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**From:** Scott Kreiter  
**Sent:** Monday, September 08, 2008 11:14 PM  
**To:** Scott Kreiter; Beau Patterson; 'Bill Towey'; Bob Clubb; 'Bob Dach'; 'Bob Easton'; 'Brenda Crowell'; 'Dan Trochta'; 'Dave Volsen'; 'David Turner'; 'Dennis Beich'; 'Dinah Demers'; Gordon Brett; Jim McGee; 'John Devine'; 'Karen Kelleher'; 'Marc Hallett'; 'Mary Hunt'; Mary Mayo; 'Matt Monda'; 'Neal Hedges'; 'Patricia Leppert'; 'Patrick Verhey'; Shane Bickford; 'Steve Lewis'; 'Tony Eldred'  
**Subject:** Wells Relicensing: Terrestrial RWG Meeting Notes  
**Attachments:** Terrestrial\_RWG\_Notes\_082608.pdf; Hatchery Predation Summary.pdf; T-line wildlife and botanical survey summary.pdf

Wells Relicensing Terrestrial Work Group:

Please find attached the notes from the August 26, 2008 Terrestrial RWG meeting. Please contact me with comments by September 15.

Thank you.  
-Scott

Scott Kreiter  
Douglas County PUD  
509-881-2327

# Draft Meeting Notes

## Terrestrial Resource Work Group

Wells Hydroelectric Project Relicensing  
Douglas County PUD  
August 26, 2008

**Meeting Coordinator:** Scott Kreiter (509) 881-2327

**Meeting Objective:** To provide preliminary relicensing study results to members of the Terrestrial RWG

### Wells ILP Update

Douglas PUD provided an update on the Wells Project ILP. The first season study phase of the ILP is nearly complete. The Piscivorous Wildlife Control Study will be finalized by October, 2008. The Transmission Line Wildlife and Botanical Study will be finalized in November, 2008. The Initial Study Report is due to be filed with FERC on October 15<sup>th</sup>. The Initial Study Report Meeting is scheduled for October 30<sup>th</sup>.

### Piscivorous Wildlife Control Study

Douglas PUD (Jim McGee) provided the group with a progress report on the Piscivorous Wildlife Control Study which is being prepared by the USDA. The report included an overview of methods and preliminary results which were summarized in a handout (attached).

The following comments by the work group will be addressed in the report:

- Include total hatchery fish production and predation projections in report, and remove any hatchery fish production or predation estimates from Pond #1 as these release estimates are believed to be inaccurate by WDFW hatchery staff.

### Transmission Line Wildlife and Botanical Study

Mike Hall and Colin Worsley of Parametrix provided a progress report on the Transmission Line Wildlife and Botanical Report. The report included an overview of methods and preliminary results which were summarized in a handout.

The following comments by the work group will be addressed in the report:

- Add a description of the transmission line features and dimensions.
- The report should discuss whether the transmission line features meet standards for birds, and how the Avian Protection Plan addresses future management.
- Raptor survey reports from Chelan PUD's Burch Mountain transmission line project will be sent to Parametrix.

Action Items:

Complete reports will be distributed to FERC and the public on October 15<sup>th</sup>. Comments on the reports will be filed with FERC as part of the formal Integrated Licensing Process.

There are no action items in addition to those described above.

# AN EVALUATION OF THE EFFECTS OF AND ALTERNATIVES TO THE EXISTING BIRD AND MAMMAL CONTROL PROGRAMS (Piscivorous Wildlife Control Study)

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## Study goal

■ The goals of this study were to evaluate existing practices and alternatives, and inform future management decisions related to future piscivorous wildlife control measures at the Wells Project and associated hatchery rearing facilities.

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## Objectives

- Identify and count the current and historic numbers and species of birds and mammals feeding on fish at the Project hatcheries and in the Wells tailrace;
- Assess the potential impacts of mortality caused by piscivorous birds and mammals to ESA listed, sensitive and recreationally important species;
- Describe each of the existing piscivorous wildlife control measures, including species targeted, reasons for control, frequency of control and effectiveness of the control method;
- Evaluate alternatives, including the costs and benefits of each measure recommended. The study will provide alternative methods of preventing predation of fish at the Wells Project and in hatchery rearing ponds.

