

IDENTIFYING SENSITIVE NEIGHBORS IN THE WILDLAND URBAN INTERFACE AND PLANNING A SPRAY PROJECT AROUND THEM

“The Roseburg Way”



LEGAL PERSPECTIVE

- **Context**

- An Ultra Hazardous Activity (UHA) is one that is so inherently dangerous that a person engaged in such an activity can be held strictly liable for injuries caused to another person, even if the person engaged in the activity took every reasonable precaution to prevent others from being injured.
- The aerial application of herbicides is considered an Ultra Hazardous activity under U.S. tort law.
- Civil Court rules apply- “Preponderance of evidence” versus criminal court “beyond reasonable doubt”

- **Issue**

- UHA becomes the legal standard that must be defended against in which plaintiffs can build hypothetical storylines, engage hired experts in discovery to support their storyline, and play on emotions to swing a verdict in their favor

- **Liability**

- Applicator AND landowner have equal share of liability AND damage award to plaintiff.

- **Company**

- Any spray activity in the Wildland Urban Interface (WUI) = UHA
- Awareness, documentation and liability are directly on the landowner as well as the applicator



STATE PERSPECTIVE

- **Agencies**

- Oregon Department of Forestry
- Oregon Department of Agriculture

- **Context**

- FERNS notification System-ODF
- Report of Loss (ROL)-ODA
- PARC-ODA

- **Issue**

- ROL-Court Ruling- System is unconstitutional
- FERNS-Subscriber system makes planned activities readily accessible to the public

- **Liability**

- ROL- “substantial compliance” is ok but can still lead to civil litigation
- FERNS-Subscriber interpretation of notification vs actual- technical nits of our notification are fair game and allow for litigation leverage mix/operator change, area descriptions

Company

- We must be proactive in managing our spray projects in the WUI and do all we can to minimize conflict and risk of litigation thru thoughtful planning and compromise rather than outright capitulation.



SOCIAL PERSPECTIVE

- **Context**

- Increasing % of our projects in the WUI are in conflict with our neighbors
- Changing demographics, disparate land use.
- Disconnect between detectable levels and levels of health concern.

- **Exposure**

- WUI shifting from less sensitive and more traditional non-industrial timberlands to more sensitive hobby farms, vineyards, organic farming or cannabis.

- **Company**

- Intensive forest management is an intensive land use that is increasingly conflicting with neighbors resulting in a more litigious operating environment.
- Paradigm shift.- “old” = human health “new”- human health + damages



GOVERNING STATEMENT

- Herbicide application represents one of our largest business risk and public risk exposure activities.
- Our objective is zero detection in water downstream of our spray unit. This sometimes requires compromise on desired condition.
- We must take extra precautions in planning our spray projects when they occur in the Wildland Urban Interface (WUI). This interface includes non-industrial timberland owners, residential homeowners, ranches, and a wide variety of farms growing everything from grapes to row crops.
- All of this interface requires extra time and attention in planning a spray project to identify and protect sensitive areas above and beyond standard practices and procedures.
- We will reach out and make personal contact with all of our adjacent neighbors to communicate our intentions and to clearly understand any concerns they may have.
- We will develop personal relationships with those neighbors who are receptive to us.
- We will always respect alternative points of view.
- We will keep all commitments made to our neighbors.

