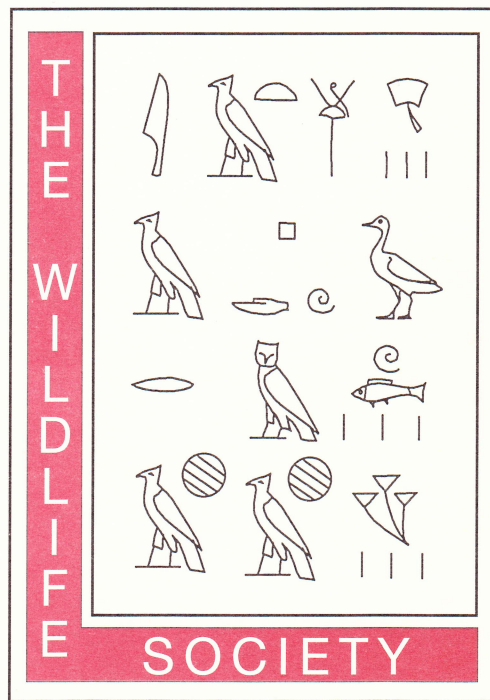


**2003 ANNUAL CONFERENCE
of the
THE WESTERN SECTION OF
THE WILDLIFE SOCIETY**

PLENARY THEME:

WALK A MILE IN MY BOOTS



PROGRAM AND ABSTRACTS

**February 27–March 1, 2003
Marriott Hotel
Irvine, California**

Session: Southern California Threatened and Endangered Species

MANAGING FOR WESTERN SNOWY PLOVER BREEDING SUCCESS IN URBAN, PREDATOR-RICH ORANGE COUNTY

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The Bolsa Chica lowland is about 1,300 acres of degraded, historically tidal wetlands, mostly converted to non-tidal wetlands, operating oil field, and surrounded by densely populated, urban Orange County. Several hundred acres are winter ponds and summer barren flats that are variably available for nesting by western snowy plover. Beach disturbance and conversion of beach strand nesting areas caused a population decline that led to the 1993 federal threatened designation for the coastal population of the western snowy plover. Since public acquisition of Bolsa Chica in 1997 and in preparation for the tidal wetland restoration project there, monitoring of and interim management practices to improve western snowy plover breeding success have been conducted. Regular monitoring established that Bolsa Chica supported regionally significant snowy plover breeding activity that suffered from sometimes significant loss of eggs and/or chicks and, concomitantly, reduced reproductive success. Most predation on snowy plover eggs is by crows and ravens, while predation on plover chicks is thought to be by American kestrels, although loggerhead shrikes, red-tailed hawk, and northern harrier may also contribute. Crow management tools include eradication; trapping; and, in 2002, the deployment of mini-exlosures to protect plover nests. Kestrels and shrikes have been live-captured and transported.

Session: Maintaining Habitat Elements across Landscapes

BIOFORESTRY: AGGREGATE RETENTION OF FOREST STAND STRUCTURES ON TIMBER PRODUCTS COMPANY FORESTLANDS IN NORTHERN CALIFORNIA

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Since 1995, Timber Products Company (Company) has implemented a voluntary policy that retains forest stand structures within private commercial timber harvests. Retention of forest stand structures that mimic natural processes of wind, fire, and disease has been hypothesized and tested throughout the Pacific Northwest and is collectively known as "new forestry". The Company "Bioforestry" program has specific guidelines that encourage the aggregate retention of plant and tree species diversity; snags and wildlife trees; large woody debris in timber harvest units; and around unique landforms including seeps, springs, rock outcrops, talus slopes, and meadows.

The Company completed compliance monitoring of Bioforestry stands harvested between 1995 and 1999. Fixed plot data were collected on a total of 48 even-aged units (863 ac), 14 shelterwood-removal units (249 ac), and 28 commercial thinning units (1,414 ac). The mean acres retained (3.5%) and mean size of retention areas (0.20 ac) met or exceeded Bioforestry guidelines. Comparison of post-harvest conditions of tree species, size and density, wildlife trees, snags, and large woody debris within retention areas met or exceeded mean stand preharvest values.

