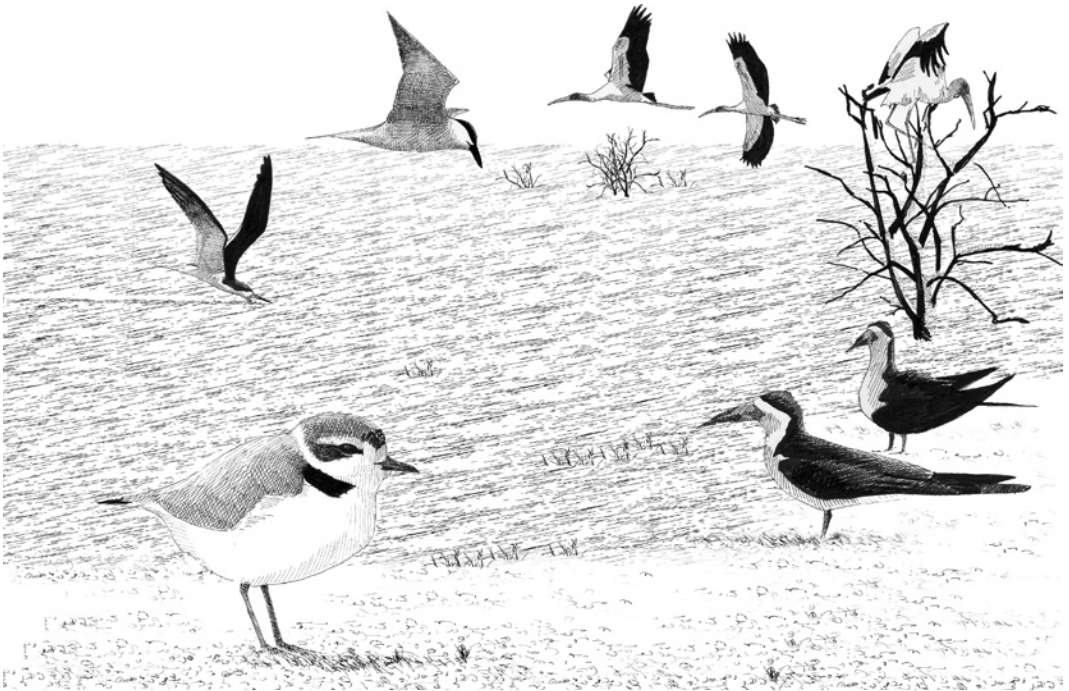


II

SPECIES ACCOUNTS



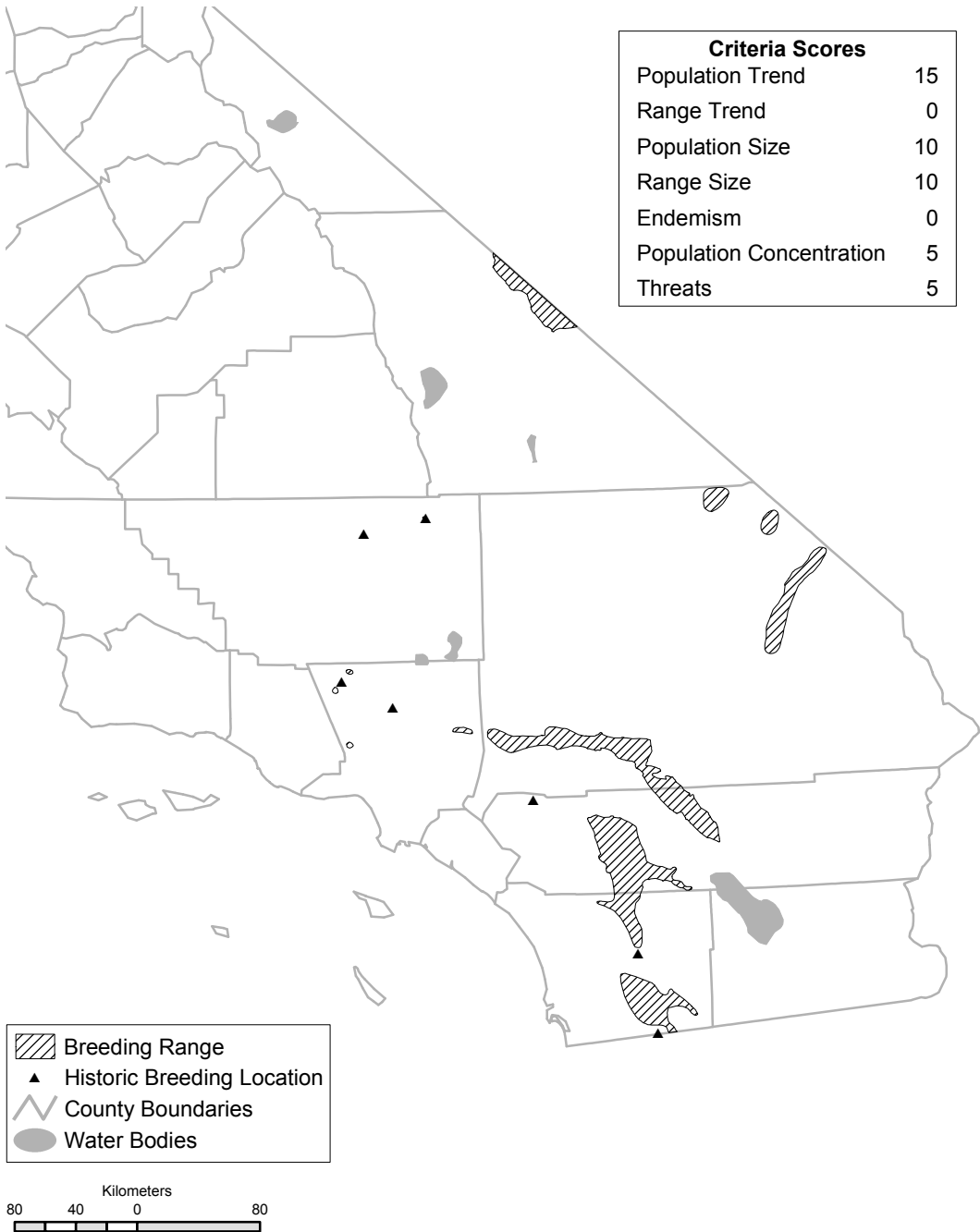
Andy Birch

PDF of Gray Vireo 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.

GRAY VIREO (*Vireo vicinior*)

PHILIP UNITT



Breeding range of the Gray Vireo in California. Despite some local extirpations and a great decline in overall numbers, the general outline of the breeding range remains the same as in ca. 1944. Winters in the state only very locally (perhaps irregularly) in one canyon in the Anza-Borrego Desert.

SPECIAL CONCERN PRIORITY

Currently considered a Bird Species of Special Concern (breeding), priority 2. Included on both prior special concern lists (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 in the mountains of southern California, northern Baja California, southern Nevada, southern Utah, Arizona, New Mexico, western and southern Colorado, extreme northwestern Oklahoma, west Texas, northwestern Coahuila, and possibly southwestern Wyoming. Winters primarily in Baja California Sur and the lowlands of Sonora, and in small numbers in the mountains of southern Yuma County, Arizona (AOU 1998). Recently discovered wintering in the Big Bend region of Texas and very locally in Baja California (Norte) and the Anza-Borrego Desert of southern California (Unitt 2000). More numerous east of the Colorado River than in California, being called "fairly common to common" though "often quite local" in Arizona (Monson and Phillips 1981). Some geographic variation noted but no subspecies currently recognized (Barlow et al. 1999).

