Major Land Resource Area 009X
Palouse and Nez Perce Prairies

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Ecological site keys

MLRA 9 - Key to geographical sections

I. Site resides in easternmost portion of the MLRA that encompasses to the north areas around Hangman and Cow creeks, and to the south areas northeast of the Craig Mountains north of the Snake River. Go to MLRA 9 - Eastern Section key

II. Site resides in areas north of the Wenaha River along the Grande Ronde River, and areas south of the Spokane River in prairies between Hangman, Pine, Palouse and Union Flat Creeks. Go To MLRA 9 - Northern Section key.

III. Site resides West of the Snake River and South of the Wenaha and Walla Walla rivers on elevated plateaus, dissected slopes and basins adjacent to the Blue and Wallowa Mountains.

I. Frigid soil temperature regime. Sites primarily occurring on basalt plateaus, cold basins and old terraces between 2500 - 5000 ft. Receives 14 - 28 in. annual precipitation, 60 - 100 frost free days per year. Xeric soil moisture regime. Go To MLRA 9 - Southern Section LRU A - Basalt plateaus and high basins key.

II. Mesic soil temperature regime

A. Sites occurring within low elevation (800 - 2400 ft.) canyons, underlain by Miocene basalt and Triassic/Jurassic metamorphic rocks. Receiving 10 - 15 in. of annual precipitation and 140 - 200 frost free days per year. Xeric to Aridic soil moisture regime. Go To MLRA 9 - Southern Section - LRU C - Low elevation dry canyons key.

B. Sites occurring on dissected uplands and upper canyons between 1500 - 4250 ft., underlain by Miocene basalt. Receiving 13 - 24 in. annual precipitation, 100 - 180 frost free days per year. Xeric soil moisture regime. Go To MLRA 9 - Southern Section - LRU B - Dissected uplands and high canyons key.

C. Sites occurring on valley bottoms, floodplains, old lake beds and along active riparian systems between 1500 - 4250 ft., underlain by deep alluvial or lacustrine sediments. Receiving 14 - 26 in. annual precipitation, 120 - 180 frost free days per year. Xeric to Aquic soil moisture regime. Go To MLRA 9 - Southern Section - LRU D - Valley bottoms and riparian complexes key.

MLRA 9 - Southern Section - LRU A - Basalt plateaus and high basins

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I. Sites found in open drainageways or swales receiving supplemental subsurface flow

A. Site predominately found within a 14-17" precipitation zone

1 Soils typically silt loam over silty clay loam ... R009XY005OR – Cold Swale 13-17 PZ

2 Soils typically silty clay loam over clay ... R009XY006OR – Cold Clayey Swale 13-17 PZ

B. Site predominately found within a 17-24" precipitation zone

1 Soils shallow (10 - 20"), somewhat poorly drained ... R009XY007OR – Cold Swale 17-24 PZ

2 Soils moderately deep (20 - 40"), poorly drained ... R009XY008OR – Cold Wet Swale 17-24 PZ

II. Not as above

A. Site predominately found within a 13 - 17" precipitation zone

1 Sites flat to moderately sloping, not influenced by aspect

i. Soils very shallow (0 - 10") ... R009XY027OR – Cold Very Shallow 13+ PZ

ii. Soils shallow (10 - 20") ... R009XY022OR – Cold Shallow 13+ PZ

iii. Soils moderately deep (20 - 40") ... R009XY017OR – Cold Loamy 13-17 PZ

iv. Soils deep to very deep (40" +) .. R009XY205OR - Cold Deep Loamy 13-17 PZ (missing concept)

2 Sites gently to steeply sloping, influenced by aspect

i. Sites occur on south slope aspects

a. Soils shallow (10 - 20") ... R009XY036OR – Cold Shallow South 13+ PZ

b. Soils moderately deep to very deep (20" +)

1) Slopes 12 - 30% ... R009XY034OR – Cold South 13-17 PZ

2) Slopes 30 - 90% .. R009XY203OR - Cold Steep South 13-17 PZ (missing concept)

ii. Sites occur on north slope aspects

a. Soils shallow (10 - 20") ... R009XY048OR – Shallow North 14+ PZ

b. Soils moderately deep to very deep (20" +)

1) Clayey family particle size class, shrubs dominated by Symphorocarpus and Rosa spp. ... R009XY041OR – Deep North 14-17 PZ

