

TRIANGLE LAKE PESTICIDE STUDY

Topics Covered

1. Location, Ownership and Topography
2. Pesticide Spray Data Summary
3. Environmental Health Impact Assessment
4. Spray Record Keeping Issues
5. Policy Deficiencies
6. Policy Recommendations

Oregon Health Authority Highway 36 / Triangle Lake Exposure Investigation



Public Comment Release

**Public Health Assessment
Highway 36 Corridor Exposure Investigation**

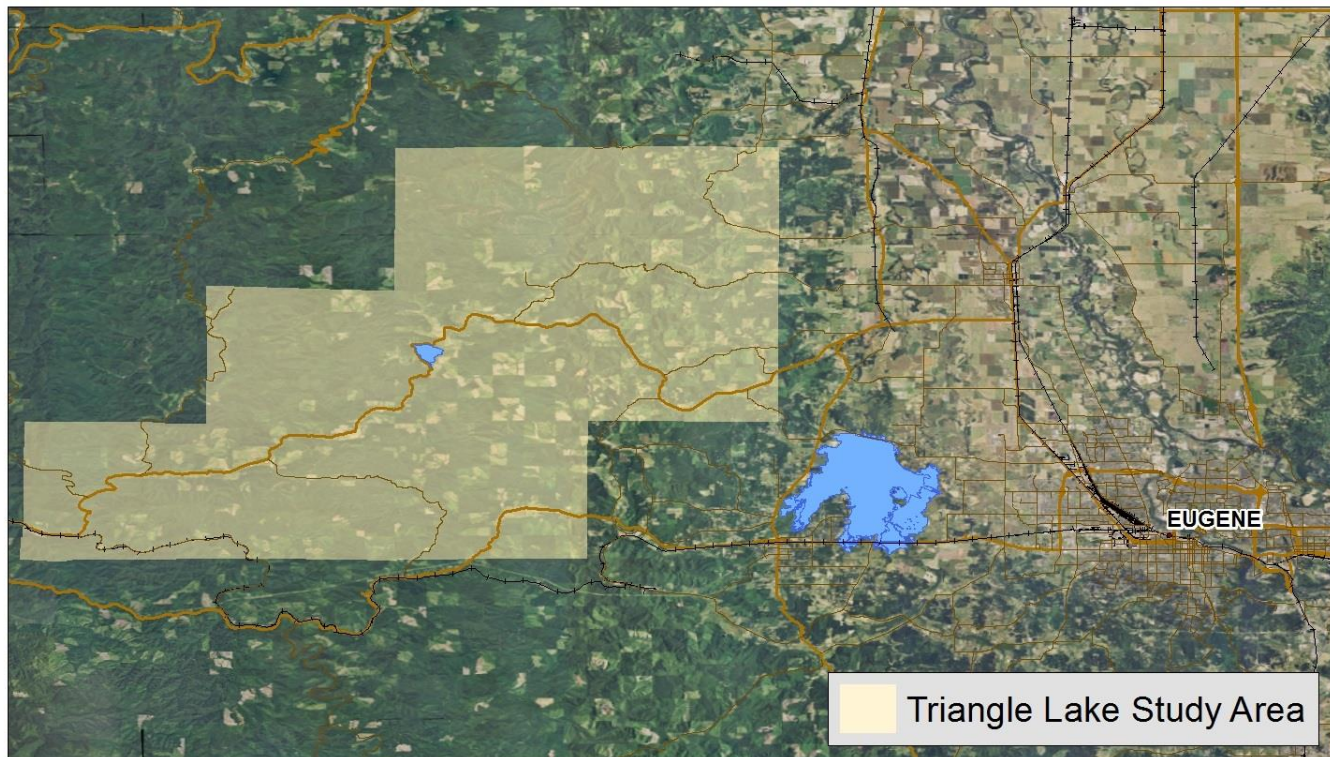
May 9, 2013

Prepared by the

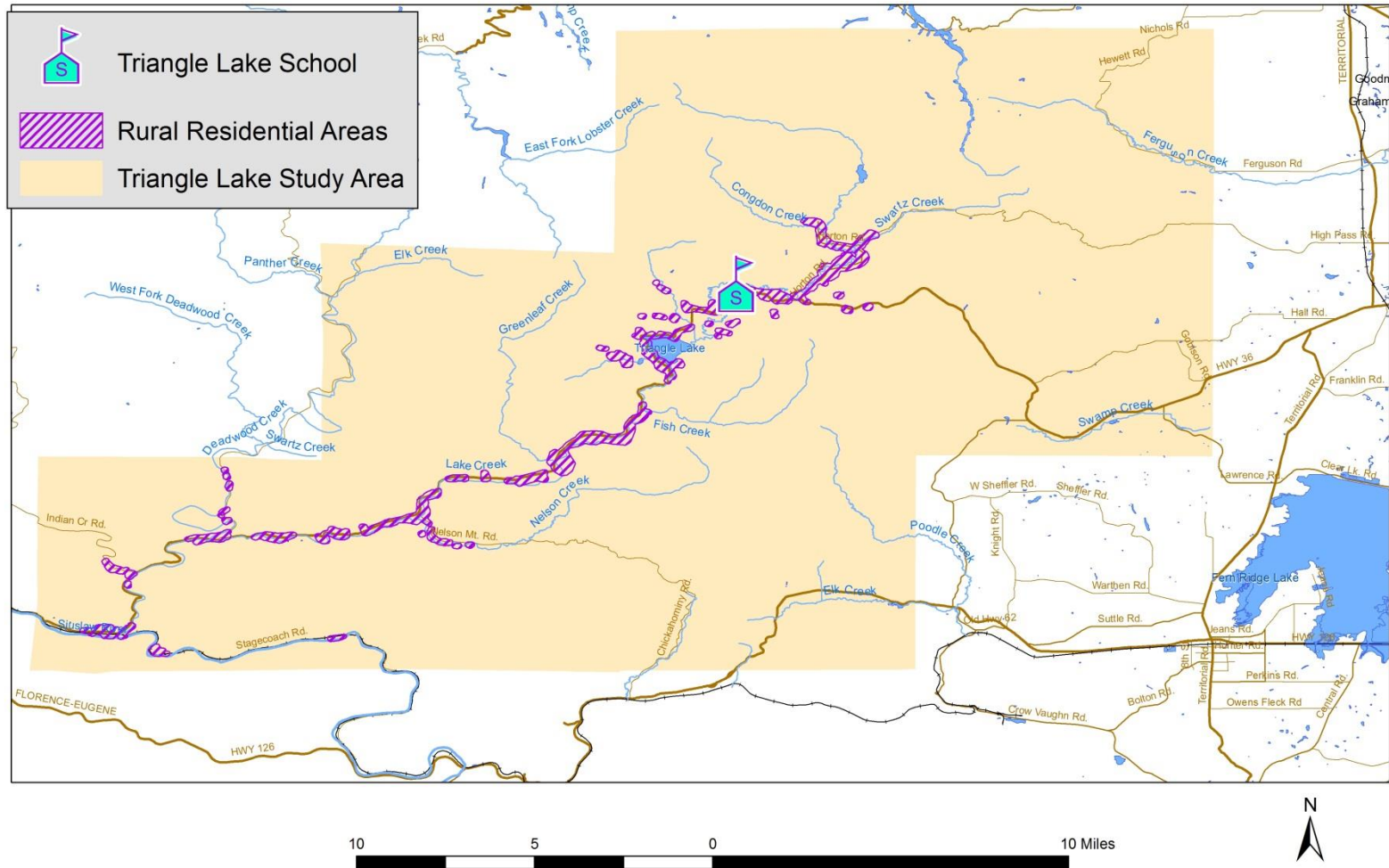
Environmental Health Assessment Program
Oregon Health Authority
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Comment period end date: July 9, 2013

