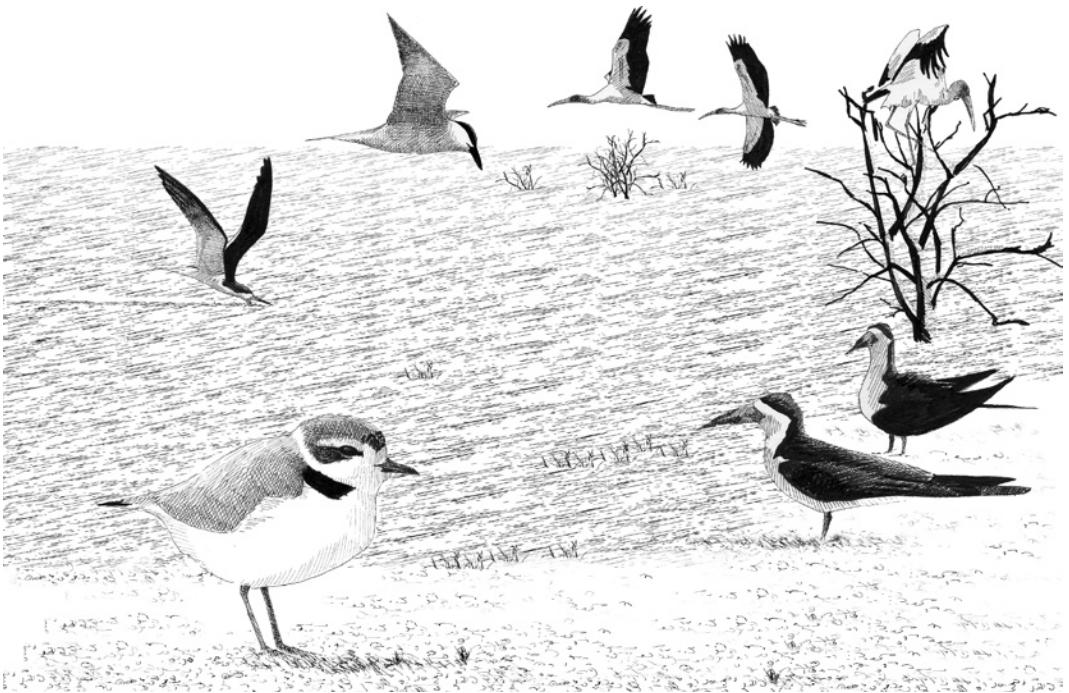


II

SPECIES ACCOUNTS



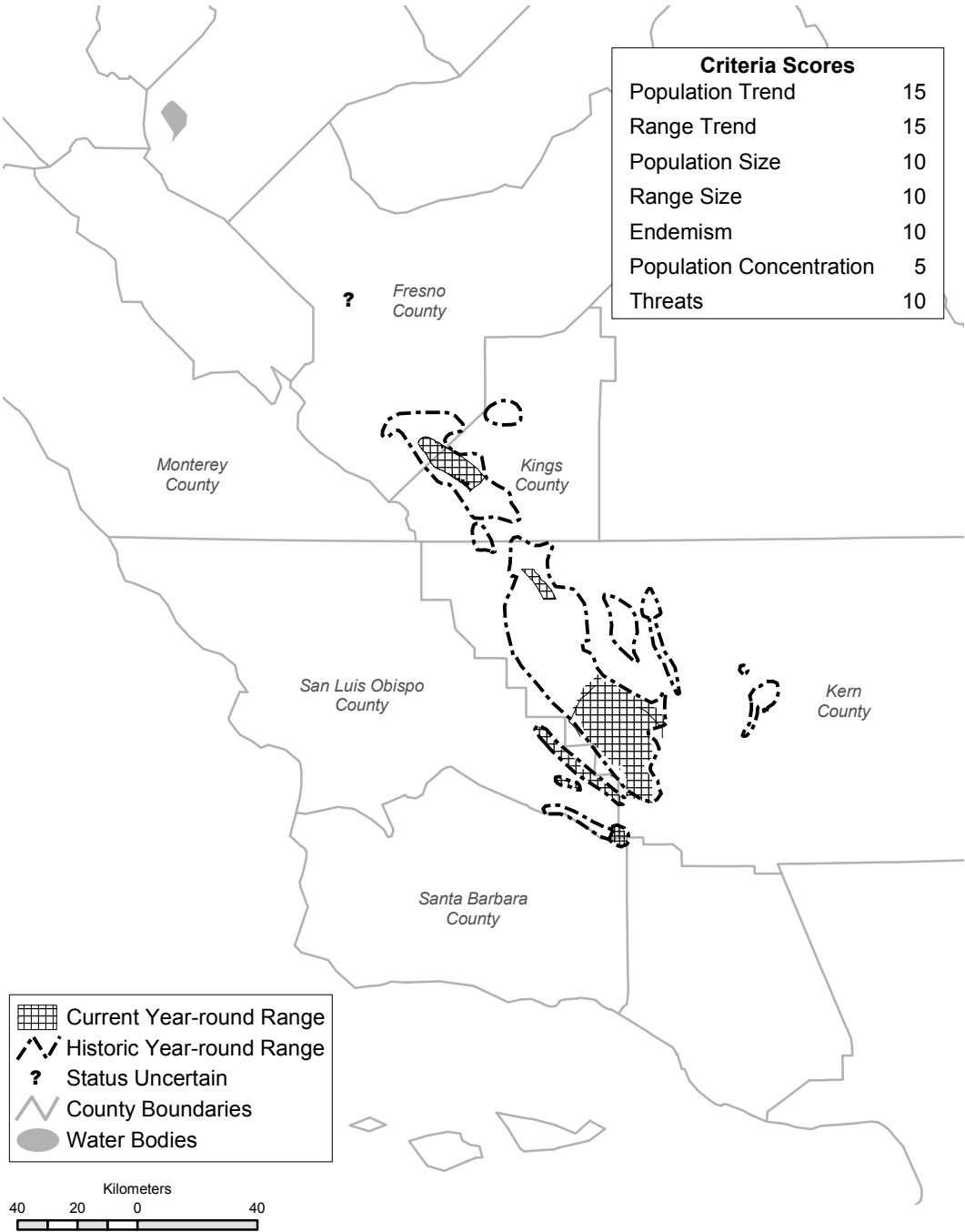
Andy Birch

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LE CONTE’S THRASHER (*Toxostoma lecontei*)
(San Joaquin population)

SAM D. FITTON



Current and historic (ca. 1944) year-round distribution of the Le Conte’s Thrasher in the San Joaquin Valley portion of the broader California range. Numbers have declined greatly as the range has retracted substantially and become increasingly fragmented in remaining areas of occupancy.

SPECIAL CONCERN PRIORITY

Currently considered a Bird Species of Special Concern (year round), priority 1. Included on both prior lists (Remsen 1978, 3rd priority; CDFG 1992), but in both cases as part of the species' entire state population rather than as a species population.

BREEDING BIRD SURVEY STATISTICS FOR CALIFORNIA

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

GENERAL RANGE AND ABUNDANCE

The Le Conte's Thrasher (*Toxostoma lecontei*) inhabits some of the hottest and driest habitats in the southwestern United States and northwestern Mexico. The primary range is the deserts of southeastern California, southern Nevada, extreme southwestern Utah south into west-central and southwestern Arizona, northeastern Baja California, and northwestern Sonora (AOU 1998). Two disjunct populations exist at the edge of the species' range: one at the northwestern limit in the San Joaquin Valley of California, the other at the southwestern limit in central and coastal Baja California (AOU 1998). The AOU (1957) recognized two subspecies—*T. l. arenicola* of central-western Baja California and *T. l. lecontei* in the remainder of the range—but Phillips (1965) proposed *T. l. macmillanorum* for the birds breeding in the San Joaquin Valley. Studies of morphology, plumage, and mitochondrial DNA, however, did not support recognition of *T. l. macmillanorum* (Sheppard 1996, Zink et al. 1997). Regardless of taxonomic treatment, Le Conte's Thrashers in the San Joaquin Valley appear to be isolated geographically from other populations. They occur entirely within California, residing only in the southern San Joaquin Valley and adjacent Cuyama Valley and Carrizo Plain (Grinnell and Miller 1944, Sheppard 1996). Highest densities occur in the Maricopa area of southwestern Kern County (Sheppard 1970).

SEASONAL STATUS IN CALIFORNIA

Permanent resident; breeds from early February to late June (Sheppard 1996).

