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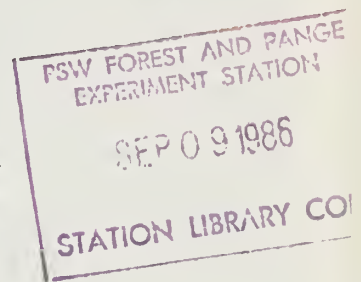
Rocky Mountain Forest and
Range Experiment Station

Classification of the Forest Vegetation of Wyoming

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Forest vegetation in Wyoming is classified into 9 series, 111 habitat and community types, and plant communities. The name, location, relative site, successional status, principal tree and understory associates, and the authority are included.

Keywords: Vegetation classification, habitat type, community type, plant association, Wyoming, *Pinus ponderosa*, *Pseudotsuga menziesii*, *Pinus flexilis*, *Populus tremuloides*, *Pinus contorta*, *Picea engelmannii*, *Picea glauca*, *Abies lasiocarpa*, *Pinus aristata*



Classification of forest land into units of similar biological potential helps land managers, planners, and researchers in the decisionmaking process. Furthermore, identifying capabilities and limitations of forest land units provides a basis for selecting areas most useful for research or for determining the geographical extent to which research findings can be extrapolated.

From 1975 to 1986, the forest lands of Wyoming were classified into habitat types or community types. This report provides a tabulation and brief description of the forest habitat and community types and plant communities of Wyoming (table 1). More detailed descriptions and the associated management implications of each unit are given in the publications cited as the authorities in table 1. Those readers interested in cross-referencing those habitat type names in Wyoming with those found elsewhere in the Rocky Mountains are referred to Alexander (1985).

Because terminology in ecology is not uniformly used or understood, the terms and concepts used in this paper are defined as follows.

"Climax" vegetation is that which has attained a steady state with its environment; species of climax vegetation successfully maintain their population sizes, although their exact locations may be dynamic in space. The classification of climax vegetation into habitat types used in the paper was first proposed by Tansley (1935). Daubenmire (1968), Daubenmire and Daubenmire (1968),

Hoffman and Alexander (1976), and Pfister et al. (1977) further elaborated on the definition, usage, and limitations. "Seral" vegetation is that which has not attained a steady state; current populations of some species are being replaced by others. In some instances, trends toward the "climax" vegetation can be identified; in others, these trends are not evident; and in still others, the vegetation may not revert to the climax.

"Habitat type" is the basic unit of land classification based on potential (climax) natural vegetation. A habitat type represents, collectively, all parts of the landscape that support, or have the potential of supporting, the same primary climax vegetation. The climax vegetation upon which the classification is based is called a "plant association." The first level of the classification is the "series," which is the grouping of all plant associations having the same overstory (climax) dominants. For example, all habitat types with *Pinus ponderosa* as the potential climax dominant are grouped into the *Pinus ponderosa* series. The series is more than an artificial grouping of habitat types because there is an ecologic basis for grouping habitat types into series. For example, *Pinus ponderosa* occupies areas that are warmer and drier than areas where *Pseudotsuga menziesii* is climax. Continuing higher into the mountains of Wyoming, *Populus tremuloides*, *Pinus contorta*, *Picea engelmannii*, and *Abies lasiocarpa* successively become the dominant species.

Habitat types within a series are distinguished on the basis of undergrowth vegetation, which is the "smallest structural" unit of the vegetation. Each habitat type has

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one or more understory species that exhibit similar microenvironmental requirements. The characteristic species for each habitat type may vary from place to place; but the variation is within narrow limits. Some species occur in numerous habitat types; but they have little indicator significance because of their wide occurrence.

The term "community type" has been used to identify vegetation which may be (1) climax but about which there is uncertainty, (2) seral but the trends toward climax are not evident, or (3) the recognized plant community in place varies at any given time. Pfister et al. (1977) and Steele et al. (1983) recognized only those community types defined by (1) and (2). Youngblood and Mueggler (1981) recognized community types defined by (3). Community types have one or more overstory dominants and characteristic undergrowth species. The overstory dominants are often long-lived, seral vegetation that may be self-perpetuating because of repeated disturbance that prevents or slows down the succession to climax vegetation.

"Plant communities" are used here to classify vegetation that was identified with methods other than that used for habitat types. Plant communities may be found later to be plant associations or seral vegetation. Therefore, they may be used to tentatively identify habitat types or community types.

There are some items in table 1 that need further clarification. The description of the site (i.e., warm dry, cool dry, etc.) refers only to the series and location and, therefore, is relative. Clearly, a warm dry *Pinus ponderosa* site is not the same as a warm dry *Abies lasiocarpa* site.

In those habitat types where more than one phase is recognized, the typical phase is listed first, followed by the other phases. "Phase" is a subdivision of a habitat type representing a characteristic variation in understory vegetation, usually associated with soil and environmental conditions.

Under the heading "Principal understory species", the naming understory species is listed first, followed by shrubs, graminoids, and forbs in that order.

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Table 1.—Habitat types, community types, and plant communities for the forest vegetation in Wyoming.

