State of California
The Resources Agency
Department of Fish and Game

Status Review of Xantus's Murrelet (*Synthliboramphus hypoleucus*) in California

Prepared by

Esther E. Burkett
(Habitat Conservation Planning Branch)

Nora A. Rojek
Annette E. Henry
Marilyn J. Fluharty
(Marine Region)

Lyann Comrack
(South Coast Region)

Paul R. Kelly
(Office of Spill Prevention and Response)

Ann C. Mahaney
And
Kristi M. Fien
(Wildlife and Habitat Data Analysis Branch)

Part II: Appendices

Habitat Conservation Planning Branch
Status Report 2003-03

November 2003

Appendix A1

Public Notification and
Solicitation of Information Relating to the
Xantus's Murrelet Status Review

March 2, 2003

(916) 653-4875

March 2, 2003

Name
Company
Address
City, State

As a landowner, neighboring landowner, or interested party, attached for your information is a public notice regarding Xantus's Murrelet (*Synthiliboramphus hypoleucus*).

If you have any questions, please contact Ms. Esther Burkett, Wildlife Biologist, by telephone at (916) 654-4273.

Sincerely,

COPY Original Signed By

Dale T. Steele, Supervisor
Species Conservation and Recovery Program
Habitat Conservation Planning Branch

Attachment

PUBLIC NOTICE

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Xantus's Murrelet (*Synthliboramphus hypoleucus*)	List as Threatened

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Therefore, **NOTICE IS FURTHER GIVEN** that anyone with data or comments on the taxonomic status, ecology, biology, life history, management recommendations, distribution, abundance, threats, habitat that may be essential for the species, or other factors related to the status of the above species, is hereby requested to provide such data or comments to:

Habitat Conservation Planning Branch
Attn: Ms. Esther Burkett
California Department of Fish and Game
1416 Ninth Street
Sacramento, California 95814

Responses received by July 15, 2003 will be included in the Department's final report to the Fish and Game Commission. If the Department concludes that the petitioned action is warranted, it will recommend that the Commission adopt the proposal. If the Department concludes that the petitioned action is not warranted, it will recommend that the Commission not adopt the proposal. (If the Commission accepts the Department's recommendation not to adopt the proposal, the species will lose its Candidate status.) Following the receipt of the Department's report the Commission will allow a 30-day public comment period prior to taking any action on the Department's recommendation.

NOTICE IS FURTHER GIVEN that any species above proposed to be added to the State list as endangered or threatened is a "candidate species" pursuant to Section 2074.2 (FGC) and, pursuant to Section 2085 (FGC), may not be taken or possessed except as provided by Section 2080 et seq. of the FGC, or other applicable statutes.

Sandra C. Morey, Chief
Habitat Conservation Planning Branch

Appendix A2

Affected and Interested Parties
Notified by the
Department of Fish and Game

March 2, 2003

Mr. Orlando Amoroso
Southern California Commercial Fisherman's Association
Berth 73/Fisherman's Wharf
San Pedro, California 90731

Mr. Richard Arnolds
Channel Islands Kayak Center
3600 S. Harbor Blvd Suite 213, #539
Oxnard, California 93035

Mr. Erik Aschehoug
The Nature Conservancy
1901 Spinnaker Drive
Ventura, California 93001

Mr. Tim Athens
Ventura County Commerical Fishermens Association
253 Highland Drive
Channel Islands Beach, California 93030

Dr. Lisa T. Ballance
Pacific Seabird Group
8604 La Jolla Shores Drive
La Jolla, California 92037

Mr. Brad Bortner
U.S. Fish and Wildlife Service
911 NE 11th Avenue
Portland, Oregon 97232

Ms. Jennifer Boyce
NOAA Restoration Center
501 W. Ocean Blvd, Suite 4470
Long Beach, California 90802

Dr. Kelly Brock
Natural Resources Office
Post Office Box 357088 (Code N451KB)
San Diego, California 92135-7088

Mr. Donald Brockman
c/o Davey's Locker
400 Main Street
Newport Beach, California 92661

Mr. Harry R. Carter
Humboldt State University
Post Office Box 1482
Arcata, California 95617

Mr. Joseph Coito
Adventours Outdoor Excursions
Post Office Box 215
Santa Barbara, California 93102

Dr. Paul Collins
Santa Barbara Museum of Natural History
2559 Puesta del Sol Road
Santa Barbara, California 93105

Mr. Mark Connally
Island Packers
1691 Spinnaker Drive #105b
Ventura, California 93001

Mr. Dan Cooper
National Audubon Society
6042 Monte Vista Street
Los Angeles, California 90042

Mr. Gordon Daily
170 Middle Road
Santa Barbara, California 93108

Mr. Bruce Dennis
20516 S. Vermont Avenue #49
Torrance, California 90502

Mr. Jason Diamond
Sea Landing Dive Center
301 W. Cabrillo Avenue
Santa Barbara, California 93101

Ms. Katie Drexhage
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

Mr. Bill Everett
Pacific Seabird Group
Post Office Box 1085
La Jolla, California 92038

Ms. Bridget Fahey
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

Ms. Sarah Fangman
Channel Islands National Marine Sanctuary
113 Harbor Way
Santa Barbara, California 93109

Ms. Kate Faulkner
National Park Service
1901 Spinnaker Drive
Ventura, California 93001

Mr. Robert Fletcher
Sportfishing Association of California
1084 Bangor Street
San Diego, California 92106

Mr. Glen Fritzler
Truth Aquactics
201 W. Cabrillo Boulevard
Santa Barbara, California 93101

Mr. David Garcelon
Institute for Wildlife Studies
Post Office Box 127
Arcata, California 95521

Dr. Richard T Golightly
Humboldt State University
Arcata, California 95521

Ms. Carol Gorbics
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

Mr. Neil Gugleilmo
1136 Mission Ridge Road
Santa Barbara, California 93106

Mr. Tom Hamer
Hamer Environmental
19997 Highway 9
Mount Vernon, Washington 98274

Mr. Sean Hastings
Channel Islands National Marine Sanctuary
113 Harbor Way
Santa Barbara, California 93109

Mr. Bob Heiney
Cisco's Sportfishing
4151 S. Victoria Avenue
Channel Islands Harbor, California 93035

Mr. Eric Hooper
206 Drexel Avenue
Ventura, California 93003

Mr. Gregg Howald
University of California, Santa Cruz
100 Shaffer Road
Santa Cruz, California 95060

Mr. Brad Keitt
University of California, Santa Cruz
100 Shaffer Road
Santa Cruz, California 95060

Mr. Ken Kohr
Captain Hook's Sportfishing
3600 S. Harbor Boulevard #1150
Oxnard, California 93035

Mr. Mike Kucura
1958 Homewoeth Drive
Rancho Palos Verdes, California 90275

Mr. Eric Little
Aqua Sports
111 Verona Avenue
Goleta, California 93117

Ms. Lynn Lozier
The Nature Conservancy
201 Mission Street 4th Floor
San Francisco, California 94105

Ms. Paige Martin
National Park Service
1901 Spinnaker Drive
Ventura, California 93001

Mr. Gerry McChesney
U.S. Fish and Wildlife Service
Post Office Box 524
Newark, California 94560

Ms. Kyra L. Mills
PRBO
4990 Shoreline Highway 1
Stinson Beach, California 94970

Ms. Maura Naughton
U.S. Fish and Wildlife Service
911 NE 11th Avenue
Portland, Oregon 97232

Ms. Victoria Nautel
U.S. Fish and Wildlife Service
911 NE 11th Avenue
Portland, Oregon 97232

Dr. Scott Newman
Wildlife Trust
61 Route 9W
Palisades, New York 10964-8000

Mr. Mark Olson
Paddle Sports
100 State Street
Santa Barbara, California 93101

Park Superintendent
National Park Service
1901 Spinnaker Drive
Ventura, California 93001

Mr. David Pereksta
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

Mr. Matt Pickett
Channel Islands National Marine Sanctuary
113 Harbor Way #150
Santa Barbara, California 93109

Ms. Diana Pleschner-Steele
California Wetfish Producers Association
Post Office Box 336
Buellton, California 93427

Mr. Alan Sanders
Sierra Club
232 N. Third
Port Hueneme, California 93041

Dr. Peter Schuyler
Santa Catalina Island Conservancy
Post Office Box 2739
Avalon, California 90704

Dr. Steven J. Schwartz
NAWCWD code 870000DE
575 I Avenue Suite 1
Point Mugu, California 93042-5049

Mr. Doug Schwartz
Southwind Kayak Center
17855 Sky Park Circle #A
Irvine, California 92614

Ms. Grace Smith
Environmental Project
Building 514
NAS Point Mugu, California 93042

Mr. Steve Snyder
2341 Ocean Street
Oceano, California 93445

Dr. Paul Stapp
California State Unveristy
Post Office Box 6850
Fullerton, California 92834

Mr. Kieran Suckling
Center for Biological Diversity
Post Office Box 710
Tucson, Arizona 85702

Dr. William J. Sydeman
PRBO
4990 Shoreline Highway 1
Stinson Beach, California 94970

Dr. John Takekawa
U.S.G.S. - BRD
Post Office Box 2012
Vallejo, California 94592

Dr. Bernie Tershy
University of California, Santa Cruz
100 Shaffer Road
Santa Cruz, California 95060

Dr. Steve Timm
Institute for Wildlife Studies
Post Office Box 2500
Avalon, California 90704

Ms. Sandra Vissman
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

Mr. Brian Walton
University of California, Santa Cruz
100 Shaffer Road
Santa Cruz, California 95060

Mr. Bruce Williams
Port Hueneme Sportfishing
105 East Port Hueneme Road
Port of Hueneme, California 93044

Mr. Lou Zeidberg
Post Office Box 951606
Los Angeles, California 90095-1606

Appendix A3

Newspapers that Published the
Xantus's Murrelet Legal Notice
on
March 2, 2003

Long Beach Press-Telegram
Santa Barbara News Press
Ventura County Star

(Space below for Filing Stamp only.)

LONG BEACH
PRESS-TELEGRAM

604 Pine Avenue
Long Beach, CA 90844

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Los Angeles

I am a citizen of the United States, and a resident of the county aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the Long Beach Press-Telegram, a newspaper of general circulation printed and published daily in the City of Long Beach, County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, on the date of March 21, 1934, Case Number 370512. The notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

March 2, 2003

I declare under penalty of perjury that the foregoing is true and correct.

Executed at Long Beach. LA Co. California
this 2 day of March, 2003
Dee Nelsabeck
signature

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California Department of Fish and Game
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Sacramento, California 95814

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Sandra C. Morey, Chief
Habitat Conservation Planning Branch
Pub. Mar. 2, 2003(1t) PT(107301/243404)

SANTA BARBARA NEWS PRESS
Proof of Publication
(2015.5C.C.P)

Superior Court of the State of California In and for The County of Santa Barbara

#23938

In the Matter of: CALIFORNIA DEPARTMENT OF FISH AND GAME

PUBLIC NOTICE

The undersigned, being the principal clerk of the printer of the Santa Barbara News Press, a newspaper of general circulation, printed and published daily in the City of Santa Barbara, County of Santa Barbara, California and which newspaper has been adjudged a newspaper of general circulation by the Superior Court in the County of Santa Barbara, State of California, Adjudication Number 47171; and that affiant is the principal clerk of said Santa Barbara News Press. That the printed notice hereto annexed was published in the SANTA BARBARA NEWS PRESS, in the issues of the following named dates:

Dates of Publication:

MARCH 2,

all in the year 2003 I hereby certify (or declare) under penalty of perjury that that foregoing is true and correct.

Executed on this 4TH day of MARCH , 2003 at Santa Barbara , CA.

Regina A. Rodriguez
Signature

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Sandra C. Morey, Chief
Habitat Conservation Planning Branch

Mar.2/03–23938

Certificate of Publication

Ad NO. 552335

In Matter of Publication of:

PUBLIC NOTICE

State of California)
((§
County of Ventura)

I, **Anjelica Mendoza** hereby certify that the **Thousand Oaks Star, Moorpark Star, Simi Valley Star, Camarillo Star, Oxnard Star, Ventura County Star,** adjudged a newspaper of general circulation by the Superior Court of California, County of Ventura within the provisions of the Government Code of the State of California, printed and published in the City of San Buenaventura, County of Ventura, State of California; that I am a clerk of the printer of said paper; that the annexed clipping is a true printed copy and publishing in said newspaper on the following dates to wit:

Mar. 2, 2003

I, certify under penalty of perjury, that the foregoing is true and correct.

Dated this 4th day of March 2003 in San Buenaventura, California.

ANJELICA MENDOZA

PUBLIC NOTICE

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Sandra C. Morey, Chief
Habitat Conservation Planning Branch
Publish: Feb 28, 2003 Ad No.VC552335

Appendix B

List of Experts Solicited for Peer Review & Comments from Peer Reviewers

Harry R. Carter, M.Sc.
Wildlife Faculty Associate
Humboldt State University
Richmond, B.C. V6X 2G9
Canada

S. Kim Nelson, M.Sc.
Faculty
Department of Fisheries and Wildlife
Oregon State University
Corvallis, Oregon

John F. Piatt, Ph.D.
Research Wildlife Biologist
Alaska Science Center, USGS
Anchorage, Alaska

Spencer G. Sealy, Ph.D.
Professor (Zoology)
University of Manitoba
Winnipeg, Manitoba

Peer Reviewer Comments on "Status review of Xantus's Murrelet: report to the California Fish and Game Commission (October 21, 2003 draft)"

Prepared by Harry R. Carter (10 November 2003)

General

This review seems to be thorough and reflects appropriate scientific considerations and treatment of most available information on this species. As indicated below, various corrections and caveats should be included to clarify various points in the text. Listing of the Xantus's Murrelet as threatened under CESA appears to be reasonably well justified with this report, despite incomplete information on the species and its status. While some island populations are increasing or will increase over the next two decades (e.g., Anacapa and Los Coronados), the major U.S./California colony at Santa Barbara Island is declining and requires substantial long-term management action for restoration. Much additional effort also is needed to determine the status of murrelets, to examine the significance of threats, and to develop restoration plans at many colonies in California and Mexico. Without listing, restoration and research/monitoring efforts will continue to be severely hampered by competition with other agency needs, insufficient cooperation, and insufficient funding. Without much additional research, monitoring, restoration and management actions, U.S./California populations of this species probably will be lower in the future than they are today and these populations probably will be more susceptible to future extinction. I agree with the major conclusions of the report with the clarifications below.