HISTORIC RANGE AND ABUNDANCE IN CALIFORNIA

The historic known range in the San Joaquin Valley, shaped like a reverse "J," included the

western edge from the vicinity of Huron and Coalinga, Fresno County, south to the base of the Tehachapi Mountains then north on the east side to near Poso Creek 13 km north of Bakersfield, Kern County (Grinnell 1933, Grinnell and Miller 1944). Historic locations of confirmed breeding include near McKittrick and Lost Hills, Kern County (Grinnell 1933, MVZ egg set data). Grinnell and Miller (1944) described the Le Conte's Thrasher as "fairly common under suitable conditions," which were localized and scattered over its general range. Grinnell (1933) noted declines in abundance and habitat quality. Habitat conversion for agriculture and livestock probably isolated the thrashers occupying the area north of Bakersfield during the early 20th century.

RECENT RANGE AND ABUNDANCE IN CALIFORNIA

Building on prior knowledge, Sheppard (1970, 1973) noted range extensions into the Carrizo Plain and Cuyama Valley, much of the San Joaquin Valley, and the Panoche Hills. This probably reflected a more accurate depiction of the species' range at the time of Grinnell and Miller (1944) rather than a subsequent range expansion. Regardless, habitat loss and degradation have since restricted this thrasher to a small portion of its former range in the San Joaquin Valley (Laudenslayer et al. 1992; see map above). For example, there have been no known sightings of this species east of Interstate 5 since the mid-1970s, though apparently suitable, albeit scarce and isolated, habitat remains there (S. Fitton pers. obs.). Furthermore, Sheppard's (1970, 1973) records from Bakersfield, Wasco, and the Panoche Hills were never repeated. Range retraction and decline of thrasher numbers reflects habitat loss from agriculture, urbanization, and oil field development, and habitat degradation and fragmentation from overgrazing by domestic livestock, fire, and small-scale developments.

Currently, these thrashers occur in only three known areas and recently occurred in two additional areas as described below in detail.

McKittrick-Maricopa area, Kern County. Extending 75 km north to south and 25 km west to east, this area extends from the Belridge oil field just north of McKittrick south to Devil's Gulch south of Maricopa, east to the California Aqueduct between Lokern Pumping Station and Pentland, and west to the lower third of the Temblor Mountains. It is fragmented by large blocks of unsuitable habitat created by several barren oil fields, large wild fires, and urban develop-

ment in the towns of Taft, Maricopa, McKittrick, and Valley Acres. The highest concentrations of Le Conte's Thrashers are found near Maricopa, followed by McKittrick (Sheppard 1996). The Belridge oil field has just over 100 ha of good habitat where several pairs of thrashers persisted through the drought of the late 1980s. In early May 1997, a wildfire burned 16,000 ha in the area known as Lokern, leaving only charred skeletons of saltbush, and there was no evidence of thrashers in 1998 and 2003 in areas where they were detected prior to the fire (S. Fitton unpubl. data). However, outside of the breeding season, this species was detected in one of the burned areas where saltbush (*Atriplex* spp.), especially Spiny Saltbush (*Atriplex spinifera*), is starting to recover (Germano 2003). The Carrizo-Elkhorn Plains area, 4.5 km to the west over the steep Temblor Mountains, is the closest occupied area (see map).

Carrizo-Elkhorn Plains, San Luis Obispo County. This area is composed of two subunits. One is the Elkhorn Plain (approximately 32 km x 2 km), extending from Wallace Creek in the Panorama Hills on the north to Beam Flat on the south, and from the alluvial fans on the east side of Carrizo Plain east to the foot of the steep west slope of the Temblor Mountains. Le Conte's Thrashers occupy saltbush stringers as well as areas of the rolling hills dominated by Desert Tea (*Ephedra californica*). The saltbush has recovered greatly since the cessation of the late 1980s drought, and saltbush has become newly and naturally reestablished along drainages now strictly managed with green-season livestock grazing and specific guidelines relative to saltbush condition (S. Fitton pers. obs., BLM Caliente Resource Management Plan). In 2004, A. Schmierer and T. Edell (pers. comm.) documented these thrashers in many of the saltbush drainages. The other subunit is a small area (approximately 8 km x 2 km) of gently rolling hills, largely dominated by Desert Tea, above the southern end of the Carrizo Plain and below the steep east slopes of the Caliente Mountains. The Le Conte's Thrasher is more abundant here in the saltbush than in the Desert Tea habitat. The birds of these two units probably come into contact with each other as well as with those from the McKittrick-Maricopa area, 4.5 km to the east on the opposite side of the Temblor Mountains, and perhaps with birds in the Cuyama area, separated by low but rough hills of the southern Caliente Range (see map).

