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COUNTY OF LOS ANGELES
FISH AND WILDLIFE COMMISSION
Kenneth Hahn Hall of Administration
500 West Temple Street, B-50, Los Angeles, CA 90012
(213) 974-1431 Fax (213) 633-5102

January 17, 2017

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

**FISH AND WILDLIFE PROPAGATION FUND GRANT AWARDS
(FIFTH SUPERVISORIAL DISTRICT)
(3-VOTES)**

SUBJECT

Recommend approval to award grant funds from the Fish and Wildlife Commission to the California Department of Fish and Wildlife (CDFW) Tehachapi Mountain Lion Project to purchase three (3) Global Positioning Satellite (GPS) Collars.

IT IS RECOMMENDED THAT YOUR BOARD:

Approve the Fish and Wildlife Propagation Fund Grant request for the Project, in the amount of \$4,500 to fund the Tehachapi Mountain Lion Project.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The Commission has determined that the grant request will promote education, conservation and the propagation of mountain lion and wildlife, thus benefiting Los Angeles County and the State of California.

At its meeting held on October 13, 2016, the Los Angeles County Fish and Wildlife Commission approved a grant request in the amount of \$4,500 for VECTRONIC Aerospace to purchase three GPS collars on behalf of the CDFW, in order to track and monitor the activities of mountain lions in the Tehachapi Mountain Lion Project.

The CDFW proposes to establish a comprehensive research effort to investigate mountain lion (*Puma concolor*) ecology in the Tehachapi Mountains (occurring in Kern and Los Angeles Counties) and to identify species' management and habitat conservation practices. The Tehachapi Mountains represent a unique area that links wildlife populations in the Sierra-Nevada Mountains to those along the central and southern coasts of California. Mountain lions, given their wide ranging behavior, can serve as a surrogate species for understanding landscape connectivity and what habitats and parcels of land must be conserved for maintaining viable populations of various co-occurring wildlife species. The establishment of this research effort is an attempt to fill in a known data gap with respect to mountain lion ecology, specifically habitat use and gene flow, predator-prey interaction, and population status.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The provision of funding for this project is consistent with the County's Strategic Plan Goal No. 1 and 3 (Operational Effectiveness & Integrated Services Delivery). In addition to enhancing the community's knowledge and understanding of conservation and the propagation of Fish and Wildlife, the research project will assist in maintaining viable populations of various co-occurring wildlife species in the Tehachapi Mountains.

FISCAL IMPACT/FINANCING

There is no impact to the General Fund. The approved expenditure will be charged to the Los Angeles County Fish and Wildlife Commission's Propagation Fund, which has sufficient funds to cover the cost. The Commission's Propagation Fund is financed from a percentage of penalty assessments collected relating to Fish and Wildlife code violations in Los Angeles County.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

Section 13100 et seq. of the Fish and Wildlife Code establishes guidelines for the expenditure of fines levied for fish and wildlife code violations. It includes enhancing fish and wildlife activities including protection, conservation, propagation, and preservation of fish and wildlife.

Honorable Board of Supervisors
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IMPACT ON CURRENT SERVICES (OR PROJECTS)

This Board action enhances the education, conservation and the propagation of fish and wildlife thus benefiting Los Angeles County and the State of California.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John H. Hybarger". The signature is fluid and cursive, with the first name "John" and last name "Hybarger" clearly legible.

John H. Hybarger
Chairman

JHH:ch

Attachments

c: Executive Officer, Board of Supervisors
Chief Executive Officer

LOS ANGELES COUNTY FISH AND WILDLIFE
COMMISSION

GRANT APPLICATION TITLE PAGE

TITLE OF PROJECT/PROGRAM Tehachapi Mountain Lion Project

NAME OF ORGANIZATION CA Dept. of Fish and Wildlife
[As it appears on (501)(c)(3) IRS Letter]

ADDRESS 1701 Nimbus Rd. Suite D

CITY Rancho Cordova STATE CA ZIP CODE 95670

TELEPHONE NUMBER 916-261-3610 FAX _____

AMOUNT REQUESTED _____

BOARD CHAIRPERSON _____

EXECUTIVE DIRECTOR _____

CONTACT PERSON Justin Dellinger

TITLE Senior Environmental Scientist

TELEPHONE NUMBER(S) 916-261-3610

AUDITED TOTAL INCOME _____ AUDITED TOTAL EXPENSES _____

FOR FISCAL YEAR BEGINNING _____ AND ENDING _____

SIGNATURE OF BOARD CHAIRPERSON DATE

Note: Please complete this title page and attach all grant application materials prior to submission. If you have any questions, you may contact the Fish and Wildlife Commission staff at (213) 974-1431.

