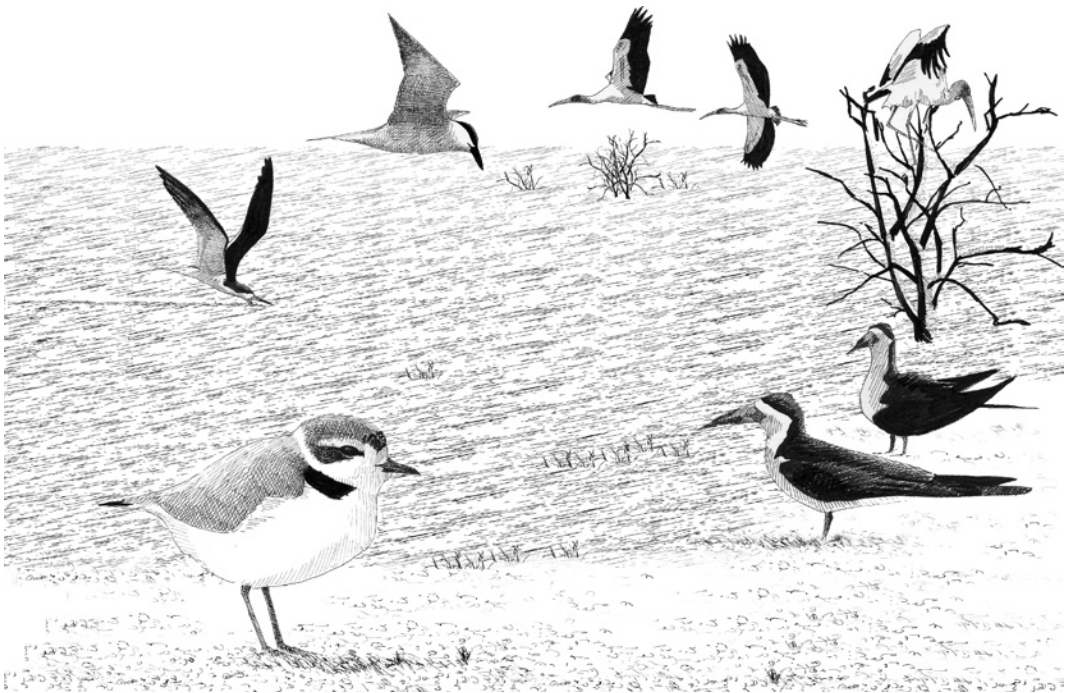


## II

---

# SPECIES ACCOUNTS

---



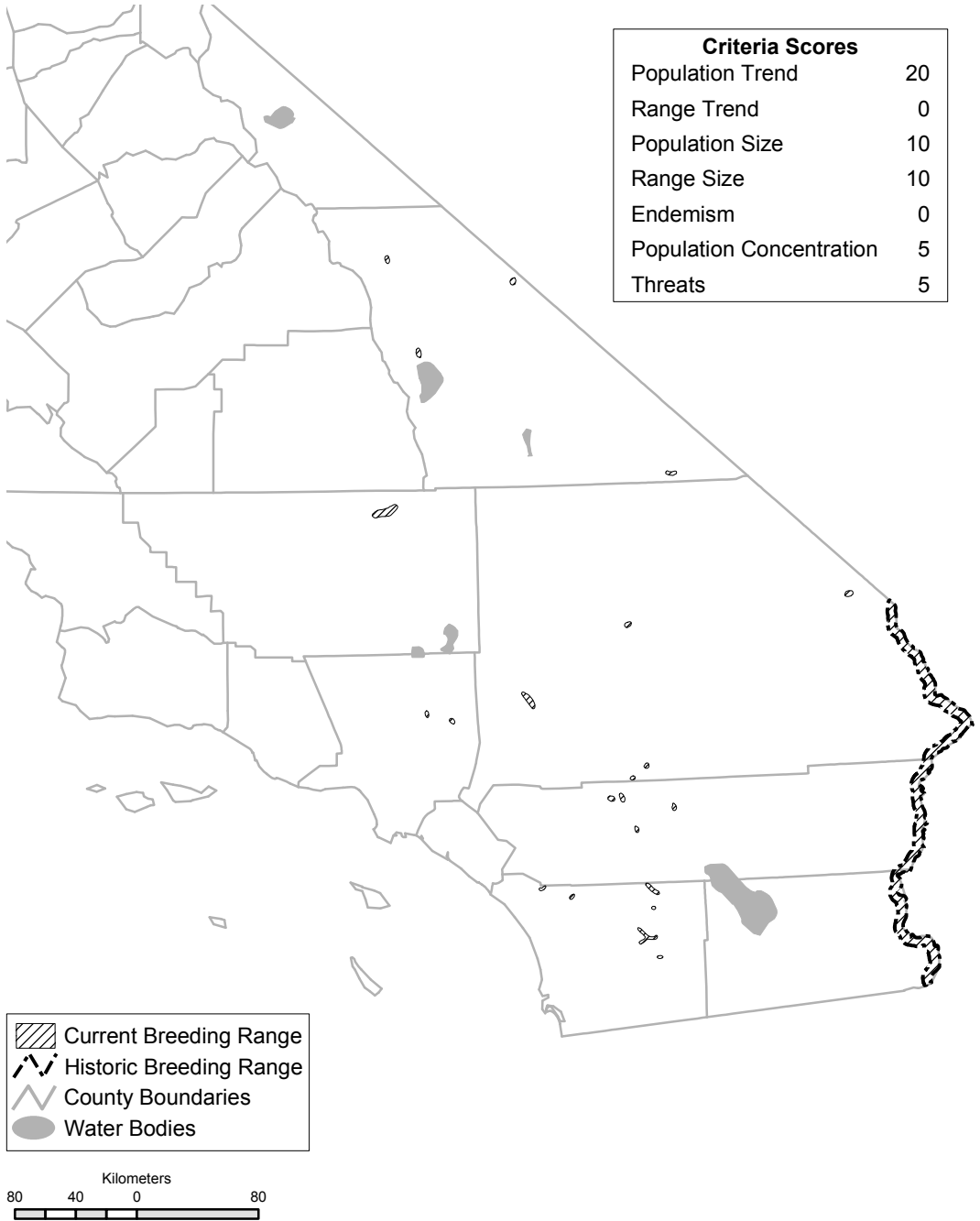
*Andy Birch*

PDF of Summer Tanager account from:

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

# SUMMER TANAGER (*Piranga rubra*)

PHILIP UNITT



Current and historic (ca. 1944) breeding range of the Summer Tanager in California, where now restricted to disjunct riparian oases in the southern deserts. Despite a dramatic overall decline in numbers in the core breeding area along the lower Colorado River, the range has expanded to the west and north.

**SPECIAL CONCERN PRIORITY**

Currently considered a Bird Species of Special Concern (breeding), priority 1. Included on the list since its inception (Remsen 1978, 2nd priority; CDFG 1992).

**BREEDING BIRD SURVEY STATISTICS FOR CALIFORNIA**

Data inadequate for trend assessment (Sauer et al. 2005).

**GENERAL RANGE AND ABUNDANCE**

Breeds across the southern United States and northern Mexico and, being entirely migratory, winters from central mainland Mexico south to northern South America (Robinson 1996, AOU 1998). Two subspecies are widely recognized: *P. r. cooperi* breeds from southern California east to New Mexico and south in mainland Mexico to the states of Durango and Nuevo Leon; *P. r. rubra* breeds from central-west Texas across the Gulf coast states to Florida and north to about 40° N in the East (AOU 1957, Robinson 1996). Possibly not all of the western range represents *P. r. cooperi*. Phillips (1966) described *P. r. ochracea* from the Big Sandy River of west-central Arizona, but the validity and range of *ochracea* remain unclear. Because of its attachment to mature riparian forest, this tanager is localized over its western range, though "common" within this habitat in Arizona (Monson and Phillips 1981). Densities can reach 20–30 birds per ha in cottonwood-willow stands along the lower Colorado River (Rosenberg et al. 1991).

