Mountain Dwarf Galago is present at a second site in Kenya, then that second site is most likely Mt. Kasigau. I will visit Mt. Kasigau to determine if the Taita Mountain Galago is present there.

2. Is "*Galagoides cocos*" a valid name for the Kenya Coast Galago? For various historical reasons, this question has emerged and needs to be answered before this taxon can be entered into the IUCN/SSC *Red List*. What we previously thought was one species of galago (the Zanzibar Galago *Galagoides zanzibaricus*) is now certainly two species (the Zanzibar Galago and the Kenya Coast Galago), both of which are endemic to the EACF Hotspot. But what scientific (Latin) name should be applied to the Kenya Coast Galago? The name *Galagoides cocos* is available...but does it apply? I will visit Kaya Rabai near Mazeras Town on the Kenya coast to attempt to locate and tape record the calls of the "Kenya coastal galago". This is a prerequisite to confirming that the scientific name of this species should be "*Galagoides cocos*".

3. Is the Tana River Sykes's Monkey *Cercopithecus albogularis albotorquatus* endemic to the EACF as often claimed? I will examine the forest of the middle portion of the Tana River (within Meru National Park & Kora National Reserve) to determine whether this taxon is present. The presence of the Tana River Sykes's Monkey in these forests will disqualify it as a subspecies endemic to the EACF Hotspot.

Scope for Partnership between CEPF and CI

The "Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya Biodiversity Hotspot" was identified by Conservation International (CI) for focused conservation investment because of the high level of threatened biodiversity this region supports. CI is a leader in the conservation of biodiversity worldwide. CI's Eastern Africa Regional Program (EARP) has special interest in the conservation of biodiversity in the three Biodiversity Hotspots that CI has identified for Eastern Africa. EARP has particular expertise in the conservation of sites and species through the following activities: taxonomy, biological surveys, species and site monitoring, *Red List* degree of threat assessments, and threaten species conservation guidance and actions.

The priorities of EARP and CEPF for conservation action in the EACF Hotspot are similar and complementary. As such, there is a clear basis here for partnering on actions designed to conserve biodiversity in the EACF Hotspot.

Through this LOI, EARP requests funding support to undertake primate-focused surveys in three sites in the Hotspot: Mt. Kasigau, Kaya Rabai, and Tana River Forests. This is a "preliminary LOI" requesting funds to answer three of the most critical questions for this Hotspot as concerns the conservation of primates. A second LOI for a comprehensive assessment of the diversity and conservation status of primates throughout this Hotspot will be submitted to CEPF at a later date. That LOI will build upon the finding of the research undertaken through the support of this LOI.

Strategic Funding Direction and Investment Priorities

One of the "CEPF Strategic Funding Directions" (SFD) presented in the *CEPF Ecosystem Profile* for this Hotspot is SFD3, "Improve biological knowledge in the Hotspot". Among the "CEPF

Investment Priorities” put forth in the Ecosystem Profile for “Improving biological knowledge in the Hotspot” are the following:

IP 3.2 Support research in the less studied of the 161 eligible sites.

IP 3.3 Monitor populations of Critically Endangered and Endangered Species.

IP 3.4 Support research to facilitate *IUCN/SSC Red List* assessments and re-assessments.

Main Goal

Prevent the loss of primate biodiversity in the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya Biodiversity Hotspot.

Main Objectives

1. Determine whether the Hotspot endemic Taita Mountain Galago *Galago orinus* subsp.? is present on Mt. Kasigau.
2. Determine whether the Kenya Coast Galago is located in Kaya Rabai, thereby validating the name “*Galago cocos*” for this species and extending its known geographic range.
3. Determine the northern range limit for the Tana River Sykes’s Monkey and, thereby, whether it is a subspecies endemic to the EACF Hotspot.
4. Make recommendations for the conservation of these three taxa of primates.

Conservation Outcomes

1. New data on the taxonomy, distribution, and abundance of the three taxa of primate examined under this study are sufficient for supporting an *IUCN/SSC Red List* assessment for each taxon.
2. An *IUCN/SSC Red List* assessment is completed for each of the three taxa in December 2004.
3. The Kenyan conservation authorities and conservation NGOs receive information on (1) the degree of threat status of these three taxa of primates and (2) recommendations for conservation actions.

Main Activities

1. Survey Mt. Kasigau to determine whether the Taita Mountain Galago is present.
2. Survey Kaya Rabai to determine whether the Kenya Coast Galago is present and verify this by tape recordings of its loud call.
3. Survey the middle-sections of the Tana River to determine whether the Tana Sykes’s Monkey occurs north of the forests of the Lower Tana River.

Deliverables

1. Publish at least two notes or articles on the findings, together with recommendations for conservation action, and make these widely available to the natural resources management authorities and conservation NGOs in Kenya.

2. Apply the findings for each of the three taxa during the IUCN/SSC *Red List* degree of threat status assessments planned for December 2004.

Personnel & Qualifications

This Project will be led by Dr. Tom Butynski, CI's Director, Eastern Africa Biodiversity Hotspots Program. He has worked in Africa for 35 years as a consultant and employee of the New York Zoological Society, WWF-US, WWF-International, Zoo Atlanta, and CI. Over the past 26 years he has worked as a forest ecologist and conservationist at many sites in the Biodiversity Hotspots of eastern Africa, including 12 years in the EACF Hotspot. He has been a member of the IUCN/SSC Primate Specialist Group for over 20 years. Over the past 10 years, Butynski has served as Vice-Chair for Africa, IUCN/SSC Primate Specialist Group, as well as Editor of "*African Primates*". During this time he has led two degree of threat assessments for all of the primates of Africa for the *IUCN/SSC Red List*. He is currently preparing a 2004 workshop for a third *Red List* assessment.

Publications and Reports by Tom Butynski that are Relevant to the EACF Hotspot

Butynski, T.M. 1995. Primates and hydropower: The forests of Kenya's lower Tana River. *Swara*: 29-30.

Butynski, T.M. 1997. African primate conservation: The species and the IUCN/SSC Primate Specialist Group Network. *Primate Conservation*: 87-100.

Butynski, T.M. 2002. The guenons: An overview of diversity and taxonomy. In *The Guenons: Diversity and Adaptation in African Monkeys* (eds. M.E. Glenn and M. Cords), pp. 3-13. Kluwer, New York.

Butynski, T.M. 2002. Conservation of the guenons: an overview of status, threats, and recommendations. In *The Guenons: Diversity and Adaptation in African Monkeys* (eds. M.E. Glenn and M. Cords), pp. 411-424. Kluwer, New York.

Butynski, T.M. & C.L. Ehardt. 2003. Notes on ten restricted-range birds in the Udzungwa Mountains, Tanzania. *Scopus* 23: 13-28.

Butynski, T.M., C.L. Ehardt, & T.T. Struhsaker. 1998. Notes on two dwarf galagos (*Galagoides udzungwensis* and *Galagoides orinus*) in the Udzungwa Mountains, Tanzania. *Primate Conservation*: 69-75.