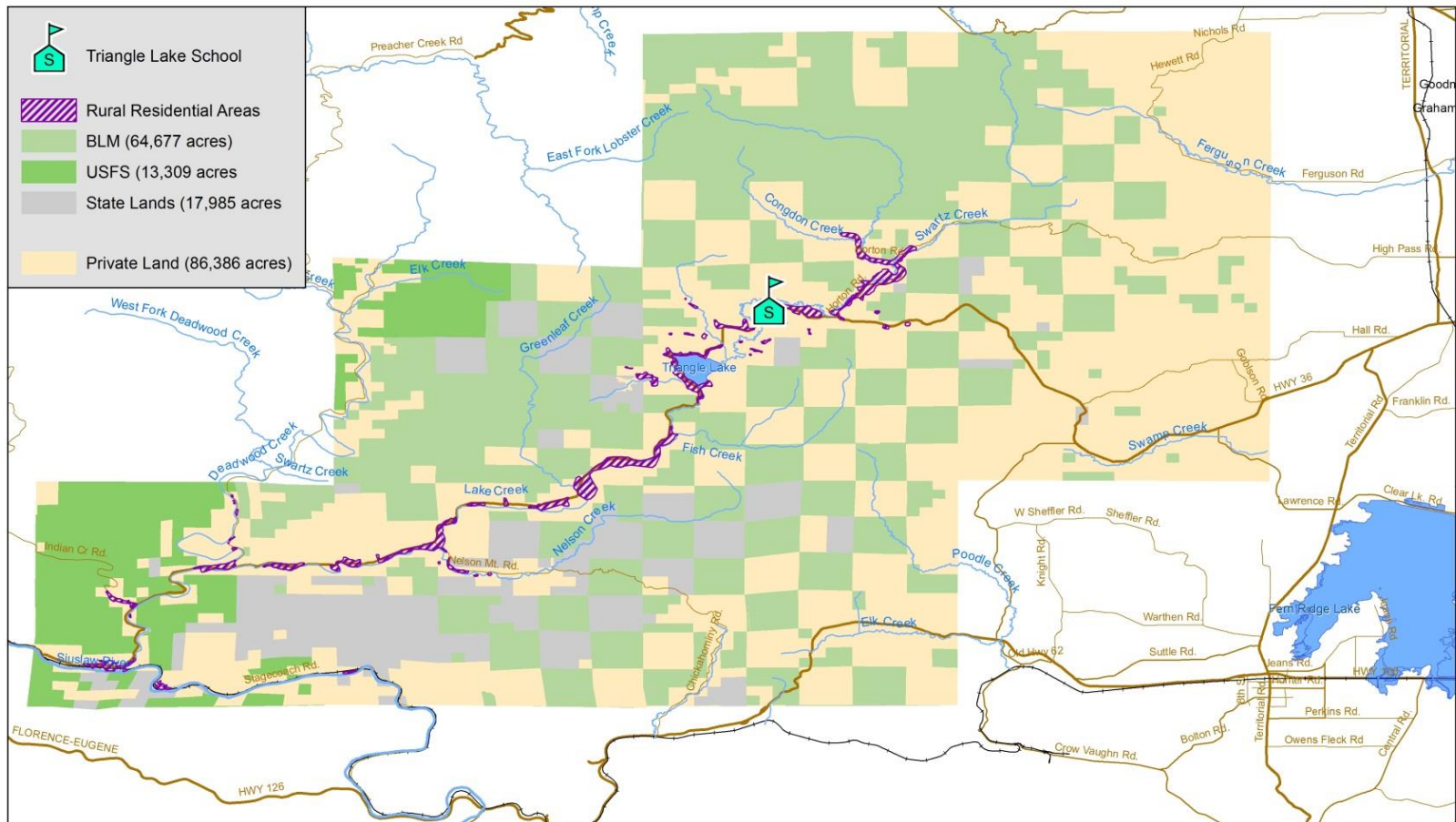
Study Area is 10-14 Miles West of Eugene



