Identifying the different forms of giant sengi (*Rhynchocyon*) based on external colour patterns.

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The sengi or elephant-shrew genus *Rhynchocyon* includes five species and 8 subspecies restricted to closed canopy thickets, woodlands, and forests of central and eastern Africa. All forms are diurnal and have colourful pelage patterns, thus they are relatively easy to observe, for a small (ca. 500 g) mammal (Rathbun 2009). Sightings are being reported more frequently as people move into or explore some of the more remote areas of Africa. Well-documented sightings (and especially photographs) promise to contribute to a better understanding of giant sengi distributions, and will improve conservation assessments (www.iucnredlist.org).

The main features used in identifying *Rhynchocyon* forms include the colour of the rump and face pelage, the colour of the tail and ear skin, and the pattern of parallel dark lines and associated light spots (checkering) on the pelage of the back (Corbet & Hanks 1968). However, the checkering, which is common in many forms and is likely ancestral, is variably masked by the different intensity of dark pelage on the back and rump of some forms. These dark individuals in some cases may represent geographic clines (Corbet & Hanks 1968) with lighter forms (**see key below**).

To help people identify the different forms of *Rhynchocyon*, I have constructed the following key, which follows the taxonomy of Corbet and Hanks (1968) and updates by Rovero et al. (2008), Adanje et al. (2010), and Carlen et al. (2017). With additional data and analyses, some relatively minor changes might be expected in the future. The two figures illustrating color patterns do not include all taxa, but focus on similar forms that may present identification difficulties. General distributions (http://www.sengis.org/distribution.php), also indicated in the key, often are of great help in determining identifications.

I greatly appreciate access to the collection of the Natural History Museum, London, which is the source of my images, as well as the Ditsong Museum of Natural History, Pretoria, South Africa. Useful suggestions on this paper were provided by Peter Coals and David Ribble.

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Identification Key to *Rhynchocyon* taxa
based on external colour patterns and geographic distribution

1a. Rump patch distinctly yellow; Kenya, central coast----------***R. chrysopygus***
(subgenus *Rhinonax*)
1b. No yellow rump patch----------**2**
2a. Tail white from tip to base (sometimes with indistinct slightly darker narrow dorsum); Congo Basin and western Uganda; all are distinctly checkered, cline with western forms being darker than those to the east----------***R. stuhlmanni***
2b. Tail not white, but orange or shades of brown, often with white band near tip---**3**
3a. Tail and ear skin and face pelage bright rufous or orange; rump, back, and thigh pelage jet black (two subspecies may not be justified)----------***R. petersi petersi***
(mainland eastern Africa) and----------***R. p. adersi***
(Tanzania offshore islands).
3b. Tail skin various shades of brown to black, may be lighter ventrally, with variable white band near tip; ear skin shades of brown; rump colour variable----------**4**
4a. Face pelage gray with no yellow or brown; rump and thighs black; Tanzania, Udzungwa Mountains----------***R. udzungwensis***
4b. Face pelage brownish-yellow----------**5**
5a. Back and rump with distinct pattern of dark parallel lines, often checkered with light spots; lower back, rump, and thighs with no dark pelage obscuring lines and checkers----------
----------**6**
5b. Back dark maroon or rufous grading to nearly black rump and thighs; dark pelage nearly obscuring darker parallel lines and checkering on back; Tanzania, south-eastern coastal lowlands (north Ruvuma River)----------***R. c. macrurus***
(dark form in east-west cline, see no. 7a).
5c. Similar to no. 5b (undescribed form with incomplete understanding of colour patterns; Fig. 1); Kenya, northern coast in Boni & Dodori forests----------***Rhynchocyon* sp.**
6a. Pattern on rump and back composed of 3 very distinct pairs of parallel black or very dark lines with inner pair reaching ¾ of way to neck; distinct cream or white checker spots within at least the two inner pair of lines; Rift Valley highlands in Tanzania, Zambia, and Malawi (possible full species)----------***R. c. reichardi*** and
----------***R. c. hendersoni***
(likely individuals of *reichardi* at higher elevations with darker back, rump, and sides partially masking checkering).
6b. Pattern on rump and back composed of 1 or 2 distinct pairs of dark (often chestnut) lines that reach ½ way to neck; indistinct third pair of outer lines may be present; no white checker spotting completely within each line----------**7**
7a. Background pelage on back, and especially sides and thighs, yellow-brown; central pair of lines dark brown and well-defined with closely associated brown spotting on outer edge or with outer edge broken with intruding areas the same colour as general back pelage; Tanzania, inland southeast lowlands north Ruvuma River (light inland form in west-east cline; see no. 5a)----------***R. c. macrurus***
7b. Background pelage on back, and especially sides and thighs, gray-brown; central pair of lines chestnut and often ill-defined with outer edge or entire line broken with intruding lighter areas of surrounding yellow-brown colour of back (following pair may be same taxon)----------**8**
8a. Mozambique (south Ruvuma River) and southern Malawi---------- ***R. c. cirnei***
8b. Malawi, Shire Valley----------***R. c. shirensis***