2) Loamy family particle size class

a) Stony silt loam surface texture, shrubs dominated by Physocarpus malvaceus ... R009XY060OR – Shrubby North 15+ PZ

b) Silt loam surface texture, shrubs dominated by Crataegus spp. ... R009XY046OR – Shrubby Moist North 15+ PZ

B. Site predominately found within a 17 - 24" precipitation zone

2 Sites flat to moderately sloping, not influenced by aspect

i. Soils very shallow (0 - 10") ... R009XY027OR – Cold Very Shallow 13+ PZ

ii. Soils shallow (10 - 20") ... R009XY022OR – Cold Shallow 13+ PZ

iii. Soils moderately deep (20 - 40") ... R009XY018OR – Cold Loamy 17-24 PZ

iv. Soils deep to very deep (40" +) .. R009XY206OR - Cold Deep Loamy 17-24 PZ (missing concept)

1 Sites gently to steeply sloping, influenced by aspect

i. Sites occur on south slope aspects

a. Soils shallow (10 - 20") ... R009XY036OR – Cold Shallow South 13+ PZ

b. Soils moderately deep to very deep (20" +)

1) Slopes 30 - 60% ... R009XY035OR – Cold South 17-24 PZ

2) Slopes 60 - 90% .. R009XY204OR - Cold Steep South 17-24 PZ (missing concept)

ii. Sites occur on north slope aspects

a. Soils very shallow to shallow (0 - 20")

1) Soils very shallow (0-10") .. R009XY202OR - Very Shallow North 14+ PZ (missing concept)

2) **Soils shallow (10 - 20") ...** R009XY048OR – Shallow North 14+ PZ

b. **Soils moderately deep to very deep (20" +)**

1) **Clayey family particle size class, shrubs dominated by Symphorocarpus and Rosa spp. ...** R009XY045OR – North 17-24 PZ

2) **Loamy family particle size class**

a) **Stony silt loam surface texture, shrubs dominated by Physocarpus malvaceus ...** R009XY060OR – Shrubby North 15+ PZ

b) **Silt loam surface texture, shrubs dominated by Crataegus spp. ...** R009XY046OR – Shrubby Moist North 15+ PZ

C. Site predominately found within a 30-40" precipitation zone. R009XY070OR. ... R009XY070OR – High Ridge 30+ PZ

MLRA 9 - Southern Section - LRU B - Dissected uplands and high canyons

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I. Site predominately found within a 14-17" precipitation zone

A. Sites not influenced by slope aspect

1 Clayey family particle size

i. Soils very shallow (0 - 10") ... R009XY025OR – Very Shallow 14-18 PZ

ii. Soils shallow (10 - 20") ... R009XY020OR – Shallow Clayey 14-17 PZ

iii. Soils moderately deep (20 - 40") ... R009XY015OR – Clayey 14-17 PZ

iv. Soils deep to very deep (40"+) .. R009XY207OR - Deep Clayey 14-17 PZ (missing concept)

2 Loamy family particle size ... R009XY010OR – Loamy 14-17 PZ

B. Sites occurring on southern or northern aspects

1 Sites occurring on southern aspects

ii. Soils shallow (10 - 20") ... R009XY031OR – Shallow South 14+ PZ

i. Soils moderately deep to deep (20 - 60")

a. Clayey family particle size ... R009XY029OR – South 14-17 PZ

b. Loamy family particle size .. R009XY200OR - Loamy South 14-17 PZ (missing concept)

2 Sites occurring on northern aspects

i. Site occupies 2000 - 5000' elevations on upper canyon slopes ... R009XY040OR – North 14-17 PZ

ii. Site occupies 1600 - 3400' elevations in lower canyons

a. Surface texture very cobbly silt loam, shrubs dominated by Symphorocarpus and Rosa spp. ... R009XY042OR – Low Elevation North 14-17 PZ

b. Surface texture silt loam or very stony silt loam, shrubs dominated by Physocarpus malvaceus ... R009XY043OR – Low Elevation Deep North 14-17 PZ

