

Douglas fir bunchgrass

Description

This type occurs at mid-elevations of the southern interior. At PNC it is dominated by an overstorey of open Douglas-fir with < 30% canopy cover. In the south central and Rocky Mountain Trench the herb layer is dominated by rough fescue and bluebunch wheatgrass and a low cover of pinegrass. In the Cariboo (north of Clinton) the herb layer is dominated by bluebunch wheatgrass, pinegrass and minor amounts of Rocky Mountain fescue and various large bunch bluegrasses.

Much of the area occurs as an altered condition with a dense overstorey of Douglas-fir caused by lack of stand maintaining fires. This condition has very low cover of pinegrass with the other grasses mostly suppressed. Recovery of these altered states requires thinning, burning, and sometimes re-establishment of grass and forb species.

Location

This type occurs throughout the southern interior on morainal blankets at elevations between 900-1200 m.

Representative Reference Area

Steam Shovel, Beaton Creek, Burn Pasture Slope, Black Mountain, Dam Lake

BEC Correlation

ICHdm 02

IDFdk1 02

IDFdk2 02

IDFdk3 04

IDFdm1 03

IDFdm2 02,03

IDFmw2 02

IDFhx1 01,02,03

IDFhx2 01,02,03,04

IDFxm 02,04

IDFwx 01,04

MSdk 02

PPdh2 01

Site Characteristics

Soils

Luvissols and brunisols on morainal blankets.

Elevation range

900-1200 m

Douglas fir bunchgrass

Seral Stages

PNC Climax

No picture available

Plant Community PNC	
Species	Canopy cover (%)
Douglas-fir	<30%
Rough fescue	20-40
Bluebunch wheatgrass	15-30
Pinegrass	5-10%
Mixed forbs	<5%
Saskatoon and rose	1%
Litter	50-100%
Biological Crusts	5-15%

Productivity

400 kg/ha

Range Management Considerations

Very light intermittent grazing will maintain the PNC, but that is not the target seral stage for this type. Moderate spring use every second year will maintain productivity and functionality, but the site will degrade to late-seral due to the loss of rough fescue. Bluebunch wheatgrass is the primary increaser on dryer sites and should maintain production until the bottom of this seral stage. Kentucky bluegrass is the increaser on more moist sites. Maintaining PNC could be achieved with light fall use

Properly Functioning Condition

PNC will score as properly functioning.

Douglas fir bunchgrass

Late Seral

Fir-- bunchgrass late-seral bluebunch wheatgrass, rough fescue and pinegrass



Plant Community Late Seral	
Species	Canopy cover (%)
Douglas-fir	<30%
Rough fescue	10-20%
Bluebunch wheatgrass	5-40
Pinegrass	5-30%
Needlegrasses	1-5%
Mixed forbs	<5%
Saskatoon and rose	1%

Productivity

300 kg/ha

Range Management Considerations

Light to moderate use every second year should maintain this seral stage. Repeated spring grazing will be hard on the fescues. Bluebunch will replace rough fescue on dry sites; pinegrass or Kentucky bluegrass will replace rough fescue on more moist sites. Bluebunch wheatgrass will eventually decrease with higher grazing impacts.

Douglas fir bunchgrass

Properly Functioning Condition

Conifer needles will supply sufficient litter to maintain high scores. Conifer needles do not contribute the same high quality organic matter as do the roots and leaves of grasses. Soil compaction and poor root occupation may result from livestock use.

Mid-Seral



Fir -- Bunchgrass mid-seral

Plant Community Mid Seral	
Species	Canopy cover (%)
Douglas-fir	<30%
Rough fescue	5-10%
Bluebunch wheatgrass	5-10
Needlegrasses	5-40
Pinegrass	15%
Kentucky bluegrass	5-50
Mixed Forbs	10-15
Litter	0-100
Biological Crusts	0-30

Douglas fir bunchgrass

Productivity

200 kg/ha. As rough fescue and bluebunch wheatgrass drop out of the community, productivity will become more variable dependent on spring moisture. Years with greater than 100% of normal precipitation could have production greater than the late and PNC while years with 50-75% normal precipitation could produce less than half. On sites where needlegrasses dominate, productivity could be as low as 100 kg/ha, with spring growth delayed because of the later green-up of needlegrasses.