Habitat type, community type, or plant community	Location	Site	Successional status	Principal tree associates	Principal understory species	Authority
<i>Pinus flexilis</i> series						
<i>Pinus flexilis</i> / <i>Juniperus communis</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming; Snowy Range, southeastern Wyoming	Cool moist	<i>P. flexilis</i> co-climax with <i>Pseudotsuga menziesii</i>	<i>P. menziesii</i> <i>Pinus contorta</i> <i>Juniperus scopulorum</i>	<i>J. communis</i> <i>Shepherdia canadensis</i> <i>Arnica cordifolia</i>	Alexander et al. ¹ Steele et al. 1983
<i>Pinus flexilis</i> / <i>Festuca idahoensis</i> H.T.	Absaroka and Owl Creek Mountains, northwestern Wyoming	Warm dry	<i>P. flexilis</i> co-climax with <i>P. menziesii</i>	<i>P. menziesii</i> <i>P. contorta</i> <i>J. scopulorum</i>	<i>F. idahoensis</i> <i>Agropyron spicatum</i> <i>Hesperochloa kingii</i> <i>Balsamorhiza sagittata</i> <i>Crepis acuminata</i>	Steele et al. 1983
<i>Pinus flexilis</i> / <i>Hesperochloa kingii</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming; Pole Mountain, Laramie Peaks, Sierra Madre, Medicine Bow Mountains, southeastern Wyoming	Warm very dry	<i>P. flexilis</i> co-climax with <i>P. menziesii</i> (NW. WY) climax (SE. WY)	<i>P. menziesii</i> <i>J. scopulorum</i> Pure stands (SE. WY)	<i>H. kingii</i> <i>A. spicatum</i> <i>Koeleria cristata</i> <i>Poa cusickii</i> <i>Carex rossii</i> <i>Astragalus miser</i> <i>Pulsatilla ludoviciana</i>	Alexander et al. ¹ Steele et al. 1983
<i>Pinus ponderosa</i> series						
<i>Pinus ponderosa</i> / <i>Arctostaphylos uva-ursi</i> H.T.	Black Hills and Bearlodge Mountains, eastern Wyoming; Laramie Peaks and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Warm dry	<i>P. ponderosa</i> climax	None	<i>A. uva-ursi</i> <i>Berberis repens</i> <i>Symphoricarpos albus</i> <i>A. cordifolia</i> <i>Lathyrus ochroleucus</i>	Alexander et al. ¹ Hoffman and Alexander ²
<i>Pinus ponderosa</i> / <i>Juniperus communis</i> H.T.	Bighorn Mountains, north-central Wyoming; Limestone Plateau and Volcanic Mountains, Black Hills and Bearlodge Mountains, eastern Wyoming	Warm dry to well-drained	<i>P. ponderosa</i> climax	None	<i>J. communis</i> <i>B. repens</i> <i>Clematis tenuiloba</i> <i>Spiraea betulifolia</i> <i>H. kingii</i> <i>Poa pratensis</i> <i>A. miser</i>	Hoffman and Alexander 1976, ²
<i>Pinus ponderosa</i> - <i>Juniperus scopulorum</i> H.T.	Black Hills and Bearlodge Mountains, eastern Wyoming	Warm dry to well-drained	<i>P. ponderosa</i> climax or co-climax with <i>J. scopulorum</i>	<i>J. scopulorum</i>	<i>Stipa comata</i> <i>Rhus aromatica</i> <i>Artemisia frigida</i>	Hoffman and Alexander ²
<i>Pinus ponderosa</i> / <i>Physocarpus monogynus</i> H.T. ³	Bighorn Mountains, north-central Wyoming; Black Hills and Bearlodge Mountains, eastern Wyoming	Warm well-drained	<i>P. ponderosa</i> climax	None	<i>P. monogynus</i> <i>B. repens</i> <i>S. betulifolia</i> <i>S. albus</i> <i>P. pratensis</i> <i>Cystopteris fragilis</i>	Hoffman and Alexander 1976, ²
<i>Pinus ponderosa</i> - <i>Quercus macrocarpa</i> H.T.	Limestone Plateau and Red Valley; Black Hills and Bearlodge Mountains, eastern Wyoming	Warm dry	<i>P. ponderosa</i> climax	<i>Q. macrocarpa</i>	<i>Amelanchier alnifolia</i> <i>B. repens</i> <i>Elymus virginicus</i>	Hoffman and Alexander ²
<i>Pinus ponderosa</i> / <i>Spiraea betulifolia</i> H.T.	Bighorn Mountains, north-central Wyoming	Warm dry	<i>P. ponderosa</i> climax	None	<i>S. betulifolia</i> <i>C. tenuiloba</i> <i>S. albus</i> <i>F. idahoensis</i> <i>H. kingii</i> <i>Galium boreale</i>	Hoffman and Alexander 1976
<i>Pinus ponderosa</i> / <i>Symphoricarpos albus</i> H.T. <i>Oryzopsis asperifolia</i> phase <i>Balsamorhiza sagittata</i> phase	Limestone Plateau, Volcanic Mountains, and Dakota Hoback; Black Hills and Bearlodge Mountains, eastern Wyoming	Warm dry to well-drained	<i>P. ponderosa</i> climax	<i>Populus tremuloides</i>	<i>S. albus</i> <i>Prunus virginiana</i> <i>O. asperifolia</i> <i>Carex foenea</i> <i>B. sagittata</i>	Hoffman and Alexander ²
<i>Pinus ponderosa</i> / <i>Agropyron spicatum</i> H.T.	Bighorn Mountains, north-central Wyoming	Warm very dry	<i>P. ponderosa</i> climax	None	<i>A. spicatum</i> <i>Aristida longiseta</i> <i>Carex filifolia</i> <i>A. frigida</i> <i>Viola nuttallii</i>	Hoffman and Alexander 1976
<i>Pinus ponderosa</i> / <i>Festuca idahoensis</i> H.T.	Bighorn Mountains, north-central Wyoming	Warm dry	<i>P. ponderosa</i> climax	None	<i>F. idahoensis</i> <i>S. albus</i> <i>A. spicatum</i> <i>C. filifolia</i> <i>Achillea millefolium</i>	Hoffman and Alexander 1976