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## Observations

<ul style="list-style-type: none"><li>■ Daytime Hazing</li><li>■ Observed 2,288 birds attempting to use the Wells Hatchery.</li><li>■ Dispersed 2,274 birds in 810 hazing events (324 vehicle and 486 pyrotechnics).</li></ul>	<ul style="list-style-type: none"><li>■ Nighttime – no hazing</li><li>■ Observed 6,839 birds using the Wells hatchery without hazing.</li></ul>
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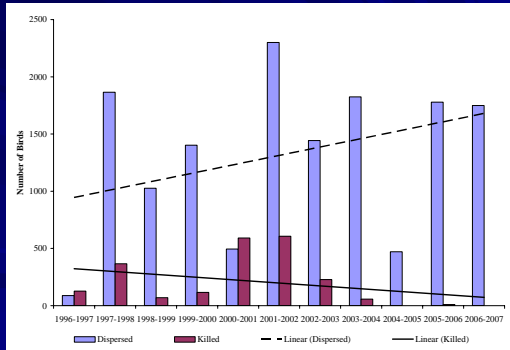
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Numbers of birds dispersed and killed during management activities at Wells Hatchery October-May, 1996-2007.




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### Three Most Frequently Observed Species

- Daytime
- Great Blue Heron
- Mallard
- Common Goldeneye
- 23 species observed
- Nighttime
- Common Merganser
- Bufflehead
- Great Blue Heron
- 15 species observed

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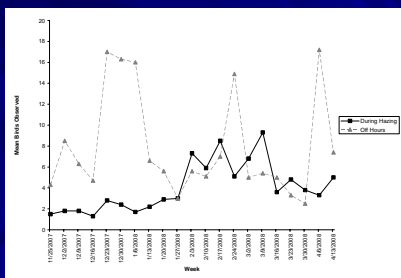
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Mean numbers of birds observed weekly at all Wells Hatchery locations during hazing and non-hazing periods, November 2007-April 2008




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Observations of bird foraging behavior recorded during non-hazing periods at Wells Hatchery, Douglas County, Washington, November 2007-May 2008.

Species	Foraging attempts	Fish caught	Unknown caught
Great Blue Heron	522	16	329
Common Merganser	87	0	51
Hooded Merganser	53	0	27
Double-crested Cormorant	34	23	8
Osprey	27	26	0
Belted Kingfisher	26	1	14
Bufflehead	10	0	0
Pied-billed Grebe	9	0	2
Mallard	6	1	0
Common Loon	6	0	3
Common Goldeneye	2	0	2
Total	782	67	436

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WDFW estimates of fish loss from Ponds 1-4 at Wells Hatchery, Douglas County, Washington, November 2007-May 2008.

POND	Percent Loss
DP1	0.6%
DP2	0.5%
DP3	12.8%
DP4	0.5%

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## Furbearer Observations

- 1 to 4 Raccoon observed 15 times
- 1 otter observed 4 times – caught 2 fish

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## What do we know?

- Local populations of birds altered their daily use of hatchery ponds to avoid hazing.
- The amount of loss in Pond 3 can not be attributed only to bird predation.
- Otter predation was negligible.

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## Methow Hatchery

- Only birds observed foraging in raceways entered through open doors on covers.
- Mink tracks were observed outside of the fence although not documented in ponds or raceways.

