ABSTRACTS

discovered colonies, and suspected breeding at eight others. The largest colonies occurred off San Miguel Island (at Prince Island and Castle Rock) and at Santa Barbara Island. Several new colonies at Santa Cruz Island were in previously unexamined habitats within sea caves. Nesting was confirmed for the first time at San Clemente Island. At Santa Catalina Island, nesting was suspected where breeding has not been documented since 1937. Small numbers of mist-netted birds at Anacapa Island indicated probable breeding but introduced rats may limit population size. We estimate the Channel Islands' population comprises 50-65% of the known world population. However, higher recent estimates are largely due to methodological differences and increased survey effort.

MARBELED MURRELET USE OF LANDSCAPES FOR NESTING IN CALIFORNIA AND SOUTHERN OREGON

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We evaluated marbled murrelet (Brachyramphus marmoratus) use of landscapes and the juxtaposition of forest nesting habitat to marine habitat in a study area that extended from Coos Bay, Oregon to Monterey Bay, California. Using GIS and Landsat-derived coverages, fragmentation indices of patches of vegetation classified by seral stage were calculated within circular plots of 400-m, 800-m, 1600-m, and 3200-m radius. Plots were centered on occupied and unoccupied sites within surveyed stands. We measured distance to nearest marine features, roads, and streams, and recorded topographic and climatic variables from plot centers. Using logistic regression, we found sites occupied by nesting murrelets were closer to major bays and marine areas with high summer primary productivity and were at lower elevations. These sites were in patches having at least 10% of trees in old-growth forest, where the patches were mostly restricted to the redwood vegetation zone in California and the moist coastal Douglas-fir-dominated zone in Oregon. Occupied plots contained more old-growth forest that had complex edge, interior habitat, and nearby mature second-growth forest. They contained fewer patches of young hardwoods and had less complex edge across the landscape. Probability of occupancy increased if a plot was within 5 km of another plot where murrelets were detected.

SOURCES OF INTRACLUTCH EGG-SIZE VARIATION IN THE COMMON TERN

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In species that exhibit brood-size adjustment, last-laid eggs are assumed to be relatively small to facilitate brood reduction. Alternatively, intraclutch egg-size variation (ICESV) may be a function of ambient temperature during clutch formation. We examined the pattern of ICESV in Common Terns breeding near Hamilton, Ontario over 5 years (1992, 94-97). Both the size of eggs laid and the pattern of ICESV varied across years. In 1992, eggs were relatively large with the second-laid egg being largest. In 1994, eggs were relatively small and the last-laid egg was disproportionately smaller than the rest of the clutch. In other years, egg size decreased linearly with laying order. The period prior to egg-laying was mildest in 1992, conditions were moderate in 1994, while the other years were colder, windier and wetter. Within years, weather during the period of clutch formation was related to egg size: larger eggs were produced when conditions were warmer and calmer/drier. Environmental conditions during egg formation may affect egg size by (1) directly affecting female metabolic costs, (2) affecting foraging conditions and therefore the availability of resources for egg formation, and (3) by serving as a predictor of conditions during chick-rearing, information which females use to optimize the size of the eggs they lay. Our data suggest that all three mechanisms may be influencing egg-size variation in this species.

EXPERIMENTAL RELEASE OF OIL-SPILL REHABILITATED AMERICAN COOTS (FULICA AMERICANA): EFFECTS ON HEALTH AND BLOOD PARAMETERS

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The Unocal-Metrolink oil spill of February 21, 1995 resulted in approximately 7800 barrels of San Joaquin crude oil being deposited into the San Gabriel River in Huntington Beach, CA. In order to determine long-term pathological effects of oil exposure and rehabilitation, hematological and serum biochemical parameters for both rehabilitated (RHB) American coots (Fulica americana) and reference (REF) coots were examined every 3-4 weeks (56d, 81d, 108d and 140d-post oil exposure) after birds were cleaned, rehabilitated and released. Most significant differences in monthly comparisons between RHB and REF birds occurred within 56 days of oil exposure. Total white blood cell count (WBC), albumin:globulin (A:G) ratio and calcium concentration were higher in RHB birds compared to REF birds 56d post oil exposure. In addition, mean cell hemoglobin (MCH), mean cell hemoglobin concentration (MCHC), alkaline phosphatase (Alk Phos), alanine aminotransferase (ALT), aspartate aminotransferase (AST) and creatine kinase (CK) activities; and creatinine, total protein (TP) and globulin concentrations were lower in RHB birds.

Blood results from 56d post oil exposure for RHB coots which subsequently died were compared to blood results from days 108 and 140 for REF coots which survived. Oiled and rehabilitated birds which died had significantly higher WBC, packed cell volume, TP and globulin concentrations; and lower A:G ratio, MCH, MCHC, glucose and Na concentrations compared to REF birds which survived.

Blood result differences detected at 3-4 week intervals between RHB and REF survivors, and differences detected be-