Executive Summary

Page 1: 2) "decline of 30-72% from 1977 to 1991" has not been well established. Carter et al. (1992) indicated that about 30% lower numbers could be determined using the most comparable data. More recent work suggests a 14% decline from 1991 to 2001 (Whitworth et al. 2003). A decline of 72% from 1977 to 1991 would be more evident than available data indicates. A moderate approach may be to summarize as "decline or 14-30% or higher from 1977 to 1991". .

Page 1: 3) Productivity of the Craveri's Murrelet and factors affecting breeding success have not been well studied, using standard methodology for comparison to Xantus's Murrelet.

Page 1: 6) Reduced breeding success also may have resulted in the past from lowered breeding success from organochlorine pollution between the 1940's and 1980's in the Southern California Bight, although such pollution appeared to be relatively low by 1992 (Carter et al. 2000).

Page 2, para 4, line 7: "...low reproductive rate, low juvenile survival, and high colony fidelity,..."

Page 2, para 4, line 10: "..to murrelet recovery, without immediate efforts to re-eradicate rats."

Page 2, para 6, line 3: "...1-2 eggs per clutch, although a replacement clutch can be laid if the first clutch is lost."

Page 2, para 7, line 4: Santa Barbara is the largest current colony in California but Anacapa Island may have been the largest colony in the past (McChesney et al. 2000) and may become the largest colony in the future.

Page 3, para 1, line 1: Historical data prior to the 1970's are incomplete and difficult to interpret

and murrelets may be more abundant today at some colonies than in the 1940's.
Page 3, para 1, line 5-7: A conservative rate of decline at Santa Barbara Island in 1977 to 1991 might be 14%, as shown from 1991 to 2001 using similar methods (Whitworth et al. 2003). Earlier comparisons of population size are affected by use of different estimation techniques and may overestimate decline (Carter et al. 1992). Changes in occupancy over time may partly reflect redistribution (e.g., due to predation, disturbance, or loss of cover at bush sites) and may not reflect the true rate of decline.
Page 4, para 2: Bald Eagles are known to prey upon Xantus's Murrelets at Santa Catalina Island (D. Garcelon, pers. comm.). Reintroduction of eagles to the northern Channel Islands may lead to greater predation on Xantus's Murrelets.
Page 4, para 3, line 2: "... documented to cause temporary parent-chick separation..." I'm not aware of evidence that would prove that chicks die due to such separations. Chicks and adults have well developed vocal recognition by the time of colony departure. They probably find each other most or all of the time after short separations.
Page 4, para 5, line 9: Egg neglect probably is not linearly related to prey availability. Most egg neglect occurs after laying of the second egg and before incubation begins. Murrelets likely reduce egg neglect during incubation by adjusting their foraging behavior if prey are less available. Very low prey availability may result in a lower percentage of breeding adults that lay eggs or a higher rate of clutch abandonment, rather than higher egg neglect.

Status Review
Page 3, para 1, line 1: Average life span of many alcids is over ten years (Gaston and Jones 1998).
Page 3, para 1, line 2: "...1-2 eggs per clutch"
Page 3, para 1, line 6: The Ancient Murrelet is a congeneric species but Craveri's Murrelet is most closely related to Xantus's Murrelet within this genus. Previously, Craveri's and Xantus's Murrlets were included in the genus *Endomychura.*
Page 4, para 1, line 6: "...every two to four days..."
Page 4, para 6: The congeneric Japanese Murrelet (*S. wumizusume*) also should be mentioned here. This endangered species has a small population size, restricted range, and many similar threats in Japan.
Page 5, para 3: Perhaps also cite Springer et al. 1993
Page 5, para 4, line 15-17: Suggest delete "...supporting the hypothesis that non-random mating is occurring (Jehl and Bond 1975). The low proportion of intermediate plumage types is further evidence that some isolating mechanisms are present". There are other hypotheses that can explain this and this is a small point.
Page 5, para 5, line 6: Change "(D. Whitworth, pers. comm.)" to "(H. Carter, unpubl. data)".
Page 6, para 2, line 5: Numbers of breeding Xantus's Murrelets at Anacapa Island may have been equal to or larger than Santa Barbara Island in the past (McChesney et al. 2000).
Page 7, para 5, lines 1-2: Delete "This species was discovered breeding on Los Coronados Islands, Mexico, by A. Van Rossem April 17, 1908". Egg records at Los Coronados extend back to about 1893 from other collectors. Reword following sentence to "A few years ago [about 1908] they were very rare [at Los Coronados Islands], but at present ...".
Page 8, para 1, line 3: Need to add the caveat that "It is quite likely that egg collectors were

becoming more familiar with what time of year and in what habitats to find murrelet eggs at the Los Coronados, Santa Barbara, and Anacapa Islands such that true population increase may not have been occurring at this time."

Page 8, para 3, line 4-6: Statements like "common" and fairly common" may reflect their higher relative abundance in the Southern California Bight compared with northern California. Historical declines in the early twentieth century likely occurred at Los Coronados Islands, Santa Barbara Island and Anacapa Island due to introduced cats and rats. Hunt et al. (1979, 1980) suggest some increase from early century to the mid 1970's at Santa Barbara Island due to the control and removal of feral cats. Some increase also has likely occurred at the Los Coronados Islands after removal of cats. However, murrelet population size at all three islands are likely depressed well below their historical carrying capacities.

Page 10, para 1, line 11: Suggest replace "Most wildlife populations..." with "Many seabird populations..." for greater clarity. It does not matter what mammal populations might do here.

Page 10, para 2, line 15-16: Suggest reword to: "In 1991, auklets persisted in small numbers on the offshore islet of Sutil Island near the southwest end of Santa Barbara Island and in bluffs at Elephant Seal Point (Carter et al. 1992). Recently, auklets have not been found at either location and may no longer breed at Santa Barbara Island (J. Adams and P. Martin, pers. comm.). Vegetation and soil changes from non-native grazing mammals and past agricultural practices likely led to a large historical decline with no chance for natural recovery."

Page 11, para 2, line 6: Perhaps check Drost and Fellers 1991 and Drost 1989? (Thesis) about vegetation changes potentially causing or contributing to high mouse densities at Santa Barbara Island.

Page 11, para 3, line 7: Could add the caveat that "It is very unlikely that Xantus's Murrelets were extirpated but their population was likely reduced and limited to habitats with low cat predation."

Page 11, para 4, line 5: Suggest reword to: "A slight recovery of murrelets may have occurred ...." No data to show an actual increase.

Page 12, para 1, line 1: Suggest reword to: "Carter et al. (1992) surveys were undertaken in an effort to assess murrelet population size in 1991 but methods probably were only roughly comparable to those used earlier by Hunt et al. (1979, 1980). It is difficult to assess exactly how comparable these methods were due to poor description of count methodology used in the 1970s (Carter et al. 1992)."

Page 12, para 2, line 2: Suggest reword to: "... made some adjustments to the occupancy correction factors used in 1991 (note: these adjustments may or may not be valid), and derived a smaller number of breeding birds than Carter et al. (1992; Table 1)."

Page 12, para 2, lines 4-16: Suggest delete after "Specifically,.." to end of paragraph. These details are not really important to discuss here and it could take even more space to go into this issue in full detail. There are many different ways to calculate and apply occupancy factors, it is not clear what definitions and procedures have been used by different researchers, and there has been insufficient discussion between researchers to resolve many issues.

Page 12, para 5, line 2-3: Suggest change to: "... the petition (HSU, unpubl. data; National Park Service (NPS), unpubl. data)." USGS-BRD does not have any unpublished data on changes in

numbers of nests or occupancy at Santa Barbara Island. However, they have assisted a recent HSU study.
Page 13, para 2, line 6: Murray et al. 1983 is the main citation for the 6,000-10,000 estimate.
Page 13, para 4, line 4-5: Suggest reword to "...that is contained in both reports. However, techniques to estimate population size were different, estimates may not be fully comparable, inter-annual variation may be involved, and earlier techniques were not well described (Carter et al. 1992). We agree with Carter et al. (1992) that the at-sea work ..." The main objective of the Carter work was not to compare to the Hunt work but to merely determine the best population estimate for 1991 that was possible with available past information and personnel, time, effort, and funds in 1991. A secondary objective was to compare our estimate with earlier estimates and discuss possible trends. For Xantus's Murrelets at Santa Barbara Island, it was difficult to determine trends for the many reasons noted but Carter et al. (1992) felt that the 1991 survey at least established that murrelet population size was closer to the lower end of the range of 1970's estimates and may reflect decline. More recent work has tended to confirm continued decline after 1991 which has led me more recently to consider that much of the difference of numbers between the 1970's and 1991 estimate was due to decline, even though methods were different.
Page 14, para 3, line 3: Suggest reword to: "...This intensive effort to monitor breeding success provides an important data set to help assess population status, as noted in the petition." Measuring occupancy was not an original goal of the murrelet monitoring program. If it had been, data would have been collected differently.
Page 15, para 2, line 7: Productivity for Craveri's Murrelet has not yet been determined using standard techniques with adequate sample sizes. Check DeWeese and Anderson to see if they used only rough numbers that are not directly comparable to Xantus's Murrelet. Contact Tershy to find out what his citation was based upon. Need to clarify what Craveri's numbers mean.
Page 15, para 4, line 1: Suggest reword to: "Recent work in the Channel Islands by HSU researchers ..." USGS-BRD staff have assisted HSU researchers (along with several other agencies and groups) but HSU has led this study.
Page 16, para 2, line 5: Suggest change to: "...and showed 14% lower numbers of active nests.....".
Page 16, para 2, 8: Some degree of rat control also occurred in several years during the 1980's through NPS efforts.
Page 16, para 4, line 7: Suggest reword to: "..., since egg collecting was a form of scientific investigation and hobby during that era." Much valuable scientific information has been gleaned from egg collections over the years.
Page 18, para 1, line 3: The amount of suitable breeding habitat, numbers of rats or cats, amount of predation, and the percentage of habitat accessible to rats or cats has not been effectively determined at any island, making it difficult to determine potential carrying capacity or the degree of population reduction.
Page 18, para 2, line 3: Suggest reword to: "This is supported by recent research indicating substantial suitable but unused habitat, evidence of rat predation on murrelet eggs in accessible and relatively inaccessible habitats, and past evidence of larger numbers of murrelets at Anacapa Island (McChesney et al. 2000, Whitworth et al. 2003; H. Carter, pers. comm.)."
Page 18, para 4, line 5-6: I presume that Pitman's 10% estimate is based on various assumptions

that may or may not be true. I'm not aware of any detailed study that was conducted. Our recent work suggested that murrelets occurred in fairly large numbers at North and South Islands in 1995 and 2002. For such large numbers to be present shortly after cat removal, I think that cats did not greatly reduce murrelet numbers to 10% of original numbers. Instead, it appears that many murrelets were able to evade cat predation on parts of North and South Islands, probably by breeding in steep topography with limited cat access and having only a short period of daytime nest attendance. I do think that cats reduced murrelet numbers but not to such a great degree as Pitman.

Page 18, para 5, line 4-5: Reword to "Recent work was conducted by HSU and ICEG in spring 2002 at the San Benitos Islands (Table 2; Whitworth et al. 2003a)."

Page 18, para 5, line 6-7: I am not aware of any colony extirpation of Xantus's Murrelets. They were thought to have been extirpated at Todos Santos, San Martin and San Geronimo but 1999 surveys found small numbers still present that had apparently gone undetected (Keitt 2000).

Page 18, para 5, line 10: Murrelets have never been documented to nest at Natividad, San Roque, or Asuncion so they may never have bred there.

Page 19, para 2, line 1: Suggest reword to: "In spring 2002, HSU researchers noted hundreds of murrelets present in the waters around the Coronados while conducting spotlight surveys (H. Carter & D. Whitworth, unpubl. data). Some recovery may have occurred after cat removal but these large numbers also indicated that the population was not severely reduced. If concerted ....". USGS-BRD provided some funding to HSU to conduct this work but USGS-BRD did not conduct the work.

Page 19, para 6, line 3: Suggest reword to: "...in difficult terrain. Comparison of two rough annual population estimates without error estimates is not alone sufficient to firmly establish population trends. However, lower numbers found through this comparison were consistent with other information that suggested that decline might be occurring (Carter et al. 1992). Additionally, since 1994, several new survey techniques have been utilized by HSU, including vocalization surveys, spotlight surveys, and ornithological radar surveys (Figures 11-18). These intensive studies have helped discover the full extent of the breeding distribution of the Xantus's Murrelet in the Channel Islands but newer methods have not provided data at Santa Barbara Island that were inconsistent with the 1991 estimate. The most current estimate for Santa Barbara Island (500-1,250 pairs; Figure 11) incorporates data from available sources during the 1991-2002 period, allowing for various rough adjustments. The Department is currently working ...".

Page 20, para 3, line 2: Suggest reword to: "...on only four island groups (Santa Barbara,..."

Page 20, paras 4-5: I think these statements apply to oceanic islands and birds that are island-endemic or can't fly between islands. These quotes don't really apply here.

Page 21, para 1, line 4: Xantus's Murrelets are well adapted to survive catastrophic breeding failure events due to variable prey availability in the California Current because they are long lived. They are unlikely to experience die offs due to low prey availability because they are generalist foragers over large areas. No die offs have been reported.

Page 21, para 3, line 6: Suggest reword to: "Though murrelets still exist at all known historical colonies, their numbers probably are greatly reduced from historic levels ...".