SEASONAL STATUS IN CALIFORNIA

Almost exclusively a summer visitor (Mar to Aug or Sep) to California, except for in a small portion of the Anza-Borrego Desert, where the species winters in very small numbers (Unitt 2000). Details on the length of the breeding season in California are meager, but it apparently extends from at least late April through July (Barlow et al. 1999, Unitt 2004).

HISTORIC RANGE AND ABUNDANCE IN CALIFORNIA

Grinnell and Miller (1944) reported the Gray Vireo as a summer resident in the mountains of the eastern Mojave Desert and in the Transverse (San Gabriel, San Bernardino, and Little San Bernardino mountains) and Peninsular ranges. Outlying areas of occurrence included Bodfish and Walker Pass, eastern Kern County; near Liebre Mountain and Mint Canyon (near Vasquez Rocks), Los Angeles County; 10 mi east of

Riverside (probably Box Springs Mountain), Riverside County; and Julian and Campo, San Diego County. Altitudes of nesting localities ranged from 2000 to 6500 ft (610–1980 m). Grinnell and Miller called it "common locally; . . . in many parts of range to be rated as no more than fairly common." Nevertheless, the density Grinnell and Swarth (1913) estimated in the San Jacinto Mountains (elevations 900–2000 m), 16 pairs per sq mi (6.2 per km²), is low for a small landbird and suggests that the Gray Vireo may never have been truly common.

