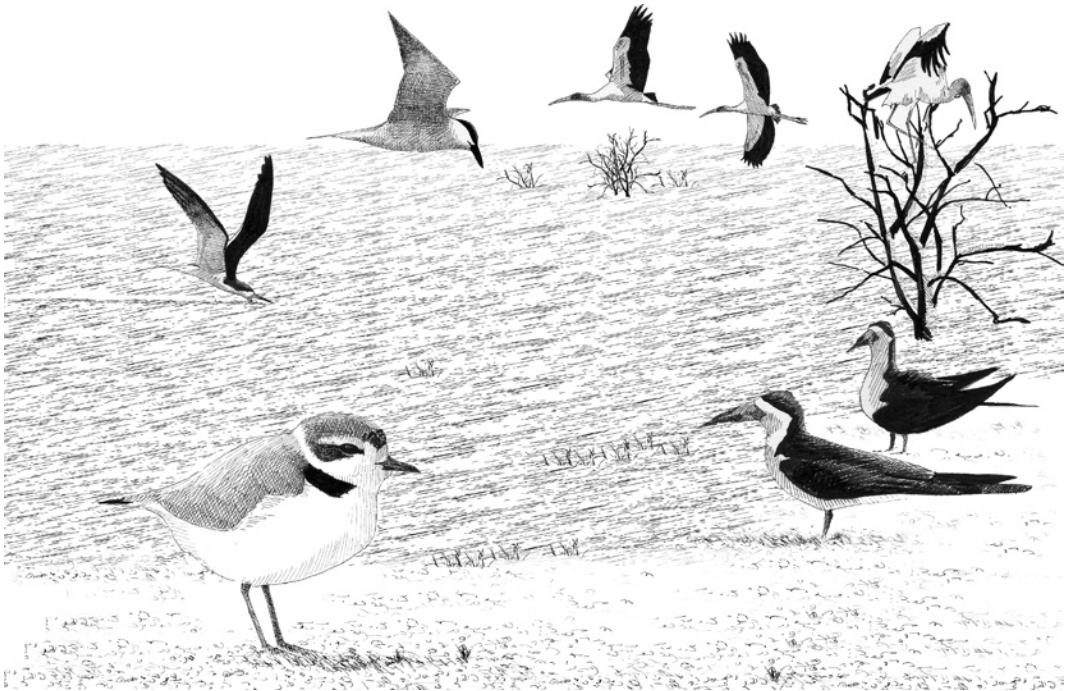


II

SPECIES ACCOUNTS



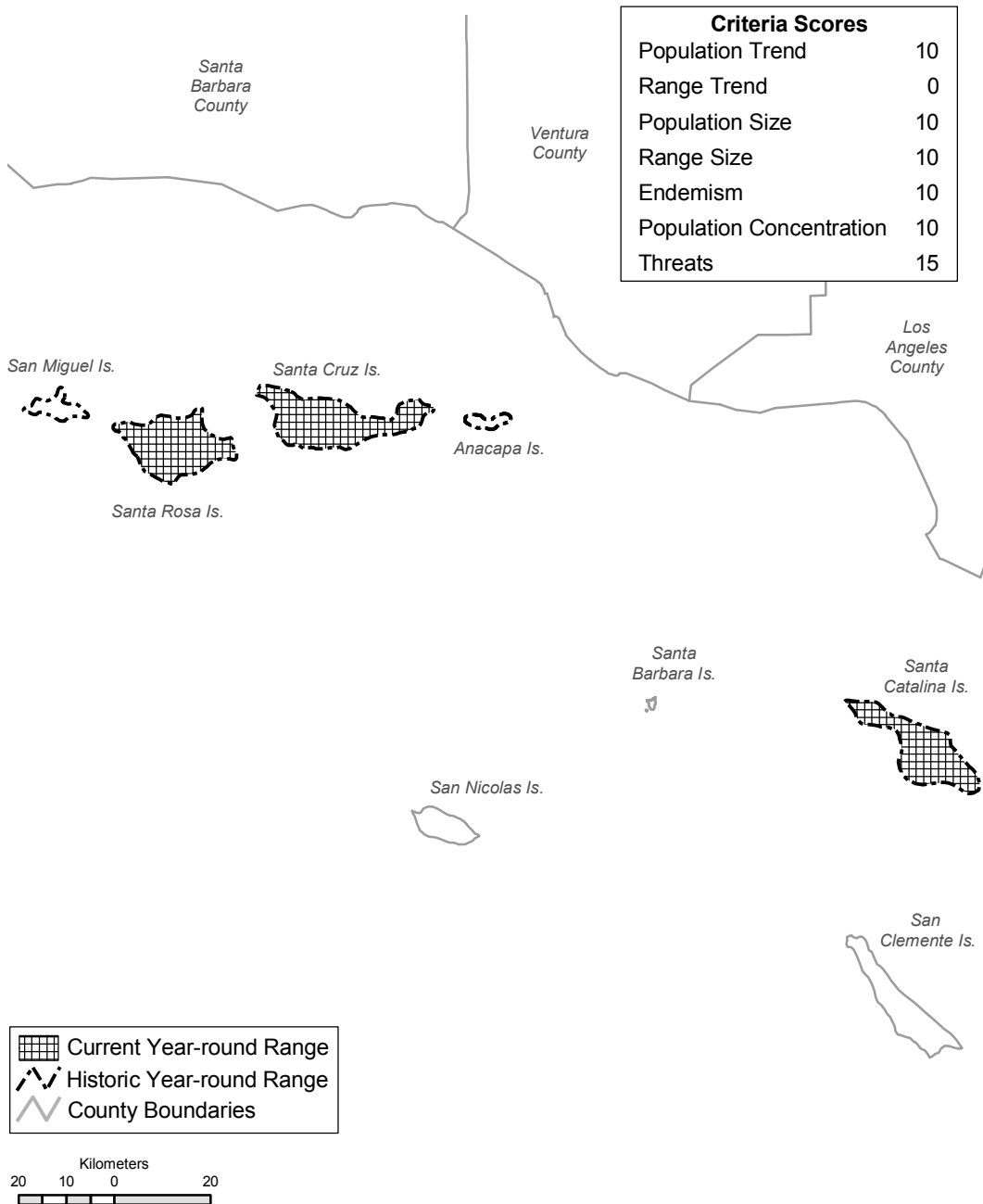
Andy Birch

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ISLAND LOGGERHEAD SHRIKE (*Lanius ludovicianus anthonyi*)

PAUL W. COLLINS



Current and historic (ca. 1944) year-round range of the Island Loggerhead Shrike, a California endemic; numbers appear to have declined moderately. Resident on Santa Rosa, Santa Cruz, and Santa Catalina islands; formerly bred occasionally on San Miguel Island (until 1976) and Anacapa Island (until 1978). *L. l. anthonyi* most closely resembles phenotypically and genetically *L. l. mearnsi*, the federally endangered San Clemente Loggerhead Shrike. Loggerhead Shrikes of the mainland subspecies *L. l. gambeli* occur as migrants and occasional winter visitors to the Channel Islands.

SPECIAL CONCERN PRIORITY

Currently considered a Bird Species of Special Concern (year round), priority 1. This subspecies was not included on prior special concern lists (Remsen 1978, CDFG 1992).

BREEDING BIRD SURVEY STATISTICS FOR CALIFORNIA

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

GENERAL RANGE AND ABUNDANCE

The Loggerhead Shrike (*Lanius ludovicianus*) breeds widely in North America from the southern Prairie Provinces of Canada south mainly through the central and southern United States and most of western Mexico; various authorities have each recognized 7 to 11, and collectively 12, subspecies (summarized in Yosef 1996). Once considered "abundant," now declining widely. In California, where five subspecies occur (3 mainland, 2 island forms), the breeding range includes most of the state except the largely heavily forested northwestern portion and the upper elevations of the Sierra Nevada and other high mountain ranges (Grinnell and Miller 1944).

