EXAMPLES OF FOREST HABITAT TYPES IN MONTANA

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(This group of images was presented as a poster in the printed version of this document.)
**Pinus flexilis/Agropyron spicatum** h.t.
Dry, rocky W. slope (4,900 ft) near Whitehall supporting *Pinus flexilis*, *Juniperus scopulorum*, and scattered *Pseudotsuga*.

**Pseudotsuga menziesii/Vaccinium globulare** h.t.
*(Arctostaphylos phase)* S. exposure (4,700 ft) in a relatively moist area of west-central Montana. Seral *Pinus ponderosa* is an overstory dominant; *Vaccinium* and *Xerophyllum* dominate the undergrowth.
**Pinus ponderosa**/Agropyron spicatum h.t.
Steep SW. slope (4,500 ft) near Missoula. *Pinus ponderosa* is a long-lived seral dominant.

**Pseudotsuga menziesii** /Linnaea borealis h.t.
(Symphoricarpos phase) Valley bottom (2,600 ft) in NW. Montana. *Larix occidentalis* is the dominant seral tree.
Pinus ponderosa/Prunus virginiana h.t.
(Prunus phase) Lower N. slope (4,000 ft) near Ashland. Prunus has been browsed back by deer.

Pseudotsuga menziesii/Symphoricarpos albus h.t.
(Calamagrostis phase) W. slope (7,050 ft) in south-central Montana. Pseudotsuga is dominant in all size classes. Undergrowth is dominated by Symphoricarpos, Calamagrostis, and Carex geyeri, with numerous forbs.
Pseudotsuga menziesii/Agropyron spicatum h.t.
Steep S. slope (5,650 ft) in west-central Montana. Soil is loose and gravelly; much of ground surface is exposed, partly because of grazing.

Pseudotsuga menziesii/Calamagrostis rubescens h.t.
(Calamagrostis phase) SE. slope (6,300 ft) in west-central Montana. Typical park-like stand of old-growth Pseudotsuga, with dense mat of Calamagrostis and Arnica cordifolia beneath.
Pseudotsuga menziesii/Vaccinium caespitosum h.t.

Valley bench (3,200 ft) in northwestern Montana. Old-growth Pinus ponderosa is being replaced by Pseudotsuga regeneration.

Pseudotsuga menziesii/Carex geyeri h.t.

S. slope (7,650 ft) in SW. Montana. Pseudotsuga and Pinus albicaulis dominate this stand, with Carex geyeri and Aster conspicuus dominating the undergrowth.
**Pseudotsuga menziesii/Physocarpus malvaceus h.t.**

*(Calamagrostis phase)* Steep SW. exposure (4,000 ft) near Missoula. *Pinus ponderosa* is the overstory dominant; *Physocarpus* is patchy; *Calamagrostis*, *Carex geyeri*, *Agropyron*, and *Balsamorhiza* dominate the undergrowth.

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**Pseudotsuga menziesii/Arnica cordifolia h.t.**

NW. aspect (7,050 ft) in a dry mountain range near Whitehall. The nearly pure stand of *Pseudotsuga* has a sparse undergrowth of *Arnica cordifolia.*
**Picea/Equisetum arvense h.t.**

Wet valley bottom site (5,600 ft) with deep alluvial silt in central Montana. *Picea* is dominant in all size classes; undergrowth is dominated by *Equisetum arvense*.

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**Tsuga heterophylla/Clintonia uniflora h.t.**

Gentle E. slope (4,000 ft) in NW. Montana. Seral *Pseudotsuga* and *Pinus monticola* (right center) occur here with *Thuja* and *Tsuga*. 
*Picea/Clintonia uniflora h.t.*

*(Clintonia phase)* Moist valley bottom (3,000 ft) in NW. Montana. Seral *Larix occidentalis* dominates the overstory; *Pseudotsuga* occurs in all layers, and *Picea* forms most of the regeneration.

*Abies lasiocarpa/Clintonia uniflora h.t.*

*(Clintonia phase)* Steep SE. slope (5,900 ft) in NW. Montana near the upper limit of this h.t. Stand is dominated by seral *Pinus contorta* and *Picea*, which show scars from a ground fire. *Arnica latifolia* is the dominant undergrowth species.
**Picea/Linnaea borealis h.t.**

Lower N. slope in canyon (5,700 ft) in south-central Montana. *Pinus contorta* and *Pseudotsuga* are seral species being replaced by *Picea*. *Vaccinium globulare* and *Linnaea* dominate the undergrowth.

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**Abies lasiocarpa/Galium triflorum h.t.**

Streamside bench (5,000 ft) in west-central Montana. This near-climax stand is dominated by *Abies lasiocarpa* and *Picea*. *Coptis occidentalis* and *Linnaea borealis* dominate the undergrowth.
**Abies grandis/Clintonia uniflora h.t.**
(Aralia phase) Valley bottom (2,900 ft) near Flathead Lake. Scattered seral *Pseudotsuga* and *Larix occidentalis* remain in the stand, which is now dominated by *Abies grandis*. *Aralia* and *Disporum hookeri* are the tall forbs.