Page 21, para 4: Bald Eagles may become a problem, if their reintroduction to the Channel Islands is successful.
Page 21, para 5, line 4: Replace "(H.R. Carter, pers. comm.)" with "(Carter et al. 1992, 2001; McChesney et al. 1995)".
Page 22, para 1, line 4-5: Delete Santa Rosa and San Nicolas because no murrelet nesting has ever been known at these island groups. Little suitable habitat exists there and little fox-free habitat exists there.
Page 22, para 4: As noted earlier, egg neglect probably is not linearly related to prey availability. Most mouse predation occurs on the unattended first egg before the second egg is laid. This is not egg neglect. Eggs left unattended just after laying of the second egg are not really "neglected" because incubation has not actually begun. Little neglect occurs after incubation has begun because birds adjust their foraging and incubating bouts to reduce or prevent egg neglect. If prey availability is very low, birds may abandon incubation but this is not "egg neglect".
Page 24, para 3, line 4: Insert: "Seabird mortality from the 1969 Santa Barbara oil spill was not well investigated. However, coastal areas around Anacapa and Santa Cruz Islands were oiled in the January-May period when murrelets attend nocturnal at-sea congregations beside colonies. Some or many murrelets from these colonies probably were killed (Carter et al. 2000)."
Page 25, para 2, line 10: Need to add caveat that "However, no extensive and achievable plans exist for the extensive interagency cooperation needed to respond to an oil spill in the Channel Islands. Specific plans are needed for colony, at sea, and beached bird surveys to document impacts to murrelets, in the event of a spill."
Page 25, para 4: Suggest delete this quote due to inaccuracies. For example, flightless chicks disperse quickly from colony areas and adults are largely dispersed while foraging at sea during the breeding season (Whitworth et al. 2000), except for some localized concentrations such as off the south side of Anacapa Passage (Hamilton et al. 2003). Carter et al. (2000) pointed out that the biggest problem is oiling of murrelets in nocturnal at-sea congregations around breeding colonies.
Page 26, para 1, line 3-4: No Xantus's Murrelets were recovered dead or injured after the *American Trader* oil spill. Since few Xantus's Murrelets occur in this region of the Bight in winter, few if any murrelets probably were killed by this spill.
Page 27, para 1, line 11. Burrowing Owls have been observed killing Cassin's Auklets at night on the South Farallon Islands, just outside a lighted window of the researcher quarters (H. Carter, pers. comm.).
Page 28, paras 2-4: Their basic argument is that high owl predation occurs sporadically and is not substantial or regular enough to affect the population to a large degree over time. This argument cannot be easily dismissed before determining how many murrelets are actually killed over a series of years by owls and separating out the effect of artificial light on owl predation.
Page 29, para 3, line 6: Xantus's Murrelets tend to use shrubs on steep coastal slopes, not *Coreopsis* shrubs near grasslands further inland.
Page 31, para 4-5: No permanent parent-chick separation has been documented. Temporary separation at night may not result in mortality.
Page 33, para 2. Nelson (1987/89?; Condor) described effects of light levels on Cassin's Auklet nocturnal activity at the South Farallon Islands.

Page 35, para 4: Visitors wandering off trails and into murrelet nesting areas is not a big problem at Santa Barbara Island due to steep coastal slopes and cliffs. However, park visitors do enter dry sea caves on occasion at Anacapa and Santa Cruz Islands where small numbers of murrelets and at times large numbers of Ashy Storm-Petrels nest. Nesting habitat in dry sea caves can be destroyed, eggs can be crushed, or adults disturbed by non-careful walking on ground and on driftwood in sea caves.
Page 36, para 2, line 8: Decline in Cassin's Auklets at the South Farallon Islands may also be related to high gull predation (Carter et al. 1992).
Page 36, para 5, line 5: Add "..and Lewis 1995; H. Carter, unpubl. data)."
Page 37, para 2: When did the Navy eradicate all rats and cats at San Clemente Island? Have they prevented their reintroduction?
Page 37, para 3: An important caveat to add is that past assessments of low impacts were based on limited knowledge of past activities during a period of low testing on the Sea Test Range and results from a radio telemetry study in 1995-97 (Whitworth et al. 2000). All future activities need to be carefully scrutinized for possible impacts on Xantus's Murrelets, especially if tests increase in frequency or magnitude at or near the water surface.
Page 38, para 2, line 7. Change to Carter and Sealy 1984 and fix lit cited.
Page 38, para 2, line 9. Add Carter et al. 2002 for Japanese Murrelet.
Page 39, para 5, line 9: Add Carter et al. 2002 for Japanese Murrelet mortality in gill nets near breeding colonies during the breeding season.
Page 39, para 1: Perhaps better to say that all identified threats have the potential for contributing to decline in murrelet populations. Bald Eagle predation should be added with Peregrine predation as an emerging threat.
Page 40, para 5, line 2: "...since at least 1985..."
Page 40, para 5, line 4: Suggest add: "..by NPS, but different study efforts need to be integrated into a large long-term monitoring effort and study."
Page 41, para 2, line 3: Suggest reword as: "... 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."
Page 42, para 2, line 2: I'm not aware of this 1992 petition. Please provide more information about who submitted it and what was the logic presented for listing at that time.
Page 43, para 1, line 1-2: Delete "An example is the Sydeman et al. 1998 document that summarizes threats to the murrelet population." This project was funded by the National Biological Service (now the U.S. Geological Survey, Biological Resources Division).
Page 45, para 2: Other forms of California/U.S. protection not discussed are: National Marine Sanctuaries (Channel Islands, Monterey Bay, Gulf of the Farallones, Cordell Bank, Olympic Coast); Channel Islands National Park; U.S. Navy (San Miguel Island); Santa Catalina Island Conservancy; Nature Conservancy (Santa Cruz Island). Mexican and Canadian status and protection are not mentioned. Migratory Bird Treaty Act not mentioned.
Page 45, para 3: As mentioned earlier, these numbers need to be consistent throughout document.

Page 46, para 2: The world population size may be much smaller than currently thought, if only small numbers of murrelets occur at Guadalupe Island. Recent estimates are not available.

Page 46, para 2: The Coronados population likely is part of the same genetic metapopulation as the Channel Islands. While annual movements probably do not occur between the Coronados and Channel island populations, small amounts of movements likely do occur over time. Some recognition of the cross-border relationship of these colonies is needed.
Page 47, para 1, 5-6: As noted above, egg neglect does not really occur in this manner. Suggest reword to: "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." Low prey resources (i.e., usually indirectly measured at a different time of year and different location) may not translate to low prey availability for murrelets in foraging areas used during breeding. Since all prey resources are not measured (i.e., murrelets feed upon many different types of prey which they can switch between), it is not currently possible to measure prey availability for murrelets.
Page 47, para 4: Significant amounts of nesting habitat probably has been removed at San Clemente Island (due to past Navy bombing of offshore rocks, current/continuing bombing of the south end of the island with bombing-related fires, and land development), at Santa Catalina Island (due to quarrying and land development), and at Prince Island off San Miguel (due to past Navy bombing). Habitat loss contributes to low numbers at these islands. Small habitat loss probably also has occurred at Anacapa and Santa Barbara Islands due to construction of NPS island facilities (wharfs, buildings, paths, etc.).
Page 48, para 4, line 2: Suggest reword to: "...Utilize vocalization surveys, spotlight surveys, and nest searches to develop preliminary population estimates ..."
Page 49, para 1, line 2-3: Suggest reword to: "A controlled experiment is needed to measure reproductive success of murrelets at Santa Barbara Island without mouse predation. For example, an exclosure could be established that would exclude mice but allow full access by murrelets. The results of this experiment would help separate the effects of mouse predation from other possible problems."
Page 49, para 3, line 2: Add NOAA to list.
Page 49, para 4: Educational materials will not be successful without enforcement.
Page 49, para 5: Suggest reword to: "..and plant associations should be greatly expanded to speed restoration which is currently occurring at an extremely slow rate. Monitoring, study and restoration of bushes used for murrelet nest sites also is needed..."
Page 50, para 8: Outreach is very vague. A cooperative U.S./California/Mexico program is needed for monitoring, studying, and restoring Xantus's Murrelets at the Los Coronados, Todos Santos, San Martin, and San Geronimo Islands. These four Mexican islands experience similar oceanographic and prey conditions as the Channel Islands (i.e., within the Southern California Bight), probably are part of the same metapopulation as the Channel Islands (at least the Coronados), and have the greatest exposure to human impacts in California (e.g., oil and organochlorine pollution) that can extend into Mexico. Some U.S./California funding is critical to developing such a cooperative program.
Page 50, para 4: Observer programs can be very expensive. It might not make sense to fund an observer program if these funds were available for other more important and less expensive actions.
Page 50, para 5: Should consider closures of squid fishing adjacent to all colonies in the Channel

Islands during the breeding and pre-breeding seasons (February-July). Special ornithological radar studies may be needed to establish where murrelets nest at certain islands to determine where closures are needed.
Page 50, para 7: Suggest reword to: "..to sea caves where murrelets nest on Anacapa and Santa Cruz Islands. Such closures need to be part of a larger management plan that also protects other sea caves at these islands where murrelets are not known to nest but which contain large nesting numbers of other sensitive seabird species (e.g., Ashy Storm-Petrels). Protection of sea caves for murrelets should not occur at the expense of other sensitive species."
Page 50, para 10: Suggest reword to: "Murrelet nesting habitats must be protected from destruction and protected from human disturbance."
Page 51, para 1: Suggest reword to: "Peregrine Falcon and Bald Eagle predation on murrelets has been little studied, indicating a need for more research in this area."
Page 51, para 8: Direct habitat destruction probably has been a key factor affecting the small population size of murrelets at San Clemente and Prince Islands. Habitat restoration is needed at these locations to help make local population larger to avoid their future loss due to other factors.
Page 52, para 2: Artificial habitat (e.g. nest boxes) may be useful for facilitating monitoring in sea caves.
Page 54, para 1: If listing occurs in early 2004, suggest that the need for endangered species research permits be delayed for six months to allow sufficient time for researchers and agency personnel to prepare and approve permits, without hindering monitoring and research during the 2004 breeding season.

Tables
Table 2.
- The derivation of Carter estimates for California colonies have not been described in this report and are not available in any single source which could be cited. Suggest footnote with wording such as: "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.).
- Breeding at Santa Catalina can be considered confirmed based on radar detections of murrelets in 2000 (Hamer et al. 2003). Suggest remove asterisk.
- Breeding at Todos Santos and San Martin Islands can be considered confirmed based on vocalization surveys (Keitt 2000). Suggest remove asterisks.
- Suggest remove Pitman estimate for Los Coronados which applied to the late 1980's and early 1990's. Whitworth estimate applies to the 1995-2002 period.
- Footnote 2: Suggest delete. Carter et al. (1992) used previous Hunt et al. (1979, 1980) estimate of 150 breeding birds for 1991.

-Footnote 4: Suggest delete. Information from McChesney et al. (2000) is included in estimate provided (H. Carter, unpubl. data).
- Footnote 5: Suggest delete. Information from Carter et al. (1992) is included in estimate range provided (H. Carter, unpubl. data).
- Footnote 7: Suggest delete. Information provided in Carter et al. 1996, Keitt 2000, and Pitman are incorporated into the estimate provided (H. Carter and D. Whitworth, unpubl. data).

Figures
Figure 4.
- Suggest delete Santa Rosa, San Nicolas, Cedros, and Natividad to prevent confusion because murrelets have not been documented at these island groups.
- Suggest delete San Benito under legend for *scrippsi* and *hypoleucus* but include under both subspecies legend.
Figure 5.
- Spear et al. (2003) may show some greater use of the southwest area of Baja California than shown here but this is roughly correct.
Figure 10a.
- Details of how occupancy was calculated are not provided. Does this refer to occupancy of original 1985 nest sites, all previously-recorded nest sites (1985-2002), or all potential nest sites?
Figure 10b.
- Suggest delete. There are many types of possible statistical analyses to use on these data. This approach may not be best. Figure 10a is more informative and the degree of decline observed over time is evident without regression lines.
Figures 11-18.
- Note that all unpubl. data presented in these figures were provided by HSU. USGS helped prepare the figures.
Figure 19.
- Figure simplifies oil and ship traffic in Southern California Bight. Some passage of ships still occurs through Santa Barbara Channel and Navy ships enter Channel Islands Harbor (Port Hueneme).
- Figure omits oil, ship, and Navy traffic into San Diego which is important in relation to oil risks to Santa Catalina, San Clemente, Los Coronados, Todos Santos, San Martin, and San Geronimo colonies.
Figure 22.
- Figure omits information from other colonies. Squid fishing activity was high off Santa Catalina Island in 1994-99. Since 1999, fishing activity has been high off Santa Cruz and Santa Rosa Islands.
Figure 23.
- Owl roost numbers in 1999 and 2000 may have reflected accumulation of carcasses from prior years. Were old carcasses excluded?

6 November 2003

Sandra C. Morey, Chief
Habitat Conservation Planning Branch
California Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95814

RE: Comments of the Draft Status Review of the Xantus' Murrelet

Dear Ms. Morey:

Below are my comments on the draft document "Status Review of the Xantus' Murrelet" prepared by the California Department of Fish and Game (CDFG). Thank you for the opportunity to review this important document.

First of all, I would like to commend CDFG for their excellent, sound, and complete summary of historic and current scientific information on the status of the Xantus' Murrelet in California. CDFG has provided a thorough review of the life history, distribution, abundance, and population trends of, and threats to, this species. I agree with CDFG's interpretation of the data and do not know of any data or publications that would alter the conclusions reached by CDFG. Therefore, I support CDFG's recommendation to the California Fish and Game Commission that the Xantus' Murrelet be listed as a threatened species.

It is especially important to emphasize, despite recent progress in the management of this species (e.g., eradication of rats and subsequent increased nesting success on Anacapa Island), that the murrelet's limited range, low population size, overall declining population trend, high predation rates (from native and non-native species), and many other threats at nest sites and within their foraging range, will limit their ability to recover in the short term (next 10-20 years). Therefore, it is imperative that the listing and associated management activities move forward quickly, and in an intensive and well-planned effort, to ensure the survival and recovery of this species. CDFG has mentioned these important points in various sections of the report, however more emphasis should be made in the conclusions section (Page 45) about the importance of the short term in preventing this species from becoming endangered or going extinct.

