

# Status of the Sacramento Purple Martin Breeding Population in 2016: Yet More Decline

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The western Purple Martin (*Progne subis aboricola*) breeding population that nests in the Sacramento area is the last sizable nesting population in California's Central Valley, where it was once widespread. The martin is recognized as a species of special concern by the California Department of Fish and Wildlife due to declines in the extent of its geographic range and numbers (Airola and Williams 2008).

We have now monitored the Sacramento Purple Martin nesting population annually for 15 years since 2002. The population has declined consistently from 2005 through 2015, and thus appears to be highly imperiled (Airola and Kopp 2015). We report on the 2016 status of the Sacramento breeding population and on recent conservation issues for the species.

## STUDY AREA AND METHODS

As annually since 2002, we surveyed for nesting Purple Martins at bridges in the Sacramento area that were occupied or suitable for use by the species. We focused 2016 surveys mainly on sites where martins have nested over the last decade, and did not survey all suitable sites that have not been previously occupied (See RESULTS AND DISCUSSION, Table 1). Colony locations were previously described by Airola and Grantham (2003) and Leeman et al. (2003).

As in previous years, we conducted at least five visits to each colony site (and >15 visits per colony with >1 pair) to map martin entry into "weep" holes in the undersides of bridges and record behaviors considered diagnostic of breeding (i.e., carrying food to nests, removing fecal sacs, begging by nestlings, and nestlings perched at hole entrances; Airola and Grantham 2003). We confirmed diagnostic breeding behaviors for all 2016 pairs except two at Redding Rd. that likely failed during the incubation stage.

## RESULTS AND DISCUSSION

### *Nesting Population Status and Colony Occupancy*

A total of 33 pairs nested at Sacramento colonies in 2016. This number represents the second lowest number of breeding pairs since monitoring began in 2002. The 2016 population declined by three pairs (8%) from 2015. Overall, the martin nesting population in Sacramento has declined by 81% from its high of 173 pairs in 2004 (Figure 1).

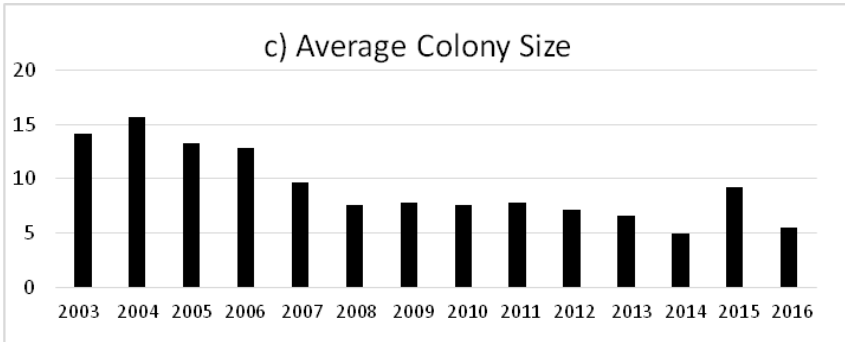
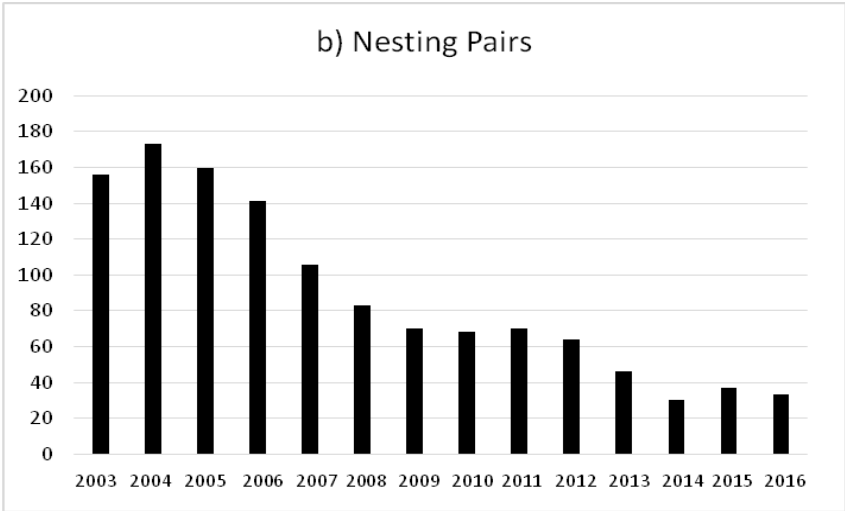
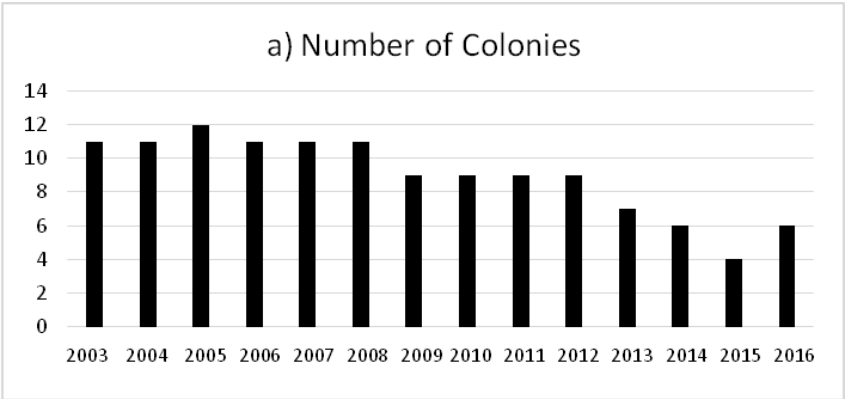


Figure 1. Numbers of Purple Martin nesting colonies, nesting pairs and average number of nesting pairs per colony in Sacramento 2001-2016.