Range Management Considerations

Any regime that includes substantial spring grazing without 18 months of rest will likely cause a loss of the rough fescue and bluebunch wheatgrass components. By this stage bluebunch wheatgrass has become a decreaser. The cover estimates given for each grass species are broad because the species composition and dominance is dependent soil moisture, disturbance history, and possibly chance. Predicting the make-up of the mid-seral is difficult; expect that rough fescue and Idaho fescue will be low cover. Litter has a very broad range because it depends on the species that dominates. If Kentucky bluegrass dominates, then even with very high use and short stubble, litter cover can be very high. In a needlegrasses dominated site, litter could be missing.

Properly Functioning Condition

Scores could remain high on sites dominated by Kentucky bluegrass because of its ability to protect the soil surface, and form litter. Scores for unoccupied root zone and compacted soil layers could be low. Conifer needles will usually supply sufficient litter when herbage cover is low or heavily grazed.

Early-Seral



Fir -- bunchgrass early-seral Kentucky bluegrass, needlegrasses and pinegrass.

Plant Community Early Seral

Species	Canopy cover (%)
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Douglas fir bunchgrass

Douglas-fir	<30%
Pinegrass	10%
Needlegrasses	5-40
Kentucky bluegrass	5-50
Mixed forbs	10-20
Litter	0-100
Biological Crusts	0-30

Productivity

200 kg/ha. As rough fescue and bluebunch wheatgrass drop out of the community, productivity will become more variable, dependent on spring moisture. Years with greater than 100% of normal precipitation could have production greater than the late and PNC while years with 50-75% normal precipitation could produce less than half.

Range Management Considerations

This seral stage could be dominated by any of the seral species, Kentucky bluegrass, or needlegrasses. In each, there will be residual rough fescue and Idaho fescue plants that are very hard for us to see but livestock and wildlife seek them out. A few plants will remain in the plant community in spite of poor vigour and extreme use. Recovery will be difficult and require long rest or dormant season grazing only. Resistance to weeds will be low and the annual bromes could be problematic.

Properly Functioning Condition

Fir needles will supply sufficient litter to overcome losses of herbage, but sites will become compacted and there will be a lack of vertebrate and invertebrate habitat. What little shrub layer was present will likely be substantially reduced.

Altered States

Dense Douglas-fir forest:

With low fire frequency all stages can be converted to dense Douglas-fir stands. These have high stem density (>2000s/ha) and a full canopy that restricts sunlight getting to the herb layer. Grasses and forbs are < 10% cover and will be dominated by pinegrass. Catastrophic fires reset these sites to bare ground that is re-colonized quickly to dense trees. Restoration requires thinning (mechanical or burning when suitable) to open the canopy and light use to allow the rough fescue to recover to a higher cover. Periodic thinning (usually burning) is needed to maintain the sites with an open tree canopy

Douglas fir bunchgrass



Douglas–fir bunchgrass dense fir altered state with small patches of pinegrass

Plant Community	
Species	Canopy cover (%)
Douglas-fir	100
Pinegrass	0-5

Productivity

0 kg/ha

Range Management Considerations

This altered state supplies no forage and may be an impediment to livestock distribution. Restoration to late-seral requires that the fir canopy be reduced and the biomass be removed from the site. Thinning is usually needed prior to burning to achieve sufficient crown reduction. Rest is needed after opening the canopy to allow residual plants time to grow larger root systems.

Properly Functioning Condition

The site will score slightly at risk. Fir needles will protect the soil, but rooting depth and organic matter incorporation will be poor.

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Seral Stage Diagram

