

ENVIRONMENTAL ASSESSMENT
WILDLIFE DAMAGE MANAGEMENT
FOR THE PROTECTION OF LIVESTOCK, PROPERTY
AND HUMAN HEALTH AND SAFETY
IN THE CALIFORNIA ADC SOUTH AND SAN LUIS DISTRICTS

U.S. Department of Agriculture
Animal and Plant Health Inspection Service

Animal Damage Control

California

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I. PURPOSE AND NEED FOR THE PROPOSED ACTION

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Animal Damage Control (ADC) program has received requests in the past, and is currently receiving requests, to conduct wildlife damage management in various counties in ADC's South and San Luis Districts. The Districts are made up of the following 16 counties: Imperial, Kern, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Francisco, San Luis Obispo, San Mateo, San Diego, Santa Barbara, Santa Clara, Santa Cruz and Ventura. Cooperative agreements (active and inactive) are in place on approximately 2,388,457 acres or in about 5.8% of the District's total acreage. During fiscal year (FY) 1995, ADC conducted predator damage management activities on 4.3% of the total acreage within these counties. The ADC Program typically does not conduct activities each year or throughout the year on properties under agreement.

The purpose of predator damage control activities is to reduce or alleviate damage to livestock, primarily sheep, cattle and poultry; threats to human health and safety; and damage to property. This is done by controlling the behavior and/or number of individuals or local populations of predatory animals. This environmental assessment (EA) examined potential impacts of the ADC program as it involves these resource conflicts with predatory animals (coyotes, bobcats, red foxes, gray foxes, black bears, mountain lions, and feral/free ranging dogs) and potentially with non-target animals. The ADC program conducts wildlife damage management on localized tracts of private land on a temporary basis, and on Federal and state lands through work plans or cooperative agreements. None of the proposed activities would result in habitat modification. Normally, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual predator damage control actions are categorically excluded (7 C.F.R. 372.5(c), 60 Fed. Reg. 6,000, 6,003 (1995)). This EA is prepared to evaluate and determine if there may be any potentially significant or cumulative impacts that may occur as a result of ADC activities.

ADC is the Federal agency authorized and directed to resolve conflicts from animals preying on livestock and wildlife, and for handling animal damage on property and for threats to human health and safety. ADC's authority comes from the Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988. The analysis in this EA relies heavily on existing data contained in published documents, primarily the USDA-APHIS-ADC programmatic Environmental Impact Statement (ADC EIS) to which this environmental assessment (EA) is tiered, and the Final Environmental Document, Sections 265, 460-467, and 472-480, Title 14, California Code of Regulations Regarding: Furbearing and Nongame Mammal Hunting and Trapping (1996) prepared by the State of California, Resources Agency, Department of Fish and Game in compliance with the California Environmental Quality Act (CDFG 1996).

The California Agricultural Commissioners Data (1995) reports that in the South and San Luis Districts, total sheep and lamb production was valued at \$26,102,400 in 1994. Total cattle and calf production was valued at \$476,450,500 in the same year. Livestock lost to predation, according to available USDA-APHIS-ADC Management Information System (MIS) data (1993) for the Districts totaled 274 animals (cattle, calves, sheep, lambs, goats, ducks, geese, horses, poultry). Table 1 shows the numbers of each livestock species lost to predator species and the value of the livestock lost. The value of reported livestock lost to predation in the Districts in 1993 was \$94,753. It can be expected that these figures would be similar for the years 1994, 1995 and 1996 (MIS 1993).

Table 1. Reported Livestock Losses to Predators in the ADC South and San Luis District, 1993 ¹									
	Predation Sources								
Livestock Lost	Coyotes	Mountain Lion	Bear	Gray Fox	Bobcat	Other ²	Total # Lost	Total Value (\$)	
Cattle	8	1	1	-	-	-	10	7300	
Calves	74	4	2	-	-	-	80	48320	
Sheep	23	3	-	-	-	-	26	6820	
Lambs	74	1	-	-	1	1	77	23260	
Goats	3	4	-	-	-	2	9	4295	
Poultry	13	2	-	1	7	20	43	2533	
Ducks/Geese	10	-	-	1	5	3	19	1725	
Horses	5	-	-	-	-	-	5	200	
Other ³	3	-	-	-	-	2	5	300	
TOTAL	213	15	3	2	13	28	274	94753	

From MIS 1993

¹Reported losses are determined from cooperator surveys and civil agreements.

²Other predator species include opossum, red fox, raccoons, and striped skunks.

³Other livestock resources include domestic pigeons, domestic rabbits, and other specialty or exotic livestock.

Connolly (1992) determined that only a fraction of the total predation attributable to coyotes is reported to or confirmed by ADC. He also stated that based on scientific studies and recent livestock loss surveys from the National Agricultural Statistics Service (NASS), ADC only confirms about 19% of the total adult sheep and 23% of the lambs actually killed by predators. ADC Specialists do not attempt to locate every head of livestock reported by ranchers to be killed by predators, but rather to verify sufficient losses to determine that a problem exists that requires management action.

Statewide losses for sheep and lambs in 1994 included 5,750 head of sheep and 10,800 head of lambs lost to coyotes. Dogs took 925 head of sheep and 1,625 lambs. Also in 1994, 2,275 sheep and 1,850 lambs were lost to mountain lions, and 275 sheep and 325 lambs were lost to bears. Bobcats took 175 lambs, and other species (wild pigs, ravens etc.) accounted for the loss of 125 sheep and 175 lambs. The value of lambs and sheep lost to predators in 1994 was \$587,925 and \$794,750 respectively (NASS, 1995). In 1993 lambs were valued at \$61/head. In 1996 lambs prices increased substantially and would reflect a higher total value for similar losses.

Statewide losses for cattle and calves from predators in 1995 is reported as 1,500 head of cattle and 4,100 calves. Predators that caused these losses were coyotes, dogs, mountain lions, bobcats and others. Cattle lost to predators in 1995 were valued at \$1,235,000 and calves lost to predators were valued at \$1,025,000 (NASS, 1996).

Another important area of responsibility for the ADC Program is the protection of public health and safety. The program responds to health and safety requests in the areas of human/predator conflicts. These requests for assistance may come from cooperative agreements or a memorandum of understanding (MOU) with private land owners, county and city agencies, U.S. Fish and Wildlife Service (USFWS), California Department of Health Services (CDHS), or the California Department of Fish and Game (CDFG).

ADC responds to requests to alleviate property damage caused by predators. The types of requests vary with the species involved. Examples of predator induced property damage are a black bear destroying beehives, or breaking in and destroying the interior of a house, or coyotes causing damage to drip irrigation systems by biting holes in the pipe. In 1994 and 1995 ADC confirmed property damage valued at \$93,385 and \$91,100 respectively in the South and San Luis Districts.

The scope of this document is to address ADC activities necessary for controlling losses of livestock, property and threats to human health and safety from predators. This document does not address nuisance urban wildlife or damage to crops caused by wildlife.

II. ISSUES

The following predator control management issues (developed fully and assessed in the Programmatic ADC EIS and/or assessed in the CEQA document and/or in this EA) were identified as relevant to this analysis:

1. Effects on target species populations (coyotes, bobcats, red foxes, gray foxes, black bears, mountain lions, and feral/free ranging dogs.).
2. Effects on nontarget species populations, including threatened and endangered (T&E) species.
3. Humaneness of control techniques.
4. Effects on hunting and nonconsumptive uses.
5. Use of toxicants - impacts on public safety and environment.
6. Effectiveness of the ADC program.
7. Cost effectiveness.

Several issues were considered but rejected from detailed analysis from the alternatives since it was determined that the project would have little or no potential to impact these resources. They were:

- ◆ Air quality would not be significantly affected. The ADC EIS concluded that impacts on air quality from the methods used by the ADC program are considered negligible.
- ◆ Water quality would not be affected. This proposal does not include construction or discharge of pollutants into waterways and therefore would not require compliance with water quality related regulations or Executive Orders.
- ◆ Soils and vegetation would not be affected since this proposal would not involve any significant ground disturbance.
- ◆ This project would not have a significant impact on cultural resources. Correspondence between ADC and the California Department of Parks and Recreation, Office of Historic Preservation is included in Appendix 6.
- ◆ This project would not have a significant impact on Wilderness Areas (WA). ADC currently does not propose animal damage control work activities on any special management areas in the District. Animal damage control activities are not precluded in

special management areas. If ADC were to receive a request to respond to a human health and safety incident, or to a livestock depredation incident, ADC would first consult with the appropriate land management agency to ensure conformance with all applicable regulations and land management plans, and to ensure that control actions would not conflict with land uses or values. Any control work that might be conducted would be extremely limited in scope.

III. ALTERNATIVES

The ADC program alternatives must be programmatic. They must encompass the Districts needs for wildlife damage control. These needs differ requiring the ADC program to be diverse and dynamic. The program under any alternative should be adaptable to the varying situations and needs encountered. Tables 2 and 3 compare the methods that would be used in each alternative. Reference these tables for all the alternatives addressed in this EA. Refer to Appendix 1 for detailed descriptions of each method.

Of the 13 alternative courses of action developed in the ADC EIS, the following are relevant to the District Program and were considered in this process:

A. Current Program and "No Action" Alternative

The "No Action" alternative is a procedural NEPA requirement (40 CFR 1502.14(d)), and is a viable and reasonable alternative that could be selected. It will serve as a baseline for comparison with the other alternatives. The No Action alternative is consistent with the Council of Environmental Quality's (CEQ) definition. No Action, in this case, is no change from the current program.

This alternative is the integrated wildlife damage management approach alternative and is analyzed and discussed in the ADC EIS. It is composed of a variety of methods that are implemented based on the ADC Decision Model listed below.

ADC Decision Making Process

The ADC EIS describes the procedures used by ADC personnel to determine management strategies or methods applied to specific damage problems (USDA 1994 pp. 2-13, 2-20 to 31 and Appendix N).

As depicted in the Decision Model (Figure 1), consideration is given to the following factors before selecting or recommending control methods and techniques:

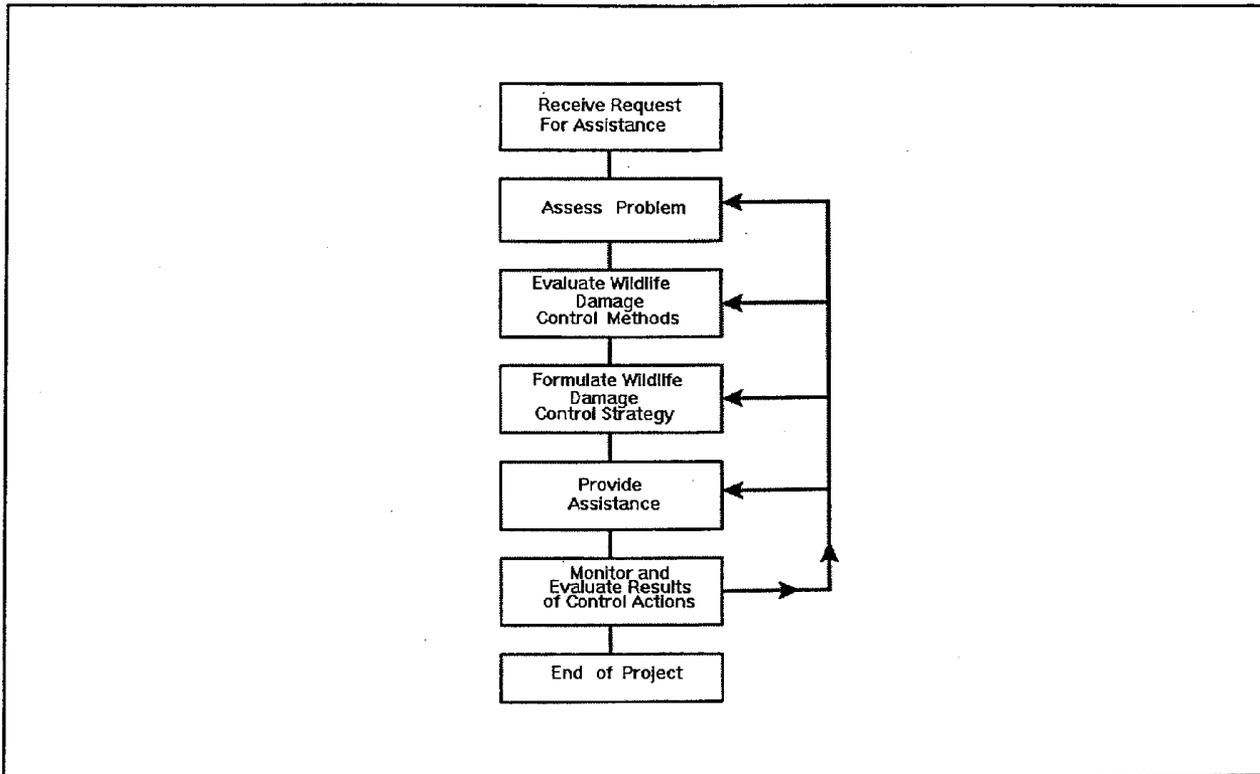
- Species responsible for damage
- Magnitude, geographic extent, frequency, and duration of the problem

- Status of target and nontarget species, including T&E species
- Local environmental conditions
- Potential biological, physical, economic, and social impacts
- Potential legal restrictions
- Costs of control options (the cost of control may sometimes be a secondary concern because of overriding environmental and legal considerations)

The ADC decision making process is a standardized procedure for evaluating and responding to damage complaints. ADC personnel frequently are contacted only after requesters have tried nonlethal techniques and found them to be inadequate for reducing damage to an acceptable level. ADC personnel evaluate the appropriateness of strategies, and methods are evaluated in the context of their availability (legal and administrative) and suitability based on biological, economic and social considerations. Following this evaluation, the methods deemed to be practical for the situation are formed into a management strategy. After the management strategy has been implemented, monitoring is conducted and evaluation continues to assess the effectiveness of the strategy. If the strategy is effective, the need for management is ended. The ADC EIS provides detailed examples of how the ADC Decision Model is implemented for coyote predation to sheep on public and private lands.

On most ranches, predator damage may occur whenever vulnerable livestock are present, because no cost-effective method or combination of methods that permanently stops or prevents coyote predation are available. When damage continues intermittently over time, the ADC Specialist and rancher monitor and reevaluate the situation frequently. If one method or combination of methods fails to stop damage, a different strategy is implemented.

Figure 1
APHIS ADC Decision Model - Field Level



In terms of the ADC Decision Model, most damage management efforts consist of a continuous feedback loop between receiving the request and monitoring the results with the control strategy reevaluated and revised periodically.

Under the current program, ADC receives requests for assistance from and/or enters into Cooperative Agreements with private landowners, livestock managers, cooperating counties, the Bureau of Land Management (BLM), U.S. Forest Service (USFS), USFWS Refuges, California Department of Food and Agriculture (CDFA), CDHS, and the CDFG.

ADC has a signed Memoranda of Understanding with the BLM, USFS, CDFG and CDHS to provide wildlife damage management service upon request. Usually requests for control work on BLM and USFS land come from the livestock permittees. Occasionally, the land management agency will request ADC assistance with problem bears destroying property or for public safety concerns dealing with bears and lions. Currently ADC is not conducting livestock protection activities on any federal lands.

If ADC received a request from a permittee on federal lands for ongoing livestock protection, ADC would coordinate with the land management agency to ensure its activities would not

conflict with any established land use plans. All anticipated ADC activities on USFS and BLM lands would be outlined in ADC work plans for each Forest and Resource Area. Annual coordination meetings would be held between the ADC and personnel from the land management agencies to discuss accomplishments, issues of concern and any anticipated changes in proposed work plans.

Currently, ADC South and San Luis Districts conduct control activities on USFS, BLM, and State lands⁴ for the protection of human health and safety from mountain lions and black bears, on a case by case basis. Work is initiated after the CDFG issues a depredation permit and the appropriate agency personnel are notified. In addition ADC may receive assistance in other non-private land categories.

The methods used or proposed in the current program include technical assistance/direct control such as: animal husbandry, fencing, frightening devices, hunting, M-44's, Livestock Protection Collar's (LPC), gas cartridges, and hunting dogs. Refer to Appendix 1 for detailed descriptions of each method.

B. No Federal ADC Predator Damage Management Alternative

This alternative consists of no ADC program. Under this alternative, wildlife damage conflicts would be handled by private resource owners and managers, private contractors, and/or other government agencies. This alternative is discussed in detail in the ADC EIS.

C. Nonlethal Control Only Alternative

This alternative would allow ADC to provide technical information on nonlethal control such as guard dogs, frightening devices, chemical repellents, harassment, fencing, exclusion, animal husbandry, modification of human behavior, and habitat modification (see Appendix 1). Information and training on lethal control methods would not be provided by ADC.

No lethal predator damage control activities by ADC would be authorized except when emergency control is necessary for public safety.

D. Compensation for Predator Damage Loss Alternative

The compensation alternative would require the establishment of a system to reimburse producers for predator losses. This alternative is analyzed and discussed in the ADC EIS.

⁴Occasionally ADC responds to depredation requests on adjacent properties which can result in control work being done on these resource areas.

E. Nonlethal Before Lethal Alternative

This alternative would require that: 1) permittees or landowners show evidence of sustained and ongoing use of nonlethal/husbandry techniques aimed at preventing or reducing predation prior to receiving the services of the ADC Program; 2) employees of the ADC Program use or recommend as a priority the use of appropriate nonlethal techniques in response to a confirmed damage situation; and 3) lethal techniques would only be used when the use of husbandry and/or nonlethal controls have failed to keep livestock losses below an acceptable level. This alternative is analyzed and discussed in the ADC EIS.

F. Expanded Program Alternative

An expanded alternative would be contingent upon increased program funding from cooperators and Federal sources, and would increase staffing substantially over the current level. This alternative is similar to Alternative A, but would increase damage control efforts of the current program District wide. Preventative control is an alternative means used to reduce or eliminate damage before it occurs. Preventative control consists of a range of wildlife damage management techniques, including both lethal and non-lethal methods. Both lethal and nonlethal methods and corrective and preventative management strategies would be allowed, while adhering to applicable state and federal laws and regulations. Preventative damage control efforts would be increased especially in areas where losses to predators have historically occurred or an imminent threat of current losses would occur if livestock were present. Coordination requirements with federal land management agencies would be the same as described in Alternative A.

ADC would provide livestock owners with assistance and information concerning the use and effectiveness of nonlethal predator damage control methods and devices. ADC would employ nonlethal predator damage control methods whenever practical, and would recommend such control methods to livestock producers.

G. Summary of Alternatives

Table 2 contains a summary of the predator damage management methods which could be used under each of the alternatives. Table 3 indicates which management methods would be allowed to be used on the various land classes throughout the District.

Table 2. Summary of the Predator Damage Management methods which could be authorized for each Alternative							
Management Method	Alternative A* Current Program	Alternative B No Program ³	Alternative C Nonlethal	Alternative D Compensation	Alternative E Nonlethal/Lethal	Alternative F* Expanded Program	
Nonlethal	Yes	No	Yes	Yes	Yes	Yes	
Lethal	Yes	No	No	No	Yes	Yes	
M-44s	Yes	No	No	No	Yes	Yes	
Traps	Yes	No	No	No	Yes	Yes	
Neck Snares	Yes	No	No	No	Yes	Yes	
Foot Snares	Yes	No	No	No	Yes	Yes	
Denning	Yes	No	No	No	Yes	Yes	
Aerial Hunting	Yes	No	No	No	Yes	Yes	
Dogs	Yes	No	Yes	No	Yes	Yes	
Calling/ Shooting	Yes	No	No	No	Yes	Yes	
Preventative	Yes	No	No	No	No	Yes	
Livestock Collar	Yes	No	No	No	Yes	Yes	

* Alternatives A and F would both allow for the use of all management methods. The differences are in the geographic scope of the program.

³Except for M-44's and LPC, these methods could be used by private individuals or their agents.

Table 3. Possible Predator Damage Control Methods by Land Jurisdiction

Management Method	Private	State	Bureau Land Management	BLM WSA's ⁶	Forest Service	Forest Service Wilderness	County and City Lands	Other Federal Land
Nonlethal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lethal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
M-44s	Yes	No	Yes	Yes	Yes ⁷	No	No	No
Traps	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Neck Snares	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Foot Snares	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Denning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aerial Hunting	Yes	Yes ⁸	Yes	Yes	Yes	No	No	Yes
Dogs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calling/Shooting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preventative	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Livestock Collar	Yes	No	No	No	No	No	No	No

⁶Activities subject to BLM Interim Management Policy for Lands Under Wilderness Review.

⁷Could be used after approval of Pesticide Use Proposal (PUP) by land managing agency. Currently and historically, ADC has used no M-44's on public lands.

⁸If in compliance and approved by State Agency

IV. MITIGATION

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result from that action. The current ADC program, nationwide and in California, uses many such mitigation measures and these are discussed in detail in Chapter 5 of the ADC EIS. The key mitigating measures incorporated into all alternatives except Alternative B and considered ADC Standard Operating Procedures (SOP) include:

A. Mitigation in Standard Operating Procedures (SOPs)

- ◆ Traps and snares are not set within 30 feet of exposed carcasses to prevent the capture of scavenging birds. The exception to this is for the capture of black bear because the weight of these target animals allows trap tension adjustments to exclude the capture of smaller nontarget animals.
- ◆ Leghold trap pan tension devices are used throughout the program to reduce capture of nontarget wildlife.
- ◆ Nontarget animals captured in leghold traps or foot snares are released at site of capture unless it is determined by the ADC Specialists that they will not survive.
- ◆ Conspicuous, bilingual warning signs alerting people to the presence of traps, snares, livestock protection collars and M-44's are placed at major access points when they are set in the field.
- ◆ Environmental Protection Agency (EPA) approved label directions are followed for all pesticide use.
- ◆ All District ADC Specialists who use restricted chemicals and immobilization /euthanasia drugs are trained and certified by program personnel or other experts in the safe and effective use of these materials.
- ◆ The M-44 sodium cyanide devices are used following EPA label requirements (see ADC EIS Appendix Q for label and use restrictions).
- ◆ Research continues to improve the selectivity and humaneness of management devices.
- ◆ Padded traps are used in the San Joaquin kit fox range within the Districts as per CDFG regulations and ADC policy.

- ◆ Breakaway snares are being developed and implemented into the program. Breakaway snares are snares designed to break open and release with tension exerted by larger nontarget animals such as deer, antelope and livestock.
- ◆ Traps are inspected daily throughout California per CDFG regulations and ADC policy.
- ◆ Chemical immobilization/euthanasia procedures that do not cause pain are used.
- ◆ All pesticides are registered with the Environmental Protection Agency (USEPA) and California Environmental Protection Agency (Cal EPA). Label directions are followed by ADC employees. The ADC Decision Model is designed to identify effective wildlife damage management strategies and their impacts.
- ◆ ADC employees that use pesticides are trained to use each specific material and are certified for the use of pesticides under USEPA and Cal EPA approved programs.
- ◆ ADC employees who use pesticides participate in continuing education programs to keep abreast of developments and to maintain their certifications.
- ◆ ADC consulted with the USFWS regarding the nationwide program and has implemented all reasonable and prudent alternatives to protect T&E species. ADC has adopted all reasonable and prudent alternatives applicable to the program (see USFWS BO 1992).
- ◆ ADC has conducted site specific informal consultation with the USFWS for the Districts programs (see Appendix 3).
- ◆ ADC has consulted with the California State Historic Preservation Office (May 20, 1996) and has determined that the program is not likely to affect historic properties or archeological sites (see Appendix 5).
- ◆ Currently, ADC does not work on tribal lands. If ADC receives requests for assistance on tribal lands, it would consult with the tribal leadership in order to identify and resolve any issues of concern to the tribes.

B. ADC South and San Luis Districts Specific Mitigation Measures

- ◆ ADC Work Plans and maps would be developed which delineate the areas where and when wildlife damage management would occur and the methods that would be used on Federal lands.
- ◆ Management actions are directed toward localized populations or groups and/or individual offending animals, dependent on the species and magnitude of the problem.

- ◆ The use of traps and snares conform to current rules and regulations administered by CDFG.
- ◆ Decisions to relocate or kill problem bear and mountain lions are made by the CDFG.
- ◆ M-44s are not used on Federal lands without coordination with the BLM and Forest Service. Historically, the ADC South and San Luis District program has not used M-44s on public lands.
- ◆ No wildlife damage management is conducted within public safety zones (one-quarter mile or appropriate buffer zone around any residence, community, state or federal highway, or developed recreation site), except to protect human health and safety.

C. Additional Mitigation to avoid Cumulative Impacts

- ◆ District activities are directed towards resolving problems by taking action against individual problem animals, or local populations.
- ◆ ADC take is monitored by considering total animals removed and estimated population numbers of key species. These data are used to assess cumulative effects so as to maintain the magnitude of harvest below the level that would impact the viability of a population (see Section V.).

D. Activities in Wilderness, Wilderness Study Areas, and other Special Management Areas, (BLM and National Forests)

- ◆ ADC does not conduct animal damage control activities in National Parks except for protecting human health and safety or for research purposes as requested by the National Park Service (NPS) or CDFG.
- ◆ Wildlife damage management will be conducted only when and where a need exists.
- ◆ Vehicle access will be limited to existing roads.
- ◆ Wildlife damage management is conducted according to agreements specified in the Memoranda of Understanding between cooperating agencies, and as specified in Land and Resource Management Plans.
- ◆ Wildlife damage management is conducted in cooperation with the land management agency.
- ◆ Wildlife damage management follows guidelines as specified in the ADC Work Plan, developed in cooperation with the land management agency.

- ◆ Should any of BLM's existing Wilderness Study Areas (WSA) be officially designated as Wilderness Areas in the future, wildlife damage management would be performed in accordance with BLM Wilderness Management Policy (BLM 1981) and the enacting legislation.
- ◆ If it is necessary to work in areas outside the planned area the area manager or his/her representative will be contacted.
- ◆ In WSAs, ADC work is limited to actions allowed in BLM's Interim Management Policy for Lands Under Wilderness Review (H-8550-1, III. G. 5.) which states:

Animal damage control activities may be permitted as long as the activity is directed at a single offending animal, it will not diminish wilderness values of the WSA, and it will not jeopardize the continued presence of other animals of the same species or any other species specifically authorized by provisions of State law and upon the approval of the BLM State Director.

E. Coordination with other Agencies

- ◆ The ADC program in the District consults with the USFWS, Federal land management agencies, and other appropriate agencies regarding program impacts. Frequent contact is made with the BLM and the USFWS when ADC is conducting wildlife damage management on public lands administered by these agencies. The BLM and USFWS are interested in the levels of livestock killed, injured and harassed by predators and the wildlife damage management methods used to stop or limit losses. The ADC program maintains close coordination with the CDFG and CDFA which have authority to manage wildlife species causing damage.
- ◆ Actions are consistent with ADC mitigation and guidance established from USFS Land and Resource Management Plans (LRMP) and Bureau of Land Management Resource Management Plans (RMP) and Interim Management Guidelines for WSA's.
- ◆ The ADC program in the South and San Luis Districts are conducted under Cooperative Agreements and MOUs with Federal and state agencies. National MOUs with the BLM and USFWS delineate expectations for wildlife damage management on public lands administered by these agencies. ADC work plans are developed with BLM offices and National Forests to detail the activity, target species, and mitigation measures to be implemented on allotments where wildlife damage management is needed.

V. ENVIRONMENTAL CONSEQUENCES

The environmental consequences of each alternative are discussed below with emphasis on the issues relevant to each.

A. The Current Program Alternative

The methods that would be used under the current program are the same as those that have been used in recent years in the Districts, but would also include the livestock protection collar (LPC, compound 1080, or sodium fluoroacetate). The methods include padded jaw leghold traps, aerial hunting, M-44's (sodium cyanide capsule), shooting, calling/shooting, neck snares, leghold traps, denning (gas cartridge). All methods used in the Districts are described in Appendix 1, and are fully assessed in the ADC EIS (Chapter 4, Environmental Consequences and Appendix P, Risk Assessment). Shooting and trapping methods are further assessed in the 1996 environmental document required by CEQA (CDFG 1996).

The LPC was approved for use May 4, 1990 by the U.S. Environmental Protection Agency (USEPA) and is currently registered for use under an APHIS registration in California, Utah, Virginia, and West Virginia, and registered under individual State registrations in the following states: Texas, New Mexico, Wyoming, Montana and South Dakota. On February 27, 1996 the Cal EPA approved the LPC for use in California. The California ADC Specialists using the LPC would first be trained and certified by USDA personnel, in a course approved by Cal EPA. As with all pesticides, ADC would follow all label instructions. The LPC is fully assessed in the ADC EIS. Appendix 1 contains a description of the LPC. No significant impacts would result from the use of the LPC in the ADC program in Alternative A.

A. 1. Effects on Target Species

Coyote (*Canis latrans*) - Under the current program, the removal of depredating coyotes from the Districts would likely be similar to numbers taken in recent years. In 1994 and 1995, a total of 2,057 and 2,315 coyotes were removed, respectively (USDA 1995 and 1994). Most of the coyotes taken were from privately owned land. The resources protected in order of confirmed⁹ economic loss included livestock (lambs, calves, ewes and other livestock), and property (drip irrigation lines).

The coyote population numbers in the state are estimated to be between 227,818 and 1,139,092 after mortality (both from natural causes and by harvest) (CDFG 1996). This estimate includes a potential ADC take of 9,512 coyotes in the state of California. This number includes

⁹ Confirmed losses are those that are verified in the field by an ADC Specialist to substantiate that assistance is needed. Confirmed losses are only a fraction of total loss. According to a 1989 survey of producers by National Agriculture Statistics Survey less than 2 % of wildlife caused losses in the United States are reported to APHIS-ADC (USDA 1994).

an additional 30% to account for counties for which ADC currently does not provide assistance (CDFG 1996). Both the ADC EIS and the CEQA document conclude that the impact of the ADC program is not expected to have a significant cumulative impact on the coyote population.

Table 4 shows coyote population dynamics in the Districts and ADC take compared to the total mortality in the Districts. More detailed coyote population information can be found in Appendix 2. Population densities vary throughout the Districts and are reflected in the high and low estimates. The (low) density (conservative) estimates were used in determining program impacts.

Red fox (*Vulpes vulpes*) - During 1994 and 1995, ADC removed a total of 28 red fox from the Districts. The numbers of red fox removed are typically this low and are negligible in terms of environmental impact. The red fox removed are not the Sierra Nevada red fox found above 4,000 feet in the Sierra Nevada range. The fox removed are the non-native red fox found in the Coastal region of the Districts (CDFG 1993).

Mountain Lion (*Felis concolor*) - The CDFG manages the mountain lion and issues depredation permits, as per CDFG Code section 4800 - 4809. ADC responds to requests from permit holders or CDFG, to evaluate and resolve lion conflicts, when necessary. ADC removed 5 and 12 lions, respectively in 1994 and 1995. ADC handles mountain lion removal (lethal/nonlethal) on a case-by-case basis, responding only to requests or depredation permits issued by the CDFG. This type of activity is categorically excluded under APHIS - ADC NEPA Implementing Procedures and will not be assessed further.

Black bear (*Ursus americanus*) - ADC receives occasional calls from individuals and CDFG to remove bears from preying on livestock (sheep, cattle, goats, and pigs), causing property damage (bee hives) and threatening human health and safety. ADC removed 4 and 2 black bears in 1994 and 1995, respectively. Like the mountain lion, the bear is managed and permitted for take by the CDFG, is categorically excluded under APHIS-ADC NEPA Implementing Procedures, and will not be assessed further.

Bobcat (*Felis rufus*) - During 1994 and 1995, ADC removed 8 and 14 bobcats, respectively. ADC occasionally responds to requests to resolve bobcat depredation on lambs, kid goats, poultry and pets. ADC program impacts on bobcat in the Districts and bobcat population numbers are shown below in Table 4. More detailed bobcat population information can be found in Appendix 2. ADC take of bobcat accounts for 0.03 % of the lowest total estimated population. This is not a significant impact.

Gray fox (*Urocyon cinereoargenteus*) - ADC responds to requests to resolve conflicts with gray fox when the fox prey on small animals such as pets, rabbits, and poultry. ADC also removes foxes that are a potential human health and safety threat. Gray fox conflicts often occur in residential areas, especially in semi-urban areas. During 1994 and 1995, ADC took 7 and 8 gray fox, respectively. These numbers include all target and non-target gray foxes taken. Table

4 shows gray fox population data and ADC impacts on the population. ADC take accounts for approximately 0.007% of the lowest total estimated population. This is not a significant impact. More detailed gray fox population information can be found in Appendix 2.

