

Table 1. Population Estimates for Xantus's Murrelets on Santa Barbara Island, California. From fieldwork or analyses conducted between 1975 - 2002.

Source	Number of Breeding Birds Range	Number of Breeding Birds Point Estimate or <u>Average</u>	Basis for Population Estimate
Hunt et al. 1979	2,000 – 10,000	<u>6,000</u>	Based on field work from 1975 -1978; on island nest counts and extrapolation to unsearched (inaccessible) areas, and at sea surveys.
Hunt et al. 1980	—	3,180*	Based on the same field study as Hunt et al. 1979.
Murray et al. 1983	6,000 – 10,000	<u>8,000</u>	Methods not fully described, appears to be based on Hunt et al. 1979 results.
Carter et al. 1992	—	1,544*	Based on field work in 1991; on island nest counts and extrapolation to unsearched (inaccessible) areas.
Sydeman et al. 1998	—	847	No field work involved; reworked Carter et al. 1992 by applying a different occupancy rate for unsearched (inaccessible) areas.
H. Carter, unpubl. data, May 2002**	1,000 – 2,500	<u>1,750*</u>	Based on at-sea spotlight surveys at night, on island nest counts, assessment of available habitat, at-sea vocalization surveys, and at-sea captures of murrelets.

* The Department considers these estimates the most reliable for determining population trend. These population estimates include murrelets on the two offshore rocks, Shag Rock and Sutil Island, associated with Santa Barbara Island.

** Population estimate based on compilation of best available data from fieldwork conducted during 1991 – 2002.

Table 2. Estimated breeding population size (number of breeding birds) of Xantus's Murrelets by island or island group with documented nesting (adapted from 10 April 2002 Pacific Seabird Group listing petition for Xantus's Murrelet).

Island	Population	Survey Methods ¹	Source
California Channel Islands, U.S.A.			
San Miguel Island	100-600	1,2	H.R. Carter (unpubl. data, May 2002) ²
Santa Cruz Island	200-600	1,2	H.R. Carter (unpubl. data, May 2002) ²
Anacapa Island	400-1200	1,2,3,4	H.R. Carter (unpubl. data, May 2002) ²
Santa Barbara Island	1,000-2,500	1,2,3,4	H.R. Carter (unpubl. data, May 2002) ²
Santa Catalina Island	50-150	1,2,4	H.R. Carter (unpubl. data, May 2002) ²
San Clemente Island	20-100	1,2,4	H.R. Carter (unpubl. data, May 2002) ²
(U.S.A. subtotal)	1,770 - 5,150 breeding birds (average of <u>1,730 pairs</u>)		
	(42% of world population in USA)		
Baja California, Mexico			
Los Coronados Islands	1,500-2,500	3	H.R. Carter and D. Whitworth, unpubl. data
Todos Santos Islands	50-250	1,2	Keitt 2000
San Martin Island	50-250	1,2	Keitt 2000
San Geronimo Island	100-500	1,2	Keitt 2000
San Benito Islands	500-1,000	3	Whitworth et al. 2003
Guadalupe Island	1,000-2,000	1	R.L. Pitman & W.T. Everett (pers. comm.)
(Mexico subtotal)	3,200 - 6,500 breeding birds (average of <u>2,425 pairs</u>)		
	(58% of world population in Mexico)		
World Total	4,970 - 11,650 breeding birds (average of <u>4,155 pairs</u>)		

¹ 1 = Nest and/or habitat survey; 2 = Vocal detection survey; 3 = Spotlight survey; 4 = At-sea captures of murrelets.

² Carter's unpublished estimates of numbers of breeding Xantus's Murrelets in the Channel Islands, California, in this table and Figures 11-18 reflect rough ranges of possible breeding population estimates derived from various 1991-2002 survey data (*i.e.*, ground-based surveys [Santa Barbara], vocalization surveys [all islands], spotlight surveys [Anacapa and Santa Barbara only], and nest searches in accessible areas [all islands]) and general habitat assessments, with rough adjustments. At most colonies, traditional survey techniques to estimate population size are not feasible and only rough population estimates are possible with available data (H.R. Carter, pers. comm.).