Table 1. Number of breeding pairs of Purple Martins in the Sacramento region, California, 2002-2016

Colony	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
I Street	37	29	35	32	17	11	6	5	4	5	7	5	7	11	7
20 <sup>th</sup> Street	14	21	23	23	16	15	6	5	1	3	2				
Suttrville	4	6	8	5	6	6	5	6	8	10	10	10	1		
Broadway	8	7	7	7	5	1	1								
S Street	14	14	16	14	18	9	7	6	7	7	7	3	4	6	5
35 <sup>th</sup> Street	29	19	15	14	6	3	3	1	2	3	1	2	1		1
Redding Rd.	0	3	12	10	14	14	15	17	16	20	20	13	10	9	12
Arden	ns <sup>a</sup>		3	6	13	9	11	12	9	3					
El Camino	ns	15	23	21	21	20	11	5	10	7	7	3			1
Marconi	ns	1	4	3											
Roseville Rd.	29	39	27	24	24	17	17	13	11	12	9	10	7	10	7
Airbase	ns			1	1										
Hwy 65/Taylor	ns	ns	ns	ns	ns	1	1				1				
Pole Line	ns	2													
Total	135	156	173	160	141	106	83	70	68	70	64	46	30	36	33

<sup>a</sup>ns = not surveyed; blanks=surveyed and no pairs were present

Purple Martins nested at six sites in Sacramento during 2016 (Table 1). The increase by two colony sites from the four used in 2015 resulted from recolonization by single pairs at 35<sup>th</sup> St., which was last used in 2014, and at El Camino, which was last occupied in 2013 (Airola et al. 2014, and contrary to Table 1 in Airola and Kopp 2015). El Camino was colonized by a pair containing a second-year male, which is the typical age of colonists of new and recolonized sites in Sacramento (Airola et al. 2004). The 35<sup>th</sup> St. site was occupied by a pair with an after-second-year male.

The average size of the colonies in 2016 returned to a more characteristic 5.5 ( $\pm 4.2$ ) pairs (Figure 1) although pair numbers ranged widely from 1 to 10 (Table 1).

The 2016 population decline is part of an overall 8% average annual rate of decline since 2009 (Figure 1). This most recent rate of decline is less than the average annual decline of 12% that occurred from 2003 to 2009. The reason for the more moderated recent rate of decline is unknown.

Unlike past years (Airola et al. 2014, Airola and Kopp 2015), we observed no kestrel predation on martins at colonies in 2016, even though kestrels were observed regularly at the Redding Rd. colony.

#### Conservation Challenges

*S Street.* The S St. colony is located in the Capital City Freeway (also “Business 80”). Most of the colony has moved over the years to the area immediately surrounding the R St. light rail station where the martins have become acclimated to high levels of human activity. During the 2016 nesting season, the Sacramento Natural Foods Co-op constructed a new store and adjacent parking facility in a former parking lot and a vacant lot across the street from the martin colony. Based on documented lack of effect of other construction at this site in 2008 (Airola and Kopp 2009), we do not believe that construction activity (i.e., noise, human and equipment activity) affected the martin colony.

The Co-op site was the primary area where martins collected nesting materials over the last decade. Construction in 2016 removed the weedy vegetation and trees from this site from which martins formerly collected nesting material. Five martin pairs nested at S St. in 2016, a decline of only one pair from the six present in 2015. Such declines, however, are typical for small martin colonies, and so cannot be attributed to loss of nest material. The birds used some grasses and pine needles that we placed beneath the colony to supplement nesting material, but also collected material from an alternative site to the west of the colony that we did not locate. The colony warrants continued monitoring to determine the new source of nesting material and assess conditions and responses in 2017 after the store opens.

*I St Bridge Replacement.* The City of Sacramento has proposed to relocate the roadway on the I St Bridge across the Sacramento River between the City and West Sacramento to a new bridge 500 m to the north (City of Sacramento Planning Department 2015). According to current plans, the eastern approach ramp to the bridge, which supports the I St. Purple Martin nesting colony, would be removed (Airola and Kopp 2015).

The I St. colony site supported over 20% of Sacramento's Purple Martin nesting population in 2016 (Table 1). The site is the easiest colony site to manage and for people to visit. The site also is the most protected colony site (other than from this threat), due to the land ownership, management support, and security provided by California State Parks and Recreation Department's California State Railroad Museum. In addition, every nest hole used by the martins has a wire nest guard inserted in it (Airola and Grantham 2003). These guards reduce nestling fallout and aid recent fledglings in returning to roost in their nest site, which both adults and young do for several weeks after fledging, which presumably increases their survival.

The I St. Bridge relocation project is proceeding, but City staff have heard concerns from us and others regarding the importance of maintaining of the martin colony there. In response, the City is contemplating studying a project alternative that would retain the existing bridge and the approach ramp where the colony is located, as a pedestrian and bike route (J. Gothan, pers. comm.). Issues remain, however, about ownership and maintenance responsibilities for the structure. Caltrans, the existing bridge owner, apparently wants to relinquish its ownership and maintenance responsibilities (J Gothan, pers comm.). Continued public advocacy is warranted.

#### ACKNOWLEDGMENTS

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