RECENT RANGE AND ABUNDANCE IN CALIFORNIA

The overall range of the Gray Vireo in California has changed relatively little since 1944 (see map). Still, the species has been extirpated from or become very rare in Kern County, the San Gabriel Mountains (persisting tenuously, at best, on the north slope, Garrett and Molina 1998; only five locations recorded during Los Angeles County bird atlas fieldwork, 1995–1999, L. Allen pers. comm.), the Phelan/Cajon Pass/Hesperia area, Joshua Tree National Monument, and some localities in Riverside and San Diego counties. At the northwestern limit of the range in Los Angeles County, the species was recorded during fieldwork for the bird atlas in Cienega Canyon (tributary of Castaic Creek), which is in the Liebre Mountain area, and occurred over much of the latter half of the 20th century in a narrow band at about 5000 ft (1525 m) elevation from west of Valyermo to southwest of Pinyon Hills along the north flank of the San Gabriel Mountains (K. Garrett in litt.).

The Gray Vireo still occurs in the Mojave Desert (Panamint, Grapevine, Kingston, Clark, and New York mountains, Mid Hills, Providence Mountains), on the northeastern slopes of the San Bernardino Mountains (regular in the Round Valley/Rose Mine area; Garrett and Molina 1998), very locally on the desert slopes of the San Jacinto and Santa Rosa mountains, and patchily (two main areas) in the mountains of San Diego County (Unitt 2004). No rangewide survey of the species has been made, but in California it is apparently most numerous in San Diego County, where the breeding population is probably in the low hundreds (Unitt 2004). The local distribution of the species and the inaccessibility of much of its potential habitat makes estimating numbers difficult.

Weathers (1983) reported one individual per 10 acres (equivalent to 32 pairs per sq mi [12.4

per km²) in Deep Canyon in the Santa Rosa Mountains, but the area over which this applies may be very small. In the Providence Mountains of the eastern Mojave Desert, the population density is even lower, only 4 pairs per sq mi (1.5 per km²) of suitable habitat (Johnson et al. 1948).

In winter, the species is known only from the stand of Elephant Trees (*Bursera microphylla*) along and near Alma Wash, south of Ocotillo Wells in Anza-Borrego Desert State Park, San Diego County. Unitt (2000) reported five individuals there in December 1999, but subsequent visits found no more than a single bird per day and none in 2000–01 (L. Hargrove in Unitt 2004).

ECOLOGICAL REQUIREMENTS

In all parts of the Gray Vireo's range, shrub cover that "forms a continuous zone of twig growth from one to five feet above the ground" (Grinnell and Miller 1944) is the common factor of habitat. The shrubbery may evidently be either closed, as in chaparral, or partly open, as in the understory of pinyon-juniper woodland. In the Peninsular Ranges of southern California, the Gray Vireo frequents chaparral dominated by Chamise (*Adenostoma fasciculatum*) or Red Shank (*A. sparsifolium*). The birds range into scrub oak (*Quercus* spp.), manzanita (*Arctostaphylos* spp.), *Ceanothus* spp., pinyon, or Big Sagebrush (*Artemisia tridentata* ssp. *tridentata*) where these are mixed with or near *Adenostoma* (Grinnell and Swarth 1913, Weathers 1983). The chaparral is mature or late in postfire succession, as suggested by Grinnell and Swarth's (1913) comment that "a person may follow a bird around for 20 minutes, keeping track of it by its oft-repeated song, without catching a view of it above the level of the chaparral tops." In the Laguna Mountains, Gray Vireos frequent chaparral dominated by Chamise and *Ceanothus greggii* (Unitt 1984). In the Transverse Ranges, the habitat is mixed shrubs including Big Sagebrush, Antelope Bush (*Purshia tridentata*), California Buckwheat (*Eriogonum fasciculatum*), Box Thorn (*Lycium* spp.), Silk Tassel Bush (*Garrya* spp.), scrub oak, manzanita, *Ceanothus*, and *Ephedra* spp., typically mixed with scattered Singleleaf Pinyon (*Pinus monophylla*), California Juniper (*Juniperus californica*), and/or Joshua Tree (*Yucca brevifolia*; Garrett and Molina 1998). In Joshua Tree National Monument and the mountains of the eastern Mojave Desert, Gray Vireos occur in pinyon-juniper woodland (Miller and Stebbins 1964) or sagebrush mixed with pinyon-juniper woodland (Johnson et al. 1948).

In southern Nevada, Johnson (1972) identified Curl-leaf Mountain-Mahogany (*Cercocarpus ledifolius*), Gambel Oak (*Quercus gambelii*), Mexican Manzanita (*Arctostaphylos pungens*), Wild Crab Apple (*Peraphyllum ramosissimum*), and Cliffrose (*Purshia mexicana* var. *stansburyana*) as frequent constituents in addition to pinyon, juniper, and sagebrush.

In the desert, the breeding range of the Gray Vireo appears limited by the density of suitable shrubs. On the coastal side, the limiting factor is unclear but may be related to atmospheric humidity. The areas where the vireos breed are rarely if ever touched by coastal morning low clouds. In any case, vast areas of Chamise chaparral in southern California were never occupied. With the distribution now reduced to scattered patches within the suitable habitat, ecological modeling of the factors affecting the Gray Vireo in California is impaired.

