ROCKY MOUNTAIN ASPEN FOREST AND WOODLAND

Overview: This widespread ecological system occurs throughout much of the western U.S. and north into Canada, although it is more common in the montane and subalpine zones of the southern and central Rocky Mountains. In Colorado this system is quite common on the west slope, with smaller stands represented on the east slope. These are upland forests and woodlands dominated by *Populus tremuloides* without a significant conifer component (~25% relative tree cover). They usually occur as a mosaic of many plant associations and may be surrounded by a diverse array of other systems, including grasslands, wetlands, coniferous forests, etc.

Characteristic species: Occurrences have a somewhat closed canopy of trees of 15-65 ft (5-20 m) tall, dominated by *Populus tremuloides*. Conifers that may be present but never codominant include *Abies concolor, Abies lasiocarpa, Picea engelmannii, Picea pungens, Pinus ponderosa*, and *Pseudotsuga menziesii*. Conifer species may contribute up to 15% of the tree canopy before the occurrence is reclassified as a mixed conifer occurrence. Common shrubs include *Acer glabrum, Amelanchier alnifolia, Artemisia tridentata, Juniperus communis, Prunus virginiana, Rosa woodsii, Shepherdia canadensis, Symphoricarpos oreophilus*, and the dwarf-shrubs *Mahonia repens* and *Vaccinium* spp. The herbaceous layers may be lush and diverse. Common graminoids may include *Bromus*. 
carinatus, Calamagrostis rubescens, Carex siccata (= Carex foenea), Carex geyeri, Carex rossii,
Elymus glaucus, Elymus trachycaulus, Festuca thurberi, and Hesperostipa comata. Associated
forbs may include Achillea millefolium, Eucephalus engelmannii (= Aster engelmannii),
Delphinium spp., Geranium viscosissimum, Heracleum sphondylium, Ligusticum filicinum, Lupinus
argenteus, Osmorhiza berteroi (= Osmorhiza chilensis), Pteridium aquilinum, Rudbeckia
occidentalis, Thalictrum fendleri, Valeriana occidentalis, Wyethia amplexicaulis, and many others.
Exotic grasses such as the perennials Poa pratensis and Bromus inermis and the annual Bromus
tectorum are often common in occurrences disturbed by grazing.

Environment:
Elevations generally range from 5,000-10,000 feet (1,525 to 3,050 m), but may be lower in some
regions. Topography is variable, sites range from level to steep slopes. Occurrences at high
elevations are restricted by cold temperatures and are found on warmer southern aspects. At lower
elevations occurrences are restricted by lack of moisture and are found on cooler north aspects and
mesic microsites. The soils are typically deep and well developed with rock often absent, and
texture ranges from sandy loam to clay loams. Parent materials are variable and may include
sedimentary, metamorphic or igneous rocks, but this type appears to grow best on limestone, basalt,
and calcareous or neutral shales (Mueggler 1988).

Distribution of this ecological system is primarily limited by adequate soil moisture required to
meet its high evapotranspiration demand, and secondarily is limited by the length of the growing
season or low temperatures. Climate is temperate with a relatively long growing season, typically
cold winters and deep snow. Mean annual precipitation is greater than 15 in (38 cm) and typically
greater than 20 in (50 cm), except in semi-arid environments where occurrences are restricted to
mesic microsites such as seeps or large snow drifts.

Dynamics:
Occurrences in this ecological system often originate, and are likely maintained, by stand-replacing
disturbances such as crown fire, disease and windthrow, or clearcutting by man or beaver. The
stems of these thin-barked, clonal trees are easily killed by ground fires, but they can quickly and
vigorously resprout in densities of up to 30,000 stems per hectare (Knight 1994). The stems are
relatively short-lived (100-150 years), and the occurrence will succeed to longer-lived conifer
forest if undisturbed. Occurrences are favored by fire in the conifer zone (Mueggler 1988). With
adequate disturbance a clone may live many centuries. Although Populus tremuloides produces
abundant seeds, seedling survival is rare because the long moist conditions required to establish
them are rare in these habitats. Superficial soil drying will kill seedlings (Knight 1994).