One of the biggest pieces that I found missing from the report was any discussion in the recommendations section (Pages 48-51) about dealing with the potential for oil spills. Oil pollution was determined to be a major threat (Pages 24-26) and identified as a threat of such importance that it could merit listing the species as endangered (Page 53). Concrete steps should

be outlined that address minimization of the risks of oil spills, including but not limited to: (1) studying and identifying the potential risks of oil pollution to the murrelet population; (2) developing a detailed plan to address the risks of future oil spills within the range of the murrelet; (3) developing a dialogue with the Department of Commerce about minimizing the risks of oil spills (e.g., modifying shipping lanes, requiring double-hulled tankers); and (4) developing a dialogue with the administrators of the State and Federal oil platforms about minimizing the risks of oil spills. I realize that the State of California has created the Office of Spill Prevention and Response (OSPR) and that OSPR funded studies to look into the potential impacts of oil development and oiling of seabirds (Page 25), however given the potential for a large oil spill and the potential for a severe impact on the Xantus' Murrelet population, specific recommendations should be addressed in this report and in future discussions about this species to identify priorities and concrete rules or strategies for preventing an oil spill within the range of the murrelet.

Comments on specific sections of the report are as follows:

Page 10, first paragraph: this paragraph needs to be more clear about the historical information and the historic status of the population. Is there more than one conclusion that can be drawn from the historic information? Perhaps beginning the paragraph with a sentence similar to that on page 16 at the top of the Anacapa Island trend information might be helpful to clarify CDFG's overall thoughts about this information. To me the impacts of the introduction of non-native mammal on populations of the Xantus' Murrelet seems clear and straight forward.

Page 10, last paragraph: Was the 1959 fire on Santa Barbara Island human caused? This is implied but not stated.

Page 11. Although your focus on Santa Barbara Island is appropriate here, I think adding a table that outlines all the effects of humans on all the islands would be helpful to the reader (something similar to Table 2 in the petition).

Page 15, top: Make it more clear here why occupancy rates are not declining at the Cat Canyon site. If cover is declining and not occupancy rates, then the cliff/crevice habitat types must provide the necessary cover for this species. Is this the case? If so please add more details to explain this to the reader.

Page 15, first full paragraph: reword the statement "unexplainable as a natural pattern". This is confusing as written.

Page 18. The population trend section focuses on information from Santa Barbara and Anacapa islands. Is there additional information on the populations of the other islands that could be included here?

Pages 35-36. This section on oceanographic and prey changes does not discuss in detail the potential impacts of overfishing on the murrelet. More details should be added about the kinds of fishing pressure that occurs within the range of the murrelet, including a list of the various fisheries and their potential impact on the diet of the murrelet.

Page 46, first paragraph, first sentence: delete "with a substantial loss in breeding habitat". This does not seem to fit here as there are other reasons for population declines of this species on Santa Barbara and Anacapa islands.

Pages 48 and 49. It should be mentioned that this list of recommendations and proposed research projects is not complete and that the interagency team and team of experts will likely develop additional recommendations and research projects in the future as needed for management and to ensure the survival and recovery of this species.

Pages 49-51. As discussed above, add a bullet about developing a plan to minimize oil spills within the range of the murrelet.

Table 1. Were confidence intervals of the population estimates presented in the cited papers? If so they should be added here.

I hope you have found my comments useful to your revision of this document. Please contact me if you have any questions or need clarification on any of my comments.

Sincerely,

S. Kim Nelson
Oregon State University
Department of Fisheries and Wildlife
104 Nash Hall
Corvallis, OR 97331-3803

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
BIOLOGICAL RESOURCES DIVISION
Alaska Science Center
1011 E. Tudor Road, MS 701
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

November 8, 2003

Esther Burkett
Department of Fish and Game
Habitat Conservation Planning Branch
1416 Ninth Street
Sacramento, CA 95814

Re: Status Review of Xantus's Murrelet

Per your request, I have reviewed the draft Report to the California Fish and Game Commission that provides an assessment of the status of Xantus's Murrelet populations in California, and makes recommendations for its conservation.

I concur with the Department's conclusion that the listing of Xantus's Murrelet as a threatened species is warranted. Population size is small and of similar size to other rare and vulnerable seabirds of the North Pacific, including other alcids such as the Japanese Murrelet (which is protected as a "National Monument" in Japan) and the Kittlitz's Murrelet (recently petitioned for Federal protection, and currently under review by USFWS). Data provided in this report provide compelling evidence for continuing and significant population declines of Xantus's Murrelet. A variety of threats— both observed and potential— suggest that population declines will continue without some action to mitigate those threats. Taken together, evidence that Xantus's Murrelet in California have small, declining and threatened populations is sufficient to warrant immediate action by the Department in protection of the species.

The review of biology, population status and threats presented in this report appears to be quite thorough and adequate to make a judgment on the status of this species. Indeed, there are information presented here which are not reported elsewhere, and it appears that a good effort was made to compile and integrate all available information before assessing the status of the species. I have no problems with the data presented herein, or any of the main conclusions drawn from results presented here or elsewhere. I have some concern about conjecture on the magnitude and impact of anthropogenic threats to populations. The true impact of *potential* human threats may be much less, or, much greater than the data are able to currently demonstrate one way or the other. This is clearly an area that needs further research and documentation.

Attached are some specific comments on sections of the report. Most of these relate to minor issues or questions that could, perhaps, be addressed differently. I found no problems that would substantially change the conclusions or recommendations of the report.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

John Piatt, Ph.D.
Research Wildlife Biologist
U.S. Geological Survey

Attachment:

Comments on the Executive Summary—
I would be as accurate and conclusive as possible in this section because this is all the text that many people will read.

P2. Life History, 1st para. "… where few ground dwelling predators exist" is understating the need for predator –free habitat. It would be more appropriate to say: "With few exceptions, alcids must nest on offshore rocks or islands where adult birds are free from persecution by natural terrestrial predators such as rats, weasels, foxes, etc."

P3. Life History, 4th para. "A conservative estimate of decline is 30 percent…". This statement should be qualified. Given the differences in methods used, and effort made, to estimate populations in the 1970s versus the 1990s, the data are not strictly comparable. Further, the data on occupancy suggest much greater declines during the past 15 years alone. I would say "A conservative estimate of decline is 30 percent, from… … in 1991. The true magnitude of decline is probably greater because early attempts to census populations were likely incomplete."

P3. Life History 5th para. Given change suggested above, this para. might start with "In support of this, murrelet occupancy rates at National Park Service (NPS) nest monitoring plots on Santa Barbara Island have declined markedly during the past 15 years alone, in some case by up to 70% (range 30-70%). "

P3. Threats. Oil Pollution. The relative lack of observed mortality events should not preclude a strong conclusion about their vulnerability. I would open this section with: "Like all other alcids, Xantus's Murrelet are extremely vulnerable to oil pollution because— in contrast to more aerial species such as gulls and terns— murrelets spend most of their time at sea swimming on the ocean surface, which is where oil pollution is concentrated."

P4. Artificial Light Pollution. I think the most significant problem with light pollution is the immediate attraction and injury of adults (more about that below). You should insert the following up front to reflect priority concerns: " Murrelets, like many other nocturnal seabirds, are attracted to lights at night. Once attracted, the blinding lights often cause birds to collide with the vessel. In turn, this may cause immediate death, or more commonly, injuries or contamination on board that leads to later death at sea after escape or release by humans. Small amounts of vessel lighting… etc."

P5. Recommendations.
You should spell out each recommendation separately. Your second recommendation is actually two different recommendations. Your third recommendation is redundant to some degree with your second recommendation. Again, because the Executive Summary is all the text that many people with read, or at least refer back to regularly, your Recommendations here should be clear, unambiguous, and perhaps prioritized. May I suggest the following, using numbers to indicate priority:

"The Department makes the following recommendations in order of priority:

1) The Department recommends that the Commission add Xantus's Murrelet immediately to the list of threatened species.

2) The goal of the Department should be to stop and then reverse the current decline in populations of Xantus's Murrelets in California.

3) A recovery team composed of experts drawn from appropriate state, federal and private agencies, and NGOs, should be established quickly to accomplish recommendation #2. Action should not be delayed while waiting to create an ideal recovery team; an initial team should be established to get the process moving.

4) A number of management recommendations for recovery and conservation are outlined in this status review report, but a clear and overarching recommendation is that we need to protect and/or enhance existing nesting colonies and the marine environments surrounding them to ensure continued existence of the species.

5) The recovery team should, with minimal delay, prioritize and implement management recommendations identified here, and as developed over time by the recovery team. "

Comments on main body of Status Review

P2. Life History. Para. 1. I guess I would not call "alcids" a short-hand term, rather it is the accepted term for family Alcidae. Just cut this sentence.

P3. Life History. Para.2. Don't know latest records, but common murres known to live to at least 26 years in the wild.

P3. Life History. Para.4. I have always understood that nest site fidelity refers specifically to re-use of the same nest site, not just return to the same colony (which you correctly refer to philopatry).

P3. Life History. Para.6. Discussion of diurnal pattern turns into annual pattern of attendance then into timing of breeding. Split into 3 paragraphs.

P4. Life History. Para.12. Not critical, but perhaps best reference for taxonomic relations is: Friesen, V.L., A.J. Baker, and J.F. Piatt. 1996. Phylogenetic relationships within the Alcidae (Charadriiformes: Aves) inferred from total molecular evidence. Molecular Biology and Evolution 13:359-367.

P4. Life History. Para.12. Not sure I would agree that Ancient Murrelets "have been well studied for many years", at least any more so that Xantus's. Both species are known mostly for observations at single sites, and both remain relatively enigmatic owing to nocturnal habits and brief chick-rearing periods. I think we know a lot more about foraging behavior, diet and post-breeding dispersal of Xantus.

P7. Range and Distribution. Other factors… The experience in Alaska and British Columbia with foxes is well documented, and shows that they have a major impact on the ability of ground-nesting seabirds to survive on islands where foxes are present (see Bailey and Kaiser 1993, The status, ecology and conservation of marine birds of the North Pacific).

P8-14. Population Trend. You rightly spend a lot of time on this. However, I would argue that to some degree, the debate about accuracy of early censuses by Hunt et al. and Murray et al. are distracting, and not particularly compelling. Unless methodologies were extremely well-documented (which they were not, or we would not be having this debate), it is always a problem going back to old census reports and trying to reconstruct what investigators were thinking when they came up with estimates and why their estimates changed between years/reports in the absence of any new data. You may just as well summarize the whole affair by saying "The average of three point estimates produced in 1979, 1980 and 1983 was about 5700 birds (Table 1). " Further, to then agonize over the absolute trend is also not warranted because Carter et al. used different methods, and if anything, were much more painstaking in their quest to document Xantus, and include offshore islands and rocks in their estimate. Their 2002 estimate in particular may represent an increase from 1992 in survey effort rather than bird population. In any case, any comparison between Hunt and Carter would likely underemphasize the size of the decline.

You have indicated in your summary the many uncertainties associated with the data sets and the trends. Your uncertainty, however, may extend to a gross underestimate of the decline as well as a gross overestimate. Rather than saying (in Executive Summary, above) that you propose a "conservative estimate of 30% decline", you may be better served by taking the historical reports at face value and saying something like "Historical censuses conducted by Hunt et al. in the late 1970s are reported ambiguously, and it is not clear how valid a comparison may be made with later censuses by Carter et al., but it appears that the population may have declined by 51% (3180 to 1544) to 81% (8000 to 1544) by the early 1990s. Declines would be slightly less (45% to 78%, respectively) if we used Carter's 2002 estimates".

P.14. Nest Site Occupancy. Succinct and compelling summary. Now, estimate the annual rate of decline from the data. I did this working from the raw data graphed in Figure 10a, and estimated an approximate rate of annual decline of –6.8% and –3.6% per annum at Nature Trail and Cat Canyon plots, respectively. This suggests an average decline rate of –5.2% per annum, i.e, very similar to Sydeman's high estimate for rate of decline from the 1970s to 1990s. Please, make the estimates using actual data and tell us what they are.

P.14. Productivity measures. The differences among species are not that outstanding. In Alaska, I can point to much larger and consistent differences in productivity *among adjacent colonies of the same species* (e.g., Kittiwakes)! Local food supply alone is sufficient to explain such differences. Add differences in rates of egg predation (surely a factor here), climate, adult disturbance, and annual variability and these differences are easily accounted for. I would definitely remove the statement that "differences should be more closely aligned… etc.".

P. 19. Population Trend Summary. I think you should modify this, per comments above. I would have to strongly disagree with your conclusion that "since all researchers had this same difficulty, any biases associated with the methods were likely consistent across studies and years…". Without very detailed documentation, it is next to impossible to say how comparable the efforts were. I would agree that estimates are likely correct within an order-of-magnitude (10 fold), but would guess that accuracy is less than plus or minus 50%. Even for conspicuous, easily monitored, diurnal species (e.g., common murres), we have difficulty detecting statistically meaningful differences of plus or minus 20-30% among years. I don't mean to suggest the whole-colony counts are wrong… rather, the changes could be even greater than your summary suggests! It is interesting data, and worth discussing, but the 19 year time series of plot data are much more compelling and worthy of emphasis.

P.23-40. Major Threats. These sections are pretty well fleshed out, with lots of detail. Just a few comments:

P.26. Barn Owl. Seems to me that this predator could be having a major impact on Xantus's populations. Despite it being a "natural" predator, shouldn't there be some consideration for hazing, reducing or otherwise eliminating owls on Santa Barbara, at a minimum to study whether owls, by themselves, could account for the declines.

