

Third annual Audubon California Yellow-billed Magpie survey tracks 3,200 birds in 24 counties

Yellow-billed Magpies were observed in 24 of California's 58 counties during a recent volunteer survey sponsored by Audubon California to help support the conservation of this dynamic species. The survey – held June 3-6, 2011 – was the third annual effort to rally birders all around the state to venture outside in search of the Yellow-billed Magpie and record their observations on eBird, the online citizen science database created by the Cornell Lab of Ornithology and the National Audubon Society. This approach to data collection resulted in increased participation by California birders from the previous two years and provided additional valuable information about the Yellow-billed Magpie that will inform conservation efforts.

A California native

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 Shasta County south to Santa Barbara County.

The popularity of the Yellow-billed Magpie was recently demonstrated when an online poll conducted by Audubon California named it the organization's 2009 Bird of the Year. Votes for the bird greatly outpaced those for birds that might be considered to be better known, such as the California Condor, the Brown Pelican, and the Peregrine Falcon.

In some areas, the Yellow-billed Magpie coexists with dense human settlement, but in other parts of the bird's historical range, populations have declined or vanished



photo by Jerry Kirkhart

in apparent response 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

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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.

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. This year we noticed that of all the records in eBird during the survey period, 70% identified themselves as specifically taking part in the magpie survey. The increasing success of this 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 Shasta to Solvang

Volunteers in the June survey counted **3,200** birds across **24** counties (up from 18 counties in 2009), with the most birds counted in Sacramento, Yolo, and San Luis Obispo counties. The highest count of birds from a single checklist was 73 observed in east Oakdale in Stanislaus County and many flocks of 40+ in Merced, Yolo, Sacramento, and Solano counties. The northernmost Yellow-billed Magpies were observed in Shasta, Shasta County, east of I-5. The southernmost birds were also observed again at Lake Cachuma and 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, over 500 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

260 people submitted 560 checklists into eBird. This more than doubled the effort in 2009. In total, because many people went out in teams, more than 500 people participated in the survey over the weekend. Despite the fact that total numbers of birds were down slightly from 2009, probably attributed to weather conditions over the survey weekend, more people explored magpie country looking for birds.

