



Smithsonian Institution

# Patterns of Geographic Variation in *Petrodromus* (Mammalia: Macroscelididae)

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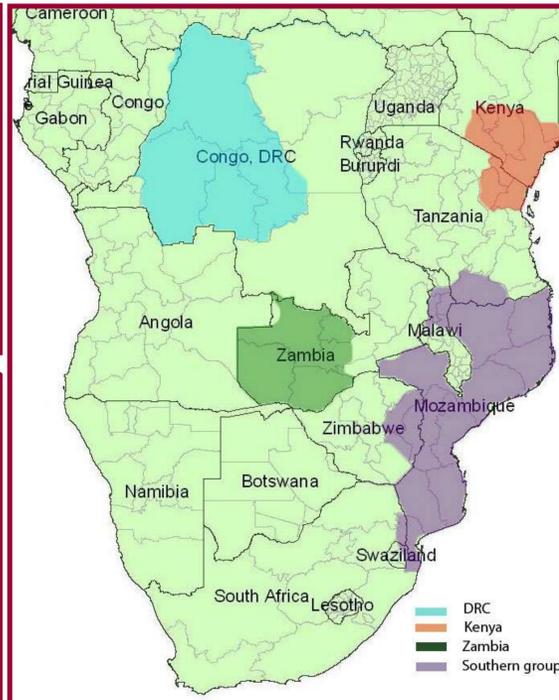


## INTRODUCTION

*Petrodromus* is a genus of elephant shrews, commonly known as sengis, that is distributed throughout most of sub-Saharan Africa. Currently a monotypic genus with ten subspecies, the number of recognized species has fluctuated since the description of *Petrodromus tetradactylus* in 1846 (Corbet and Hanks 1968).

## METHODS AND MATERIALS

To determine the morphological differentiation between populations of *Petrodromus*, we examined and measured specimens in the National Museum of Natural History (NMNH) and the American Museum of Natural History (AMNH). Thirteen cranial and 22 dental measurements were taken from 91 adult specimens. Maturity was defined as the presence of permanent premolars. All craniodental measurements were made with digital calipers to an accuracy of 0.01mm. Multivariate analyses were done using STATISTICA (StatSoft).

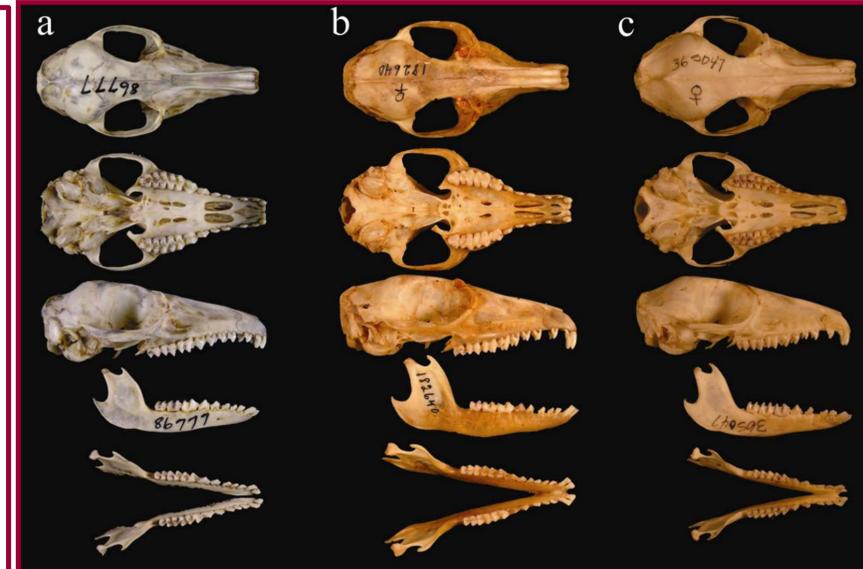


**Figure 3.** Ranges of morphological groups, as defined here, based upon the collection localities of examined specimens.

## RESULTS

Based upon morphometric analyses, the genus can be divided into four morphologically and geographically distinct groups:

- Kenya:** *Petrodromus* from this region are large, have distinctive grey flanks with a reddish-brown dorsal stripe, and prominent knobbed bristles along the ventral midline of the, otherwise bald, tail.
- Democratic Republic of Congo (DRC):** the smallest *Petrodromus*, this population has a much darker pelage than any other population; tails lack bristles and are heavily covered in dark hair.
- Zambia:** midsize *Petrodromus* with light pelage, hairy tails with small bristles without knobs along the ventral midline.
- Southern:** this grouping incorporates significant variation but is generally characterized by a medium brown pelage and sparsely-haired tails without bristles.



