

Interim Population Objective for the Pacific Population of the Western Purple Martin

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March 2005, **updated August 2010**



Photo by Kevin Li

Update 2010: It has become clear during the past 10-15 years of monitoring Purple Martin populations in the Pacific Northwest that population increase or decline is strongly influenced by weather conditions during the nesting period, particularly during nestling rearing. Adverse weather may limit food (flying insect) availability and foraging success, resulting in starvation and loss of nestlings, reduced nestling success and fledgling production, and thus reduction in subsequent recruitment of subadult birds to sustain the population. With a sufficient nest cavity supply this appears to be the primary mechanism regulating population increase or decline. Adverse weather-related low production in 2007-08, resulting in gradual population declines in 2008-09, and average production in 2009 made it clear there was little or no chance of achieving the 2010 regional and sub-regional Interim Population Objectives as defined herein in 2005. Therefore, at the 2009 WPMWG fall Annual Meeting members present agreed to advance the target year for these objectives by 2 years, to 2012, as noted below.

Population Objective:

*Increase the Pacific Coast population of Western Purple Martin (*Progne subis arboricola*, Behle 1968) in California, Oregon, Washington, and British Columbia to >6,000 pairs by **2012**, with >2,000 pairs in California, >1,700 pairs in Oregon, >1,500 pairs in Washington, and >800 pairs in British Columbia.*

At least 15% of the regional population outside California should be comprised of birds nesting in cavities other than nest boxes (i.e., trees, snags and other cavities) with nesting in these sites distributed across all jurisdictions. Use of suitable cavities in large man-made structures rather than in the wild, as in California, contributes to meeting this objective. This Interim Objective is intended to support and enhance existing recovery efforts in lieu of a future population viability analysis that would establish more specific recovery objectives for the western subspecies.

Assumptions/Rationale:

The Pacific Coast Western Purple Martin population has substantially declined in the last 50-100 years. This decline may be due to a number of factors, but three major causes are evident. Habitat loss has resulted from coastal lowland urban and agricultural development. Forest management and fire suppression have reduced the availability of large snags for nesting use. Introduction and proliferation of the European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*) have increased competition for a dwindling supply of natural nest cavities (and changes in building construction to control these pest species may have helped to displace martins from cities as well). In recent years, establishment of nest box programs has increased the population, but levels are still below those of the mid-1900s.

The current population estimate for purple martins in California, Oregon, Washington, and British Columbia is approximately 3,500 pairs. This estimate is based on our knowledge of populations using nest boxes and other structures; forest surveys and inventories in BC and Oregon; and compilation of records, incomplete habitat surveys and projections from available habitat in California. The estimates for states and provinces are: 1,300 pairs in California, 1,100 in Oregon, 700 in Washington, and 400 in British Columbia.

The population objective of >6,000 pairs by **2012** provides a reasonably optimistic but achievable target to stimulate conservation action. Meeting these region-wide and sub-regional objectives would increase confidence in the stability and longevity of the regional population. This objective represents an approximate 10% annual increase of the current known population. Our objective assumes continuation and expansion of nest box programs, *where appropriate*, throughout the region, along with monitoring and management of human structures currently used and suitable for nesting (e.g., bridges, wharves, buildings, power poles) and broad-scale inventories in forest habitats that will likely discover new populations and contribute to the increase needed to meet the population objective.

For a number of reasons (e.g., historic, distributional, genetic ecology), it is desirable that some component of the regional population includes birds nesting in natural cavities. Use of natural cavities still occurs extensively in California and at a number of sites in Oregon and Washington, but none remains in British Columbia. In some regions, recent changes in forest practices have resulted in an increase in the number of snags retained or created across the landscape; recent inventories in Oregon indicate Purple Martins are using cavities in some of these snags. Current knowledge of nesting use in natural cavities is limited to British Columbia, Oregon, and California, due to inadequate inventories in forest habitats in Washington. In California, about 85% of the state population (25% of the entire Pacific U.S. and B.C. population) still nests in natural cavities, with the remaining 15% nesting in bridges and power

poles. However, in states and provinces other than California the known use of natural nest sites comprises considerably less than 5% of the population.

The objective of ensuring that at least 15% of the population is nesting in natural cavities outside California is arbitrary, but represents a more than doubling of the current population nesting in the wild, consistent with the need to emphasize natural cavity nesting. Within California, the interim objective is to retain at least 75% of the population nesting in natural cavities as recovery continues (with larger increases expected in bridges and other unmanaged artificial habitats). We also recognize that as the population expands to saturate available nest box capacity, the birds may opt for cavities in relatively permanent human structures rather than natural cavities in the wild, as has occurred in California (and elsewhere historically).

Reaching the **2012** regional population objective of 6,000 pairs and the objective that at least 15% of the population nests in natural cavities would be a significant achievement toward population recovery. However, it is important to recognize that meeting these objectives does not mean that the western Purple Martin subspecies is no longer at risk and further recovery effort is not needed. At this point, the population will still be heavily dependent on human-supplied housing for its continued regional presence in British Columbia, Washington, and Oregon for some time to come. A desirable final target objective for the Western Purple Martin population is unknown pending completion of a population viability analysis, which would indicate the set of conditions that would constitute a stable self-sustaining regional population.

Implementation:

- Coordinate all activities through the Western Purple Martin Working Group
- Continue nest-box programs and expand them where appropriate to firmly establish a population at existing sites or new sites that are likely to provide long-term suitable habitat.
- Conduct complete inventories of known locations and areas of suitable open forest habitat (i.e., where snags occur at low to moderate elevations).
- Assess the health and sustainability of the population through monitoring of demographic population parameters such as productivity, recruitment, and survivorship, using the monitoring protocols adopted by the Western Purple Martin Working Group (available from Stan Kosta at lynnandstan@earthlink.net).
- Conduct annual reviews of species population status in each state and province to assess progress towards regional goals.

Please cite as: Western Purple Martin Working Group. Interim population objective for the Pacific population of the Western Purple Martin (*Progne subis arboricola*). Available from: Stan Kostka at lynnandstan@earthlink.net.

* The Western Purple Martin Working Group is an informal international body formed in 1998 to share information among and coordinate the efforts of volunteers and researchers working toward the recovery of the Western Purple Martin subspecies in British Columbia, Washington, Oregon, and California.