



## Research Project Quarterly Progress Report

### INSTRUCTIONS

*Consultant project managers/principal investigators should complete a quarterly progress report for each calendar quarter, or part thereof, during which project is active. All fields must be completed.*

<b>Date:</b> 20 November 2013		<b>Progress Report Number:</b> Quarterly Report 2013-3									
<b>Project Title:</b> US 93 North Post-Construction Wildlife-Vehicle Collision and Wildlife Crossing Monitoring and Research on the Flathead Indian Reservation between Evaro and Polson, Montana		<b>Report Period:</b> <table style="width: 100%; border: none;"> <tr> <td style="padding: 2px 5px;"><input type="checkbox"/> Quarter 1 (January 1 – March 31)</td> <td style="text-align: right; padding: 2px 5px;"><u>Due Date</u> <i>April 30</i></td> </tr> <tr> <td style="padding: 2px 5px;"><input type="checkbox"/> Quarter 2 (April 1 – June 30)</td> <td style="text-align: right; padding: 2px 5px;"><i>July 31</i></td> </tr> <tr> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/> Quarter 3 (July 1 – September 30)</td> <td style="text-align: right; padding: 2px 5px;"><i>October 31</i></td> </tr> <tr> <td style="padding: 2px 5px;"><input type="checkbox"/> Quarter 4 (October 1 – December 31)</td> <td style="text-align: right; padding: 2px 5px;"><i>January 31</i></td> </tr> </table>		<input type="checkbox"/> Quarter 1 (January 1 – March 31)	<u>Due Date</u> <i>April 30</i>	<input type="checkbox"/> Quarter 2 (April 1 – June 30)	<i>July 31</i>	<input checked="" type="checkbox"/> Quarter 3 (July 1 – September 30)	<i>October 31</i>	<input type="checkbox"/> Quarter 4 (October 1 – December 31)	<i>January 31</i>
<input type="checkbox"/> Quarter 1 (January 1 – March 31)	<u>Due Date</u> <i>April 30</i>										
<input type="checkbox"/> Quarter 2 (April 1 – June 30)	<i>July 31</i>										
<input checked="" type="checkbox"/> Quarter 3 (July 1 – September 30)	<i>October 31</i>										
<input type="checkbox"/> Quarter 4 (October 1 – December 31)	<i>January 31</i>										
<b>Consultant Name</b> Marcel Huijser  Authors quarterly report: Marcel Huijser, Jeremiah Purdum, Whisper Camel-Means & Elizabeth Fairbank		<b>Consultant Project Manager(s):</b> Marcel Huijser									
<b>Consultant Phone Number(s):</b> 406-543-2377	<b>Consultant E-Mail(s):</b> mhuijser@coe.montana.edu	<b>Consultant Project Number:</b> 4W2972									
<b>MDT Project Manager</b> Sue Sillick	<b>MDT Project Number:</b> #8208	<b>Project Start Date:</b> 1 January 2010									
<b>Original Project End Date:</b> 31 July 2015	<b>Current Project End Date:</b> 31 July 2015	<b>Number of Extensions:</b> 0									

### Project Schedule Status:

- On schedule     
  On approved revised schedule     
  Ahead of schedule     
  Behind schedule

**Project Expenses Statistics:**

<b>Project Expenses This Quarter</b>	<b>Total Project Expenses to Date</b>	<b>Projected Cost to Date</b>
\$22,145	\$240,341* <sup>1</sup>  * <sup>1</sup> Invoices from CSKT received through June 2013.	\$350,630  (incl. \$50K in 2012)

<b>Percent Over/Under</b>	<b>Total Project Budget</b>	<b>Remaining Total Budget</b>
31% under budget (but see note on billing CSKT above)	\$550,000 (incl. \$50K in 2012)	\$309,660

**Project Schedule Status** (list all tasks with percentage complete, original and revised estimated and actual begin date; original and revised estimated and actual completion date, any outstanding issues, including such items as: schedule, resources, etc.):

Task	Planned Percentage complete	Actual Percentage complete
1. Deer and black bear vehicle collisions	75%	75% <sup>*1</sup>
2. Wildlife use of underpasses	75%	65% <sup>*2</sup>
3. Cost-benefit analyses	75%	65% <sup>*3</sup>

**Dates:**

This is a long term project with many tasks that reoccur annually.

