

# Observer

*THIS SPECIAL PRBO OBSERVER is an in-depth report by staff scientist Jonathan Plissner about our work on San Clemente Island, offshore of Southern California. In that rugged landscape, one of North America's most endangered birds may be starting its retreat from the brink of extinction. PRBO's avian monitoring expertise is integral to the recovery efforts centered on the shrikes of San Clemente Island.—Editor*

## ▼ The San Clemente Loggerhead Shrike

### Island Survivors



Jonathan Plissner, PhD

Early one Saturday morning last November, 38 visiting volunteers and their local hosts set out from the community of Wilson Cove on San Clemente Island to begin a weekend of surveying the island for the endangered subspecies of Loggerhead Shrike. Twice a year, prbo's shrike monitors on San Clemente invite individuals with past and present connections to the shrike recovery project to participate in a comprehensive survey of the 56-square-mile island that lies off the Southern California coast.

For me, the November 2000 survey was not only my first visit to the island, it was also my first trip to Southern California. For Tom Scott, a University of California at Riverside professor, it was a return to the place where he had studied shrikes for his doctoral work between 1984 and 1988.

Throughout the weekend, Dr. Scott talked in astonishment of the changes that had occurred since the days of his studies and even since his last visit to San Clemente Island, just a few years ago. Traversing the island,

he was constantly amazed by the amount of vegetation he encountered across every plateau and in every canyon. During the period of his studies, most of the landscape had

been left barren of ground cover by a feral goat population, and all the remaining trees were devoid of foliage within reach of those introduced herbivores. Now, seven years after the last of the goats had been eradicated from the island, Dr. Scott and the other members of our survey team hiked through an ecosystem that, while still far from its pristine state, had nevertheless rapidly revegetated—demonstrating nature's ability to respond following disturbance.

The target of our survey efforts that weekend, though, was a component of the community whose population has *not* recovered on its own from seri-

ous declines that were due, at least in part, to human impacts on the island.

#### Another island calamity

The story of the shrikes of San Clemente Island is a microcosm of the story of island bird populations worldwide. Species of animals and plants that have evolved on islands, whether oceanic or simply isolated patches within a mainland mosaic of different habitats, are much more susceptible to extinction than are species with widespread distributions. Insular populations are typically less diverse genetically and more concentrated geographically than others, reducing their ability to respond adaptively to changes in their environment. Human impacts

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**San Clemente Island.** Not to be confused with the mainland municipality of the same name, San Clemente Island is the southernmost of the Channel Islands, lying 20 miles south of Catalina Island and 60 miles northwest of San Diego. Twenty-two miles long and up to four miles wide, it is a lifted block of land that rises abruptly up to 2000 feet from the ocean on its east side, sloping more gently through a series of marine terraces to the western shoreline. Canyons transect the landmass, those on the east side being shorter in length but extremely steep, dropping 1500 feet in places.



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**Loggerhead Shrikes**—striking gray, black, and white passerines—are distributed throughout most of the United States, Mexico and southern Canada. They have sharply hooked beaks for killing their prey (insects, lizards, birds and small mammals) but do not possess the talons of raptor species. Shrikes earned the nickname "butcherbirds" for their habit of storing prey items on the forks of branches, thorns, barbed wire, or other structures for later consumption. Shrike species worldwide have undergone precipitous declines. The San Clemente Island subspecies is generally smaller, subtly darker and genetically very different than the three forms of Loggerhead Shrike that occur in coastal Southern California.



whether oceanic or simply isolated patches within a mainland mosaic of different habitats, are much more susceptible to extinction than are species with widespread distributions. Insular populations are typically less diverse genetically and more concentrated geographically than others, reducing their ability to respond adaptively to changes in their environment. Human impacts on islands—notably the introduction of new competitors, predators and pathogens and especially the reduction and alteration of habitat—have been responsible for over 90% of all bird extinctions that have occurred during the past 500 years.

Of over 30 species of birds known to have bred on San Clemente Island, six (including three subspecies endemic to the Channel Islands) have been extirpated. In 1977, the U.S. Fish and Wildlife Service (usfws) granted federal protection through the Endangered Species Act to two endemic island subspecies, the San Clemente Sage Sparrow and the San Clemente Loggerhead Shrike.

