

## First Audubon California Yellow-billed Magpie survey tracks more than 1,800 birds in 18 counties

by Andrea Jones and Gary Langham

Yellow-billed Magpies were observed in 18 of California's 58 counties during a recent volunteer survey sponsored by Audubon California that sought to help support conservation of this dynamic species. The survey – held June 5-8, 2009 – was the first of its kind to rally birders all around the state to venture outside in search of the Yellow-billed Magpie and record their observations on eBird, the Cornell Lab of Ornithology's online citizen science database. This new approach to data collection resulted in good participation from California birders and valuable information about the Yellow-billed Magpie that will inform conservation efforts.

### A true California bird

The Yellow-billed Magpie is one of California's most striking birds. Popular among birders and compelling among conservationists, the bird is a true endemic that lives only in California's Central Valley and coastal ranges in oak savannah woodlands and other similar habitats. The Yellow-billed Magpie's range includes the Sacramento and San Joaquin valley floors and foothills, and valleys of Coast Ranges from San Francisco Bay south to Santa Barbara County.

In some areas, the species coexists with dense human settlement, but in other parts of the bird's range, populations have declined or vanished in apparent response



photo by Brian Sullivan

to development of housing or agriculture. For a variety of reasons – including habitat loss, pesticide use, and West Nile Virus – the Yellow-billed Magpie population has found itself at risk in recent years, and it is now an Audubon Watchlist species.

Researchers with Audubon California recently identified the Yellow-billed Magpie as being particularly susceptible to climate change. According to models created with historical climate data, the Audubon Christmas Bird Count, and American Breeding Bird Survey, researchers determined that the species could lose as much as 75 percent of its range (a loss that could push it over the brink into extinction) in the next 100 years if we do nothing to address global greenhouse gases. However, if we aggressively cut emissions, Yellow-billed Magpies could lose as little as 9 percent of their range.

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## A new model for citizen science

Audubon California has always supported citizen science as a way to bring conservation research out of the halls of academia and into the field where it can take advantage of the passion and skills of thousands of bird enthusiasts who are hungry to make a contribution. This survey was structured very much in the spirit of citizen science, taking advantage of Audubon California's existing communication networks to spread word about the survey, and making use of a popular, existing data collection system in eBird that feeds information directly to bird researchers and conservationists around the world. The success of the June survey bodes well for the use of this model to spur rapid monitoring and data collection in response to a variety of conservation needs.

## From Bella Vista to Solvang

Volunteers in the June survey counted 1,820 birds across 18 counties, with the most birds counted in San Luis Obispo, Santa Barbara and Yolo counties. The highest count of birds from a single checklist was 119 observed in Oakdale, Stanislaus Co., 60 of which were spotted at a nocturnal roost. Another high count was 93 birds observed along a county road on the outskirts of Woodland in Yolo County. The northernmost Yellow-billed Magpies were observed in Bella Vista, just north of Redding in Shasta County. The southernmost birds were observed in Solvang, in Santa Barbara County.

The accompanying table (Exhibit 1) shows the breakdown by county of Yellow-billed Magpie sightings from the survey. According to the eBird database, 180 distinct locations were surveyed within the magpie's range in California.

To view results of the survey in eBird (including map, chart of abundance and birds/hour, etc.), visit <http://ebird.org/content/ca> and look for the link.

## Survey participation

During the same time frame in June 2008, eBird reported a total of 21 Yellow-billed Magpies counted from six checklists submitted. This certainly doesn't mean that magpie numbers have increased dramatically over the course of one year. Rather, it simply means more people went birding and entered their data into eBird as a result of our survey.

