# AUTOMATED DATA FORMS FOR WETLAND DELINEATION
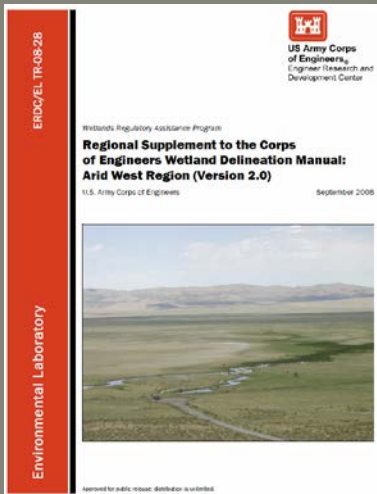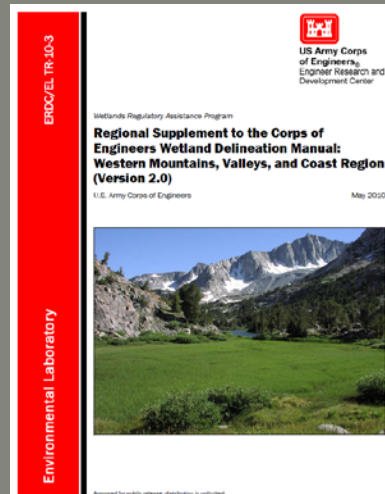
Colorado West Regulatory Branch

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# AUTOMATED DATA FORMS - OVERVIEW

- Following publication of the regional supplements >20 automated data forms were developed by USACE Districts, other agencies, & private companies.

- Wide variety of functionality (no automation, 50/20 calculations, etc.).

- No forms correctly identified soil or hydrology indicators based on user inputs.

- Nathan Schulz (LRE) developed the most functional format.

- Automated forms improve technical accuracy and document review efficiency.

- Excel spreadsheet-based data form developed for each wetland regional supplement.

- Forms utilize exact format as wetland delineation data forms - easy application, export to PDF, and incorporation into record.

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# SITE INFORMATION -
## REQUIRED INFORMATION IN YELLOW
## ESSENTIAL FOR INDICATOR APPLICATION

### WETLAND DETERMINATION DATA SHEET – Arid West Region

Project/Site: _____  City/County: _____  Sampling Date: _____

Applicant/Owner: _____  State: CO  Sampling Point: _____

Investigator(s): _____  Section, Township, Range: _____

Landform (hillside, terrace, etc.): _____

Select the Land Resource Region for this site. This information is necessary for use of the proper hydric soil indicators.

Subregion (LRR): [yellow box] ▼

Slope (%): _____

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  X

Hydric Soil Present?  Yes _____  No  X

Wetland Hydrology Present?  Yes _____  No  X

Is the Sampled Area within a Wetland?  Yes _____  No  X

Landform (hillside, terrace, etc.): _____

Subregion (LRR): [yellow box] ▼  Lat: _____

Soil Map Unit Name:

LRR B
LRR C
LRR D

Are climatic / hydrolo[gic]  the site typica

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# WETLAND PARAMETER DATA INITIALLY CHECKED AS NO UNTIL FORM IS FILLED OUT

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

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No __X__ | Is the Sampled Area | |
| Hydric Soil Present? | Yes _____ | No __X__ | within a Wetland? Yes _____ | No __X__ |
| Wetland Hydrology Present? | Yes _____ | No __X__ | | |

Remarks:
Sampling occurred at reference sites (Sampling Points 10 - 15) which support wetland/non-wetland boundary across area of disturbance.

## Remarks Section Allows For Addition Of Text

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# VEGETATION

- Combines NWPL and USDA plants database into a single searchable list.
- Species input via scientific name, common name, or synonym.
- Auto-fills species name with data entry.
- Automatic generation of indicator status.
- Calculation of 50/20 rule, dominance test, and prevalence index.