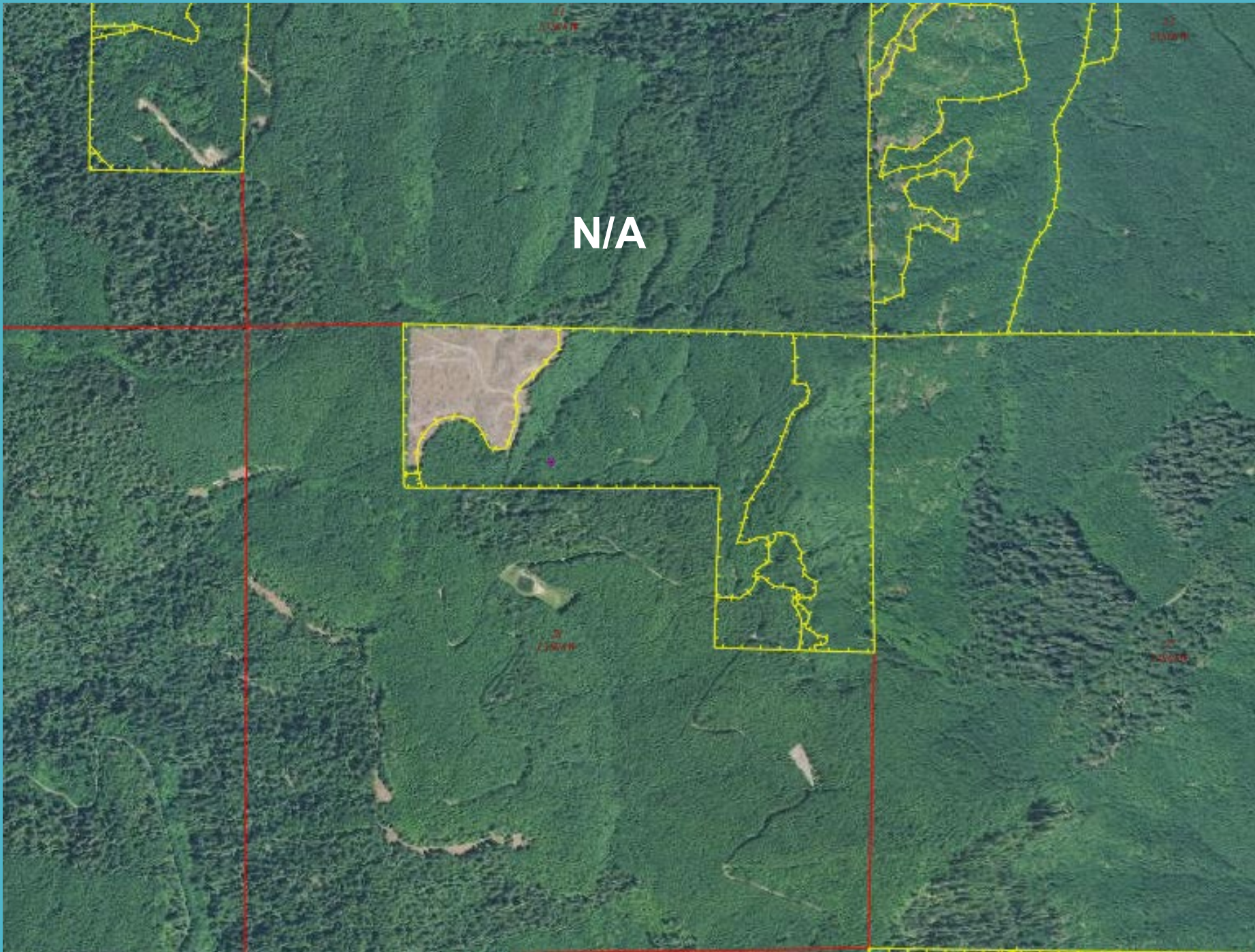


HERBICIDE SPRAY UNIT SENSITIVITY RATINGS

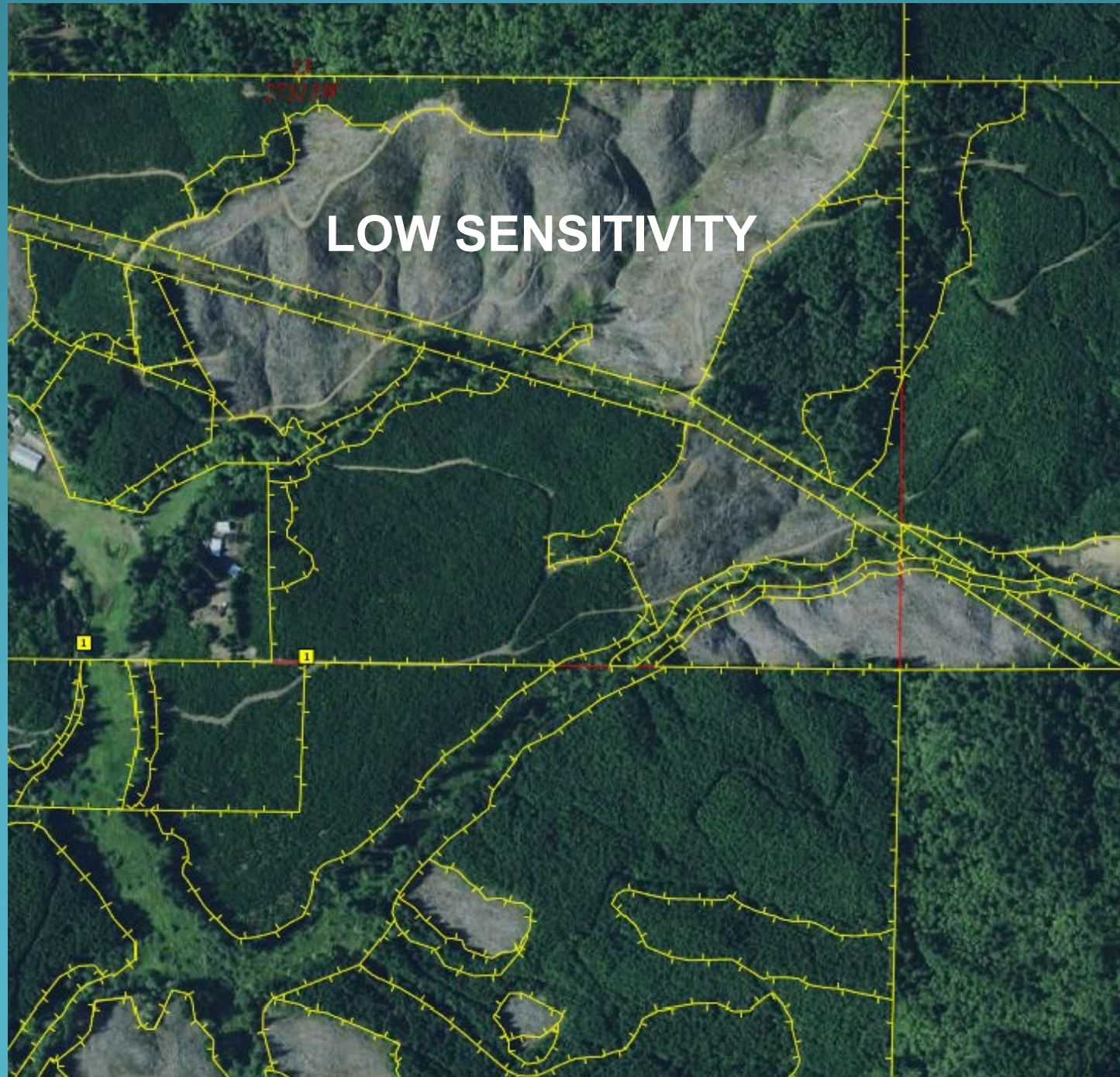
All spray units will be categorized for neighbor sensitivity ranging from N/A to High with increasing planning and oversight as the sensitivity increases.

- **N/A**
 - Any spray unit that is located more than one mile from any non-industrial private landowner.
 - No changes in standard spray procedures beyond standard legal requirements.
- **Low**
 - Non-industrial private landowners within one mile of spray unit but with minimal neighbor concerns. Typically involve adjacent non-industrial timberland owners or ranches.
 - Spray unit bisects a publically accessible road or is adjacent to an active harvest unit.
 - Previous history of cooperative relationship with neighbors.
 - No disparate land uses such as row crops, orchards or vineyards within one mile of spray unit.
 - May require some minor changes in standard spray procedures beyond standard legal requirements and additional communication.
 - Requires a Sensitive Area Herbicide Application Plan
 - Approximately 95% of our spray acres in any given year fall into the N/A or Low category.