For all areas that are not applicable, please indicate N/A in the area.

One Page Project Summary

The California Department of Fish and Wildlife (CDFW) proposes to establish a comprehensive research effort to investigate mountain lion (*Puma concolor*) ecology in the Tehachapi Mountains (occurring in Kern and L.A. counties) to inform species' management and habitat conservation practices. The Tehachapi mountains represent a unique area that links wildlife populations in the Sierra-Nevada Mountains to those along the central and southern coasts of California. Without the Tehachapi Mountains, wildlife populations in the central and southern California coastal areas are likely to be unable to maintain population status due to lack of immigration and gene flow.

The establishment of this research effort is an attempt to fill in a known data gap with respect to mountain lion ecology, specifically habitat use and gene flow. For example, by gathering habitat use and genetic data from study animals, it is possible to identify critical travel corridors for maintaining movement patterns which in turn will promote a genetically robust mountain lion population. Also, mountain lions, given their wide ranging behavior, can serve as a surrogate species for understanding landscape connectivity and what habitats and parcels of land must be conserved for maintaining viable populations of various co-occurring wildlife species. If there is a natural or man-made barrier that restricts mountain lion movements then it is likely that those barriers are equally or more greatly restrictive to other co-occurring species. Further, this research effort will allow for understanding mountain lion interactions with native and non-native prey including deer (*Odocoileus hemionus*) and feral pigs (*Sus scrofa*), respectively. For example, there is interest in reducing feral pig populations in the Tehachapi Mountains. There is a possibility that feral pigs and deer combined support a relatively dense mountain lion population. If feral pig numbers were reduced, mountain lions may increase predation rates on deer to account for the decrease in feral pig numbers. Thus, such research would have immediate application (i.e., habitat use and genetics) to current state-wide efforts as well as long-term application to local wildlife management (i.e., predator-prey interactions).

Mountain lion capture efforts will revolve around the use of treeing animals with trained hounds, but cage trapping may be used where necessary. Collars would be set to record GPS locations every 3-5 hours for 2-3 years (lifespan of average collar). Following collar deployment, study animals would be remotely monitored via satellite download GPS locations and VHF telemetry. If a collar were to signal a mortality event, CDFW personnel would investigate as soon as possible to determine cause of death. Further, mountain lion GPS clusters would be investigated to determine diet composition and kill rates.

Ideally, intensive capture work will begin Spring 2017. Capture efforts are very flexible and are amenable to working around sensitive dates related to hunting and various forms of outdoor recreation. Ideally, capture efforts would occur over several two week stints until 10-12 mountain lions are captured and radio-collared. In total, this project is likely to persist over a three year period which includes data collection, analysis, and reporting efforts.

Background on Applicant:

Purpose and goals:

The establishment of this research effort is an attempt to fill in a known data gap with respect to mountain lion ecology, specifically habitat use, gene flow, predator-prey interactions, and population status. CDFW proposes to:

- 1) Investigate mountain lion habitat use and landscape connectivity in the Tehachapi mountains
- 2) Investigate mountain lion gene flow in the Tehachapi mountains
- 3) Investigate mountain lion prey selection and predation rates
- 4) Investigate mountain lions densities and develop methods for tracking population status over time

Brief summary of current activities:

Currently, CDFW is working in two other areas of the state to understand mountain ecology as part of the state-wide mountain lion project. These projects have similar overall goals (i.e., habitat use, landscape connectivity, etc.) but given the habitat diversity, and various degrees of human development in California, it is likely mountain lion ecology and population status varies between eco-regions; thus regional projects are needed to understand mountain lion ecology on a state-wide and eco-regional level. For this project specifically CDFW is working with The Nature Conservancy to identify funding sources and the Tejon Ranch Conservancy and Wind Wolves Preserve for access to study sites.

Geographic area served:

Currently CDFW is conducting the mountain lion project on a state-wide level. The specific project seeks to work in the Tehachapi Mountains in Kern and L.A. counties.