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# AS YOU ENTER SPECIES NAME IT AUTOMATICALLY BEGINS TO POPULATE



**DROP DOWN BOX AVAILABLE FOR SPECIES SELECTION BY SCIENTIFIC NAME OR COMMON NAME**

# ONCE SPECIES IS SELECTED THE INDICATOR STATUS IS POPULATED

## VEGETATION – Use scientific names of plants.

| Tree Stratum | (Plot size: _____ ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|---|
| 1. Pinus edulis | ▼ | | | UPL |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| | | _____ =Total Cover | | |

# TO SEARCH A SPECIES BY COMMON NAME YOU MUST FIRST HIT THE SPACE BAR BEFORE TYPING

# AUTOMATICALLY ACCOUNTS FOR TIES IN ABSOLUTE COVER WHEN DETERMINING DOMINANCE

Herb Stratum        (Plot size: _____5' r_____)

| | | | |
|---|---|---|---|
| 1. Alopecurus aequalis | 15 | Yes | OBL |
| 2. Calamagrostis canadensis | 5 | Yes | FACW |
| 3. Stellaria longifolia | 5 | Yes | FACW |
| 4. Myosurus minimus | 5 | Yes | OBL |
| 5. Cardamine cordifolia | 2 | No | FACW |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 32 | =Total Cover | |

50% of total cover **16**        20% of total cover **6**

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# UPON ENTERING ABSOLUTE COVER, DOMINANCE IS AUTOMATICALLY DETERMINED AS WELL AS DOMINANCE TEST AND PREVALENCE INDEX CALCULATED

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size: _____ ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Crataegus rivularis | 25 | Yes | FAC |
| 2. Prunus virginiana | 10 | Yes | FAC |
| 3. Populus angustifolia | 10 | Yes | FACW |
| 4. _____ | | | |
| | 45 | =Total Cover | |

**Sapling/Shrub Stratum** (Plot size: _____ )
1. _____
2. _____
3. _____
4. _____
5. _____
                                        =Total Cover

**Herb Stratum** (Plot size: _____ )
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
                                        =Total Cover

**Woody Vine Stratum** (Plot size: _____ )
1. _____
2.

---

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: _____ 3 _____ (A)

Total Number of Dominant Species Across All Strata: _____ 3 _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 35 | x 3 = | 105 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 45 (A) | | 125 (B) |

Prevalence Index = B/A = 2.78

**Hydrophytic Vegetation Indicators:**

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Picea pungens | 10 | Yes | FAC |
| 2. Abies lasiocarpa | 5 | Yes | FACU |
| 3. Alnus incana | 5 | Yes | FACW |
| 4. _____ | | | |
| | 20 | =Total Cover | |

| Sapling/Shrub Stratum (Plot size: 5' r ) | | | |
|---|---|---|---|
| 1. Alnus incana | 10 | Yes | FACW |
| 2. Salix drummondiana | 10 | Yes | FACW |
| 3. Cornus alba | 5 | Yes | FACW |
| 4. _____ | | | |
| 5. _____ | | | |
| | 25 | =Total Cover | |

| Herb Stratum (Plot size: 5' r ) | | | |
|---|---|---|---|
| 1. Glyceria striata | 35 | Yes | OBL |
| 2. Bromus ciliatus | 10 | Yes | FAC |
| 3. Osmorhiza berteroi | 5 | No | FACU |
| 4. _____ | | | |
| 5. _____ | | | |
| 6. _____ | | | |
| 7. _____ | | | |
| 8. _____ | | | |
| 9. _____ | | | |
| 10. _____ | | | |
| 11. _____ | | | |
| | 50 | =Total Cover | |

| Woody Vine Stratum (Plot size: _____ ) | | | |
|---|---|---|---|
| 1. _____ | | | |
| 2. _____ | | | |
| | | =Total Cover | |

% Bare Ground in Herb Stratum _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC:  7  (A)

Total Number of Dominant Species Across All Strata:  8  (B)

Percent of Dominant Species That Are OBL, FACW, or FAC:  87.5%  (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 35 | x 1 = | 35 |
| FACW species | 30 | x 2 = | 60 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 95 (A) | | 195 (B) |

Prevalence Index = B/A = 2.05

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation
 X  2 - Dominance Test is >50%
 X  3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vacular 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 _X_   No _____

**HYDROPHYTIC VEGETATION PARAMETER AUTOMATICALLY CHECKED BASED ON DATA ENTERED**

# IF DOMINANCE TEST OR PREVALENCE INDEX IS NOT APPLICABLE
# CHECK THE FOLLOWING BOXES

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | _____ | x 1 = _____ |
| FACW species | _____ | x 2 = _____ |
| FAC species | _____ | x 3 = _____ |
| FACU species | _____ | x 4 = _____ |
| UPL species | _____ | x 5 = _____ |
| Column Totals: | _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**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-Vacular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

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☑ This sampling point has passed the Rapid Test for Hydrophytic Vegetation. I do not wish to have the Dominance Test worksheet calculated.

