

Appendix 2. Descriptions of vegetation at locations in the Cedar Knoll Research Natural Area.

Data were collected from only three plots at one location during the 1996 field survey of the area, but descriptions of the structure and composition of the vegetation were made at other locations. Those locations are indicated on Figure 3.

Sample #: 96GJCedarDesc -

09/05/1996

96GJCedarDesc -

Location No.: 1 96GJCedarDesc01 (09-05-96)
Plant association: Western wheatgrass/green needlegrass
Description: Grassland with sagebrush growing on shale substrate. See plots.

Most common species:

TREES

SHRUBS: Artemisia tridentata var. wyomingensis

GRAMINOIDS: Elymus smithii, Bromus tectorum & B. japonicus, Stipa viridula, Bouteloua gracilis

FORBS: Achillea millefolium

Location No.: 2 96GJCedarDesc02 (09-05-96)
Plant association: Ponderosa pine/sun sedge
Description: Woodland on rolling hills and in shallow draws

Most common species:

TREES: Pinus ponderosa

SHRUBS: Juniperus scopulorum

GRAMINOIDS: Carex pensylvanica, Elymus smithii on slopes; Poa pratensis, Juncus interior, Poa compressa in draws.

FORBS:

Location No.: 3 96GJCedarDesc03 (09-05-96)
Plant association: Prairie cordgrass
Description: Dense vegetation in and near stream channel

Most common species:

TREES

SHRUBS

GRAMINOIDS: Spartina pectinata, Carex sp. Poa pratensis, Juncus interior, Agrostis stolonifera, Hordeum brachyantherum

FORBS: Sagittaria cuneata, Sparganium sp.

Location No.: 4 96GJCedarDesc04 (09-05-96)
Plant association: Ponderosa pine/sun sedge
Description: Woodland on rolling hills and broad ridges. Trees clumped, mostly 10 m to 15 m tall, 20 cm to 30 cm dbh, cover ca. 25%; junipers common, to 3 m tall, patchy, cover ca. 20%

Most common species:

TREES: Pinus ponderosa. Juniperus scopulorum

SHRUBS:

GRAMINOIDS: Carex pensylvanica dominates, Elymus smithii, Poa sp., Poa pratensis

FORBS: Achillea millefolium, Collomia linearis

Location No.: 5 96GJCedar Desc #5 (09-05-96)
Plant association: Prairie cordgrass
Description: Dense riparian vegetation along channels,
especially on insides of meanders
Most common species:

TREES

SHRUBS

GRAMINOIDS: *Spartina pectinata*, *Elymus smithii*, *Distichlis stricta*

FORBS:

Location No.: 6 96GJCedar Desc #6 (09-05-96)
Plant association: Western wheatgrass-green needlegrass
Description: Dense grassland with patches of sagebrush (10% -
25% cover) on hills
Most common species:

TREES

SHRUBS: *Artemisia tridentata* var. *wyomingensis*, *Rosa sayi* or
R. arkansana

GRAMINOIDS: *Elymus smithii*, *Stipa viridula*, *Poa* sp., *Bromus japonicus* (dominates patches), *Poa pratensis* (in draws)

FORBS: *Aster falcatus*, *Melilotus officinalis*, *Thermopsis* sp.

Location No.: 7 96GJCedar Desc #7a (09-05-96)
a. Plant association: Hardstem bulrush/sedge
Description: Narrow stand in stream channel
Most common species:

TREES

SHRUBS

GRAMINOIDS: *Scirpus acutus*

FORBS:

Location No.: 7 96GJCedar Desc #7b (09-05-96)
b. Plant association: Inland saltgrass/western wheatgrass
Description: Low vegetation on surfaces and slopes above the
channel

Most common species:

TREES

SHRUBS

GRAMINOIDS: *Distichlis stricta*, *Poa juncifolia*, *Elymus smithii*

FORBS: *Melilotus officinalis*

Location No.: 8 96GJCedar Desc #8
Plant association: Western wheatgrass/green needlegrass
Description: Dense vegetation with scattered big sagebrush,
growing on shale hills
Most common species:

TREE

SHRUBS: *Artemisia tridentata* var. *wyomingensis*

GRAMINOIDS: *Bromus japonicus* (dense), *Elymus smithii*

FORBS:

Location No.: 9 96GJCedarDesc09 (09-05-96)
Plant association: Ponderosa pine/sun sedge
Description: Patchy woodland (canopy cover 10% to 15%), trees mostly 15 m to 20 m tall and up to 30 cm dbh, but many patches of smaller trees present; juniper cover 20% to 25%
Most common species:
TREES: Pinus ponderosa, Juniperus scopulorum
SHRUBS
GRAMINOIDS: Carex pensylvanica, Andropogon scoparius, Muhlenbergia richardsonis
FORBS: Thermopsis sp.

Location No.: 10 96GJCedarDesc10 (09-05-96)
Plant association: Prairie cordgrass
Description: Dense grass vegetation in stream channel, with ponderosa pine/sun sedge woodland on uplands
Most common species:
TREES
SHRUBS
GRAMINOIDS: Spartina pectinata, Elymus smithii
FORBS:

Location No.: 11 96GJCedarDesc11 (09-05-96)
Plant association: Prairie cordgrass
Description: Dense vegetation in channel and low terraces
Most common species:
TREES
SHRUBS
GRAMINOIDS: Spartina pectinata, Elymus smithii, Poa pratensis, Bromus japonicus (dense near slopes to upland)
FORBS: Melilotus officinalis

Location No.: 12 96GJCedarDesc12 (09-05-96)
Plant association: Prairie cordgrass
Description: Dense vegetation in and near wet stream channel
Most common species:
TREES
SHRUBS
GRAMINOIDS: Spartina pectinata, Scirpus acutus (in channel), Elymus smithii, Poa pratensis
FORBS:

Location No.: 13 96GJCedarDesc13 (09-05-96)
Plant association: Ponderosa pine/sun sedge
Description: Woodland on rolling hills, with openings of western wheatgrass/green needlegrass
Most common species:
TREES: ~~Ponderosa pine~~ Pinus ponderosa
SHRUBS: Artemisia tridentata var. wyomingensis
GRAMINOIDS: Carex pensylvanica
FORBS:

Location No.: 14 96GJCedarDesc14

(09-05-96)

Plant association: Prairie cordgrass

Description: Dense vegetation in dry stream channel, with western wheatgrass/green needlegrass association on higher surface

Most common species:

TREES

SHRUBS

GRAMINOIDS: *Spartina pectinata*, *Elymus smithii*

FORBS:

Location No.: 15 96GJCedarDesc15

(09-05-96)

Plant association: Ponderosa pine/sun sedge

Description: Woodland of trees to 20 m tall, 15 cm to 25 cm dbh, canopy cover 20% to 30%, with patches of small trees and poles present; junipers present beneath pines, cover 20%; cut stumps of pines and junipers present

Most common species:

TREES: *Pinus ponderosa*, *Juniperus scopulorum*

SHRUBS

GRAMINOIDS: *Carex pensylvanica*, *Poa* sp (*P. secunda* or *P. juncifolia*),

FORBS:

Location No.: 16 96GJCedarDesc16

(09-05-96)

Plant association: Western wheatgrass/green needlegrass?

Description: Open grassland with scattered sagebrush, in dry stream channel

Most common species:

TREES

SHRUBS: *Artemisia tridentata* var. *wyomingensis*

GRAMINOIDS: *Elymus smithii*, *Poa pratensis*, *Stipa viridula*

FORBS:

Location No.: 17 96GJCedarDesc17

(09-05-96)

Plant association: Western wheatgrass/green needlegrass?