Residential Areas in the Study Area



Mixed Ownership Within the Study Area

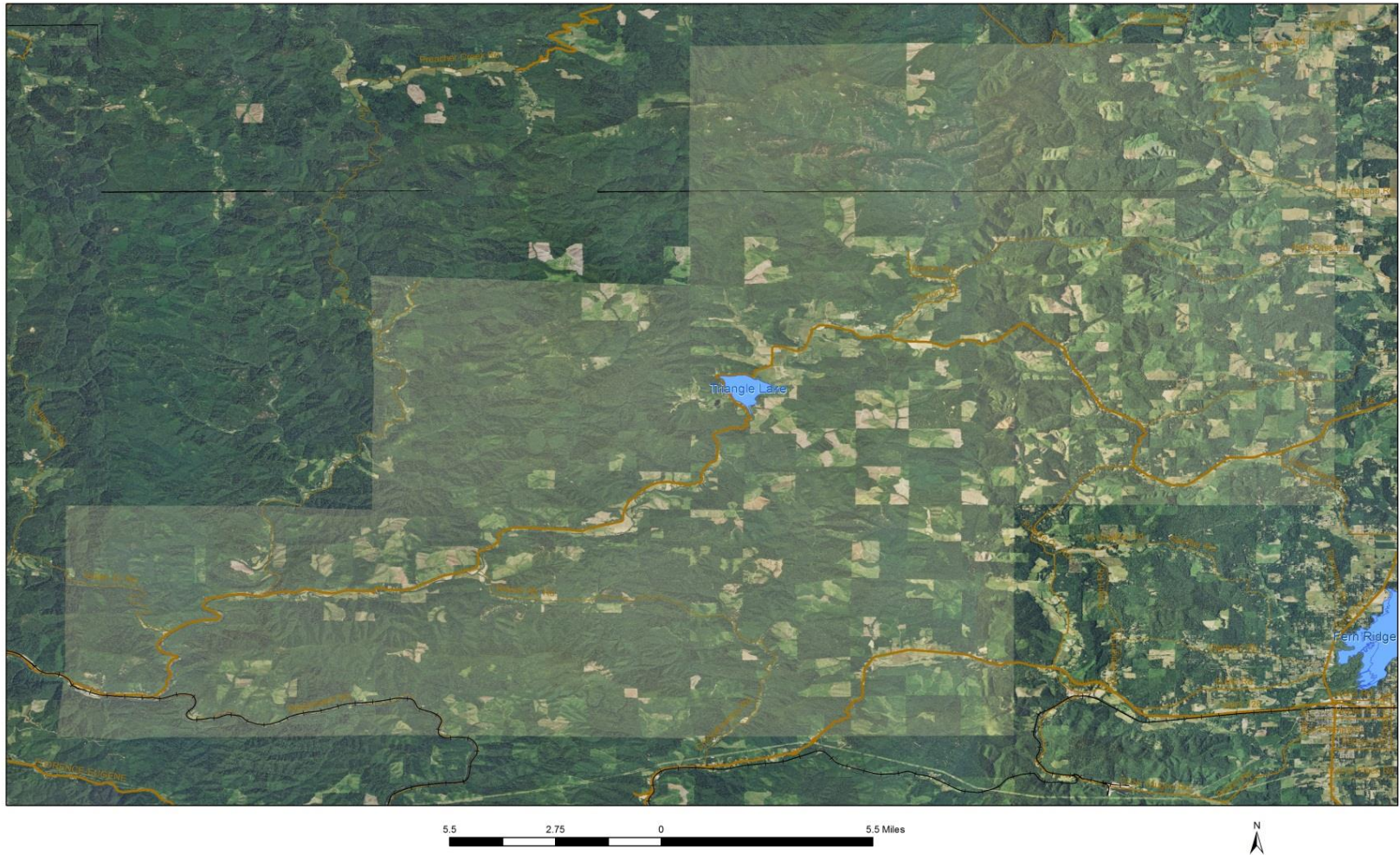


Ownership Data is from the BLM GIS Data Website
(<http://www.blm.gov/or/gis/data.php>)