☑ This sampling point has passed the Rapid Test for Hydrophytic Vegetation and/or the Dominance Test. I do not wish to have the Prevalence Index worksheet calculated.

Herb Stratum   (Plot size: 5' radius )

| | | | |
|---|---|---|---|
| 1. Typha angustifolia (Narrow-Leaf Cat-Tail | 55 | Y | OBL |
| 2. Beckmannia syzigachne (American Slough Grass) | 10 | N | OBL |
| 3. Carex atherodes (Wheat Sedge) | 5 | N | OBL |

# HYDRIC SOILS

- Correct format required for depth and color inputs
- Drop down menus for all other soil inputs
- Automatic calculation of contrast features
- Calculation of most soil indicators and common indicator combinations

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# SOIL LAYER THICKNESS DATA REQUIRES PROPER ENTRY (0-2, 2-8, 8-20, ETC.)

# SOIL COLOR REQUIRES PROPER ENTRY
## (10YR 3/2, ETC.)



**SOIL**                                                                          Sampling Point: _____

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 10YR | | | | | | | |

**Incorrect Soil Color**                                                               ✕

❌  Enter soil color as a hue[space]value/chroma, e.g. 10YR 3/2.
For neutral hue (N) on gley page enter hue[space]value/(blank), e.g. N 2.5/ .
Rounding intermediate colors should not be done to meet requirements of an indicator.

[ Retry ]   [ Cancel ]   [ Help ]

[1]Type:  C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.        [2]Location:  PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)        **Indicators for Problematic Hydric Soils[3]:**
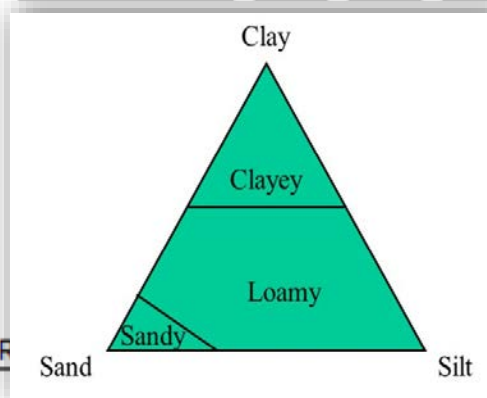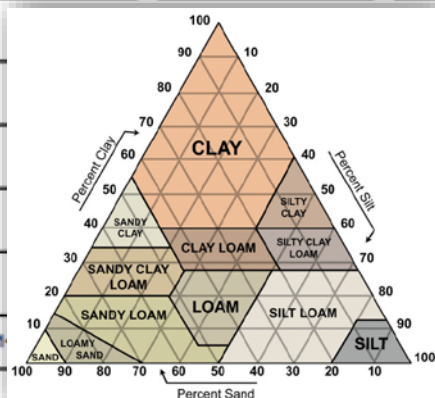
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# DROP DOWN BOX DEPICTS AVAILABLE TEXTURES BASED ON INDICATOR REQUIREMENTS AND SIMPLIFIED TEXTURAL TRIANGLE



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# INDICATOR AUTOMATICALLY POPULATED AND PRESENCE OF HYDRIC SOIL CHECKED BASED ON DATA ENTERED

**SOIL**
Sampling Point: ___7___

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 7.5YR 3/1 | 100 | | | | | Mucky Sand | |
| 4-16 | 7.5YR 3/1 | 85 | 7.5YR 4/6 | 15 | C | M | Sandy | Prominent redox concentrations |
| 16-24 | 10YR 5/1 | 90 | 10YR 7/1 | 10 | D | M | | |

