

FREQUENCY ANALYSIS OF CRANBROOK

PILOT PROJECT

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PILOT PROJECT

PROVINCE OF BRITISH COLUMBIA

MINISTRY OF FORESTS

INTEGRATED RESOURCES BRANCH

RANGE SECTION

VICTORIA, B.C.

1990

DRAFT

For a detailed description
of data collection and sampling
methodology, see the
Range Inventory Manual
(1987 DRAFT VERSION)

FREQUENCY ANALYSIS OF CRANBROOK PILOT PROJECT

The following tables are a frequency description of range inventory field data (837 samples on F.S. 839) collected in the Cranbrook/Invermere TSA's in 1985 to 1987. The procedure used for collecting the data are presented in the Range Inventory Manual (NOVEMBER 1987).

The data is summarized under the following headings:

1. Topographic
2. Forest Cover
3. Landform
4. Vegetation
5. Ecological

From the summary we would like to produce a Field Guide similar to T. Volland's "Plant Communities of the Central Oregon Pumice Zone".

The plant groups (i.e. "SPORCRY") were derived from the Ceska-Roemer tabular sort program. These groups, and the associated data, were submitted to a frequency analysis (Statistical Analysis System). Forest cover data was obtained from M.O.F. Inventory Branch.

Part of this data was used in an attempt to find a relationship (inferential statistics) between forest cover variables and range attributes. No significant relationship was derived, and hence a frequency description was undertaken as set forth in the Range Review.



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GROUP 1 "SPORCRY"

- Number of Samples in Group 7

TOPOGRAPHIC

SLOPE

mean	28.5%
std. dev.	15.9
min. value	8.0
max. value	50.0

ELEVATION

mean	853.0m
std. dev.	97.2m
min. value	762.0m
max. value	914.0m

ASPECT

mean	167.0°
std. dev.	53.0
min. value	124.0
max. value	264.0

ASPECT FROM SOUTH⁵

mean	13.0°
std. dev.	53.0
min. value	-84.0
max. value	56.0

FOREST COVER

See the Forest Inventory Manual (Chapter 3) for detailed description of these variables.

INVENTORY TYPE GROUP

Type	Description	Percent of Observations
00	No Trees	50
01	Fd	50

GROWTH TYPE GROUP

Type	Description	Percent
A	F, FPl, Pw	100

AGE CLASS

Class	Description	Percent
0	0	50
5	81-100 yrs	33

STOCKING CLASS

Class	Description	Percent
0	immature	100

GROUP 1 "SPORCRY"

CROWN CLOSURE CLASS (from map)

Class	Description	Percent
0	0-5%	50
1	6-15	33

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
NP	non-productive	50
OR	open range	33

BASIC CLASS

Class	Description	Percent
12	non-productive	50
63	open range	33

NEW SITE CLASS

Class	Description	Percent
P	poor	100

NEW HEIGHT CLASS

Class	Description	Percent
0	0	50
2	10.5-19.4 m.	50

LANDFORM

See Range Inventory Manual or Landform Maps for Detailed Description.

TEXTURE

Class	Description	Percent
GS	gravelly-sand	86

GENETIC MATERIAL

Class	Description	Percent
F	Fluvial	71
L	Lacustrine	14

VEGETATION

PLANT GROUP	KEY FORAGE RANGE ² MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT, %	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED %
	<u>Genus</u>	<u>Species</u>	<u>Common Name</u>			
S	Artemisia	frigida	pasture sage	85	3.2	3.0
S	Chrysothamnus	nauseosus	rabbit brush	57	2.7	3.0
S	Symphoricarpos	albus	common snowberry	29	1.25	2.0
S	Amelanchier	alnifolia	Saskatoon	57	0.6	0
G	Agropyron	spicatum	bluebunch wheatgrass	71	18	18
G	Koeleria	macranthra	Junegrass	86	3.7	4
G	Sporobolus	cryptandrus	sand dropseed	57	2.0	2
G	Stipa	hymenoides	Indian- ricegrass	57	1.0	1
G	Festuca	scabrella	rough fescue	20	10	29
G	Stipa	comata	needle & thread	86	1.9	3

GROUP 1 "SPORCRY"

STANDING CROP⁶
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	267.5
std. dev.	143.3
min. value	103.8
max. value	532.2

REGRESSION:

mean	402.4
std. dev.	215.5
min. value	156.2
max. value	800.6

CANOPY (from densiometer)

Class	Description	Percent of obs.
1	1-10%	40
0	0	20
2	10-20%	20

ECOLOGICAL⁴

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		6	not assigned
IDF	undifferentiated	1	100

GROUP 2 "STIP COM"

- NUMBER OF SAMPLES IN GROUP = 32

TOPOGRAPHIC

SLOPE

mean	13.7%
std. dev.	12.7
min. value	1.0
max. value	53.0

ELEVATION

mean	853.0%
std. dev.	68.9
min. value	755.0
max. value	977.0

ASPECT

mean	163.3°
std. dev.	84.5
min. value	30.0
max. value	355.0

ASPECT FROM SOUTH

mean	16.7°
std. dev.	84.5
min. value	-175.0
max. value	150.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description

INVENTORY TYPE GROUP

Type	Description	Percent
00	No trees	65
01	F	16

GROWTH TYPE GROUP

Type	Description	Percent
A	F	45
C	FPl, FPy, FDecid, Py	45

AGE CLASS

Type	Description	Percent
0	0	65
3	41-60yrs.	16

GROUP 2 "STIP COM"

STOCKING CLASS

Type	Description	Percent
0	immature	91

CROWN CLOSURE CLASS (from map)

Type	Description	Percent
0	0-5%	52
2	16-25	16
3	26-35	13

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
OR	open range	90

BASIC CLASS

Class	Description	Percent
63	open range	61
00		32

NEW SITE CLASS

Class	Description	Percent
M	medium	45
L	low	27

NEW HEIGHT CLASS

Class	Description	Percent
0	0 m.	65
2	10.5-19.4m	16

LANDFORM

(See Range Inventory Manual for Detailed Description.)