<i>Pinus ponderosa</i> / <i>Carex geyeri</i> H.T.	Laramie Peaks, Pole Mountain, Medicine Bow Mountains, southeastern Wyoming	Warm dry	<i>P. ponderosa</i> climax	Usually pure stands	<i>C. geyeri</i> <i>A. uva-ursi</i> <i>H. kingii</i> <i>A. cordifolia</i> <i>Lupinus argenteus</i> <i>Sedum lanceolatum</i>	Alexander et al. ¹
<i>Pinus ponderosa</i> / <i>Carex heliophylla</i> H.T.	Black Hills and Bearlodge Mountains, eastern Wyoming	Warm dry	<i>P. ponderosa</i> climax	None	<i>C. heliophylla</i> <i>Danthonia spicata</i> <i>Artemisia ludoviciana</i>	Hoffman and Alexander ²
<i>Pinus ponderosa</i> / <i>Carex rassii</i> H.T.	Laramie Peaks, Pole Mountain, and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Warm dry	<i>P. ponderosa</i> climax	None	<i>C. rassii</i> <i>Purshia tridentata</i> <i>S. lanceolatum</i> , <i>Cerastium arvense</i>	Alexander et al. ¹
<i>Pseudotsuga menziesii</i> series						
<i>Pseudotsuga menziesii</i> / <i>Acer glabrum</i> H.T., <i>Pachistima myrsinites</i> phase	Wind River Mountains, northwestern Wyoming	Cool moist	<i>P. menziesii</i> climax	<i>P. flexilis</i> <i>J. scopularum</i> <i>P. tremuloides</i>	<i>A. glabrum</i> <i>A. alnifolia</i> <i>P. myrsinites</i> <i>Sarbus scopulina</i> <i>Symphoricarpos oreophilus</i> <i>Calamagrostis rubescens</i> <i>C. geyeri</i> <i>A. cordifolia</i> <i>Galium triflorum</i>	Steele et al. 1983
<i>Pseudotsuga menziesii</i> / <i>Berberis repens</i> H.T., <i>Juniperus communis</i> phase, <i>Symphoricarpos areophilus</i> phase, <i>Carex geyeri</i> phase	Wind River Mountains, northwestern Wyoming; Bighorn Mountains, north-central Wyoming	Warm dry	<i>P. menziesii</i> climax	<i>P. cantarta</i> <i>P. flexilis</i> <i>J. scopularum</i> <i>P. ponderosa</i> <i>P. tremuloides</i>	<i>B. repens</i> <i>J. communis</i> <i>P. myrsinites</i> <i>P. virginiana</i> <i>S. areophilus</i> <i>C. geyeri</i> <i>A. cordifolia</i>	Hoffman and Alexander 1976, Steele et al. 1983
<i>Pseudotsuga menziesii</i> / <i>Juniperus communis</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Warm dry	<i>P. menziesii</i> climax	<i>P. flexilis</i> <i>P. cantarta</i>	<i>J. communis</i> <i>S. canadensis</i> <i>S. oreophilus</i> <i>A. miser</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> H.T., <i>Pachistima myrsinites</i> phase	Yellowstone, Snake, Greys, and Hoback River Mountains, northwestern Wyoming	Warm moist	<i>P. menziesii</i> climax	<i>P. flexilis</i> <i>P. tremuloides</i>	<i>P. malvaceus</i> <i>P. myrsinites</i>	Steele et al. 1983
<i>Pseudotsuga menziesii</i> / <i>Physocarpus monogynus</i> H.T.	Bighorn Mountains, north-central Wyoming	Warm dry to well-drained	<i>P. menziesii</i> climax	<i>P. ponderosa</i> <i>P. flexilis</i> <i>P. cantarta</i> <i>J. scopularum</i>	<i>P. monogynus</i> <i>B. repens</i> <i>Rosa acicularis</i> <i>S. oreophilus</i>	Hoffman and Alexander 1976
<i>Pseudotsuga menziesii</i> / <i>Spiraea betulifolia</i> H.T., <i>Calamagrostis rubescens</i> phase	Yellowstone Plateau, northwestern Wyoming	Warm dry	<i>P. menziesii</i> climax	<i>P. contorta</i> <i>P. flexilis</i>	<i>S. betulifolia</i> <i>P. myrsinites</i> <i>C. rubescens</i> <i>C. geyeri</i>	Steele et al. 1983
<i>Papulus tremulaides</i> - <i>Pseudotsuga menziesii</i> / <i>Spiraea betulifolia</i> C.T.	Buffalo and Hoback River Mountains, western Wyoming	Warm dry	<i>P. menziesii</i> climax	<i>P. menziesii</i>	<i>S. betulifolia</i> <i>A. alnifolia</i> <i>B. repens</i>	Youngblood and Mueggler 1981
<i>Pseudotsuga menziesii</i> / <i>Symphoricarpos albus</i> H.T.	Absaroka and Teton Mountains, northwestern Wyoming	Warm well-drained	<i>P. menziesii</i> climax	<i>P. contorta</i> <i>P. flexilis</i> <i>J. scopularum</i> <i>P. tremulaides</i>	<i>S. albus</i> <i>A. alnifolia</i> <i>B. repens</i> <i>P. virginiana</i> <i>S. betulifolia</i>	Steele et al. 1983
<i>Pseudotsuga menziesii</i> / <i>Symphoricarpos oreophilus</i> H.T.	Wind River Mountains, northwestern Wyoming	Warm dry	<i>P. menziesii</i> climax	<i>P. flexilis</i> <i>J. scopularum</i>	<i>S. oreophilus</i> <i>Artemisia tridentata</i> <i>R. cereum</i> <i>A. spicatum</i>	Steele et al. 1983
<i>Pseudotsuga menziesii</i> / <i>Calamagrostis rubescens</i> H.T., <i>Pachistima myrsinites</i> phase	Yellowstone Plateau and Teton Mountains, northwestern Wyoming	Cool dry	<i>P. menziesii</i> climax	<i>P. contorta</i> <i>P. flexilis</i> <i>P. tremulaides</i>	<i>C. rubescens</i> <i>B. repens</i> <i>P. myrsinites</i> <i>P. virginiana</i> <i>S. oreophilus</i>	Steele et al. 1983
<i>Papulus tremulaides</i> - <i>Pseudotsuga menziesii</i> / <i>Calamagrostis rubescens</i> C.T.	Greys and Snake River Mountains, western Wyoming	Warm dry	<i>P. menziesii</i> climax	None	<i>C. rubescens</i> <i>Thalictrum fendleri</i>	Youngblood and Mueggler 1981
<i>Pseudotsuga menziesii</i> / <i>Arnica cordifolia</i> H.T., <i>Astragalus miser</i> phase	Absaroka and Wind River Mountains, northwestern Wyoming	Warm dry	<i>P. menziesii</i> climax	<i>P. flexilis</i> <i>P. contorta</i> <i>J. scopularum</i>	<i>A. cordifolia</i> <i>S. oreophilus</i> <i>F. idahaensis</i> <i>Poa nervosa</i> <i>A. miser</i>	Steele et al. 1983

