Arizona myotis, *Myotis occultus*

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Description: *Myotis occultus* is a medium sized *Myotis*, which could be confused with other *Myotis* species, particularly *M. lucifugus*, *M. volans, M. velifer*, and *M. yumanensis*. It has a forearm length of 36-41 mm and weighs 6.2-7.7 g (Hayward 1963, Barbour and Davis 1969). It lacks the fringed interfemoral membrane of *M. thysanodes*, and the keeled calcar of *M. volans*. Its ears are shorter than those found in *M. thysanodes* or *M. evotis*. *M. velifer* is larger (forearm 40-43 mm), and has a bare patch between the scapulae. *M. yumanensis* (forearm 33-36 mm) is smaller than *M. occultus*, and has lighter colored ears. It is most difficult to distinguish from *M. lucifugus* (Hoffmeister 1986), but the two forms do not co-occur in California. Whereas *Myotis* species generally have two premolars, *M. occultus* is frequently missing the second premolar (Stager 1943, Mumford 1963). This trait is variable, however, and thus cannot be relied upon as diagnostic.

Taxonomic Remarks: *M. occultus* is in the family Vespertilionidae. *M. occultus* was first described in 1909 from a specimen collected along the Colorado River, near Needles, California (Hollister 1909). Findley and Jones (1967) concluded that *M. occultus* should be a subspecies of *M. lucifugus*. Although this is accepted by Hall (1981) and Koopman (1993), Hoffmeister (1986) argues, based on a principal components analysis of 25 cranial measurements, that *M. occultus* should retain specific status.

Distribution: *M. occultus* has a relatively limited distribution from the southwestern United States (southeastern California, Arizona, New Mexico, western Texas) to central Mexico (Hall 1981, Hoffmeister 1986). In California, it is known from only a few localities along the Colorado River between Needles (type locality) in San Bernardino County and Yuma in Imperial County. The only substantial California colony was located near Blythe, Riverside County (Stager 1943).

Life History: *M. occultus* forms maternity roosts of up to 800 females. Although males have been found associated with colonies in late summer, they are not present when the females are rearing young (Stager 1943). Limited data suggests that in New Mexico, females give birth to a single young in June (Mumford 1957, Hayward 1963).

Although the species is reported to forage close to water and riparian vegetation, no information is available on its diet.

Habitat: Outside California, the species appears to be primarily associated with relatively high elevation (2,000-3,000 m) conifer forests, particularly fir, spruce, and ponderosa pine (Barbour and Davis 1969). In 1966, Barbour and Davis (1969) found it to be the most common of four *Myotis* species at higher elevations in New Mexico. It has also been found in low desert, particularly in association with permanent water and riparian forest (cottonwoods, sycamores, and willows) (Hayward 1963). The known habitat in California is desert riparian.

Most of the few known *M. occultus* summer roosts are in anthropogenic structures, including bridges and attics of buildings (Barbour and Davis 1969). Individual animals were found in several mines in the Riverside Mountains (D. Constantine pers. comm., Stager 1943). A recent radiotracking study in Arizona identified eight *M. occultus* roosts, including three maternity roosts (Lutch and Miller 1996). One was in a building, two were in large ponderosa pine snags, with one colony of 322 bats living in a crevice created by lightning.

Status: Class I, likely extirpated. Although there are scattered records for this species along the

Colorado River between 1905 and 1945, only one colony was ever identified in California (Stager 1943). When discovered in a highway bridge near Blythe in 1939, it contained about 800 female *M. occultus*, and remains the largest maternity roost known. The colony was present in 1945 (D. Constantine pers. comm.), but the bridge was subsequently demolished, and the colony was never located again. K. Stager (pers. comm.) reports the capture and release of a single *M. occultus* from a mine in the Riverside Mountain in the summer of 1969. Other than that, the species has not been seen in California since 1945, despite repeated bat surveys along the Colorado river corridor over the past 30 years (P. Brown pers. comm., P. Leitner pers. comm.). Surveys on the Arizona side of the river have apparently yielded few (perhaps no) 20th century specimens of this species (Castner et al. 1994, 1995a, 1995b; Cockrum et al. 1996, Hoffmeister 1986), leaving the impression that the lower Colorado population was concentrated on the California side of the river and perhaps isolated from higher elevation central Arizona populations. Winter sites for the lower Colorado population were never identified.