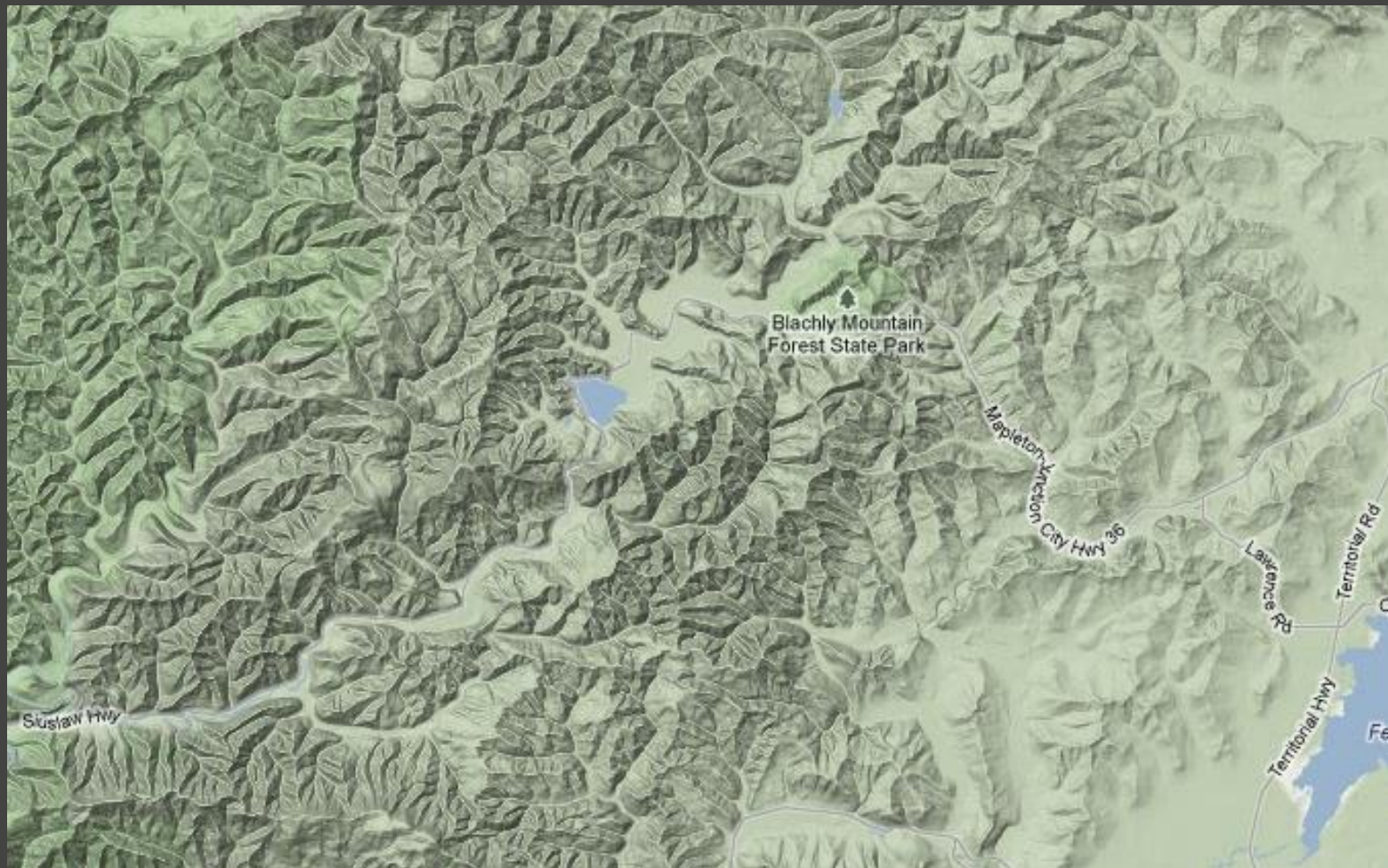
10 5 0 10 Miles



Current Land Use Patterns

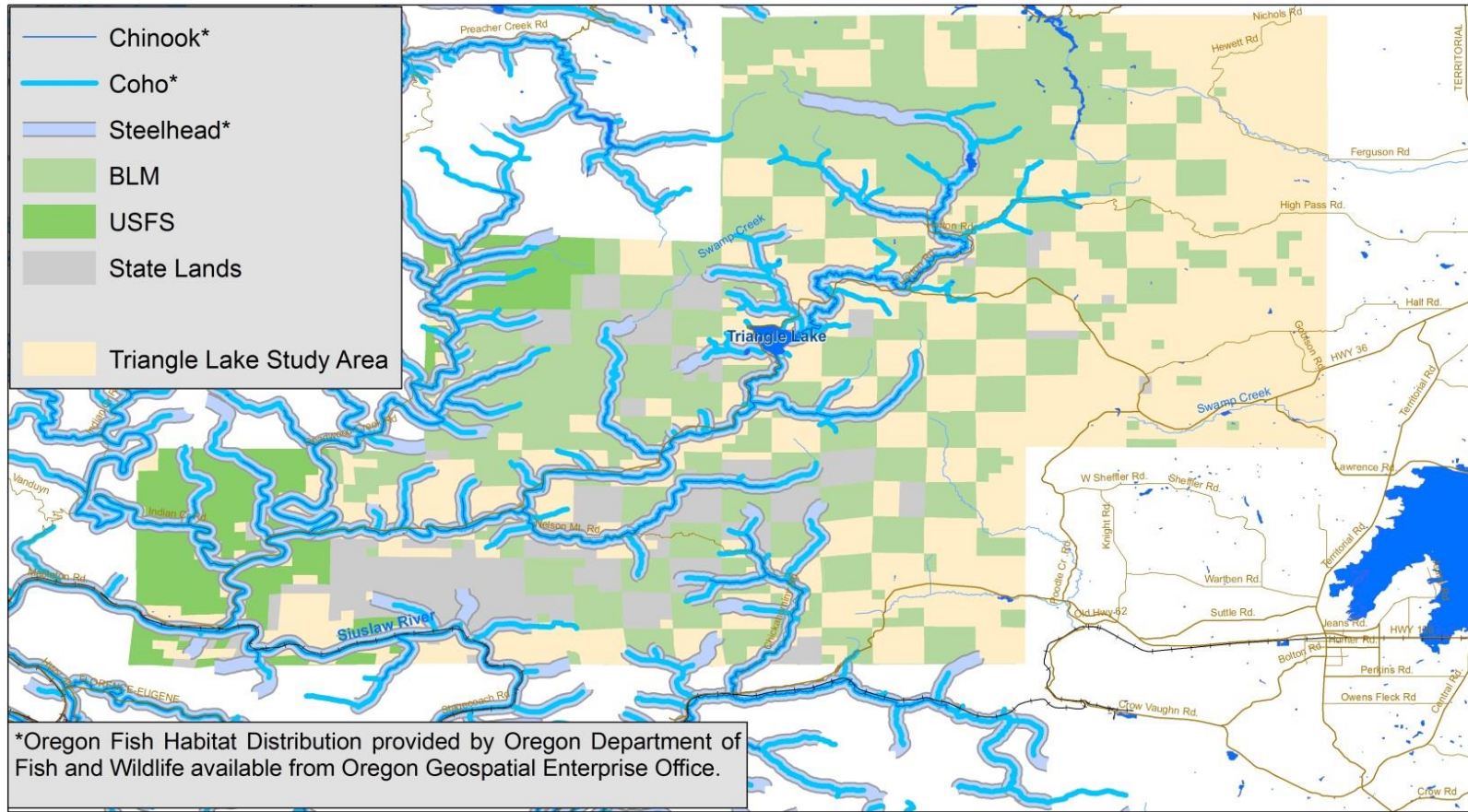


High Stream Density and Steep Terrain





Salmon and Steelhead Streams



Lake Creek Falls

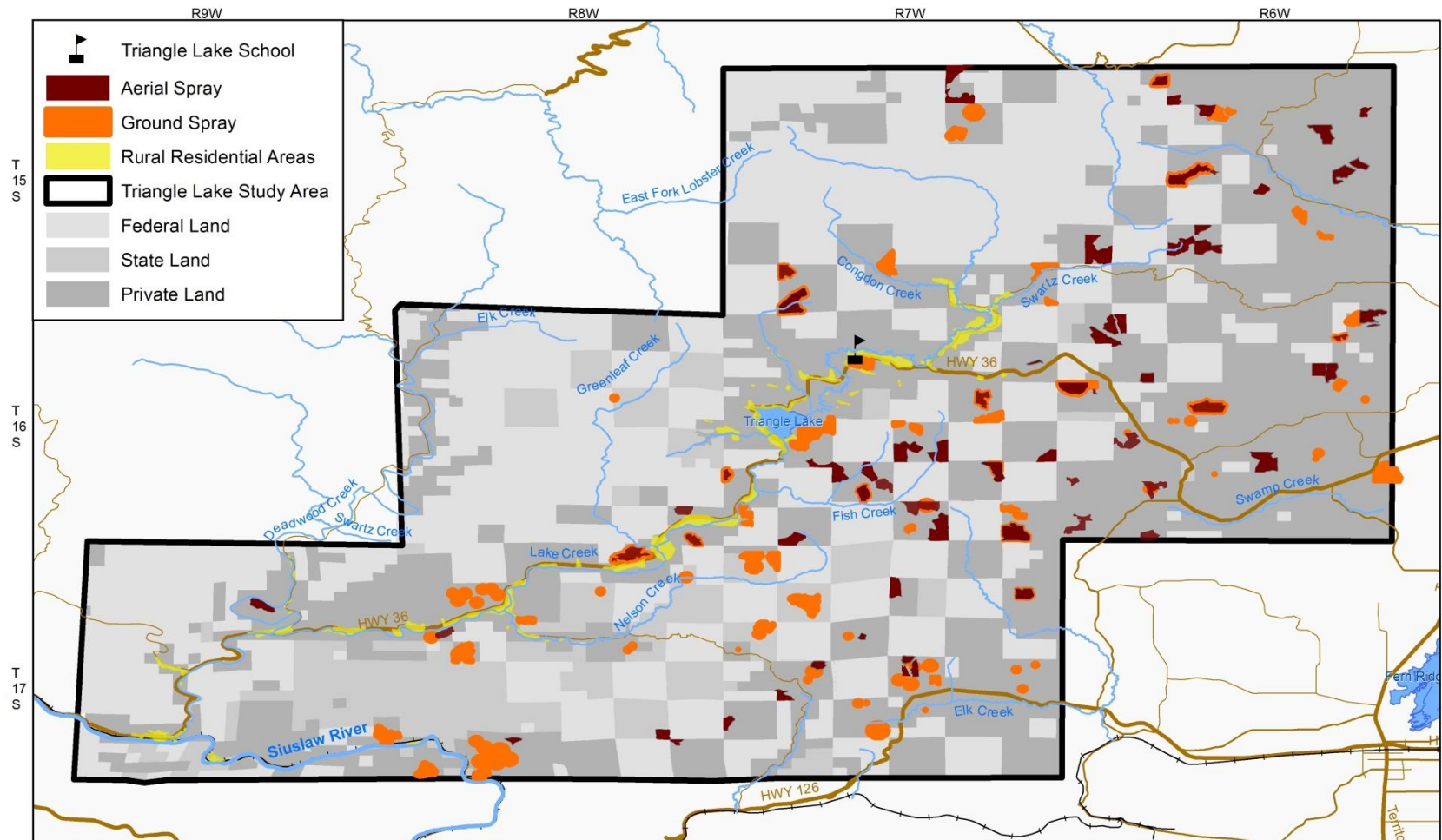
Below Triangle Lake – Above Fish Creek Confluence