LOW SENSITIVITY



HERBICIDE SPRAY UNIT SENSITIVITY RATINGS

- **Medium**

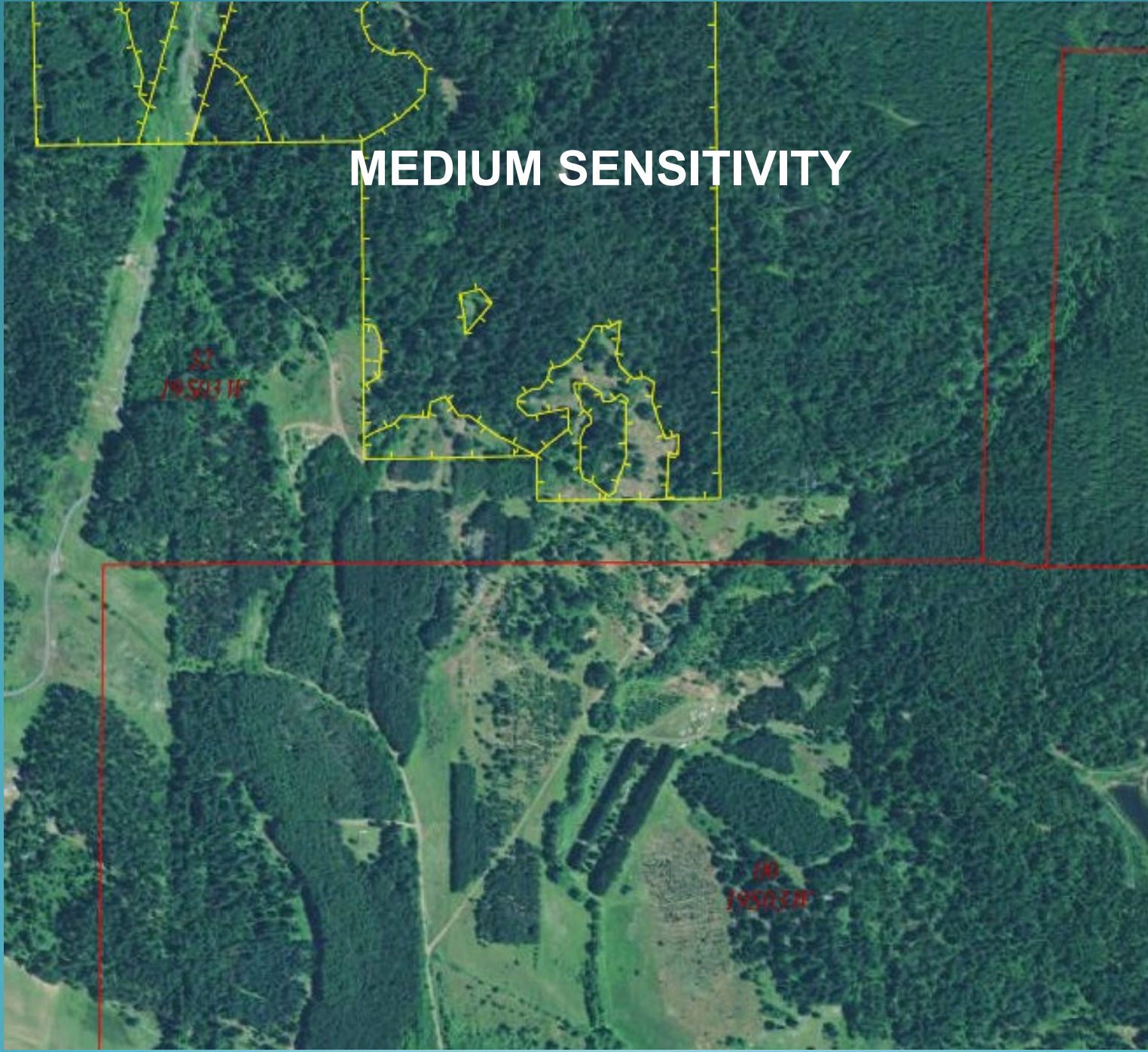
- Moderately complex spray units with identified neighbor concerns or sensitive areas such as domestic water systems, residences or disparate land uses within a quarter mile of the unit.
- Requires standard operating procedures plus a simple Sensitive Area Herbicide Application Plan outlining additional steps that may be taken to ensure protection of any sensitive resources identified.

- **High**

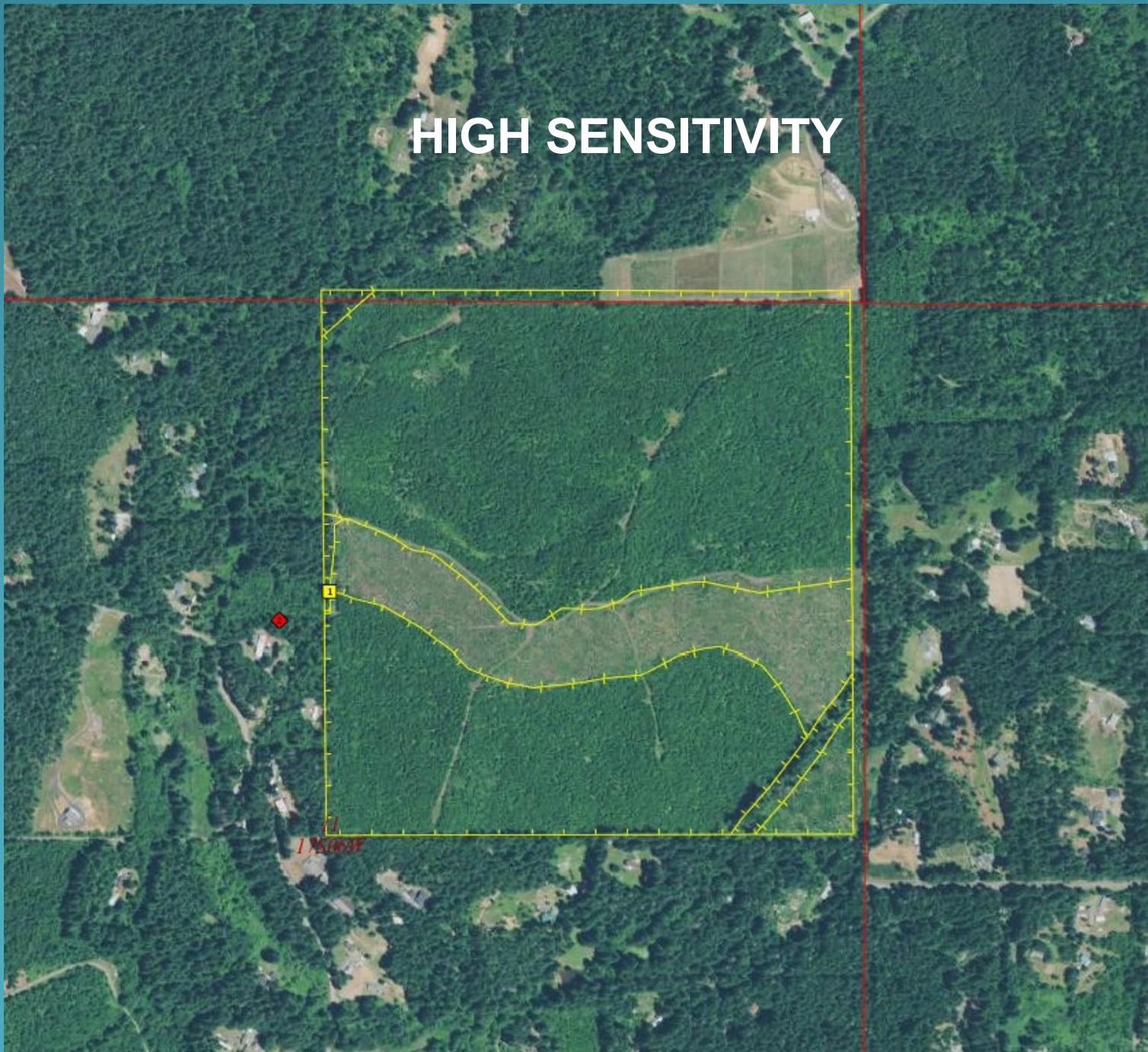
- Complex spray units including one or more sensitive areas including but not limited to multiple neighbors, row crops, orchards, vineyards, community water systems within one mile of the spray unit.
- Requires the highest level of planning, execution and oversight.
- Requires a detailed Sensitive Area Herbicide Application Plan, and additional company or state representation on site at time of operation as needed.
- These units, while they only represent 1-2% of the units we spray annually, represent our greatest exposure to conflict and litigation and deserve the most attention.