The starting date for the tasks was 1 January 2010 and the end date for the project is 31 July 2015.

**Notes:**

\*1 Crash and carcass data have been collected and analyzed through 2012.

\*2

Crossing structures: Data entry for 2012 has been completed, data collection and entry for 2013 is ongoing.

Jump-out data through 2012 completed and summarized in this quarterly report.

Calibration data tracking beds (inside and outside structures and cameras): data entry and analyses is ongoing.

Deer pellet surveys: completed for 2013.

\*3 Basic data have been obtained in 2011 and 2012. Analyses are possible now but have not been conducted yet. This is scheduled for next quarterly report.

**Progress and Accomplishments this Quarter** (includes meetings, work plan status, contract status, significant progress, etc.):

**1. TAC meeting**

A TAC meeting was held in Missoula on 26 March 2013.  
Here are some follow ups with regard to items that were still outstanding.

1. Fence length

The actual road length that has wildlife fencing on both sides of the road (between Evaro and Polson) is estimated (based on GPS coordinates from fall 2013) at 8.71 mi (14.01 km). This is lower than the length that was previously reported because of confusion between "fence length" (fence on opposite side of the road counts double, includes zigzags of the fence) and "road length fenced" and the fact that the fence ends on opposite sides of the road are not always exactly opposite of each other.

In the proposal (November 2009) it was estimated that approximately 30% (16.6 mi out of 56 mi) of the 56 mi long road section would be fenced and that the mitigation measures in these fenced areas may be 87% effective in reducing collisions with large animals. Therefore the potential reduction in collisions with large animals was estimated at about 26%.

In reality the total fence length (excluding zigzags) is about 18.4 mi, and the road length that has wildlife fencing on both sides of the road (discarding the road sections that only have fencing on one side of the road) is about 8.7 mi (15.5% of the 56 mi). Assuming an effectiveness of 87% in reducing collisions for the road sections with wildlife fencing on both sides of the road, 0% effectiveness in reducing collisions for the road sections without fencing or with fencing on one side of the road, and assuming no changes in the population size of large wild animals (mostly white-tailed deer), traffic volume, traffic speed and time of travel, one could expect an overall reduction of about 14% in collisions with large mammals (rather than the 26% mentioned in the proposal). However, based on data in the annual report (through 2012), we know that while the number of reported carcasses may be similar before and after mitigation (excluding 2008/2009 data), the number of reported crashes with large wild animals appears to have increased. This suggests that the expected overall reduction for the 56 mi (14% reduction) may not be justified. Instead, the success parameter may have to relate to the road sections that are actually fenced and that have a certain minimum road length with wildlife fencing on both sides of the road. The length should be long enough to minimize the influence of the relatively coarse scale of some of the crash and carcass data (about 0.1 mi).

2. Finances and potential 5<sup>th</sup> year of monitoring for Evaro and isolated structures

WTI-MSU and CSKT are preparing a new work scope and budget for MDT by 22 November 2013.

**2. Field**

- a. Jump-outs Evaro: Monitoring tracking beds jump-outs Evaro started 8 May 2013 and ended 9 October 2013.
- b. Monitoring Crossing structures, wildlife guards continued.
- c. Pellet group counts were conducted in Evaro in August 2013.

**Circumstances Affecting Project, Scope, or Budget** (please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set in the agreement, along with recommended solutions to those problems):

As discussed previously there are substantial financial shortfalls for the project.

Substantial savings have been made through CSKT (had access to supplementary funding) and through involving students. It is uncertain though if these savings are sufficient to allow for the completion of the current work scope and how long student labor is available (current student labor it will run out fall 2013).