Cuyama Valley, Santa Barbara, Ventura, and San Luis Obispo counties. Since Sheppard (1973) first found Le Conte's Thrashers in the Cuyama

Valley, much of the habitat has been altered by overgrazing or converted to agriculture, and probably fewer than 10 pairs, possibly none, remain (S. Fitton and L. Saslaw unpubl. data). By the 1980s, thrashers were found in only a small area (approximately 8 km x 3 km) from the mouth of Ballinger Canyon north to Highway 166. Very little saltbush habitat remains, leaving only Desert Tea habitat for the thrashers to occupy. The last recorded observation in the Cuyama Valley was at the mouth of Ballinger Canyon, Santa Barbara County, on 4 August 1992 (S. Fitton pers. obs.). Several alluvial fans emanating from the southern Caliente Mountains appear to have small amounts of suitable habitat, but only California Thrashers (*Toxostoma redivivum*) have been detected consistently (S. Fitton unpubl. data). The McKittrick-Maricopa area, about 10 km away, is the closest occupied area (see map).

Lost Hills, Kern County. This area extends north from Highway 46 for less than 10 km; 3 km at its widest, it is bounded roughly by the California Aqueduct on the east and Lost Hills Road on the west. Habitat patches here are small and highly fragmented by agriculture, oil development, and gypsum mining and probably support fewer than 20 pairs of thrashers (S. Fitton unpubl. data). Some of the best nesting shrubs are in old oil settling ponds. There are very few active dry washes, but patches of bare ground important for foraging are maintained by soil composition that precludes the invasion of non-native annual grasses. Plowed ground and grassland that is nearly devoid of shrubs separates this population from those in the McKittrick-Maricopa area 25 km to the south and the Kettleman Hills area 45 km to the north (see map).

Kettleman Hills, Fresno and Kings counties. This northernmost island of habitat (approximately 8 km x 2 km) extends north from Highway 41 to the north edge of the hills just south of Jayne Road. It is bounded on the east by Interstate 5, on the west by the west edge of the hills just east of Highway 33. In the late 1960s, Sheppard (pers. comm.) estimated this population to be 200 pairs. This area is now entirely surrounded by plowed ground, including the broad slopes immediately adjacent to the hills. In the absence of livestock grazing, much of the Kettleman Hills accumulates a thick and tall mulch of non-native annual grasses that is generally avoided by these thrashers. In 1996, a 8000-ha fire destroyed most of the occupied habitat on the Middle Dome of the Kettleman Hills, leaving habitat on only about half of the North Dome, from about Skyline

Boulevard (Highway 269) north to the end of the hills (S. Fitton pers. obs.). Frequent fires over the years have greatly reduced suitable habitat in the Kettleman Hills. Damming of many drainages, for transporting and separating oil in the 20th century, and road construction, for oil exploration and production, halted the natural hydrologic processes that benefit saltbush establishment and provide good foraging substrates. In 1998, an optimistic estimate was probably fewer than 20 pairs in this area (USFWS 1998). The last known pair was observed in 1999, a single individual was observed in 2000, and none were observed in 2001, 2002, 2004, 2005, or 2006 (S. Fitton unpubl. data). Lost Hills, 45 km to the south, is the closest occupied area (see map).

Unoccupied areas. Surveys have failed to detect the species in historically occupied Poso Creek north of Bakersfield (surveyed annually 1989 to 1995, intermittently to 2002) or in isolated patches of saltbush along Interstate 5 from Stockdale Avenue north to Twisselman Road, Kern County (surveyed intermittently from 1989 to 2002). Likewise, the species was not detected in areas that appear suitable (surveyed intermittently 1989 to 2002), including Panoche Hills, Panoche/Silver Creeks, Tumey Hills, Warthan Creek, Los Gatos Creek, Gujarral Hills, and Skunk Hollow north of Coalinga, Fresno County; Antelope Hills and Sunflower Valley, Kings County; alluvial fans on the south side of Caliente Mountain and portions of Carrizo Plain (including the margins of Soda Lake), San Luis Obispo County; and Santa Barbara Canyon and the Cuyama River, Santa Barbara County (S. Fitton and L. Saslaw unpubl. data).

