

Carter et al. (2000) suggest that it is unlikely that large numbers of Xantus's Murrelets are killed in gill nets. This may be partly due to the observation that murrelets do not aggregate in large numbers for foraging and do not appear to forage when staging in the evenings in large numbers near breeding sites. In addition, incidental capture close to the islands is not likely to occur because gill net use has been prohibited (since 1994) within one mile or in waters less than 70 fathoms deep (whichever is less) around the Channel Islands (FGC section 8610.2, as part of the Marine Resources Protection Act of 1990).

However, given the low estimated population size of Xantus's Murrelet and all of the other threats to the species, a chronic low level of bycatch could be a problem for the species. The Japanese Murrelet, an endangered species with estimated population size of less than 4,000, has been documented as bycatch in high-seas drift nets (Piatt and Gould 1994). This species has very similar biology to the Xantus's Murrelet, with breeding restricted to a few sub-tropical islands and birds generally moving northward after breeding, offshore in warmer waters. An observer program found a low but persistent rate of mortality in post-breeding areas that may be contributing to the species decline (Piatt and Gould 1994).

Summary of Threats

The Department finds sufficient scientific information to indicate that the identified threats have the potential for contributing to decline in murrelet populations. Peregrine Falcon predation on murrelets is potentially an emerging threat. The Department believes Bald Eagle predation may pose a problem in the future, but more information is needed.

Impact of Existing Management Efforts

The petition contains numerous statements indicating the inadequacy of existing management efforts: 1) lack of observer programs on squid fishing and gill net vessels; 2) park visitors have not been prevented from accessing sea caves or offshore rocks where murrelets nest; 3) lack of monitoring as to effect of light shields on squid vessels; 4) inadequate protection of nesting areas; 5) full extent of military operations and potential impacts to murrelets is unknown; 6) no attempt has been made to quantify the numbers and disposition of birds landing aboard brightly lit vessels and oil platforms near murrelet colonies; 7) no detailed studies have been conducted on the impacts of non-native mammals to murrelet populations; and 8) lack of a management plan to combat future rat introductions.

The petition also states "*An assessment of the true impacts of the many threats described here is further exacerbated by the lack of data collected by state and federal government agencies.*"

The Department believes most of the above assertions to be true. Exceptions include the following: 1) In 2003, observations were initiated on small mesh gill net vessels targeting white seabass (under an observer program by NOAA Fisheries, see Threats section of this report); 2) NPS is currently in the process of considering protection of murrelets in sea caves since the petition was received by the Department and USFWS; 4) Murrelets are provided a small degree of protection in some of the Channel Island Marine Protected Areas (described below under the Marine Protected Areas section of this report; 7) The impact of non-native mammals is being investigated via the Anacapa Island rat removal project; and 8) There is now a draft plan for controlling future rat introductions (as one aspect of the American Trader restoration plan).

In regard to lack of data collection by government agencies, the NPS and others have conducted annual monitoring of murrelets since at least 1984 on Santa Barbara Island. Surveys for deer mice, and vegetation monitoring are also being conducted by NPS, but different study efforts need to be integrated into a large, long-term monitoring effort and study. The Department also acknowledges that annual monitoring reports should be completed, shared, and discussed in a more timely manner, in order to take effective action and conserve the murrelet. Further, the Department and federal agencies have contributed funds or in-kind services (for example, Department aircraft and vessels) to help carry out various murrelet research projects since at least 1995. However, based on the many threats identified to the Xantus's Murrelet, and because of evidence of population decline, it is clear that increased management efforts would be beneficial.

Overview

The Department is unaware of any approved or operative management plan for the Xantus's Murrelet in the Channel Islands. Nest monitoring protocols exist, but funding to continue the annual seabird monitoring program has been reduced due to other demands on NPS resources, and NPS has looked to the Department and other sources for funding support for murrelet monitoring.