<i>Pseudotsuga menziesii</i> P.C.	Medicine Bow and Pole Mountains, southern Wyoming	Warm moist to dry	<i>P. menziesii</i> probably climax. Only remnants surviving early logging.	None	<i>Vaccinium</i> spp. <i>Poa</i> spp. <i>Carex</i> spp.	Alexander et al. ¹
Populus tremulae series and other P. tremulae dominated vegetation						
<i>Populus tremuloides/</i> <i>Artemisia tridentata</i> C.T.	Wyoming Mountains, western Wyoming	Warm dry	Unclear <i>P. tremuloides</i> may be climax	Usually pure stands	<i>A. tridentata</i> <i>S. oreophilus</i> <i>Poa</i> spp. <i>Stipa lettermanii</i> <i>Melica spectabilis</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Berberis repens</i> C.T.	Wind River, Wyoming; Teton Mountains, western Wyoming	Cool well-drained	<i>P. tremuloides</i> probably seral to <i>Abies lasiocarpa</i> or <i>P. menziesii</i>	<i>A. lasiocarpa</i> <i>P. menziesii</i>	<i>B. repens</i> <i>P. myrsinites</i> <i>P. virginiana</i> <i>A. olnifolia</i> <i>Geranium viscosissimum</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Corylus cornuta</i> H.T., <i>Aralia nudicaulis</i> phase, <i>Pteridium aquilinum</i> phase	Black Hills and Bearlodge Mountains, eastern Wyoming	Warm well-drained	<i>P. tremuloides</i> climax	<i>Betula papyrifera</i>	<i>C. cornuta</i> <i>A. nudicaulis</i> <i>Aster ciliolatus</i> <i>Osmorhiza chilensis</i> <i>P. aquilinum</i>	Hoffman and Alexander ²
<i>Populus tremuloides/</i> <i>Juniperus communis</i> C.T.	Wind River Mountains, western Wyoming	Warm dry	Unclear <i>P. tremuloides</i> may be climax	<i>P. flexilis</i> <i>P. contorta</i>	<i>J. communis</i> <i>A. uva-ursi</i> <i>B. repens</i> <i>P. myrsinites</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Prunus virginiana</i> C.T.	Greys, Snake, and Gros Ventre Mountains, western Wyoming	Warm dry	<i>P. tremuloides</i> probably seral to <i>P. menziesii</i>	<i>P. menziesii</i> <i>P. contorta</i>	<i>P. virginiana</i> <i>A. olnifolia</i> <i>B. repens</i> <i>Rosa woodsii</i> <i>S. oreophilus</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Shepherdia canadensis</i> C.T.	Gros Ventre, Hoback, and Wyoming Mountains, western Wyoming	Cool well-drained	<i>P. tremuloides</i> probably seral to <i>A. lasiocarpa</i>	<i>A. lasiocarpa</i> <i>Picea engelmannii</i> <i>P. flexilis</i>	<i>S. canadensis</i> <i>Bromus ciliatus</i> <i>C. boreale</i> <i>G. viscosissimum</i> <i>Pedicularis bracteosa</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Spiraea betulifolia</i> C.T.	Snake and Greys Mountains, western Wyoming	Warm dry	<i>P. tremuloides</i> probably seral to <i>P. menziesii</i>	<i>P. menziesii</i>	<i>S. betulifolia</i> <i>A. olnifolia</i> <i>B. repens</i> <i>P. myrsinites</i> <i>P. virginiana</i> <i>S. albus</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Symphoricarpos oreophilus</i> C.T.	Wyoming and Salt River Mountains, western Wyoming	Warm dry	Unclear <i>P. tremuloides</i> may be climax	Usually pure stands	<i>S. oreophilus</i> <i>Bromus carinatus</i> <i>Elymus glaucus</i> <i>G. viscosissimum</i> <i>L. argenteus</i> <i>M. spectabilis</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Wyethia amplexicaulis</i> C.T.	Wyoming and Salt River Mountains, western Wyoming	Warm dry	Unclear <i>P. tremuloides</i> may be climax	Usually pure stands	<i>W. amplexicaulis</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Calamagrostis rubescens</i> H.T. (SE. WY); C.T. (W. WY)	Gros Ventre, Snake Hoback, Teton, Wyoming, and Wind River Mountains, western Wyoming; Sierra Madre and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Warm dry	<i>P. tremuloides</i> climax (SE. WY) Probably seral to <i>A. lasiocarpa</i> or <i>P. menziesii</i> (W. WY)	<i>A. lasiocarpa</i> <i>P. menziesii</i>	<i>C. rubescens</i> <i>C. geeyeri</i> <i>Aster conspicuus</i> <i>Fragaria vesca</i> <i>T. fendleri</i>	Alexander et al. ¹ Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Carex geeyeri</i> H.T.	Sierra Madre and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Cool well-drained	<i>P. tremuloides</i> climax	Usually pure stands	<i>C. geeyeri</i> <i>J. communis</i> <i>R. woodsii</i> <i>E. glaucus</i> <i>A. cordifolia</i>	Alexander et al. ¹
<i>Populus tremuloides/</i> <i>Arnica cordifolia</i> C.T.	Wyoming and Salt River Mountains, western Wyoming	Cool well-drained	<i>P. tremuloides</i> probably seral to <i>A. lasiocarpa</i>	<i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>A. cordifolia</i> <i>S. oreophilus</i> <i>Poa nervosa</i> <i>C. rossii</i> <i>G. viscosissimum</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Astragalus miser</i> C.T.	Wind River and Gros Ventre Mountains, western Wyoming	Warm dry	Unclear <i>P. tremuloides</i> may be climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. contorta</i>	<i>A. miser</i> <i>C. viscosissimum</i> <i>L. argenteus</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Equisetum arvense</i> C.T.	Wyoming and Wind River Mountains, western Wyoming	Cool wet	<i>P. tremuloides</i> probably seral to <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>A. lasiocarpa</i> <i>P. contorta</i>	<i>E. arvense</i> <i>E. glaucus</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981

<i>Papulus tremulaides/</i> <i>Heracleum lanatum</i> C.T.	Wind River, Hoback, Gros Ventre, and Wyoming Mountains, western Wyoming	Cool well- drained	Unclear <i>P. tremulaides</i> probably seral to <i>A. lasiocarpa</i>	<i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>H. lanatum</i> <i>E. glaucus</i> <i>Pedicularis racemosa</i> <i>Geranium richardsonii</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Papulus tremulaides/</i> <i>Ligusticum filicinum</i> C.T.	Wyoming, Wind River, Hoback, and Gros Ventre Mountains, western Wyoming	Cool maist to well-drained	<i>P. tremuloides</i> probably seral to <i>A. lasiocarpa</i> , <i>P. engelmannii</i>	<i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>L. filicinum</i> <i>Delphinium occidentale</i> <i>G. viscosissimum</i> <i>Osmorhiza occidentalis</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Lupinus argenteus</i> H.T.	Bighorn Mountains, north- central Wyoming	Warm moist to well-drained	<i>P. tremulaides</i> climax	Usually pure stands	<i>L. argenteus</i> <i>P. nervosa</i> <i>Taraxacum officinale</i> <i>A. millefolium</i>	Hoffman and Alexander 1976
<i>Papulus tremuloides/</i> <i>Ranunculus</i> <i>alismaefolius</i> C.T.	Wyoming Mauntains, western Wyoming	Cool moist to wet	Unclear <i>P. tremuloides</i> probably seral to <i>A. lasiocarpa</i>	<i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>R. alismaefolius</i> <i>Carex</i> spp. <i>Claytonia lanceolata</i> <i>Trifolium langipes</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Rudbeckia occidentalis</i> C.T.	Wyoming Mountains, western Wyoming	Cool well- drained	<i>P. tremulaides</i> probably seral to <i>A. lasiocarpa</i>	<i>A. lasiocarpa</i>	<i>R. occidentalis</i> <i>Nemophila breviflora</i> <i>M. spectabilis</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides/</i> <i>Thalictrum fendleri</i> H.T. (SE. WY); C.T. (W. WY)	Wyoming and Wind River Mountains, western Wyo- ming; Sierra Madre and Laramie Peaks, Medicine Bow Mountains, southeast- ern Wyoming	Warm dry	<i>P. tremuloides</i> climax (SE. WY) Unclear (W. WY) <i>P. tremuloides</i> may be climax	Usually pure stands	<i>T. fendleri</i> <i>R. woodsii</i> <i>S. areaphilus</i> <i>Lathyrus leucanthus</i> <i>L. filicinum</i>	Alexander et al. ¹ Youngblood and Mueggler 1981