Feral or Free Ranging Dogs - In 1994 and 1995 ADC took a total of 45 dogs in the Districts. Most often, ADC delivers offending dogs to the landowners who then attempt to locate the owners of the dogs (to recover losses), call the local animal control office, or kill the dog. ADC does not have a significant impact on feral dogs.

Any reductions in targeted local wildlife as a result of the proposed action would have no major adverse impacts on the species involved or on the species regional populations. Cumulative impacts are expected to be low.

Table 4. Predator Populations Data for the South and San Luis Districts.

Species	Mortality	Alternative A Current Program	Alternative B No Program	Alternative C Nonlethal	Alternative D Compensation	Alternative E Nonlethal/Lethal	Alternative F Expanded Program
Coyote	Population before mortality	160,256 (low) 801,283 (high)	160,256 (low) 801,283 (high)	160,256 (low) 801,283 (high)	160,256 (low) 801,283 (high)	160,256 (low) 801,283 (high)	160,256 (low) 801,283 (high)
	Sport hunting and trapping	22,292	22,292	22,292	22,292	22,292	22,292
	ADC take	2,186	0	0	0	2,186	2,842
	Percent of ADC Take	1.4 (low) .27 (high)	0	0	0	1.4 (low) .27 (high)	1.8 (low) .35 (high)
	Total Mortality	75,615 (low) 378,076 (high)	75,615 (low) 378,076 (high)	75,615 (low) 378,076 (high)	75,615 (low) 378,076 (high)	75,615 (low) 378,076 (high)	75,615 (low) 378,076 (high)
Bobcat	Population before mortality	39,263 (low) 45,314 (high)	39,263 (low) 45,314 (high)	39,263 (low) 45,314 (high)	39,263 (low) 45,314 (high)	39,263 (low) 45,314 (high)	39,263 (low) 45,314 (high)
	Sport hunting and trapping	1,349	1,349	1,349	1,349	1,349	1,349
	ADC take	10	0	0	0	10	13
	Percent of ADC Take	.03	0	0	0	.03	.03
	Total Mortality	12,059	12,059	12,059	12,059	12,059	12,059

Gray Fox	Population before mortality	104,857 (low) 318,768 (high)					
	Sport hunting and trapping	1,137	1,137	1,137	1,137	1,137	1,137
	ADC take	8	0	0	0	8	10
	Percent of ADC Take	.007	0	0	0	.007 (low)	.01 (low)
	Total Mortality	53,796	53,796	53,796	53,796	53,796	53,796

From (CDFG 1996) 1996 with adjustments for the South and San Luis Districts

The staff hours and species taken on the different land jurisdictions (Table 5) are for FY 95. The staff hours and species taken under Alternative A will be similar to the data in Table 5.

Table 5 summarizes ADC program efforts and target animals removed on different land classes. Program effort is shown in staff months and percent staff months of total.

Table 5. Work Activities and Effects on Land Jurisdictions in the South and San Luis Districts during FY 1995.							
Land Class	Private	State	Bureau of Land Management	BLM WSA's	Forest Service	County or City Lands	Other Federal Land
Staff / Months	48.8	1.05	0	0	0	.4	.6
%Staff months per land class	95.97	2.06	0	0	0	.79	1.18
Acreage	1,741,707	550	0	0	0	3,914	40,800
Coyote take	2261	21	0	0	0	10	23
Bear take	2	0	0	0	0	0	0
Mt. Lion take	12	0	0	0	0	0	0
Bobcat take	14	0	0	0	0	0	0
Gray Fox taken	8	0	0	0	0	0	0

* From MIS 1995

The summary in Table 5 shows that the vast majority of the program effort was aimed at livestock protection on private lands. Under the current program alternative ADC activities on Federal lands constituted 1.18% of total staff months, 0.79% staff months were expended on County and City lands, and 2.06% staff months were expended on State lands.

A. 2. Effects on Non-target Species Including Threatened and Endangered Species.

Federally listed species or critical habitat occurring in the project area are listed below:

BIRDS:

- Aleutian Canada goose (*Branta canadensis leucopareia*)
- American peregrine falcon (*Falco peregrinus anatum*)
- Arctic peregrine falcon (*Falco peregrinus tundrius*)
- bald eagle (*Haliaeetus leucocephalus*)

BIRDS (cont'd):

California brown pelican (*Pelecanus occidentalis californicus*)
California clapper rail (*Rallus longirostris obsoletus*)
California least tern (*Sterna antillarum* (= *albifrons*) *browni*)
California condor (*Gymnogyps californianus*)
coastal California gnatcatcher (*Podioptila californica californica*)
least Bell's vireo (*Vireo bellii pusillus*)
light-footed clapper rail (*Rallus longirostris levipes*)
marbled murrelet (*Brachyramphus marmoratus*)
mountain plover (*Charadrius montanus*)
peregrine falcon (*Falco peregrinus*)
southwestern willow flycatcher (*Empidonax trallii extimus*)
western snowy plover (*Charadrius alexandrinus nivosus*)
Yuma clapper rail (*Rallus longirostris yumanensis*)

MAMMALS:

giant kangaroo rat (*Dipodomys ingens*)
Guadalupe fur seal (*Arctocephalus townsendi*)
Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)
pacific pocket mouse (*Perognathus longimembris pacificus*)
peninsular bighorn sheep (*Ovis canadensis cremnobates*)
riparian brush rabbit (*Sylvilagus bachmani riparius*)
salt marsh harvest mouse (*Reithrodontomys raviventris*)
San Joaquin kit fox (*Vulpes macrotis mutica*)
San Joaquin Valley woodrat (*Neotoma fuscipes riparia*)
southern sea otter (*Enhydra lutris nereis*)
Steller (= northern) sea-lion (*Eumetopias jubatus*)
Stephens' kangaroo rat (*Dipodomys stephensi*) Includes *D. cascus*
Tipton's kangaroo rat (*Dipodomys nitratoides nitratoides*)

REPTILES:

Alameda whipsnake (*Masticophis lateralis euryxanthus*)
blunt-nosed leopard lizard (*Gambelia* (= *Crotaphytus*) *silus*)
Coachella Valley fringed-toed lizard (*Uma inornata*)
desert tortoise (*Gopherus agassizii*)
desert tortoise (Mohave desert population) (*Gopherus agassizii*)
flat-tailed horned lizard (*Phrynosoma mcalli*)
giant garter snake (*Thamnophis couchi gigas*)
green sea turtle (*Chelonia mydas*) includes (*agassizii*)
island night lizard (*Xantusia riversiana*)
leatherback sea turtle (*Dermochelys coriacea*)
loggerhead sea turtle (*Caretta caretta*)
olive (=Pacific) ridley sea turtle (*Lepidochelys olivacea*)

REPTILE'S (cont'd):

San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

AMPHIBIANS:

arroyo southwestern toad (*Bufo microscaphus californicus*)

California red-legged frog (*Rana aurora draytoni*)

California tiger salamander (*Ambystoma californiense*)

desert slender salamander (*Batrachoseps aridus*)

Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)

FISH:

bonytail chub (*Gila elegans*)

Colorado squawfish (*Ptycheilus lucius*)

delta smelt (*Hypomesus transpacificus*)

desert pupfish (*Cyprinodon macularius*)

Mojave tui chub (*Gila bicolor mohavensis*)

razorback sucker (*Xyrauchen texanus*)

Sacramento splittail (*Pogonichthys macrolepidotus*)

tidewater goby (*Eucyclogobius newberryi*)

Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)

winter-run chinook salmon (*Oncorhynchus tshawytscha*)

INVERTEBRATES:

banded dune snail (=Morro shoulderband snail) (*Helminthoglypta lynchi*)

bay checkerspot butterfly (*Euphydras editha bayensis*)

Conservancy fairy shrimp (*Branchinecta conservatio*)

Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)

El Segundo blue butterfly (*Euphilotes (=Shijimiaeoides) battoides allyni*)

longhorn fairy shrimp (*Branchinecta longiantenna*)

mission blue butterfly (*Icaricia icarioides missionensis*)

Mt. Herman June beetle (*Polyphylla barbata*)

Palo Verdes blue butterfly (*Glaucopsuche lygdamus palosverdesensis*)

Riverside fairy shrimp (*Streptocephalus wootoni*)

San Bruno elfin butterfly (*Incisalia mossii bayensis*)

Santa Cruz rain beetle (*Pleocoma conjugens conjugens*)

Smith's blue butterfly (*Euphilotes enoptes smithi*)

vernal pool fairy shrimp (*Branchinecta lynchi*)

Zayante band-winged grasshopper (*Trimerotropis infantilis*)

PLANTS:

beach layia (*Layia carnosa*)

Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*)

Ben Lomond wallflower (*Erysimum teretifolium*)

PLANT'S (cont'd)

- California jewelflower (*Caulanthus californicus*)
- California orcutt grass (*Orcuttia californica*)
- California sea blite (*Suaeda californica*)
- Camatta Canyon amole (*Chlorogalum purpeum* var. *reductum*)
- Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*)
- Congdon's tarplant (*Hemizonia congdonii*)
- coyote ceanothus (*Ceanothus ferrisae*)
- Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)
- Cushenbury milk-vetch (*Astragalus albens*)
- Cushenbury oxytheca (*Oxytheca parishii* var. *goodmaniana*)
- fountain thistle (*Cirsium fontinale* var. *fontinale*)
- Gambel's watercress (*Rorippa gambellii*)
- Hoover's wooly-star (*Eriastrum hooveri*)
- Indian Knob mountainbalm (*Eriodictyon altissimum*)
- La Graciosa thistle (*Cirsium loncholepis*)
- Marin dwarf-flax (*Hesperolinon congestum*)
- marsh sandwort (*Arenaria paludicola*)
- Menzie's wallflower (*Erysimum menziesii* ssp. *menziesii*)
- Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*)
- Mexican flannelbush (*Fremontodendron mexicanum*)
- Monterey spineflower (*Chorizanthe pungens* var. *pungens*)
- Morro manzanita (*Arctostaphylos morroensis*)
- Nipomo Mesa lupine (*Lupinus nipomensis*)
- Otay Mesa mint (*Pogogyne nudiuscula*)
- Parish's daisy (*Erigeron parishii*)
- pedate checker-mallow (*Sidalcea pedata*)
- Pierson's milk-vetch (*Astragalus magdalenae* var. *piersonii*)
- Pismo clarkia (*Clarkia speciosa* spp. *immaculata*)
- Presidio clarkia (*Clarkia franciscana*)
- Presidio manzanita (*Arctostaphylos hookeri* ssp. *ravenii*)
- purple amole (*Chlorogalum purpureum* var. *purpureum*)
- robust spineflower (*Chorizanthe robusta* var. *robusta*)
- salt marsh bird's-beak (*Cordylanthus maritimus* spp. *maritimus*)
- San Benito evening-primose (*Camissonia benitensis*)
- San Bernardino Mountains bladderpod (*Lesquerella kingii* spp. *bernardina*)
- sand gilia (*Gilia tenuiflora* spp. *arenaria*)
- San Diego button celery (*Eryngium aristulatum* var. *parishii*)
- San Diego Mesa mint (*Pogogyne abramsii*)
- San Francisco lessingia (*Lessingia germanorum*)
- San Joaquin wooly-threads (*Lembertia congdonii*)
- San Mateo thornmint (*Acanthomintha duttonii*)
- San Mateo wooly sunflower (*Eriophyllum latilobum*)

PLANT'S (cont'd):

Santa Ana River woolly-star (*Eriastrum densiflorum* spp. *sanctorum*)
Santa Clara Valley dudleya (*Dudleya setchellii*)
Santa Cruz cypress (*Cupressus abramsiana*)
Santa Cruz tarweed (*Holocarpha macradenia*)
Scott's Valley spineflower (*Chorizanthe robusta* var. *hartwegii*)
slender-horned spineflower (*Dodecahema leptoceras*)
slender-petaled mustard (*Thelypodium stenopetalum*)
surf thistle (*Cirsium rhotophilum*)
Tiburon paintbrush (*Castilleja affinis* spp. *neglecta*)
Tidestrom's clover lupine (*Lupinus tidestromii*)
Yadon's wallflower (*Erysimum menziesii* spp. *yadonii*)
white-rayed pentachaeta (*Pentachaeta bellidiflora*)

The USFWS 1992 Biological Opinion (BO) on the national ADC program listed the following species as likely to be adversely affected or not likely to be adversely affected by some aspect of the ADC Program (ADC EIS). However, the BO lists reasonable and prudent alternatives to preclude jeopardy to endangered species. The ADC program has adopted all reasonable and prudent alternatives identified in the BO. ADC conducted an informal consultation with the USFWS and determined that program activities in the South and San Luis Districts are not likely to affect Federally listed species. In addition, ADC consulted with the CDFG to assess program impacts on State listed species. A detailed record of the analyses of the potential effects on these species may be found in Appendices 3 and 4 in this document and in Appendix P in the ADC EIS:

Aleutian Canada goose (*Branta canadensis leucopareia*) - The South and San Luis Districts ADC Program does not set traps or use pesticides of concern to the Service (Avitrol, zinc phosphate, and above ground use of strychnine) in the Aleutian Canada goose's wintering habitat in California. Therefore, the South and San Luis Districts ADC Program would not likely adversely affect the Aleutian Canada goose.

Bald eagle (*Haliaeetus leucocephalus*) - The South and San Luis Districts ADC program does not use the pesticide of concern to the USFWS (above ground use of strychnine). Bald eagles are generalized predators/scavengers primarily adapted to edges of aquatic habitats. Their primary foods are fish (taken both alive and as carrion), waterfowl, mammalian carrion, and small birds and mammals. The risk of lead poisoning, caused by eagles ingesting lead in predator carcasses killed by shooting, was discussed with the USFWS. ADC in California currently uses steel shot in all aerial hunting operations. Carcasses of predators killed with high-powered rifles normally do not retain the lead bullet. Based on an evaluation and discussion with the USFWS, ADC has concluded that implementation of the proposed action is not likely to affect the bald eagle. The use of M-44's does not relate to the measures listed by the USFWS in their July 1992 BO. Use restrictions for M-44's require that no M-44's be set within 30 feet of a draw station (large piece of meat or large carcass). Therefore the potential to adversely affect eagles by primary toxicity is

minimized. There is no chance of secondary poisoning caused by eagles consuming carcasses of target animals since compounds with cyanide are toxic only upon liberation of the hydrogen cyanide gas, which occurs only at primary ingestion. Proposed actions also include the use of the LPC, which contains Compound 1080 (sodium fluoroacetate), but available research suggests that the levels of 1080 residues in coyotes killed by the LPC are so low that their tissues do not present a significant secondary hazard (Burns et al., 1991; Connolly, 1990).

American peregrine falcon (*Falco peregrinus anatum*), **Arctic peregrine falcon** (*Falco peregrinus tundruis*), **peregrine falcon** (*Falco peregrinus*)- The Districts program does not use the pesticide of concern to the USFWS (above ground use of strychnine). The peregrine falcon is a specialized predatory raptor that feeds almost exclusively on birds captured in flight. The use of DRC-1339 was not evaluated in the USFWS's July 1992 BO. DRC-1339 was fully evaluated in the ADC EIS Appendix P. Primary toxicity is more toxic to birds than mammals which serves to increase specificity to target species. Toxicity to starlings, blackbirds, crows, and jays occurs from 1 to 10 ppm. Raptors and most mammals have toxicities ranging from 101 - 1,000 ppm. Due to the specialized predatory behavior of the falcon there is no potential for primary toxicity. Available research suggests little, if any, potential for secondary hazard because the compound is rapidly metabolized and excreted and is not accumulated (DeCino et al. 1996, Schafer 1991). Based on ADC's evaluation and a review of the relevant section of the USFWS 1992 BO, ADC has concluded that implementation of its proposed action would not likely adversely affect the peregrine falcon.

California condor (*Gymnogyps californianus*) - The California condor is an endangered, permanent resident of the semi-arid, rugged mountain ranges surrounding the southern San Joaquin Valley, including the Coast Ranges from Santa Clara County south to Los Angeles County, the Transverse Ranges, Tehachapi Mountains, and southern Sierra Nevada. It is strictly a scavenger, eating carrion such as cattle, sheep, deer, and ground squirrel carcasses (See Appendix 3).

San Joaquin kit fox (*Vulpes macrotis mutica*)- The San Joaquin kit fox is an uncommon to rare permanent resident of arid regions of the southern half of the state. The proposed action includes the use of gas cartridges. The use of gas cartridges within the occupied habitats of the San Joaquin kit fox (as determined by the US FWS in Alameda, Contra Costa, Fresno, Kern, Kings, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Stanislaus, or Tulare Counties) is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. However, in the 1992 USFWS BO it states, as a reasonable and prudent alternative, that no fumigants are to be used within the recognized occupied range of the San Joaquin kit fox. ADC policy is to follow all reasonable and prudent measures listed in the USFWS BO.

Blunt-nosed leopard lizard (*Gambelia silus*)- The blunt-nosed leopard lizard is a scarce resident of sparsely vegetated alkali and desert scrub habitats. It occurs at scattered sites in the San Joaquin Valley and adjacent foothills on alkali flats, large washes, arroyos, canyons, and low

foothills. There are no rodent control methods or agents proposed for this project. The proposed action includes the use of large gas cartridges for coyotes. The gas cartridge will not be used within the occupied habitat of the blunt-nosed leopard lizard in Fresno, Kern, Kings, Merced, Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Clara, and Stanislaus Counties from October 1 to April 15 unless a specific blunt-nosed leopard lizard protection program for this period is requested and approved by the USFWS and fully implemented. Use of this product in occupied habitat of this species from April 15 through September 30 is limited to daylight hours when air temperatures are 77 - 95 degrees F. There is little opportunity for exposure.

Desert tortoise (*Gopherus agassizii*)- The desert tortoise is widely distributed throughout the Mojave and Colorado deserts from below sea level to 4130 feet or higher. It is most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except the most precipitous slopes. The proposed action does include the use of gas cartridges for coyote damage management. The use of gas cartridges within the occupied habitats of the desert tortoise is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The gas cartridge will not be used in designated critical habitat for the desert tortoise. The cartridges will be used only in active coyote dens.

Proposed Action and "species not likely to be adversely affected list" for the South and San Luis Districts.

California clapper rail (*Rallus longirostris obsoletus*) - is locally common in coastal wetlands and brackish water around San Francisco, Monterey, and Morro bays; in coastal saline emergent wetlands along southern California from Santa Barbara County to San Diego County. There is little opportunity for exposure to ADC program activities.

California least tern (*Sterno antillarum browni*)- The California least tern summers in California in breeding colonies located in Southern California along marine and estuarine shores. Feeds primarily in shallow estuaries or lagoons where small fish are abundant. Significant predation at nesting colonies by various predators has been documented. There is little opportunity for direct exposure. Any impact would likely be beneficial by reducing predation on these ground nesting birds.

Light-footed clapper rail (*Rallus longirostris levipes*)- Light-footed clapper rails are locally common in coastal saline emergent wetlands along southern California from Santa Barbara County to San Diego County. ADC activities do not ordinarily take place in rail habitat therefore there is no opportunity for rails to be adversely affected by ADC program activities. As noted in the USFWS 1992 BO, any impacts would likely be beneficial by reducing predation at the nesting sites of these ground nesting birds.

Western snowy plover (*Charadrius alexandrinus nivosus*) - The western snowy plover's habitat includes sandy marine and estuarine shorelines and found inland along the shore of alkali lakes.

ADC South and San Luis District control activities do not occur in these habitats therefore ADC would not be likely to adversely affect the western snowy plover.

Yuma clapper rail (*Rallus longirostris yumanensis*)- Yuma clapper rails are found April through September in freshwater and brackish emergent wetlands along the Colorado River from Needles southward, and around the Salton Sea. ADC activities do not ordinarily take place in rail habitat therefore there is no opportunity for rails to be adversely affected by ADC program activities. As noted in the USFWS 1992 BO, any impacts would likely be beneficial by reducing predation at the nesting sites of these ground nesting birds.

Giant kangaroo rat (*Dipodomys ingens*)- The giant kangaroo rat is a rare, permanent resident in scattered colonies along the western side of the San Joaquin Valley (e.g., Carrizo Plain, Panoche Valley). The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges. The use of gas cartridges within the occupied habitats of the giant kangaroo rat is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens. If a need arises for the use of leghold traps within the range of the giant kangaroo rat the traps will incorporate a pan tension device to eliminate the capture of smaller non-target animals such as the giant kangaroo rat. There is little opportunity for adverse exposure. Any impact would likely be beneficial.

Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)- The Morro Bay kangaroo rat occurs within San Luis Obispo County. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. Endangered species considerations on the gas cartridge label exclude the use of the gas cartridge within the occupied habitats of the Morro Bay kangaroo rat and ADC abides by those label restrictions.

Salt marsh harvest mouse (*Reithrodontomys raviventris*) - The salt marsh harvest mouse is found only in saline emergent wetlands of San Francisco Bay and its tributaries. The ADC program does not use or recommend the use of rodenticides within the home range of the salt marsh harvest mouse. If a need arises for the use of leghold traps within the range of the salt marsh harvest mouse the traps will incorporate a pan tension device to eliminate the capture of smaller non-target animals such as the salt marsh harvest mouse. There is no opportunity for exposure.

Green sea turtle (*Chelonia mydas*)- The green sea turtle is a marine mammal. ADC program activities do not take place in the sea turtles occupied habitat. There is no opportunity for the green sea turtle to be adversely exposed to ADC program activities.

Leatherback sea turtle (*Dermochelys coriacea*)- The leatherback sea turtle is a marine mammal. ADC program activities do not take place in the sea turtles occupied habitat. There is no opportunity for the leatherback sea turtle to be adversely exposed to ADC program activities.

Loggerhead sea turtle (*Caretta caretta*)- The loggerhead sea turtle is a marine mammal. ADC program activities do not take place in the sea turtles occupied habitat. There is no opportunity for the loggerhead sea turtle to be adversely exposed to ADC program activities.

Critical habitat for the marbled murrelet was designated by the USFWS on 15 May 1996. ADC would have no impact on these or other critical habitats since it does not modify habitats.

California state listed T&E species in the project area are listed below:

BIRDS:

American peregrine falcon (*Falco peregrinus anatum*) (also listed Federally)
Arizona's Bell's vireo (*Vireo belli arizonae*)
bald eagle (*Haliaeetus leucocephalus*) (also listed Federally)
bank swallow (*Riparia riparia*)
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)
California black rail (*Laterallus jamaicensis*)
California brown pelican (*Pelecanus occidentalis californicus*) (listed Federally)
California clapper rail (*Rallus longirostris obsoletus*)
California condor (*Gymnogyps californianus*)
California least tern (*Sterna antillarum (=albifrons) browni*)
elf owl (*Micrathene whitneyi*)
Gila woodpecker (*Melanerpes uropygialis*)
gilded northern flicker (*Colaptes auratus chrysoides*)
greater sandhill crane (*Grus canadensis tabida*)
least Bell's vireo (*Vireo belli pusillus*)
light-footed clapper rail (*Rallus longirostris levipes*)
marbled murrelet (*Brachyramphus marmoratus*) (also listed Federally)
Swainson's hawk (*Buteo swainsoni*)
western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
willow flycatcher (*Empidonax traillii*)
Yuma clapper rail (*Rallus longirostris yumanensis*)

MAMMALS:

California bighorn sheep (*Ovis canadensis californiana*)
giant kangaroo rat (*Dipodomys ingens*)
Guadalupe fur seal (*Arctocephalus townsendi*)
Island fox (*Urocyon littoralis*)
Mohave ground squirrel (*Spermophilus mohavensis*)
Morro Bay kangaroo rat (*Dipodomys herrmanni morroensis*)
Penninsular bighorn sheep (*Ovis canadensis cremnobates*)
salt marsh harvest mouse (*Reithrodontomys raviventris*)
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)

MAMMAL'S (cont'd):

San Joaquin kit fox (*Vulpes macrotis mutica*) (also listed Federally)

Stephen's kangaroo rat (*Dipodomys stephensi*)

Tipton's kangaroo rat (*Dipodomys nitratoides nitratoides*)

REPTILES:

Alameda whipsnake (*Masticophis lateralis euryxanthus*)

barefoot banded gecko (*Coleonyx switaki*)

blunt-nosed leopard lizard (*Gambelia (=Crotaphytus) silus*)

Coachella Valley fringe-toed lizard (*Uma inornata*)

desert tortoise (*Gopherus agassizii*)

San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

southern rubber boa (*Charina bottae umbratica*)

giant garter snake (*Thamnophis couchi gigas*)

AMPHIBIANS:

Kern Canyon slender salamander (*Batrachoseps simatus*)

Tehachapi slender salamander (*Batrachoseps stebbinsi*)

Desert slender salamander (*Batrachoseps aridus*)

Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)

Proposed Action and "species not likely to be adversely affected list" for the South and San Luis Districts

Island fox (*Urocyon littoralis*)- The island fox is restricted to 6 of the Channel Islands off the coast of southern California. It is common on Santa Cruz, Santa Rosa, and San Clemente Islands, less common on San Nicholas and San Miguel, and rare on Santa Catalina. The only ADC activities occurring on the islands is predator damage management for the protection of Federal listed species. Only cage traps are utilized. No M-44's, LPC's, snares, leghold traps, or conibears are utilized. No gas cartridges are used for predator damage management on the islands. Shooting is conducted only by professional ADC Specialists who have been trained in the identification of target and nontarget species. There is little opportunity for the island fox to be adversely exposed to ADC program tools. Any exposure would likely be beneficial by removing nonnative predators that compete directly with the island fox.

All species listed above have been fully evaluated on a site specific basis. ADC has consulted with the USFWS and the CDFG concerning the District program's potential to impact Federal and state listed threatened and endangered species. A full analysis is included in the correspondence between the agencies in Appendices 3 and 4. Both agencies have concurred with APHIS-ADC's determination that the program is not likely to adversely impact Federal or state listed species.

Other Non-Target Species

Non-target species taken in the South and San Luis Districts have included black bears and bobcats. In FY 1994, 2 non-target animals were taken in the South and San Luis Districts. In FY 1995, 2 non-target animals were also taken. Table 6 shows the numbers of non-target species taken during these two years.

Table 6. Non-Target Species Taken			
	Bobcat	Black Bear	Total
1994	2	0	2
1995	0	2	2

From MIS 1994, 1995

None of these species were T&E species. These numbers are not significant in terms of impacts on populations. ADC methods are developed to be target specific, and ADC field Specialists are trained to provide biologically sound, effective, and accountable solutions to wildlife problems. Non-target species in 1994 and 1995 represented about 0.4 % of the total ADC take in the Districts. This is not a significant impact.

A. 3. Humaneness

Humaneness is discussed and assessed in the ADC EIS and the CEQA document (CDFG 1996). The ADC program on a national level has evolved toward using more selective control techniques that reduce unnecessary pain and death. In addition to the National ADC program mitigation, the California ADC program complies with more stringent mitigation measures such as daily trap checks, as required by CDFG. National and California mitigation is listed in Section IV.

The issue of humaneness, as it relates to the killing or capturing of wildlife, is an important but very complex concept that can be interpreted in a variety of ways. Humaneness is a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. Some individuals and groups are opposed to some management actions of ADC. ADC personnel are experienced and professional in their use of management methods so that they are as humane as possible. Professional predator control activities are said to be more humane than Nature because they result in less suffering. However, people concerned with animal welfare are concerned with minimizing animal suffering as much as possible, or eliminating unnecessary suffering (Schmidt, 1989).

ADC has improved the selectivity of management devices through research and development of pan tension devices, break-away snares, and chemical immobilization/euthanasia procedures that

do not cause pain. Research continues to improve selectivity and humaneness of management devices (USDA, 1996).

A. 4. Impacts on Hunting and Non-consumptive Uses

ADC does not significantly impact hunting opportunities because there is no significant impact on game or non-game populations. ADC works mainly on private lands and coordinates with cooperators/landowners about where and when control methods are used, thereby avoiding conflicts with hunters. On Federal lands, ADC coordinates with the land management agency through work plans and removes control equipment before hunting seasons. See also Sections IV D. and IV. E.

The nonconsumptive users (people who enjoy observing wildlife) of furbearing and nongame mammals have not been and are not expected to be significantly affected by damage control of furbearing and nongame mammals (CDFG 1996). ADC restricts its control activities in high use recreational areas. Also, ADC does not remove a significant number of any one species.

A. 5. Use of Toxicants - Impacts on Public Safety and Environment

Some ADC control methods may pose potential hazards to employees and the public if improperly used. However, the health risk to the public is low because ADC methods are used in areas where public access is limited, or where such use poses low risk due to ADC standard operating procedures. Additionally, warning signs are posted to alert the public when such devices are present. The ADC EIS (Appendix P) provides a detailed risk assessment and documents the low levels of risks associated with methods used by ADC personnel. This assessment includes potential risks to nontarget animals, ADC employees, and the public (ADC EIS). Specimen labels for the LPC, gas cartridge and M-44 are included in Appendix 5.

Currently, ADC does not use M-44's on public lands in California. No hazardous wastes would be generated by this alternative.

A. 6. Program Effectiveness

The effectiveness of the program can be defined in terms of minimizing the potential for economic losses, public health and safety incidences and property damage. The effectiveness analysis includes costs of the program to the public, states, and other jurisdictions, and direct and indirect impacts, including costs of impacts on the environment. The current program alternative was compared with the other alternatives in the ADC EIS and was concluded to be the most effective of the alternatives considered. The ADC EIS did not analyze an expanded program alternative in detail. The current program could be less effective than an expanded program with additional preventative control.

A. 7. Cost Effectiveness

Council on Environmental Quality (CEQ) regulations (40 CFR 1502.23) do not require a formal, monetized cost-benefit analysis to comply with NEPA. Since a major intent of this EA is to assist agency planning and decision making, this EA will compare the relative costs of the alternatives being considered and the relative benefits to livestock operators and to the public.

It is not possible to accurately determine the number of livestock saved or human health and safety protected from predators by ADC since that number represents losses that never occurred. Using the best information available the ADC EIS concluded that benefits, in terms of avoided sheep and lamb losses plus price benefits to consumers, are 2.4 times the cost of providing ADC predator damage management services for sheep protection in the 16 western states. A complete discussion of the economics of animal damage control can be found in the ADC EIS.

An economic assessment of the California Cooperative Animal Damage Control program was completed for a 10-year period between 1980 and 1990. The results showed a cost to benefit ratio of 1:8 for direct producer benefits, and a cost to benefit ratio of 1:21 for the general public¹⁰ (USDA 1991).

Variables that would change the cost to benefit ratio of a predator damage management program include: local market values for livestock, age, class and type of livestock preyed upon, management practices, geographic and demographic differences, local laws and regulations and ADC polices, the skill and experience of the individual ADC Specialist responding to the damage request, and others.

Cost effectiveness of human safety and wildlife protection cannot be easily determined since they are difficult, if not impossible, to quantify.

Connolly (1981) examined the issue of cost effectiveness of Federal predator control programs and concluded that public policy decisions have been made to steer the program away from being as cost effective as possible. This is because of the elimination of control methods believed to be effective but less environmentally preferable such as toxic baits. Thus, the increased costs of implementing the remaining available methods were to achieve other public benefits besides livestock protection and could be viewed as mitigation for the loss of effectiveness in reducing damage. The ADC EIS stated that "Cost effectiveness is not, nor should it be, the primary goal of the ADC program". Additional constraints, such as environmental protection and land management goals are considered whenever a request for assistance is received (ADC EIS). These constraints increase the cost of the program while not necessarily increasing its effectiveness, yet they are a vital part of the ADC program.

¹⁰Economists with the U.S. Department of Agriculture have published studies that indicate the CONSUMER IMPACTS are 2.62 times greater for the public or the consumer of agricultural commodities, than the costs of production and losses on profits received by the agricultural producer of these products.

Regardless of the above constraints, the current program is estimated to be highly cost effective in California's South and San Luis Districts.

B. No Federal ADC Program Alternative

This alternative does not comply with the ADC direction from Congress to provide wildlife damage assistance. However, this alternative was considered in detail in the ADC EIS and was found to have the potential to have significant impacts on target and non-target species, humaneness, public safety, and other resources. It can be assumed that without professional oversight, training, and experience, the environmental consequences of this alternative could be significant.

B. 1. Effects on Target Species Populations

ADC would have no impact on target species under this alternative. However, livestock and property losses would likely increase and cause untrained individuals or groups to use methods that may have a detrimental impact on target species.

B. 2. Effects on Non-target Species Populations, Including T&E Species

ADC would have no effect on nontarget or T&E species. Similar to the effect on target species, this alternative may lead to untrained individuals using unproven techniques and having an adverse impact on nontarget and T&E species.