MEDIUM SENSITIVITY

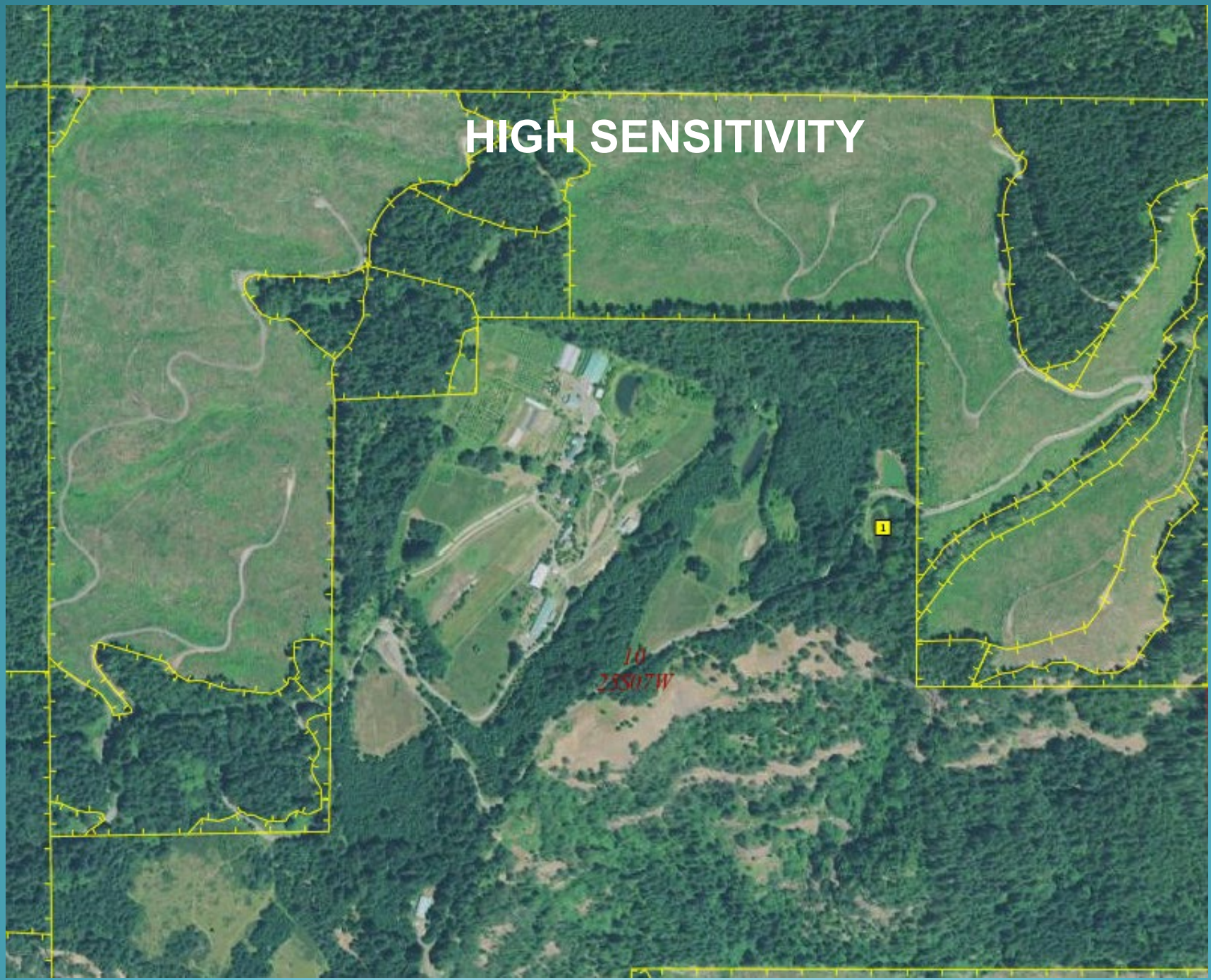


HIGH SENSITIVITY

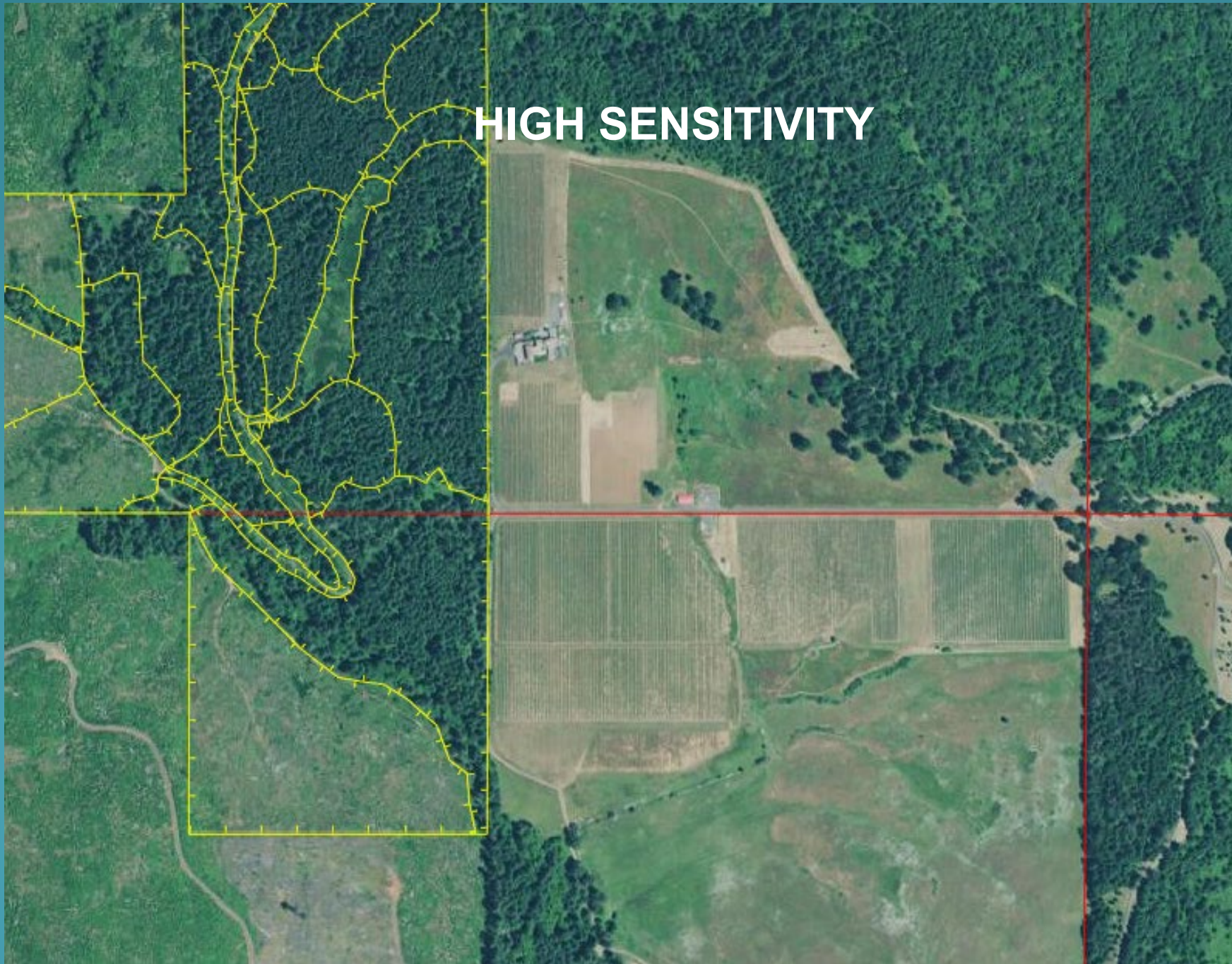


HIGH SENSITIVITY

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HIGH SENSITIVITY



SENSITIVE AREA HERBICIDE APPLICATION PLAN

- A Sensitive Area Herbicide Application Plan will be put together for each spray unit identified as having a sensitivity rating of Low, Medium, or High.
- The application plan will provide the following information;
 - Unit Information
 - Unit name
 - Legal description
 - Exposure category
 - Reason/issues
 - Notification Plan
 - Prior neighbor contacts
 - Pre-application contacts to make
 - Agency contacts/discussions



SENSITIVE AREA HERBICIDE APPLICATION PLAN

- Aerial Spray Operation Plan
 - Detailed map of planned operation
 - Prescription and application rate
 - Batch location and unit ingress/egress
 - Reconnaissance plan
 - Nozzle configuration
 - Specific application instructions
 - Weather concerns
 - Third party observation plan



SENSITIVE AREA HERBICIDE APPLICATION PLAN

- Ground Spray Operation Plan
 - Detailed map of planned operation
 - Prescription and application rate
 - Batching location and unit ingress/egress
 - Reconnaissance plan
 - Nozzle configuration
 - Specific application instructions
 - Weather concerns
 - Third party observation plan



SENSITIVE AREA HERBICIDE APPLICATION PLAN

- Applicable to the entire unit
 - Water sampling plans
 - Container and waste management
 - Spray sequence/pattern/timing
 - Communications plan



SENSITIVE AREA HERBICIDE APPLICATION PLAN

- Once developed the plan is shared internally for review
- Low rated units are reviewed and approved at the District Forester level
- Medium rated units receive next level Forestry Manager review.
- High rated units receive Forestry Manager and Land Manager review
- Planned spray operation does not go forward until all reviews are completed and consensus is achieved on how best to proceed.



