

**Idaho Department of Fish and Game  
Idaho Transportation Department - District 1  
Fish and Wildlife Linkage Area Project  
Final Technical Report  
May 9, 2008**

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**Table of Contents**

<b>Introduction .....</b>	<b>2</b>
<b>Project Results .....</b>	<b>3</b>
<b>GIS Data Layers and Project Deliverables .....</b>	<b>7</b>
<b>Data Layers .....</b>	<b>7</b>
<b>Project Deliverables.....</b>	<b>9</b>
<b>Project Process.....</b>	<b>10</b>
<b>Project Methodology .....</b>	<b>10</b>
<b>Post Workshop Processing.....</b>	<b>11</b>
<b>Documentation and Metadata .....</b>	<b>12</b>
<b>References .....</b>	<b>12</b>
<b>Appendix A – Wildlife Linkage Area Index Map and Map Tiles</b>	
<b>Appendix B – Detailed Wildlife Linkage Area Maps with Detailed Comments</b>	
<b>Appendix C – Expert Workshop Participants</b>	
<b>Appendix D – Wildlife Linkage Area GIS Layer Metadata</b>	

**Tables**

Table 1. ITD1 Wildlife Linkage Areas.....	5
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**Figures**

Figure 1. District 1 Study Area.....	3
Figure 2. District 1 Wildlife Linkage Areas .....	4

## **Introduction**

Geodata Services, Inc. worked with Wayne Melquist, Bill Ruediger, and Greg Burak of the Idaho Department of Fish and Game to complete an assessment of wildlife linkage areas in the Idaho Transportation Department's District 1 (ITD1). Geodata Services, Inc. (Geodata) supported two expert workshops to identify wildlife linkage areas for ITD1. The process involved assembly of GIS layers and imagery. The overall assessment area included state and federal highways within 5 counties in northern Idaho (see Figure 1). The purpose of the assessment was to identify opportunities and needs for protecting or creating appropriate movement habitats for wildlife, identify linkage areas for wildlife, and address areas of interest along the highway segments relating to wildlife habitat, development pressure and public safety. A total of 70 wildlife linkage areas were identified in ITD1, for a total of approximately 200 miles of linear road segments (see Figure 2). The ITD1 wildlife linkage areas include 14 high priority linkage areas, 6 moderate priority linkage areas, and 50 low priority linkage areas. The process followed a rapid assessment format that has been utilized throughout Idaho and Western Montana (Ruediger, 2004).

The report is organized into four sections. Following the introduction, the second section provides a brief overview on the project results. The third section includes descriptions of the data layers used in the project and the GIS project deliverables. Section four includes a summary of the process used to derive the wildlife linkage areas of interest and the project methodology. Appendix A includes the ITD1 wildlife linkage area index map and map tiles. Appendix B includes the detailed 3D maps, the detailed ownership maps, and the detailed data and comments on each wildlife linkage area. Appendix C includes a list of participants in the expert workshops. Appendix D includes the GIS metadata for the wildlife linkage areas. Accompanying the report is the wildlife linkage area GIS polygon layer.

## **Project Results**

Figures 1 and 2 show an overview of the project area. See Appendix A for mid-scale maps of the wildlife linkage areas, along with an index of the map tiles and Appendix B for detailed 3D maps, detailed ownership maps, and detailed data and comments on each wildlife linkage area, along with the species of interest in each linkage area.

**Figure 1. ITD1 Study Area**



The wildlife linkage areas were usually not discreetly defined areas confined by vegetative or topographic features. More typically, they were general areas of highway or road segments identified between mileposts and mapped in the expert workshops. In some instances actual wildlife crossings of highways are at well defined locations, such

as a bridge or overpass, although they may cross laterally over a broad area or through funnel-shaped areas. To standardize the wildlife linkage areas recorded in the expert workshops, each identified road segment was buffered by 500 meters.

ITD1 includes approximately 590 miles of federal and state highways. A total of 70 wildlife linkage areas were identified in ITD1, for a total of approximately 200 miles of linear road segments. The ITD1 wildlife linkage areas include 14 high priority linkage areas, 6 moderate priority linkage areas, and 50 low priority linkage areas.

**Figure 2. District 1 Wildlife Linkage Areas**



Each wildlife linkage area was assigned a unique identification number along with a name, usually of a nearby geographic feature. The lowest milepost within each wildlife linkage area and the associated highway are included in Table 1.

**Table 1. ITD1 Wildlife Linkage Areas**

ID	NAME	MILEPOST	HIGHWAY
<a href="#">ID1-01</a>	Port Hill Curves	0	1
<a href="#">ID1-02</a>	Moyie Bridge	537	95
<a href="#">ID1-03</a>	Good Grief	535	95
<a href="#">ID1-04</a>	Sandy's Pinch Point	532	95
<a href="#">ID1-05</a>	Hall Mountain	524	95
<a href="#">ID1-06</a>	Rock Creek	517	95
<a href="#">ID1-07</a>	Lower Rock Creek	519	95
<a href="#">ID1-08</a>	Peterson Hill	501	95
<a href="#">ID1-09</a>	Naples	496	95
<a href="#">ID1-10</a>	McArthur Lake	488	95
<a href="#">ID1-11</a>	Pack River	485	95
<a href="#">ID1-12</a>	Swede Creek	480	95
<a href="#">ID1-13</a>	Sagle	470	95
<a href="#">ID1-14</a>	Cocoallala Creek	460	95
<a href="#">ID1-15</a>	Careywood	456	95
<a href="#">ID1-16</a>	Granite Hill	451	95
<a href="#">ID1-17</a>	Silverwood	447	95
<a href="#">ID1-18</a>	Chilco	443	95
<a href="#">ID1-19</a>	Lancaster	437	95
<a href="#">ID1-20</a>	Jim's House	425	95
<a href="#">ID1-21</a>	Red Hog to Mica	419	95
<a href="#">ID1-22</a>	Lake Creek	410	95
<a href="#">ID1-23</a>	North Fork Rock Creek	404	95
<a href="#">ID1-24</a>	North Plummer	398	95
<a href="#">ID1-25</a>	Lovell Valley	390	95
<a href="#">ID1-26</a>	Sheep Creek	378	95
<a href="#">ID1-27</a>	Old Town	0	2
<a href="#">ID1-28</a>	Thama	10	2
<a href="#">ID1-29</a>	Riley Creek	15	2
<a href="#">ID1-30</a>	Carr Creek	22	2
<a href="#">ID1-31</a>	Sand Hill	67	2
<a href="#">ID1-32</a>	Evergreen	71	2
<a href="#">ID1-33</a>	North Sand Creek	72	2
<a href="#">ID1-34</a>	South Sand Creek	77	2
<a href="#">ID1-35</a>	Kalispell	30	57

<a href="#">ID1-36</a>	Moores Creek	16	57
<a href="#">ID1-37</a>	Lower Pack River	38	200
<a href="#">ID1-38</a>	Trestle Creek	43	200
<a href="#">ID1-39</a>	Thompson Park	48	200
<a href="#">ID1-40</a>	Clark Fork Delta	52	200
<a href="#">ID1-41</a>	Lower Clark Fork	54	200
<a href="#">ID1-42</a>	Blanchard	26	41
<a href="#">ID1-43</a>	South Spirit Lake	15	41
<a href="#">ID1-44</a>	Athol	9	54
<a href="#">ID1-45</a>	Mullin Trail	13	90
<a href="#">ID1-46</a>	Fourth of July Pass	27	90
<a href="#">ID1-47</a>	Cataldo	37	90
<a href="#">ID1-48</a>	Smeltonville	47	90
<a href="#">ID1-49</a>	Big Creek	52	90
<a href="#">ID1-50</a>	Grouse Gulch	64	90
<a href="#">ID1-51</a>	Lookout Pass	70	90
<a href="#">ID1-52</a>	Coeur D'Alene East Shoreline	71	97
<a href="#">ID1-53</a>	Harrison Flat	63	97
<a href="#">ID1-54</a>	Elk Farm	116	3
<a href="#">ID1-55</a>	Lane Marsh	109	3
<a href="#">ID1-56</a>	Clark Creek	107	3
<a href="#">ID1-57</a>	Highway 97 and 3 Junction	96	3
<a href="#">ID1-58</a>	Peterson Hill	95	3
<a href="#">ID1-59</a>	Mission Point	93	3
<a href="#">ID1-60</a>	Cassandra Hills	88	3
<a href="#">ID1-61</a>	South Saint Maries River	83	3
<a href="#">ID1-62</a>	Soldier Draw	73	3
<a href="#">ID1-63</a>	Highway 3 and 6 Junction	70	3
<a href="#">ID1-64</a>	West Santa	69	3
<a href="#">ID1-65</a>	East Santa	68	3
<a href="#">ID1-66</a>	Cedar Creek Campground	55	3
<a href="#">ID1-67</a>	Heyburn State Park	5	5
<a href="#">ID1-68</a>	Benewah Lake	11	5
<a href="#">ID1-69</a>	West St. Maries	15	5
<a href="#">ID1-70</a>	Harvard Hill	23	6

## **GIS Data Layers and Project Deliverables**

The primary GIS processing task required prior to conducting the expert workshops on the wildlife linkage areas was to develop the reference base layers. Processing the base layers typically involved deriving a subset of the digital data from a larger regional or national data layer for vector based layers, labeling features for reference, and re-projecting as necessary for efficiency in display and analysis. In addition to the expert workshops, hard-copy and digital maps were prepared utilizing the GIS layers.

The data layers used in the expert workshops are described in detail in the Data Layers section. The GIS methodology is described in the Project Methodology section and in Appendix D.

### **Data Layers**

#### **State and federal highways**

State and federal highways data, provided by ITD, and detailed streets from ESRI's StreetMap were used for display during the workshops. Highway bridges were not available in digital GIS format, but were noted in comments collected during the workshops.

#### **Big game**

The Rocky Mountain Elk Foundation (RMEF) provided data for winter, winter crucial, summer, and summer crucial occupied elk habitat from the Measure and Prioritize Habitat™ project. Geodata has worked with RMEF and assisted in developing the elk habitat layer. Mule Deer data was provided by Utah State University and additional big game wildlife data was provided by Idaho Conservation Data Center (IDCDC). Big game data was used for display during the workshops

#### **Amphibians and reptiles**

The primary source of amphibian and reptile habitat occurrence was provided by IDCDC for display during the workshops. Species of concern include frogs, salamanders, turtles, snakes, lizards. These species generally have limited mobility and can suffer high mortality when attempting to cross highways (*see D. M. Jochimsen, C. R. Peterson, K. M. Andrews, and J. W. Gibbons. 2004. A literature review of the effects of roads on amphibians and reptiles and the measures used to minimize those effects. Final draft report to the IDFG and USFS*).

#### **Fisheries**

Fisheries data for threatened and endangered fish species was provided by IDFG and IDCDC for display during the workshops. Excellent research and GIS layers exist in portions of Idaho for fish species, including barrier data and other ancillary layers. Digital data for the location of fish barriers at stream crossings was not

available for ITD1, but fish barriers and fish passage issues were identified in the comments collected during the workshops.

### **Public land ownership**

Public land ownership data (at a scale of 1:100,000), from the Idaho State Office of the BLM, was used for display during the workshops. Like most western states, the GIS layer of public land ownership has not been updated regularly and may not be accurate in all locations. Nonetheless, it provided a generally accurate ownership map for workshop participants.

### **Protected lands**

The protected lands data in the University of California Santa Barbara's Managed Area database was used for display during the workshops. Protected lands that were not available in digital GIS format were not digitized, but were noted in the comments collected during the workshops.

### **National Hydrologic Data (NHD)**

Perennial streams from ESRI's StreetMap were used for display during the workshops.

### **Imagery**

ITD provided 1-meter resolution orthophotos, based on the National Agricultural Imagery Program (NAIP). Although these are not land cover GIS layers, they provide detailed images of local vegetative patterns. Identification of hiding cover is plainly visible. The NAIP imagery was used throughout the workshops as the primary base map and reference layer.

### **Digital Elevation Model (DEM)**

The thirty meter resolution DEMs, obtained from the USGS National Elevation Dataset (NED), was used to derive GIS layers used for display in the workshops, including a shaded relief map, or hill shade for display of terrain features.

### **Railroads**

Railroad tracks are important because they almost always compound habitat connectivity and increase mortality. The presence of high volume railroad tracks along highways can reduce effectiveness of highway mitigation measures. IDFG provided all available digital versions of railroad tracks for display during the workshops.

### **Highway mileposts**

ITD provided highway milepost locations for display during the workshops. Highway mileposts have been the preferred reference aid for workshop

participants.

### **Wildlife-vehicle accidents**

Comprehensive digital data for the location of wildlife-vehicle accidents was not available for ITD1, but areas of concern were identified in the comments collected at the workshops. Highway staff and wildlife biologists coded some wildlife linkage areas by category, representing the number of road-killed animals per year, using high (>20), medium (5-20), or low (< 5) for groupings of ungulates, large carnivores, and other species of interest.

### **Public land survey system**

The Idaho 1:100,000 scale public land survey system (PLSS) from Inside Idaho was used as a reference layer for workshop participants. Townships and sections were auto-labeled to facilitate orientation.

### **Threatened and endangered species**

IDCDC provided the location of threatened and endangered species, including wolves and grizzly bears, for display during the workshops. Additional species were identified in the comments collected during the workshops.

### **Additional base layers**

ITD District boundaries from ITD, Idaho cities from the Idaho State Tax Commission, and Idaho county boundaries from the Natural Resources Conservation Service were used for display during the workshops.

## **Project Deliverables**

Project deliverables include this final technical report including maps of the wildlife linkage areas and documentation collected from biologists and other experts during the workshops. In addition to the report, the wildlife linkage area GIS layer was developed during the project. Formal metadata is included in Appendix D.

Geodata provided support for two expert workshops to develop wildlife linkage areas for the project area and provide the content for the wildlife linkage assessment. The workshops followed a similar format and were each one day in duration. The workshops were attended by biologists and engineers from state, federal and local government agencies, and representatives of several non-governmental organizations. A list of workshop participants is provided in Appendix C.

Geodata also provided an on-line questionnaire using Survey Monkey for participants to make revisions and comments on existing wildlife linkage areas, or to provide information on new linkage areas.

Maps, data, and comments for each wildlife linkage area in Idaho, including District 1, are available at <http://www.socialtext.net/idahohighwaywildlifelinkage>

This site is hosted on Geodata's wiki, an editable web site that allows anyone interested to examine, download, print out or comment on a wildlife linkage area. The wiki is virtually maintenance free and can remain as an interim web site resource for the project until ITD or IDF&G develop an alternative. Geodata will host the site as long as they have a license agreement with Socialtext.net. Also, ITD and IDFG can download the pages in HTML, PDF, or MS Word format to move to another site of their choosing.

The GIS data layer developed in this project are provided in the Idaho Transverse Mercator (IDTM) projection, a single-zone system that is widely accepted for use in the State of Idaho and is the state standard. The projection parameters for this standard are as follows:

Projection Name: Idaho Transverse Mercator NAD83 (IDTM83)

Units: meters

Datum: NAD83

Vertical Datum: NAVD88

Scale factor: .99960

Central Meridian: -114 00 00

Latitude of Origin: 42 00 00

False Easting: 2500000

False Northing: 1200000

## **Project Process**

### **Project Methodology**

Two expert workshops were held in ITD District 1. The workshops followed a similar format and were each one day in duration. Workshops were held in Sandpoint and Coeur d'Alene, Idaho. The workshops were attended by ITD biologists and engineers, and biologists from IDFG, the US Fish and Wildlife Service, Bureau of Land Management and the US Forest Service. Biologists from several non-governmental organizations also attended the workshops. A full list of participants in each workshop is provided in Appendix C.

The purpose of the workshops was to review data layers and collectively and individually identify wildlife linkage areas, review planned highway projects, and anticipate other site specific issues related to wildlife habitat, public safety and other wildlife linkage topics. Workshop attendees had access to interactive GIS services to review data layers and model results, paper wall maps and other documentation. The expert workshops included interactive mapping as a group, supplemented by completion of documentation and worksheets, and prioritizing wildlife linkage areas.

The general format for the workshops was as follows:

- General introductions of workshop participants and introduction to the process (including a PowerPoint presentation) and the data layers and maps available for the process (0.5 hrs).
- Presentation by IDFG representative on the statewide, web-based highway/wildlife mortality database (0.5 hrs).
- Presentation by Bill Ruediger concerning the Rapid Linkage Assessment process and other wildlife/ highway issues (1.0 hrs).
- Group review and discussion of individual highway segments with mile-by-mile summary and identification of key areas of interest. Group summary discussion of key wildlife issues and opportunities. Documentation by workshop participants in identified area of interest polygons. Identification of additional research and information needs, additional contacts, and issue delineation (4 hrs).
- Separate exercises to prioritize wildlife linkage areas (1.5 hrs).
- Training and comparison workshop results with Statewide Transportation Improvement Program (STIP) plans, and discussion of linkage mitigation strategies (1 hr).

The group discussed each highway segment sequentially, reviewed pertinent maps and data layers, mapped wildlife linkage areas, and documented the linkage attributes. Geodata provided support for the group, displayed information on request, digitized wildlife linkage areas of interest, and assisted in documentation and annotation. Geodata used the data collection form previously used to collect highway/wildlife linkage data in ITD Districts 3, 4, 5, and 6.

Additional wildlife linkage areas, data and comments were provided by project participants using Survey Monkey.

### **Post Workshop Processing**

Following each workshop, Geodata standardized the wildlife linkage areas recorded in the expert workshops by placing a 500 meter buffer around each identified road segment. The database items recorded at the expert workshops were joined to each wildlife linkage area and are provided as part of the ArcView shapefile. Additional comments were provided in a document file.

Database items include:

- **ITD1\_ID:** The linkage identifier number, including the district name (e.g., ID1-03).
- **AOI\_NAME:** The name assigned to the linkage by workshop participants.

- **PRIORITY:** One of 3 categories (high, medium, low). These were subjective rankings assigned by workshop participants at the end of each workshop in Districts 1-2.
- **SPECIES:** The wildlife species mentioned by workshop participants or on online forms or interviews. Each species is separated by a backslash character.
- **MIG\_POP:** Indication by workshop participants on whether the wildlife population was migratory, which has some bearing on the success of different wildlife crossing structures.
- **LOC\_POP:** Indication by workshop participants on whether the wildlife population was local, which has some bearing on the success of different wildlife crossing structures.
- **SCALE:** The ecosystem scale of the linkage area. Those of ecosystem scale provide linkage primarily between large areas of federal lands important to wildlife. Those of local scale are important for local populations.
- **HWY\_MORT:** A comment on highway wildlife vehicle accidents and highway related wildlife mortality.
- **SEASON:** A comment on the linkage area if it is primarily used by wildlife in one or more specific seasons of the year.
- **ATTRACT:** A comment on any attractants for wildlife in the area of the linkage or the immediate surroundings.
- **AGENCIES:** The agencies that are either responsible for or have primary interest in the area in or around a linkage area.

Following each workshop, Geodata prepared an index map and 8”x11” PDF maps for the wildlife linkage areas identified in the workshops. Each wildlife linkage area was assigned a unique identification number in the GIS polygon layer and the associated data and descriptive comments. The PDF maps were provided to IDFG and posted on Geodata’s Idaho Highway Wildlife Linkage wiki at <http://www.socialtext.net/idahohighwaywildlifelinkage>

### **Documentation and Metadata**

Geodata prepared formal FGDC compliant metadata for the wildlife linkage area polygon layer.

### **References**

Ament, R. and L. Craighead. 1998 Corridors of Life. The Journal of American Wildlands. Spring/Summer, 1998 Vol 9, No 1.

Jochimsen, D.M., C. R. Peterson, K. M. Andrews, and J. W. Gibbons. 2004. A

*literature review of the effects of roads on amphibians and reptiles and the measures used to minimize those effects.* Final draft report to the IDFG and USFS.

Meitz, S.N. 1994. Linkage zone identification and evaluation of management options for grizzly bears in the Evaro Hill Area. M.S. Thesis. University of Montana, Missoula, 91pp.

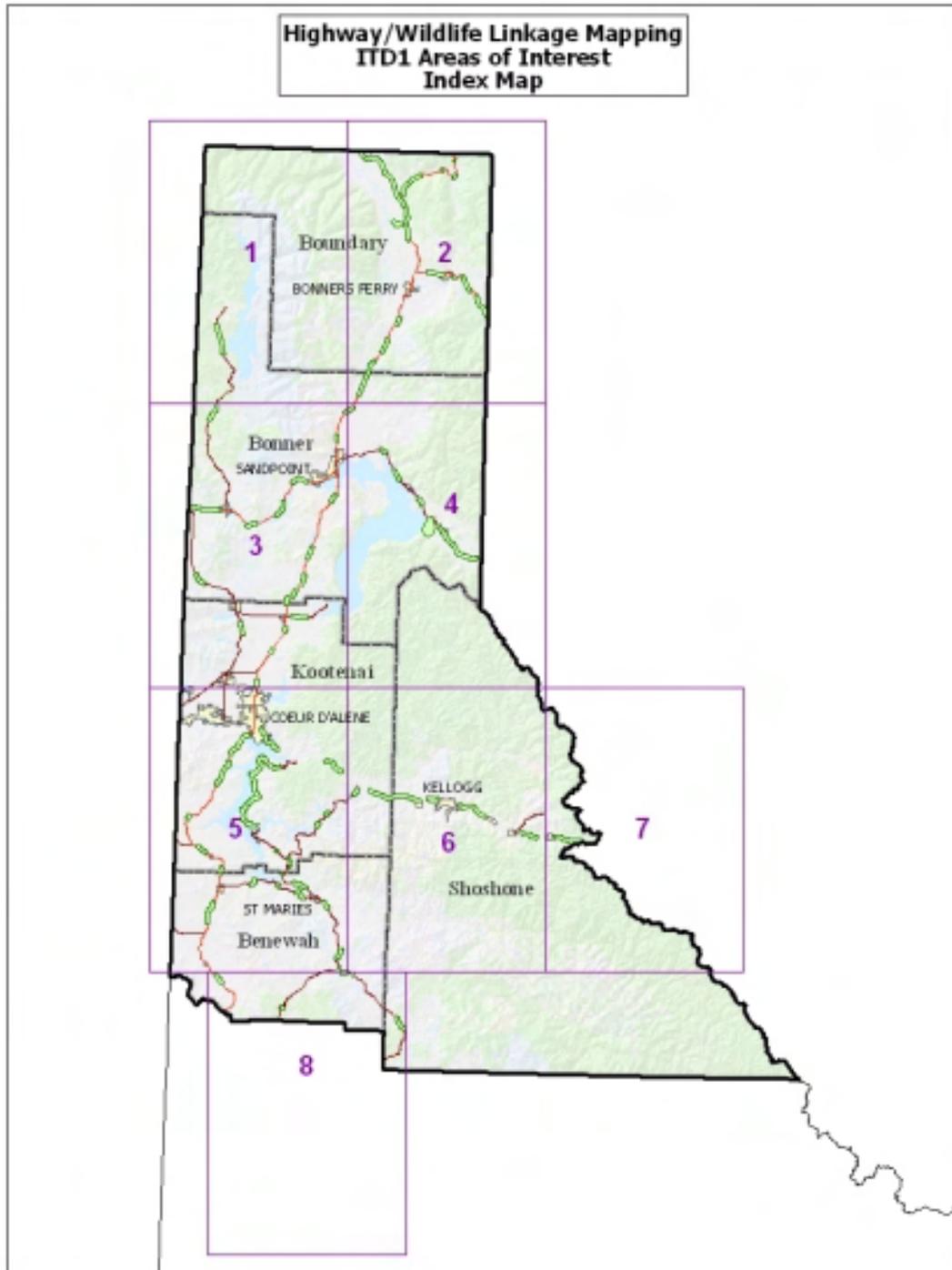
Ruediger, B and J. Lloyd. 2004. A rapid assessment process for determining potential wildlife, fish and plant linkages for Highways. Conference Presentation for ICOET, 2004.

Sandstrom, P.L. 1996. Identification of potential linkage zones for grizzly bears in the Swan-Clearwater valley using GIS. MS Thesis. University of Montana. 72 pp.

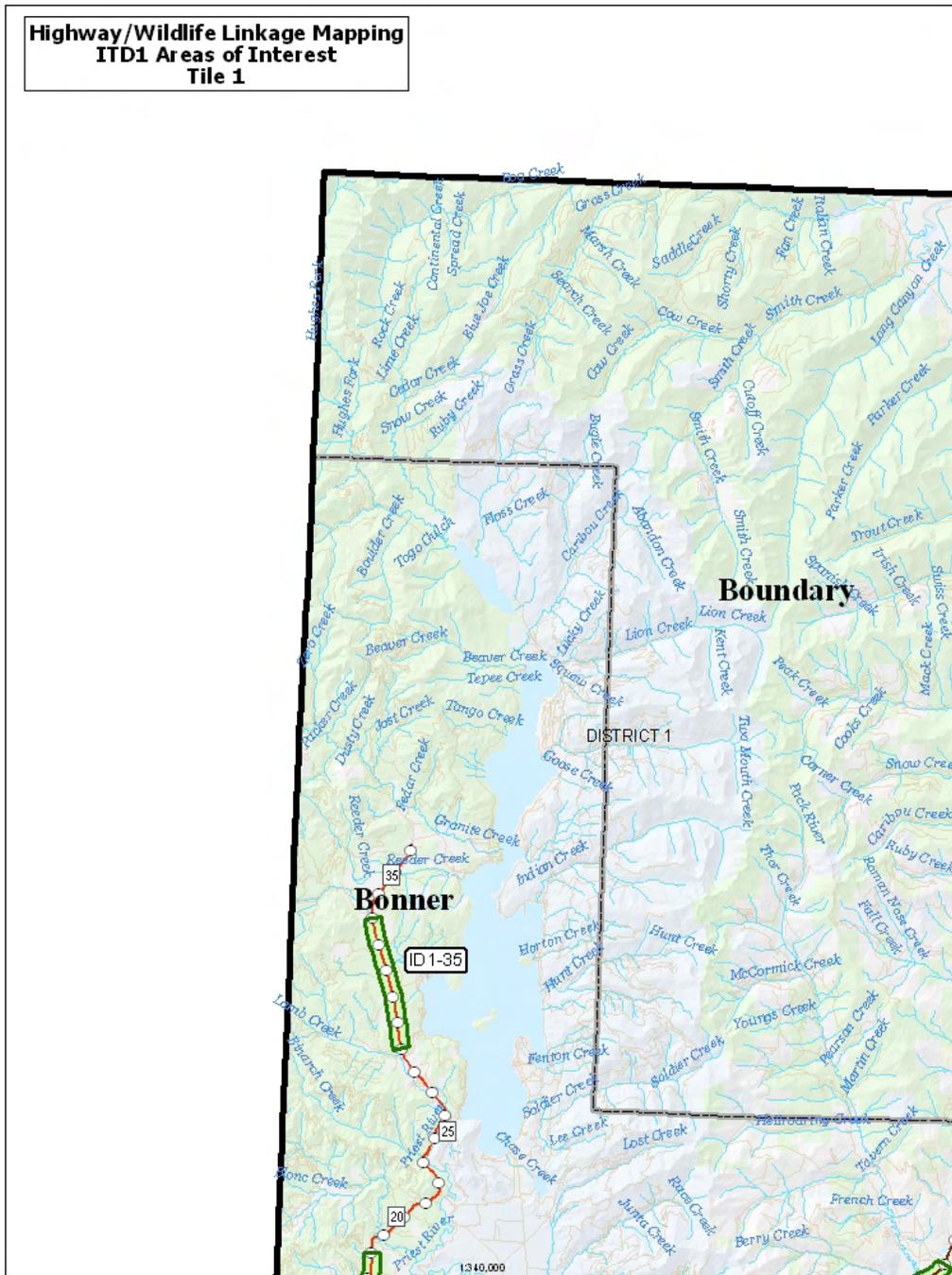
Servheen, C., J. Waller and P. Sandstrom. 2001. Identification and management of linkage zones for Grizzly Bears between large blocks of public land in the Northern Rockies. USFWS Manuscript. University of Montana.

**Appendix A – Wildlife Linkage Area Index Map and Map Tiles**

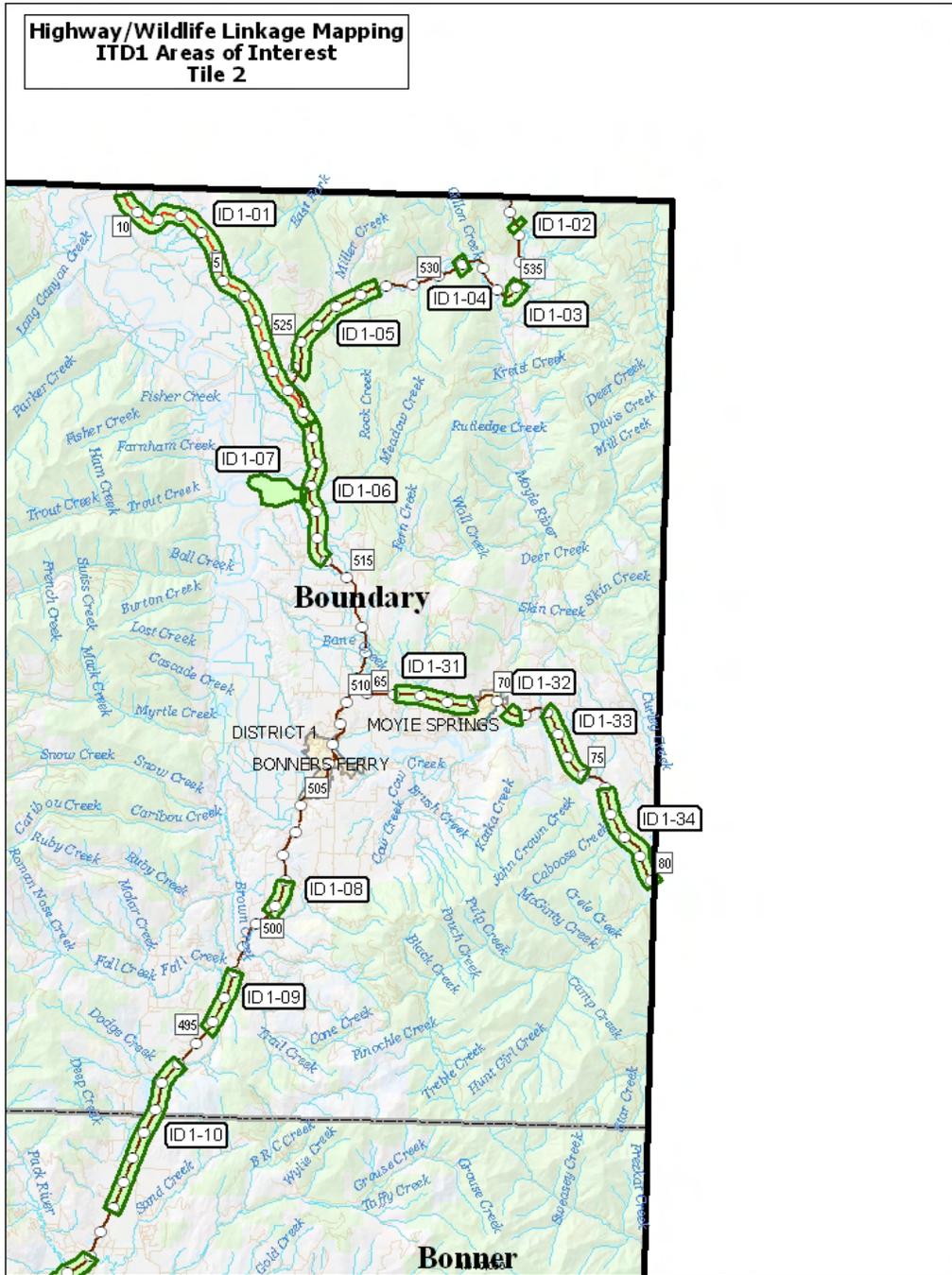
**IDAHO TRANSPORTATION DISTRICT 1 – INDEX MAP**



# IDAHO TRANSPORTATION DISTRICT 1 – TILE 1

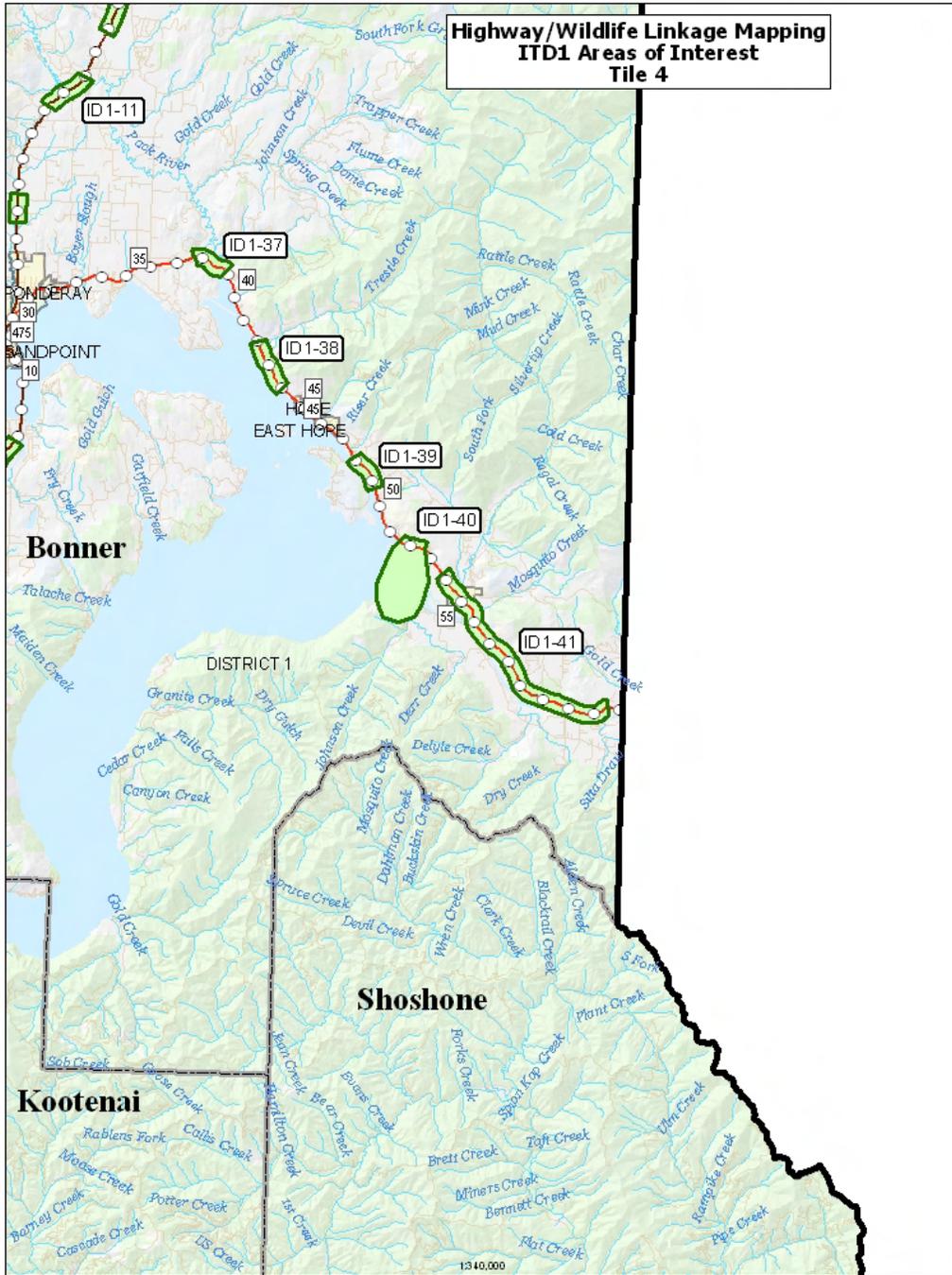


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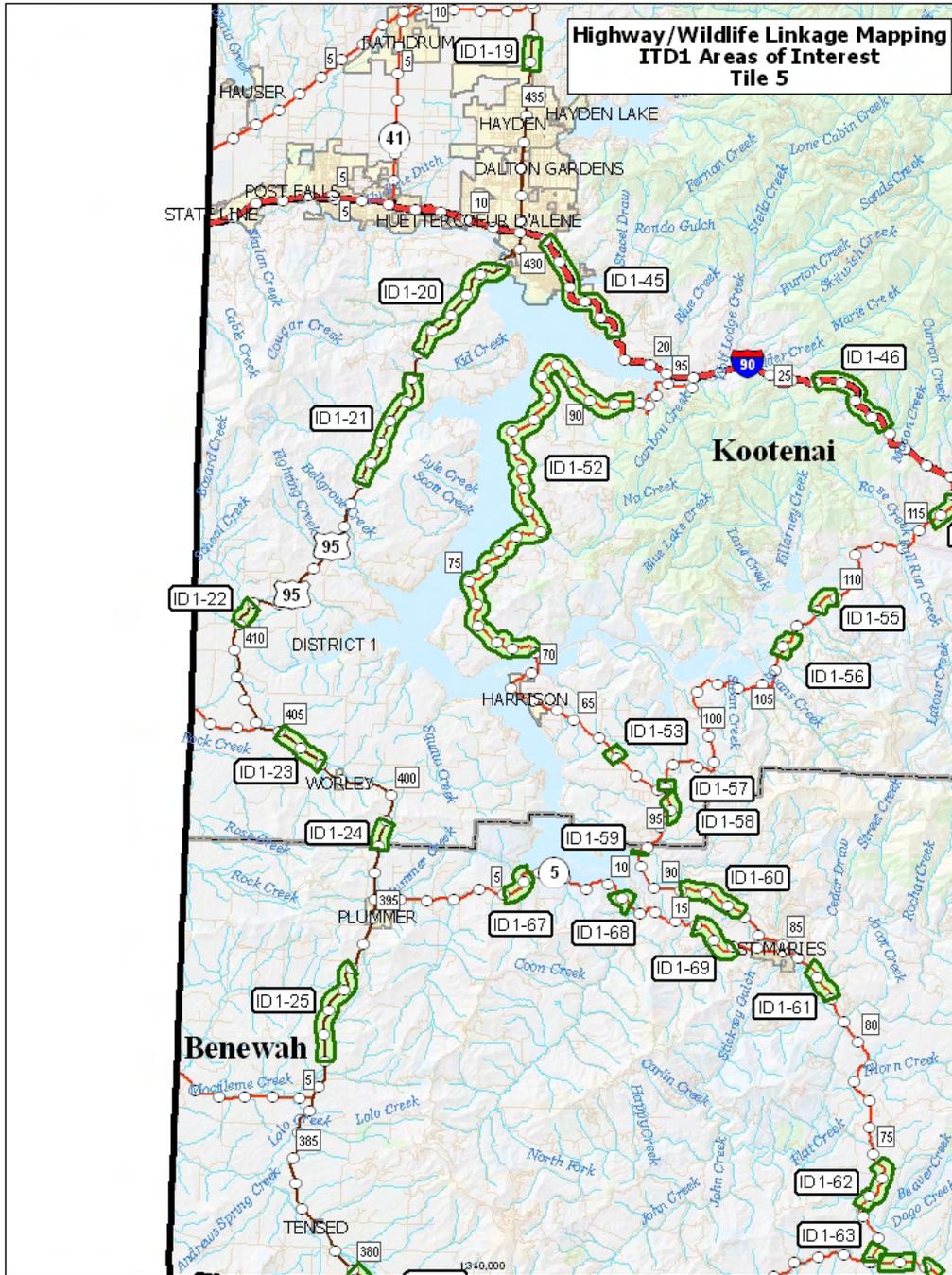




IDAHO TRANSPORTATION DISTRICT 1 – TILE 4

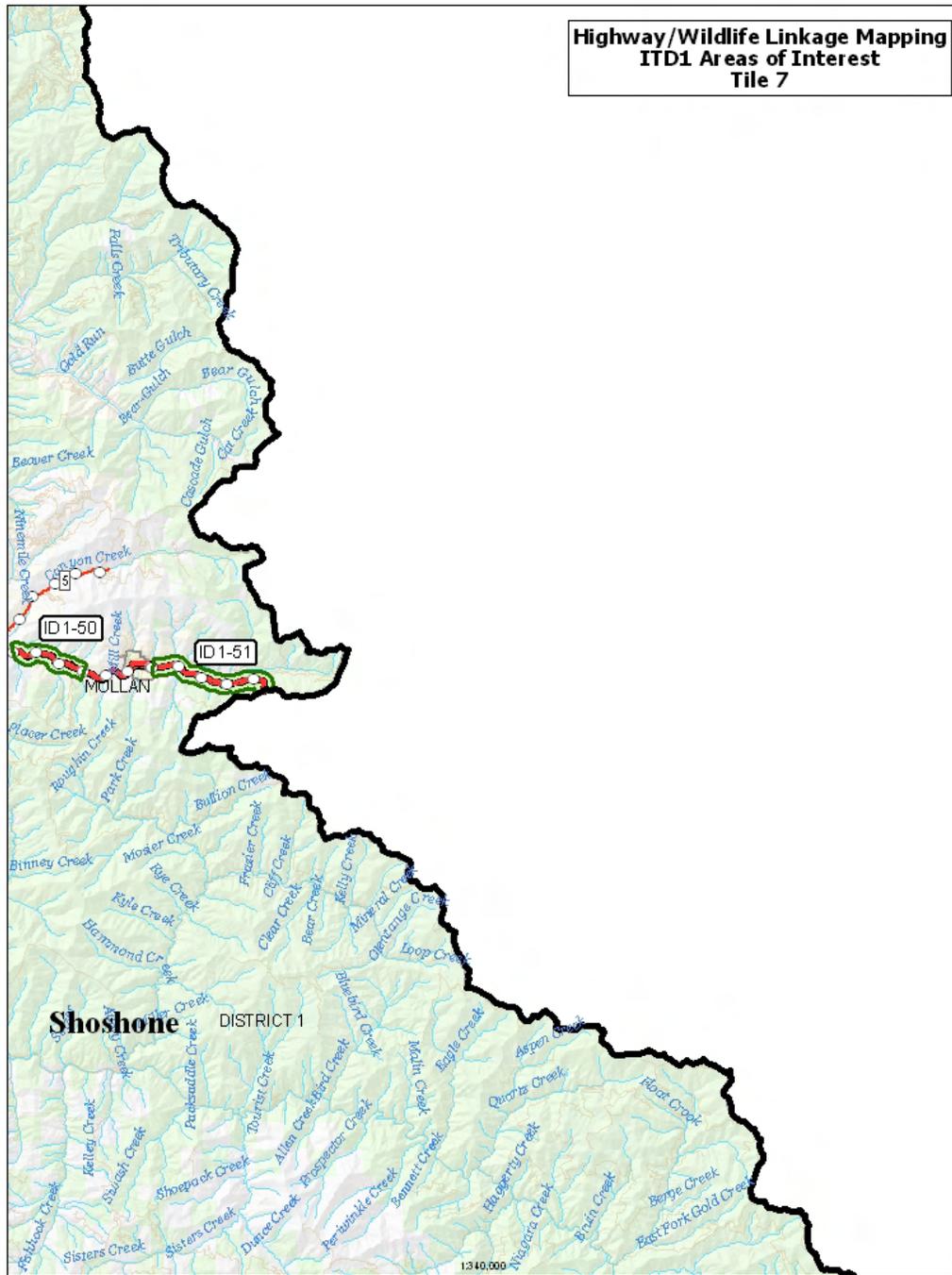


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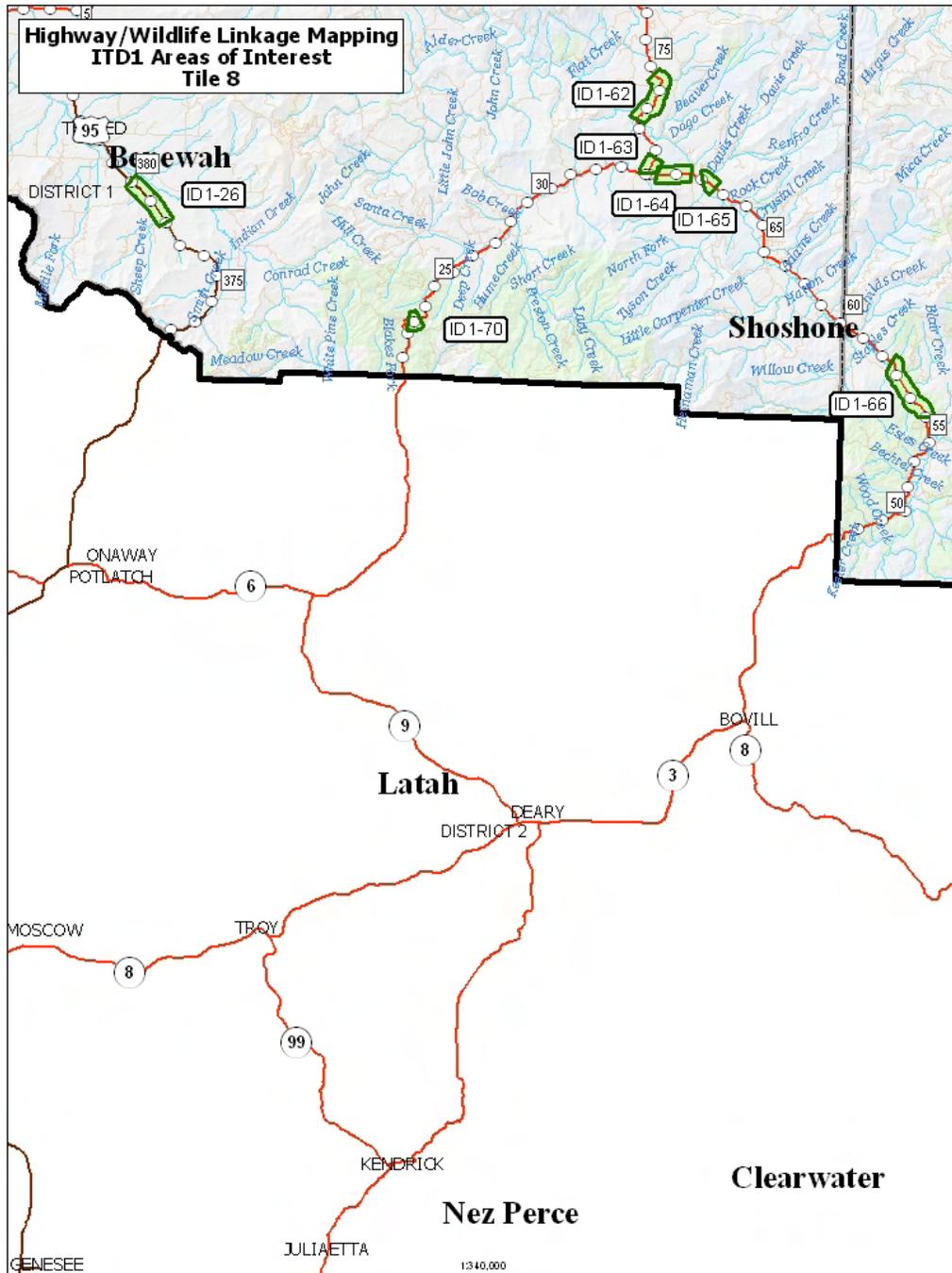




IDAHO TRANSPORTATION DISTRICT 1 – TILE 7

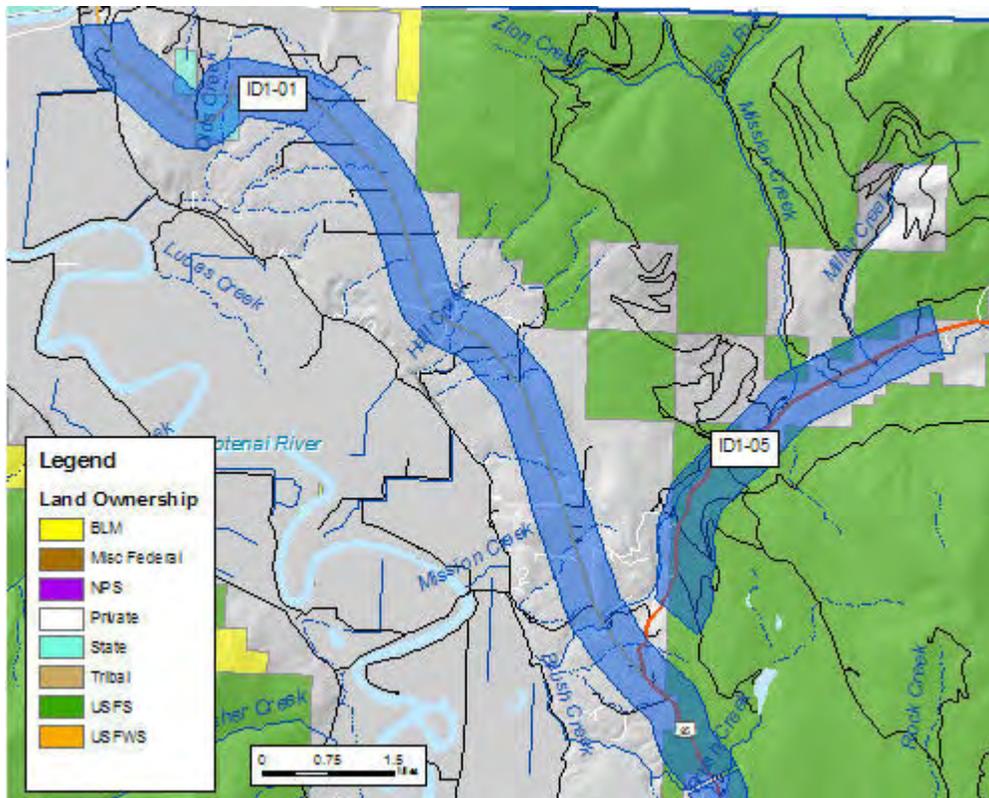
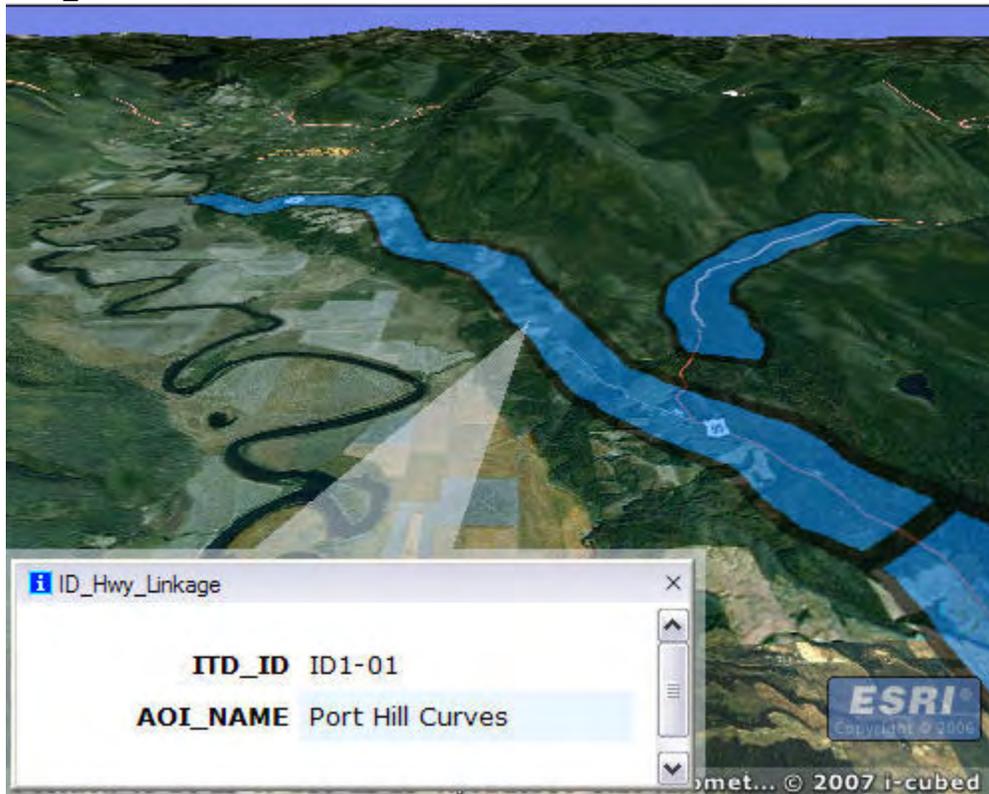


# IDAHO TRANSPORTATION DISTRICT 1 – TILE 8



## **Appendix B – Detailed Wildlife Linkage Area Maps with Detailed Comments**

ITD1\_ID: ID1-01



ITD1\_ID: ID1-01

AOI\_NAME: Port Hill Curves

PRIORITY: High

SPECIES: white-tail deer/ elk/ moose/ black bear/ grizzly bear/ fisher

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT:

SEASON: Winter

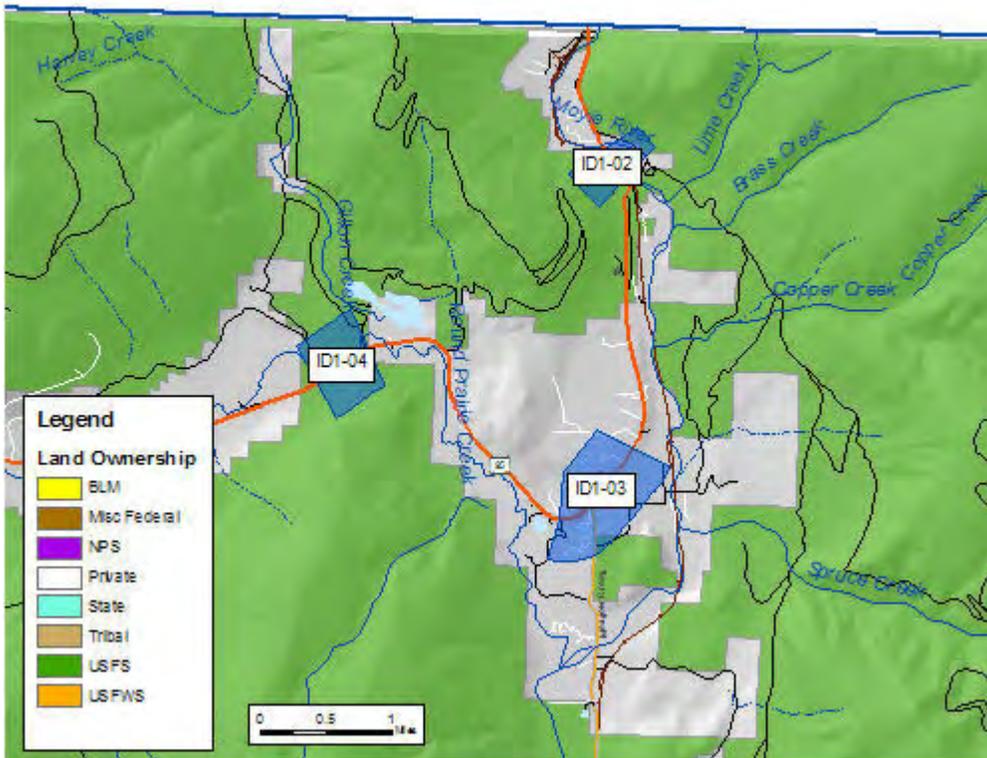
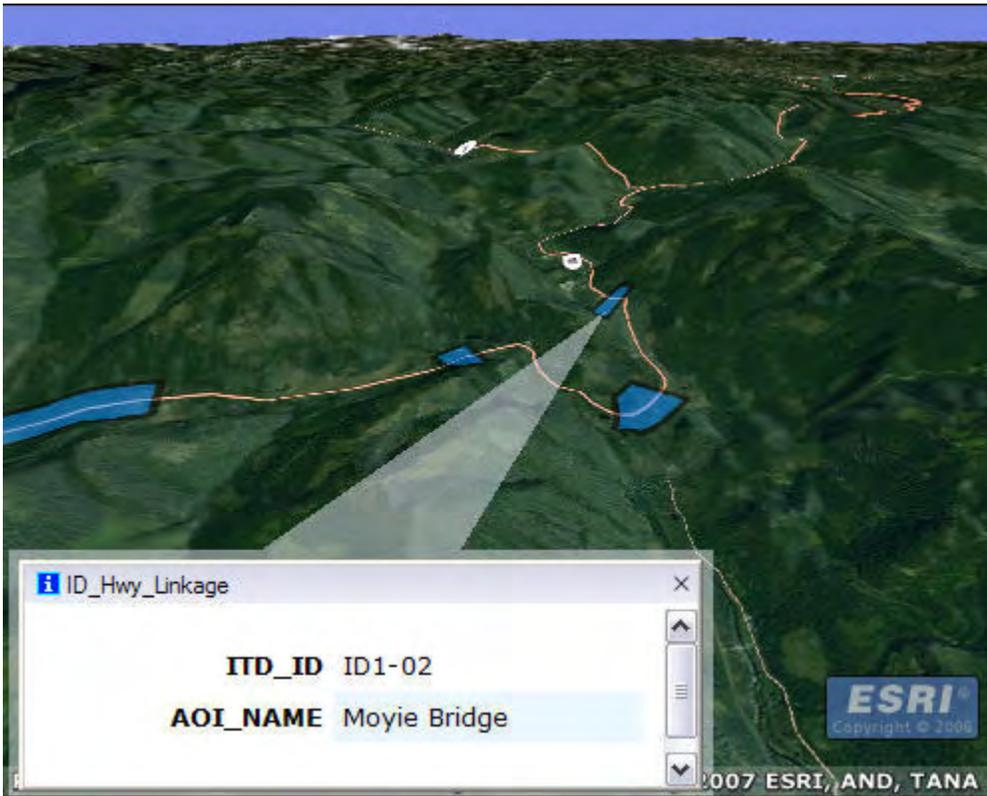
ATTRACT: agriculture fields

AGENCIES: State IDFG

**ADDITIONAL COMMENTS:**

This linkage area is being subdivided on the south side of the roadway. A fisher was spotted swimming across the river by an IDFG biologist. The Boundary Creek WMA is found within this linkage area. There is a highway safety issue due to the large numbers of white-tail deer killed on the roadway here. MP 10 Growing elk herd Winter / spring mortality. Most truck traffic goes on highway 95. Elk increasing herd use. High use deer crossing. Numerous deer kill and animal related accidents. Adjacent to deer winter range. New highway and junction with highway 1 being constructed.

