Proximity to water: Nests are occasionally placed near or over water (Bent 1940).

Vegetation Type:
RIPARIAN VEGETATION: From two canyons in Arizona, Harshaw Canyon, Patagonia Mountains (1500m) and Madera Canyon, Santa Rita Mountains (1000m), vegetation is described as riparian vegetation characterized by sycamore, cottonwood and mesquite (Powers and Wethington 1999). Phillips et al. (1964) indicate this species is a “common summer resident” in mesquite-sycamore association, and tends to occur in mountain canyons, which drop into the desert. Of the four available riparian ecological systems, none contained sycamore, cottonwood and mesquite. However, the two NA desert riparian woodland types contained both sycamore and cottonwood, therefore these two were included. There is a distinct possibility this system will not occur within the Madrean Archipelago, which is where this species ranges. The NA mesquite bosque ecological system was included because it was the only riparian system to list Prosopis spp. It is likely the mesquite bosques will be interspersed with the two warm desert montane riparian zones, and was therefore included. We expect this species to be breeding within these three ecological systems.

NORTH AMERICAN WARM DESERT LOWER MONTANE RIPARIAN WOODLAND AND SHRUBLAND - This ecological system occurs in canyons and valleys of southern Arizona and New Mexico, and adjacent Mexico and consists of mid- to low-elevation (1100-1800 m) riparian corridors along perennial and seasonally intermittent streams. The vegetation is a mix of riparian woodlands and shrublands. Dominant trees include Populus angustifolia, Populus deltoides ssp. Wislizeni, Populus fremontii, Platanus wrightii, Juglans major, Fraxinus velutina, and Sapindus saponaria. Shrub dominants include Salix exigua, Prunus spp., Alnus oblongifolia, and Baccharis salicifolia.

NORTH AMERICAN WARM DESERT RIPARIAN WOODLAND AND SHRUBLAND -
Throughout canyons and the desert valleys of the southwestern United States and adjacent Mexico. This ecological system consists of low-elevation (<1200 m) riparian corridors along medium to large perennial streams throughout canyons and the desert valleys of the southwestern United States and adjacent Mexico. The vegetation is a mix of riparian woodlands and shrublands. Dominant trees include Acer negundo, Fraxinus velutina, Populus fremontii, Salix gooddingii, Salix lasiolepis, Celtis laevigata var. reticulata, and Juglans major. Shrub dominants include Salix geyeriana, Shepherdia argentea, and Salix exigua. Vegetation is dependent upon annual or periodic flooding and associated sediment scour and/or annual rise in the water table for growth and reproduction.

NORTH AMERICAN WARM DESERT RIPARIAN MESQUITE BOSQUE - This ecological system consists of low-elevation (<1100 m) riparian corridors along intermittent streams in valleys of southern Arizona and New Mexico, and adjacent Mexico. Dominant trees include Prosopis glandulosa and Prosopis velutina. Shrub dominants include Baccharis salicifolia, Pluchea sericea, and Salix exigua. Vegetation, especially the mesquites, tap groundwater below the streambed when surface flows stop. Vegetation is dependent upon annual rise in the water table for growth and reproduction.

Treatment of Vegetation Information: Vegetation information was derived from the BNA species account (Powers and Wethington 1999) and one natural history account (Phillips et al. 1964); vegetation information for both of these is considered dominant descriptive and is useful information in designating vegetation alliances.

Vegetation Structure: Vegetation structure is defined as small trees and shrubs (Baltosser 1989). Foraging ecology – Rather vague description here – in Arizona, this species occurs “wherever suitable nectar-producing flowers and insects are found in their preferred habitat” (Powers and Wethington 1999). Powers and Wethington (1999) “suspects” use of the following nectar-producing plants: agave (Agave parryi and A. schottii), desert honyysuckle (Anisacanthus thurberi), milkweed (Asclepias spp.), Bouvardia (Bouvardia glaberima), bird-of-paradise (Caesalpinia gilliesii), Indian paintbrush (Castilleja spp.), desert willow (Cilopsis linearis), New Mexico thistle (Cirsium neomexicanum), fireweed (Epilobium canum), coral bean (Erythrina flabelliformis), ocotillo (Fouquieria splendens), trumpet honeysuckle (Lonicera sempervirens), scarlet bugler (Penstemon barbatus), Mojave beartongue (P pseudospectabilis), superb penstemon (P. superbus) and Texas betony (Stachys coccinea). No information provided for nectar-producing plant species potentially used by BBHU in New Mexico.