Approximately 120 people participated in this survey. These participants entered 238 checklists into eBird. As evidence for the usefulness of eBird for future similar survey efforts, nearly all participants in the survey were able to enter the system, create profiles, and input their own

**Exhibit 1: Number of Magpies Counted by County, June 5-8 2009**

County	Number birds
Butte	4
Sutter	4
Tehama	4
Colusa	7
San Benito	19
Placer	29
Shasta	35
Alameda	41
Santa Clara	41
San Joaquin	55
Merced	57
Solano	108
Monterey	131
Stanislaus	154
Sacramento	195
San Luis Obispo	251
Santa Barbara	337
Yolo	358
<b>TOTAL BIRDS COUNTED</b>	<b>1,830</b>

Note: These numbers represent total counts in eBird and do not imply abundance, account for observer effort, or potential overlap of birds counted.

data. Audubon California had offered to enter data for individuals who had difficulty with the system, but very few participants took us up on this offer.

## Expanding our knowledge of Yellow-billed Magpies in California

The accompanying map (see next page) shows where all Yellow-billed Magpies were observed (and reported to eBird) from June 5-8, 2009. In eBird, we provided the choice to volunteers to record distance traveled and time spent surveying versus simply recording a casual observation. For many checklists, that additional data was available and we are doing further analyses to determine local abundances of magpies - this information will help us learn more about how magpies are currently distributed across the species' range.

As mentioned earlier, the use of eBird allows us to

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# California eBird Citizen Science Survey of the Yellow-billed Magpie - June 2009