> A layer starting at a depth ≤6 inches (15 cm) from the soil surface in which iron-manganese oxides and/or organic matter have been stripped from the matrix and the primary base color of the soil material has been exposed. The stripped areas and translocated oxides and/or organic matter form a faintly contrasting pattern of two or more colors with diffuse boundaries. The stripped zones are 10 percent or more of the volume and are rounded.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

| | **Indicators for Problematic Hydric Soils[3]:** |
|---|---|
| ___ Histosol (A1) | ___X___ Sandy Redox (S5) | ___ 2 cm Muck (A10) |
| ___ Histic Epipedon (A2) | ___?___ Stripped Matrix (S6) | ___ Red Parent Material (F21) |
| ___ Black Histic (A3) | ___ Loamy Mucky Mineral (F1) **(except MLRA 1)** | ___ Very Shallow Dark Surface (F22) |
| ___ Hydrogen Sulfide (A4) | ___ Loamy Gleyed Matrix (F2) | ___ Other (Explain in Remarks) |
| ___ Depleted Below Dark Surface (A11) | ___ Depleted Matrix (F3) | |
| ___ Thick Dark Surface (A12) | ___ Redox Dark Surface (F6) | |
| ___X___ Sandy Mucky Mineral (S1) | ___ Depleted Dark Surface (F7) | [3]Indicators of hydrophytic vegetation and |
| ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)** | ___ Redox Depressions (F8) | wetland hydrology must be present, |
| ___ Sandy Gleyed Matrix (S4) | | unless disturbed or problematic. |

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

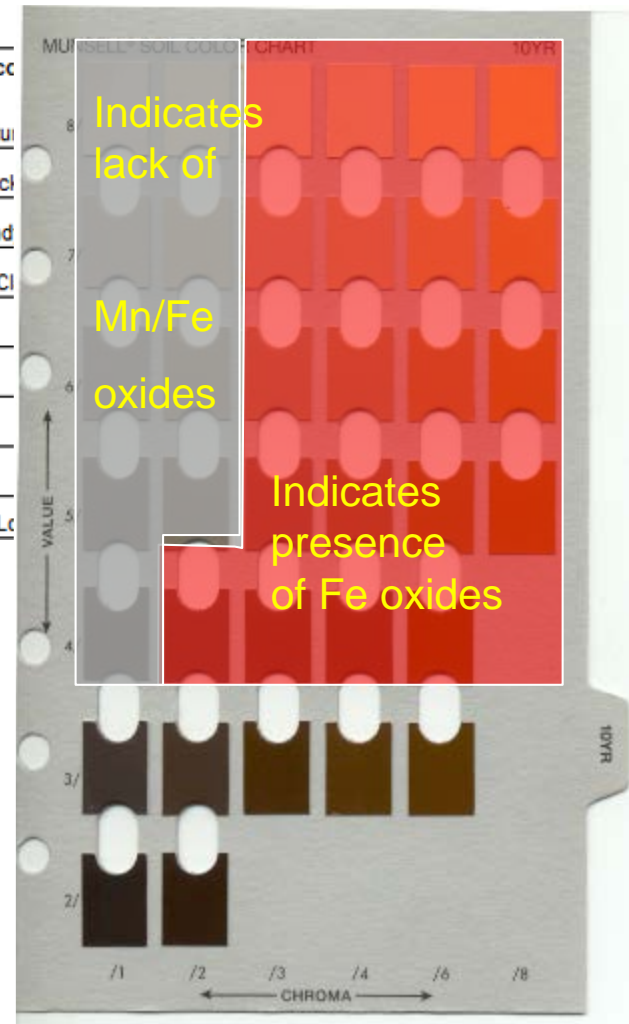**Hydric Soil Present?**   Yes __X__   No _____

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# DROP DOWN DEPICTS CHOICES FOR REDOX TYPE

# DROP DOWN DEPICTS CHOICES FOR REDOX LOCATION

**Faint, Distinct, Or Prominent Redox Color Automatically Determined**

**SOIL**                                                                                    Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 10YR 3/1 | 100 | | | | | Muck | |
| 2-6 | 10YR 3/1 | 100 | | | | | Sandy | |
| 6-18 | 10YR 5/2 | 80 | 10YR 6/8 | 20 | C | ▼ | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | PL M PL/M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      [2]Location: PL=Pore Lining, M=Matrix.