***Pinus contorta* series and other *P. contorta* dominated vegetation**

<i>Pinus contorta/</i> <i>Arctostaphylos uva-ursi</i> H.T.	Bighorn Mountains, north- central Wyoming	Warm dry	<i>P. contorta</i> climax	Usually pure stands	<i>A. uva-ursi</i> <i>J. cammunis</i> <i>S. betulifolia</i> <i>L. argenteus</i> <i>Senecio streptanthifolius</i> <i>Solidaga spathulata</i>	Hoffman and Alexander 1976
<i>Pinus contorta/uniperus</i> <i>cammunis</i> H.T. (SE. WY); C.T. (NW. WY)	Absaraka and Wind River Mountains, northwestern Wyoming; Pole Mautain and Sierra Madre, Medicine Bow Mountains, southeast- ern Wyoming	Warm dry	<i>P. cantarta</i> climax (SE. WY) seral to unknown climax (Nw. WY)	Pure stands (SE. WY) <i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>P. tremulaides</i>	<i>J. cammunis</i> <i>S. canadensis</i> <i>C. rassii</i> <i>A. cordifolia</i>	Alexander et al. ¹ Steele et al. 1983
<i>Pinus contorta/Linnaea</i> <i>borealis</i> C.T.	Yellowstone NP south to Wind River Mountains, northwestern Wyoming	Cool well- drained	<i>P. contorta</i> seral to unknown climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>P. tremuloides</i>	<i>L. borealis</i> <i>Vaccinium scoparium</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Pinus contorta/Shepherdia</i> <i>canadensis</i> H.T. (SE. WY); C.T. (NW. WY)	Absaraka and Wind River Mountains, northwestern Wyoming; Sierra Madre and Snawy Range, Medicine Bow Mauntains, southeast- ern Wyoming	Warm dry	<i>P. contorta</i> climax (SE. WY) seral to unknawn climax (NW. WY)	Pure stands (SE. WY) <i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>Pinus albicaulis</i>	<i>S. canadensis</i> <i>C. geyeri</i> <i>A. cordifolia</i> <i>Epilabium angustifolium</i> <i>L. argenteus</i>	Alexander et al. ¹ Steele et al. 1983
<i>Pinus cantorta/Spiraea</i> <i>betulifolia</i> C.T.	Snake River, Hoback, and Greys River Mountains, northwestern Wyoming	Warm dry	<i>P. contorta</i> seral to unknown climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>P. tremuloides</i>	<i>S. betulifolia</i> <i>C. rubescens</i>	Steele et al. 1983
<i>Pinus cantorta/Vaccinium</i> <i>glabulare</i> C.T.	Yellowstone NP south to northwestern Wyoming	Caal moist to well-drained	<i>P. contorta</i> seral to unknown climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i>	<i>V. globulare</i> <i>V. scoparium</i> <i>C. rubescens</i> <i>Lonicera utahensis</i>	Steele et al. 1983
<i>Pinus cantorta/Vaccinium</i> <i>scoparium</i> H.T. (NE. and SE. WY); C.T. (NW. WY)	Yellowstone NP south to Wind River Mountains, northwestern Wyoming; Sierra Madre, Medicine Bow Mountains, southeast- ern Wyoming; Bighorn Mountains, north-central Wyoming	Cool dry	<i>P. cantarta</i> climax (NE.,SE.WY) seral to unknown climax (NW. WY)	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. albicaulis</i> <i>P. tremulaides</i>	<i>V. scoparium</i> <i>Paa</i> spp. <i>C. geyeri</i> <i>A. cordifolia</i> <i>Lupinus</i> spp.	Alexander et al. ¹ Hoffman and Alexander 1976, Steele et al. 1983
<i>Pinus cantorta/</i> <i>Calamagrostis rubescens</i> C.T.	Yellowstone NP south to Wyaming Mountains, northwestern Wyoming	Cool dry	<i>P. contorta</i> seral to unknown climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>P. tremulaides</i>	<i>C. rubescens</i> <i>C. geyeri</i>	Steele et al. 1983
<i>Pinus contorta/Carex</i> <i>geyeri</i> H.T. (SE. WY); C.T. (NW. WY)	Yellowstone NP, north- western Wyoming; Sierra Madre, Medicine Bow Mountains, southeastern Wyoming	Caal dry	<i>P. contorta</i> climax (SE. WY) seral to unknown climax (NW. WY)	Pure stands (SE. WY) <i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. albicaulis</i> <i>P. tremuloides</i>	<i>C. geyeri</i> <i>V. scoparium</i> <i>Paa</i> spp. <i>A. cordifolia</i> <i>Lupinus</i> spp.	Alexander et al. ¹ Steele et al. 1983

<i>Pinus contorta</i> / <i>Carex rassii</i> H.T. (SE. WY); C.T. (NW. WY)	Yellowstone NP south to Wind River Mountains, northwestern Wyoming; Pole Mountain and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Warm dry	<i>P. contorta</i> climax (SE. WY) seral to unknown climax (NW. WY)	Pure stands (SE. WY) <i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. albicaulis</i> <i>P. tremulaoides</i>	<i>C. rassii</i> <i>P. nervosa</i> <i>L. argenteus</i> <i>Pyrola</i> spp. <i>S. lanceolatum</i>	Alexander et al. ¹ Steele et al. 1983
<i>Pinus contorta</i> / <i>Arnica cardifolia</i> C.T.	Absaroka and Owl Creek Mountains, northwestern Wyoming	Warm dry	<i>P. contorta</i> seral to unknown climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>P. albicaulis</i> <i>P. flexilis</i>	<i>A. cardifolia</i> <i>Pao secunda</i> <i>A. miser</i> <i>P. racemosa</i>	Steele et al. 1983
<i>Picea engelmannii</i> series						
<i>Picea engelmannii</i> / <i>Juniperus communis</i> H.T.	Absaroka, Wind River, and Owl Creek Mountains, northwestern Wyoming	Coal dry	<i>P. engelmannii</i> climax	<i>P. menziesii</i> <i>P. cantarta</i> <i>P. flexilis</i> <i>P. albicaulis</i>	<i>J. communis</i> <i>S. canadensis</i> <i>P. nervosa</i> <i>C. rassii</i> <i>A. cardifolia</i> <i>A. miser</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Linnaea borealis</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Coal well-drained	<i>P. engelmannii</i> climax	<i>P. menziesii</i> <i>P. cantarta</i>	<i>L. borealis</i> <i>J. communis</i> <i>S. albus</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Ribes mantigenum</i> H.T.	Wind River and Owl Creek Mountains, northwestern Wyoming	Coal dry	<i>P. engelmannii</i> climax	<i>P. cantarta</i> <i>P. albicaulis</i>	<i>R. mantigenum</i> <i>Aquilegia caerulea</i> <i>A. cardifolia</i> <i>Lupinus</i> spp.	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Vaccinium scoparium</i> H.T.	Wind River Mountains, northwestern Wyoming; Bighorn Mountains, north-central Wyoming	Coal dry	<i>P. engelmannii</i> climax	<i>P. cantarta</i> <i>P. menziesii</i> <i>P. flexilis</i> <i>P. albicaulis</i>	<i>V. scoparium</i> <i>J. communis</i> <i>P. nervosa</i> <i>A. cardifolia</i> <i>L. argenteus</i>	Hoffman and Alexander 1976, Steele et al. 1983
<i>Picea engelmannii</i> / <i>Carex disperma</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Coal moist	<i>P. engelmannii</i> ca-climax with <i>Picea pungens</i> ,	<i>P. pungens</i> <i>A. lasiocarpa</i> <i>P. cantarta</i>	<i>C. disperma</i> <i>Mitella pentandra</i> <i>Saxifraga arguta</i> <i>Senecio triangularis</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Arnica cardifolia</i> H.T.	Absaroka, Wind River, and Owl Creek Mountains, northwestern Wyoming	Coal dry	<i>P. engelmannii</i> climax	<i>P. menziesii</i> <i>P. cantarta</i> <i>P. flexilis</i> <i>P. albicaulis</i> <i>P. tremulaoides</i>	<i>A. cardifolia</i> <i>H. kingii</i> <i>C. rassii</i> <i>A. miser</i> <i>Frasera speciosa</i> <i>S. streptanthifolius</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Caltha leptosepala</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Coal moist to wet	<i>P. engelmannii</i> climax	<i>A. lasiocarpa</i> (minor climax) <i>P. cantarta</i>	<i>C. leptosepala</i> <i>M. pentandra</i> <i>Parnassia fimbriata</i> <i>S. arguta</i> <i>S. triangularis</i> <i>Trillium laxus</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Equisetum arvense</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Coal wet	<i>P. engelmannii</i> ca-climax with <i>P. pungens</i>	<i>P. pungens</i> <i>P. cantarta</i> <i>A. lasiocarpa</i>	<i>E. arvense</i> <i>Luzula parviflora</i> <i>Carex</i> spp. <i>Juncus</i> spp. <i>P. fimbriata</i> <i>S. triangularis</i> <i>Streptopus amplexifolius</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Galium triflorum</i> H.T.	Absaroka, Teton, and Wyoming Mountains, northwestern Wyoming	Coal moist	<i>P. engelmannii</i> ca-climax with <i>P. pungens</i>	<i>P. pungens</i> <i>P. cantarta</i> <i>P. menziesii</i>	<i>G. triflorum</i> <i>Calamagrostis canadensis</i> <i>Actaea rubra</i> <i>Smilicina triangularis</i> <i>S. stellata</i> <i>S. amplexifolius</i>	Steele et al. 1983
<i>Picea engelmannii</i> / <i>Hypnum revolutum</i> H.T.	Absaroka, Wind River, and Owl Creek Mountains, northwestern Wyoming	Coal moist	<i>P. engelmannii</i> climax	<i>P. menziesii</i> <i>P. flexilis</i> <i>P. albicaulis</i>	<i>H. revolutum</i> <i>P. nervosa</i> <i>A. cardifolia</i> <i>Dicranawiesia crispula</i> <i>Peltigera rufescens</i> <i>Pyrola secunda</i>	Steele et al. 1983
<i>Picea glauca</i> series						
<i>Picea glauca</i> / <i>Linnaea borealis</i> H.T. ⁴	Black Hills and Bearlodge Mountains, eastern Wyoming	Coal well-drained	<i>P. glauca</i> climax	<i>P. panderosa</i> <i>P. tremulaoides</i>	<i>L. borealis</i> <i>J. communis</i> <i>R. acicularis</i> <i>O. asperifolia</i>	Hoffman and Alexander ²
<i>Picea glauca</i> / <i>Vaccinium scoparium</i> H.T. ⁴	Black Hills and Bearlodge Mountains, eastern Wyoming	Coal well-drained	<i>P. glauca</i> climax	<i>P. panderosa</i> <i>P. tremulaoides</i>	<i>V. scoparium</i> <i>B. repens</i> <i>J. communis</i> <i>S. bertulifolia</i>	Hoffman and Alexander ²