**SEASONAL STATUS IN CALIFORNIA**

Primarily a summer visitor to California, arriving from mid-April to early May and departing usually in early October; breeds from mid-May through July (Rosenberg et al. 1991).

**HISTORIC RANGE AND ABUNDANCE IN CALIFORNIA**

Grinnell and Miller (1944) described the Summer Tanager's breeding range in California as the lower Colorado River from the Nevada line south to the Mexican border, listing specific records from Needles north to the Nevada line, 25 mi below Ehrenberg, and from 8 mi below Picacho downstream to Pilot Knob. Cooper (1861), the earliest ornithologist to visit the lower Colorado River valley, found the Summer Tanager to be

"common," as did Grinnell (1914) and L. M. Huey, M. Canfield, and S. G. Harter from 1916 to 1930 (specimens in SDNHM). Grinnell and Miller (1944) considered it to be "common within restricted range and habitat." Phillips et al. (1964) did not mention any decrease along the Colorado River, though coauthor Monson was active there in the 1940s and 1950s.

**RECENT RANGE AND ABUNDANCE IN CALIFORNIA**

By 1976, however, "numbers had declined tremendously, with only 216 individuals estimated" along the lower Colorado River, and well over half of these were on the Arizona side, primarily in the Bill Williams River delta (Rosenberg et al. 1991). The population continued to dwindle to an estimated 198 individuals in 1984 and 138 in 1986, reflecting habitat losses from flooding (Rosenberg et al. 1991:34, 303–304). Hunter (1984) reported an estimate of 46 for the California side, from a raw count of 5, but given no birds were found on surveys in an area where 20 were estimated on the basis of available habitat, he speculated no more than 10 pairs existed on the California side of the river in 1983. The most recent comprehensive survey in 1986 found a total (raw count) of 22 males, only 3 of which were on the California side (S. A. Laymon and M. Halterman in Rosenberg et al. 1991). In Picacho State Recreation Area, P. D. Jorgensen (pers. comm.) found one, possibly two, pairs at Marcus Wash (feeding at least one fledgling 19 Jul 2000), 1999–2001, and one pair irregularly in an 8-ha revegetation site adjacent to the main campground, 1998–2001.

By contrast to this precipitous decrease along the Colorado River, the Summer Tanager's career elsewhere in southern California has been one of gradual colonization and spread (see map). The species was first reported from Morongo Valley in 1962 (AFN 16:448), from the South Fork Kern River in 1977 (AB 31:1191). Some breeding groups, consisting of as few as a single pair, have been irregular or ephemeral; others, most notably that on the South Fork Kern River, have increased impressively. Many sites have not been reported on regularly enough for the regularity of the Summer Tanager at them to be ascertained.

Along the South Fork Kern River near Weldon, Kern County, the population stabilized at 30–38 pairs from 1985 through 1995 (Robinson 1996), then rose to 35–45 pairs from 1994 through 2000 (reports in *American Birds* and its successors). On the basis of these reports, Los Angeles and San