The murrelet is partially protected, or considered under a number of classifications or current management activities, as described below, though this list is not all-inclusive. However, the Department believes formal protection is warranted in order to restore populations, and provide appropriate mitigation for impacts.

a) International Union for Conservation of Nature and Natural Resources (IUCN)

The following language is taken from the IUCN web site:

This species has been upgraded to Vulnerable because there have been several actual or near colony extinctions, and introduced predators are causing declines in

some of the remaining nine colonies. Conservation action is beginning to have some positive effects and the continuing eradication of introduced predators from existing colonies, the discovery of new colonies, and/or the recolonization of former colonies may result in a downlisting back to Near Threatened.

A taxon is Vulnerable when it is not Critically Endangered, or Endangered, but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the IUCN criteria. The following web site has a list of the criteria:
http://www.redlist.org/info/categories_criteria.html#critical.

The status codes for the murrelet are: VU B1+2de, C1. The status of the murrelet was last evaluated in 2000. A summary of that evaluation is as follows:

- VU: Vulnerable
- B: Extent of occurrence estimated to be less than 20,000 km² or area of occupancy estimated to be less than 2000 km², and estimates indicating any two of the following:
 - B1: severely fragmented or known to exist at no more than ten locations.
 - B2: Continuing decline, inferred, observed or projected, in any of the following:
 - d) number of locations or subpopulations
 - e) number of mature individuals
- C1: Population estimated to number less than 10,000 mature individuals and:
 - An estimated continuing decline of at least 10% within 10 years or three generations, whichever is longer.

b) Federal Endangered Species Act (FESA)

In 1994, the U.S. Fish and Wildlife Service (USFWS), in response to a 1992 petition to list the species as Endangered under the Federal Endangered Species Act, determined that listing the murrelet was warranted but was precluded by other, higher priority actions. In 1994, PSG advised the Department and USFWS of their concern for the status and vulnerability of the murrelet (Appendix F).

The USFWS has acknowledged receipt of a petition for federal listing of the Xantus's Murrelet. In a letter dated June 12, 2002, the USFWS notified the petitioners (PSG) that they anticipated making an initial finding in fiscal year 2003 as to whether the petition presents substantial information indicating that the action may be

warranted. However, at this time, no final or published actions have been taken by USFWS on the murrelet petition.

c) USFWS Birds of Conservation Concern (BCC) 2002

In 2002, the USFWS produced a newly revised list of bird species that warrant special management attention. Criteria for evaluating whether a species warranted inclusion on the list included population trend, threats, distribution, abundance, and area importance. Consultation with species' experts was also used for some bird species. The new list is titled: "Birds of Conservation Concern 2002" (USFWS 2002). The Xantus's Murrelet is included on this list, and was also included on the former list (Migratory Nongame Birds of Management Concern, 1995). The intent of the new BCC document is to focus attention on those bird species of greatest conservation need so that actions can be taken (research, management, protection, etc.) in coordination with state, other federal, private organizations, and research partners, to address threats and manage for healthy populations.

The federal Fish and Wildlife Conservation Act (as amended) mandates the USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973". The species on the BCC list are currently priority species for management by the Migratory Birds and Habitat Programs branch of USFWS in Portland, Oregon. This type of federal status has helped to provide some funding for research on the Xantus's Murrelet in the past. An example is the Sydeman et al. (1998) document that summarizes threats to the murrelet population.

There are 3 different geographic scales utilized in the BCC document for which species are ranked, and the Xantus's Murrelet occurs on the list at each of these three scales. The geographic areas are briefly discussed below, from smallest to largest:

North American Bird Conservation Initiative (NABCI) Regions:

This area includes central and southern California and part of Baja, California, and includes the breeding range of the murrelet in the Channel Islands. This area is known as Bird Conservation Region #32. The web site for NABCI states: "As integrated bird conservation progresses in North America, Bird Conservation Regions should ultimately function as the primary units within which biological foundation issues are resolved, the landscape configuration of sustainable habitats is designed, and priority projects originate" (<http://www.nabci-us.org/map.html#32>).

USFWS Pacific Region (Region 1):

The Pacific Region includes California, Idaho, Nevada, Oregon, Washington, Hawaii, and the Pacific Islands. The BCC document states: "The USFWS Region lists will be useful to USFWS administrators and biologists, other Federal and State agencies within a Region, and their partners and cooperators".