Abies lasiocarpa series

<i>Abies lasiocarpa</i> / <i>Acer glabrum</i> H.T., <i>Pachistima myrsinites</i> phase	Tetan and Hoback Mountains, northwestern Wyoming	Warm moist	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. cantarta</i>	<i>A. glabrum</i> <i>L. utahensis</i> <i>P. myrsinites</i> <i>Rubus parviflorus</i> <i>S. scopulina</i> <i>V. glabulare</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Berberis repens</i> H.T., <i>Carex geyeri</i> phase	Absaroka and Wyoming Mountains, northwestern Wyoming	Cool well-drained	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. cantarta</i> <i>P. tremulaides</i>	<i>B. repens</i> <i>P. myrsinites</i> <i>S. canadensis</i> <i>S. oreophilus</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Papulus tremulaides-Abies lasiocarpa</i> / <i>Berberis repens</i> C.T.	Salt River and Wyoming Mountains, western Wyoming	Cool well-drained	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. menziesii</i> <i>P. flexilis</i>	<i>B. repens</i> <i>A. cordifolia</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Abies lasiocarpa</i> / <i>Juniperus communis</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Cool dry	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. contorta</i> <i>P. flexilis</i> <i>P. albicaulis</i>	<i>J. communis</i> <i>S. canadensis</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Linnaea borealis</i> H.T., <i>Vaccinium scoparium</i> phase	Absaroka and Wind River Mountains, northwestern Wyoming	Cool well-drained	<i>A. lasiocarpa</i> climax or co-climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. contorta</i> <i>P. menziesii</i> <i>P. tremuloides</i>	<i>L. borealis</i> <i>B. repens</i> <i>L. utahensis</i> <i>S. canadensis</i> <i>V. scoparium</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Physcarpus malvaceus</i> H.T.	Hoback Mountains, northwestern Wyoming	Warm moist	<i>A. lasiocarpa</i> climax or co-climax with <i>P. menziesii</i>	<i>P. menziesii</i> <i>P. engelmannii</i> <i>P. tremuloides</i>	<i>P. malvaceus</i> <i>A. glabrum</i> <i>A. alnifolia</i> <i>P. myrsinites</i> <i>S. betulifolia</i> <i>A. cordifolia</i> <i>F. vesca</i>	Steele et al. 1983
<i>Papulus tremuloides-Abies lasiocarpa</i> / <i>Prunus virginiana</i> C.T.	Salt River Mountains, western Wyoming	Warm dry	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i>	<i>P. virginiana</i> <i>R. woodsii</i> <i>C. rubescens</i>	Youngblood and Mueggler 1981
<i>Abies lasiocarpa</i> / <i>Ribes montigenum</i> H.T., <i>Pinus albicaulis</i> phase	Hoback and Wyoming Mountains, northwestern Wyoming	Cool dry	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. contorta</i> <i>P. albicaulis</i>	<i>R. montigenum</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Shepherdia canadensis</i> H.T.	Bighorn Mountains, north-central Wyoming	Cool to warm dry to well-drained	<i>A. lasiocarpa</i> co-climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. contorta</i>	<i>S. canadensis</i> <i>B. repens</i> <i>S. betulifolia</i> <i>V. scoparium</i> <i>A. cordifolia</i> <i>P. secunda</i>	Hoffman and Alexander 1976
<i>Populus tremulaides-Abies lasiocarpa</i> / <i>Shepherdia canadensis</i> C.T.	Salt River and Wyoming Mountains, northwestern Wyoming	Cool dry	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i> <i>P. contorta</i> <i>P. flexilis</i>	<i>S. canadensis</i> <i>G. viscosissimum</i> <i>A. cordifolia</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Abies lasiocarpa</i> / <i>Spiraea betulifolia</i> H.T.	Snake, Hoback, and Greys River Mountains, northwestern Wyoming	Warm dry	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. cantarta</i> <i>P. menziesii</i>	<i>S. betulifolia</i> <i>A. alnifolia</i> <i>B. repens</i> <i>P. myrsinites</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Symphoricarpos albus</i> H.T.	Snake, Hoback, and Greys River Mountains, northwestern Wyoming	Warm well-drained	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. contorta</i> <i>P. menziesii</i> <i>P. tremuloides</i>	<i>S. albus</i> <i>A. alnifolia</i> <i>C. rubescens</i> <i>A. cordifolia</i> <i>O. chilensis</i> <i>Thalictrum</i> spp.	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Vaccinium globulare</i> H.T., <i>Vaccinium scoparium</i> phase, <i>Pachistima myrsinites</i> phase	Yellowstone NP south to Wyoming Mountains, northwestern Wyoming	Cool well-drained	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. cantarta</i> <i>P. albicaulis</i>	<i>V. glabulare</i> <i>A. alnifolia</i> <i>P. myrsinites</i> <i>S. betulifolia</i> <i>V. scoparium</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Vaccinium scoparium</i> H.T., <i>Calamagrostis rubescens</i> phase, <i>Pinus albicaulis</i> phase	Mountains of northwestern Wyoming; Bighorn Mountains, north-central Wyoming; Medicine Bow Mountains, southeastern Wyoming	Cool dry	<i>A. lasiocarpa</i> co-climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. cantarta</i> <i>P. albicaulis</i> (NW. WY) <i>P. menziesii</i> <i>P. flexilis</i> <i>P. tremuloides</i>	<i>V. scoparium</i> <i>J. communis</i> <i>P. myrsinites</i> <i>C. rubescens</i> <i>Poa</i> spp. <i>C. geyeri</i> <i>A. cordifolia</i> <i>B. bistartoides</i> <i>E. angustifolium</i> <i>L. argenteus</i>	Alexander et al. ¹ Hoffman and Alexander 1976 Steele et al. 1983