Major sources and dollar amounts of corporate, foundation and government support during current and past fiscal year:

Pittman-Robertson Funding (Federal) - Pays for:

1 Senior Environmental Scientist - \$50,000
2 Scientific Aides - \$50,000
Travel (i.e., gas, vehicle repair and maintenance) - \$20,000
Analysis of genetic samples - \$10,000
Mountain Lion capture costs - \$30,000
4 GPS collars - \$6,000
GPS collar location fees - \$631
GPS collar satellite fees - \$3,780
Total - \$170,411

The Nature Conservancy (Foundation) - Pays for:

3 GPS collars - \$4,500
GPS collar location fees - \$473
Total - \$4,973

History of all grants received from the Los Angeles County Fish and Wildlife Commission:

N/A

Project Information

Statement of justification of need:

CDFW needs funds to pay for more GPS collars to increase sample sizes (i.e., radio-collared mountain lions) and thus increase strength of inference from data collection efforts for understanding habitat use, gene flow, landscape connectivity, predator-prey interactions, and population status/monitoring. GPS collar costs can be broken down into three parts: 1) initial cost of collars, 2) monthly satellite fees, and 3) location fees. Currently CDFW has funding for 7 collars and fees. However, it is optimal to have a minimum of 10 GPS collars to deploy on mountain lions in a given area for understanding basic ecological processes like those mentioned above. CDFW seeks to obtain 3 additional GPS collars for research purposes. However, funding for less than 3 GPS collars (i.e., 1 or 2) is still of interest if there are not enough funds for 3 collars. 3 GPS collars (\$1,500 each) - \$4,500

Total - \$4,500

Statement of purpose and goals:

CDFW seeks to secure funding for additional GPS collars to deploy on mountain lions for increasing understanding of mountain lion habitat use, landscape connectivity, gene flow, predator-prey interactions, and population status in the Tehachapi Mountains of Kern and L.A. counties.

Action plan to meet objectives:

We will begin attempting to catch and radio-collar mountain lions in the Tehachapi Mountains in Spring 2017 and hope to conclude capture efforts by Fall 2017. Mountain lion capture efforts will revolve around the use of treeing animals with trained hounds, but cage trapping may be used where necessary. When in hand, genetic samples will be taken from captured mountain lions for genetic purposes. Collars would be set to record GPS locations every 3-5 hours for 2-3 years (lifespan of average collar). Following collar deployment, study animals would be remotely monitored via satellite download GPS locations and telemetry. If a collar were to signal a mortality event, CDFW personnel would investigate as soon as possible to determine cause of death. Further, mountain lion GPS clusters would be investigated to determine diet composition and kill rates. Once all the GPS collars are deployed, CDFW personnel will begin to calculate density of mountain lions and develop methods for monitoring mountain lion populations in the Tehachapi Mountains long-term. This will involve the use of remote game cameras, scat detection dogs, and hounds for tracking, treeing, and darting mountain lions with a biopsy dart which is a dart that collects a piece of tissue for genetic analysis. CDFW personnel will determine which method is the most efficient and cost-effective for the Tehachapi Mountains, as effectiveness of the different methods can vary with habitat type. Following data collection, CDFW personnel will analyze and publish data for the benefit of wildlife management. Further, CDFW will work to direct land use and conservation practices to maintain landscape connectivity.

Statement of how the objectives advance the propagation and protection of fish and wildlife:

Understanding how current landscape conditions promote/hinder habitat use patterns, connectivity, and gene flow of wildlife populations is critical to long-term viability of those populations as well as proper functioning of the ecosystem as a whole.

Project budget and timetable:

Current budget - \$175,384
Seeking additional - \$6,593

Timeline - Initiate capture efforts Spring 2017
Finalize capture efforts Fall 2017
Collect genetic samples Spring-Fall 2017
Collect habitat use and connectivity data Spring 2017 to at least Spring 2020
Collect predator-prey data Spring 2017 to at least Spring 2020
Determine population status and monitoring techniques - Spring-Fall 2018
Analyze and publish data - Summer-Fall 2020.

