ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code: AMAFD01053**
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Perognathus amplus cineris* Benson, 1933
COMMON NAME: Wupatki Arizona Pocket Mouse

SYNONYMS: *Perognathus amplus ammodytes* Benson, 1933
OTHER COMMON NAMES: Wupatki Pocket Mouse
Coconino Pocket Mouse
FAMILY: Heteromyidae

AUTHOR, PLACE OF PUBLICATION: Benson, Proceedings of the Biological Society of Washington, 46:109, April 27, 1933.

TYPE LOCALITY: Near Wupatki Ruins, Wupatki National Monument, 27 mi. Northeast Flagstaff, Coconino County, Arizona.

TYPE SPECIMEN: Museum of Vertebrate Zoology (MVZ) 55771. Annie M. Alexander (1932). 1932-10-12.

TAXONOMIC UNIQUENESS: *Perognathus amplus* is 1 of 10 species in genus found in North America (American Society of Mammalogists 2025), and 1 of 5 species found in Arizona (Arizona Game and Fish Department 2022). Wilson and Ruff (1999) and Wilson and Reeder (2005) recognized four subspecies of *P. amplus*, and some authors have recognized as many as seven (Cockrum 1960, Hoffmesiter 1986). However, McKnight (2005) recognized only three: *P. a. amplus*, *P. a. cinerus*, and *P. a. taylori*. All three subspecies are found in Arizona (McKnight 2005).

DESCRIPTION: A small subspecies of *Perognathus amplus* characterized by short body and a small skull that is relatively broad interorbitally; tail relatively long (Hoffmeister 1986). Color is variable, with those in cinder soil around Wupatki being blackish, but paler elsewhere (Hoffmeister 1986). Body length of 60–73 mm (2.36–2.87 in) and hind foot length of 19–22 mm (0.75–0.87 in) (Hoffmeister 1986).

Species: *P. amplus* lacks stiff hairs on the rump. It has white or pale tan underparts, and orangish-tan upperparts sprinkled with black to varying degrees. The tail lacks a terminal tuff, is longer than the head and body, and is slightly darker on top (Wilson and Ruff 1999). P. amplus has a tail length of 72–95 mm (2.83–3.74 in) and weight of 9.2–14 g (0.325–0.494 oz) (Whitaker 1997, Wilson and Ruff 1999).

AIDS TO IDENTIFICATION: *P. a. cineris* is geographically isolated from the other subspecies (Hoffmeister 1986). *P. a. cineris* has a smaller body and skull, smaller zygomatic breadth, shorter hind feet, and relatively greater depth of skull than *P. a. amplus* which also has a pale color that is variable from pale pinkish buff to dark buff. *P. a. taylori* is the smallest subspecies of *P. amplus*, characterized by a short body and short hind feet, and a pinkish buff color (Hoffmeister 1986).

The species *P. amplus* can be distinguished from *P. flavus* and *P. parvus* by having a longer tail than the head and body; and from *P. longimembris* by generally larger size and a longer tail, although in some areas these two species are difficult to separate (Hoffmeister 1986, Mikesic et al. 2020). Range may possibly be the best characteristic for separating *P. amplus* from *P. longimembris*; *P. amplus* east of the Colorado River and *P. longimembris* west of the river (Mikesic et al. 2020). No other small silky pocket mice share the range of *P. amplus* (Wilson and Ruff 1999).

ILLUSTRATIONS:

Black and white photo (Hoffmeister 1986: 264, figure 5.133).
Color photo of *P. amplus* (Whitaker, Jr. 1996: plate 65).
Color photo of *P. amplus* (Wilson and Ruff 1999, page 496)

TOTAL RANGE: Endemic to Arizona. From Echo Cliffs in the north, south and east to the Colorado River and to the Little Colorado River, south of Wupatki National Monument (Hoffmeister 1986). Potential range on the Navajo Nation likely extends from Marble Canyon (Colorado River) east to the Kaibab Plateau, south through Cameron to the Leupp area (Mikesic 2020).

RANGE WITHIN ARIZONA: See “Total Range”

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: *P. amplus* is a solitary rodent that is most active at night, but may occasionally forage during the daytime (Hoffmeister 1986). It spends the day in underground burrows with small openings, usually located under a plant (Whitaker 1997, Wilson and Ruff 1999). P. amplus retreat to their burrows when temperatures cool in autumn, remaining inactive until temperatures warm again in the spring (Wilson and Ruff 1999). They may be completely inactive during colder months (Hoffmeister 1986). While in the burrow, their body temperatures cool and their metabolic rate slows, an energy-saving strategy that may account for a lifespan-up to ten years in captivity. Individuals periodically rouse to eat stored seeds so this torpor is not true hibernation (Wilson and Ruff 1999).