TEXTURE

Class	Description	Percent
SG	sandy-gravelly	28
I	silty	25
GS	gravelly-sandy	16
CI	clayey-silty	9.4

GENETIC MATERIAL

Class	Description	Percent
EF	Eolian/Fluvial	16
U	Undifferentiated	16
MF	Morainal/Fluvial	13
FM	Fluvial/Morainal	9.4
LM	Lacustrine	9.4
F	Fluvial	9.4

REGRESSION:

mean	233.2
std. dev.	226.2
min. value	26.0
max. value	863.2

CANOPY (from densiometer)

Class	Description	Percent
0	0%	35
2	11-20%	22
1	1-10%	17

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		6	not assigned
IDF	undifferentiated	4	15
PP	DW 4	10	38
IDF	DM2 4	12	46

GROUP 2 "STIP COM"

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT)	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
S	Artemisia	frigida	pasture sage	50	3	6
S	Purshia	tridentata	antelope-brush	23	1.3	2
G	Agropyron	smithii	western wheatgrass	19	6	7
G	Stipa	comata	needle & thread	69	7	11
G	Koeleria	macanthra	Junegrass	100	3.6	6
G	Agropyron	spicatum	bluebunch wheatgrass	72	2.5	4
G	Poa	pratensis	Kentucky bluegrass	41	1.6	3
G	Stipa	occidentalis	stiff needlegrass	25	1.5	2
G	Festuca	scabrella	rough fescue	28	0.7	0
G	Festuca	idahoensis	Idaho fescue	19	0.6	1
G	Stipa	richardsonii	spreading needlegrass	25	1.9	4
F	Zigadenus	venenosus	meadow death camus	12	0.5	0

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	290.8
std. dev.	378.6
min. value	2.0
max. value	1298.5

GROUP 3 "LOMA TRI"

- NUMBER OF SAMPLES IN GROUP = 229

TOPOGRAPHIC

SLOPE

mean	14.4%
std. dev.	12.6
min. value	0.8
max. value	65.0

ELEVATION

mean	866.0m
std. dev.	72.9
min. value	761.3
max. value	1097.0

ASPECT

mean	184.5°
std. dev.	70.8
min. value	20.0
max. value	340.0

ASPECT FROM SOUTH

mean	-4.5°
std. dev.	70.8
min. value	-160.0
max. value	160.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description

INVENTORY TYPE GROUP

Type	Description	Percent
00	No trees	37
32	PY	23
06	FPY	20

GROWTH TYPE GROUP

Type	Description	Percent
C	FPl,FPy, FDecid,PY	70
A	F	18

AGE CLASS

Class	Description	Percent
0		37
4	61-80	22
5	81-100	12
3	41-60	11

GROUP 3 "LOMA TRI"

STOCKING CLASS

Class	Description	Percent
0	immature	84

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
0	0-5	21
4	36-45	12
5	46-55	11
6	56-65	11
1	6-15	8.8
3	26-35	8.8

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
OR	open range	85

BASIC CLASS

Class	Description	Percent
00	forest	65
63	open range	30

NEW SITE CLASS

Class	Description	Percent
P	poor	59
M	medium	18

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	37
0	0	37

LANDFORM

(See Range Inventory Manual for Detailed Description.)

TEXTURE

Class	Description	Percent
I	silty	31
G	gravelly	18
S	sandy	18
SG	sandy-gravelly	12

GENETIC MATERIAL

Class	Description	Percent
EF	Eolian/Fluvial	19
F	Fluvial	19
EM	Eolian/Morainal	8.3
M	Morainal	8.3
MF	Morainal/Fluvial	8.3
M	Morainal	4

GROUP 3 "LOMA TRI"

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER (TRACE NOT INCLUDED)
	Genus	Species	Common Name			
S	Rosa	acicularis	prickly rose	41	0.8	2
S	Pursha	tridentata	antelope-brush	59	4	6
S	Amelanchier	alnifolia	Saskatoon	68	1.5	3
G	Calamagrostis	rubescens	pinegrass	51	4.0	5
G	Stipa	comata	needle & thread	15	3.6	5
G	Poa	pratensis	Kentucky bluegrass	53	3.4	6
G	Poa	compressa	Canada bluegrass	37	3.5	6
G	Agropyron	spicatum	bluebunch wheatgrass	59	1.9	3
G	Festuca	scabrella	rough fescue	56	0.8	2
G	Festuca	idahoensis	Idaho fescue	58	2.0	4
G	Koeleria	macanthura	Junegrass	90	0.75	1
G	Stipa	richardsonii	spreading needlegrass	52	2.0	3
G	Stipa	occidentalis	stiff needlegrass	53	1.5	3
F	Lupinus	sericeus	silky lupine	12	2.0	4
F	Astragalus	miser	timber milk vetch	49	0.6	1
F	Oxytropis	campestris	field locoweed	29	0.5	1
F	Zigadenus	venenosus	meadow death camus	19	0.5	0

