

State of California
Department of Fish and Wildlife
Wildlife Branch
Deer Capture Plan Approval Form

Date(s) of Capture: January 1, 2013-May 1, 2015
Capture/Project Location: San Joaquin River Watershed, Fresno and Madera Counties
Funding Sources: Big Game
Project Leader: Tim Kroeker
Capture Coordinator: Tim Kroeker
Veterinary Coordinator: Dr. Pam Swift
Pre-Capture Safety Meeting: Prior to each capture session
Primary Capture Methods: Deer-free range darting, Clover trap
Capture Objectives:

In consultation with personnel from the Wildlife Branch and the Wildlife Investigations Laboratory, the Central Region has prepared the attached Capture Plan for the capture of deer. The purpose is to equip deer with GPS transmitters in order to determine herd boundaries, identify and link key areas and migratory routes and gather population demographic information through the use of telemetry. Capture effort will be directed at historically identified wintering, holding areas and known deer concentration areas within the watershed including summer key areas, particularly those for which there is no telemetry data. Areas identified as wintering range but which contain deer all year will be targeted to test whether these areas are significant wintering areas or are primarily occupied by resident deer. Secondly an effort will be made to identify factors limiting population recovery and herd health data related to disease and mortality will be gathered. Study animals will be monitored for location and mortality.

Regional Approvals:

Project Leader: [Signature] Date: 1-3-2013

Program Manager: [Signature] Date: 1-9-2013

Regional Manager: [Signature] (acting) Date: 1-9-2013

Wildlife Branch Approvals:

[Signature] Date: 2/7/13
Branch Chief

[Signature] Date: 2/7/2013
WIL VETERINARIAN DATE

Upper San Joaquin Watershed Herd Delineation and Migratory Behavior and Population Dynamic Telemetry Project Capture Plan

January 29, 2013

I. Introduction

The San Joaquin deer herd is in decline and much of the winter range is underutilized. In addition, based on location and timing of harvest, a large percentage of bucks harvested within the San Joaquin Watershed appear to be resident deer causing concern that the migratory population may be even more suppressed. Increased resident population at low elevation and underutilized winter range may indicate that the limiting factor for migratory deer in this watershed is summer or fawning habitat condition. Telemetry data will help us locate, protect, and enhance key summer and winter range areas and the migration corridors throughout the range. Identified key areas can be described and compared to historical key areas in search of clues to habitat degradation and population decline. Telemetry data will give us information related to the importance and prevalence of resident deer within the watershed.

II. Background

Longhurst described the deer herds of California in 1952, and estimated a population of 14,000 deer in the San Joaquin Deer sub-unit, with an additional 5,000 in the Huntington sub-unit. (Longhurst, 1952) Current herd estimates are suspect due to low reported buck harvest and low sample size during composition counts. Further complicating matters a significant percentage of bucks harvested are taken in areas described as winter range but prior to migratory movement, indicating a sizable resident population. These factors combine to make population estimates unreliable. The herd population appears to have been reduced below the 3,200 estimated in the herd management plan (Peabody, 1983) and is believed to be in decline.

A comprehensive investigation of the deer herd in the San Joaquin River Watershed was initiated by the Department of Fish and Game (Department) in the early 1950's due to the poor condition of the range (Hjersman, 1957). Key wintering areas were identified and an attempt was made to check migration habits by capturing and ear tagging 128 deer. Only 18 observations of marked animals or ear tags were returned, 13 of these observations provided information on migration.

From 1954-1963 ear tags, ear notches, bells and collars were used to identify and monitor deer on the winter range and determine utilization of treated areas and movement within the winter range. An attempt was also made to compare the distribution of marked animals on their summer and winter range and about 10% of the marked animals were located on the summer range. (Jordan, 1967). An extensive investigation was also made into habitat types of winter and summer key use areas within the watershed. (Jordan, 1967) Since the 1960's habitat conditions have changed significantly (pers comm., Jordan)

Between 1986 and 1995 the Department captured and equipped deer with ear tags and/or telemetry collars in the San Joaquin River drainage. This project considered three objectives of the San Joaquin Deer Herd Plan (Peabody, 1983): identification and delineation of deer holding areas; summer use areas; and migratory corridors within the San Joaquin Deer Herd boundary. Telemetry equipped deer were monitored on the ground and from the air and a good representation of key use areas for the central portion of the watershed was established. However polygons on some study maps indicated key areas but did not associate them with telemetry locations or describe how that designation was derived. (Sommer, 2004)

III. Study Objectives

The study objective is to determine herd boundaries, identify and link key areas and migratory routes and gather population demographic information through the use of telemetry. Capture effort will be directed at historically identified wintering and holding areas and known deer concentration areas within the watershed including summer key areas, particularly those for which there is no telemetry data. Areas identified as wintering range but which contain deer all year will be targeted to test whether these areas are significant wintering areas or are primarily occupied by resident deer. Secondary objectives are to gather herd health data related to disease and mortality. Habitat at key areas will be described and examined for clues to the herds decline by comparing current and historic summer and fawning areas.