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# HYDRIC SOILS WITH LIMITED AUTOMATION

- Hydrogen Sulfide (A4)

# WETLAND HYDROLOGY

- Provides full description of hydrology indicators.
- Updates summary information based on user inputs.
- Automatically identifies 11 hydrology indicators.
- Inserts hydrology indicators based upon information from:
  - ➢ Soil information (e.g., Hydrogen Sulfide Odor)
  - ➢ Vegetation information (i.e., FAC Neutral Test)

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# FAC NEUTRAL IS AUTOMATICALLY CHECKED BASED ON VEGETATION DATA AS WELL AS OTHER INDICATORS THAT MAY POTENTIALLY BE MET

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

| | |
|---|---|
| Surface Water (A1) | Water-Stained Leaves (B9) (**except** |
| High Water Table (A2) | **MLRA 1, 2, 4A, and 4B)** |
| Saturation (A3) | Salt Crust (B11) |
| Water Marks (B1) | Aquatic Invertebrates (B13) |
| Sediment Deposits (B2) | Hydrogen Sulfide Odor (C1) |
| Drift Deposits (B3) | Oxidized Rhizospheres on Living Roots (C3) |
| Algal Mat or Crust (B4) | Presence of Reduced Iron (C4) |
| Iron Deposits (B5) | Recent Iron Reduction in Tilled Soils (C6) |
| Surface Soil Cracks (B6) | Stunted or Stressed Plants (D1) (**LRR A**) |
| Inundation Visible on Aerial Imagery (B7) | Other (Explain in Remarks) |
| Sparsely Vegetated Concave Surface (B8) | |

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) |
| X | FAC-Neutral Test (D5) |
| | Raised Ant Mounds (D6) (**LRR A**) |
| | Frost-Heave Hummocks (D7) |

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# WETLAND HYDROLOGY INDICATORS

## SCROLLING OVER INDICATOR PROVIDES DESCRIPTION OF INDICATOR REQUIREMENTS

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

| Primary | Primary | Secondary Indicators (2 or more required) |
|---|---|---|
| ___ Surface Water (A1) | ___ Water-Stained Leaves (B9) (**except** | ___ Water-Stained Leaves (B9) (**MLRA 1, 2** |
| ___ High Water Table (A2) | **MLRA 1, 2, 4A, and 4B)** | **4A, and 4B)** |
| ___ Saturation (A3) | ___ Salt Crust (B11) | ___ Drainage Patterns (B10) |
| ___ Water Marks (B1) | ___ Aquatic Invertebrates (B13) | ___ Dry-Season Water Table (C2) |
| ___ Sediment Deposits (B2) | ___ Hydrogen Sulfide Odor (C1) | ___ Saturation Visible on Aerial Imagery (C9) |
| ___ Drift Deposits (B3) | ___ Oxidized Rhizospheres on Living Roots (C3) | ___ Geomorphic Position (D2) |
| ___ Algal Mat or Crust (B4) | ___ Presence of Reduced Iron (C4) | ___ Shallow Aquitard (D3) |
| ___ Iron Deposits (B5) | ___ Recent Iron Reduction in Tilled Soils (C6) | _X_ FAC-Neutral Test (D5) |
| ___ Surface Soil Cracks (B6) | ___ Stunted or Stressed Plants (D1) (**LRR A**) | ___ Raised Ant Mounds (D6) (**LRR A**) |
| ___ Inundation Visible on Aerial Imagery (B7) | ___ Other (Explain in Remarks) | ___ Frost-Heave Hummocks (D7) |
| ___ Sparsely Vegetated Concave Surface (B8) | | |

> Sediment deposits are thin layers or coatings of fine-grained mineral material (e.g., silt or clay) or organic matter (e.g., pollen), sometimes mixed with other detritus, remaining on tree bark, plant stems or leaves, rocks, and other objects after surface water recedes.

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# CHECKING ONE PRIMARY INDICATOR WILL AUTOMATICALLY CHECK YES FOR THE HYDROLOGY PARAMETER

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

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No  X | **Is the Sampled Area** | | |
| Hydric Soil Present? | Yes ____ | No  X | **within a Wetland?** | Yes ____ | No  X |
| Wetland Hydrology Present? | Yes  X | No ____ | | | |