The shrikes of San Clemente Island were first recognized as a distinct subspecies about 100 years ago. While historical records lack accurate estimates of the population size before the 1980s, the birds were considered fairly common and well distributed across the island during the early 1900s. By the 1970s, however, shrike numbers had declined to the extent that the subspecies was officially listed as endangered. Subsequent censuses have indicated that the population fluctuates annually between four and sixteen pairs of breeding birds, concentrated principally in the canyons of the southern half of the island.

*"Ecosystems, like well-made airplanes, tend to have redundant subsystems and other "design" features that permit them to continue functioning after absorbing a certain amount of abuse. A dozen rivets, or a dozen species, might never be missed. On the other hand, a 13th rivet popped from a wing flap, or the extinction of a key species... could lead to a serious accident."*  
—Paul Ehrlich, *Extinction*

**Only in the steepest canyons have San Clemente Loggerhead Shrikes found their last refuges of breeding habitat.**

Two factors have been suggested as principal causes for the decline: increases in the numbers of shrike predators and changes in the vegetation structure of the island, resulting from the introduction of domestic herbivores. Shrikes on San Clemente Island have suffered the fate of many island bird species: a population decline associated with the introduction of non-native predators, particularly rats and feral cats. Furthermore, the shrikes rely upon San Clemente's trees and larger shrubs: they nest among the dense branches and also use the cover to hide from their natural predators, such as migrating and resident hawks, falcons, owls and ravens. In the 1800s and early 1900s, thousands of sheep and cattle grazed the island, but it was the introduction of domestic goats, in 1875, and subsequent growth of a feral goat population that devastated the native vegetation island-wide and directly impacted the availability of habitat needed by nesting shrikes. In addition to the depletion of the native flora, introduced plants (especially annual grasses) have spread across much of the island, changing the nature of feeding areas, perhaps reducing shrikes' ability to find



and capture prey. Only in the steepest canyons has much of the native vegetation persisted through this past period of intense grazing. It is in these areas that San Clemente Loggerhead Shrikes have found their last refuges of breeding habitat.

**Shrike recovery: teamwork**

**T**he shrike population of San Clemente Island has been the object of intense concern and effort over the past ten years, and prbo plays a principal role in the focused recovery effort. The U.S. Navy oversees all operations and spearheads conservation efforts on San Clemente Island. Because it is a primary training area for war operations, the island's military functions are viewed as essential. Nevertheless, as is mandated for all federal agencies, the Navy must comply with the statutes of the Endangered Species Act, which requires protection

for eleven plants and animals on San Clemente that are federally listed as threatened or endangered.

To this end, the Navy and the usfws San Clemente Loggerhead Shrike Recovery Team have devised a multi-faceted project aimed at recovery of the subspecies, involving both captive rearing and management of the wild population. For each

distinct program within the project, the Navy contracts with organizations and individuals that have the needed expertise.

Since 1998, prbo's Loggerhead Shrike monitoring program has been responsible for determining the status of all wild individuals as well as the whole population. We furnish information to other program personnel and to the Shrike Working Group, which provides management decisions for and constantly monitors recovery efforts.

Prbo maintains a crew of four to six biologists on the island year-round. Our crew is responsible for uniquely color-banding all shrikes on San Clemente Island, allowing for subsequent identification and monitoring of each individual. Monitors attempt to locate and determine the status of each shrike at least weekly. From January through August, prbo personnel determine the breeding status of the birds

**Introducing Jonathan Plissner.** At the age of seven he identified his first bird (a Steller's Jay) in Muir Woods during a summer trip to San Francisco, but it took 30 years for Jon Plissner to set foot again in California. A Virginia native, Jon earned his undergraduate degree from Cornell University and, in 1994, his PhD from Clemson University. During his doctoral study in South Carolina (on Eastern Bluebirds' dispersal behavior), he noticed a dramatic decline in the local Loggerhead Shrike population. He has been interested in this species ever since. Jon came west in 1996 for a position with the USGS Forest and Rangeland Ecosystem Science Center in Corvallis, Oregon, where he focused on species of concern and Great Basin shorebird populations. He joined PRBO's staff in December 2000 to head our team on San Clemente Island. Says Jon: "My primary research interests are the causes and evolutionary significance of movement patterns of birds, and PRBO's work with this island population provides a special opportunity to understand more about where individuals go and why. And PRBO's dedication to rooting conservation efforts in science mirrors my own objectives, so I feel privileged to join such a diverse, experienced team united by a common thread." —*Editor*



## Today 40 adult San Clemente Loggerhead Shrikes, including 18 pairs, are flying free.



tivity as an average increase or decrease? With the management of critically endangered species, however, program managers pay special attention to *each individual* in the population and to the detailed outcome of each specific action taken. Every bird is important to the survival of the species.