National:

The National list encompasses the United States in its entirety, including island "territories" in the Caribbean and Pacific. The National list should be viewed as a barometer of the status of continental bird populations, providing an "early warning" of birds that may decline to levels requiring protection under the federal Endangered Species Act, unless additional conservation measures are taken.

d) California Species of Concern (CSC)

The CSC selection is an administrative one, used by the Department and others for those species determined to be in decline, and possibly in need of listing under the California Endangered Species Act. Xantus's Murrelet was selected as a species of special concern by the Department in 1992. This has helped to provide some funding for murrelet research in the Channel Islands.

The CSC list is intended to alert agencies, land managers, biologists, and academia about the declining status of species to encourage research and special management efforts.

e) Marine Species of Common Conservation Concern Initiative

A North American Commission for Environmental Cooperation was formed between the United States, Canada, and Mexico as part of the North American Agreement on Environmental Cooperation, in the North American Free Trade Act in 1993. One of its initiatives is to conserve biodiversity across shared ecosystems by identifying priority species for conservation, recovery objectives, and potential collaborative actions the three countries can take to ensure the conservation of these species. The Marine Species of Common Conservation Concern Initiative has identified high priority species for conservation action. Xantus's Murrelet is one of six seabird species identified as a conservation priority. Recovery objectives and conservation actions have not been defined at this time.

In August of 1993, the American Ornithologists' Union sent letters to the U.S. Fish and Wildlife Service and the Ecology and Utilization of Natural Resources Department of Mexico in support of measures to restore biodiversity to several islands

off the western coast of Mexico, and to remove non native predators that threatened several seabird species (Appendix G).

f) Marine Protected Areas

Marine Protected Areas (MPAs) are one of the strategies used to conserve marine resources. MPAs prohibit all or some types of take within specific geographic areas. The Fish and Game Commission recently adopted the Department's proposed plan for 12 new MPAs in State waters within the boundaries of NOAA's Channel Islands National Marine Sanctuary (Sanctuary), and implementation occurred in April 2003.

The Sanctuary encompasses the waters that surround the islands of Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara, from the shoreline to 6 nautical miles offshore (Figure 20). The adopted plan represents 19 percent of State waters within the Sanctuary and includes 132 square nautical miles in ten no-take State Marine Reserves, and 10 square nautical miles in two limited-take State Marine Conservation Areas. Maps and descriptions of MPAs can be viewed on the Department's web site: http://www.dfg.ca.gov/mrd/channel_islands/index.html.

A single no-take MPA exists on Santa Catalina Island. This small area is located at the Wrigley Institute for Environmental Studies on the north side of the island. Additional MPAs in State waters, including the other Channel Islands of Santa Catalina, San Clemente, and San Nicolas, could be created through the Marine Life Protection Act's (MLPA) MPA process. The Department is the lead agency charged with implementing the provisions of the MLPA. However, the MLPA MPAs will probably not be created or implemented for at least a few years. A draft recommendation is due to the Fish and Game Commission in January 2005, and a final plan must be adopted by December 2005. Although several working groups have been established to develop recommendations for MPAs as part of the implementation of the MLPA, meetings of these groups have been temporarily suspended due to budget constraints.

The creation of MPAs near Xantus's Murrelet breeding habitat and foraging areas has the potential to reduce threats from human disturbance, artificial light pollution from fishing activities, and possibly fishery bycatch by reducing the number of fishing vessels operating in these areas. However, the level of reduction depends on the level of existing fishing effort in the area and MPAs being situated adjacent to murrelet breeding habitat as well as the individual restrictions of each MPA. It also depends on the level of non-consumptive boating, which is not generally restricted, in the areas.

The recently implemented Channel Islands MPAs, for instance, do not prohibit access and allow for non-consumptive activities, transit, and anchoring that could disturb breeding Murrelets. In addition, the new MPAs do not provide protection from other types of threats to Xantus's Murrelets, such as, non-native and native predators,

oil spills, prey availability, and other human activities. Other existing MPAs, however, prohibit not only take but also access. For example, the existing Brown Pelican (*Pelecanus occidentalis californicus*) Fledgling area on Anacapa Island prohibits all access during certain periods. This type of restriction significantly reduces threats from human disturbance.