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**Abies lasiocarpa/Vaccinium caespitosum h.t.**
Flat upland site (6,400 ft) in central Montana. *Pinus contorta* dominates this stand. Principal undergrowth species are *Calamagrostis rubescens* and *Vaccinium caespitosum*. 
**Thuja plicata/Clintonia uniflora h.t.**
(Menziesia phase) High-elevation (5,200 ft) canyon north of Missoula. Seral Larix and Picea can be seen along with Thuja. Undergrowth is dominated by Menziesia and Taxus brevifolia.

**Abies lasiocarpa/Calamagrostis canadensis h.t.**
(Calamagrostis phase) Seepage area on a S. slope (8,100 ft) in SW. Montana. Picea is the dominant tree but most regeneration is Abies lasiocarpa; Veratrum viride and Calamagrostis canadensis dominate the undergrowth.
Thuja plicata/Oplopanax horridum h.t.
A north slope (4,300 ft) with frequent seepage areas in NW. Montana. Tsuga heterophylla is the dominant tree in this near-climax stand. Oplopanax and Athyrium filix-femina dominate the undergrowth.

Abies lasiocarpa/Linnaea borealis h.t.
(Vaccinium scoparium phase) Streamside bench (6,600 ft) in south-central Montana. Picea dominates all tree layers, but Abies is also regenerating successfully; undergrowth is mostly Linnaea, Vaccinium scoparium, Aster conspicuus, and Calamagrostis rubescens.
Abies lasiocarpa/Menziesia ferruginea h.t.
Steep N. slope (5,700 ft) in NW. Montana. *Larix occidentalis*, *Picea*, and *Pinus monticola* are the old-growth dominants, but only *Abies* is regenerating. *Menziesia* (5 ft) and *Vaccinium globulare* (2 ft) form the shrub layer.

Abies lasiocarpa-Pinus albicaulis/Vaccinium scoparium h.t.
Gentle SE. slope (8,500 ft) near Butte. *Pinus albicaulis* and *Picea* dominate this 300-year-old stand; however, *Abies* is increasing in the understory. The layer of *Vaccinium* is about 6 inches high.
Abies lasiocarpa/Xerophyllum tenax h.t.

(Vaccinium globulare phase) SE. slope (6,800 ft) in west-central Montana. Only scattered Pseudotsuga (center) and Larix occidentalis survived the fire that gave rise to this stand of Pinus contorta about 75 years ago. Abies is now regenerating. Undergrowth is largely Vaccinium globulare and Xerophyllum.

Pinus albicaulis-Abies lasiocarpa h.t.s.

Ridgetop (9,200 ft) in SW. Montana. Old-growth Pinus albicaulis is about 30 feet tall; Abies is shorter; an occasional Picea achieves 40 feet. Vaccinium scoparium, Phyllodoce empetriformis, and Antennaria lanata dominate the undergrowth.
Abies lasiocarpa/Vaccinium globulare h.t.
N. slope (7,100 ft) in central Montana. *Picea* and *Abies lasiocarpa* dominate this stand, but only *Abies* is regenerating; *Vaccinium globulare* forms a dense layer 1 to 1½ ft high.

Larix lyallii-Abies lasiocarpa h.t.s.
N. slope (8,400 ft) in west-central Montana. Slow-growing *Larix lyallii* has little competition on this moist granitic site. *Phyllodoce empetriformis* and *Luzula hitchcockii* dominate beneath the 400- to 600-year-old trees.
Abies lasiocarpa / Vaccinium scoparium h.t.

(Vaccinium scoparium phase) Flat upland site (7,200 ft) in central Montana. This Pinus contorta stand arose after an intense fire a century ago. Abies lasiocarpa is regenerating. Vaccinium scoparium dominates the undergrowth.

Pinus albicaulis h.t.s.

SW. slope on limestone (7,900 ft) in central Montana. Pinus albicaulis is the only successful tree in this old-growth stand; the site is above the limits of Pseudotsuga. A mixture of Poa nervosa and forbs form the undergrowth.
**Abies lasiocarpa/Calamagrostis rubescens** h.t.
N. Slope (7,650 ft) in SW. Montana. *Pinus contorta* stand (70 years old) arose after fire. *Abies* is regenerating. A mat of *Calamagrostis rubescens* makes up the undergrowth.

**Pinus contorta/Purshia tridentata** h.t.
Flat ground (6,600 ft) on obsidian sand substrate at West Yellowstone. *Pinus contorta* is the only tree; *Purshia* and scattered forbs grow beneath.
Abies lasiocarpa/Arnica cordifolia h.t.
N. slope (7,750 ft) in SW, Montana. Old-growth Pinus contorta, Picea, and Pseudotsuga are being replaced by Abies lasiocarpa. Arnica cordifolia and Thalictrum occidentale are the only conspicuous undergrowth plants.

Forested Scree
Steep S. slope (3,100 ft) in west-central Montana composed of unstable, fine rock. Scattered Pinus ponderosa and Pseudotsuga occur with a sparse undergrowth primarily of Amelanchier alnifolia, Chrysothamnus nauseous, and Artemisia dracunculus.