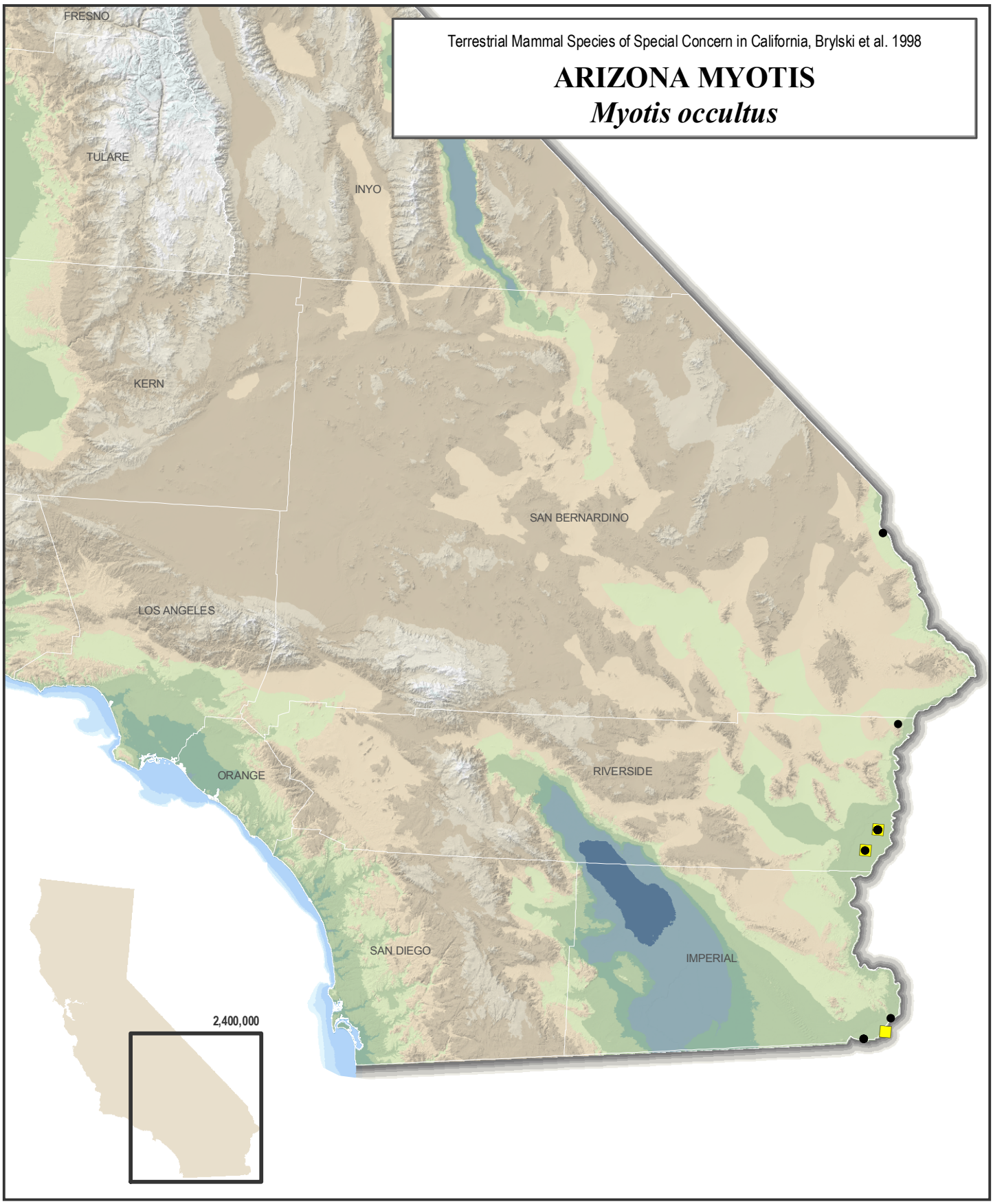
Although the disappearance of the only known colony in California is attributable to the demolition of the roost site (possibly with the bats present), both riparian habitat and water quality in lower Colorado River are also heavily altered, affecting a number of wildlife species. Observations of foraging bats of this species (Grinnell 1914, Hollister 1909, Stager 1943) in California are largely from stands of cottonwoods and willows, a habitat that is now much reduced.

Management Recommendations: Monitoring and netting in remnant lower Colorado riparian woodland could indicate whether this species persists. Radiotracking of captured bats would permit identification of roost sites and evaluation of the need for site protection.

Terrestrial Mammal Species of Special Concern in California, Brylski et al. 1998

ARIZONA MYOTIS

Myotis occultus



RESOURCES AGENCY CALIFORNIA DEPARTMENT FISH & GAME

- Locations verified by authors (captures, observations, museum records)

CNDDB 1978 and before

Wildlife Branch:KFien12109