The creation of no-take areas could cause fishing activities to be displaced and become more concentrated in other areas. If these other areas are important murrelet habitats, the establishment of the MPA could potentially increase threats from fishing activity. However, based on analysis of fishing activities completed during the Channel Islands MPA designation process, it is not expected that displaced fishing effort from these MPAs will create concentrations of activity that would impact resources.

The recently implemented Channel Islands MPAs were designed for the protection of marine habitats and ecosystems, not specifically seabird breeding areas. Thus, little of the waters surrounding important breeding habitat for the Xantus's Murrelet are protected from fishing boat activity and only seven of the 12 recently adopted MPAs are adjacent to portions of Xantus's Murrelet breeding sites. For example, at Santa Barbara Island, the most important breeding island for the Xantus's Murrelet in the Channel Islands, the Santa Barbara Island State Marine Reserve only protects approximately one-fourth of the waters offshore the island (the south-east side), and about one-fifth of the shoreline. Additionally, two of the seven MPAs allow some form of take by commercial and/or recreational fishermen, further reducing their potential for protection from disturbance.

Conclusions

The Department believes there is sufficient scientific information to indicate that the petitioned action is warranted due to a variety of threats: 1) Small breeding population size in California (approximately 1,730 pairs); 2) Documented population decline of approximately 30% from 1977 to 1991, and a 14% decline in the number of active nests for a large nest monitoring plot from 1991 to 2001, on Santa Barbara Island; 3) Declining occupancy rates at nesting sites on Santa Barbara Island, coupled with low productivity as compared to the closely related Craveri's Murrelet and Ancient Murrelet; 4) Near extirpation from previously known nesting sites based on historic and current scientific information; 5) Vulnerability to oil spills and chronic oiling during the breeding and non-breeding season, within and outside California; 6) Suppression of population growth by a variety of native and non-native predators, and possibly due to prey decline; and 7) Impacts from artificial light pollution and human disturbance activities. The cumulative impact of these factors is also an important consideration.

Murrelets were almost extirpated from their former stronghold at Anacapa Island (Hunt et al. 1980; McChesney et al. 2000, Whitworth et al. 2003b), and the fact that this near extirpation is occurring at the same time as documented population declines on

Santa Barbara Island indicates a species in trouble with a substantial loss in breeding habitat. Individual alcids do not commonly shift their breeding activities from one island to another. In fact, alcids are known for fidelity to their breeding areas, even to individual breeding sites or nests. A widely distributed murrelet population, with sufficient numbers to withstand natural fluctuations in predator and prey numbers is the ideal scenario for population viability. Lacking that buffer against environmental change and catastrophes, and adding human impacts can be disastrous for a species like the murrelet, with low reproductive potential.

The Department believes there is sufficient scientific information to warrant listing as threatened. In particular, the small breeding numbers concentrated in few geographic locales (12 nesting islands scattered along 500 miles of coastline), current indications of breeding decline in California at the largest colony on Santa Barbara Island, potential mortality from oil spills and chronic oiling, high predation rates, and the naturally low reproductive rate presents a particularly troubling combination of factors. The restoration of Anacapa Island as a breeding site holds promise for the species, though it may take 6-10 years or more to demonstrate a substantial population increase. Given the historic and current decline in breeding numbers at Santa Barbara Island (the current stronghold for the murrelet in California), and the high predator numbers (Barn Owls and deer mice), there is an immediate need for concerted conservation action for the species.

Essential Habitat

Nesting and marine habitat essential to murrelets has been investigated by many researchers (Hunt et al. 1979, Briggs et al. 1987, Carter et al. 1992, Drost and Lewis 1995, Gaston and Jones 1998, McChesney and Tershy 1998, Carter et al. 2000, Whitworth et al. 2000, Hamilton et al. 2003, Spear et al. 2003 and others).

Murrelets need protected nest sites on offshore islands, free from human disturbance and excessive predation. The birds select nest sites in natural cavities along or near steep cliffs, within sea caves, or on offshore rocks associated with some of the Channel Islands. Additionally, murrelets nest under adequate shrub cover. In general, concealment of the nest site is necessary.

