CALIFORNIA'S ENDANGERED WILDLIFE

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Abstract: Since 1900 six animals have become extinct in California and 24 native forms are endangered and facing extinction. The Department of Fish and Game is currently reviewing 129 animals whose status is unknown. Recent California legislation directs the Department to inventory California's threatened fish and wildlife and report to the Governor and Legislature on their status. Authority has been given the Fish and Game Commission to deem California's endangered fish and wildlife and to extend protection to these animals, corollary to the Federal Endangered Species Preservation Act and the Endangered Species Conservation Act of December 9, 1969.

Historically, agencies responsible for administration of all wildlife have been largely oriented to game species and to those who make appropriate use of these resources; little has been done for nongame wildlife either in research or management. Game management practices, have on occasion, been single purpose management and have contributed to the decline of species in short supply. Need is to recognize wildlife as part of an ecosystem and develop wildlife managers into ecologists. We should strive to provide diversity in wildlife and preservation to both animals and habitat; particularly those now threatened with extinction.

INTRODUCTION

I think Jean Delacour's foreward to Greenway's (1958) "Extinct and Vanishing Birds of the World" is the best way to introduce the subject of California's endangered wildlife:

> "We are now witnessing the most tremendous changes in the world, and one of the saddest consequences is the awful threat to the existence of many forms of wildlife. Human populations increase; weapons are improved; new poisons are found and used; and remote areas, so far inaccessible, are penetrated more and more easily. As a result, plants and animals are fast decreasing and some may eventually disappear altogether."

During the past 2000 years the world has lost through extinction about 106 known forms of mammals of which 77 were species. Such losses have accelerated in recent times. Since 1600 some 64 mammals and 94 birds have become extinct. We now recognize worldwide over 223 mammals and 287 birds as being threatened with extinction. The list of fish, amphibians, and reptiles are undoubtedly equally impressive.

Since 1900 here in California 5 mammals and 1 bird have become extinct and 24 native animals are now on the Federal endangered species list and face extinction. This month the Department submitted to California scientists 129 wildlife forms, the status of which we are not certain. These included 52 birds, 27 mammals, 21 fish, 19 reptiles, and 10 amphibians. We are in the process of reviewing these in an authoritative manner and compiling a list of what we believe are truly California's rare and endangered animals.

The preservation of the remaining animal life of the world--especially those species which are rapidly approaching extinction--is one of the most urgent problems facing biologists and conservation agencies today. Until recently, this concern was seemingly shared only by zoologists and naturalists; the world at large seemed to care less. But now with the question of man's own survival in doubt--faced as we are with weaponry (nuclear war), over population, food shortage, environmental degradation, pollution and all the social problems of the world, we suddenly find people expressing increasing concern about vanishing wildlife. They are demanding that these animals be given adequate

protection and assured a place to exist. Times are changing, we are entering an era of compassion for our fellow creatures rather than exploitation as evidenced by recent legislation.

Federal Legislation

In 1966 Congress passed the Endangered Species Preservation Act. This act gave authority to the Secretary of the Interior to publish a list of native animals threatened with extinction and to provide Federal programs of research and protection. To accomplish this the Secretary appointed an Endangered Species Committee and solicited the assistance of many conservation organizations and scientists in compiling the "Red Book" (U. S. Bureau Sport Fisheries and Wildlife 1968), which now contains 101 rare and endangered species and subspecies native to the United States.

In 1969, Congress extended to the Secretary authority to deem endangered worldwide animals faced with extinction and to prohibit their importation into the United States without permit. This act further covers all vertebrate life plus mollusks and crustaceans. It places a high penalty on those who are convicted of illegal importation of endangered wildlife or engaged in interstate traffic in wildlife through amendments to the Lacey Act and Black Bass Act. Table 1 is the Federal listing of endangered California wildlife including both native and nonnative species and subspecies.