ITD1\_ID: ID1-02



ITD1\_ID: ID1-02

AOI\_NAME: Moyie Bridge

PRIORITY: Low

SPECIES: white-tail deer/ moose/ black bear/ grizzly bear/ wolf

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT:

SEASON:

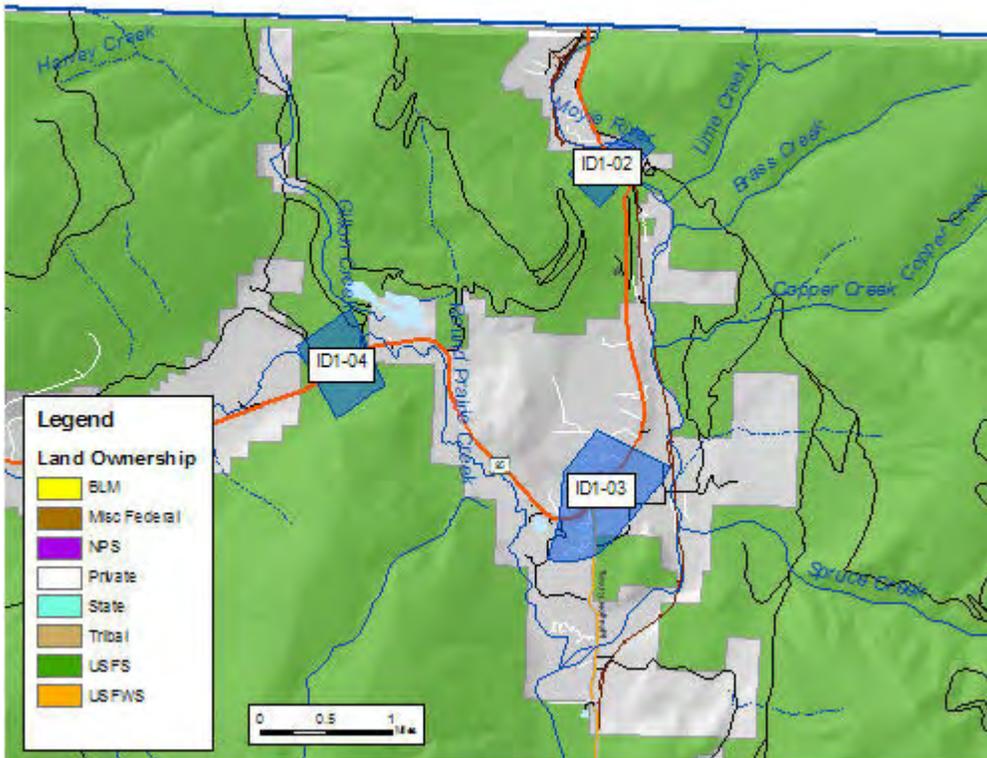
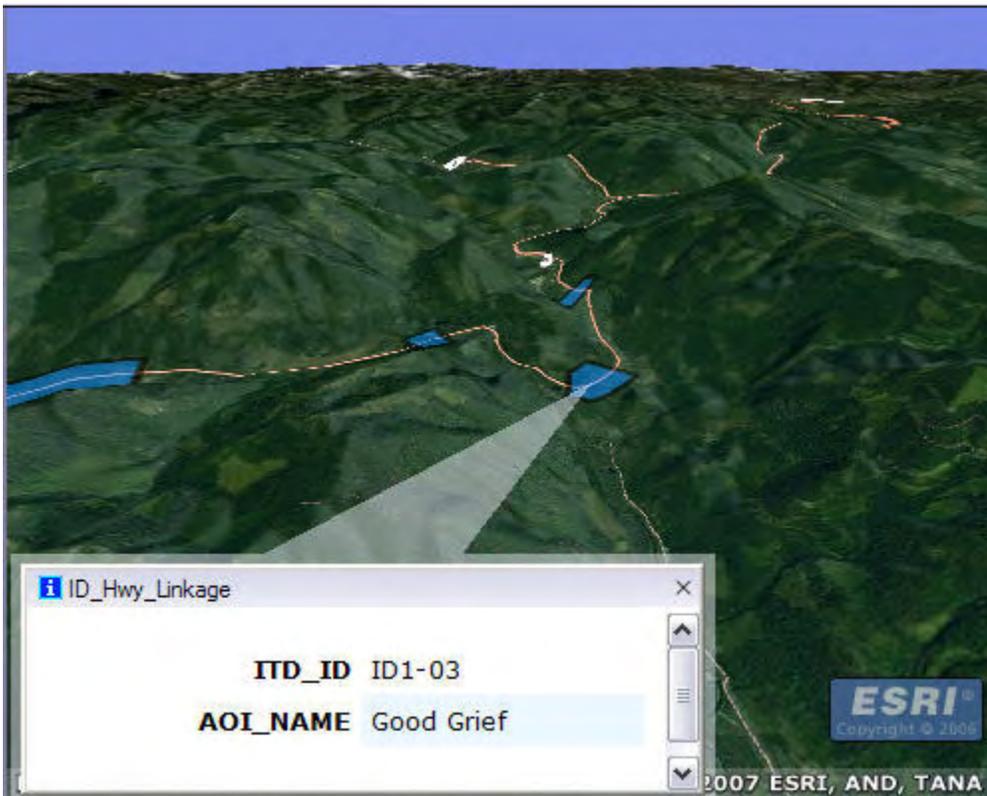
ATTRACT:

AGENCIES:

**ADDITIONAL COMMENTS:**

New railroad crossing with overpass for highway. USFS campground at Copper Creek and a few subdivisions. RR underpass may be used by wildlife, but compromised by human development around it. Also a new bridge going in over the Moyie River may provide some passage. Overpass over railroad being built couple subdi

ITD1\_ID: ID1-03



ITD1\_ID: ID1-03

AOI\_NAME: Good Grief

PRIORITY: Low

SPECIES: white-tail deer/ moose/ black bear

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

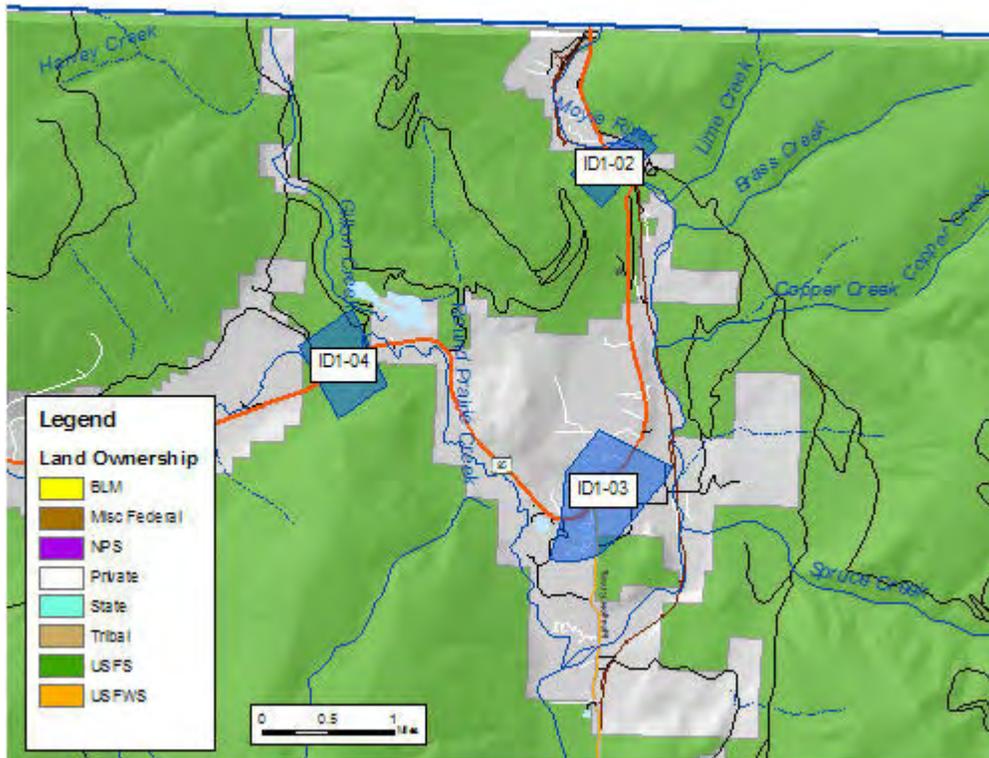
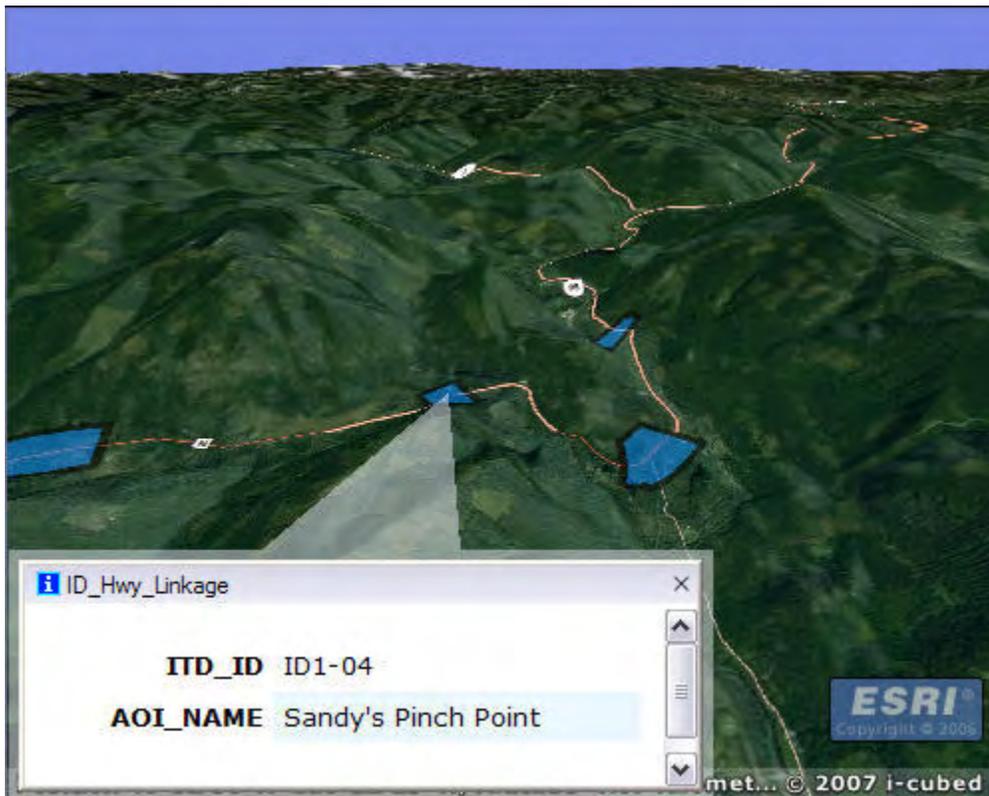
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Good Grief is a county dumpster site w numerous black bear problems and has several deer kills in area. Not as high as south of jct but highest in thi

ITD1\_ID: ID1-04



ITD1\_ID: ID1-04

AOI\_NAME: Sandy's Pinch Point

PRIORITY: Low

SPECIES: white-tail deer/ elk/ black bear/ grizzly bear/ wolf

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT:

SEASON:

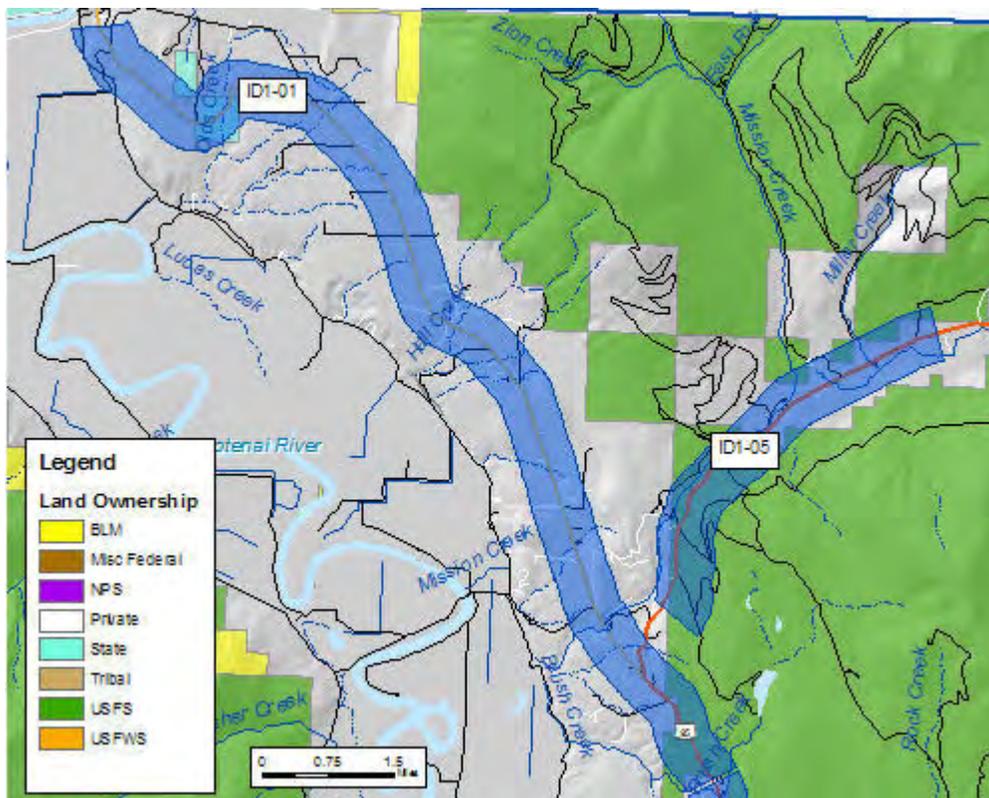
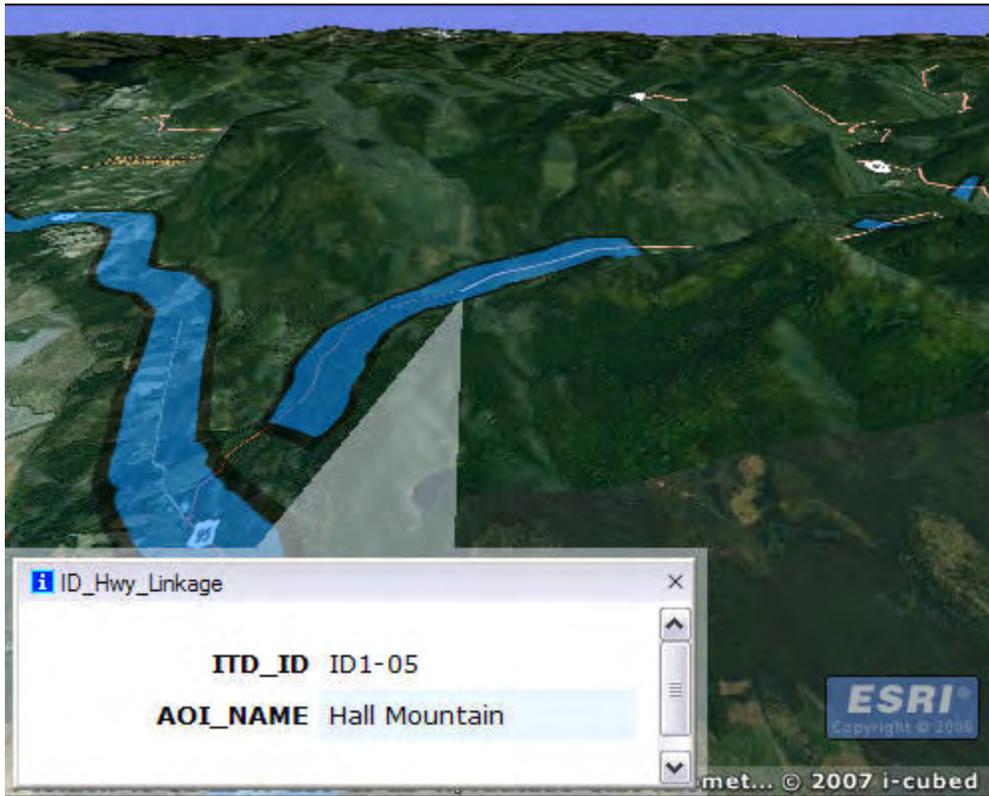
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

A few moose kills and several deer kills. First good passing opportunity when traveling south from border. One small bridge and a set of large culverts within about 200 yds. 2 houses lighter side wildlife.

ITD1\_ID: ID1-05



ITD1\_ID: ID1-05

AOI\_NAME: Hall Mountain

PRIORITY: Low

SPECIES: elk/ black bear/ grizzly bear/ wolf

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT:

SEASON: Winter - critical winter range

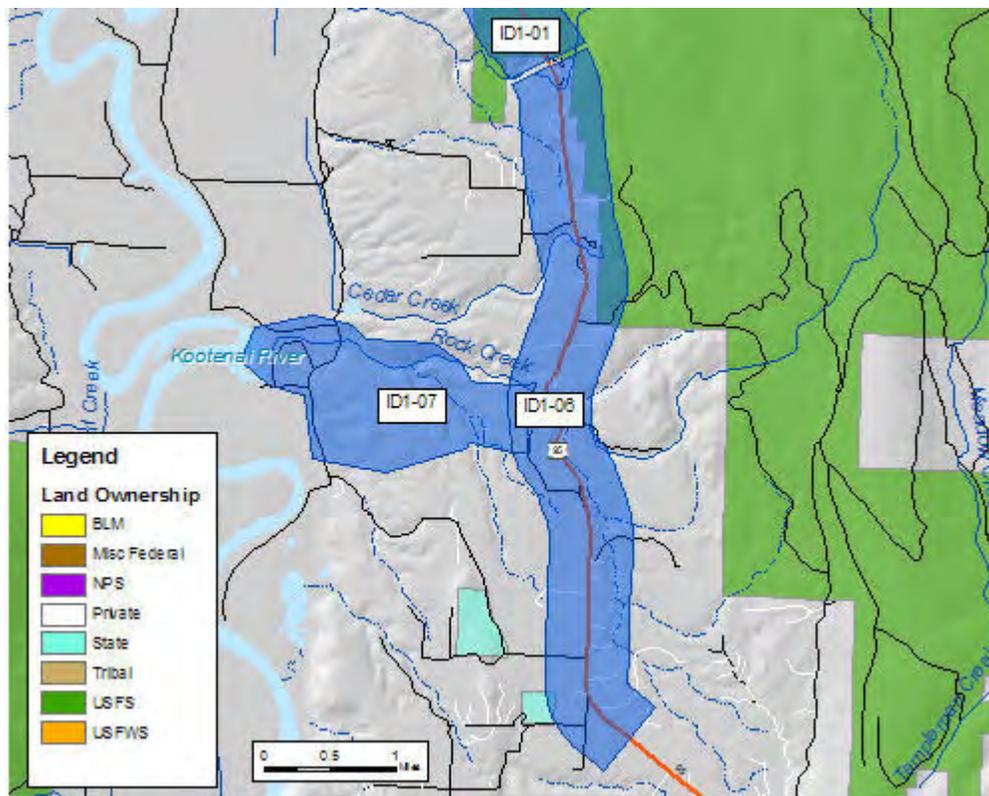
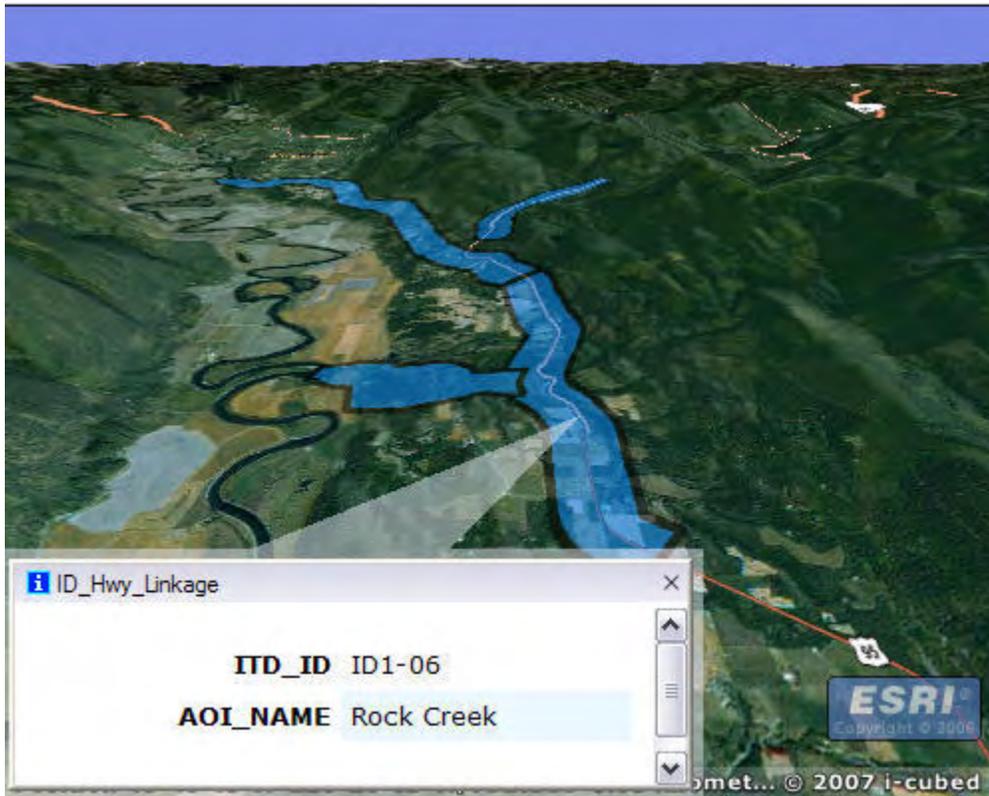
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Copeland underpasses (3) are present within this linkage area. Numerous deer kills within 200 yds each side of MP 528. High road kill deer.

ITD1\_ID: ID1-06



ITD1\_ID: ID1-06

AOI\_NAME: Rock Creek

PRIORITY: High

SPECIES: white-tail deer/ elk

MIG\_POP:

LOC\_POP: Local

SCALE:

HWY\_MORT:

SEASON:

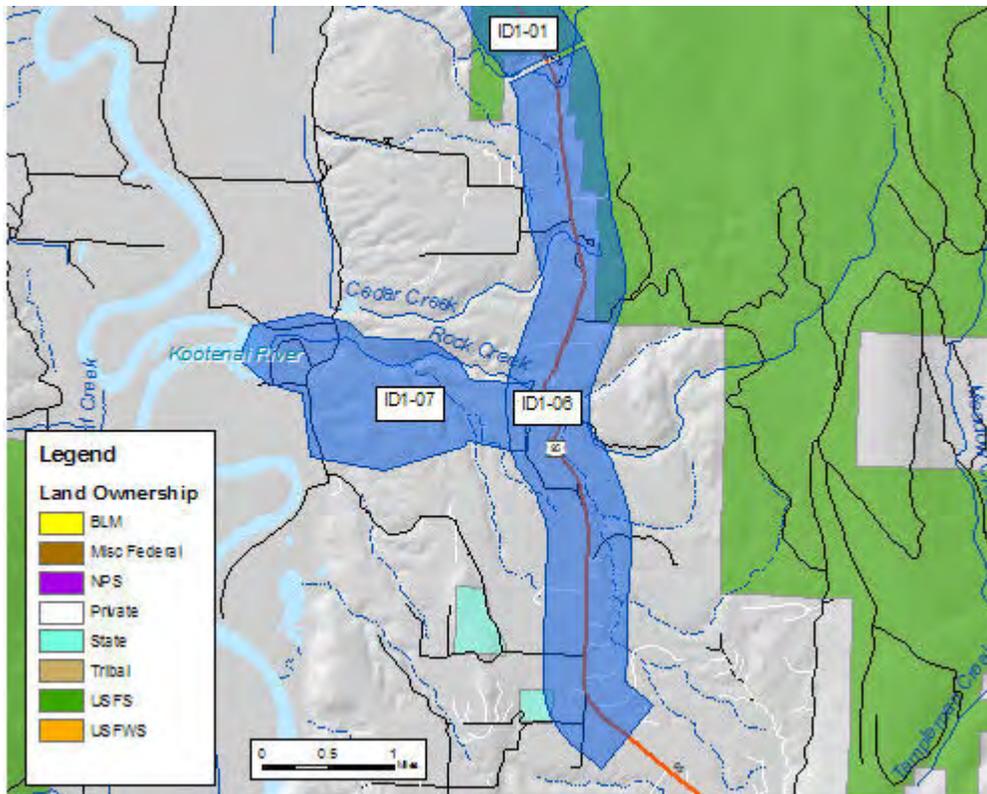
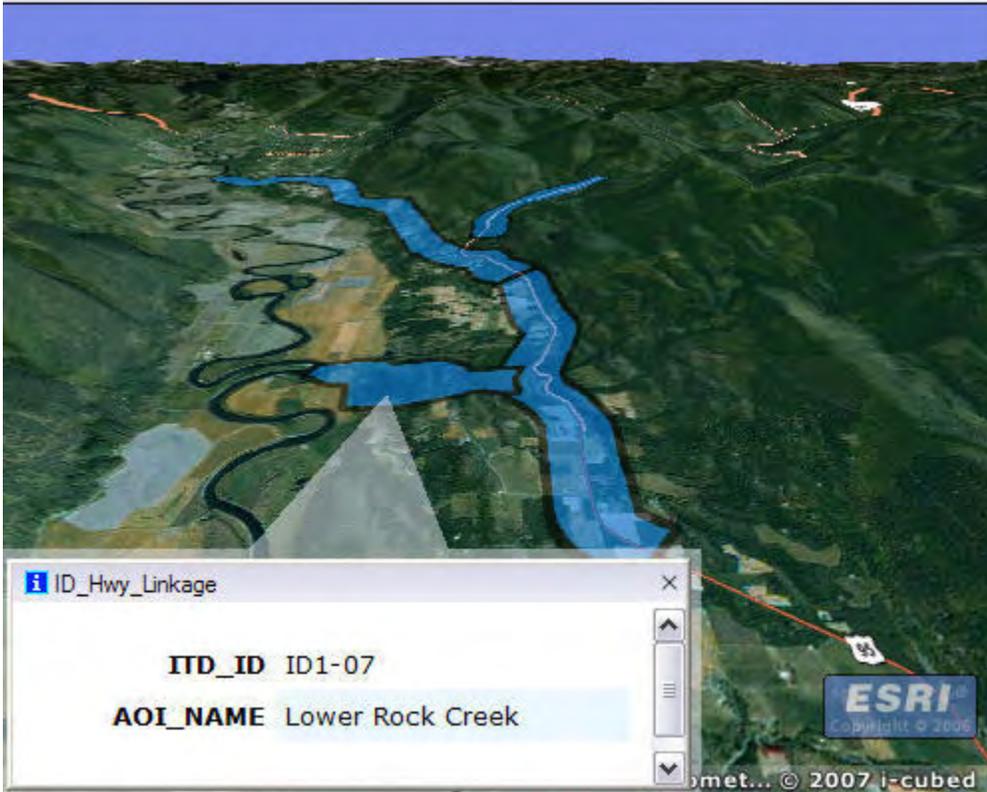
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Deer crossing area particularly in bad winters. Elk and deer winter range in area. In bad winters need access to benches all along.

ITD1\_ID: ID1-07



ITD1\_ID: ID1-07

AOI\_NAME: Lower Rock Creek

PRIORITY: Low

SPECIES: deer/ elk

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

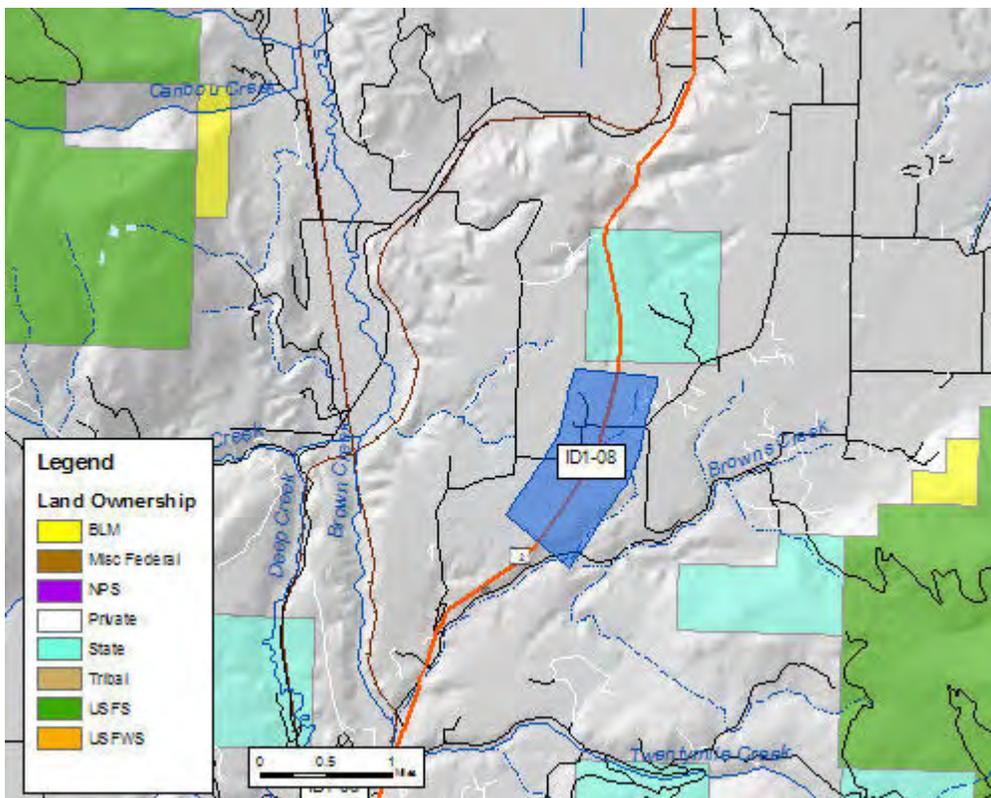
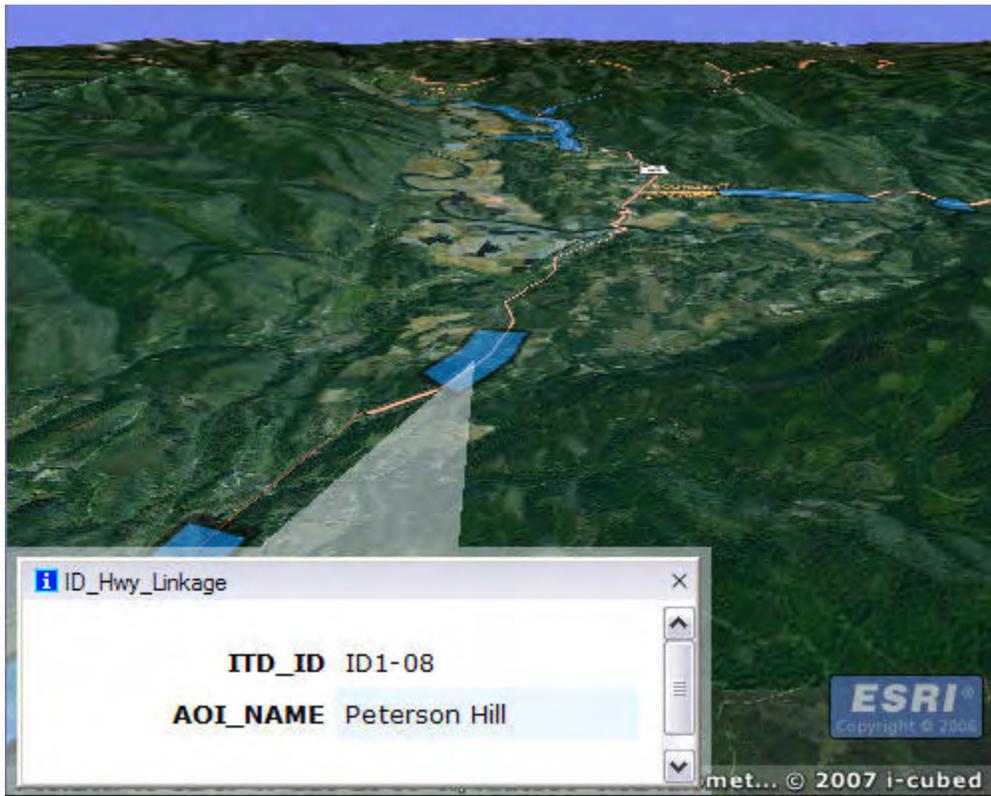
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Landscape level priority? Rock Creek crossing for deer and elk mostly north side of the creek. Box culvert under highway, but built for fish passage and not sure about wildlife use. Old elk farm not there now some indication

ITD1\_ID: ID1-08



ITD1\_ID: ID1-08

AOI\_NAME: Peterson Hill

PRIORITY: Low

SPECIES: white-tail deer/ elk

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

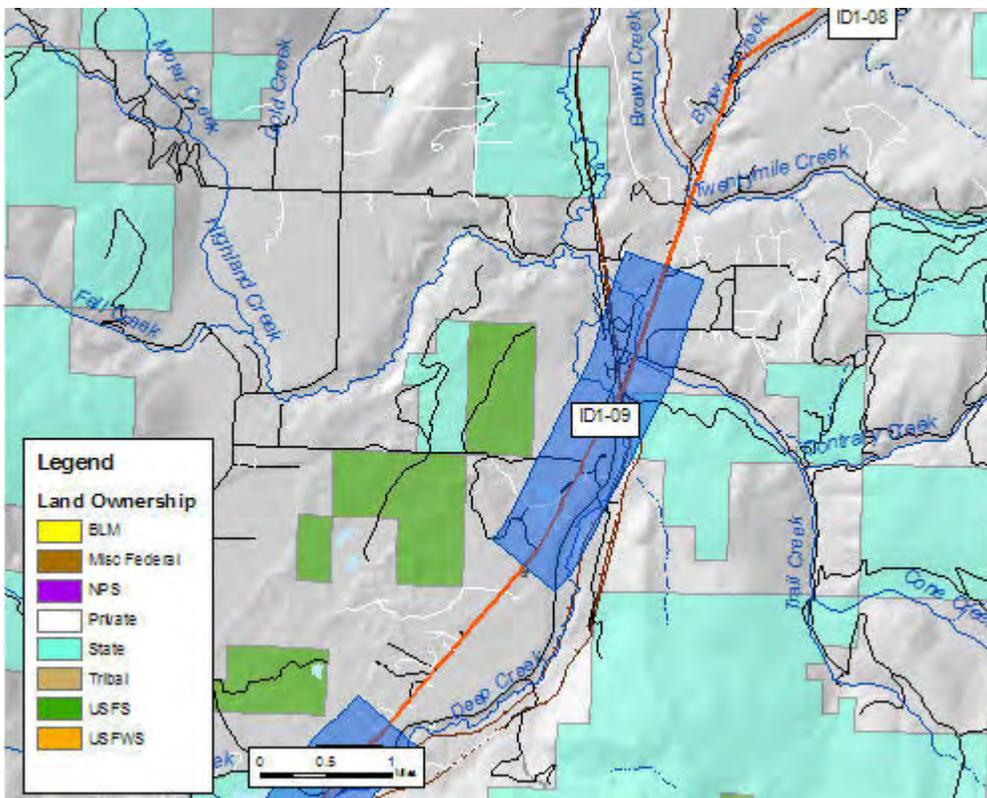
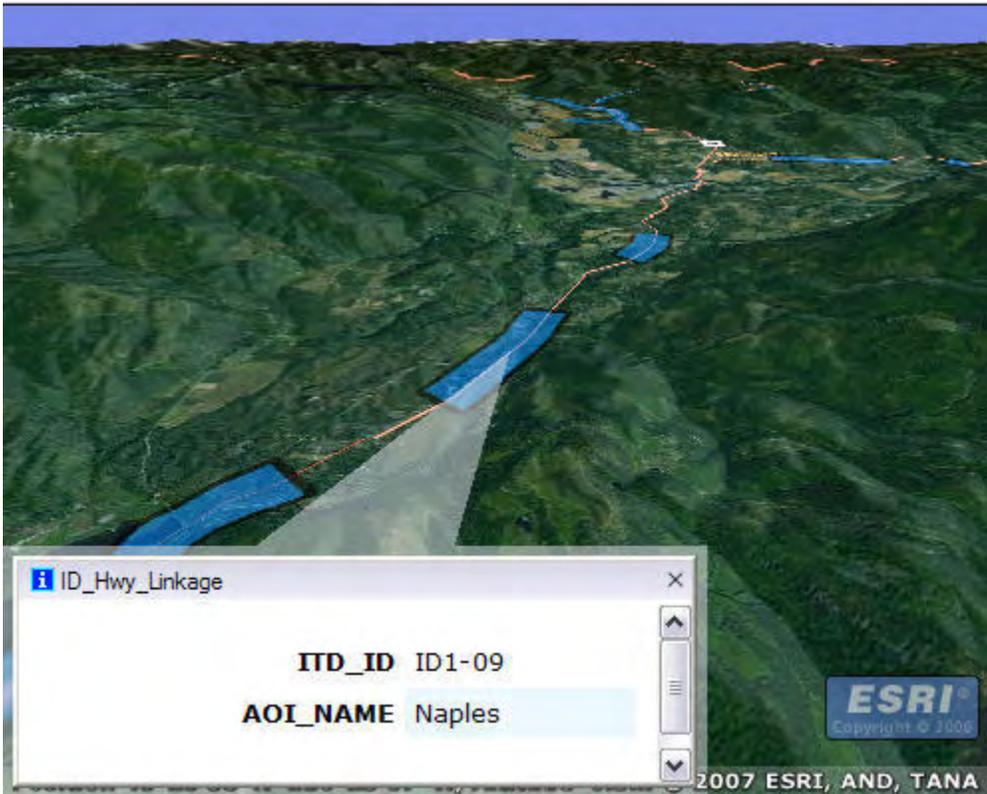
ATTRACT: agriculture fields

AGENCIES:

ADDITIONAL COMMENTS:

A lot of white-tail deer are crossing in this area.

ITD1\_ID: ID1-09



ITD1\_ID: ID1-09

AOI\_NAME: Naples

PRIORITY: Low

SPECIES: white-tail deer/ moose/ black bear (potential)

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON:

ATTRACT: riparian, forest cover

AGENCIES:

ADDITIONAL COMMENTS:

This linkage area is becoming highly developed. A lot of white-tail deer are killed at the north end of the linkage area.

Wildlife Attractants: Stampede Lake; good cover in the area

Most common species killed by vehicles: Moose (5-20 killed per year). Picked up 10 carcasses in 2007 winter of 07-08 to date (3-26-08).

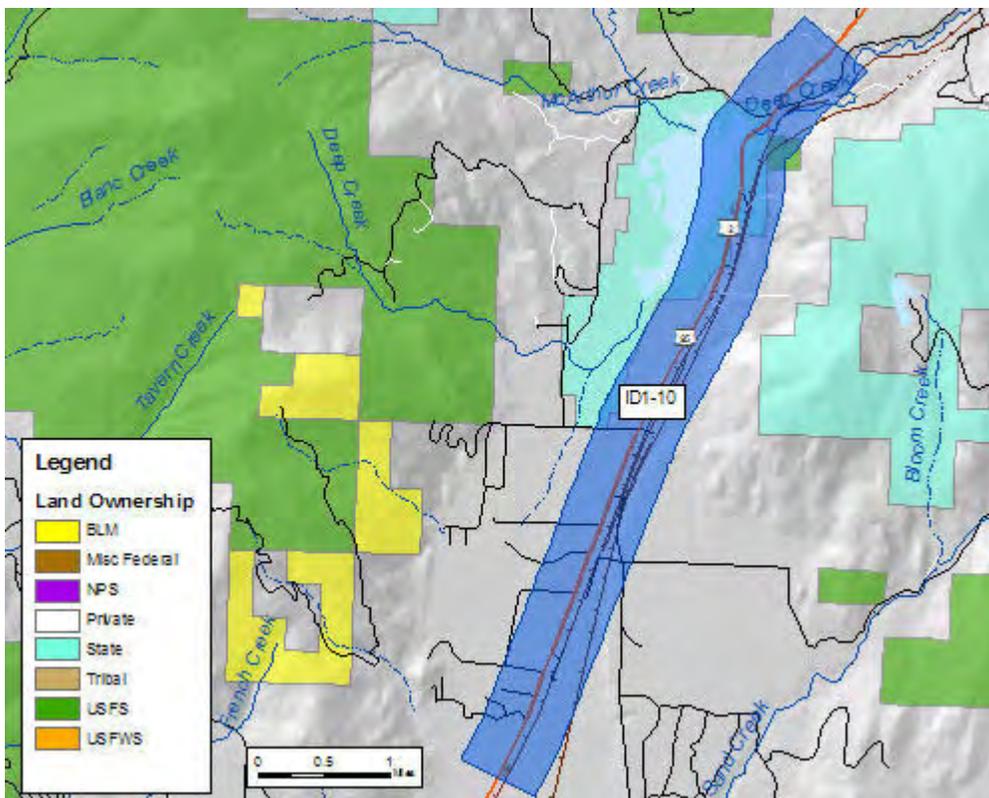
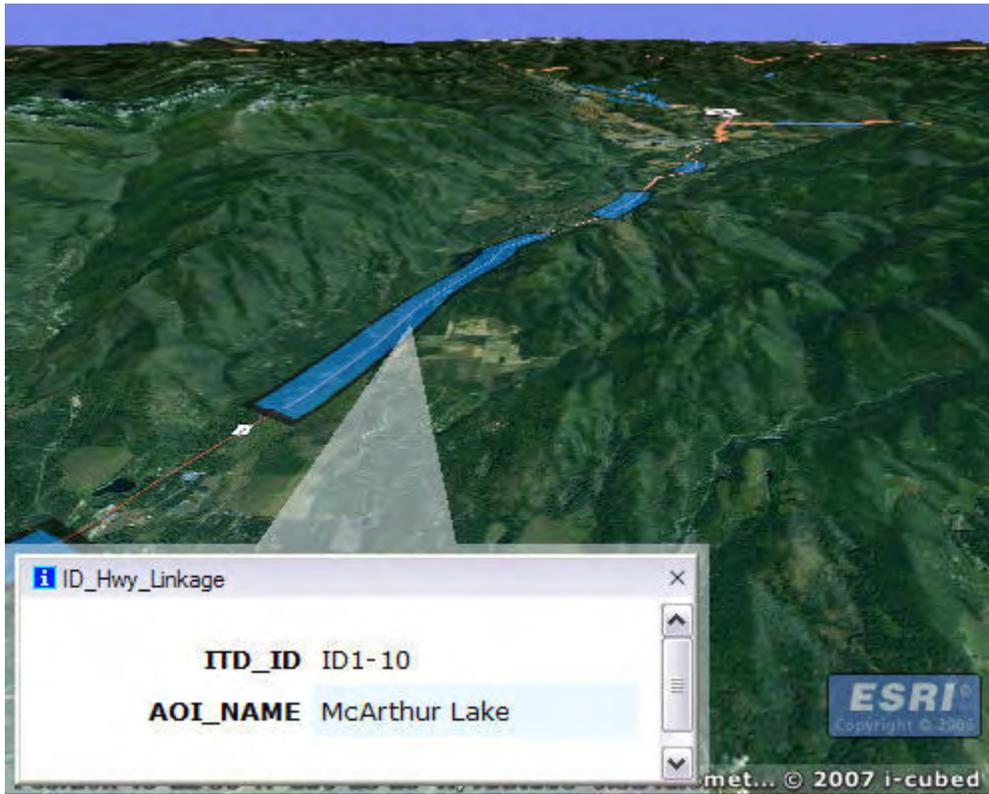
Impediments or current threats to the linkage area: Increasing highway traffic.

There is a railroad crossing and a highway crossing over Twentymile creek and the Railroad goes under the highway in this area. There are dumpsters at Naples.

Road and railroad go under road. Naples right there.

Higher moose activity

ITD1\_ID: ID1-10



ITD1\_ID: ID1-10

AOI\_NAME: McArthur Lake

PRIORITY: High

SPECIES: Mule deer, white tail deer, elk, moose, black bear, grizzly bear, wolf, lynx, wolverine, otter

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: white-tail deer

SEASON: Year-round

ATTRACT: garbage containers, pigs, chickens, roadkill for scavengers, alfalfa fields, aquatic habitat

ADDITIONAL COMMENTS:

Scale: The McArthur Lake Wildlife Corridor is important for different species or populations on both local and ecosystem scales. It is an important winter range for white-tailed deer and moose. As a linkage area, it's important for grizzly bear, lynx, wolf, all ungulates, and even woodland caribou (at least one has used it in the early 90s). A vehicle-killed wolverine has been found there. Connection between the Selkirk Mountains and Cabinet Mountains

Existing Crossing Structures: The concentration area of the McArthur Lake Wildlife Corridor extends about 11 miles and includes 3 of the named sites here. A Transportation Enhancement was funded for an underpass, but the funding was lost due to various reasons. The culvert replacement with a bridge at the McArthur Lake Dam-Deep Cr is being used as an opportunity to provide passage. My data indicate that at least two others are needed in this 11-mile stretch. South of the Deep Creek culvert, the topography is difficult for any crossing structures and the water table is quite high, but moose and other ungulates cross there frequently. Fencing along the entire 11-mile stretch is complicated by the many access roads. Sandra Jacobson, former District Wildlife Biologist, Bonners Ferry Ranger District, Bonners Ferry ID. (USFS).

Important Seasons: Spring - transition to summer range, natal areas for several ungulates, general moving around for everything. Summer - Less important for mortality of ungulates, but probably more important for connectivity for grizzly bears and some other dispersing large mammals. Fall - transition to winter range, resident ungulates. Winter - Winter range for several ungulates; will eventually be important for wolves if not currently; lynx potentially could cross from Selkirks to Cabinets here.

Permanent Human Presence: Residential homes, Recreation site. Snowmobile runs. Commercial buildings or industrial facilities, Recreation site.

Wildlife Attractants: garbage containers, pigs, chickens, etc., roadkill for scavengers (ie bald eagles especially).

Avg daily traffic volume:6600.

Most common species killed by vehicles: White-tailed deer is most recorded and most obvious. I have recorded turtles, otter, moose, elk, several species of birds, turkeys. Bald eagle (threatened when I was in Idaho); wolverine. Moose and elk (5-20 collective total per year).

Wildlife deaths resulting from collisions with trains: All ungulates in area, bear, probably others. The harsh snow winter of 96-97 was a huge killer on the tracks (two railroads) that parallel US 95.

Research or monitoring studies: I have data on locations of roadkilled individuals, plus anecdotal info from 13 years of driving US 95. Nothing published. McArthur Lake Wildlife Corridor mortality data has been used in many of my presentations and training courses, however.

Species that currently do not exist in this linkage zone but might use this area in the future if population or recovery objectives are met: Woodland caribou, lynx, wolf, grizzly bear, wolverine, fisher. More.

Effective functioning of linkage area: Poorly. As ADT increases, and the train traffic volume increases, it will be worse. Currently at night most of the volume is low but large trucks traveling on US 97 from Canada to California keep the traffic higher than most rural roads. Topography, access roads, and multiple landowners contribute to a challenging mitigation environment, especially combined with local attitudes towards potential government interference. The safety issue of animal/vehicle collisions is well-understood, however, and that's where people can probably collaborate.

Existing conservation easements, land exchanges, etc.: A group was formed in the mid-90's to work on the combined transportation infrastructure (highway plus railroads) contributing to mortality, and the intermixed land use and ownership contributing to difficult connectivity issues. This group has changed over the years but the germ is still there. Conservation easements were difficult to consider given local feelings towards the government and NGOs.

Impediments or current threats to the linkage area: Increasing traffic volume, especially 24-hour truck traffic, development, increasing train rails and volume. US 97 is a Border Corridor highway and is slated for increased capacity improvements. Highway and railroad.

Opportunities to improve the effectiveness of the linkage area: Tons of opportunities especially if the local group can gain traction with the local communities. There is currently a sign, "McArthur Lake Wildlife Corridor Area" at MP 486.

McArthur Lake area. State wildlife / waterfowl management area. The Wyman Land Trust (conservation easement) with no development just north of McArthur. There is a new highway bridge planned over the outlet of McArthur Lake and the highway parallels the railroad tracks. North end of this segment may have more development than the south end. There are numerous moose in the area.

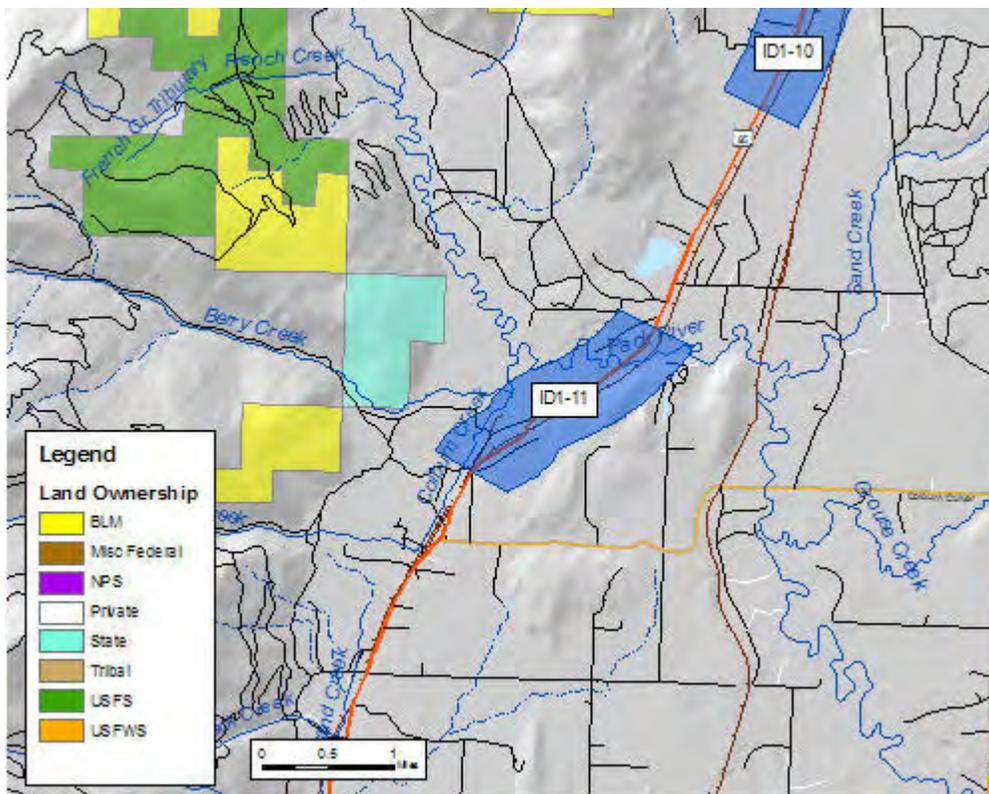
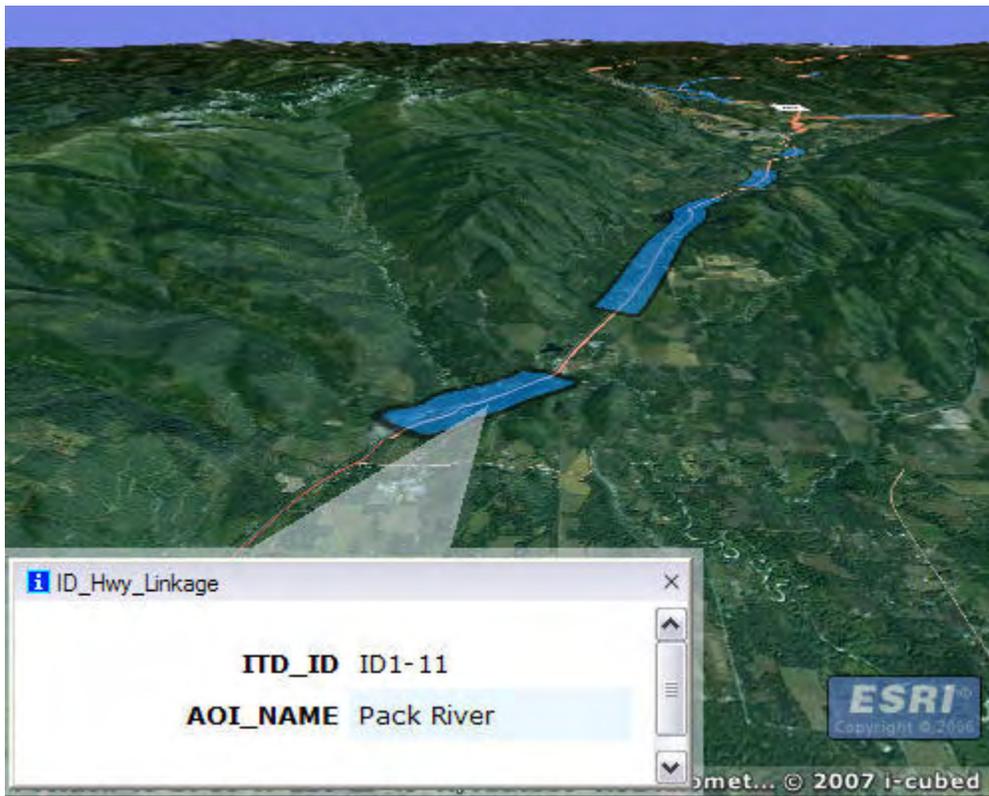
ITD Conceptual plan straightening hwy curve

Elk, deer, and moose movements across highway, but not much opportunity for a structure.

More elk and moose in addition to deer not as w

MP 490-491.5. Numerous moose sightings and activity moving across the highway with elk sightings also. Flat area, not much potential for structures.

