

Large Mammal Advisory Committee

Approved Project

QUARTERLY PROGRESS REPORT

Project Name: Multiple Data Source Approach to Monitoring and Management of Mule Deer: application in Deer Zones X9a and X9b (Mono and Inyo Counties)

Quarter: Time Period: October – December 2014; FY2014/15

Work Performed: CDFW Air Services conducted a fixed-wing flight for location of GPS collars in October. Seven of the 9 GPS collars were located; one GPS collar has not been heard since initial capture.

The project study plan was revised to better conform to project needs. The updated process and subsequent updated budget are below. However, Funds Expended worksheet, also below, does not reflect the updated budget. We are working off the previously approved budget until next FY.

The March 2015 capture plan is being rewritten and should be submitted by January. 100 VHF radio-collars were purchased from ATS for a total cost of \$23,515.00. Radio-collars were received to the Bishop office in December.

With the support of LMAC Work Code: NC 8001-26; BGMA Fund#0200.33, a ground survey study plan is in draft. In this plan we propose to evaluate whether there are differences in age and sex ratios when classification counts are done from roads and traditional walking routes (current method) versus randomly selected walking routes. Study site has been determined to be Round Valley, at least initially. With assistance from Region 6 GIS staff, we created GIS layers for the sampling design and developed a sampling grid in order to randomly select points and create routes to be surveyed. On 22 December 2014, four groups of ground observers tested the design and logistics which we set out as the random routes. Feedback from staff during a subsequent meeting will be used to refine our sampling plan. Besides staff time, there is little to no cost for the study, though LMAC project has budgeted \$600 for ground surveys.

Funds Expended: See budget worksheet directly below.

Work Anticipated for Next Quarter: Fixed wing flight (DFW Air Services/ local pilot) is scheduled for early January. This flight will be to confirm activity of the 9 GPS collars and all radio-collared deer. The 9 GPS collars need to be monitored monthly.

In anticipation of the March 2015 capture, complete rewriting of capture plan and submit for review. Prepare equipment, radio-collars and staff support.

Using feedback from December ground survey random route pilot study, adjust sampling design for better use of personnel and time; conduct ground survey random route study in early January in Round Valley to coincide with traditional ground surveys. This project will require at least three days of field work.

Funds Expended : Budget for FY2014/15.

YEAR 2 (FY 2014/15) LMAC PROJECT CODE NC 8001-12; BGMA Fund #0200.33	(4120, 23352) Funding Amount	2014						2015						FISCAL YEAR
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	14/15 Totals
Personal Services														
Temp Help (9 months)	\$18,000.00													0.00
Subtotal Personal Services	\$18,000.00													0.00
Operating Expenses & Equipment														
Helicopter Survey (March 2014; 21 hours)	\$25,200.00													0.00
Helicopter Capture (March 2014; 21 hours)	\$25,200.00													0.00
Ground Survey (January)	\$300.00													0.00
Ground Survey (March)	\$300.00													0.00
Radio Collars	\$18,750.00													23,515.00
Radio Collars (Refurbish)	\$1,000.00			0.00	0.00									0.00
Fixed wing flight w/ AirServices	\$13,770.00	no flight	CDA (notes)	no flight	yes (CDFW)	none	none							0.00
Travel	\$1,000.00													0.00
Subtotal OE&E	\$85,520.00								0.00		0.00	0.00	0.00	0.00
Subtotal Personal Services and OE&E	\$103,520.00								0.00	0.00	0.00	0.00	0.00	0.00
Total Expenses	\$103,520.00	\$0.00	\$0.00	\$0.00	\$23,515.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23,515.00
Total Personal Services Expenses/IDC to date		\$0.00	Total invoiced				\$0.00							
Total O+E Expenses to date		\$0.00												
Total Personal Serviced Expense / IDC Remaining to date		\$103,520.00	Total Paid				\$0.00							
Total O+E Remaining to date		\$85,520.00	Total Remaining				\$103,520.00							
Notes														
AKA "Eastern Sierra Deer" (ESD) and "Multiple Data Source" (MDS)														
Project Title: Multiple Data Source Approach to Monitoring and Management of Mule Deer: application in Deer Zones X9a and X9b (Mono and Inyo Counties)														
Project Start Date: July 1, 2013; Project End Date: June 2020														
Budget tracking based on invoices received.														
Helicopter Contract : Leading Edge Aviation														
Fixed wing flights performed by DFW or local pilot as of 1Aug2014 . CDA funded \$13,500 for flights. G. Pope charges \$270/hour, so 50 hours of flight time. CDA funds will be used when DFW not available to complete the flight request.														
All January and March ground comp data (GIS, database, summaries) have been submitted.														
Yearly report includes summary of year's accomplishments and spring capture results.														



