

APPENDIX B.

DESCRIPTIONS OF VEGETATION TYPES,  
BEAR LODGE PASS PROPOSED SPECIAL BOTANICAL AREA

Betula papyrifera/Corylus cornuta community. This community occurs on steep north-facing slopes and drainage bottoms in the small east and northeast-trending draws in the study area. Stands occasionally extend a short distance up the opposite sides of the drainages. Two macroplots were read for this community (see maps and data sheets that follow). Estimated canopy cover averaged 85%, with paper birch the dominant component (68%). Hazelnut dominated the shrub stratum (71%). Herbaceous associates were variable, with Arnica cordifolia and Maianthemum canadense the most frequent. Populus tremuloides (quaking aspen) is a significant component where habitat is less mesic--on upper slopes and at the heads of the small draws, for example.

Pinus ponderosa/Quercus macrocarpa community. This community occurs intermittantly on east- and northeast-trending ridgecrests, and adjacent east- and south-facing upper slopes. Two macroplots were read for this community (see maps and data sheets that follow). Estimated canopy cover averaged 38%, with the canopy dominated by oak (27%) and pine (14%). Young oaks (less than 1 meter in height) were common, with coverage estimated at 10% for the two macroplots. Understory associates were quite variable, with Poa pratensis, Achillaea millefolium and Cerastium arvense the most frequent. Stands extend down east- and south-facing slopes, where oak becomes more common and the understory becomes more shrubby with chokecherry (Prunus virginiana), juneberry (Amelanchier alnifolia) and hawthorne (Crataegus sp.). Old cut stumps are common, and this vegetation type may be a seral stage that follows logging.

Pinus ponderosa forest. Much of the study area is vegetated with a mixture of ponderosa pine forest types that are difficult to segregate. These range from park-like stands with large trees in the vicinity of the campground, to dense stands with small, even-aged trees (doghair). Bur oak is occasional. Understory associates are variable and localized. Dominant associates include Arctostaphylos uva-ursi (kinnikinnik), Danthonia spicata, Poa pratensis (Kentucky bluegrass) and Spiraea betulifolia. Cut stumps were found in some areas, and exotic species are common in the vicinity of the campground.

## MACROPLOT DATA

Plant communities were sampled using a macroplot method developed by The Nature Conservancy. Sample field forms are included in Appendix A. Stands were sampled using 20 m X 20 m macroplots, located at sites considered representative of the plant community. Macroplot locations are shown on the map on the following page.

Cover was estimated for the different strata, and for canopy and shrub species. Cover was estimated also for dominant species in herbaceous strata, where dominance was obvious. For each macroplot, four cover class estimates (one per quarter) were obtained. Cover values in the following tables represent averaged midpoints of cover class estimates. Frequencies of herbaceous species were estimated using 20 cm X 50 cm microplots (12 per macroplot).

Macroplot sampling is designed to provide structured, thorough descriptions of plant communities...to force the observer to look at stands in a defined and consistent manner. Data collected from macroplots can be used for comparison with similar studies, but the following limitations of the data must be realized: 1) plot locations are chosen by the researcher; 2) using fewer larger plots makes coverage estimates less accurate and more variable.

Grave

1-58  
469.8T

24

USWYMCBLPAP1.0

20  
USWYMCBLPAP1.04

USWYMCBLPAP1.0

Well

4677

4673T

BM 4681.7

USWYMCBLPAP1.0

4700

4701T

BOUNDARY

MACROPLOT LOCATIONS  
BEAR LODGE PASS, 1989

EPCODE: CTMUFDBPCC.001

NAME: BETULA PAPYRIFERA/CORYLUS CORNUTA COMMUNITY

COMNAME:

PAPER BIRCH/HAZELNUT COMMUNITY

MARGNUM: 0 TENTEN: IDENT: EORANK: CD

EO RANK COMM: SMALL, ADJACENT TO HIGHWAY IN PART (TRASH AND WEEDS)

SURVEYDATE: 1989-07-08 LASTOBS: 1989-07-08 FIRSTOBS: GRANK:

SRANK: STATE: WY COUNTYNAME: WYCROO

QUADCODE:

QUADNAME: THE NOTCH PRECISION: S

LAT: 443920 LONG: 1041920 S: 0 N: 0 E: 0 W: 0

TOWNRANGE: 054N062W SECTION: 20 MERIDIAN: 6P

TRSCOMM: CTR PHYSPROV: WATERSHED:

DIRECTIONS: NORTHERN BLACK HILLS, BEAR LODGE MOUNTAINS, BEAR LODGE PASS  
IN VICINITY OF SMALL CAMPGROUND S OF HIGHWAY 24

GENDESC: N-FACING SLOPES IN NARROW DRAINAGES. NEARLY CLOSED CANOPY. P  
. TREMULOIDES IS SIGNIFICANT COMPONENT WHERE MORE XERIC-E.G.  
TOP OF SLOPE, HEAD OF DRAW. MANY BOREAL SPP. IN UNDERSTORY.