WTI-MSU and CSKT will provide new work scope and budget for MDT by 22 November 2013. This relates to the 5<sup>th</sup> year of monitoring for Evaro and isolated structures.

## Results/Risk/Anything Learned:

### Preliminary Jump-out data

For Evaro jump-outs (N=23; data from 2010 through 2012) there were 292 deer (white-tailed deer and mule deer combined) recorded on top of the wildlife jump-outs. Of these 292 deer only 5 (i.e. 1.71%) were recorded as having used a jump-out (EV 1, EV 14, EV 17, EV 19 (2x)) to jump down to the safe side of the fence. At the same time 1443 deer were recorded at the bottom of the jump-outs. Of these 1443 deer 1 (i.e. 0.06%) jumped up into the fenced road corridor.

For the Ravalli Curves and Ravalli Hill areas combined (N=29, data from 2010 through 2012) there were 440 deer (white-tailed deer and mule deer combined) recorded on top of the wildlife jump-outs. Of these 440 deer 153 (i.e. 34.77%) were recorded as having used a jump-out to jump down to the safe side of the fence. 122 of the 153 jump downs (i.e. 79.7%) occurred at the 4 jump-outs on Ravalli Hill. At the same time 1551 deer were recorded at the bottom of the jump-outs. Of these 1551 deer 3 jumped up into the fenced road corridor.

The preliminary data suggests that the jump-outs are barely used to jump down to the safe side of the fence, except for the ones on Ravalli Hill. Ravalli Hill is precisely where the dominant deer species is mule deer (97.7% mule deer, 2.3% white-tailed deer crossed in crossing structures on Ravalli Hill in 2012, see annual report with data through 2012). The other areas (i.e. Evaro and Ravalli Curves) are dominated by white-tailed deer (Evaro: 0.2% mule deer, 99.8% white-tailed deer; Ravalli Curves: 13.6% mule deer, 86.4% white-tailed deer). Therefore the data suggest that the vast majority of the deer that use the jump-outs to jump down to the safe side of the fence are mule deer, and that white-tailed deer do not or barely use the jump-outs. At the same time very few deer appear to have jumped up into the fenced road corridor.

The data suggest that the jump-outs may perhaps be functional for mule deer but not for white-tailed deer. Therefore we suggest an experiment where some of the jump-outs (i.e. the most heavily visited by deer) in areas that are dominated by white-tailed deer are lowered. Similar to the jump-outs along S.R. 260 in Arizona a bar may be placed about 18 inches above the top of the jump-out) to discourage animals from jumping up the lower jump-outs.

## Anticipated Work Next Quarter:

### Field:

Crossing structures  
Monitoring crossing structures Evaro and isolated structures continues.

Wildlife guards (4) and people access point (1)  
Monitoring continues.

Jump-outs Evaro  
Monitoring tracking beds jump-outs Evaro started 8 May 2013 and ended 9 October 2013.

**Desk:**

Crossing structures  
Continued data entry for 2013.

Wildlife guards and people access point:  
Enter data.

Jump-outs Evaro  
Enter data 2013.

Economic analyses:  
Conduct preliminary analyses.

**Separate from MDT project:**

**1. Excursions**

On 15 October 2013 an excursion was organized for Ben Goldfarb. Ben is a journalist who received a grant from the Solutions Journalism Network to write about the Yellowstone to Yukon Conservation Initiative. We talked about the road ecology in general and also about US93 North. This may eventually result in an e-book and/or article(s) in journals that are currently unspecified.

**2. Interpretive signs US 93 N**

Interpretive signs for the mitigation measures along US93 N were installed at the pull out at Polson Hill on or just before 2 October 2013.

**Potential Implementation, including the party(ies) responsible for implementation, any identified barriers to implementation and a discussion of how these barriers can be eliminated or at least reduced, and the products required for implementation:**

The outreach program (separate from MDT project) aims to make the lessons learned accessible to the transportation and natural resource management community. It is up to agencies to evaluate or update their own policy with regard to highway wildlife mitigation though.