The goal of this project is to develop documents and maps to be referred to for management purposes of this herd, including improved census methodology and habitat enhancement. To meet this goal, the following specific objectives have been developed:

1. Identify geographic areas important to deer and describe them according to physical characteristics and according to the habits and deer utilizing them.
 - Identify key winter areas
 - Identify key summer areas
 - Identify migratory corridors and holding areas.
 - Identify fawning areas (locations used by does from June 15-July 15).
 - Describe identified key areas and compare them to historically identified areas.
2. Determine meaningful herd boundaries for management purposes.
 - Describe the migratory habits or resident nature of deer utilizing geographic segments of this watershed.
 - Characterize deer by the range they use.
3. Identify factors limiting population
 - Document mortality factors
 - Document the existence of exotic louse within the project area.
 - Document mineral levels for Copper and Selenium in captured deer,
4. Collaborate with Dr. Peter Jordan and graduate students to compare historic data and examine causes for population decline.

IV. Capture Location and Study Area

The study and capture location is the west slope of the Sierra Nevada, in Madera and Fresno Counties, including the San Joaquin River Watershed above the Kerckhoff Powerhouse. The study area ranges from 500-3,600 meters in elevation and covers about 1900 km². The primary capture area is the winter range of the San Joaquin and Huntington Segments of the San Joaquin Deer Herd as described in the Herd Management Plans.

V. Capture Objectives

Up to 50 deer will be captured and equipped with GPS telemetry collars within the San Joaquin River Watershed. The priority is to catch as many deer as possible in the first year so that methodology may be examined and improved during the remaining years of the study. GPS

collars will provide specific locations of use data for areas in which we lack knowledge. Data will include: fawning areas within the upper watershed, migration routes, holding areas, summer and winter range use areas and mixing areas or boundaries between groups of deer with different migration or resident behavioral patterns. Flexible or breakaway VHF collars and/or telemetry ear tags will be available for incidentally captured bucks or juveniles; these will provide general information, verifying migratory habits and other data for a nominal price. The data may also provide insight into factors limiting population growth such as summer or winter range suitability.

VI. Capture Methods

All deer will be captured by Clover traps or free-range darting. Clover traps will be baited with mistletoe. Deer captured in Clover traps will be physically restrained. Chemical immobilization with Telazol® (1.0-1.5 mg/lb) and Xylazine (0.75-1.25 mg/lb) will be used based on estimated average size of does in the capture area. All deer will be marked with a metal and a plastic ear tag. During the capture the following will be collected from each deer: blood, external parasites, louse abundance, hair loss score, fecal pellets, measurements and photographs. Each deer will be administered injections of penicillin, Vital E and Mu-Se®. Reversal with Tolazoline (2 mg/lb) will occur no sooner than 45 minutes after initial injection of the Telazol®/Xylazine mixture.

VII. Supplemental Capture Needs

The capture plan is for three capture seasons to meet the need of the research project and supplemental captures are not expected.

VIII. Data and Biological Sample Collection

Specific data and biological samples will be collected and handled as follows:

Sample	Amount	Test Requested	Diagnostic Lab	Archived
Serum	2	Micronutrients	CAHFS/WIL	Yes
Serum	2	Serum Chemistry	WIL	Yes
Whole Blood-LLT	2	Hematocrit Selenium	Kroeker CAHFS/WFL	Yes
Ectoparasites	1	Identification	NVSL	
Fecal Pellets	1	Fecal Flotation	WIL	
Blood Smear	2	Identification	WIL	

Field analysis for the following will be collected on individual captures according to Regional protocol and data kept with individual capture information by the capture coordinator: Physical measurements, photographs, body and pelage condition, ecto-parasite abundance, capture location.