GROUP 3 "LOMA TRI"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean 301.6
std. dev. 338.8
min. value 1.0
max. value 2021.0

REGRESSION:

mean 234.8
std. dev. 202.3
min. value 24.3
max. value 1343.4

CANOPY (from densiometer)

Class	Description	Percent
0	0%	18
6	51 - 60%	12
2	11 - 20%	11
4	31 - 40%	11
1	1 - 10%	11
3	21 - 30%	11

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		16	not assigned
PP	DW	110	52
IDF	DM2	103	48

GROUP 4 "PURS TRI"

- NUMBER OF SAMPLES IN GROUP = 147

TOPOGRAPHIC

SLOPE

mean	15.5%
std. dev.	24.1
min. value	0.8
max. value	254.0

ELEVATION

mean	879.7m
std. dev.	64.1
min. value	770.0
max. value	1067.0

ASPECT

mean	175.4°
std. dev.	84.3
min. value	12.0
max. value	360.0

ASPECT FROM SOUTH

mean	4.6°
std. dev.	84.3
min. value	-180.0
max. value	168.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description

INVENTORY TYPE GROUP

Type	Description	Percent
00	No Trees	26
32	Aspen Deciduous	22
01	Fd	20
06		13

GROWTH TYPE GROUP

Type	Description	Percent
C	FPl, FPy, FDecid, PY	52
A	F	27

AGE CLASS

Class	Description	Percent
0	0 yrs.	26
4	61-80	23
3	41-60	17
2	21-40	13

GROUP 4 "PURS TRI"

STOCKING CLASS

Class	Description	Percent
0	immature	92

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
4	36-45%	26
0	0-5	16
1	6-15	12
2	16-25	10
6	56-65	10

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
OR	open range	69
U	urban	17

BASIC CLASS

Class	Description	Percent
00	forested	75

NEW SITE CLASS

Class	Description	Percent
P	poor	52
G	good	19
M	medium	19

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	41
0	0	26
1	0-10.4	22

LANDFORM

(See Range Inventory Manual for Detailed Description)

TEXTURE

Class	Description	Percent
I	silty	35
G	gravelly	27
S	sandy	16

GENETIC MATERIAL

Class	Description	Percent
M	Morainal	23
F	Fluvial	16
EM	Eolian/Morainial	14
EF	Eolian/Fluvial	9

GROUP 4 "PURS TRI"

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER NOT TRACE NOT INCLUDED
	Genus	Species	Common Name			
T	Populus	tremuloides	trembling aspen	28	3.4	6 ✓
S	Pursha	tridentata	antelope brush	63	3.4	5
S	Amelanchier	anifolia	Saskatoon	81	2.7	4
S	Symphoricarpos	albus	common snowberry	50	2.4	6 ✓
S	Shepherdia	canadensis	soopolallie	53	2.0	3
G	Calamagrostis	rubescens	pinegrass	78	5.7	7 ✓
G	Agropyron	spicatum	bluebunch wheatgrass	38	1.8	3
G	Carex	concinnoideis	northwestern sedge	35	0.5	0
G	Festuca	idahoensis	Idaho fescue	52	1.3	3
G	Festuca	scabrella	rough fescue	62	0.9	2
G	Koeleria	macantha	Junegrass	70	0.5	1
G	Poa	pratensis	Kentucky bluegrass	57	2.8	5
G	Poa	compressa	Canada bluegrass	52	2.0	4
G	Stipa	richardsonii	spreading needlegrass	52	2.1	4
G	Stipa	occidentalis	stiff needlegrass	56	1.0	2
F	Lupinus	sericeus	silky lupine	15	1.8	5
F	Astragalus	miser	timber milk-vetch	56	0.8	4
F	Trifolium		all clovers	8	1	2.5

GROUP 4 "PURS TRI"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	350.0
std. dev.	494.6
min. value	.5
max. value	3475

REGRESSION:

mean	290.0
std. dev.	294.0
min. value	6.5
max. value	2310.4

CANOPY (form densiometer)

Class	Description	Percent
0	0%	18
7	61 - 70	13
8	71 - 80	13
6	51 - 60	11
3	21 - 30	11
5	41 - 50	11

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		2	not assigned
IDF	undifferentiated	1	< 1
PP	DW	39	27
IOF	DM2	105	72

GROUP 5 "PENS CON"

- NUMBER OF SAMPLES IN GROUP = 90

TOPOGRAPHIC

SLOPE

mean	18.1%
std. dev.	14.0
min. value	2.3
max. value	69.0

ELEVATION

mean	913.0m
std. dev.	88.0
min. value	765.0
max. value	1109.0

ASPECT

mean	167.1°
std. dev.	108.9
min. value	10.0
max. value	360.0

ASPECT FROM SOUTH

mean	12.9°
std. dev.	108.9
min. value	-180.0
max. value	170.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description

INVENTORY TYPE GROUP

Type	Description	Percent
07	F & LW	19
01	F &	17
06	F & PY	17
05	F & P1	11
00	non-forest	8.3

GROWTH TYPE GROUP

Type	Description	Percent
C	FPl, FPy, FDecid, PY	31
D	Fl, Pw, LF, L	30
A	F	18

GROUP 5 "PENS CON"