II. Site predominately found within a 17-22" precipitation zone

A. Sites not influenced by aspect

1 Clayey family particle size

i. Soils shallow (10 - 20") ... R009XY021OR – Shallow Clayey 17-22 PZ

ii. Soils moderately deep to deep (20 - 60") ... R009XY016OR – Clayey 17-22 PZ

iii. Soils very deep (60"+) .. R009XY208OR - Deep Clayey 17-22 PZ (missing concept)

2 Loamy family particle size

i. Soils moderately deep to deep (20 - 60"), silt loam to very cobbly loam surface texture ... R009XY013OR – Loamy 17-22 PZ

ii. Soils deep to very deep (40"+), silt loam surface texture ... R009XY014OR – Deep Loam 17-22 PZ

B. Sites occurring on southern aspects

1 Soils shallow (10 - 20") ... R009XY031OR – Shallow South 14+ PZ

2 Soils moderately deep (20 - 40")

i. Clayey family particle size ... R009XY030OR – South 17-22 PZ

ii. Loamy family particle size .. R009XY201OR - Loamy South 17-22 PZ (missing concept)

C. Sites occurring on northern aspects of high elevation canyon and plateau slopes

MLRA 9 - Southern Section - LRU C - Low elevation dry canyons

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I. Site not influenced by slope aspect, occurring on benches ... R009XY050OR – Loamy Bench 10-15 PZ

II. Site occurring on south or north slope aspects

A. Site occurring on south slope aspects

1 Soils very shallow (0 - 10") ... R009XY053OR – Very Shallow South 10-15 PZ

2 Soils shallow (10 - 20") ... R009XY052OR – Loamy Shallow South 10-15 PZ

3 Soils moderately deep (20 - 40") ... R009XY051OR – Loamy South 10-15 PZ

B. Site occurring on north slope aspects

1 Soils very shallow to shallow (0 - 20") ... R009XY055OR – Shallow North 10-15 PZ

2 Soils moderately deep to very deep (20" +) ... R009XY054OR – Loamy North 10-15 PZ

MLRA 9 - Southern Section - LRU D - Valley bottoms and riparian complexes

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I. Sites found on riparian complexes adjacent to active stream channels

A. Low valley slope (0-3%), stream channel gradient < 2%

1 **Low elevation riparian complex (1500 - 1950'), valley slope 0 - 3%** ... R009XY501OR – Low Slope Alluvial Valley Riparian Complex

2 **Higher elevation riparian complex (1750 - 2050'), valley slope 0 - 2%** ... R009XY502OR – Low Slope Alluvial Mountain Valley Riparian Complex

B. Moderate valley slope (1-15%), stream channel gradient 2 - 10%

1 **Valley slope 5 - 15%, stream channel gradient 5 - 10%** ... R009XY505OR – Moderately Sloping Confined Intermittent Riparian Complex

2 **Valley slope 1 - 10%, stream channel gradient < 5%**

i. **Valley slope 1 - 4%, stream channel gradient < 3%** ... R009XY503OR – Moderately Sloping Narrow Alluvial Valley Riparian Complex

ii. **Valley slope 4 - 10%, stream channel gradient 2 - 5%** ... R009XY504OR – Moderately Sloping Plateau Riparian Complex

II. Not as above

A. Sites occurring on alluvial fans or flats

1 **Elevation less than 2500 feet** ... R009XY003OR – Fan 10-15 PZ

2 **Elevation greater than 2500 feet** ... R009XY004OR – Fan 14-17 PZ

B. Sites occurring on floodplains and bottoms

1 **Soils well-drained to moderately well-drained, very deep (60" +) .. R009XY104OR - Meadow (missing concept)**

2 **Soils somewhat poorly drained, deep to very deep (40" +) .. R009XY105OR - Loamy Bottom (missing concept)**

MLRA 9 - Eastern Section

I. Site occurs on uplands

A. Slopes greater than 30% on northerly aspects

1 **Soils derived from decomposed schist bedrock** ... R009XY009ID – North Slope Schist 16-22 PZ FEID-PSSPS