Diego County bird atlas data, and Myers (1998), sites in the California deserts, roughly from north to south, are Big Pine, Owens Valley (1 pair 1991, 1 male 1994–1995), Lone Pine, Owens Valley (1 male 1997, 1 pair 1998, 1 individual 1999), Scotty's Castle, Death Valley National Park (1 pair 1991), Tecopa, Amargosa River (1 pair at least through 1979), Inyo County; Little Rock Creek, San Gabriel Mts. (2–4 pairs, 1998–1999), Big Rock Creek near Valyermo (3 pairs through 1986, 1–2 pairs 1995–1997), Los Angeles County; Fort Piute (2 pairs, 1984 and 2002), Camp Cady, Mojave River (1 individual 1997), Mojave Narrows Regional Park, Mojave River, Victorville (3–4 pairs 1987, increasing to 12–15 pairs 1996–1997 and an estimated 20 pairs in 2000), Morongo Valley (usually 3 pairs annually, 4 in 1985), Yucca Valley (1 pair annually), San Bernardino County; Whitewater Canyon (usually 2–4 pairs annually, 5 in 1985), Palm Canyon, near Palm Springs (1 pair 1978), Thousand Palms Oasis, Coachella Valley (Garrett and Dunn 1981; no more recent record), near Mecca, Coachella Valley (1 pair 1969; no more recent record), Riverside County; Middle Willows, Coyote Creek Canyon, Anza-Borrego Desert State Park (1 singing male 1998), Lower Willows, Coyote Creek Canyon, Anza-Borrego Desert State Park (1 individual 2000–2001), Borrego Palm Canyon, Anza-Borrego Desert State Park (1 pair 1997, 2000–2001), San Felipe Creek in San Felipe Valley and Sentenac Ciénaga, Anza-Borrego Desert State Park (up to 7 pairs 1998–2001), Banner (2 pairs 2001), Vallecito Creek at Campbell Grade, Anza-Borrego Desert State Park (1 individual 2001), San Diego County; and Brock Ranch, 30 km east of Holtville (2 pairs, not reported since 1978), Imperial County.

On the coastal slope, a single pair was at Castaic Junction along the Santa Clara River, northwestern Los Angeles County, in 1985. No Summer Tanagers were reported from this site during the fieldwork for the Los Angeles County bird atlas, 1995–1999, but farther upstream 2–3 nesting pairs were in Soledad Canyon in 1997, and one pair was reported in 1999. One pair raised young near San Dimas, Los Angeles County, on the south side of the San Gabriel Mountains in 1995. Up to three individuals have summered irregularly at Old Mission Dam along the San Diego River, San Diego County, 1968–2000, with no evidence of breeding. The Summer Tanager colonized northwestern San Diego County in 2000, with one individual at Wilderness Gardens County Park on the San Luis Rey River in 2000, a pair in nearby Agua Tibia Canyon in 2001, and 3–4 pairs

along the Santa Margarita River near Fallbrook in 2000 and 2001, at least one of which nested successfully (K. L. Weaver in Unitt 2004).

All known sites combined, the total known California population is little if any over 100 pairs.

A study of 1213 base pairs of mitochondrial DNA sampled from Summer Tanagers at various sites in the species' range found little geographic structure of genetic variation within subspecies *cooperi*, suggesting multiple colonizations or free gene flow among the scattered groups (Shepherd 2004).

## ECOLOGICAL REQUIREMENTS

In California, the Summer Tanager breeds primarily in mature riparian woodland with an extensive canopy of Fremont Cottonwood (*Populus fremontii*; Rosenberg et al. 1991). In Arizona, it has bred in stands of the exotic Athel Tamarisk (*Tamarix aphylla*) and, at higher elevations, Honey Mesquite (*Prosopis glandulosa*) and tamarisk (*Tamarix* spp.). Rosenberg et al. (1991) suggested the height of the trees (at least 9 m) and the trees' furnishing a microclimate cool enough to allow midsummer nesting are the critical variables making the habitat suitable for Summer Tanagers. They noted that the species nests in tamarisk and mesquite at higher elevations farther east in Arizona, where the cooler temperatures mean that the heat-ameliorating qualities of the willows and cottonwoods are less critical to successful nesting. The only exceptions among California Summer Tanager sites to riparian forest are Brock Ranch, an orchard, near San Dimas, where the birds nested in Coast Live Oaks (*Quercus agrifolia*), and Whitewater Canyon, where the birds nest in Siberian Elms (*Ulmus pumila*) and other ornamental trees as well as cottonwoods (Myers 1998). Clearly, tall, shady trees are the most critical element. Of seven nests found by Rosenberg et al. (1991), four were in cottonwoods, three in willows, all 8 to 15 meters above ground. Nests found by P. D. Jorgensen (pers. comm.) along San Felipe Creek have likewise been in the canopy.