Sources of other support for project:

Pittman-Robertson Wildlife Funding (Federal)
The Nature Conservancy (Non-governmental organization)
Tejon Ranch Conservancy (Non-governmental organization)
Wind Wolves Preserve (Non-governmental organization)

Current status of project:

Currently CDFW is 1) getting a capture plan put together to be approved by department Director's, veterinarians, and biologists; 2) working to develop contracts for use of hounds in treeing mountain lions; 3) developing genetic sampling protocols with university geneticists; 4) purchasing equipment; and 5) coordinating logistics with land owners.

Cash flow analysis of the expenditure of project funds:

Cash flow analysis and expenditure of current project funds is monitored by CDFW via basic Microsoft Excel software. To date all expenditures are accounted for and the project budget is balanced.

Proposed method of evaluating results:

Following data collection, GPS location data would be analyzed to address the objectives using various statistical modeling methods. Generalized linear mixed-effects models would be used to determine mountain lion habitat use patterns and landscape connectivity. These analyses would be carried to reflect a 2nd order resource selection function framework. A ratio estimator will be used to estimate mountain lion kill rates. Genetic capture-mark-recapture and occupancy techniques will be used to determine population status and develop long-term monitoring protocols. Genetic data will be analyzed under the premise of an existing CDFW contract with Dr. Holly Ernest of the University of Wyoming.

Plans for funding on-going project (if applicable):

CDFW seeks funding from L.A. county Fish and Game Commission in the amount of \$4,500; though funding of a lesser amount is still of interest as purchase of 1 or 2, instead of 3, GPS collars would still help further our research effort. If this funding cannot be obtained, an attempt will be made to obtain funding elsewhere.

Please attach the following supporting documents, if applicable:

- Copy of the Latest IRS Determination Letter of Tax Exempt Status under Section 501(c) (3)
- Organization's Most Recent Audited Financial Statement
- Organization's Most Recent IRS Form 990

ATTACHMENT A

CALIFORNIA FISH AND WILDLIFE CODE

§ 13103. Expenditures from fish and wildlife propagation fund; purposes

Expenditures from the fish and wildlife propagation fund of any county may be made only for the following purposes:

- (a) Public education relating to the scientific principles of fish and wildlife conservation, consisting of supervised formal instruction carried out pursuant to a planned curriculum and aids to education such as literature, audio and video recordings, training models, and nature study facilities.
- (b) Temporary emergency treatment and care of injured or orphaned wildlife.
- (c) Temporary treatment and care of wildlife confiscated by the department as evidence.
- (d) Breeding, raising, purchasing, or releasing fish or wildlife which are to be released upon approval of the department pursuant to Sections 6400 and 6401 onto land or into waters of local, state or federal agencies or onto land or into waters open to the public.
- (e) Improvement of fish and wildlife habitat, including, but not limited to, construction of fish screens, weirs, and ladders; drainage or other watershed improvements; gravel and rock removal or placement; construction of irrigation and water distribution systems; earthwork and grading fencing; planting trees and other vegetation management; and removal of barriers to the migration of fish and wildlife.
- (f) Construction, maintenance, and operation of public hatchery facilities.
- (g) Purchase and maintain materials, supplies, or equipment for either the department's ownership and use or the department's use in the normal performance of the department's responsibilities.
- (h) Predator control actions for the benefit of fish or wildlife following certification in writing by the department that the proposed actions will significantly benefit a particular wildlife species.
- (i) Scientific fish and wildlife research conducted by institutions of higher learning, qualified researchers, or governmental agencies, if approved by the department.
- (j) Reasonable administrative costs, excluding the costs of audits required by Section 13104, for secretarial service, travel, and postage by the county fish and wildlife commission when authorized by the county board of supervisors. For purposes of this subdivision, "reasonable cost" means an amount which does not exceed 3 percent of the average amount received by the fund during the previous three-year period, or three thousand dollars (\$3,000) annually, whichever is greater, excluding any funds carried over from a previous fiscal year.

- (k) Contributions to a secret witness program for the purpose of facilitating enforcement of this code and regulations adopted pursuant to this code.
- (l) Cost incurred by the district attorney or city attorney in investigating and prosecuting civil and criminal actions for violations of this code, as approved by the department.
- (m) Other expenditures, approved by the department, for the purpose of protecting, conserving, propagating, and preserving fish and wildlife.

(Amended by Stats.1990, c 764 (A.B. 4039), § 3; Stats.1991, c. 561 (A.B.722), § 2.)