KEY TO THE SMALL TERRESTRIAL MAMMALS OF THE GRAND CANYON RIPARIAN ZONE

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Note: Keys are for adult specimens. Juvenile rodents are typically a dull gray color; hind feet often measure equivalent to adults in all but the youngest of some species. Use a thin, stiff ruler for measurements; ruler should be cut to start at 0 mm mark. Tail should be measured with ruler placed along the dorsal surface of the tail (0 at the junction between tail and rump) and with the tail perpendicular to the body; measure to the end of the last vertebrae (not the hair). Hind foot should be measured with ruler placed along the bottom of the foot (0 at the heel) with the foot bent perpendicular to the leg; measure to the end of the longest claw (not to the end of the toe). Ear should be measured with the ruler placed into the notch at the base of ear (0 at notch); measure to longest distance to the end of the pinna.

MISCELLANEOUS SMALL TERRESTRIAL MAMMALS

1a. Long pointed flexible nose extends well beyond mouth, small eyes, small external ears…………...(Order Insectivora) 2
1b. Not as above……………………………………………………………………………………………………….(Order Rodentia) 3

2a. Tail < ½ body; external ear extend beyond fur………………………………………………………Notiosorex crawfordi [NOCR]
   Desert shrew is verified from base Bright Angel Trail; it should be expected anywhere.
2b. Tail > ½ body, external ears hidden in fur……………………………………………………………..…..Sorex spp.
   Long-tailed shrews occur on both rims but are not expected in canyon. Retain specimen.

3a. External cheek pouches present………………………………………………….…………………………………...4
3b. External cheek pouches absent………………………………………………………………………………………16

4a. External ears reduced, barely visible above fur; tail < 60% body; fusiform body shape; long front claws…………………………………………………………………………………………………………...........................[THBO]
   Botta’s pocket gopher (Family Geomyidae) possible, verified rim. Gophers are occasionally caught in Sherman traps.
4b. External ears extend beyond fur; tail > 60 body……………………………………………………………………………..(Family Heteromyidae) 5

FAMILY HETEROMYIDAE (KANGAROO RATS)

5a. Hind foot sole densely furred along length…………………….......................................................(Kangaroo rats) 6
5b. Hind foot sole partially furred or naked………………………………………………………………………….(Pocket mice) 9

6a. Size large; hind foot > 45; tail tip white…………………………………………………………………………[DIDE]
   Desert kangaroo rat unlikely
6b. Size small; hind foot < 45; tail tip dark……………………………………………………………………………..7

7a. Hind foot with 4 toes…………………………………………………………………………………………………..Dipodomys merriami [DIME]
   Merriam’s kangaroo rat possible, verified Toroweap Valley
7b. Hind foot with 5 toes…………………………………………………………………………………………………...8

8a. Lower incisors rounded; hind foot usually < 42……………………………………………………Dipodomys ordii [DIOR]
   Ord’s kangaroo rat probable
8b. Lower incisors with flat front face; hind foot usually > 42……………………………………Dipodomys micropus [DIMI]
   Chisel-toothed kangaroo rat possible, verified north rim. This is an Arizona species of concern; only one specimen per location may be collected.
FAMILY HETEROMYIDAE (POCKET MICE)

9a. Long guard hairs often present on rump; tail always tufted.................................................................10
9b. Long guard hairs never present on rump; tail tufted or not.................................................................11

10a. When present, long guard hairs on rump are stiff; hind foot usually < 22........Chaetodipus intermedius [CHIN]
    Rock pocket mouse verified
10b. When present, long guard hairs on rump are wispy; hind foot usually > 22........Chaetodipus penicillatus [CHPE]
    Desert pocket mouse unlikely. Retain possible specimens for verification by cranial characters.