AGE CLASS

Type	Description	Percent
3	41-60 yrs	31
4	61-80	27
8	141-250	11
5	81-100	9.5

STOCKING CLASS

Class	Description	Percent
0	immature	82

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
6	56-65%	19
4	36-45	18
5	46-55	17
3	26-35	13
8	76-85	11

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
OR	open range	67
U	urban	33

BASIC CLASS

Class	Description	Percent
00	forested	96

NEW SITE CLASS

Class	Description	Percent
P	poor	66
M	medium	23

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	58
3	19.5-28.4	18

LANDFORM

TEXTURE

Class	Description	Percent
I	silty	54
D	diamicton	11
G	gravelly	7.4

GROUP 5 "PENS CON"

GENETIC MATERIAL

Class	Description	Percent
M.	Morainal	47
F.	Fluvial	9
MF	Morainal/Fluvial	8
EF	Eolian/Fluvial	4.4

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT)	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
S	Acer	glabrum	Douglas maple	11	1.4	2
S	Symphoricarpos	albus	common snowberry	63	1.3	2
S	Amelanchier	anifolia	Saskatoon	64	1.3	3
S	Rosa	acicularis	prickly rose	69	0.7	0
S	Shepherdia	canadiensis	soopalallie	76	1	2
G	Calamagrostis	rubescens	pinegrass	96	5.5	6
G	Poa	compressa	Canada bluegrass	11	5.5	50
G	Stipa	richardsonii	spreading needlegrass	63	2.4	4
G	Festuca	scabrella	rough fescue	36	0.9	2
F	Zigadenus	venensus	meadow death camas	3	2.6	7
F	Arnica	cordifolia	heart-leaved arnica	39	2.6	6
F	Vicia	americana	American vetch	36	0.5	1
F	Trifoli		all clovers	39	0.7	3
F	Lathyru		all peas	10	0.5	T

GROUP 5 "PENS CON"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	420.6
std. dev.	494.7
min. value	0.0
max. value	2587.2

REGRESSION:

mean	289.6
std. dev.	322.3
min. value	3.2
max. value	1719.8

CANOPY (from densiometer)

Class	Description	Percent
8	71 - 80%	25
7	61 - 70%	24
9	81 - 90	20
5	41 - 50	6.7

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
PP	DW	7	7
IOF	DM2	83	93

GROUP 6 "FEST IDA"

- NUMBER OF SAMPLES IN GROUP = 108

TOPOGRAPHIC

SLOPE

mean	13.7%
std. dev.	18.9
min. value	0.5
max. value	164.0

ELEVATION

mean	896.6m
std. dev.	87.9
min. value	777.0
max. value	1128.0

ASPECT

mean	169.8°
std. dev.	95.6
min. value	2.0
max. value	360.0

ASPECT FROM SOUTH

mean	10.2°
std. dev.	95.6
min. value	-180.0
max. value	178.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
00	non-forested	27
01	Fd	19
06	Fd, Py	13
32	Py	13

GROWTH TYPE GROUP

Type	Description	Percent
C	FPl, FPy, FDecid, PY	41
A	F	26
L	FL, Pw, LF, L	16

GROUP 6 "FEST IDA"

AGE CLASS

Class	Description	Percent
0	0 yrs.	27
4	61-80	20
3	41-60	17
5	81-100	14

STOCKING CLASS

Class	Description	Percent
0	immature	83

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
0	0-5%	21
5	46-55	16
4	36-45	15
6	56-65	12
3	26-35	11

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
OR	open range	73

BASIC CLASS

Class	Description	Percent
00	forested	75

NEW SITE

Class	Description	Percent
P	poor	46
M	medium	32

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	37
0	0	27
3	19.5-28.4	20

LANDFORM

TEXTURE

Class	Description	Percent
I	silty	38
G	gravelly	18
S	sandy	15
GS	gravelly-sandy	13

GROUP 6 "FEST IDA"

GENETIC MATERIAL

Class	Description	Percent
M	Morainal	25
F	Fluvial	17
E/F	Eolian/Fluvial	8.3

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
T	Populus	tremuloides	trembling aspen	22	2.3	
S	Amelanchier	anifolia	Saskatoon	65	1.8	3
S	Purshia	tridentata	antelope brush	16	2.5	7
G	Calamagrostis	rubecens	pine grass	80	5.1	6
G	Poa	pratensis	Kentucky bluegrass	53	5.3	10
G	Poa	sanbergii	Sandberg bluegrass	6	3.4	6
G	Poa	compressa	Canada bluegrass	19	2.7	4
G	Stipa	richardsonii	spreading needlegrass	52	4.3	9
G	Stipa	occidentalis	stiff needlegrass	52	1.1	2
G	Trifolium		clovers	5	5.4	6.2
G	Lathyrus		peas	4	0.6	T

GROUP 6 "FEST IDA"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	347.6
std. dev.	373.4
min. value	0.0
max. value	1757.4

REGRESSION:

mean	274.3
std. dev.	227.9
min. value	3.2
max. value	1168.2

CANOPY (from densiometer)

Class	Description	Percent
6	51-60%	17
8	71-80	14
0	No trees	12
9	81-90	12
4	31-40	11
7	61-70	11

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		9	not assigned
IDF	undifferentiated	1	< 1
PP	DW	29	29
IDF	DM2	69	70

GROUP 7 "SHEP CAN"