Despite the best intentions of Federal acts, endangered wildlife's fate, for the most part, rests with the States. Unless these species are covered by the Migratory Bird Treaty Act or the Bald Eagle Act, Federal jurisdiction is superseded by the State. State laws are required to assure survival of most all of the endangered wildlife.

State Legislation

In response to this need, the California Legislature passed the California Species Preservation Act and the Endangered Wildlife Act in 1970.

California Species Preservation Act directs the Department to inventory all threatened fish and wildlife, develop a criteria for rare and endangered, and report to the Governor and Legislature every two years of the status of these animals. Recommended measures for their protection and enhancement, are also to be included in these biennial reports.

The act made additions to the State's listing of Fully Protected Birds and Fully Protected Mammals and established categories of fully protected amphibians, reptiles, and fish. A heavy fine of a maximum of $1,000 and/or a year in the County jail was leveed for those convicted of violation. Table 2 is a listing of California's fully protected animals.

Endangered Species Act expresses Legislative concern about California's threatened wildlife, defines rare and endangered wildlife, gives authority to the Fish and Game Commission to deem what animals in California are rare and endangered. It further prohibits importation of these animals except by permit.

WILDLIFE STEWARDSHIP

Let there be no doubt as to whom responsibility for wildlife rests. Wildlife is the property of the people, the sovereignty of which they have vested with the State to be conserved and managed for the benefit of all people. Such is the law of this land and has been defended in court since the early colonists adopted the principles of the Magna Carta.

As we well know, responsibility is shared by State and Federal government for which they have established agencies to administer this public trust. However, in the long history of these administrations little heed has been spent to those wildlife forms which are not either fished for, hunted for sport purposes, or exploited commercially. Since the inception in 1937 of the Federal Aid in Wildlife Restoration Act--commonly referred to as the Pittman-Robertson Act--there has been over $300 million spent in the United States for the conservation and management of game animals; $18 million by the California Department of Fish and Game. These funds have contributed immeasurably to the knowledge we game managers possess and to the success of our game management programs. Few people,

Table 1. Listing of California fish and wildlife extinct, endangered, or rare - December 14, 1970.

Extinct in California	Year
Amargosa meadow vole	1917
Mexican jaguar	1860
California grizzly bear	1922
Plains wolf	early 1920's
Big-eared kit fox	1903
Columbian sharp-tailed grouse	late 1940's or early 1950's

Endangered	Rare
Santa Cruz long-toed salamander	Limestone salamander
Blunt-nosed leopard lizard	Black toad
San Francisco garter snake	
	Kern rainbow trout
Piute cutthroat trout	
Lahontan cutthroat trout	Southern sea otter
Mohave chub	Tule elk
Tecopa pupfish	California bighorn sheep
Unarmored threespine stickleback	Peninsular bighorn sheep
Colorado River squawfish	
Owens River pupfish	Prairie falcon
	Greater sandhill crane
San Joaquin kit fox	California black rail
Morro Bay kangaroo rat	
Salt marsh harvest mouse	Gray whale
	Guadalupe fur seal
Southern bald eagle	
American peregrine falcon	
California condor	
California least tern	
Yuma clapper rail	
Light-footed clapper rail	
California clapper rail	
Brown pelican	
Blue whale	
Humpback whale	
Pacific right wale	

indeed, can quarrel with the statement that we now have more game than existed in the 1930's because of the years and years of research, management, and protection afforded these animals.