Telemetry data will be gathered via iridium technology and delivered to the project coordinator's data base. VHF specific telemetry data will be gathered in the field and submitted to the project coordinator weekly.

IX. Environmental Documentation and Permitting

Not Applicable

X. Funding Sources

Big Game Fund
Wildlife Restoration Grant # W-86-R

XI. Media Coverage

No media coverage is expected. If media contact is made the Capture Coordinator will act as primary contact and follow current Department protocol related to media contacts.

XII. Key Personnel and Personnel Needs

Project Leader	Tim Kroeker, Environmental Scientist, CDFG
Capture Coordinator	Tim Kroeker
Veterinary Coordinator	Dr. Pam Swift, Senior Wildlife Veterinarian
Probable Capture Assistants handling immobilizing drugs:	
	Dan Fidler, Environmental Scientist, CDFG
	Evan King, Environmental Scientist, CDFG
	Cristen Langner, Environmental Scientist, CDFG
	Nathan Graveline, Environmental Scientist, CDFG

Additional possible assistants not using immobilizing drugs:
Regional Scientific Aids, U.S. Forest Service Biologists/Scientists

XIII. Personnel and Animal Safety

A planning and safety meeting will be held prior to each capture effort and/or when new personnel arrive to assist. At these meetings task assignments, dart gun and drug safety, animal safety, animal handling and sampling protocols, communication procedures and other pertinent aspects of the operation will be discussed. Presentations will be made by appropriate personnel, relative to their respective areas of expertise.

Standard methods of animal restraint will incorporate hobbles and eye covers. Each captured animal's body temperature, respiratory rate and heart rate will be monitored to ensure that investigators are aware of the physical status of the animal as processing proceeds. Each capture team will have a reference binder with emergency contacts, MSDS sheets for all drugs and standard procedures for immobilization and processing.

Dr. Pam Swift is designated lead in the selection of immobilizing drugs. The selection of specific immobilizing agents and antagonists will be determined prior to the time of capture based on ambient weather conditions and the experience level of available processing personnel. Dr. Pam Swift is also lead on animal welfare issues.

Each deer will be administered injections of penicillin, Vital E and Mu-Se®. Reversal with Tolazoline (2 mg/lb) will occur no sooner than 45 minutes after initial injection of the Telazol®/Xylazine mixture.

Appendix A

XIV. Training- This capture is not being planned as a training exercise, although newer biologists will be mentored by more experienced personnel to make the most of this capture to gain practical capture related experience.

XV. Reporting of Results-

Progress reports detailing project status, completed tasks, problems encountered deviations from the approved study design and budgetary summary will be provided to the Central Region Wildlife Management Program Supervisor and routed to LMAC and the Big Game Management Account Advisory Committee (BGMAAC) by June 30 of each year. The first progress report will also include an examination of methodology and recommend changes which might contribute to future success.

Final Report- The final report for this project will be completed by December 31, 2017. The final report will identify geographic areas and habitats important to deer and maps to be referred to for the management of this population. Further if distinct populations are identified these will be described and recommendations made for their management. The GIS derived segment of the final report will include maps of the capture segments indicating capture location. Other maps created for the report utilizing GPS data from project deer will include; range maps for distinct population segments, migration maps, maps indicating core population areas, maps indicating key fawning areas and other project maps from ancillary data. The report will include a discussion on mortality and survivorship between gender, age and geographic groups, as well as causes and timing of mortality if possible.

XVI. Literature Cited-

- Clover, M.R. A portable deer trap and catch-net. Calif. Fish and Game, Vol. 40, no 4, p.367-373
Hjersman, H.A. et al 1957, The San Joaquin Deer Herd and Range, California Department of Fish and Game, 63pp
Jordan, Peter A. 1967. Ecology of Migratory Deer in the San Joaquin River Drainage, University of California, Berkeley, 278pp
Longhurst, W.M. et al 1952. A Survey of California Deer Herds Their Ranges and Management Problems University of California Berkeley, 136pp
Peabody, E.A. 1983. Management Plan for the San Joaquin Deer Herd, California Department of Fish and Game, 62pp
Rempel, R. 1984. Management Plan for the Huntington Segment of the San Joaquin Deer Herd, California Department of Fish and Game, 29pp
Sommer, M. 2004. San Joaquin Deer Herd Study Results Summary, California Department of Fish and Game internal paper, 6pp

Appendix I. Detailed Capture Itinerary

Specific capture dates have not been established but will occur from February 2013 – March 2015.