Communicating with Neighbors

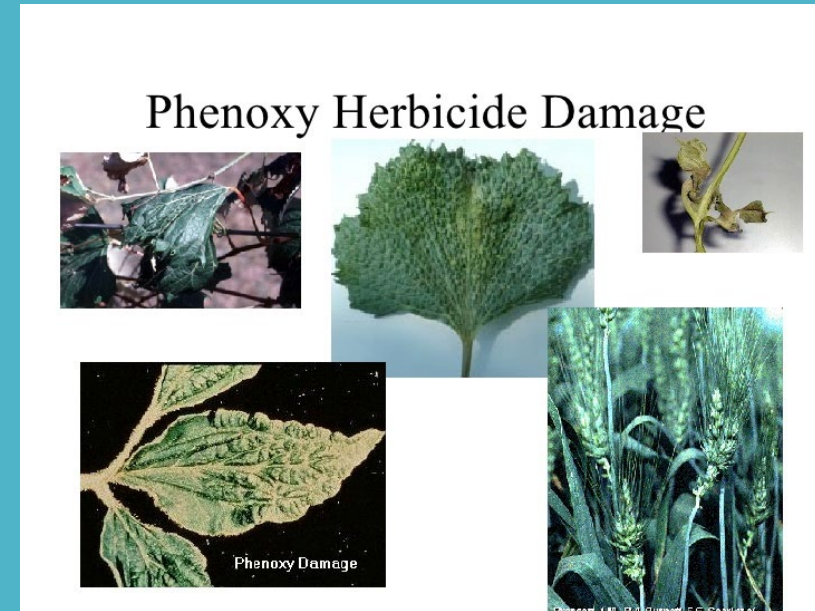
- Personal contact preferred over form letter. Seek out a relationship with your neighbor.
- When talking to neighbors the response back can range from “thanks for letting us know” to “if you spray your property I will sue you”.
- Try to discuss what you are doing in terms that your neighbor can relate to.
- Discuss your activities in the context of a timber rotation.
- Don't be shy about sharing ODA/ODF contact information with your neighbor.
- It is ok to share labels with those neighbors that request them but I would not share safety data sheets with them.
- Understand where they are getting their water from and the implications for your operation.
- Acknowledge any neighbor concerns and try to accommodate them as best you can.
- You will never win everyone over to your way of thinking and it is ok to “agree to disagree”.
- Ultimately, you are trying to earn your neighbors trust that what you are doing won't impact them.
- Keep all commitments made to neighbors.



IMPORTANT OPERATIONAL CONSIDERATIONS

- **Phenoxy herbicides**

- 2,4-D
- Sensitivity of high value crops
- Odor
- Ester versus Amine formulations
- Weather-Avoid low humidity/High Temps



- **Plant Growth Regulators**

- Triclopyr
- Volatility
- Ester versus Amine formulations
- Weather-Avoid low humidity/High Temps



IMPORTANT OPERATIONAL CONSIDERATIONS

- Environmental Fate
 - Half-Life-The persistence of a pesticide in soil
 - Non Persistent <30 days
 - Moderately persistent 30-100 days
 - Persistent >100 days
 - Sorption Coefficient (Koc)
 - Tendency of a pesticide to bind to soil particles
 - The higher the value the more tightly bound the pesticide is to soil
- Groundwater Ubiquity Score (GUS)
 - Calculated value that combines persistence and soil mobility into a single value that is used to determine the propensity for a pesticide to move



IMPORTANT OPERATIONAL CONSIDERATIONS

Physical Properties of Common Herbicides

	Pesticide	Soil	Water	Sorption
Herbicide	Movement Rating	Half Life (days)	Solubility	Coefficient (KOC)
Clopyralid	Very High	40	300,000	6
Triclopyr Amine	Very High	46	2100000	20
Metsulfuron Methyl	High	30	9500	35
Hexazinone	Very High	90	33,000	54
Sulfometuron-Methyl	Moderate	20	70	78
Imazapyr	High	90	500,000	100
Atrazine	High	60	33	100
2,4-D Ester	Moderate	10	100	100
Triclopyr Ester	Low	46	23	780
Glyphosate	Extremely Low	47	900000	24000

Source: <http://npic.orst.edu/ingred/ppdmove.htm>



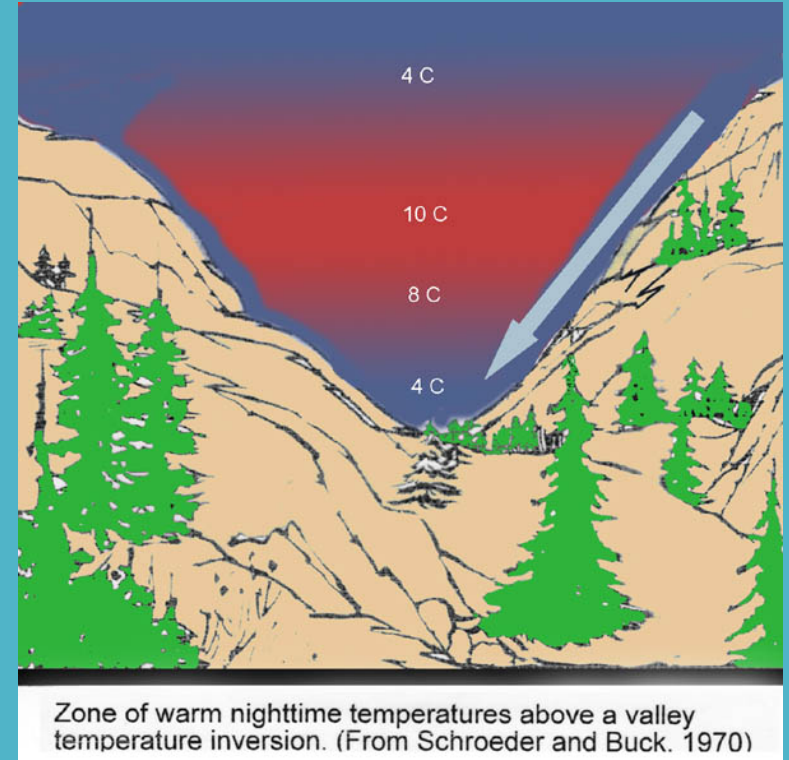
IMPORTANT OPERATIONAL CONSIDERATIONS

- **Timing of treatment**
 - Pre-harvest versus Post-harvest
 - Time of year
 - Ground versus Aerial versus Hybrid
- **Additional Precautions**
 - Setbacks or “No Spray” Buffers
 - Alternate tank mixes
- **Cost**
 - Keep costs in context of overall project
 - A well executed ground spray plan is cheaper than a poorly executed aerial spray plan that results in litigation.