With the shrikes, as with many endangered species, the knowledge needed to predict with certainty the best way to recover a population is scant. Hopes for preventing extinction depend upon timely conservation efforts. By trying multiple approaches, rapidly evaluating the outcomes of each, and quickly adapting strategies for both individual birds and the recov-

ery program as a whole, the San Clemente Loggerhead Shrike program provides a model for efforts to save a species on the verge of extinction.

### Hopeful achievements

The results of conservation efforts for the shrikes of San Clemente Island are promising. The task of restoring the natural habitat of the island is daunting, but the removal of the last of 12,000 goats on the island in 1993 initiated the recovery of suitable nesting and foraging habitat for shrikes. Control of introduced cat and rodent populations and creative management techniques for native predators around shrike breeding territories have served to increase nest productivity. Since 1992, several reintroduction strategies have been tested. Released birds from the past two years have joined the ranks of nesting shrikes (called 'recruitment'), a hopeful sign that population numbers will steadily increase toward recovery.

Today, 40 adult San Clemente Loggerhead Shrikes, including 18 pairs, are flying free—almost triple the number of just one year ago. The Shrike Working Group and the usfws recovery team are facing prospects of a problem that all recovery programs for very small populations *wish* to encounter: how to modify a program when the population becomes too large to effectively monitor all individuals.

In March of this year, during the spring survey of the island, volunteers found two additional nesting pairs that had escaped discovery by the prbo monitors. Those of us participating in this latest all-island survey were awed by the fresh growth and colorful blooms of spring, as well as by the blossoming numbers of shrikes—whose population was nearly extinct less than two decades ago.



*Nils Warnock, PhD, Co-Director of Wetlands Research at PRBO, manages our San Clemente Island project and helped prepare this special Observer feature.*

## CALENDAR OF PRBO EVENTS

**PRBO BIRD WALKS** are morning outings, in or near Point Reyes National Seashore, free to PRBO members or \$5 donation for non-members • Call 415/868-0655.

June 3 ■ **Songs & Nests at Palomarin.** Meet our intern biologists, learn about bird monitoring and identification by song, and walk our beautiful nature trail.

July 1 ■ **Birds of Redwood Creek.** Explore riparian habitat near Muir Beach with a prbo biologist who monitors nesting birds here.

August 5 ■ **Coastal Scrub & Riparian Canyons.** Join us at Palomarin as we observe mist-netting and search for recently fledged songbirds.

September 9 ■ **Snowy Plovers.** With a prbo plover biologist, learn about work under way to protect this threatened shorebird and preserve its habitat.

**BIRDING WITH RICH STALLCUP** offers seasonal day trips, costing \$25 with advance registration required. Call Melissa Pitkin at 415/868-1221, ext. 33.

August 25 ■ **Abbotts Lagoon.** A great destination for shorebirds, waterfowl and nearshore ocean bird sightings.

September 8 ■ **The Outer Point of Point Reyes.** A search for fall migrants and seabirds.

### OF SPECIAL INTEREST *Please mark your calendar!*

October 15 ■ **2001 Osher Symposium.** Highlighting the achievements of prbo's outstanding intern biologists.

September 15–October 15 ■ **Bird-A-Thon 2001.** Any 24-hour period between these dates. Watch for details in the mail!

December 1 ■ **Bird-A-Thon Awards Dinner.** Annual classic.

*PRBO—working to conserve birds, other wildlife & their ecosystems through innovative scientific research & outreach.*

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Benefactor: \$1,000 & more	Sustaining: \$250	Family: \$50	Student &
Sponsor: \$500	Contributing: \$100	Regular: \$35	Senior: \$20

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