ITD1\_ID: ID1-11



ITD1\_ID: ID1-11

AOI\_NAME: Pack River

PRIORITY: Low

SPECIES: white-tail deer/ moose/ black bear/ reptiles/ amphibians/ small mammals

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT: Deer, moose

SEASON: Spring, Summer, Fall, Winter - primary time for road kill problems with white-tail deer and moose

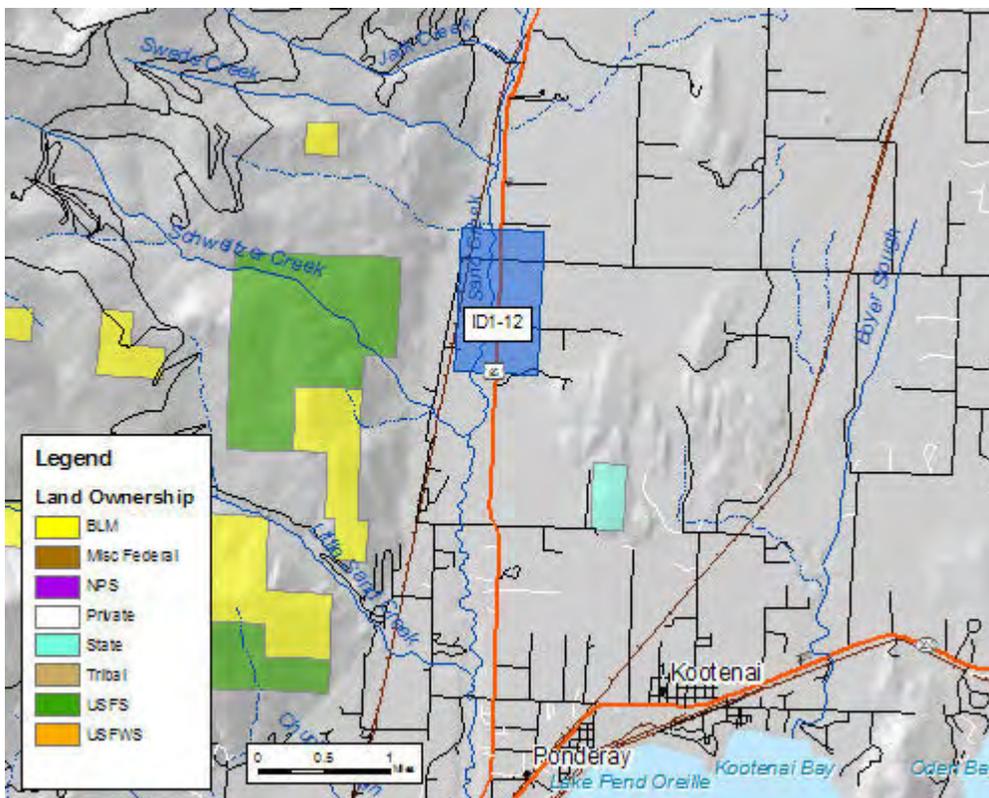
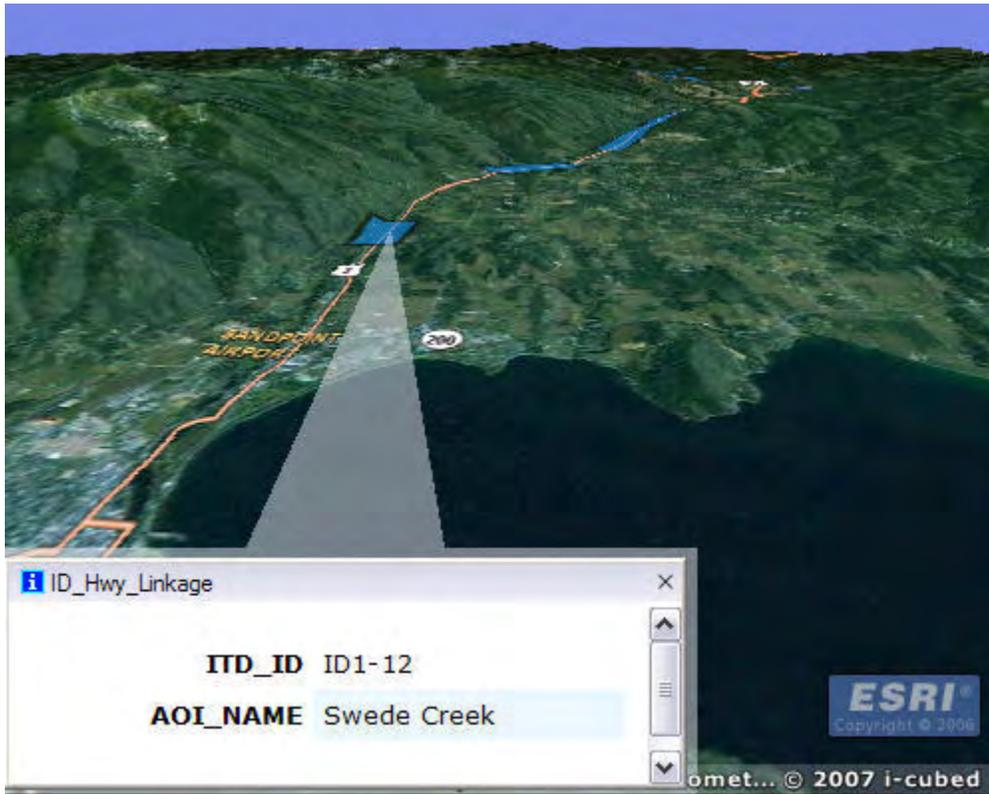
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Colburn overhead bridge and concrete rails on sides of approaches to bridge can trap wildlife. Deer and moose kills on the road. MP 483-478 is a 4 lane road way. High road kill.

ITD1\_ID: ID1-12



ITD1\_ID: ID1-12

AOI\_NAME: Swede Creek

PRIORITY: Low

SPECIES: moose

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

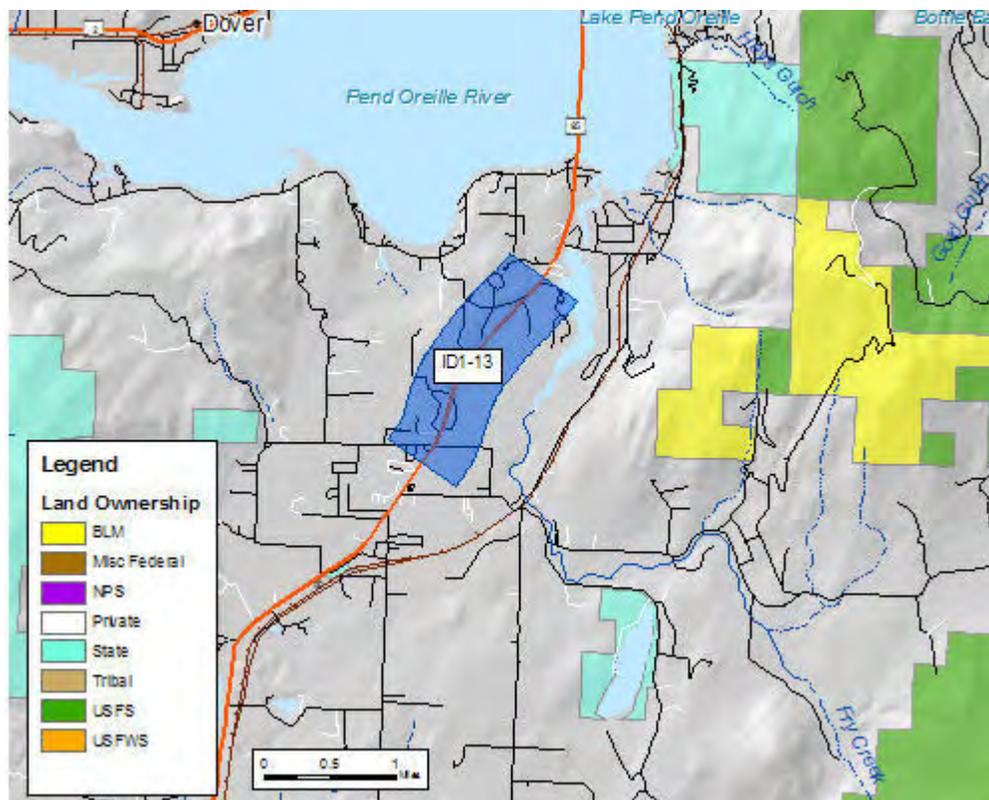
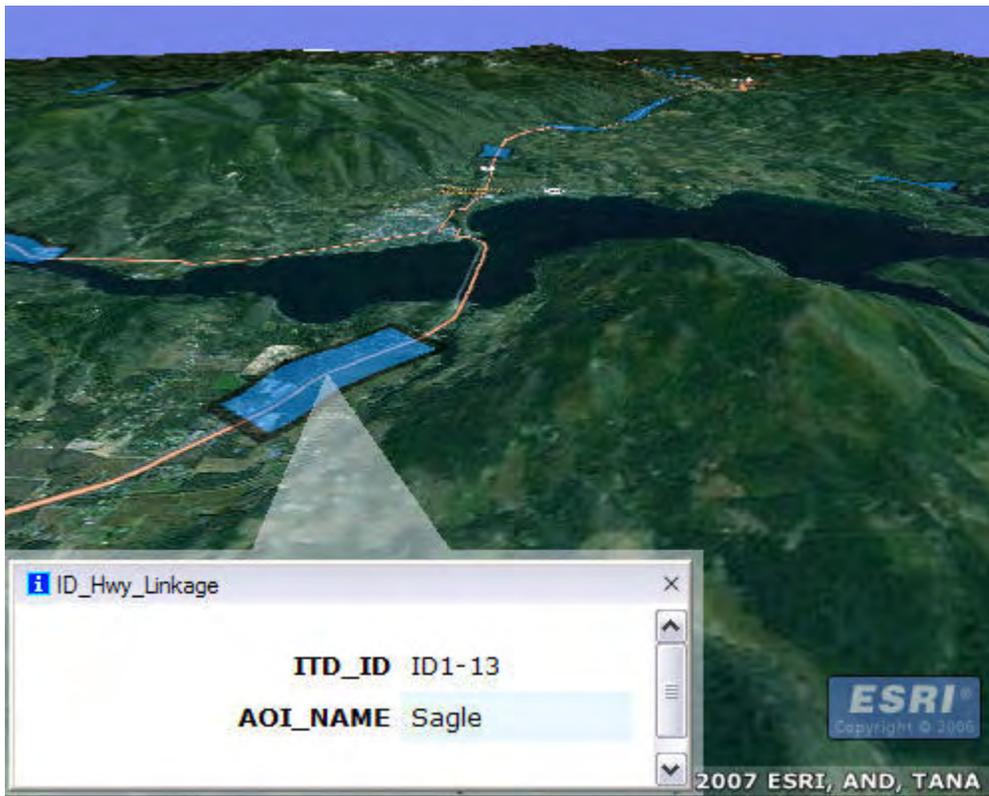
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Seasonal road kill problems, but unsure what the problem seasons are.

ITD1\_ID: ID1-13



ITD1\_ID: ID1-13

AOI\_NAME: Sagle

PRIORITY: High

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT: Deer

SEASON:

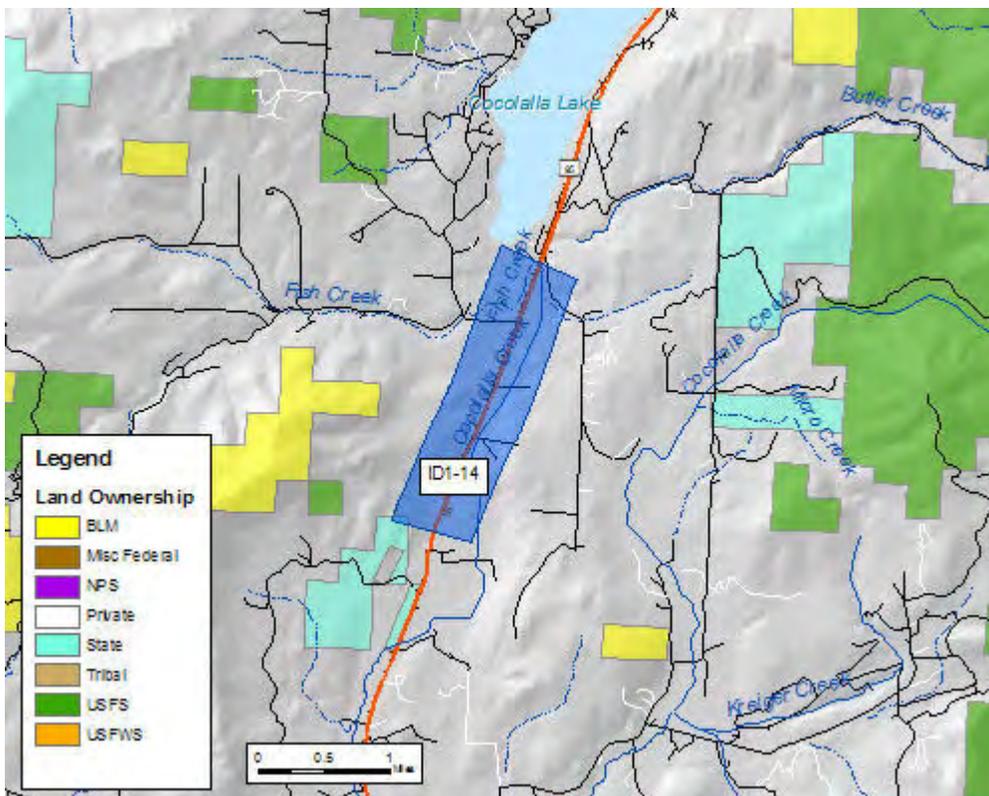
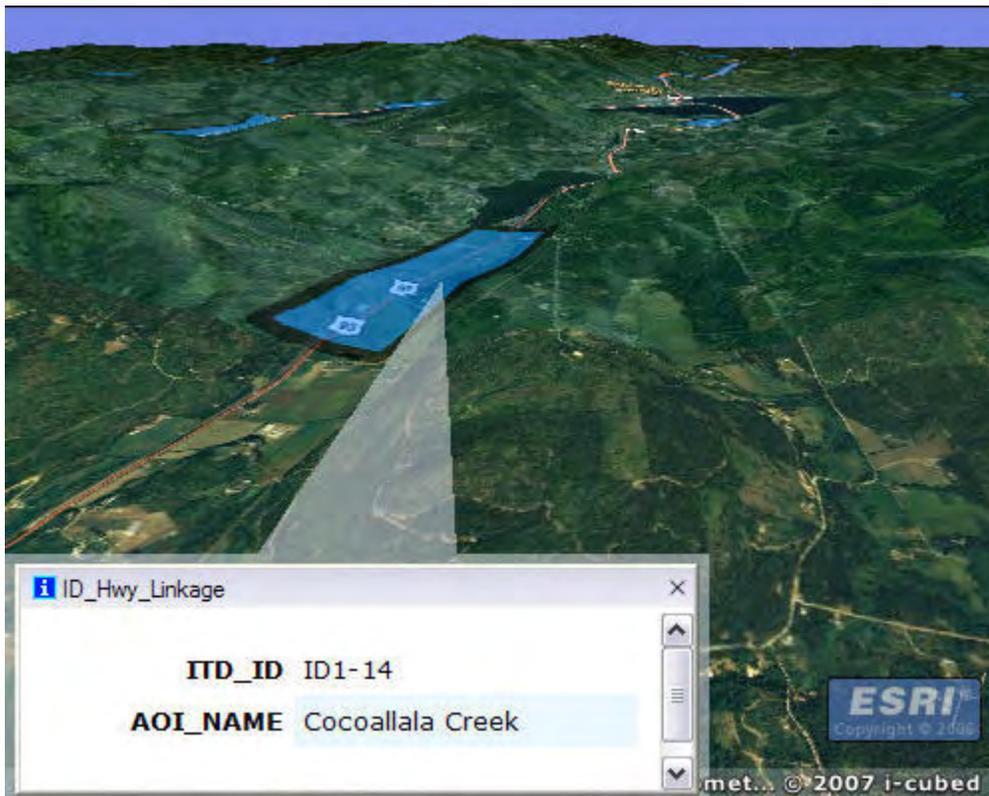
ATTRACT: agriculture fields

AGENCIES:

ADDITIONAL COMMENTS:

High priority due to a major highway project planned. Many deer collisions. Alfalfa fields on east side of highway and deer moving back and forth. Some highway right of way clearing for visibility.

ITD1\_ID: ID1-14



ITD1\_ID: ID1-14

AOI\_NAME: Cocolalla Creek

PRIORITY: High

SPECIES: white-tail deer/ moose

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: white-tail deer

SEASON: Spring, Fall, Winter

ATTRACT: agriculture fields/ water/riparian/ cover

AGENCIES: State IDFG

ADDITIONAL COMMENTS:

High priority due to a major highway project planned. IDFG WMA lands present.

Existing Crossing Structures: Large culverts in linkage zone. At present only culverts are available to pass wildlife. Stream crossings are relatively short, low profile bridge structures that preclude most wildlife crossing use during anytime other than the most low water conditions.

Important Seasons: Spring - All aspects of wildlife movement seem to be happening on this highway. Summer - Do you mean the highway "bisects" summer range. Fall - Some aspects of winter range are present. Winter - This is not "crucial" or "critical" winter range but it is used.

Permanent Human Presence: Residential homes. Farms (grasses) and cattle and horse ranches.

Avg daily traffic volume:9500

Wildlife deaths resulting from collisions with trains: White tail deer and moose.

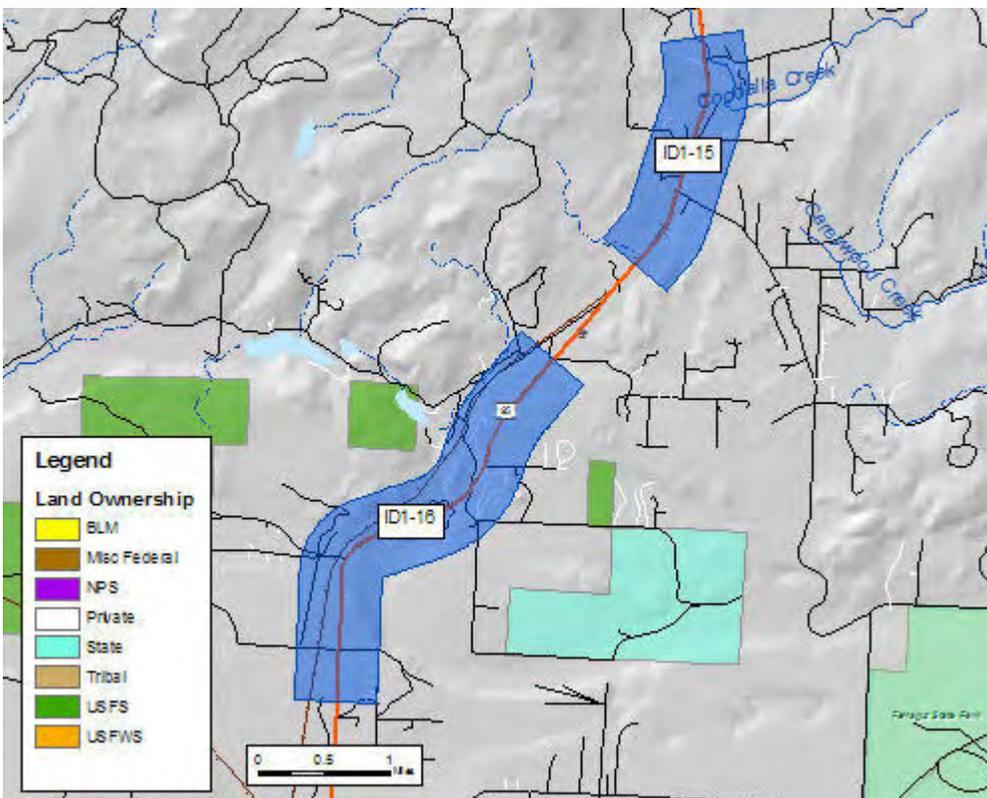
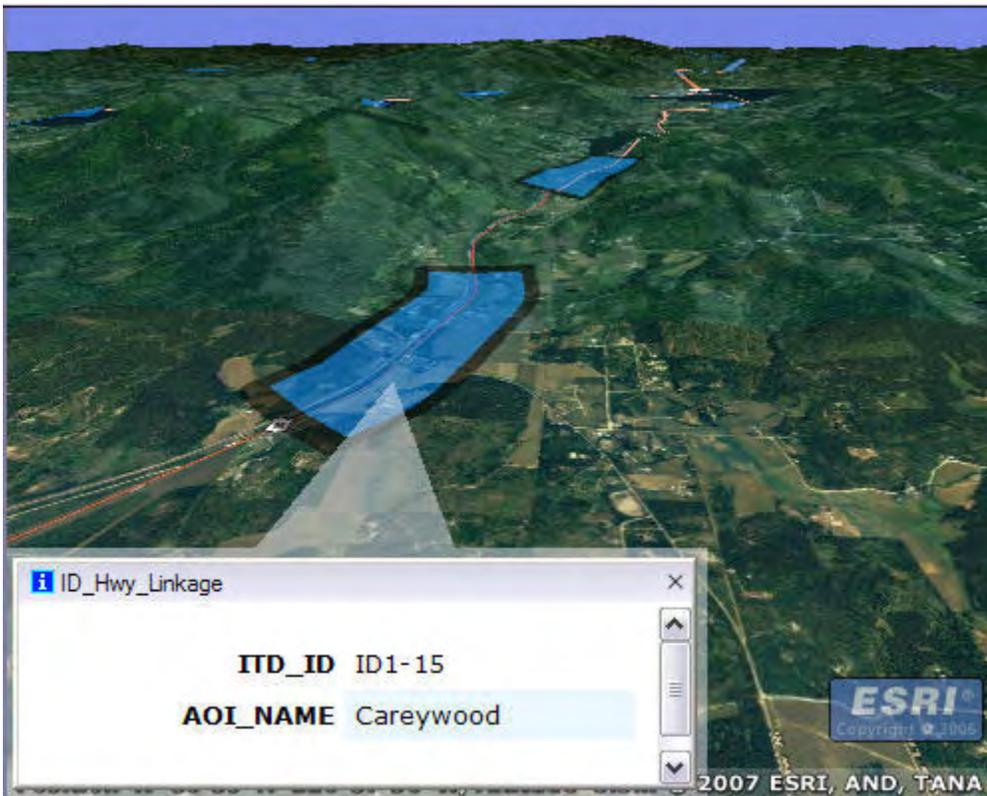
Effective functioning of linkage area: All along US-95 between SH-53 and Sagle there is evidence that wildlife crosses everywhere. Habitat exists nearly unbroken for 30 miles. Development is occurring comprised of 5 acre plus lots and farms. A few high density (0.5 acre lots) subdivisions have been proposed but they need comprehensive plan amendments to be approved. As of now, the linkage zones work.

Existing conservation easements, land exchanges, etc.: Some in the Cocolalla Creek drainage working with NRCS. Most farmers/ranchers don't seem to be disposed to granting easements.

Impediments or current threats to the linkage area: The entire corridor has either the Union Pacific or Burlington Northern Santa Fe railroad adjacent to US-95. In addition, some development is occurring that may influence or shift wildlife movement from present corridors. Both Kootenai and Bonner Counties have the entire section of US-95 classified as rural residential or agriculture.

Opportunities to improve the effectiveness of the linkage area: Kootenai and Bonner Counties are interested in talking about movement corridor preservation but it is unknown the extent to which they would, through land use controls, actually regulate the land uses. Crossing structures and fencing will likely be the mechanisms used to keep the animals crossing the highway.

ITD1\_ID: ID1-15



ITD1\_ID: ID1-15

AOI\_NAME: Careywood

PRIORITY: High

SPECIES:

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

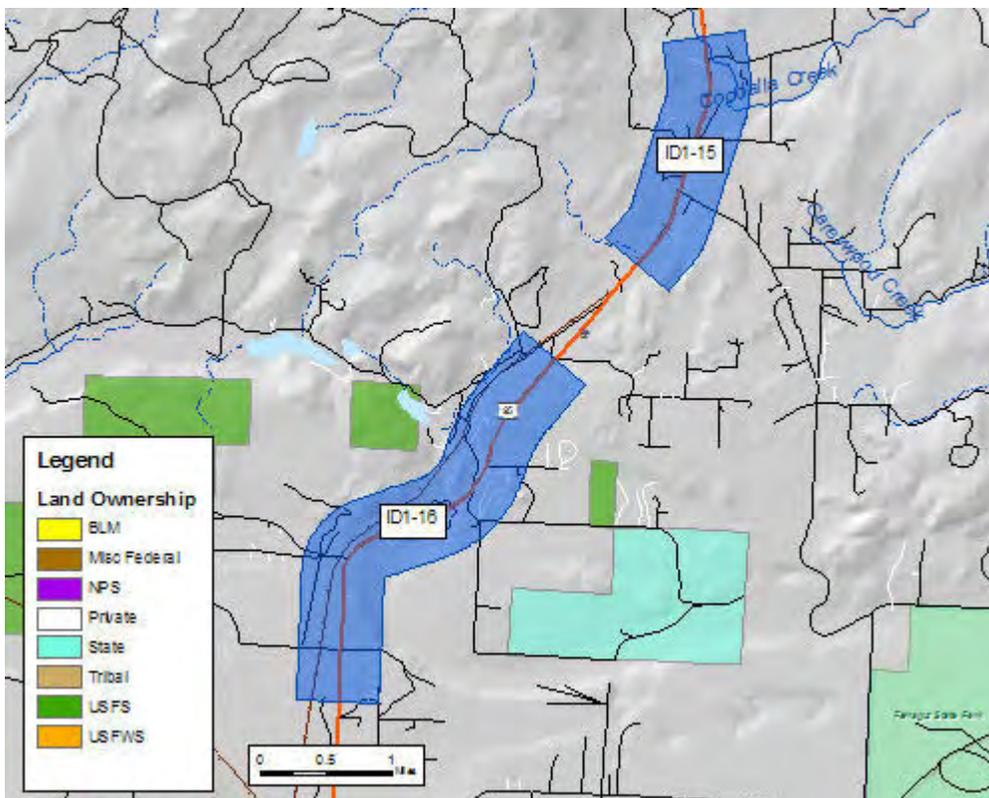
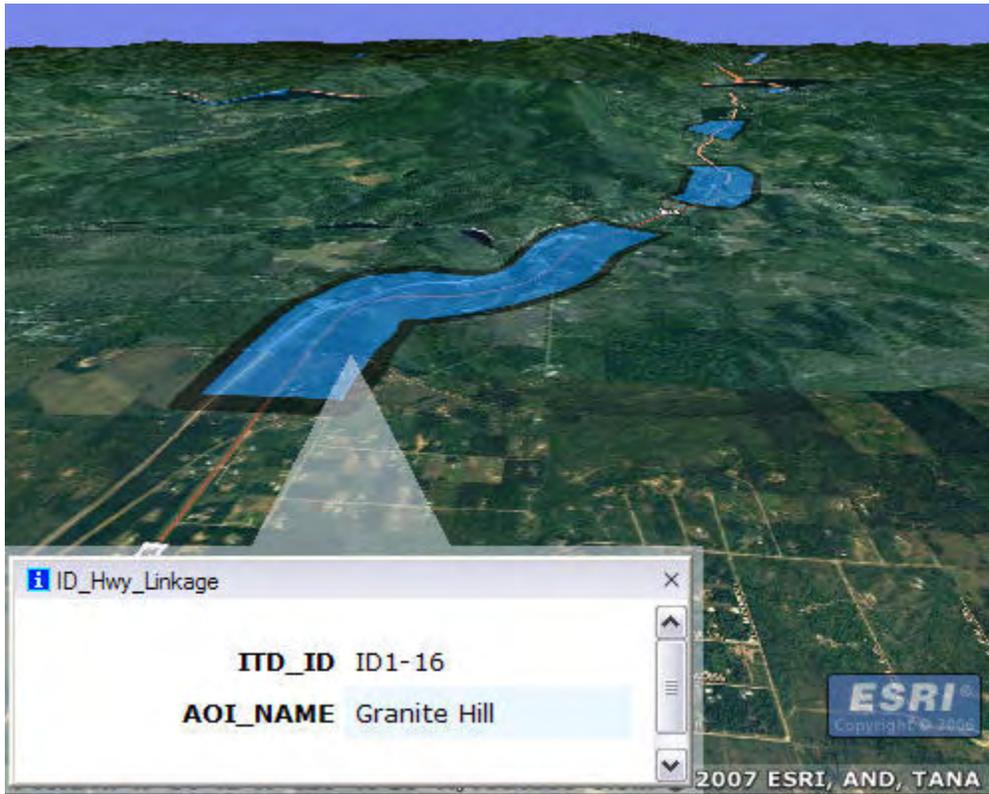
ATTRACT: agriculture fields/ water/riparian

AGENCIES:

ADDITIONAL COMMENTS:

High priority due to a major highway project planned. Creek crossing on north end of segment with numerous deer collisions and fields with alfalfa or grass hay. Popular hunting shrub scrub and slopes E and W

ITD1\_ID: ID1-16



ITD1\_ID: ID1-16

AOI\_NAME: Granite Hill

PRIORITY: High

SPECIES: white-tail deer/ moose

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

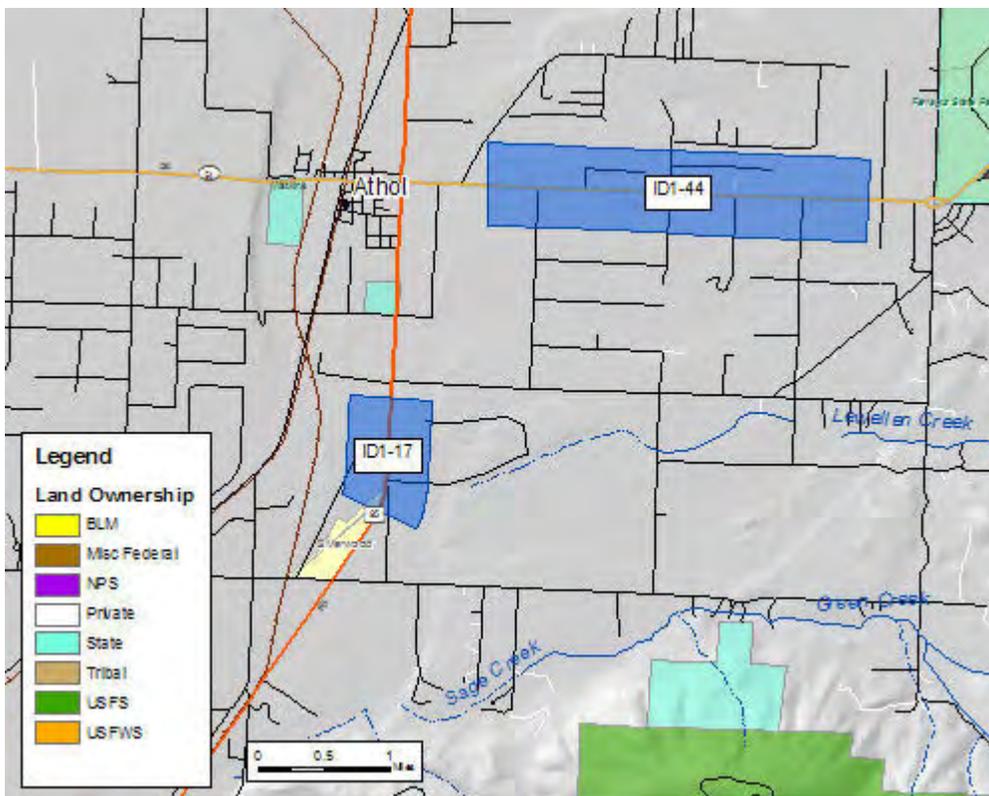
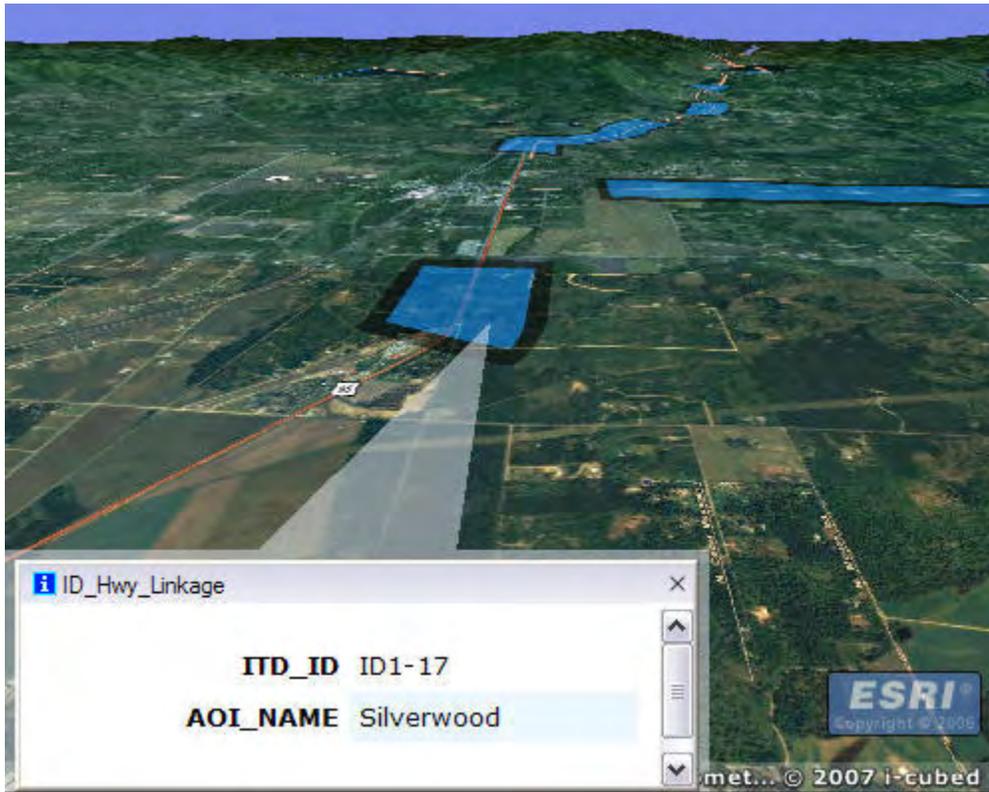
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

High priority due to a major highway project planned. Moose and deer crossing area Moose and deer collisions. Parallels RR big cut and big fill whitetail d

ITD1\_ID: ID1-17



ITD1\_ID: ID1-17

AOI\_NAME: Silverwood

PRIORITY: High

SPECIES: moose/ deer

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON: moose in late winter and early spring, everything else year around

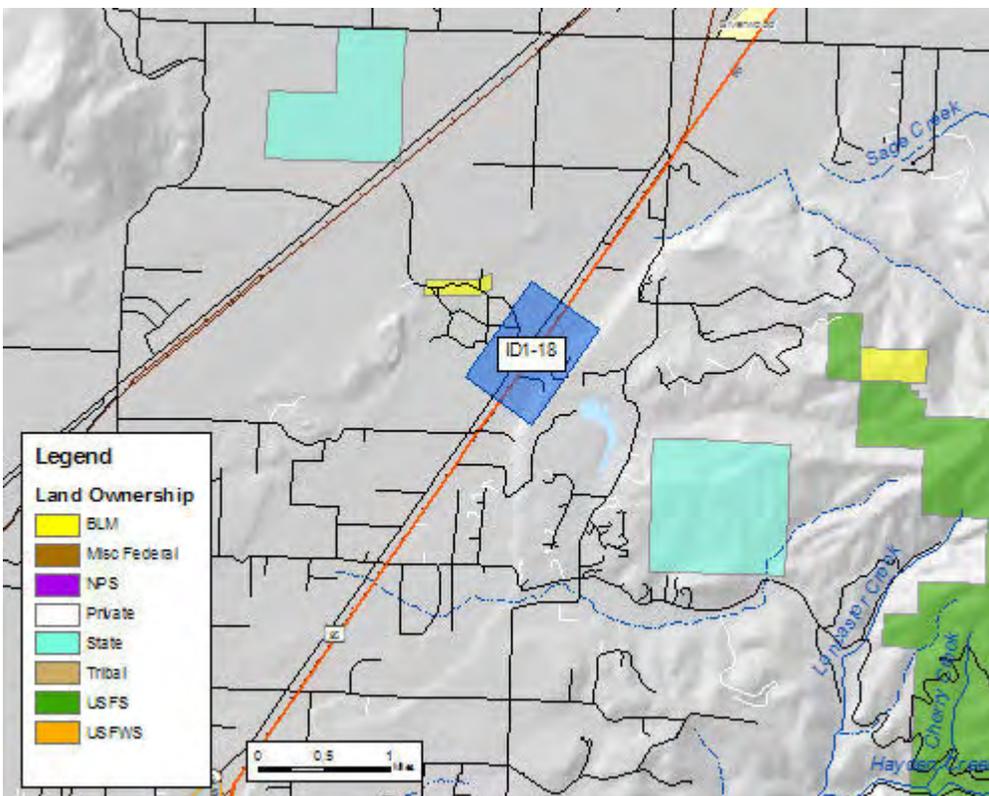
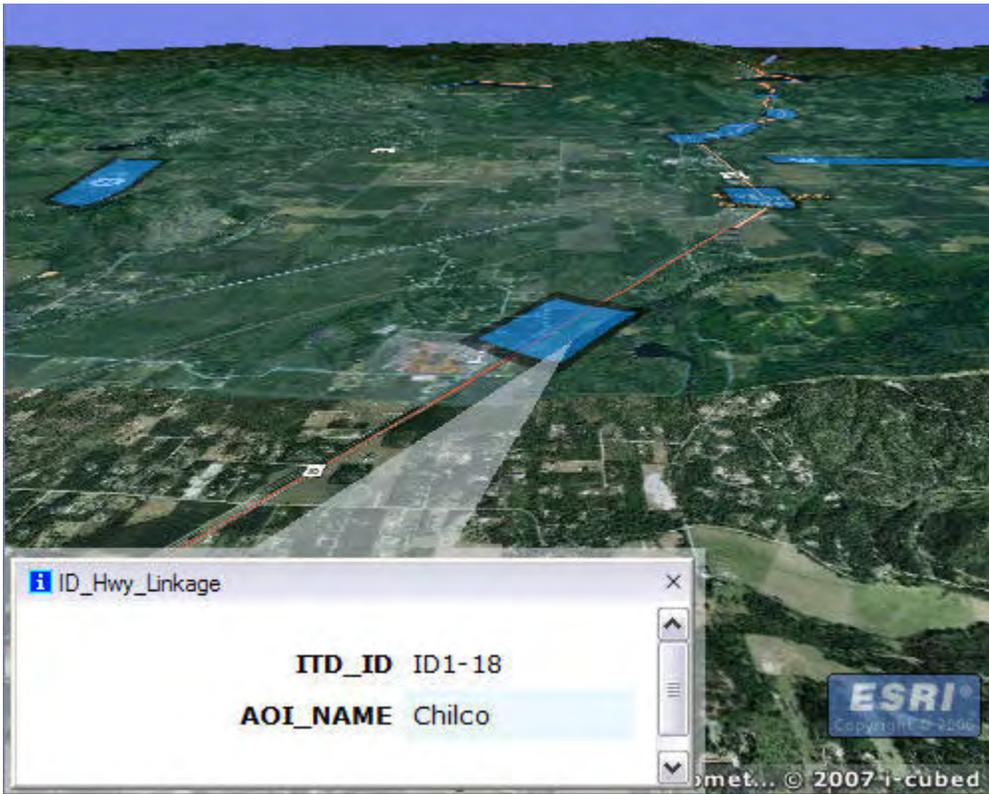
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

High priority due to a major highway project planned. Three moose kills in the last couple years. Deer crossings and collisions are common.

ITD1\_ID: ID1-18



ITD1\_ID: ID1-18

AOI\_NAME: Chilco

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

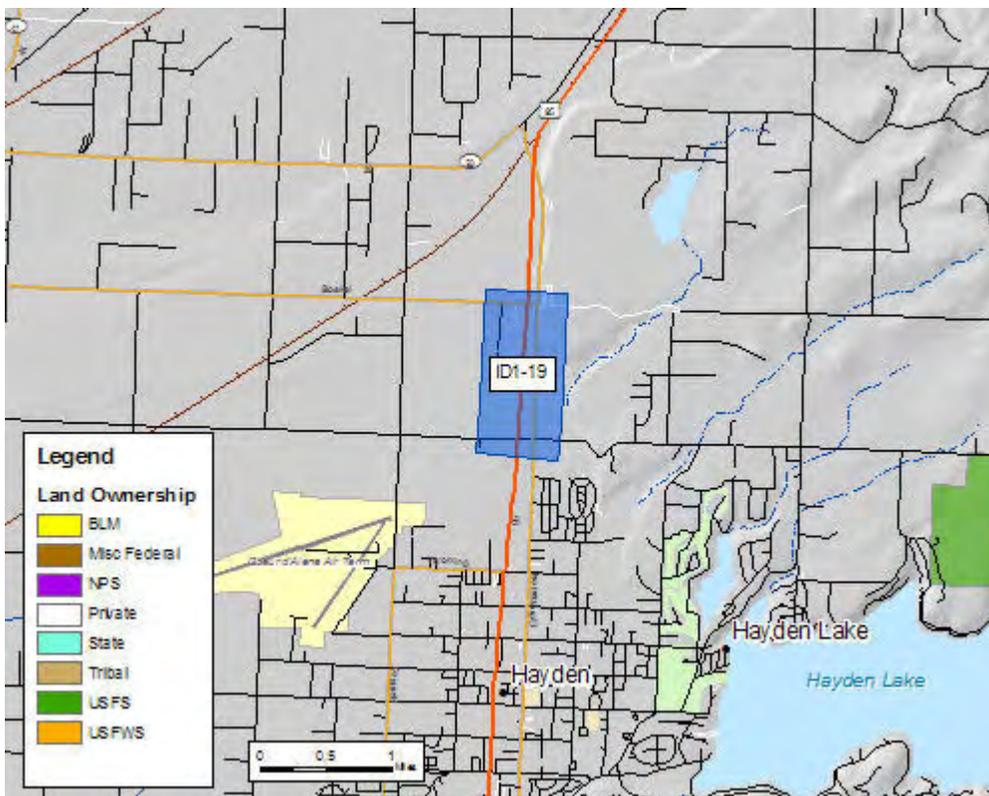
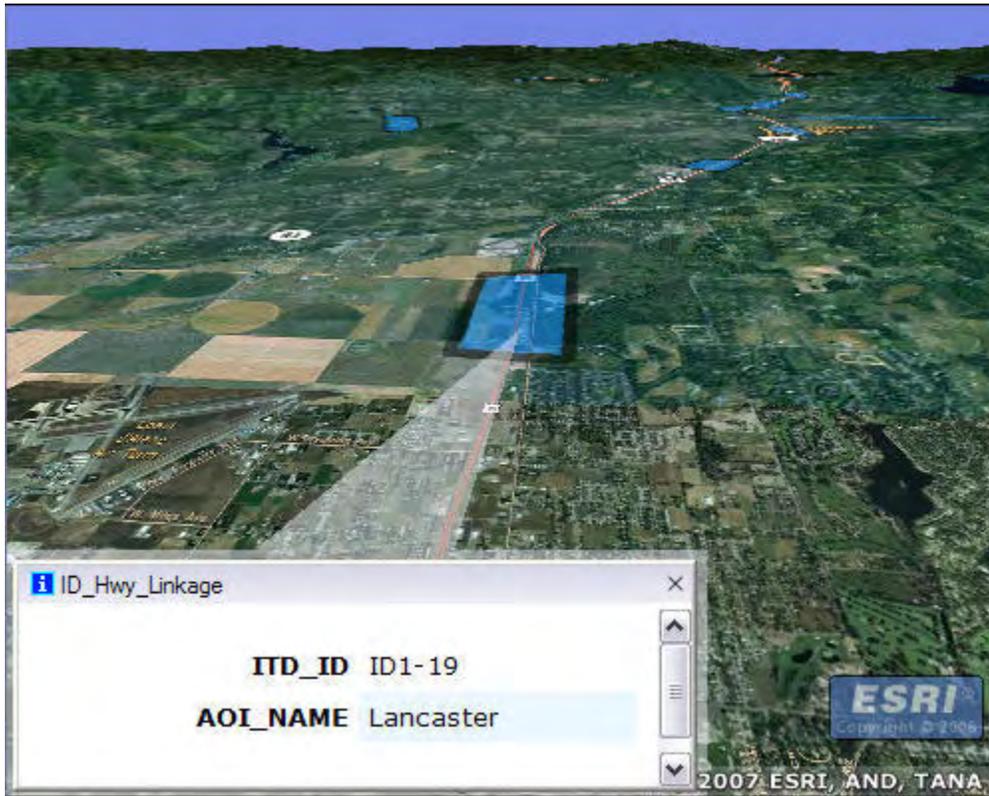
ATTRACT: golf course

AGENCIES:

ADDITIONAL COMMENTS:

ITD is building a wildlife crossing there. Moose crossing area from Chilco Lake

ITD1\_ID: ID1-19



ITD1\_ID: ID1-19

AOI\_NAME: Lancaster

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT: >20

SEASON:

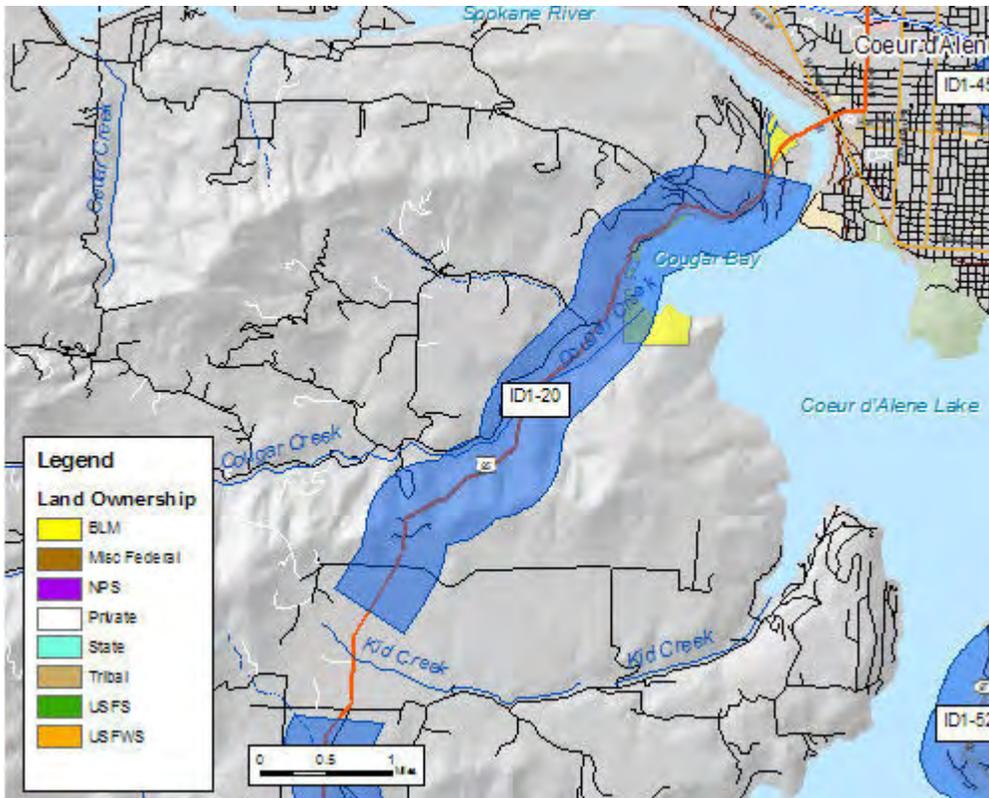
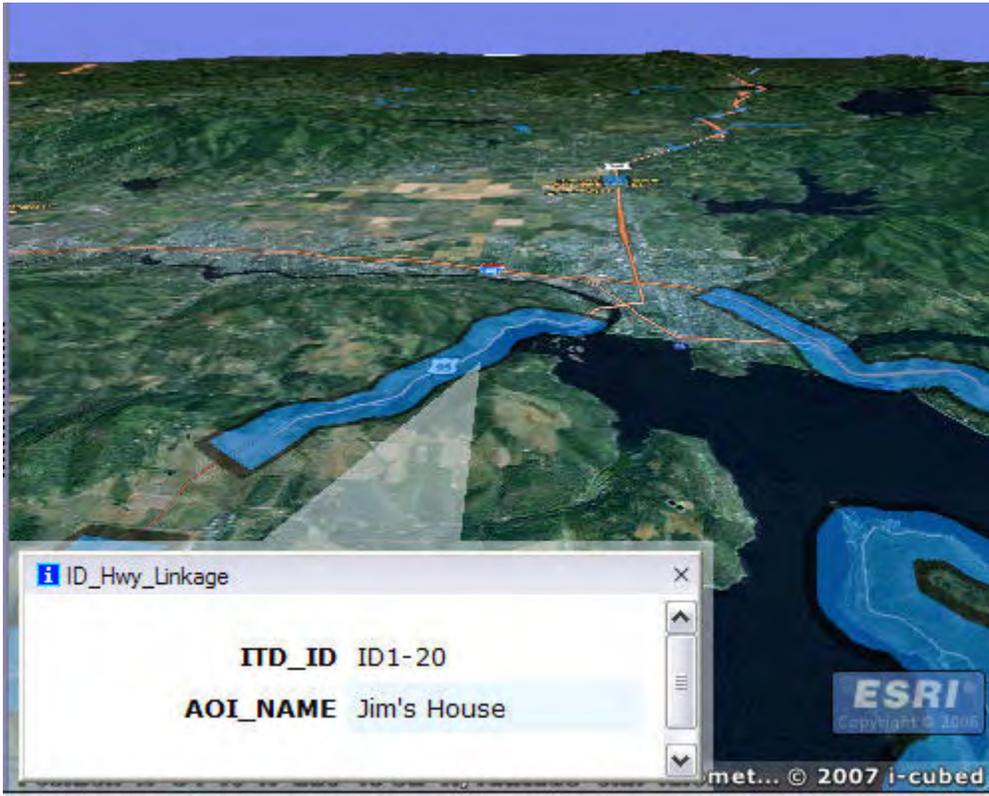
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Forest on both sides of the highway. Deer crossing area. Have had times when 4-5 deer were killed in a single day

ITD1\_ID: ID1-20



ITD1\_ID: ID1-20

AOI\_NAME: Jim's House

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT: >20 (12 white-tailed deer killed in 6 mo)

SEASON:

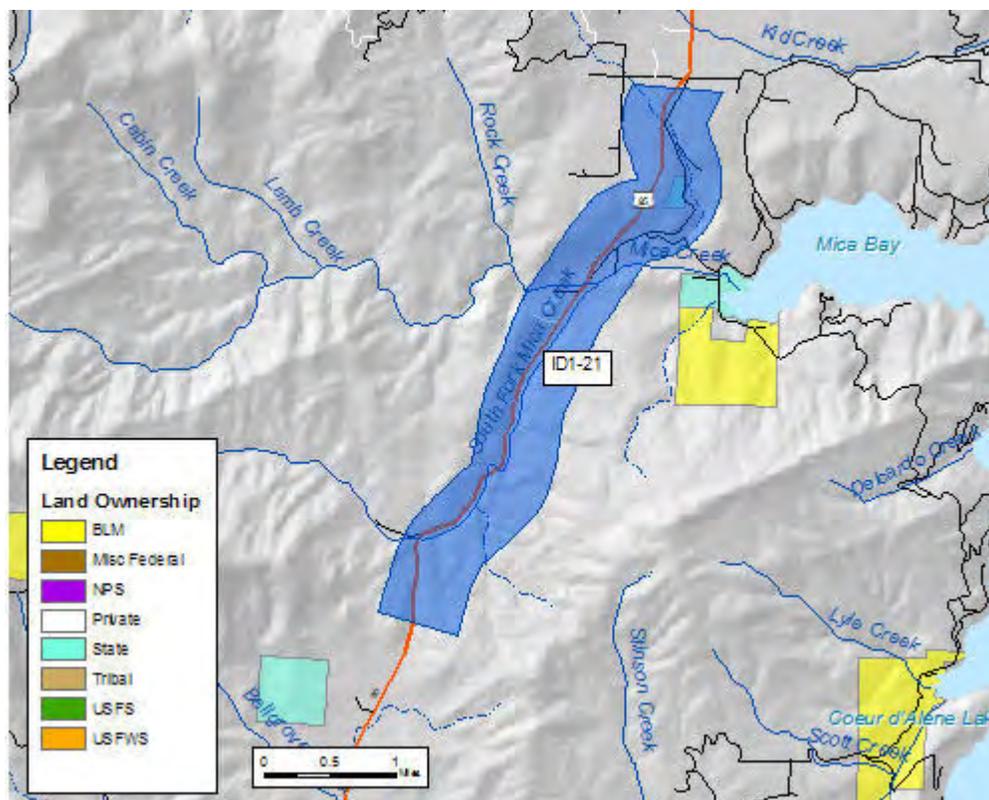
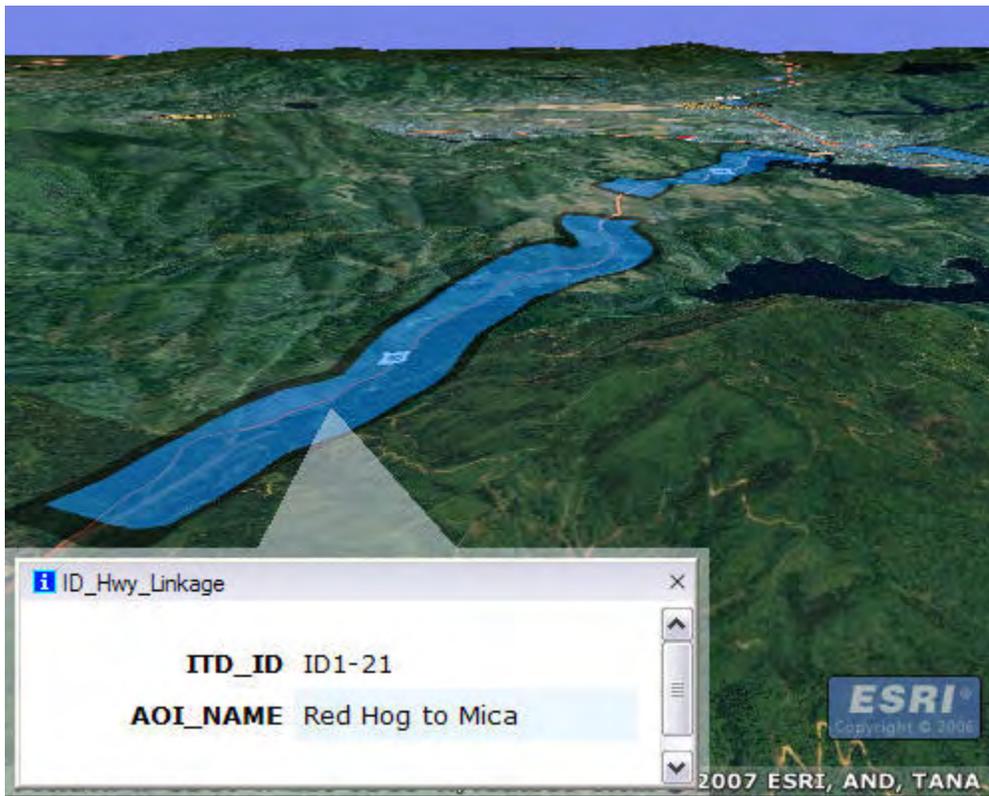
ATTRACT: Rural homes, agricultural fields, timbered habitat

AGENCIES:

ADDITIONAL COMMENTS:

High road kill area. ITD personnel picked up 12 white-tailed deer in a recent 6-month period in this area.

ITD1\_ID: ID1-21



ITD1\_ID: ID1-21

AOI\_NAME: Red Hog to Mica

PRIORITY: Moderate

SPECIES: white-tail deer/ elk/ moose/ black bear

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: white-tail deer

SEASON: Year-round residents

ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes. Rural area.