However, as we dwelve deeper into the problems of nongame wildlife, we find the task to be unpleasant. I mentioned here in California, alone, we have some 129 wildlife forms in short supply whose status is undetermined. Essentially nothing has been done to determine their life history and habitat needs. We know virtually nothing of their distribution and abundance other then occasionally someone has reported their occurrence and we know they are about. Unpleasant is the realization that in a number of cases, we game managers and fish managers made habitat changes much to the detriment of species in short supply--we have hastened their way to extinction. Starker Leopold, et al (1968) alluded to this in his report on the National Wildlife Refuge System. He cited the destruction of grassland prairie on the Necedah Refuge in Wisconsin and the deleterous effect it had on prairie chicken and sharp-tailed grouse. There are cases wherein streams have been treated for rough fish control with little concern for endangered fish. We can cite situations in California wherein natural ecosystems--whole plant and animal communities--have been destroyed for intensive waterfowl management purposes. It wasn't our intent to do so, but we simply failed to recognize the implication of our single purposeness in wildlife management. Not only are we guilty of such short-sightedness in habitat manipulation, but our evaluations of the effects of pesticide application, animal control practices, water development, and land use change leaves much to be desired. Our files are replete with reports to the effect that this or that development has only "minor or no effect on wildlife." Wildlife to us has been big game, upland game, and waterfowl!

It is strange that no one has challenged us on our definition of wildlife, for indeed, few of us can coin a suitable definition or even speak intelligently of wildlife. Perhaps what is needed now is such definition and a rededication of purpose. Such wording is buried in the United States Code Annotated, Title 18 and occasionally appears in court. It reads "Wildlife comprises wild animals, wild birds, fish (including mollusks and crustaceans), and all other classes of wild creatures whatsoever, and all types of aquatic and land vegetation upon which such wildlife resources are dependent." More simply, it is all wild vertebrates and their plant and animal associates; and so what we are talking about is the whole ball of wax--the ecosystem. Obviously, managers must become wildlife ecologists if we are to maintain the diversity of wildlife we enjoy today.

CALIFORNIA'S NONGAME PROGRAM

Department's recognition of the needs of nongame has been long recognized. The Fish and Game Code, Title 14, and the California Fish and Wildlife Plan is evidence of this. However, it wasn't until Ben Glading, former Chief of the Wildlife Management Branch, put this concern to test and proposed a nongame program under Pittman-Robertson did nongame find a place in wildlife management. California became one of two States to set up such a program financed with Wildlife Restoration funds.

Special Wildlife Investigations

Initiated on July 1, 1968, Special Wildlife Investigations was staffed with a Wildlife Management Supervisor and an Associate Wildlife-Manager Biologist, provided with $56,400 and put to work. Funding since then has been $84,800 and $82,000. Program objectives are those of the Department:

1. To maintain all species of fish and wildlife for their intrinsic and ecological values as well as for their direct benefits to man.

2. To provide for diversified recreational use of fish and wildlife.

3. To provide for an economic contribution of fish and wildlife in the best interests of the people of the State.

4. To provide for scientific and educational use of fish and wildlife.

Table 2. California's fully protected birds, mammals, reptiles, amphibians, and fish - January 1971.

BIRDS

American peregrine falcon (Falco peregrinus anatum)
California black rail (Laterallus jamaicensis coturniculus)
California clapper rail (Rallus longirostris obsoletus)
California condor (Gymnogyps californianus)
California least tern (Sterna albifrons browni)
Greater sandhill crane (Grus canadensis tabida)
Light-footed clapper rail (Rallus longirostris levipes)
Southern bald eagle (Haliaeetus leucocephalus leucocephalus)
Trumpter swan (Cygnus buccinator)
White-tailed kite (Elanus leucurus)
Yuma clapper rail (Rallus longirostris yumanensis)

MAMMALS

Morro Bay kangaroo rat (Dipodomys heermanni morroensis)
Bighorn sheep (Ovis canadensis)
Northern elephant seal (Mirounga angustirostrsis)
Guadalupe fur seal (Arctocephalus townsendi)
Ring-tailed cat (Genus bassariscus)
Pacific right whale (Eubalaena sieboldi)
Salt marsh harvest mouse (Reithrodontomys raviventris)
Southern sea otter (Enhydra lutris nereis)
Wolverine (Gulo luscus)

