

Lodgepole pine -- pinegrass

Description

The lodgepole pine-- pinegrass type is a moderately open lodgepole pine forest with an understorey dominated by pinegrass. Much of the higher elevation interior plateau is covered by the type, but on many ranges it receives very little use. This plant community is usually described as a seral stage of the Engelmann spruce forest, meaning with time the lodgepole pine would be replaced by Engelmann spruce. Fire frequency is high enough that almost all of the area is burned and re-established to lodgepole pine before the succession to Engelmann spruce happens. Forest ecologists refer to this as a truncated maturing seral stage. For the purposes of this account the lodgepole pine forest will be considered the normal endpoint of succession. Since there is little similarity to the spruce dominated PNC this type would be considered an early-seral stage using range management definitions of seral stages.

Location

This type is extensive and occurs throughout the southern half of the province at an elevation range of 1100m to 1400 m zonal and on warm sites, where lodgepole pine forms a moderately open canopy. Forage production is dependent on having sufficiently open forest cover to allow light to reach the forest floor. On cool slopes and moist sites the canopy closure is too high and there is little forage produced unless the site is burned or logged.

BEC Correlation

ESSFdc1 02

IDFmw 03, 04

MSdc2 03

MSdm 03, 04

MSdm1 01,04

MSdv 01,02,03

MSxk 01, 04, 05

SBPSdc 01,03,04

SBPSmk 01,04,05

SBSmm 03, 04

Site Characteristics

Soils

Dystric brunisols, eutric brunisols and gray luvisols predominate.

Elevation range

1100 -1400 m

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Seral Stages

Intact forest Early-seral stage with no grazing impacts.

No examples of the spruce dominated PNC have been observed. Therefore only the early-seral lodgepole pine stage will be described. Three distinct forms of the early-seral are shown below, the intact forest, the logged forest with little grazing impact, and a highly altered logged forest.

Truncated seral lodgepole pine -- pinegrass



Lodgepole pine -- pinegrass shortly after the pine have been killed by bark beetle

Lodgepole pine -- pinegrass

Plant Community truncated seral stage	
Species	Canopy cover (%)
Lodgepole pine	50-70
Pinegrass	20-40
Arctic lupine	1
Soopolallie	5
Prickly rose	5

Productivity

Under canopy 200 kg/ha

Logged 600 kg/ha

Range Management Considerations

Even though the type is extensive and often open enough for easy access, there is usually little use until the canopy is opened by logging or fire. In the early 2000s large areas had most of their pine killed by pine beetles. The opening of the canopy increased forage production, which resulted in a slight increase in distribution. As the trees fall access will be difficult and most areas will not get any use.

Most use in this type occurs after logging or fire. Production increases greatly and distribution improves. Damage to tree seedlings becomes a greater issue than changes to the herbage plant community. As clearcuts reforest, forage production and use by cattle declines. Cutblocks older than 20 years receive very little or no use.

Properly Functioning Condition

This situation will score as properly functioning.

Logged -- Unaltered by gazing

Logging increases herbage production and improves access to cattle but there are many areas that receive little or no grazing and remain unaltered by grazing.

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Lodgepole pine early-seral due to logging with an unaltered herb layer from grazing

Plant Community Early Seral unaltered by grazing	
Species	Canopy cover (%)
Lodgepole pine	5-10
Pinegrass	40-60
Arctic lupine	1
Soopolallie	5
Prickly rose	5

Productivity

600 kg/ha

Range Management Considerations

Light use and short duration can leave cutblocks with little alteration from grazing. Distribution within the block can be a serious issue with heavy use along roads, trails and landings, resulting in soil compaction, degradation of the plant community and trampling of tree seedlings. Distribution within the block can be improved by placing salt away from the cutblocks or in the most inaccessible areas within the blocks, and seeding, if the seeding targets areas away from roads, landings and water.

Properly Functioning Condition

Trails and landings will score at risk to non-functioning due to the lack of vegetation and litter and high soil compaction. The rest of the block will score properly functioning or slightly at risk due to the lack of vegetation and animal habitat, unless there has been excessive post logging site preparation. Heavily site prepared sites will score at risk to non-functional.

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Logged -- greatly altered by gazing

No picture

Plant Community Early Seral greatly altered by gazing	
Species	Canopy cover (%)
Lodgepole pine	5-10
Pinegrass	1-5
Kentucky bluegrass	0-30
Dandelion, heart leaved arnica, arctic lupine	5-20

Productivity

100 kg/ha

Range Management Considerations

This condition usually occurs next to roads and landing and on the flatter parts of cu blocks. There is high potential for the risk of trampling tree seedlings and the compaction of soil restricting their growth and survival. Getting good distribution in cutblocks is challenging, and placement of water developments, salt and seeding need to be considered carefully to not exacerbate the problem.

Properly Functioning Condition

These areas will score functional at risk to non-functional. Low scores will result from soil compaction, lack of litter and poorly occupied root space, and loss of animal habitat

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Seral Stage Diagram

Intact forest no grazing impacts

G Pinegrass 50-70%
F mixed 5-10%
S Soopolallie, rose <10%
T Lodgepole pine 50-70
BC very little
Yield 600kg/ha
CC 2ha/AUM

Logging
or Fire

long term
forest
growth

Logged unaltered by livestock grazing

G Pinegrass 50-70%
F mixed 5-10%
S Soopolallie, rose <10%
T Lodgepole pine 5-10%
BC very little
Yield 800kg/ha
CC 1.5ha/AUM

G: Grasses
 F: Forbs
 S: Shrubs
 T: Trees
 BC: Biological Crusts

Heavy use
little rest

Moderate
use with
rest

Logged greatly altered by livestock grazing

G Pinegrass 1-5%
 Kentucky bluegrass 0-30
F Dandelion, heartleafed arnica,
 arctic lupine 5-20%
S Soopolallie, rose <10%
T Lodgepole pine 5-10%
BC none
Yield 100kg/ha
CC 20ha/AUM