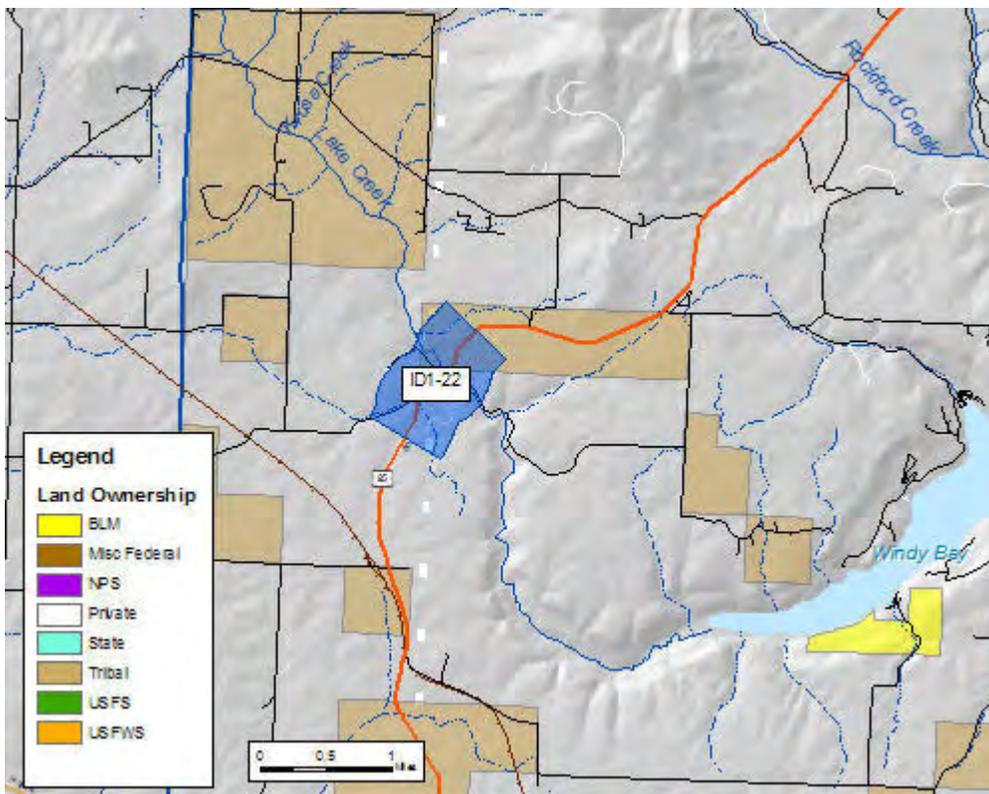
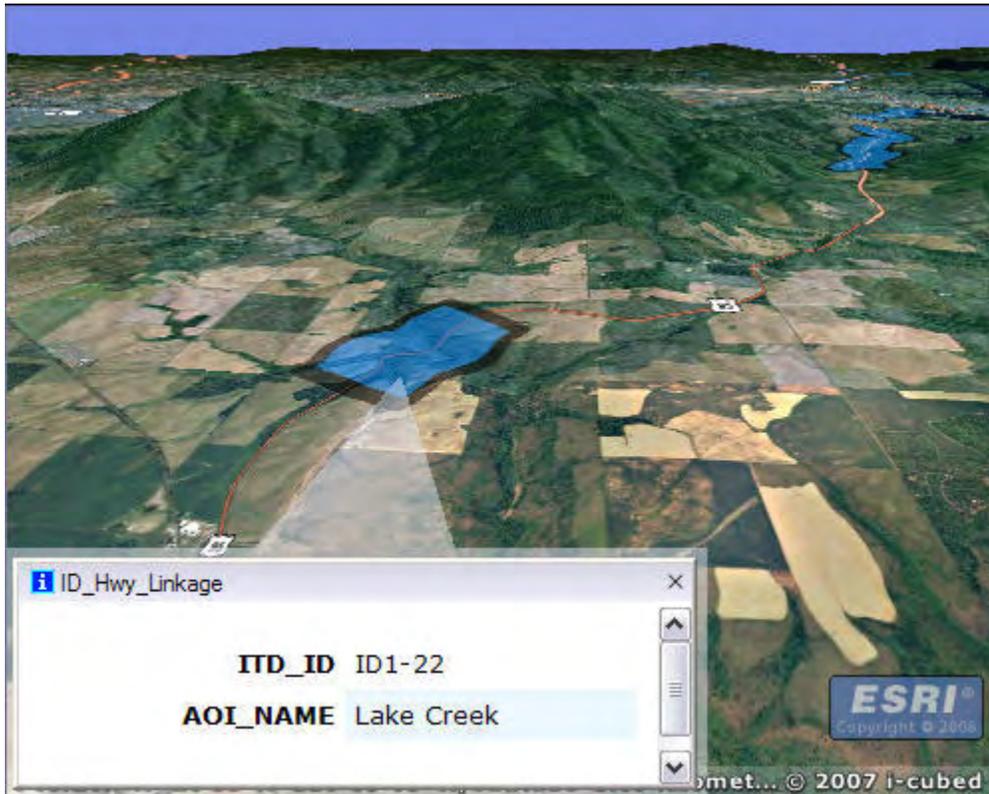
Effective functioning of linkage area: Fair.

Existing conservation easements, land exchanges, etc.: Unknown

Impediments or current threats to the linkage area: Increased vehicular traffic

Opportunities to improve the effectiveness of the linkage area: Signage

ITD1\_ID: ID1-22



ITD1\_ID: ID1-22

AOI\_NAME: Lake Creek

PRIORITY: Moderate

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: white-tail deer

SEASON: Fall, Winter

ATTRACT: alfalfa fields

AGENCIES:

ADDITIONAL COMMENTS:

Important Seasons: Fall - Rut, typical fall movements. Winter - Animals will winter in the general area

Permanent Human Presence: Rural agricultural.

Research or monitoring studies: Tribal elk telemetry data shows this to be a major movement corridor for wintering elk herds.

Species that currently do not exist in this linkage zone but might use this area in the future if population or recovery objectives are met: Mule deer

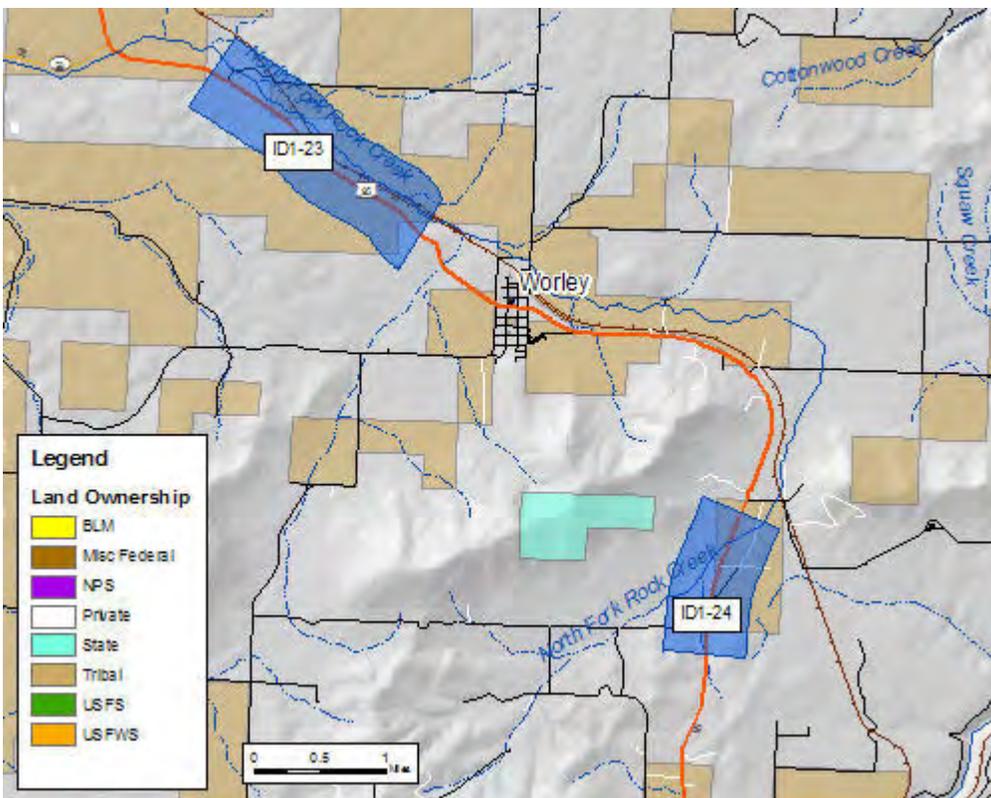
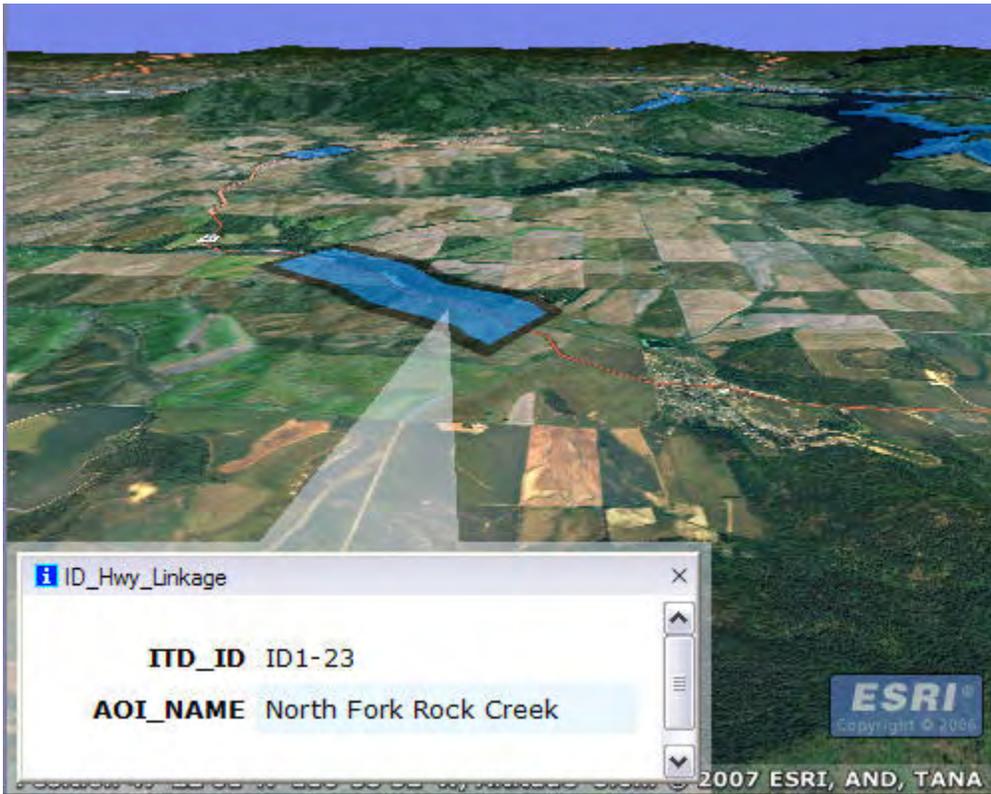
Effective functioning of linkage area: Fair; moderate amount of roadkills.

Existing conservation easements, land exchanges, etc.: Tribal property in the linkage area is being used for stream improvement projects and wildlife habitat protection.

Impediments or current threats to the linkage area: Traffic volume; curves in road and adjacent timber make it difficult to see crossing wildlife.

Opportunities to improve the effectiveness of the linkage area: Crossing signs; clear more vegetation from the right-of-way.

ITD1\_ID: ID1-23



ITD1\_ID: ID1-23

AOI\_NAME: North Fork Rock Creek

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: >5

SEASON: Year-round residents

ATTRACT: agriculture fields/ wetlands/ golf course - blue grass test plots/ garbage containers

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Commercial buildings or industrial facilities, Recreation site.

Most common species killed by vehicles: White-tailed deer (>5 per year)

Research or monitoring studies: Tribal staff routinely remove a high number of roadkills each year.

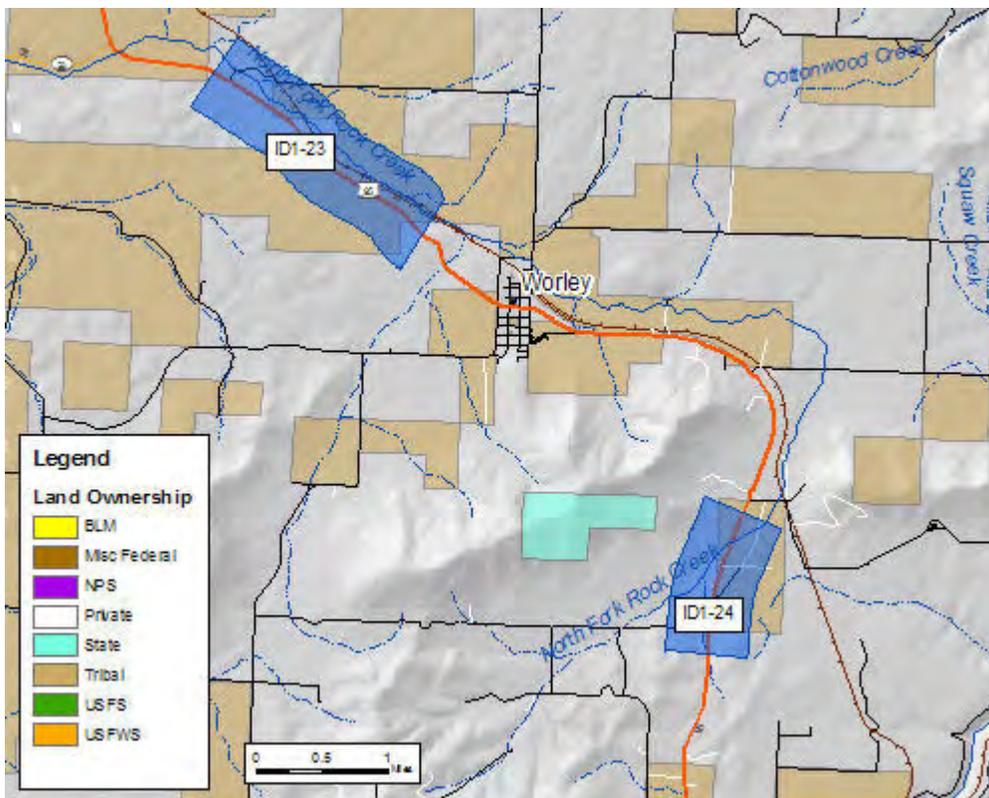
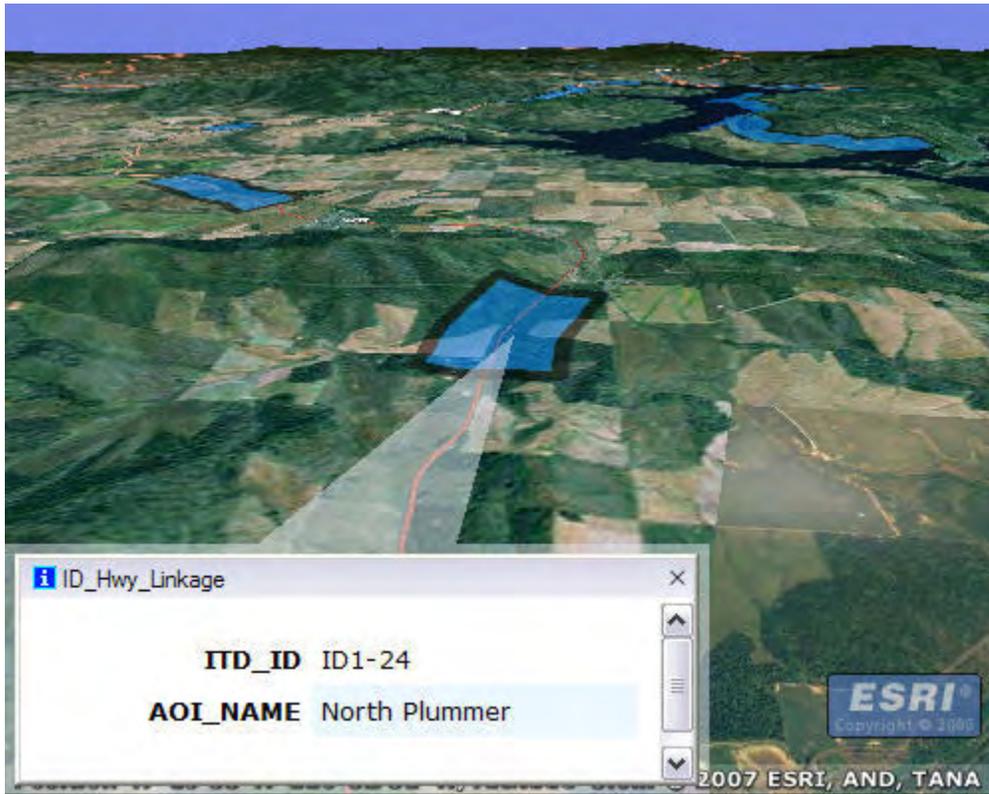
Effective functioning of linkage area: Poorly.

Impediments or current threats to the linkage area: High traffic volume to the Casino/Resort.

Opportunities to improve the effectiveness of the linkage area: Signage

Blue grass testing area an attractant for elk. A large highway interchange is planned for this area.

ITD1\_ID: ID1-24



ITD1\_ID: ID1-24

AOI\_NAME: North Plummer

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP: Local

SCALE: Local

HWY\_MORT: >10 deer/yr

SEASON: Year-round

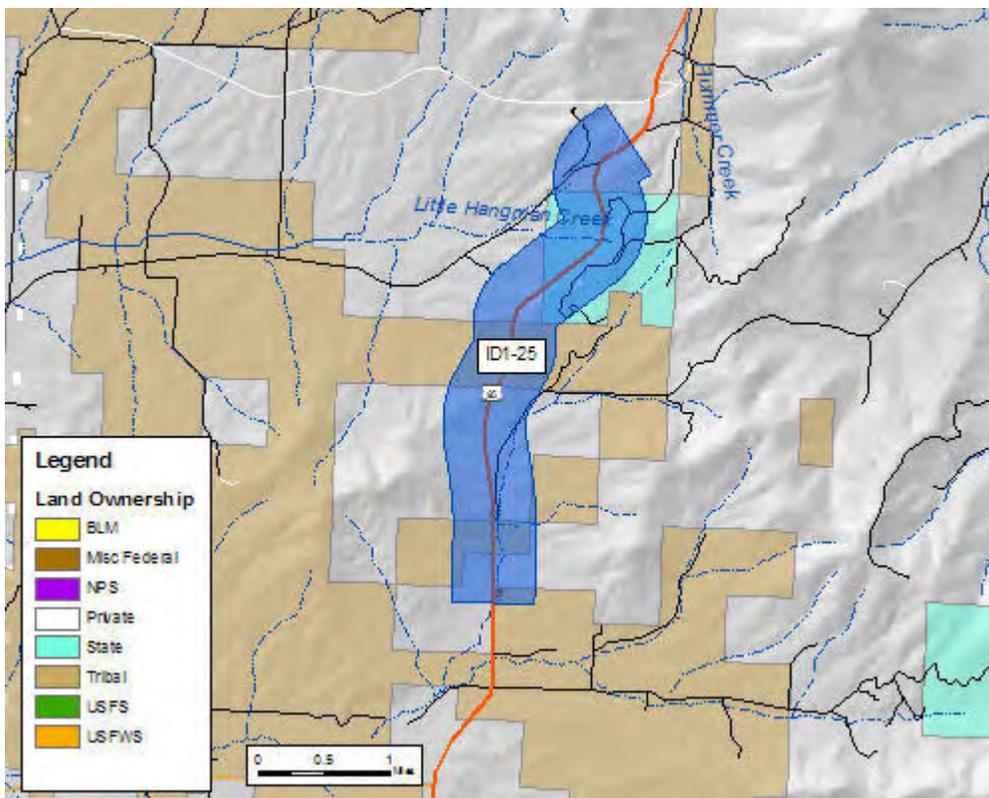
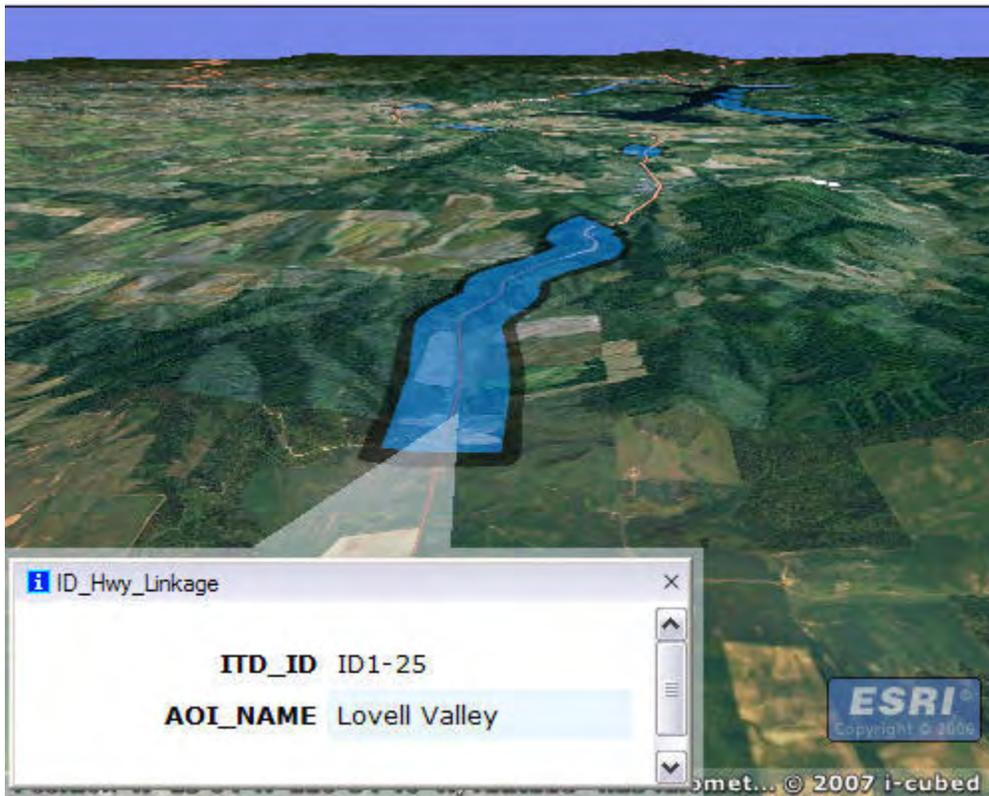
ATTRACT: Agricultural fields

AGENCIES:

**ADDITIONAL COMMENTS:**

Located between mileposts 398-399, US 95, north of Plummer, Idaho. Agricultural fields attract white-tailed deer to the area, where more than 10 road-killed deer are picked up by ITD personnel each year. However, deer are found in the area year-round. This is a rural agricultural area with occasional homes scattered throughout. There are no provisions to facilitate wildlife passage.

ITD1\_ID: ID1-25



ITD1\_ID: ID1-25

AOI\_NAME: Lovell Valley

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: >20

SEASON: Year-round

ATTRACT: alfalfa fields

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Timber industry, agricultural

Most common species killed by vehicles: White-tailed deer and moose.

Research or monitoring studies: Coeur d'Alene Tribal elk telemetry data suggest this area is used frequently by elk as a movement corridor. Known winter range throughout. High amount of moose and deer roadkill.

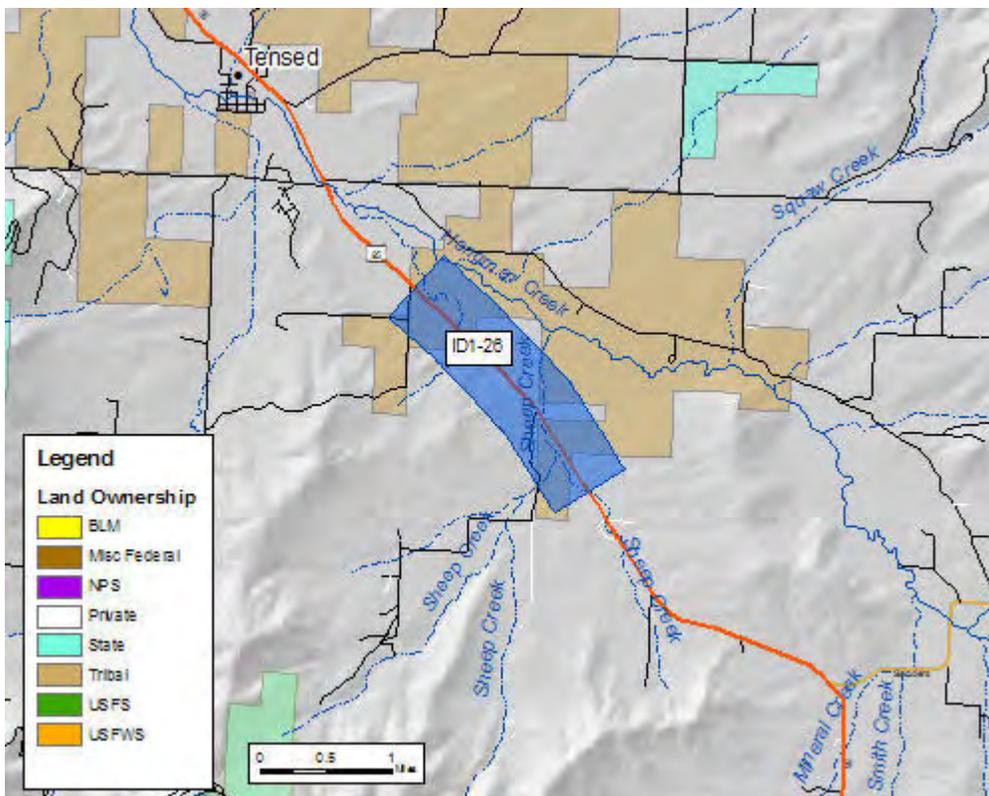
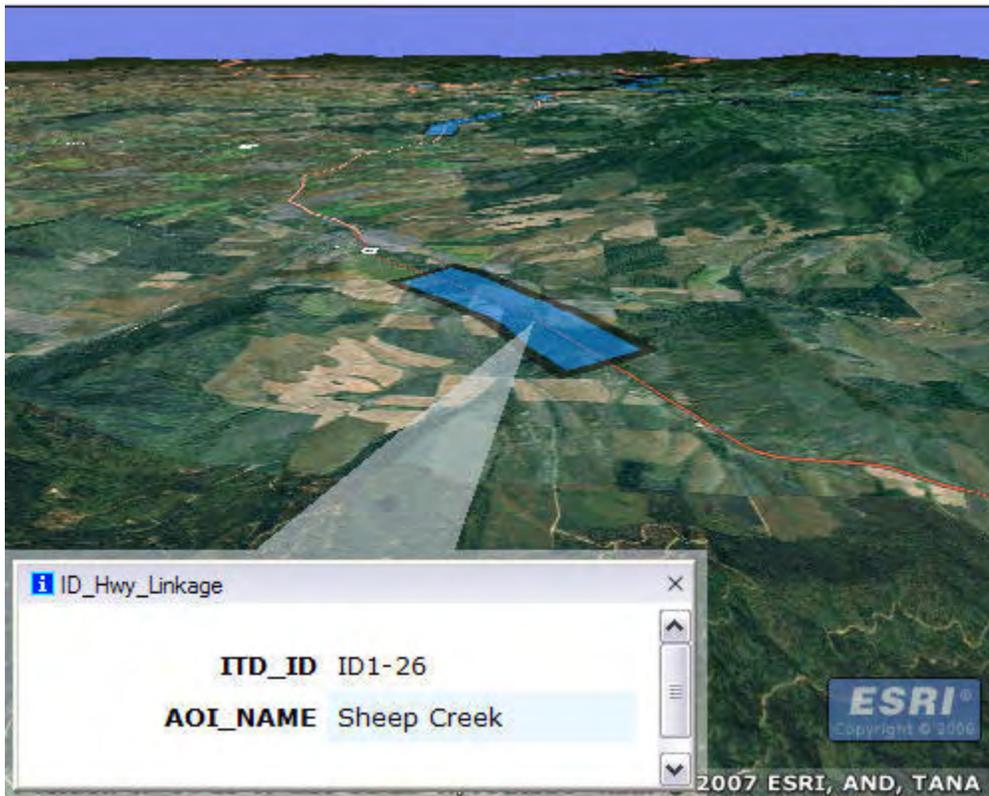
Effective functioning of linkage area: Poorly.

Impediments or current threats to the linkage area: High volume of wildlife crossing road with limited visibility to motorists in road curves.

Opportunities to improve the effectiveness of the linkage area: Signage, underpasses.

A lot of moose are present.

ITD1\_ID: ID1-26



ITD1\_ID: ID1-26

AOI\_NAME: Sheep Creek

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: > 5

SEASON: Year-round

ATTRACT: alfalfa fields

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Rural agricultural area.

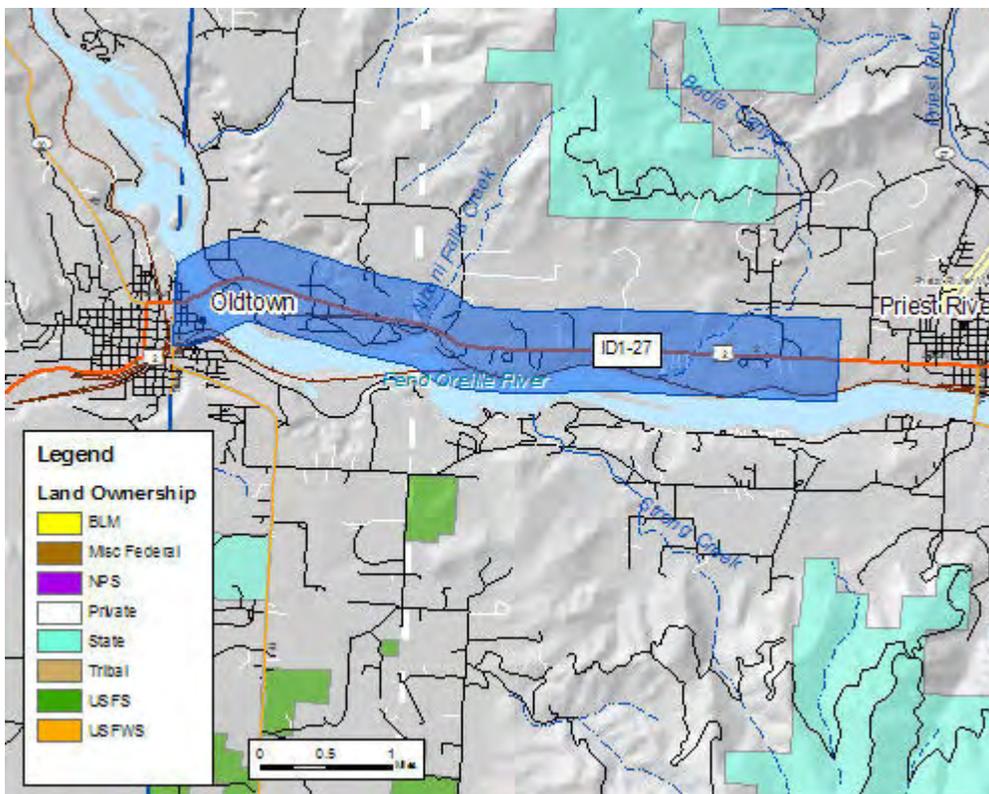
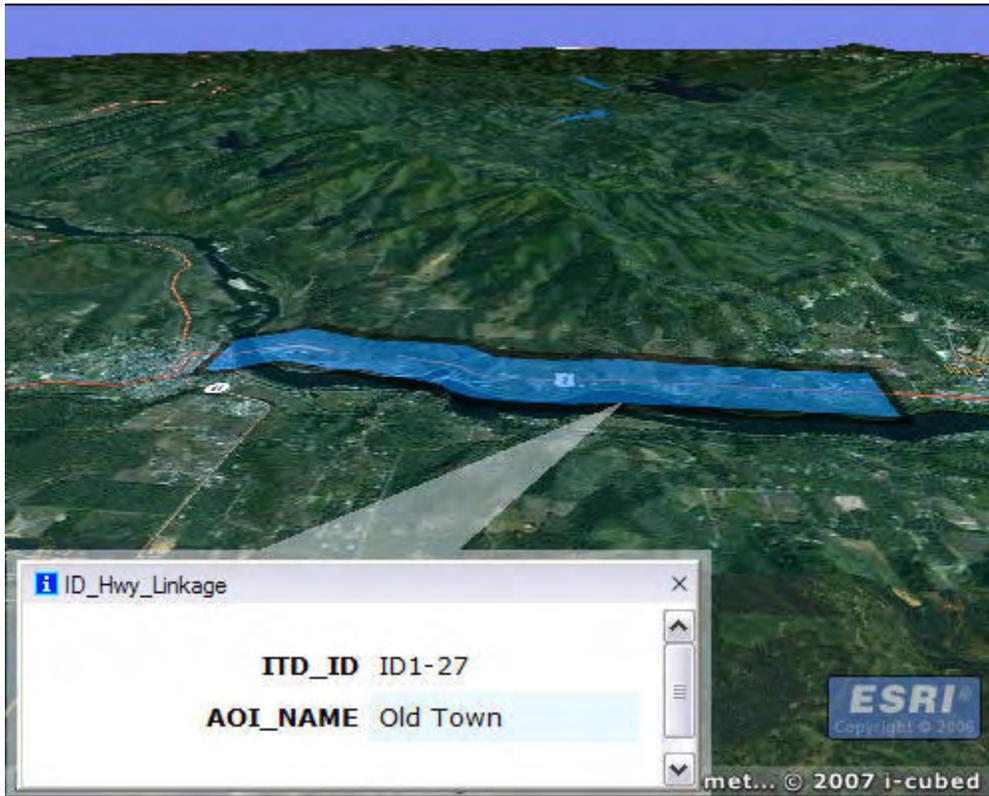
Most common species killed by vehicles: White-tailed deer (>5 per year).

Effective functioning of linkage area: Fair

Impediments or current threats to the linkage area: Increased vehicle traffic.

Opportunities to improve the effectiveness of the linkage area: Signage

ITD1\_ID: ID1-27



ITD1\_ID: ID1-27

AOI\_NAME: Old Town

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem, especially on the west side of the linkage area.

HWY\_MORT:

SEASON:

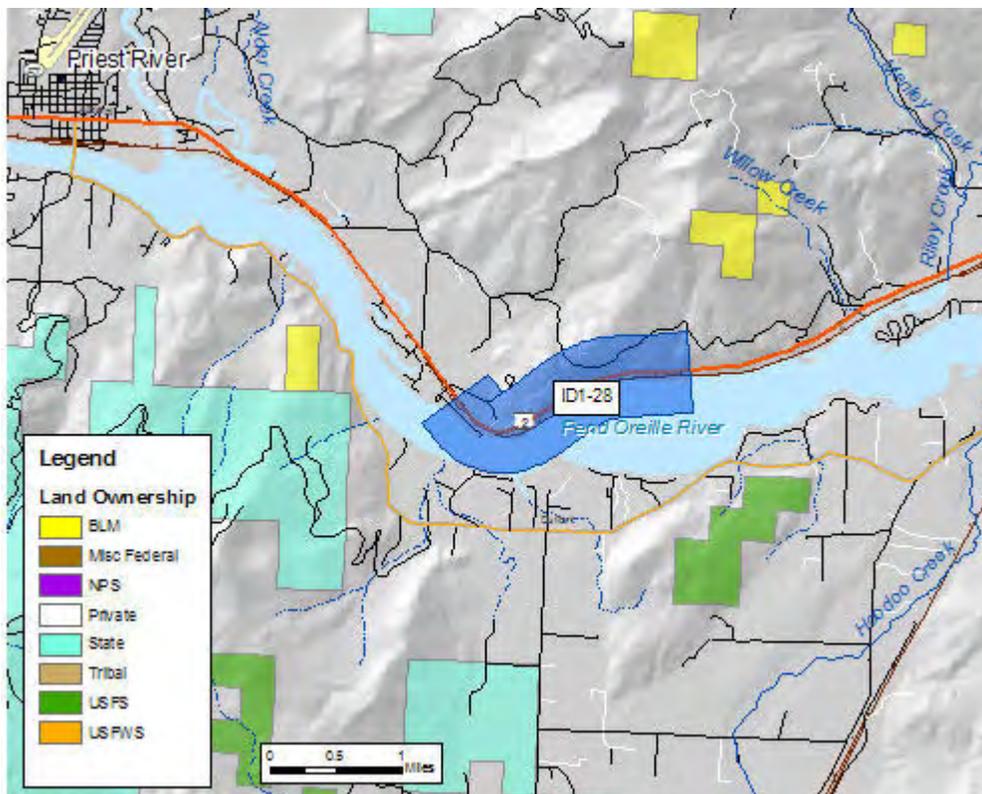
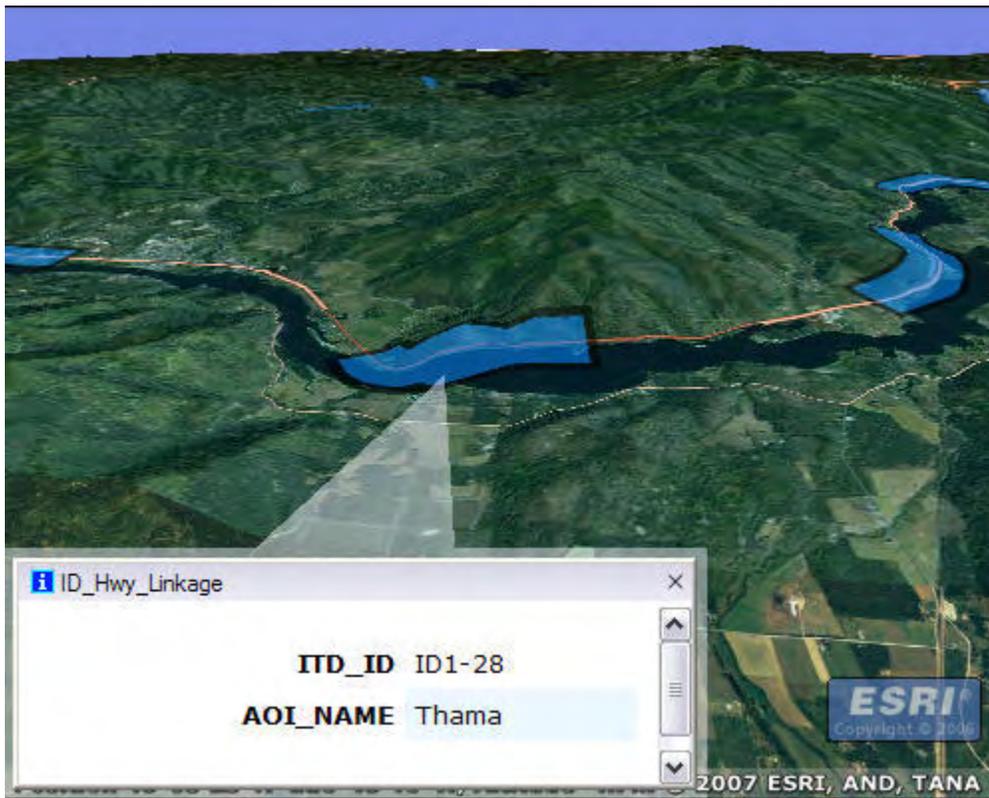
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

High white-tail deer mortality area.

ITD1\_ID: ID1-28



ITD1\_ID: ID1-28

AOI\_NAME: Thama

PRIORITY: Low

SPECIES: white-tail deer/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON:

ATTRACT: river

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes

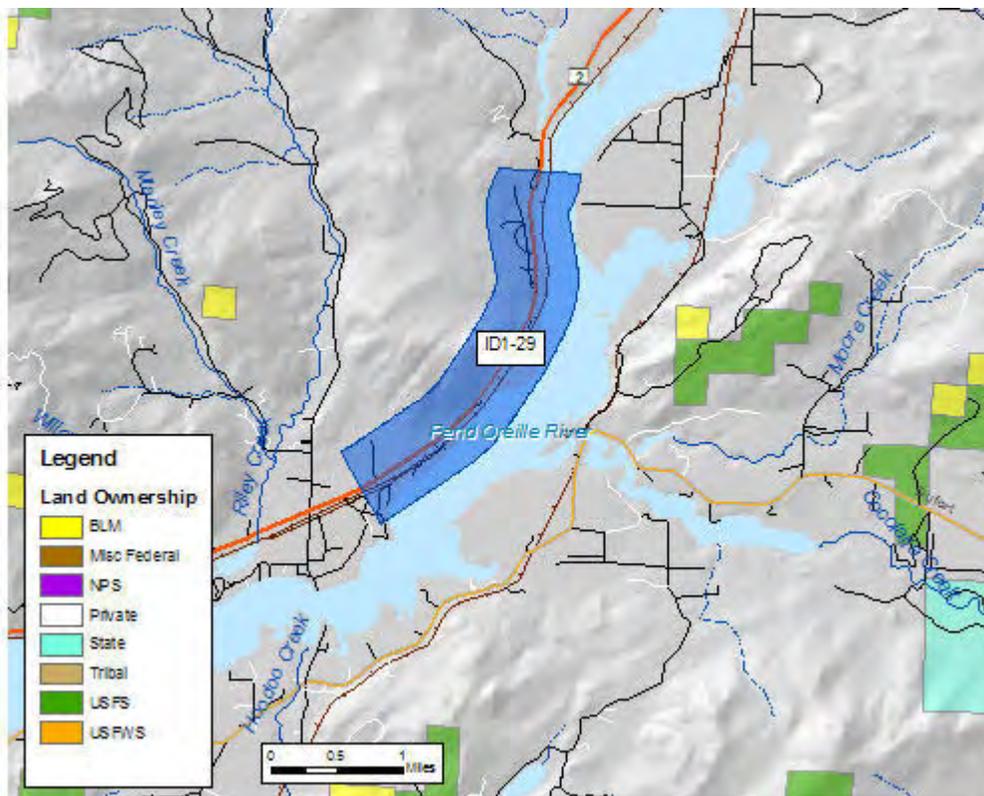
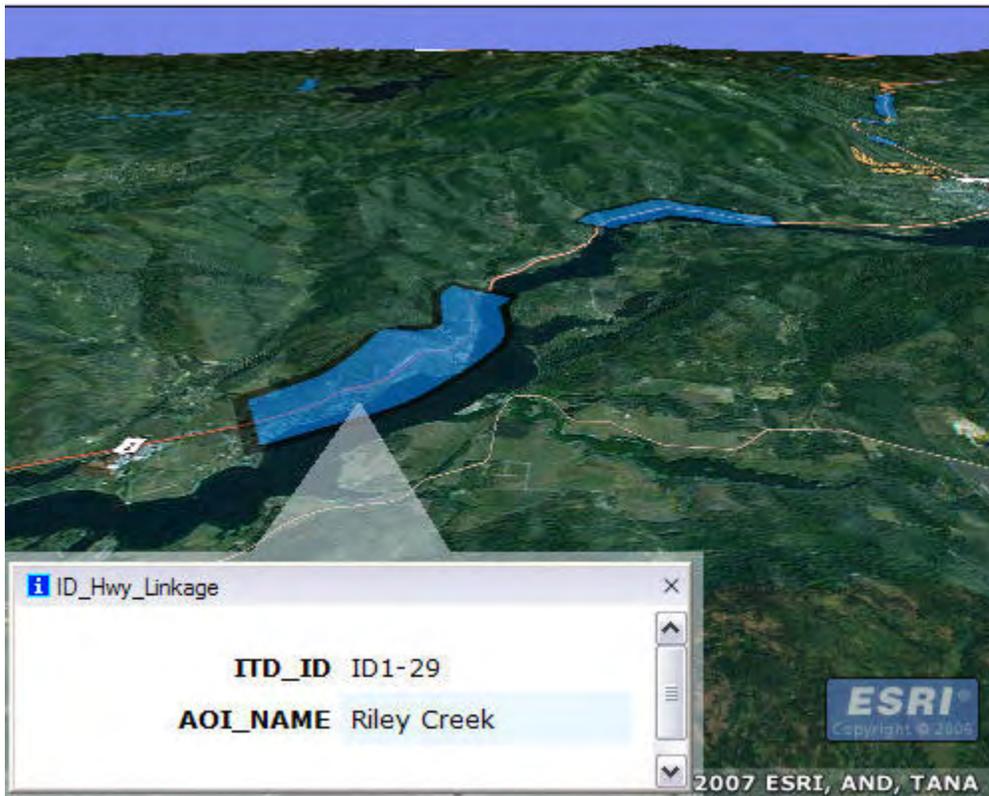
Wildlife Attractants: Pend Oreille River

Most common species killed by vehicles: Elk (5-20 per year)

Impediments or current threats to the linkage area: Highway.

Opportunities to improve the effectiveness of the linkage area: A bike path is being proposed for the area between Sandpoint and Newport, WA.

ITD1\_ID: ID1-29



ITD1\_ID: ID1-29

AOI\_NAME: Riley Creek

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: >20

SEASON:

ATTRACT: river

AGENCIES:

ADDITIONAL COMMENTS:

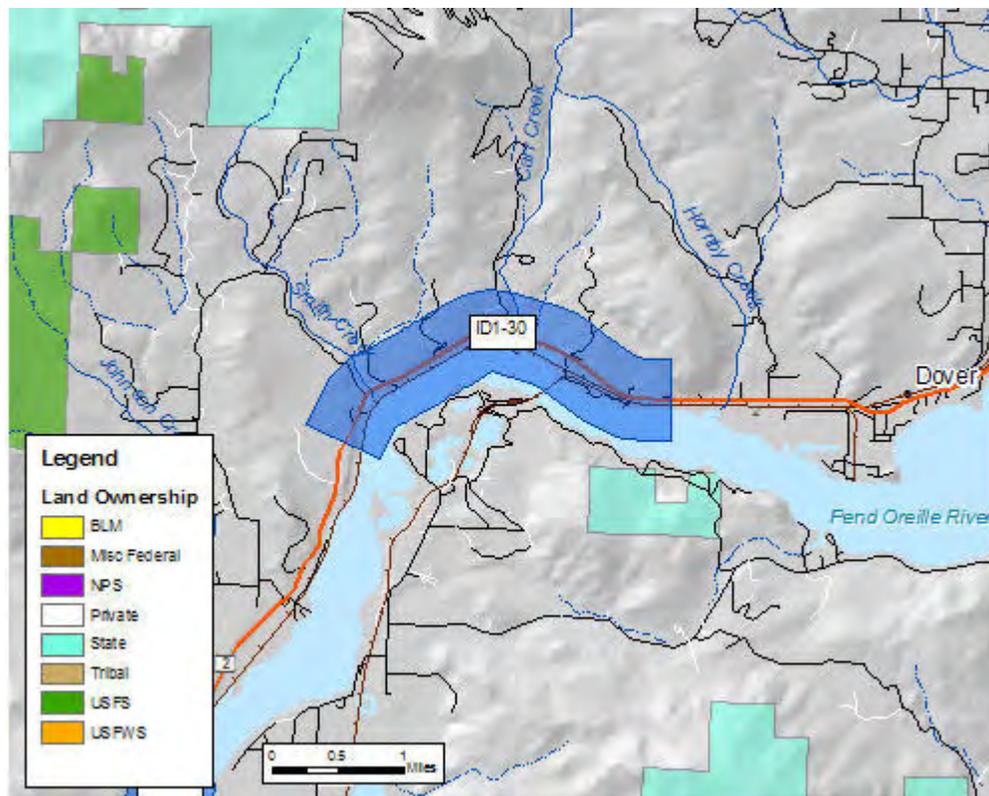
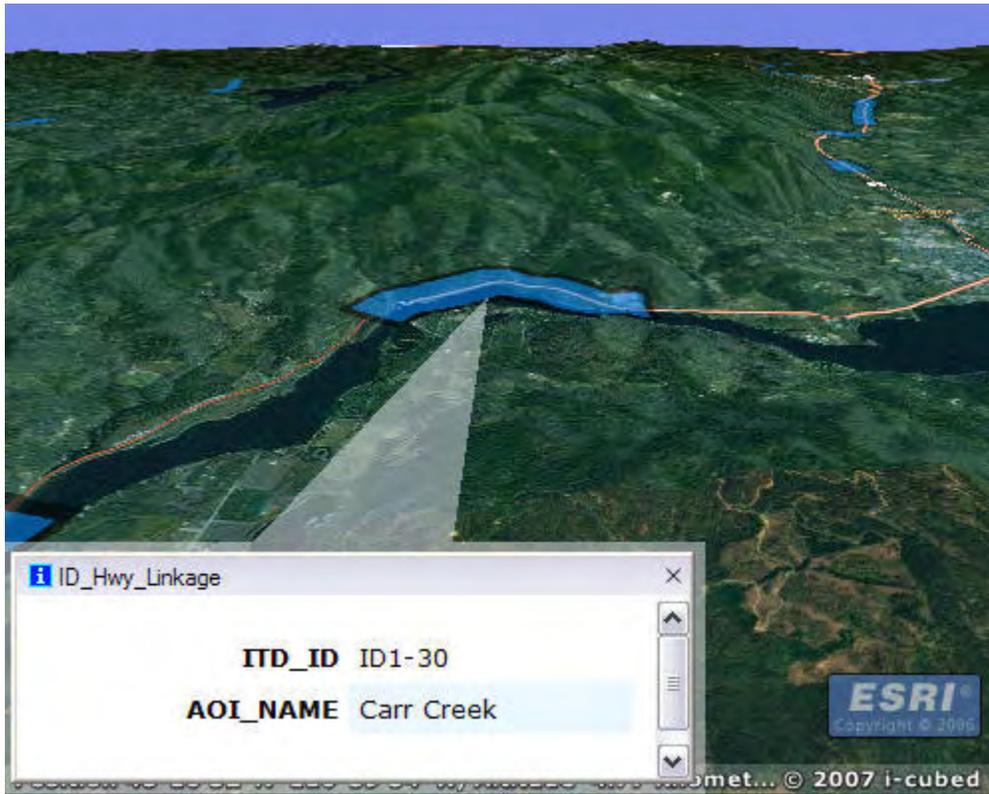
Permanent Human Presence: Residential homes. Pend Oreille River

Wildlife Attractants: Pend Oreille River. Elk population is increasing and wintering in the area.

Most common species killed by vehicles: Deer (>20 per year), Moose and elk (5-20 per year)

Impediments or current threats to the linkage area: Highway impedes animals crossing to get to the Pend Oreille River.

ITD1\_ID: ID1-30



ITD1\_ID: ID1-30

AOI\_NAME: Carr Creek

PRIORITY: Low

SPECIES: white-tail deer/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: Deer, moose

SEASON:

ATTRACT: agriculture fields, river

AGENCIES:

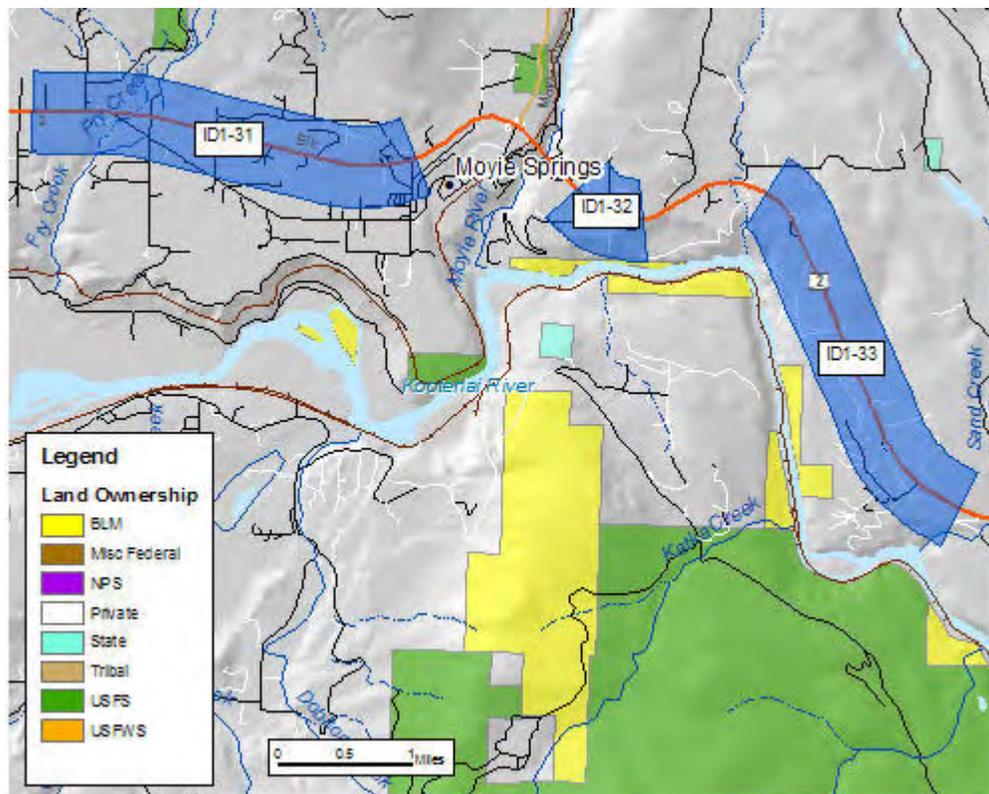
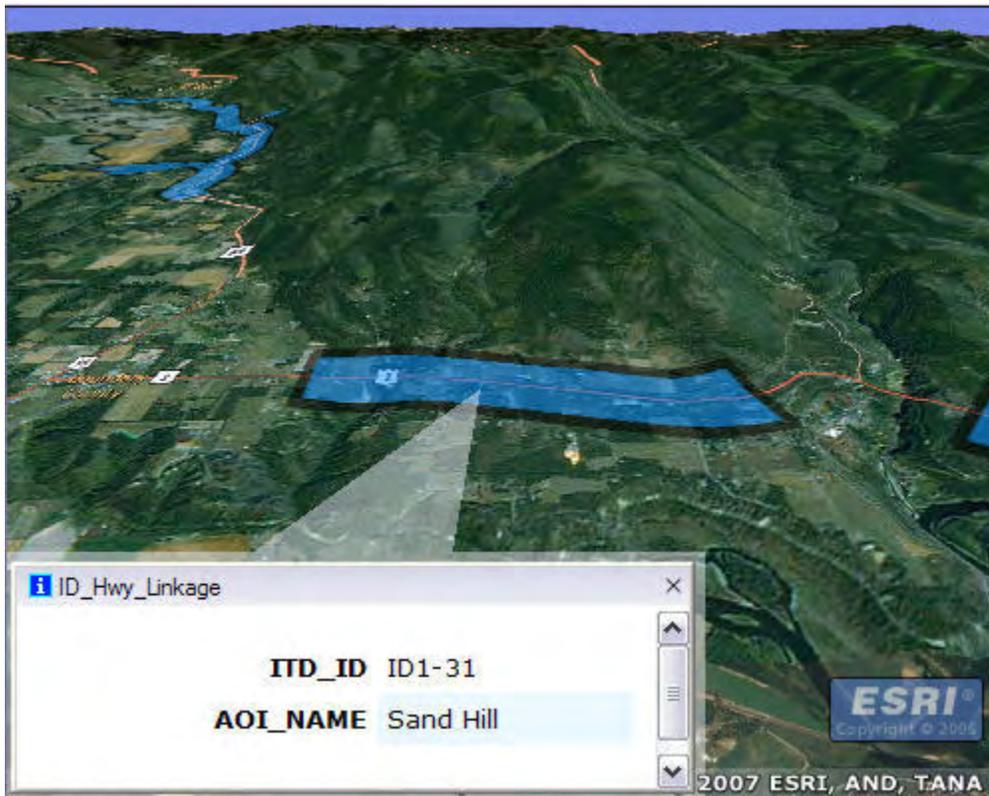
ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities

Most common species killed by vehicles: Deer (>20 per year), moose (5-20 per year)

Impediments or current threats to the linkage area: Increased land-use activities, including housing developments.

