

RR-125, M.R.

Effect of Sheep  
Grazing on WYR  
Reproduction

Plumas N.F.

SURVEY

NOTES

R-G

(1)

Effect of Grazing  
on WYP Reprod.

Survey with transit and steel tape.

August 19, 1931

Hormay & Hasel (Transitman)

Declination Assumed -  $18^{\circ}30'$ . E.

Plot 1

Hor.

Sta.	BS	FS	Dist.	Azimuth	Vert. L
$X^{\circ}Y^{\circ}$ Due N.		$X^{0.2}Y^{\circ}$	13.2'	274-01	
		$X^{0.3}Y^{\circ}$	19.8	"	
		$X^{0.5}Y^{\circ}$	33.0	"	$+18^{\circ}45'$

Note:  $X^{\circ}Y^{\circ}$  is SE cor. of plot

(2)

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
		$X^{0.7}Y^0$	46.2	274-01	
		$X^{0.8}Y^0$	52.8	"	
		$X^{1.0}Y^0$	66.0	"	16-41 +17-12
		$X^{1.2}Y^0$	79.2	"	
		$X^{1.3}Y^0$	85.8	"	
		$X^{1.5}Y^0$	99.0	"	+15- <del>36</del> <del>46</del>
		$X^{1.7}Y^0$	112.2	"	
		$X^{1.8}Y^0$	118.8	"	
		$X^{2.0}Y^0$	132.0	"	+14- <del>50</del> <del>57</del>
		$X^0Y^{0.5}$	33.0	4-01	+8-44
		$X^0Y^{1.0}$	66.0	"	+8-00

sta.	BS	FS	Hor.Dist.	Azimuth	Vert.L
		$X^0 Y^{1.5}$	99.0	4-01	+7-07
		$X^0 Y^{2.0}$	132.0	"	+6-21
	$X^0 Y^{2.0}$	$X^0 Y^0$	$X^{0.5} Y^{2.0}$	33.0	274-01
			$X^{1.0} X^{2.0}$	66.0	"
			$X^{1.5} Y^{2.0}$	99.0	"
			$X^{2.0} Y^{2.0}$	132.0	"
	$X^{2.0} Y^{2.0}$	$X^0 Y^{2.0}$	$X^{2.0} Y^{1.5}$	33.0	184-01
			$X^{2.0} Y^{1.0}$	66.0	"
			$X^{2.0} Y^{0.5}$	99.0	"
			$X^{2.0} Y^0$	132.0	"

(3000 ft)

Closing corner ( $X^2 Y^0$ ) is  $0.43'$  S. and  $0.01'E$ .  
of orig. corner

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
$x^2y^2$	$x^2y^0$	$x^0y^{2.0}$		274-01	-12-00
		$x^{0.5}y^{2.0}$		"	-12-38
		$x^{1.0}y^{2.0}$		"	-13-37
		$x^{1.5}y^{2.0}$		"	-14-11

Set stakes at  $x^{0.2}y^2$ ,  $x^{0.3}y^2$ ,  $x^{0.7}y^2$ ,  $x^{0.8}y^2$ ,  
 $x^{1.2}y^2$ ,  $x^{1.3}y^2$ ,  $x^{1.7}y^2$ , and  $x^{1.8}y^2$  with transit  
at  $x^2y^2$ , dist. meas. with steel tape.

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
$X^{1.8} Y^0$	$X^0 Y^0$	$X^{1.8} Y^{0.2}$	13.2	4-01	
		$X^{1.8} Y^{0.3}$	19.8	"	
		$X^{1.8} Y^{0.7}$	46.2	"	
		$X^{1.8} Y^{0.8}$	52.8	"	
		$X^{1.8} Y^{1.2}$	78.9	"	
		$X^{1.8} Y^{1.3}$	85.5	"	
		$X^{1.8} Y^{1.7}$	111.9	"	
		$X^{1.8} Y^{1.8}$	118.5	"	
		$X^{1.8} Y^{2.0}$	131.7	"	
$X^{1.7} Y^0$	$X^0 Y^0$	$X^{1.7} Y^{0.2}$	13.2	"	
		$X^{1.7} Y^{0.3}$	19.8	"	
		$X^{1.7} Y^{0.7}$	46.2	"	
		$X^{1.7} Y^{0.8}$	52.8	"	