P. 31-34. Artificial Light Pollution. A thorough review. However, it is nowhere stated explicitly what happens to birds attracted to vessels, except that may get exhausted flying around, or die in a direct impact on some vessel structure. I agree that both of these phenomena occur, but it is hard to quantify either. What does occur regularly is that birds— commonly adult and juvenile alcids, and particularly nocturnal auklets and murrelets— are attracted to vessel lights, flutter around the vessel until, blinded, they fly into some hard structure and fall to the deck. In rare instances they may be killed instantly. Most often, however, they may be stunned momentarily, or merely disoriented. This is where problems often begin. Now finding themselves on the deck, sheltered from winds, and unable to get airborne and fly away, they may wander around until they find themselves trapped in some corner or cubbyhole (often under some equipment, chains, tarps, boxes, etc.). Here they may stay until next morning, when deckhands working outside discover them and, perhaps, release them overboard. The problem is that at this point they may be exhausted, wet to the skin, hungry and weak, and even contaminated by oil products so commonly found on vessel equipment. Now released in broad daylight, their odds of survival are much reduced as first, they must escape diurnal predators, and second, try to dry out their plumage quickly before hypothermia and/or starvation drain their reserves completely.

My point is that mortality from attraction to lights on ships at sea is probably much higher than imagined by causal observers. In my experience, dozens and dozens of birds may be trapped and hidden from view the morning after a night-light event brings birds aboard. Without a thorough search, nobody— scientist or captain alike— is likely to know the full extent of the damage. Further, if birds are not cleaned and dried before release, I have doubts about their ability to survive afterwards. In my opinion, if bright lights— even "shielded" lights— are being used routinely at sea in close proximity to colony sites ashore, then the potential for artificial capture and subsequent mortality is very high. This needs careful documentation.

P.35. Oceanographic and prey changes. I see that this is listed under "minor threats". Evidence for long-term, cyclical changes in marine ecosystems of the North Pacific are widespread and compelling, and strongly suggest that a wide variety of marine birds have been negatively, or in some cases, positively affected. I would be surprised if Xantus's were not affected to some degree as well. Indeed, effects of changes in food supply could be an over-riding force affecting their populations, and should not be discounted. Any attempt to assist in the recovery of populations may be restricted if not doomed by ecosystem constraints. This is a critical research need.

Report on "Status Review of Xantus's Murrelet"

I have read this report and found it to be thorough and complete, to the extent of my knowledge of the literature relevant to this and closely related alcid species in the context to which this review is being undertaken.

This report adequately identifies the areas of concern regarding the present status of the Xantus's Murrelet: the species' current rarity i.e., small size of the world's population of the species, and its recent and continuing decline; its restricted distribution, especially during the breeding season; the rearing of precocial young at sea, and the vulnerability of these young to oil spills; its vulnerability to predation on the nesting islands, etc. Indeed, the Xantus's Murrelet is one of the rarest seabirds in the North Pacific Ocean and because it is in trouble, it should receive the special attention sought by the present petition.

Page 4, paragraph 1: The typical clutch size of alcids is one egg. Indeed, species in only two alcid genera lay two eggs, including Xantus's Murrelet.

Page 4, paragraphs 2 and 4: Although the act of departure from the nests by young Xantus's Murrelets was mentioned in the review, it should be emphasized that because the precocial and, hence, downy young leave their nests at 1-2 days of age, and flightless, they are extremely vulnerable to oil spills at this time when being led away from the colonies by the adults. What is the tanker traffic like during this stage of the Xantus's Murrelet breeding season? (This is also relevant to the section on oil pollution on page 24.) The vulnerability of Xantus's Murrelets to oil spills otherwise is solidly documented. The Sowls et al. (1980) report was cited and the occurrence of flightless hatchlings near the colonies was indicated. What about the period of flightlessness of adults during the adults' prebasic molt, when they simultaneously drop their flight feathers? Where are they during this vulnerable time? Are they thinly dispersed over throughout the winter range? Are they clumped or aggregated and, hence, vulnerable to an oil spill? Probably not, but little is known about the distribution of individuals in the winter, and in view of the broad range of ocean on which the species ranges in winter (Figure 5), it may be assumed they are thinly dispersed over this range.

Page 7-8: The authors' attempt in the present report to determine and compare historic and present numbers of Xantus's Murrelets, particularly on Santa Barbara Island but also at other colonies, is thorough and unbiased. I agree with the results of the assessment here. Compared with the anecdotal accounts of early ornithologists in the early part of the 1900s, the decline and current rarity of the Xantus's Murrelet is real and is of concern. In an ideal world, we would like to be able to count every bird, every few years, and thus without doubt know the trends in population size. However, Xantus's Murrelets are extremely difficult to study and survey (even more difficult than many other alcids), but some surveys have been conducted and the authors of the present report summarized and interpreted these data realistically and conservatively and still pointed to a

decline in the number of murrelets in recent years. This trend was supported by data on nest occupancy (the high degree of nest-site fidelity makes this method appropriate) and productivity. Productivity of Xantus's Murrelets on Santa Barbara Island is unexplainably lower than that determined for other precocial murrelets. Are most nests losing at least one egg to predators, perhaps the first egg that is left unattended for so many days before the second and final egg of the clutch is laid? This is a cause for concern and I wonder whether placement of artificial nest sites, i.e., nest boxes, in the habitat would help increase productivity, over a short-term period, and possibly the number of breeding pairs, over time. This has undoubtedly been considered (yes, I see on at least page 52).

Page 9, paragraph 2: I am glad to see Drever's work cited here. It confirmed that the closely related Ancient Murrelet figured importantly in the diet of introduced rats on Langara Island (Queen Charlotte Islands, British Columbia) and that rat predation on eggs/nestlings and adults was implicated in the decline of that murrelet species. The recent success of the rat eradication program on Langara Island and other islands perhaps should be brought into the present report (only time will tell whether and to what extent Ancient Murrelets will return as a breeding species on that island). There is good reason for optimism, however, because the removal of rats from Langara Island removed an important source of both egg/nestling and adult mortality. Reducing mortality on the adults only is not enough, as Sydeman et al. pointed out. (See also page 23, paragraph 3, where the Langara Island rat eradication program might also be mentioned.)

Page 19, paragraph 3: I agree.

Page 20: sound arguments based on previous scientific findings.

Page 30, paragraph 3: There is evidence emerging that some prey species (and hosts of some avian brood parasites) retain anti-predator behaviors in the absence of a current selection pressure, i.e. current predation by a particular predator.

Page 33, paragraph 3: Would it be possible to ban squid fishing near Santa Barbara Island during the murrelets' breeding season? Politically, probably not. Do squid boats land their fish on Santa Barbara Island or return to the mainland to land them? Probably the latter. Thus, the waters off SBI are just good places to catch squid? More research is needed on the influence of lights on murrelet mortality. Light pollution seems to be an important problem in the conservation of the murrelets.

Page 36, paragraph 1: I agree. One of the highlights of my findings on the prey species taken by Ancient and Marbled murrelets off the OCI was each species' ability to switch to new prey species as they became available (Sealy, Can J. Zoo. 1975). Both species fed on zooplankton and larval fish and it appears this

range of prey species is similar in Xantus's Murrelets. The array of species taken by Xantus's Murrelets, despite small numbers of stomachs examined overall, indeed, suggests opportunism in prey use.

Page 40, paragraph 1: Losing a few Xantus's Murrelets and/or their eggs and chicks, even here and there, to owls, mice, falcons, gill nets, collisions, oil, etc. adds up when the murrelet population is already low. Beebe's and Nelson's documented use and numbers of Ancient Murrelets taken by Peregrines would give you cause for concern, in addition to your observations on this species taking Xantus's Murrelets.

Page 45, paragraph 3: Each of these threats is documented thoroughly on the basis of the available information.

Page 46, paragraph 1: If reproductive productivity can be increased then there will be individuals that will need breeding sites for themselves. They will seek sites that are not already in use by their parents. The key is for greater production of young to be achieved.

Page 50, point 2: how widespread was the Loggerhead Shrike on the Channel Islands? Has it been extirpated from any islands where Xantus's Murrelets and deer mice presently occur? Perhaps shrikes historically controlled the mice.

Page 53, paragraph 2: I agree.

The recommendations are based on solid and realistic interpretations of the available data.

S.G. Sealy, Department of Zoology, University of Manitoba, Winnipeg, MB R3T 2N2, Canada.

November 8, 2003

Appendix C

Comment Letters Received by the Commission

National Park Service
(October 2, 2002)

California Wetfish Producers Association
(October 23, 2002)

United States Department of the Interior

NATIONAL PARK SERVICE
Channel Islands National Park
1901 Spinnaker Drive
Ventura, California 93001-4354

IN REPLY REFER TO:

N16-CHIS

October 2, 2002

Mr. Robert Treanor
Executive Director
California Fish & Game Commission
1416 9th Street, Room 1320
Sacramento, California 95814

Dear Mr. Treanor:

We have reviewed the Department's response to a petition submitted to you by the Pacific Seabird Group to list Xantus' murrelets as a threatened species under California law.

We found the Department's analysis to be clear, concise, and accurate. We were pleased to see some of our monitoring data used in the analysis.

Based on the population trends, historical habitat, and documented threats, we support listing this species under the State's Endangered Species Act as soon as possible.

Thank you for the opportunity to review this information.

Sincerely,

Tim J. Setnicka
Superintendent

California Wetfish Producers Association

2194 Signal Place
San Pedro, CA 90731

October 23, 2002

Mr. Michael Flores, President

And members of the California Fish and Game Commission

RE: The importance of CA's Wetfish Industry to California

Thank you for this opportunity to present our views and concerns.

The California Wetfish Producers Association represents the majority of processors and fishermen who produce "wetfish" – including sardines, mackerel, coastal tunas and squid – in southern California.

Since before the turn of the 20th century, wetfish species have represented the lion's share of the commercial catch in the Golden State. These species still form the backbone of California's fishing industry:

In the year 2000, for example, the wetfish industry produced about 455.5 million pounds of fish -- 83.6 percent of total CA commercial fishery landings, with an ex-vessel value of $38.9 million, or nearly 30% of the total x-v value of all fisheries in California.

The ex-processor value of this industry complex to the State is estimated as high as $90.2 million.

The wetfish industry is an important source of revenue to the state:

Fish landing taxes contributed by wetfish species in the three year period 1998-2000 total more than $3 million. Sardines, taxed at the unusually high rate of $13 per ton, contributed $2.1 million of that total.

Southern CA ports (including Santa Barbara, Los Angeles and San Diego areas) produce the vast majority of total wetfish landings. In 2000 Southern CA ports landed:

° 94 percent of the statewide squid harvest (more than 244.2 million pounds of the total harvest of 259.669 million pounds).
° 80 percent of the Pacific sardines harvested statewide (more than 93 million pounds of the 116.136 million pounds harvested)
° 99.8 percent of the Pacific mackerel catch (46.715 million pounds of the total 46.786 million pounds harvested).

A substantial part of this catch comes from waters surrounding the Channel Islands.

California's wetfish fisheries comprise the heart of California's fishing industry as a whole. The enterprise of this industry complex helped to build the ports of Monterey and San Pedro, as well as San Diego and San Francisco.

Today, however, the wetfish industry faces unparalleled threats to its continued viability -- serious challenges to its future existence:

• This commission is considering closing a significant portion of the Channel Islands to fishing, which will have a strong negative impact on the harvest of wetfish, especially squid, with virtually no measurable biological benefit to offset the loss of access.

Richard Parrish, NMFS, stated in CalCOFI reports V.40 1999, "Marine Reserves for Fisheries Management: Why Not" -- reserves will do little toward achieving optimum yield for epipelagic and migratory species, including mackerel, sardines and squid.

Scientific theory advocating establishment of "no-take zones" in 30-50 percent of the CINMS, assumed that fishery management was nonexistent or had failed. This assumption is wrong, particularly for wetfish. Sardines and mackerel are managed under a limited-entry federal FMP with conservative harvest guidelines. The market squid resource is acknowledged to be robust, and with a very short life-span, squid abundance is governed by natural cycles rather than fishing. Notwithstanding this, the squid fishery also is regulated -- with weekend closures, shields on attracting lights, and a limited entry program now under development.

Although the "30-50" set-aside theory has not undergone peer review by fisheries scientists, it formed the basis for the Department's preferred alternative for the CINMS, which was crafted as a "compromise".

Conservation zones proposed in the preferred alternative provide for the recreational harvest of pelagic finfish, but they exclude commercial harvest of CPS species. Any conservation zones established should also allow commercial fishing for all coastal pelagic species, including squid.

• A burgeoning sardine industry in the Pacific Northwest is challenging the established position long held by California's traditional sardine fishery. The rapid expansion of the PNW sardine fishery in the absence of research could precipitate another decline of the sardine resource. although this is now a federal issue, it negatively impacts California's wetfish industry nevertheless.

• In addition to no-take zones proposed for the Channel Islands, now the Fish and Game Commission is considering further restricting the squid harvest to protect the Xantus's murrelet, based on the hypotheses of bird biologists and in the absence of quantified evidence that squid fishing is actually responsible.

In making your final decision on this issue, please consider these facts –

the decline of murrelets began in the mid 1970s, long before recent squid fishing activity at the islands;

other factors have been identified as significant contributors responsible for the decline, such as predation by rats;

the squid industry has cooperated with research to minimize the impact of its activities. For example, the use of light shields has been shown to effectively reduce light output to no more than that of a deck light on a recreational vessel, measured at a 1/4 mile distance.

Wetfish are an historic and cultural resource, as well as economically valuable both to the fishing industry and the State of California. Since before the turn of the 20TH century, the wetfish industry has been the foundation of California's

FISHING INDUSTRY. WETFISH STILL REPRESENT MORE THAN 80 PERCENT OF TOTAL CALIFORNIA COMMERCIAL FISHERY LANDINGS.

WE WOULD GREATLY APPRECIATE THE COMMISSION'S CONSIDERATION OF THESE FACTS WHEN MAKING DECISIONS AFFECTING ACCESS TO WETFISH RESOURCES. PLEASE ACKNOWLEDGE THE IMPORTANCE OF CALIFORNIA'S WETFISH INDUSTRY TO THE STATE AND PROTECT IT, TOO, SO THIS TRADITIONAL, COLORFUL PART OF CALIFORNIA WILL SURVIVE AND PROSPER FAR INTO THE FUTURE.