- NUMBER OF SAMPLES IN GROUP = 78

TOPOGRAPHIC

SLOPE

mean	16.8%
std. dev.	15.5
min. value	0.8
max. value	60.0

ELEVATION

mean	923.7m
std. dev.	108.8
min. value	752.5
max. value	1128.0

ASPECT

mean	181.0°
std. dev.	106.7
min. value	4.0
max. value	350.0

ASPECT FROM SOUTH

mean	-1.0°
std. dev.	106.7
min. value	-170.0
max. value	176.0

FOREST COVER

See Forest Inventory Manual (Chapter 3 for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
01	Fd	24
28	PL	14
00	non-forested	12
05	Fd, P1	9.5
06	Fd, Py	8.1
07	Fd, Lw	6.8

GROWTH TYPE GROUP

Type	Description	Percent
A	F	28
C	FPl,FPy, FDecid,PY	25
D	Fl,Pw,LF,L	17
L	PL	15

GROUP 7 "SHEP CAN"

AGE CLASS

Type	Description	Percent
4	61-80 yrs.	27
3	41-60	22

STOCKING CLASS

Class	Description	Percent
0	Immature	83

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
5	46-55%	20
4	36-45	15
3	26-35	12
0	0-5	9.5
6	56-65	8.1
8	76-85	8.1

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
NP	non-productive	33
OR	open range	33
C	clearing	17

BASIC CLASS

Class	Description	Percent
00	forested	92

NEW SITE CLASS

Class	Description	Percent
P	poor	56
M	medium	24

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	50
3	19.5-28.4	26

LANDFORM

TEXTURE

Class	Description	Percent
I	silty	27
G	gravelly	16
GS	gravelly-sandy	16
SI	sandy-silty	11
S	sandy	8.1

GROUP 7 "SHEP CAN"

GENETIC MATERIAL

Class	Description	Percent
M	Morainial	18
F	Fluvial	13
EF	Eolian/Fluvial	6.4
U	Undifferentiated	6.4

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS : PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
T	Populus	temuloides	trembling aspen	33	4	6
T	Betula	papyrifera	paper birch	9	3.5	9
S	Shepherdia	canadensis	soopolallie	77	2.2	3
S	Salix		willow	26	1.8	7
S	Symphoricarpos	albus	common snowberry	54	2.2	3
S	Amelanchier	anifolia	Saskatoon	76	1	2
G	Calamagrostis	rubecens	pinegrass	94	6.9	8
S	Stipa	richardsonii	spreading needlegrass	15	2.0	4
G	Canex		sedge	33	0.6	2
G	Festuca	scabrella	rough fescue	24	0.8	4
G	Poa	pratensis	Kentucky bluegrass	31	2	6
F	Arnica	cordifolia	meadow arnica	23	1.7	4
F	Astragalus	miser	timber milk-vetch	30	0.5	0
F	Trifoli		clovers	6	0.83	

GROUP 7 "SHEP CAN"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	338.0
std. dev.	466.1
min. value	0.0
max. value	2523.8

REGRESSION:

mean	249.3
std. dev.	299.5
min. value	9.7
max. value	1677.7

CANOPY (from densiometer)

Class	Description	Percent
8	71-80%	32
9	81-90	25
6	51-60	9.3
3	21-30	6.7

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		14	not assigned
IDF	undifferentiated	2	3
PP	DW	6	9
IDF	DM2	56	88

GROUP 8 "ARNI COR"

- NUMBER OF SAMPLES IN GROUP = 19

TOPOGRAPHIC

SLOPE

mean	20.3%
std. dev.	13.6
min. value	5.0
max. value	50.0

ELEVATION

mean	1008.1m
std. dev	112.8
min. value	853.0
max. value	1219.0

ASPECT

mean	140.9°
std. dev.	121.4
min. value	4.0
max. value	360.0

ASPECT FROM SOUTH

mean	39.1°
std. dev.	121.4
min. value	-180.0
max. value	176.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
34	LW	21
07	F, LW	16
28	P1	16
33	LW, Fd	16
01	F	11

GROWTH TYPE GROUP

Type	Description	Percent
D	FL,Pw,LF,L	53
C	FPl,FPy, FDecid,PY	16
L	PL	16

GROUP 8 "ARNI COR"

AGE CLASS

Class	Description	Percent
5	81-100 yrs.	32
4	61-80	26
3	41-60	11
7	121-140	11

STOCKING CLASS

Class	Description	Percent
0	immature	74

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
6	56-65%	32
8	76-85	21
5	46-55	16
1	0-5	5.3

NON-FOREST DESCRIPTOR

Class	Description	Percent
-	-	-

BASIC CLASS

Class	Description	Percent
00	Forested	100

NEW SITE CLASS

Class	Description	Percent
P	poor	58
M	medium	26

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	47
3	19.5-28.4	37

LANDFORM

TEXTURE

Class	Description	Percent
G	gravelly	31
D	diamicton	23
SI	sandy-silty	15
BG	bouldery-gravelly	7.7

GROUP 8 "ARNI COR"

GENETIC MATERIAL

Class	Description	Percent
M	Morainal	43
FM	Fluvial/Morainal	11
U	Undifferentiated	11
CU	Colluvial/ Undifferentiated	6

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
S	Amelanchier	anifolia	Saskatoon	47	3.2	25
S	Shepherdia	canadensis	soopolallie	74	1.6	1
S	Symphoricarpos	albus	common snowberry	68	1.3	3
S	Rosa	acicularis	prickly rose	63	1.1	3
G	Carex		sedge	74	0.5	T
G	Calamagrostis	rubecens	pinegrass	100	5.3	6
F	Arnica	cordifolia	heart-leaved arnica	53	1.7	3

