



SMALL MAMMALS



Cotton rats are members of the genus *Sigmodon*. Species within this genus are described as rodents that are thick bodied, with a medium-length tail slightly shorter than its head and body. Their ears barely project above their fur, and their tail is sparsely haired. There are two species of *Sigmodon* along the Lower Colorado River (LCR); the **Colorado River cotton rat** and the **Yuma hispid cotton rat**. The two species are indistinguishable using only external morphological characters but can readily be identified using skull measurements. They are also distinguishable using molecular techniques including DNA sequencing and karyotyping. It is likely that the two subspecies ranges do not overlap along the LCR.

Yuma hispid cotton rats are active all year, feeding mainly on grasses and vegetation with insects making up a small portion of the diet on a seasonal basis.

Grass height and density have been documented as important habitat components for hispid cotton rats; they utilize runways through dense herbaceous growth and nests are built of woven grass. They have small home ranges, which radio-telemetry studies have shown that hispid cotton rats utilize in a systematic manner, over multiple days. This may allow the species to utilize areas with patchy distribution of needed resources in a more efficient manner.

The **Colorado River cotton rat** is known to feed primarily on grasses. Other species are known to be much more generalists, eating crops, some insects, eggs, and carrion. Colorado River cotton rats may vary their diet with some of these items as well.

Little information has been collected on Colorado River cotton rat life history and habitat requirements, although there is an assumption that they are similar to other subspecies of the Arizona cotton rat and the closely related hispid cotton rat. Originally, this species was considered to be associated strongly with marsh vegetation, but further research has found the species to inhabit a greater variety of habitats. The species is known to use riparian thickets with moderate to dense grass cover, but may also use drier grassy areas. It has also been found in areas associated with common reed.



The **desert pocket mouse** (*sobrinus* subspecies) is a member of the Family Heteromyidae, which in addition to pocket mice, also includes kangaroo rats and mice. Members of this family have fur-lined cheek pouches that are used to carry seeds. The desert pocket mouse is a medium-sized pocket mouse with a long, heavily crested, and tufted tail. It has coarse fur and lacks spines on its rump. The upperparts and sides are buffy colored and finely sprinkled with black, imparting a grayish tone. The underparts are white continuing along the length of the tail to the tuft. There is no lateral line and the sole of the hind foot is naked to the heel. On average, the total length of desert pocket mice is 205 mm, the tail is 109 mm, the hind foot is 25 mm, and the weight is between 15-23 g.

The diet of the desert pocket mouse is comprised of a variety of seeds, including mesquite. It has externally opening fur-lined cheek pouches that it uses when gathering food.



The desert pocket mouse occurs in creosote bush and dry riparian communities throughout the deserts of the southwestern United States and northwestern Mexico. Desert pocket mice occur in desert areas with coarse soils and clumped brush habitat. They tend to avoid more open desert areas, likely due to a lack of cover. The general distribution of desert pocket mice corresponds to that of creosote and saltbush, and is strongly associated with the creosote-saltbrush community. They are the only species in the family Heteromyidae commonly found in riparian woodland or tamarisk habitats. Desert pocket mice are fully independent of exogenous water. While it prefers areas with shrubby canopy cover, they forage into open areas up to 4 m from cover.

DISTRIBUTION AND CAPTURE LOCATIONS:



COLORADO RIVER COTTON RAT

The exact current and historical distributional range of the Colorado River cotton rat is not well known. In Nevada, the earliest records of cotton rats in the state were in 1934 and 1961, where individual cotton rats were captured in a marsh in the extreme southern portion of the state, which subsequently dried up. Further capture efforts were unsuccessful and the species has been considered extirpated in the Nevada since then. Further south, records of the Colorado River cotton rat are more common. Individuals have been documented in Arizona from Parker to Ehrenburg. In California, the species has been reported in three locations: 1) Needles, California, 2) near Parker, Arizona, and 3) 15 miles southwest of Ehrenburg, Arizona. The California Department of Fish and Game has recorded the species in Imperial, Riverside, and San Bernardino counties, from Palo Verde to Needles. Studies suggest that, within its area of occurrence, the presence of the Colorado River cotton rat is isolated and spotty, rather than continuous. The southern extent of the range of this species is still unknown.

Capture Locations:

- Pintail Slough (near Topock Marsh)
- Beal Lake Conservation Area
- Palo Verde Ecological Reserve, near Blythe, CA
- Cibola NWR, Unit #1



YUMA HISPID COTTON RAT

The hispid cotton rat is very widespread and its range includes northern South America, Mexico, Central America, and the southeastern and south central United States. However, the Yuma subspecies (Yuma hispid cotton rat) is geographically isolated from the rest of the species. It is considered to be restricted to areas along the LCR, south of the Palo Verde Mountains, and small, isolated areas of suitable habitat west of Yuma, Arizona, in Imperial County, California. Although the Yuma hispid cotton rat may have historically occurred in the western part of the Gila River Valley east of Yuma, no evidence exists indicating that the Yuma hispid cotton rat is currently present in these areas. It is presumed that it was once much more prevalent in the Colorado River Delta area before changes on the river brought about the end of river flows reaching the delta.

Capture Locations:

- near Laguna Dam
- Imperial NWR
- Holtville, CA, in Imperial Valley



The range of the Yuma hispid cotton rat subspecies is limited to areas near Yuma, Arizona, where it has been trapped in Mexico close to the border, but may overlap with that of the Colorado River cotton rat, which also occurs along the LCR and the southern extent of its range is unknown. The northern extent of the range of the Yuma hispid cotton rat is presumed to be the Palo Verde Mountains. Work conducted in 1990 found this species occurring south of the Palo Verde Mountains, along the LCR, and the Colorado River cotton rat occurring north of the mountains. It was concluded that a good estimate of species relativity was location because the two species are allopatric, occupying different geographical areas. There is no conclusive data indicating that the two species do not overlap along the LCR and there is evidence indicating that they may be expanding their ranges into agricultural areas. In some areas of eastern Arizona the Yuma hispid cotton rat species is sympatric (occupying the same geographic area) with the Colorado River cotton rat. However, these areas are limited.



DESERT POCKET MOUSE

The desert pocket mouse occurs in creosote bush and dry riparian communities throughout the deserts of the southwestern United States and northwestern Mexico. The northern range encompasses areas from southeastern California, southern Nevada, and extreme southwest Utah. To the south, the species occurs to southeastern Baja California, Mexico, and the northern two-thirds of the state of Sonora, Mexico.

The desert pocket mouse subspecies is restricted to an area that encompasses the Colorado River, Virgin River, and Muddy Rivers in southeast Nevada and northwestern Arizona, as well as small populations in extreme southwestern Utah near Beaver Dam Wash. The other subspecies that occurs along the LCR has a wider range and occurs from Topock on the LCR in the north, to Yuma, Arizona, in the south, and occurs eastward into Central Arizona, from south of the Mogollon Rim to San Carlos Reservoir. Both subspecies are present on both sides of the LCR; the river has not served as a barrier to the distribution of this species. Pocket mice, including both LCR subspecies, occur in sandy areas, where vegetation is sparse. Many of the extant populations of desert pocket mouse are now isolated from one another, possibly due to human fragmentation of habitat.

Capture Locations:

- Las Vegas Wash
- Beal Lake Conservation Area (subspecies not confirmed)