Xantus's Murrelets are small and vulnerable to predation; their main defenses are nocturnal behavior at the nest site, and difficult to access, highly concealed nest sites. The impact of predators was discussed under the Population Trend and Threats sections of this report.

Because murrelets spend much of their lives at sea, adequate food resources (fish and zooplankton) must be available to sustain the birds through the non-breeding season and to assure sufficient energy reserves for breeding activities. The incubation shift for each member of the pair averages three days (Murray et al. 1983). If prey

availability is very low, murrelets may neglect their eggs on occasion. If prey availability is insufficient, murrelets may never incubate or may abandon their eggs. Whenever eggs are left unattended, they are subject to predation by mice or rats.

Murrelets range over a wide area of the marine environment during the non-breeding season (Figure 5). Thus, it is important for them to have safe foraging and resting habitat, and to avoid mortality and injury from oil spills, gill netting, and artificial light pollution.

Pursuant to Fish and Game Code Section 2074.6, the Department is required to make a preliminary identification of the habitat that may be essential to the continued existence of a species being considered for listing. Because murrelets are now reduced in number compared to historic times, have a limited natural distribution, are subject to many threats, and are currently in decline at the largest colony (Santa Barbara Island), the Department currently identifies all existing occupied habitat as essential to the continued existence of the species. Some suitable but unoccupied habitat exists (for example, Anacapa Island), and this habitat is essential to securing the continued existence of murrelet populations in the Channel Islands. This is especially true given the low number of pairs utilizing Anacapa Island at this time, and given the existing population decline at Santa Barbara Island, the largest murrelet colony.

A careful review of Figures 11-18 reveals the highly limited nesting habitat available to the murrelet in California's jurisdiction. Murrelets nest on just six of the eight California Channel Islands, and in extremely limited locales on four of those six islands (Santa Cruz, San Miguel, Santa Catalina, and San Clemente). On these latter two islands, the population estimates do not exceed 125 pairs of birds, combined.

Additionally, as was noted above in the Conclusions section of this report, alcids are known for fidelity to their breeding areas, even to individual breeding sites or nests. Therefore, one would not expect the birds to shift easily between colonies should threats emerge at one site. For these reasons, a widely distributed murrelet population, with sufficient numbers to withstand natural fluctuations in predator and prey numbers is the ideal scenario for population viability. The low reproductive potential of murrelets also dictates the need for sufficient population size at each colony in order to be safely buffered from environmental change and catastrophes.

Recommendations

The Department provides the Commission with the recommendations set forth below pursuant to FGC Section 2074.6. This FGC Section directs the Department to include in its status review recommendations for management activities and other recommendations to aid in recovery of the species. The Department believes its

recommendations highlight a number of actions that will help to conserve the murrelet and direct recovery activities.

Interagency coordination should be established with the goal of stopping, and then reversing the population decline of the murrelet. Protection and enhancement of existing nesting colonies and protection of the marine environment essential to the continued existence of the species are important.

Additional management recommendations for recovery and conservation are outlined below. An interagency team should be developed to prioritize these recommendations, and to develop additional recommendations if necessary. Non-governmental organizations should also be included in murrelet conservation efforts.

Appendix E of this report contains a letter from the Pacific Seabird Group dated August 15, 1994, with an attachment listing fourteen items to help in murrelet conservation. The Department supports these conservation measures, particularly items 2, 7, 12, and 14, with slight modifications as noted:

2. Conduct a thorough survey for nesting murrelets on all the Channel Islands, and refine and improve survey techniques. Utilize spotlight surveys to supplement population estimates, and to account for murrelets nesting in inaccessible habitat areas. Make results of survey work available to all interested parties in a timely fashion, to allow for evaluation of results and input on any further survey or monitoring work. Existing data sets should be compiled into one document to establish benchmarks.
7. Current and past use of artificial habitat by murrelets on Santa Barbara Island should be investigated, summarized, and published. Additional artificial habitat should not be considered until the effectiveness of existing and past structures can be understood. The feasibility of this technique as a long term management option needs analysis.
12. Initiate research to investigate the significance of mouse and owl predation on Xantus's Murrelets on Santa Barbara Island. This research should likely include Anacapa Island as well because now that rats have been eliminated from Anacapa, the native deer mouse population will increase (there is evidence this is occurring at this time).