ITD1\_ID: ID1-31



ITD1\_ID: ID1-31

AOI\_NAME: Sand Hill

PRIORITY: Low

SPECIES: white-tail deer/ wolf

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT: >20

SEASON:

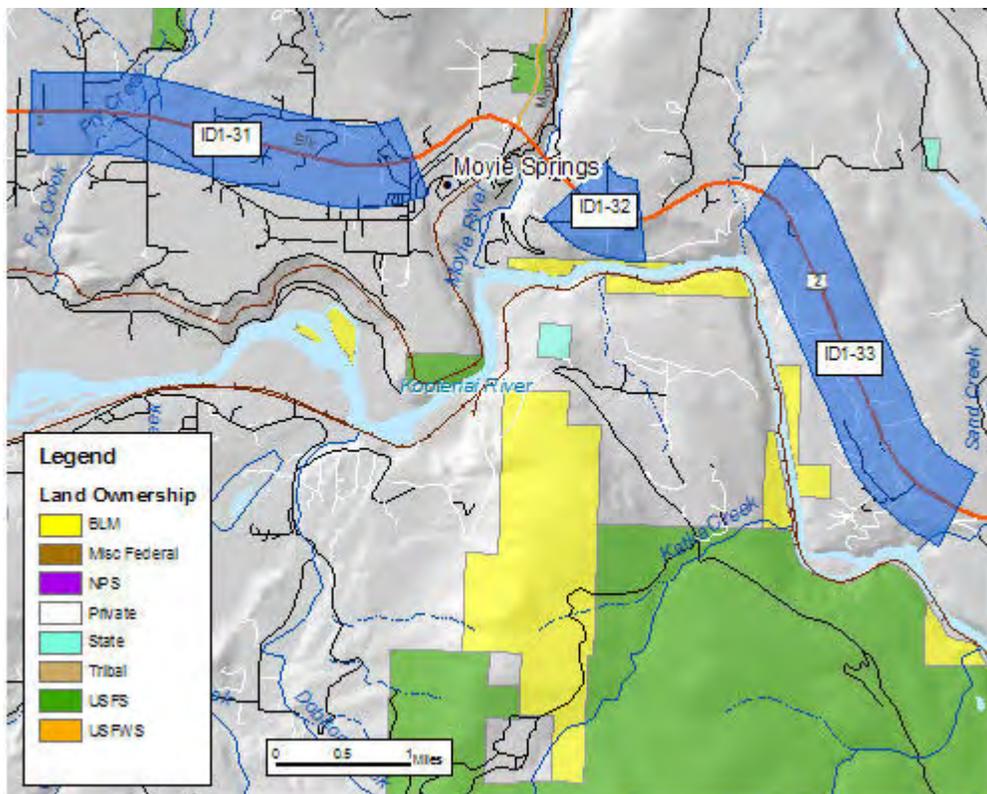
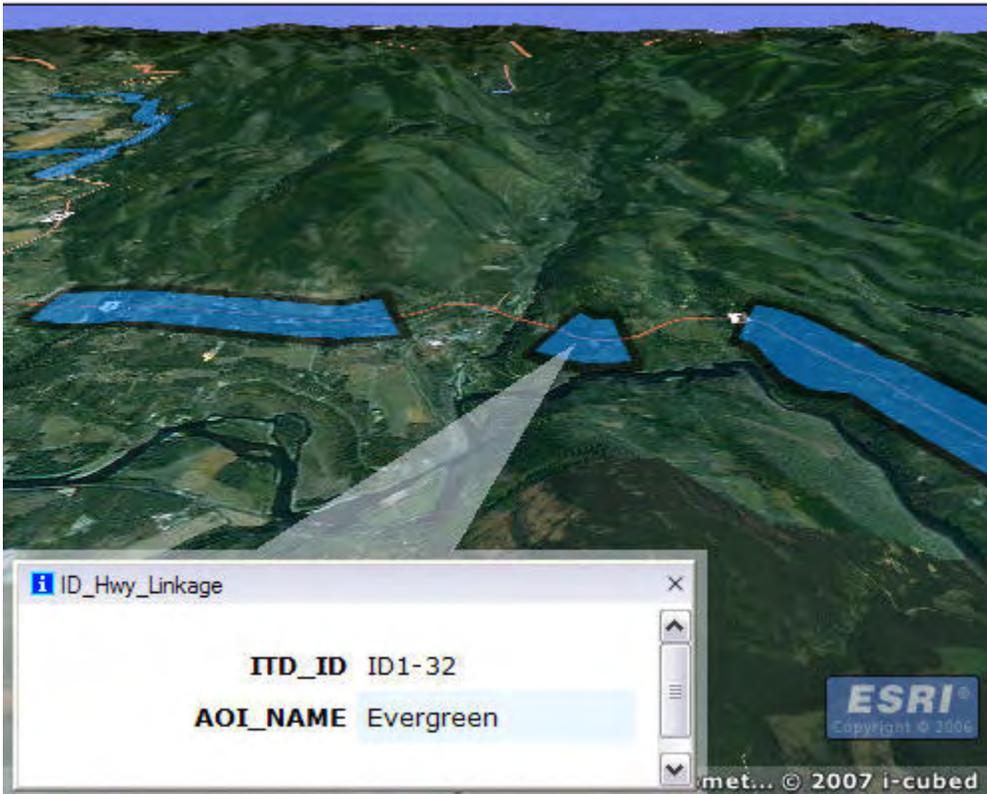
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Numerous road kill. Very tall (500 feet) highway bridge over Moyie River. Roads underneath on both side of the river. Alfalfa field whitetail use some road kill ne

ITD1\_ID: ID1-32



ITD1\_ID: ID1-32

AOI\_NAME: Evergreen

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

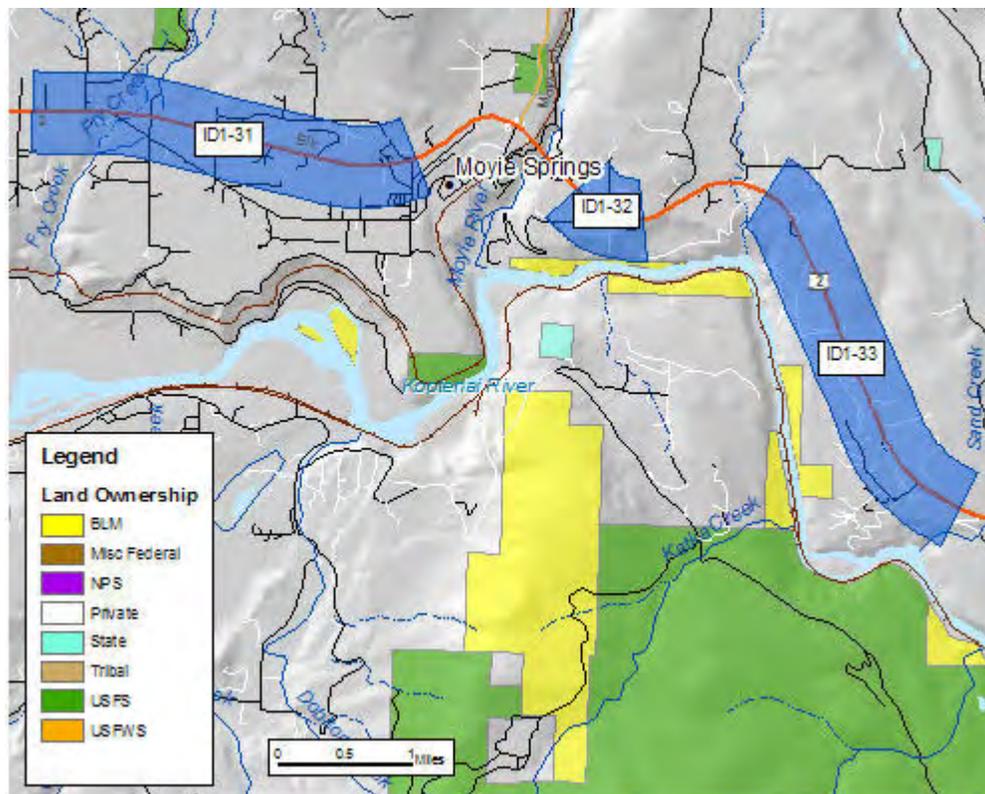
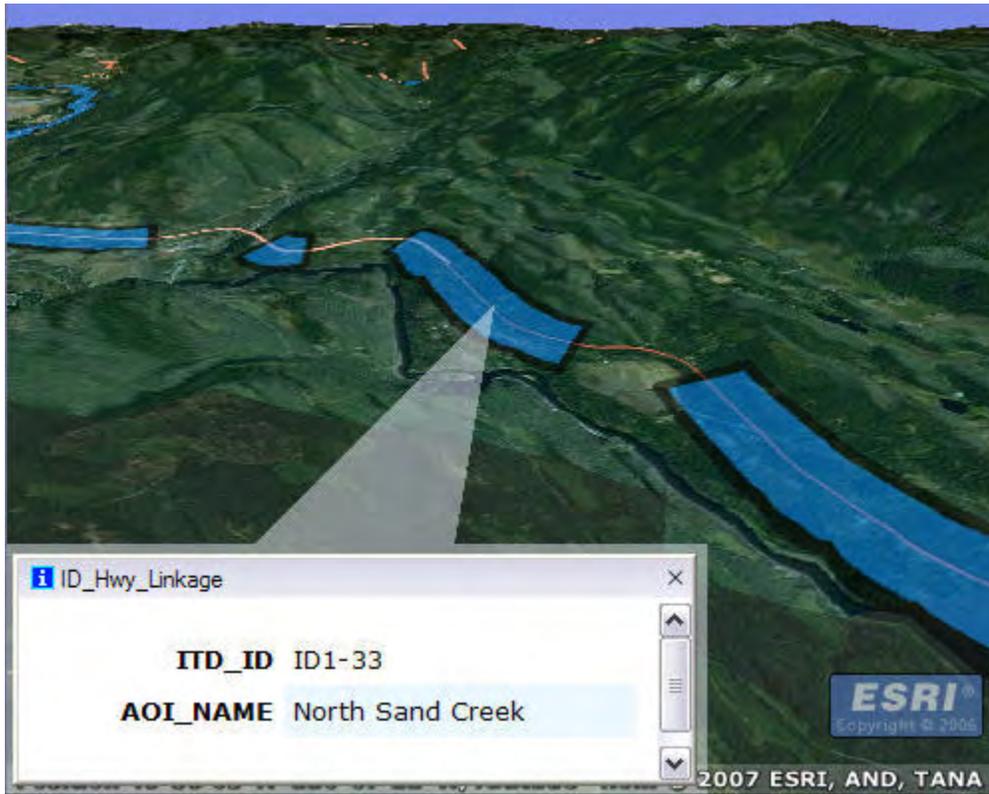
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Numerous road kill. Near Evergreen school. A few mountain lion sightings in area. Elk and deer crossing hard to see wildlife in

ITD1\_ID: ID1-33



ITD1\_ID: ID1-33

AOI\_NAME: North Sand Creek

PRIORITY: Low

SPECIES: white-tail deer/ elk

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: >20

SEASON:

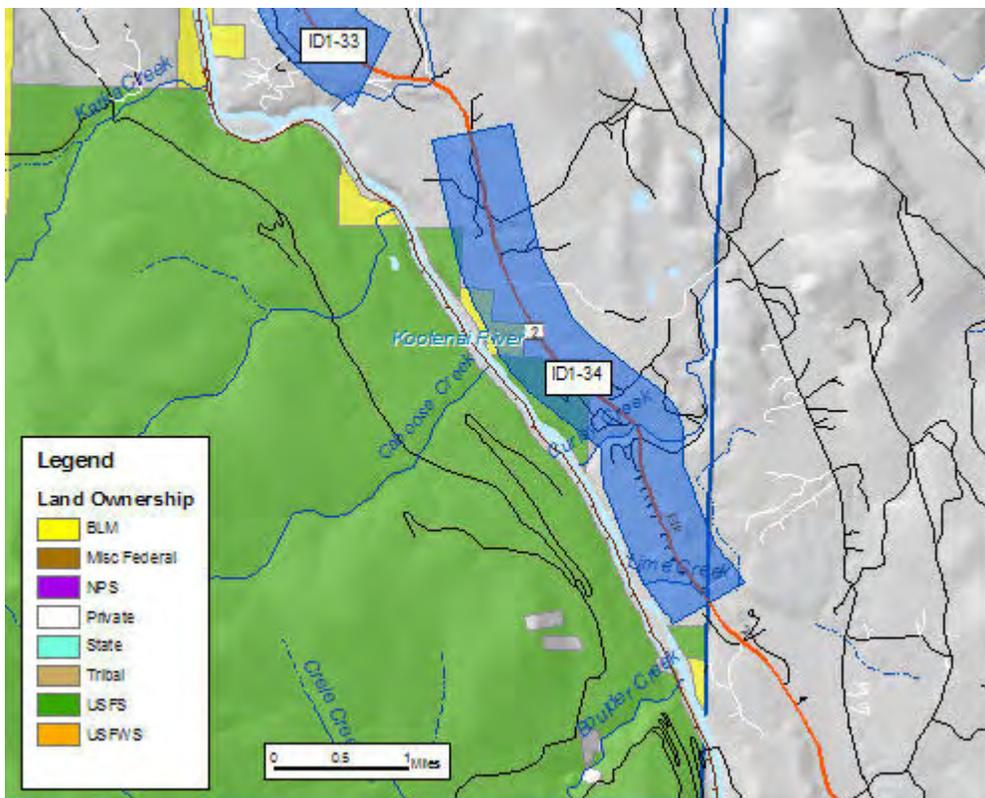
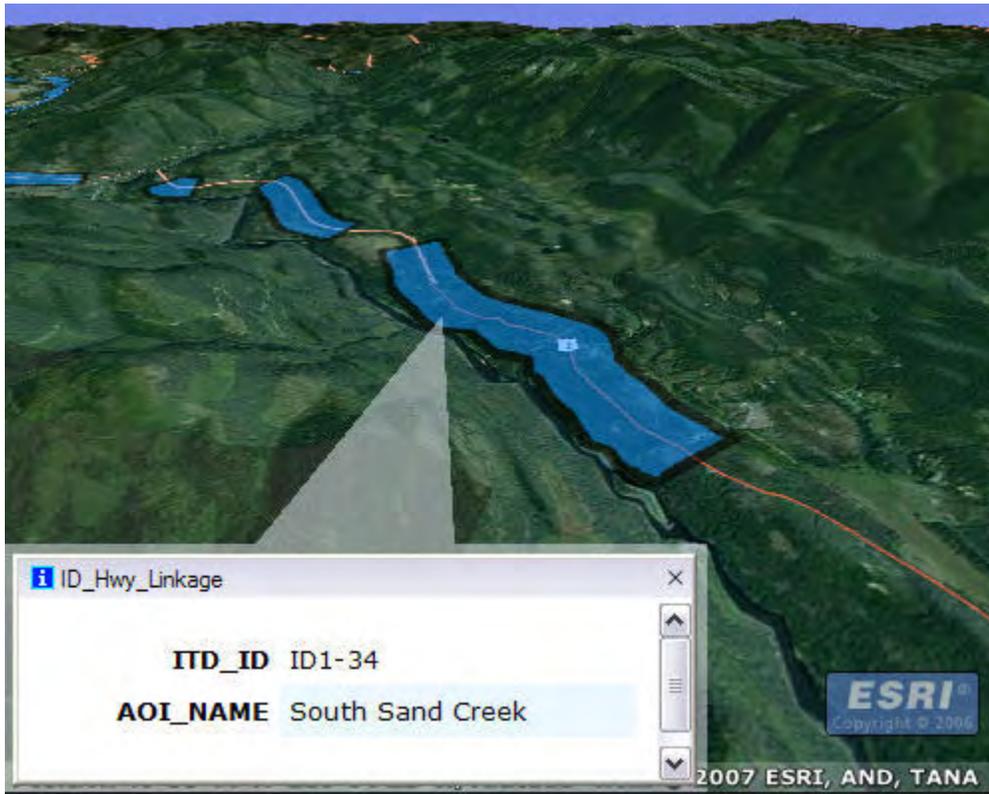
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Logging activity along road recently and quite a bit of road kill. Higher speed traffic entering from Montana. 70 percent of road kill picked up in this area chip

ITD1\_ID: ID1-34



ITD1\_ID: ID1-34

AOI\_NAME: South Sand Creek

PRIORITY: High

SPECIES: white-tail deer/ black bear/ wolf (potential)

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: >20

SEASON:

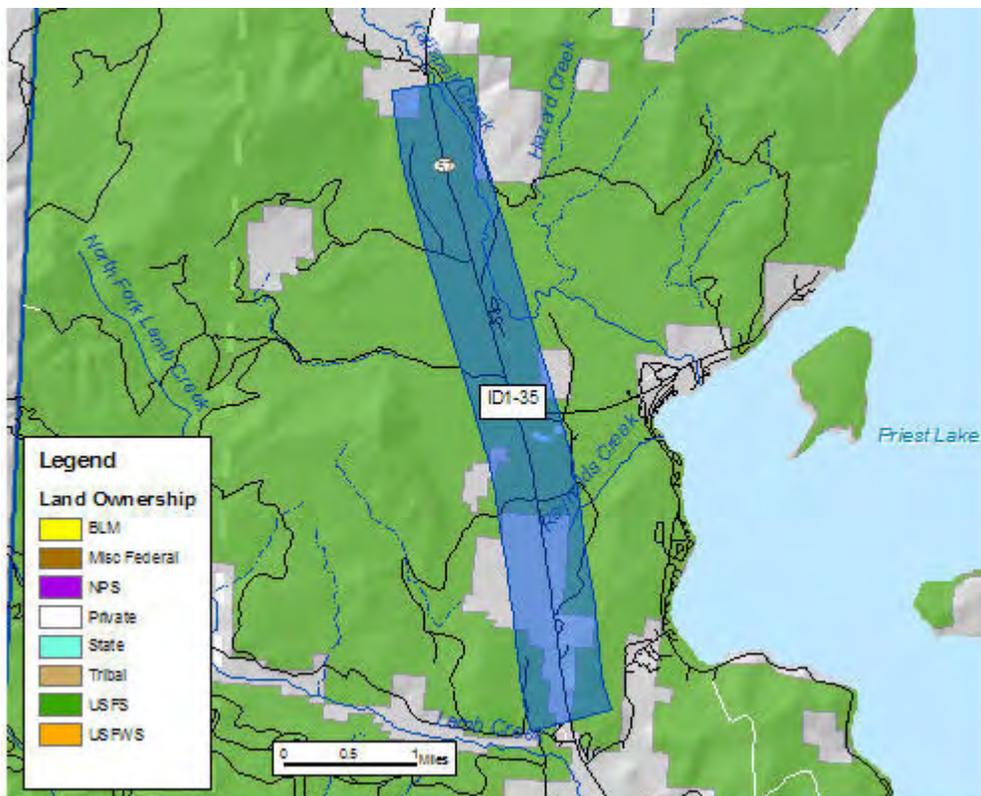
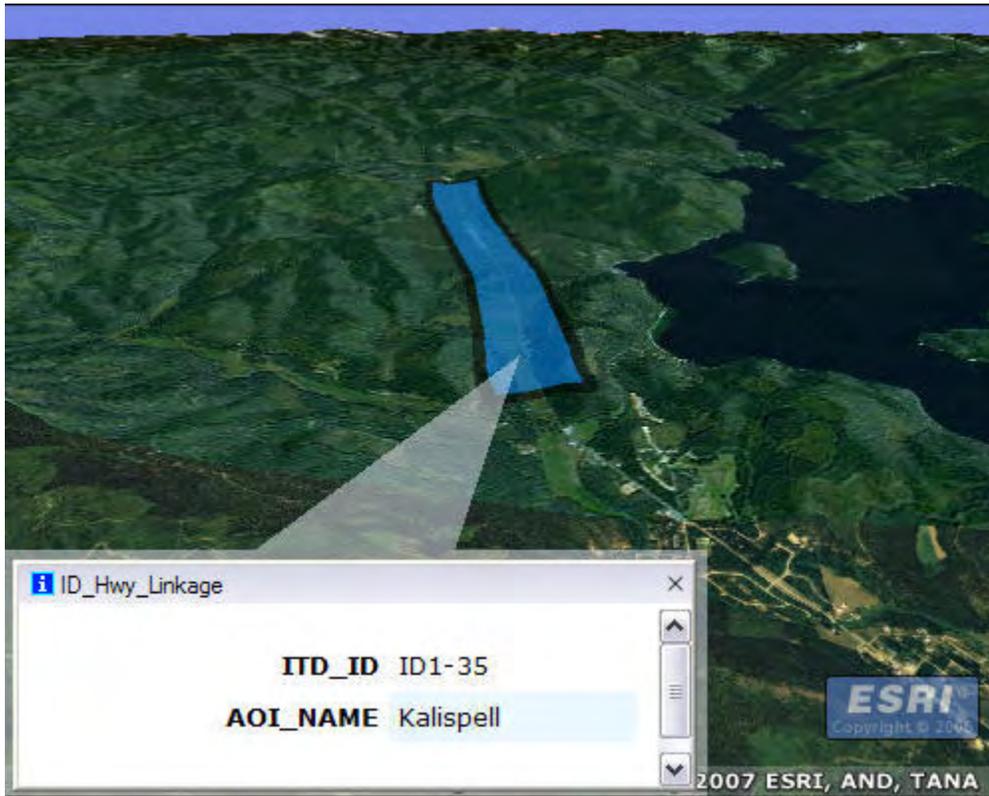
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Elk herd. 70 percent of road kill picked up in this area chip

ITD1\_ID: ID1-35



ITD1\_ID: ID1-35

AOI\_NAME: Kalispell

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ grizzly bear/ mountain lion/  
wolverine

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: 5-20

SEASON:

ATTRACT: wetlands/ forest

AGENCIES:

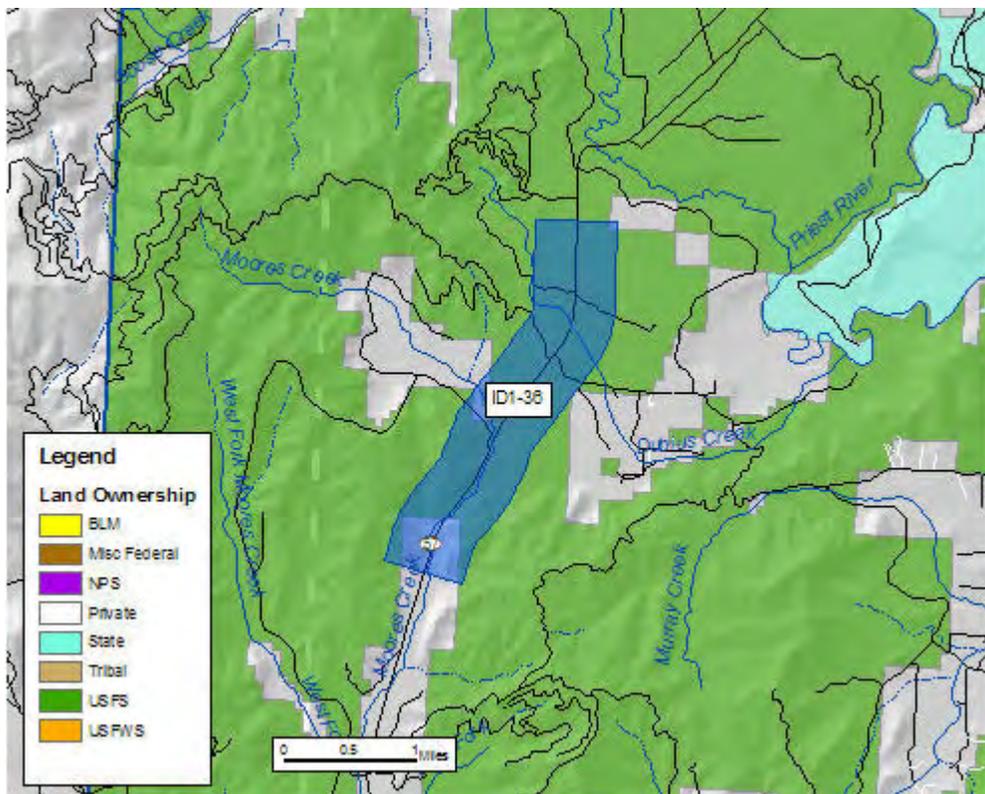
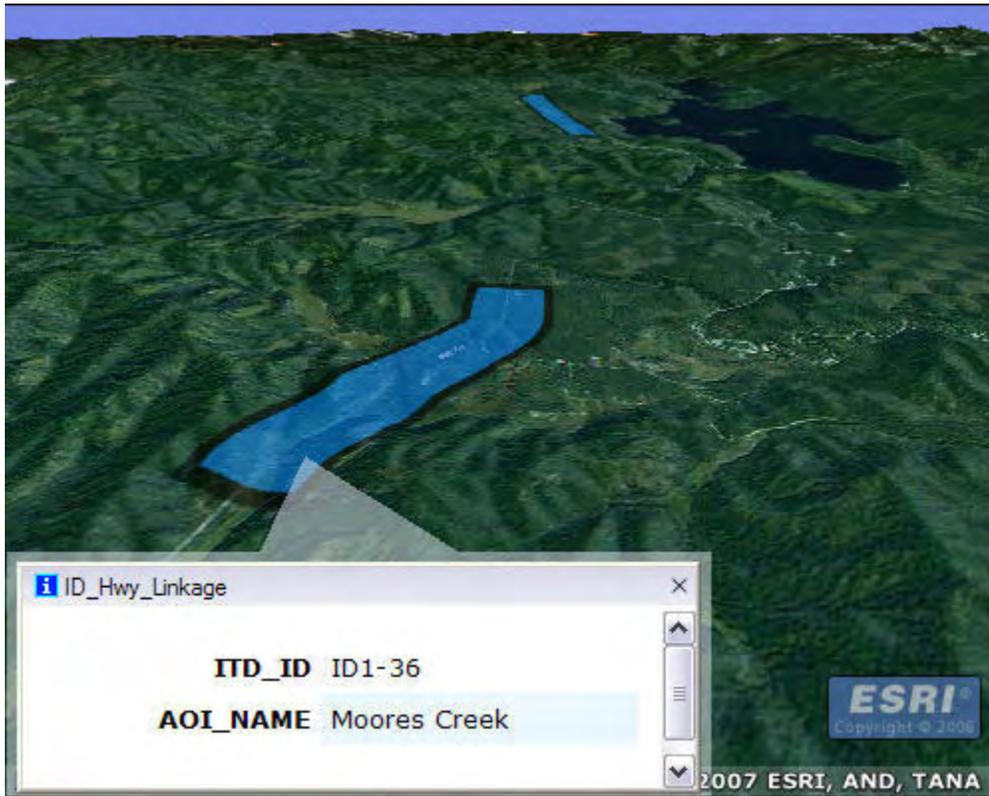
ADDITIONAL COMMENTS:

Wildlife Attractants: Wetlands, forested area; very good habitat

Most common species killed by vehicles: Deer and moose (5-20 killed per year collectively)

Impediments or current threats to the linkage area: Highway, increased recreational traffic.  
Future resurfacing is scheduled for all of Highway 57.

ITD1\_ID: ID1-36



ITD1\_ID: ID1-36

AOI\_NAME: Moores Creek

PRIORITY: Low

SPECIES: white-tail deer/ moose/ black bear/ grizzly bear/ small mammals

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: 5-20

SEASON:

ATTRACT: riparian/wetland

AGENCIES:

ADDITIONAL COMMENTS:

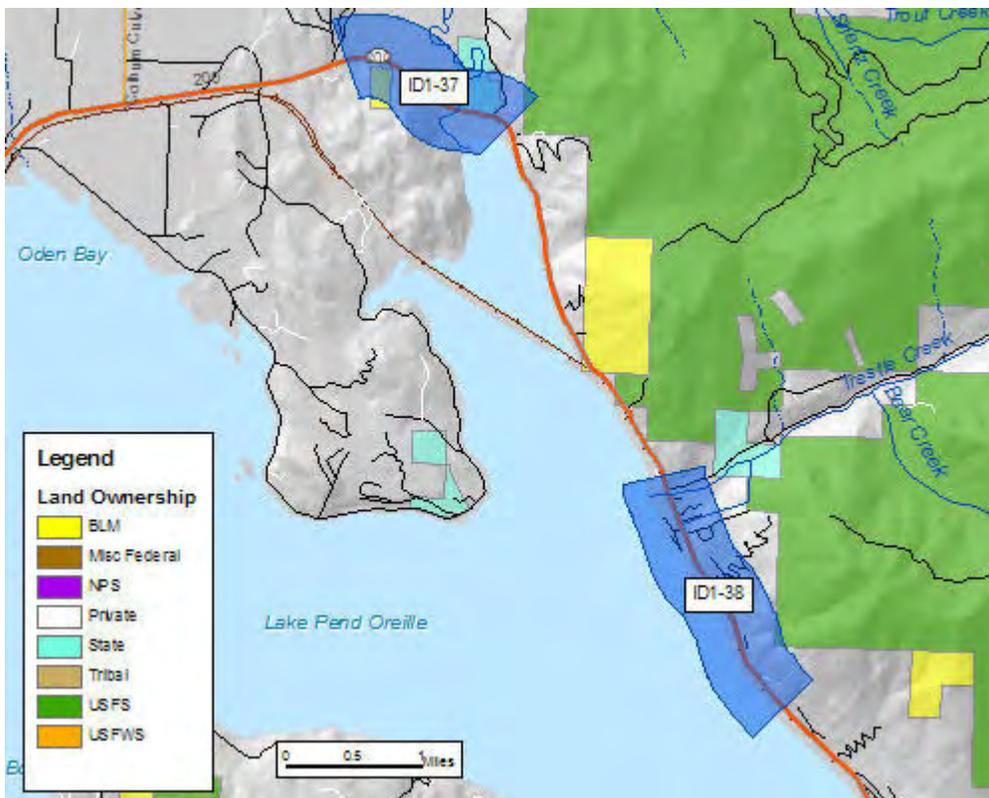
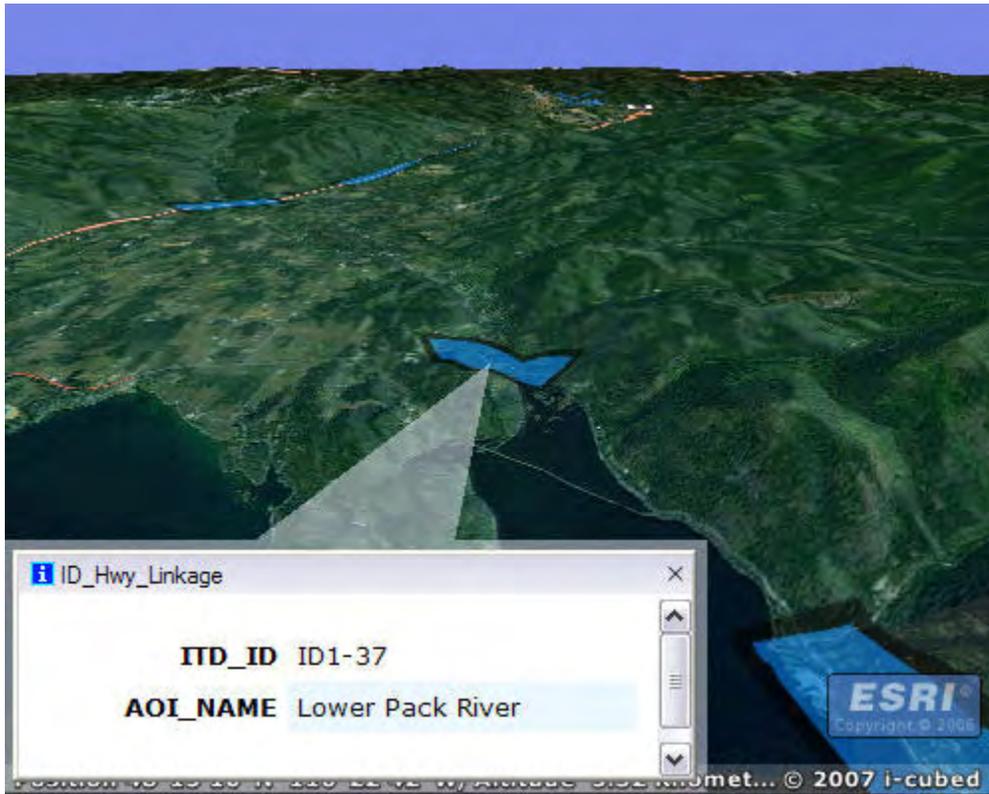
Wildlife Attractants: Priest River; swampy area at MP 16 attracts bear, deer, and moose.

Most common species killed by vehicles: Moose, deer, and black bear (5-20 collectively killed each year)

Effective functioning of linkage area: Very good habitat exists. Currently traffic volume prevents greater road-kill mortality.

Impediments or current threats to the linkage area: Highway traffic

ITD1\_ID: ID1-37



ITD1\_ID: ID1-37

AOI\_NAME: Lower Pack River

PRIORITY: Low

SPECIES: white-tail deer/ moose/ black bear/ bull trout/ misc. aquatic species/  
waterfowl

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

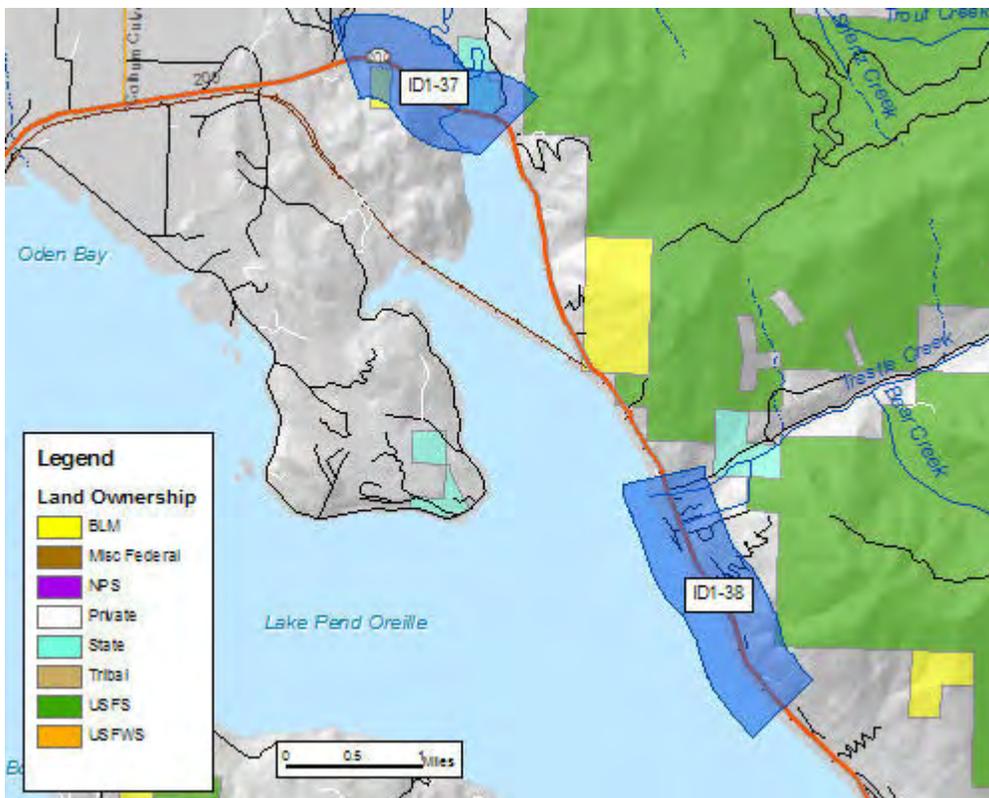
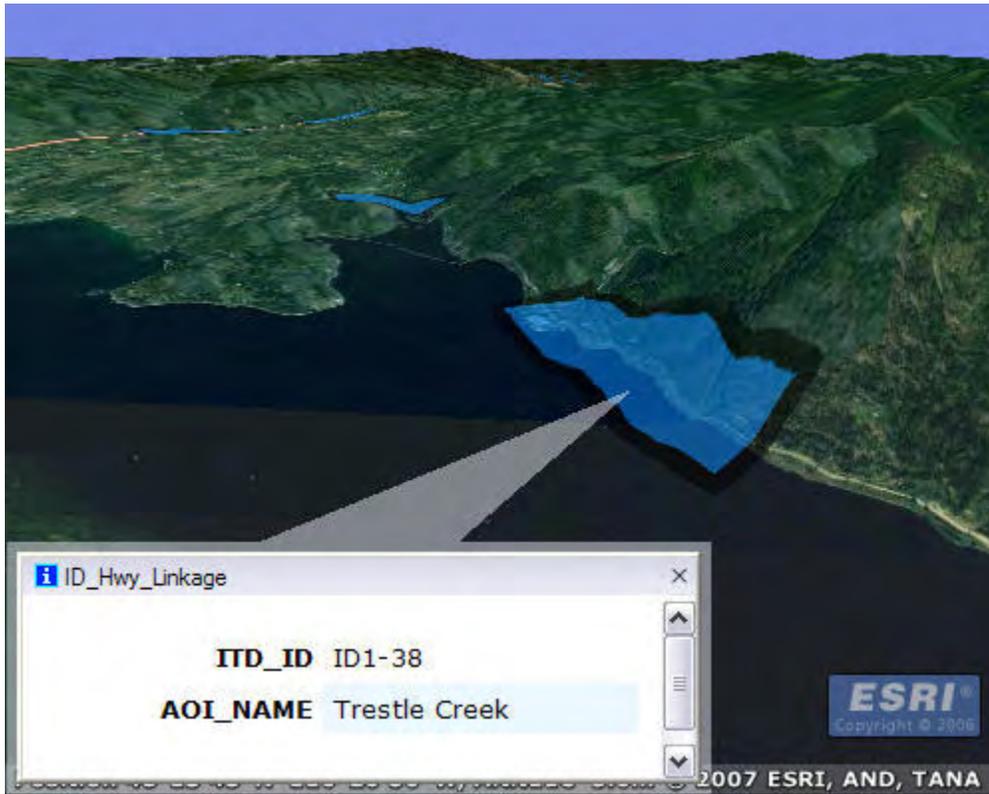
ATTRACT: water/riparian

AGENCIES: State IDFG

ADDITIONAL COMMENTS:

IDFG WMA located within this linkage area. Moose and deer kill area around Pack River and the Hidden Lake Golf Course. Also have noted black bear crossing in the area.

ITD1\_ID: ID1-38



ITD1\_ID: ID1-38

AOI\_NAME: Trestle Creek

PRIORITY: Low

SPECIES: white-tail deer/ elk/ black bear/ grizzly bear/ bull trout

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON:

ATTRACT: lake

AGENCIES:

ADDITIONAL COMMENTS:

Species: Grizzly bears persist in the Scotchman Peak area, but there are no indications they come down to this area.

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities, Recreation site - Campground may attract bears.

Wildlife Attractants: Lake Pend Oreille.

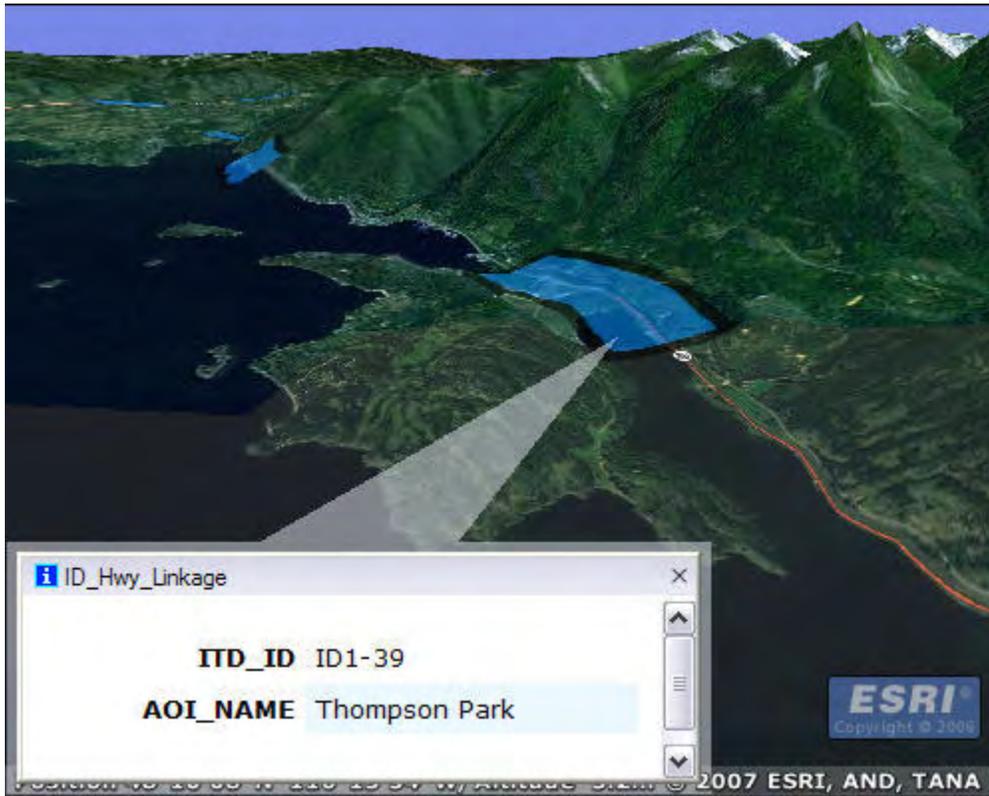
Most common species killed by vehicles: Deer, elk, and black bear (5-20 per year collectively)

Existing conservation easements, land exchanges, etc.: None known

Impediments or current threats to the linkage area: Increased land use.

Opportunities to improve the effectiveness of the linkage area: Trestle Creek bridge replacement scheduled; could benefit bull trout

ITD1\_ID: ID1-39



ITD1\_ID: ID1-39

AOI\_NAME: Thompson Park

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

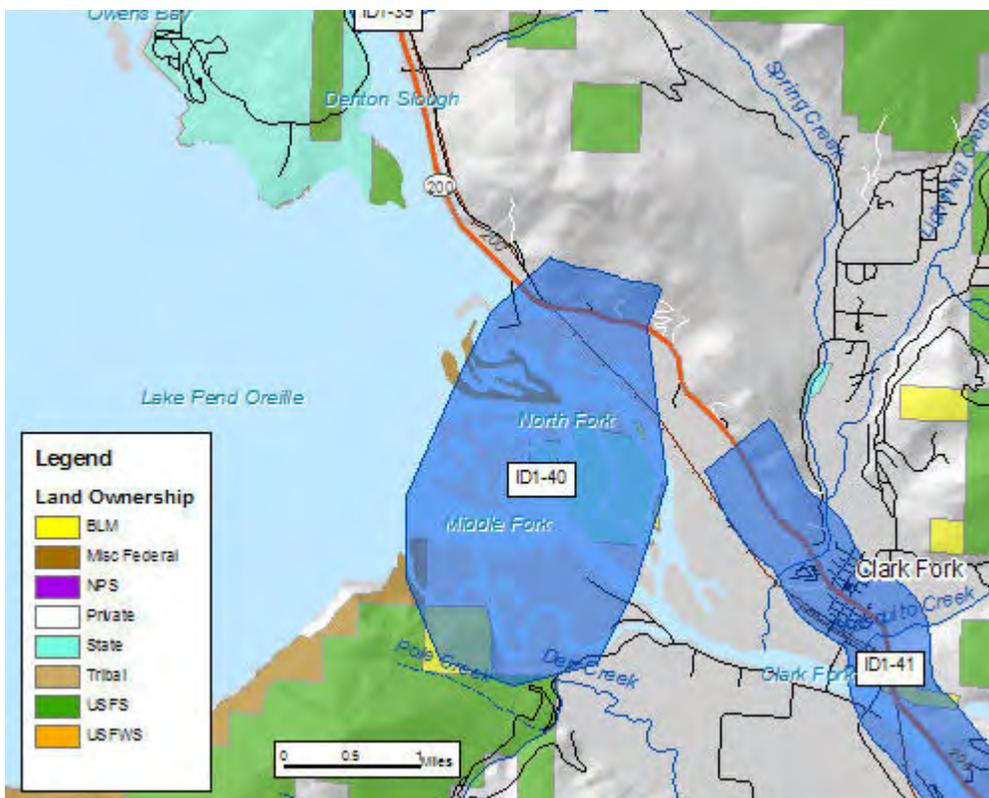
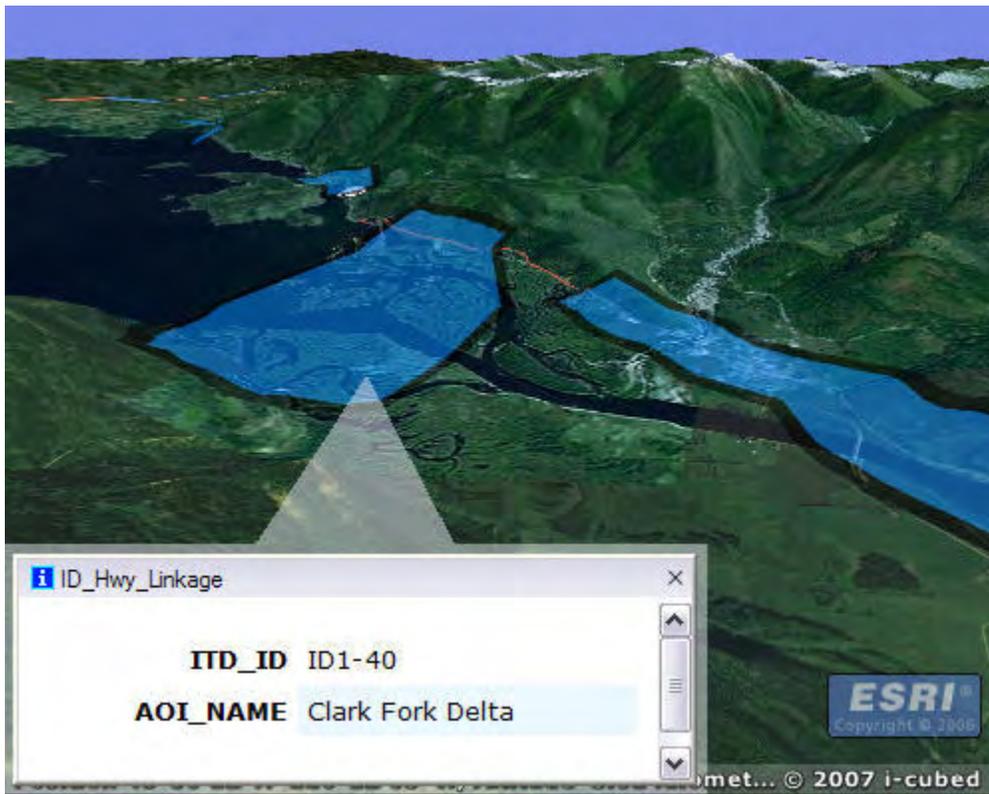
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Samowen game preserve. Numerous deer kills. Mostly deer wildlife refuge on peninsula

ITD1\_ID: ID1-40



ITD1\_ID: ID1-40

AOI\_NAME: Clark Fork Delta

PRIORITY: High

SPECIES: deer/ elk/ moose/ bear/ bull trout

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT:

SEASON:

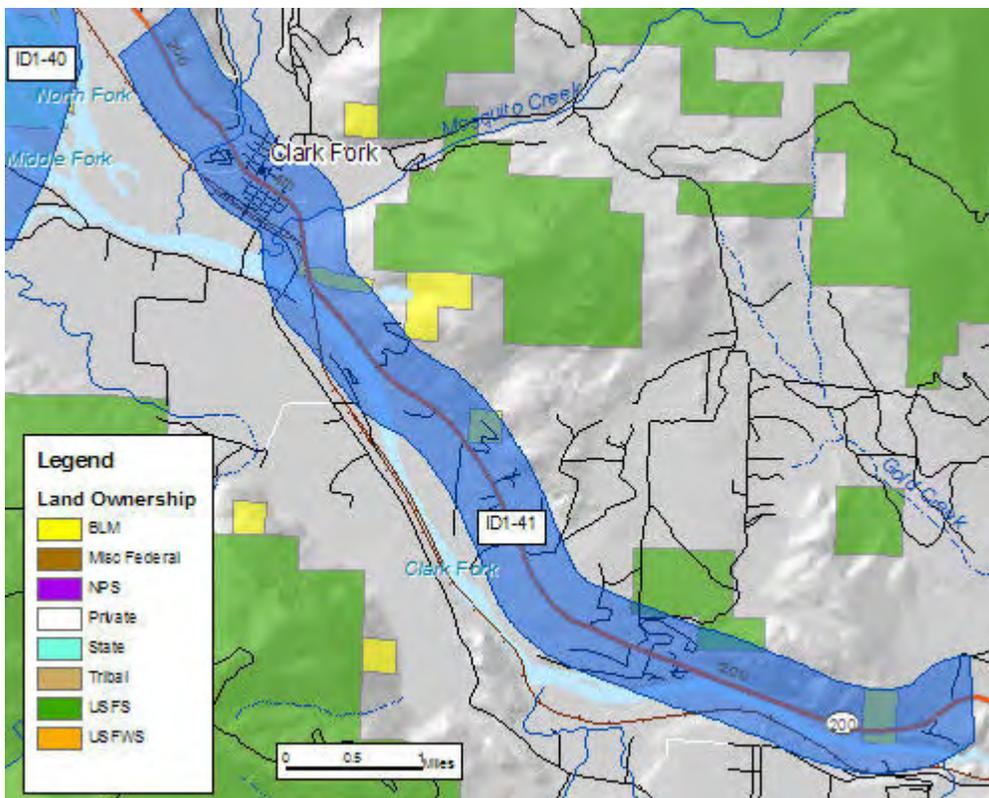
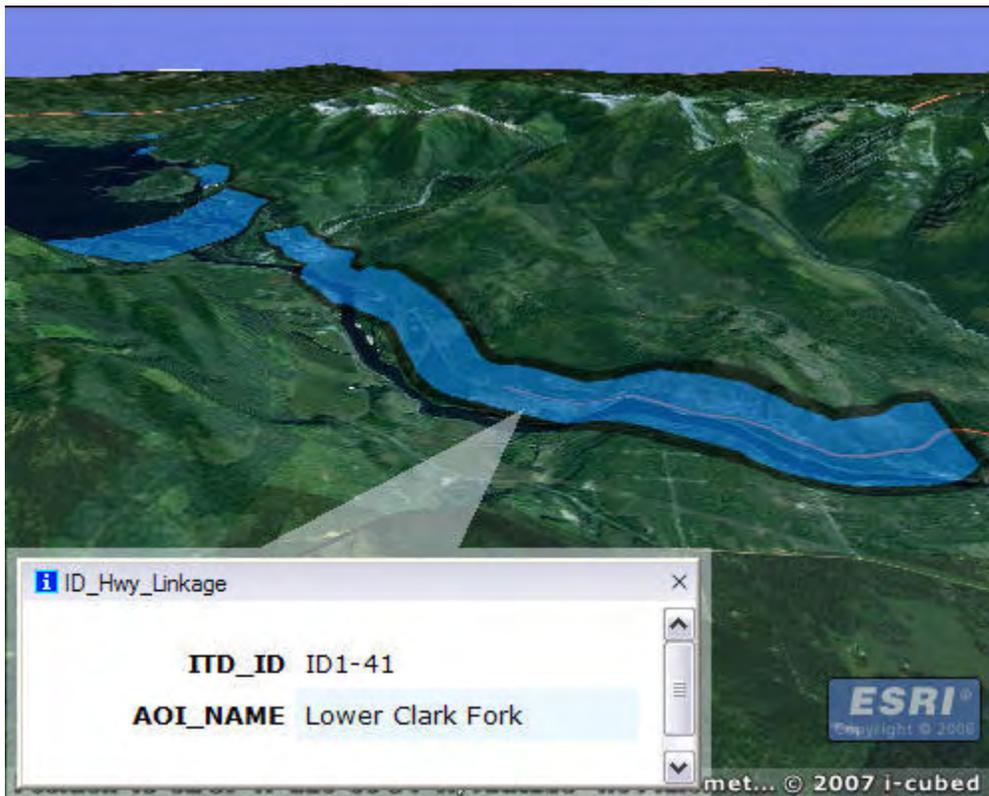
ATTRACT:

AGENCIES: State IDFG

ADDITIONAL COMMENTS:

IDFG WMA located within this linkage area. Wildlife movement north and south across the river delta. Moose and deer mostly with some bear sightings. Linkage N S deer and elk on delta and islands

ITD1\_ID: ID1-41



ITD1\_ID: ID1-41

AOI\_NAME: Lower Clark Fork

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ grizzly bear/ bull trout

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT:

SEASON:

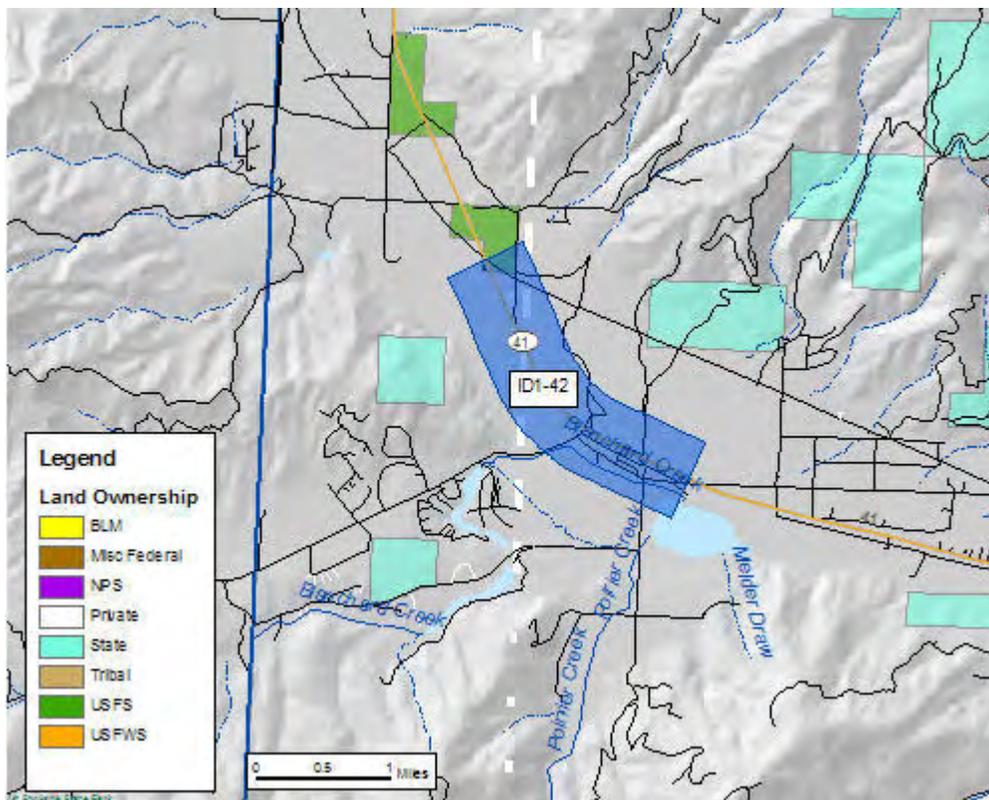
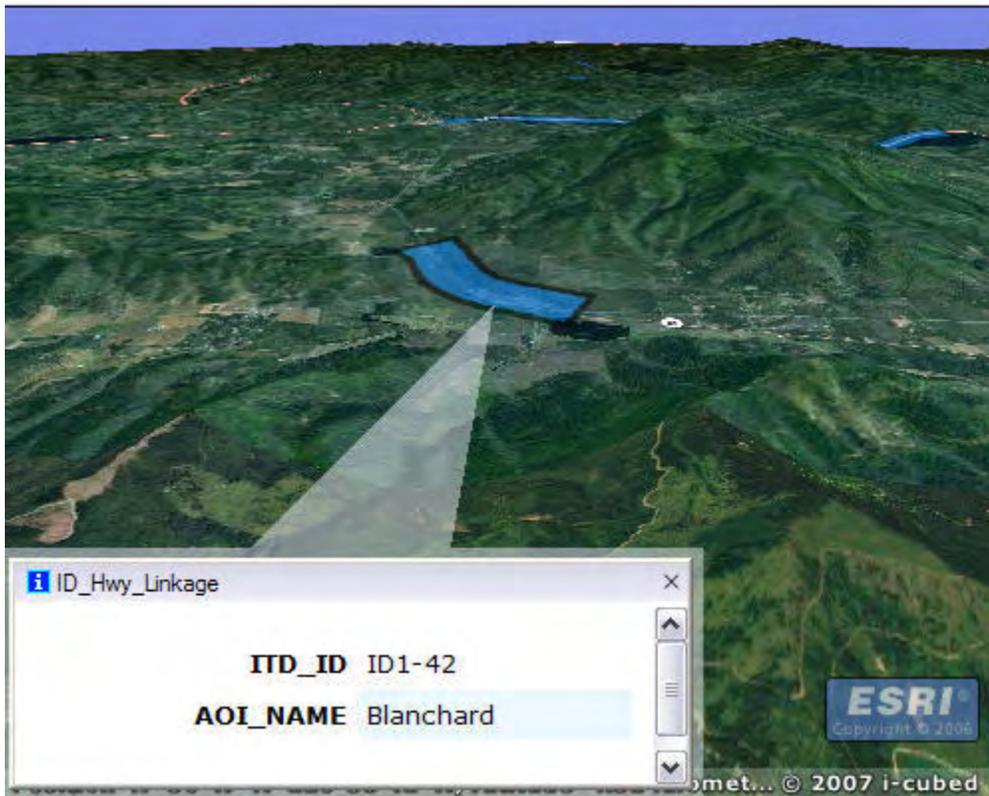
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

BLM land near river. Rock quarry. Some Avista land. Steep sides in canyon. Fish hatchery down stream.