Along the South Fork Kern River, T. Gallion (in Robinson 1996) found Summer Tanagers using areas of 9 to 11 ha. Along the Colorado River, Rosenberg et al. (1991) recorded a density of 20–30 birds per 40 ha of suitable habitat.

Summer Tanagers forage primarily for large insects as they move deliberately through the canopy of tall riparian trees, sallying for aerial prey or snatching insects from the foliage or

branches while in flight (Rosenberg et al. 1991). The midsummer diet ( $n = 7$  stomachs) on the lower Colorado River was mainly cicadas, bees and wasps, and grasshoppers, with a few spiders, beetles, flies, and bugs. During the late breeding season, migration, and winter Summer Tanagers also consume fruit (Robinson 1996).

### THREATS

Removal of riparian forest is clearly the most direct threat to the Summer Tanager in California. In addition, habitat degradation through fragmentation and the lowering of water tables compounds the effects of clearing, cutting, and burning of trees. If the heat-moderating qualities of the leafy cottonwoods and willows are critical to the nesting success of the Summer Tanager and other desert birds nesting in midsummer, as implied by Rosenberg et al. (1991), fragmentation of a once continuous forest could reduce the birds' ability to find a cooler microclimate. Temperatures even in the shade of remaining scattered cottonwoods could rise above the threshold, killing some eggs or chicks. Patch size may be critical; Rosenberg et al. (1991:62) found that the birds failed to recolonize a 30-ha revegetation site grown to mature cottonwoods, though they visited it occasionally.

Unnatural water regimes, in combination with the invasion of tamarisk, are also a threat. Floods in 1983, 1984, and 1986 killed most remaining cottonwoods along the lower Colorado River, and high soil salinity, prolonged inundation, and fire favored their replacement by tamarisk (Rosenberg et al. 1991). Extraction of groundwater around Victorville has converted much dense, lush forest along the Mojave River into open, dry woodland (Myers 1992). Off-road vehicles and lack of water may prevent cottonwoods from regenerating in this area (Myers 1998). There has been virtually no regeneration of cottonwoods in the Imperial Valley for the past 25 years, and the number of trees is now decreasing rapidly as old trees die off (pers. obs.). In addition to tamarisk, proliferation of other exotic plants, Giant Reed (*Arundo donax*) and Russian Olive (*Elaeagnus angustifolius*), displaces suitable Summer Tanager habitat. The spread of *Arundo* (accelerated by flooding in 1993) on the coastal slope threatens habitat into which the Summer Tanager could spread.

Fire is a serious threat to Summer Tanager habitat. Burning of riparian forest along the Colorado River favors tamarisk at the expense of cottonwood (Rosenberg et al. 1991). Some Summer Tanager habitat at Morongo Valley burned in 1992 (Cardiff

1993). Fire followed by flash floods destroyed the habitat in Borrego Palm Canyon in 2004–2005 (L. J. Hargrove pers. comm.). In the desert, regeneration of native riparian forest following fire, even without competition from exotic plants, is likely slower than on the better-watered coastal slope.

Cowbird parasitism has not been identified as a serious threat to the Summer Tanager in California, but the extent of this parasitism remains poorly studied, in part because the birds nest high in the canopy. Along the South Fork Kern River, only 1 of 16 nests was parasitized by the Brown-headed Cowbird (*Molothrus ater*; T. Gallion in Robinson 1996). The Brown-headed Cowbird was "common" along the Colorado in 1910 (Rosenberg et al. 1991), and it may pose a population-level threat only when tanager numbers are already greatly reduced by habitat loss and degradation. The larger Bronzed Cowbird (*Molothrus aeneus*) may pose more of a threat to the Summer Tanager than the smaller Brown-headed. Bent (1958) called the Summer Tanager a "fairly regular" victim of the Bronzed Cowbird in Sonora, so the increase of the Bronzed Cowbird in California may raise concern.