ELEV: 4650 SIZE: 0

EODATA: RELATIVELY SMALL STANDS COMPARED WITH OTHER SITES IN BLACK H  
ILLS.

COMMENTS: MACROPLOTS USWYMCBLP01.01,USWYMCBLP01.02. PLANT COMMUNITY EX  
TENDS BEYOND AREA SURVEYED

MACODE1: CONTAINED1: MACODE2: CONTAINED2:

MACODE3: FFSNFBLAC1WYUS CONTAINED3: N ADDLMAS: MORELAND: MOREPROT:

MOREMGMT: SITECODE:

SITENAME:

OWNER: +PRIVATE

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR: MONITORNUM:

BESTSOURCE: MARRIOTT, H.J. (SEE 1989 FINAL REPORT TO BHNF ON PROPOSED BE  
AR LODGE PASS SBA)

SOURCECODE: PNDMAR01WYUS

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:

TRANSCRIBR: 89-12-13 HJM CDREV: MAPPER: QC:

UPDATE: 89-12-13 HJM

Community: BETULA PAPYRIFERA/CORYLUS CORNUTA (paper birch/hazelnut)

Site: Bear Lodge Pass

Date: 8 JULY 89

Investigator: H. Marriott

Macroplot #: USWYMCBLPA01.01

Elevation: 4600 ft. above sea level

Slope: approx. 30 degrees

Location: Crook Co., T54N R62W S20 CENTER

Topographical position: lower, mid, upper slope

Aspect: north

Macroplot #: USWYMCBLPA01.02

Elevation: 4550 ft. above sea level

Slope: approx. 30-40 degrees

Location: Crook Co., T54N R62W S20 N2 SE4

Topographical position: mid, upper slope

Aspect: north-northwest

% COVER

Stratum/Species	Plot .01	Plot .02	Average
<u>CANOPY</u>	85	85	85
BETULA PAPYRIFERA	68	68	68
PINUS PONDEROSA <i>TI</i>	12	21	17
POPULUS TREMULOIDES	1	2	2
<u>TALL SHRUB</u>	68	85	77
AMELANCHIER ALNIFOLIA	15	12	14
CORYLUS CORNUTA	62	79	71
PINUS PONDEROSA		3	2
POPULUS TREMULOIDES	5		3
PRUNUS VIRGINIANA	<1		<1
<u>LOW SHRUB</u>	38	15	27
QUERCUS MACROCARPA	<1	<1	<1
RIBES SP.	1	<1	1
SHEPHERDIA CANADENSIS	<1	3	2
SPIRAEA BETULIFOLIA	12	9	11
SYMPHORICARPOS SP.	6	3	5
<u>HERB</u>	85 <i>42</i>	38	62

% FREQUENCY

Species	Plot .01	Plot .02	Average
ANTENNARIA SP.		8	4
ARNICA CORDIFOLIA	83	50	67
ASTER SP.	33	25	29
CORNUS CANADENSIS	8		4
DISPORUM TRACHYCARPUM	33	8	21
FRAGARIA VIRGINIANA	8		4
GALIUM TRIFLORUM	25		13
GOODYERA REPENS	8		4
HEUCHERA RICHARDSONII	8		4
HIERACIUM ALBIFLORUM		17	9
LATHYRUS OCHROLEUCUS	8		4
MAHONIA REPENS <i>52</i>	17	42	30
MAIANTHEMUM CANADENSE	25	58	42
ORYZOPSIS ASPERIFOLIA	42	17	30
OSMORHIZA SP.	25	17	21
POA SP.	17	25	21
PTERIDIUM AQUILINUM	8	25	17
PYROLA SECUNDA	8		4
ROSA SP. <i>52</i>	8		4
RUBUS PARVIFLORUS <i>52</i>	17	8	13
VICIA AMERICANA	8		4
VIOLA CANADENSIS	8		4



EPCODE: CTXUFEPQM.001  
NAME: PINUS PONDEROSA/QUERCUS MACROCARPA COMMUNITY  
COMNAME:  
PONDEROSA PINE/BUR OAK COMMUNITY  
MARGNUM: 0 TENTEN: IDENT: Y EORANK: CD  
EORANKCOMM: DISTURBED (GRAZED, TIMBERED, CAMPGROUND)  
SURVEYDATE: 1989-07-08 LASTOBS: 1989-07-08 FIRSTOBS: GRANK:  
SRANK: STATE: WY COUNTYNAME: WYCROO  
QUADCODE:  
QUADNAME: THE NOTCH PRECISION: S  
LAT: 443920 LONG: 1041920 S: 0 N: 0 E: 0 W: 0  
TOWNRANGE: 054N062W SECTION: 20 MERIDIAN: 6P  
TRSCOMM: CTR PHYSPROV: WATERSHED:  
DIRECTIONS: NORTHERN BLACK HILLS, BEAR LODGE MOUNTAINS, BEAR LODGE PASS  
ON RIDGECREST E OF SMALL CAMPGROUND S OF HIGHWAY 24.