The State constructed fish ladders for returning salmon

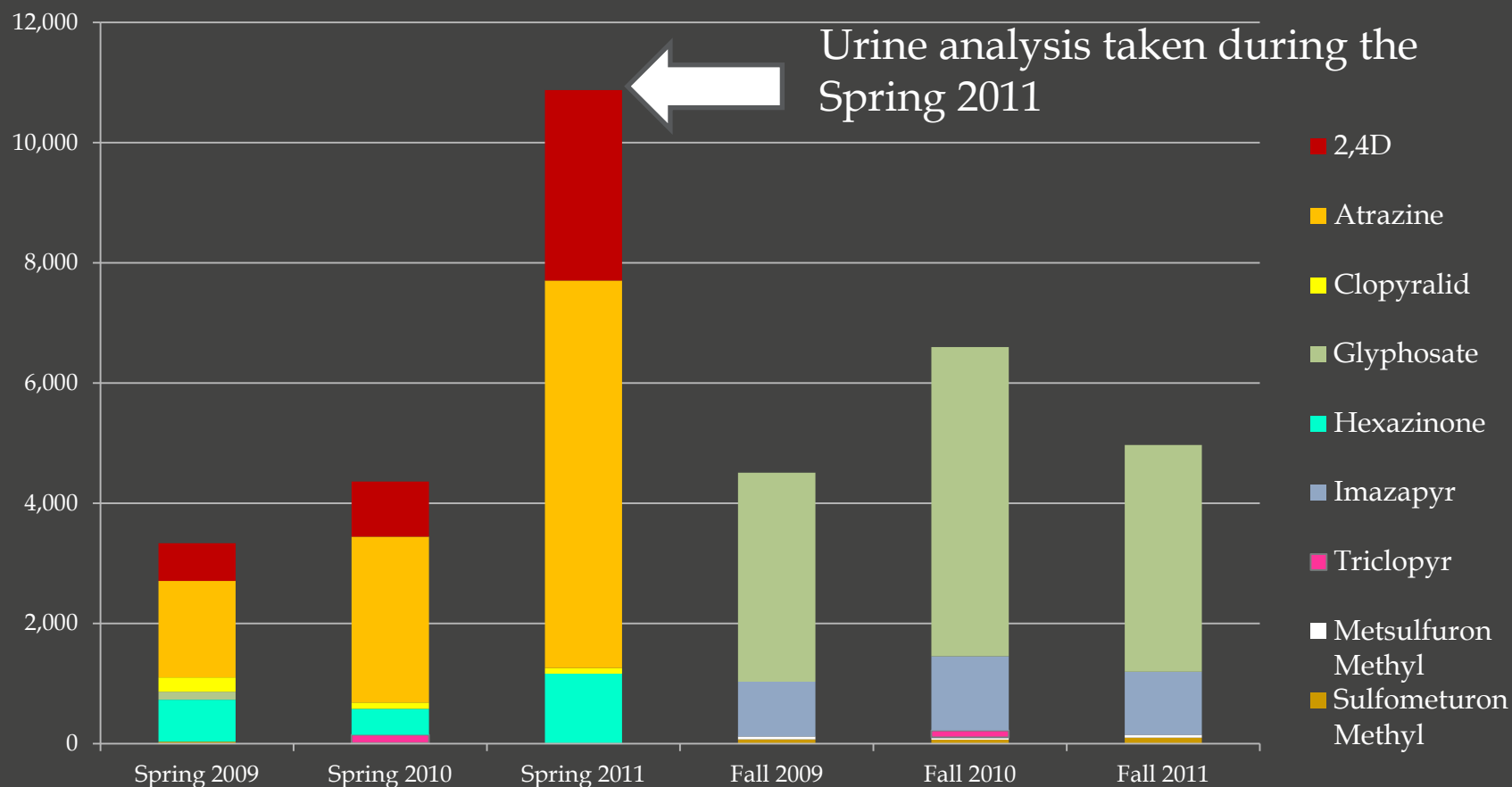
Photo – Oregon State Archives

Triangle Lake Aerial and Ground Herbicide Sprays



Aerial Spray Seasonal Trends

Pounds of Pesticide Product Sprayed



Adjuvants

Adjuvants are chemicals used to help the herbicides bind to the foliage. Adjuvants can be highly toxic.

- Adjuvants were reported for some records and not others.
- Consistent reporting of adjuvants is not clear.



Tank Mixes

Definition: combining many chemicals together for a single spray operation.

Examples:

- ▣ 2,4-D, Atrazine, Hexazinone, Foambuster
- ▣ Chlopyralid, Hexazinone, Foambuster
- ▣ Glyphosate, Imazapyr, Metsulfuron Methyl, Sulfometuron Methyl, Methylated Seed Oil

*.

Synergistic Effects

- ▣ Synergy occurs when the effect of a mixture of chemicals is greater than the sum of the individual effects.
- ▣ Synergistic effects between multiple pesticides and/or other chemicals is an important consideration to protect the public from the adverse health effects associated with pesticide use and exposure.

Environmental Health Impact Assessment

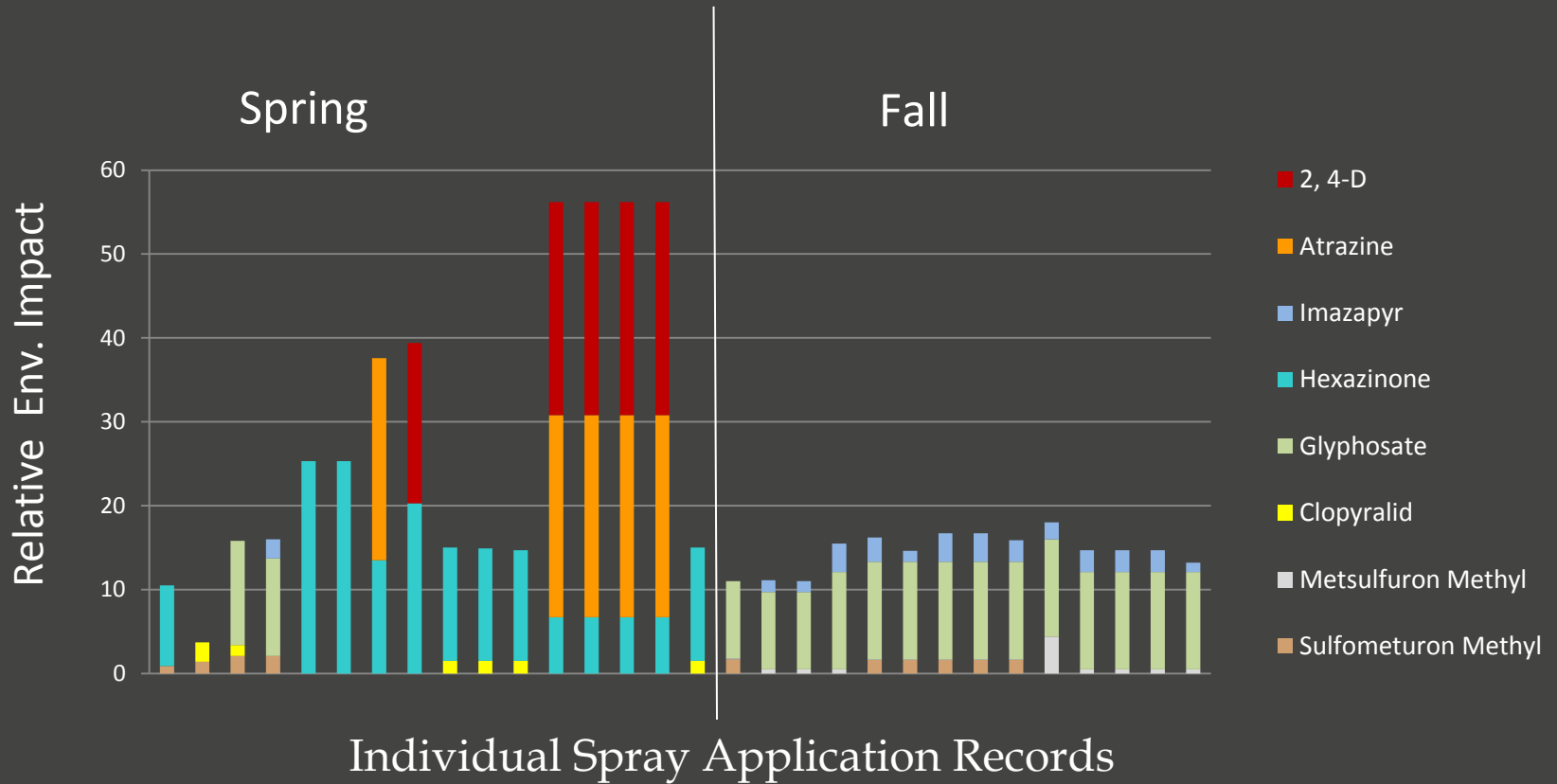
Field Use Environmental Impact Quotient Formula

Developed by Kovach, et al.