2 **Soils not derived from decomposed schist bedrock**

i. **Soils are non-stony**

a. **Site occurs in 12-16 PZ at 1000-2000 ft. elevation, soils are moderately deep to deep loams and silt loams** ... R009XY005ID – North Slope Loamy 12-16 PZ

b. **Site occurs in 16-22 PZ at 740-4000 ft. elevation, soils are moderately deep to deep loams and silt loams** ... R009XY002ID – North Slope Loamy 16-22 PZ

ii. **Soils are stony** ... R009XY023ID – North Slope Stony 16-22 PZ FEID-PSSPS

B. Slopes greater than 30% on southerly aspects

1 Soils derived from decomposed schist bedrock ... R009XY010ID – South Slope Schist 16-22 PZ PSSPS-POSE

2 Soils not derived from decomposed schist bedrock

i. Soils moderately deep to deep

a. Site occurs in 12-16 PZ Elevation 750-1800. Soils are non-stony, moderately deep to deep silt loams ... R009XY012ID – South Slope Loamy 12-16 PZ PSSPS-POSE

b. Site occurs in 16-22 PZ. Elevation 1200-5000. Soils are moderately deep to very deep loams, silt loams, silty clay loams and clay loams ... R009XY004ID – South Slope Loamy 16-22 PZ

ii. Soils are shallow ... R009XY026ID – Shallow South Slope Stony 16-22 PZ PSSPS-POSE

C. Slopes less than 30% on all aspects (non-aspect sites)

1 Soils derived from decomposed schist bedrock. ... R009XY008ID – Schist 16-22 PZ PSSPS-FEID

2 Soils not derived from decomposed schist bedrock.

i. No stones on surface

a. Site occurs in 12-16 PZ. Elevation 750-2000 ft. No stones on surface. Soils moderately deep to deep loams and silt loams ... R009XY006ID – Loamy 12-16 PZ

b. Site occurs in 16-22 PZ. Elevation 2000-4700 ft. Soils are moderately deep silt loams and clay loams ... R009XY003ID – Loamy 16-22 PZ

c. Site occurs in 22+ PZ. Elevation 4000-5500 ft. Soils are moderately deep to deep silt loams to gravelly loams ... R009XY016ID – Loamy 22+ PZ FEID-PSSPS

ii. Stones on surface

a. Clay texture throughout profile ... R009XY015ID – Dense Stony Clay 22+ PZ DACA3-JUBA

b. Loamy textures in upper profile

1) Soils are 20” or greater in depth

a) Site occurs in 12-16PZ. Elevation 700-1800 ft. Soils are very stony to extremely stony silt loam, clay loam or sandy loam ... R009XY011ID – Stony Loam 12-16 PZ PSSPS-POSE

b) Site occurs in 22+ PZ. Elevation 2300-4300 ft. Soils are stony silt loams ... R009XY028ID – Stony Loam 22+ PZ FEID-PSSPS

2) Soils are less than 20” in depth with slopes less than 30% ... R009XY001ID – Shallow Stony Loam 16-22 PZ

3) Soils usually less than 10” deep. Slopes 10-60% ... R009XY017ID – Very Shallow 12-22 PZ PSSPS-POSE

II. Site occurs on bottomlands (slopes less than 5%)

A. Soil surface is non-stony

1 Water at or near the surface at beginning of growing season and down to 20-40 inches at the end of the growing season ... R009XY018ID – Meadow

2 Water at or near the surface at beginning of the growing season and greater than 40 inches at the end of the growing season ... R009XY019ID – Dry Meadow

3 Subsoil is mixed gravelly and sandy alluvium ... R009XY032ID – Riparian DECA5-CAREX

B. Stones on surface

1 Water table at 36-90". Soil depth shallow to deep ... R009XY031ID – Stony Riparian POBAT-ALNUS/ELYMU

2 Water table greater than 60 ". Soil depth greater than 60" ... R009XY033ID – Stony Bottomland SYAL/PSSP6

MLRA 9 - Northern Section

I. Site has over 15% cover of trees over 13 feet in height

A. Site occurs in frigid temperature regime

1 Site occurs within the Palouse Hills region of MLRA 9, eastern portion, LRU B. F009XY004WA - Warm-Frigid, Xeric Loamy, Foothills of Basalt Mountains and Plateaus, Douglas fir/Warm Dry Shrub ... F009XY004WA – Warm-Frigid Xeric Loamy Foothills of Basalt Mountains and Plateaus Douglas-fir Warm Dry Shrub