THANK YOU FOR YOUR CONSIDERATION.

SINCERELY,

Diane Pleschner-Steele

DIANE PLESCHNER-STEELE FOR

CALIFORNIA WETFISH PRODUCERS ASSOCIATION

Appendix D

The Battle for Santa Barbara!

Sumner, L. 1959. Outdoor California
Vol. 20(1):4-7

The Battle for Santa Barbara!

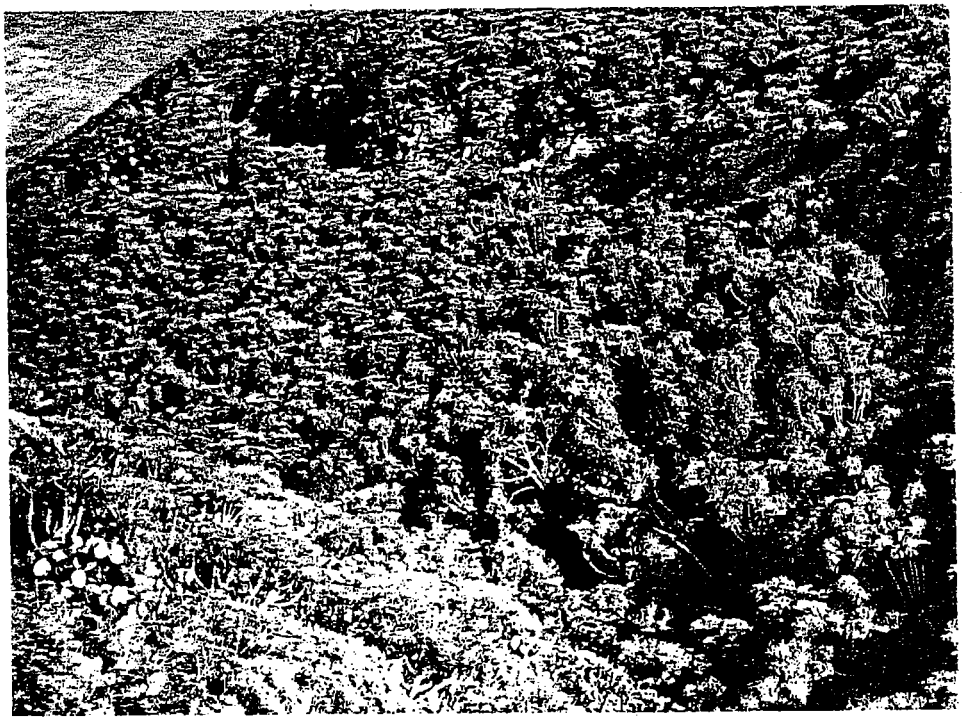
—A case history of what happened when rabbits were introduced to an island having several unique species of plant and bird life—and the desperate fight to save them from extinction . . .

By Lowell Sumner
Biologist, National Park Service

A war to save certain unique species of plant and bird life from extinction has been raging off and on for the last four years close to the California mainland.

The unpublicized battles on Santa Barbara Island, one of two islands of the Channel Islands National Monument off the Ventura-Los Angeles coast, have been fought by biologists of the National Park Service and the U. S. Fish and Wildlife Service with assistance from the California Department of Fish and Game. These battles are a desperate, last-minute attempt to preserve a species of giant sunflower, a species of song sparrow, and other flowers and small animals found nowhere else.

No, this stark scene isn't the result of a forest fire—rabbits are to blame. They've girdled the trees and shrubs and eaten almost everything eatable on the island. The damage speaks for itself. (National Park Service photo.)



Santa Barbara Island's lush vegetation containing many rare species of plant life, as it appeared before advent of the rabbit. If sufficient rainfall occurs and if the number of rabbits remaining after concerted cleanup campaigns can be kept to a minimum, the island's native vegetation and birds eventually may be restored. (National Park Service photo.)

The enemy? Rabbits, introduced to the island by early day farmers and again during World War II. The critters simply took over. The result was disastrous.

Isolation Saved Ancient Species

Looking backward a moment, Santa Barbara Island several million years ago was cut off from the mainland. Only because of this isolation was it able to develop and maintain its ancient species of plant and bird life. Time figuratively stood still—that is, until the arrival of the white man about 100 years ago (prehistoric man and Indians lived there, but they didn't materially disturb natural conditions).

Those early fishermen and ranchers brought over goats, sheep, nonnative weed seeds and the rabbits, all of which were to have important effects on the island's plant and bird life.

Setting out on one of their early rabbit cleanup drives, armed with guns which proved to be ineffective in getting the job done, are, left to right: Vernal A. Smith, Park Ranger, Cabrillo and Channel Islands National Monument; Grant Birmingham, U. S. Fish and Wildlife Service; Paul Schumacher, supervisory archaeologist, National Park Service; Bennett T. Gale, Regional Chief of Interpretation, National Park Service, and Eric Peacock, U. S. Fish and Wildlife Service. (National Park Service photo)

Grazing, Weeds Upset Balance

The goats and sheep over-grazed the island; farming disturbed the ground cover and introduced competing weed plants which tended to crowd out the native species. In those early years, probably because rainfall was more abundant then, the rabbits were only a minor threat to the giant sunflower, although they did nibble at the young plants and girdle some of the older plants so that they died. In the nick of time the sheep finally were removed in 1937.

The island passed from jurisdiction of the Federal Lighthouse Service to the National Park Service the following year. Now it is a national monument.

During the 12 years after 1937 the native plants made a spectacular comeback under complete protection. This largely was made possible by continuing abundant rainfall which enabled the plants to thrive and recover despite the man-caused competition. It was the golden age of recovery.

But during World War II, the New Zealand Red strain of rabbits was introduced and freed as a possible emergency source of food, leading to a drastic change in 1950.

Dry Cycle Begins

Coupled with the beginning of a period of less than normal rainfall, the rabbit population "exploded." Between 1950 and 1953, the jungle of giant sunflower, morning glory and other native plants—which sheltered the unique species of song sparrow—became barren wasteland. Rabbits killed the "forest" understory, leaving only bare ground beneath the dying sunflower jungle on which not even a mouse could find a place to hide.

A former hayfield was reduced to stubble. The place looked as though a forest fire had burned it.

At that point the National Park Service asked the help of the Fish and Wildlife Service and the California Department of Fish and Game in undertaking a rabbit control program. This began in October, 1954, with DFG providing transportation to and from the island whenever possible but with the federal men carrying out the control work.

Note how the rabbit has completely girdled the trunk of the giant sunflower, or Coreopsis, one of the rare species of plant life for which Santa Barbara Island is noted.

Shooting Was Ineffective

It was a discouraging task. Teams of men combed the island, shooting as many rabbits as they could find. It took four men six days to shoot 400 rabbits. Before the project began, mainlanders had shot about 100. That made 500 rabbits removed—but the control crew estimated at least 200 more remained and could not be completely tracked down because of the steep, inaccessible terrain bordering the ocean, which gave refuge to the animals.

Shooting had removed only 2.6 rabbits per man-hour of hunting, far too slow to accomplish the job.

The experimental use of poison, under safeguards to prevent harm to other wildlife, removed 12 more rabbits in that first intensive campaign before weather conditions and other factors forced a halt and the biologists had to leave the island.

Poison More Successful

Back they came the next year to renew the fight to exterminate the rabbits. Poison was used on a large scale and with that, augmented by some shooting, some 2,500 of the pests were killed. This figure indicated that probably many more than the estimated 200 had survived the previous year's roundup. Again, despite the men's best efforts, they estimated at least 150 of the animals still remained at the end of that year's campaign to produce more litters during the off-season.

When the rabbit control crew returned to the island in 1956, they found the animals for the first time in poor condition. The continuing dry cycle had resulted in less and less plant growth and poorer nutrition. The rabbits were literally eating themselves out of house and home.

But, despite having killed all but about 150 of the rabbits the previous year, some 600 more were killed during the 1956 control effort.

It was obvious that not much headway was being made, for enough survivors remained at the end of each cleanup effort to make it necessary to do the job all over again.

In the fall of 1957, plans were made for the work party to stay longer this time to mop up. Meanwhile, ice plant had spread so far and so thickly in

(Continued on page 6)

No wonder they had a hard time controlling the pesky rabbits! In cliffside burrows some of them managed to stay out of reach from year to year. Grant Birmingham of the U. S. Fish and Wildlife Service maintains a precarious foothold while he pumps cyanide gas into a burrow. (National Park Service photo)

(Continued from page 5)

place of the ravaged natural vegetation that the rabbits couldn't get through it.

The combination of unusually dry conditions, virtual elimination of the plants on which the animals long had fed, the relentless control program and the carpet of ice plant at last seemed to be accomplishing the job of removing the pesky rabbits. After poisoning and shooting 500 of them that fall, the scientists saw only two live rabbits—although by this time the likelihood that others remained in inaccessible places was taken for granted.

Rainfall Aids Recovery

Then, last spring, after the wettest winter since 1937, came signs of encouragement, accompanied by another setback. There was a slight revival of the giant sunflower, and the morning glory's recovery was marked. Other plants and wild flowers also were making a comeback.

By this time the ice plant had spread over one-half of the island's surface to a depth of 12 to 18 inches—difficult for humans to wade through and impenetrable for the rabbits. This forced most of the rabbits into three major cleared areas, making it easier for the cleanup group to attack them.

On the other hand, the rabbits were once more in good condition, thanks to having more to eat, and apparently they were making the most of it by producing more litters than they could during the dry years.

Climate Plays Biggest Role

Meantime the National Park Service men had come to three conclusions: (1) climatic conditions, primarily rainfall, had more effect than direct controls on determining the ups and downs of rabbit population and vegetation growth, (2) only during wet cycles can the vegetation on Santa Barbara Island hold its own in the battle with the rabbits, and (3) absolute extermination of the rabbits was necessary during the fall of 1958 if the native bird life and vegetation ever was to be restored to its original condition.

In the 1958 fall rabbit control campaign 10 men from the same co-operating agencies spent 41 man-days in an all-out effort to end the rabbit menace once and for all. The results of the previous year's stepped up campaign were reflected in the fact that fewer rabbits were seen at the commencement of control operations than in any previous year.

Variety of Methods Used

Eighteen man-days of shooting produced only 62 rabbits. Two hundred sixty rabbits were accounted for by poisoning operations which were repeated for all areas of infestation from four to six times. One rabbit was caught in steel traps, and one was taken alive. Poisoned carrots were tossed in large quantities over cliffs to areas that in previous years had been inaccessible to control by poisoned grain.

At the close of the operation no live rabbits could be found. However, this in itself is not entirely conclusive. It was the consensus of the field men that from 6 to 25 rabbits might still remain alive. A checkup next spring should reveal whether this was so. In any event, the reduction from an estimated peak population of 6,000 (in 1952-53) to two dozen animals or less in 1958 has been accomplished.

If there actually are any surviving rabbits, another winter favorable for vegetation like the last might permit the vegetation to stay ahead of the rabbits. At the worst, the vegetation definitely has been rescued for the time being.

Which Plants Will Win Victory

A new biological imponderable does loom, however: the nonnative ice plant which was released by the rabbits from competition with the native plants now covers more than 85 percent of the island. Whether the native plants can win back control over the aggressive ice plant will constitute the next chapter in the unfolding ecological history of Santa Barbara Island.

From the long battle certain principles known to every biologist and trained game manager emerge clearly:

1. Habitat is the key to wildlife abundance and when habitat is destroyed, there seldom is much that can be done to restore the situation without an expensive, time-consuming all-out effort. Even this sometimes is too little and too late.

Lack of Natural Controls Is Harmful

2. Many species, when unchecked by natural predators or other controls, can rather quickly cause almost irreparable damage to their own habitat

(Continued on page 7)

Weyerhaeuser Firm Teams With Oregon On Salmon Project

A good example of how industry sometimes finds it possible to co-operate for the benefit of fish conservation is related in the November issue of *Northwest Pulp & Paper News.*

It said the Oregon Fish Commission and Weyerhaeuser Timber Company are working together to build an experimental natural "fish farm" on the east fork of the Millicoma River in Coos County. It will be used to supplement and establish fish runs in coastal streams.

Commission Director Albert M. Day said a 10-acre pond, holding 500,000 salmon fingerlings, is intended to lower costs of rearing fish in hatcheries by placing fingerlings in impounded water with a natural food supply. Weyerhaeuser installed culverts and other modifications at a cost of $5,000 and is giving up an acre of tree-growing land.

"In addition," said Day, "the company has voluntarily spent approximately $8,000 to modify the new channel bed as a fisheries protection measure."

Santa Barbara—

(Continued from page 6)

and that of other wildlife sharing the same area.

(The National Park Service faces a parallel situation with respect to the nonnative wild burros of Death Valley National Monument, which in the last 50 years have multiplied and spread through much of the mountainous parts of that region with devastating effects upon native vegetation and upon the native desert bighorn sheep.)

3. No species of wildlife or plant ever should be introduced to an area without prior study to determine the possible effects on life already inhabiting that area. It's obvious that more harm than good often can and does occur when this precaution is not taken.

White pelicans are one of our largest American birds. Their wingspread reaches nine feet.

Most wild elk live to be about 10 years old, but captives have lived to be 25.

Del Norte Elk Hunters Fined, Given Jail Terms; Firearms Confiscated

Fines totaling more than $1,000, backed up by 30-day jail sentences, were imposed by Judge W. U. Flachsman of Klamath, Del Norte County, against three violators involved in killing elk or possessing the meat.

Marvin Isaac Wood of Klamath was charged with taking and possession of elk. Two sacks of boned elk meat confiscated by Warden Ralph Schlitzkus were turned over to the Del Norte County Infirmary. Wood was fined $500 and his jail term was suspended on condition of his strict observance of the Fish and Game Code in the future.