Under the No Program Alternative, more nontarget animals would be affected (ADC EIS).

B. 3. Humaneness of Control Techniques

Actions taken by individuals to control predator damage may be less humane than with a Federal program that is accountable to public input, and upon which humane interest groups focus their opposition. Through a formalized process, the public has opportunity to comment on or recommend changes to the program. Without Federal oversight, fewer people may be aware of actions taken by individuals that may be inhumane, or be perceived as inhumane. Thus the perception of inhumane activities will be reduced, although actual occurrence of those activities may increase.

Under this alternative, ADC would have no program, therefore no direct effect on humaneness. However, individuals may conduct lethal controls on their own which could have the potential for increased agricultural losses and unnecessary pain and suffering to target and nontarget species.

B. 4. Effects on Hunting and Nonconsumptive Uses

ADC would not impact hunting and nonconsumptive uses with the No Federal Program Alternative. If individuals implement unregulated lethal control, it could have adverse impacts on both the hunting and nonconsumptive user groups, depending on the extent of impacts on target and non-target animals.

B. 5. Use of Toxicants - Impacts on Public Safety and Environment

ADC would have no effect on public safety or the environment under this alternative. Negative effects on the environment and human safety may result from untrained and unlicensed individuals using toxicants.

B. 6. Effectiveness of the ADC Program

ADC would have no program, and therefore no effectiveness.

B. 7. Cost Effectiveness

Federal funds would not be expended for ADC services. Damage control costs could be large or small depending on the role of the public sector (ADC EIS). It was estimated that in a statewide "no program" option, monetary losses to producers would be expected to increase an average of four times the present level, based on current research (USDA 1991). Consumer impacts and producer impacts could be expected to be significant. Therefore, the cost effectiveness under this alternative is estimated to be low (Table 7).

C. Nonlethal Control Only Alternative

The Nonlethal Control Only Alternative is a modification of the Current Program Alternative wherein no lethal technical assistance or direct control would be provided or used by ADC. Both technical assistance and direct control would be provided in the context of a modified integrated pest management approach that administratively constrains ADC personnel to use nonlethal strategies to resolve wildlife damage problems. ADC would only be authorized to conduct lethal control activities in cases of threats to human health and safety.

Under this alternative ADC would be limited to using nonlethal methods, whereas other agencies, organizations, or individuals would be free to carry out necessary lethal control work to resolve wildlife damage. Since nonlethal controls alone do not always prevent or reduce wildlife damage or threats to public health and safety to acceptable levels, other government agencies, private organizations, and individuals would likely assume responsibility for implementing lethal controls necessary to adequately deal with these problems.

C. 1. Effects on Target Species Populations

ADC would have no significant effect on target species under this alternative. However, actions taken by other individuals would possibly have the same impacts as the No ADC Program Alternative when the nonlethal control is not effective in resolving wildlife damage incidents.

C. 2. Effects on Nontarget Species Populations, Including T&E Species

This alternative would have the potential for adverse impacts from no ADC action and from the actions of private individuals. Presumably, many service recipients would become frustrated with ADC's failure to resolve their wildlife damage, and would turn somewhere else for assistance. Significant variability in the level and scope of wildlife damage control activities could occur without the "Current Program or Expanded Program Alternative" and this could have a significant effect on some local wildlife species including those listed as threatened or endangered.

C. 3. Humaneness of Control Techniques

Nonlethal control techniques are generally considered more humane by animal welfare groups. ADC service recipients would approve of nonlethal methods if effective and may conduct lethal controls on their own. This alternative would have the potential for increased agricultural losses and stress to target and non-target species (ADC EIS).

C. 4. Effects on Hunting and Nonconsumptive Uses

ADC would not impact hunting and nonconsumptive uses with the Nonlethal Alternative. However if individuals implement unregulated lethal control this could have adverse impacts on both the hunting and nonconsumptive user groups, depending on the effects on target and non-target species, and on the public safety.

C. 5. Use of Toxicants-Impacts on Public Safety and Environment

Most control methods with the potential for negative impacts on the physical environment or human health, such as chemical toxicants, would not be used under this control program. The potential for ADC impacts on human health and safety would also be decreased since lethal controls would no longer be used by ADC employees. However, private individuals using unregistered toxicants or using toxicants incorrectly could have adverse impacts on public safety and the environment.

C. 6. Effectiveness of the ADC Program

With the nonlethal control alternative, livestock and property losses would likely be higher than the current program and expanded program alternatives. The full array of control techniques

would not be available to ADC to resolve specific depredation incidences. Nonlethal control is not always effective as a sole alternative because: 1) it does not always resolve depredation problems; 2) it is often not cost effective; 3) it often results in producers needing to use lethal control methods which may sometimes have negative impacts on target and non-target species; and 4) it may cause producers to seek assistance from other agencies that may not have the expertise or authority to resolve depredation problems. This alternative would not be consistent with the ADC decision model (ADC EIS).

C. 7. Cost Effectiveness

Livestock losses would be greater than in the current program (ADC EIS). Federal costs to implement this alternative would be lower than the current program. The number of ADC personnel could be reduced to only those needed to provide technical assistance and make recommendations to landowners or permittees wishing to conduct their own control work. Monies would only be spent on nonlethal operational activities. Livestock owners would likely have to absorb the cost of hiring private control agents or conducting lethal control work themselves. Losses to predators would probably increase substantially, and some sheep operations would probably not be able to afford to stay in business.

D. Compensation for Predator Damage Loss Alternative

The compensation alternative would direct ADC program efforts and resources toward the verification of livestock and poultry losses from predators, and providing monetary compensation to the producers. ADC services would not include any direct control nor would technical assistance or nonlethal methods be available. This option is not currently available to ADC because ADC is mandated by law to protect American agriculture, and a compensation program has not been legally authorized or funded in this state. The ADC EIS indicated that this alternative has many drawbacks.

D. 1. Effects on Target Species Populations

Under this alternative ADC would not be involved in the removal of target species. However, the use of various control methods by untrained individuals could have a significant adverse impact on target species.

D. 2. Effects on Nontarget Species Populations, Including T&E Species

Impacts on non-target species could be significant without ADC control. See explanations under V.B.2. and V.C.2, the No Program and Nonlethal Control Only Alternatives.

D. 3. Humaneness of Control Techniques

Humaneness would be similar to the No ADC Program Alternative because not all producers would rely on a compensation program, and contrary to the premise that this alternative would avoid killing wildlife, other groups and individuals would probably conduct wildlife damage control including lethal methods (ADC EIS).

D. 4. Effects on Hunting and Nonconsumptive Uses

The effects of this alternative would be the similar to the No ADC Program Alternative.

D. 5. Use of Toxicants - Impacts on Public Safety and Environment

The effects of this alternative would be similar to the No ADC Program Alternative.

D. 6. Effectiveness of the ADC Program

This alternative would be similar to the No ADC Program Alternative.

The ADC program under this alternative would be ineffective in reducing livestock losses. This alternative would only handle compensation directed at livestock losses and would not address human health and safety or property losses.

D. 7. Cost Effectiveness

The funding and authority for this alternative are not in place. Therefore, this is not a viable alternative. However the ADC EIS evaluated the compensation alternative in detail. This alternative would require increased expenditures to investigate and validate all losses, and to determine and administer appropriate compensation. Livestock operators would most likely not receive full market value for livestock lost and many losses may go unverified. Compensation would give little incentive to livestock owners to limit predation through improved animal husbandry practices and other management strategies (USDA 1996).

E. Nonlethal Before Lethal Control Alternative

This alternative could affect ADC's ability to quickly address wildlife threats and damage problems by limiting control actions to nonlethal control methods before lethal measures could be used. Continued or increased threats to livestock producers, property owners, and human safety would be likely to occur due to the restrictions placed on this management alternative.

E. 1. Effects on Target Species Populations

Any reductions in targeted wildlife by ADC as a result of this alternative would have no major adverse impacts on the species involved or on the species District populations. Most sheep and cattle producers already practice some form of nonlethal control. Impacts on target species populations would be similar to the current program.

E. 2. Effects on Nontarget Species Populations, Including T&E Species

Impacts on non-target species would be similar to the Current Program Alternative. Non-target species taken by ADC in 1994 and 1995 represented less than 0.4% of the total ADC take in the Districts.

E. 3. Humaneness of Control Techniques

Nonlethal control techniques are generally considered more humane by animal welfare groups. ADC service recipients would approve of nonlethal methods if effective. Individuals may conduct lethal controls on their own. The ADC program on a national level has evolved toward using more selective control techniques that reduce unnecessary pain and death. In California, the ADC program complies with more stringent mitigation measures such as daily trap checks, as required by the CDFG. The livestock industry would argue that domestic animals should be protected from predators because humans have bred the natural defense capabilities out of domestic animals and that humans have a moral obligation to protect these animals from predators (ADC EIS).

E. 4. Effects on Hunting and Nonconsumptive uses

ADC would not significantly impact hunting and nonconsumptive uses with the nonlethal or lethal alternatives. However, if individuals implement lethal control this could have significant adverse impacts on animals used by both hunting and nonconsumptive user groups.

E. 5. Use of Toxicants-Impacts on Public Safety and Environment

ADC would have no adverse effect on the public or the environment with nonlethal control. The effects of the use of toxicants are discussed in detail in the current program alternative section and the ADC EIS.

E. 6. Effectiveness of the ADC Program

This alternative, at times would not allow ADC to respond to wildlife threats quickly or adequately. Additionally, this alternative is not supported by the ADC EIS and associated Record of Decision or ADC Directive 2.101, which addresses ADC's policy for applying Integrated Wildlife Damage Management.

Wildlife damage management efforts in the Districts would not cease under this alternative, but ADC's program expertise and techniques would not be fully available to respond to wildlife damage situations. Under this alternative, increased possibilities of wildlife damage and potential threats to human safety would be higher than the current program alternative.

The use of nonlethal methods first may delay effective wildlife damage management and the protection of livestock, property, human health and safety. The current program uses or recommends nonlethal methods in instances in which they are considered likely to be effective. Imposing nonlethal methods as a first option where they are unlikely to resolve a damage situation would be less effective. Under the integrated pest management approach, ADC always considers if nonlethal methods would be effective before lethal methods are considered. Nonlethal methods may also be used or recommended in conjunction with lethal methods that are used to resolve damage incidents.

E. 7. Cost Effectiveness

The cost effectiveness of using nonlethal methods in situations where they are not effective would be low. The cost effectiveness of the nonlethal before lethal methods alternative would be lower than the current program alternative, but higher than the nonlethal methods only alternative.

F. Expanded Program Alternative

This alternative is similar to Alternative A, but would increase damage control efforts of the current program District wide. Both lethal and nonlethal methods and corrective and preventative management strategies would be allowed, while adhering to applicable state and federal laws and regulations.

F. 1. Effects on Target Species Populations

Under an expanded program, ADC would work on public lands (BLM and USFS) which are not currently covered in work plans or cooperative agreements, and could expand onto all other land classes as permitted by Federal and state laws and regulations. On public lands, the requests would come from grazing permittees primarily, with possible requests for ADC assistance to resolve human health and safety situations involving wildlife from the land managing agencies. If the expanded program involved an increase in funding and staffing, it is likely that more target animals would be removed.

The CEQA analysis of the ADC program included an additional 30% removal over current levels to account for areas not currently worked by ADC in its computation of ADC impacts on coyotes (CDFG 1996). This adjustment is conservative since low density estimates were used in determining program impacts in the CEQA document (CDFG 1996). Therefore, although more coyotes would be removed under this alternative, impacts would still not be significant on coyote

numbers. The ADC EIS contains a more detailed discussion of maximum harvest levels allowed for coyotes before significant population impacts would occur.

An expanded program would not significantly impact other target species such as red fox, mountain lion, black bear, bobcat, gray fox, and feral dogs. The number of individual animals removed by ADC has been minimal. The CDFG (1996) has determined that an increase of 30% would not be significant. ADC does not anticipate increasing its take of target animals over 30% under the expanded program alternative. The take of depredating bears and mountain lions would continue to be permitted by the CDFG and would not be expected to increase substantially.

F. 2. Effects on Nontarget Species Populations, Including Threatened and Endangered (T&E) Species

ADC impacts on non-target animals have been below 0.4% of its take of target animals (MIS 1994, MIS 1995). Under this alternative, it can be assumed that the non-target take would remain below 0.4% of total take of target animals. Although the total numbers of non-target animals taken will increase there will not be a significant adverse effect on non-target species populations. ADC has had no adverse impacts on threatened or endangered species, and this would be expected to continue with an expanded program since all precautionary mitigation and standard practices would continue.

F. 3. Humaneness of Control Techniques

The humaneness of control techniques would not change under an expanded program. ADC would continue to use selective and humane techniques.

F. 4. Effects on Hunting and Nonconsumptive Uses

CDFG (1996) has determined that an additional 30% increase in ADC take would not significantly impact hunting and nonconsumptive uses. The discussion under Alternative A. 4 is applicable to this alternative. Coordination requirements between ADC and land management agencies would minimize the potential for conflicts with nonconsumptive users. Also see sections III. A, IV. D, and IV. E.

F. 5. Use of Toxicants - Impacts on Public Safety and Environment

Impacts on public safety and the environment from toxicants under an expanded program could be higher than the Current Program Alternative due to an increased potential for exposure, but would still be expected to be low. Some ADC control methods may pose potential hazards to employees and the public if improperly used. However, the health risk to the public is low because ADC methods are used in areas where public access is limited, or where such use poses low risk due to ADC standard operating procedures. Additionally, warning signs are posted to alert the public when such devices are present. The ADC EIS (Appendix P) provides a detailed

risk assessment and documents the low levels of risks associated with methods used by ADC personnel. This assessment includes potential risks to nontarget animals, ADC employees, and the public (ADC EIS). Specimen labels for the LPC, gas cartridge and M-44 are included in Appendix 5.

F. 6. Effectiveness of the ADC Program

An expanded program would be more effective in terms of losses prevented than any of the other alternatives considered. More effort could be put into preventative control which would prevent losses before they occurred. To some extent, local coyote populations and individuals that prey on sheep would be more effectively removed since some jurisdictional boundaries currently in place would no longer restrict ADC control work.

F. 7. Cost Effectiveness

Expanding the program would increase costs as livestock losses are reduced or prevented. The cost effectiveness of this alternative would be higher than the current program alternative.

The current program and the expanded program alternatives provide the lowest overall negative environmental consequences combined with the highest positive effects (program effectiveness and cost effectiveness), and are therefore the preferred alternatives.

A summary of the environmental consequences of each program alternative relative to each issue is discussed in the analysis presented in Table 7.

Table 7. Comparison of Overall Effects on Species and Issues from the Alternatives¹¹.

Issues/ADC Impacts	Alternative A* Current Program	Alternative B No Program	Alternative C Nonlethal	Alternative D Compensation	Alternative E Nonlethal/Lethal	Alternative F* Expanded Program
Coyote	Low	Low	Low	Low	Low	Low
Black Bear	Low	Moderate	Moderate	Moderate	Low	Low
Mt. Lion	Low	Moderate	Moderate	Moderate	Low	Low
Bobcat	Low	Low	Low	Moderate	Low	Low
Gray Fox	Low	Low	Low	Low	Low	Low
Non-target Species	Low	Moderate	Moderate	Low	Low	Low
T/E Species	Low	Moderate	Moderate	Moderate	Low	Low
Humaneness	Low	Moderate	Moderate	Low	Low	Low
Hunting / Non-consumptive	Low	Moderate	Moderate	Low	Low	Low
Toxicants	Low	Moderate	Moderate	Low	Low	Low
Program Effectiveness	High	None	Low	Low	Moderate	High
Cost Effectiveness	High	Low	Low	Low	Moderate	High
Cumulative Impacts	Low	Moderate	Moderate	Low	Low	Low

* Alternatives A and F would both allow for the use of all management methods. The differences are in the geographic scope of the program.

¹¹ Any action of control or removal would have a negative effect on that individual animal or issue. However, removing a individual predator could have a positive effect on it's prey species.

The following information was used as the guide (criteria) for the rating of impacts:

LEVEL OF IMPACT			
IMPACT	MAGNITUDE	DURATION	LIKELIHOOD
High (H)	Major	Long Term	Probable
Moderate (M)	Moderate	Intermediate or Long Term	Possible
Low (L)	Minor	Short Term	Possible

Long Term = 10 Years; Intermediate = 2-10 Years; Short term = 1 Year

VI. SUMMARY AND CONCLUSION

The environmental impacts of implementing predator control activities correspond with those raised and discussed in detail in Chapter 4 of the ADC EIS and is further supplemented by reference to the CEQA document (CDFG 1996). Impacts associated with activities under consideration here are not expected to be "significant." Based on experience, impacts of predator control activities considered in this document are very limited in nature. The addition of those impacts to others associated with past, present, and reasonably foreseeable future actions (as described in the ADC EIS and the CEQA document), will not result in cumulatively significant environmental impacts. Monitoring the impacts of the program on populations of both target and non-target species will continue by tracking the number of individuals taken annually and determining the impact through the use of the existing population models. All predator control activities that may take place will comply with relevant laws, regulations, policies, orders, and procedures, including the Endangered Species Act.

This EA will remain valid until ADC and other appropriate agencies determine that new actions or new alternatives having substantially different environmental effects must be analyzed. Change in environmental policies, scope of project or other issues may trigger the need for additional NEPA compliance. This EA will be reviewed periodically for validity.

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APPENDIX 1 - APHIS-ADC WILDLIFE DAMAGE MANAGEMENT METHODS

Methods of Control

Description of Methods

The most effective approach to resolving wildlife damage problems is to integrate the use of several methods, either simultaneously or sequentially. Integrated Pest Management (IPM) is the integration and application of practical methods of prevention and control to reduce damage by wildlife while minimizing harmful effects of control measures on humans, other species, and the environment. IPM may incorporate Resource Management, Physical Exclusion, Wildlife Management, or any combination of these, depending on the characteristics of specific damage problems.

In selecting control techniques for specific damage situations, consideration is given to the responsible species and the magnitude, geographic extent, duration and frequency, and likelihood of wildlife damage. Consideration also must be given to the status of target and potential non-target species, local environmental conditions and impacts, social and legal aspects, and relative costs of control options. The cost of control may sometimes be a secondary concern because of the overriding environmental, legal, and animal welfare considerations. These factors are evaluated in formulating control strategies that incorporate the application of one or more techniques.

A variety of methods are used to accomplish objectives of the current Animal and Plant Health Inspection Service (APHIS) Animal Damage Control (ADC) program. Control strategies are based on applied IPM principles. APHIS ADC employs three general strategies for control of wildlife damage: Resource Management, Physical Exclusion, and Wildlife Management. Each of these approaches is a general strategy or recommendation for addressing wildlife damage situations. Within each approach there are available a number of specific methods or tactics. Selection of the appropriate approach and method is the result of the ADC decision making process outlined in the 1994 ADC EIS, Chapter 2. Mechanical methods generally are used and recommended in preference to chemical pesticides. No pesticide is used or recommended if it is likely to adversely affect fish, wildlife, food safety, or other components of the natural environment.

Various Federal, State, and local statutes and regulations as well as ADC Directives govern ADC use of control tools and substances. The following basic wildlife damage control methods and materials are used or recommended in the direct control and technical assistance efforts of the ADC program:

- Resource Management
 - Animal Husbandry
 - Crop Selection and Planting Schedules
 - Habitat Management
 - Modification of Human Behavior

- Physical Exclusion
 - Fencing
 - Tree Protectors
 - Entrance Barricades

- Wildlife Management
 - Habitat Management
 - Lure Crops/Alternate Foods
 - Frightening Devices
 - Chemical Repellents
 - Capture Methods

The methods listed above all have limitations which are defined by the circumstances associated with individual wildlife damage problems. When ADC Specialists receive a request for assistance, they consider a wide range of limitations as they apply the decision making process described in the 1994 ADC EIS, Chapter 2, to determine what method(s) to use to resolve a wildlife damage problem. Examples of limitations which must be considered and criteria to evaluate various methods are presented in the 1994 ADC EIS, Appendix N and in the following discussions.

Resource Management

Resource management includes a variety of practices that may be used by agriculture producers to reduce their exposure to potential wildlife depredation losses. Implementation of these practices is appropriate when the potential for depredation can be reduced without significantly increasing the cost of production or diminishing the resource owner's ability to achieve land management and production goals. Changes in resource management are recommended through the technical assistance extended to producers when the change appears to present a continuing means of averting losses.

Animal Husbandry

This general category includes modifications in the level of care and attention given to livestock, shifts in the timing of breeding and births, selection of less vulnerable livestock species to be produced, and the introduction of human custodians or guarding animals to protect livestock.

The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increase, so does the degree of protection. In operations where livestock are left unattended for extended periods, the risk of depredation is greatest. The risk of depredation can be reduced when operations permit nightly gathering so livestock are unavailable during the hours when predators are most active. Additionally, the risk of depredation is usually greatest with immature livestock. This risk diminishes as age and size

increase and can be minimized by holding expectant females in pens or sheds to protect births and by holding newborn livestock in pens for the first 2 weeks. Shifts in breeding schedules can also reduce the risk of depredation by altering the timing of births to coincide with the greatest availability of natural prey to predators or to avoid seasonal concentrations of migrating predators such as golden eagles.

The use of human custodians and guarding animals can also provide significant protection in some instances. The presence of herders to accompany bands of sheep on open range may help ward off predators. Guard dogs have also proven successful in many sheep and goat operations.

Altering animal husbandry to reduce wildlife damage has many limitations. Nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter. Hiring extra herders, building secure holding pens, and adjusting the timing of births is usually expensive. The timing of births may be related to weather or seasonal marketing of young livestock. The expense associated with a change in husbandry practice may exceed the savings.

The supply of proven guarding dogs is generally quite limited, requiring that most people purchase and rear a pup. Therefore, there is usually a 4-to-8 month period of time necessary to raise a guarding dog before it becomes an effective deterrent to predators. Since 25 to 30 percent of dogs are not successful, there is a reasonable chance that the first dog raised as a protector will not be useful. The effectiveness of guarding dogs may not be sufficient in areas where there is a high density of predators, where livestock widely scatter in order to forage, or where dog-to-livestock ratios are less than recommended. Guarding dogs often harass and kill non-target wildlife.

Crop Selection and Planting Schedules

The choice of crops and the time of planting have a direct bearing on the potential for depredation losses. Some crops are less prone to depredation than others. Crops planted for early or late harvest may have a high potential for wildlife depredation due to the lack of alternate food sources. The composition of native wildlife and their feeding preferences should be considered prior to final selection of crops for production. If migratory wildlife species are involved, it may be possible to regulate the time of planting to reduce or eliminate the availability of vulnerable crops. If altered planting schedules are not feasible, selection of damage-resistant varieties may be possible.

Other resource management approaches include removal of slash, and planting large seedlings immediately after logging to reduce hare and rabbit damage potential; planting or encouraging plant species preferred by deer to improve habitat and reduce the likelihood of browsing damage to commercially grown trees; decreasing cover and foods adjacent to sugar cane to suppress the carrying capacity for rats and other rodents; use of tree species or varieties that are generally resistant to damage by animals; and use of bird-damage resistant hybrids of corn and grain sorghum. In many situations suitable alternative crops might not be available in particular areas or climate zones.

Habitat Management

Change in the architectural design of a building or a public space can often help to avoid potential wildlife damage. For example, selecting species of trees and shrubs that are not attractive to wildlife can reduce the likelihood of potential wildlife damage to parks, public spaces, or residential areas. Similarly, incorporating devices into architectural design that exclude wildlife can significantly reduce potential problems. Grids or screens that prevent birds from entering are an example.

Architectural changes are often more feasible if considered during the design stage, rather than after a facility is built. A consideration of wildlife conflicts is frequently overlooked in the construction of new buildings and facilities. Modifying structures or public spaces to remove the potential for wildlife conflicts is often impractical because of economics or the presence of other nearby habitat features that attract wildlife.

Modification of Human Behavior

ADC may recommend alteration of human behavior to resolve potential conflicts between humans and wildlife. For example, ADC may recommend the elimination of feeding of wildlife that occurs in parks, forest, or residential areas. Many wildlife species adapt well to human settlements and activities, but their proximity to humans may result in damage to structures or threats to public health and safety. Eliminating wildlife feeding and handling can reduce potential problems, but many people who are not directly affected by problems caused by wildlife enjoy wild animals and engage in activities that encourage their presence. It is difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife.

Alter Aircraft Flight Patterns

With respect to airport safety, not all potential danger to human life and aircraft equipment can be dealt with by relocating bird or other wildlife populations. In such cases, ADC may recommend that aircraft flight patterns be altered to reduce potential problems. However, altering operations at airports to decrease the potential for wildlife hazards is not feasible unless an emergency condition exists. Otherwise, the expense of interrupted flights and the limitations of existing facilities make this practice prohibitive.

Physical Exclusion

Physical exclusion methods restrict the access of wildlife to resources. These methods, (including fences, sheathing, netting, porcupine wire, and wire grids) provide a means of appropriate and effective prevention of wildlife damage in many situations. Physical exclusion methods used or recommended by the ADC program are described in the following section.

Fencing

Fences are widely used to prevent damage to farm crops and forest plantations caused by rabbits, deer, and elk. Predator exclusion fences constructed of woven wire or multiple strands of electrified

wire are also effective in some areas, but fencing does have limitations. Even an electrified fence is not predator proof and the expense exceeds the benefit in most cases. If large areas are fenced, the predators have to be removed from the enclosed area to make it useful. Some fences inadvertently trap, catch or affect the movement of non-target wildlife. It is not uncommon for coyotes to use fences to trap deer or antelope. Lastly, fencing is not practical or legal in some areas (e.g., restricting access to public land).

Wildlife Management

Controlling wildlife damage through wildlife management is achieved through the use of a myriad of techniques. The objective of this approach is to alter the behavior of the target animal to eliminate or reduce the potential for loss or damage to property.

Habitat Management

Just as habitat management is an integral part of other wildlife management programs, it also plays an important role in wildlife damage control. The type, quality, and quantity of habitat are directly related to the wildlife that are produced. Therefore, habitat can be managed to not produce or attract certain wildlife species. Most habitat management in the ADC program revolves around airports and bird aircraft strike problems, blackbird and European starling winter roosts, and ground vegetation management to control field rodent populations in orchards and crops.

Habitat management around airports is aimed at eliminating bird nesting, roosting, loafing, or feeding sites. Generally, many bird problems on airport grounds can be minimized through management of vegetation (grass, shrubs, brush, and trees) and water from runway areas.

Habitat management also is often necessary to control damage caused by blackbirds and starlings that form large roosts during late fall and winter. Bird activity can be terminated at a roost site by removing all the trees or selectively thinning the stand. Roosts often will re-form at traditional sites, and substantial habitat alteration is the only way to permanently stop such activity.

Dense rodent populations pose a threat to various agricultural operations such as orchards. Maintaining grass cover at minimum heights is necessary in controlling rodent populations in orchards. Eliminating grass in reforestation areas also aids in reducing vole damage to trees.

Certain areas experience damage as a result of beaver dam construction on streams and rivers. Damage to roadways, railways, earthen dams, buildings, and crops results primarily from flooding, but crop and timber losses can also occur from beaver foraging activities. When used in conjunction with the removal of beaver, selective use of explosives to remove watercourse obstructions is a habitat modification method.

Several measures are available to alleviate pocket gopher damage to forest plantations. Leaving strips of uncut timber between logged areas and gopher-infested areas is recommended to reduce the potential of severe gopher damage problems in clear-cutting operations. Selective cutting and replanting, instead of clear-cutting, are recommended to reduce the potential for gopher damage in

some areas. Common forest management practices such as weed and grass control can also reduce gopher populations and damage potential.

Limitations of habitat management as a method of controlling wildlife damage are determined by the characteristics of the species involved, the nature of the damage, economic feasibility, and other factors. Also, legal constraints may exist which preclude altering particular habitats.

Frightening Devices

The success of frightening methods depends on animals' fear of, and subsequent aversion to offensive stimuli. Once animals become habituated to a stimulus, they often resume their damaging activities. Persistent effort is usually required to consistently apply frightening techniques and then vary them sufficiently to prolong their effectiveness. Over time, some animals learn to ignore commonly used scare tactics. In many cases animals frightened from one location become a problem at another. The effects of frightening devices on non-target wildlife need to be considered. For example, sensitive birds may be disturbed or frightened from nesting sites.

Electronic Distress Sounds

Distress and alarm calls of various animals have been used singly and in conjunction with other scaring devices to successfully scare or harass animals. Many of these sounds are available on records and tapes. Calls should be played back to the animals from either fixed or mobile equipment in the immediate or surrounding area of the problem. Animals react differently to distress calls; their use depends on the species and the problem. Calls may be played for short (few second) bursts, for longer periods, or even continually, depending on the severity of damage and relative effectiveness of different treatment or "playing" times. Some artificially created sounds also repel birds in the same manner as recorded "natural" distress calls.

Propane Exploders

Propane exploders operate on propane gas and are designed to produce loud explosions at controllable intervals. They are strategically located (elevated above the vegetation, if possible) in areas of high wildlife use to frighten wildlife from the problem site. Because animals are known to habituate to sounds, exploders must be moved frequently and used in conjunction with other scare devices. Exploders can be left in an area after dispersal is complete to discourage animals from returning.

Pyrotechnics

Double shotgun shells, known as shell crackers or scare cartridges, are 12-gauge shotgun shells containing a firecracker that is projected up to 75 yards in the air before exploding. They can be used to frighten birds or mammals but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. The shells should be fired so they explode in front of, or underneath, flocks of birds attempting to enter crop fields or roosts. The purpose is to produce an explosion between the birds and their objective. Birds already in a crop field can be

frightened from the field; however, it is extremely difficult to disperse birds that have already settled in a roost.

Noise bombs, whistle bombs, racket bombs, and rocket bombs are fired from 15 millimeter flare pistols. They are used similarly to shellcrackers but are projected for shorter distances. Noise bombs (also called bird bombs) are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode. They produce a noticeable response because of the trail of smoke and fire, as well as the whistling sound. Racket bombs make a screaming noise in flight and do not explode. Rocket bombs are similar to noise bombs but may travel up to 150 yards before exploding.

A variety of other pyrotechnic devices, including firecrackers, rockets, and Roman candles, are used for dispersing animals. Firecrackers can be inserted in slow-burning fuse ropes to control the timing of each explosion. The interval between explosions is determined by the rate at which the rope burns and the spacing between firecrackers.

Lights

A variety of lights, including strobe, barricade, and revolving units, are used with mixed results to frighten birds. Brilliant lights, similar to those used on aircraft, are most effective in frightening night-feeding birds. These extremely bright-flashing lights have a blinding effect, causing confusion that reduces the bird's ability to catch fish.

Flashing amber barricade lights, like those used at construction sites, and revolving or moving lights may also frighten birds when these units are placed on raceway walls or fish pond banks. However, most birds rapidly become accustomed to such lights and their long-term effectiveness is questionable. In general, the type of light, the number of units, and their location are determined by the size of the area to be protected and by the power source available.

Water Spray Devices

Water sprays from rotating sprinklers placed at strategic locations in or around ponds or raceways will repel certain birds, particularly gulls. However, individual birds may become accustomed to the spray and feed among the sprinklers. Best results are obtained when high water pressure is used and the sprinklers are operated with an on-off cycle. The sudden startup noise also helps frighten the birds.

Harassment

Scaring and harassment techniques to frighten animals are probably the oldest methods of combating wildlife damage. A number of sophisticated techniques have been developed to scare or harass wildlife from an area. The use of noise-making devices is the most popular and commonly used; however, other methods, including aerial hazing and visual stimuli, are also used. Harassment using vehicles, people, falcons or dogs is used to frighten predators or birds from the immediate vicinity. Boats, planes, automobiles, and all-terrain vehicles are used as harassment methods. As with other wildlife damage control efforts, these techniques tend to be more effective when used collectively

in a varied regime rather than individually. However, the continued success of these methods - frequently requires reinforcement by limited shooting (see Shooting).

Other Scaring Devices

Owl decoys, reflective Mylar tape, scarecrows, ribbons, plastic bags, suspended pie pans, and helium-filled balloons may be used as scaring devices. Their effectiveness is enhanced when they are used in conjunction with auditory scare devices. The Electronic Guard, a portable unit that houses a strobe light and siren has been developed by the Denver Wildlife Research Center and is produced by the Pocatello Supply Depot. In certain situations, this device has been used successfully to reduce coyote depredation on sheep. The device activates automatically at nightfall and is programmed to discharge periodically throughout the night. The technique has proven most successful when used at "bedding grounds" where sheep gather to sleep for the night.