IMPORTANT OPERATIONAL CONSIDERATIONS

- Inversions
- Record Keeping-Treat all records like they will end up in court
- Labels
- Drift control adjuvants
- Access to unit
- Clean-up

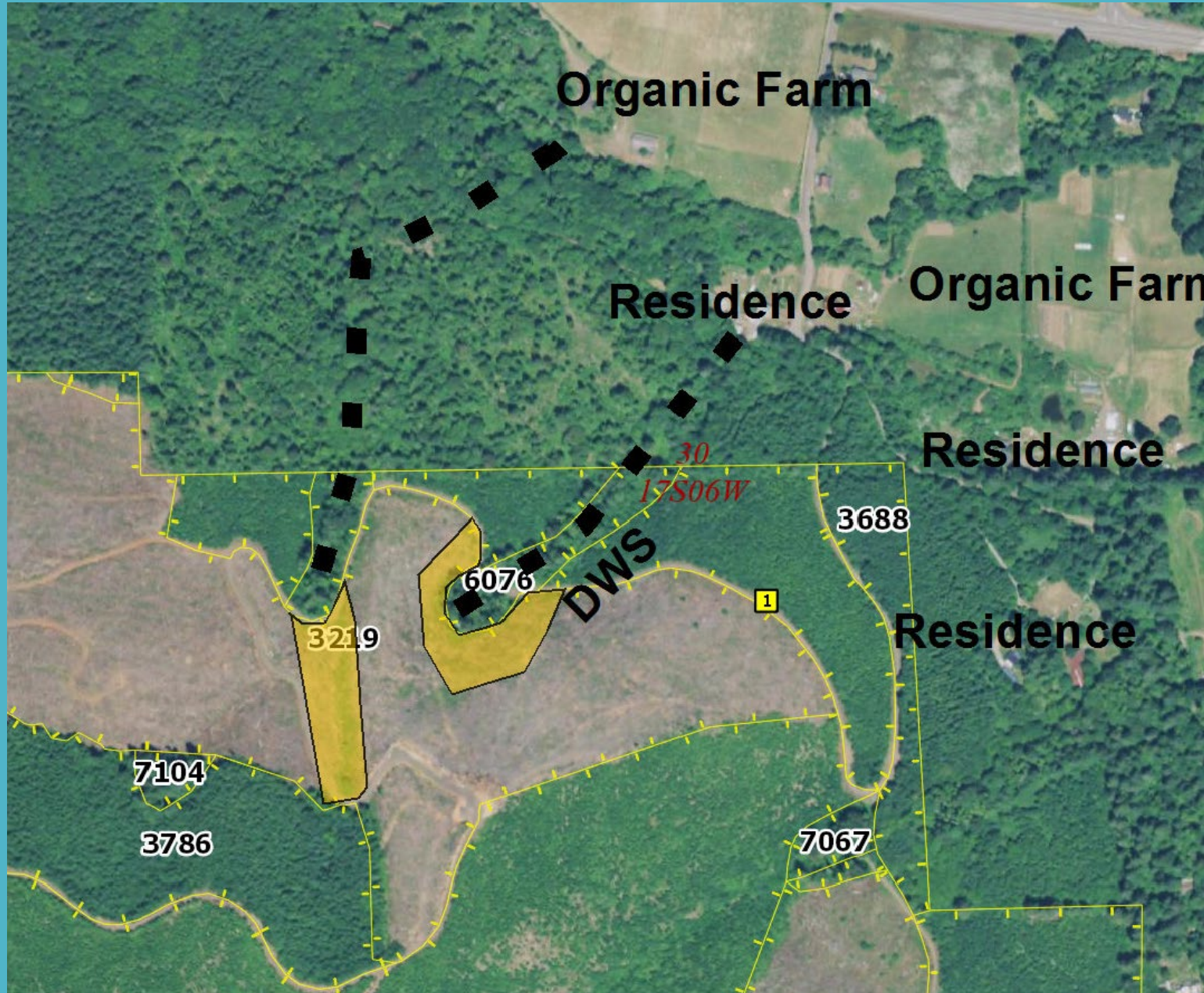


OTHER CONSIDERATIONS

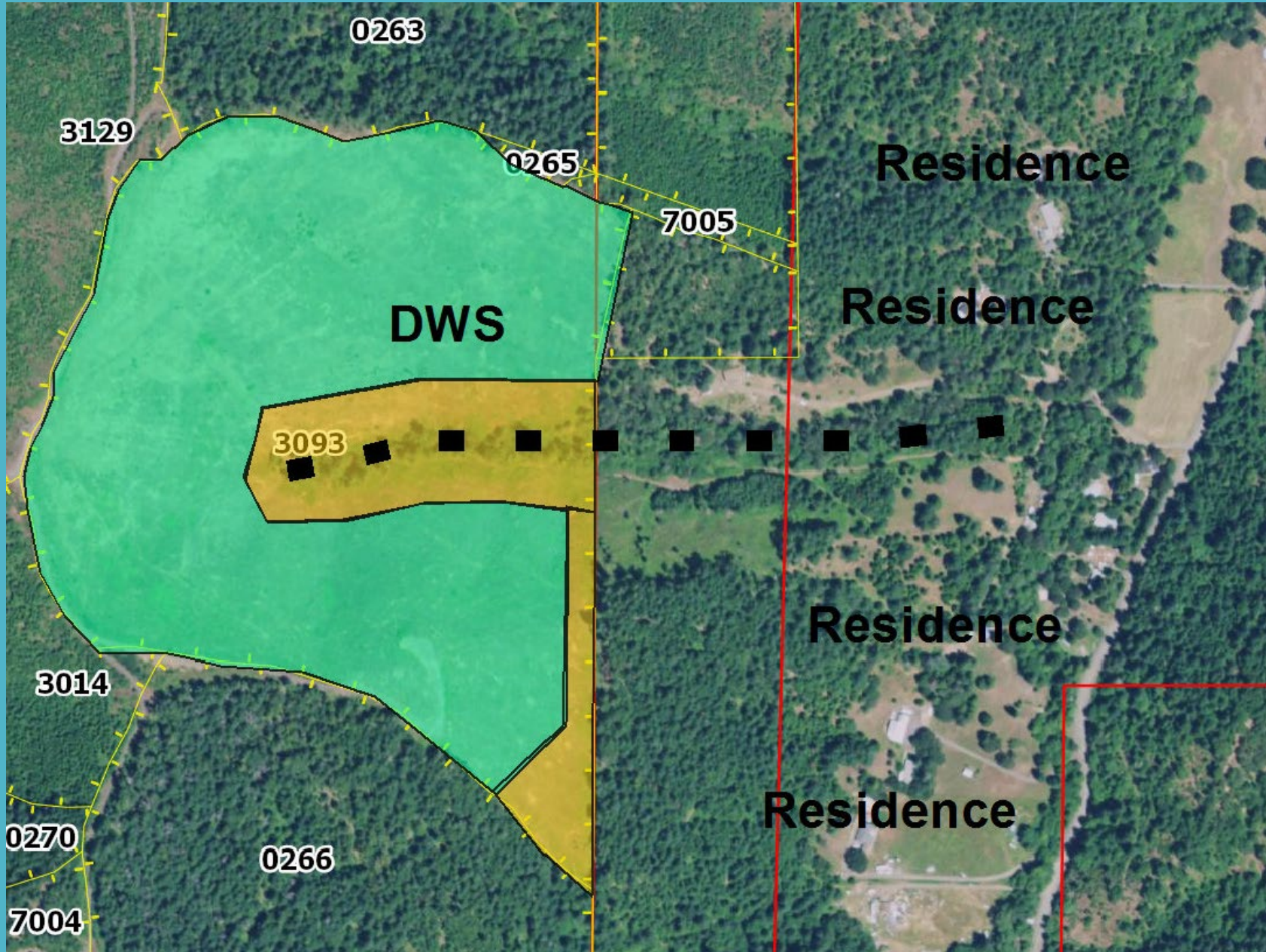
- **POCIS disks**-Polar Organic Chemical Integrative Sampler) is used to monitor hydrophilic contaminant.
- Composed of two sheets of microporous ($0.1\mu\text{m}$ pore size) polyethersulfone membrane encasing a solid phase sorbent (Oasis HLB) which retains sampled chemicals.
- Can passively detect pesticides in the parts-per-trillion to parts-per-quadrillion range.
- Very good at detecting presence/absence of a pesticide. Not so good about determining concentration



