Fire regime group: V

Geographic Area: Throughout lowlands and uplands of Alaska, but not found in mountains

Physical Setting Description:
The Non-Forested Wetland PNV encompasses many different plant communities on a variety of wet sites; the common element is that the wetland communities are persistent over time and do not appear to be a sere of another PNV. Sites where the Non-Forested Wetland PNV occurs include coastal margins and marshes, tidal flats, ponds, sloughs, oxbow lakes and lake margins, sluggish streams, and upland depressions and thermokarst pits in arctic and northwestern Alaska. Soils range from mineral or organic-rich mucks to saturated peaty soils forming quaking mats (Viereck et al 1992). Permafrost may be present on sites in interior and arctic Alaska, but is generally absent under wetland communities elsewhere in the state.

Biophysical Classification:
The Non-Forested Wetland PNV occurs in the following ecoregions described by Nowacki et al (2001):
- Intermontane Boreal
- Alaska Range Transition
- Arctic Tundra
- Bering Taiga
- Bering Tundra
- Aleutian Meadows – Aleutian Islands (M1)
- Coastal Rainforests

The following community types described by Viereck et al (1992) are Non-Forested Wetland PNV group:

III A3d – Fresh Sedge Marsh
III A3e – Fresh Grass Marsh
III A3f – Subarctic Lowland Sedge Wet Meadow
III A3g – Subarctic Lowland Sedge-Shrub Wet Meadow
III A3h – Halophytic Grass Wet Meadow
III A3I – Halophytic Sedge Wet Meadow
III A3j – Subarctic Lowland Sedge-Bog Meadow
III A3k – Subarctic Lowland Sedge-Moss Bog Meadow

III B3a – Fresh Herb Marsh
III B3b – Subarctic Lowland Herb Wet Meadow
III B3c – Subarctic Lowland Herb Bog Meadow
III B3d – Halophytic Herb Wet Meadow
Identification of Key Characteristics of the PNV and Confuser PNVs:
The vegetation communities included in this PNV are diverse (see cross-walk to Viereck et al (1992) community types above). These same community types occur on different sites as part of a successional sequence of a different PNV. Therefore, the key to identifying the Non-Forested Wetland PNV is to match the community type with the site where it occurs according to the physical setting description and Viereck cross-walk above.

Many communities within this PNV are dominated by Carex spp. Other common species include Arctophila fulva, Puccinellia spp., Eriophorum spp. and the tall emergent sedges Scirpus validus and Eleocharis palustris. Important shrubs include Salix spp. and Myrica gale. Low shrubs, including Andromeda polifolia and Vaccinium oxyccoccos may be present on some inland sites. In Halophytic communities common forbs include Honckeny pea epiloides, Triglochin maritimum, and Plantago maritima. Emergent herbs, including Menyanthes trifoliata, Potentilla palustris, Caltha palustris and Equisetum fluviatile are important on some sites. Aquatic plants such as Hippuris vulgaris, Nuphar polysepalum, Nymphaea tetragona or Sparganium spp. may also be present. Sphagnum and other aquatic mosses may be present or absent. Trees and lichens are absent.

The Non-Forested Wetland PNV is not easily confused with any other PNV in Alaska.

Natural Fire Regime Description:
Very little information is available about fire history in wetland communities in Alaska. Based on the types of sites and climates where this PNV occurs and the fire histories of adjacent PNVs, mean fire return interval (MFI) for the Non-Forested Wetland PNV was estimated at 1,000 years for this model.

Other Natural Disturbance Description:
Other natural disturbances include floods and grazing.

Natural Landscape Vegetation-Fuel Class Composition:
The natural vegetation structure is a mosaic of the seral stages described in the table below.

Natural Scale of Landscape Vegetation-Fuel Class Composition and Fire Regime:
The Non-Forested Wetland PNV exists within a landscape mosaic composed of forested, tundra and persistent shrub and herbaceous PNVs. Most of the other PNVs occurring in most of the region are characterized by large, primarily replacement fires.

Uncharacteristic Vegetation-Fuel Classes and Disturbance:
Uncharacteristic sites have disproportionate percentages of seral classes on the landscape relative to those listed below.
PNV Model Classes and Descriptions:

<table>
<thead>
<tr>
<th>Class</th>
<th>Modeled Percent of Landscape</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A:</td>
<td>1%</td>
<td>Grasses, sedges and/or forbs colonize the site.</td>
</tr>
<tr>
<td></td>
<td>99%</td>
<td>Grasses, sedges and/or forbs dominate the site.</td>
</tr>
<tr>
<td>Total:</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Modeled Fire Frequency and Severity:

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean Probability</th>
<th>Mean Fire Frequency (years) (inverse of probability)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement fire</td>
<td>.0006</td>
<td>1,665</td>
<td>Based on literature and expert input</td>
</tr>
<tr>
<td>Mosaic fire</td>
<td>.0004</td>
<td>2,500</td>
<td>Based on literature and expert input</td>
</tr>
<tr>
<td>All Fire</td>
<td>.0010</td>
<td>1,000</td>
<td>Based on literature and expert input</td>
</tr>
<tr>
<td>Grazing + Flood</td>
<td>.0020</td>
<td>500</td>
<td>Based on literature and expert input</td>
</tr>
</tbody>
</table>

Modeled Fire Severity Composition:

<table>
<thead>
<tr>
<th>Description</th>
<th>Percent All Fires</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement fire</td>
<td>60%</td>
<td>Based on literature and expert input</td>
</tr>
<tr>
<td>Non-replacement fire</td>
<td>40%</td>
<td>Based on literature and expert input</td>
</tr>
<tr>
<td>All Fire</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Further Analysis:

References


Personal communication experts’ workshop March 2-4 2004. Fire Regime Condition Class (FRCC) interagency experts’ workshop to develop and review Potential Natural Vegetation (PNV) groups for Alaska. Anchorage, Alaska.

VDDT successional class box diagram:

1) Box Model:

[Image: Transition Pathway Diagram - NonForestWetland]

2) Class Distribution:

[Image: Results: Bar - Class (Avg, Min, Max)]

Non-Forested Wetland PNV description, p. 4
3) Class Time Series:

4) Fire Disturbance Time Series (WindWethStress = Floods + Grazing)