Even if broad-scale forces (possibly a climatic trend toward warmer and wetter summers—Johnson 1994) are inducing the Summer Tanager to spread west, this expansion is contingent on the availability of suitable habitat.

### MANAGEMENT AND RESEARCH RECOMMENDATIONS

- Maintain and restore native riparian forest. The results of experiments in restoration along the Colorado River demonstrate that the Summer Tanager, along with the Yellow-billed Cuckoo (*Coccyzus americanus*), is one of the most difficult species to restore (Rosenberg et al. 1991). Success in reforestation entails proper planning and execution, long-term commitment, and focus on fewer large sites in preference to many small ones. Meaningful restoration of riparian forest along the Colorado River requires a massive investment but benefits many species and the entire ecosystem simultaneously. The Summer Tanager's situation as a species of extensive mature forest marks it as a suitable "umbrella" species for restoration efforts along the Colorado River.
- Protect and enhance desert riparian oases west of the Colorado River. Control tamarisk and/or exclude livestock or off-road vehicles as appropriate.

- Where necessary, investigate the hydrology of riparian oases so the groundwater supporting them can be sustained.
- Identify the degree of canopy closure and range of habitat patch size the Summer Tanager uses at various sites (Kern River, Victorville, and San Felipe Creek, at least) to guide the goals of restoration efforts.
- Investigate further techniques for restoration of riparian forest, addressing a wider variety of sites and building on research already done along the Colorado and Kern rivers. What are the factors enabling and inhibiting natural regeneration of cottonwoods?
- Evaluate the extent of cowbird parasitism on the Summer Tanager at various sites.
- Investigate the species' local movements, by means of color-banding. To what extent, if any, do the birds move from one local population to another? Are new breeding groups being established from birds originating within California or via immigration from east of the Colorado River? Limited banding along San Felipe Creek in 2003 established that some individuals return to the same site in successive years.

### MONITORING NEEDS

The Summer Tanager is vocal and reasonably conspicuous, and the males are highly territorial, making it a comparatively easy species to monitor. There has never been a survey that addressed all breeding populations simultaneously in a single year, so this could be carried out through coordination of multiple observers at all known sites and repeated at intervals of no more than 5 years, possibly in tandem with surveys for other riparian birds. A survey of the current situation along the Colorado River is especially needed. Prospective habitat not currently known to be occupied should be easily identified from vegetation maps or aerial photographs. A statewide coordinator of Summer Tanager information should be identified so there could be a central point for reports of discoveries of prospective pioneers or new breeding populations.

### ACKNOWLEDGMENTS

Thanks to T. Gallion, K. L. Garrett, P. D. Jorgensen, S. J. Myers, K. L. Weaver, and M. J. Whitfield for reviewing a draft of this account and to M. Alexander, L. Comrack, and W. D. Shuford for helping with revisions.