3

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply) _____  Secondary Indicators (2 or more required)

| | | |
|---|---|---|
| ____ Surface Water (A1) | ____ Water-Stained Leaves (B9) (**except** | ____ Water-Stained Leaves (B9) (**MLRA 1, 2** |
| ____ High Water Table (A2) | **MLRA 1, 2, 4A, and 4B**) | **4A, and 4B**) |
| ____ Saturation (A3) | ____ Salt Crust (B11) | ____ Drainage Patterns (B10) |
| ____ Water Marks (B1) | ____ Aquatic Invertebrates (B13) | ____ Dry-Season Water Table (C2) |
| ____ Sediment Deposits (B2) | ____ Hydrogen Sulfide Odor (C1) | ____ Saturation Visible on Aerial Imagery (C9) |
| ____ Drift Deposits (B3) | x Oxidized Rhizospheres on Living Roots (C3) | ____ Geomorphic Position (D2) |
| ____ Algal Mat or Crust (B4) | ____ Presence of Reduced Iron (C4) | ____ Shallow Aquitard (D3) |
| ____ Iron Deposits (B5) | ____ Recent Iron Reduction in Tilled Soils (C6) | X FAC-Neutral Test (D5) |
| ____ Surface Soil Cracks (B6) | ____ Stunted or Stressed Plants (D1) (**LRR A**) | ____ Raised Ant Mounds (D6) (**LRR A**) |
| ____ Inundation Visible on Aerial Imagery (B7) | ____ Other (Explain in Remarks) | ____ Frost-Heave Hummocks (D7) |
| ____ Sparsely Vegetated Concave Surface (B8) | | |

1

**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  X  No ____ |
| (includes capillary fringe) | | | | |

2

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# TWO SECONDARY INDICATORS ARE REQUIRED TO BE CHECKED TO MEET THE HYDROLOGY PARAMETER

**SUMMARY OF FINDINGS** – Attach site map showing sampling point locations, transects, important features, (

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ No _X_ | **Is the Sampled Area** | |
| Hydric Soil Present? | Yes _____ No _X_ | **within a Wetland?** Yes _____ No _X_ | |
| Wetland Hydrology Present? | Yes _____ No _X_ | | |

**3** (arrow pointing to Wetland Hydrology Present? No X)

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

| | | Secondary Indicators (minimum of two required) |
|---|---|---|
| ___ Surface Water (A1) | ___ Aquatic Fauna (B13) | ___ Surface Soil Cracks (B6) |
| ___ High Water Table (A2) | ___ Marl Deposits (B15) **(LRR U)** | ___ Sparsely Vegetated Concave Surface (B8) |
| ___ Saturation (A3) | ___ Hydrogen Sulfide Odor (C1) | ___ Drainage Patterns (B10) |
| ___ Water Marks (B1) | ___ Oxidized Rhizospheres on Living Roots (C3) | ___ Moss Trim Lines (B16) |
| ___ Sediment Deposits (B2) | ___ Presence of Reduced Iron (C4) | ___ Dry-Season Water Table (C2) |
| ___ Drift Deposits (B3) | ___ Recent Iron Reduction in Tilled Soils (C6) | ___ Crayfish Burrows (C8) |
| ___ Algal Mat or Crust (B4) | ___ Thin Muck Surface (C7) | ___ Saturation Visible on Aerial Imagery (C9) |
| ___ Iron Deposits (B5) | ___ Other (Explain in Remarks) | ___ Geomorphic Position (D2) |
| ___ Inundation Visible on Aerial Imagery (B7) | | _x_ Shallow Aquitard (D3) |
| ___ Water-Stained Leaves (B9) | | ___ FAC-Neutral Test (D5) |
| | | ___ Sphagnum Moss (D8) **(LRR T,U)** |

**1** (arrow pointing to Shallow Aquitard (D3))

**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 _X_ |
| (includes capillary fringe) | | | |

**2** (arrow pointing to Wetland Hydrology Present? No X)

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# CHECKING TWO SECONDARY INDICATORS WILL AUTOMATICALLY CHECK YES FOR THE HYDROLOGY PARAMETER

**SUMMARY OF FINDINGS** – Attach site map showing sampling point locations, transects, important features, ‹

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ No __X__ | Is the Sampled Area | |
| Hydric Soil Present? | Yes _____ No __X__ | within a Wetland? | Yes _____ No __X__ |
| Wetland Hydrology Present? | Yes __X__ No _____ | | |