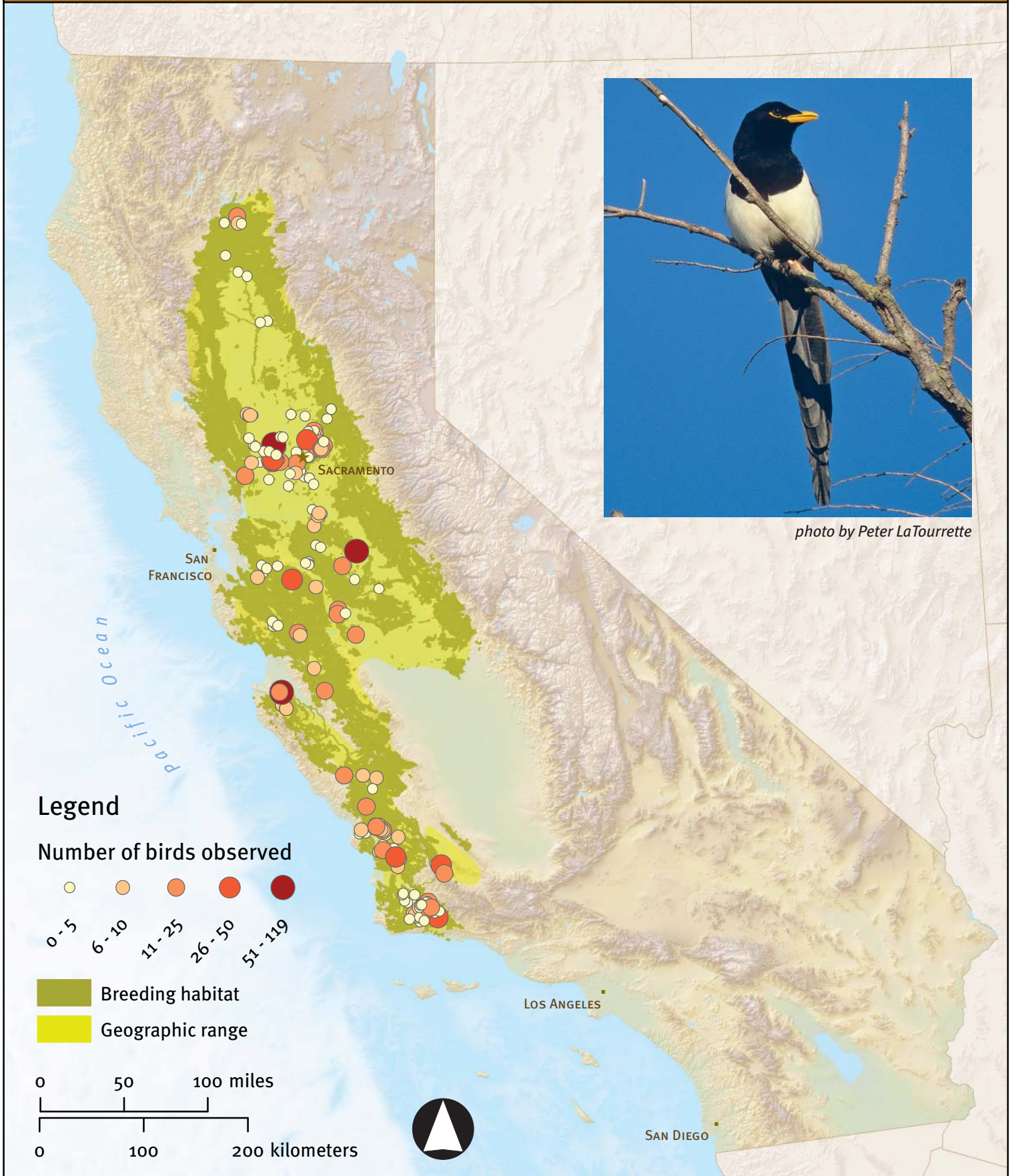


photo by Peter LaTourrette



automatically feed observations from the June 2009 survey into a vast bird data repository that is linked to the Avian Knowledge Network and Ornis – which are continually accessed by a global community of educators, land managers, ornithologists, and conservation biologists. Our survey project helps ensure that Yellow-billed Magpies are well represented in aggregate conservation research.

Moreover, Audubon California will share the results from this survey with research entities such as UC Davis's Veterinary Genetics Laboratory, which has been studying Yellow-billed Magpie genetics, the effects of West Nile Virus, distribution and abundance, and habitat suitability.

Audubon will continue to work with our chapters and other organizations to promote conservation of oak woodlands around California's central valley. This survey will not only inform these efforts, but will also help us increase awareness around this species.

Yellow-billed Magpies were hard hit by West Nile Virus in 2004-2005, and this survey will help inform researchers where magpies are still doing fine, and perhaps surviving the outbreak of the virus. We can also compare these results with previous known nesting and roosting sites to determine if numbers in certain areas have been particularly affected.

### **Again, next year**

These results will also help inform our survey effort next year. For example, the attached map shows the species potential breeding habitat, much of which is outside of the areas that were surveyed in this season. We will recruit volunteers to increase coverage in some known, but little surveyed magpie habitats.

We would greatly appreciate your ideas about how to improve the survey into the future. Feel free to contact us at [auduboncalifornia@audubon.org](mailto:auduboncalifornia@audubon.org).

### **Help the Yellow-billed Magpie**

There are a number of ways you can continue to support Yellow-billed Magpie conservation:

- Choose a known magpie breeding spot, and study the birds there throughout the seasons – tell us what you learn about their behavior, how many young they have, where they roost in winter, etc. Report findings on eBird at <http://eBird.org/content/ca>. Scientists continually query eBird data to help us



*photo by Peter LaTourrette*

learn more about birds in California.

- Sign up to help with other Audubon California citizen science efforts. Learn more at [www.ca.audubon.org](http://www.ca.audubon.org).
- Sign up for Audubon California's Action Alert network to stay apprised of conservation issues in California. You can do this at [www.ca.audubon.org](http://www.ca.audubon.org).

### **Acknowledgments**

Audubon California would like to thank the more than 120 volunteers who spent at least part of the weekend birding, in search of the magpie. We enjoyed reading your results and stories about other birds you also saw en route. We also want to thank Bill Monahan, Audubon California's Senior GIS Scientist for mapping the results. And we thank Brian Sullivan at Cornell Lab of Ornithology for assisting with protocols, eBird input, and data analysis.