<i>Abies lasiocarpa</i> / <i>Calamagrostis</i> <i>canadensis</i> H.T., <i>Ledum glandulosum</i> phase, <i>Vaccinium caespitosum</i> phase	Yellowstone Plateau, northwestern Wyoming	Cool wet to moist	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. contorta</i>	<i>C. canadensis</i> <i>L. glandulosum</i> <i>V. caespitosum</i> <i>Carex</i> spp.	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Calamagrostis rubescens</i> H.T., <i>Pachistima myrsinites</i> phase	Yellowstone NP south to Wyoming Mountains, northwestern Wyoming	Warm dry	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. contorta</i> <i>P. tremuloides</i>	<i>C. rubescens</i> <i>B. repens</i> <i>P. myrsinites</i> <i>C. geeyeri</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Carex</i> <i>geeyeri</i> H.T.	Sierra Madre and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Cool dry	<i>A. lasiocarpa</i> co-climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. contorta</i> <i>P. flexilis</i> <i>P. tremuloides</i>	<i>C. geeyeri</i> <i>Poa</i> spp. <i>C. rossii</i> <i>A. cordifolia</i>	Alexander et al. ¹
<i>Abies lasiocarpa</i> / <i>Carex</i> <i>rossii</i> H.T.	Wyoming Mountains, northwestern Wyoming	Warm dry	<i>A. lasiocarpa</i> climax	<i>P. contorta</i> <i>P. tremuloides</i>	<i>C. rossii</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Actaea</i> <i>rubra</i> H.T.	Yellowstone NP south to Wyoming Mountains, northwestern Wyoming	Warm moist to well-drained	<i>A. lasiocarpa</i> climax or co- climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. pungens</i> <i>P. menziesii</i> <i>P. contorta</i>	<i>A. rubra</i> <i>A. glabrum</i> <i>L. utahensis</i> <i>V. globulare</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Arnica</i> <i>cordifolia</i> H.T., <i>Astragalus miser</i> phase, <i>Shepherdia canadensis</i> phase, <i>Picea engelmannii</i> phase	Absaroka and Wind River Mountains, northwestern Wyoming; Bighorn Moun- tains, north-central Wyoming	Cool dry	<i>A. lasiocarpa</i> climax or co- climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. contorta</i> <i>P. menziesii</i> <i>P. flexilis</i> <i>P. tremuloides</i>	<i>A. cordifolia</i> <i>S. canadensis</i> <i>Antennaria racemosa</i> <i>Arnica latifolia</i> <i>A. miser</i> <i>E. angustifolium</i> <i>P. secunda</i>	Hoffman and Alexander 1976, Steele et al. 1983
<i>Populus tremuloides</i> - <i>Abies</i> <i>lasiocarpa</i> / <i>Arnica</i> <i>cordifolia</i> C.T.	Wyoming and Salt River Mountains, western Wyoming	Cool well- drained	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i> <i>P. contorta</i>	<i>A. cordifolia</i> <i>P. nervosa</i> <i>C. rossii</i> <i>O. chilensis</i>	Youngblood and Mueggler 1981
<i>Abies lasiocarpa</i> / <i>Arnica</i> <i>latifolia</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Cool dry	<i>A. lasiocarpa</i> co-climax with <i>P. engelmannii</i>	<i>P. engelmannii</i> <i>P. contorta</i> <i>P. menziesii</i> <i>P. albicaulis</i> <i>P. tremuloides</i>	<i>A. latifolia</i> <i>P. myrsinites</i> <i>R. montigenum</i> <i>Aster engelmannii</i> <i>P. racemosa</i>	Steele et al. 1983
<i>Populus tremuloides</i> - <i>Abies</i> <i>lasiocarpa</i> / <i>Ligusticum</i> <i>filicinum</i> C.T.	Gros Ventre and Wyoming Mountains, western Wyoming	Cool moist to well-drained	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i> <i>P. menziesii</i> <i>P. flexilis</i>	<i>L. filicinum</i> <i>G. viscosissimum</i> <i>O. occidentalis</i> <i>T. fendleri</i>	Youngblood and Mueggler 1981
<i>Abies lasiocarpa</i> / <i>Pedicularis racemosa</i> H.T.	Wyoming Mountains, northwestern Wyoming	Warm moist to well-drained	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. contorta</i> <i>P. flexilis</i> <i>P. albicaulis</i> <i>P. tremuloides</i>	<i>P. racemosa</i> <i>P. myrsinites</i> <i>S. oreophilus</i> <i>A. cordifolia</i> <i>A. engelmannii</i>	Steele et al. 1983
<i>Populus tremuloides</i> - <i>Abies</i> <i>lasiocarpa</i> / <i>Pedicularis</i> <i>racemosa</i> C.T.	Salt River and Wyoming Mountains, western Wyoming	Warm moist	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>P. racemosa</i> <i>S. oreophilus</i> <i>A. cordifolia</i>	Youngblood and Mueggler 1981
<i>Populus tremuloides</i> - <i>Abies</i> <i>lasiocarpa</i> / <i>Rudbeckia</i> <i>occidentalis</i> C.T.	Wyoming Mountains, western Wyoming	Cool moist to well-drained	<i>A. lasiocarpa</i> climax	<i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>R. occidentalis</i> <i>N. breviflora</i> <i>T. longipes</i>	Youngblood and Mueggler 1981
<i>Abies lasiocarpa</i> / <i>Thalictrum occidentale</i> H.T.	Yellowstone NP south to Wind River Mountains, northwestern Wyoming	Warm well- drained	<i>A. lasiocarpa</i> climax	<i>P. engelmannii</i> <i>P. menziesii</i> <i>P. contorta</i> <i>P. tremuloides</i>	<i>T. occidentale</i> <i>O. chilensis</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Abies lasiocarpa</i> / <i>Moss</i> H.T.	Pole Mountain and Snowy Range, Medicine Bow Mountains, southeastern Wyoming	Cool dry	<i>A. lasiocarpa</i> co-climax with <i>P. engelmannii</i>	<i>P. contorta</i>	<i>Moss</i> spp. <i>Lichen</i> spp.	Alexander et al. ¹
<i>Pinus albicaulis</i> series						
<i>Pinus albicaulis</i> / <i>Juniperus</i> <i>communis</i> H.T., <i>Shepherdia canadensis</i> phase	Absaroka and Wind River Mountains, northwestern Wyoming	Cool dry	<i>P. albicaulis</i> co-climax with <i>P. contorta</i>	<i>P. contorta</i> <i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>J. communis</i> <i>A. uva-ursi</i> <i>S. canadensis</i> <i>A. cordifolia</i> <i>A. miser</i>	Steele et al. 1983
<i>Pinus albicaulis</i> / <i>Vaccinium scoparium</i> H.T.	Yellowstone NP south to Wind River Mountains, northwestern Wyoming	Cool dry	<i>P. albicaulis</i> co-climax with <i>P. contorta</i>	<i>P. contorta</i> <i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>V. scoparium</i> <i>P. nervosa</i> <i>C. rossii</i> <i>A. cordifolia</i>	Steele et al. 1983
<i>Pinus albicaulis</i> / <i>Festuca</i> <i>idahoensis</i> H.T.	Absaroka and Wind River Mountains, northwestern Wyoming	Cool dry	<i>P. albicaulis</i> climax	<i>P. contorta</i>	<i>F. idahoensis</i> <i>A. miser</i>	Steele et al. 1983