Population density peaks in late summer. The size of this population peak fluctuates considerably from year to year, depending on the amount of precipitation the previous winter which presumably determines the availability of seeds (Wilson and Ruff 1999). This correlation with precipitation suggests that food is what limits populations of the Arizona pocket mouse, either because it limits the number of young that females can produce, or because it determines survival probability, or both (Wilson and Reeder 1999).

REPRODUCTION: In anticipation of the breeding season, male *P. amplus* emerge from winter inactivity before females do (Wilson and Ruff 1999). Mating season starts late February to early March, extending into April (Whitaker 1997). Most females have emerged by late April, and become pregnant with litters of 1–7 young (Whitaker 1997, Wilson and Ruff 1999); mean litter size is 3.25 (Hoffmeister 1986). During this season the mice emit a distinctive odor reminiscent of stale movie theatre popcorn, perhaps as a chemical signal of sexual competence (Wilson and Ruff 1999). The young are born in late April to June (Hoffmeister 1986, Wilson and Ruff 1999).

FOOD HABITS: Arizona pocket mice feed almost exclusively on seeds of forbs or woody plants that they find by apparently digging at random in the sand or harvest from low growing plants (Whitaker 1997, Wilson and Ruff 1999). The primary seed item consumed is creosote bush, but they also consume *Pectacarya*, heronbill, and plantain seeds. They occasionally consume insects and green vegetation (Hoffmeister 1986, Whitaker 1997). They preferentially forage is small openings but will venture into large open areas when the moon is dark. They transport the seeds in external fur-lined cheek pouches to a storage area in the burrow that they defend vigorously against intruders (Wilson and Ruff 1999). Judging from the behavior of individuals in captivity, Arizona pocket mice manage their seed storage carefully, moving them around frequently within the burrow. Not all parts of the burrow system are equally

humid, so this movement may optimize the free water content of seeds or reduce their spoilage (Wilson and Ruff 1999).

HABITAT: Rieck et al. (2015) reported *P. a. cineris* was more strongly associated with black grama (*Bouteloua eriopoda*) grasslands than with galleta grassland, juniper scrub, and saltbush vegetation types in and around Wupatki National Monument. They also reported it was less abundant outside the monument where grazing was allowed than inside the monument.

Species: *P. amplus* is found in various types of desert scrub habitats, usually with a sparse ground cover (greasewood, rabbitbrush, creosote bush, cactus, mesquite, palo verde, snakeweed, ephedra, shortgrass, etc.). Along scattered scrub oak in some areas (Hoffmeister 1986). Sleeps and rears young in underground burrows (Best 1994).

ELEVATION: Elevation ranges from 3,900 to 5,420 feet (1,190–1,653 m). Most abundant between 1,450–1,600 m (4,757–5,249 ft) (Rieck et al. 2015).

PLANT COMMUNITY: Mojave and Sonoran desert scrub, Great Basin desert scrub. Associated plants include cactus, Creosote, Rabbitbrush, Palo Verde, Mesquite, Greasewood, sometimes juniper.

POPULATION TRENDS: *P. a. cineris* is geographically isolated from other subspecies (Hoffmeister 1986). Trends are not well known.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:	None (USDI, FWS 1996)
STATE STATUS:	2 (AZGFD, AWCS 2022)
HERITAGE NETWORK STATUS:	G5T2? S2
OTHER STATUS:	Not Forest Service Sensitive (USDA, FS Region 3 2013) Group 4 (NNDFW, NESL 2020) LC, at full species (IUCN, Álvarez-Castañeda et al. 2016)

PREVIOUS STATUS

ENDANGERED SPECIES ACT STATUS:	C2 (USDI, FWS 1985, 1989, 1991, 1994) C2, as *P. amplus ammodytes* (USDI, FWS 1982)
STATE STATUS:	1B (AGFD SWAP 2012)
OTHER STATUS:	Forest Service Sensitive (USDA, FS Region 3 1999, 2007) Forest Service Sensitive as *P. amplus amnodytes* (USDA, FS Region 3 1988)

MANAGEMENT FACTORS: The Navajo Nation recommends no activity (year-round) that could result in destruction of habitat or take of animals within 60 m of occupied habitat (Mikesic et al. 2020).

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Surveys need to determine the status as well as life history.

LAND MANAGEMENT/OWNERSHIP:

NPS - Wupatki National Monument
Tribal - Navajo Nation
USFS - Coconino National Forest
Private.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Perognathus is derived from the greek words *pera*, which means pouch, and *gnathus*, meaning jaw (Monk and Jones 1996).

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2001-12-13 (SMS)
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