In 2001, the Company began effectiveness monitoring using neotropical and resident song birds to measure a biological response to the Bioforestry stands. Preliminary results of effectiveness monitoring in these early successional stands indicate that some edge and midseral neotropical and resident song bird guilds use Bioforestry stands in greater proportion than stands without Bioforestry retention.

Session: Poster

NORTHERN PINTAIL EVENING FLIGHT PATHS RELATIVE TO URBANIZATION AND WETLANDS IN THE GRASSLAND ECOLOGICAL AREA, CALIFORNIA

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I tracked the highway zone over which radiotagged female northern pintails (*Anas acuta*) flew on their way from daytime roosts in the north to nocturnal feeding sites in the south part of the Grassland Ecological Area (EA). My objectives were to identify important pintail flight corridors along a highway where increased urbanization is projected, gather baseline flight-path information so that impacts of future urbanization and landscape changes can be evaluated, and provide insight into how urbanization and wetlands affect flight paths. Most pintails flew direct routes between roost and feeding sites but some followed routes over wetlands encountered early in their trip and took indirect routes. No pintails flew over and one pintail diverted around the most heavily urbanized zone, suggesting that urbanization may act as a barrier to pintail flight. To facilitate direct flight paths to habitats in the south Grassland EA, eastward urban expansion into the path used by most pintails should be avoided. Open-space corridors between wetlands to facilitate direct flight paths may be important to energetics of wintering pintails during hunting season, when pintails must fly considerable distances between sanctuaries and some feeding areas, and should be incorporated into conservation planning in urban-wetland landscapes.

Session: Ecology and Management of Carnivores

COEXISTING WITH CARNIVORES: COMMUNITY-BASED APPROACHES TO AGRICULTURAL CONFLICTS

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Livestock predators in the U.S. have traditionally been managed by the USDA's Wildlife Services (WS) program through cooperative agreements with states, counties, municipalities, and other entities. WS relies heavily on lethal methods in management efforts directed at predators. Public opposition to lethal control, however, along with biologists' increased understanding of the ecological importance of native carnivores, has led to greater demand for humane, socially acceptable, and ecologically sound management methods.

In 2000, after 4 years of public controversy over the taxpayer-subsidized killing of native carnivores by WS, Marin County, California, established a groundbreaking program that has garnered national recognition. The 5-year "Strategic Plan for Protection of Livestock and Wildlife" phases out subsidized lethal predator-control methods and provides \$50,000 annually to assist qualified ranchers in implementing nonlethal techniques (e.g., guard animals, lambing sheds, improved fencing) and a county cost-share indemnification program to compensate ranchers for verified livestock losses resulting from predation.

This presentation discusses how the community-based program: 1) offers an effective, cost-efficient, and ecologically sound livestock-protection program while allowing native carnivores to remain on the land; and 2) meets the needs of both the ranching and wildlife conservation communities by offering an alternative to federally subsidized lethal predator control.

Session: Poster

DO PYROTECHNICS INCREASE WATERBIRD NESTLING MORTALITY ON INDIAN ISLAND IN HUMBOLDT BAY, CALIFORNIA?

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Indian Island in Humboldt Bay, California, has been a continuously occupied rookery site of great egrets (*Casmerodius albus*), great blue herons (*Ardea herodias*) and black-crowned night herons (*Nycticorax nycticorax*) dating as far back as 1966. The area above Indian Island is also the site for the Independence Day pyrotechnics celebration for Eureka, CA, although studies have shown that human disturbance may increase mortality in waterbird nestlings. In 2001 and 2002, we quantified nestling mortality through ground surveys on the three nights preceding the pyrotechnics display, immediately after the pyrotechnics, and on the night following the pyrotechnics. We noted occurrences of general

disturbance of the rookery and whether it occurred during the pyrotechnics. Nestling mortality was increased by two nestlings resulting from the pyrotechnics in 2001 and one nestling in 2002. We observed a general disturbance in the form of flushing among only the black-crowned night herons when the pyrotechnics began; however, there is not sufficient evidence to indicate that nestling mortality was significantly increased because of the pyrotechnics on Indian Island. These results may be important in the management of waterbirds in similar situations of human disturbance.