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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line



August 2008

Wells Hydroelectric Project  
230 kV Transmission Line  
Biological Studies

Parametrix

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

### Overall Goals

- Provide information needed to
  - Guide land management decisions
  - Avoid damage to valuable habitat during future transmission corridor management activities
  - Minimize the spread of invasive weeds
  - Meet FERC requirements during the Integrated Licensing Process for Wells Hydroelectric Project
- Provide information on the presence of rare, threatened, and endangered (RTE) plant or animal species in the corridor.
- Provide baseline data on birds found near the corridor

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

### Rare, Threatened, and Endangered Species

- Listed as threatened or endangered under ESA
- Proposed or candidate for listing under ESA
- State listed as threatened or endangered
- State listed as candidate (wildlife only)
- State listed as sensitive (plants only)
- State listed as Review List 1 (plants only)

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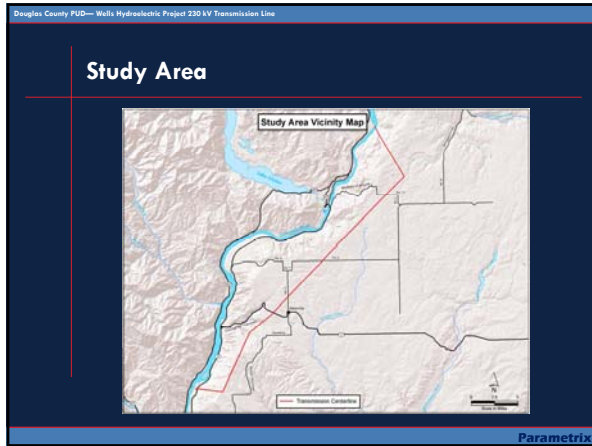
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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies



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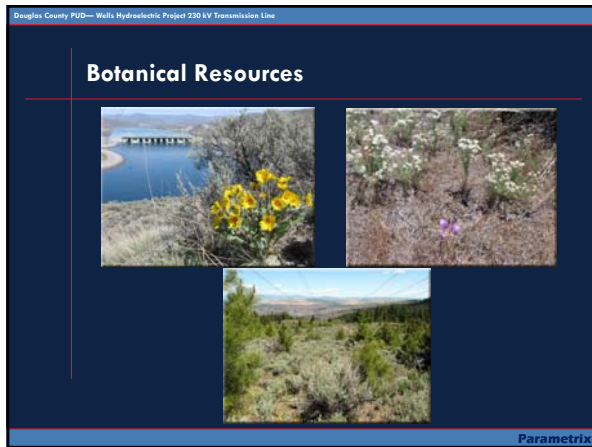
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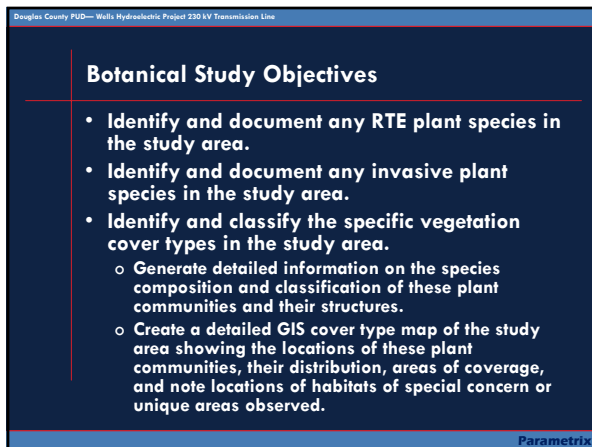
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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Botanical Surveys



Botanical Survey Areas

- Surveyed approximately 18 miles of habitat

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The map shows a topographic view of a region with a river and a proposed transmission line route. Red dashed lines indicate the 'Botanical Survey Areas' along the route. A legend in the bottom right corner identifies the 'Botanical Survey Areas' and the 'Transmission Corridor'. A scale bar and north arrow are also present.

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## RTE Plant Surveys



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A photograph showing a person wearing a hat and a backpack, kneeling in a field to examine a plant. In the background, there is a large reservoir and a dam.