Gale L. Baker of Requa was fined $300 for taking and possession of elk meat and having a loaded rifle in his car. He was placed on one-year probation and his jail term suspended.

Lawrence L. Taylor, Jr., of Requa, charged with possession of elk meat, was fined $250 and received the same jail and probation terms.

Schlitzkus also confiscated two rifles and a hunting knife. The offenses occurred January 11th in the Split Rock-Flint Ridge area of Del Norte County.

CONSERVATION WEEK

The 25th annual California Conservation Week is set for March 7-14. Learn what you or your organization can do to promote the cause of good conservation. Write: California Conservation Council, 912 Santa Barbara Street, Santa Barbara, for list of suggested activities.

Ike Reports Duck Band

President Eisenhower has joined the ranks of sportsmen who properly report "duck bands." He was told by the U. S. Fish and Wildlife Service that the mallard he killed in November at Little Cedar Point near Toledo, Ohio, had been banded 41 days earlier at the Willow Slough State Game Preserve in Indiana.

More than half of all the fresh water in the world lies within Canada.

The 1958 Pismo clam census in the Pismo Beach area revealed that last year's crop is growing well but this year's clam set again was poor, which has been the case for all but one of the last 10 years. Marine Biologists J. L. Baxter, left, and John E. Fitch sift sand from the census trench to learn how the young clams are faring.

Appendix E

Letter from the Pacific Seabird Group
to Channel Islands National Park
Regarding
Management Recommendations for
Xantus's Murrelets
August 15, 1994

Response letter back to the Pacific Seabird Group
from Channel Islands National Park
November 15, 1994

Letter from the Pacific Seabird Group
to U.S. Fish and Wildlife Service
Regarding
Comments on Draft Restoration Plan:
American Trader Oil Spill
July 26, 2000

Pacific Seabird Group

DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

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4001 North Ninth Street #1801
Arlington, Virginia 22203
(202) 778-2240

William T. Everett
Xantus' Murrelet Technical Committee
P.O. Box 8123
La Jolla, California 92038
(619) 589-0480

August 15, 1994

Mr. Mack Shaver, Superintendent
Channel Islands National Park
1901 Spinnaker Drive
Ventura, California 93001

Re: Xantus' Murrelet Conservation Suggestions

Dear Mr. Shaver:

At the 18 May meeting convened at the Western Foundation of Vertebrate Zoology by the Pacific Seabird Group (PSG), Tim Setnicka of the Channel Islands National Park offered to consider actions that the National Park Service could take in advance of the proposal to petition the Fish and Wildlife Service to place Xantus' Murrelet on the Endangered Species List. A draft list of recommendations was compiled at that meeting by Bill Everett, then circulated among all interested parties (including your staff) for comments.

Attached please find the final list of recommendations. PSG applauds your willingness to be proactive in this matter. Many of the suggestions are reasonably straightforward and could be implemented with minimal disruption of normal park operations.

We would be happy to provide additional information or assistance in further developing these conservation efforts. Although we realize that implementing some of these recommendations will take time, and that there are budgetary and other constraints, we are hopeful that when the petition is submitted to the FWS (anticipated March 1995), the park service will have already taken most of these steps. For further information on PSG's conservation recommendations, please call Bill Everett (619-589-0480).

We appreciate this opportunity to provide our expertise and views on these important issues.

Sincerely,

John Piatt
Craig S. Harrison
William T. Everett

Enclosure

RECOMMENDATIONS BY THE PACIFIC SEABIRD GROUP TO THE CHANNEL ISLANDS NATIONAL PARK FOR THE CONSERVATION OF XANTUS' MURRELET

1. Consult with the Pacific Seabird Group (PSG) to revise the current research and monitoring program and to acquire more and better biological data on the species.

2. Conduct a thorough census on all Park Service islands, and refine and improve current census techniques. Make results of census work available to PSG and public in a timely fashion, to allow for evaluation of results and input on future census work.

3. Initiate a rat eradication program on Anacapa Island.

4. Implement policies to minimize the potential for rat introduction to Santa Barbara Island during the course of routine supply and material unloading.

5. Survey for rats at the Ventura Park Headquarters, particularly the dock area, and institute a control program, if necessary.

6. Develop a contingency plan to prepare for rapid response to accidental rat introduction to any of the Park Service islands via shipwreck.

7. Initiate a supplemental nest box program to provide additional sites for monitoring and research on Santa Barbara Island.

8. Review current procedures for equipment and material storage on Santa Barbara Island to reduce or eliminate any adverse impacts to nesting Xantus' Murrelets.

9. Investigate and implement policies to control unnecessary use of bright deck lights by boats anchored at Santa Barbara Island.

10. Develop a contingency plan to assess threats to Xantus' Murrelets and advise the command structure in the event of an oil spill.

11. Develop a contingency plan to protect, rescue or rehabilitate Xantus' Murrelets in the event of an oil spill.

12. Initiate research to investigate the significance of mouse and owl predation on Xantus' Murrelets on Santa Barbara Island.

13. **Enter into informal consultation with the U.S. Fish & Wildlife Service to consider possible mitigation for the relocation or removal of artificial structures on Santa Barbara Island that may be used by nesting Xantus' Murrelets.**

14. **Organize an annual meeting on the status and conservation of Xantus' Murrelets in the Channel Islands National Park with participants from FWS, NPS, NBS, California Department of Fish & Game and other interested parties. PSG is willing to co-host some of these meetings during our regular annual conferences.**

United States Department of the Interior

NATIONAL PARK SERVICE
Channel Islands National Park
1901 Spinnaker Drive
Ventura, California 93001

IN REPLY REFER TO:
N1419 (CHIS)

November 15, 1994

John Piatt
Pacific Seabird Group
1011 East Tudor Road
Anchorage, AK 99503

Dear John:

Thank you for your letter of August 15, 1994, outlining the Pacific Seabird Group's recommendations to the Park concerning conservation of Xantus' Murrelets. Thoughts and comments on issues regarding Park resources are always greatly appreciated.

Projects and proposals submitted by researchers outside of the Park will be reviewed and accommodated whenever possible. However, current Park housing and transportation constraints restrict the number of people and projects that can take place at one time.

Our comments on your suggestions are enclosed. Once again, thank you for your excellent suggestions. In addition to the proposed annual conference to discuss the Xantus' Murrelet, please don't hesitate to contact us regarding your observations, concerns, and/or recommendations to assist in our mutual goal of species restoration.

Sincerely,

C. Mack Shaver
Superintendent

cc: Craig Harrison
William Everett
Sarah Allen
Trudy Ingram

RESPONSE TO RECOMMENDATIONS BY PACIFIC SEABIRD GROUP TO CHANNEL ISLANDS NATIONAL PARK FOR THE CONSERVATION OF XANTUS' MURRELET

1. The entire Seabird Monitoring program will be undergoing review in Fall 1995 and Xantus' Murrelets monitoring protocols will be revised along with protocols for other species. Pacific Seabird Group (PSG) along with others will be invited to be a part of the review process. Our hope is to collect the best biological data within/given our funding and logistical constraints.

2. Harry Carter/National Biological Survey began intensive census efforts of all Channel Islands in 1994. Plans for 1995 include additional surveys within the Park and the Park Service continues to support these efforts. The data collected as part of our seabird monitoring program is published in an annual report as soon as possible. The data is public and can be acquired sooner by writing to request it.

3. Funding to begin a rat eradication program on Anacapa Island is anticipated within two years. It has been the park's #1 priority for multi-year project funding. The park has tried to obtain funding for the rat eradication through oil spill and DDT mitigation funds, with no success to date.

4-6. A Pest Policy Plan which will include plans to minimize the potential introduction of weeds and rats to all Park islands is being written by the Park's seabird and plant restoration biologists. Rats and feral cats are known to live in the rocks surrounding Ventura Harbor.

7. A supplemental nest box program will be considered when we review the Seabird Monitoring Program.

8. As facilities have improved on Santa Barbara Island, storage space has become increasingly "murrelet proof". We are developing thoughts on how to educate park personnel about situations that would prove hazardous to murrelets or create ephemeral nest sites.

9. The Park is unable to control use of bright deck lights by boats anchored around the island. At this time the best option is for the island ranger to issue advisories during routine contacts. Further questions on establishing policies should be directed toward California State Fish and Game. We are open to other actions that the PSG would propose to mitigate this problem.

10-11. Park personnel will be participating in the Oil Spill Wildlife Response Team being coordinated by Point Reyes Bird Observatory CDFG/OSPR. As participants of the team, we will be a part of the incident command system should an oil spill occur in the Santa Barbara Channel. There are no plans for the park to develop its own individual contingency plan for murrelets.

12. Developing a research project to determine the significance of predation by mice and owls on XAMU at SBI is not very feasible. Projects such as rat eradication from Anacapa Island appear higher on the priority list when competing for Park monies. There is also insufficient personnel to devote to such a project at this time.

13. Future construction on Santa Barbara Island will be conducted outside of the Murrelet breeding season as recommended by the Park Resource Management staff. There are no structures which offer significant artificial nesting habitat on Santa Barbara Island. US Fish & Wildlife Service will be consulted on unforeseen issues as they arise.

14. The Park will continue to participate in PSG's annual conferences. Information regarding the status and conservation of Xantus' Murrelets will be disseminated at PSG.

Pacific Seabird Group

DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

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William Sydeman
Chair-Elect
Point Reyes Bird Observatory
4990 Shoreline Highway
Stinson Beach, CA 94970
(415) 868-1221

July 26, 2000

Carol Gorbics
U.S. Fish & Wildlife Service
2730 Loker Avenue West
Carlsbad, California 92008

Re: Comments on Draft Restoration Plan: American Trader Oil Spill

Dear Sir:

These are the Pacific Seabird Group's (PSG) comments on the draft restoration plan and EA for Seabirds injured by the American Trader oil spill off Huntington Beach, California ("Draft Plan"). PSG is an international organization that was founded in 1972 to promote knowledge, study and conservation of Pacific seabirds. PSG draws its members from the rim of the entire Pacific Basin, including the United States, Canada, Mexico, Japan, China, Australia, New Zealand, and Russia. Among PSG's members are biologists who have research interests in Pacific seabirds, state and federal officials who manage seabird populations and refuges, and individuals with interests in marine conservation. Over the years we have advised and worked cooperatively with government agencies to further these interests. PSG has been especially active with regard to oil spill restoration.

The Draft Plan proposes spending about $2.9 million for bird-related natural resource projects, specifically the following:

1. Creation, enhancement, protection of brown pelican communal roost sites;

2. Seabird nesting habitat restoration at Anacapa Island;

3. Public education and awareness; and

4. International efforts for brown pelicans (educational and protection activities; eradication of exotics on Baja islands; monitoring of populations).

In general, PSG supports the projects that the Trustee agencies have proposed. We offer the following observations and comments with respect to the details of some of the proposals.

First, we applaud the Trustee agencies' decision to allow funds to be spent in Mexico to restore brown pelicans. We believe that restoration in Mexico will have very high value for the damaged pelican population, and are gratified that the agencies are applying sound ecological principles in their consideration of projects. PSG has been frustrated in commenting on other restoration plans where the trustee agencies have stated that restoration funds can only be used at the location where the injuries took place. We congratulate you for making this determination, and hope that other trustee agencies for other restoration plans elsewhere will allow restoration projects to be implemented far from the spill site where this makes ecological sense.

Second, we strongly believe that all projects should be subject to competitive bidding and, like projects funded by the *Exxon Valdez* trust fund, should use a standard request for proposal and a peer review process. Our experience has taught us that sole source contracts often cost much more for less return (and thus less benefit to seabirds) than competitively bid contracts. Moreover, there is a public perception that sole sourcing service contracts to those individuals or entities who represented the government as experts in the settlement negotiations is improper. When this occurs, it appears that the trustee agencies are improperly "paying off" individuals for providing the testimony that the government wished to elicit. The restoration process will be cleansed of such taints if all projects are awarded after competitive bidding.

Third, our members support public education programs that work in schools with bi-lingual educators teaching about marine food webs, the role seabirds play and the effects of pollution on the ocean environment. This could take the form of a rotating set of programs for school assemblies or visits to science departments on a regular basis over a number of years in the affected areas.

Finally, we understand that the trustee agencies have already let a large contract to remove black rats from Anacapa Island using funds from the American Trader settlement. PSG supports removal of predators on Anacapa Island and on other colonies where seabirds breed because they can do terrible damage. Nevertheless, we do not condone expending trustee funds before the public comment period has run.

PSG thanks you for this opportunity to comment on the Draft Plan.

Sincerely,

Craig S. Harrison

Craig S. Harrison
Vice Chair for Conservation

Appendix F

Letter from the Pacific Seabird Group to
U.S. Fish and Wildlife Service and
Department of Fish and Game

Advance Notice of Petition to list
Xantus's Murrelets as Endangered
March 25, 1994

Pacific Seabird Group

DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

John Piatt
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(907) 786-3549

Craig S. Harrison
Vice Chair for Conservation
4001 North Ninth Street #1801
Arlington, Virginia 22203
(202) 778-2240

March 25, 1994

Mollie Beattie, Director
U.S. Fish & Wildlife Service
634 Arlington Square
Washington DC 20240

Boyd Gibbons, Director
California Department of Fish & Game
P.O. Box 2090
Sacramento, California 94244-2090

Re: Advance Notice of Petition to List Xantus' Murrelet as Endangered

Dear Director Beattie and Director Gibbons:

On behalf of the Pacific Seabird Group (PSG), we wish to advise you that we plan to petition the U.S. Fish & Wildlife Service (FWS) within the next few months to list Xantus' Murrelet (Synthliboramphus hypoleucus) as an endangered species pursuant to § 4(b)(3) of the Endangered Species Act[1/] and 50 C.F.R. § 424.14 (1992). FWS currently classifies this species as a category 2 endangered species.[2/] PSG may also petition the California Department of Fish & Game to list this species as endangered under the laws and regulations of the State of California. The purpose of this letter is to invite you and interested organizations to participate in our efforts to document and assess the status of and threats to this species.

1/ 16 U.S.C. § 1533(b)(3) (1988).