Multiple Data Source Approach to Monitoring and Management of Mule Deer: application in Deer Zones X9a and X9b (DAU 11, DMU 740 and 750, Mono and Inyo Counties)

Updated December 2014

Start Date: October 1, 2013; Completion Date: June 2020.

Summary of Project Clarifications and Justification for Budget Adjustment

This update clarifies the need to extend the project to June 2020 and add an additional \$161,627, for a project total cost of \$629,457.

Project end date (extending project for two years) coincides with the overall objective of conducting a helicopter survey for estimate of abundance using Mark/Resight (in Year 1) and then three years of monitoring vital rates before the next helicopter survey for estimate of abundance (Year 5).

Costs increases are due to: (1) having more radio-collars on the deer (instead of colored collars), (2) increase in fixed wing time to track 9 GPS collars as soon as dropped off, and (3) a more realistic cost for deer captures, based on the 2014 costs, in additional to (4) extending project for two years. See Table 1 and 2 below.

Number of Collared Animals and Capture Details

The current plan for this project is to have 90 marked deer in each herd. In spring 2014, 30 deer in each herd were radio-collared. The next two deer captures planned (spring 2015 and 2016) will bring our sample closer to 90 deer in each herd. Also, a subset of 35 deer needs to be monitored by fixed wing for survival throughout the year. The subset of 35 radio-collared deer should remain the same deer for the duration of the project. If there is a mortality among this subset, then another radio-collared deer will take the place of the mortality.

Ninety radio-collared deer in each herd will provide the mark for the mark/resight portion of the project. This sample size will be re-examined as the project moves forward. For the spring 2015 capture, we will be increasing our marked population to 60 deer (all VHF collars).

All captured deer will be processed at base camp. In spring 2015, body condition scores and pregnancy using ultrasonography, tooth for aging, etc. will be obtained from all capture deer that are brought into basecamp.

Helicopter Survey Setup and Design

Once a helicopter survey contract is in place, the survey set-up and design will be refined, due to current unknown timing of first helicopter survey. In general, though, three to seven days prior to the helicopter survey, the location of each radio-collared deer should be obtained from fixed-wing or from the ground. Polygon(s) will be created

around the GIS locations and these polygons will be our primary sampling area. During the survey, the helicopter will fly within the created polygons (primary sampling area), covering the entire area but there is no strict track design. The route or track for the helicopter is not set and can be as tight of a zig-zag as needed to sufficiently cover the area. Whether the pattern is N-S or E-W or combination will depend on terrain and pilot's preference. The created polygon is a guideline of where sampling should focus. Survey outside the established polygon(s) (secondary sampling area), if deer are observed outside. Helicopter can go off "track" to classify/count deer. Moving the deer should be kept to a minimum. Requested helicopter survey hours will be the same as traditional number of survey hours allotted for each herd.

When a group of deer is spotted, observers will collect classification of the group, or if determined to be high density, may only collect count data. All collared deer will be noted.

Collared Deer

Deer radio-collars will not have unique id, due to the inability to determine identifications during surveys. Without unique ID there is a restriction on the models that can be used in Program MARK and abundance estimates will have a bigger variance.