2 Site occurs within the Loess Hills region of MLRA 9, adjacent to the Blue Mountains, LRU C. F009XY005WA - Frigid Xeric Loamy Basalt Mountains and Plateaus, Douglas-fir Cool Dry Grass. ... F009XY005WA – Frigid Xeric Loamy Basalt Mountains and Plateaus Douglas-fir Cool Dry Grass

B. Site occurs in mesic temperature regime

1 Soil has a sandy or sandy-skeletal particle size control section. F009XY003WA - Warm, Dry, Ridges, Hills and Canyons, Ponderosa pine Dry Shrub & Grass ... F009XY003WA – Warm Dry Ridges Hills and Canyons Ponderosa Pine Dry Shrub and Grass

2 Soil not as listed above

i. Site has presence of shrubs ninebark (Physocarpus malvaceus) and/or snowberry (Symphoricarpos albus). F009XY001WA - Mesic Xeric Loamy hills and canyons, Ponderosa Pine Moderately Warm Dry Shrub ... F009XY001WA – Mesic Xeric Loamy Hills and Canyons Ponderosa Pine Moderately Warm Dry Shrub

ii. Site not as listed as above. F009XY002WA - Mesic Xeric Loamy hills, Ponderosa Pine Warm Dry Grass ... F009XY002WA – Mesic Xeric Loamy Hills Ponderosa Pine Warm Dry Grass

II. Sites has less than 15% cover of trees over 13 feet in height.

A. The site occurs on uplands

1 Soils are very shallow in depth to restrictive horizon. ESG R009XY001WA - Very shallow ... R009XY001WA – Very Shallow

2 Soils are greater than very shallow to restrictive horizon

i. Soils have greater than 35% rock fragments in the particle-size control section and bitterbrush present. ESG R009XA220WA - Stony foothills ... R009XA220WA – Stony Foothills Channeled Scabland

ii. Soil have greater than 35% rock fragments and no bitterbrush present

a. **Site has southern aspect. ESG R009XY626WA - Stony south aspect ...** R009XY626WA – Stony South Aspect

b. **Site has aspect other than southern aspect. ESG R009XY612WA - Shallow stony ...** R009XY612WA – Shallow Stony

iii. **Soils have have less than 35% rock fragments in the particle-size control section**

a. **Site occurs on northern aspects**

1) **Site occurs within the Channel Scabland region of MLRA 9, LRU A. ESG R009XA153WA - Cool loamy, channel scabland ...** R009XA153WA – Cool Loamy Channeled Scabland

2) **Site occurs within the Palouse Hills region of MLRA 9, eastern portion, LRU B. ESG R009XB555WA - Loamy north aspect, dwarf shrub, 18-24" ppt. ...** R009XB555WA – North Aspect Dwarf Shrub 18-24 PZ

3) **Site occurs within the Loess Hills region of MLRA 9, adjacent to the Blue Mountains, LRU C. ESG R009XC450WA - North aspect, bunchgrass, 15-18" ppt. ...** R009XC450WA – North Aspect Bunchgrass 15-18 PZ

b. **Site occurs on all aspects, but generally not southern or northern aspects**

1) **Site occurs within the Palouse Hills region of MLRA 9, eastern portion, LRU B. ESG R009XB535WA - Loamy, dwarf shrub, 18-24" ppt. ...** R009XB535WA – Loamy Dwarf Shrub 18-24 PZ

2) **Site occurs within the Loess Hills region of MLRA 9, adjacent to the Blue Mountains, LRU C. ESG R009XC430WA - Loamy, bunchgrass, 15-18" ppt. ...** R009XC430WA – Loamy Bunchgrass 15-18 PZ

B. The site occurs on despressions, swales on flood plains or terraces

1 Soils are hydric and saturated to the surface. ESG R009XY988WA - Wetland complex ... R009XY988WA – Wetland Complex

2 Soils are not hydric

i. **Subsoil is mixed gravelly and sandy alluvium and along streams and possibly has trees. ESG R009XY720WA - Riparian complex ...** R009XY720WA – Riparian Complex

ii. **Site is not along steams or directly next to water bodies and soil has greater than 35% rock fragments. R009XY403WA - Stony Bottom 16-24 PZ ...** R009XY403WA – Stony Bottom 16-24 PZ

iii. **Site is not along steams or directly next to water bodies and soil has less than 35 % rock fragments. ESG R009XY930WA - Loamy bottom ...** R009XY930WA – Loamy Bottom