<i>Pinus albicoulis</i> / <i>Carex geyeri</i> H.T.	Yellowstone NP, northwestern Wyoming	Cool dry	<i>P. albicoulis</i> climax	<i>P. contorta</i>	<i>C. geyeri</i> <i>F. idahoensis</i> <i>Stipa occidentalis</i> <i>Trisetum spicatum</i>	Steele et al. 1983
<i>Pinus albicoulis</i> / <i>Carex rossii</i> H.T., <i>Pinus contorta</i> phase	Yellowstone NP south to Wind River Mountains, northwestern Wyoming	Cool dry	<i>P. albicoulis</i> co-climax with <i>P. contorta</i>	<i>P. contorta</i> <i>A. lasiocarpa</i> <i>P. engelmannii</i>	<i>C. rossii</i> <i>C. geyeri</i>	Steele et al. 1983
Low Elevation and Riparian Plant Communities						
<i>Alnus tenuifolia</i> P.C.	Sierra Madre, Medicine Bow Mountains, southeastern Wyoming	Warm moist	<i>A. tenuifolia</i> probably climax	None	<i>Carex</i> spp. <i>Juncus</i> spp.	Alexander et al. ¹
<i>Juniperus osteosperma</i> P.C.	Forest border east of Absaroka to Wind River Mountains, northwestern Wyoming	Hot dry	<i>J. osteosperma</i> climax	<i>P. flexilis</i>	None	Steele et al. 1983
<i>Juniperus scopulorum</i> P.C.	Snake River Mountains, northwestern Wyoming; Laramie Peaks, Medicine Bow Mountains, southeastern Wyoming	Hot dry	<i>J. scopulorum</i> probably climax	None	<i>Cercocarpus ledifolius</i> <i>A. tridentata</i> <i>J. communis</i> <i>Corex</i> spp.	Alexander et al. ¹ Steele et al. 1983
<i>Populus</i> spp. / <i>Salix</i> spp. P.C.	Flood plains of Snake, Wind, Green, and Shoshone Rivers, northwestern Wyoming	Warm wet to moist	<i>Populus</i> , <i>angustifolia</i> , <i>Populus</i> <i>balsamifera</i> , <i>Populus</i> <i>trichocarpa</i> may be climax	<i>P. engelmannii</i> <i>P. pungens</i> <i>Betula occidentalis</i>	<i>Salix</i> spp. <i>Croteogus douglasii</i> <i>Elaeagnus commutata</i>	Steele et al. 1983
<i>Quercus gombelii</i> P.C.	Sierra Madre, Medicine Bow Mountains, southeastern Wyoming	Hot dry	<i>Q. gombelii</i> probably climax	None	<i>S. oreophilus</i> <i>A. alnifolia</i> <i>P. virginiana</i> <i>P. pratensis</i>	Alexander et al. ¹
<i>Quercus macrocarpa</i> / <i>Symphoricarpos occidentalis</i> H.T.	Black Hills and Bearlodge Mountains, eastern Wyoming	Warm very dry	<i>Q. macrocarpa</i> probably climax	None	<i>S. occidentalis</i>	Hoffman and Alexander ²
<i>Quercus macrocarpa</i> / <i>Ostrya virginiana</i> H.T.	Black Hills and Bearlodge Mountains, eastern Wyoming	Warm very dry	<i>Q. macrocarpa</i> probably climax	None	<i>O. virginiana</i>	Hoffman and Alexander ²

¹Alexander, Robert R., George R. Hoffman, and John M. Wirsing. Forest vegetation of the Medicine Bow National Forest in southwestern Wyoming: A habitat type classification. (Manuscript in preparation.)

²Hoffman, George R., and Robert R. Alexander. Forest vegetation of the Black Hills and Bearlodge Mountains: A habitat type classification. (Manuscript in preparation.)

³Possible, but a sparse representative in Wyoming.

⁴Bearlodge Mountains have essentially no *Picea glauca* at present, but they may have contained *P. glauca* at one time and retain the environment necessary to support *P. glauca* in the future.



Rocky
Mountains



Southwest



Great
Plains

U.S. Department of Agriculture
Forest Service

Rocky Mountain Forest and Range Experiment Station

The Rocky Mountain Station is one of eight regional experiment stations, plus the Forest Products Laboratory and the Washington Office Staff, that make up the Forest Service research organization.

RESEARCH FOCUS

Research programs at the Rocky Mountain Station are coordinated with area universities and with other institutions. Many studies are conducted on a cooperative basis to accelerate solutions to problems involving range, water, wildlife and fish habitat, human and community development, timber, recreation, protection, and multiresource evaluation.

RESEARCH LOCATIONS

Research Work Units of the Rocky Mountain Station are operated in cooperation with universities in the following cities:

Albuquerque, New Mexico
Flagstaff, Arizona
Fort Collins, Colorado*
Laramie, Wyoming
Lincoln, Nebraska
Rapid City, South Dakota
Tempe, Arizona

*Station Headquarters: 240 W. Prospect St., Fort Collins, CO 80526