**3**

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

| | | Secondary Indicators (minimum of two required) |
|---|---|---|
| _____ Surface Water (A1) | _____ Aquatic Fauna (B13) | _____ Surface Soil Cracks (B6) |
| _____ High Water Table (A2) | _____ Marl Deposits (B15) **(LRR U)** | _____ Sparsely Vegetated Concave Surface (B8) |
| _____ Saturation (A3) | _____ Hydrogen Sulfide Odor (C1) | _____ Drainage Patterns (B10) |
| _____ Water Marks (B1) | _____ Oxidized Rhizospheres on Living Roots (C3) | _____ Moss Trim Lines (B16) |
| _____ Sediment Deposits (B2) | _____ Presence of Reduced Iron (C4) | _____ Dry-Season Water Table (C2) |
| _____ Drift Deposits (B3) | _____ Recent Iron Reduction in Tilled Soils (C6) | _____ Crayfish Burrows (C8) |
| _____ Algal Mat or Crust (B4) | _____ Thin Muck Surface (C7) | _____ Saturation Visible on Aerial Imagery (C9) |
| _____ Iron Deposits (B5) | _____ Other (Explain in Remarks) | __x__ Geomorphic Position (D2) |
| _____ Inundation Visible on Aerial Imagery (B7) | | __x__ Shallow Aquitard (D3) |
| _____ Water-Stained Leaves (B9) | | _____ FAC-Neutral Test (D5) |
| | | _____ Sphagnum Moss (D8) **(LRR T,U)** |

**1**

**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 __X__ No _____ |
| (includes capillary fringe) | | | | |

**2**

# REMARKS SECTION ALLOWS
# FOR ADDITION OF TEXT

**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 __X__ No _____

(includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Most recent rainfall event occurred 24 days prior to site visit and totalled 0.78 inches according to closest WETS table weather station data.

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# AUTOMATED WETLAND HYDROLOGY INDICATORS

| | |
|---|---|
| Surface water A1 | "X" generated from Field Observations in the Hydrology section. |
| High Water Table (A2) | "X" generated from Field Observations |
| Saturation (A3) | "X" generated from Field and Restrictive Layer in the Soil section. |
| Sparsely Vegetated Concave Surface (B8) | "?" generated from % Bare Ground in Herb Stratum, or other vegetation information in the Vegetation section. |
| Biotic Crust (B12) | "?" generated from % Cover of Biotic Crust in the Vegetation section. |
| Hydrogen Sulfide Odor (C1) | "X" generated if Hydric Soil Indicator Hydrogen Sulfide (A4) has been checked with an "X". |
| Dry-Season Water Table (C2) | "?" generated from Field Observations in the Hydrology section. |
| Presence of Reduced Iron (C4) | "X" generated from Profile Description in the Soil section. |
| Thin Muck Surface (C7) | "X" generated from Profile Description in the Soil section. |
| Shallow Aquitard (D3) | In most regions, "?" generated from Restrictive Layer data in the Soil section. NCNE and WMVC "X" generated if Surface Water (A1) or High Water Table (A2) are also present. Not automatically generated in the Arid West Region. |
| FAC-Neutral Test (D5) | "X" generated from information in the Vegetation section. |

# WHEN ALL THREE PARAMETERS ARE MET SUMMARY OF FINDINGS WILL AUTOMATICALLY CHECK THAT THE SAMPLED AREA IS WITHIN A WETLAND

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

| Hydrophytic Vegetation Present? | Yes __X__ No _____ | Is the Sampled Area |
| Hydric Soil Present? | Yes __X__ No _____ | within a Wetland? Yes __X__ No _____ |
| Wetland Hydrology Present? | Yes __X__ No _____ | |

Remarks:

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# TESTING

- Testing conducted using 270 delineations from 9 regions
- Testing demonstrated accuracy of automated data forms ensuring:
  - ➤ Correct spelling of plant names, correct application of 50/20 Rule, correct indicator status, and hydrophytic vegetation results
  - ➤ Application of FAC neutral test, secondary indicators, hydrogen sulfide odor, presence of reduced iron
  - ➤ Correct format of soil data entry, identification of omitted soil indicators, avoids erroneous soil indicators

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# UPDATING

To date, automated data forms have been updated based upon changes to the National Wetland Plant list.

Over time, additional updates may be required with changes to plant indicator status, wetland hydrology indicators, or indicators of hydric soils.

The schedule for updates will be determined by USACE HQ.