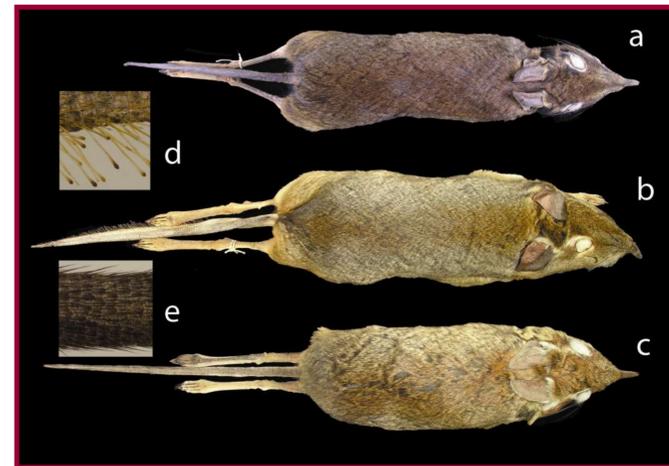
**Figure 5.** Views of skulls and mandibles of *Petrodromus*: a – DRC (AMNH 8677), b – Kenya (USNM 182640), c – Southern group (USNM 36047). Views include (from top to bottom) dorsal view of cranium, ventral view of cranium, lateral view of cranium, lateral view of mandible, and dorsal view of mandible.

## TAXONOMIC CONCLUSIONS

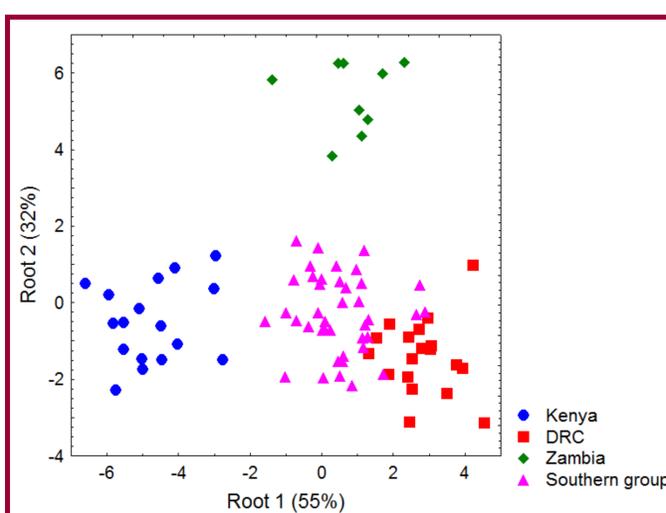
As a result of the clear morphological differentiation between the different populations of *Petrodromus*, we suggest that several subspecies be raised to the rank of species:

- Kenya:** *Petrodromus sultan* (Thomas, 1897)
- DRC:** *Petrodromus tordayi* (Thomas, 1910)
- Zambia:** *Petrodromus venustus* (Thomas, 1903)
- Southern:** *Petrodromus tetradactylus* (Peters, 1846)

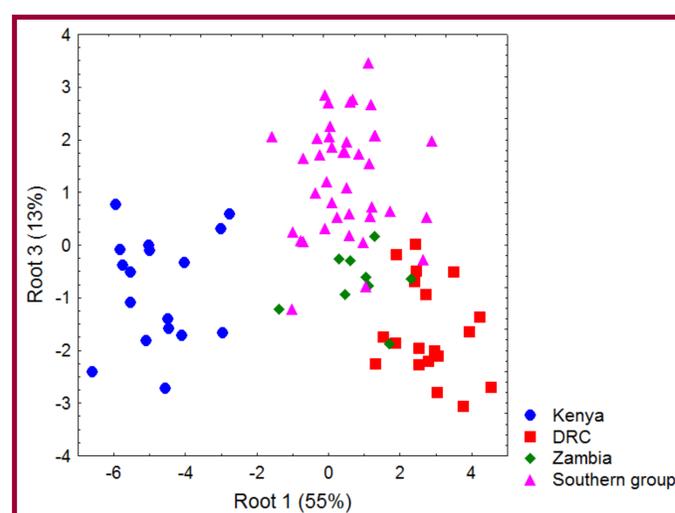
What we refer to here as the Southern group is most likely a species complex that we will address in future work through increased sample size and molecular data. There were not enough specimens from Tanzania to draw conclusions for that region, but we suspect that there are multiple species distinct from *P. tetradactylus* and the above named species within the country.



**Figure 4.** Dorsal views of skins and lateral views of tails of *Petrodromus*: a – DRC (AMNH 8677), b – Kenya (USNM 182640), c – Southern group (USNM 36047), d – detail of tail bristles of Kenya (USNM 182640), e – detail of tail of Southern group (USNM 36047).



**Figure 1.** Multivariate analysis plot. Root 1 shows variation in skull length and Root 2 reflects brain case shape.



**Figure 2.** Multivariate analysis plot. Root 1 shows variation in skull length and Root 3 reflects dental measurements

## REFERENCES

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