IPM Program, Cornell University

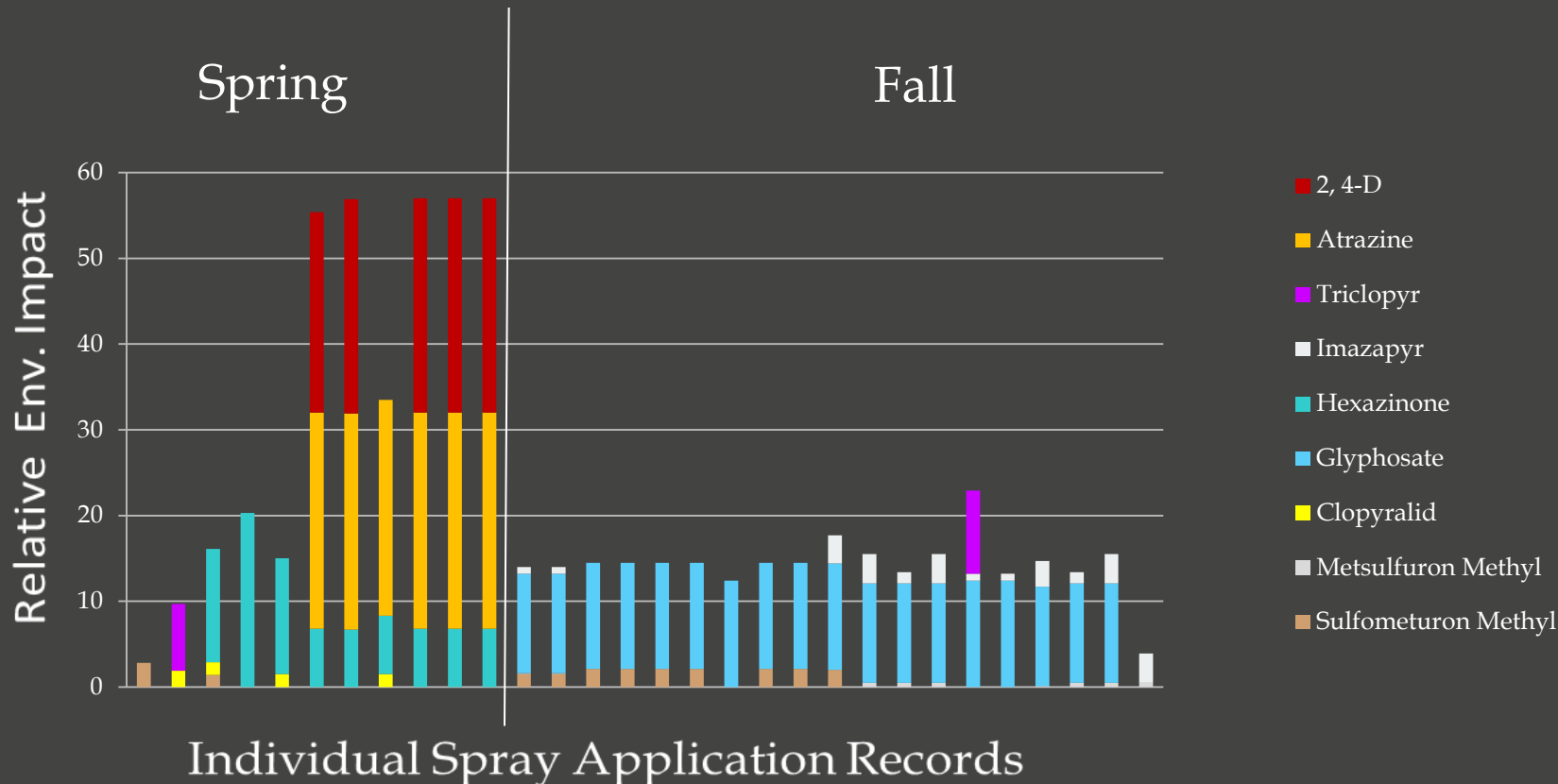
Aerial Sprays 2009

Field Use EIQ Ratings



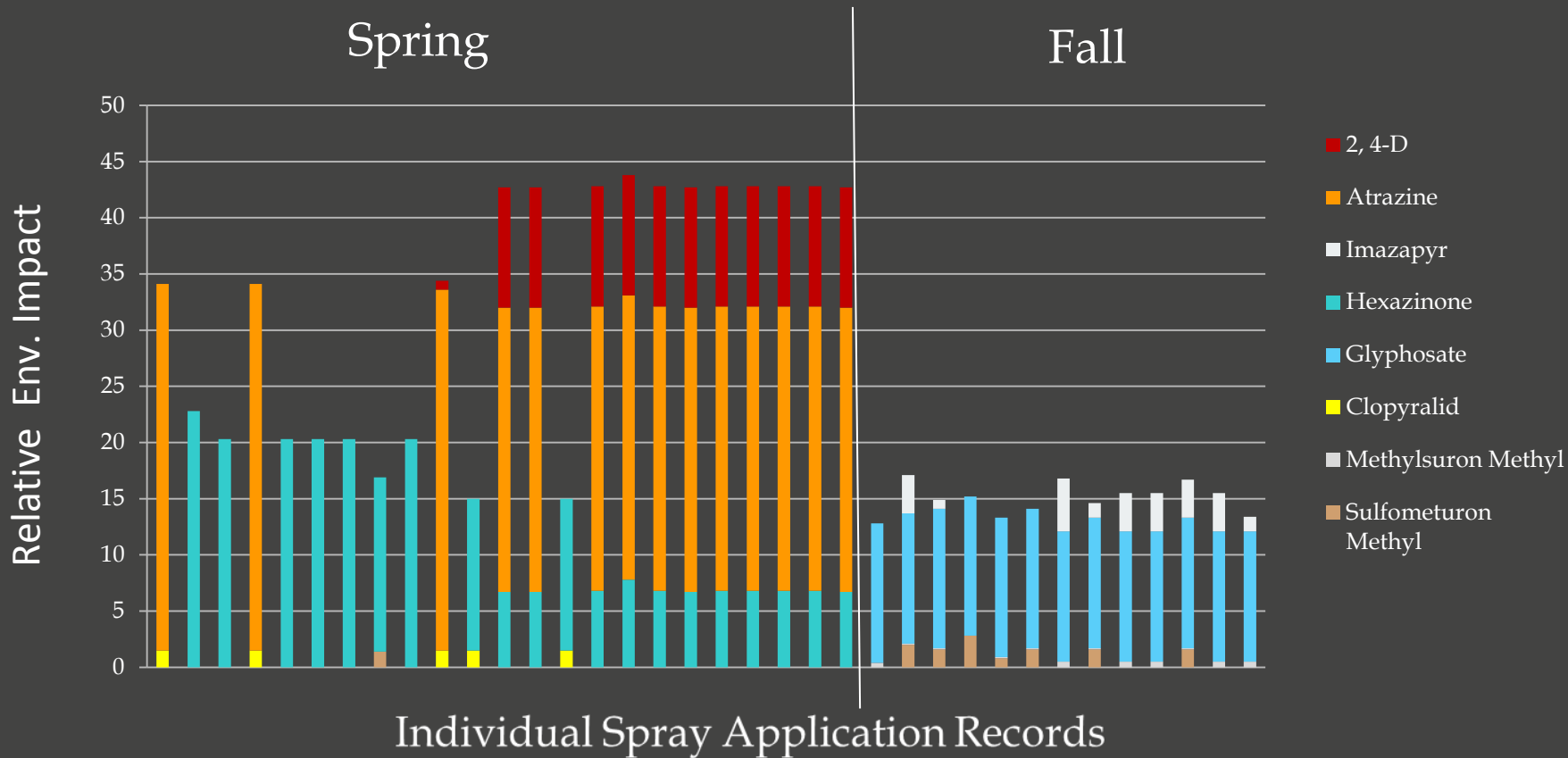
Aerial Sprays 2010

Field Use EIQ Ratings



Aerial Sprays 2011

Field Use EIQ Ratings



High Exposure Levels

DRINKING WATER STANDARDS

EPA's **maximum contaminant level** (MDL) for toxics is a level of protection based on the best available science to prevent identified health problems and mortality.