Chemical Repellents

Chemical repellents are compounds that prevent consumption of food items or use of an area. They operate by producing an undesirable taste, odor, feel, or behavior pattern.

Effective and practical chemical repellents should be nonhazardous to wildlife; nontoxic to plants, seeds, and humans; resistant to weathering; easily applied; reasonably priced; and capable of providing good repelling qualities. The reaction of different animals to a single chemical formulation varies, and for any species there may be variations in repellency between different habitat types.

Several paste repellents are used to repel birds around structures. These are grease-like materials that are either sprayed or applied with a caulking gun to window sills, ledges, or similar perches to discourage birds. They are most frequently used in urban areas to control pigeon and starling problems.

Development of chemical repellents is expensive and cost prohibitive in many situations. Chemical repellents are strictly regulated, and suitable repellents are not available for many wildlife species or wildlife damage situations.

Capture Methods

Leghold Traps

Leghold traps are used to capture animals such as the coyote and bobcat. These traps are the most versatile and widely used tool for capturing these species. The leghold trap can be set under a wide variety of conditions but can be difficult to keep in operation during rain, snow, or freezing weather. When placed without baits in the travel lanes of target animals, leghold traps are known as "trail sets." More frequently, traps are placed as "baited sets," meaning that they are used with a bait consisting of the animal's preferred food or some other lure, such as fetid meat, urine, or musk, to attract the animal. In some situations a "draw station," such as a carcass or large piece of meat, is used to attract target animals. In this approach, one to several traps are placed in the vicinity of the

draw station. ADC program policy prohibits placement of traps closer than 30 feet to the draw station. This provides protection to scavenging birds.

Various tension devices can be used to prevent animals smaller than target animals from springing the trap. Effective trap placement also contributes to trap selectivity; however, livestock and non-target animals may still be captured. These traps usually permit the release of non-target animals.

Before leghold traps are employed, their limitations must be considered. Injury to target and non-target animals, including livestock, may occur. Weather and the skill of the user will often determine the success or failure of the leghold trap in preventing or stopping wildlife damage.

Cage Traps

A variety of cage traps are used in different wildlife damage control efforts. The most commonly known cage traps used in the current program are box traps. Box traps are usually rectangular, made from wood or heavy gauge mesh wire. These traps are used to capture animals alive and can often be used where many lethal or more dangerous tools would be too hazardous. Box traps are well suited for use in residential areas.

Cage traps usually work best when baited with foods attractive to the target animal. They are used to capture animals ranging in size from mice to deer, but are usually impractical in capturing most large animals. They are virtually ineffective for coyotes; however, large cage traps work well to capture bears and have shown promise for capturing mountain lions, provided the traps can be transported by vehicle to the control sites.

Cage traps made of flexible mesh wire are effective for capturing beaver in some situations. Resembling fully or partially open suitcases when set, these traps are best suited for use in fairly shallow water at the beavers' entrance and exit routes or in water travel lanes. The traps can be baited with an ear of corn or a fresh piece of aspen, cottonwood, willow, or other woody plant.

Large decoy traps, modeled after the Australian crow trap, are used to capture starlings, blackbirds, crows, and ravens. They are large screen enclosures with the access modified to suit the target species. A few live birds are maintained in the baited trap to attract birds of the same species and, as such, act as decoys. Non-target species are released unharmed.

There are some animals that avoid cage traps and others that become "trap happy" and purposely get captured to eat the bait, making the trap unavailable to catch other animals. Cage traps must be checked frequently to ensure that captured animals are not subjected to extreme environmental conditions. Some animals fight to escape from cage traps and become injured.

Snares

Snares made of wire or cable are among the oldest existing control tools. They can be used effectively to catch most species but are most frequently used to capture coyotes, beaver, and bears. They have limited application but are effective when used under proper conditions. They are much lighter and easier to use than leghold traps and are not generally affected by inclement weather.

Snares may be employed as either lethal or live-capture devices depending on how and where they are set. Snares set to capture an animal by the neck are usually lethal but stops can be applied to the cable to make the snare a live capture device. Snares positioned to capture the animal around the body can be useful live-capture devices. Also, most snares incorporate a breakaway feature to release non-target wildlife and livestock. These snares can be effectively used wherever a target animal moves through a restricted lane of travel (i.e., "crawls" under fences, trails through vegetation, or den entrances). When an animal moves forward into the loop formed by the cable, the noose tightens and the animal is held.

The foot or leg snare is a spring-powered nonlethal device, activated when an animal places its foot on the trigger. Foot snares are used effectively to capture black bears. In some situations using snares to capture wildlife is impractical due to the behavior or animal morphology of the animal, or the location of many wildlife conflicts. Snares must be set in locations where the likelihood of capturing non-target animals is minimized.

The catch-pole snare is used to capture or safely handle problem animals. This device consists of a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. Catch poles are used primarily to remove live animals from traps without danger to or from the captured animal.

Quick-Kill Traps

A number of specialized "quick-kill" traps are used in wildlife damage control work. They include Conibear, snap, gopher, and mole traps.

Conibear traps are used mostly in shallow water or underwater to capture muskrat, nutria, and beaver. The Conibear consists of a pair of rectangular wire frames that close like scissors when triggered, killing the captured animal with a quick body blow. Conibear traps have the added features of being lightweight and easily set.

Snap traps are common household rat or mouse traps usually placed in buildings. These traps are often used to collect and identify rodent species that cause damage so that species-specific control tools can be applied. If an infestation is minor, these traps may be used as the primary means of control. Glue boards (composed of shallow, flat containers of an extremely sticky substance) are also used as an alternative to snap traps.

Spring-powered harpoon traps are used to control damage caused by surface-tunneling moles. Soil is pressed down in an active tunnel and the trap is placed at that point. When the mole reopens the tunnel, it triggers the trap and is killed. Two variations of scissor-like traps are also used in burrows for both mole and pocket gopher population control.

Some quick-kill traps are potentially dangerous to people and cannot be used in populated areas. Quick-kill traps are available only for a limited number of species.

Denning

Denning is the practice of seeking out the dens of depredating coyotes or red fox and destroying the young, adults, or both to stop or prevent depredations on livestock. Denning is used in coyote damage control efforts primarily in the western States. The usefulness of denning as a damage control method is limited because coyote dens are difficult to locate in many parts of the country and den use is restricted to approximately 2 to 3 months during the spring.

Coyote depredations on livestock and poultry often increase in the spring and early summer because of the increased food requirements caused by the need to feed pups. The removal of pups will often stop depredations even though the adults are not taken. When the adults are taken it is customary to kill the pups to prevent their starvation. In this method, pups are removed from dens by excavation and then shot, or they are killed in the den with a registered fumigant. Denning is highly selective for the target species and family groups responsible for damage. Den hunting for adult coyotes and their young is often combined with calling and shooting. Denning can be labor intensive with no guarantee of finding the den of the target animal.

Shooting

Shooting is used selectively for target species but may be relatively expensive because of the staff hours sometimes required. Nevertheless, shooting is an essential control method. Removal of one or two problem woodpeckers, for example, can stop extensive woodpecker damage to residences or other buildings. Removal of beaver may be achieved by night shooting because beaver are primarily active at that time. Many airports have perimeter fences for security purposes that also confine resident deer populations. These deer frequently stray onto active runways and pose a significant threat to aircraft. Removal of these deer may be effectively achieved by shooting.

Lethal reinforcement through shooting is often necessary to ensure the continued success in bird scaring and harassment efforts (see the discussion on shooting under Modification of Human Behavior). This is especially important where birds are drawn by ripening crops, aquaculture and mariculture facilities, sanitary landfills, and other locations where food is readily available. In situations where the feeding instinct is strong, most birds quickly adapt to scaring and harassment efforts unless the control program is periodically supplemented by shooting.

Shooting is frequently performed in conjunction with calling particular predators such as coyotes, bobcats, and fox. Trap-wise coyotes are often vulnerable to calling. Shooting is limited to locations where it is legal and safe to discharge firearms. Shooting may be ineffective for controlling damage by some species and may actually be detrimental to control efforts.

Aerial Shooting

Shooting from aircraft, or aerial hunting, is a commonly used coyote damage control method. Aerial hunting is species-selective and can be used for immediate control where livestock losses are severe if weather, terrain, and cover conditions are favorable. Aerial hunting can be effective in

removing offending coyotes that have become "bait-shy" or are not susceptible to calling and shooting. Local depredation problems can often be quickly resolved by the use of aerial hunting.

Fixed-wing aircraft are useful for aerial hunting over flat and gently rolling terrain. Because of their maneuverability, helicopters have greater utility and are safer over , timbered areas, or broken land where animals are more difficult to spot. In broken timber or deciduous ground cover, aerial hunting is more effective in winter when snow cover improves visibility.

The ADC program aircraft-use policy helps ensure that aerial hunting is conducted in a safe and environmentally sound manner, in accordance with Federal and State laws. Pilots and aircraft must be certified under established ADC program procedures. Only properly trained ADC program employees are approved as gunners.

Hunting Dogs

Dogs are essential to successful hunting of mountain lion and bear. Dogs trained for coyote denning are also valuable in luring adult coyotes to be shot. Trained dogs are used primarily to locate, pursue, or decoy animals. Training and maintaining suitable dogs requires considerable skill, effort, and expense. There must be sufficient need for dogs to make the effort worthwhile.

Egg, Nest, and Hatchling Removal and Destruction

Nesting populations of cattle egrets and gulls, especially if located near airports, may pose a threat to public health and safety, as well as equipment. Pigeons and starlings can also cause extensive damage to public facilities. Egg and nest destruction is used mainly to control or limit the growth of a nesting population in a specific area through limiting reproduction of offspring or removal of nest to other locations. Egg and nest destruction is practiced by manual removal of the eggs or nest.

This method is practical only during a relatively short time interval and requires skill to properly identify the eggs and hatchlings of target species. Some species may persist in nesting and the laying of eggs, making this method ineffective.

Chemical immobilizing agents

Alpha-chloralose is an immobilizing agent used to capture and remove nuisance waterfowl and other birds (e.g., pigeons). It is typically used in recreational and residential areas, such as swimming pools, shoreline residential areas, golf courses, or resorts. Single bread or corn baits are fed directly to the target waterfowl, while corn baits are placed in feeding areas to capture pigeons. ADC personnel are present at the site of application during baiting to retrieve the immobilized birds. Unconsumed baits are removed from the site following each treatment.

Chemical Toxicants

Several toxic chemicals have been developed to control wildlife damage and are widely used because of their efficiency. Toxicants are generally not species specific, and their use may be hazardous unless used with care by knowledgeable personnel. The proper placement, size, type of bait, and

time of year are keys to selectivity and successful control. Development of appropriate toxicants is expensive, and the path to a suitable end product is filled with legal and administrative hurdles. Few private companies are inclined to undertake such a venture. Most chemicals are aimed at a specific target species, and suitable chemicals are not available for most animals. Available delivery systems make the use of chemical toxicants unsuitable in many wildlife damage situations. This section describes the chemical toxicants used in the present ADC program.

Sodium cyanide is used in the M-44, a spring-activated ejector device developed specifically to kill coyotes and other canine predators. The M-44 device consists of a capsule holder wrapped with fur, cloth, or wool; a capsule containing 0.8 gram of powdered sodium cyanide; an ejector mechanism; and a 5- to 7-inch hollow stake. The hollow stake is driven into the ground, the ejector unit is cocked and placed in the stake, and the capsule holder containing the cyanide capsule is screwed onto the ejector unit. A fetid meat bait is spread on the capsule holder. An animal attracted by the bait will try to pick up or pull the baited capsule holder. When the M-44 is pulled, a spring-activated plunger propels sodium cyanide into the animal's mouth.

Compound 1080, or sodium fluoroacetate, has been widely used as a rodenticide since the mid-1940s. It was also used in predacide baits prior to 1972. Currently, the only registered use of this chemical is in controlling predators with the Livestock Protection Collar (LP Collar). The LPC attaches to the neck of a sheep or goat and dispenses the toxicant when punctured by the attacking coyote. The end use formulation consists of a liquid contained in two pouches that are punctured when a collared sheep or goat is attacked and bitten on the throat by a coyote. Upon puncturing the collar, the offending animal ingests a small volume of the solution and dies a short time later (USDA 1994, Appendix P)

Fumigants or gases used to control burrowing wildlife are efficient but often expensive. In the ADC program, fumigants are only used in rodent burrows and in predator dens. The ADC program manufactures at the Pocatello Supply Depot, and uses den cartridges especially formulated for these purposes. The cartridges are placed in the active burrows of target animals, the fuse is lit, and the entrance is then tightly sealed with soil. The burning cartridge causes death by oxygen depletion and carbon monoxide poisoning.

APPENDIX 2 -PREDATOR POPULATION MODELS

Predicted Coyote Population Information - South and San Luis Districts	
Total Acres of Habitat, South and San Luis District	36,794,349
Total Square Miles	57,491
Density (Individuals per square mile)	1.00 (low) 5.00 (high)
Sex Ratio	.5
Female Breeding Success	.65
Litter Size	5.50
Adult Mortality (estimate)	.35
Juvenile Mortality	.54
Total Adults	57,491 (low) 287,455 (high)
Breeding Females	28,746 (low) 143,728 (high)
Young at Den	102,765 (low) 513,828 (high)
Population Before Mortality	160,256 (low) 801,283 (high)
Juvenile Mortality	55,493 (low) 277,467 (high)
Adult Mortality	20,122 (low) 100,609 (high)
Animal Damage Control	2,186
Sport Hunting and Trapping	22,292
Total Mortality	75,615 (low) 378,076 (high)
Percentage of APHIS-ADC Take Of total mortality	2.9
Of population	1.4

From CEQA (1996) with revisions for the APHIS-ADC California South and San Luis Districts from State of California, 1990.

Predicted Bobcat Population Information - South and San Luis Districts	
Total Acres of Habitat, South and San Luis Districts	26,631,506
Total Square Miles	41,612
Density (Individuals per square mile)	.55 (low) .58 (high)
Sex Ratio	.50
Female Breeding Success	.53
Litter Size	2.70
Adult Mortality (estimate)	.41
Juvenile Mortality	.20
Total Adults	22,887 (low) 24,135 (high)
Breeding Females	11,444 (low) 12,068 (high)
Young at Den	16,376 (low) 21,179 (high)
Population Before Mortality	39,263 (low) 45,314 (high)
Juvenile Mortality	2,675 (low) 4,827 (high)
Adult Mortality	9,384 (low) 9,895 (high)
Animal Damage Control	10
Sport Hunting and Trapping	1,349
Total Mortality	12,059 (low) 14,722 (high)
Percentage of APHIS-ADC Take	
Of total mortality	.08
Of population	.02

From CEQA (1996) with revisions for the APHIS-ADC California South and San Luis Districts from State of California 1990.

Predicted Gray Fox Population Information - South and San Luis Districts	
Total Acres of Habitat, South and San Luis Districts	24,885,650
Total Square Miles	38,884
Density (Individuals per square mile)	1.00 (low) 3.04 (high)
Sex Ratio	.47
Female Breeding Success	.95
Litter Size	3.80
Adult Mortality (estimate)	.62
Juvenile Mortality	.45
Total Adults	38,884 (low) 118,207 (high)
Breeding Females	18,275 (low) 55,557 (high)
Young at Den	65,973 (low) 200,561 (high)
Population Before Mortality	104,857 (low) 318,768 (high)
Juvenile Mortality	29,688 (low) 90,252 (high)
Adult Mortality	24,108 (low) 73,288 (high)
Animal Damage Control	8
Sport Hunting and Trapping	1,137
Total Mortality	53,796 (low) 163,540 (high)
Percentage of APHIS-ADC Take Of total mortality	.014
Of population	.007

From CEQA (1996) with revisions for the APHIS-ADC California South and San Luis District from State of California, 1990.

APPENDIX 3 - U.S. FISH AND WILDLIFE SERVICE CORRESPONDENCE



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Animal Damage
Control

Federal Building
Room W-2316
2800 Cottage Way
Sacramento, CA 95825

June 5, 1997

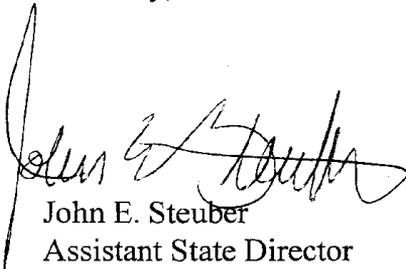
Mr. Joel Medlin
U.S. Fish and Wildlife Service
Ecological Services, Sacramento Field Office
3310 El Camino, Suite 130
Sacramento, CA. 95821-6340

Dear Mr. Medlin;

The purpose of this letter is to request an informal consultation and concurrence of findings pursuant to Section 7 of the Endangered Species Act for those listed species found in the ADC California San Luis and South Districts. We have reviewed the species list provided by your office on July 24, 1996, the Ventura Field Office on July 30, 1996, and the Carlsbad Field Office on February 20, 1997 and have evaluated our proposed action in relation to potential impacts it may have on threatened and endangered (T&E) species occurring within our analysis area. The U.S. Fish and Wildlife Service's (FWS) July 28, 1992 Biological Opinion (BO) (Attachment A) reviewed and analyzed ADC programmatic activities. Those findings are pertinent to this review since ADC is currently adhering to all of the applicable "reasonable and prudent measures" stipulated to preclude jeopardy and minimize incidental take of listed species.

Please let us know if you concur with our assessment of the impacts of our proposed action on all of the listed species within this biological assessment project area.

Sincerely,



John E. Steuber
Assistant State Director
California State Office

Enclosures:
Biological Assessment - ADC California Biological Assessment



APHIS—Protecting American Agriculture

I. INTRODUCTION

The purpose of this document is to evaluate the effects of the of the proposed Animal Damage Control (ADC) program in the California ADC San Luis and South Districts on the habitat and continued existence of Threatened and Endangered (T&E) fish, wildlife, and plant species which may be in the project area or affected by activities occurring within the project area. The Biological Assessment (BA) is prepared in accordance with legal requirements set forth under section 7 of the Endangered Species Act [19 U.S.C. 1536 (c)].

The following list was provided by the Sacramento Field Office, the Carlsbad Field Office, and the Ventura Field Office, Ecological Services of the U.S. Fish and Wildlife Service (FWS). This Biological Assessment addresses the following species:

BIRDS:

- *Aleutian Canada goose (*Branta canadensis leucopareia*)
- **American peregrine falcon (*Falco peregrinus anatum*)
- ***Arctic peregrine falcon (*Falco peregrinus tundruis*)
- *bald eagle (*Haliaeetus leucocephalus*)
- ***California brown pelican (*Pelecanus occidentalis californicus*)
- ***California clapper rail (*Rallus longirostris obsoletus*)
- ***light-footed clapper rail (*Rallus longirostris levipes*)
- ***California least tern (*Sterna antillarum (= albifrons) browni*)
- **California condor (*Gymnogyps californianus*)
- Least Bell's vireo (*Vireo bellii pusillus*)
- mountain plover (*Charadrius montanus*)
- southwestern willow flycatcher (*Empidonax traillii extimus*)
- western snowy plover (*Charadrius alexandrinus nivosus*)
- San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*)
- San Clemente sage sparrow (*Amphispiza belli clementeae*)
- coastal California gnatcatcher (*Podioptila californica californica*)
- marbled murrelet (*Brachyramphus marmoratus*)
- Yuma clapper rail (*Rallus longirostris yumanensis*)

MAMMALS:

- ***giant kangaroo rat (*Dipodomys ingens*)
- ***Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)
- ***Tipton's kangaroo rat (*Dipodomys nitratoides nitratoides*)
- pacific pocket mouse (*Perognathus longimembris pacificus*)
- riparian brush rabbit (*Sylvilagus bachmani riparius*)
- ***salt marsh harvest mouse (*Reithrodontomys raviventris*)
- **San Joaquin kit fox (*Vulpes macrotis mutica*)
- San Joaquin Valley woodrat (*Neotoma fuscipes riparia*)
- southern sea otter (*Enhydra lutris nereis*)

MAMMALS (Cont.):

- Steller (=northern) sea-lion (*Eumetopias jubatus*)
- Stephens' kangaroo rat (*Dipodomys stephensi*) Includes *D. cascus*
- Guadalupe fur seal (*Arctocephalus townsendi*)
- Peninsular bighorn sheep (*Ovis canadensis cremnobates*)
- San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvis*)

REPTILES:

- *blunt-nosed leopard lizard (*Gambelia* (= *Crotaphytus*) *silus*)
- Coachella Valley fringed-toed lizard (*Uma inornata*)
- *desert tortoise (*Gopherus agassizii*)
- *desert tortoise (Mojave desert population) (*Gopherus agassizii*)
- flat-tailed horned lizard (*Phrynosoma mcalli*)
- giant garter snake (*Thamnophis gigas*)
- ***green sea turtle (*Chelonia mydas*) includes (*agassizi*)
- *island night lizard (*Xantusia riversiana*)
- ***leatherback sea turtle (*Dermochelys coriacea*)
- ***loggerhead sea turtle (*Caretta caretta*)
- ***olive (= Pacific) ridley sea turtle (*Lepidochelys olivacea*)
- *San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

AMPHIBIANS:

- arroyo southwestern toad (*Bufo microscaphus californicus*)
- California red-legged frog (*Rana aurora draytoni*)
- California tiger salamander (*Ambystoma californiense*)
- desert slender salamander (*Batrachoseps aridus*)
- Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)

FISH:

- bonytail chub (*Gila elegans*)
- Colorado squawfish (*Ptycheilus lucius*)
- delta smelt (*Hypomesus transpacificus*)
- desert pupfish (*Cyprinodon macularius*)
- Mojave tui chub (*Gila bicolor mohavensis*)
- razorback sucker (*Xyrauchen texanus*)
- Sacramento splittail (*Pogonichthys macrolepidotus*)
- Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)
- tidewater goby (*Eucyclogobius newberryi*)
- winter-run chinook salmon (*Oncorhynchus tshawytscha*)

INVERTEBRATES:

- Morro shoulderband snail (=banded dune snail) (*Helminthoglypta walkeriana*)
- bay checkerspot butterfly (*Euphydryas editha bayensis*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)

INVERTEBRATES (Cont.):

Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)
El Segundo blue butterfly (*Euphilotes (=Shijimiaeoides) battoides allyni*)
Laguna Mountains skipper (*Pyrgus ruralis lagunae*)
longhorn fairy shrimp (*Branchinecta longiantenna*)
Mt. Herman June beetle (*Polyphylla barbata*)
mission blue butterfly (*Incaricia icariodes missionensis*)
Palo Verdes blue butterfly (*Glaucopsuche lygdamus palosverdesensis*)
Quino checkerspot butterfly (*Euphydryas editha quino*)
Riverside fairy shrimp (*Streptocephalus woottoni*)
San Bruno elfin butterfly (*Incisalia mossii bayensis*)
Santa Cruz rain beetle (*Pleocoma conjugens conjugens*)
San Diego fairy shrimp (*Branchinecta sandiegensis*)
Smith's blue butterfly (*Euphilotes enoptes smithi*)
vernal pool fairy shrimp (*Branchinecta lynchi*)
Zayante band-winged grasshopper (*Trimerotropis infantilis*)

PLANTS:

ash grey Indian-paintbrush (*Castilleja cinerea*)
beach layia (*Layia carnosa*)
Bear Valley sandwort (*Arenaria ursina*)
Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*)
Ben Lomond wallflower (*Erysimum teretifolium*)
big-leaved crown-beard (*Verbesina dissita*)
Braunton's milk-vetch (*Astragalus brauntonii*)
California dandelion (*Taraxacum californicum*)
California jewelflower (*Caulanthus californicus*)
California orcutt grass (*Orcuttia californica*)
California sea blite (*Suaeda californica*)
Camatta Canyon amole (*Chlorogalum purpureum* var. *reductum*)
Catalina mountain-mahogany (*Cercocarpus traskiae*)
Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*)
Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*)
coastal dunes milk-vetch (*Astragalus tener* var. *titi*)
Congdon's tarplant (*Hemizonia congdonii*)
coyote ceanothus (*Ceanothus ferrisae*)
Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)
Cushenbury milk-vetch (*Astragalus albens*)
Cushenbury oxytheca (*Oxytheca parishii* var. *goodmaniana*)
Dehesa bear-grass (*Nolina interrata*)
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)
Encinitas baccharis (San Diego coyote bush) (*Baccharis vanessae*)
fountain thistle (*Cirsium fontinale* var. *fontinale*)
Gambel's watercress (*Rorippa gambellii*)

PLANTS (Cont.):

- Hidden Lake bluecurls (*Trichostema austrorontanum* ssp.)
Hoover's woolly-star (*Eriastrum hooveri*)
Indian Knob mountainbalm (*Eriodictyon altissimum*)
island rock cress (*Sibara filifolia*)
Johnston's rock cress (*Arabis johnstonii*)
La Graciosa thistle (*Cirsium loncholepis*)
Laguna Beach live-forever (*Dudleya stolonifera*)
Lyon's pentachaeta (*Pentachaeta lyonii* (= *Chaetopappa l.*)
marcescent dudleya (*Dudleya cymosa* ssp. *marcescens*)
Marin dwarf-flax (*Hesperolinon congestum*)
marsh sandwort (*Arenaria paludicola*)
Menzie's wallflower (*Erysimum menziesii* ssp. *menziesii*)
Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*)
Mexican flannelbush (*Fremontodendron mexicanum*)
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)
Morro manzanita (*Arctostaphylos morroensis*)
Munz's onion (*Allium munzii*)
Nevin's barberry (*Berberis nevinii*)
Nipomo Mesa lupine (*Lupinus nipomensis*)
Orcutt's spineflower (*Chorizanthe orcuttiana*)
Otay mesa mint (*Pogogyne nudiuscula*)
Otay tarplant (*Hemizonia conjugens*)
oval-leaved dudleya (*Dudleya cymosa* ssp. *ovatofolia*)
Parish's daisy (*Erigeron parishii*)
pedate checker-mallow (*Sidalcea pedata*)
Pierson's milk-vetch (*Astragalus magdalenae* var. *piersonii*)
Pismo clarkia (*Clarkia speciosa* spp. *immaculata*)
Presidio clarkia (*Clarkia franciscana*)
Presidio manzanita (*Arctostaphylos hookeri* ssp. *ravenii*)
purple amole (*Chlorogalum purpureum* var. *purpureum*)
robust spineflower (*Chorizanthe robusta* var. *robusta*)
salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*)
San Benito evening-primrose (*Camissonia benitensis*)
San Bernardino blue grass (*Poa atropurpurea*)
San Bernardino Mountains bladderpod (*Lesquerella kingii* spp. *bernardina*)
San Clemente Island bush mallow (*Malacothamnus clementinus*)
San Clemente Island Indian paintbrush (*Castilleja grisea*)
San Clemente Island larkspur (*Delphinium kinkienae*)
San Clemente Island lotus (*Lotus dendroideus* var. *traskiae*)
San Clemente Island woodland star (*Lithophragma maximum*)
sand gilia (*Gilia tenuiflora* ssp. *arenaria*)
San Diego button celery (*Eryngium aristulatum* var. *parishii*)
San Diego mesa mint (*Pogogyne abramsii*)

PLANTS (Cont.):

San Diego thornmint (*Acanthomintha ilicifolia*)
San Francisco lessingia (*Lessingia germanorum*)
San Gabriel Mountains dudleya (*Dudleya densiflora*)
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)
San Joaquin wooly-threads (*Lembertia congdonii*)
San Mateo thornmint (*Acanthomintha duttonii*)
San Mateo wooly sunflower (*Eriophyllum latilobum*)
Santa Ana River wooly-star (*Eriastrum densiflorum* ssp. *sanctorum*)
Santa Clara Valley dudleya (*Dudleya setchellii*)
Santa Cruz cypress (*Cupressus abramsiana*)
Santa Cruz tarweed (*Holocarpha macradenia*)
Scott's Valley spineflower (*Chorizanthe robusta* var. *hartwegii*)
slender-horned spineflower (*Dodecahema leptoceras*)
slender-petaled mustard (*Thelypodium stenopetalum*)
southern mountain wild buckwheat (*Eriogonum kennedyi* var. *austromontanum*)
speading navarretia (*Navarretia fossalis*)
surf thistle (*Cirsium rhothophilum*)
thread-leaved brodiaea (*Brodiaea filifolia*)
Tiburon paintbrush (*Castilleja affinis* ssp. *neglecta*)
Tidestrom's lupine (*Lupinus tidestromii*)
triple-ribbed milk-vetch (*Astragalus tricarinatus*)
Vail Lake ceanothus (*Ceanothus ophiochilus*)
white-rayed pentachaeta (*Pentachaeta bellidiflora*)
willowy monardella (*Monardella linoides* ssp. *viminea*)
Yadon's wallflower (*Erysimum menziesii* ssp. *yadonii*)

CRITICAL HABITAT:

**California condor (*Gymnogyps californianus*)
***American peregrine falcon (*Falco peregrinus anatum*)
winter-run chinook salmon (*Oncorhynchus tshawytscha*)
delta smelt (*Hypomesus transpacificus*)

* These species were previously covered under the FWS's July 28, 1992 Biological Opinion (BO) on the ADC Program Final Environmental Impact Statement (file FWS/FWE/DES). Incidental take of these species was granted in accordance with section 7 of the endangered species Act of 1973, as amended. All appropriate reasonable and prudent measures and terms and conditions will be complied with in the implementation of the San Luis and South District's wildlife damage management program. Therefore, these species will not be further addressed in this biological assessment (BA) unless the FWS reveals new information on these species that were not considered in the 1992 FWS BO.

** These species were previously covered under the FWS's July 28, 1992 BO on the ADC Program Final Environmental Impact Statement (file FWS/FWE/DES). A jeopardy

determination was made and reasonable and prudent alternatives were developed. The FWS determined that implementation of the 1992 reasonable and prudent alternatives for these species would not result in take. All appropriate reasonable and prudent alternatives will be complied with in the implementation of the San Luis and South District's wildlife damage management program. Therefore, these species will not be further addressed in this BA unless the FWS reveals new information on these species that were not considered in the 1992 FWS BO.

*** In the FWS's 1992 BO, the FWS stated that they did not believe that any of these species would be adversely affected by any aspect of the ADC program. Therefore, these species will not be further addressed in this document because the proposed action has not changed.

II. CONSULTATION TO DATE

This BA was written for the effects of the ADC program in the ADC San Luis and South Districts. On November 4, 1996, ADC sent a packet of information to Maria Boroja (FWS Sacramento Field Office) concerning the biological assessment for ADC's Central District. Ms. Boroja reviewed the data and contacted the FWS Field Office in Ventura, CA. A phone discussion took place on January 7, 1997 between ADC representative John Steuber and FWS representatives Maria Boroja, Heather Bell, and Sheila Larsen. Discussions included pan tension weights in kit fox range and gas cartridge use. The FWS sent suggestions and questions to ADC on January 16, 1997. ADC discussed these suggestions with FWS on January 17, 1997. Another meeting was held on February 4, 1997 with ADC representatives, John Steuber and Gary Simmons and FWS representatives, Ken Sanchez, Maria Boroja, Heather Bell, Sheila Larsen, Ken Fuller, and Don Hovik. Comments were provided to ADC by FWS on February 7, 1997. Discussions on those comments were discussed by telephone on February 7 and February 10, 1997. FWS and ADC met on February 26, 1997 to discuss other FWS comments. John Steuber met with Maria Boroja on April 28, 1997 to discuss comments from the Ventura and Carlsbad Field Offices of the FWS. John Steuber discussed the BA with Annie Hoecker (FWS Carlsbad Field Office) by phone on April 30, 1997 and with Maria Boroja and Kate Symonds (FWS Ventura Field Office) by phone on May 1, 1997. John Steuber met with Maria Boroja on May 12, 1997. FWS sent comments to ADC on May 19, 1997. John Steuber discussed comments with Annie Hoecker on May 28 and June 2, 1997 and with Maria Boroja on May 29, May 30, and June 2, 1997. John Steuber met with Maria Boroja on June 2, 1997.

III. CURRENT MANAGEMENT DIRECTION

The primary statutory authority for the ADC program is the Animal Damage Control Act of March 2, 1931, as amended (7 U.S.C. 426-426c; 46 Stat. 1468). ADC activities are conducted at the request of and in cooperation with other Federal, State, and local agencies; private organizations; and individuals.

The final programmatic Environmental Impact Statement (EIS) for the ADC program was made available April 1994. In the programmatic EIS the Current Program Alternative, which uses an integrated pest management (IPM) approach to address wildlife damage problems, is the preferred alternative. The EIS documents the analysis of the ADC program for the protection of American agriculture, natural resources, and facilities and structures, and the safeguarding of public health and safety. The EIS follows the format recommended by the President's Council on Environmental Quality. The EIS addresses the entire ADC program, including its various functions, methods of operation, and locations throughout the Nation and it complies with the National Environmental Policy Act (NEPA) of 1969 which establishes policies, goals, and procedures to ensure that Federal agency decisions reflect an understanding of the environmental consequences of a proposed action and its alternatives.

