

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AMACC03010

Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Parastrellus hesperus*
COMMON NAME: Canyon Bat, Western Pipistrelle
SYNONYMS: *Scotophilus Hesperus*, *Pipistrellus hesperus*
FAMILY: Vespertilionidae

AUTHOR, PLACE OF PUBLICATION: *Scotophilus hesperus* H. Allen, Smithson. Misc. Coll. 165: 43. 1864. *Pipistrellus hesperus* Miller, N. Amer. Fauna, 13: 88. 1897. *Parastrellus Hesperus* Hooper, S. et al. Journal of Mammalogy 87:5. 2006.

TYPE LOCALITY: Old Fort Yuma, Imperial County, California. Opposite Yuma, Arizona.

TYPE SPECIMEN: 1855. Major G.H. Thomas.

TAXONOMIC UNIQUENESS: Only species in genus *Parastrellus*.

DESCRIPTION: A very small bat, known to be the smallest bat in the United States. The total length is 60-86 mm (2.4-3.4 in); forearm length 27-33 mm; wingspread only 190-215 mm (7.5-8.5 in); weight of 2-6 g; and the braincase is narrow. Upper parts of the canyon bat are yellowish to dark gray with a brownish cast on top of the head and around the base of the ears, the under parts are pale to a smoke gray. The short rounded ears, the muzzle, and the membranes are dark brown to black and leathery. The calcar is keeled, and the hind foot is less than half as long as the tibia. The tragus is club-shaped with the tip bent forward. They have one tiny premolar behind each upper canine.

AIDS TO IDENTIFICATION: Only *Myotis californicus* and *Myotis ciliolabrum* are similar enough in appearance to be confused with the canyon bat. All three are small with a keeled calcar, but the canyon bat has a club-shaped tragus with the tip bent forward, a hind foot less than half as long as the tibia, and only one tiny premolar (*Myotis* have two premolars) behind each upper canine. *Pipistrellus subflavus* can be distinguished from *Parastrellus hesperus* because it is larger, has an unkeeled calcar and tricolor fur.

ILLUSTRATIONS: B&W photo (Barbour and Davis 1969: Pp. 111, 113; Figs. 60, 61)
B&W photo (Hoffmeister 1986: P. 92; Fig. 5.45)
B&W drawing (Ingles 1956: P. 70)
Color photo (In <http://www.nsrl.ttu.edu/tmot1/pipihesp.htm>)
Color photo (In <http://www.batcon.org/discover/species/phesper.html>)
Color photo (Whitaker 1996: P. 50)

Color photo (Wilson 1999)

Color photo (Harvey et al. 1999)

TOTAL RANGE: Western United States from southeast Washington to Michoacan and Hidalgo in western Mexico, east into Texas.

RANGE WITHIN ARIZONA: Scattered statewide. In winter, it is known from the southernmost part of the state and northwestern Mohave County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: *Parastrellus hesperus* has been known to live to seven years of age. Males are 2-6% smaller than females. They hunt along canyons, streambeds and water holes, but never far from rocky cliffs where they roost. They will roost in very small areas (1 inch crevices) near the surface, but will retreat if disturbed. This bat tends to roost singly or in very small groups. According to Findley and Traut (1970), migrations are not known to occur, bats are usually abundant with males more likely to be taken during early spring and in autumn, than females. Because these bats fly slowly, they are restricted to small foraging circuits. They have a very slow, fluttery flight that can often be observed along cliff faces, among pinyon trees, or other desert shrubs. They are often mistaken for large moths. Also, one of the smallest and weakest bats, a slight breeze can bring them to a standstill and a stronger wind will cause them to seek shelter.

REPRODUCTION: Morphological sexual changes in male and female canyon bats occur in late summer and autumn and continue through early spring. Sperm is first available in September, with insemination beginning in the fall and continuing through March. Arousal from torpor and return to a normal metabolic rate initiates ovulation. The gestation period is about 40 days, with two young usually born in June. The young are usually able to fly at one month. *P. hesperus* is known to form small maternity colonies but solitary mothers with young have been observed.

FOOD HABITS: Bats use echolocation to locate prey items. *P. hesperus* emerge much earlier in the evening, and stay out later in the morning than any other bats. They forage 2-15 m above the ground and consume about 20% of their body weight per feeding. Typically, visits water and drinks immediately after emergence each evening. They are opportunistic feeders foraging on many different types of small, usually swarming insects, but focusing on only one kind during a feeding. Seasonal dietary differences include leafhoppers in the spring, small moths during the winter, and flying ants in the summer after the rainy season. The principle regulatory factor for emergence is temperature.

HABITAT: Desert and lowlands, and rocky canyons and greasewood flats. They use rock crevices, mines, and caves with crevices as day roosts. They rarely use manmade structures as night roosts. Barbour and Davis (1969) theorize that bats may occupy burrows

of kangaroo rats. Water is a very important resource in determining the distribution of this bat. Because of the high proportion of protein in their diet, the arid environment that they inhabit, and the subsequent high levels of evaporative water loss, canyon bats generally roost close to a water source.

ELEVATION: Up to 6,800 feet (2,074 m).

PLANT COMMUNITY: Mesquite, creosote bush deserts, cottonwoods, sycamores, paloverde, saguaro, pinyon, juniper, fir, spruce.

POPULATION TRENDS: Appears stable.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None

STATE STATUS: None

OTHER STATUS: None

MANAGEMENT FACTORS: Availability of maternity roost sites is an extremely important factor for this species. There is a need for greater assurance that roosts will remain undisturbed and that future (potential) roost sites will be left when managing for bats in pinyon-juniper habitat. Ideally, management should aim to sustain adequate food, water, and roost sites in close proximity to each other. Destruction of rocky areas due to renewed mining or other development activities can kill roosting bats and remove roosting habitat.

PROTECTIVE MEASURES TAKEN: Unknown.

SUGGESTED PROJECTS: Since this bat is too tiny to carry a radio transmitter, no data exists on individual foraging areas or range. Although *P. hesperus* is common throughout the arid southwest, limited information is available on social structure, microhabitat roost requirements, roost fidelity or longevity.

LAND MANAGEMENT/OWNERSHIP: BLM - Kingman Field Office; Private.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

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