Any program of predator management (deer mice and Barn Owl) to increase productivity of murrelets on Santa Barbara Island would have to be undertaken with the greatest of care, due to the delicate nature of the climate, vegetation, and faunal relationship (Sydeman et al. 1998). Such a controlled experiment may be in order to test the reproductive response of the murrelets and reverse the population decline. The Department supports convening a team of experts and managers (including NPS representatives) to explore this potential management action.

14. Organize annual meetings on the status and conservation of Xantus's Murrelet with representatives from NPS, USFWS, US Navy, NOAA, ICEG, PSG, HSU, U.S. Geological Survey-Biological Resources Division (USGS-BRD), the Department, other researchers, and interested parties.

Additional Management Recommendations by the Department

1. Information and educational materials should be developed to inform various park visitors of the Xantus's Murrelet, and other sensitive resources. The materials should provide guidance on methods to avoid disturbance.
2. To provide the murrelet with optimal nesting habitat, support efforts to restore the ecological balance to the nesting islands utilized by this rare seabird to the greatest extent practicable. Attempts by NPS to restore and monitor native vegetation and plant associations should continue. Concurrently, native wildlife (particularly murrelets, deer mice, Barn Owls, Bald Eagles, and Peregrine Falcons) should be monitored for response to the shift toward more natural conditions, as existed before European arrival to the Channel Islands.
3. A radio telemetry study of Barn Owls would be useful to document their nesting locations, foraging patterns, and foraging range. Capture, banding, and recapture of owls would also provide an assessment of owl density. An intensive food habits study should also be undertaken, and all owl nest sites and roost sites should be mapped.
4. Documenting the extent of Xantus's Murrelet mortality on Santa Barbara Island should become a routine part of the annual seabird monitoring program. All known peregrine and owl roost and nest sites should be visited to quantify murrelet remains and other prey. Falcon nesting sites need to be found and mapped.
5. The Department should continue outreach efforts into Mexico in order to help assure the conservation of murrelets in both California and Mexico. If California were to lose a substantial portion of murrelets due to a catastrophic oil spill, the proximity and health of the Mexican populations of murrelets (particularly Coronados birds) may prove useful to help restore California's loss (see Threats section, Oil Spills).

The petition also identified some key management needs, and the Department supports these recommendations:

1. NPS needs a management plan to combat future rat introductions on the Channel Islands (a draft plan has recently been produced as part of the American Trader Restoration Plan).

2. Predator management (mice and barn owls) on certain islands may be necessary to restore murrelet populations.
3. Work to support establishing an observer program to assess the extent of murrelet bycatch in certain fisheries with the potential to affect Xantus's Murrelet.
4. Strong consideration should be given to squid fishing closure areas during the breeding season off Santa Barbara, Anacapa, and San Miguel islands (note in Figure 20 that there are existing Department ecological reserves around these 3 islands). The petition also noted that any benefits of the light shields had not been evaluated.

The Department notes that protection of murrelets from artificial light pollution involves other users in the marine environment, not just the squid fishery. The Department should work closely with land managers and many constituent groups to address disturbance and artificial light pollution impacts to murrelets. As noted earlier, information and educational materials should be developed to inform various user groups of actions they can take to minimize disturbance to murrelets. The Department could also evaluate and make recommendations to the Commission regarding protective measures similar to those set forth in Appendix H that could reduce impacts of lighting and disturbance on Xantus's Murrelet. Overall, monitoring and enforcement of existing closure areas could also be improved.

5. NPS needs to close or restrict visitor access to sea caves where murrelets nest.
6. Removal of rats from Anacapa Island is a high priority (the island is apparently rat-free at this time, but constant vigilance will be necessary to maintain the island in this condition).
7. Removal of non-native mammals from several Baja California Islands is needed (this activity is on-going by ICEG).
8. Murrelet nesting areas must be protected.
9. Peregrine predation on murrelets has been little studied, indicating a need for more research in this area.

An important reference cited in the petition is McChesney et al. (2000), research that was partly funded by the Department. The report summarizes the history of Anacapa Island with special reference to a habitat assessment for the murrelet, compilation of historical information (including documented murrelet egg collections), and impacts from introduced rats. McChesney et al. (2000) contains four

recommendations to better protect and restore the murrelet and other seabird populations at Anacapa Island.