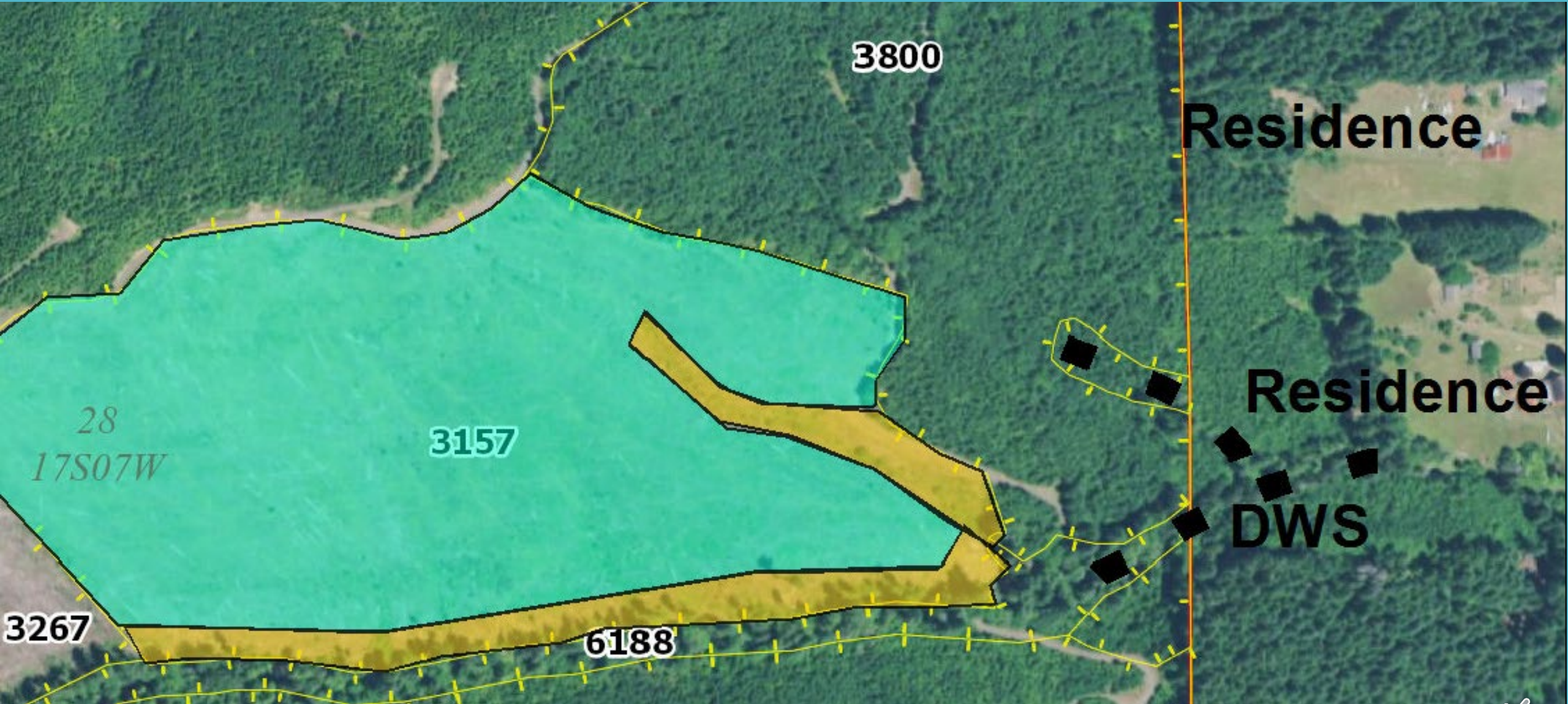
Spray Map #1



Spray Map #2



Spray Map #3



IF FACED WITH A COMPLAINT?

- Poor complaint response can exacerbate the issue at hand with the unintended consequence of increased litigation or escalation of the complaint.
- Roseburg assumes a “proactive participant role” in any post application spray complaint resulting in demand by neighbor to investigate or pursue ROL claim.
- Appropriate state agencies (ODF/ODA) and Contractor rep will be notified immediately if complaint comes to company first.
- If complainant is claiming health impacts then direct them to call PARC at 211 and file a complaint.
- Roseburg employees will not be the first responder to a spray complaint if at all possible.
- State will take the lead on all investigations. Roseburg and Contractor will only play a supporting role by providing information on an as requested basis.
- We will not interfere with, or try to influence, the outcome of any investigation.