REPTILES AND AMPHIBIANS

Blunt-nosed leopard lizard (Crotaphytus wislizenii silus)
San Francisco garter snake (Thamnophis sirtalis tetrataenia)
Santa Cruz long-toed salamander (Ambystoma macrodactylum croceum)
Limestone salamander (Hydromantes brunus)
Black toad (Bufo boreas exsul)

FISH

Colorado River squawfish (Ptychocheilys lucius)
Thicktail chub (Gila crassicauda)
Mohave chub (Gila mohavensis)
Lost River sucker (Catostomus luxatus)
Modoc sucker (Catostomus microps)
Shortnose sucker (Chasmistes brevirostris)
Humpback sucker (Xyrauchen texanus)
Owens River pupfish (Cyprinoden radiosus)
Unarmored threespine stickleback (Gasterosteus aculeatus williamsoni)
Rough scuplin (Cottus asperrimus)

Project goals are essentially (1) determine the current status of California's threatened wildlife and develop programs for their preservation and enhancement and (2) become knowledgeable of nongame wildlife and put this knowledge to work to assure these resources do not become threatened.

The question of the propriety of such action, i.e. the expenditure of sportsmen license fees and tax on guns and ammunition for research and management of nongame wildlife has been challenged by a few critical of the way the Department spends money. This has not been the case with the majority of sportsmen who have surprisingly strong attachment for wildlife diversity. For who spends more time bird watching then an ardent duck hunter. The California Wildlife Federation and the National Wildlife Federation have given unequivical support to the program. This may be because the Federation has reached its prominance as one of the nation's leading conservation organizations because of its expressed concern for all wildlife. Needless to say, the non-hunting public is beginning to feel its concern is being considered more and more by the sportsmen and by a Department which is not all fishing and hunting oriented.

As we game managers become more involved with and knowledgeable about nongame wildlife, this knowledge will reach the public. I feel certain that in time an informed hunting and nonhunting public will become more tolerant and respective of one and another and collectively support the preservation and management of wildlife resources common to both.

Some of you may not agree with this philosophy and feel we have noaauthority to do nongame research and management. Let me bring to your attention that under the laws and rules and regulations established by the Legislature and the Fish and Game Commission the Department of Fish and Game is directly responsible for management of the State's fish and wildlife, including both game and nongame wildlife. No other Department of State government is given this responsibility; however, we do share this responsibility with the Federal government. The Fish and Game Code is explicit:

> "Section 1600. The protection and conservation of the fish and wildlife resources of this state are hereby declared to be of utmost public interest. Fish and wildlife are the property and provide a major contribution to the economy of this state as well as providing a significant part of the people's food supply and therefore their conservation is a proper responsibility of the state."
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> "Section 1000. The Department shall expend such funds as may be necessary for biological research and field investigation for the collection and diffusion of such statistics and information as shall pertain to the conservation, propagation, protection, and perpetuation of birds and the nests and eggs thereof, and of mammals and fish."
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> "Section 1580. For the purpose of protecting rare or endangered wildlife or aquatic organisms or specialized habitat type both terrestrial and aquatic, the Department, with the approval of the Commission, may obtain by purchase, lease, gift, or otherwise land and water for the purpose of establishing ecological reserves. Such ecological reserves shall not be classified as wildlife management areas pursuant to Section 1504 and shall be exempt from the provisions of Section 1504."

PROGRAM ACCOMPLISHMENTS

Table 3 is a summary of Special Wildlife Investigations program and its accomplishments over the three years it has been in operation. Of the 20 research projects or "jobs" undertaken, 7 have been completed, 9 are currently under study, and 4 are on-going programs. Our primary thrust is short term studies directed towards resource inventory rather than academic research. Our goal is to determine the current status of California's threatened resources, provide continued surveillance, and develop programs to protect and conserve these resources. One reason for our accomplishments to date is that much of this work is accomplished by highly qualified graduate students; a considerable portion of our budget is in seasonal aid and contractural funds. We are able to go to the colleges and universities and say if you will find graduate students who will work on

Table 3. Special wildlife investigations program and accomplishments 1968-1970.