ITD1\_ID: ID1-42



ITD1\_ID: ID1-42

AOI\_NAME: Blanchard

PRIORITY: Moderate

SPECIES: deer/ elk/ black bear

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

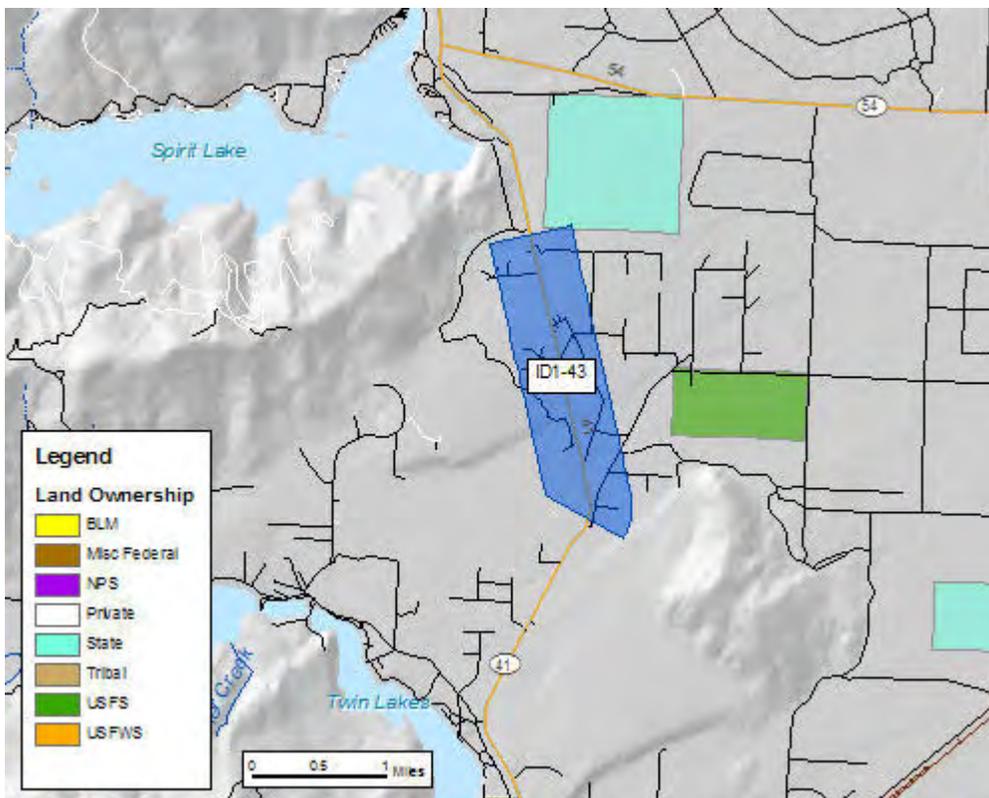
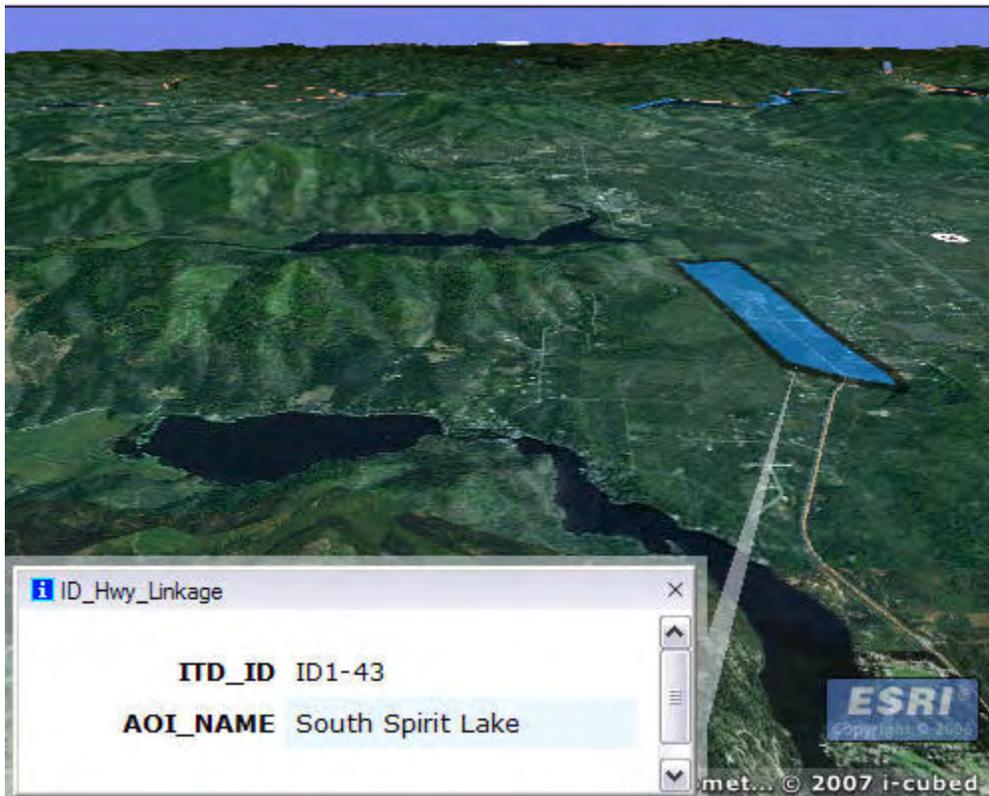
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Elk crossing area with a few elk and deer killed.

ITD1\_ID: ID1-43



ITD1\_ID: ID1-43

AOI\_NAME: South Spirit Lake

PRIORITY: Moderate

SPECIES: deer/ moose/ black bear

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

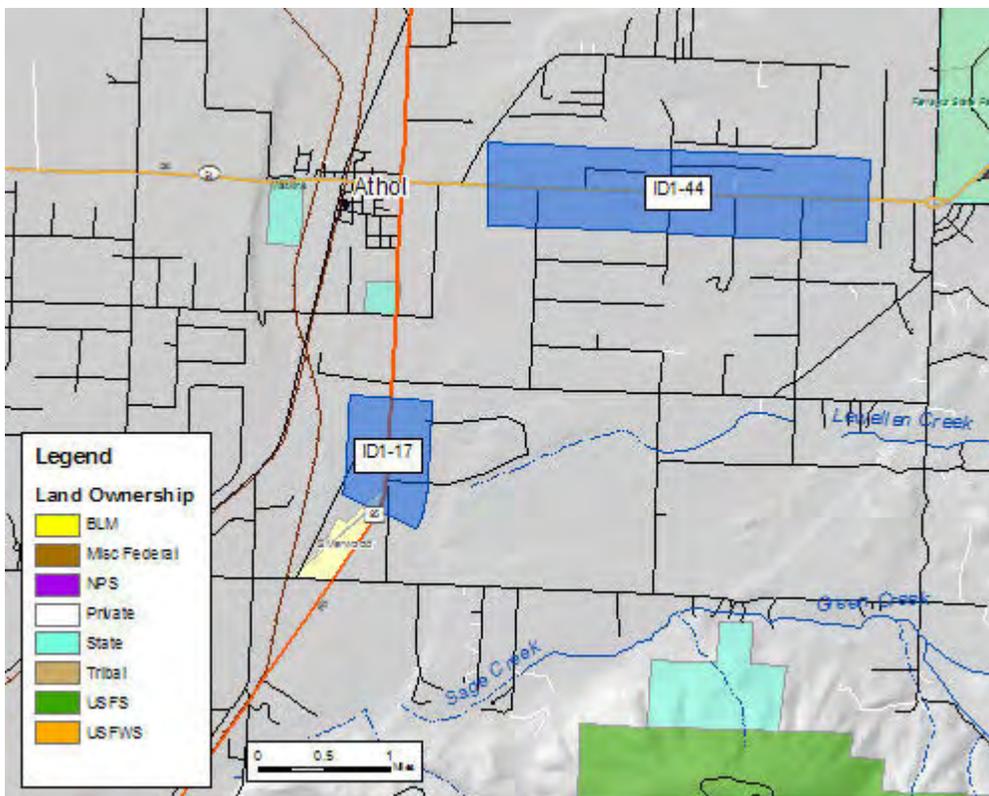
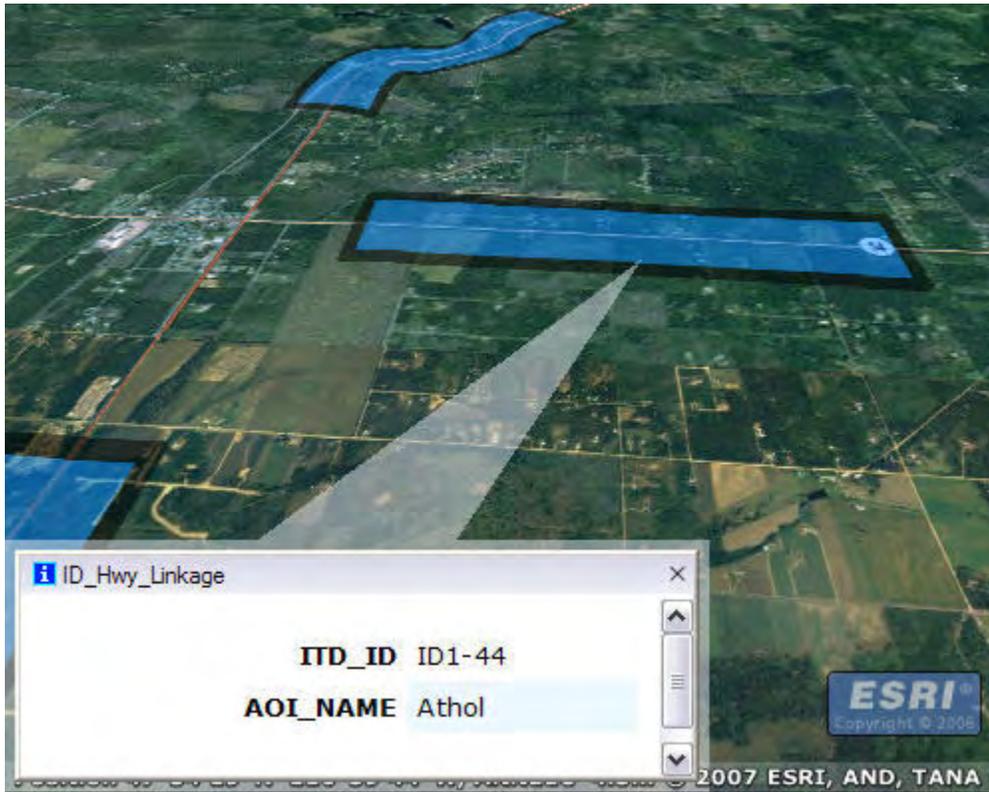
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Moose and deer crossing area with some road kill. Lot of logging recently.

ITD1\_ID: ID1-44



ITD1\_ID: ID1-44

AOI\_NAME: Athol

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE:

HWY\_MORT:

SEASON:

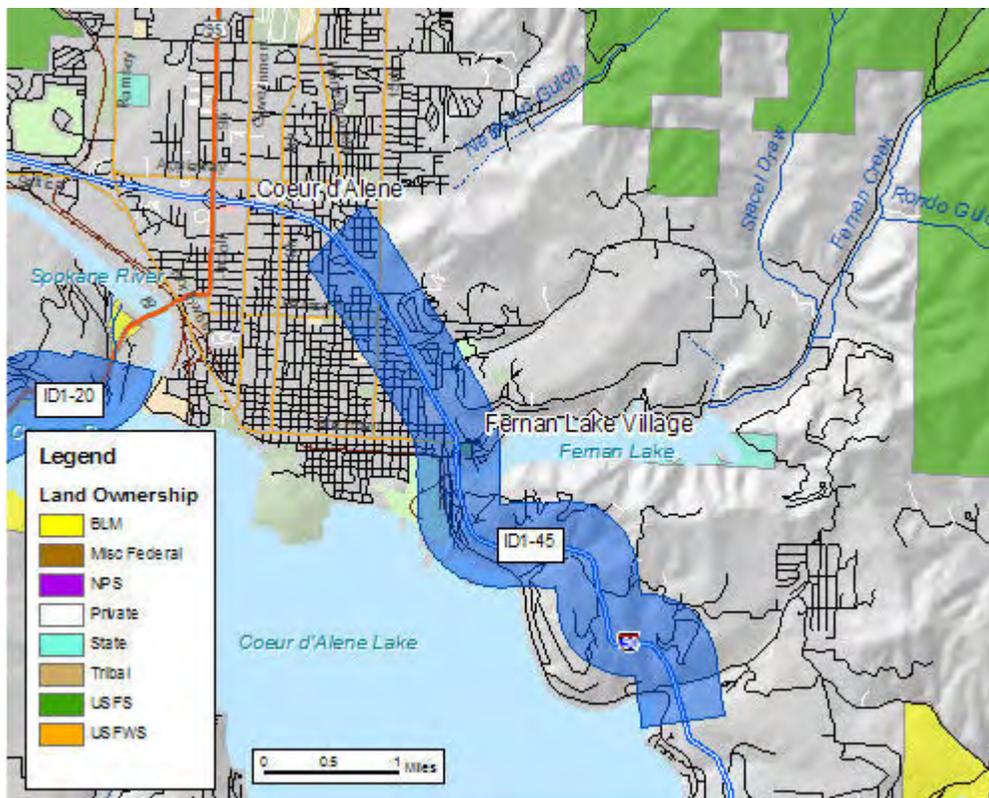
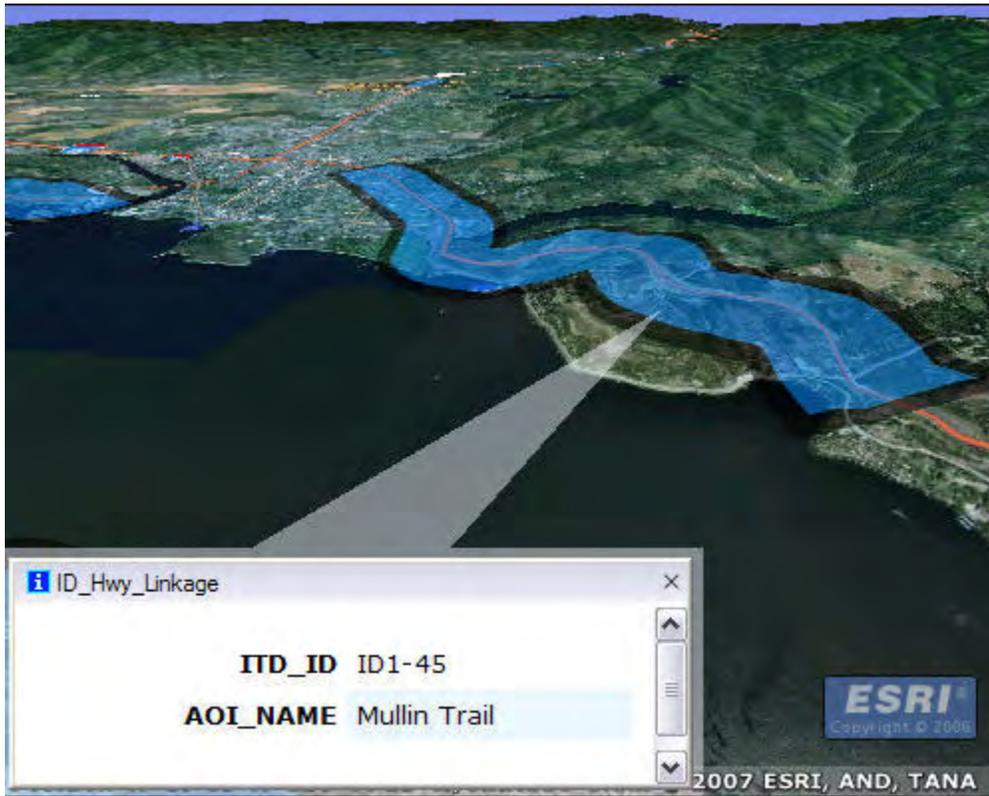
ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Highway safety issue due to collisions with white-tail deer.

ITD1\_ID: ID1-45



ITD1\_ID: ID1-45

AOI\_NAME: Mullin Trail

PRIORITY: Low

SPECIES: white-tail deer/ elk/ black bear

MIG\_POP:

LOC\_POP: Local

SCALE: Local

HWY\_MORT: 28 deer killed in 6-mo period (Apr-Sep 07)

SEASON: Year-round

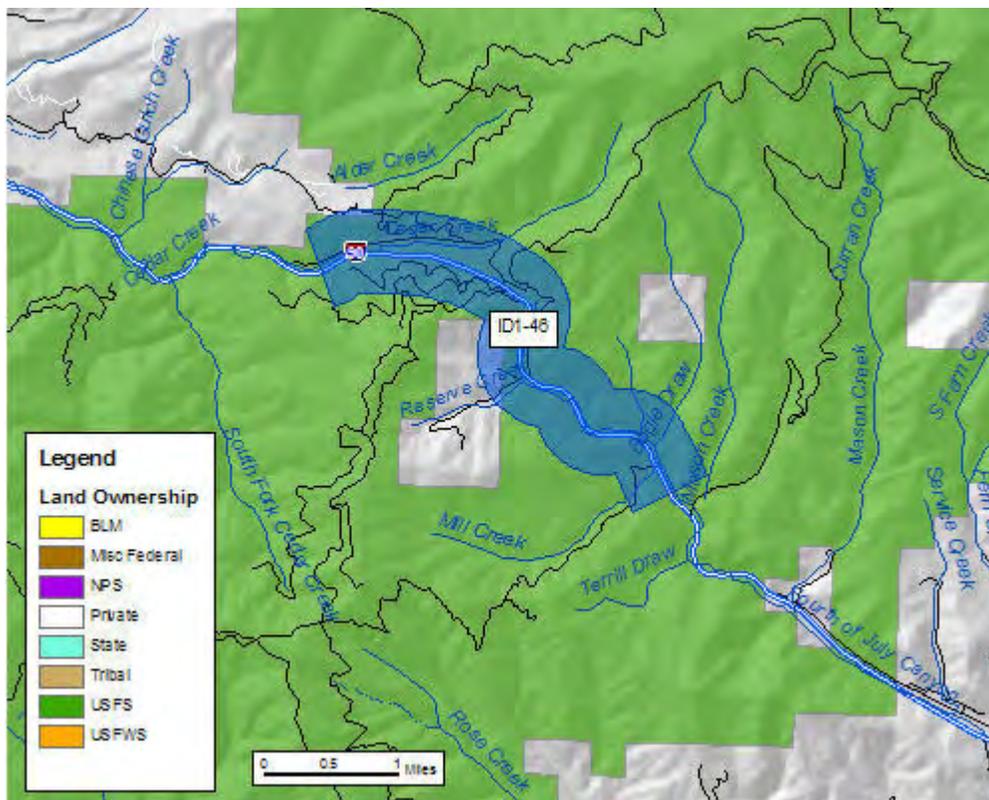
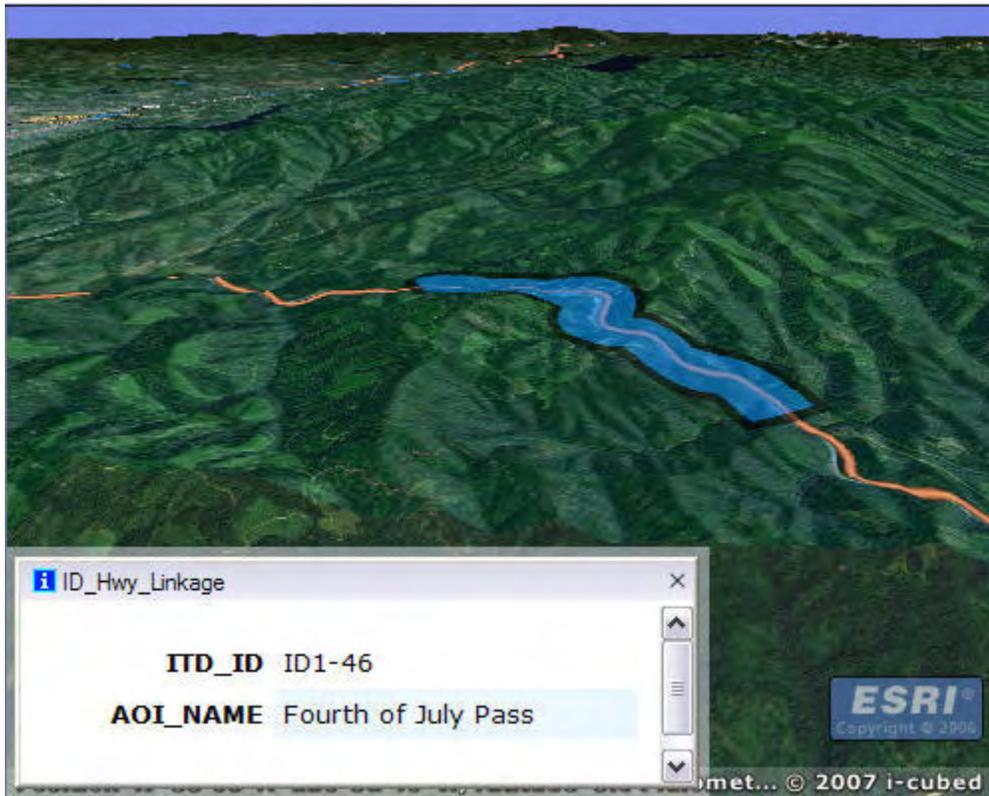
ATTRACT: Residential homes

AGENCIES:

ADDITIONAL COMMENTS:

Elk crossing area and road kill area. Between 1 April & mid-September 2007, 28 white-tailed deer were known killed, based on animals picked up by ITD personnel (Greg Munden, 4-22-08).

ITD1\_ID: ID1-46



ITD1\_ID: ID1-46

AOI\_NAME: Fourth of July Pass

PRIORITY: High

SPECIES: mule deer/ white-tail deer/ elk/ mountain lion/ wolf

MIG\_POP:

LOC\_POP:

SCALE:

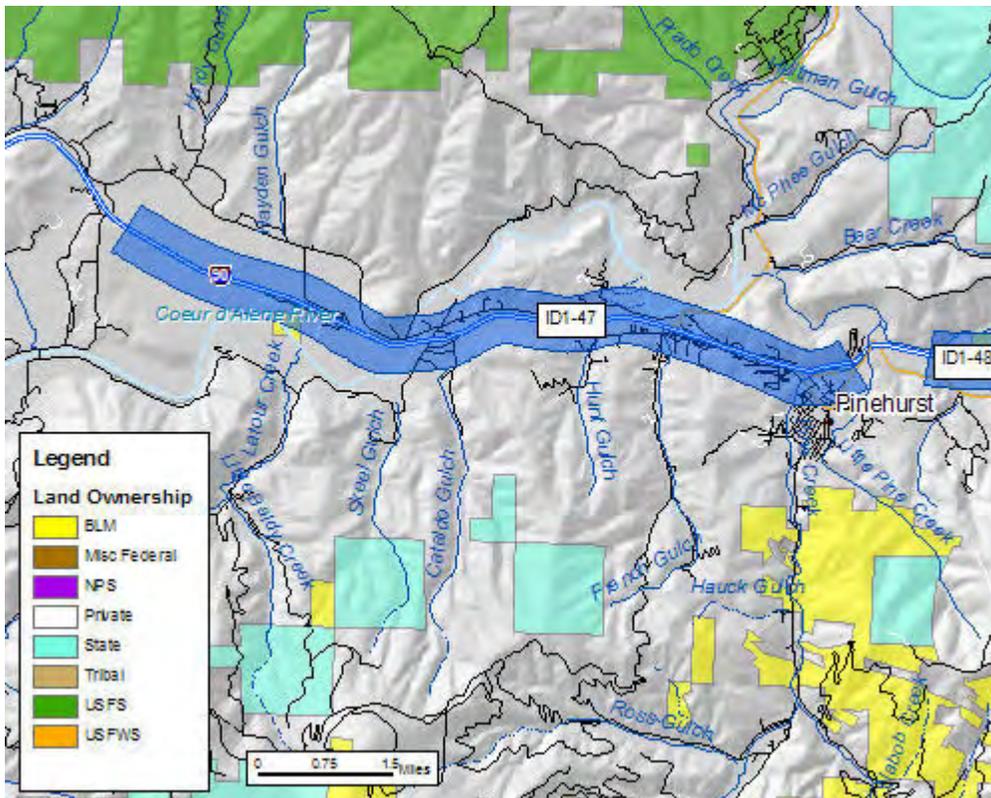
HWY\_MORT:

SEASON:

ATTRACT:

AGENCIES:

ITD1\_ID: ID1-47



ITD1\_ID: ID1-47

AOI\_NAME: Cataldo

PRIORITY: High

SPECIES: mule deer/ white-tail deer/ elk/ moose/ black bear/ mountain lion/  
reptiles/  
amphibians/ nesting bald eagle area

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: >20 (5-6 moose killed per year)

SEASON:

ATTRACT: fruit trees, riparian

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities.

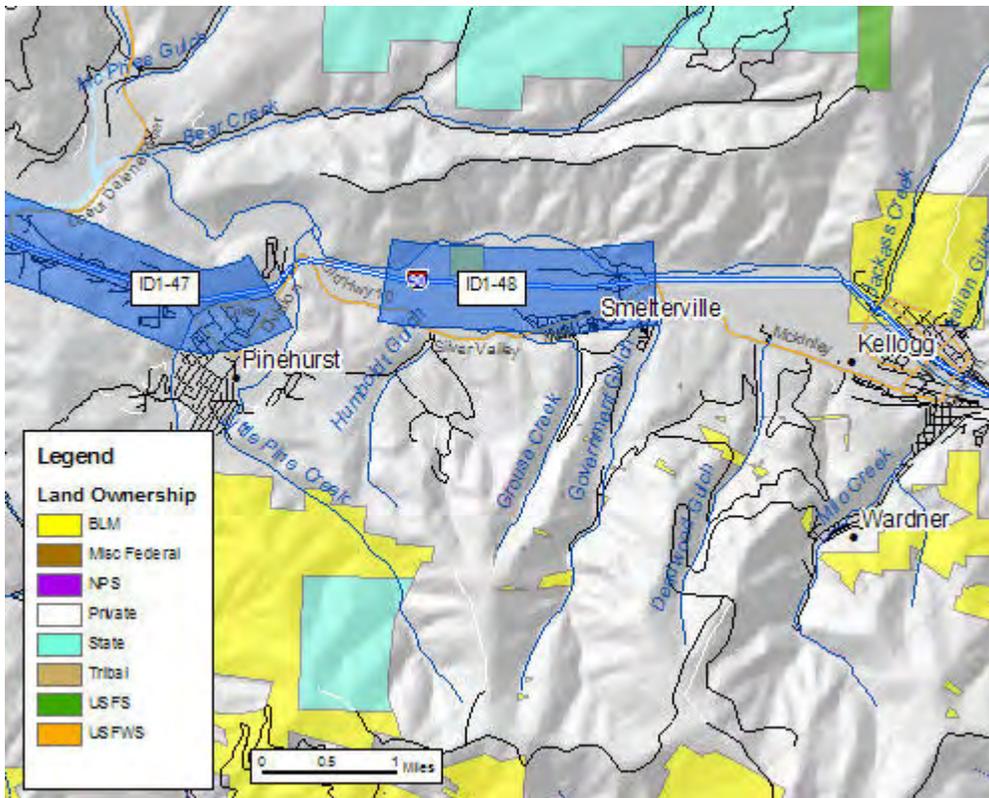
Wildlife Attractants: Possible fruit trees, Coeur d'Alene River.

Most common species killed by vehicles: More than 20 white-tailed deer, elk, and moose are collectively killed each year. Most are deer. At least 5-6 moose are killed in the Cataldo area each year, based on animals picked up by ITD personnel (Greg Munden, 4-22-08).

Effective functioning of linkage area: Poorly

Opportunities to improve the effectiveness of the linkage area: None known. ITD is now using salt brine sprayed on roadways, which is probably attracting wildlife.

ITD1\_ID: ID1-48



ITD1\_ID: ID1-48

AOI\_NAME: Smelterville

PRIORITY: High

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON:

ATTRACT: garbage, riparian/wetlands

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities.

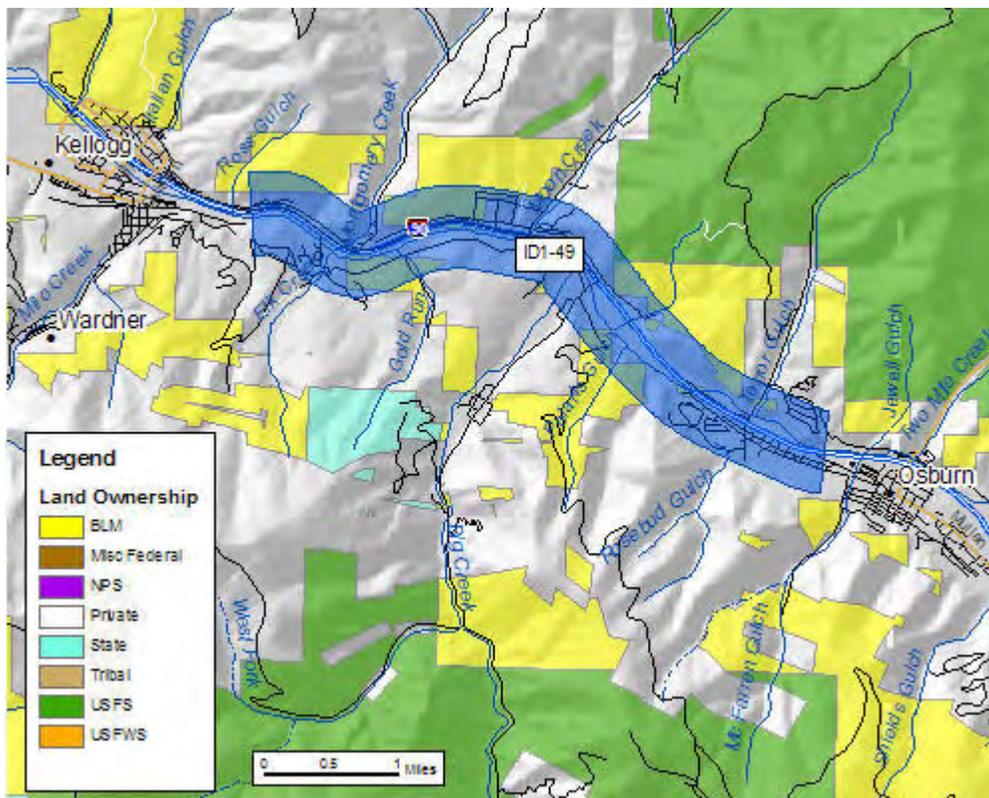
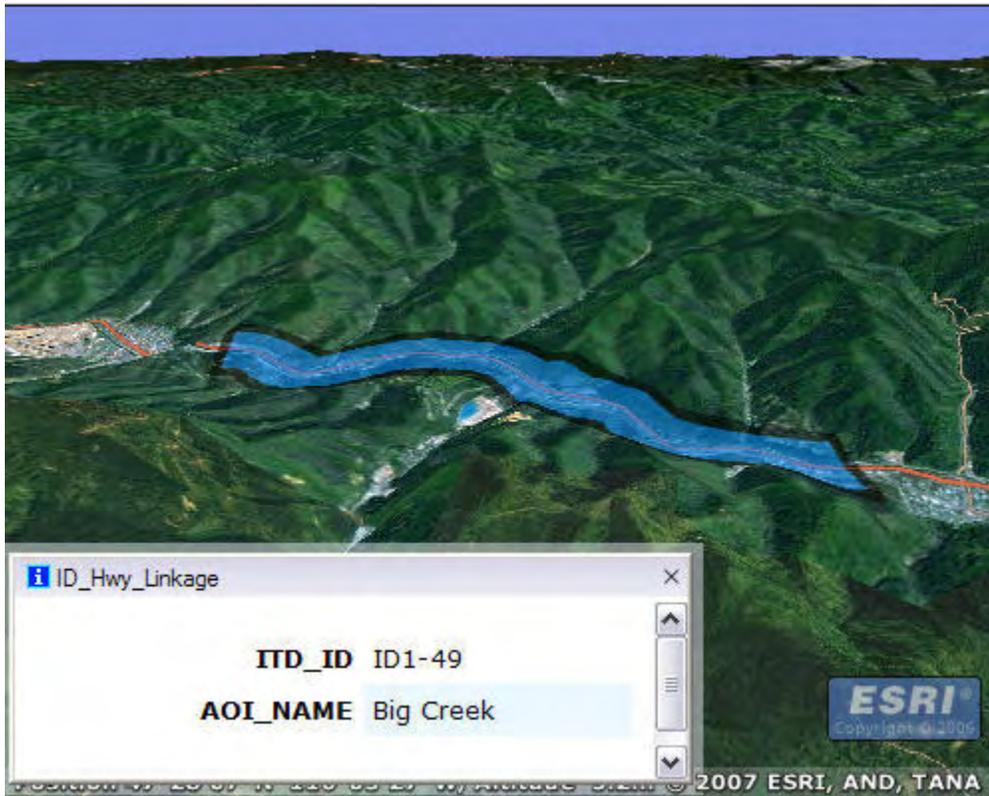
Wildlife Attractants: Garbage containers. Coeur d'Alene River, wetlands (swamp).

Most common species killed by vehicles: 5-20 moose, elk, and white-tailed deer are collectively killed each year.

Impediments or current threats to the linkage area: Housing development; possible future development on north side of Interstate 90.

Opportunities to improve the effectiveness of the linkage area: Resurfacing of I 90 is scheduled within the next 3 years in this area.

ITD1\_ID: ID1-49



ITD1\_ID: ID1-49

AOI\_NAME: Big Creek

PRIORITY: Low

SPECIES: mule deer/ white-tail deer/ elk/ moose/ black bear/ mountain lion/  
bobcat/  
wolf/ wolverine

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON:

ATTRACT:

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities, Garbage dump. The County transfer (dump) station is location in this area.

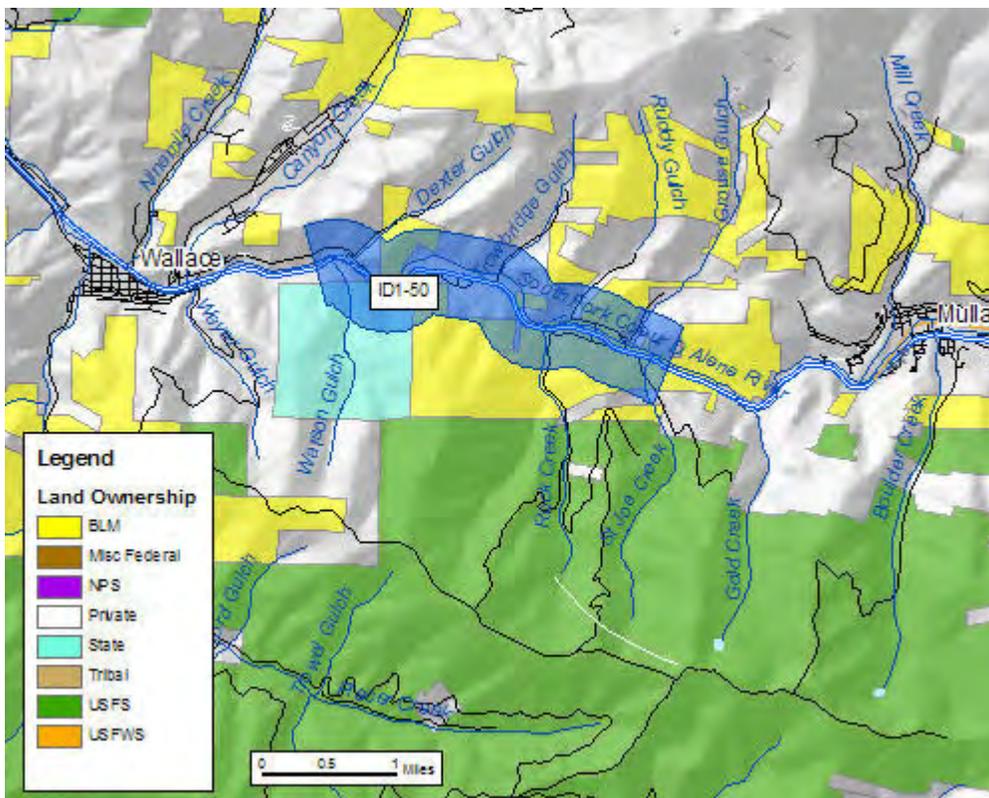
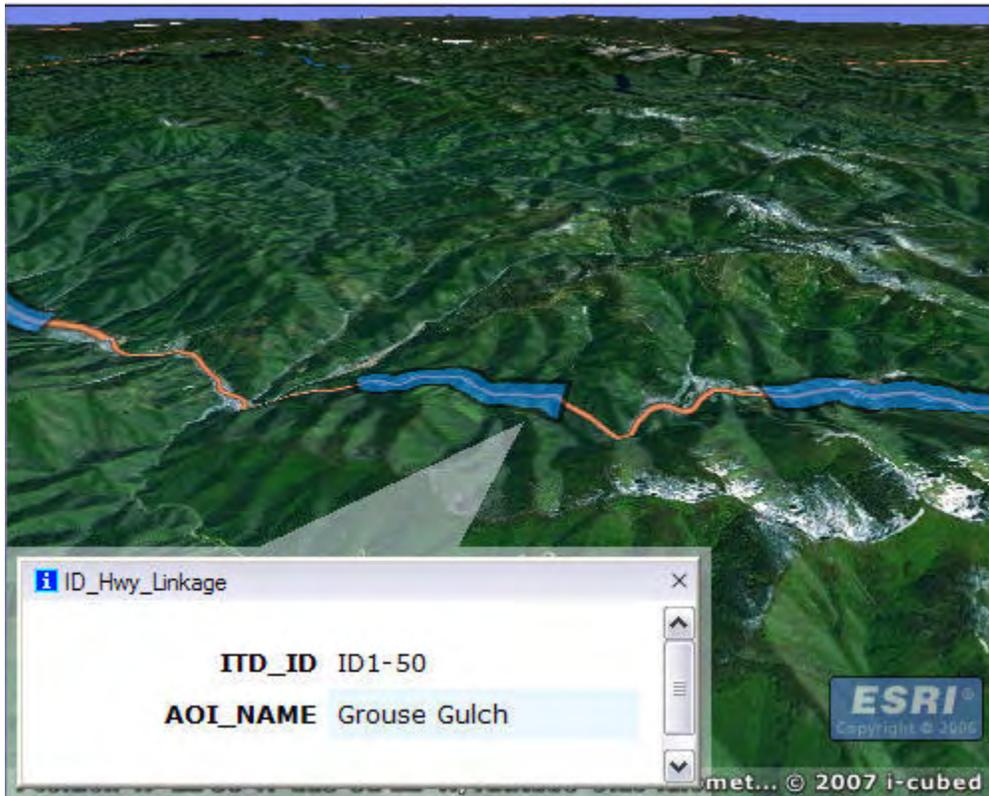
Most common species killed by vehicles: 5-20 white-tailed deer, elk, and moose (combined total are killed each year).A black bear carcass was found along the highway in 2007.

Impediments or current threats to the linkage area: Increased vehicle traffic.

Opportunities to improve the effectiveness of the linkage area: None.

Deer crossings by telemetry both mule deer and whitetail.

ITD1\_ID: ID1-50



ITD1\_ID: ID1-50

AOI\_NAME: Grouse Gulch

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ wolf

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON:

ATTRACT: riparian

AGENCIES:

ADDITIONAL COMMENTS:

Scale: Popular big-game hunting area on both sides of I90 in this area.

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities

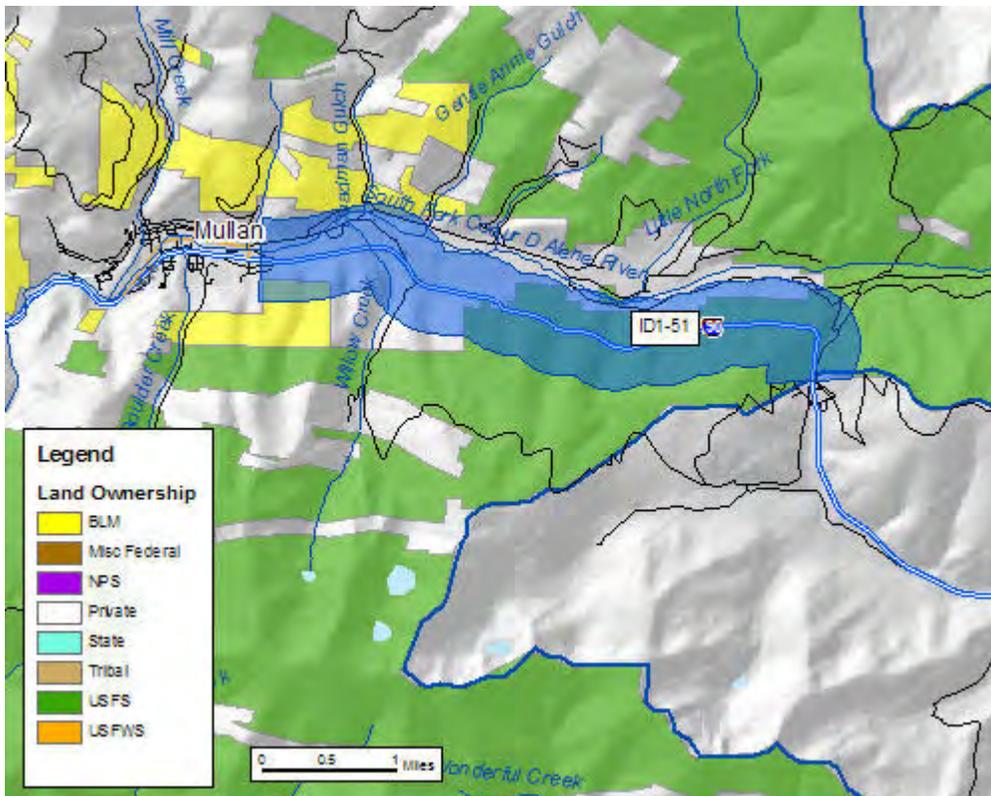
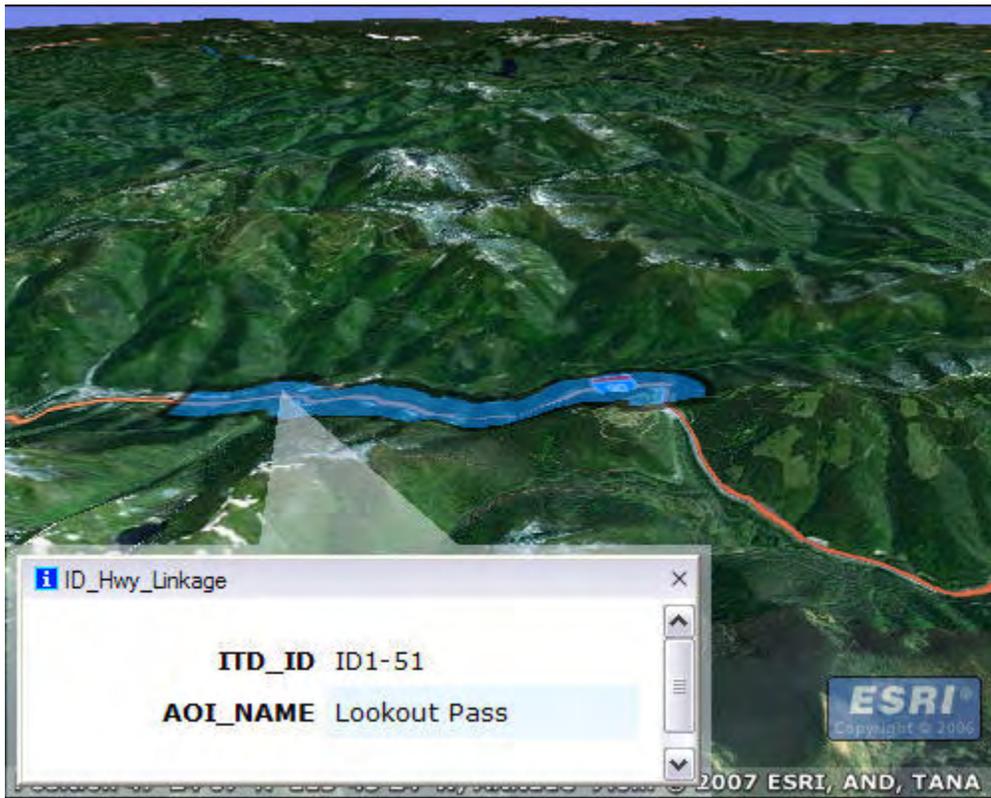
Wildlife Attractants: Coeur d'Alene River.

Most common species killed by vehicles: A collective total of 5-20 white-tailed deer, elk, moose, and occasional black bear are killed each year. A wolf was road-killed during summer 2007 near MP 66.

Rare, threatened, or endangered species killed by collisions with vehicles or trains: Wolf (summer 2007 near MP 66).

Impediments or current threats to the linkage area: Salt brine attracting wildlife

ITD1\_ID: ID1-51



ITD1\_ID: ID1-51

AOI\_NAME: Lookout Pass

PRIORITY: High

SPECIES: white-tail deer/ elk/ moose/ black bear/ grizzly bear/ mountain lion/  
wolf/  
wolverine/ marten/ fisher/ lynx

MIG\_POP:

LOC\_POP:

SCALE: Ecosystem

HWY\_MORT: <5

SEASON:

ATTRACT: topography

AGENCIES:

ADDITIONAL COMMENTS:

Species: Three wolves were observed on 16 or 17 March 2007 at Lookout Pass.

Scale: Major ridge, Bitterroot Mountain divide.

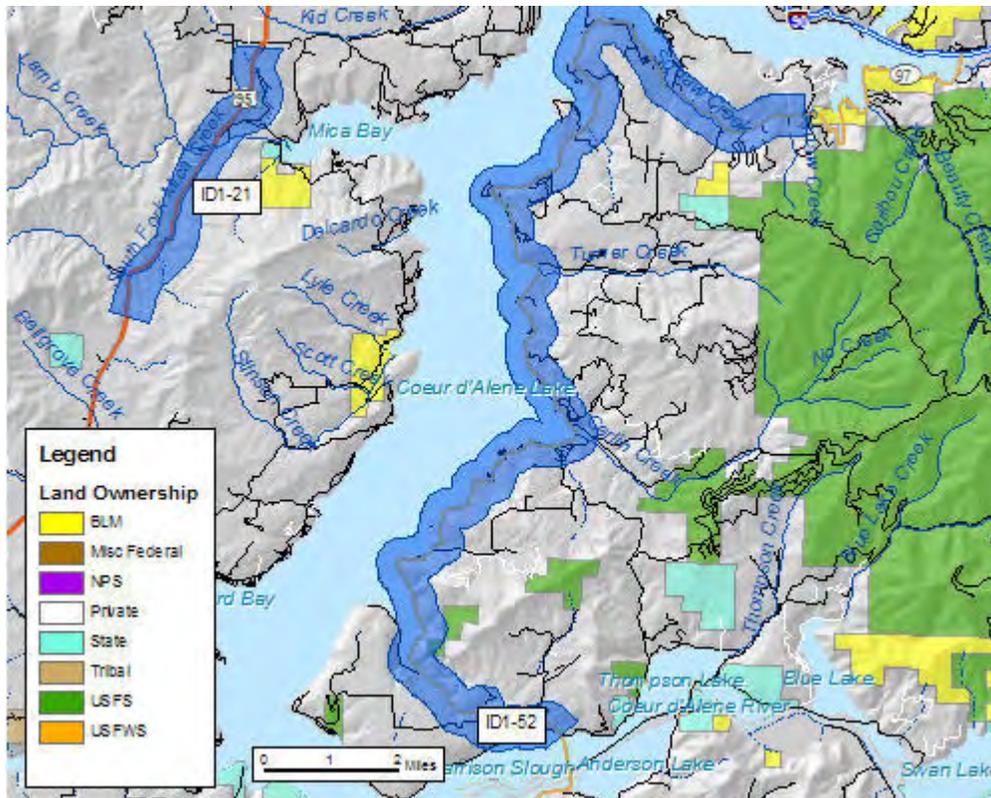
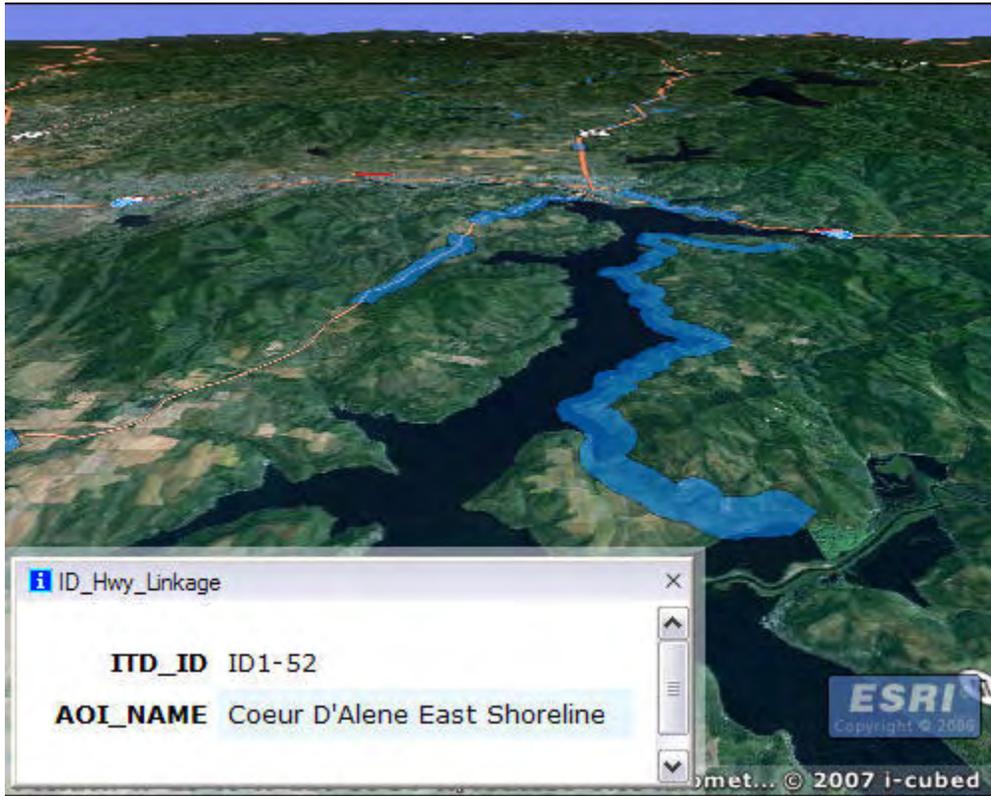
Permanent Human Presence: Recreation site

Wildlife Attractants: Ridges are natural movement areas for many wildlife species.

Most common species killed by vehicles: Less than 5 white-tailed deer and occasional elk are killed each year

Impediments or current threats to the linkage area: Increased winter sports activities.

ITD1\_ID: ID1-52



ITD1\_ID: ID1-52

AOI\_NAME: Coeur D'Alene East Shoreline

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ turkeys

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: white-tail deer

SEASON: Winter

ATTRACT: non-native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

Important Seasons: Winter - Significant deer winter range. However, deer occur throughout the area during all seasons.

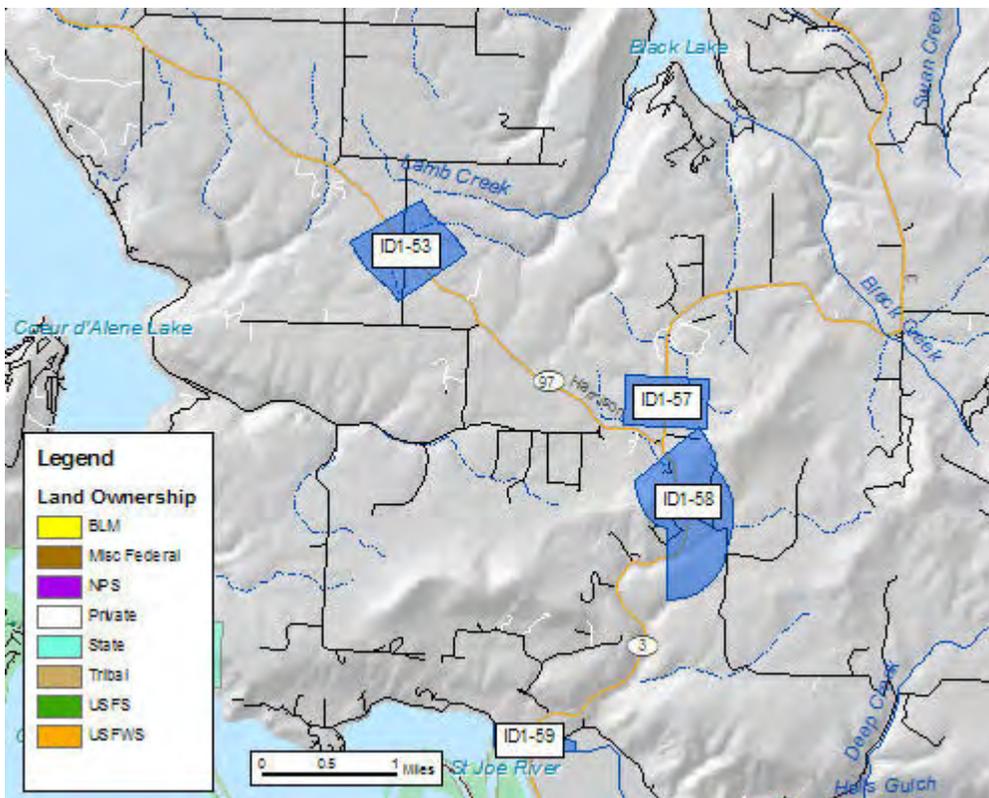
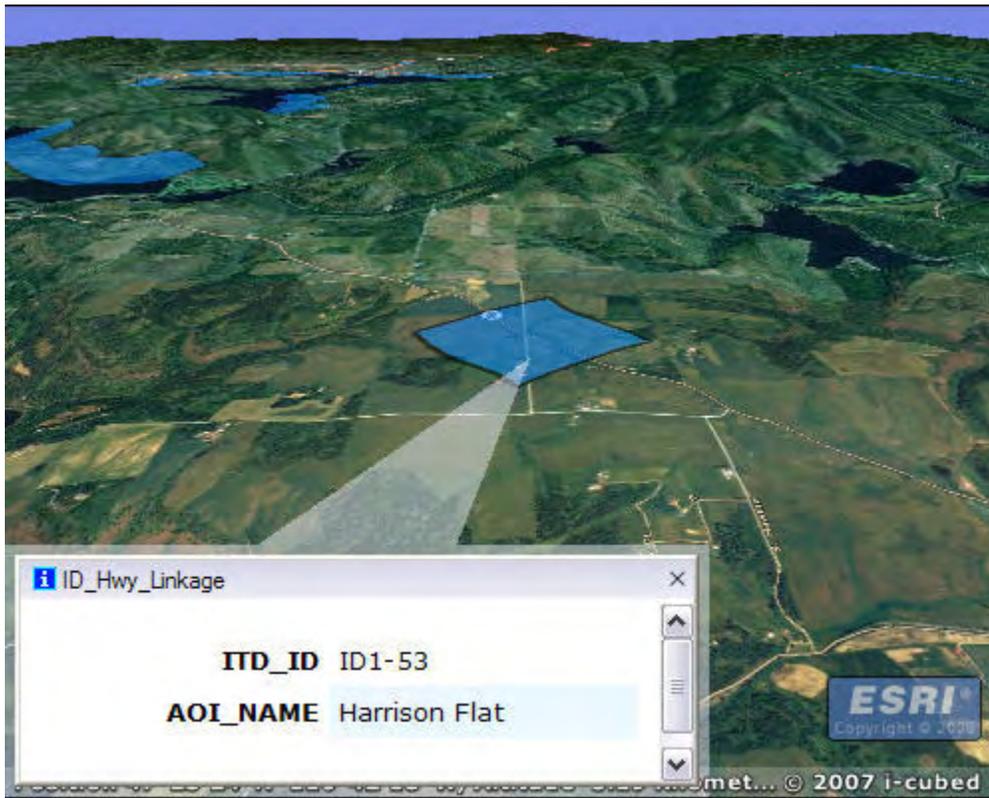
Permanent Human Presence: Residential homes, Recreation site. Area is adjacent to Lake Coeur d'Alene, a popular recreation area with many summer/weekend homes and permanent residences.