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	192.7
std. dev.	137.4
min. value	4.9
max. value	488.2

GROUP 8 "ARNI COR"

REGRESSION:

mean	128.1
std. dev.	91.3
min. value	3.2
max. value	324.5

CANOPY (from densiometer)

Class	Description	Percent
9	81 - 90%	37
8	71 - 80	32
7	61 - 70	16

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		3	not assigned
IDF1	DM2	16	100

GROUP 9 "LINN BOR"

- NUMBER OF SAMPLES IN GROUP - 74

TOPOGRAPHIC

SLOPE

mean	14.5%
std. dev.	11.9
min. value	2.0
max. value	59.9

ELEVATION

mean	949.3
std. dev.	91.2
min. value	777.0
max. value	1158.0

ASPECT

mean	192.2°
std. dev.	118.9
min. value	10.0
max. value	360.0

ASPECT FROM SOUTH

mean	-12.2°
std. dev.	118.9
min. value	-180.0
max. value	170.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
07	Fd, Lw	21
28	PL	15
01	Fd	11
29	Pl, Fd	11
05	Fd, Pl	8.3
33	LW, Fd	8.3

GROWTH TYPE GROUP

Type	Description	Percent
D	FL,Pw,LF,L	40
L	PL	16
M	PlF,PlS(and PlB)	13
A	F	12

GROUP 9 "LINN BOR"

AGE CLASS

Class	Description	Percent
4	61-80 yrs.	24
3	41-60	19
5	81-100	17
8	141-250	14

STOCKING CLASS

Class	Description	Percent
0	immature	69
1	mature, >75 trees/ha (trees >27.5 cm dbh)	25

CROWN CLOSURE CLASS (from map)

Class	Description	Percent
6	56-65%	21
8	76-85	19
7	66-75	14
4	36-45	12
3	26-35	12

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
NPBR	non-productive brush	100

BASIC CLASS

Class	Description	Percent
0	forested	99

NEW SITE CLASS

Class	Description	Percent
P	poor	45
M	medium	36

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	39
3	19.5-28.4	36

LANDFORM

TEXTURE

Class	Description	Percent
I	silty	20
D	diamicton	18
G	gravelly	16
GS	gravelly-sandy	13
SI	sandy-silty	13

GROUP 9 "LINN BOR"

GENETIC MATERIAL

Class	Description	Percent
M	Morainal	26
F	Fluvial	14
F/O	Fluvial/Organic	8
U	Undifferentiated	7

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
T	Populus	tremuloides	trembling aspen	20	4.1	9
S	Symphoricarpos	albus	common snowberry	68	2.7	4
S	Vaccinium	caespitosum	dwarf blueberry	47	2.6	4
S	Shepherdia	canadensis	soopalallie	80	2.3	3
S	Acer	glabrum	Douglas maple	16	2	3
S	Amelanchier	anifolia	Saskatoon	68	1.7	4
S	Rosa	acicularis	prickly rose	82	1.4	3
G	Calamagrostis	rubecens	pinegrass	96	6.8	7
G	Carex		sedge	40	0.9	3
G	Oryzopsis	asperifolia	rough leaved ricegrass	49	0.8	2
F	Hedysarum		Hedysarum	4	3.1	5
F	Lathyrus	ochroleucus	creamy peavine	49	0.6	0
F	Aster	ciliolatus	fringed aster	51	1.6	5

GROUP 9 "LINN BOR"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	339.1
std. dev.	301.6
min. value	4.9
max. value	1396.1

REGRESSION:

mean	225.4
std. dev.	200.5
min. value	3.2
max. value	928.1

CANOPY (from densiometer)

Class	Description	Percent
9	81 - 90%	34
8	71 - 80	33
7	61 - 70	14

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		12	not assigned
IDF	DM2	62	100

GROUP 10 "CORN CAN"

- NUMBER OF SAMPLES IN GROUP = 41

TOPOGRAPHIC

SLOPE

mean	17.4%
std. dev.	17.8
min. value	2.0
max. value	70.0

ELEVATION

mean	980.6m
std. dev.	134.2
min. value	790.0
max. value	1280.0

ASPECT

mean	189.9°
std. dev.	103.9
min. value	20.0
max. value	347.0

ASPECT FROM SOUTH

mean	-9.9°
std. dev.	103.9
min. value	-167.0
max. value	160.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
28	PL	17
34	LW	17
29	PL. Fd.	15
42	Aspen, decid.	9.8
01	Fd.	7.3
05	Fd, P1	7.3

GROWTH TYPE GROUP

Type	Description	Percent
D	FL,Pw,LF,L	23
L	PL	18
M	PlF,PlS(and PlB)	18
C	FPl,FPy, FDecid,PY	13

GROUP 10 "CORN CAN"

AGE CLASS

Class	Description	Percent
3	41-60 yrs.	32
5	81-100	27
4	61-80	17

STOCKING CLASS

Class	Description	Percent
0	immature	70
1	mature, >75 trees/ha (trees >27.5 cm dbh)	20

CROWN CLOSURE CLASS (from map)

Class	Description	Percent
4	36-45%	24
5	46-55	17
7	66-75	17
6	56-65	12
8	76-85	12

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
NPBR	non-productive brush	100

BASIC CLASS

Class	Description	Percent
00	forested	98

NEW SITE CLASS

Class	Description	Percent
M	medium	43
P	poor	35

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4m	51
3	19.5-28.4	32

LANDFORM

TEXTURE

Class	Description	Percent
I	silty	24
IG	silty-gravelly	21
SG	sandy-gravelly	18
GS	gravelly-sandy	15