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# PRODUCTS

- Automated data forms developed for each wetland delineation region
- Draft Technical Note (User guide) and Journal Article in management review
- Forms submitted for posting on USACE HQ website
- Email address for comments, questions, bug reports:

  autodataform@usace.army.mil

# United States Army Corps of Engineers
## Sacramento District Regulatory Division
### Colorado West Regulatory Section
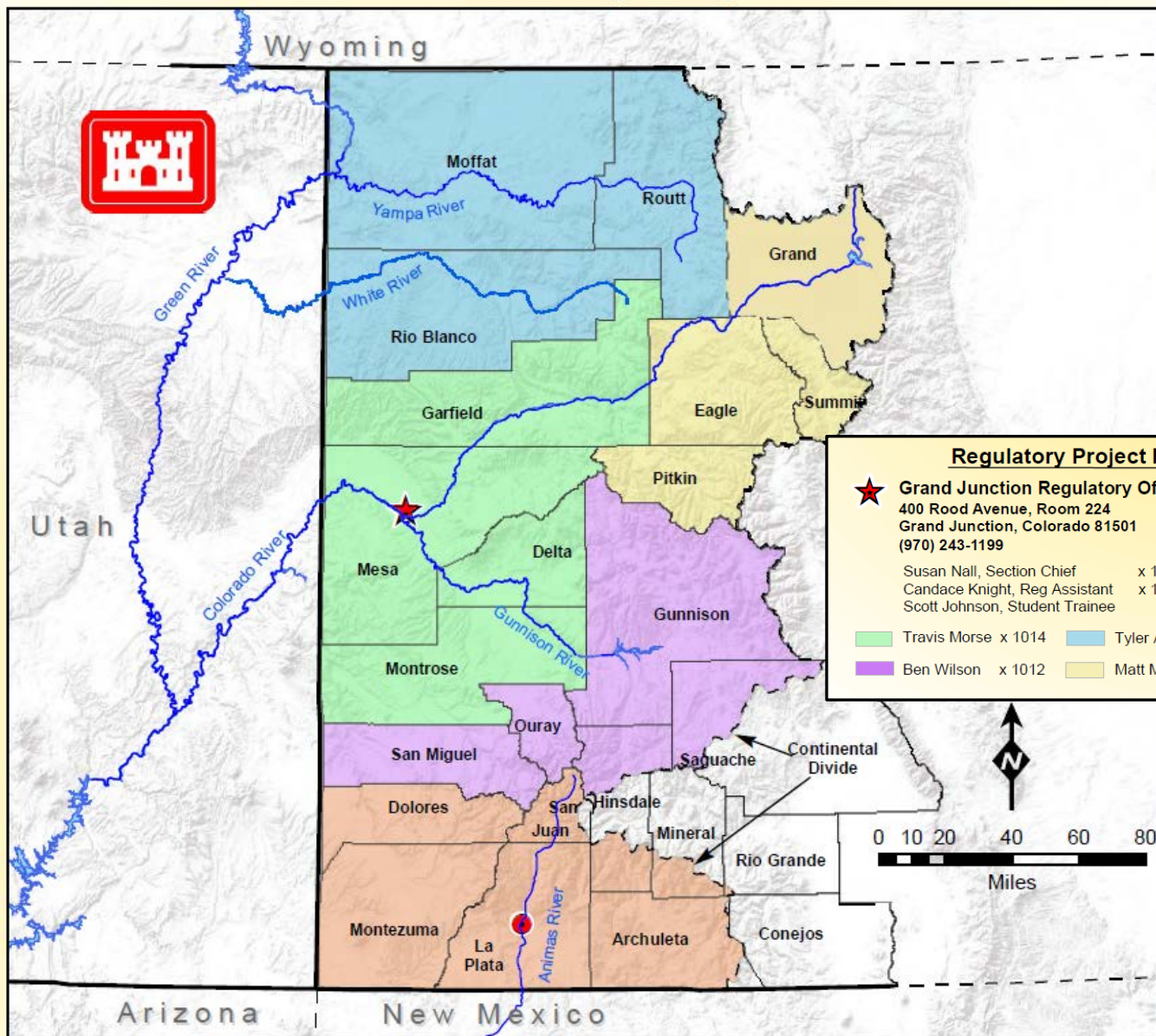
**Regulatory Project Managers Assigned by County**

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Susan Nall, Section Chief    x 1016
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Terry Stone, Office Clerk    x 1001
Jeff Seebach, Student Trainee x 1002

Travis Morse   x 1014
Ben Wilson   x 1012
Tyler Adams   x 1013
Matt Montgomery   x 1017
Kara Hellige   x 1007

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