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## RTE Plant Surveys—Methodology

- **Pre-field review**
  - Obtain agency information on RTE plants
  - Develop a "target" list of RTE plant species
  - Review morphological characteristics of target RTE plant species to develop a search image
  - Create field maps with known populations
- **Field surveys**
  - Visually search suitable habitat for RTE plant surveys in the study area
  - Conduct RTE plant surveys on foot using a random meander approach [(as described in Nelson (1985))]
- **Documentation and mapping of results**
  - Map RTE plant populations by sketching on survey maps and collecting GPS coordinates
  - Collect population data and complete a WNHP sighting form for each RTE plant population
- **Photograph each RTE plant population**

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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## RTE Plant Surveys—Results

- Conducted 3 separate surveys to date (May 5- 8, June 9-12, and July 8-11)
- One RTE plant population found – Thompson's clover (*Trifolium thompsonii*)



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## RTE Plant Surveys—Thompson's Clover Distribution Map

---Map removed due to confidentiality---

- Approximately 11 acres within the study area

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Invasive Plant Surveys



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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Invasive Plant Surveys—Methodology

- **Pre-field review**
  - Obtain a list of invasive plants found in Douglas County
  - Develop a "target" list of invasive plant species
  - Review morphological characteristics of target invasive plant species to develop a search image
- **Field surveys**
  - Conduct in conjunction with RTE plant surveys and field verification of cover type mapping
- **Documentation and mapping of results**
  - Map invasive plant infestations by collecting GPS coordinates and adding to project maps
  - Collect data on infestation size and density (using North American Weed Management Association methods (NAWMA 2003)).

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Invasive Plants Surveys—Results



- Conducted 3 separate surveys to date (May 5- 8, June 9-12, and July 8-11)
- 48 invasive plant populations found
- Approximately 50 acres within the study area

	Weed Class	Identified Populations
Diffuse and Spotted Knapweed ( <i>Centaurea diffusa</i> and <i>Centaurea biebersteinii</i> )	B	29
Dalmatian toadflax ( <i>Linaria dalmatica</i> )	B	19

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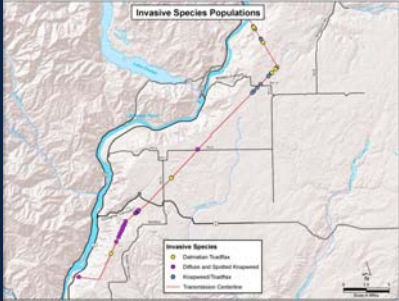
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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Invasive Plant Surveys—Distribution Map



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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Cover Type Mapping



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Cover Type Mapping—Methodology

- Field verify draft cover type mapping provided by Douglas County PUD
  - Conduct in conjunction with RTE and invasive plant surveys
  - Reassign correct cover type classification as needed.
- Collect vegetation characterization data for each cover type
  - Collect additional data including species composition, stand structure, habitat quality, and land use
- Produce a final cover type GIS shapefile, acreage tables, and map

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Cover Type Mapping—Results

- In progress

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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Wildlife Resources



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Wildlife Study Objectives

- Identify and document the location of RTE bird, mammal, and reptile species that use the study area
- Describe the habitat features used by RTE bird, mammal, and reptile species observed within the corridor
- Document the presence of other bird, mammal, and reptile species in the study area
- Assess the relative abundance of birds using the study area
- Document raptor and corvid nesting and sharp-tailed and sage grouse use within the study area
- Document any evidence under the transmission line of avian collisions

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Avian Survey Methodology: Point-Transect Surveys

- Conducted standard 5-minute point count surveys at stations
- Recorded bird observations while walking routes between point count stations
- Between 15 minutes before sunrise and 4 hours after sunrise
- Breeding season surveys:
  - 6-8 May
  - 19-22 May
  - 4-6 June
  - 17-19 June
- Four additional surveys to be conducted in September and October to capture the variability of the fall avian migration

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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Point-Transect Surveys – Preliminary Results

- 200 point count station visits, 36 transect miles
- 63.5 person-hours conducting point-transect surveys
- 1,811 bird detections (1,410 at stations, 313 between stations, 88 incidental)
- 91 species total, 85 during point-transect surveys



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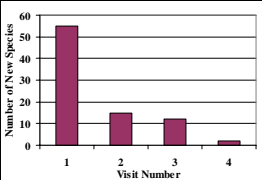
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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Point-Transect Surveys – Preliminary Results