Session: Ecology and Management of Invasive Species

APPROACHES TO REMOVAL OF FERAL PIGS FROM ISLAND ECOSYSTEMS

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Feral pigs (*Sus scrofa*) cause considerable damage to island ecosystems around the world. Efforts to eradicate these animals from islands can be extremely challenging and may require many years. Removal efforts generally require a variety of techniques and a willingness to modify methods over the course of the project. Different seasons, habitat types, and pig densities have an effect on the techniques employed. Some of the techniques used in removal programs include: trapping, aerial hunting, dogs, poison, ground hunting, and spotlighting. Having a flexible and adaptable field staff is crucial to the success of any feral animal removal program. An important component to the success of any removal program is the financial backing to see the project through to completion. Without the funding to ensure completion of a project, all the financial resources previously spent may be wasted. Our experience suggests that on islands with complex vegetation communities, specifically those containing dense woody vegetation, partitioning the island with fences into manageable units may be required. Having a well-developed plan to advise the public and respond to animal rights groups regarding the need to conduct the removal is vital to avoid costly litigation and negative publicity.

Session: Maintaining Habitat Elements across Landscapes

ANNUAL VARIATION AND GEOGRAPHIC PATTERNS IN ACORN PRODUCTION BY CALIFORNIA BLACK OAK

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Between 1994 and 2002, acorn production by California black oak (*Quercus kelloggii*) was measured at seven sites in California. Acorn production varied among years ($P < 0.01$) and locations ($P < 0.01$) with tree diameter used as a covariate. Acorn production increased with increases in tree diameter ($P = 0.05$). There was significant interaction between annual mast production and location ($P < 0.01$), indicating that there were intrinsic factors at each site that affected acorn production. Average acorn production over the 9-year study period was greatest for trees in southern latitudes and declined for trees in the northern latitudes ($P < 0.05$). There were some spatial correlations in production between locations. Although few statistical relationships were found between acorn production and precipitation and temperature individually at the seven study locations, average acorn production was inversely related to winter and spring precipitation ($P < 0.05$), which increased from southern to northern latitudes. Our results indicate that California black oak acorn production is highly variable on micro- and macroscale as well as temporal scales; however, there appear to be some large-scale geographic patterns that should be recognized by natural resource managers when conserving this species.

Session: Corvid Workshop

IMPACTS OF CORVIDS ON THREATENED AND ENDANGERED SPECIES IN CALIFORNIA: ARE CORVIDS THE MENACE OR THE MESSENGERS?

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Predation by corvids has been identified as a contributing factor to the decline of several threatened and endangered species in California. We summarize literature on the impacts of corvids on threatened and endangered species and suggest management recommendations to reduce those impacts. BBS data indicate that common ravens (*Corvus corax*) and American crows (*Corvus brachyrhynchos*) have increased substantially in California over the last 30 years. Steller's jay (*Cyanocitta stelleri*) numbers have generally remained stable over this period, although they have increased significantly in the Southern Pacific Rainforest region of northwestern California. Corvids have been documented preying on the eggs or young of eight threatened or endangered species in California and were identified as important predators on three species. Because of spatial and temporal variation in the impact of corvids on threatened and endangered species, management strategies to protect particular species must be approached on a case-by-case basis. Nevertheless, some management recommendations such as limiting availability of anthropogenic food sources in locations where corvids co-occur with threatened and endangered species can, in some cases, be implemented quickly and with relatively little cost. More drastic measures, such as lethal removal, should be considered in extreme cases where an immediate cessation of predation by corvids is necessary to save a population of threatened or endangered species.