### LITERATURE CITED

- American Ornithologists' Union (AOU). 1957. Checklist of North American Birds, 5th ed. Am. Ornithol. Union, Baltimore.
- American Ornithologists' Union (AOU). 1998. Checklist of North American Birds, 7th ed. Am. Ornithol. Union, Washington, DC.
- Bent, A. C. 1958. Life histories of North American blackbirds, orioles, tanagers, and allies. U.S. Natl. Mus. Bull. 211.
- California Department of Fish and Game (CDFG). 1992. Bird species of special concern. Unpublished list, July 1992, Calif. Dept. Fish & Game, 1416 Ninth St., Sacramento, CA 95814.
- Cardiff, E. A. 1993. Breeding Bird Census 1992: Desert riparian-freshwater marsh. J. Field Ornithol. 64 (suppl.): 92–93.
- Cooper, J. G. 1861. New California animals. Proc. Calif. Acad. Sci. 2:118–123.
- Garrett, K., and Dunn, J. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Soc., Los Angeles.
- Grinnell, J. 1914. An account of the mammals and birds of the lower Colorado Valley with especial reference to the distributional problems presented. Univ. Calif. Publ. Zool. 12:51–294.
- Grinnell, J., and Miller, A. H. 1944. The distribution of the birds of California. Pac. Coast Avifauna 27.
- Hunter, W. C. 1984. Status of nine bird species of special concern along the Colorado River. Nongame Wildl. Invest., Wildl. Mgmt. Branch Admin. Rep. 84-2, Calif. Dept. Fish & Game, 1416 Ninth St., Sacramento, CA 95814. Available at [www.dfg.ca.gov/hcpb/info/bm\\_research/bm\\_pdfripts/84\\_09.pdf](http://www.dfg.ca.gov/hcpb/info/bm_research/bm_pdfripts/84_09.pdf).
- Johnson, N. K. 1994. Pioneering and natural expansion of breeding distributions in western North American birds. Studies Avian Biol. 15:27–44.
- Monson, G., and Phillips, A. R. 1981. Revised Checklist of the Birds of Arizona. Univ. Ariz. Press, Tucson.
- Myers, S. J. 1992. Biological inventory of the Mojave River corridor, in Natural resources inventory of the Mojave River corridor, pp. 1–47. Report to Mojave River Corridor Task Force. Tierra Madre Consultants, Riverside, CA. Available from Calif. Dept. Fish & Game, Habitat Conserv. Planning Branch, 1416 Ninth St., Sacramento, CA 95814.
- Myers, S. J. 1998. Summer Tanager (*Piranga rubra*). Account for the West Mojave Habitat Conservation Plan. Available from the Bureau of Land Mgmt., 22835 Calle San Juan de los Lagos, Moreno Valley, CA 92553 or at [www.blm.gov/ca/st/en/fo/cdd/wemo\\_species\\_birds.html](http://www.blm.gov/ca/st/en/fo/cdd/wemo_species_birds.html).
- Phillips, A. R. 1966. Further systematic notes on Mexican birds. Bull. British Ornithol. Club 86:148–159.
- Phillips, A. R., Marshall, J., and Monson, G. 1964. The Birds of Arizona. Univ. Ariz. Press, Tucson.

- Remsen, J. V., Jr. 1978. Bird species of special concern in California: An annotated list of declining or vulnerable bird species. Nongame Wildl. Invest., Wildl. Mgmt. Branch Admin. Rep. 78-1, Calif. Dept. Fish & Game, 1416 Ninth St., Sacramento, CA 95814.
- Robinson, W. D. 1996. Summer Tanager (*Piranga rubra*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 248. Acad. Nat. Sci., Philadelphia.
- Rosenberg, K. V., Ohmart, R. D., Hunter, W. C., and Anderson, B. W. 1991. *Birds of the Lower Colorado River Valley*. Univ. Ariz. Press, Tucson.
- Sauer, J. R., Hines, J. E., and Fallon, J. 2005. The North American Breeding Bird Survey, results and analysis 1966–2004, version 2005.2. USGS Patuxent Wildl. Res. Ctr., Laurel, MD. Available at [www.mbr-pwrc.usgs.gov/bbs/bbs.html](http://www.mbr-pwrc.usgs.gov/bbs/bbs.html).
- Shepherd, T. 2004. Analysis of intraspecific variation within the Summer Tanager (*Piranga rubra*) including a population-level study of *P. r. cooperi*. Master's thesis, San Diego State Univ., San Diego.
- Unitt, P. 2004. San Diego County bird atlas. Proc. San Diego Soc. Nat. Hist. 39.