Number of Bird Species First Observed in the Wells Project Transmission Corridor Study Area, by Survey Visit

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Point-Transect Surveys – Preliminary Results

Dominant Cover Type	Total Number of Surveys	Total Number of Species	Species per Survey
Dryland Agriculture	4	4	1.00
Idle Agriculture	20	5	0.25
Grassland	4	4	1.00
Open Conifer	36	30	0.83
Riparian	8	20	2.50
Shrub-steppe	124	32	0.26
Talus	4	2	0.50
<b>Total</b>	<b>200</b>	<b>47</b>	<b>0.24</b>

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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Point-Transect Surveys – Preliminary Results

Most commonly detected species (relative abundance, as birds per station per visit):

- Brewer's sparrow (0.20)
- Spotted towhee (0.17)
- Vesper sparrow (0.13)
- Mountain chickadee (0.10)
- Lazuli bunting (0.09)
- American robin (0.09)
- Western meadowlark (0.09)

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Noteworthy Observations

- One RTE species (sage thrasher, a State Candidate) – singing males in shrub-steppe habitat in the Mud Springs, Corbaley, and Badger South groups
- Nests: calliope hummingbird, house finch, mourning dove, mountain chickadee, vesper sparrow, Brewer's sparrow
- Species using towers: Western kingbird, red-naped sapsucker, Brewer's blackbird



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Prairie Grouse Surveys

- Primary purpose: To collect information on the use of the transmission corridor by greater sage-grouse and sharp-tailed grouse
- Also record observations of dusky grouse and other game bird species (turkey, ring-necked pheasant, chukar, gray partridge, California quail)
- Walk transmission line corridor and record evidence of use by gallinaceous birds
- Collect incidental observations during other surveys

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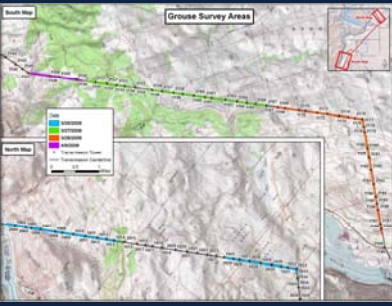
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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Prairie Grouse Surveys



The map displays the Grouse Survey Areas with a legend for different habitats: Wetlands, Riparian, Grassland, Sagebrush Steppe, and Shrubland. It also shows the proposed transmission line route and various survey points marked with colored dots. An inset map shows the project location within Douglas County, Oregon.

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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Prairie Grouse Surveys—Preliminary Results

- 43.4 person-hours of grouse-specific surveys
- 12.1 miles of t-line corridor searched
- No evidence of use by greater sage-grouse or sharp-tailed grouse
- Other species observed: dusky grouse, ring-necked pheasant, chukar, gray partridge, California quail
- Two more survey visits planned for September



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Raptor and Corvid Nest Surveys

- Purpose: Document evidence of raptors and corvids using transmission line and towers for nesting, roosting, and perching
- Examined towers during field work
- Helicopter survey, May 21, 2008
- DCPUD inspection memo



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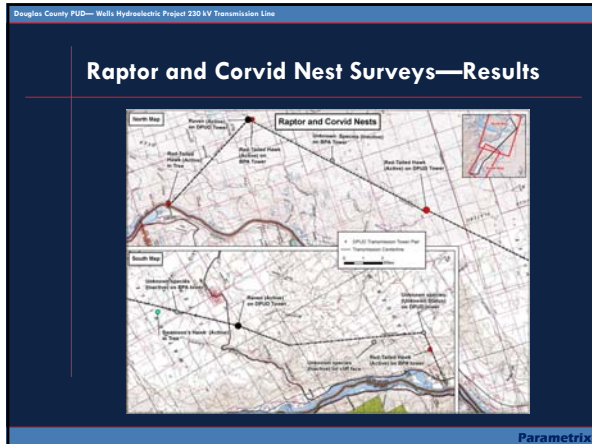
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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Avian Collision Surveys

- **Purpose:** Document evidence of birds colliding with transmission lines
- Focused survey of two segments identified as having an elevated risk of avian collisions
- Pedestrian surveys of the transmission line corridor: 5 visits during spring, 5 during fall migration
- Record observations of bird carcasses observed during all other wildlife and botanical studies along transmission line corridor



The image shows two individuals in outdoor gear, one in a dark jacket and the other in a yellow and black jacket, examining a bird carcass in a field setting. The Parametrix logo is visible in the bottom right corner.