Gray Vireos place their nests in a variety of shrubs and small trees. Nests hang freely from terminal or lateral forks of small branches, where screened by surrounding foliage, at heights ranging mainly from 1 to 3 m (Barlow et al. 1999, Unitt 2004). Two nests in San Diego County were just under the leafy canopy of shrubs and supported from the sides by multiple twigs. Two broods per year are probable at least in Texas and Arizona (Barlow et al. 1999). Nests are parasitized by the Brown-headed Cowbird (*Molothrus ater*) but where well studied, outside California, incidence is relatively low (4% and 20% of nests in two studies), and most nests with cowbird eggs are abandoned within a few days after laying by the parasite (Barlow et al. 1999).

The diet of the Gray Vireo is mainly a wide variety of insects, with geometrids, large caterpillars, and grasshoppers the most frequently noted prey (Barlow et al. 1999). The winter diet is poorly known but also includes the fruit of the Elephant Tree and likely that of other plant species. These vireos forage mostly in thickets, taking prey from the foliage or bark of the inner two-thirds of bushes or trees.

In winter, the Gray Vireo is closely associated with the Elephant Tree, the bird as a seed disperser and the plant as a food source possibly being linked in mutual dependence (Bates 1992). It was only through a targeted search of California's largest stand of Elephant Trees that the Gray Vireo was found as a wintering bird in the state (Unitt 2000). Stands of Elephant Trees away from Alma Wash, the single site where vireos were found, are probably too small to support the vireo, and

searches of those near Indian Valley and Mountain Palm Springs in 1999–2000 revealed none.

THREATS

Remsen (1978) suggested only cowbird parasitism as a reason for the Gray Vireo's decline in California. Other factors remain unknown, but the parallel of the Gray with the decline of other vireos in southern California implies that cowbirds are the primary cause, a host species with a naturally low population level being especially susceptible. Friedmann (1963) considered the Gray Vireo a frequent victim of the Brown-headed Cowbird, though he listed few actual records, from Cajon Pass (Hanna 1944), near Hesperia, and Sheep Creek Canyon in the San Gabriel Mountains. The Gray Vireo is not known to persist at any of these localities. Much of the species' habitat in southern California is within national forests, but further development of inholdings could enhance habitat for the cowbird and increase parasitism of the vireo on public land.

Improper fire management could affect the Gray Vireo adversely. Too-frequent fire that keeps chaparral low and open likely disfavors the Gray Vireo. Conversely, fire suppression that leads to fuel buildup and catastrophic large-scale fires is likely negative too. A massive fire such as the one that swept southern San Diego County in October 1970 (and originated near the center of the current population in that region) could disrupt the small remaining population seriously.

MANAGEMENT AND RESEARCH RECOMMENDATIONS

- Protect Gray Vireo habitat from excessive human recreational pressures, including off-road vehicles and target shooting.
- Conduct studies of this vireo's nesting ecology, which is poorly known in California, including nest success and its relation to habitat and landscape variables.
- Investigate the fire ecology of the Gray Vireo: conservation measures for the species should take into account the seral stages of chaparral preferred and tolerated by the birds. Controlled burns or fire regulation in the vireo's habitat may be part of a management strategy.
- Assess current cowbird-parasitism rates and/or test the effects of cowbird trapping on the Gray Vireo. The localization and separation of the current Gray Vireo populations in San Diego County into two main blocks

(Indian Flats and Kitchen Creek) lends itself to an experiment. Cowbird traps could be set and run around one of these two populations and the vireos in both monitored so that the value of cowbird trapping to them, if any, could be quantified with respect to a control group.

- If such efforts reveal significant reductions in breeding productivity from parasitism, widespread trapping should be implemented.
- Conduct a rangewide survey of the Gray Vireo in California, paying particular attention to status in San Bernardino and Riverside counties, which have not had recent bird-atlas projects. Once a detailed map of the bird's distribution has been generated, compare it with detailed maps of fire history, to yield information on its response to fire.

MONITORING NEEDS

The Breeding Bird Survey is inadequate to monitor the Gray Vireo in California because of the bird's low densities and patchy distribution and the relatively few Breeding Bird Survey routes within its range in the state. Until more is known about current status in San Bernardino and Riverside counties, annual monitoring should be conducted on a number of routes established in prime breeding areas in Los Angeles County and, particularly, San Diego County. Surveys should be conducted in April or May, when the birds are easily detected by their persistent song. Lori Hargrove has devised a monitoring protocol for the Gray Vireo (unpublished report to Cleveland National Forest).

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