Study	Completed	Under Study	On Going	Output
Peregrine Falcon Nesting Study	X			Herman, S. (1970) The peregrine falcon--a vanishing Californian. Outdoor Calif. Jan-Feb. 1970. Herman, et al (1970) The peregrine falcon decline in California. Aud. Field Notes Vol. 24, No. 4, 1970. Job Completion Report, 1970.
Seabird Breeding Ground Survey	X			Osborne T. and J. R. Reynolds (1971) California seabird breeding ground survey 1969-70. WMB Adm. Rpt. 71-3. Osborne T. (1971) Survey of bird use of coastal rocks of northern California. WMB Adm. Rpt. 71-4. Job Completion Report, 1971.
Humboldt Bay Mud Flat Study	X			Job Completion Report - 1971.
Coastal Wetland Survey	X			Mudie, P. (1969) A survey of the coastal wetland vegetation of north San Diego Co. WMB Adm. Rpt. 70-4. Job Progress Reports 1969-69.
White-tailed Kite Study	X			Waian, L. B. and R. C. Stendel (1970) The White-tailed kite in California with observations of the Santa Barbara population. Vol. 56, No. 3. Job Completion Rept. 1970.
California Brown Pelican Study	X			Gress, F. (1970) Reproductive status of the California brown pelican in 1970 with notes on breeding biology and natural history. WMB Adm. Rpt. 70-6 1970. Job Completion Rept. 1970.
Island Fox Study	X			Job Completion Rpt. - 1970.
California Condor Study			X	Sibley, F. C. (1969) California Condor Surveys 1968. CFG Vol. 55, No. 4. Mallette R. D. (1970) California Condor Surveys 1969. CFG Vol. 55, No. 4. Job Progress Repts. 1968, 1969, 1970 California Condor Survey. Operational Management Plan for California Condor 1970.
Statewide Heron Rookery Study				Job Progress Rpts. 1968, 1969, 1970.
Raptor Survey				Job Progress Rpts. 1968, 1969, 1970.
San Joaquin Kit Fox Study		X		Laughrin, L. (1970) San Joaquin kit fox, its distribution and abundance. WMB Adm. Rpt. 70-2. Job Progress Rpts. 1969, 1970.

Statewide Shorebird Survey			Job Progress Rpts. 1968, 1969, 1970. California Shorebird Survey 1969-70. DFG 1971.
Shorebird Research			Job Progress Rpts. 1968, 1969, 1970.
Prairie Falcon Nesting Study	X		
Lake Earl Wildlife Evaluation	X		
Anaheim Bay Estuary Study	X		
South San Francisco Bay Habitat Evaluation	X		
California Least Tern Study	X		
Assess Nongame Problems		X	Progress report on wildlife affected by the Santa Barbara Channel Oil Spill--Jan. 28-Mar. 31, 1969. DFG Second Progress Rpt on wildlife affected by the Santa Barbara oil spill, Apr. 1 - May 31, 1969. Leach, H. R. and L. Fisk (1969) The Gopher Tortoise. Inland Fisheries Inf. Leafl. No. 26.

problems of immediate concern to us, we will provide funds to assist these students in conducting the field research needed for their advanced degree. We either employ them on a limited term basis or contract for their services to conduct the work. These students are extremely appreciative of this financial assistance and opportunity to contribute to their findings. In addition, they are responsive to our program needs and the demands we place on them.

In conclusion, we better get wired into the environmental issue of the day or someone else will take our place. The recent report of the Research Committee of the International Association of Game, Fish and Conservation Commissioners made these salient comments:

> "Our number one research priority is to understand the mechanisms of environmental deterioration so that we can act to halt that deterioration before it is too late...in wildlife and fisheries research we have over-studied some problems in a way that is wasteful of scarce research resources...it is no longer satisfactory to do research on how to improve the numbers of one species in the environment without considering the impact on others."

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