ECOLOGICAL REQUIREMENTS

The breeding and wintering habitat requirements of this thrasher are specialized (Sheppard 1996). The current distribution of the Le Conte's Thrasher in the San Joaquin Valley is likely determined by the presence, structure, and vigor of saltbush, the size of habitat fragments, and the proximity to other saltbush areas. Birds seek gentle to rolling, well-drained slopes bisected with dry washes, conditions found most often on bajadas or alluvial fans. Occupied habitats are generally moderately to sparsely vegetated by Common Saltbush (*Atriplex polycarpa*), Spiny Saltbush, or rarely—in a small area in the Carrizo Plain and Cuyama Valley—Desert Tea. The ground is bare or has patches of sparse, low-growing grass.

Foraging areas must be well drained and have a significant percentage of bare ground and a well-developed litter layer near shrubs. Arthropods are the primary food source, though thrashers occasionally eat plant seeds, bird eggs, and small lizards (Sheppard 1996). They forage mainly by digging into the ground or through leaf litter under and near shrubs (Sheppard 1996).

Nesting areas must have at least a few larger, dense shrubs for nest placement. Nest height above ground averages 83 cm (Sheppard 1996), and nests, generally placed in dense portions of shrubs or in portions of shrubs overhanging arroyos, rarely receive direct sunlight (Sheppard 1996, S. Fitton pers. obs.).

In the Maricopa area, this thrasher averaged 2.38 clutches per season and 1.33 broods reared per season (Sheppard 1996). Of 139 nests monitored there, 89 (64%) fledged ≥ 1 young, producing an average of 2.98 young per successful nest (Sheppard 1996). Dispersal of young is rapid and apparently in a random direction (Sheppard 1996). Distance of initial dispersal to first nesting area averaged 1.76 km from the natal nest, but some birds disperse between 5 and 8 km (Sheppard 1996). Based on resighting data at Maricopa, Sheppard (1996) estimated survival rates of 0.67 for adults and 0.19 for 10- to 12-month-old birds. Pairs occupy a home range of 40–100 ha over several years (Sheppard 1996), with densities of 4.6 pairs per km² (10.3 birds per km² counting floaters) in Maricopa (Sheppard 1996) and 2.3 pairs per km² near McKittrick (Grinnell 1933).

Flat, poorly drained soils of the valley floors provide suitable shrub species and structure (adequate height and spacing for nesting) but apparently are unsuitable foraging habitat (flooded in wet winters and highly alkaline and deeply powdery during the summer drought), as the species avoids these areas.

Population regulation factors for this thrasher are not well known. In general, availability of suitable habitat appears to be the major factor limiting population density and distribution. Sheppard (1996) suggested that competition with other thrashers during the breeding season may be a factor, as territories almost never overlap. He also speculated that competition for nest sites with Loggerhead Shrikes (*Lanius ludovicianus*) and Northern Mockingbirds (*Mimus polyglottos*) may occur. Finally, the availability of secure nighttime roost sites potentially is a major factor in population control (Sheppard 1973).

THREATS

Habitat loss and degradation have been and continue to be the major population-level threats to this species. Habitat conversion to agriculture appears to be the single biggest factor in reducing the amount of habitat available to this species and in isolating currently occupied areas (Laudenslayer et al. 1992). For example, nesting no longer occurs in historically occupied areas such as Bakersfield, Wasco, and the Mettler/Grapevine area (Sheppard 1973), as most of the now agriculture-dominated San Joaquin Valley is unsuitable. West of Interstate 5, the trend in habitat conversion has been slower historically but has accelerated since the completion of the California Aqueduct in 1973. While habitat conversion to agriculture has slowed in the portion of the San Joaquin Valley occupied by this thrasher, trends from the northwest portion of the valley suggest this is a current threat to this species' habitat (USFWS 2003).