Figure 1. *Representatives of the various "dark" forms of* Rhynchocyon *(top 4) showing distinctive features (see key). Bottom three study skins illustrate the* R. c. macrurus *cline from the coast (top of three) to inland (bottom of three). The morphologically and taxonomically undescribed* Rhynchocyon *from northern coastal Kenya (Boni-Dodori forest area) is superficially similar to the coastal form of* R. c. macrurus *(middle skin). Catalog numbers from top to bottom from the The Natural History Museum, London, (BMNH): BMNH2007.7, BMNH55.148, BMNH62.423, BMNH62-400, BMNH62-405.*

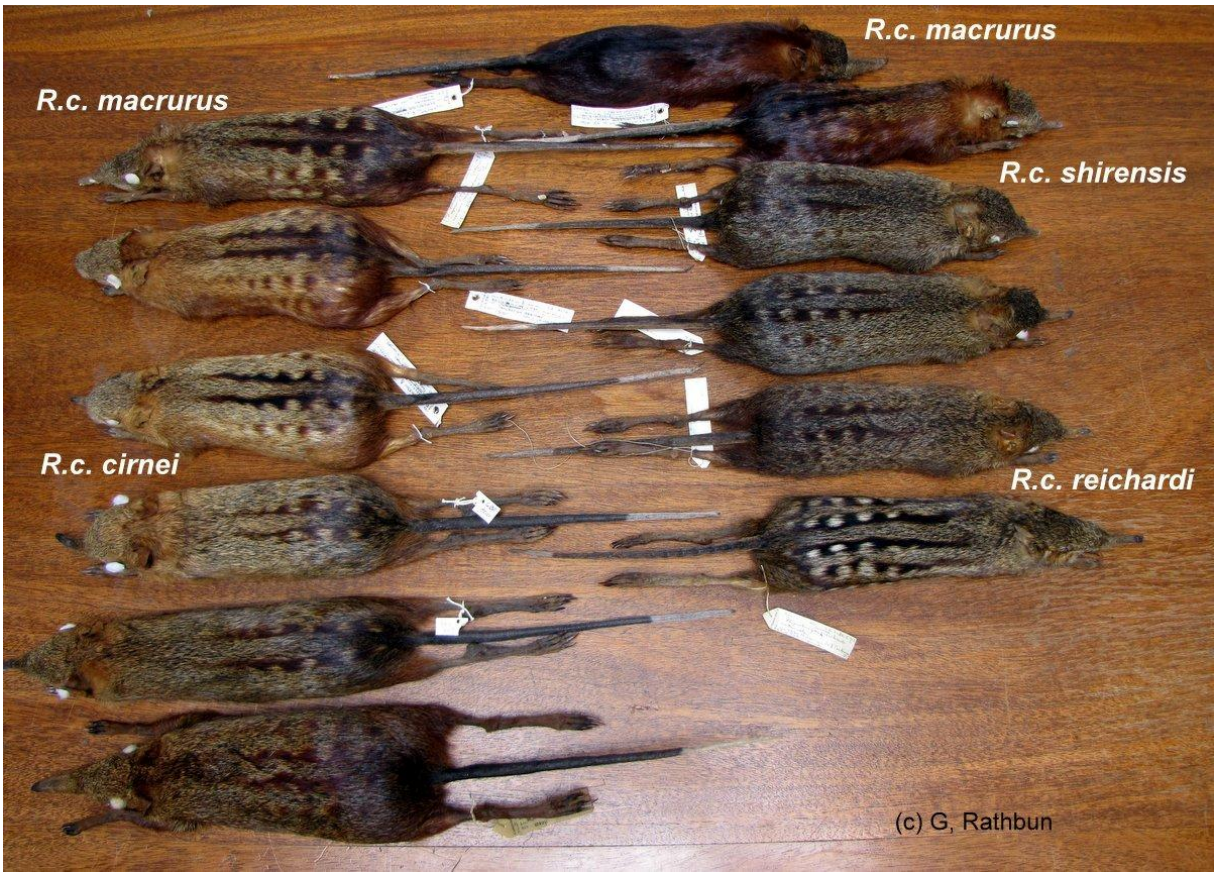

Figure 2. *Representatives of some checkered forms of* Rhynchocyon, *illustrating the complicated dorsal pelage patterns (see key). Study skins shown and their catalog numbers (The Natural History Museum, London = BMNH; California Academy of Sciences, San Francisco = CAS), from lower left clockwise:* R. c. cirnei *from northern Mozambique (BMNH34.1.11.6, CAS 29358, and CAS29352);* R. c. macrurus *cline from inland south-eastern Tanzania (BMNH62.405, BMNH62.404, BMNH1938.10.13.5) to coastal south-eastern Tanzania (BMNH63.1852 and BMNH62.400);* R. c. shirensis *from southern Malawi (BMNH22.12.17.116, BMNH14.4.29.2, and BMNH22.12.17.115);* R. c. reichardi *from Tanzania highlands (BMNH30.2.7.1; note third outer pair of lines not visible in this view).*