Star	B5	F5	Hor. Dist.	Azimuth	Vert. L
	$x^{1.7}y^{1.2}$		78.9	4-01	
	$x^{1.7}y^{1.3}$		85.5		
	$x^{1.7}y^{1.7}$		111.9		
	$x^{1.7}y^{1.8}$		118.5		
	$x^{1.7}y^{2.0}$		131.7		
$x^{1.5}y^{0.0}$	$x^0y^0$	$x^{1.5}y^{0.5}$	33.0	4-01	+3-18
		$x^{1.5}y^{1.0}$	66.0		+3-03
		$x^{1.5}y^{1.5}$	98.6		+2-58
		$x^{1.5}y^{2.0}$	131.6		+2-43
$x^{1.2}y^{0.0}$	$x^0y^0$	$x^{1.2}y^{0.2}$	13.2	4-01	
		$x^{1.2}y^{0.3}$	19.8		
		$x^{1.2}y^{0.7}$	46.2		
		$x^{1.2}y^{0.8}$	52.8		

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
		$X^{1.2} Y^{1.2}$		78.8	
		$X^{1.2} Y^{1.3}$		85.4	
		$X^{1.2} Y^{1.7}$		111.8	
		$X^{1.2} Y^{1.8}$		118.4	
		$X^{1.2} Y^{2.0}$		131.6	

Stks. set from  $X^{1.3} Y^{0.0}$  to  $X^{1.3} Y^{2.0}$  on  
 same azimuth and some corresponding  
 distances as from  $X^{1.2} Y^{0.0}$  to  $X^{1.2} Y^{2.0}$

$X^1 Y^0$	$X^0 Y^0$	$X^0 Y^{0.5}$	33.0	4-01	+3-32
		$X^{1.0} Y^{1.0}$	66.0		+2-58
		$X^{1.0} Y^{1.5}$	98.6		+3-02
		$X^{1.0} Y^{2.0}$	131.6		+2-55

Sta.	BS	FS	Hor.Dist.	Azimuth	Vert.L
$X^{0.8}Y^{0.0}$	$X^0Y^0$	$X^{0.8}Y^{0.2}$	13.2	4-01	
		$X^{0.8}Y^{0.3}$	19.8		
		$X^{0.8}Y^{0.7}$	46.2		
		$X^{0.8}Y^{0.8}$	52.8		
		$X^{0.8}Y^{1.2}$	78.8		
		$X^{0.8}Y^{1.3}$	85.4		
		$X^{0.8}Y^{1.7}$	111.8		
		$X^{0.8}Y^{1.8}$	118.4		
		$X^{0.8}Y^{2.0}$	131.6		

Set stks. from  $X^{0.7}Y^{0.0}$  to  $X^{0.7}Y^{2.0}$  on same azimuth and distances as  $X^{0.8}Y^0$  to  $X^{0.8}Y^2$

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
$X^{0.5}Y^{0.0}$	$X^0Y^0$	$X^{0.5}Y^{0.5}$	33.0	4-01	+4-05
		$X^{0.5}Y^{1.0}$	66.0		+4-04
		$X^{0.5}Y^{1.5}$	98.6		+3-51
		$X^{0.5}Y^{2.0}$	131.6		+3-57
$X^{0.3}Y^{0.0}$	$X^0Y^0$	$X^{0.3}Y^{0.2}$	13.2	4-01	
		$X^{0.3}Y^{0.3}$	19.8		
		$X^{0.3}Y^{0.7}$	46.2		
		$X^{0.3}Y^{0.8}$	52.8		
		$X^{0.3}Y^{1.2}$	78.8		
		$X^{0.3}Y^{1.3}$	85.4		
		$X^{0.3}Y^{1.7}$	111.8		
		$X^{0.3}Y^{1.8}$	118.4		
		$X^{0.3}Y^{2.0}$	131.6		

stks. set from  $X^{0.2}Y^0$  to  $X^{0.2}Y^{2.0}$   
parallel and opposite stks. along  $X^{0.3}Y^0$   
to  $X^{0.3}Y^{2.0}$

Note: Error of .43' on closure due  
to error of that amt. in meas.

$$X^0Y^0 - X^0Y^{2.0}$$

(11)

Witnesses to corners of Plot 1

Sta.	Azimuth	Hor. Dist.	
X°Y°	95°34'	6.90 to "X" at base	30" YP
X°Y°	299°50'	27.18' to "X" at base	34" YP
X²Y°	168°21'	38.3' to "X" .. ..	34" YP
X²Y°	27°21'	24.45' .. .. ..	26" YP
X²Y²	124°44'	40.4' .. .. ..	30" YP
X²Y²	43°23'	42.0' .. .. ..	20" YP
X°Y²	65°08'	47.9' .. .. ..	8" YP

## Plot 2

August 21, 1931 Kevin, Hormay, Hasel (transitman)

Decl. Assum.  $18^{\circ}30'$

$X^0Y^0$  is SE. cor. of plot.