Wildlife Attractants: Ornamental shrubs and other attractive non-native vegetation.

Effective functioning of linkage area: There are no provisions to facilitate wildlife passage. Nonetheless, wildlife are found along the highway. Because the highway has many curves, traffic speeds are kept down, which helps to reduce road-kills.

Opportunities to improve the effectiveness of the linkage area: There are ongoing discussions about improving the highway to address expected increased traffic due to further human development.

ITD1\_ID: ID1-53



ITD1\_ID: ID1-53

AOI\_NAME: Harrison Flat

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ mountain lion/ bobcat

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Summer, Fall, Winter

ATTRACT: agriculture fields/ non-native vegetation/ water

AGENCIES:

ADDITIONAL COMMENTS:

Species: Elk and white-tailed deer are the primary focal species.

Scale: Local importance. Elk (mostly) cross at Gem Road to go between cover, a pond, and alfalfa fields.

Important Seasons: Summer - Highway bisects pond and fields. Fall - Cover occurs on both sides of the highway, but some distance away. In between this cover is a pond on one side and fields on both sides. Winter - Significant white-tailed deer winter range. Elk and deer winter throughout the area.

Permanent Human Presence: Residential homes. This area is adjacent to Lake Coeur d'Alene and has numerous recreational homes and some permanent residences. This could best be described as rural agricultural area.

Wildlife Attractants: Alfalfa fields. Private pond designed for wildlife. Ornamental shrubs and other attractants. Watering sites.

Avg daily traffic volume: 300

Most common species killed by vehicles: White-tailed deer (5 or less per year), occasional elk.

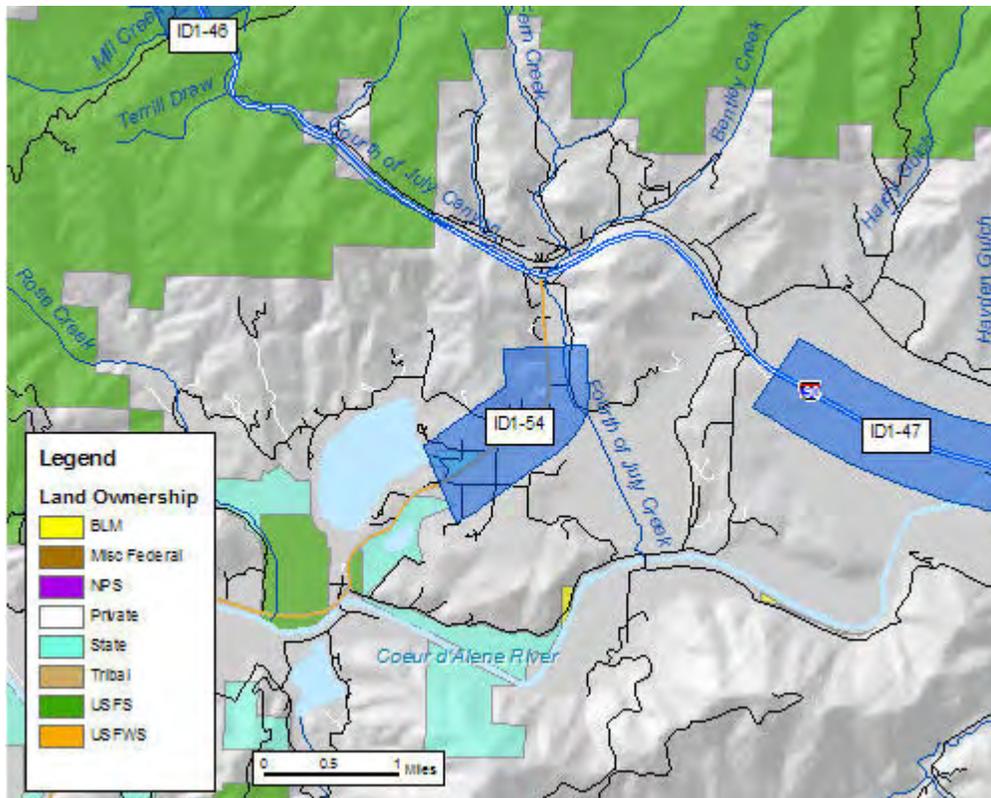
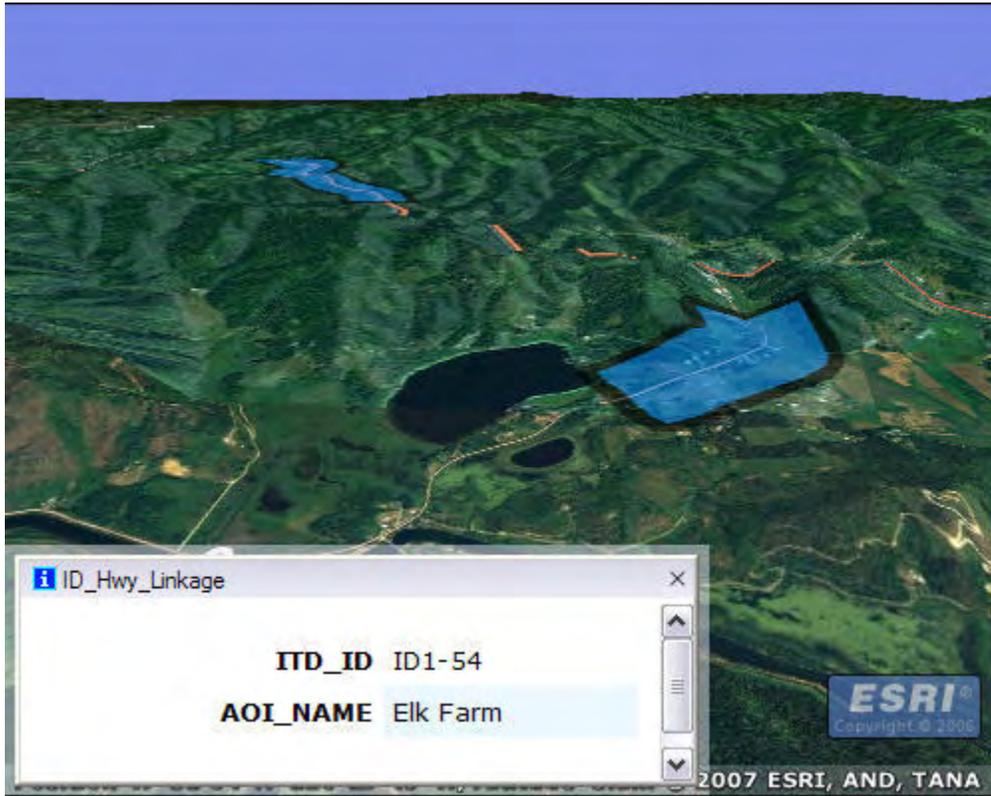
Research or monitoring studies: IDFG whitetail study may have limited information.

Effective functioning of linkage area: Steady decline in effective function of area as human development increases. Steady decline in effective function of area as human development increases.

Existing conservation easements, land exchanges, etc.: Unknown.

Opportunities to improve the effectiveness of the linkage area: Possibly signing, clearing vegetation from right-of-way, speed restrictions. Eliminate the attraction (alfalfa fields) to wildlife would likely reduce or eliminate the problem, however, I don't believe there are opportunities to convince the owners to do this.

ITD1\_ID: ID1-54



ITD1\_ID: ID1-54

AOI\_NAME: Elk Farm

PRIORITY: Low

SPECIES: elk

MIG\_POP:

LOC\_POP: Local

SCALE: Local

HWY\_MORT: 3-5 elk/yr

SEASON: Autumn

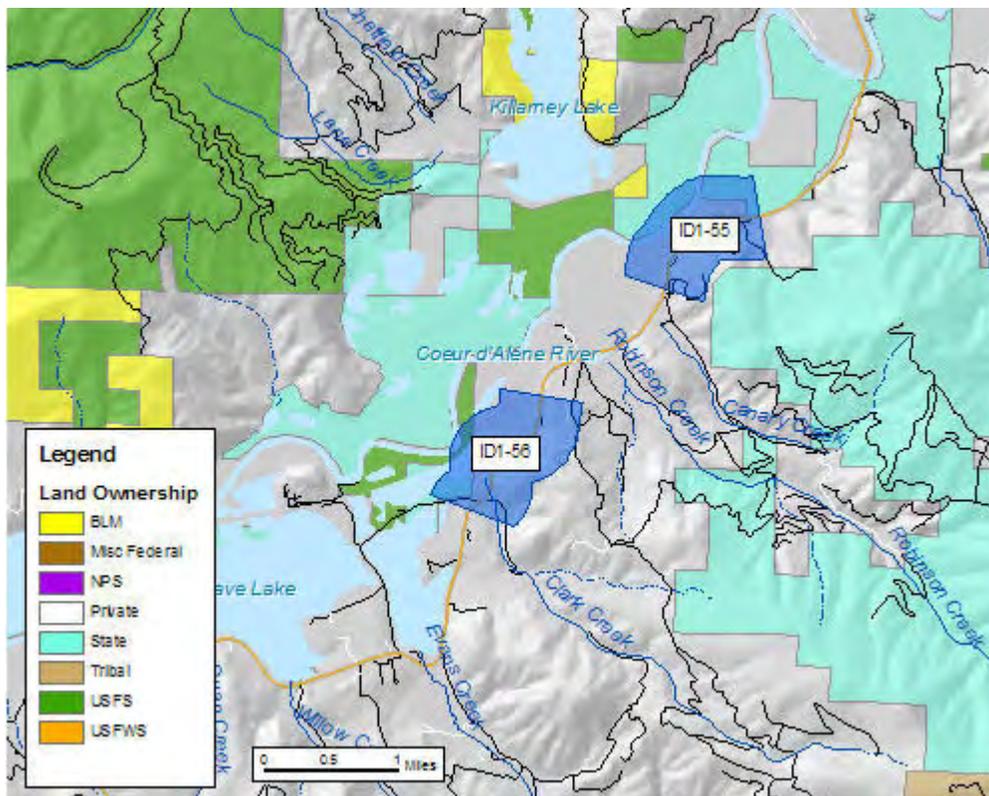
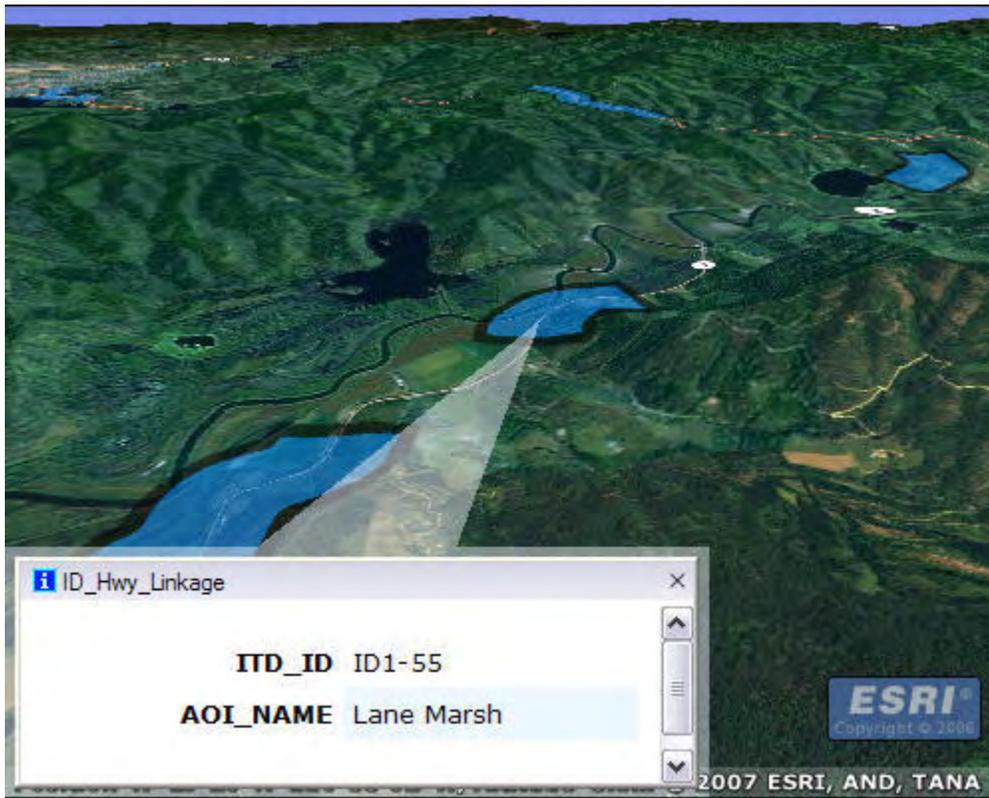
ATTRACT: Captive elk

AGENCIES: Private

**ADDITIONAL COMMENTS:**

Located on State Highway 3 at milepost 115.75-117, just south of Interstate 90. The primary attractant is an elk farm along the highway. Consequently, ITD personnel pick up 3-5 road-killed elk along the highway during the fall rut.

ITD1\_ID: ID1-55



ITD1\_ID: ID1-55

AOI\_NAME: Lane Marsh

PRIORITY: Low

SPECIES: otter/ reptiles/ amphibians/ painted turtles/ wood ducks/ beaver

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: Painted turtles, wood ducks, beaver

SEASON: Spring, Summer, Fall

ATTRACT: water/riparian

AGENCIES:

ADDITIONAL COMMENTS:

Scale: This pond was created by preventing the movement of water across State Highway 3 into the Coeur d'Alene River drainage. The highway is essentially a dam.

Important Seasons: Spring - Standing water available to semi-aquatic animals and nesting ducks and swallows. Summer - Suitable turtle and wood duck habitat; submerged trees have died and the area is now less desirable to beaver. Otter could investigate the pond. Fall - Open water still available to semi-aquatic animals.

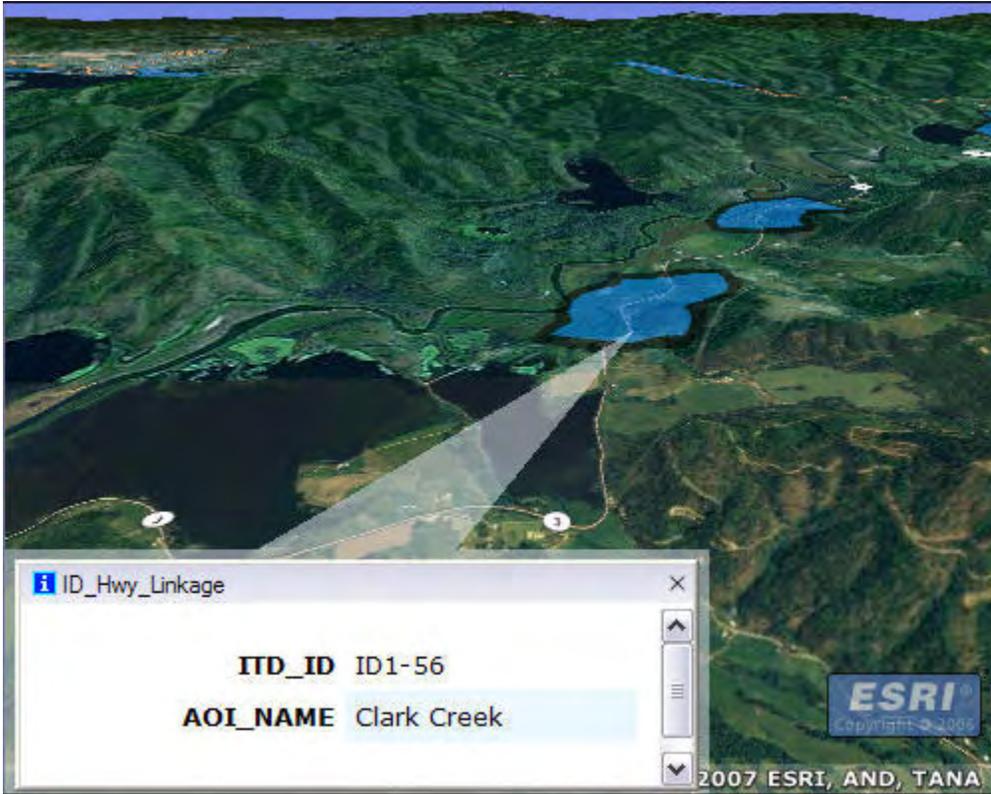
Permanent Human Presence: Residential homes

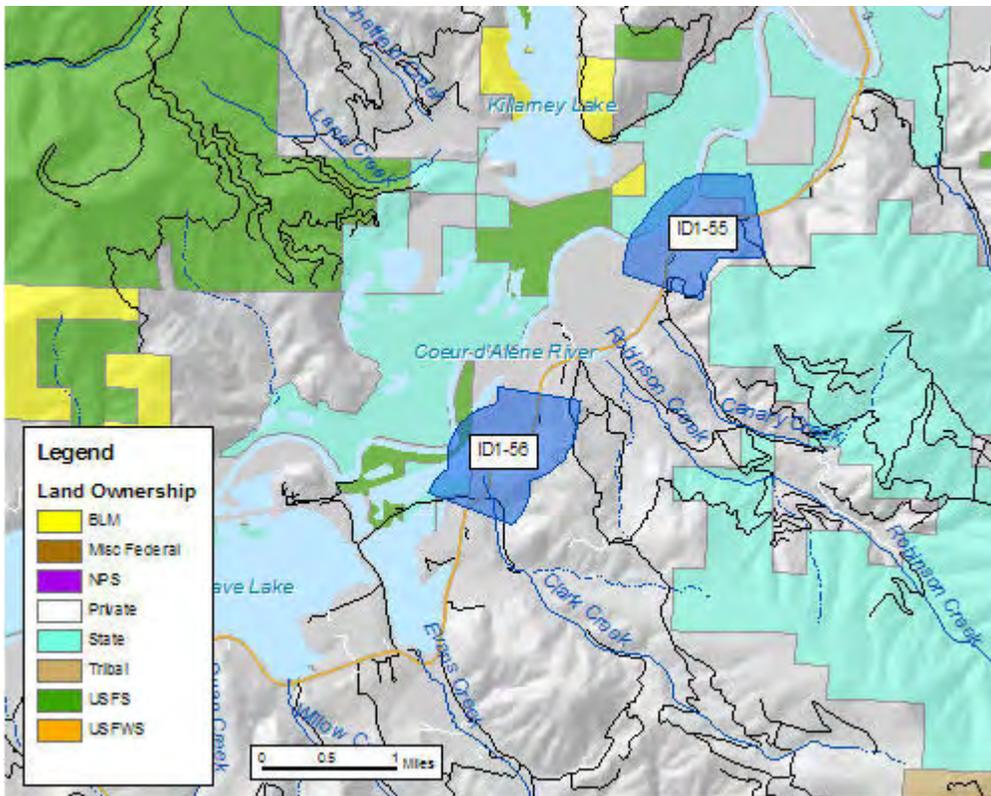
Wildlife Attractants: Flooded standing timber; wetland/marsh

Effective functioning of linkage area: Poorly

Opportunities to improve the effectiveness of the linkage area: An above-water culvert would allow turtles and perhaps other animals to cross. Signage might help, although people tend to ignore them.

ITD1\_ID: ID1-56





ITD1\_ID: ID1-56

AOI\_NAME: Clark Creek

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ mountain lion/ bobcat/ otter

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Summer, Winter

ATTRACT: forest cover/water/riparian

AGENCIES:

ADDITIONAL COMMENTS:

Species: Primary focal species are elk, moose, and, to a lesser degree, deer.

Existing Crossing Structures: There may be existing culverts to accommodate possible river otter movements.

Important Seasons: Summer - Moose travel to adjacent wetlands. Winter - Elk, moose, and deer use the entire area.

Permanent Human Presence: Residential homes. A few homes are scattered along Highway 3.

Wildlife Attractants: Timber to the east, the Coeur d'Alene River basin and wetlands to the west.

Most common species killed by vehicles: Moose and elk mostly, but also deer. However, the number killed is small (less than 5 per year).

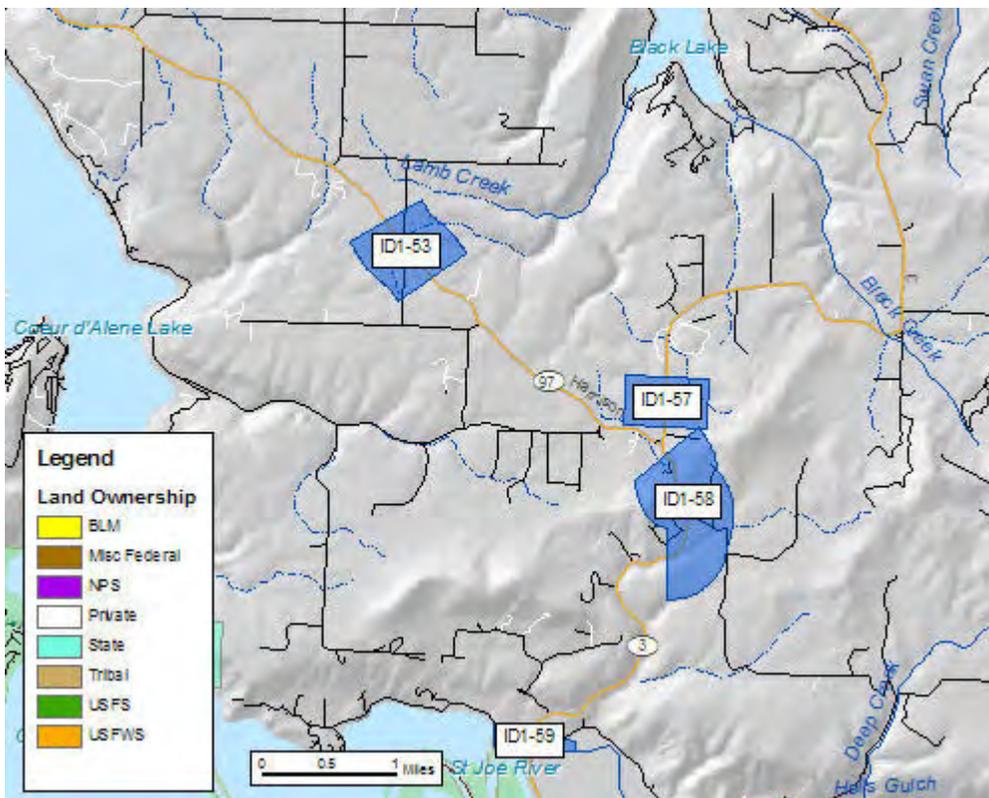
Effective functioning of linkage area: Not working at all, as there are no provisions to accommodate large mammals. Highway 3 is heavily used by logging trucks.

Existing conservation easements, land exchanges, etc.: No

Impediments or current threats to the linkage area: Few threats to existing habitats.

Opportunities to improve the effectiveness of the linkage area: The topography is such that few opportunities exist for improvement.

ITD1\_ID: ID1-57



ITD1\_ID: ID1-57

AOI\_NAME: Highway 97 and 3 Junction

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ mountain lion/ bobcat/ wolf

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Spring, Fall, Winter

ATTRACT: agriculture fields

AGENCIES:

ADDITIONAL COMMENTS:

Species: Primary focal species is elk.

Existing Crossing Structures: Topography not conducive to underpasses or large culverts.

Important Seasons: Spring - Wintering elk still linger in the area. Fall - Wintering elk begin showing up. Winter - There are more than 50 elk that use the area on both sides of the highway during winter.

Permanent Human Presence: Residential homes. Rural area with scattered homes.

Wildlife Attractants: Alfalfa fields. Hay fields and open meadows.

Most common species killed by vehicles: Elk (5 or less/year), with occasional deer.

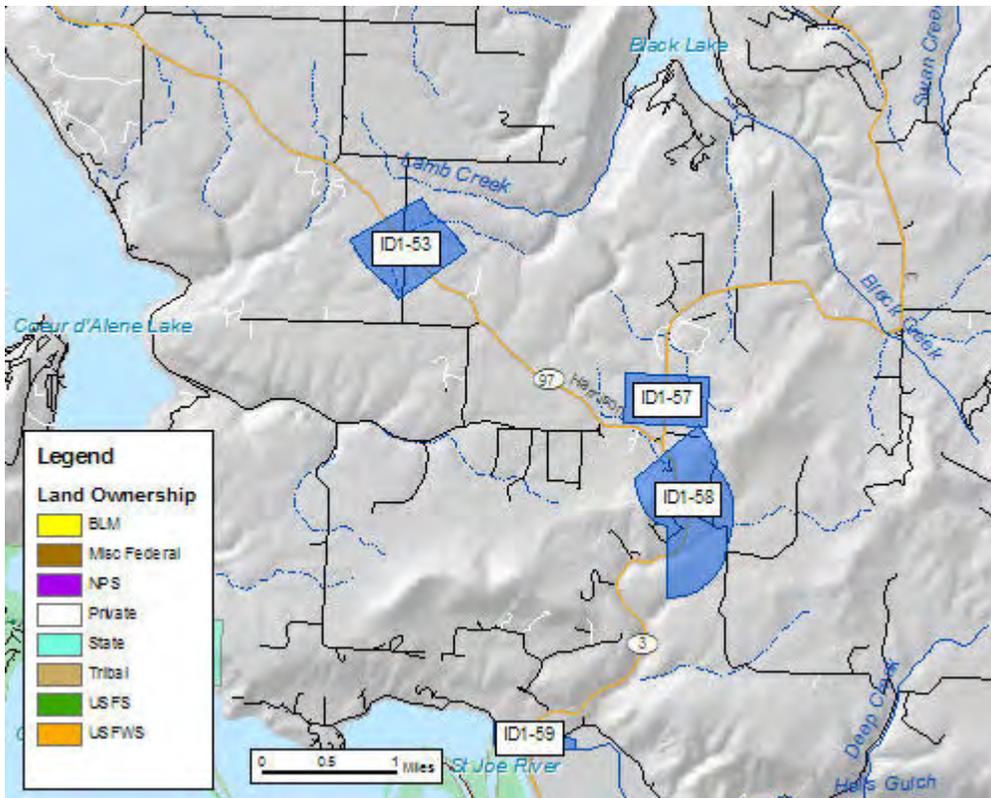
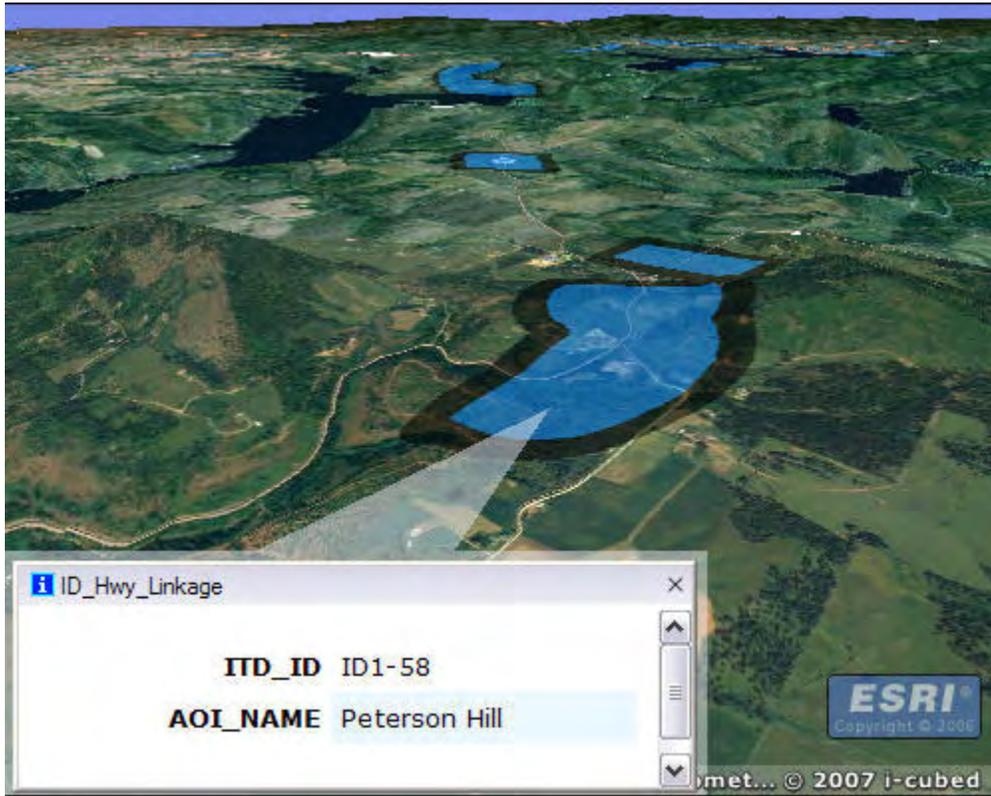
Effective functioning of linkage area: The occurrence of elk in this area is well known to local residents who drive the highway. Consequently, they are alert to potential elk on the highway.

Existing conservation easements, land exchanges, etc.: No

Impediments or current threats to the linkage area: Unk.

Opportunities to improve the effectiveness of the linkage area: Unk.

ITD1\_ID: ID1-58



ITD1\_ID: ID1-58

AOI\_NAME: Peterson Hill

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ mountain lion/ bobcat/ wolf/  
turkeys

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Spring, Summer, Fall, Winter

ATTRACT: forest cover

AGENCIES:

ADDITIONAL COMMENTS:

Species: Black bear and white-tail deer are the focal species.

Important Seasons: Spring - Normal deer movements. Summer & Fall - Normal bear and deer movements. Winter - Day-to-day movements of wintering deer.

Permanent Human Presence: Residential homes. Rural area, homes are scattered.

Wildlife Attractants: This travel corridor is forested on both sides of the highway, giving animals a sense of security during movements.

Most common species killed by vehicles: Black bear and deer (less than 5/year for both species).

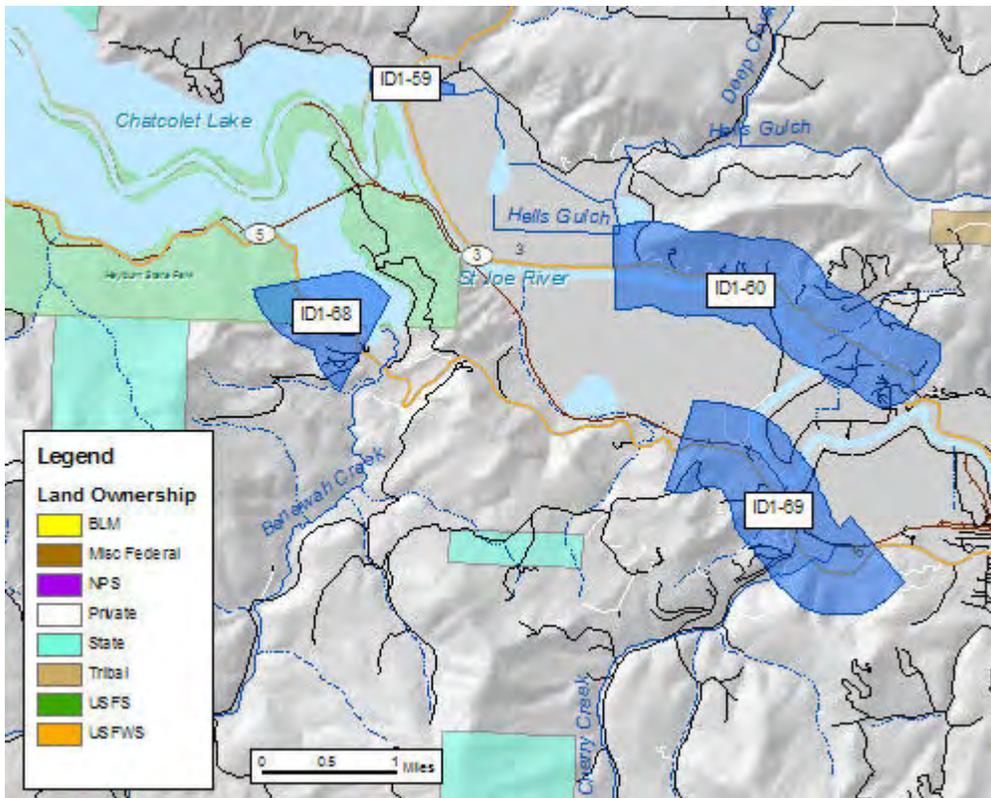
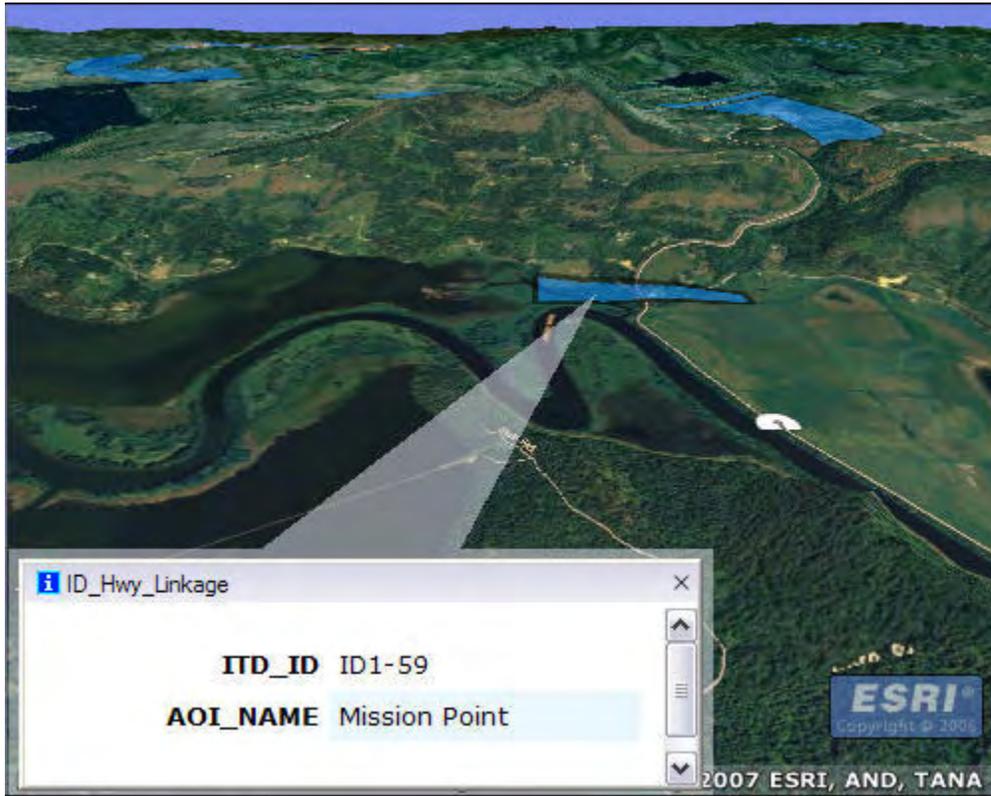
Effective functioning of linkage area: There have been no actions taken to facilitate the crossing of wildlife.

Existing conservation easements, land exchanges, etc.: None known.

Impediments or current threats to the linkage area: Further human development.

Opportunities to improve the effectiveness of the linkage area: Clearing brush and trees from the right-of-way would facilitate detection of crossing animals.

ITD1\_ID: ID1-59



ITD1\_ID: ID1-59

AOI\_NAME: Mission Point

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: White-tail deer year-round residents

ATTRACT: native and non-native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

Permanent Human Presence: Residential homes. This is a rural area with houses scattered throughout the habitat.

Wildlife Attractants: Native trees, shrubs, forbs, and grasses; some ornamental plants at residences.

Most common species killed by vehicles: White-tailed deer (5 or less per year).

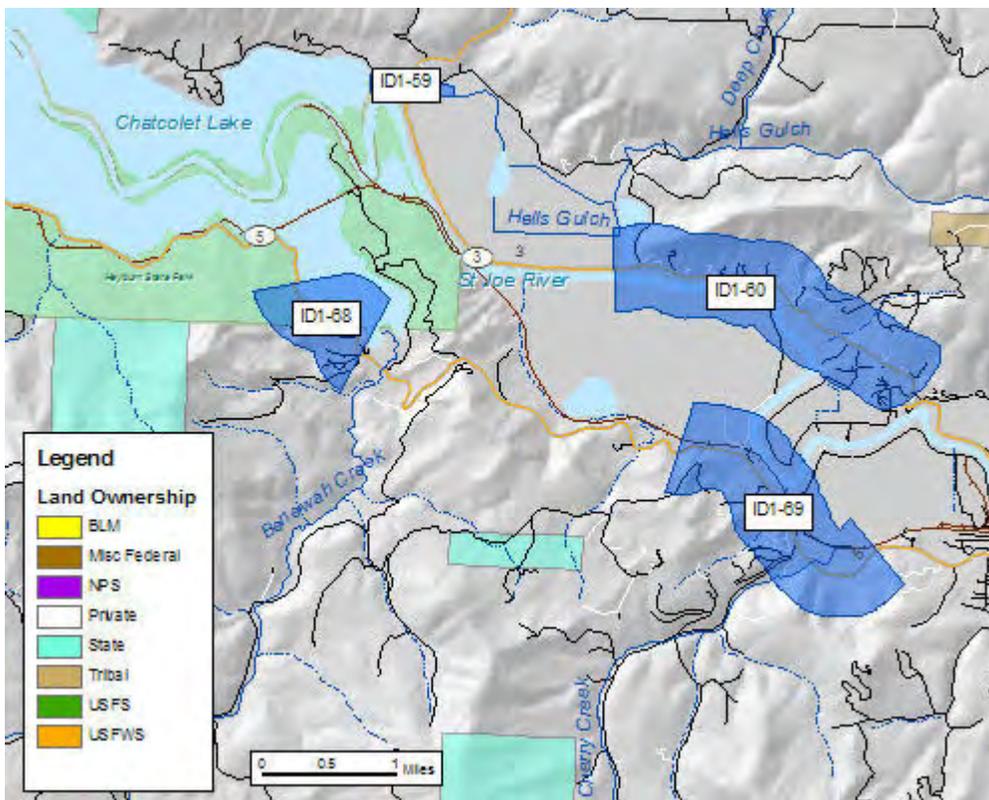
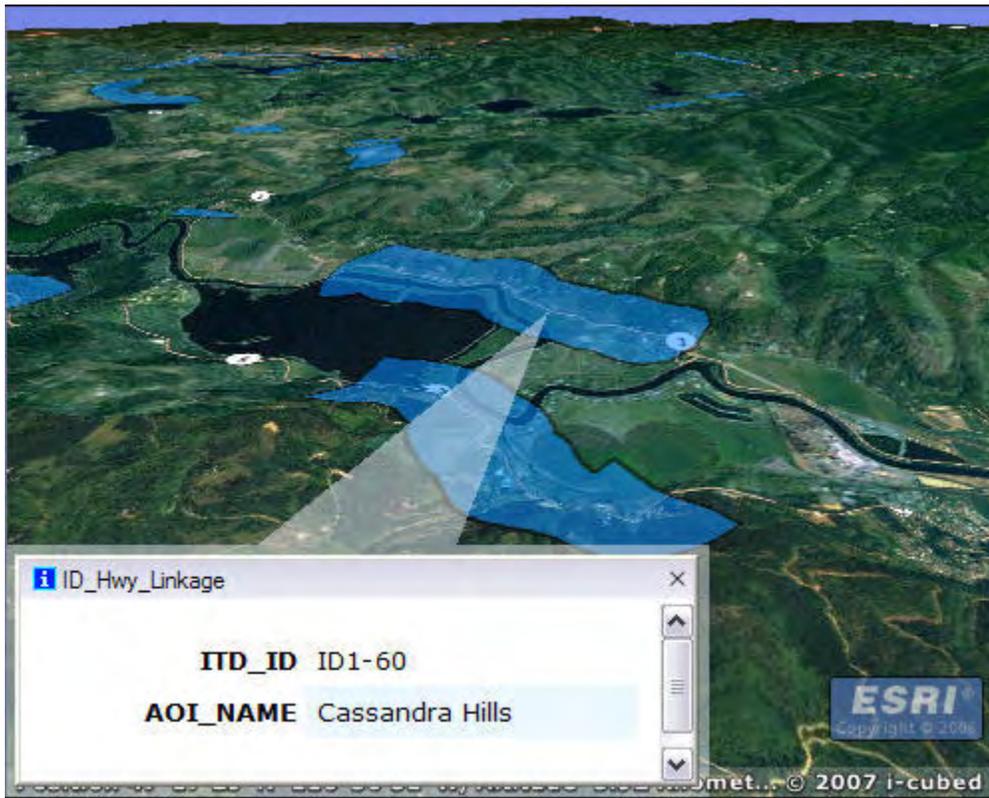
Effective functioning of linkage area: Deer move through the area and across the highway in spite of the fact that there are no provisions to mitigate mortality.

Existing conservation easements, land exchanges, etc.: Habitat quality is good on both sides of the highway, that's the problem.

Impediments or current threats to the linkage area: None at this time.

Opportunities to improve the effectiveness of the linkage area: Increased awareness of deer on the highway; signing perhaps.

ITD1\_ID: ID1-60



ITD1\_ID: ID1-60

AOI\_NAME: Cassandra Hills

PRIORITY: Low

SPECIES: white-tail deer/ moose/ otter

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON: white-tail deer year-round

ATTRACT: native and non-native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

This area parallels the St. Joe River for approximately 2 miles.

Existing Crossing Structures: There is a suitable culvert (MP 89.9) that otters likely use to access a wetland/drainage area from the St. Joe River. Deer-crossing signs are in place in the MP 87 area.

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities, Garbage dump. Homes are scattered along the highway.

Wildlife Attractants: Native vegetation and ornamental shrubs and fruit trees in yards.

Most common species killed by vehicles: White-tailed deer (5-20 killed per year)

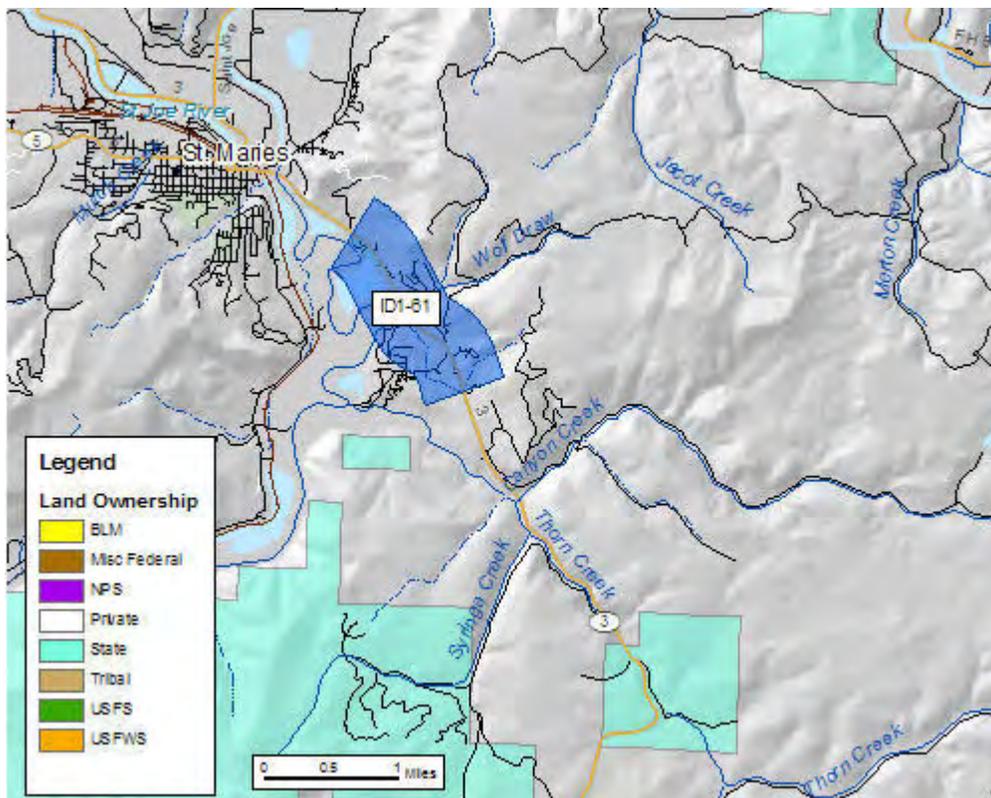
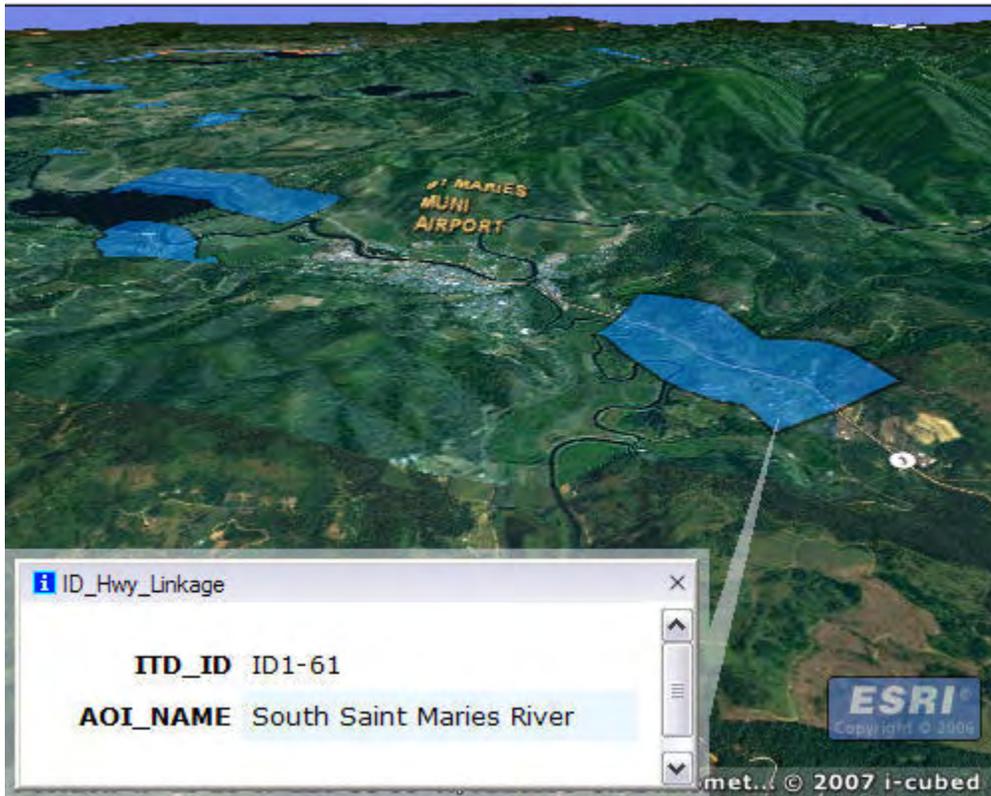
Effective functioning of linkage area: Most deer are able to cross in spite of no provisions to facilitate crossing. The speed limit throughout the area is 45mph, which helps to reduce potential collisions.

Existing conservation easements, land exchanges, etc.: Through the BPA, the Coeur d'Alene Tribe has acquired approximately 80 acres of wildlife habitat on both sides of the highway (between MP 87-88).

Impediments or current threats to the linkage area: Vehicle speeds (many ignore the 45mph speed limit) and a short sight distance (due to road curves) to react to deer on the road.

Opportunities to improve the effectiveness of the linkage area: Education might be the only option.

ITD1\_ID: ID1-61



ITD1\_ID: ID1-61

AOI\_NAME: South Saint Maries River

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON: white-tail deer year-round

ATTRACT: native and non-native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

Scale: Not an important linkage area, but important because of white-tailed deer mortality.

Existing Crossing Structures: The topography is such that there is room for an underpass, where a culvert exists, coming down the hill from the landfill.

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities, Garbage dump. This area is on the outskirts of St. Maries.

Wildlife Attractants: Native vegetation (the St. Maries River floodplain is adjacent to the highway for part of the stretch), pastures, ornamental shrubs and vegetation at residences.

Most common species killed by vehicles: White-tailed deer (5-20 deer per year).

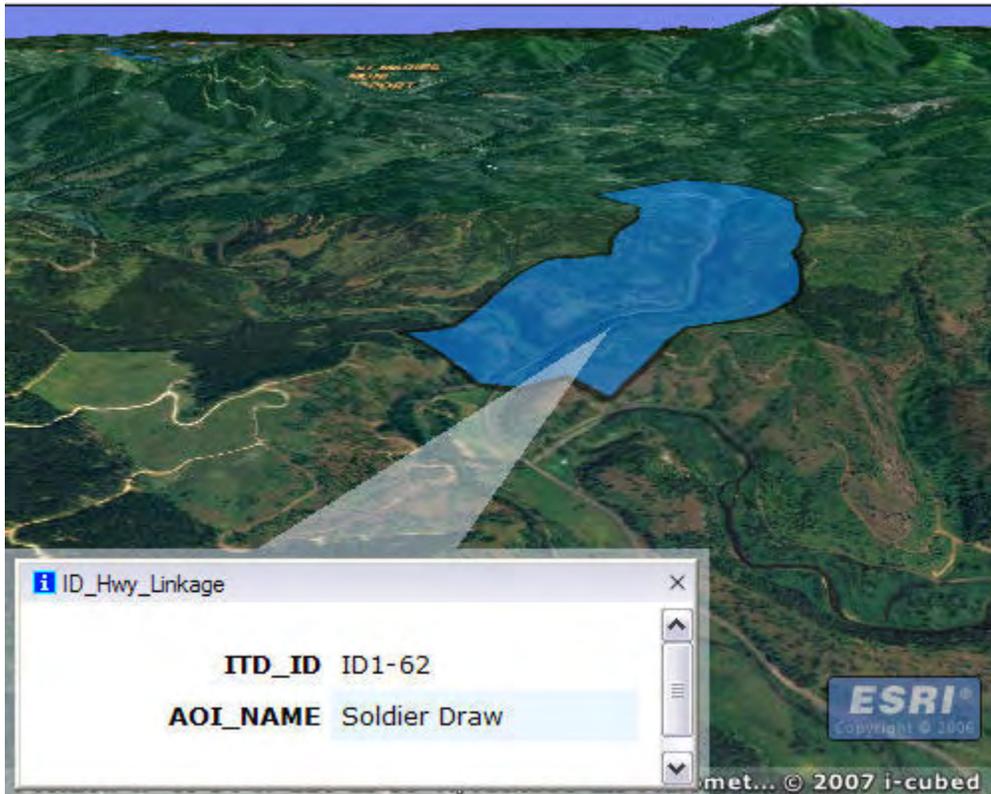
Effective functioning of linkage area: Deer cross the highway in spite of the lack of crossing structures. The speed limit transitions from 55mph to 45mph in the crossing area as one enters St. Maries. This probably helps to reduce collisions between deer and vehicles.

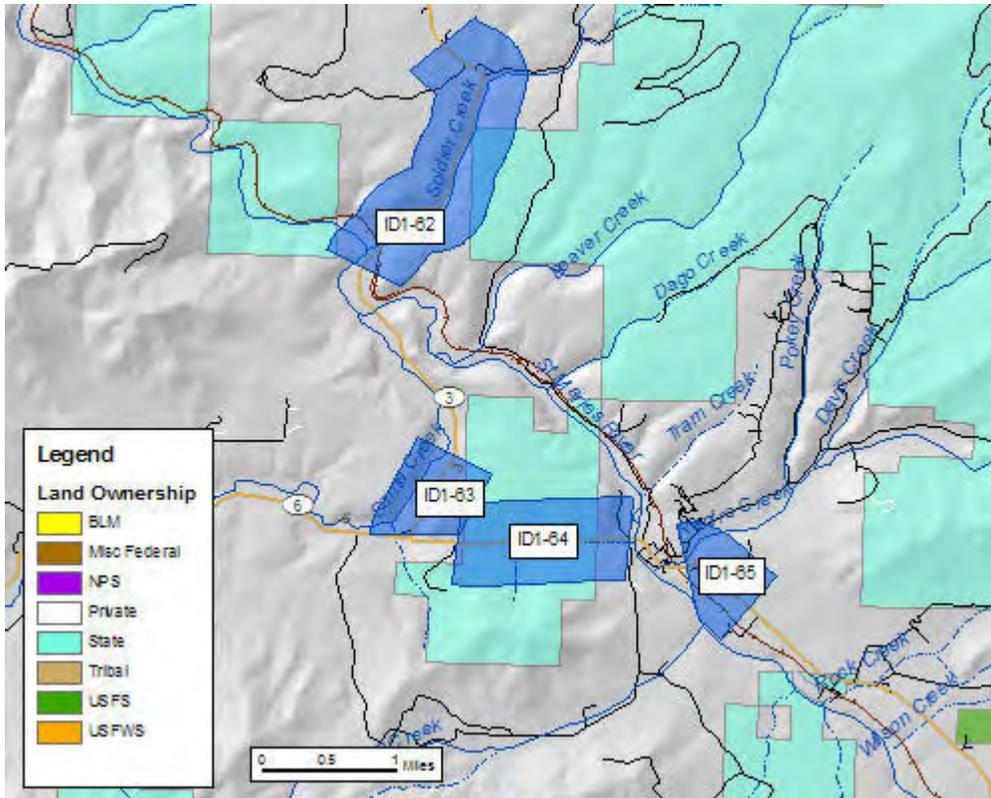
Existing conservation easements, land exchanges, etc.: A portion of the wetlands adjacent to the St. Maries River was recently purchased by a private

individual for preservation for wildlife. Not sure if a conservation easement has been signed.

Impediments or current threats to the linkage area: Further development, subdivisions.

ITD1\_ID: ID1-62





ITD1\_ID: ID1-62

AOI\_NAME: Soldier Draw

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ bobcat/ otter

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-20

SEASON: Deer, elk, moose year-round

ATTRACT: native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

Species: Deer and elk are the focal species.

Existing Crossing Structures: Underpasses in linkage zone. Deer and elk (and likely moose) use the RR underpass. These species, in addition to river otters likely use the St. Maries River underpass, about 1/2 mile from the RR underpass.

Permanent Human Presence: Recreation site. There are only a couple of homes in the area. Recreation lots exist along a portion of the St. Maries River. These are used only during summer.

Wildlife Attractants: Mostly native trees, shrubs, forbs, and grasses.

Most common species killed by vehicles: White-tailed deer (5-20 per year). There is a bald eagle (recently delisted) nest in this area, but no evidence of mortality due to collisions.

Trains are infrequent along this stretch. They move slowly and serve entirely to transport logs to St. Maries.