The Island Loggerhead Shrike (*L. l. anthonyi*) is endemic to the California Channel Islands, as detailed below, where numbers have declined in recent years (AOU 1957, Collins and Jones in press). Morphologically, *anthonyi* is weakly differentiated from the federally endangered San Clemente Loggerhead Shrike (*L. l. mearnsi*) but readily separable from the adjacent mainland shrike, *L. l. gambeli* (Miller 1931, Johnson 1972, A. Rea in Phillips 1986, Patten and Campbell 2000). Dawson (1923) reported that shrikes on Santa Cruz Island and possibly Santa Rosa Island possess a unique call. Phenotypic characters of birds on San Clemente Island currently most closely resemble *anthonyi* (Patten and Campbell 2000). There is significant genetic differentiation (frequency of mtDNA haplotypes), however, between the two island subspecies *anthonyi* and *mearnsi*, and between these and the adjacent mainland subspecies *gambeli* (Mundy et al. 1997, Eggert et al. 2004).

SEASONAL STATUS IN CALIFORNIA

Occurs year round; the breeding season generally extends from mid-February until late July (Collins and Jones in press).

HISTORIC RANGE AND ABUNDANCE IN CALIFORNIA

Island Loggerhead Shrikes bred historically on San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Catalina islands (Collins and Jones in press). Most early accounts of shrike status on the islands are qualitative estimates of relative abundance following human influence. Howell (1917) stated that numerically *anthonyi* was "one of the rarest birds in the country," yet he listed it as a "fairly common resident" on most of the islands. Grinnell and Miller (1944) recorded this subspecies as "fairly common" on Santa Cruz Island and "less numerous" on the other islands. They suggested that the total *anthonyi* population was small because of its limited geographic range and the normal spacing of individuals.

Santa Rosa Island. Island shrikes were listed as "abundant" in July 1892 (C. P. Streater unpubl. field notes, USNM) and as "much in evidence" in November 1927 (H. H. Sheldon unpubl. field notes, SBMNH).

Santa Cruz Island. Historically, *anthonyi* has been variously reported as "extremely common" (Blake 1887), "comparatively common" (Sheldon 1990), and "fairly common" (Willett 1912, 1933; Grinnell and Miller 1944).

Santa Catalina Island. Howell (1917) considered this subspecies "rather rare" on Santa Catalina in the early 1900s, whereas others reported it as less numerous there than on Santa Cruz Island (Willett 1933, Grinnell and Miller 1944).

San Miguel and Anacapa islands. No qualitative or quantitative information is available regarding the shrike's historic status on these islands. Grinnell and Miller (1944) inferred it was "less numerous" on these islands than on the others. Breeding was confirmed on Anacapa in 1899 with the discovery of a nest with young (Willett 1912).

RECENT RANGE AND ABUNDANCE IN CALIFORNIA

The status of the Island Loggerhead Shrike has changed during the latter half of the 20th century. Shrikes bred occasionally on San Miguel Island until 1976 and on West Anacapa Island until 1978 (see map), but there are no known nesting records for either island since (Collins and Jones in press). Vegetation stripping by feral goats (*Capra hircus*), feral European Mouflon Sheep (*Ovis aries*), and domestic cattle (*Bos taurus*) and rooting by feral pigs (*Sus scrofa*) have degraded the scrublands, woodlands, and grasslands that are

important breeding and foraging habitats for the islands' shrikes. Also, predation by feral cats (*Felis catus*) and Black Rats (*Rattus rattus*) has probably contributed to the decline of shrikes on Santa Catalina. Lacking quantitative information on the number of shrikes prior to the introduction of exotic species makes it difficult to assess to what degree shrike populations have declined on each island. Still, the overall population of the Island Loggerhead Shrike today is very small and concentrated (likely well below 1000 individuals on the three islands), leaving it vulnerable to extinction from factors such as environmental uncertainty, demographic stochasticity, catastrophes, or genetic deterioration (inbreeding depression).

Santa Rosa Island. Until the late 20th century, Island Loggerhead Shrikes were considered "fairly common" and widespread on this island (Collins and Jones in press). Miller (1951) found them "much more numerous" on Santa Rosa than on Santa Cruz. In 1968, Diamond (unpubl. field notes, UCLA) listed the species as "widespread and fairly common" but reported finding them in only "small numbers." National Park Service landbird monitoring surveys conducted between 1994 and 1998 recorded an average of 0.08 shrikes per station and detected them at an average of 6.1% (2.3%–6.7%) of all stations (Fancy 2000). Today, shrikes are "uncommon" and locally distributed on Santa Rosa (Collins and Jones in press).

