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Sordal Wetland Delineation



9/19/2018

Iris Koski and Kelsey McDonald delineated wetlands on the Sordal property on 9/17/2018. Biologist Iris Koski has completed wetland delineation training and is experienced with wetland delineation. Botanist/Biologist Kelsey McDonald assisted with plant identification and delineation.

A wetland was delineated in the pasture on the 001 parcel surrounding the spring and ponds (WD-3). The wetland vegetation was primarily characterized by penny royal (*Mentha pulegium*), and both wetland soils and hydrology were present at the site. The nearby cultivation site D is suitably placed, approximately 170 feet south of the wetland, and with over 50-foot buffers between the Class III intermittent streams to the northwest and southeast.

Several other sites were also investigated on 9/17/18. The spring box and lined pond area on parcel 007 did not contain dominant wetland vegetation. The wet area on parcel 007 near road point 12 contained a mix of wetland and upland vegetation, and appeared to show seasonal wetland hydrology with cracked bare soil, sediment deposits, and a visible drainage pattern (WD-1). No new construction is currently planned in this area. If any construction were to occur in or near the wet areas on parcel 007, a full wetland delineation with soil samples would be required.

On parcel 008, a small herbaceous wetland was delineated adjacent to the Class IV ditch and a gravel mining site (WD-2). The small flat was dominated by pennyroyal (*Mentha pulegium*), and showed evidence of wetland hydrology with drainage patterns, oxidized rhizospheres, and surface cracks in the soil.

Please see the attached map showing delineated wetlands and other wet areas. Additional wetland delineation is recommended if the client plans to develop any additional areas adjacent to springs, seeps, or wetland vegetation.

Please contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Kelsey McDonald".