Appendix II-IV. –NA

Appendix V. Emergency Contact Numbers

Emergency 911

Dispatch

CDFW Dispatch	NORCOM	916-445-0380
Fresno County Sheriff Dispatch		1-800-522-0086
Madera County Sheriff Dispatch		559-675-7770
Madera County SO, Oakhurst Sub-Station		559-642-3201
California Highway Patrol		559-683-6565
CHP After Hours		209-356-2900

Project Leader/Capture Coordinator

Tim Kroeker C: 559-977-2842, O: 559-641-7592, H: 559-641-7487
Call # 9416

Veterinary Coordinator

Dr. Pam Swift C: 916-801-7469, O: 916-358-1462

WLM Supervisor

Greg Gerstenberg C: 209-769-1196, H: 209-826-3464
Call# 9410

Capture Personnel

Dan Fidler,	C: 559-353-0216	Call# 9411
E. King,	C: 559-972-7835	
Cristen Langner	C: 559-417-5642	
Nathan Graveline	C: 209-596-1785	

U.S. Forest Service, Bass Lake Ranger District 559-877-2218

Hospitals

Oakhurst Community	559-683-6331
Clovis Community	559-324-4000

SAN JOAQUIN/UPPER SAN JOAQUIN WATERSHED
DEER TELEMETRY PROJECT

- Approved proposal/study plan
- Updated BGMA budget projection (11/2013)

Central Region Wildlife Management Program



Project Title: San Joaquin Herd / Upper San Joaquin Watershed Telemetry Project

Project Location: San Joaquin Watershed Madera and Fresno Counties

Project Leadership: Tim Kroeker, Environmental Scientist

Proposed Start and Completion Date: January 1, 2013 through December 31, 2017

Executive Summary

The San Joaquin deer herd is in decline and much of the winter range is underutilized. In addition, based on location and timing of harvest, a large percentage of bucks harvested within the range appear to be resident deer causing concern that the migratory population may be even more suppressed. Increased resident population at low elevation and underutilized winter range may indicate that the limiting factor for migratory deer in this watershed is summer or fawning habitat condition. To gain understanding of the deer population on this range we are proposing a telemetry project. Telemetry data will help us locate, protect, and enhance key summer and winter range areas and the migration corridors throughout the range. Identified key areas can be described and compared to historical key areas in search of clues to habitat degradation and population decline. Telemetry data will give us information related to the importance and prevalence of resident deer within the watershed.

Statement of Need

Key areas and migration corridors, particularly in the western edge of the range and in the upper watershed on the Fresno County side of the San Joaquin River are not adequately delineated. The boundary for the western edge of the range is not defined by data and deer from the Oakhurst winter range are believed to utilize San Joaquin summer range (Jordan 1967). Complicating this factor is outdated knowledge of the percentage of resident deer in the watershed which masks the decline of the migratory herd. Lacking knowledge of deer habitat use and needs in this watershed will result in inadequate response to Forest Service management proposals. Management actions misdirected by limited understanding of deer resource needs will have the result of further population declines.

The management plan for The San Joaquin Deer Herd (Peabody, 1983) recommends identifying fawning habitat and key summer range concentration areas as well as all key summer and winter ranges. The Huntington Deer Herd Management Plan, which acknowledges that the Huntington Deer Herd is biologically a portion of the San Joaquin Deer Herd and refers to it as such in the plan (Rempel, 1984), recommends the same actions for that portion of the range. Additionally the plans recommend identifying migration corridors, particularly for routes above Mammoth pool and on the Fresno County side of the San Joaquin River. Recent herd plan updates recommend utilizing

GPS collars to gather this data. The summer range of this herd has historically been viewed as having limited capacity (Jordan, 1967). The range of this herd should be thoroughly investigated to identify limiting factors for this herd.

Introduction

Longhurst described the deer herds of California in 1952, and estimated a population of 14,000 deer in the San Joaquin Deer sub-unit, with an additional 5,000 in the Huntington sub-unit. (Longhurst, 1952) Current herd estimates are suspect due to low reported buck harvest and low sample size during composition counts. Further complicating matters a significant percentage of bucks harvested are taken in areas described as winter range but prior to migratory movement, indicating a sizable resident population. These factors combine to make population estimates unreliable. The herd population appears to have been reduced below the 3,200 estimated in the herd management plan (Peabody, 1983) and is believed to be in decline.

