California
Great Basin
Great Lakes
Northeast
Northern Plains
N-Cent.Rockies
Pacific Northwest
South Central
Southwest
Southeast
S. Appalachians

Biophysical Site Description
This type occupies moist, productive rolling uplands, ranging from 4000 to 8000 feet. At lower elevations, it occupies north facing, snow loaded slopes with higher soil moisture and deeper, more productive soils relative to the surrounding upland.

Vegetation Description
This type is dominated by bluebunch wheatgrass with Idaho fescue and rough fescue as dominant associates. Mueggler and Stewart (1980) have described these types as: Fredi/Agsp and Fesc/Agsp. Additional species include needle and thread, Sandberg's bluegrass, and a variety of mesic forbs (e.g., showy cinquefoil, sticky geranium, phlox, lupine, and yarrow).

Disturbance Description
This type has frequent mixed and replacement fires (fire regime group I). Most species in this type are fire adapted and respond favorably to these fire types. Grazing by large, concentrated herds of ungulates (bison, elk, pronghorn and deer) maintained healthy, productive and diverse grasslands. (This grazing regime is referred to as "Native Grazing" in the VDDT model.) Such grazing may have resulted in heavy defoliation and/or some soil churning, but was temporally transitory. Temporary impact followed by rest-recovery time is characteristic.

A small portion of the landscape was subjected to repeated or prolonged heavy animal impact, including heavy defoliation and repeated soil churning and/or compaction. Such areas included watering points for herds, bison or elk wallows, and prairie dog towns. (This disturbance is referred to as "Optional1" in the VDDT model.) The slow recovery time after such disturbances are reflected in the successional pathway of
class B to C to D.

**Adjacency or Identification Concerns**
Since this is a broad type, the dry bluebunch wheatgrass-needle and thread variant will probably have more bareground and a slightly higher MFI. Response to fire may differ slightly also.

**Scale Description**
This type can occupy broad expanses and also narrow bands below the lower montane forest.

**Issues/Problems**
This is a highly variable type, which includes most of Mueggler and Stewart’s habitat types. The literature in FEIS suggests an MFI of between 10-30 years for this type. The Lewis and Clark range type classification needs to be incorporated into this model also.

**Model Evolution and Comments**
Workshop code was MGRA1.

Review comments from Eldon Rash were incorporated on 03/02/2005. The name of class D was changed to Mid2 (from Late1) to reflect the transitional nature of the class before late-development closed conditions. The pathway from B to C to D reflects heavy animal use and the relatively slow recovery time from such disturbances.

Suggested reviewers were Lois Olsen (lolsen@fs.fed.us), Jeff Dibenedetto (jdibenedetto@fs.fed.us), and Eldon Rash (erash@fs.fed.us), and Steve Cooper from MNHP.

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**Succession Classes**
Succession classes are the equivalent of “Vegetation Fuel Classes” as defined in the Interagency FRCC Guidebook (www.frcc.gov).

<table>
<thead>
<tr>
<th>Class A</th>
<th>20 %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early1 PostRep</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Description**
Post fire, early seral community dominated by bunchgrasses and forbs. Cover ranges from 0-20%. In the absence of fire or heavy animal impact, this condition succeeds to a late-development closed condition (class E). Age ranges from 0-5 years.

**Indicator Species* and Canopy Position**
AGSP
KOCR
POSA
STCO

**Upper Layer Lifeform**
- [ ] Herbaceous
- [ ] Shrub
- [ ] Tree

**Fuel Model**
no data

**Structure Data (for upper layer lifeform)**

<table>
<thead>
<tr>
<th>Cover</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 %</td>
<td>0 %</td>
<td>20 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Height</th>
<th>Min</th>
<th>Max</th>
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</thead>
<tbody>
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<td>no data</td>
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</table>

<table>
<thead>
<tr>
<th>Tree Size Class</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data</td>
<td>no data</td>
<td>no data</td>
</tr>
</tbody>
</table>

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.
**Class B** 5%

Early2 PostRep

**Description**
Open condition resulting from repeated, prolonged use by native ungulates. Soil displacement and compaction favor ruderal species and limit "natural" succession. Cover ranges from 0 to 5%. Recovery time is slow, and after 30 years without heavy animal impact or replacement fire this condition will succeed to a mid-development open condition (class C). Age ranges from 0 to 30 years.

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**Class C** 1%

Mid1 Open

**Description**
Mid-open condition which is still recovering from heavy animal use. Ruderales are eventually replaced by mid-seral species. Canopy cover increases and bare ground decreases. This is a minor, transitional type. Cover ranges from 5 to 20%. Without replacement fire or heavy animal use this type succeeds to a later mid-development condition (class D). Age ranges from 30-80 years.

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**Class D** 20%

Mid2 Open

**Description**
The plant community continues to develop after heavy animal use, with increases in canopy and basal vegetation cover, and decreases in bare ground. Litter also increases. Cover ranges from 20 to 30%. Without replacement fire or heavy animal use, this type will succeed to a late-development closed

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*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.*
replacement fire is rarely lethal, and the community responds. Quickly to fire. Cover ranges from 30 to 80%. Without fire or heavy animal impact, this condition is self-perpetuating and begins at 5 years after a replacement fire.

**Disturbances**

<table>
<thead>
<tr>
<th>Non-Fire Disturbances Modeled</th>
<th>Fire Regime Group:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicators/Disease</td>
<td>2</td>
</tr>
<tr>
<td>Wind/Weather/Stress</td>
<td>I: 0-35 year frequency, low and mixed severity</td>
</tr>
<tr>
<td>Native Grazing</td>
<td>II: 0-35 year frequency, replacement severity</td>
</tr>
<tr>
<td>Competition</td>
<td>III: 35-200 year frequency, low and mixed severity</td>
</tr>
<tr>
<td>Other: heavy animal impact</td>
<td>IV: 35-200 year frequency, replacement severity</td>
</tr>
<tr>
<td>Other:</td>
<td>V: 200+ year frequency, replacement severity</td>
</tr>
</tbody>
</table>

**Fire Intervals (FI):**
Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

<table>
<thead>
<tr>
<th>Sources of Fire Regime Data</th>
<th>Avg FI</th>
<th>Min FI</th>
<th>Max FI</th>
<th>Probability</th>
<th>Percent of All Fires</th>
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</thead>
<tbody>
<tr>
<td>Literature</td>
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<tr>
<td>Local Data</td>
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<tr>
<td>Expert Estimate</td>
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**References**


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