Fixed Wing Flights

Fixed wing flights for survival will occur for all three herds, as scheduled in the prospectus. In addition, GPS collared deer (collared in March 2014) will be monitored once per month to detect collar dropoff, so that GPS collars can be retrieved. Each August, as planned, GIS locations of radio-collared deer is recorded for summer range analyses. It has been determined for this type of analyses we only need one summer location for each radio-collared deer for the duration of the project. Therefore, once the deer's summer location has been recorded, we don't need to re-locate it in future summers.

Table 1. Fixed-wing flight timing and costs (\$270/hour) for 5-year project for Casa Diablo, Goodale and Round Valley combined. (Updated October 2014)

Year	August	January	Pre-Spring Capture	Post-Spring Capture	Location of GPS Collars (8mo)	Total
2013/14*		--	--	11		11
2014/15	13	16	10	12	30	81
2015/16	15	23	15	12	25	90
2016/17	10	16	12	12	20	70
2017/18	8	16	12	12		48
2018/19	8	16	12	15		51
2019/20	8	23				31
	Total Hours					382
	Total Cost					\$103,140

*Initiation of project will occur in March 2014. For efficiency, all collared deer will be telemetered using fixed wing.

Table 2. Proposed Budget Summary

Item Description	Year 1 Corrected Costs 2013/2014	Year 2 Corrected/projected Costs 2014/2015	Year 3 2015/2016	Year 4 2016/2017	Year 5 2017/2018	Year 6 2018/2019	Year 7 2019/2020
Temporary Help		4 months @ \$8,000	9 months @ \$18,000	9 months @ \$18,000	9 months @ \$18,000	9 months @ \$18,000	9 months @ \$18,000
Helicopter Survey For Abundance Data @ \$1,200/hour	Contract not in place	12 hours @ \$14,400 (Casa Diablo March 2015)	14 hours @ \$16,800 (Round Valley/Goodale Jan 2016)	--		12 hours @ \$14,400 (Casa Diablo March 2019)	14 hours @ \$16,800 (Round Valley/Goodale Jan 2020)
Ground Survey for Ratio Data		\$300 (January)	\$300 (January)	\$300 (January)	\$300 (January)	\$300 (January)	\$300 (January)
Ground Survey for Spring Ratio Data		\$300 (March)	\$300 (March)	\$300 (March)	\$300 (March)	\$300 (March)	\$300 (March)
Spring Helicopter Capture/Collaring Effort @ \$1,550/hr + \$100 ea animal(Estimate from 2014 capture)	30 does x 3 herds 26.6 hrs @ \$50,430	100 does (3 herds) 35 hrs@\$64,250	25 does x 3 herds 21 hours @ \$35,050	25 does x 3 herds 21 hours @ \$35,050	25 does x 3 herds 21 hours @ \$35,050	25 does x 3 herds 21 hours @ \$35,050	
Radio collars	\$22,857	100 collars split in 3 herds \$25,400	75 collars split in 3 herds \$18,750	30 collars split in 3 herds \$8,000	30 collars split in 3 herds \$9,000	30 collars split in 3 herds \$9,000	
Radio collar Refurbishing/Purchase			\$1,000	\$1,000	\$2,000	\$2,000	
Colored Collar				45@\$40ea= \$1,800	45@\$40ea= \$1,800	45@\$40ea= \$1,800	
Fixed wing contract		81hrs \$21,870	90hrs \$24,300	70hrs \$18,900	48hrs \$12,960	51hrs \$13,770	31hrs \$8,370
Travel		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Total Estimated Project Cost	\$ 73,287	\$ 135,520	\$115,500	\$84,350	\$80,410	\$95,620	\$44,770
Total Est. BGMA Funds Requested	\$ 73,287	\$ 122,020	\$115,500	\$84,350	\$80,410	\$95,620	\$44,770
Total CDA funds		\$13,500					
Total Project Cost: \$629,457							
Total BGMA Cost: \$615,957							