GROUP 10 "CORN CAN"

GENETIC MATERIAL

Class	Description	Percent
F	Fluvial	20
F,O	Fluvial/Organic	12
M	Morainal	12
F,M	Fluvial/Morainal	8

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
T	Betula	papyrifera	paper birch	54	7.7	8
T	Populus	tremuloides	trembling aspen	10	7.2	9
S	Shepherdia	canadensis	soopalallie	61	4.1	6
S	Cornus	sericea	red-osier dogwood	44	4.3	10
S	Rosa	acicularis	prickly rose	85	2.8	4
S	Salix		willow	29	1.4	2
S	Symphoricarpos	albus	common snowberry	73	2.8	4
G	Calamagrostis	rubecens	pinegrass	83	4.2	8
G	Agropyron	spicatum	bluebunch wheatgrass	2	5.2	10
G	Agrostis		bentgrasses	4	1.5	3.1
G	Carex		sedge	8.4	3	4
G	Elymus		wildrye	10	0.5	T
G	Orysopsis	asperifolia	rough leaved ricegrass	58	1.3	3

GROUP 10 "CORN CAN"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	224.2
std. dev.	227.0
min. value	1.0
max. value	986.1

REGRESSION:

mean	195.9
std. dev.	157.7
min. value	13.0
max. value	688.8

CANOPY (from densiometer)

Class	Description	Percent
9	81 - 90%	54
8	71 - 80	32

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDFG		9	not assigned
PP	DW	1	2
IDF	DM2	31	98

GROUP 11 "EQUI ARV"

- NUMBER OF SAMPLES IN GROUP = 6

TOPOGRAPHIC

SLOPE

mean	8.3%
std. dev.	4.2
min. value	5.0
max. value	13.0

ELEVATION

mean	895.3 m.
std. dev.	97.7
min. value	762.0
max. value	1055.0

ASPECT

mean	85.7°
std. dev.	40.7
min. value	50.0
max. value	130.0

ASPECT FROM SOUTH

mean	94.3°
std. dev.	40.7
min. value	50.0
max. value	130.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
00	Non Forested	17
07	Fd, LW	17
21	S	17
22	S, Fd	17
28	P1	17

GROWTH TYPE GROUP

Type	Description	Percent
D	FL, Pw, LF, L	20
I	S	20
J	SF, SH (and SC), SB	20
L	PL	20

GROUP 11 "EQUI ARV"

AGE CLASS

Class	Description	Percent
3	41-60 yrs.	33
0	0	17
4	61-80	17
6	101-120	17

STOCKING CLASS

Class	Description	Percent
0	immature	80

CROWN CLOSURE CLASS(from map)

Class	Description	Percent
0	0-5%	33
7	66-75	33
5	46-55	17

NON-FOREST DESCRIPTOR

Descriptor	Description	Percent
-	-	-

BASIC CLASS

Class	Description	Percent
00	forested	100

NEW SITE CLASS

Class	Description	Percent
G	good	40
L	low	20
M	medium	20

NEW HEIGHT CLASS

Class	Description	Percent
2	10.5-19.4 yrs.	33
0	0	17
1	0-10.4	17
3	19.5-28.4	17

LANDFORM

TEXTURE

Class	Description	Percent
G	gravelly	67
I	silty	17

GROUP 11 "EQUI ARV"

GENETIC MATERIAL

Class	Description	Percent
E,F	Folian/Fluvial	17
F	Fluvial	17
F,M	Fluvial, Morainal	17
F,O	Fluvial, Organic	17

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENTED	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	Genus	Species	Common Name			
T	Betula	papyrifera	paper birch	67	8.8	9
S	Cornus	sericea	red-osier dogwood	83	5.2	5
S	Symphoricarpos	albus	common snowberry	67	1.7	3
S	Rosa	acicularus	prickly rose	100	0.5	T
S	Rubus		blackberry - bramble	66	1	1
G	Agrostis		bentgrasses	50	1.8	3
G	Carex		sedge	100	1.7	3
G	Elymus		wildrye	83	0.5	T
G	Oryzopsis	asperfolia	rough leaved ricegrass	67	0.5	T

GROUP 11 "EQUI ARV"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	423.1
std. dev.	154.2
min. value	263.6
max. value	629.7

REGRESSION:

mean	281.2
std. dev.	102.5
min. value	175.2
max. value	418.6

CANOPY (from densiometer)

Class	Description	Percent
9	81-90%	33
4	31-40	17
5	41-50	17
6	51-60	17

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
IDF	DM2	6	100

GROUP 12 "POTE ANS"

- NUMBER OF SAMPLES IN GROUP = 6

TOPOGRAPHIC

SLOPE

mean	3.3%
std. dev.	2.3
min. value	0.8
max. value	5.3

ELEVATION

mean	873.1 m.
std. dev.	111.2
min. value	790.0
max. value	1088.0

ASPECT

mean	152.1°
std. dev.	119.4
min. value	30.0
max. value	268.5

ASPECT FROM SOUTH

mean	27.9°
std. dev.	119.4
min. value	-88.5
max. value	150.0

FOREST COVER

See Forest Inventory Manual (Chapter 3) for detailed description.