The ADC program routinely consults with the FWS, Federal land management agencies, and the California Department of Fish and Game (CDFG) regarding program activities and impacts. USDA Forest Service (USFS) and USDI Bureau of Land Management (BLM) are cooperating agencies in the final ADC EIS.

All appropriate reasonable and prudent measures, terms and conditions, and reasonable and prudent alternatives listed in the 1992 FWS BO have been applied and adhered to in the implementation of the ADC San Luis and South District's wildlife damage management program.

IV. PROPOSED ACTION

PROJECT AREA

The analysis area (California ADC San Luis and South Districts) includes the following counties: Kern, Imperial, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura. ADC currently has cooperative agreements in Kern, San Luis Obispo, San Diego, and Santa Barbara Counties. There are 8 ADC Specialists assigned to those 4 counties, 2 Specialists in each county. ADC does not currently have cooperative agreements in the following 12 counties but we acknowledge a possibility of entering into cooperative agreements in the future: Imperial, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Ventura Counties. Realistically there would never be more than 6 to 8 ADC Specialists assigned to those 12 counties. During FY 1995, ADC conducted operational wildlife damage management activities on less than 4.3% of the total acreage within the counties listed above. The ADC program conducts wildlife damage management activities on localized tracts of private and public land on a temporary basis. None of the proposed activities will result in habitat modification. ADC operational activities are conducted only after a request is received for assistance in resolving a wildlife damage situation and only after a thorough investigation of the species responsible for the damage. The goal of ADC operational activities is to reduce or eliminate further damage. The proposal includes the

use of methods and activities where the public would not be affected.

GENERAL DISCUSSION

ADC's proposed action is to continue using the full range of wildlife damage management methods currently authorized. The ADC program provides assistance to protect livestock, crops, property, and human health and safety from wildlife damage conflicts. Our control actions are targeted at offending coyotes, black bears, mountain lions, bobcats, red fox, gray fox, beavers, muskrats, raccoons, striped and spotted skunks, opossums, weasels, badgers, marmots, feral pigs, feral dogs, feral cats, ravens, black birds, crows and starlings. Our approach to wildlife conflict resolution is commonly referred to as integrated wildlife damage management. The ADC in the Districts incorporates several control methods and techniques. A detailed list and description of each control method can be found in Attachment B. Not all listed methods are used in each cooperating county. The specific methods used in the Districts are listed below.

1. ADC would provide technical assistance throughout the Districts to livestock, crop and property managers on cultural practice and aversive tactics. This would be:
 - a) animal husbandry (shed lambing, guard dogs, guard llamas, etc.);
 - b) use of physical barriers (net wire fences, electric fences, pens);
 - c) habitat management and biological control;
 - d) audio repellants (gas exploders and pyrotechnics) ; and
 - e) visual repellants (effigies, scarecrows, and other scaring techniques).

Technical assistance is advice, recommendations, information, and materials provided by ADC employees for others to use in managing wildlife damage problems. ADC normally does not implement these methods but recommends them to producers and property owners or managers. However, devices such as the electronic guard (a strobe light-siren) or propane exploders are occasionally implemented by ADC to scare and harass predators away from areas needing protection (i.e. lambing grounds, calving areas, etc.) on private property. Electronic guards are normally recommended for use close to ranch buildings. Audio and visual repellents are occasionally recommended to farmers to repel migratory waterfowl from cropland. For a complete description of methods see the 1992 FWS BO and/or the ADC EIS.

2. ADC would use the following wildlife damage management techniques (not all methods are utilized in all cooperating counties):
 - a) nonlethal methods (leghold traps, cage traps, foot snares, dogs, Alpha-chloralose);
 - b) lethal nonchemical methods (shooting, neck snares, conibear traps, aerial shooting); and
 - c) lethal chemical methods (M-44 Sodium Cyanide devise, DRC-1339 avicide, Compound 1080 Livestock Protection Collar (LPC), gas cartridge, Sodium pentobarbital).

The Compound 1080 Livestock Protection Collar (LPC) was approved for use on May 4, 1990 by the U.S. Environmental Protection Agency. On February 27, 1996 the LPC was approved for use in California by the California Environmental Protection Agency (Cal EPA). The California ADC Specialists using the LPC are required to be trained and certified by the ADC Trainers, in a course approved by Cal EPA. The ADC programmatic Environmental Impact Statement (USDA 1994) fully assessed the impacts of the LPC and determined that no significant impacts would result from the use of the LPC in the ADC program where it is authorized to be used.

The DRC-1339 label has been submitted to Cal EPA for approval. Two DRC-1339 labels were approved for use in California by the Cal EPA on March 26, 1996 and an additional DRC-1339 label was approved on December 6, 1996. We are waiting for a response from Cal EPA on the submission of two other DRC-1339 labels. DRC-1339 will not be utilized in aquatic habitats. Prior to the application of DRC-1339, ADC will prebait the site to observe the area for any threatened and/or endangered species. If any threatened and/or endangered species are present, baiting will not be conducted. If any threatened and/or endangered species appear during baiting operations, the project will be suspended immediately.

For your reference, I have enclosed information from Appendix P of the ADC Final Programmatic EIS (Attachment B), which includes descriptions of all the methods listed above, along with a detailed risk assessment for each method.

Vehicle use is limited by the small number of ADC personnel in the project area (8 ADC Specialists in a 16 county area) and by the ethical conduct of ADC Specialists. It is simply not prudent or ethical to travel off existing roadways or trails on private property except where it is absolutely necessary.

V. EXISTING CONDITION

Currently within the ADC San Luis and South Districts, ADC is conducting wildlife damage management activities in Kern, San Diego, San Luis Obispo, and Santa Barbara Counties. There is a possibility that ADC activities could begin in the near future in Imperial, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Ventura Counties. During FY95, ADC conducted operational wildlife damage management activities on less than 4.3% of the total acreage within the counties listed above. ADC does not anticipate any significant changes (either increase or decrease) in the amount of acreage where activities are conducted on in FY 1997. The ADC program conducts wildlife damage management activities on localized tracts of private and public land on a temporary basis and only when requested by the land managers, land owners, or permittees.

None of the current or proposed activities result in habitat modification. ADC provides technical assistance to requestors throughout the Districts.

ADC work on BLM lands are in conformance with the Resource Management Plans (RMP), Management Framework Plans (MFP), and Interim Management Guidelines for Wilderness Study Areas (WSA). Any future wildlife damage management efforts conducted by ADC will be in accordance with the decisions made from the Environmental Assessment, Wildlife Damage Management for the Protection of Livestock, Property, and Human Health and Safety in the California San Luis and South Districts and Work Plans prepared in conjunction with the BLM.

ADC activities on National Forest lands are in compliance with the Land and Resources Management Plans (LRMP). any future wildlife damage management efforts conducted by ADC will be in accordance with the decisions made from the Environmental Assessment, wildlife Damage Management for the Protection of Livestock, Property, and Human Health and Safety in the California ADC San Luis and South Districts prepared in conjunction with the U.S. Forest Service.

VI. EFFECTS OF PROPOSED ACTION

The primary potential for impacts to any listed species would be associated with accidental injury or death of a nontarget listed species during efforts to control predation on livestock by predators and during efforts to reduce other damage caused by wildlife such as consumption and contamination of livestock feed, damage to drip irrigation, threats to human health and safety, and other damage.

There are currently eight ADC Specialists working in the field in the 16 county area covered by this biological assessment.

California condor (*Gymnogyps californianus*)- FWS has requested ADC to contact a FWS biologist at the the FWS Office at Hopper Mountain National Wildlife Refuge regarding the location of condors prior to the implementation of any predator damage management activities within the range of the condor. Since most ground activities are continuous throughout the year the FWS will be contacted yearly on those activities. Since aerial operations take place for short periods of time throughout the year, ADC will contact FWS prior to aerial hunting operations within the California condor range. ADC will consult with one of the FWS condor biologists at Hopper Mountain prior to initiating an operational program in any county where there is currently no cooperative agreement for operational ADC work.

ADC will extend compliance of all reasonable and prudent alternatives (1992 FWS BO) for the condor to Monterey County since there are now condors in Monterey County. Monterey County was not included in the condor range in the 1992 FWS BO and is currently a non-cooperating county.

Least Bell's vireo (*Vireo bellii pusillus*)- The least Bell's vireo is a rare, local, summer resident of dense valley/foothill riparian habitat consisting primarily of willow, mulefat, and cottonwood. Least Bell's vireo breeding pairs occur in the counties of Monterey, San Benito, Inyo, Imperial,

San Bernardino, Ventura, Los Angeles, Orange, Riverside, and San Diego, with the highest concentration being in San Diego County along the Santa Margarita River. Gleaning insects from plants is the prominent form of foraging for the least Bell's vireo. Because of the habits of the least Bell's vireo and its small size, the vireo is not susceptible to most ADC control tools. There is little opportunity for the vireo to be adversely exposed to ADC program activities.

Mountain plover (*Charadrius montanus*)- The mountain plover is a winter resident in California from September through March. It winters in the Central Valley from Sutter and Yuba Counties southward. It feeds on insects. Because of the habits of the mountain plover and its small size, the mountain plover is not susceptible to any of ADC's control tools. There is no opportunity for the plover to be adversely exposed to ADC program activities. Any impact would likely be beneficial by removing known predators of the plover.

Southwestern willow flycatcher (*Empidonax traillii extimus*)- The southwestern willow flycatcher is a rare summer resident of California in wet meadow and montane riparian habitats. It feeds primarily on flying insects but occasionally eats berries and seeds. ADC will minimize habitat disturbance by limiting activities within the proposed critical habitat of the southwestern willow flycatcher during the breeding season (May through September) to a minimum. If it is necessary to work within the proposed critical habitat during the breeding season, ADC will work along existing trails and along edges of riparian areas so as to not disturb any nesting habitat. If it is necessary to pursue a predator through the proposed critical habitat (during the breeding season) with tracking dogs to resolve a human health and safety incident, ADC will notify FWS after resolution of the incident. For livestock and property damage incidents, ADC will refrain from utilizing tracking dogs to pursue predators through the proposed critical habitat during the May through September breeding season. Because of the behavior of the southwestern willow flycatcher and its small size, it is not susceptible to most ADC control tools. There is little opportunity for the flycatcher to be exposed to ADC program activities.

Western snowy plover (*Charadrius alexandrinus nivosus*)- The western snowy plover's habitat includes sandy marine and estuarine shorelines. Also found inland along the shore of alkali lakes. Because of the habitats utilized by the western snowy plover and its small size, it is not susceptible to any of ADC's tools. There is little opportunity for the western snowy plover to be adversely exposed to ADC program activities. ADC does not routinely conduct operations within western snowy plover nesting areas except for work directed at protecting the plover from known predators. FWS provided cooperative funding to ADC for a number of projects to protect the western snowy plover from predation. Impacts would likely be beneficial by reducing predation on these ground nesting birds.

San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*)- The San Clemente loggerhead shrike is very rare resident of San Clemente Island. The only work ADC does on the island is specifically for the protection of the San Clemente loggerhead shrike. The shrike is not susceptible to any of the ADC tools utilized on the island. Therefore there is no opportunity for the shrike to be adversely affected by any ADC program activities. Impacts would likely be beneficial by removing known predators of the shrikes.

San Clemente sage sparrow (*Amphispiza belli clementeae*)- The San Clemente sage sparrow is a resident of San Clemente Island. The only work ADC does on San Clemente Island is for the protection of the San Clemente loggerhead shrike. Because of its small size, the San Clemente sage sparrow is not susceptible to ADC's management tools. Therefore there is no opportunity for the San Clemente sage sparrow to be adversely exposed to ADC activities.

Coastal California gnatcatcher (*Polioptila californica californica*)- The coastal California gnatcatcher is an endemic, uncommon resident of the scrub dominated plant communities in coastal California and northwestern Baja California, Mexico. It is found from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties. ADC activities are rare in the occupied habitat of the coastal California gnatcatcher. Because of the habits and this bird and its small size, the gnatcatcher is not susceptible to most ADC control tools. Therefore there is little opportunity for the gnatcatcher to be adversely exposed to any ADC program activities.

Marbled murrelet (*Brachyramphus marmoratus*)- Marbled murrelets occur in marine subtidal and pelagic habitats along the California coastline. They require dense, mature forests of redwood and Douglas fir for breeding and nesting. ADC activities are rare in this habitat type, therefore there is no opportunity for these arboreal nesters, which feed in marine habitats, to be adversely exposed to any ADC program activities.

Yuma clapper rail (*Rallus longirostris yumanensis*)- Yuma clapper rails are found April through September in freshwater and brackish emergent wetlands along the Colorado River from Needles southward, and around the Salton Sea. ADC activities do not ordinarily take place in rail habitat, therefore there is no opportunity for rails to be adversely affected by ADC program activities. Impacts would likely be beneficial by reducing predation at the nesting sites of these ground nesting birds.

Pacific pocket mouse (*Perognathus longimembris pacificus*)- The Pacific pocket mouse is endemic to the immediate coast of southern California. There are currently four known populations: one within Orange County and three occurring on Marine Corps Base, Camp Pendleton in San Diego County. Suitable habitat includes fine-grain, sandy or gravelly substrates in the immediate vicinity of the Pacific Ocean. It is not susceptible to any of the proposed ADC control tools. The pocket mouse lives in burrows which it plugs during the day. The proposed action does not include the use of any rodenticides or small rodent traps. There is little opportunity for the Pacific pocket mouse to be adversely exposed to any ADC program activities. Impacts may be beneficial by removing known predators of the Pacific pocket mouse.

Riparian brush rabbit (*Sylvilagus bachmani riparius*)- The riparian brush rabbit is restricted to the Caswell State Park in San Joaquin County. ADC does not conduct activities in the state park, therefore there is no opportunity for the riparian brush rabbit to be adversely exposed to any ADC program activities.

San Joaquin Valley woodrat (*Neotoma fuscipes riparia*)- The San Joaquin Valley woodrat is a rare resident of the lower San Joaquin Valley. It feeds mainly on woody plants. It does not live in the ground but rather builds houses out of sticks and leaves at the base of, or in a tree, around a shrub, or at the base of a hill.

The proposed action does not include the use of rodenticides or small rodent traps. If a need arises for the use of leghold traps within the range of the San Joaquin Valley woodrat the traps will incorporate an attached pan tensioning device to eliminate the capture of all smaller non-target animals such as the San Joaquin Valley woodrat.

The San Joaquin woodrat is not susceptible to other ADC management tools. There is no opportunity for the San Joaquin Valley woodrat to be adversely exposed to any ADC program activities. Any impact would likely be beneficial by reducing predation on the woodrat.

San Joaquin kit fox (*Vulpes macrotis mutica*)- ADC met with the FWS on Feb. 19, 1997 and discussed new information on the San Joaquin kit fox. FWS agreed to provide ADC with an updated map for the kit fox which includes recent sitings outside the 1990 map provided to ADC. The FWS is producing this map to be used solely by ADC personnel in the range of the kit fox and for the purpose of ADC predator management for the protection of livestock, property, and human health and safety. The updated map will include areas where FWS feels the kit fox is likely to occur outside the previous map produced for ADC, in particular, grassland areas adjacent to the current map. All appropriate reasonable and prudent alternatives will be complied with in the implementation of ADC program activities within this expanded range. ADC will consult with the FWS annually to discuss any new information on the kit fox.

Stephens' kangaroo rat (*Dipodomys stephensi*)- The Stephens' kangaroo rat is distributed from San Jacinto Valley to Riverside County, south to the vicinity of Vista, San Diego. It occurs primarily in open habitats with shrub cover typically less than 50%. The proposed action does not include the use of rodenticides or small rodent traps. The proposed action does include the use of gas cartridges for coyote damage management. The use of gas cartridges within the occupied habitats of the Stephens' kangaroo rat is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens.

If a need arises for the use of leghold traps within the range of the Stephens' kangaroo rat the traps will incorporate an attached pan tensioning device to eliminate the capture of all smaller non-target animals such as the Stephens' kangaroo rat. There is little opportunity for the Stephens' kangaroo rat to be adversely exposed to ADC program activities. Impact may be beneficial by removing known predators of the kangaroo rat.

Southern sea otter (*Enhydra lutris nereis*)- Sea otters are found in nearshore marine environments. ADC does not conduct activities in sea otter habitat. There is no opportunity for the sea otter to be adversely exposed to any ADC program activities.

Steller (=northern) sea-lion (*Eumetopias jubatus*)-The Steller sea-lion is infrequently observed at sea. It hauls out on land in small to moderate-sized groups on coastal islands, and occasionally on offshore rocks along the mainland. ADC does not conduct operations in this habitat. There is no opportunity for the Steller sea-lion to be adversely exposed to any ADC program activities.

Guadalupe fur seal (*Arcocephalus townsendi*)- Guadalupe fur seals are rarely seen in California. Occasionally they occur on San Miguel Island, San Nicholas Island, and once, on San Clemente Island. ADC does not conduct activities in the fur seals habitats thereforer there is no opportunity for the fur seals to be adversely affected by any ADC activities.

Peninsular bighorn sheep (*Ovis canadensis cremnobates*)- The peninsular bighorns occur in the Peninsular Ranges from San Jacinto and Santa Rosa Ranges south into Mexico. ADC work in the range would be very limited. If ADC were contacted to conduct predator damage management work for the protection of the bighorn sheep, ADC would consult with the FWS on the project.

San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvus*)- This species range is limited to southwestern San Bernardino County and western Riverside County. It is normally found in coastal sage and alluvial fan shrub and is associated with sandy substrates where there are plentiful open areas.

The proposed action does not include the use of rodenticides or small rodent traps. The proposed action does include the use of gas cartridges for coyote damage management. Much of the range of the San Bernardino Merriam's kangaroo rat overlaps with the Stephen's kangaroo rat. The use of gas cartridges within the occupied habitats of the Stephens' kangaroo rat is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens where it is unlikely that rodents would be coexisting with coyotes.

If a need arises for the use of leghold traps within the range of the San Bernardino Merriam's kangaroo rat the traps will incorporate an attached pan tensioning device to eliminate the capture of all smaller non-target animals such as the kangaroo rat. There is little opportunity for the San Bernardino Merriam's kangaroo rat to be adversely exposed to ADC program activities. Impacts may be beneficial by removing known predators of the kangaroo rat.

Coachella Valley fringed-toed lizard (*Uma inornata*)- The Coachella Valley fringed-toed lizard is uncommon and limited in range to sand dunes in the Coachella Valley, Riverside County. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. The use of gas cartridges within the occupied habitats of the Coachella Valley fringed-toed lizard is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens. The lizard is not susceptible to any of ADC's other control tools.

ADC will not conduct work within the reserves (sand dunes) of the Coachella Valley fringed-toed lizard without first consulting with the FWS. Therefore, there is no opportunity for the lizard to be adversely exposed to ADC program activities.

Flat-tailed horned lizard (*Phrynosoma mcalli*)- The flat-tailed horned lizard is restricted to areas of fine sand and sparse vegetation in desert washes and desert flats in central Riverside, eastern San Diego and Imperial Counties. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. It is not susceptible to any ADC program tools, therefore there is little opportunity for the flat-tailed horned lizard to be adversely exposed to any ADC program activities.

Giant garter snake (*Thamnophis couchi gigas*)- The giant garter snake is found on the floor of the Central Valley from Sacramento and Antioch south to Bueno Vista Lake, Kern County. This snake is not susceptible to any of ADC's management tools. Because of the way snakes distribute their weight and because the snake is not attracted to predator baits, the giant garter snake is not susceptible to leghold traps with pan tension devices. The proposed action does not include the use of rodenticides. There is little opportunity for the giant garter snake to be adversely exposed to any ADC program activities.

Island night lizard (*Xantusia riversiana*)- The island night lizard occurs on the channel islands off the coast of southern California. The use of gas cartridges for coyote damage management is included in this proposed action. However, coyotes do not occur on the Channel Islands therefore ADC does not conduct coyote damage management on the islands. The use of the gas cartridge within the occupied habitat of the island night lizard is prohibited by the label. The night lizard is not susceptible to any other ADC control tool. There is no opportunity for the island night lizard to be adversely exposed to ADC program activities. Any impacts would likely be beneficial by removing known predators of the island night lizard.

Arroyo southwestern toad (*Bufo microscaphus californicus*)- The arroyo southwestern toad is not susceptible to any ADC control tools. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. There is no opportunity for the arroyo southwestern toad to be adversely exposed to ADC program activities.

California red-legged frog (*Rana aurora draytoni*)- The California red-legged frog inhabits quiet pools of streams, marshes, and occasionally ponds. It prefers shorelines with extensive vegetation. The red-legged frog is not susceptible to any ADC management tools. Leghold traps incorporate pan tension devices which preclude the capture of smaller nontarget animals such as the California red-legged frog. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. Gas cartridges are used only in active coyote dens which 1) do not normally occur in wet/moist areas associated with the red-legged frog and 2) do not normally harbor frogs coexisting with coyotes. There is little opportunity for the red-legged frog to be adversely

exposed to ADC program activities. Impacts may be beneficial by removing known predators of the frog.

California tiger salamander (*Ambystoma californiense*)- The California tiger salamanders range includes the Central Valley from Yolo County south to Kern County, and coastal grasslands from the vicinity of San Francisco Bay south at least to Santa Barbara County. The salamander is not susceptible to any ADC tools. Leghold traps incorporate pan tension devices which preclude the capture of smaller nontarget animals such as the California tiger salamander. Gas cartridges are used only in active coyote dens which do not normally harbor salamanders coexisting with coyotes. The proposed action does not include the use of rodenticides. There is little opportunity for the California slender salamander to be adversely affected by ADC program activities.

Desert slender salamander (*Batrachoseps aridus*)- The desert slender salamander is found only in Hidden Palm Canyon, a tributary of Deep Canyon, Riverside County. The desert slender salamander is not susceptible to any of ADC's control tools. Leghold traps incorporate pan tension devices which preclude the capture of smaller nontarget animals such as the California tiger salamander. Gas cartridges are used only in active coyote dens which do not normally harbor salamanders coexisting with coyotes. The proposed action does not include the use of rodenticides. There is little opportunity for the desert slender salamander to be adversely exposed to any ADC program activities.

Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)- The Santa Cruz long-toed salamander is not susceptible to any of ADC's control tools. Leghold traps incorporate pan tension devices which preclude the capture of smaller nontarget animals such as the California tiger salamander. Gas cartridges are used only in active coyote dens which do not normally harbor salamanders coexisting with coyotes. The proposed action does not include the use of rodenticides. There is little opportunity for the Santa Cruz long-toed salamander to be adversely exposed to any ADC program activities.

The following list of T&E species of fish, plants and invertebrates were evaluated by the ADC program:

• FISH:

- bonytail chub (*Gila elegans*)
- Colorado squawfish (*Ptycheilus lucius*)
- delta smelt (*Hypomesus transpacificus*)
- desert pupfish (*Cyprinodon macularius*)
- Mojave tui chub (*Gila bicolor mohavensis*)
- razorback sucker (*Xyrauchen texanus*)
- Sacramento splittail (*Pogonichthys macrolepidotus*)
- Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)
- tidewater goby (*Eucyclogobius newberryi*)
- winter-run chinook salmon (*Oncorhynchus tshawytscha*)

INVERTEBRATES:

- banded dune snail (=Morro shoulderband snail) (*Helminthoglypta lynchi*)
- bay checkerspot butterfly (*Euphydryas editha bayensis*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)
- El Segundo blue butterfly (*Euphilotes* (= *Shijimiaeoides*) *battoides allyni*)
- Laguna Mountains skipper (*Pyrgus ruralis lagunae*)
- longhorn fairy shrimp (*Branchinecta longiantenna*)
- Mt. Herman June beetle (*Polyphylla barbata*)
- mission blue butterfly (*Incaricia icariodes missionensis*)
- Palo Verdes blue butterfly (*Glaucopsuche lygdamus palosverdesensis*)
- Quino checkerspot butterfly (*Euphydryas editha quino*)
- Riverside fairy shrimp (*Streptocephalus woottoni*)
- San Bruno elfin butterfly (*Incisalia mossii bayensis*)
- Santa Cruz rain beetle (*Pleocoma conjugens conjugens*)
- San Diego fairy shrimp (*Branchinecta sandiegensis*)
- Smith's blue butterfly (*Euphilotes enoptes smithi*)
- vernal pool fairy shrimp (*Branchinecta lynchi*)
- Zayante band-winged grasshopper (*Trimerotropis infantilis*)

PLANTS:

- ash grey Indian-paintbrush (*Castilleja cinerea*)
- beach layia (*Layia carnosa*)
- Bear Valley sandwort (*Arenaria ursina*)
- Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*)
- Ben Lomond wallflower (*Erysimum teretifolium*)
- big-leaved crown-beard (*Verbesina dissita*)
- Braunton's milk-vetch (*Astragalus brauntonii*)
- California dandelion (*Taraxacum californicum*)
- California jewelflower (*Caulanthus californicus*)
- California orcutt grass (*Orcuttia californica*)
- California sea blite (*Suaeda californica*)
- Camatta Canyon amole (*Chlorogalum purpureum* var. *reductum*)
- Catalina mountain-mahogany (*Cercocarpus traskiae*)
- Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*)
- Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*)
- coastal dunes milk-vetch (*Astragalus tener* var. *titi*)
- Congdon's tarplant (*Hemizonia congdonii*)
- coyote ceanothus (*Ceanothus ferrisae*)
- Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)
- Cushenbury milk-vetch (*Astragalus albens*)
- Cushenbury oxytheca (*Oxytheca parishii* var. *goodmaniana*)
- Dehesa bear-grass (*Nolina interrata*)
- Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)

PLANTS (Cont.):

- Encinitas baccharis (San Diego coyote bush) (*Baccharis vanessae*)
fountain thistle (*Cirsium fontinale* var. *fontinale*)
Gambel's watercress (*Rorippa gambellii*)
Hidden Lake bluecurls (*Trichostema austromontanum* ssp.)
Hoover's woolly-star (*Eriastrum hooveri*)
Indian Knob mountainbalm (*Eriodictyon altissimum*)
island rock cress (*Sibara filifolia*)
Johnston's rock cress (*Arabis johnstonii*)
La Graciosa thistle (*Cirsium loncholepis*)
Laguna Beach live-forever (*Dudleya stolonifera*)
Lyon's pentachaeta (*Pentachaeta lyonii* (= *Chaetopappa* l.)
marcescent dudleya (*Dudleya cymosa* ssp. *marcescens*)
Marin dwarf-flax (*Hesperolinon congestum*)
marsh sandwort (*Arenaria paludicola*)
Menzie's wallflower (*Erysimum menziesii* ssp. *menziesii*)
Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*)
Mexican flannelbush (*Fremontodendron mexicanum*)
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)
Morro manzanita (*Arctostaphylos morroensis*)
Munz's onion (*Allium munzii*)
Nevin's barberry (*Berberis nevinii*)
Nipomo Mesa lupine (*Lupinus nipomensis*)
Orcutt's spineflower (*Chorizanthe orcuttiana*)
Otay mesa mint (*Pogogyne nudiuscula*)
Otay tarplant (*Hemizonia conjugens*)
oval-leaved dudleya (*Dudleya cymosa* ssp. *ovatofolia*)
Parish's daisy (*Erigeron parishii*)
pedate checker-mallow (*Sidalcea pedata*)
Pierson's milk-vetch (*Astragalus magdalenae* var. *piersonii*)
Pismo clarkia (*Clarkia speciosa* spp. *immaculata*)
Presidio clarkia (*Clarkia franciscana*)
Presidio manzanita (*Arctostaphylos hookeri* ssp. *ravenii*)
purple amole (*Chlorogalum purpureum* var. *purpureum*)
robust spineflower (*Chorizanthe robusta* var. *robusta*)
salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*)
San Benito evening-primrose (*Camissonia benitensis*)
San Bernardino blue grass (*Poa atropurpurea*)
San Bernardino Mountains bladderpod (*Lesquerella kingii* spp. *bernardina*)
San Clemente Island bush mallow (*Malacothamnus clementinus*)
San Clemente Island Indian paintbrush (*Castilleja grisea*)
San Clemente Island larkspur (*Delphinium kinkienae*)
San Clemente Island lotus (*Lotus dendroideus* var. *traskiae*)
San Clemente Island woodland star (*Lithophragma maximum*)

PLANTS (Cont.):

sand gilia (*Gilia tenuiflora* ssp. *arenaria*)
San Diego button celery (*Eryngium aristulatum* var. *parishii*)
San Diego mesa mint (*Pogogyne abramsii*)
San Diego thornmint (*Acanthomintha ilicifolia*)
San Francisco lessingia (*Lessingia germanorum*)
San Gabriel Mountains dudleya (*Dudleya densiflora*)
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)
San Joaquin wooly-threads (*Lembertia congdonii*)
San Mateo thornmint (*Acanthomintha duttonii*)
San Mateo wooly sunflower (*Eriophyllum latilobum*)
Santa Ana River wooly-star (*Eriastrum densiflorum* ssp. *sanctorum*)
Santa Clara Valley dudleya (*Dudleya setchellii*)
Santa Cruz cypress (*Cupressus abramsiana*)
Santa Cruz tarweed (*Holocarpha macradenia*)
Scott's Valley spineflower (*Chorizanthe robusta* var. *hartwegii*)
slender-horned spineflower (*Dodecahema leptoceras*)
slender-petaled mustard (*Thelypodium stenopetalum*)
southern mountain wild buckwheat (*Eriogonum kennedyi* var. *austromontanum*)
speading navarretia (*Navarretia fossalis*)
surf thistle (*Cirsium rhotophilum*)
thread-leaved brodiaea (*Brodiaea filifolia*)
Tiburon paintbrush (*Castilleja affinis* ssp. *neglecta*)
Tidestrom's lupine (*Lupinus tidestromii*)
triple-ribbed milk-vetch (*Astragalus tricarinatus*)
Vail Lake ceanothus (*Ceanothus ophiochilus*)
white-rayed pentachaeta (*Pentachaeta bellidiflora*)
white-rayed pentachaeta (*Pentachaeta bellidiflora*)
willowy monasdella (*Monardella linoides* ssp. *viminea*)
Yadon's wallflower (*Erysimum menziesii* ssp. *yadonii*)

Critical habitat for the winter-run chinook salmon, and delta smelt.

VII. CONCLUSIONS

The following conclusions led to our final determination of the effects that implementation of the proposed ADC activity in the San Luis and South Districts would have on threatened and endangered species:

1. Leghold traps do not pose a threat to T&E species in the San Luis and South Districts if they are used with pan tension devises and if set at least 30 feet from an exposed bait station. The use of leghold traps does not involve the alteration of native vegetation. A small hole, normally 1-2" deep and 6-8" in diameter is normally dug to set a leghold trap. Traps are normally set on bare

ground. Only padded leghold traps will be utilized within the range of the San Joaquin kit fox and, as with all leghold traps in California, the padded leghold traps will be checked daily. In California condor range only single sets will be made.

2. Cage traps do not pose a threat to T&E species when they are used in urban areas or are large enough to allow small T&E species to escape. Cage traps are checked daily which would allow for the release of any nontarget animals. Cage traps are routinely used by ADC to capture skunks, raccoons, and opossums. Cage traps are also used to capture mountain lions in urban and rural areas. These large cage traps do not pose a threat to T&E species as small species will not spring the trap.

3. Neck snares do not pose a threat to T&E species in this project area when properly set for target species and when set 30 feet or more from exposed bait. Neck snares will not be utilized within the range of the San Joaquin kit fox, as defined by the FWS.

4. Foot snares do not pose a threat to T&E species if they are used with pan tension devices and if bait is covered in some kind of bait pen or back in under a tree or shrub. Foot snares will not be used within the range of the San Joaquin kit fox, as defined by the FWS.

5. Dogs do not pose a threat to T&E species when properly trained to trail only target animals. ADC Specialists use highly trained and very disciplined dogs. Dogs will not be utilized to track predators responsible for livestock and/or property damage through the proposed critical habitat of the southwestern willow flycatcher during the breeding season (May through September).

6. Alpha-chloralose does not pose a threat to T&E species as it is delivered specifically to the target animals. All target animals will be removed from the field once they are under the influence of the drug. In the rare cases where a non-target animal receives a dose of Alpha-chloralose, that animal will be picked up and held until the drug wears off and released on site.