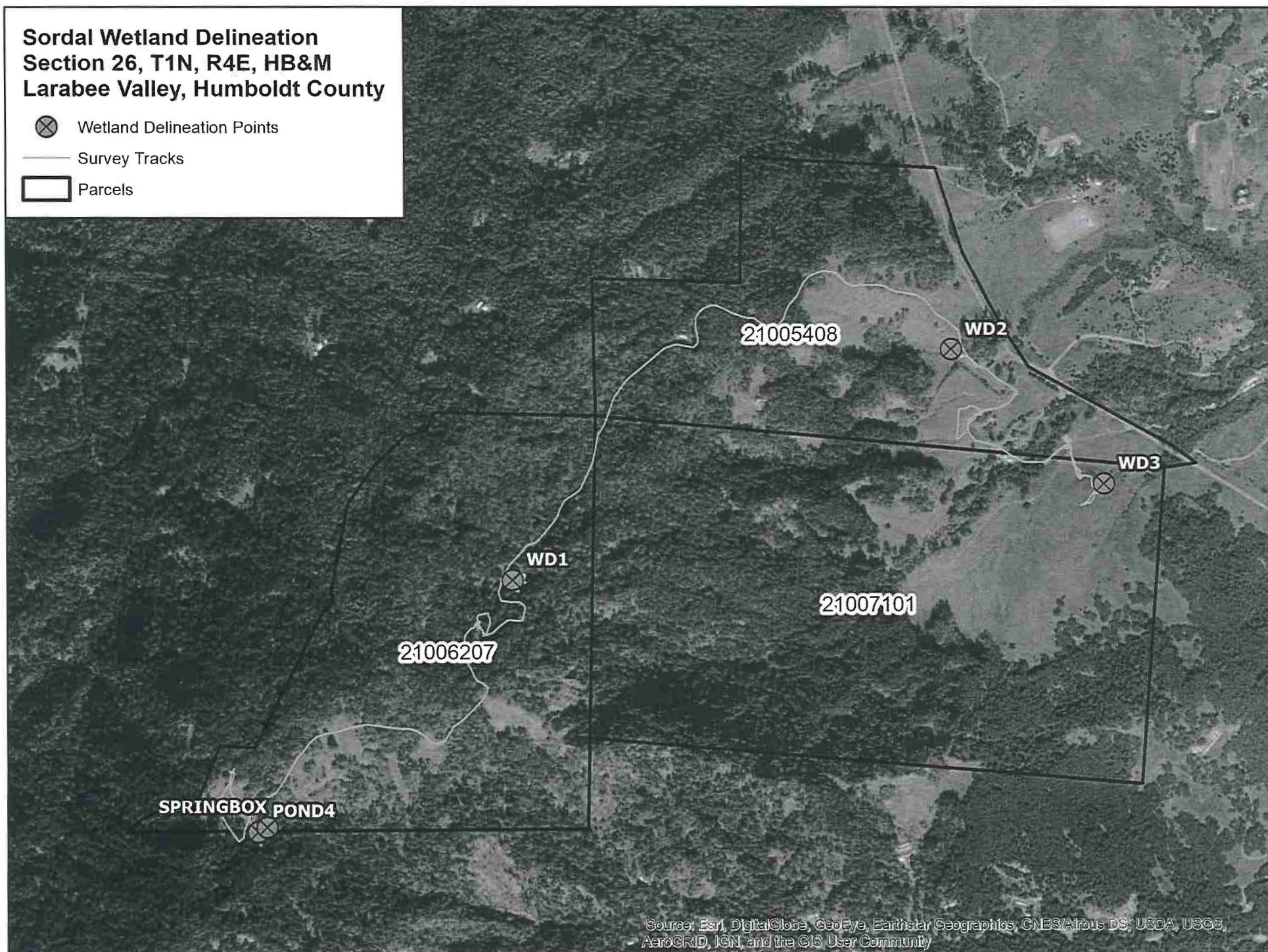
Kelsey McDonald
Botanist/Biologist

A handwritten signature in black ink that reads "Iris E Koski".

Iris Koski
Biologist

**Sordal Wetland Delineation
Section 26, T1N, R4E, HB&M
Larabee Valley, Humboldt County**

-  Wetland Delineation Points
-  Survey Tracks
-  Parcels



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Photo 1. WD-3 on Parcel 001.

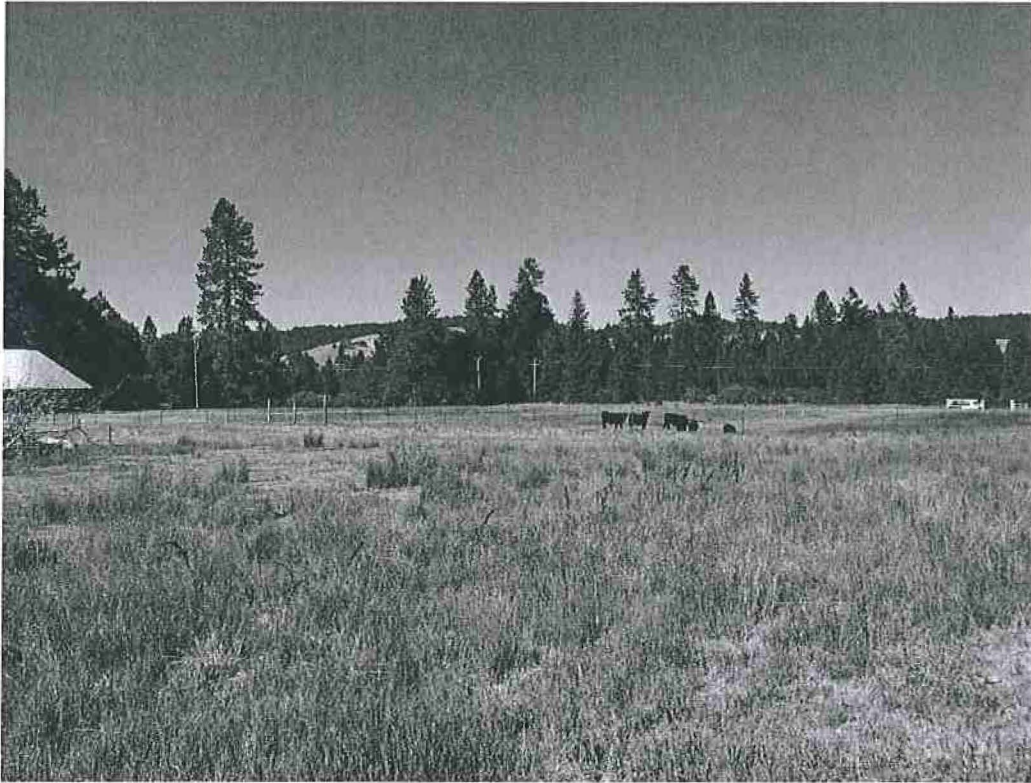


Photo 2. Wet Point on Parcel 007 near Road Point 12



Photo 3. Cracked soil indicative of wetland hydrology on Parcel 008, WD-3.



WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Sordal WDA City/County: Larabee Valley, Humboldt Sampling Date: 9/17/18
 Applicant/Owner: Sordal CO7 parcel State: CA Sampling Point: WD-1
 Investigator(s): Ir. S. Koski, Kelsey McDonald Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 10
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes _____ No _____		
Wetland Hydrology Present?	Yes ☒ No _____		
Remarks: <u>Dry season, appears to be a seasonal wetland</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>Pseudotsuga menziesii</u>	<u>5</u>		<u>Upl</u>	
2. <u>Acer macrophyllum</u>	<u>5</u>		<u>FACU</u>	
3. <u>Quercus kelloggii</u>	<u>1</u>		<u>Upl</u>	
4. <u>Nothofagus confertifolia</u>	<u>1</u>		<u>Upl</u>	
	<u>12</u> = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>22</u> x 2 = <u>44</u> FAC species <u>32</u> x 3 = <u>96</u> FACU species <u>58</u> x 4 = <u>232</u> UPL species <u>12</u> x 5 = <u>60</u> Column Totals: <u>124</u> (A) <u>400</u> (B) Prevalence Index = B/A = <u>3.23</u>
1. <u>Arctostaphylos manzanita</u>	<u>5</u>		<u>Upl</u>	
2. _____				
3. <u>Symphoricarpos albus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Sambucus nigra</u>	<u>2</u>		<u>FAC</u>	
5. <u>Ribes cereum</u>	<u>1</u>			
	<u>23</u> = Total Cover			
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: ☐ 1 - Rapid Test for Hydrophytic Vegetation ☐ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ 5 - Wetland Non-Vascular Plants ¹ ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Juncus patens</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Bromus diandrus</u>	<u>10</u>			
3. <u>Anchusa asper</u>	<u>3</u>		<u>FACU</u>	
4. <u>Cynurus echinatus</u>	<u>10</u>			
5. <u>Festuca arundinacea</u> (syn)	<u>10</u>		<u>FAC</u>	
6. <u>Pteridium aquilinum</u>	<u>5</u>		<u>FACU</u>	
7. <u>Stachys rigida</u>	<u>2</u>		<u>FACW</u>	
8. <u>Carex cf. subfusca</u>	<u>10</u>		<u>FAC</u>	
9. <u>Holcus lanatus</u>	<u>10</u>		<u>FAC</u>	
10. <u>Elymus glaucus</u>	<u>10</u>		<u>FACU</u>	
11. <u>Dactylis glomerata</u>	<u>10</u>		<u>FACU</u>	
	<u>100</u> = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No ☒
1. <u>Rubus leucodermis</u>	<u>5</u>		<u>FACU</u>	
2. _____				
	<u>5</u> = Total Cover			
% Bare Ground in Herb Stratum <u>2</u>				
Remarks: _____				

SOIL

Sampling Point: _____

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☒ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☒ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☒ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____
Saturation Present?	Yes ☐ No ☒	Depth (inches): _____
(includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Sordal W-2 City/County: Larabee Valley, Humboldt Sampling Date: 9/17/18
 Applicant/Owner: Sordal OVE parcel State: CA Sampling Point: WD2
 Investigator(s): Iris Koski, Helsey McDonald Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Concave Slope (%): 42
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes ☒ No _____	
Remarks: <u>Dry season, seasonally wet. Compacted soil from grazing, road</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)														
1. <u>None</u>																		
2. _____																		
3. _____																		
4. _____																		
<u>0</u> = Total Cover				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>45</u></td> <td>x 1 = <u>45</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>7</u></td> <td>x 3 = <u>21</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x 4 = <u>80</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>72</u> (A)</td> <td><u>138</u> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>1.92</u>	Total % Cover of:	Multiply by:	OBL species <u>45</u>	x 1 = <u>45</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>7</u>	x 3 = <u>21</u>	FACU species <u>20</u>	x 4 = <u>80</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>72</u> (A)	<u>138</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>45</u>	x 1 = <u>45</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>7</u>	x 3 = <u>21</u>																	
FACU species <u>20</u>	x 4 = <u>80</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>72</u> (A)	<u>138</u> (B)																	
<u>0</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: _____) 1. <u>None</u> 2. _____ 3. _____ 4. _____ 5. _____																		
Herb Stratum (Plot size: _____) 1. <u>Mentha pulegium</u> 35 Y OBL 2. <u>Festuca idahoensis</u> 20 Y FACU 3. <u>Rumex acetosella</u> 2 FACU 4. <u>Trifolium sp</u> 10 5. <u>Nanthera californica</u> 5 FAC 6. <u>Luzula comosa</u> 1 FAC 7. <u>Arnica montana</u> 10 OBL 8. <u>Rumex crispus</u> 1 FAC 9. <u>Hypochaeris radicata</u> 2 FACU 10. _____ 11. _____																		
<u>86</u> = Total Cover																		
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____																		
<u>100</u> = Total Cover																		
% Bare Ground in Herb Stratum <u>14</u>																		
Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0' ☒ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☒ 5 - Wetland Non-Vascular Plants ¹ ☒ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																		
Hydrophytic Vegetation Present? Yes ☒ No _____																		
Remarks: _____																		

