

**Modal Rangeland Ecological Site Concepts for Oregon NRCS**

January 2010

**GRASSLAND STEPPE-Reference Plant Community ARTR> 5%**

**(D23,D24 Predominantly Loamy Surfaces)-(B11 Silty and FSL Surfaces)-(B10C Silty Clay Loams Over Clay)-(D25 Silty Surfaces Over Clay)**

Temperature (warm)	59°F – 46°F Mesic	<b>D-24</b> Th. Needlgr. Ind. Ricegr. Wy. Big S. (8-10 ppt) Shadscale Bud sage (6-10 ppt)	<b>B-10A</b> Blueb Whtgr Wy. Big S. Bitterbrush	<b>B-11</b> Blueb.Whtgr -PSSPI- Th.Needlgr. Needle&Th. (Sandy) Wy. Big S. Spiny Hops,	<b>D-25</b> Bluebunch Wheatgrass -PSSPS- Wy. Big S.	<b>B-10C</b> Blueb.Whtgr -PSSPS- Th. Needlgr. Wy. Big S.	<b>B-10A</b> Blueb.Whtgr Idaho Fesc. Th. Needlgr. Wy. Big S. Bitterbrush	<b>D-23</b>	<b>D-25</b>	<b>D-23</b>	<b>B-10C</b>	<b>D-25</b>
	Modal Sites &Nor. Prod	Sh. L. 8-10 500 lbs Des. L. 6-10 500 lbs	Dr. Loam 8-10 900 lbs	Silty 8-11 700 lbs Sandy 8-11 700 lbs	Loamy 8-11 700 lbs	SR L. 9-12 1000 lbs SR.C.9-12 1000 lbs	Loamy 10-12 900 lbs					
Temperature (cold)	46°F – 41°F Frigid				Blueb.Whtgr -PSSPS- Wy. Big S.	Idaho Fesc. Wy. Big S.		Th.Needlgr. Blueb.Whtgr -PSSPS- Wy. Big S.	Blueb.Whtgr -PSSPS- Idaho Fesc. (Ashy Plat.) Bas. Big S.	Idaho Fesc. Th. Needlgr. Mtn. Big S.	Idaho Fesc. Mtn. Big S.	Idaho Fesc. Blueb.Whtgr -PSSPS- Mtn.. Big S.
	Modal Sites &Nor. Prod.				Loamy Plateau8-11 700 lbs	SR Mtn. Clayey 9-12 1000 lbs		Loamy10-12 600 lbs	Loamy11-13 900 lbs AshyPlateau 11-13 900 lbs	Loamy12-16 1000 lbs	SR Mtn. Clayey12-16 1500 lbs	Loamy13-16 1400 lbs
		(6) 8 – 10 inches	8 – 10 inches	8 – 11 inches	8 – 11 inches	9 – 12 inches	10 – 12 inches	10 – 12 inches	11– 13 inches	12 – 16 inches	12 – 16 inches	13 – 16 inches
(dry) Precipitation (wet)												

## Other Observations:

### B-7, B-8 & B-9 MLRA

- Open Grasslands, =/ $<$  5% ARTRT (OSU Herbarium Id. only ARTRT in B7, B8 no ARTRW 1987 +/-) ARTRV in high Wallowa's only – ARTTRT present only north of John Day main-stem, similarly no ARAR8 north of John Day main-stem ARRI2 occupies very shallow scabland soils in these three MLRA's
- Western Juniper invades primarily in very south portion of B9 only
- Sand drop-seed a warm season grass is present in low elevation canyons—John Day-west of Monument, Umatilla-west of Pendleton and lower Imnaha and Snake River

### B-10 MLRA

- Oregon subdivisions
  - A = pumice zone. Idaho Fescue present and/or dominant on coarse ash (pumice) soils in 10-12" ppt. mesic and 8-10" ppt. frigid zones.
  - B = Clays, John-Day & Clarno formations, mesic temperature regime (9-12 & 12-16), juniper strongly invades both ppt zones
  - C = Snake River, silt loams or silty clay loams over clays, mesic & frigid temperature regimes in 9-12" ppt., frigid only  $>$ 12" ppt except some lower elev. south's, typically no Thurber's Needlegrass - excepting Loamy 12-16, Juniper strongly invades  $>$ 12" ppt only, ARRI2 present on very shallow scabland soils

### B-11 MLRA

- Beardless bluebunch wheatgrass, PSSPI, dominates the grass layer on silty soils, Needle-and thread dominates the grass layer on sandy soils, ARTRW dominates the shrub layer, Spiny hopsage is present
- 8-11" ppt and mesic
- silt loam to fine sandy loam surfaces

### D-23 MLRA

- Loamy soil surfaces, Thurber's Needlegrass is present, Thurbers increases on loamy surfaces, Bluebunch (PSSPS) increases on clayey surfaces, Idaho fescue dominates grass layer 12-16" ppt, Bluebunch or Thurbers in 10-12" ppt, ARAR8 present on very shallow scabland soils,
- Western Juniper invades  $>$ 12" ppt only
- $>$ 10" ppt & Frigid only except lower elev. south's (8-12" ppt)

### D-24 MLRA

- Old Pleistocene lake beds, internally drained, may be saline or alkaline
- 6-10" ppt & Mesic only, loamy to sandy soil surfaces
- ARTRW not present  $<$ 8" ppt, Shadscale and Bud sage dominant on droughty sites in 6-10" ppt., no ARAR8, ARNO 8-14" ppt

## D-25 MLRA

- Silty soil surfaces, No Thurber's Needlegrass, Bluebunch wheatgrass (PSSPS) dominant 8-13" ppt, Idaho fescue dominant higher elevation 11-13 & 13-16" ppt
- No Western Juniper

## Temperature Regimes

- Mesic
  - Some overlap between growing season moisture and temperature
  - E.g. Pendleton
  - Annual grass invasion more likely
- Frigid
  - Little to no overlap between growing season moisture and temperature
  - E.g. Burns
  - Annual grass invasion limited – typically Sandberg's Bluegrass increases
- Elevation breaks for changing temperature regimes
  - 3400' at WA border, 4000' central, 4500' at NV border
  - 600' lower for north slopes
  - 600' higher for south slopes

## Low-growing sagebrush

- Stiff sage north of John Day – Mitchell line (mesic to frigid >10"ppt)
- Low sage south of John Day – Mitchell line (frigid, >10"ppt)
- Both occur on sites with less than 10" to a restrictive layer (very shallow soils)

## Mid to Tall-growing sagebrush

- Frigid, 12 – 16" ⇒ Mountain Big Sagebrush
- Frigid, <12" ⇒ Wyoming Big Sagebrush
- Mesic, 12 – 16" ⇒ Basin Big Sagebrush
- Mesic, <12" ⇒ Wyoming Big Sagebrush
- Note 8-22" ppt B7,B8&B9 Basin Big Sagebrush likely only?

## Moisture gradient for meadow sites

- Mesic-Loamy Bottom → Meadow → Wet Meadow
- Frigid-Mtn. Loamy Bottom → Mtn. Meadow → Mtn. Wet Meadow

Note – Mtn Meadow & Mtn Wet Meadow could be cryic in frigid zone due to wetness

Dry Pumice Meadow → Wet Pumice Meadow → Moist Meadow → MyS?? → Wet Meadow (not familiar AVB)

Break between grass dominated sites to sedge dominated sites occurs between Wet Pumice Meadow (grass domination) and Moist Meadow (sedge domination).(not familiar=AVB)