The recommendations are:

1. Black rats should be eradicated from Anacapa Island (this project is underway).
2. Additional baseline information should be gathered on population levels and trends of murrelets and other crevice-nesting species on Anacapa Island (this project is underway).
3. The National Park Service should develop a plan to severely reduce the likelihood of future introductions of rats and other non-native mammals to Anacapa Island (a draft plan has recently been produced as part of the American Trader Restoration Plan).
4. Identify and reduce impacts to murrelets and other seabirds from other threats. The threats identified included oil pollution and bright lights from boats.

The Department also supports these recommendations.

Recommendation on Listing Status

The Department of Fish and Game recommends that the Commission list the Xantus's Murrelet as threatened. The Department recommends threatened status, rather than endangered for the following reasons:

1. Direct habitat destruction or modification, in California, is not as serious a threat for Xantus's Murrelet as it is for other endangered species such as the Marbled Murrelet. While habitat destruction and modification was an important factor historically, it does not appear to be a significant factor today in California, especially given the fact that most nesting islands are managed by NPS and some restoration programs are in progress. However, the Department notes that biologists on Santa Barbara Island have suggested that human foot traffic may be a factor in the decline of shrub nesting habitat for murrelets, in some locales. This potential impact needs further investigation.
2. If nesting habitat can be protected from human disturbance and alteration, and predators can be controlled at levels that allow for suitable reproductive output, the potential for increases in nesting success, and as a result increases in murrelet populations is likely (for example, the Coronados Islands, and Anacapa Island, where the murrelets may be increasing in response to removal of non-native predators). However, at this time, predation pressure remains one of the main threats to the continued existence of the species.

3. There is the potential that murrelets could utilize artificial structures for nesting habitat to help increase reproductive output. This may serve as an interim measure until habitat can be returned to more natural conditions, including normal densities for native prey populations. However, in general, the Department does not support utilizing artificial burrows as a long term management tool due to the management burden associated with the upkeep of such artificial devices, and because it runs contrary to ecosystem restoration. Also, until it can be shown that such a management strategy would prove useful, it remains untested on a large scale. Competition for nest boxes from other species (for example, Cassin's Auklets) may also become a factor affecting their usefulness as a long term management tool.
4. While murrelet population numbers are substantially reduced from historic levels, and declining on Santa Barbara Island, their numbers appear sufficient to allow recovery if proper management actions are taken. It is imperative that all affected public agencies work closely together to reverse the current population decline.
5. The Department found no information indicating disease, overexploitation, or competition as significant factors affecting murrelet population viability. We found only one instance of competition, where it appeared that a Pigeon Guillemot (*Cephus columba*) displaced an incubating murrelet and took over the nesting site (D. Whitworth, pers. comm.) Of these three factors, the Department considers disease to be in need of investigation. According to Wildlife Veterinarian Dr. Scott Newman (pers. comm.), based on inference from recent research results from other marine bird species, there is the potential that murrelets could be affected by West Nile Virus, and biotoxins from algal blooms, in addition to other diseases. Additionally, there is also an emerging interest in the effects of pollution in the marine environment and its effect on wildlife. Murrelets could be vulnerable given the amount of urban runoff that enters into the marine environment of the Southern California Bight. However, until more information is gathered, the Department cannot infer that these factors pose a significant threat to the continued existence of murrelet populations.

There are two main threats that indicate listing as endangered has some merit, and both of these fall in the category of "human-related activities" threatening the continued existence of the species:

6. The potential for a large oil spill during the breeding season in the Channel Islands area (causing large-scale murrelet mortality).
7. The potential for rats to become reestablished on Anacapa (or established on other nesting islands), and agencies having insufficient funds to take action in the future. It was the restoration plan for the American Trader oil spill that made

the rat eradication effort possible on Anacapa Island; whether it would have happened without this major funding source is questionable.

Based on consideration of the seven points outlined above, and the previous discussion and conclusions in this report, the Department believes listing as threatened is appropriate at this time. Listing the species as endangered at this juncture is not warranted because the Xantus's Murrelet does not appear to be "...in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease" (FGC Section 2062). However, the Department finds that the murrelet is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by CESA.