Sampling Point: _____

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SORDAL - SITE D1WD3 City/County: Larabee Valley, Humboldt Sampling Date: 9/17/18
 Applicant/Owner: Sordal COI parcel State: CA Sampling Point: WD-3
 Investigator(s): Lris Koski, Kelsey McDermitt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present? Yes ☒ No _____	
Wetland Hydrology Present? Yes ☒ No _____	
Remarks: <u>Heavily grazed. Dry season.</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)			
1. <u>Rosa rubiginosa</u>	<u>1</u>		<u>LPL</u>
2. <u>Rubus arcticus</u>	<u>1</u>		<u>FAC</u>
3. _____			
4. _____			
5. _____			
_____ = Total Cover			
Herb Stratum (Plot size: _____)			
1. <u>Mentha pulegium</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>
2. <u>Juncus patens</u>	<u>5</u>		<u>FACW</u>
3. <u>Juncus effusus</u>	<u>10</u>		<u>FACW</u>
4. <u>Juncus sp. (brown leaves)</u>	<u>5</u>		<u>FACW</u>
5. <u>Rumex crispus</u>	<u>1</u>		<u>FAC</u>
6. <u>Hypericum anagalloides</u>	<u>3</u>		<u>OBL</u>
7. <u>Scirpus microcarpus</u>	<u>1</u>		<u>OBL</u>
8. <u>Lythrum salicaria</u>	<u>10</u>		<u>FACU</u>
9. <u>Anthriscus odoratum</u>	<u>5</u>		<u>FACU</u>
10. <u>Vulpia bromoides</u>	<u>10</u>		<u>FAC</u>
11. <u>Cirsium vulgare</u>	<u>2</u>		<u>FACU</u>
12. <u>Cynodon dactylon</u>	<u>95</u>		<u>FACU</u>
_____ = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
_____ = Total Cover			
% Bare Ground in Herb Stratum <u>5</u>	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>39</u>	x 1 = <u>39</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>11</u>	x 3 = <u>33</u>
FACU species <u>25</u>	x 4 = <u>100</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95</u> (A)	<u>212</u> (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

- ☒ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0¹
- ☒ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- ☒ 5 - Wetland Non-Vascular Plants¹

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No _____

Remarks: _____

SOIL

Sampling Point: _____

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply) ☒ Surface Water (A1) ☐ High Water Table (A2) ☒ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☒ Iron Deposits (B5) ☒ Surface Soil Cracks (B6) ☒ Inundation Visible on Aerial Imagery (B7) ☐ Sparsely Vegetated Concave Surface (B8) ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) ☐ Salt Crust (B11) ☐ Aquatic Invertebrates (B13) ☐ Hydrogen Sulfide Odor (C1) ☒ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Stunted or Stressed Plants (D1) (LRR A) ☐ Other (Explain in Remarks) Secondary Indicators (2 or more required) ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ☒ Drainage Patterns (B10) ☐ Dry-Season Water Table (C2) ☒ Saturation Visible on Aerial Imagery (C9) ☐ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ FAC-Neutral Test (D5) ☐ Raised Ant Mounds (D6) (LRR A) ☐ Frost-Heave Hummocks (D7)		
Field Observations: Surface Water Present? Yes ☒ No ☐ Depth (inches): Water Table Present? Yes ☒ No ☐ Depth (inches): Saturation Present? Yes ☒ No ☐ Depth (inches): Wetland Hydrology Present? Yes ☒ No ☐		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		