7. Shooting does not pose a risk to T&E species when conducted by professional ADC Specialists trained to identify target and nontarget species. Within the range of the California condor, any lead bullet or shot will be removed from coyote carcasses or the entire coyote carcass will be removed from the condor range.

8. Conibear traps do not pose a threat to T&E species in the San Luis and South Districts. No above water sets will be used within the range of the San Joaquin kit fox. Conibears are not used in marine environments where there would be the possibility of capturing a southern sea otter. The use of conibears for ground squirrels is not included in this proposed action.

9. Aerial hunting with steel shot does not pose a threat to T&E species when conducted by ADC professionals. ADC will contact the FWS Office at Hopper Mountain National Wildlife Refuge prior to aerial hunting operations within the condor range to obtain the latest information on areas where condors are roosting, so as to avoid such areas. Lead shot will not be used in any aerial hunting operations.

10. M-44 Cyanide Capsules do not pose a threat to T&E species present in the San Luis and South Districts when:

- set at least 30 feet from a draw station at all locations.
- in condor foraging habitat (Ventura, Kern, Santa Barbara, Monterey, and San Luis Obispo Counties) range they are used in single sets, are placed so they do not protrude above the ground level, and are covered or capped so they are not visible
- they are not used in the San Joaquin kit fox range, as defined by the FWS

11. DRC-1339 is not likely to adversely affect any T&E species in the San Luis and South Districts because of its specificity to target pest birds and its extremely low potential for secondary toxicity. The chance of adverse affects are further reduced by following the label directions. Prebaiting must be conducted to identify if any T&E species are in the area. If any T&E species are present during prebaiting, no baiting will be done. If any T&E species appear during baiting, the operation will be suspended and the bait will be removed from the field. All unconsumed bait material is disposed of in accordance with applicable state and federal laws. Carcasses of dead target birds are disposed of by burning or burial as authorized by applicable laws. DRC-1339 will not be used to control predators within the California condor range.

12. Compound 1080 Livestock Protection Collars are not likely to adversely affect T&E species in the San Luis and South Districts. Research has shown that levels of 1080 residues in affected target coyotes killed by the LPC are so low that their tissues do not present a significant secondary hazard. The hazard is further reduced by use restrictions requiring LP collared livestock to be checked at least once every seven days. Intensive searches must be conducted if collared animals are not accounted for during these weekly checks. As indicated on the LPC Use Restrictions the LPC will not be used in Fresno, Kern, Kings, Los Angeles, Monterey, San Benito, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties (California condor). The LPC will not be used in the following counties without annual written approval from the nearest FWS office (FWS, Endangered Species Specialists): Alameda, Contra Costa, Merced, San Joaquin, Santa Clara, and Stanislaus (San Joaquin kit fox).

13. Gas cartridges for coyote damage management are not likely to adversely affect T&E species in the San Luis and South Districts when used by professional ADC Specialists trained to identify target coyote dens and nontarget dens. They are used only at active coyote den sites. Gas cartridges will not be used to control predators within the range of the San Joaquin kit fox, as defined by the FWS. Gas cartridges will not be used in the blunt-nosed lizard range. This proposal does not include the use of rodent gas cartridges.

14. Sodium pentobarbital does not pose a threat to T&E species as it is delivered directly to the target animal through injection and the carcass is disposed of properly.

15. Vehicle use will not pose a threat to T&E species because it is extremely limited by the small number of ADC personnel in the project area (8 ADC Specialists in a 16 county area) and by the ethical conduct of ADC Specialists. It is simply not prudent or ethical to travel off existing

roadways or trails on private property except where it is absolutely necessary. ADC will not drive vehicles through vernal pool habitat.

16. Audio and visual repellents will not pose a threat to T&E species since they are normally placed in croplands to protect crops from migratory waterfowl or are placed close to human habitation.

17. Predator damage management activities of ADC are not likely to adversely affect any T&E species by increasing meso-predator populations. ADC targets offending coyotes and does not significantly reduce overall predator populations.

VIII. DETERMINATION

Based on the analysis of the direct and indirect effects of implementing the proposed ADC activities in the San Luis and South Districts and the size and scope of the proposed action on the Federal listed threatened and endangered species within the Districts the following determinations have been made. The July 28, 1992 FWS BO specifically evaluated the possible effects of the ADC program on a number of the threatened and endangered species in the San Luis and South Districts. Determinations for those species will not be included in this Biological Assessment since the 1992 FWS BO included all wildlife damage management control methods currently utilized in the California ADC program activities.

It is my professional determination that implementing the proposed ADC activities in the San Luis and Central Districts are **not likely to adversely affect** the California condor or San Joaquin kit fox with the implementation of the 1992 FWS reasonable and prudent alternatives.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the Yuma clapper rail, western snowy plover, or San Clemente loggerhead shrike..

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no effect** on the San Clemente sage sparrow or marbled murrelet.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the pacific pocket mouse, or Stephens' kangaroo rat.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no effect** on the Riparian brush rabbit, southern sea otter, Steller sea-lion, or Guadalupe fur seal.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no effect** on the Coachella Valley fringed-toed lizard.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the giant garter snake, arroyo southwestern toad, California red-legged frog, desert slender salamander, or Santa Cruz long-toed salamander.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts **may affect individuals, but is not likely to result in a trend toward Federal listing** for the mountain plover, San Joaquin Valley woodrat, San Bernardino Merriam's kangaroo rat, and California tiger salamander.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts is **not likely to jeopardize the continued existence** of the Peninsular bighorn sheep or the flat-tailed horned lizard.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no effect** on the following species:

bonytail chub (*Gila elegans*)
Colorado squawfish (*Ptycheilus lucius*)
delta smelt (*Hypomesus transpacificus*)
desert pupfish (*Cyprinodon macularius*)
Mojave tui chub (*Gila bicolor mohavensis*)
razorback sucker (*Xyrauchen texanus*)
Sacramento splittail (*Pogonichthys macrolepidotus*)
Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)
tidewater goby (*Eucyclogobius newberryi*)
winter-run chinook salmon (*Oncorhynchus tshawytscha*)
banded dune snail (=Morro shoulderband snail) (*Helminthoglypta lynchi*)
bay checkerspot butterfly (*Euphydryas editha bayensis*)
Conservancy fairy shrimp (*Branchinecta conservatio*)
Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)
El Segundo blue butterfly (*Euphilotes (=Shijimiaeoides) battoides allyni*)
Laguna Mountains skipper (*Pyrgus ruralis lagunae*)
longhorn fairy shrimp (*Branchinecta longiantenna*)
Mt. Herman June beetle (*Polyphylla barbata*)
mission blue butterfly (*Incaricia icariodes missionensis*)

Palo Verdes blue butterfly (*Glaucopsuche lygdamus palosverdesensis*)
 Quino checkerspot butterfly (*Euphydryas editha quino*)
 Riverside fairy shrimp (*Streptocephalus woottoni*)
 San Bruno elfin butterfly (*Incisalia mossii bayensis*)
 Santa Cruz rain beetle (*Pleocoma conjugens conjugens*)
 San Diego fairy shrimp (*Branchinecta sandiegensis*)
 Smith's blue butterfly (*Euphilotes enoptes smithi*)
 vernal pool fairy shrimp (*Branchinecta lynchi*)
 Zayante band-winged grasshopper (*Trimerotropis infantilis*)
 ash grey Indian-paintbrush (*Castilleja cinerea*)
 beach layia (*Layia carnosa*)
 Bear Valley sandwort (*Arenaria ursina*)
 Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*)
 Ben Lomond wallflower (*Erysimum teretifolium*)
 big-leaved crown-beard (*Verbesina dissita*)
 Braunton's milk-vetch (*Astragalus brauntonii*)
 California dandelion (*Taraxacum californicum*)
 California jewelflower (*Caulanthus californicus*)
 California orcutt grass (*Orcuttia californica*)
 California sea blite (*Suaeda californica*)
 Camatta Canyon amole (*Chlorogalum purpureum* var. *reductum*)
 Catalina mountain-mahogany (*Cercocarpus traskiae*)
 Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*)
 Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*)
 coastal dunes milk-vetch (*Astragalus tener* var. *titi*)
 Congdon's tarplant (*Hemizonia congdonii*)
 coyote ceanothus (*Ceanothus ferrisae*)
 Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)
 Cushenbury milk-vetch (*Astragalus albens*)
 Cushenbury oxytheca (*Oxytheca parishii* var. *goodmaniana*)
 Dehesa bear-grass (*Nolina interrata*)
 Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)
 Encinitas baccharis (San Diego coyote bush) (*Baccharis vanessae*)
 fountain thistle (*Cirsium fontinale* var. *fontinale*)
 Gambel's watercress (*Rorippa gambellii*)
 Hidden Lake bluecurls (*Trichostema austromontanum* ssp.)
 Hoover's woolly-star (*Eriastrum hooveri*)
 Indian Knob mountainbalm (*Eriodictyon altissimum*)
 island rock cress (*Sibara filifolia*)
 Johnston's rock cress (*Arabis johnstonii*)
 La Graciosa thistle (*Cirsium loncholepis*)
 Laguna Beach live-forever (*Dudleya stolonifera*)
 Lyon's pentachaeta (*Pentachaeta lyonii* (= *Chaetopappa* L.)
 marcescent dudleya (*Dudleya cymosa* ssp. *marcescens*)

Marin dwarf-flax (*Hesperolinon congestum*)
marsh sandwort (*Arenaria paludicola*)
Menzie's wallflower (*Erysimum menziesii* ssp. *menziesii*)
Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*)
Mexican flannelbush (*Fremontodendron mexicanum*)
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)
Morro manzanita (*Arctostaphylos morroensis*)
Munz's onion (*Allium munzii*)
Nevin's barberry (*Berberis nevinii*)
Nipomo Mesa lupine (*Lupinus nipomensis*)
Orcutt's spineflower (*Chorizanthe orcuttiana*)
Otay mesa mint (*Pogogyne nudiuscula*)
Otay tarplant (*Hemizonia conjugens*)
oval-leaved dudleya (*Dudleya cymosa* ssp. *ovatofolia*)
Parish's daisy (*Erigeron parishii*)
pedate checker-mallow (*Sidalcea pedata*)
Pierson's milk-vetch (*Astragalus magdalenae* var. *piersonii*)
Pismo clarkia (*Clarkia speciosa* spp. *immaculata*)
Presidio clarkia (*Clarkia franciscana*)
Presidio manzanita (*Arctostaphylos hookeri* ssp. *ravenii*)
purple amole (*Chlorogalum purpureum* var. *purpureum*)
robust spineflower (*Chorizanthe robusta* var. *robusta*)
salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*)
San Benito evening-primrose (*Camissonia benitensis*)
San Bernardino blue grass (*Poa atropurpurea*)
San Bernardino Mountains bladderpod (*Lesquerella kingii* spp. *bernardina*)
San Clemente Island bush mallow (*Malacothamnus clementinus*)
San Clemente Island Indian paintbrush (*Castilleja grisea*)
San Clemente Island larkspur (*Delphinium kinkienae*)
San Clemente Island lotus (*Lotus dendroideus* var. *traskiae*)
San Clemente Island woodland star (*Lithophragma maximum*)
sand gilia (*Gilia tenuiflora* ssp. *arenaria*)
San Diego button celery (*Eryngium aristulatum* var. *parishii*)
San Diego mesa mint (*Pogogyne abramsii*)
San Diego thornmint (*Acanthomintha ilicifolia*)
San Francisco lessingia (*Lessingia germanorum*)
San Gabriel Mountains dudleya (*Dudleya densiflora*)
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)
San Joaquin wooly-threads (*Lembertia congdonii*)
San Mateo thornmint (*Acanthomintha duttonii*)
San Mateo wooly sunflower (*Eriophyllum latilobum*)
Santa Ana River wooly-star (*Eriastrum densiflorum* ssp. *sanctorum*)
Santa Clara Valley dudleya (*Dudleya setchellii*)
Santa Cruz cypress (*Cupressus abramsiana*)

Santa Cruz tarweed (*Holocarpha macradenia*)
Scott's Valley spineflower (*Chorizanthe robusta* var. *hartwegii*)
slender-horned spineflower (*Dodecahema leptoceras*)
slender-petaled mustard (*Thelypodium stenopetalum*)
southern mountain wild buckwheat (*Eriogonum kennedyi* var. *austromontanum*)
speading navarretia (*Navarretia fossalis*)
surf thistle (*Cirsium rhothophilum*)
thread-leaved brodiaea (*Brodiaea filifolia*)
Tiburon paintbrush (*Castilleja affinis* ssp. *neglecta*)
Tidestrom's lupine (*Lupinus tidestromii*)
triple-ribbed milk-vetch (*Astragalus tricarinatus*)
Vail Lake ceanothus (*Ceanothus ophiochilus*)
white-rayed pentachaeta (*Pentachaeta bellidiflora*)
white-rayed pentachaeta (*Pentachaeta bellidiflora*)
willow monardella (*Monardella linoides* ssp. *viminea*)
Yadon's wallflower (*Erysimum menziesii* ssp. *yadonii*)

Critical habitat for the winter-run chinook salmon, and delta smelt.

IX. MANAGEMENT REQUIREMENTS

The FWS's July 1992 BO stipulates terms and conditions that ADC must comply with in order to implement the reasonable and prudent measures for a number of the threatened and endangered species within the Districts. ADC has agreed to adopt and adhere to all reasonable and prudent alternatives identified in the 1992 FWS BO.

X. MANAGEMENT RECOMMENDATIONS

ADC will continue to implement all reasonable and prudent alternatives listed in the FWS's July 1992 BO.

ADC will also continue to follow all policies currently in place to mitigate any danger to T&E species.

ADC will continue to consult with the FWS, Federal land management agencies, and CDFG on matters involving T&E species.

ADC will continue to follow all use restrictions and endangered species considerations listed on the label of any toxicant which is used in the Districts.

REFERENCES

Burns, R.J., H.P. Tietjen, and G.E. Connolly. 1991. Secondary hazard of Livestock Protection Collars to skunks and eagles. *J. Wildl. Manage.* 55 (4) : 701-704

Connolly, G.E. 1990. The Livestock Protection Collar in *Predator Management in North Coastal California*. G.A. Giusti, R.M. Timm, and R.H. Schmidt (eds.) pp. 89-93.

DeCino, T.J., D.J. Cunningham, and E.W. Schafer. 1966. Toxicity of DRC-1339 to Starlings. *J. Wildl. Manage.* 30 (2) : 249-253.

Schafer, E.W. 1991. "Bird Control Chemicals - Nature, Modes of Action, and Toxicity," in *CRC Handbook of Pest Management in Agriculture* Vol. II, D. Pimental (ed.), pp. 599-610.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:

Ecological Services
Sacramento Field Office
3310 El Camino Avenue, Suite 130
Sacramento, California 95821

1-1-97-I-1579

June 20, 1997

Mr. Gary D. Simmons
State Director, California State Office
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control
2800 Cottage Way, Room W-2316
Sacramento, California 95825

Subject: Informal Endangered Species Consultation on the Proposed Animal Damage Control Practices and Management for the San Luis and South Districts including Imperial, Kern, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernadino, San Diego, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura Counties, California

Dear Mr. Simmons:

This responds to your letter dated June 5, 1997, received in this office on June 6, 1997, requesting concurrence with the determination that the proposed action, the Animal Damage Control Practices and Management for the San Luis and South Districts including Imperial, Kern, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernadino, San Diego, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura Counties, is not likely to adversely affect the threatened western snowy plover (*Charadrius alexandrius nivosus*), San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*), Yuma clapper rail (*Rallus longirostris yumanensis*), least Bell's vireo (*Vireo belli pusillus*), coastal California gnatcatcher (*Podioptila californica californica*), arroyo southwestern toad (*Bufo microscaphus californicus*), desert slender salamander (*Batrachoseps aridus*), Santa Cruz long-toed salamander (*Ambystoma macrodactylum*), giant garter snake (*Thamnophis gigas*), California red-legged frog (*Rana aurora draytonii*), Pacific pocket mouse (*Perognathus longimembris pacificus*), Stephens kangaroo rat (*Dipodomys stephensi*), San Joaquin kit fox (*Vulpes macrotis mutica*); the endangered California condor (*Gymnogyps californianus*); any critical habitat; or any federally listed threatened or endangered species.

We have reviewed the Biological Assessment transmitted with your correspondence and concur with your determination. Therefore, unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary.

Mr. Gary D. Simmons

2

The Service appreciates your cooperation and participation in the conservation of listed species. Please contact Ms. Maria Boroja of my staff at (916) 979-2749 if you have questions regarding this response.

Sincerely,

Wayne S. White

fn Wayne S. White
Field Supervisor

cc: FWS-VFO, ATTN: Ray Bransfield, Ventura, CA
FWS-Hopper Mountain NWR, Ventura, CA
FWS, CFO, ATTN: John Bradley, Carlsbad, CA
SJVESRPP, Fresno, CA

APPENDIX 4 - CALIFORNIA DEPARTMENT OF GAME AND FISH CORRESPONDENCE



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Animal Damage
Control

Federal Building
Room W-2316
2800 Cottage Way
Sacramento, CA 95825

January 15, 1997

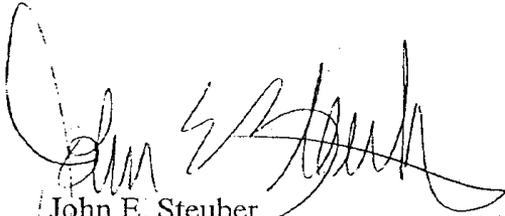
Mr. John Carlson
California Department of Fish and Game
Wildlife Management Division
1416 Ninth Street
Room 1280
Sacramento, CA 95814

Dear Mr. Carlson;

The purpose of this letter is to request concurrence with our findings for those State listed species found in the California ADC San Luis and South Districts. We have reviewed the October 1996 list of threatened and endangered species from the State of California and analysed the potential impact that our program might have on each species. We have also reviewed the California Department of Fish and Game's 1996 Environmental Document titled "Furbearing and Nongame Mammal Hunting and Trapping" and evaluated possible impacts from the ADC program activities on each threatened or endangered species listed.

Please let us know if you concur with our assessment of the impacts of our proposed action on all of the listed species within this biological assessment project area.

Sincerely,



John E. Steuber
Assistant State Director
California State Office

Enclosures:
Biological Assessment - ADC California Biological Assessment

cc:
Terry Mansfield



APHIS—Protecting American Agriculture

I. INTRODUCTION

The purpose of this document is to evaluate the effects of the of the Animal Damage Control (ADC) program in the California ADC San Luis and South Districts on the habitat and continued existence of State listed Threatened and Endangered (T&E) wildlife species which may be in the project area or affected by activities occurring within the project area.

The following list was provided by the California Department of Fish and Game (CDFG) State Office on 28 October 1996. This Biological Assessment addresses the following species:

BIRDS:

American peregrine falcon (*Falco peregrinus anatum*)
bald eagle (*Haliaeetus leucocephalus*)
Swainson's hawk (*Buteo swainsoni*)
California brown pelican (*Pelecanus occidentalis californicus*)
California clapper rail (*Rallus longirostris obsoletus*)
light-footed clapper rail (*Rallus longirostris levipes*)
Yuma clapper rail (*Rallus longirostris yumanensis*)
marbled murrelet (*Brachyramphus marmoratus*)
California black rail (*Laterallus jamicensis coturniculus*)
California least tern (*Sterna antillarum* (= *albifrons*) *browni*)
California condor (*Gymnogyps californianus*)
greater sandhill crane (*Grus canadensis tabida*)
western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
willow flycatcher (*Empidonax traillii*)
bank swallow (*Riparia riparia*)
elf owl (*Micrathene whitneyi*)
Gila woodpecker (*Melanerpes uropygialis*)
gilded northern flicker (*Colaptes auratus chrysoides*)
Arizona Bell's vireo (*Vireo bellii arizonae*)
least Bell's vireo (*Vireo bellii pusillus*)
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)

MAMMALS:

giant kangaroo rat (*Dipodomys ingens*)
Stephen's kangaroo rat (*Dipodomys stephensis*)
salt marsh harvest mouse (*Reithrodontomys raviventris*)
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)
Mohave ground squirrel (*Spermophilus mohavensis*)
San Joaquin kit fox (*Vulpes macrotis mutica*)
Island fox (*Urocyon littoralis*)
California bighorn sheep (*Ovis canadensis californiana*)
Penninsular bighorn sheep (*Ovis canadensis cremnobates*)
Guadalupe fur seal (*Arctocephalus townsendi*)

Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)
Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)

REPTILES:

Alameda whipsnake (*Masticophis lateralis euryxanthus*)
barefoot banded gecko (*Coleonyx switaki*)
blunt-nosed leopard lizard (*Gambelia* (= *Crotaphytus*) *silus*)
Coachella Valley fringe-toed lizard (*Uma inornata*)
desert tortoise (*Gopherus agassizii*)
giant garter snake (*Thamnophis gigas*)
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)
Southern rubber boa (*Charina bottae umbratica*)

AMPHIBIANS:

Kern Canyon slender salamander (*Batrachoseps simatus*)
Tehachapi slender salamander (*Batrachoseps stebbinsi*)
Desert slender salamander (*Batrachoseps aridus*)
Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)

II. CURRENT MANAGEMENT DIRECTION

The primary statutory authority for the ADC program is the Animal Damage Control Act of March 2, 1931, as amended (7 U.S.C. 426-426c; 46 Stat. 1468). ADC activities are conducted at the request of and in cooperation with other Federal, State, and local agencies; private organizations; and individuals.

The final programmatic Environmental Impact Statement (EIS) for the ADC program was made available April 1994. In the programmatic EIS the Current Program Alternative, which uses an integrated pest management (IPM) approach to address wildlife damage problems, is the preferred alternative. The EIS documents the analysis of the ADC program for the protection of American agriculture, natural resources, and facilities and structures, and the safeguarding of public health and safety. The EIS follows the format recommended by the President's Council on Environmental Quality (CEQ). The EIS addresses the entire ADC program, including its various functions, methods of operation, and locations throughout the Nation and it complies with the National Environmental Policy Act (NEPA) of 1969 which establishes policies, goals, and procedures to ensure that Federal agency decisions reflect an understanding of the environmental consequences of a proposed action and its alternatives.

The ADC program routinely consults with the FWS, Federal land management agencies, and the California Department of Fish and Game (CDFG) regarding program activities and impacts. USDA Forest Service (USFS) and USDI Bureau of Land Management (BLM) are cooperating

agencies in the final ADC EIS.

The ADC program has adopted the "reasonable and prudent alternatives" recommended in the FWS's 1992 BO to avoid potential adverse impacts to Federal listed T&E species.

IV. PROPOSED ACTION

PROJECT AREA

The analysis area (California ADC San Luis and South Districts) includes the following counties where ADC currently has cooperative agreements: Kern, San Diego, San Luis Obispo, and Santa Barbara. The analysis area also includes the following counties where we recognize the possibility of entering into cooperative agreements in the near future: Imperial, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Ventura Counties. During FY 1995, ADC conducted wildlife damage management activities on less than 4.3% of the total acreage within the counties listed above. The ADC program conducts wildlife damage management activities on localized tracts of private and public land on a temporary basis. None of the proposed activities will result in habitat modification. The proposal includes the use of methods and activities where the public would not be affected.

GENERAL DISCUSSION

ADC's proposed action is to continue using the full range of wildlife damage management methods currently authorized. The ADC program provides assistance to protect livestock, crops, property, and human health and safety from wildlife damage conflicts. ADC's control actions are targeted at offending coyotes, black bears, mountain lions, bobcats, red fox, gray fox, beavers, muskrats, raccoons, striped and spotted skunks, opossums, weasels, badgers, marmots, feral pigs, feral dogs, feral cats, ravens, black birds, crows and starlings. Our approach to wildlife conflict resolution is commonly referred to as integrated wildlife damage management. ADC in the District incorporates several control methods and techniques. A detailed list and description of each control method can be found in Attachment B. The specific methods used in the District are listed below.

1. ADC would provide technical assistance throughout the project area to livestock, crop and property managers on cultural practice and aversive tactics. This would be:

- a) animal husbandry;
- b) use of physical barriers;
- c) habitat management and biological control;
- d) audio repellants (gas exploders and pyrotechnics) ; and

e) visual repellants (effigies, scarecrows, and other scaring techniques).

Technical assistance is advice, recommendations, information, and materials provided by ADC employees for others to use in managing wildlife damage problems. ADC normally does not implement these methods but recommends them to producers and property owners or managers. However, devices such as the electronic guard (a strobe light-siren) or propane exploders are implemented by ADC to scare and harass predators away from areas needing protection.

2. ADC would use the following wildlife damage management techniques:

- a) nonlethal methods (leghold traps, cage traps, foot snares, dogs, Alpha-chloralose);
- b) lethal nonchemical methods (shooting, neck snares, conibear traps, aerial shooting); and
- c) lethal chemical methods (M-44 Sodium Cyanide devise, DRC-1339 avicide, Compound 1080 Livestock Protection Collar (LPC), gas cartridge, Sodium pentobarbital).

The Compound 1080 Livestock Protection Collar (LPC) was approved for use on May 4, 1990 by the U.S. Environmental Protection Agency. On February 27, 1996 the LPC was approved for use in California by the California Environmental Protection Agency (Cal EPA). The California ADC Specialists using the LPC would first be trained and certified by the ADC Trainers, in a course approved by Cal EPA. The ADC programmatic Environmental Impact Statement (USDA 1994) fully assessed the impacts of the LPC and determined that no significant impacts would result from the use of the LPC in the ADC program.

The DRC-1339 label has been submitted to Cal EPA for approval. We are waiting for a response from Cal EPA on that submission.

For your reference, I have enclosed information from Appendix P of the ADC Final Programmatic EIS (Attachment B), which includes descriptions of all the methods listed above, along with a detailed risk assessment for each method.

Not all of the wildlife damagement management methods would be used in all cooperating counties.

V. EXISTING CONDITION

Currently within the ADC San Luis and South Districts, ADC is conducting wildlife damage management activities in Kern, San Diego, San Luis Obispo, and Santa Barbara Counties. There

is a possibility that ADC activities could start in the near future in Imperial, Los Angeles, Monterey, Orange, Riverside, San Benito, San Bernardino, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Ventura Counties. During FY 1995, ADC conducted wildlife damage management activities on less than 4.3% of the total acreage within the counties listed above. ADC does not anticipate any significant changes (either increase or decrease) in the amount of acreage where activities are conducted on in FY 1997. The ADC program conducts wildlife damage management activities on localized tracts of private and public land on a temporary basis and only when requested by the land managers, land owners, or permittees. None of the current or proposed activities result in habitat modification.

VI. EFFECTS OF PROPOSED ACTION

The primary potential for impacts to any listed species would be associated with accidental injury or death of a nontarget listed species during efforts to control predation on livestock by predators and during efforts to reduce other damage caused by wildlife such as consumption and contamination of livestock feed, damage to drip irrigation, threats to human health and safety, and other damage.

American peregrine falcon (*Falco peregrinus anatum*) - The American peregrine falcon is a specialized predatory raptor that feeds almost exclusively on birds captured in flight. The District program does not use the pesticide of concern to the FWS (above ground use of strychnine). The use of DRC-1339 was evaluated in the FWS's July 1992 BO but was not designated as a pesticide of concern. DRC-1339 was fully evaluated in the ADC Programmatic EIS Appendix P (Attachment B). Primary toxicity is more toxic to birds than mammals which serves to increase specificity to target species. Reported LD50 values ranging from 1 to 5 mg/kg have been reported for pigeons, starlings, blackbirds, crows, and jays. Raptors and most mammals have acute toxicity levels ranging from 101 - 1,000 ppm. Due to the specialized predatory behavior of the falcon there is no potential for primary toxicity. Available research suggests little, if any, potential for secondary hazard because the compound is rapidly metabolized and excreted and is not accumulated (DeCino et al. 1996, Schafer 1991). The compound is completely metabolized in three to 24 hours, with the target species dying as soon as three hours after consuming the bait. Prebaiting is done 3-5 days before bait is applied to promote feeding by the target birds and to determine the presence of any nontarget species. The DRC-1339 label requires that the applicator dispose of unused, treated baits and carcasses of dead or dying birds that are found by burning or burial. ADC identifies roost areas of target birds prior to application of bait so that affected birds (carcasses) can be removed and disposed of properly. Potential contact with DRC-1339 by falcons (secondary toxicity) is further reduced by the very limited use of this product by ADC. In the past we have had very few requests for assistance with raven predation on livestock in the San Luis and South Districts.

Bald eagle (*Haliaeetus leucocephalus*) - Bald eagles are generalized predators/scavengers

primarily adapted to edges of aquatic habitats. Their primary foods are fish (taken both alive and as carrion), waterfowl, mammalian carrion, and small birds and mammals. The FWS's BO stipulates two reasonable and prudent measures as necessary and appropriate to minimize incidental take of the bald eagle. Neither of these measures relates to ADC's use of the toxicant DRC-1339 because 1) EPA label restrictions for this product preclude any probable primary risk to bald eagles, and 2) available research data suggests little, if any, potential for secondary hazard because the compound is rapidly metabolized and excreted and is not accumulated (DeCino et al. 1966, Schafer 1991). Use restrictions on the label state that treated baits can not be applied in areas where there is a danger that T&E species will consume baits unless special precautions are taken to limit such exposures. Such precautions shall include constant observation of baited sites and use of hazing tactics to frighten away T&E species that otherwise might feed upon baits. The label also directs the applicator to dispose of unused, treated baits and carcasses of dead or dying birds that are found by burning or burial, as authorized by applicable laws. ADC personnel identify roost sites of target species prior to application of bait so that carcasses of affected target birds can be removed and disposed of properly after baiting. The FWS's measures also do not relate to the use of lead shot. The risk of lead poisoning, caused by eagles ingesting lead in predator carcasses killed by ADC aerial hunting is not a concern since ADC in California does not utilize lead shot in any aerial hunting operations.

The use of M-44's also do not relate to the measures listed by the FWS in their July 1992 BO. Use restrictions for M-44's require that no M-44's be set within 30 feet of a draw station (large piece of meat or large carcass). Therefore the potential to adversely affect eagles by primary toxicity is minimized. There is no chance of secondary poisoning caused by eagles consuming carcasses of target animals since compounds with cyanide are toxic only upon liberation of the hydrogen cyanide gas, which occurs at primary ingestion.

The first reasonable and prudent measure stipulates that strychnine shall not be used within five miles of an active nest or roost site. This measure is not applicable in our assessment area because no use of strychnine would take place under the proposed action or any of the other alternatives being considered in our EA.

The second measure requires that when T&E species are present in the immediate vicinity of a proposed control program, daily searches be made for carcasses of target individuals. This measure further requires that carcasses of target animals taken with any chemical that may pose a secondary poisoning hazard must be immediately removed and disposed of in a manner that prevents scavenging by any nontarget species.

Although this measure may have been prescribed primarily to address secondary hazards posed by target animals taken with strychnine, the language does specifically refer to "any chemical that may pose a secondary hazard". ADC's proposed action includes the use of the LPC, which contains Compound 1080 (sodium fluoroacetate). Available research suggests that the levels of 1080 residues in coyotes killed by the LPC are so low that their tissues do not present a

significant secondary hazard (Burns et al., 1991; Connolly, 1990). Risks of secondary poisoning caused by scavengers, such as bald eagles, feeding on LP Collared sheep carcasses before they are located and disposed of by the LPC applicator are very low. Feeding behavior by eagles and other scavenging birds typically is concentrated at body openings and/or sites where the skin has been torn and tissue exposed on animal carcasses. The primary scavenging mammal on sheep carcasses is coyotes which typically open carcasses at the belly area. Therefore, because of the eagles feeding behavior, unless there is a wound or exposed tissue near the neck of the sheep, the risk of primary poisoning as a result of an eagle puncturing an LPC is very low. In addition, eagles and other scavenging birds typically peel the wool and skin away from the carcass around the area of the wounds and do not feed on the wool and/or hair of carcasses. In a primary toxicity study by the National Wildlife Research Center (Burns et al. 1984a), five golden eagles were exposed to lambs that were treated by applying 4.3 ml of 1080 collar solution (10 mg 1080/1 ml H₂O) in the neck wool. All five eagles survived. Use restrictions on the LPC require that all LP collared livestock must be checked at least once every seven days. If any LP collared animal is not accounted for in two consecutive checks, an intensive search for it must be made. In addition, if more than three LP collared animals are not accounted for during any one check, an intensive search for these animals is required. ADC policy in California is more restrictive. All reasonable efforts must be undertaken to locate any collared animal or collar whenever one is found to be missing. California ADC policy also states that if more than three LPC's and/or collared animals are unaccounted for during any sixty-day period, the project will be reviewed and may be subject to termination. LP Collars have been used by ADC in other states since 1990 and ADC records show no eagles or other scavenging raptors have been taken through secondary or primary exposure to LP Collars.