A comprehensive investigation of the deer herd in the San Joaquin River Watershed was initiated by the Department of Fish and Game (Department) in the early 1950's due to the poor condition of the range (Hjersman, 1957). Key wintering areas were identified and an attempt was made to check migration habits by capturing and ear tagging 128 deer. Only 18 observations of marked animals or ear tags were returned, 13 of these observations provided information on migration.

From 1954-1963 ear tags, ear notches, bells and collars were used to identify and monitor deer on the winter range and determine utilization of treated areas and movement within the winter range. An attempt was also made to compare the distribution of marked animals on their summer and winter range and about 10% of the marked animals were located on the summer range (Jordan, 1967). An extensive investigation was also made into habitat types of winter and summer key use areas within the watershed. (Jordan, 1967) Since the 1960's habitat conditions have changed significantly (pers comm., Jordan)

Between 1986 and 1995 the Department captured and equipped deer with ear tags and/or telemetry collars in the San Joaquin River drainage. This project considered three objectives of the San Joaquin Deer Herd Plan (Peabody, 1983): identification and delineation of deer holding areas, summer use areas, and migratory corridors within the San Joaquin Deer Herd boundary. Telemetry equipped deer were monitored on the ground and from the air and a good representation of key use areas for the central portion of the watershed was established. However polygons on some study maps indicated key areas but did not associate them with telemetry locations or describe how that designation was derived. (Sommer, 2004)

This project proposes to capture and equip deer within the San Joaquin River Watershed with GPS telemetry collars and telemetry ear tags. GPS collars will provide specific locations of use data for areas in which we lack knowledge. Data will include: fawning areas within the upper watershed, migration routes, holding areas, summer and winter range use areas. Telemetry ear tags will provide general information, verifying migratory habitats over a significant area where a portion of the deer are believed to be resident, and identifying linking key summer range to wintering areas on the peripheral areas of this watershed where no research has been conducted.

Knowledge gained from this study will assist the Department in giving timely and accurate advice to Forest Service land managers and operators of the several hydroelectric projects throughout this range. Current and accurate knowledge of deer populations for the region are necessary for maximizing benefits to deer through designing habitat enhancement projects and developing mitigations for detrimental project impacts.

Objectives

The study objective is to determine herd boundaries and identify and link key areas and migratory routes through the use of telemetry. Capture effort will be directed at historically identified wintering and holding areas and known deer concentration areas within the watershed including summer key areas, particularly those for which there is no telemetry data. Areas identified as wintering range but which contain deer all year will be targeted to test whether these areas are significant wintering areas or are primarily occupied by resident deer. Secondary objectives are to gather herd health data related to disease and mortality. Habitat at key areas will be described and examined for clues to the herds decline by comparing current and historic summer and fawning areas.

Methods

Study Area

This study site is located on the west slope of the Sierra Nevada, in Madera and Fresno Counties, including the San Joaquin River Watershed above the Kerckhoff Powerhouse. The primary deer herd for this area is described as the San Joaquin Deer Herd but the Oakhurst herd also utilizes portions of the watershed (Longhurst, 1952). The San Joaquin Herd is divided into two segments, the San Joaquin segment to the north and the Huntington segment to the south (Rempel, 1984). The study area ranges from 500-3,600 meters in elevation and covers about 1900 km².

Study Design

Adult does will be captured throughout the study area. Up to ten does will be captured and equipped with GPS collars per year, over a period of three years. Telemetry ear tags will be used primarily to determine the percentage of migratory deer in areas which are believed to contain a mixture of migratory and resident deer. Ten to twenty deer will be equipped with telemetry ear tags per year. The primary capture methodology will be free range darting. A mixture of Telazol and Xylazine at a 1:1 ratio with 1 mg of each per estimated pound of deer will be used. Tolazoline will be used to reverse Xylazine at a rate of 2 mg/lb. Clover traps may also be used (Clover 1954) in some areas.

Disease screening will be carried out for all captured deer including blood work, hair loss using the regional scoring technique, and exotic louse examinations according to regional protocol.

Telemetry equipped deer will be monitored bi-weekly for location and mortality when possible. Telemetry locations on the summer range will be made primarily from the air using the Department's Cessna and will occur three times over the summer period. Cause of mortality will be determined and documented if possible. Data will be downloaded from recovered collars and these, with data from ear tag transmitters will be

analyzed using ArcMap. Areas which are heavily utilized by GPS collared animals will be examined and described by habitat type and condition.