Santa Cruz Island. *Anthonyi* has been variously reported on Santa Cruz as "not common, but regularly distributed" in 1948 (F. Pitelka unpubl. field notes, MVZ), as less common than on Santa Rosa (Miller 1951), and as "common" in grassland and coastal sage scrub habitats (Laughrin 1982). Landbird monitoring surveys conducted for seven breeding seasons from 1991 to 2000 recorded an average of 0.04 (0–0.08) shrikes per station and detected shrikes at an average of 3% (0%–5.0%) of all stations (R. Klinger and L. Laughrin unpubl. data). Today, shrikes are considered "uncommon" and generally restricted to open areas with scattered brush (Collins and Jones in press).

Santa Catalina Island. During the 1970s, *anthonyi* was considered "uncommon to fairly common and widespread" on Santa Catalina, but it appears to have declined since (Collins and Jones in press). Shrike numbers on Catalina averaged 1.14 (0–3) individuals per year on a single Breeding Bird Survey route from 1988 to 1998 ($n = 7$, Sauer et al. 2005) and 0.07 (range = 0.02–0.18) birds per party hour during 15 years (1988–2002) of Christmas Bird Counts (www.audubon.org/bird/cbc/). Focused surveys for shrikes on Santa

Catalina during the breeding season in 1996, 1998, and 2001 recorded a total of 21, 27 (0.14 birds per party hour), and 8 shrikes, respectively (Phillips 1996, J. Floberg pers. comm., A. Aarhus pers. comm.).

ECOLOGICAL REQUIREMENTS

The ecological requirements of the Island Loggerhead Shrike are largely undescribed but likely very similar to those of the intensively studied San Clemente Loggerhead Shrike (see Scott and Morrison 1990). Loggerhead Shrikes inhabit ecotones, grasslands, and other open habitats with scattered shrubs and trees, suitable perches, bare ground, and low or sparse herbaceous cover (Zeiner et al. 1990, Yosef 1996, Lynn et al. 2002). Basic habitat requirements include a selection of elevated perches, sufficient roosting and nesting cover, open foraging areas, and an adequate supply of invertebrate and small vertebrate prey. Like *mearnsi*, the Island Loggerhead Shrike is probably nonmigratory, with males retaining year-round territories and females separate breeding and nonbreeding territories (Blackford et al. 2001). On the islands, shrikes generally occupy grassland and open coastal sage scrub habitats on terraces as well as brushy canyon slopes (Grinnell and Miller 1944, Miller 1951, Laughrin 1982, Jones 1991).

Extent of bare ground, number of perches, and height and amount of shrub cover are habitat features important for nesting San Clemente Loggerhead Shrikes (Scott and Morrison 1990, Mader and Warnock 1999, Mader et al. 2000). Shrike nests are generally well concealed below the crown in a densely foliated shrub or tree (Miller 1931, Bent 1950, Shuford 1993). On San Clemente Island, mean height of successful shrike nests ranged from 4.0 to 4.4 m, unsuccessful nests from 1.6 to 3.6 m (Blackford et al. 2001). Like those of *mearnsi*, *anthonyi* nests typically are placed in a variety of arborescent shrubs >2m tall, including Lemonadeberry (*Rhus integrifolia*), California Sagebrush (*Artemisia californica*), Catalina Cherry (*Prunus ilicifolia* ssp. *lyonii*), Toyon (*Heteromeles arbutifolia*), Blue Elderberry (*Sambucus mexicana*), and oaks (*Quercus* spp.; Scott and Morrison 1990, Blackford et al. 2001). Pairs generally raise a single brood and will renest following nest failure (Yosef 1996). Island Loggerhead Shrikes have an extended breeding season, which enables pairs to raise two broods in some years (Collins and Jones in press).