The final applicable requirement is that ADC not place any leghold traps within 30 feet of any aboveground bait. This is standard operating procedure (nation-wide policy) for all ADC trapping activities. California State law prohibits the use of leghold traps for capturing mountain lions and black bears. In addition to this mitigation, our policy requires in those instances where an exposed carcass or bait might conceivably be dragged or moved by scavengers to within 30 feet of a leghold trap or snare (except when attempting to foot snare bears), the carcass must first be secured to prevent scavengers from moving it.

ADC policy specifically exempts use of foot snares for bears from the 30 foot distance requirement because 1) we need to be able to set equipment close to the carcass to consistently and effectively capture the target animal and 2) we employ the use of pan tension devices with all leghold traps and foot snares set for coyotes or bears. These pan tension devices reduce or eliminate the likelihood that eagles or smaller nontarget species could set off the leghold trap or foot snare. The likelihood of an eagle being captured in a foot snare set for bears is further mitigated by the fact that the exposed baits are covered in some kind of bait pen or are back in under a tree or shrub. This practice not only increases the likelihood of directing the bear into the snare, it reduces the likelihood of the bait being seen from above by an eagle or other nontarget bird. We are unaware of any instance in the entire ADC program where an eagle has

ever been caught in ADC equipment set near a carcass to catch a bear or lion.

Swainson's hawk (*Buteo swainsoni*)- Swainson's hawks range from Northern California down into the Central Valley to Fresno and Kings County and also includes scattered areas in Inyo, Los Angeles, and San Bernardino Counties. The measures listed above for bald eagles would preclude any adverse exposure to Swainson's hawks.

ADC requires pan tension devices on all leghold traps and the traps must be placed a minimum of 30 feet from bait that can be seen by a soaring bird. This is to prevent the capture on nontarget birds like the Swainson's hawks.

DRC-1339 was fully evaluated in the ADC Programmatic EIS Appendix P (Attachment B). Primary toxicity is more toxic to birds than mammals which serves to increase specificity to target species. Reported LD50 values ranging from 1 to 5 mg/kg have been reported for pigeons, starlings, blackbirds, crows, and jays. Raptors and most mammals have acute toxicity levels ranging from 101 - 1,000 ppm. Available research suggests little, if any, potential for secondary hazard because the compound is rapidly metabolized and excreted and is not accumulated (DeCino et al. 1996, Schafer 1991). The compound is completely metabolized in three to 24 hours, with the target species dying as soon as three hours after consuming the bait. Prebaiting is done 3-5 days before bait is applied to promote feeding by the target birds and to determine the presence of any nontarget species. The DRC-1339 label requires that the applicator dispose of unused, treated baits and carcasses of dead or dying birds that are found by burning or burial. ADC identifies roost areas of target birds prior to application of bait so that affected birds (carcasses) can be removed and disposed of properly. Potential contact with DRC-1339 by Swainson's hawks (secondary toxicity) is further reduced by the very limited use of this product by ADC. In the past we have had very few requests for assistance with raven predation on livestock in the San Luis and South Districts.

ADC's proposed action includes the use of the LPC, which contains Compound 1080 (sodium fluoroacetate). Available research suggests that the levels of 1080 residues in coyotes killed by the LPC are so low that their tissues do not present a significant secondary hazard (Burns et al., 1991; Connolly, 1990). Risks of secondary poisoning caused by scavengers, such as raptors, feeding on LP Collared sheep carcasses before they are located and disposed of by the LPC applicator are very low. Feeding behavior by Swainson's hawks and other scavenging birds typically is concentrated at body openings and/or sites where the skin has been torn and tissue exposed on animal carcasses. The primary scavenging mammal on sheep carcasses is coyotes which typically open carcasses at the belly area. Therefore, because of the Swainson's hawks' feeding behavior, unless there is a wound or exposed tissue near the neck of the sheep, the risk of primary poisoning as a result of a hawk puncturing an LPC is very low. In addition, hawks and other scavenging birds typically peel the wool and skin away from the carcass around the area of the wounds and do not feed on the wool and/or hair of carcasses. In a primary toxicity study by the National Wildlife Research Center (Burns et al. 1984a), five golden eagles were exposed to

lambs that were treated by applying 4.3 ml of 1080 collar solution (10 mg 1080/1 ml H₂O) in the neck wool. All five eagles survived. Use restrictions on the LPC require that all LP collared livestock must be checked at least once every seven days. If any LP collared animal is not accounted for in two consecutive checks, an intensive search for it must be made. In addition, if more than three LP collared animals are not accounted for during any one check, an intensive search for these animals is required. ADC policy in California is more restrictive. All reasonable efforts must be undertaken to locate any collared animal or collar whenever one is found to be missing. California ADC policy also states that if more than three LPC's and/or collared animals are unaccounted for during any sixty-day period, the project will be reviewed and may be subject to termination. LP Collars have been used by ADC in other states since 1990 and ADC records show no Swainson's hawks or other scavenging raptors have been taken through secondary or primary exposure to LP Collars.

California brown pelican (*Pelecanus occidentalis californicus*)- Pelicans nest and feed in estuarine and marine habitats. ADC program activities do not take place in areas frequented by brown pelicans. There is no opportunity for pelicans to be adversely exposed to ADC program activities.

California clapper rail (*Rallus longirostris obsoletus*)- California clapper rails are locally common in coastal wetlands and brackish water around San Francisco, Monterey, and Morro bays. There is little opportunity for rails to be exposed to ADC program activities.

Trap pan tension devices on all leghold traps would prevent any captures of rails. The other method used in this area is cage traps which are baited with baits that are not attractive to rails. Most of the work ADC does in the rail habitat is specifically for the protection of the rails from known predators. As noted in the FWS 1992 BO, any impacts would likely be beneficial by reducing predation at nesting sites.

Light-footed clapper rail (*Rallus longirostris levipes*)- Light-footed clapper rails are locally common in coastal saline emergent wetlands along southern California from Santa Barbara County to San Diego County. There is little opportunity for rails to be adversely affected by ADC program activities.

Trap pan tension devices on all leghold traps would prevent any captures of rails. The other method used in this area is cage traps which are baited with baits that are not attractive to rails. Most of the work ADC does in the rail habitat is specifically for the protection of the rails from known predators. As noted in the FWS 1992 BO, any impacts would likely be beneficial by reducing predation at nesting sites.

Yuma clapper rail (*Rallus longirostris yumanensis*)- Yuma clapper rails are found April through September in freshwater and brackish emergent wetlands along the Colorado River from Needles southward, in and around the Salton Sea. ADC activities do not ordinarily take place in

rail habitat therefore there is no opportunity for rails to be adversely affected by ADC program activities. As noted in the FWS 1992 BO, any impacts would likely be beneficial by reducing predation at the nesting sites of these ground nesting birds.

Trap pan tension devices on all leghold traps would prevent any captures of rails. The other method used in this area is cage traps which are baited with baits that are not attractive to rails. Most of the work ADC does in the rail habitat is specifically for the protection of the rails from known predators.

Marbled murrelet (*Brachyramphus marmoratus*)- Marbled murrelets occur in marine subtidal and pelagic habitats along the California coastline. They apparently require dense, mature forests of redwood and douglas fir for breeding and nesting. ADC activities are rare in this habitat type, therefore there is no opportunity for these arboreal nesters, which feed in marine habitats, to be adversely affected by any ADC program activities.

California black rail (*Laterallus jamaicensis coturniculus*)- The California black rail is a yearlong resident of saline, brackish, and fresh water wetlands. There is little opportunity for rails to be exposed to ADC program activities.

Trap pan tension devices on all leghold traps would prevent any captures of rails. The other method used in this area is cage traps which are baited with baits that are not attractive to rails. Most of the work ADC does in the rail habitat is specifically for the protection of the rails from known predators. As noted in the FWS 1992 BO, any impacts would likely be beneficial by reducing predation at nesting sites.

California least tern (*Sterna antillarum browni*)- The California least tern summers in California in breeding colonies located in Southern California along marine and estuarine shores and around San Francisco Bay. Feeds primarily in shallow estuaries or lagoons where small fish are abundant. Significant predation at nesting colonies by various predators has been documented. All ADC activities in occupied California least tern habitats are for the protection of the tern from predation. Pan tension devices on all leghold traps minimize the chances of capturing any terns. The other method commonly used is cage traps and they are used adjacent to nesting colonies. There is little opportunity for least terns to be adversely exposed to any ADC program activities.. Any impact would likely be beneficial by reducing predation by known predators

California condor (*Gymnogyps californianus*)- The California condor is an endangered, permanent resident of the semi-arid, rugged mountain ranges surrounding the southern San Joaquin Valley, including the Coast Ranges from Santa Clara County south to Los Angeles County, the Transverse Ranges, Tehachapi Mountains, and southern Sierra Nevada. It is strictly a scavenger, eating carrion such as cattle, sheep, deer, and ground squirrel carcasses.

The FWS's BO stipulates two reasonable and prudent measures as necessary and appropriate to preclude jeopardy to the California condor. Neither of these measures relates to ADC's use of the toxicant DRC-1339 because 1) EPA label restrictions for this product preclude any probable primary risk to California condors, and 2) available research data suggests little, if any, potential for secondary hazard because the compound is rapidly metabolized and excreted and is not accumulated (DeCino et al. 1966, Schafer 1991). Use restrictions on the label state that treated baits can not be applied in areas where there is a danger that T&E species will consume baits unless special precautions are taken to limit such exposures. Such precautions shall include constant observation of baited sites and use of hazing tactics to frighten away T&E species that otherwise might feed upon baits. The label also directs the applicator to dispose of unused, treated baits and carcasses of dead or dying birds that are found by burning or burial, as authorized by applicable laws. ADC personnel identify roost sites of target species prior to application of bait so that carcasses of affected target birds can be removed and disposed of properly after baiting.

The FWS's measures also do not relate to the use of lead shot. The risk of lead poisoning, caused by condors ingesting lead in predator carcasses killed by ADC aerial hunting is not a concern since ADC in California does not utilize lead shot in any aerial hunting operations. It is ADC policy that within the California condor range ADC personnel contact the FWS Recovery Planning Office in Fresno on a regular basis to obtain the latest information on areas where condors are roosting, so as to avoid aerial hunting in such areas. Some coyotes are dispatched on the ground with lead bullets. Within the range of the condor, no coyote carcasses will be left with lead shot or bullets in them. Either the carcass will be removed or all lead will be removed from the carcasses.

The use of M-44's is addressed in the first reasonable and prudent measure listed in the FWS's BO. It states that M-44's should be used in single sets (not closer than 1000 feet from one another). It goes on to say that the sets shall be placed so that they do not protrude above the ground level, and shall be covered or capped so they are not visible. Use restrictions for M-44's require that no M-44's be set within 30 feet of a draw station (large piece of meat or large carcass). ADC closely follows those reasonable and prudent measures and the M-44 use restrictions. Therefore the potential to adversely affect condors by primary toxicity is minimized. There is no chance of secondary poisoning caused by condors consuming carcasses of target animals since compounds with cyanide are toxic only upon liberation of the hydrogen cyanide gas, which occurs only at primary ingestion.

The second reasonable and prudent measure stipulates that strychnine use will not be permitted in condor foraging habitat. This measure is not applicable in our assessment area because no use of strychnine would take place under the proposed action or any of the other alternatives being considered in our EA.

Although this measure may have been prescribed primarily to address secondary hazards posed

by target animals taken with strychnine, the language does specifically refer to "any chemical that may pose a secondary hazard". ADC's proposed action includes the use of the LPC, which contains Compound 1080 (sodium fluoroacetate), but available research suggests that the levels of 1080 residues in coyotes killed by the LPC are so low that their tissues do not present a significant secondary hazard (Burns et al., 1991; Connolly, 1990). Use Restrictions on the LPC state that the LP Collar may not be used in the following areas due to the potential adverse effects to the California condor: California Counties - Fresno, Kern, Kings, Los Angeles, Monterey, San Benito, San Luis Obispo, Santa Barbara, Tulare, and Ventura. ADC follows all LPC Use Restrictions so no LPC will be used in those counties.

The use of leghold traps was not addressed under reasonable and prudent alternatives for condors in the 1992 FWS BO. However, ADC does not place any leghold traps within 30 feet of any exposed bait. This is standard nation-wide operating procedure for all ADC trapping activities. California State law prohibits the use of leghold traps for capturing mountain lions. In addition to this mitigation, our policy requires in those instances where an exposed carcass or bait might conceivably be dragged or moved by scavengers to within 30 feet of a leghold trap or snare (except when attempting to foot snare bears), the carcass must first be secured to prevent scavengers from moving it. In California condor range further mitigation calls for the placement of only single sets. This practice of using only single sets further removes any risks to condors.

National ADC policy specifically exempts use of foot snares for bears from the 30 foot distance requirement because 1) we need to be able to set equipment close to the carcass to consistently and effectively capture the target animal and 2) we employ the use of pan tension devices with all leghold traps and foot snares set for coyotes or bears. These pan tensioning devices reduce or eliminate the likelihood that condors or smaller nontarget species could set off the leghold trap or foot snare. The likelihood of a condor being captured in a foot snare set for bear is further mitigated by the fact that the exposed baits are covered in some kind of bait pen or are back in under a tree or shrub. This practice not only increases the likelihood of directing the bear into the snare, it reduces the likelihood of the bait being seen from above by a condor or other nontarget bird. We are unaware of any instance in the entire ADC program where a condor has ever been caught in ADC equipment set near a carcass to catch a bear or lion.

The FWS goes on to say that it does not anticipate the ADC program will result in incidental take if the two reasonable and prudent alternatives (relating to the use of M-44's and strychnine) are implemented.

Greater sandhill crane (*Grus canadensis tabida*)- The greater sandhill crane winters primarily in the Sacramento and San Joaquin valleys south to Kings County where it frequents annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. The ADC program conducts very limited trapping activities in these areas. Conibear traps would be utilized for beavers and placed in deep water sets primarily along ditches and water courses where cranes spend very little time. It is not likely to come in contact with any

leghold traps since most trap sets utilize baits to attract target species and the cranes are not attracted to those baits. In addition, most traps are set around the edges of open fields and grasslands whereas cranes generally forage away from the edges of the fields. There would be little opportunity for cranes to be adversely exposed to any ADC program activities.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)- A rare summer resident of valley foothill and desert riparian habitats in scattered locations in California. None of the ADC tools pose a threat to accidentally capturing a cuckoo. There is no opportunity for the cuckoo to be adversely exposed to any ADC program activities.

Willow flycatcher (*Empidonax traillii*)- The willow flycatcher is a rare summer resident of California in wet meadow and montane riparian habitats. It feeds primarily on flying insects but occasionally eats berries and seeds. Flycatchers are not susceptible to any of ADC's predator damage management methods. There is no opportunity for the willow flycatcher to be adversely exposed to ADC program activities.

Bank swallow (*Riparia riparia*)- The bank swallow occurs in the San Luis and south Districts mainly as it migrates with some nesting in coastal cliffs south of San Francisco. The bank swallow is not susceptible to ADC control tools and therefore will not be adversely exposed to ADC program activities.

Elf owl (*Micrathene whitneyi*)- The elf owl is a very rare spring and summer resident of the Colorado River Valley. It feeds primarily on insects and arthropods, rarely on lizards or snakes. activities. It is not susceptible to any of ADC's proposed control tools. There is no opportunity for the elf owl to be adversely exposed to ADC program activities.

Gila woodpecker (*Melanerpes uropygialis*)- The Gila woodpecker is an uncommon resident along the Colorado River and locally near Brawley, Imperial County. It feeds on insects, mistletoe berries, cactus fruits, corn, and occasionally galls on cottonwood leaves, bird eggs, and cactus pulp. It is not susceptible to any of ADC's proposed control tools. There is no opportunity for the Gila woodpecker to be adversely exposed to ADC program activities.

Gilded northern flicker (*Colaptes auratus chrysoides*)- The gilded northern woodpecker inhabits the Colorado River Valley. Its numbers have declined in recent decades as riparian habitat has been lost. It is not susceptible to any of ADC's proposed control tools. There is no opportunity for the gilded northern flicker to be adversely exposed to ADC program activities.

Arizona Bell's vireo (*Vireo bellii arizonae*)- The Arizona Bell's vireo is a rare summer resident along the Colorado River from Needles, San Bernardino County, south to Blythe, Riverside County. It is not susceptible to any of ADC's proposed control tools. There is no opportunity for the Arizona Bell's vireo to be adversely exposed to ADC program activities.

Least Bell's vireo (*Vireo bellii pusillus*)- The Least Bell's vireo is a rare, local, summer resident below about 600 m in willows and other low, dense valley foothill riparian habitat and lower portions of canyons mostly in San Benito and Monterey Counties; in coastal southern California from Santa Barbara County south; and along the western edge of the deserts in desert riparian habitat. It is not susceptible to any of ADC's proposed control tools. There is no opportunity for the least Bell's vireo to be adversely exposed to ADC program activities.

Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)- The Belding's savannah sparrow frequents pickleweed in a few scattered saline emergent wetlands from Santa Barbara County south. They have declined in recent decades due to loss of suitable habitat. They are not susceptible to any of ADC's proposed control tools. There is no opportunity for the Belding's savannah sparrow to be adversely exposed to ADC program activities.

Giant kangaroo rat (*Dipodomys ingens*)- The giant kangaroo rat is a rare, permanent resident in scattered colonies along the western side of the San Joaquin Valley (e.g., Carrizo Plain, Panoche Valley). The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyotes. The use of gas cartridges within the occupied habitats of the giant kangaroo rat is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens. If a need arises for the use of leghold traps within the range of the giant kangaroo rat the traps will incorporate a pan tension device to eliminate the capture of smaller non-target animals such as the giant kangaroo rat. There is little opportunity for any adverse exposure to any ADC methods. Any impacts would likely be beneficial by removing known predators of the kangaroo rat.

Stephens' kangaroo rat (*Dipodomys stephensis*)- The Stephen's kangaroo rat is known from 16 different localities in and around San Jacinto Valley from Riverside County, south to the vicinity of Vista, San Diego County. Occurs primarily in perennial grassland habitats. The proposed action does not include the use of rodenticides. The proposed action does include the use of the gas cartridge for coyote damage management. The use of gas cartridges within the occupied range of the Stephens' kangaroo rat is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will only be used in active coyote dens.

If a need arises for the use of leghold traps within the range of the Stephens' kangaroo rat the traps will incorporate a pan tension device to eliminate the capture of smaller nontarget animals such as the stephen's kangaroo rat. There is little opportunity for the Stephens' kangaroo rat to be adversely exposed to any ADC program activities. Any impact would likely be beneficial by removing known predators of the Stephens' kangaroo rat.

Salt marsh harvest mouse (*Reithrodontomys raviventris*)- The salt marsh harvest mouse is found only in saline emergent wetlands of San Francisco Bay and its tributaries. The ADC program does not use or recommend the use of rodenticides within the home range of the salt marsh harvest mouse. If a need arises for the use of leghold traps within the range of the salt marsh harvest mouse the traps will incorporate a pan tension device to eliminate the capture of smaller non-target animals such as the salt marsh harvest mouse. None of the ADC methods would cause adverse exposure to the salt marsh harvest mouse. Any impacts to the mouse would likely be beneficial by removing known predators of the mouse.

San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)- A resident of the western San Joaquin Valley in dry, sparsely vegetated areas. ADC does not use or recommend the use of rodenticides within the range of the San Joaquin antelope squirrel. Pan tension devices on all leghold traps prevent capture of small nontarget animals such as the antelope squirrel. ADC personnel utilize gas cartridges only in occupied coyote dens. There is little opportunity for the San Joaquin antelope squirrel to be adversely exposed to any ADC program activities. Any impacts would likely be beneficial by removing known predators of the antelope squirrel.

Mohave ground squirrel (*Spermophilus mohavensis*)- Restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. ADC's activities are very limited in the Mojave Desert. Pan tension devices prevent capture of ground squirrels in leghold traps. ADC does not utilize or recommend the use of rodenticides within the range of the Mojave ground squirrel. ADC personnel utilize gas cartridges only in active coyote dens. There is little opportunity for the Mohave ground squirrel to be adversely exposed to any ADC program activities. Any impacts would likely be beneficial by removing known predators of the ground squirrel.

San Joaquin kit fox (*Vulpes macrotis mutica*)- The San Joaquin kit fox is an uncommon to rare permanent resident of arid regions of the southern half of the state. The proposed action includes the use of gas cartridges. The use of gas cartridges within the occupied habitats of the San Joaquin kit fox (as determined by the US FWS in Alameda, Contra Costa, Fresno, Kern, Kings, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Stanislaus, or Tulare Counties) is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. However, in the 1992 FWS BO it states, as a reasonable and prudent alternative, that no fumigants are to be used within the recognized occupied range of the San Joaquin kit fox. ADC policy is to follow all reasonable and prudent measures listed in the FWS BO.

There will be no snares, M-44's, toxicants, or fumigants used to control predators within the recognized occupied range of the San Joaquin kit fox. The toxicants included in this proposed project to control predators include M-44's, Livestock Protection Collar, and DRC-1339. None of these toxicants will be used to control predators within the recognized occupied range of the kit fox.

The second reasonable and prudent alternatives listed in the FWS BO refers to the use of leghold traps. Although it is not included under the FWS reasonable and prudent alternatives, ADC policy allows only padded leghold traps to be used in the recognized occupied range of the kit fox. Padded leghold traps will incorporate the pan tension devise, shock absorbing spring, and center base-mounted swivel. All leghold traps will be equipped with a built-in pan tensioning device such that at least 4.5 pounds of pressure is required to spring the trap. Tensioning devices shall be permanently attached, either by the manufacturer or by ADC personnel, in such a manner that they are unlikely to become inadvertently detached during use. Easily detachable tensioning devices shall not be permitted. In addition, padded leghold traps will be checked daily as per State regulations. ADC follows regulations set forth by the Fish and Game Commission in their Special Zone for the protection of the San Joaquin kit fox. In that zone, conibear-type traps, snares, and deadfall traps are prohibited.

The third reasonable and prudent measure listed by the FWS states that shooting shall be conducted only by ADC personnel trained and experience in canine identification to prevent inadvertent shooting of San Joaquin kit foxes.

Since there are no rodenticides proposed in this project the fourth reasonable and prudent alternative listed by the FWS does not pertain to this project.

ADC will report any take of kit foxes immediately to the FWS Sacramento Field Office.

Finally, in the FWS in their 1992 BO state that if all reasonable and prudent alternatives are implemented by ADC, the FWS does not anticipate that any kit foxes will be taken as a result of this action. There is little opportunity for the San Joaquin kit fox to be adversely exposed to ADC program activities.

Island fox (*Urocyon littoralis*)- The island fox is restricted to 6 of the Channel Islands off the coast of southern California. It is common on Santa Cruz, Santa Rosa, and San Clemente Islands, less common on San Nicholas and San Miguel, and rare on Santa Catalina. The only ADC activities occurring on the islands is predator damage management for the protection of Federal listed species. Only cage traps are utilized. No M-44's, LPC's, snares, leghold traps, or conibears are utilized. No gas cartridges are used for predator damage management on the islands. Shooting is conducting only by professional ADC Specialists who have been trained in the indentification of target and nontarget species. There is little opportunity for the island fox to be adversely exposed to ADC program tools. Any exposure would likely be beneficial by removing nonnative predators that compete directly with the island fox.

California bighorn sheep (*Ovis canadensis californiana*)- California bighorn sheep are mostly uncommon in California. There were two native herds of California bighorns. They were located in the southern Sierra Nevada (Mt. Baxter and Mt. Williamson herds). The Mt. Baxter herd has been used as a source for reintroductions into Inyo County and the South Warner

Wilderness. Predation may be an important loss in small populations, such as recent transplants.

ADC program activities are rare in bighorn habitat. There has been no recorded take of California bighorn sheep by ADC personnel. There is little opportunity for adverse exposure of bighorns to ADC activities. Any impacts would likely be beneficial by removing known predators of California bighorn sheep.

Penninsular bighorn sheep (*Ovis canadensis cremnobates*)- Penninsular bighorn sheep occur in the Peninsular Ranges (Riverside County) south to Mexico. Predation may be an important loss in small populations, such as recent transplants.

ADC program activities are rare in bighorn habitat. There has been no recorded take of Penninsular bighorn sheep by ADC personnel. There is little opportunity for adverse exposure of bighorns to ADC activities. Any impacts would likely be beneficial by removing known predators of Penninsular bighorn sheep

Guadalupe fur seal (*Arctocephalus townsendi*)- Guadalupe fur seals are rarely observed in California. Their entire breeding population is centered on Isle de Guadalupe, 256 km west of Baja California, Mexico. Occasionally they occur on San Miguel Island, San Nicholas Island, and once, on San Clemente Island. ADC does not conduct activities in the habitat of the Guadalupe fur seal. Therefore, there is no opportunity for the Guadalupe fur seal to be adversely exposed to ADC program activities.

Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*)- The Tipton kangaroo rat is restricted to a few remaining alkali sink areas of marginal habitat in the lower Central Valley. The FWS, in their 1992 BO, stated that they do not believe that the Tipton kangaroo rat will be adversely affected by any aspect of the ADC program. ADC program activities in the Tipton kangaroo rat range have not changed since that BO was completed. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. The use of gas cartridges within the occupied habitats of the Tipton kangaroo rat is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens. Professional ADC Specialists have been trained in distinguishing active coyote dens (tracks, scat, hair, smell, and size of dens) from nontarget animals.

If the need arises for the use of leghold traps within the range of the Tipton kangaroo rat the traps will incorporate a pan tension device to eliminate the capture of smaller animals such as the Tipton kangaroo rat.

There is little opportunity for the Tipton kangaroo rat to be adversely exposed to ADC program activities. Any impact would likely be beneficial by reducing predation.

Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)- The Morro Bay kangaroo rat occurs near Morro in San Luis Obispo County. The proposed action does not include the use of rodenticides. The proposed action does include the use of gas cartridges for coyote damage management. Endangered species considerations on the gas cartridge label exclude the use of the gas cartridge within the occupied habitats of the Morro Bat kangaroo rat and ADC abides by those label restrictions.

If the need arises for the use of leghold traps within the range of the Morro Bay kangaroo rat the traps will incorporate a pan tension device to eliminate the capture of smaller animals such as the Morro Bay kangaroo rat.

There is little opportunity for the Morro Bay kangaroo rat to be adversely exposed to ADC program activities. Any impact would likely be beneficial by reducing predation.

Alameda whipsnake (*Masticophis lateralis euryxanthus*)- The Alameda whipsnake occurs in the Coast Ranges from just north of San Francisco Bay to the vicinity of Monterey. It prefers mixed chaparral, chamise-redshank chaparral, and valley-foothill hardwood and hardwood-conifer as well as various coniferous habitats. Whipsnakes are not attracted to trap sets and are not susceptible to traps with pan tension devices. There is no opportunity for the Alameda whipsnake to be adversely exposed to any ADC predator damage management activities.

Barefoot banded gecko (*Coleonyx switaki*)- Very little is known about the range of the barefoot banded gecko. It is known from the east face of the Peninsular Ranges, and recent unsubstantiated reports place it at Scissors Crossing near Anza Borrego Desert, San Diego County. It is believed to have a wider and more northerly distribution. It has been found only in areas of massive rocks and rock outcrops at the heads of canyons. It occurs in rock cracks and crevices. The barefoot banded gecko is not susceptible to ADC tools. Therefore there is no opportunity for the barefoot banded gecko to be adversely exposed to ADC program activities.

Blunt-nosed leopard lizard (*Gambelia silus*)- The blunt-nosed leopard lizard is a scarce resident of sparsely vegetated alkali and desert scrub habitats. It occurs at scattered sites in the San Joaquin Valley and adjacent foothills on alkali flats, large washes, arroyos, canyons, and low foothills. There are no rodent control methods or agents proposed for this project. The proposed action includes the use of large gas cartridges for coyotes. The gas cartridge will not be used within the occupied habitat of the blunt-nosed leopard lizard in Fresno, Kern, Kings, Merced, Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Clara, and Stanislaus Counties from October 1 to April 15 unless a specific blunt-nosed leopard lizard protection program for this period is approved by the US FWS and fully implemented. Use of this product in occupied habitat of this species from April 15 through September 30 is limited to daylight hours when air temperatures are 77 - 95 degrees F. Because of their size, blunt-nosed leopard lizards are not susceptible to traps with pan tension devices. With the preceding mitigations in place there is little opportunity for blunt-nosed leopard lizards to be exposed to any ADC program activities.

Coachella Valley fringed-toed lizard (*Uma inornata*)- The Coachella Valley fringed-toed lizard is uncommon and limited in range to sand dunes in the Coachella Valley, Riverside County. The proposed action does include the use of gas cartridges for coyote damage management. The use of gas cartridges within the occupied habitats of the Coachella Valley fringed-toed lizard is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The cartridges will be used only in active coyote dens. The lizard is not susceptible to any of ADC's other control tools. There is no opportunity for the lizard to be adversely exposed to ADC program activities.

Desert tortoise (*Gopherus agassizii*)- The desert tortoise is widely distributed throughout the Mojave and Colorado deserts from below sea level to 4130 feet or higher. It is most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except the most precipitous slopes. ADC program activities are rare within the range of the desert tortoise. The proposed action does include the use of gas cartridges. The use of gas cartridges within the occupied habitats of the desert tortoise is limited, by its label, to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. The gas cartridge will not be used in designated critical habitat for the desert tortoise. The cartridges will be used only in active coyote dens. In the FWS BO there are two reasonable and prudent measures listed to minimize take of the desert tortoise. They are:

1. Measures shall be implemented to prevent desert tortoises from being killed by any project-related activity and,
2. Measures shall be implemented to minimize loss and degradation of desert tortoise habitat by ATVs.

In order to be exempt from the prohibitions of Section 9 of the endangered Species Act, ADC personnel must comply with the following terms and conditions:

1. Discovery of one dead or sublethally taken desert tortoise caused by any of the chemicals, requires immediate cessation of its use within the species range and reinitiation of consultation on that chemical for the tortoise.
2. Aluminum and magnesium phosphate, and sodium and potassium nitrate shall be used within the desert tortoise range only by qualified individuals. Such persons shall be limited to qualified wildlife biologists, or to agents of county agricultural commissioner offices, university extension offices, or representatives of State or Federal wildlife agencies. The use of the above listed toxicants are not proposed in any alternatives in the project.
3. The size of all access and right-of-way roads associated with ADC program activities shall be minimized.

4. All vehicle traffic during control activities shall be restricted to roadways and areas that have been cleared of tortoises. The agency requesting control shall provide information to ADC personnel prior to undertaking the proposed action regarding areas where vehicular traffic is not allowed.

With the above listed measures in place there is little opportunity for exposure to ADC program activities.

Giant garter snake (*Thamnophis couchi gigas*)- The giant garter snake is found on the floor of the Central Valley from Sacramento and Antioch south to Bueno Vista Lake, Kern County. Because of the weight distribution of this large snake and because it is not attracted to trap sets, the giant garter snake is not susceptible to traps with pan tension devices. There is little opportunity for the giant garter snake to be adversely exposed to any ADC predator damage management activities.

San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)- The San Francisco garter snake is extremely scarce and occurs only in the vicinity of ponds and reservoirs in San Mateo County. Gas cartridges for rodent control are not part of this proposed action. The use of gas cartridges for coyote damage management is included in this proposed action. The gas cartridges would be used only in active coyote dens. ADC will abide by the reasonable and prudent measure for the San Francisco garter snake in the 1992 FWS BO. Any fumigant use will be strictly controlled within the known range of the garter snake. Label directions direct that the gas cartridge shall not be used within the occupied habitat of the San Francisco garter snake in San Mateo, San Francisco, Santa Clara, and Santa Cruz Counties from November 1 to March 30, unless a specific San Francisco garter snake protection program for this period is approved by the U.S. Fish and Wildlife Service and is fully implemented. Use of this product in occupied habitat of this species under such approved programs or from April 1 through October 31 is limited to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. Such individuals may be wildlife biologists, certified applicators, representatives of California State or Federal agencies, or agents of county agricultural offices or university extension offices. There is little opportunity for the San Francisco garter snake to be adversely exposed to ADC program activities.

Southern rubber boa (*Charina bottae umbratica*)- The southern rubber boa is known only from a few individuals from a very small number of localities in the San Bernardino and San Jacinto Mountains. The race is threatened by development and increased recreational use in forested areas where it occurs. It is not susceptible to ADC control tools. There is little opportunity for the southern rubber boa to be adversely exposed to ADC program activities.