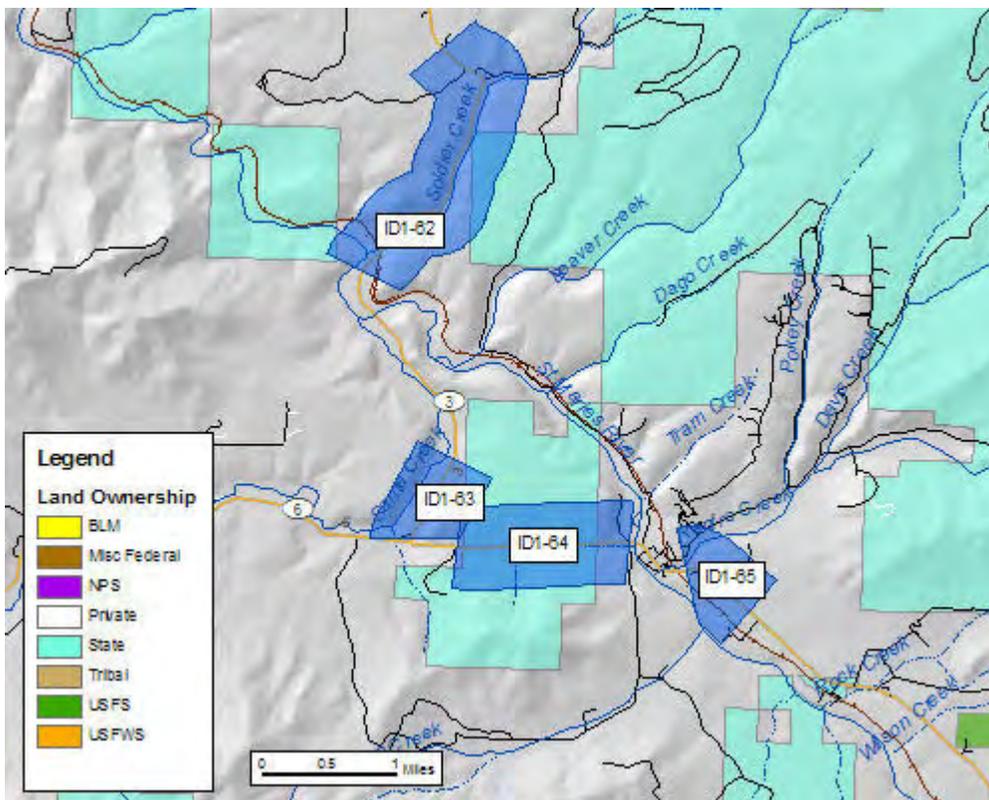
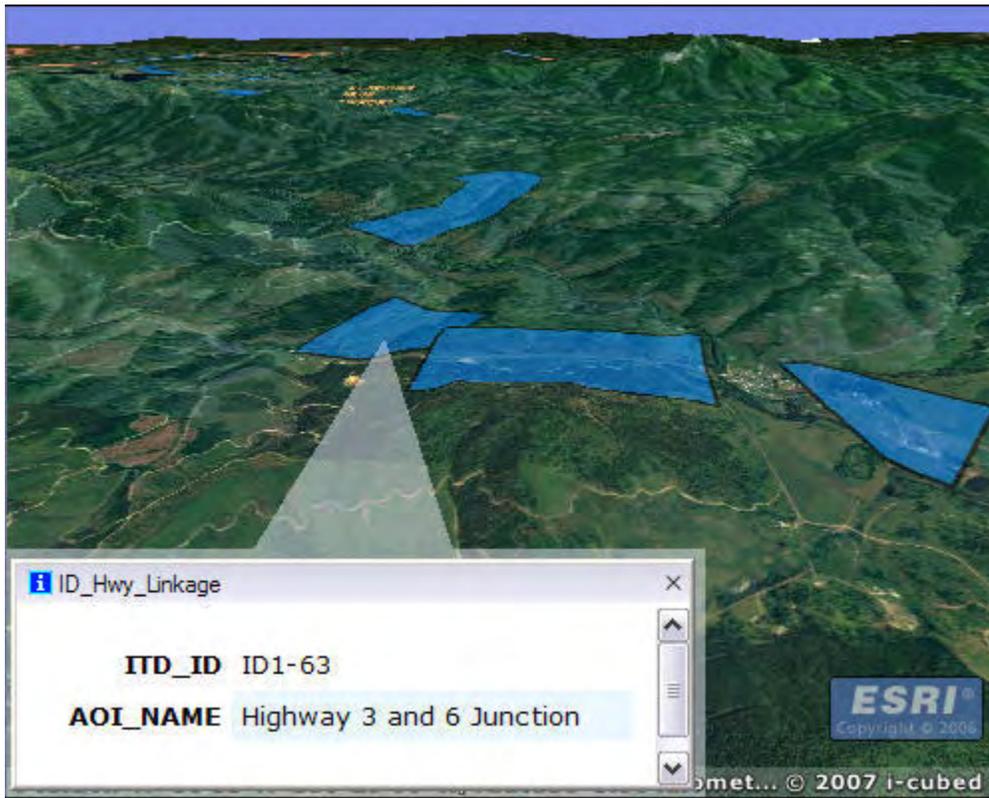
Effective functioning of linkage area: Even though large mammals use the existing RR underpass, and likely the St. Maries River underpass, many deer cross in the Mashburn grade area where there are no crossing structures, increasing the chance of collisions.

Existing conservation easements, land exchanges, etc.: None that we are aware of. Potlatch Corporation just sold, through silent auction, a large section of land adjacent to the Mashburn grade that is used by deer, elk, and moose. The consequence of this sale is unknown. This section of land had been logged prior to the sale.

Impediments or current threats to the linkage area: Potential development of the land recently sold by Potlatch.

Opportunities to improve the effectiveness of the linkage area: Perhaps signing.

ITD1\_ID: ID1-63



ITD1\_ID: ID1-63

AOI\_NAME: Highway 3 and 6 Junction

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: 5-6

SEASON: Deer year-round

ATTRACT: native and non-native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

Species: White-tailed deer is focal species.

Scale: Not an important linkage area, but deer seem to cross the highway in this area, perhaps because there is cover between the highway junction and open fields to the north.

Permanent Human Presence: Residential homes. There are 3 private residences in the area.

Wildlife Attractants: Trees and shrubs provide escape cover, shelter, and forage. Agricultural fields (hay and pasture) attract wildlife, as do ornamental plants and gardens at the homes.

Most common species killed by vehicles: White-tailed deer (5-6 per year)

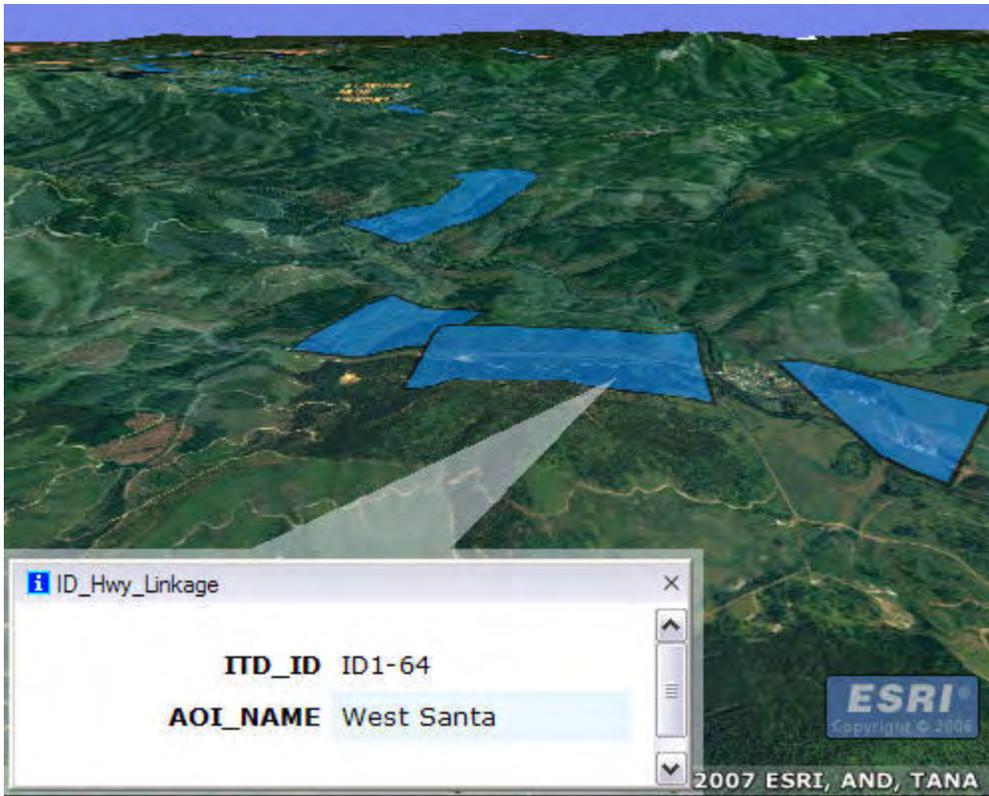
Effective functioning of linkage area: There is a wildlife crossing sign in place. Nonetheless, while many deer do cross the highway, some deer are killed by vehicles.

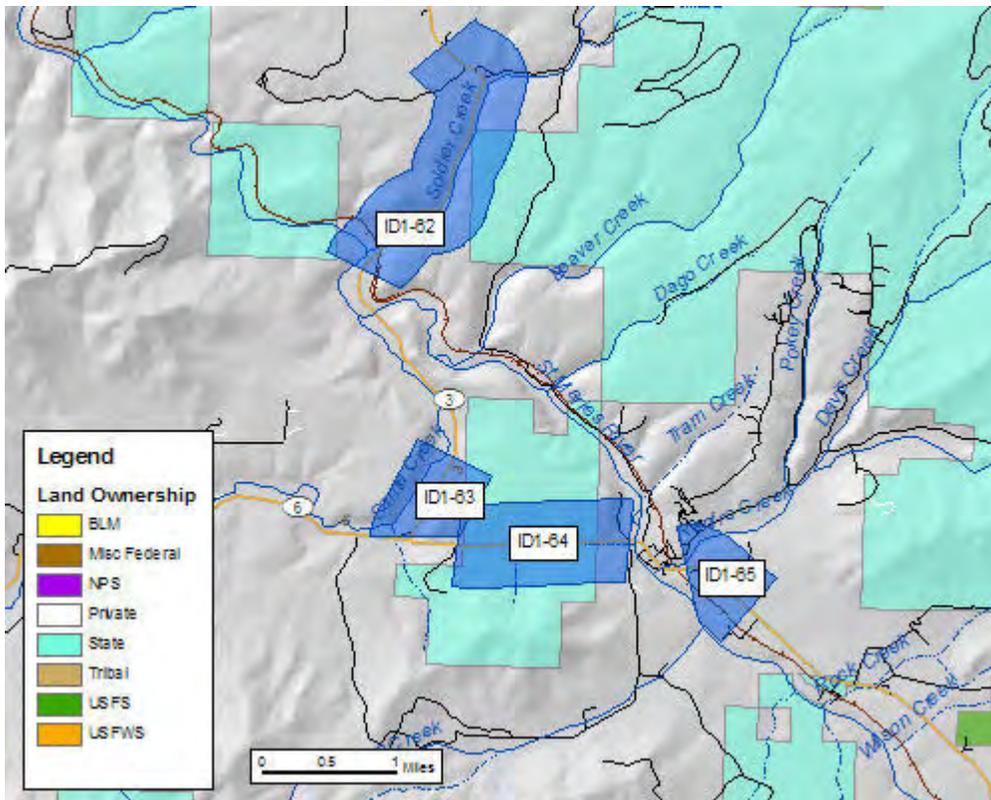
Existing conservation easements, land exchanges, etc.: None known.

Opportunities to improve the effectiveness of the linkage area: Increased clearing of the right-of-way might help reduce collisions with deer. More effective

signing (flashing light on sign) might help. ITD could initiate an "Adopt a Sign" program and get people to fund the establishment of flashing lights on signs.

ITD1\_ID: ID1-64





ITD1\_ID: ID1-64

AOI\_NAME: West Santa

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: >5

SEASON: Big game year-round

ATTRACT: native vegetation

AGENCIES:

ADDITIONAL COMMENTS:

Species: White-tailed deer is focal species

Scale: This is a natural north-south big game movement area on a ridge with Santa and the St. Maries River to the east and State Highway 3 running north-south to the west and north.

Permanent Human Presence: There is a small rodeo grounds adjacent to the highway and within a half mile of the highway 3 and 6 junction.

Wildlife Attractants: Native trees, shrubs, and forbs.

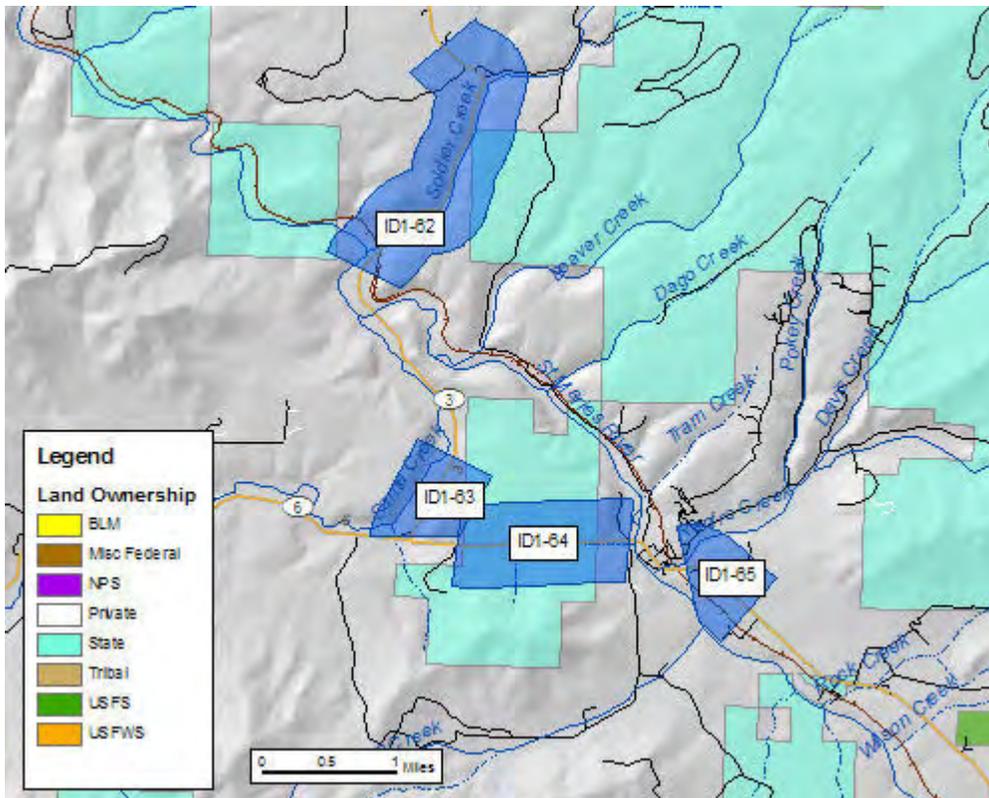
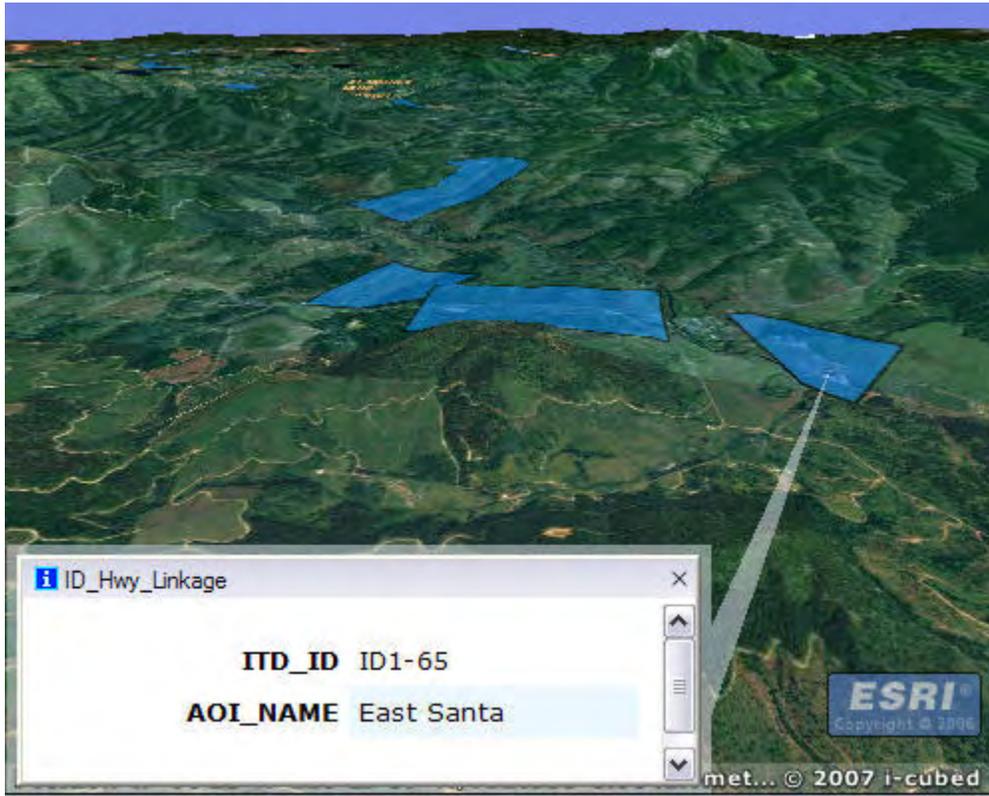
Most common species killed by vehicles: White-tailed deer (5 or more per year) and elk to a lesser extent.

Effective functioning of linkage area: There are no provisions to facilitate movement of wildlife across the highway.

Impediments or current threats to the linkage area: Increased traffic and possible development.

Opportunities to improve the effectiveness of the linkage area: Installation of wildlife crossing signs.

ITD1\_ID: ID1-65



ITD1\_ID: ID1-65

AOI\_NAME: East Santa

PRIORITY: Low

SPECIES: white-tail deer/ elk

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: white-tail deer year-round residents

ATTRACT: ITD salt shed, native vegetation, agricultural fields

AGENCIES:

ADDITIONAL COMMENTS:

Scale: No real linkage value; just an area where resident deer cross.

Permanent Human Presence: Residential homes, Commercial buildings or industrial facilities. Homes, ITD County Maintenance shop, lumber mill.

Wildlife Attractants: There is a stand of native trees/shrubs near the county shop, otherwise, the area is primarily open fields and pasture. ITD salt shed attracting wildlife.

Most common species killed by vehicles: White-tailed deer (5 deer or less killed each year), primarily near the county shop.

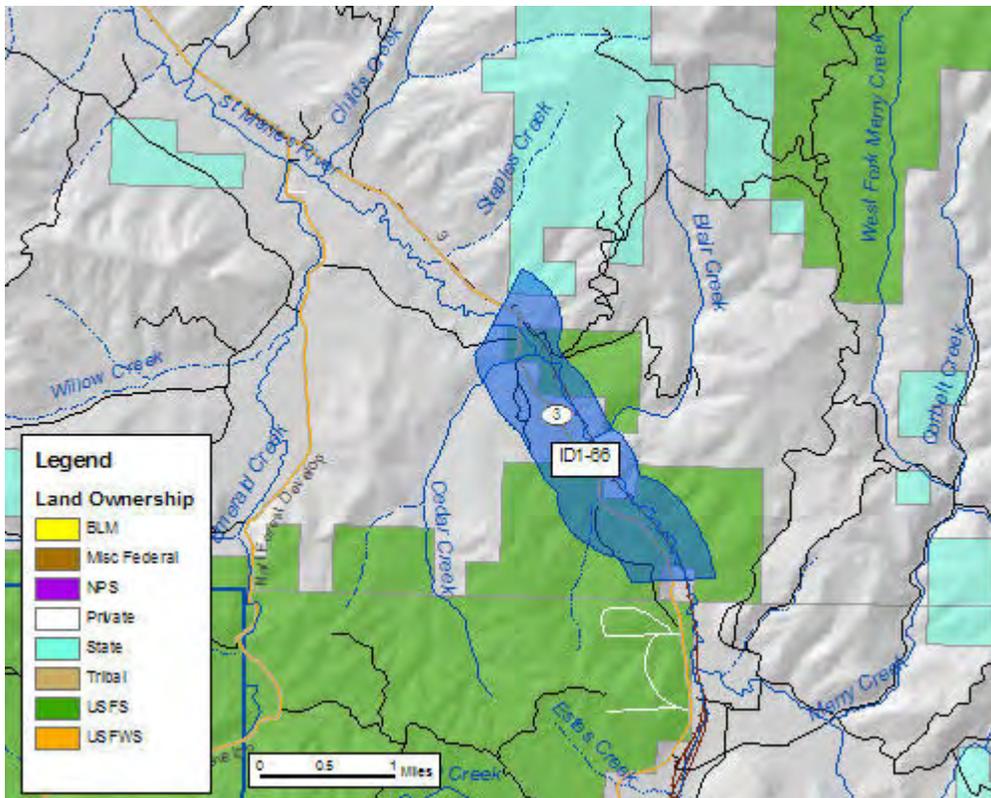
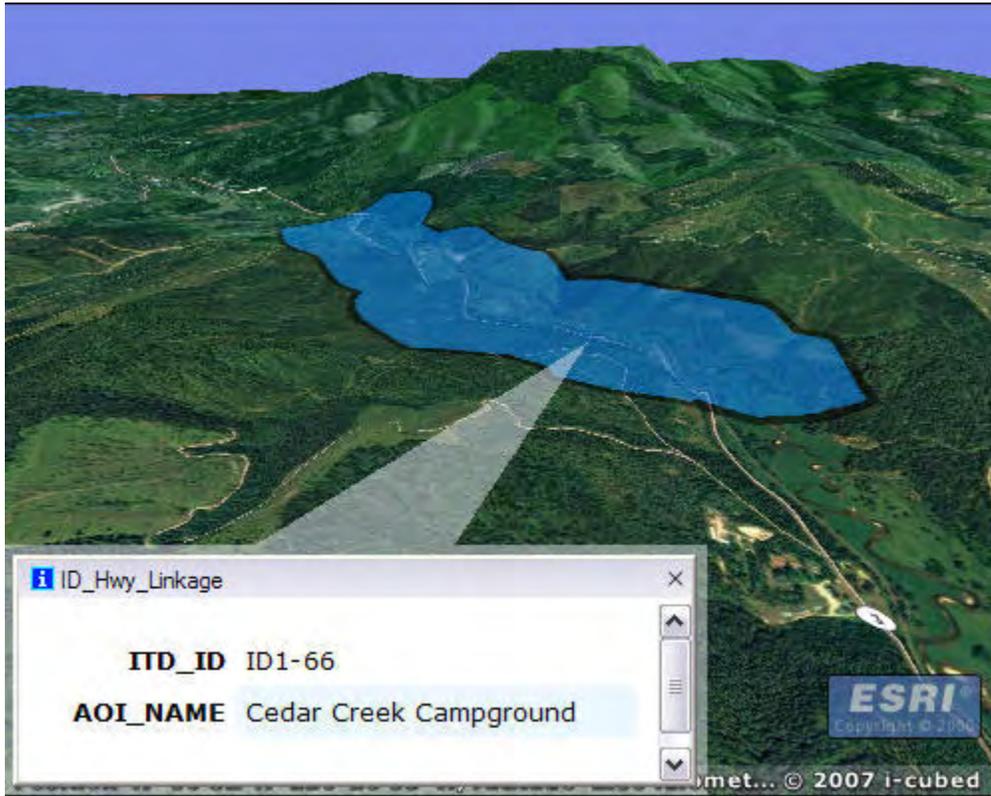
Effective functioning of linkage area: This is not a high priority linkage area.

Existing conservation easements, land exchanges, etc.: None known. However, improving habitat could increase wildlife mortality on the highway.

Impediments or current threats to the linkage area: Further development.

Opportunities to improve the effectiveness of the linkage area: Provide crossing signs or structure, however, the benefit of a structure couldn't justify the cost.

ITD1\_ID: ID1-66



ITD1\_ID: ID1-66

AOI\_NAME: Cedar Creek Campground

PRIORITY: Low

SPECIES: white-tail deer/ elk/ moose/ black bear/ bobcat/ otter

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Moose, deer, elk year-round residents

ATTRACT: forest cover, riparian, agricultural fields

AGENCIES:

ADDITIONAL COMMENTS:

Species: Moose is the focal species.

Existing Crossing Structures: Underpasses in linkage zone. The St. Maries River flows under the highway at the Cedar Creek Campground, and is adjacent the RR tracks that also cross the highway.

Permanent Human Presence: Recreation site. There is 1 residence just north of the site; Cedar Creek campground (summer use only) is found within.

Wildlife Attractants: Native timber, the river, agricultural fields at the northern end of the site.

Most common species killed by vehicles: Moose (5 or less per year)

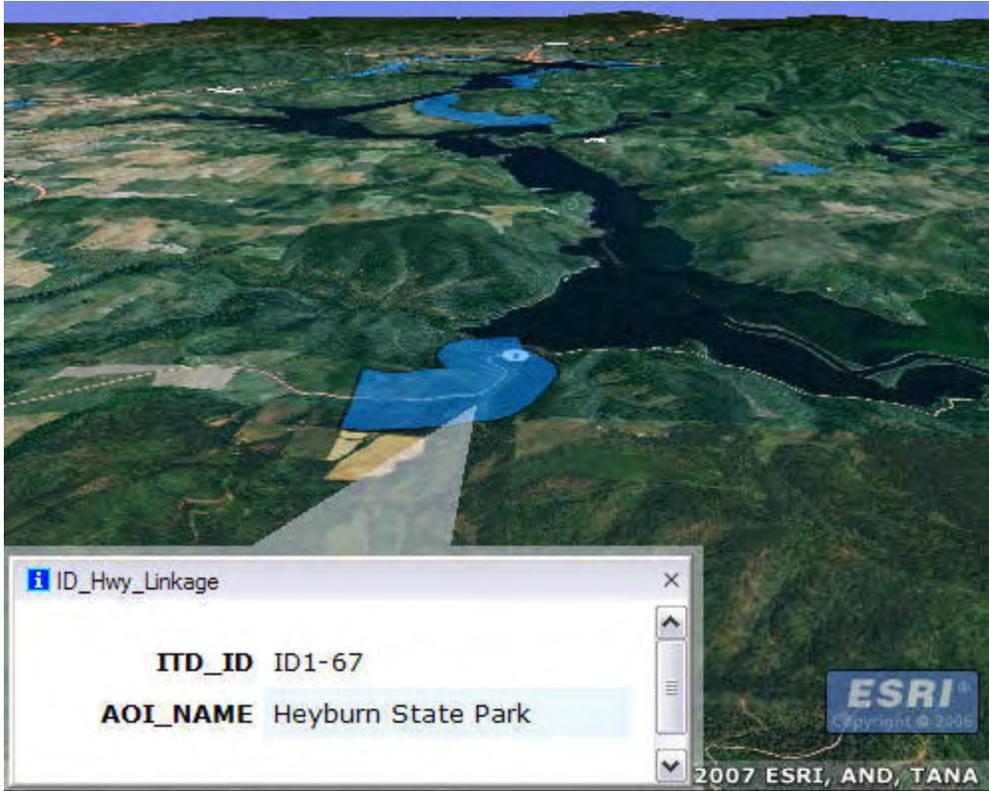
No wildlife deaths resulting from collisions with trains that we know of: but moose-train collisions are possible. However, train traffic is limited to the St. Maries Line, which hauls logs from Clarkia to St. Maries, and the train moves at low speeds.

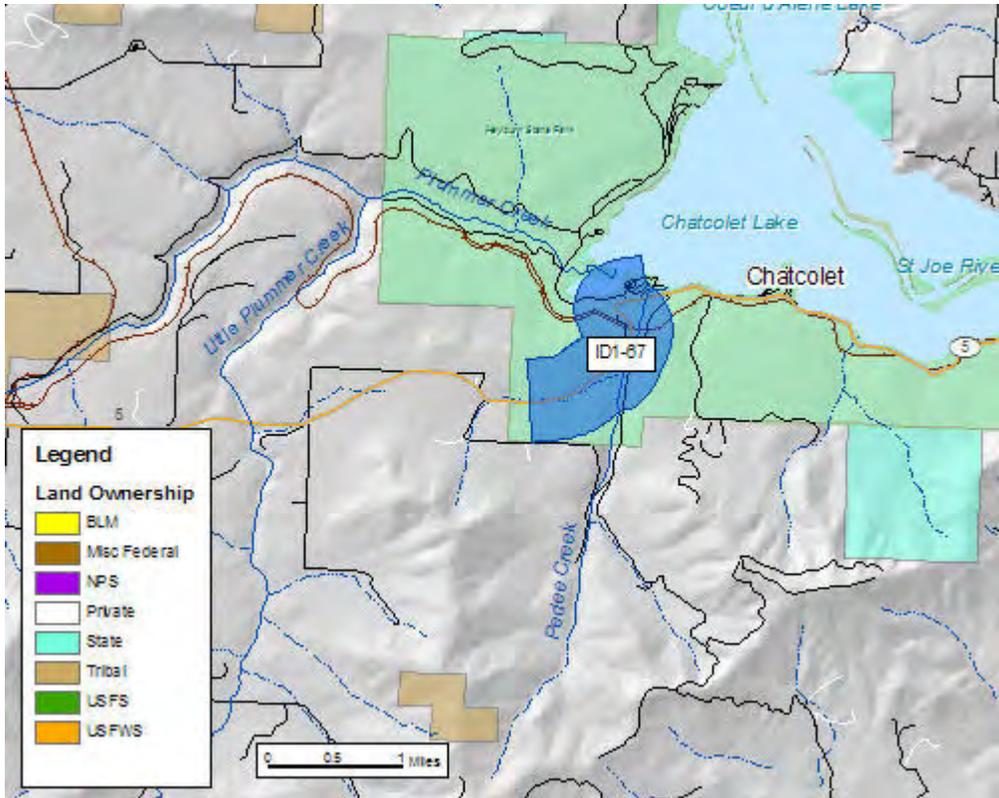
Effective functioning of linkage area: Unknown.

Existing conservation easements, land exchanges, etc.: Unknown.

Opportunities to improve the effectiveness of the linkage area: Moose/wildlife crossing signs.

ITD1\_ID: ID1-67





ITD1\_ID: ID1-67

AOI\_NAME: Heyburn State Park

PRIORITY: Moderate

SPECIES: white-tail deer/ elk/ moose/ bobcat

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Deer year-round residents

ATTRACT: forest cover, riparian

AGENCIES:

ADDITIONAL COMMENTS:

Species: Deer is the focal species.

Existing Crossing Structures: Overpasses in linkage zone. A RR overpass is high above the highway and spans Pedee Creek.

Permanent Human Presence: Recreation site. Within Heyburn State Park; campgrounds are below this site and along Chatcolet Lake.

Most common species killed by vehicles: White-tailed deer (5 or less per year).

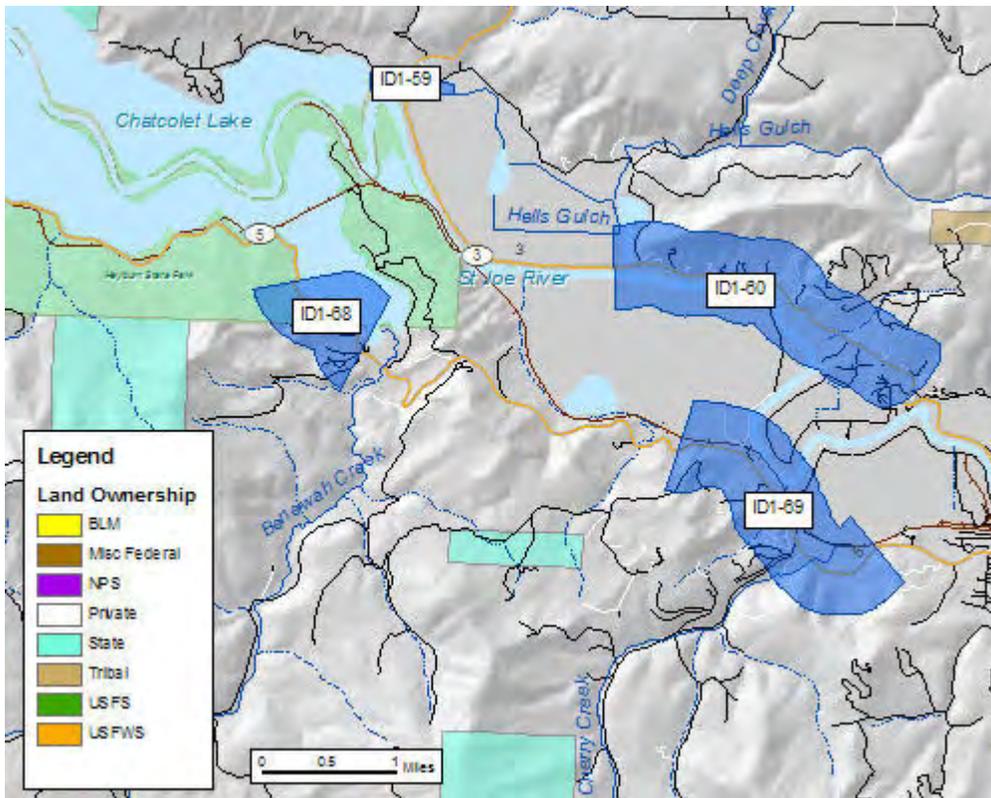
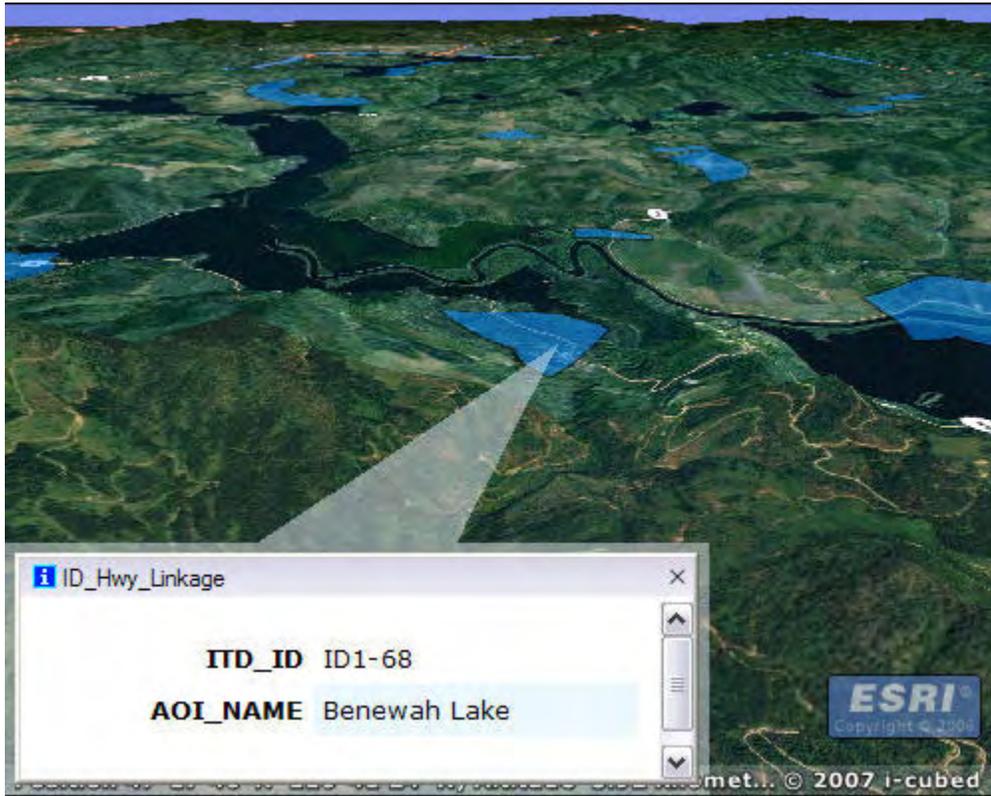
Effective functioning of linkage area: Adequate.

Existing conservation easements, land exchanges, etc.: NA, under State Parks and Recreation jurisdiction.

Impediments or current threats to the linkage area: Increased traffic; possible adjustment of highway route over Pedee Creek.

Opportunities to improve the effectiveness of the linkage area: Few; signing.

ITD1\_ID: ID1-68



ITD1\_ID: ID1-68

AOI\_NAME: Benewah Lake

PRIORITY: Low

SPECIES: white-tail deer/ moose/ otter

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT: <5

SEASON: Deer year-round residents

ATTRACT: water/riparian

AGENCIES:

ADDITIONAL COMMENTS:

Species: White-tailed deer is the focal species.

Permanent Human Presence: Residential homes, Recreation site. A residential area is just east of the site. The area is part of Heyburn State Park.

Wildlife Attractants: Deer are attracted to the wildlife rice and other aquatic and semi-aquatic vegetation found in Benewah Lake. They cross the highway to access the lake.

Most common species killed by vehicles: White-tailed deer (5 or less per year).

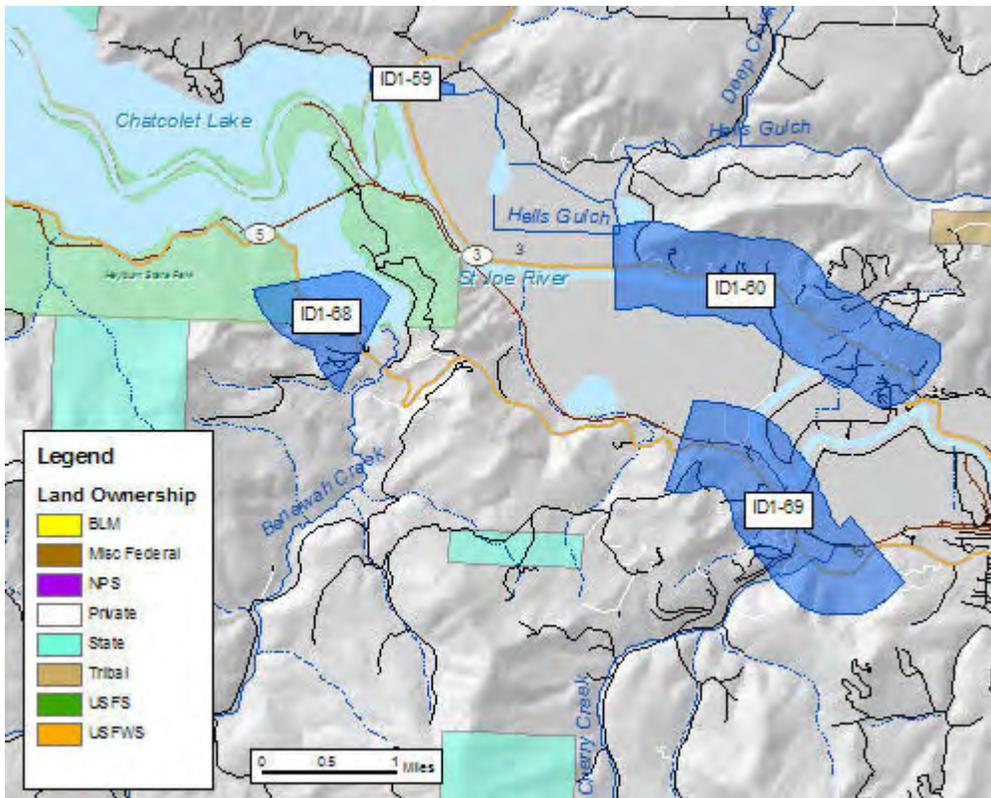
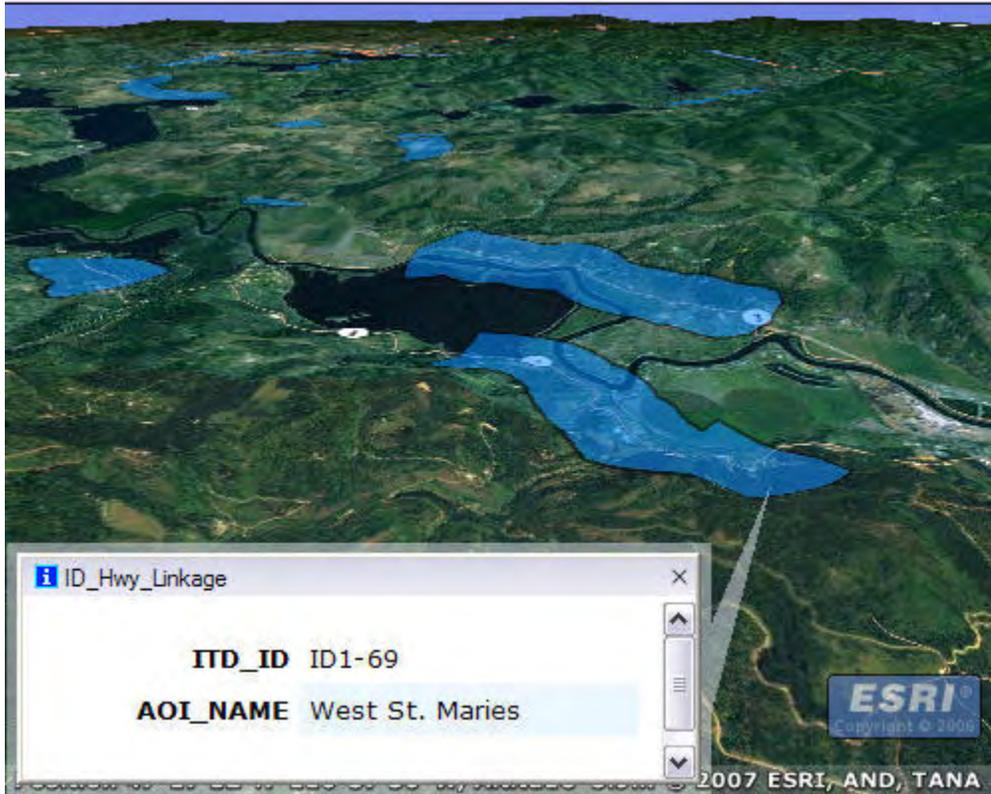
Effective functioning of linkage area: Ironically, vehicle traffic speeds normally increase at passing lanes, and this is where the deer cross to gain access to the forage in Benewah Lake and the marsh area.

Existing conservation easements, land exchanges, etc.: None known.

Impediments or current threats to the linkage area: Increased vehicle traffic.

Opportunities to improve the effectiveness of the linkage area: Wildlife crossing signs.

ITD1\_ID: ID1-69



ITD1\_ID: ID1-69

AOI\_NAME: West St. Maries

PRIORITY: Low

SPECIES: white-tail deer

MIG\_POP:

LOC\_POP: Local

SCALE: Local

HWY\_MORT: >10 deer/yr

SEASON: Year-round

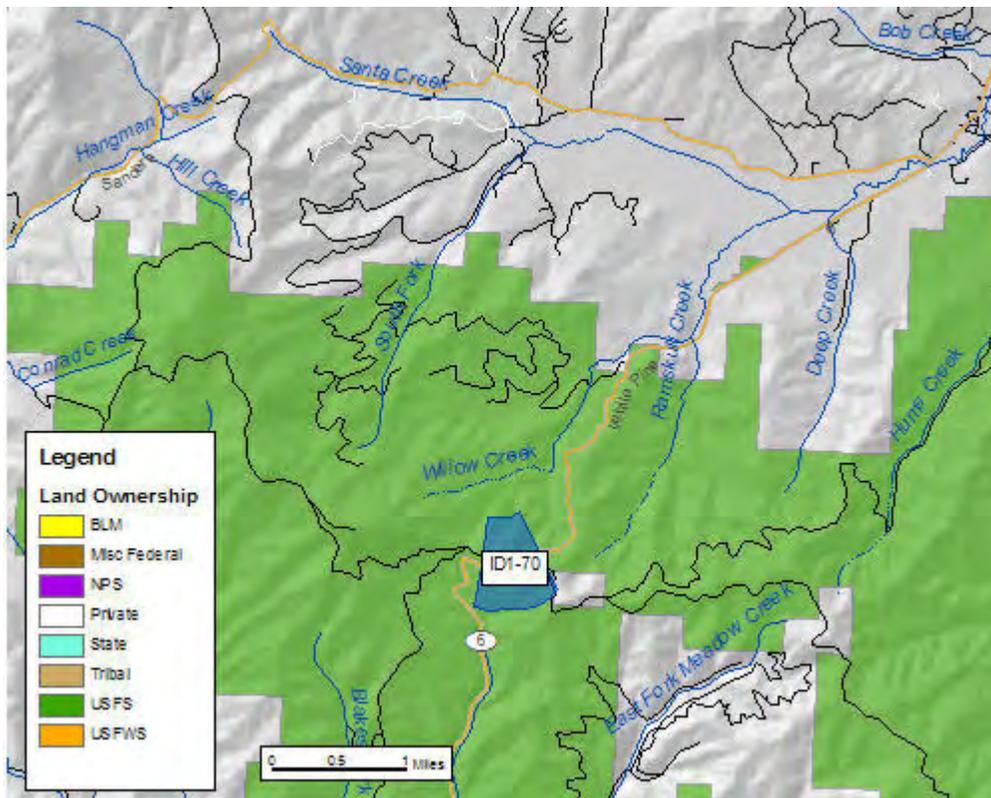
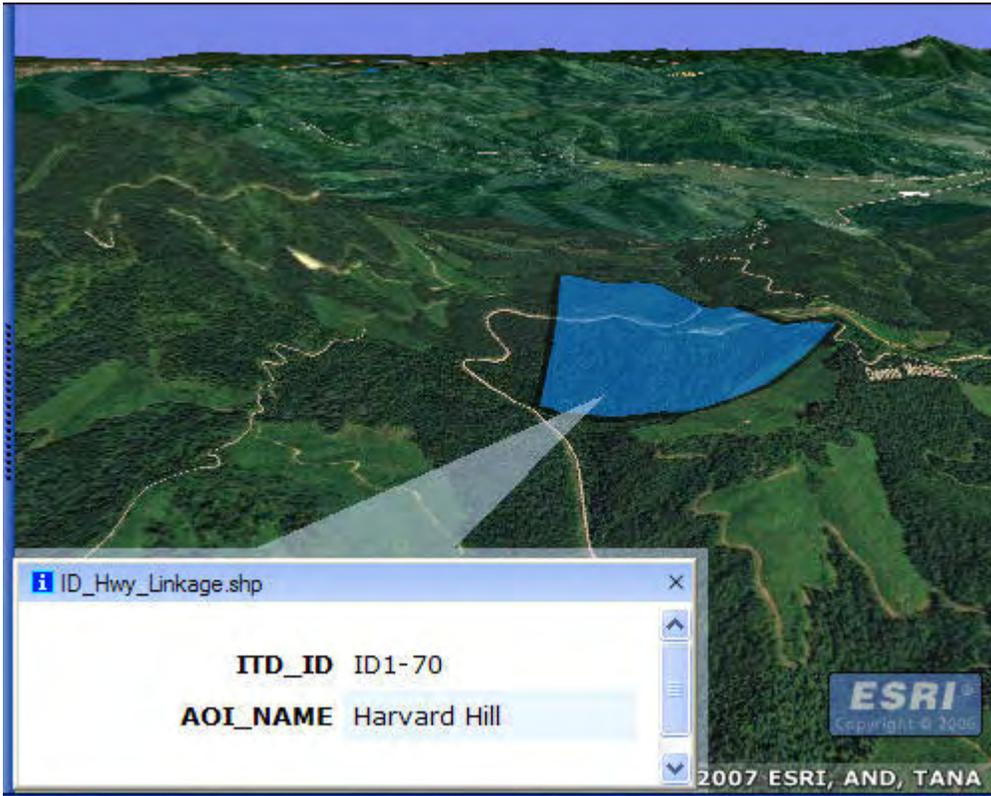
ATTRACT: Homes/landscaping plants

AGENCIES:

ADDITIONAL COMMENTS:

More than 10 white-tailed deer are killed and picked up by ITD annually between mileposts 15-17, State Highway 5, located on the west edge of St. Maries, Idaho. Deer occur in the area year-round. Residential homes and commercial buildings are scattered along the highway in this area, attracting deer to yards and gardens. There are no provisions to facilitate wildlife passage.

ITD1\_ID: ID1-70



ITD1\_ID: ID1-70

AOI\_NAME: Harvard Hill

PRIORITY: Moderate

SPECIES: white-tail deer/ elk/ moose/ black bear/ mountain lion/ bobcat/ wolf

MIG\_POP:

LOC\_POP:

SCALE: Local

HWY\_MORT:

SEASON: Deer, elk, moose year-round residents

ATTRACT: Native habitat and topography

AGENCIES:

ADDITIONAL COMMENTS:

Species: Deer and elk are focal species.

Scale: Wildlife typically move along ridges and summits, thus increasing the values of such sites.

Important Seasons: Deer, elk, and moose are year-round residents. Winter - Presence depends on snow depth; less critical for moose.

Permanent Human Presence: Recreation site. The old North-South ski bowl is nearby.

Wildlife Attractants: Native habitat and the topography increase wildlife movements in the area.

Most common species killed by vehicles: White-tailed deer and elk (5 or less of each species per year).

Effective functioning of linkage area: Generally working okay.

Existing conservation easements, land exchanges, etc.: Probably not significantly.

Impediments or current threats to the linkage area: Unknown.

Opportunities to improve the effectiveness of the linkage area: Unknown.

Good movement of wildlife east to west across the linkage area.

## **Appendix C – Workshop Participants**

### **Coeur d'Alene, Idaho April 3, 2008**

Don Davis	Idaho Transportation Department
Kim Just	Idaho Transportation Department
Greg Burak	Idaho Fish and Game
John Perfect	Idaho Transportation Department
Sonya Knetter	Idaho Fish and Game
Bryan Helmich	Idaho Fish and Game
Kim Davitt	American Wildlands
Jeff Knetter	Idaho Fish and Game
Jim Hayden	Idaho Fish and Game
Bill Ruediger	Wildlife Consulting Resources
Jack Andrews	Idaho Transportation Department
Mike Porcelli	Idaho Transportation Department
Nate Albrecht	Coeur D'Alene Tribe
Jesse Lewis	University of Idaho
Mike Hartz	Idaho Transportation Department
Scott Soult	Kootenai Tribe
Wayne Wakkinen	Idaho Fish and Game
Scott Robinson	Bureau of Land Management
Chuck Stock	US Forest Service, Panhandle National Forest
Kevin Scherer	Idaho Transportation Department
Dave Spicer	Idaho Fish and Game
Wayne Melquist	CREX Consulting
Ken Wall	Geodata Services, Inc.

### **Sandpoint, Idaho June 22, 2004**

Bob Summerfield	US Forest Service
Mike Herrin	US Forest Service
Brett Lyndaker	US Forest Service
Jim Hayden	Idaho Fish and Game
Scott Soult	Kootenai Tribe
David Roberts	US Forest Service
Don Davis	Idaho Transportation Department
Mike Hartz	Idaho Transportation Department
Kim Just	Idaho Transportation Department
Shannon Thornton	Idaho Transportation Department
Jack Ripley	Idaho Transportation Department
Wayne Wakkinen	Idaho Fish and Game
Wayne Kasworm	US Fish and Wildlife Service
Mary Terra-Berns	Idaho Fish and Game
Gregg Servheen	Idaho Fish and Game
Ken Wall	Geodata Services Inc.

## **Appendix D – Wildlife Linkage Area GIS Layer Metadata**

Identification\_Information:

Citation:

Citation\_Information:

Originator: Idaho Department of Fish and Game

Publication\_Date: 20080501

Title: itd1\_hwylinks

Geospatial\_Data\_Presentation\_Form: vector digital data

Description:

Abstract: Idaho Fish and Game/ Idaho Transportation Department Fish and Wildlife Linkage Project

Purpose: Linkage zones in Idaho Transportation Department District 1 with documentation collected from biologists and other experts during workshops and review comments.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Single\_Date/Time:

Calendar\_Date: 20080501

Currentness\_Reference: publication date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: Unknown

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -117.098936

East\_Bounding\_Coordinate: -115.673887

North\_Bounding\_Coordinate: 49.010696

South\_Bounding\_Coordinate: 47.007675

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: Idaho State Highways

Theme\_Keyword: Highways

Theme\_Keyword: State Highways

Theme\_Keyword: Wildlife

Place:

Place\_Keyword\_Thesaurus: Idaho

Place\_Keyword: Idaho

Access\_Constraints: Contact Greg Burak, Idaho Department of Fish and Game

Use\_Constraints: Contact Greg Burak, Idaho Department of Fish and Game

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: Idaho Department of Fish and Game

Contact\_Person: Greg Burak

Contact\_Address:

Address\_Type: physical address

Address: 600 S. Walnut St.

Address: PO Box 25  
City: Boise  
State\_or\_Province: Idaho  
Postal\_Code: 83707  
Country: USA  
Contact\_Address:  
Address\_Type: mailing address  
Address: PO box 25  
City: Boise  
State\_or\_Province: Idaho  
Postal\_Code: 83712  
Country: USA  
Contact\_Voice\_Telephone: 208-334-3700  
Native\_Data\_Set\_Environment: Microsoft Windows XP Version 5.1 (Build 2600)  
Service Pack 2; ESRI ArcCatalog 9.2.2.1350  
Data\_Quality\_Information:  
Completeness\_Report: Complete as of 20080501  
Lineage:  
Process\_Step:  
Process\_Description:  
1. Intersect draft linkage polygons from expert workshops with state highway features.  
2. Buffer road segments.  
Distance: 500 meter  
End type: FLAT  
3. Edit linkage zone buffers.  
Curvy road segments sometimes cause gaps or spikes in the buffer polygons. Gaps were filled and spikes were clipped.  
4. Add ID field: NEW\_ID  
5. Join spatial features to data table.  
Process\_Date: 20080501  
Spatial\_Data\_Organization\_Information:  
Direct\_Spatial\_Reference\_Method: Vector  
Point\_and\_Vector\_Object\_Information:  
SDTS\_Terms\_Description:  
SDTS\_Point\_and\_Vector\_Object\_Type: G-polygon  
Point\_and\_Vector\_Object\_Count: 70  
Spatial\_Reference\_Information:  
Horizontal\_Coordinate\_System\_Definition:  
Planar:  
Map\_Projection:  
Map\_Projection\_Name: Transverse Mercator  
Transverse\_Mercator:  
Scale\_Factor\_at\_Central\_Meridian: 0.999600  
Longitude\_of\_Central\_Meridian: -114.000000  
Latitude\_of\_Projection\_Origin: 42.000000

False\_Easting: 2500000.000000  
 False\_Northing: 1200000.000000  
 Planar\_Coordinate\_Information:  
   Planar\_Coordinate\_Encoding\_Method: coordinate pair  
   Coordinate\_Representation:  
     Abscissa\_Resolution: 0.000000  
     Ordinate\_Resolution: 0.000000  
   Planar\_Distance\_Units: meters  
 Geodetic\_Model:  
   Horizontal\_Datum\_Name: North American Datum of 1983  
   Ellipsoid\_Name: Geodetic Reference System 80  
   Semi-major\_Axis: 6378137.000000  
   Denominator\_of\_Flattening\_Ratio: 298.257222  
 Entity\_and\_Attribute\_Information:  
   Detailed\_Description:  
     Entity\_Type:  
       Entity\_Type\_Label: itd1\_hwylinks  
     Attribute:  
       Attribute\_Label: FID  
       Attribute\_Definition: Internal feature number.  
       Attribute\_Definition\_Source: ESRI  
       Attribute\_Domain\_Values:  
         Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.  
       Attribute:  
         Attribute\_Label: Shape  
         Attribute\_Definition: Feature geometry.  
         Attribute\_Definition\_Source: ESRI  
         Attribute\_Domain\_Values:  
           Unrepresentable\_Domain: Coordinates defining the features.  
       Attribute:  
         Attribute\_Label: NEW\_ID  
         Attribute\_Definition: The linkage identifier number, including the district number.  
       Attribute:  
         Attribute\_Label: AOI\_NAME  
         Attribute\_Definition: The name assigned to the linkage by workshop participants.  
       Attribute:  
         Attribute\_Label: PRIORITY  
         Attribute\_Definition: High, medium, or low. Subjective rankings assigned by workshop participants.  
       Attribute:  
         Attribute\_Label: SPECIES  
         Attribute\_Definition: The wildlife species mentioned by workshop participants or on online forms or interviews.  
       Attribute:  
         Attribute\_Label: MIG\_POP

Attribute\_Definition: Indication by workshop participants on whether the wildlife population was migratory, which has some bearing on the success of different wildlife crossing structures.

Attribute:

Attribute\_Label: LOC\_POP

Attribute\_Definition: Indication by workshop participants on whether the wildlife population was local, which has some bearing on the success of different wildlife crossing structures.

Attribute:

Attribute\_Label: SCALE

Attribute\_Definition: The scale of the linkage area. Those of ecosystem scale provide linkage primarily between large areas of federal lands important to wildlife. Those of local scale are important for local populations.

Attribute:

Attribute\_Label: HWY\_MORT

Attribute\_Definition: A comment on highway wildlife vehicle accidents and highway related wildlife mortality.

Attribute:

Attribute\_Label: SEASON

Attribute\_Definition: A comment on the linkage area if it is primarily used by wildlife in one or more specific seasons of the year.

Attribute:

Attribute\_Label: ATTRACT

Attribute\_Definition: A comment on any attractants for wildlife in the area of the linkage or the immediate surroundings.

Attribute:

Attribute\_Label: AGENCIES

Attribute\_Definition: The agencies that are either responsible for or have primary interest in the area in or around a linkage area.

Distribution\_Information:

Resource\_Description: Downloadable Data

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Transfer\_Size: 0.331

Metadata\_Reference\_Information:

Metadata\_Date: 20080513

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: Geodata Services, Inc.

Contact\_Person:

Contact\_Address:

Address\_Type: mailing and physical address

Address: 1121 E. Broadway St. #133

City: Missoula

State\_or\_Province: Montana  
Postal\_Code: 59802  
Country: USA  
Contact\_Voice\_Telephone: 406-532-3239  
Contact\_Electronic\_Mail\_Address: kwall@geodataservicesinc.com  
Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata  
Metadata\_Standard\_Version: FGDC-STD-001-1998  
Metadata\_Time\_Convention: local time  
Metadata\_Extensions:  
Online\_Linkage: <http://www.esri.com/metadata/esriprof80.html>  
Profile\_Name: ESRI Metadata Profile