Exhibit 1: Number of Magpies Counted by County, June 3-6 2011

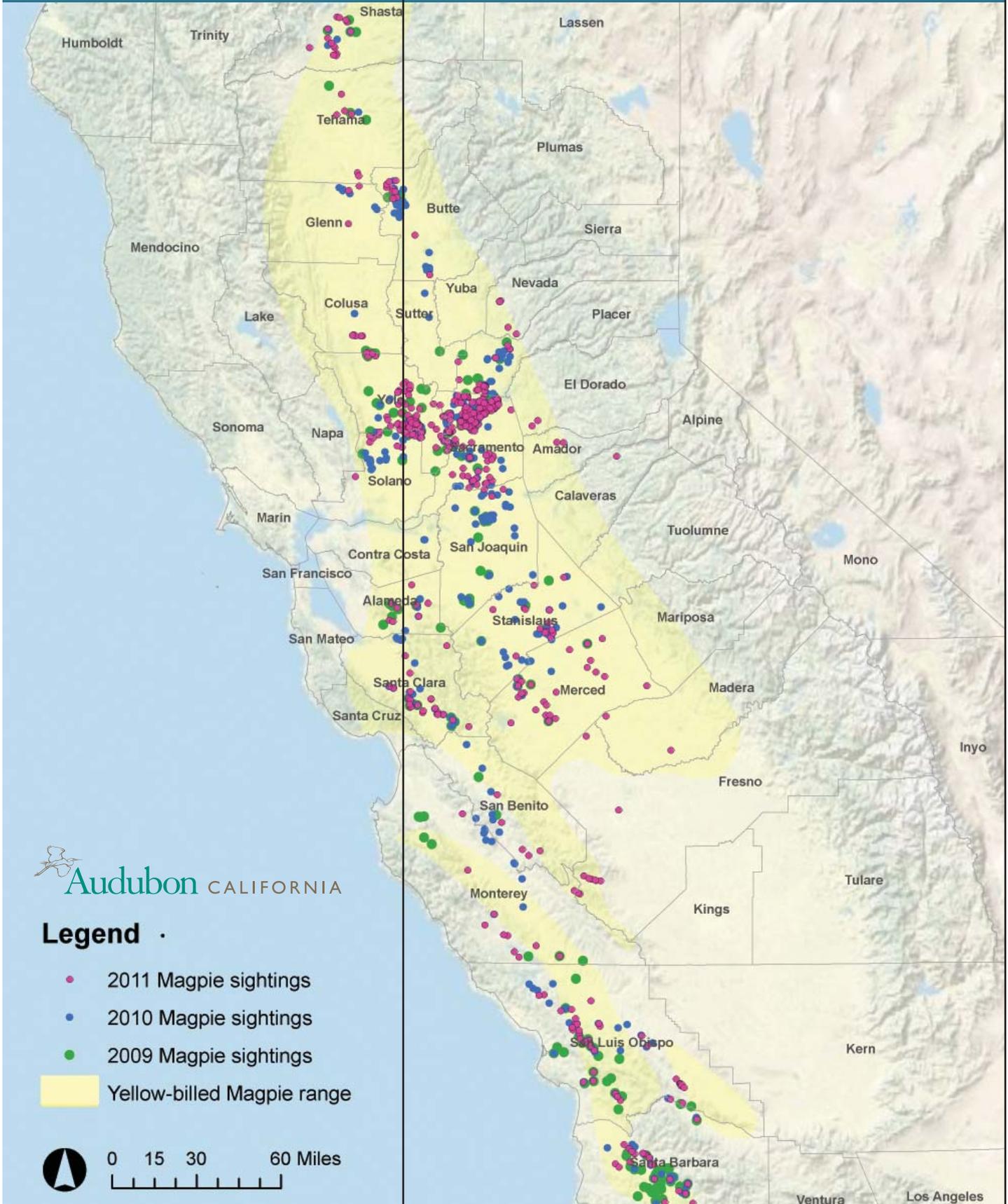
County	Number of Birds
Sacramento	1118
Yolo	486
San Luis Obispo	293
Santa Barbara	179
Merced	165
Stanislaus	151
Solano	140
Santa Clara	130
Shasta	113
Butte	63
Monterey	58
Placer	55
Alameda	50
Colusa	49
Tehama	33
Fresno	24
Nevada	21
San Benito	18
Glenn	14
Amador	12
San Joaquin	11
Madera	8
El Dorado	7
Calaveras	2
TOTAL BIRDS COUNTED	3,200

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

In a good sign for the potential use of eBird, nearly all participants in the survey were able to enter the system, create profiles, and entered their own data. Audubon California had offered to enter data for individuals who had difficulty with the system, but only a few participants took us up on this offer. In addition to its contribution to science and conservation, the survey is also turning out to be a lot of fun for participants.

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California eBird volunteer survey of the Yellow-billed Magpie: 2009, 2010, and 2011



Expanding our knowledge

The accompanying map shows where Yellow-billed Magpies were observed (and subsequently reported to eBird) during June 3-6, 2011; June 4-7, 2010; and June 5-8, 2009. 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 automatically feed observations from the surveys into a vast bird data repository that is linked to Avian Knowledge Network and Ornithology – 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 is sharing 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 rebounding 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.

What's Next?

After three years, we hope to have filled in most, if not all of the current Magpie range in California. We are currently assessing the best way to continue a future magpie survey – perhaps a winter roost count? We will continue to recruit more volunteers to increase coverage in some known, but little surveyed magpie habitats. We would greatly appreciate your ideas about how to continue or adapt this survey into the future.



photo by Al Gossett

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 your findings to ebird at <http://wbird.org/content/ca>. Scientists continually query eBird data to help us learn more about birds in California.
- Sign up to help with other Audubon California citizen science efforts. Learn more at 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.

Acknowledgments

Audubon California would like to thank the more than 500 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 thank Brian Sullivan at Cornell Lab of Ornithology in assisting with protocols, eBird input, and data analysis.