11a. Tail bushy; tail very long, usually > 95 and 125-130% of body.................................Perognathus formosus [PEFO]
    Long-tailed pocket mouse verified from north side of river throughout length of canyon. Any taken from south side should be saved as specimen
11b. Tail not bushy; tail short to long, < 95 and < 105% of body.................................................................12

12a. Hind foot > 22; antitragus with lobe (as in Chaetodipus and P. formosus); size medium; no light patches behind ears.................................................................Perognathus parvus [PEPA]
    Great Basin pocket mouse possible, verified from North Rim
12b. Hind foot < 22; antitragus without lobe; small size; light patches behind ears.................................13

13a. Tail < body ........................................................................................................................................14
11b. Tail > body ........................................................................................................................................15

14a. Tail > 60; hind foot 18-20, usually 19; light patch behind ear present but not conspicuous.................................................................Perognathus flavescens apache [PEAP]
    Apache pocket mouse is possible, verified from South Rim
14b. Tail < 61; hind foot 15-19, usually 17; light patch behind ear conspicuous........Perognathus flavus [PEFL]
    Silky pocket mouse is probable, verified from South Rim

15a. Tail 67-81; hind foot 17-21, usually 19.................................Perognathus longimembris [PELO]
    Little pocket mouse is probable. It has been verified from several areas north of river (above Marble Canyon; between Kanab Creek and Toroweap Valley and below Triumphal Arch) and from south of river near Page. Skull critical for identification.
15b. Tail 75-88; hind foot 19-22, usually 20 or 21.................................Perognathus amplus [PEAM]
    Arizona pocket mouse is possible. It has been verified from two areas south of river (above Little Colorado River and below peach Springs Canyon). Skull critical for identification.

16a. Pelage color pattern with stripes, spots or mottling...........................................................(Family Sciruidae, squirrels) 17
16b. Pelage color pattern without stripes, spots or mottling...........................................................(Family Muridae, murids) 21

FAMILY SCIURIDAE (SQUIRRELS)

17a. Black and white stripes on sides of head.................................................................Tamias spp.
    Some species of chipmunk from rims are remotely possible in canyon. Retain specimen.
17b. No stripes on face.........................................................................................................................18

18a. One white stripe on each side of body.........................................................................................19
18b. No white stripes on body..............................................................................................................20

19a. Underside of tail white; tail 50-77, usually < 70............................................................Ammospermophilus leucurus [AMLE]
    White-tailed antelope ground squirrel is verified from the river corridor. Retain any specimens from vicinity Prospect Valley or below.
19b. Underside of tail dark; tail 67-92, usually > 70............................................................Ammospermophilus harrisi [AMHA]
    Harris' antelope ground squirrel is possible; verified from south of river below Peach Springs Canyon.

20a. Overall grayish or brownish pelage with mottled appearance; mottling may appear like white spots; tail bushy; adults large (tail >150, hind foot > 48). ..................................................Spermophilus variegates [SPVA]
    Rock squirrel is verified from river corridor?
20b. Overall tannish or reddish pelage with light spots on back; tail well-furred but not bushy; adults medium (hind foot 29-35 tail < 90). ..................................................Spermophilus spilosoma [SPSP]
    Spotted ground squirrel is probable, verified from South Rim.

FAMILY MURIDAE (MICE)

21a. Tail < 60% body, soles of feet furred; distinctive odor........................................................................22
### FAMILY MURIDAE (WOOD RATS)

<table>
<thead>
<tr>
<th>31.</th>
<th>Sole of hind foot completely furred; tail very bushy (total 302-398, tail 127-168, hind foot 34-45, ear usually 32-34).</th>
<th>Neotoma cinerea [NECI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>31b.</td>
<td>Sole of hind foot naked or only partially furred; tail haired to slightly bushy.</td>
<td>Peromyscus truei [PETR]</td>
</tr>
</tbody>
</table>
32a. Tail semi-bushy; throat hairs usually gray at the base (white throated populations occur above the Little Colorado River). Neotoma stephensi [NEST]
Stephen’s wood rat is possible. It is verified from the south rim along the entire length of the canyon. Often confused with N. lepida.
32b. Tail lightly haired; Hairs at base of throat gray at base or all white. .................................33

33a. Throat hair all white (total 280-360, tail 115-161, hind foot 30-37, ear 26-33)……………… Neotoma albigula [NEAL]
White-throated wood rat is verified.
33b. Throat hair gray at base. ........................................................................................................34

34a. Hind foot < 33; penis very long, thin and often with hook-shaped tip (total 262-330, tail 111-149, hind foot 27-33, ear 25-31). Neotoma lepida deva [NELE]
Arizona wood rat is verified.
Mexican wood rat is unlikely. It has been verified from the higher elevations of the Kaibab Plateau and Prospect Valley area; all localities of record are from south of the river.

Keep eye open for voles, cotton rats and other species not on this list!