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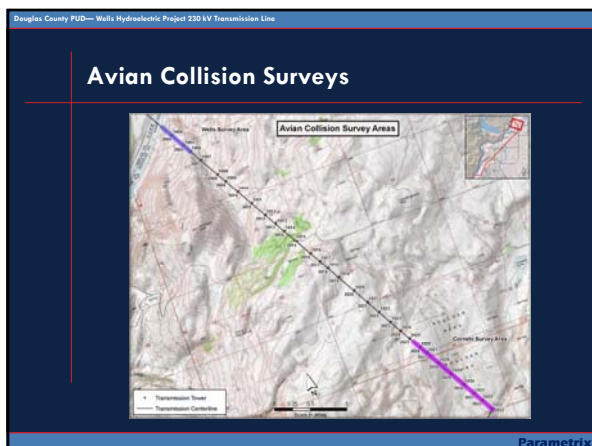
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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Avian Collision Surveys—Preliminary Results

- 63.6 person-hours in the two focused survey segments
- No evidence of mortality attributable to collisions
- Two feather piles (ring-necked pheasant and gray partridge) in Cornehl segment – apparent predation
- Incidental observation of a dusky grouse carcass in Rocky segment
- 5 more focused surveys scheduled for fall



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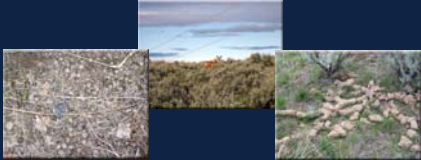
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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Mammal Surveys

- Primary purpose: Identify and document the location and habitat features used by of RTE mammal species in the study area
- Also document the presence of other mammal species
- Recorded observations of animals and sign



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Mammal Surveys—Preliminary Results

- 212.8 person-hours devoted to focused surveys for birds and reptiles
- Most commonly observed mammal: mule deer
- Other species detected: coyote, bobcat, striped skunk, long-tailed weasel, American badger, porcupine, pocket gopher, bushy-tailed woodrat, yellow-bellied marmot



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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Reptile Surveys

- Primary purpose: Identify and document the location and habitat features used by RTE reptile species in the study area
- Also document the presence of other reptile species
- Area-constrained visual encounter surveys at avian point count stations
- Additional searches at promising locations



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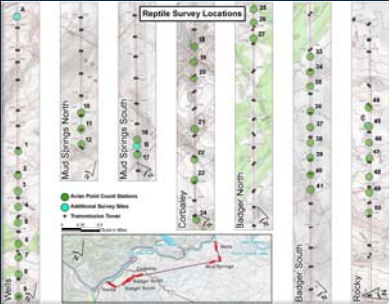
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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Reptile Surveys



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Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Reptile Surveys—Preliminary Results

- 41 acres searched, 42.3 person-hours
- No evidence of RTE reptile species (sagebrush lizard, striped whipsnake)
- Species documented:
  - Pygmy short-horned lizard
  - Western skink
  - Racer (including egg)
  - Western terrestrial garter snake
  - Western rattlesnake
  - (Also: long-toed salamander)
- 12 detections: 0.30 detections per acre, 0.29 detections per person-hour



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# Wells Hydroelectric Project 230 kV Transmission Line Biological Studies

Douglas County PUD— Wells Hydroelectric Project 230 kV Transmission Line

## Next Steps

- One more botany field visit
- Finalize cover type classifications
- Conduct fall avian surveys, complete analysis
- Habitat data at stations
- Additional grouse surveys
- Continue mortality surveys
- Continue recording incidental observations
- Literature review

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