Session: Maintaining Habitat Elements across Landscapes

THE RELATIONSHIP BETWEEN FOREST HABITAT QUALITY AND FOREST MANAGEMENT PRACTICES

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Modern land use practices commonly alter landscapes and landscape features far differently than do the disturbances often witnessed in nature. Although natural events can sometimes be catastrophic, they often leave elements of the natural landscape that persist in the environment. Additionally, natural catastrophic events are usually episodic and localized to a relatively small portion of the ecosystem in which they occur. Even in the most dramatic conflagrations, habitat elements are often available for species exploitation in a random, chaotic fashion (i.e., snags, fallen logs, stump sprouts, etc).

The advent of mechanized vegetation management, coupled with the advances of scientific disciplines in pest and disease management, have shifted resource managers toward practices that reduce the chaotic nature of disturbance, often simplifying the physical structure and composition of many forest stands. The resultant simplification of forest stands is at the heart of many of the species-related debates now facing forest and resource managers.

This paper explores the relationship between forest habitat quality and forest management practices. It examines the implications for species maintenance and recovery in light of currently employed management strategies and explores alternative strategies that can be used to advance the discussion for perpetuating forest-dependent populations.

Session: Ecology and Management of Invasive Species

POSSIBLE IMPACT OF THE RED IMPORTED FIRE ANT IN CALIFORNIA

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Session: Poster

REPRODUCTIVE SUCCESS IN FEMALE ROOSEVELT ELK (*CERVUS ELAPHUS ROOSEVELTI*) AND ITS RELATIONSHIP WITH PARASITES AND PHYSICAL CONDITION

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Reproductive success varies among females for many reasons including age, experience, social status, and environmental factors. A mother's parasite load has also been shown to have a negative effect on reproductive success and maternal investment in offspring, and physical condition may also influence reproductive success. I analyzed differences in reproductive success of female Roosevelt elk (*Cervus elaphus roosevelti*) at Sinkyone Wilderness State Park, Mendocino County, California, from May 25 through November 6, 2000, with respect to female physical condition and abomasal parasite diversity. Mothers were in better physical condition at the beginning of the nursing period than non-mothers ($p=0.036$) and had fewer parasite genera than non-mothers ($p=0.011$). These results lend insight into the reasons that variation in reproductive success exists among female Roosevelt elk. Mothers also declined in physical condition over the nursing period ($r=-0.97$, $p=0.034$), while non-mothers did not ($r=-0.42$, $p=0.72$), supporting the understanding that nursing exerts a significant cost to a mother throughout the nursing period. These results may help to explain the patterns of reproductive success of individual females over their life spans.

Session: Conservation Planning in a Populous Landscape

CONSERVATION PLANNING FOR ENDANGERED SPECIES AT THE COUNTY LEVEL: SAN JOAQUIN COUNTY HABITAT CONSERVATION PLAN

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The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) is a 50-year habitat conservation plan intended to balance growth, the protection of agricultural land, and the protection of federally and state-listed species in San Joaquin County. The SJMSCP covers the area of San Joaquin County, 42 species under the Federal Endangered Species Act, and 55 species under the California Environmental Quality Act and California Endangered Species Act. The SJMSCP is a voluntary plan for local jurisdictions and for project proponents that provides compensation for conversions of habitat undertaken by the permittees (payment of fees), and coverage to the permittees under federal and state law. Projects covered by the SJMSCP generally reflect the majority of projects occurring in the general plans or the expected development areas of the cities of San Joaquin County. Habitat preserves for covered species are acquired, enhanced, and protected in perpetuity from the fees paid by permittees and grants. The SJMSCP was permitted and began implementation in 2001, and is managed by the San Joaquin Council of Governments with assistance from local jurisdictions, U.S. Fish and Wildlife Service, and the California Department of Fish and Game.