Loggerhead Shrikes are efficient search-type predators; their diet apparently is related more

to prey abundance, detectability, and size than to specific prey type. Individuals of *L. l. mearnsi* feed on a wide diversity of prey, including various aerial and ground-dwelling arthropods (crickets, grasshoppers, beetles, earwigs, lepidopteran larvae, flies, truebugs, ants, bees, and wasps), small vertebrates (lizards, birds, and mice), molluscs (land snails), isopods (pillbugs), arachnids (spiders and scorpions), chilopods (centipedes), thysanurans (silverfish), and diplopods (millipedes; Scott and Morrison 1990, Lynn et al. 2000). For foraging, shrikes require open and semiopen habitats with scattered taller vegetation. Shrikes generally search for prey from a variety of perches 1–14 m above the ground.

THREATS

Factors believed to be responsible for the decline of Loggerhead Shrikes in North America include habitat degradation (Temple 1995), pesticide contamination (Anderson and Duzan 1978, Morrison 1979), loss of breeding and wintering habitat (Telfer 1993), increased human disturbance (Hands et al. 1989), and climatic change (Cadman 1985). The principal factors that threaten the Island Loggerhead Shrikes are probably similar to those affecting *mearnsi*. These include habitat degradation from overgrazing by domestic cattle and horses (*Equus caballus*) and feral goats and feral European Mouflon Sheep, and from rooting by feral pigs; increased rates of predation on all life stages of shrikes by native Island Foxes (*Urocyon littoralis*), Red-tailed Hawks (*Buteo jamaicensis*), Common Ravens (*Corvus corax*) and introduced feral cats and Black Rats; reduction in the shrikes' prey from a proliferation of exotic annual grasses following feral herbivore removal; and a reduction in available hunting perches because of feral grazers and an increase in fire frequency and intensity (Scott and Morrison 1990, Lynn et al. 2000, Cooper et al. 2001). Productivity of San Clemente Loggerhead Shrikes may be affected by high predation and competitive pressures, inclement weather, genetic inbreeding, human disturbance, and poor nutritional status from low food availability or quality (Mader et al. 2000). These factors also may be affecting Island Loggerhead Shrikes.

MANAGEMENT AND RESEARCH RECOMMENDATIONS

Future research or management actions should focus on enhancing survival on each island by eradicating feral herbivores to restore habitat and

by controlling introduced predators. Specific recommendations include:

- Develop specific goals for recovering *anthonyi* populations on each island on the basis of data and experience gained from the *mearnsi* recovery program.
- Enhance shrike habitat on the islands by increasing the availability of suitable hunting perches, reducing the extent of dense uniform cover of tall exotic grasses, and creating larger and more numerous clearings using selective controlled burns, mowing, or other methods to dispose of accumulated litter and thatch.
- Complete feral animal eradication programs and support implementation of ecological restoration plans proposed by the Santa Catalina Island Conservancy for Santa Catalina Island and by the National Park Service for Santa Cruz and Santa Rosa islands (NPS 1998, 1999, 2002).
- Control or eradicate feral cats on Santa Catalina Island to reduce the overall level of predation on young shrikes.
- Assess the status of *anthonyi* populations on the Channel Islands, as there are no estimates of total population size or trends for any island.
- Initiate field studies of the Island Loggerhead Shrike to fill data gaps in knowledge of basic life history traits (e.g., phenology, breeding biology, ecology, population demography, and food habits).
- Conduct research to identify specific habitat requirements (vegetative and physiographic) and ecological conditions necessary to support self-sustaining shrike populations; in particular, determine demographic parameters for the populations on each island.

MONITORING NEEDS

The Breeding Bird Survey route and Christmas Bird Count conducted on Santa Catalina Island do not adequately monitor the population fluctuations of *L. l. anthonyi*. Programs for monitoring landbird density using off-trail and on-road variable circular plots (VCPs) systematically placed and stratified by major habitat (Ralph et al. 1993) are being implemented on Santa Catalina (J. Floberg pers. comm.) and Santa Rosa (McEachern 2000, L. Dye pers. comm.) islands and were run on Santa Cruz Island between 1991 and 2000 (L. Laughrin pers. comm.). VCP-based monitoring programs should collect data adequate to provide an index of breed-

ing population size and to monitor overall population trends with respect to habitat changes.

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