INVENTORY TYPE GROUP

Type	Description	Percent
00		100

GROWTH TYPE GROUP

Type	Description	Percent
-	-	-

AGE CLASS

Class	Description	Percent
0		100

STOCKING CLASS

Class	Description	Percent
-	-	-

GROUP 12 "POTE ANS"

CROWN CLOSURE CLASS(from map)		
Class	Description	Percent
0	0-5%	100

NON-FOREST DESCRIPTOR		
Descriptor	Description	Percent
S	swamp	67
C	clearing	17

BASIC CLASS		
Class	Description	Percent
35	swamp and muskeg	67
15	lake	17

NEW SITE CLASS		
Class	Description	Percent
-	-	-

NEW HEIGHT CLASS		
Class	Description	Percent
0	0	100

LANDFORM

TEXTURE		
Class	Description	Percent
SG	sandy-gravelly	40
I	silty	20
IS	silty-sandy	20

GENETIC MATERIAL		
Class	Description	Percent
F	Fluvial	34
F, O	Fluvial, Organic	17
L,M	Lacstrine, Morianal	17

GROUP 12 "POTE ANS"

VEGETATION

PLANT GROUP	KEY FORAGE RANGE MANAGEMENT SPECIES			% OF PLOTS SPECIES IS PRESENT	MEAN FOLIAR COVER WITH TRACE	MEAN FOLIAR COVER TRACE NOT INCLUDED
	<u>Genus</u>	<u>Species</u>	<u>Common Name</u>			
G	Poa	pratensis	Kentucky bluegrass	50	9.9	46
G	Poa	palustris	fowl bluegrass	17	8.3	8
G	Arostis		bentgrasses	33	4.5	5
G	Poa		bluegrasses	24	4.4	12.2
G	Juncus		rushes	30	0.5	T
F	Potentilla	anserina	silverweed	83	13.8	21
F	Taraxacum	officinale	common dandelion	67	1.3	2
F	Trifoli		clovers	33	12.5	21

GROUP 12 "POTE ANS"

STANDING CROP
(HERBACEOUS PRODUCTION)
IN KG/HA

ESTIMATED:

mean	324.0
std. dev.	726.3
min. value	8.5
max. value	1806.2

REGRESSION:

mean	479.4
std. dev.	415.6
min. value	160.6
max. value	1200.0

CANOPY

Class	Description	Percent
0	No Trees	100

ECOLOGICAL

ZONE	SUBZONE	NUMBER OF SAMPLES	PERCENT OBS. (OF ASSIGNED)
PP	DW	3	50
IDF	DM2	3	50

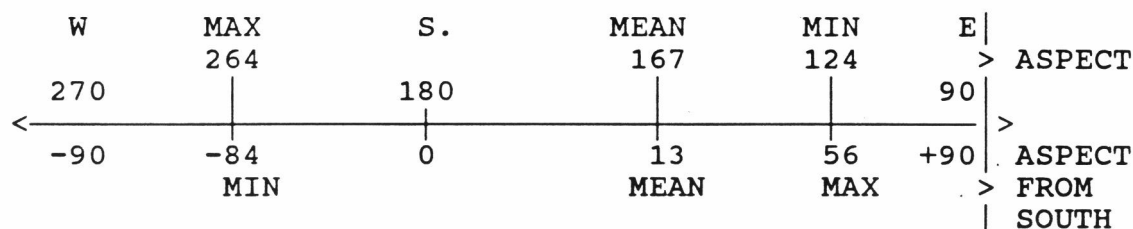
NOTE:

1. T = TREE S = SHRUB
G = GRASS or GRASSLIKE F = FORB
2. These are species deemed important to range management by agrologists. They are not species used by the Ceska Roemer tabular sorting program to define groups. Also, they should not be confused with ecological indicator species.
3. T = TRACE and is counted as 0.5% in calculating mean foliar cover, hence mean foliar cover without trace is rounded to the nearest one percent.
4. IDF - undifferentiated = Interior Douglas Fir
(NOTE: was IDFG1)

PPDW = Ponderosa Pine Zone, Dry Warm Subzone
(NOTE: was IDFG2)

IDFDM2 = Kootenay Interior Douglas Fir Zone, Dry Mild Subzone
(NOTE: was IDFG3)
5. This refers to the number of degrees from south and therefore relates the plane of the plot to the path of the sun. It also converts this variable to a linear scale which could then for inferential statistical purposes.

EXAMPLE FROM GROUP 1:



(NOTE: MIN and MAX are reversed when aspect is from south.)

6. This is mean herbaceous standing crop. The estimated mean is simply the uncorrected estimate of the crews over the three years of data collection. The regression estimate is the estimate derived from the relationship between clipped (and dried) plots and estimated production plots by group.

RANGE SAMPLE FIELD DATA

REFERENCE DETAILS																																							
Card Type	BCGS MAP								POLYGON NUMBER				TSA		RANGE UNIT				RIS		STRIP				BIOGEOCLIMATIC						B.C PHOTO								
																					MEAS	NUMBER			ZONE			SUB ZONE			FLIGHT #			PHOTO #					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		

BEARING			PACE			COMP. TIME			CREW CODE		Sample Type	BANDS USED			LANDFORM												TIE LINE				MP SIZE										
															Y	Y	M	M	D	D	C	U	BEARING		PACE																
39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	

[illegible][illegible][illegible]

MAP GRID

[illegible]

REMARKS _____ OFFICE CHECK _____

FIELD CHECK _____

_____ CERTIFIED THAT THIS IS A TRUE
STATEMENT DONE BY _____

TIE POINT DESCRIPTION

