

# 2006-2007 Statewide Burrowing Owl Survey

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## **Project background and goals**

The Burrowing Owl, a California Species of Special Concern, is declining across much of the state, presumably in response to loss of habitat to urban development, intensive agriculture practices, and ground squirrel control efforts. In the early 1990s, The Institute for Bird Populations (IBP) coordinated a state-wide, volunteer-based survey to assess Burrowing Owl distribution and abundance throughout the entire breeding range of the species in California west of the Great Basin and desert areas. With the help of numerous dedicated volunteers and volunteer coordinators working primarily through Audubon Society chapters and other birding groups, we were able to census over 700 5km by 5km survey blocks throughout the state, and to provide regional and statewide population estimates. The information we gathered has been an important resource for Burrowing Owl conservation efforts in California, and has been widely used and cited by government agencies and non-governmental organizations.

We are currently gearing up to coordinate another statewide Burrowing Owl survey, beginning in spring 2006. Thirteen years after the completion of our first statewide survey, this two-year effort comes at a critical juncture, when the State and other stakeholders badly need updated information for use in formulating a comprehensive statewide conservation strategy to safeguard the species across its range in California. Conducting another statewide survey will enable us to address the following questions:

**a) Where specifically are the state's Burrowing Owls today?** Up-to-date information on the locations of breeding pairs is critical for identifying important stakeholders, and carefully targeting future conservation efforts toward the places where they will do the most good.

**b) What is the status of Burrowing Owl populations in the Great Basin and desert regions of the state, areas that were not included in our early 1990s census?** What fraction of the current statewide population resides in these areas? This information will provide a more complete assessment of the current status of the species in the state, and also provide a baseline for assessing future change in the Great Basin and desert regions.

**c) How has the statewide population changed since 1993?** How has the statewide distribution of the species changed, and what have been the trajectories of the various sub-populations in the state's constituent regions?

## **Importance of survey to the Central Valley**

All or parts of 25 counties fit into 3 separate Burrowing Owl survey regions in the Central Valley. In the 1990s survey the number of pairs per region was estimated in Northern, Middle and Southern Central Valley Regions. The total statewide “best estimate” for Burrowing Owls was 9,266 (DeSante et. al., in press). Individually, each of the three Central Valley Regions had a higher estimated number of breeding pairs when compared to any other individual region outside of Region 11 (comprised solely of the Imperial Valley) which was estimated to have 6,571 pairs. The Southern Central Valley Region, spanning From Madera and Fresno Counties in the north to Kern County in the south was estimated to harbor 1,396 pairs, by far the largest estimate for a single region outside of the Imperial Valley. The Middle Central Valley, spanning from Merced and Mariposa Counties in the south to Yolo, Sacramento and El Dorado Counties in the north was estimated to contain 594 pairs. Lastly, the North Central Valley Region, reaching from Colusa, Sutter and Placer Counties in the south to Southern Shasta County in the north, had an estimated 231 breeding pairs. Unfortunately the characteristics of the Central Valley that make it prime breeding habitat for Burrowing Owls also qualifies it as excellent agricultural and urban landscape for humans. Nowhere is this more apparent than in the Southern Central Valley Region where in the decade from 1990 to 2000 the human population growth rate was 25%, this is nearly twice as great as that of the overall state average growth rate (US Census Bureau, 2006). The impact of the last 15 years of unabated development on Burrowing Owls is currently unknown. This survey will go a long ways toward answering how breeding Burrowing Owl populations in the Central Valley have responded to this growth.

### **How the survey works**

We have previously delineated the Burrowing Owl’s California range into 11 distinct geographic regions, and then subdivided each region into 5-km by 5-km census blocks. We have selected a random sampling of census blocks within each region, and then augmented the sample with all additional blocks in the region that are known from previous surveys or by local experts to host breeding Burrowing Owls, but were not selected as part of the random sample. We will provide local volunteer coordinators with maps of selected blocks, data forms, detailed instructions, and other survey materials. The coordinators will assign census blocks to local volunteers, who will conduct the surveys.

Surveying a block will involve identifying all patches of suitable habitat within the block, and then thoroughly searching those patches for Burrowing Owls. The entire area of all the patches needs to be searched between dawn and 10am or between 4pm and dusk, when the owls are most active.

Some blocks will need to be visited multiple times to achieve this goal. Surveyors will scan the area for owls, and plot the locations of any detections on their maps. For each detection location, observers will also provide a count of all owls seen (identified to age and sex, if possible), an estimate of the number of breeding pairs, and standardized habitat information. Prior to the field season, surveyors will be provided with detailed instructions, as well as the opportunity to attend a training session with IBP personnel.

### **How volunteers can participate**

The statewide Burrowing Owl survey provides a rare opportunity for individuals or organizations to make an important contribution to science and conservation. Whether you are a professional biologist, a seasoned birder, or simply a Burrowing Owl admirer, we need your help to census one or more 5-km by 5-km blocks. We need dozens of surveyors, throughout the Valley and the State, to census one or more blocks near their homes, or perhaps farther afield. Areas in the southern portion of the Valley, where human population density is lower and Audubon Society Chapters typically cover more than one county could especially use help from volunteers traveling outside of their home counties. Contact IBP at the number listed below for contact information for your local coordinator or a coordinator in a different county.

The time needed to survey a block will vary depending on the characteristics of the block, the observer's familiarity with the area, and the amount of experience he or she has collecting field data. We know from data collected during the 1991-1993 survey that the average amount it took observers to survey a single block was 6.5 hours. We project that the amount of time it will take an inexperienced observer to survey his or her first block to be between 1.5 and 2 days. After becoming familiar with the survey methods and data forms it will take less time to complete an additional block, if a surveyor is able to census more than one block. **Contact Information:** Call or email Bob Wilkerson or Rodney Siegel at 415-663-2051 or owl@birdpop.org.

### **LITERATURE CITED**

DeSante, D. F., E. D. Ruhlen and R. Scalf. *In Press*, Proceedings of the California Burrowing Owl Symposium. The Distribution and Relative Abundance of Burrowing Owls in California during 1991-1993: Evidence for a Declining Population and Thoughts on its Conservation.

U.S. Census Bureau. 2006. U.S. Census Bureau: State and County QuickFacts. Website: <http://quickfacts.census.gov/qfd/states/06000.html>.