Variation:
Because of the open growth form of Populus tremuloides, enough light can
penetrate for lush understory development. Depending on available soil moisture and
other factors like disturbance, the
understory structure may be complex with
multiple shrub and herbaceous layers, or
simple with just an herbaceous layer. The
herbaceous layer may be dense or sparse,
dominated by graminoids or forbs.

Haven, MA. 338 pp.
<table>
<thead>
<tr>
<th>Rank:</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td><strong>Size</strong></td>
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<tr>
<td>Acres</td>
<td>&gt;30,000</td>
<td>10,000-30,000</td>
<td>5,000-10,000</td>
<td>&lt; 5,000</td>
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<tr>
<td><strong>Condition</strong></td>
<td></td>
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<tr>
<td>Community structure</td>
<td>The occurrence is a mosaic of aspen plant associations, and a diverse age class structure is present within these communities.</td>
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<td>Occurrence dominated by native species, but diversity is lacking.</td>
<td>Occurrence dominated by non-native species or native increasers. Diversity lacking.</td>
</tr>
<tr>
<td>Invasive exotics with major potential to alter structure and composition (e.g. Bromus inermis, Poa pratensis)</td>
<td>Absent.</td>
<td>May be present, but with very low cover.</td>
<td>Likely to be present.</td>
<td>Present.</td>
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<td>Other non-native spp.</td>
<td>&lt;3%, native species dominant.</td>
<td>&lt;10%, possibly dominant in small patches, native species dominant overall.</td>
<td>Present and abundant in small and large patches.</td>
<td>May be dominant.</td>
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<td>Native increaser spp. (Balsamorhiza, Wyethia)</td>
<td>&lt; 3% cover.</td>
<td>&lt;10% cover.</td>
<td>&gt;10% cover.</td>
<td>May be dominant.</td>
</tr>
<tr>
<td>Ground cover</td>
<td>Ground cover is &gt; 65%. Natural microrelief is undisturbed. Soil erosion is not accelerated by anthropogenic activities.</td>
<td>Ground cover intact in at least 80% of the occurrence. Soil erosion may be accelerated in small patches, or lightly so throughout the occurrence. Natural microrelief is undisturbed. Soil erosion is not accelerated by anthropogenic activities.</td>
<td>Ground cover is below 60% in more than 25% of the area, or in various stages of degradation throughout the occurrence.</td>
<td>Ground cover has been removed from 75% of the area, occurring only in small pockets naturally protected from livestock and off-road vehicle use.</td>
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<tr>
<td>Disturbance</td>
<td>Surfacial disturbance is absent or present in only small, isolated areas (e.g. mines or ranch activities and buildings; off-road vehicle use). There are few or no roads found within the occurrence.</td>
<td>Surfacial disturbance is limited to &lt;20% of the area (e.g., mines or ranch activities and buildings; off-road vehicle use). There are only a few roads found within the occurrence.</td>
<td>Surfacial disturbances occur on more than 20% of the area (e.g., mines or ranch activities and buildings; off-road vehicle use). There are more than a few roads found within the occurrence.</td>
<td>Surfacial disturbances occur on more than 50% of the area (e.g., mines or ranch activities and buildings; off-road vehicle use). Many roads are found within the occurrence.</td>
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<td><strong>Landscape Context</strong></td>
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<td>Connectivity</td>
<td>Highly connected – surrounding landscape has been little altered, captures characteristic ecological gradients (including nested patch communities) and geomorphic processes.</td>
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<td>Moderately fragmented and isolated. Surrounded by a mix of intensive agriculture, small scale urban development, and adjacent semi-natural communities. OR Occurrence is a relatively small area (total area smaller than twice the minimum occurrence size) surrounded by an agriculturally fragmented landscape.</td>
<td>Highly fragmented and isolated. Entirely, or almost entirely, surrounded by agricultural or urban land use; occurrence is at best buffered on one side by natural communities.</td>
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<td>Surrounding land</td>
<td>Completely surrounded by other high quality communities. Provides habitat for indicator species such as grouse, purple martin, etc.</td>
<td>Surrounded by moderate-low quality natural communities, some of which may have been logged or disturbed in the past; an expansive semi-natural landscape that has been used extensively for grazing.</td>
<td></td>
<td>Surrounding landscape is primarily intensive agriculture or urban development.</td>
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