Products (and estimated dates of completion)

Annual reports detailing the project status, completed tasks, problems encountered and deviations from the approved study design and budgetary summary will be provided to the Central Region Wildlife Management Program Supervisor and routed to LMAC and the Big Game Management Account Advisory Committee (BGMAAC).

Captures for this project will be completed by Mar 31, 2015 and all GPS collars will be retrieved by mid April, 2017. Data analysis is expected to take several months and a final report should be completed by December 31, 2017.

The goal of this project is to develop documents and maps to be referred to for management purposes of this herd. To meet this goal, the following specific objectives have been developed:

1. Identify geographic areas important to deer and describe them according to physical characteristics and according to the habits and deer utilizing them.
 - Identify key winter areas
 - Identify key summer areas
 - Identify migratory corridors and holding areas.
 - Identify fawning areas (locations used by does from June 15-July 15).
 - Describe identified key areas and compare them to historically identified areas.
2. Determine meaningful herd boundaries for management purposes.
 - Describe the migratory habits or resident nature of deer utilizing geographic segments of this watershed.
 - Characterize deer by the range they use.
3. Document the existence of exotic louse within the project area.
4. Document mineral levels for Copper and Selenium in captured deer,
5. A potential for collaboration with Dr. Peter Jordan and or graduate students exists to compare historic data and examine causes for population decline.

Possible Collaborators

Minnesota State University / Dr. Peter Jordan

United States Forest Service

Program Planning

An annual planning meeting will be held in May or June of each year after the primary capture period, between the investigators and regional senior to evaluate progress and methodology and refine efforts as needed.

Other Resources Requested From CDFG

Staff time and equipment from the Central Region Wildlife Management Program will be used for this study.

Issues to be Resolved

LMAC consideration/support

Association with a University

Required Products

- Annual Progress Reports- June of each Year
- Final Report – December 2017
- Data delivery date – December 2017

Publications – December 2019

Personnel Requirements and commitments from CDFG

Regional Staff

1 Environmental Scientist at 50%

2 Environmental Scientist at 5%

1 Scientific Aid 20%

Budget Detail - per year budget detail by activity/task and broken down by:

First year

- internal staff time (\$50,000)
- potential collaborator(amount unknown)- collaborators may provide additional value to project
- operating (\$80,000)
 - Telemetry and capture equipment (\$50,000)
 - Travel and vehicle expense (\$30,000)

Each of second and third years

- internal staff time (\$50,000)
- collaborator(unknown) collaborators may provide additional value to project
- operating (\$50,000)
 - Telemetry and capture equipment (\$20,000)
 - Travel and vehicle expense (\$30,000)

Each of fourth and fifth years

- internal staff time (\$36,000)

- collaborator(unknown) collaborators may provide additional value to project
- operating (\$30,000)
 - Travel and vehicle expense (\$30,000)

References

Clover, M.R. A portable deer trap and catch-net. Calif. Fish and Game, Vol. 40, no 4, p.367-373

Hjersman, H.A. et al 1957, The San Joaquin Deer Herd and Range, California Department of Fish and Game, 63pp

Jordan, Peter A. 1967. Ecology of Migratory Deer in the San Joaquin River Drainage, University of California, Berkeley, 278pp

Longhurst, W.M. et al 1952. A Survey of California Deer Herds Their Ranges and Management Problems University of California Berkeley, 136pp

Peabody, E.A. 1983. Management Plan for the San Joaquin Deer Herd, California Department of Fish and Game, 62pp

Rempel, R. 1984. Management Plan for the Huntington Segment of the San Joaquin Deer Herd, California Department of Fish and Game, 29pp

Sommer, M. 2004. San Joaquin Deer Herd Study Results Summary, California Department of Fish and Game internal paper, 6pp

San Joaquin Deer Herd/Upper San Joaquin Telemetry Study (Updated 11/2013)

LMAC Funding Budget

FY 2012/2013

Personnel, (Seasonal Staff/Scientific Aids)	\$15,000.00
Operating	\$88,000.00
Total	\$103,000.00

FY 2013/2014

Personnel, (Seasonal Staff/Scientific Aids)	\$30,000.00
Operating	\$73,000.00
Total	\$103,000.00

FY 2014/2015

Personnel, (Seasonal Staff/Scientific Aids)	\$30,000.00
Operating	\$73,000.00
Total	\$103,000.00
<u>Project Total</u>	<u>\$309,000.00</u>