2/ 56 Fed. Reg. 58804-12 (November 21, 1991).

PSG is an international organization that was founded in 1972 to promote knowledge, study and conservation of Pacific seabirds. PSG draws its members from the entire Pacific Basin, including Mexico, Canada, Japan, China, Australia, New Zealand, French Polynesia and Russia. Among PSG's members are biologists who have research interests in Pacific seabirds, state and federal officials who manage seabirds and the marine environment, and individuals with interests in marine conservation.

In recent years, PSG has become increasingly concerned regarding the status and vulnerability of the Xantus' Murrelet. In 1991, the FWS resurveyed many breeding colonies in the Channel Islands, California. In the draft final report (Carter et al., 1992), FWS estimated a total of 1,780 breeding birds in California, 95% of which nest on Santa Barbara Island. PSG hopes to facilitate the investigation of the status of nesting locales on other California Channel Islands during 1994. In addition, other data collected by the University of California and National Park Service in the 1970s and 1980s has indicated poor reproductive success for many years and significant mortality by avian and mammalian predators. Close proximity to offshore oil platforms, nearby tanker traffic, and substantial military activity in the region, places the Xantus' Murrelet in a tenuous position for long-term viability. PSG hopes to facilitate additional investigations of the status of nesting colonies on other California Channel Islands and in Baja California in the future. With a better understanding of its current status, PSG hopes to work with various agencies to develop appropriate actions to protect and study this little-known rare alcid species. PSG and the International Council for Bird Preservation have already asked Congress to appropriate funds to remove alien predators from Isla Clarión and North Coronado Island, Mexico, to allow Xantus' Murrelets to resume normal breeding there.

PSG formed a committee of interested and knowledgeable biologists and resource managers in 1992 to assess available information on this species and to evaluate existing and potential threats. The committee met on several occasions to discuss this issue during 1992-1994. The result of their deliberations was the conclusion that available data warrants concern as to whether the species may be in danger of extinction within the foreseeable future. The committee recommended to the Executive Council of PSG to petition the U.S. Fish and Wildlife Service to elevate Xantus' Murrelet from its current category 2 status to either Threatened or Endangered, as appropriate.

On 28 January 1994 PSG's Executive Council approved a motion to proceed with the petition, and directed the Xantus' Murrelet Technical Committee to prepare the necessary documentation. As part of this process we are notifying agencies and organizations with jurisdictions, activities, or interests within the Southern

California Bight of our intent, and soliciting their input and participation in the process.

To this end the Xantus' Murrelet Technical Committee of PSG is convening a meeting from 9:00 a.m. to 4:00 p.m. on Wednesday, May 18, 1994 to consider any additional information and answer questions regarding the status of this species. The meeting will be held at the Western Foundation of Vertebrate Zoology, 439 Calle San Pablo, Camarillo, California 93012. The Foundation telephone numbers are (805) 388-9944 Voice, (805) 388-8663 Fax.

If a representative from your organization would like to attend this meeting or contribute information, please contact William T. Everett, Coordinator, Xantus' Murrelet Technical Committee, at the Western Foundation.

Because we agree with Department of the Interior Secretary Babbitt that the best means of avoiding "train wrecks" that have characterized the implementation of the Endangered Species Act is to have better information, we have initiated this cooperative effort at this early stage. We hope this process will ultimately result in a secure future for this rare seabird species and unique public resource, and we look forward to meeting you or your representative at the 18 May meeting at the Western Foundation.

Sincerely,

John Piatt CSH

John Piatt
Craig S. Harrison

cc: The Nature Conservancy
National Park Service, Channel Islands National Park
National Oceanic and Atmospheric Administration,
Channel Islands National Marine Sanctuary
United States Coast Guard
National Marine Fisheries Service
Minerals Management Service
Santa Catalina Island Conservancy
United States Navy, Point Mugu Naval Weapons Station
United States Navy, Naval Air Station North Island
Point Reyes Bird Observatory
National Biological Survey
International Council for Bird Preservation - U.S. Section

Appendix G

Letter from the American Ornithologists' Union
to
U.S. Fish and Wildlife Service and
Department of Ecology and Utilization of
Natural Resources, Mexico

Protection of Seabirds on Mexican Islands
August 25, 1993

THE AMERICAN ORNITHOLOGISTS' UNION

FOUNDED 26 SEPTEMBER 1883

Permanent Address, Division of Ornithology, National Museum of Natural History, Washington, D.C. 20560, Phone: (202) 357-2334

25 August 1993

Dr. Herbert Raffaele
U.S. Fish and Wildlife Service
1849 C Street, NW
ms 860 Arlington Square
Washington, DC 20240

Dear Dr. Raffaele:

The American Ornithologists' Union (AOU) is the largest and oldest organization of professional ornithologists in the United States, with over 4200 members from all states and from 66 countries around the world. Based on sound science, this society takes positions on conservation issues throughout the Americas that potentially affect the well-being of bird populations.

At our 111th Stated Meeting in Fairbanks, Alaska this past June (1993), the AOU passed the enclosed resolution urging the U. S. Fish and Wildlife Service and Mexico's Departmento de la Fauna Silvestre to take measures to restore the natural biodiversity to several islands off the western coast of Mexico, and to remove alien predators that threaten the well-being of several seabird species. These measures would be in accord with the Western Hemisphere Convention, to which both the U. S. and Mexico are signatories. This problem presents an opportunity for the U.S. and Mexico to cooperate in implementing the mandate of the Western Hemisphere Convention.

On behalf of the AOU, I hope you will review this resolution and consider what action you might take within the U.S. Fish and Wildlife Service International Division to initiate restoration of these islands to conditions that promote the welfare of affected seabird species.

Sincerely,

Brina Kessel
President

enclosure

FUTURE MEETINGS

AOU	AOU-COS-WOS	IOC	AOU
8-13 June 1993	21-26 June 1994	21-27 August 1994	13-20 August 1995
Fairbanks, Alaska	Missoula, Montana	Vienna, Austria	Cincinnati, Ohio

THE AMERICAN ORNITHOLOGISTS' UNION

FOUNDED 26 SEPTEMBER 1883

Permanent Address, Division of Ornithology, National Museum of Natural History, Washington, D.C. 20560, Phone: (202) 357-2334

25 August 1993

Dr. Exequiel Excurra, Director-General
Ecology and Utilization of Natural Resources
CEDESOL
Rio Elba No. 20
Mexico D. F., MEXICO

Dear Dr. Excurra:

The American Ornithologists' Union (AOU) is the largest and oldest organization of professional ornithologists in the United States, with over 4200 members from all states and from 66 countries around the world. Based on sound science, this society takes positions on conservation issues throughout the Americas that potentially affect the well-being of bird populations.

At our 111th Stated Meeting in Fairbanks, Alaska this past June (1993), the AOU passed the enclosed resolution urging the U. S. Fish and Wildlife Service and Mexico's Departmento de la Fauna Silvestre to take measures to restore the natural biodiversity to several islands off the western coast of Mexico, and to remove alien predators that threaten the well-being of several seabird species. These measures would be in accord with the Western Hemisphere Convention, to which both the U. S. and Mexico are signatories. This problem presents an opportunity for the U.S. and Mexico to cooperate in implementing the mandate of the Western Hemisphere Convention.

On behalf of the AOU, I hope you will review this resolution and consider what action you might take within your agency, in cooperation with the U.S. Fish and Wildlife Service, to initiate restoration of these islands to conditions that promote the welfare of affected seabird species.

Sincerely,

Brina Kessel
President

enclosure

Seabird islands in Mexico

WHEREAS the governments of Mexico and the United States of America (USA) are signatories to a Migratory Bird Treaty, and

WHEREAS the USA-Mexico Migratory Bird Treaty provides that the USA and Mexico will protect migratory birds and establish refuges for migratory birds, and

WHEREAS the governments of the USA and Mexico are signatories to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (Western Hemisphere Convention), and

WHEREAS the Western Hemisphere Convention is intended to "protect and preserve in their natural habitat all species of native flora and fauna, including migratory birds, in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control," and

WHEREAS humans have introduced rats, pigs, cats, rabbits, and other non-native species on seabird nesting islands in Mexico, and

WHEREAS each year such predators threaten the well-being of Xantus' Murrelets (*Synthliboramphus hypoleucus*) on North Coronado Island, and

WHEREAS the U.S. Fish and Wildlife Service considers the Xantus' Murrelet to be a Category 2 endangered species that may be listed as a Category 1 endangered species in the near future, and

WHEREAS introduced predators threaten the well-being of Black Storm-Petrels (*Oceanodroma melania*) on North Coronado Island, and

WHEREAS the state of California is considering whether to list Ashy Storm-petrels (*Oceanodroma homochroa*) as a state endangered species, and

WHEREAS such predators threaten the well-being of Townsend's Shearwater (*Puffinus auricularis*) on Clarion Island, and

WHEREAS Townsend's Shearwater is an endangered species, and

WHEREAS there are sound biological, economic, and other reasons for the governments of Mexico and the USA to endeavor to prevent migratory birds from becoming endangered,

THEREFORE BE IT RESOLVED that the American Ornithologists' Union encourages the U.S. Fish and Wildlife Service and Mexico's Departamento de la Fauna Silvestre to take immediate steps to remove alien predators from North Coronado Island, Guadalupe Island, and Clarion Island, Mexico, and

THEREFORE BE IT FURTHER RESOLVED that the American Ornithologists' Union encourages the U.S. Fish and Wildlife Service and Mexico's Departamento de la Fauna Silvestre to take measures to restore the natural biodiversity of other current and former seabird breeding colonies, including Isla Salvatierra Isla Alcatraz, and Las Grandas Islas, and

THEREFORE BE IT FURTHER RESOLVED that the American Ornithologists' Union encourages the U.S. Fish and Wildlife Service and Mexico's Departamento de la Fauna Silvestre to establish a program to identify all seabird colonies in Mexico whose populations are limited by alien predators and remove the predators by the year 2000.

Appendix H

Fish and Game Code Section 2084
Candidacy Regulations for Xantus's Murrelets

Regulatory Language

Add Section 749.2 Incidental Take of Xantus's Murrelet (Synthliboramphus hypoleucus) During Candidacy Period:

Section 749.2. Incidental Take of Xantus's Murrelet (Synthliboramphus hypoleucus) During Candidacy Period

The commission finds that, based on current knowledge and protection, and management efforts outlined in this regulation, the level of take of Xantus's murrelet which is likely to occur during the period that this regulation is in effect will not cause jeopardy to the continued existence of the species.

(a) Take Authorization

Based upon the above findings, the commission authorizes the take of Xantus's murrelet during the candidacy period for each of the activities described below, subject to the terms and conditions specified for each activity.

(1) Night-time Disturbance (light and noise) near Breeding Colonies.

(A) Incidental take of Xantus's murrelet resulting from night-time (dusk to dawn) operation of a vessel is authorized all year outside the areas described in subsections (a)(1)(D) and (a)(1)(E).

(B) Incidental take of Xantus's murrelet resulting from night-time operation of a vessel from February 1 through July 15 within the areas described in subsections (a)(1)(D) and (a)(1)(E) is authorized only where such take occurs in compliance with each of the following restrictions:

1. the vessel is not engaged in night fishing or night diving;
2. external loud speakers on the vessel are not in use;
3. the vessel is within a designated anchorage or safe harbor from dusk to dawn, except when transiting through areas described in subsections (a)(1)(D) and (a)(1)(E); and
4. lighting on the vessel is limited to navigational lighting necessary for safe operations.

(C) Incidental take of Xantus's murrelet resulting from night-time operation of a vessel from July 16 through January 31 within the areas described in subsections (a)(1)(D) and (a)(1)(E) is authorized without the restrictions contained in subsection (a)(1)(B).

(D) Santa Barbara Island: from the mean high tide line extending 1 nm around the entire shoreline of Santa Barbara Island. Anchorages and safe harbors include Landing Cove (33° 28.9' N. lat., 119° 1.7' W. long.), and from Arch Point (33° 29.3' N. lat., 119° 1.6' W. long.) to the southernmost point of the island (33° 27.9' N. lat., 119° 2.1' W. long.).

(E) Anacapa Island: from the mean high tide line extending 1 nm around the entire shoreline of Anacapa Island. Anchorages and safe harbors include Landing Cove (34° 1' N. lat., 119° 21.6' W. long.) and Frenchy's Cove (34° 0.4' N. lat., 119° 24.4' W. long.).

(2) Ongoing Research and Monitoring.

(A) Public Agencies and Private Parties.

1. Take of Xantus's murrelet in the course of ongoing and currently permitted research and monitoring of this species by public agencies other than the

department and by private parties is authorized provided that a written, detailed project progress report describing objectives, methods (gear, sampling schedules and locations), efforts to minimize adverse effects to the species, and estimated level of take of the species shall be provided to the department's Marine Regional Manager within 60 days of this regulation becoming effective.

2. Take of Xantus's murrelet incidental to the course of marine research by public agencies other than the department and by private parties, using artificial night-lighting on vessels is authorized subject to the restrictions in subsection (a)(1).

3. At the discretion of the department, research and monitoring activities not addressed by the above procedures may receive separate authorization for take of Xantus's murrelet by the department pursuant to Fish and Game Code Section 2081.

Department of Fish and Game Contact: Regional Manager, Marine Region: 4665 Lampson Avenue, Los Alamitos, California 90720, (562) 342-7100.

(3) Additions, Modifications or Revocation.

(A) Incidental take of Xantus's murrelet from activities not addressed in this section may be authorized during the candidacy period by the commission pursuant to Fish and Game Code Section 2084 or by the department pursuant to Fish and Game Code Section 2081, on a case-by-case basis.

(B)The commission may modify or repeal this regulation in whole or in part, pursuant to law, if it determines that any activity or project may cause jeopardy to the continued existence of Xantus's murrelet.

NOTE:

Authority: Sections 200, 202, 205, 240 and 2084, Fish and Game Code.

Reference: Sections 200, 202, 205, 240, 2080, 2084 and 2085, Fish and Game Code.