Regulatory Standard for Listing

The regulatory standard for the Commission's determination provides that, "[a] species shall be listed as endangered or threatened... if the Commission determines that its continued existence is in serious danger or is threatened by any one or any combination of the following factors:

1. Present or threatened modification or destruction of its habitat;
 2. Overexploitation;
 3. Predation;
 4. Competition;
 5. Disease; or
 6. Other natural occurrences or human-related activities.
- (14 CCR § 670.1(i)(1)(A))

Therefore, the Commission is required to list a species as "endangered or threatened" if one or more of the above-mentioned factors pose a serious danger or threat to the continued existence of the species. If the standard in section 670.1 is met, then the Commission will ultimately determine the level at which listing is appropriate.

FGC section 2062 defines an endangered species as one "which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, over exploitation, predation, competition, or disease". FGC section 2067 defines a threatened species as a species "that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by [CESA]."

The Commission will base its decision whether to list on the Department's Status Review, other scientific reports that are submitted and any other public comments and submissions it receives. The Commission may review all of the pertinent information

and conclude that listing is warranted, but at a level different than that recommended by the Department or requested by the petitioners.

Alternatives to the Petitioned Action

Alternatives to the petitioned action include: a) List as endangered; and b) Decline to list.

List as Endangered

The Commission could exercise its discretion and list the Xantus's Murrelet as an endangered species under CESA. The legal protection afforded species listed under CESA as endangered or threatened, however, is the same. Likewise, under the California Environmental Quality Act (CEQA), heightened scrutiny of potential impacts is required for certain species regardless of whether they are an endangered, rare or threatened species. (e.g., CEQA Guidelines, 15065, 15380.) Finally, sources of potential funding for recovery, protection, and research for endangered species are generally the same as those for a threatened species.

Decline to List

If the Commission determines that listing is not warranted, the murrelet will revert to the unlisted status that it held prior to the petition filing. As a California Species of Concern, the murrelet may be afforded some protection under CEQA. The Department will continue to act as the trustee agency for the State's fish, wildlife and plant resources. In this role, the Department will review and comment on impacts to murrelets and recommend mitigation measures for these impacts as part of the CEQA review process, including any internally-generated CEQA documents such as fishery management plans.

Should the Commission decline to list, incidental take permitting requirements set forth in FGC 2081(b), and other protective measures under CESA, would not apply. Existing federal and State research permit requirements that existed prior to the petition filing will, however, remain in place. For example, the Department will continue to require Scientific Collecting Permits and Letter Permits for research projects that involve take of murrelets. Researchers would also be required to obtain the appropriate federal permits for work involving take of murrelets.

In the absence of a listing decision by the Commission, the Department would also continue to participate in and support a variety of programs designed to benefit murrelets. Many of the Department's existing or planned management efforts, conducted in cooperation with other entities include:

Rat eradication at Anacapa Island under the American Trader Restoration Plan.

Research and monitoring studies funded through the State's Tax Check-off Program, or USFWS Section 6 grant program.

Development of information and educational materials for various user groups.

Working with various State and federal agencies, and private groups (for example, ICEG and PSG) to help conserve murrelets.

Protections Resulting from Listing

It is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat (FGC Section 2052). If listed, the murrelet will receive protection from unauthorized take under the CESA, making the conservation, protection, and enhancement of the murrelet and its habitat issues of statewide concern. Project proponents will be subject to the prohibitions on take and other proscriptions in CESA that are punishable under State law. The Department may authorize exceptions to the prohibitions in CESA under certain circumstances. However, the impacts associated with authorizing an activity that will involve take of murrelets will be minimized and fully mitigated according to State standards.

Listing this species increases the likelihood that state and federal land and resource management agencies will allocate funds towards protection and recovery actions. With limited funding and a growing list of threatened and endangered species, priority is usually given to species that are listed. As an example of this benefit, in 2003, due to the murrelet's candidacy status and the federal petition for listing, USFWS Section 6 research funds were awarded to the Department to aid in recovery efforts for the murrelet.