Description: Dense grassland on hills, facing mainly east and southeast; sagebrush present with canopy cover to 30% in draws, ca. 12% overall; rocky hilltops with small patches of *Andropogon scoparium*, *Calamovilfa longifolia*, *Elymus spicatus*

Most common species:

TREES

SHRUBS: *Artemisia tridentata* var. *wyomingensis* (mainly in draws)

GRAMINOIDS: *Elymus smithii*, *Bromus japonicus* (dominates in draws)

FORBS: *Melilotus officinalis*

Table 2-1. Canopy cover data from three plots in the potential Cedar Knoll RNA.

| Species | Plots | | |
|--|-------|----|----|
| | 1 | 2 | 3 |
| TREES | | | |
| <i>Juniperus scopulorum</i> | 1 | | 1 |
| <i>Pinus ponderosa</i> | | | 1 |
| DWARF SHRUBS | | | |
| <i>Artemisia tridentata</i> var. <i>wyomingensis</i> | 10 | 3 | 10 |
| GRAMINOIDS | | | |
| <i>Aristida purpurea</i> var. <i>fendleriana</i> | 1 | | 1 |
| <i>Bouteloua curtipendula</i> | | | 1 |
| <i>Bouteloua gracilis</i> | 20 | | 20 |
| <i>Bromus japonicus</i> & <i>tectorum</i> | 30 | 30 | 30 |
| <i>Buchloe dactyloides</i> | | 1 | |
| <i>Carex pensylvanica</i> | 3 | 40 | 20 |
| <i>Elymus smithii</i> | 20 | 30 | 20 |
| <i>Koeleria macrantha</i> | 10 | | 10 |
| <i>Muhlenbergia richardsonis</i> | | | 20 |
| <i>Oryzopsis micrantha</i> | | | 1 |
| <i>Poa compressa</i> | | | 1 |
| <i>Poa pratensis</i> | | 40 | 1 |
| <i>Poa secunda</i> | 3 | 3 | 10 |
| <i>Stipa viridula</i> | 20 | 20 | 20 |
| FORBS | | | |
| <i>Achillea millefolium</i> | 3 | 1 | 1 |
| <i>Alyssum alyssoides?</i> | | 1 | 1 |
| <i>Antennaria microphylla</i> | 1 | | 1 |
| <i>Artemisia frigida</i> | | | 1 |
| <i>Aster falcatus</i> | 1 | 3 | 1 |
| <i>Cerastium arvense</i> | 1 | | 3 |
| <i>Cirsium pulcherrimum</i> | 1 | | |
| <i>Comandra umbellata</i> | 1 | | 1 |
| <i>Geum triflorum</i> | 1 | | 1 |
| <i>Gutierrezia sarothrae</i> | 1 | | 1 |
| <i>Linum lewisii</i> | | | 1 |

Table 2-1 (continued). Canopy cover data from three plots in the potential Cedar Knoll RNA.

| | Plots | | |
|------------------------|-------|----|----|
| | 1 | 2 | 3 |
| Mellilotus officinalis | 1 | | |
| Opuntia polyacantha | 1 | 1 | 1 |
| Oxalis dillenii | | | 1 |
| Pediomelum argophyllum | | 1 | 1 |
| Plantago patagonica | 1 | 1 | 1 |
| Ratibida columnifera | | 1 | |
| Sphaeralcea coccinea | 1 | | |
| Yucca glauca | | | 1 |
| FERN ALLIES | | | |
| Selaginella densa | 1 | 40 | 10 |
| GROUND COVER | | | |
| Bare ground | 55 | 15 | 35 |
| Gravel | 15 | 1 | 5 |
| Rock | | 1 | 5 |
| Litter | 22 | 38 | 39 |
| Wood | 1 | 1 | 1 |
| Lichen & moss | 2 | | 10 |
| Basal vegetation | 5 | 5 | 5 |

Notes

Plot 1: 10 m x 30 m, representing the vegetation on nearly level upland

Plot 2: 5 m x 10 m, representing the vegetation in a shallow draw

Plot 3: 10 m x 20 m, representing the vegetation on a gentle, northeast-facing slope