GENDESC: CA. 50% CANOPY COVER. VARIED UNDERSTORY OF FORBS, GRASSES.  
OAKS & SHRUB ASSOCIATES MORE COMMON ON UPPER SLOPES ADJACENT  
TO BROAD RIDGE CREST.

ELEV: 4650 SIZE: 0  
EODATA:

COMMENTS: MACROPLOTS USWYMCBLP01.03,USWYMCBLP01.04. OCCURRENCE EXTEND  
S BEYOND AREA SURVEYED. OAK MAY BE SERAL COMPONENT.

MACODE1: CONTAINED1: MACODE2: CONTAINED2:  
MACODE3: FFSNFBAC1WYUS CONTAINED3: N ADDLMAS: MORELAND: MOREPROT:  
MOREMGMT: SITECODE:  
SITENAME:  
OWNER: +PRIVATE  
OWNERCOMM:  
PROTCOMM:  
MGMTCOMM:  
MONITOR: MONITORNUM:

BESTSOURCE: MARRIOTT, H.J. (SEE 1989 FINAL REPORT TO BHNF ON PROPOSED BE  
AR LODGE PASS SBA)

SOURCECODE: PNDMAR01WYUS

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:  
TRANSCRIBR: 89-12-13 HJM CDREV: MAPPER: QC:  
UPDATE: 89-12-13 HJM



Community: PINUS PONDEROSA/QUERCUS MACROCARPA (ponderosa pine/bur oak)

Site: Bear Lodge Pass

Date: 8 JULY 89

Investigator: H. Marriott

Macroplot #: USWYMCBLPA01.03

Elevation: 4630 ft. above sea level

Slope: <5 degrees

Location: Crook Co., T54N R62W S20 NW4 SE4

Topographical position: ridgecrest

Aspect: slopes gently eastward

Macroplot #: USWYMCBLPA01.04

Elevation: 4670 ft. above sea level

Slope: <5 degrees

Location: Crook Co., T54N R62W S20 CENTER

Topographical position: ridgecrest

Aspect: slopes gently eastward

% COVER

Stratum/Species	Plot .03	Plot .04	Average
<u>CANOPY</u>	38	38	38
CRATAEGUS SP. <sup>T3</sup>	5		3
QUERCUS MACROCARPA	33	21	27
PINUS PONDEROSA	15	12	14
<u>TALL SHRUB</u>	15	15	15
AMELANCHIER ALNIFOLIA		1	1
QUERCUS MACROCARPA	8	12	10
PINUS PONDEROSA		2	1
<u>LOW SHRUB</u>	15 <sup>+ S2s - 40%</sup>	15 <sup>+ S2s - 50</sup>	15
QUERCUS MACROCARPA	9	3	6
SYMPHORICARPOS SP.	3	9	6
<u>HERB</u>	85 <sup>- S2s - 80%</sup>	85 <sup>- S2s - 60</sup>	85

% FREQUENCY

Species	Plot .03	Plot .04	Average
ACHILLEAEA MILLEFOLIUM	42	58	50
ANTENNARIA SP.		25	13
ARCTOSTAPHYLOS UVA-URSI <sup>S2</sup>		58	29
CAMPANULA ROTUNDIFOLIA		25	13
CERASTIUM ARVENSE	42	33	38
COLLINSIA PARVIFLORA		8	4
COLLOMIA LINEARIS		17	9
DANTHONIA SPICATA	25	92	59
GALIUM BOREALE	25		13
GERANIUM cf BICKNELLII	8		4
LATHYRUS OCHROLEUCUS	42	17	30
LOTUS PURSHIANUS		17	9
MAHONIA REPENS <sup>S2</sup>	92	17	55
MEDICAGO LUPULINA		8	4
MICROSTERIS GRACILIS		8	4
MONARDA FISTULOSA	8	17	13
POA PRATENSIS	83	83	83
SMILACINA STELLATA	42		21
SOLIDAGO SP.		8	4
SPIRAEA BETULIFOLIA <sup>S2</sup>	33		17
TARAXACUM SP.		25	13
THERMOPSIS RHOMBIFOLIA	25	33	29
VICIA AMERICANA		8	4
VIOLA ADUNCA	8		4

BEAR LODGE PASS MACROPLOTS USWYMCBLPA01.03, USWYMCBLPA01.04 continued

Tree size class distribution in numbers of trees (for multi-stemmed individuals, only the largest stem was measured):

Species	Minimum diameter at breast height (inches)									
	<1	1	2	3	5	7	9	11	13	15+
CRATAEGUS SP.										
Plot .03	3									
Plot .04										
QUERCUS MACROCARPA										
Plot .03		1	7	14	7	8				
Plot .04	1	4	18	21						
PINUS PONDEROSA										
Plot .03	2									
Plot .04	3	1			1	4	3			