Fire also poses a major threat to thrasher habitat. A hot fire kills most of the saltbush plants and stored seeds in the soil. Large areas of former thrasher habitat have been converted from saltbush scrub to non-native annual grassland by fire (S. Fitton pers. obs.). By killing the saltbush, fires reduce the amount of nesting and foraging habitat and also fragment habitat blocks, possibly interfering with dispersal of young. Postfire conditions often encourage a thick growth of non-native annuals, which reduces the disturbance caused by runoff necessary for seed germination and seedling establishment, increases the intensity and frequency of future fires, and reduces the amount of available litter and bare ground needed for foraging (S. Fitton pers. obs.). Unlike saltbush, Desert Tea often stump sprouts in response to fire, making habitat conversion less of a threat to thrashers in this community (S. Fitton pers. obs.). Desert Tea, however, is relatively slow growing, and nest shrubs can be limited following a fire. Changes in grass and forb species composition since European contact likely have increased ground cover of annual plants and correspondingly reduced the percentage of bare ground.

Summer-long grazing with relatively high densities of livestock, primarily cattle, can convert shrubland to non-native annual grasslands, which has been the case in several large areas throughout the San Joaquin Valley and surrounding foothills (USFWS 1998). Severe damage to shrubs occurs from grazing during the late summer period, when few other plant species besides saltbush are green and palatable. Stressed plants are conspicu-

ously hedged and eventually become spindly sticks with few leaves, not the nearly hemispherical shape of vigorous plants. Currently, some private landowners keep cattle in saltbush habitat during the summer (S. Fitton pers. obs.).

MANAGEMENT AND RESEARCH RECOMMENDATIONS

- Protect and maintain all existing Le Conte's Thrasher habitats in the San Joaquin Valley.
- Target habitat restoration toward lost or degraded sites, particularly saltbush habitat in large areas destroyed by fire (e.g., Lokern Natural Area) and Desert Tea habitat east of Highway 33 and west of the hills in the Cuyama Valley.
- Create habitat corridors within subpopulations and among the three southern subpopulations.
- Maintain, at a minimum, corridors of intact habitat through oil fields along properly functioning drainages in the McKittrick-Maricopa and Lost Hills areas.
- Allow grazing by livestock for part of the year to benefit saltbush habitat by reducing fire, which otherwise can spread and intensify non-native annual plant matter. Set livestock stocking rates at a level such that the majority of shrubs maintain a near hemispherical shape, indicating reasonable levels of mechanical damage and herbivory. Restrict the season of use to when there is adequate green vegetation for livestock to select grasses, thereby minimizing use of saltbush. Do not allow grazing of saltbush habitat during prolonged drought, or for a year following a significant recruitment of seedlings.
- Use GIS technology to map historic, existing, and potential habitat to help focus acquisition and restoration and identify areas vulnerable to fragmentation and thus isolation from other populations.
- Study the use of corridors relative to width and plant species composition to establish specific corridor design recommendations.
- Determine the suitability to thrashers of reclaimed and revegetated gypsum strip mines in the Lost Hills area.
- Establish detailed demographic studies using color-banded populations to determine reproductive success, recruitment, corridor use, dispersal, wintering ecology, and annual survival.

- Determine whether the species is still present in the Kettleman Hills and, if so, establish a recovery plan that addresses restoration of saltbush to alluvial fans and hydrological processes in the drainages on North Dome.
- Study the potential effects of expansion since the early 1970s, in response to habitat modifications around human habitations, of Northern Mockingbirds (widely) and California Thrashers (locally) into saltbush habitat formerly occupied solely by Le Conte's Thrashers.
- Conduct research to determine the most effective and efficient method of monitoring population numbers (see below).

MONITORING NEEDS

Current nationwide bird monitoring programs do not adequately monitor this species. Existing BBS routes only rarely traverse occupied thrasher habitat and are conducted after most of the birds have fledged young, and Christmas Bird Count circles are rare within the range and only occasionally turn up Le Conte's Thrashers.

The relative abundance of Le Conte's Thrashers, including for each subpopulation, should be monitored annually in the San Joaquin Valley; if slightly different methods are required, then efforts should be made to ensure that data are comparable among sites. Song playback has been used effectively (Sheppard 1970, S. Fitton and L. Saslaw unpubl. data) during the peak of thrasher song (Dec–Jan, and sometimes all of Feb; Sheppard 1996). It would be valuable to conduct extensive surveys to provide information on distribution and relative abundance and intensive monitoring at a subset of sites to provide true density estimates and information on reproductive success. The extent of available habitat should be monitored, preferably on an annual basis.

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