Nest ecology – Baltosser (1989), in a hummingbird habitat selection study in Guadalupe Canyon, Arizona suggests BBHU nests “in thickets near the edge of the canyon in areas primarily of northern exposure bordered by rock outcrops.” Small plants and shrubs generally characterize nest territories; these plant species include netleaf hackberry, one-seed juniper, red barberry, honey mesquite, gray-thorn, little-leaf sumac, poison ivy and woolly buckthorn with some plots containing a small number of sycamore and cottonwood (Baltosser
Nests were placed in a variety of plant species and placement height was 1-3 meters above ground (Baltosser 1989; Moore 1939; Powers and Wethington 1999) and many were located within one meter of rock outcrops (Baltosser 1989). Baltosser (1989) found, in Guadalupe Canyon, nest tree and scrub use is proportional to the occurrence of these plant species. Nest placement was approximately 1 meter from ground (Baltosser 1989).

Elevational Range: In Arizona, Moore (1939) collected most of his specimens between 500 to 10,000 ft elevation (150 to 3030 meters). Although the elevational range estimate is over 60 years old, it was accepted using elevation decision rule (EDR) 2. Because this species has a very restricted range in the southeastern Arizona and occurs “rare to uncommon” in New Mexico, this information is considered representative of its known range using EDR 6. Because this species occurs primarily in the Mexico, EDR 1 was dismissed. In Mexico, elevation along the Pacific Slope is sea level to 2500 m and on the Atlantic Slope is mostly above 900 meters (Howell and Webb 1995). This information falls within the known range in Arizona. Therefore, elevational range is between 150 and 3030 meters.

Aspect: According to Powers and Wethington (1999), BBHU occur on both north and south facing slopes of canyons adjacent to “well-defined” riparian areas containing a sycamore (Platanus wrightii)-Cottonwood (Populus fremontii) overstory. However, this assertion was made based on one study within one canyon (Guadalupe Canyon on the AZ-NM border; Powers and Wethington 1999). Baltosser (1989), observed in Guadalupe Canyon BBHU nest sites occur on northern exposures.

Only two studies addressed aspect. Both of these studies were for Guadalupe Canyon on the Arizona-New Mexico border. Because this species has a restricted range, and vegetation within canyon settings is usually heterogeneous (i.e., following Topographic Decision Rule (TDR) 1), aspect was estimated using TDR 5. Aspect for North is 327 - 34° and South 125 - 214°. We suggest also using developing two models (one including aspect and one without aspect). Thereafter, the models can be compared using TDR 1.

Topography: On a coarse scale, canyons containing well-developed riparian areas are identified as habitat (Powers and Wethington 1999).
reviewed journal article (Baltosser 1989). Topographic information, although generally described, was derived from the BNA species account.

Narrative description of range: This species occurs in extreme southwestern U.S. southward into central Mexico. In southeastern Arizona, BBHU occurs from the Guadalupe Mountains westward along the border to the western side of the Baboquivari Mountains and north to the Galiuro and Santa Catalina Mountains (Monson and Phillips 1981). Brandt (1951) identified this species as nesting in the Santa Catalina, Santa Rita, Huachuca and Chiricahua Mountains. In New Mexico, this species is considered “rare to uncommon” (Hubbard 1978). It occurs in the Peloncillo and Guadalupe Mountains, Hidalgo County (Baltosser 1989; Powers and Wethington 1999). It has also been recorded during the summer, at least occasionally, south to the Gila, middle Rio Grande (Albuquerque area), lower Pecos (Carlsbad area), and the lower Canadian (Logan) valleys, “casual” near Elida and “casual to occasional” elsewhere including in the Mimbres Valley and Black Range (Hubbard 1978). It is also known to migrate and winter statewide; however, it is less frequent and numerous in the eastern plains (Hubbard 1978). This species also occurs in Guadalupe Canyon on the AZ-NM border; it has been observed in 1976, 1977 and 1980 (Baltosser 1980).

### Relationships

| **Elevation** | 150 - 3030; |
| **Slope Min** | n/a |
| **Precipitation** | n/a |
| **Temperature** | n/a |
| **Soil Depth** | n/a |
| **Aspect** | N; NNE; NE; ENE; SE; SSE; S; SSW; NNW; |
| **Distance to Water** | n/a |
| **Soil associations** | n/a |
| **Mountain Ranges** | n/a |
| **Ecological System** | S093 Rocky Mountain Lower Montane Riparian Woodland and Shrubland, S094 North American Warm Desert Lower Montane Riparian Woodland and Shrubland, S097 North American Warm Desert Riparian Woodland and Shrubland |
Citations

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