TRIANGLE LAKE RESIDENTS URINE RESULTS

2011 urine sampling of **both 2,4-D and Atrazine** are magnitudes above the EPA maximum contaminant level for safe drinking water.

Comparing Urine Levels to EPA Maximum Contaminant Levels

Pesticide	Spring 2011 Urine	Fall 2011 Urine	EPA Drinking Water Standard
2,4-D	4.9 mg/L average	0.37 mg/L	0.07 mg/L
Atrazine Equivalents	5.0 mg/L average	no detect	0.003 mg/L

In Conclusion...

1. Spray Record Keeping Issues
2. Policy Deficiencies
3. Policy Recommendations

Application Records

- ▣ Records are not consistent
- ▣ OAR 629-620-0600 is not being met
 - ▣ Legal description of location
 - ▣ Brand Name or EPA registration # of chemicals used
 - ▣ Acres treated
 - ▣ Rate of application
 - ▣ Date and time of application
 - ▣ Weather data when applicable

Some Spray Record Were Missing Acres

2010-781-008-RRC

OREGON FOREST MANAGEMENT SERVICES *Confidential*
PESTICIDE APPLICATION RECORDS

LANDOWNER Roseburg Resources Timber

UNITS, LOCATION Nelson 175-7W Sec 20

DATE OF APPLICATION 9/21/10

SUPPLIER OF HERBICIDE Land owner (RRT)

EPA REGISTRATION # 1) Accord XRT II = 62719-556
2) MSM-60 # 81927-7 = Sulfomet 352401

FORMULATION 1) Accord XRT II 2 GT
2) MSM-60 = 8.02 Sulfomet 2.502

AMOUNT APPLIED PER ACRE EMPTY'S RINSE X 3

THEN RECYCLE OR RETURN TO SUPPLIER X

TARGET VEGETATION Grass, site prep

EQUIPMENT USED Rock Packer hand, APlic.

TIME: 9:00 HUMID: 90 TEMP: 54 WIND: -0-
11:00 70 58 0-2-NW

NAME OF APPLICATORS AND TRAINEES: [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Accord XRT II = 1.79 g. mix gass = 2.5 g.
OVST = 12.5 oz.
MSM-60 = 4 oz.

7 Sprays from Nov 11 through Dec 6, 2010 with the exact same weather data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks

2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082

3. Dates of application: 11-11 2010

4. Time of application: 0700-1600

5. Location of Application: See Map

6. Type of equipment used: Hack and Squirt

7. Pesticide used: Arsenal AC 50% in water

8. Amount of Chemical used: .75 Gallons

9. Primary target species: Big Leaf Maple

10. Weather conditions:

	Start	End
Wind velocity:	1-3	1-3
Wind direction:	Variable	Variable
Temperature:	62	70
Humidity:	80%	50%

Nick Domes

2010 781 00 630

62-70°

Nov 12, 2010

Same temperature, wind and humidity data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks
2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082
3. Dates of application: 11-12 2010
4. Time of application: 0700-1600
5. Location of Application: See Map
6. Type of equipment used: Hack and Squirt
7. Pesticide used: Arsenal AC 50% in water
8. Amount of Chemical used: .75 Gallons
9. Primary target species: Big Leaf Maple
10. Weather conditions:

	Start	End
Wind velocity:	1-3	1-3
Wind direction:	Variable	Variable
Temperature:	62	70
Humidity:	80%	50%

Nick Domes

2010 781 00630

62-70°

Nov 15, 2010

Same temperature, wind and humidity data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks
2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082
3. Dates of application: 11-15 2010
4. Time of application: 0700-1200
5. Location of Application: See Map
6. Type of equipment used: Hack and Squirt
7. Pesticide used: Arsenal AC 50% in water
8. Amount of Chemical used: .75 Gallons
9. Primary target species: Big Leaf Maple
10. Weather conditions:

	Start	End
Wind velocity:	1-3	1-3
Wind direction:	Variable	Variable
Temperature:	62	70
Humidity:	80%	50%

Nick Domes

2010 781 00630

62-70°

Nov 16, 2010

Same temperature, wind and humidity data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks

2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082

3. Dates of application: 11-16 2010

4. Time of application: 0700-1600

5. Location of Application: See Map

6. Type of equipment used: Back Pack

7. Pesticide used: Forestry Garlon 3% and LV6 2%

8. Amount of Chemical used: .5 Gallons

9. Primary target species: Scotch Broom

10. Weather conditions:

	Start	End
Wind velocity:	1-3	1-3
Wind direction:	Variable	Variable
Temperature:	62	70
Humidity:	80%	50%

Nick Domes

2010 781 00430

62-70°

Dec 2, 2010

Same temperature, wind and humidity data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks

2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082

3. Dates of application: 12-2-2010

4. Time of application: 0700-1600

5. Location of Application: See Map

6. Type of equipment used: Back Pack

7. Pesticide used: Forestry Garlon 3% and LV6 2%

8. Amount of Chemical used: .5 Gallons

9. Primary target species: Scotch Broom

10. Weather conditions:

	Start	End
Wind velocity:	1-3	1-3
Wind direction:	Variable	Variable
Temperature:	62	70
Humidity:	80%	50%

Nick Domes

2010 781 00630

62-70°

Dec 3, 2010

Same temperature, wind and humidity data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks

2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082

3. Dates of application: 12-3 2010

4. Time of application: 0700-1600

5. Location of Application: See Map

6. Type of equipment used: Back Pack

7. Pesticide used: Forestry Garlon 3% and LV6 2%

8. Amount of Chemical used: .5 Gallons

9. Primary target species: Scotch Broom

10. Weather conditions:

	Start	End
Wind velocity:	1-3	1-3
Wind direction:	Variable	Variable
Temperature:	62	70
Humidity:	80%	50%

Nick Domes

2010 781 00630

62-70°

Dec 6, 2010

Same temperature, wind and humidity data

PESTICIDE APPLICATION RECORD

1. Project Name (Unit): Windy Peaks
2. Name of Applicator: Nick Domes 179083
Operator: Nick's Timber Services Inc. 179082
3. Dates of application: 12-6 2010
4. Time of application: 0700-1600
5. Location of Application: See Map
6. Type of equipment used: Back Pack
7. Pesticide used: Forestry Garlon 3% and LV6 2%
8. Amount of Chemical used: .75 Gallons
9. Primary target species: Scotch Broom
10. Weather conditions:

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Nick Domes

2010 781 00630

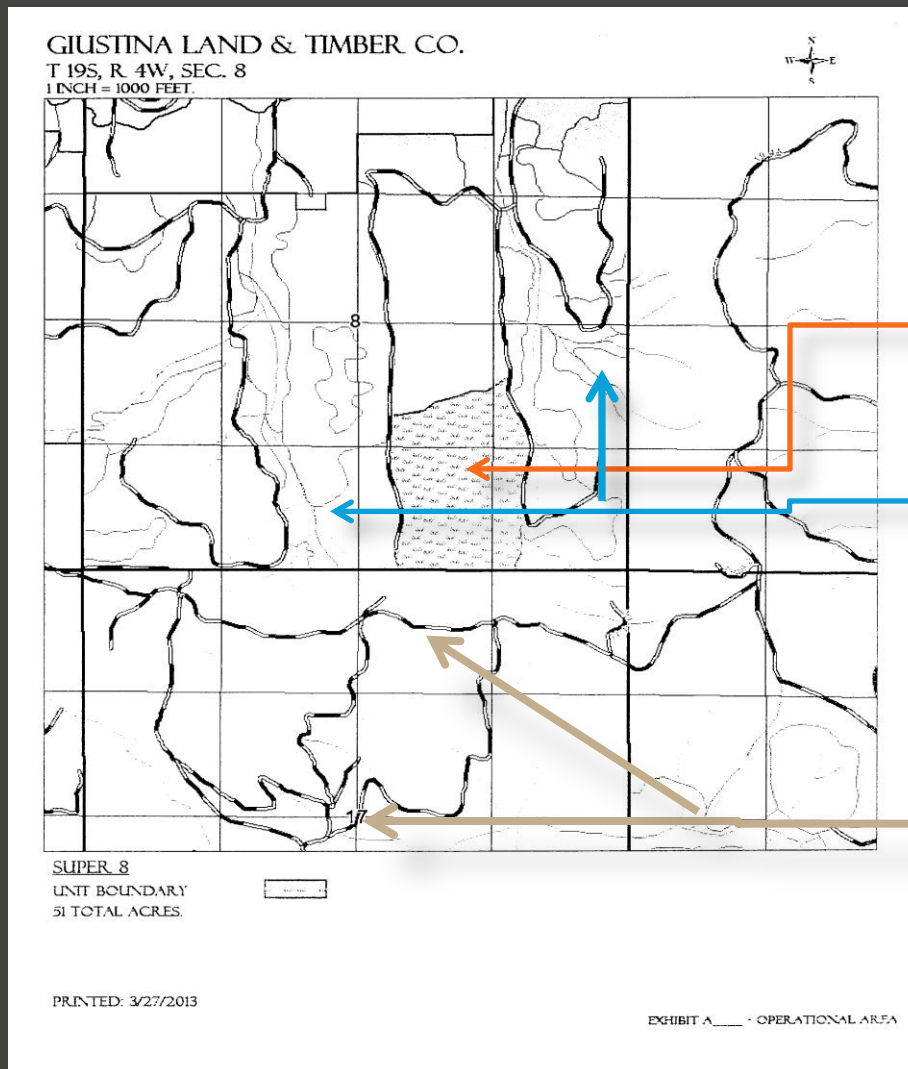


62-70°

Scattered Records

- ▣ To ensure accuracy Beyond Toxics filed a second request for outstanding spray records
- ▣ ODF discovered 26 additional records
- ▣ Demonstrates a need for a central repository for spray records

Notifications Not Sufficient for Human Health Protections



2013 Spray Notification from Guistina Land and Timber
South Lane County

Policies That Protect Human Health

- ▣ Compare Washington Forest Practices Act with Oregon Forest Practices
- ▣ Compare Oregon Forest Practices Act with Federal Forest Practices

Comparison of Aerial Spraying Pesticides Regulations

Protection Area	Washington State Forest Practices Act	Oregon State Forest Practices Act
Domestic Water Supply	200' & triggers Special Review	60'
Buffer next to Residences	200'	None
Buffer next to Agriculture Lands	100'	None
Posting Site	Must post 5 days in advance and 15 days after spraying	No posting

Comparison of Aerial Spraying Pesticides Regulations, con't

	Washington State Forest Practices Act	Oregon State Forest Practices Act
Public Comments Allowed	Yes	No
Agency Review Period	3 Weeks	No Review
Application Records Available to the Public	Yes	No
Years Records are Kept	7 years	3 Years
Ground Water Protection Areas	Spray Application in vulnerable ground water areas trigger a Class 4 SEPA Review; Chemicals Identified as Not Allowed: Atrazine, Bromacil, Dcpa, Disulfoton, Diuron, Hexazinone, Metolachlor, Metribuzin, Picloram, Prometon, Simazine, Tebuthiuron	None

US Forest Service Stopped Spraying Timber Units in the 1980's

It was more costly, more labor intensive. But forestry in Oregon is profitable under many different scenarios. The Forest Service just saddled itself to a different horse and rode off into the future.

*-Jim Furnish, former US
Forest Service Deputy Chief*

Triangle Lake School 2007



Slash Burning During School Hours 2008



No buffer between clear cut and school classrooms



Imazapyr Detected in School Drinking Water

Imazapyr sprayed on hillside behind Triangle Lake school after logging.



School Drinking Water Holding Tank



Summary

Fact #1

Forest Practices

- ▣ 56% increase in acres of forest aerial sprayed from 2009 to 2011
- ▣ 99% increase of pounds of pesticides aerial sprayed from 2009 to 2011.
- ▣ 226% increase in aerial sprays from Spring 2009 to Spring 2011.

Summary

Fact #2 Human Health

- ▣ Spring time sprays have a higher environmental impact (EIQ) to humans health.
- ▣ The choice of which chemicals are used increases or lessens the environmental impact.

Summary

Fact #3 Human Health

2,4-D and Atrazine had the highest relative environmental impact.

- In spring 2011, Atrazine and 2, 4-D were detected in 100% of the urine analysis of local residents.
- Concentration of herbicide in urine was higher than EPA drinking water standards (both Barr and OHA studies).

Summary

Fact #4

Record Keeping

- ▣ Spray records are not always accurate or consistent
- ▣ Under the current Oregon Forest Practices Act researches do not have access to spray data

Summary

Fact #5

Forest Policies

- ▣ Washington Forest Practices Act provides for:
 - Agency and Public Review
 - Public Access to spray data
 - Buffers around residential property
 - Buffers around domestic water

- ▣ Oregon Forest Practices Act lack the above environmental health protections

Summary

Fact #6

Forest Policies

- ▣ Federal lands, including BLM and US Forest Service, have not aerially sprayed logging units for more than 20 years.

Recommendations to Oregon Senate



Triangle Lake
School 2007

Immediate Actions

1. Make Oregon FPA as effective as Washington FPA, at a minimum.
2. Study and adopt federal forestry models.
3. Convene a 2013 Legislative Interim Task Force on Forest Practices – involve BOF.
4. Do not limit work groups to “agencies only.” Include NGO’s and impacted communities.
5. Recommendations for 2014 Legislature.