Kern Canyon slender salamander (*Batrachoseps simatus*)- This species is uncommon and is known only from the lower Kern River Canyon in Tulare and Kern Counties. Because of its small size, it is not susceptible to any of ADC's control tools. There is no opportunity for the

Kern Canyon slender salamander to be adversely exposed to any ADC program activities.

Tehachapi slender salamander (*Batrachoseps stebbinsi*)- The Tehachapi slender salamander is uncommon in suitable habitat in a small number of isolated localities in the Piute and Tehachapi Mountains of Kern County and perhaps in Los Angeles and Ventura Counties. It is not susceptible to ADC control tools. There is no opportunity for the Tehachapi slender salamander to be adversely exposed to ADC program activities.

Desert slender salamander (*Batrachoseps aridus*)- The desert slender salamander is found only in Hidden Palm Canyon, a tributary of Deep Canyon, Riverside County at an elevation of 750 m. The 57 ha Hidden Palm Ecological Reserve is the only known habitat of this salamander. There are no ADC activities proposed for this reserve. Therefore, there is no opportunity for the desert slender salamander to be adversely exposed to ADC program activities.

Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)- The Santa Cruz long-toed salamander is located in very restricted localities in Santa Cruz and Monterey Counties. It is not susceptible to ADC control tools. There is no opportunity for the Santa Cruz long-toed salamander to be adversely exposed to ADC program activities.

VII. CONCLUSIONS

The following conclusions led to our final determination of the effects that implementation of the proposed ADC activity in the San Luis and South Districts would have on threatened and endangered species:

1. Leghold traps do not pose a threat to T&E species in the San Luis and South Districts if they are used with pan tension devices and if set at least 30 feet from an exposed bait station. Only padded leghold traps will be used within the range of the San Joaquin kit fox. No leghold traps will be used in the range of the island fox. As with all leghold traps in California, the padded leghold traps will be checked daily. In California condor range only single sets are allowed.
2. Neck snares do not pose a threat to T&E species in this project area when properly set for target species and when set 30 feet or more from exposed bait. Neck snares will not be utilized within the range of the San Joaquin kit fox or island fox.
3. Foot snares do not pose a threat to T&E species if they are used with pan tension devices and if bait is covered in some kind of bait pen or back in under a tree or shrub. Foot snares will not be used within the recognized occupied range of the San Joaquin kit fox or island fox.
4. Dogs do not pose a threat to T&E species when properly trained to trail only target animals.

5. Alpha-chloralose does not pose a threat to T&E species as it is delivered specifically to the target animals. If it were delivered to a nontarget animal and that animal was not picked up, it could be susceptible to predation while under the influence of this drug.

6. Shooting does not pose a risk to T&E species when conducted by professional ADC Specialists trained to identify target and nontarget species. Within the range of the California condor, any lead bullet or shot will be removed from coyote carcasses or the entire coyote carcass will be removed from the condor range.

7. Conibear traps do not pose a threat to T&E species in the San Luis and South Districts. No above water sets will be utilized within the range of the San Joaquin kit fox or island fox.

8. Aerial hunting with steel shot does not pose a threat to T&E species when conducted by ADC professionals. ADC will contact the FWS Recovery Planning Office in Fresno regularly to obtain the latest information on areas where condors are roosting, so as to avoid aerial hunting in such areas. Lead shot will not be utilized for any aerial hunting operations.

9. M-44 Cyanide Capsules do not pose a threat to T&E species present in the San Luis and South Districts when:

- set at least 30 feet from a draw station at all locations.
- in condor range they are used in single sets, are placed so they do not protrude above the ground level, and are covered or capped so they are not visible
- they are not used in the San Joaquin kit fox or island fox range.

10. DRC-1339 is not likely to adversely affect any T&E species in the San Luis and South Districts because of its specificity to target pest birds and its low potential for secondary toxicity. The chance of adverse affects are further reduced by following the label directions. Prebaiting must be conducted to identify if any T&E species are in the area. All unconsumed bait material is disposed of in accordance with applicable state and federal laws. If any T&E species appears during baiting hazing tactics will be used to frighten them from the site. Carcasses of dead target birds are disposed of by burning or burial as authorized by applicable laws. DRC-1339 will not be used to control predators within the California condor range.

11. Compound 1080 Livestock Protection Collars are not likely to adversely affect T&E species in the San Luis and South Districts. Research has shown that levels of 1080 residues in affected target coyotes killed by the LPC are so low that their tissues do not present a significant secondary hazard. The hazard is further reduced by use restrictions requiring LP collared livestock to be checked at least once every seven days. Intensive searches must be conducted if collared animals are not accounted for during these weekly checks. As indicated on the LPC Use Restrictions the LPC will not be used in the San Luis and South Districts within San Benito, Monterey, San Luis Obispo, Kern, Santa Barbara, Ventura, and Los Angeles Counties. The LPC will not be used in the following San Luis and South District counties without annual written

approval from the nearest FWS office (FWS, Endangered Species Specialists): San Bernardino, Orange, Riverside, and Imperial.

12. Gas cartridges do not pose a threat to T&E species in the San Luis and South Districts when used by professional ADC Specialists trained to identify target coyote dens and nontarget dens. They are used only at active coyote den sites. Gas cartridges will not be used to control predators within the recognized occupied range of the San Joaquin kit fox or island fox. Gas cartridges will not be used in the blunt-nosed leopard lizard range.

13. Sodium pentobarbital does not pose a threat to T&E species as it is delivered directly to the target animal through injection and the carcass is disposed of properly.

VIII. DETERMINATION

Based on the analysis of the direct and indirect effects of implementing the proposed ADC activities in the San Luis and South Districts, the size and scope of the proposed action, and on the FWS's July 28, 1992 BO on the ADC program the following determinations have been made in regard to T&E species listed in the project area.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the American peregrine falcon and bald eagle.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the Swainson's hawk.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the California brown pelican, California clapper rail, light-footed clapper rail, Yuma clapper rail, California black rail, or California least tern. Any impacts would likely be beneficial by removing known predators of these ground nesting birds.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** on the California condor.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no effect** on the marbled murrelet, greater sandhill crane, western yellow-billed cuckoo, willow flycatcher, bank swallow, elf owl, Gila woodpecker, gilded northern flicker, Arizona Bell's vireo, least Bell's vireo, or Belding's savannah sparrow.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the giant kangaroo rat, Stephens' kangaroo rat, Tipton kangaroo rat, Morro Bay kangaroo rat, salt marsh harvest mouse, San Joaquin antelope squirrel, or Mohave ground squirrel. Any impacts would likely be beneficial by removing known predators of these rodents.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the San Joaquin kit fox or the island fox.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no effect** on the California bighorn sheep or the Penninsular bighorn sheep. Any impacts would likely be beneficial by removing known predators of these species.

It is my professional opinion that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the Guadalupe fur seal.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the Alameda whipsnake, barefoot banded gecko, blunt-nosed leopard lizard, or Coachella Valley fringe-toed lizard.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts are **not likely to adversely affect** the desert tortoise.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the giant garter snake, San Francisco garter snake, or southern rubber boa.

It is my professional determination that implementing the proposed ADC activities in the San Luis and South Districts will have **no adverse effect** on the arroyo southwestern toad, Kern Canyon slender salamander, Tehapchapi slender salamander, desert slender salamander, or Santa Cruz long-toed salamander.

MANAGEMENT REQUIREMENTS

The FWS's July 1992 BO stipulates terms and conditions that ADC must comply with in order to implement the reasonable and prudent measures discussed earlier. The first of these terms and conditions requires that ADC contact local resource management authorities to determine bald eagle nest and roost locations. ADC maintains contact with local resources managers during the

annual work planning process involving Forest Service, BLM, and CDFG. Biologists from the CDFG typically provide information on eagle locations.

The terms and conditions also require that ADC notify the FWS with 5 days of finding any dead or injured bald eagle. ADC will continue to follow this guidance should any dead or injured bald eagle ever be found.

X. MANAGEMENT RECOMMENDATIONS

ADC will continue to implement all reasonable & prudent measures listed in the 1992 FWS BO.

ADC will also continue to follow all policies currently in place to mitigate any danger to T&E species

ADC will continue to consult with the FWS, Federal land management agencies, and CDFG on matters involving T&E species.

REFERENCES

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DEPARTMENT OF FISH AND GAME

1416 NINTH STREET
P.O. BOX 944209
SACRAMENTO, CA 94244-2090
(916) 653-7203



February 13, 1997

Mr. John E. Steuber, Assistant State Director
United States Department of Agriculture
APHIS/ADC
California State Office
Federal Building, Room W-2316
2800 Cottage Way
Sacramento, California 95825

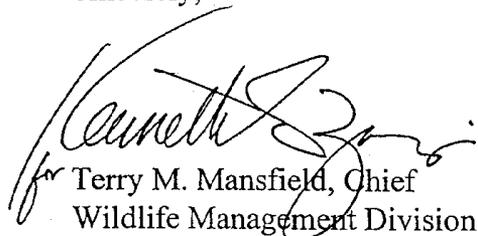
Dear Mr. Steuber:

This letter is in response to your January 15, 1997 request for concurrence regarding your findings of potential impacts of the Animal Damage Control (ADC) Program on State-listed species in the California ADC San Luis and South districts. We concur with your assessment of potential impacts and suggested mitigation for the 45 species that you considered in your analysis.

Thank you for the opportunity to review your findings. If your program changes, we would appreciate the opportunity to review the potential impacts with you.

If you have any questions, feel free to contact Mr. John Carlson, Jr., Coordinator of the Department of Fish and Game's Bird and Mammal Conservation Program, at the letterhead address or by telephone at (916) 654-3828.

Sincerely,


for Terry M. Mansfield, Chief
Wildlife Management Division

cc: Mr. John Carlson, Jr.
Department of Fish and Game
Sacramento, California

APPENDIX 5 - CALIFORNIA DEPARTMENT OF PARKS AND RECREATION
CORRESPONDENCE

ENQL 7

FILE COPY



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Animal Damage
Control

Federal Building
Room W-2316
2800 Cottage Way
Sacramento, CA 95825

May 7, 1996

Steven D. Grantham
State Archeologist
Department of Parks and Recreation
Office of Historic Preservation
1416 9th Street
Sacramento, CA 94296-0001

Dear Mr. Grantham:

As you discussed with John Steuber, our Assistant State Director, on May 6, 1996, we are sending this letter to request your concurrence with our determination that the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Animal Damage Control (APHIS-ADC) in California has no effect on cultural resources. This request is made pursuant to Section 106 of the National Historic Preservation Act. My determination is made based on the nature of our program, and the interdisciplinary consultation we undergo as part our National Environmental Policy Act compliance process.

The objective of our program is to respond to requests from government and private entities to resolve wildlife damage conflicts with agriculture, human health and safety, property, and livestock. The methods we use in carrying out our program, include a variety of techniques for lethal and non-lethal control of offending animals. We are not involved in construction activities, and we do not alter any structures. Ground disturbing activities associated with our program are limited to laying leghold traps and placing M-44 (sodium cyanide) ejector devices. Traps are typically laid in a hole dug to four-inches-deep by 12-inches-long by 8-inches-wide. Traps are usually set in agricultural areas or near fence lines (previously disturbed areas). M-44 devices are 1 inch diameter cylinders, normally 5-7 inches long, inserted into similar areas. In most counties trap use is limited to less than 50 sets per year.

Pertinent mitigation measures to avoid any potential impacts on cultural resources would include limiting vehicular travel to established roads and trails on previously undisturbed areas, consultation with federal and cultural resource specialists on federally managed lands, consultation with tribes where we work on or near Indian lands, and avoidance of ground disturbing activities on previously undisturbed areas.

Thank you for your consideration.

Sincerely,

Gary Simmons
State Director
California State Office

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO 94296-0001
(916) 653-6624
FAX: (916) 653-9824



May 20, 1996

Reply to: APHI960509A

Gary Simmons, Director
California State Office
Animal and Plant Health Inspection Service
Federal Building, Room W-2316
2800 Cottage Way
SACRAMENTO CA 95825

Subject: Animal and Plant Health Inspection Service Consultation

Dear Mr. Simmons:

I have received recent correspondence describing the Animal and Plant Health Inspection Service's program. Thank you for consulting me.

It is evident that the bulk of the agencies project work is of the type and nature that should not affect historic properties. This is not to say that there could be instances where the agency should consider any specific undertaking's potential to affect historic properties. In cases that the agency has identified the presence of such properties, the legal course of action will be to comply with Section 106 of the National Historic Preservation Act (NHPA) and follow the requirements and recommendations of 36 CFR 800.

Thank you for affording me the opportunity to offer opinion on the agencies Section 106 responsibilities. Should the agency identify the need to consult under applicable law and regulations I look forward to working with it in those instances. If you have further questions or need additional information, please contact staff archaeologist Steven Grantham at (916) 653-8920.

Sincerely,

A handwritten signature in black ink, appearing to read "Cheryl E. Widell".

Ms. Cheryl E. Widell
State Historic Preservation Officer

APPENDIX 6 - TOXICANT LABELS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

Sodium Cyanide may be fatal if swallowed or inhaled. Use only with adequate ventilation and do not breathe the gas or dust. When handling, setting out or checking M-44 cyanide capsules, always have at least six pearls of Amyl-Nitrite readily available in case sodium cyanide is swallowed or inhaled.

While handling sodium cyanide capsules, protect hands with gloves and shield eyes to prevent eye burns and skin irritation. Wash thoroughly before eating or smoking.

Do not use in areas frequented by humans or domestic dogs.

ENVIRONMENTAL HAZARDS

This pesticide is TOXIC TO WILDLIFE. Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of waste. The M-44 ejector device cannot be used in areas inhabited by endangered canids and felids.

CHEMICAL HAZARDS

Contact with acid liberates poisonous and flammable cyanide gas.

50 capsules - Net Weight 48.5 grams
9/84

RESTRICTED USE PESTICIDE

DUE TO HIGH ACUTE TOXICITY AND THE NEED FOR HIGHLY SPECIALIZED APPLICATOR TRAINING

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicators certification. For use exclusively by USDA-APHIS Animal Damage Control personnel or persons under their direct supervision.

M-44 CYANIDE CAPSULES

★ ★ CALIFORNIA USE ONLY ★ ★

For use in the M-44 ejector device to control coyotes (Canis latrans); suspected of preying on livestock or poultry; or, Federally designated threatened or endangered species; or, that are vectors of a communicable disease.

ACTIVE INGREDIENT:

Sodium Cyanide 91.06%

INERT INGREDIENTS: 8.94%

TOTAL 100.00%

**KEEP OUT OF REACH OF CHILDREN
DANGER — POISON**



STATEMENT OF PRACTICAL TREATMENT OF SWALLOWED: CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY!

IF SWALLOWED OR INHALED - Prompt treatment is of the utmost importance. Carry patient to fresh air, have him lie down. Patient should breathe the contents of an Amyl-Nitrite pearl 15-30 seconds each minute if necessary, until five pearls have been used. Use artificial respiration if breathing has stopped. Remove contaminated clothing, but keep the patient warm.

CALL A PHYSICIAN IMMEDIATELY.

IF ON SKIN - Immediately flush with plenty of water and call a physician.

IF IN EYES - Immediately flush with plenty of water and call a physician.

See Left side panel for ADDITIONAL PRECAUTIONARY STATEMENTS.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

For use in specific situations to reduce coyotes: suspected of preying on livestock or poultry; or, Federally designated threatened or endangered species; or, that are vectors of a communicable disease. For use on pastures, range land and forest land only. Do not place in areas where food crops are planted.

IMPORTANT - Before handling or placing M-44 cyanide capsules or M-44 ejector devices, consult the Use Restriction Bulletin for specific use directions, additional precautions, information on endangered species, warning signs and antidotal measures.

WARNING SIGNS - Bilingual (Spanish/English) warning signs must be posted in the general area and at the application site.

STORAGE AND DISPOSAL

STORAGE - Store M-44 cyanide capsules under lock and key in a dry place away from food, domestic animals and acids. Do not contaminate feed or food stuffs.

DISPOSAL - Dispose of defective and used M-44 capsules by burial in a safe location in the field or at a proper landfill site. Incineration may be used instead of burial for disposal. Place capsules in an incinerator or refuse hole and attend the burn until the contaminated material is completely consumed. If burned, stay out of smoke.

US DEPARTMENT OF AGRICULTURE

ANIMAL AND PLANT HEALTH

INSPECTION SERVICE

Hyattsville, MD 20782

EPA Reg. No. 56228-16

EPA Est. No. 56228-ID-1

**UTIONARY STATEMENTS
RDS TO HUMANS AND
MESTIC ANIMALS**

DANGER

red; poisonous if swallowed or absorbed
Wear waterproof gloves when handling
hands after handling collars or animals
n contaminated with 1080 solution. Do
nated animals for food or feed.

RONMENTAL HAZARDS

is very highly toxic to wildlife. Birds and
ing on carcasses of contaminated
be killed. Keep out of any body of water.
duct only as specified on this label.

**DANGEROUS SPECIES
CONSIDERATIONS**

s a Federal offense to use any pesticide
that results in the death of a member of
ad species.
1080. In the Livestock Protection Collar
determined to pose a hazard to several
species. See technical bulletin (use
3, 15) for specific areas where the 1080
be used or approval must be obtained
Fish and Wildlife Service prior to use.

NOTE TO PHYSICIAN

SYMPTOMS: 1080 poisoning results
ransformation of fluoracetate into
within cell mitochondria. Poisoning is
l by a symptom-free latent period of 1/2
r longer between ingestion and onset of
(nausea, vomiting, diarrhea, and
behavior leading to convulsions, coma,
3). Ventricular fibrillation is commonly
is the primary cause of death. Early
relate alteration of heart sounds and
weak contractions.

n. No effective antidote is known but
treatment may be effective. Establish
reate artificial airway if necessary. Check
tidal volume. Initiate emesis. If patient is
nvolving, or has lost the gag reflex,
intubation should precede gastric lavage
ore tube. Administer activated charcoal
isthm. sulfate. Treat seizures with IV
monitor cardiac function closely. Treatment
yl monoacetate (monacetin) may be
wever, it is experimental and unproven in
**CONSULT NEAREST POISON
CENTER FOR CURRENT
L CENTER FOR CURRENT
TION.** Symptoms of non-lethal intoxication
subsides within 12-24 hours.

RESTRICTED USE PESTICIDE

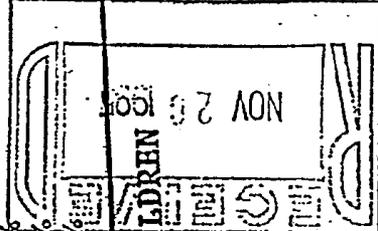
Collars shall be sold or transferred only by registrants or their agents and only
to certified Livestock Protection Collar applicators. Collars may be used only
by specifically certified Livestock Protection Collar applicators or by persons
under their direct supervision.

**SODIUM FLUOROACETATE
(COMPOUND 1080)
LIVESTOCK PROTECTION COLLAR**

For use on sheep or goats to kill depredating coyotes

ACTIVE INGREDIENT:

Sodium fluoroacetate	1.00%
INERT INGREDIENTS:	99.00%
TOTAL	100.00%



KEEP OUT OF REACH OF CHILDREN

DANGEROUS TO CHILDREN



STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY!

IF SWALLOWED: Induce vomiting at once with an emetic such as syrup of
ipeacac; use as directed. If emetic is not available, drink 1-2 glasses of water and
induce vomiting by touching back of throat with finger. Do not induce vomiting or
give anything by mouth to an unconscious person. **PROMPT TREATMENT IS
MANDATORY. GET MEDICAL ATTENTION IMMEDIATELY.**

IF ON SKIN - Wash the exposed area twice with soap and water.

IF IN EYES - Wash eyes with plenty of water for at least 15 minutes.

IF ON CLOTHING - Remove contaminated clothing and wash before re-use.
Dispose of all contaminated leather, including shoes, boots, and gloves; according
to the pesticide Disposal Section. See disposal instruction on side panel.

SEE LEFT SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

**MANUFACTURED BY: UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
Riverdale, MD 20737-1237
EPA Est. No. 56228-ID-1
EPA Reg. No. 56228-22**

U.S. PAT. 3,842,805

NET CONTENTS:

30.4 grams (1.1 oz.) per collar

NOTICE

Seller makes no warranty, expressed or implied, concerning the use of this product
other than that indicated on the label. Buyer assumes all risk of use and/or handling
of this material when such use and/or handling is contrary to label instructions.

STORAGE AND DISPOSAL:

Do not contaminate water, food or feed by storage or
disposal.

STORAGE: Store Livestock Protection Collars only in
original container, in a dry, locked place away from
food, feed, domestic animals and corrosive chemicals.
Do not store in any structure occupied by humans.

When snow or frozen ground make on site disposal
impractical, up to one cubic foot of wastes may be
stored in a leakproof container, in a dry locked place
for up to 90 days.

PESTICIDE DISPOSAL: Pesticide wastes are acutely
hazardous. Improper disposal of such materials is a
violation of Federal Law.

Dispose of collars and other wastes contaminated by
1080 (carcasses, wool, hair, vegetation, soil, leather
clothing, and water) under three feet of soil, at a safe
location, preferably on property owned and managed
by the applicator and at least one half mile from
human habitations and water supplies.

Incineration may be used instead of burial for disposal
in the field (preferably on property owned or
managed by the applicator) at least 1/2 mile from
human habitation and water supplies. Place collars
and wastes (listed above) in an incinerator or refuse
hole, saturate with diesel fuel, and ignite. Attend the
burn until the contaminated material is completely
consumed.

Alternatively, contact your state pesticide or
Environmental Control Agency or the Hazardous
Waste representative at the nearest EPA Regional
Office for guidance in disposing of wastes at approved
hazardous waste disposal facilities.

CONTAINER DISPOSAL:

Metal Containers: Triple rinse contaminated and
uncontaminated containers with water. Then puncture
and dispose of contaminated containers and rinsate as
above.

Plastic Containers: Triple rinse with water. Then
puncture and dispose of container and rinsate as
above.

COLLAR DISPOSAL: Dispose of punctured or
unserviceable collars as above, except that not more
than 10 collars may be buried in any one hole. If
buried in trench, groups of 10 collars must be at least
10 feet apart.

**SEE BACK PANEL AND TECHNICAL BULLETIN
FOR DIRECTIONS FOR USE**

LARGE GAS CARTRIDGE

EPA Reg. No. 56228-21

ENDANGERED SPECIES CONSIDERATIONS

of this product is subject to limitations set below for the purpose of protecting endangered species.

Black-footed ferret. To limit risks to the black-footed ferret (*Mustela nigripes*) and to avoid reduction of its prey base, do not use this product within 4.3 miles (7 kilometers) of any rye dog town unless the colony is an isolated black-tailed prairie dog town less than 80 acres in size or an isolated white-tailed or Gunnison prairie dog town less than 200 acres in size, or less the town has been appropriately surveyed, using methods acceptable to the U.S. Fish and Wildlife Service, and found not to contain black-footed ferrets and found by the FWS not to be a suitable site for ferret reintroductions.

of this product within the occupied habitats the organisms listed below is limited to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. Such individuals may be wildlife biologists, certified applicators, representatives of California State or Federal agencies, or agents of county agricultural offices or university extension offices. These limitations apply to uses in occupied habitats of

lesno kangaroo rat (*Dipodomys nitratoides*) in Fresno and Merced Counties, California;

ant kangaroo rat (*D. ingens*) in Merced, Fresno, Kings, Tulare, Kern, San Luis Obispo, and Santa Barbara Counties, California;

ephen's kangaroo rat (*D. stephensi*) in Riverside, San Diego, and San Bernardino Counties, California;

pton kangaroo rat (*D. n. nitratoides*) in Kings, Tulare, Kern, and Fresno Counties, California;

Point Arena mountain beaver (*Aplodontia rufa nigra*) in Mendocino County, California;

San Joaquin kit fox (*Vulpes macrotis mutica*), as determined by the U.S. Fish and Wildlife Service (FWS), in Alameda, Contra Costa, Fresno, Kern, Kings, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Stanislaus, or Tulare Counties, California;

Desert tortoise (*Gopherus agassizii*) in Arizona, southern California, southern Nevada, and southern Utah.

Do not use this product within the occupied habitats of the following endangered animals:

Hualapai Mexican vole (*M. Mexicanus hualapaiensis*) in Mohave County, Arizona;

Morro Bay kangaroo rat (*D. heermanni morroensis*) in San Luis Obispo County, California;

Utah prairie dog (*Cynomys parvidens*) in Garfield, Iron, Kane, Piute, Sevier, and Wayne Counties, Utah;

Coachella Valley fringe-toed lizard (*Uma inornata*) in the Coachella Valley area of southern California;

Island night lizard (*Xantusia riversiana*) on Santa Barbara, San Clemente, and San Nicolas Islands, California.

Blunt-nosed leopard lizard. Do not use this product within the occupied habitat of the blunt-nosed leopard lizard (*Gambelia stans*) in Fresno, Kern, Kings, Merced, Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Clara, and Stanislaus Counties, California, from October 1 to April 15, unless a specific blunt-nosed leopard lizard protection program for this period is approved by the U.S. Fish and Wildlife Service and fully implemented. Use of this product in occupied habitat of this species from April 15 through September 30 is limited to

daylight hours when air temperatures are 1/-95°F (20-30°C).

San Francisco garter snake. Do not use this product within the occupied habitat of the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) in San Mateo, San Francisco, Santa Clara, and Santa Cruz Counties, California, from November 1 to March 30, unless a specific San Francisco garter snake protection program for this period is approved by the U.S. Fish and Wildlife Service and fully implemented. Use of this product in occupied habitat of this species under such approved programs or from April 1 through October 31 is limited to qualified individuals who have been trained to distinguish dens and burrows of target species from those of nontarget species. Such individuals may be wildlife biologists, certified applicators, representatives of California State or Federal agencies, or agents of county agricultural offices or university extension offices.

Eastern indigo snake. Do not use this product within habitat types and locales known to support the eastern indigo snake (*Drymarchon corais couperi*) throughout Florida and the coastal plain of Georgia.

Gopher tortoise. Do not use this product in or adjacent to known gopher tortoise (*Gopherus polyphemus*) occupied habitat west of the Mobile and Tombigbee Rivers in Alabama."

TRUNKS Track individual skunks creating health or safety hazards or deprecating endangered or threatened species. Treat a den which a target skunk has entered based on tracking evidence. Do not treat dens under inhabited structures or buildings where toxic gases could reach humans, pets, or domestic animals including livestock.

APPLICATION DIRECTIONS

Make sure cartridge will pass easily into opening. Close any openings to den other than the one to be treated. Obtain material to plug entrance. Then, with a nail at least 1/8" in diameter, puncture cap at end of cartridge at joints marked. Insert fuse in one of the center holes. Insure that there is a minimum of 3 inches of exposed fuse. Hold cartridge away from face and body, then light.

NOTE: The minimum burn time for these fuses is 5 seconds.

Place cartridge, fuse-end first, as far into the burrow as possible. Close entrance to burrow immediately. (If burrow is steep, contents of cartridge may flow out of lighted end. If so, place cartridge as deep in burrow as possible with fuse-end up, light, and close burrow.)

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING

After ignition, cartridge produces the toxic gas, carbon monoxide. Fumes may be harmful if inhaled.

ENVIRONMENTAL HAZARDS

This product is highly toxic to wildlife. Check for burrows for signs of nontarget species. If present, do not treat burrows.

CHEMICAL HAZARDS

Once ignited by the fuse, this cartridge will burn vigorously until completely spent and is capable of causing severe burns to exposed skin and clothes, and of igniting dry grass, leaves and other combustible materials.

ENDANGERED SPECIES CONSIDERATIONS

NOTICE: It is a Federal offense to use any pesticide in a manner that results in the death of a member of an endangered species. Unless authorized by the U.S. Fish and Wildlife Service, DO NOT use in areas where the following Endangered Species may have dens: red wolf, gray wolf, and San Joaquin kit fox.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

USE RESTRICTIONS

For control of coyotes (*Canis latrans*), red foxes (*Vulpes vulpes fulva*), and striped skunks (*Mephitis mephitis*) in dens only on rangelands, crop and non-crop areas. Do not use near flammable material or inside Buildings. USE ONLY IN DENS IN ACTIVE USE BY THE TARGET SPECIES.

SEE RIGHT PANEL FOR ADDITIONAL DIRECTIONS FOR USE

LARGE GAS CARTRIDGE

For control of coyotes (*Canis latrans*), red foxes (*Vulpes vulpes fulva*), and striped skunks (*Mephitis mephitis*) in dens only.

NOT FOR SALE TO PERSONS UNDER 16 YEARS OLD

ACTIVE INGREDIENTS:

Sodium Nitrate 53.0%

Charcoal 28.0%

INERT INGREDIENTS...19.0%

TOTAL 100.00%

KEEP OUT OF REACH OF CHILDREN

WARNING

STATEMENT OF PRACTICAL TREATMENT

CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY!

If inhaled and person has poisoning symptoms (headache, nausea, dizziness, weakness), transfer victim to fresh air. Have victim lie down and keep warm. If respiration is adequate, recovery will be rapid. If breathing has stopped, use artificial respiration. If available, pure oxygen should be given.

SEE LEFT SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
Hyattsville, MD 20782

EPA Est. No. 56228-ID-1

EPA Reg. Nol 56228-21

Net Weight 8.5 ounces (240 grams)

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

STORAGE: Store in cool, dry place away from fire, heat and direct sunlight.

PESTICIDE DISPOSAL: To dispose of unused cartridges, soak in water, crush and bury at least 6" deep in loose soil.

CONTAINER DISPOSAL: Place in trash collection.

DIRECTIONS FOR USE (Continued)

DEN SELECTION

COYOTES First select a den in active use by coyotes for treatment. Coyote dens are normally found in steep embankments or draws and may be concealed in brush. These dens can easily be distinguished from nontarget animal dens (such as badger and fox) by the large size of the den and coyote sign around its entrance. Coyote dens range in size from 9 to 12 inches in width and 12 to 18 inches in height. Typical coyote sign around the entrance includes tracks of the adults before the pups are active outside the den. After the pups become active, their tracks will also be present as well as their scat and the vegetation around the den will be laid flat due to the pups' activity. Active dens may be identified by these signs being fresh and the pups may sometimes be heard upon approaching the entrance. DO NOT use unless the den is occupied by coyotes.

RED FOXES Determine the den location of particular foxes which are preying on livestock or causing other damage. Such predation occurs during rearing of kits. Fox tracks and drag marks of prey lead to the den site usually located in mixed farmlands and woodlots, the brushy fringe of forests, or along marshes or filled fields. The dens will be marked by remains of prey in addition to tracks and observations. Active dens may be identified by these signs being fresh and the kits may sometimes be heard upon approaching the entrance.

SEE BACK PANEL FOR ADDITIONAL DIRECTIONS FOR USE

LARGE GAS CARTRIDGE
EPA REGISTRATION NO. 56228-21

Contains Sodium Nitrate (53.0%), Charcoal (19.0%),
Inert Ingredients (19.0%)

Select den in active use by coyotes, red foxes, or skunks. Make sure cartridge will enter freely. Obtain material to plug entrance. Plug other entrances, if present. With 1/8" nail, puncture cap at end of the cartridge at points marked. Insert fuse into one of the center holes. Insure there is a minimum of 3 inches of exposed fuse. Hold cartridge away from face and body, then light fuse. Place cartridge, fuse-end first, into burrow as far as possible. Plug burrow immediately. (If burrow is steep, contents of cartridge may flow out of lighted end. If so, place cartridge as deep as possible with fuse-end up, light, then close burrow.)

MINIMUM FUSE BURN TIME IS 5 SECONDS

Read complete Directions for Use on carton label.

LARGE GAS CARTRIDGE
EPA REGISTRATION NO. 56228-21

Contains Sodium Nitrate (53.0%), Charcoal (28.0%),
Inert Ingredients (19.0%)

Select den in active use by coyotes, red foxes, or skunks. Make sure cartridge will enter freely. Obtain material to plug entrance. Plug other entrances, if present. With 1/8" nail, puncture cap at end of the cartridge at points marked. Insert fuse into one of the center holes. Insure there is a minimum of 3 inches of exposed fuse. Hold cartridge away from face and body, then light fuse. Place cartridge, fuse-end first, into burrow as far as possible. Plug burrow immediately. (If burrow is steep, contents of cartridge may flow out of lighted end. If so, place cartridge as deep as possible with fuse-end up, light, then close burrow.)

MINIMUM FUSE BURN TIME IS 5 SECONDS

Read complete Directions for Use on carton label.