Sta. BS FS Hor. Dist. Azimuth Vert. L

$X^0Y^0$	Due N.	$X^{0.5}Y^0$	33	294-31	+9-24
$X'Y^0$		66	"	+9-45	
$X^{1.5}Y^0$		99	"	+9-48	
$X^2Y^0$		132	"	+9-56	
$X^{2.5}Y^0$		165	"	+10-12	
$X^0Y^{0.5}$		33	24-31	-2-02	
$X^0Y'$		66	"	-0-95	
$X^0Y^{1.5}$		99	"	-0-54	

Sta.	BS	FS	Hor. Dist	Azimuth	Vert. L
$X^{2.5}Y^0$	$X^0Y^0$	$X^{27}Y^0$	11.22	294-31	+14-08
$X^{2.7}Y^0$	$X^0Y^0$	$X^{27}Y^{0.5}$	33	24-31	-5-40
		$X^{2.7}Y^1$	66	..	-4-03
		$X^{27}Y^{1.5}$	99	..	-3-35
$X^{2.7}Y^{1.5}$	$X^{2.7}Y^0$	$X^{2.5}Y^{1.5}$	11.22	114-31	-7-17
		$X^{2.0}Y^{1.5}$	44.22	..	-8-30
		$X^{1.5}Y^{1.5}$	77.22	..	-8-19
		$X^{1.0}Y^{1.5}$	110.22	..	-8-37
		$X^{0.5}Y^{1.5}$	143.22	..	-8-37
		$X^0Y^{1.5}$	176.22	..	-9-10

Closing point is 0.2' E. and 0.15' N of

$X^0Y^{1.5}$

(14)

Witnesses to corners of Plot 2

Sta.	Azimuth	Hor. Dist.						
$X^{2.7}Y^{1.5}$	77-10	48.0'	to "X"	at base	30"	YP		
$X^{2.7}Y^{1.5}$	162-58	15.3'	"	"	"	32"	YP	
$X^0Y^0$	83-46	14.0	"	"	"	42"	YP	
$X^0Y^0$	259-48	57.7	"	"	"	36"	YP	
$X^0Y^0$	174-16	56.0'	to $X^0Y^2$	of Plot 1				
$X^{2.7}Y^0$	54-49	47.8'	"	"X"	at base	24"	YP	
$X^{2.7}Y^0$	280-15	49.8	"	"	"	20"	YP	
$X^0Y^{1.5}$	109-55	9.4'	"	"	"	33"	YP	
$X^0Y^{1.5}$	253-13	37.5'	"	"	"	30"	YP	

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
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$X^0 Y^0$	$X^0 Y^{1.5}$	$X^{0.2} Y^0$	13.2	294-31	
		$X^{0.3} Y^0$	19.8		
		$X^{0.7} Y^0$	46.2		
		$X^{0.8} Y^0$	52.8		
		$X^{1.2} Y^0$	79.2		
		$X^{1.3} Y^0$	85.8		
		$X^{1.7} Y^0$	112.2		
		$X^{1.8} Y^0$	118.8		
		$X^{2.2} Y^0$	145.2		
		$X^{2.3} Y^0$	151.8		

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
	$X^{0.2}Y^0$	$X^{27}Y^0$	$X^{0.2}Y^{0.2}$	13.2	24-31
			$X^{0.2}Y^{0.3}$	19.8	
			$X^{0.2}Y^{0.7}$	46.2	
			$X^{0.2}Y^{0.8}$	52.8	
			$X^{0.2}Y^{1.2}$	79.2	
			$X^{0.2}Y^{1.3}$	85.8	

Ditto on stks. from  $X^{0.3}Y^0$  to  $X^{0.3}Y^{1.3}$

$X^{0.5}Y^0$	$X^{27}Y^0$	$X^{0.5}Y^{0.5}$	33	24-31	-1-58
		$X^{0.5}Y^1$	66		-0-40
		$X^{0.5}Y^{1.5}$			-0-14

Sta.	85	FS	Hor. Dist.	Azimuth	Vert. L
$x^{0.7}y^0$	$x^{2.7}y^0$	$x^{0.7}y^{0.2}$	132	24-31	
		$x^{0.7}y^{0.3}$	19.8		
		$x^{0.7}y^{0.7}$	46.2		
		$x^{0.7}y^{0.8}$	52.8		
		$x^{0.7}y^{1.2}$	79.2		
		$x^{0.7}y^{1.3}$	85.8		

Ditto on stks. from  $x^{0.8}y^0$  to  $x^{0.8}y^{1.3}$

$x'y^0$	$x^0y^0$	$x'y^{0.5}$	33	24-31	-2-42
		$x'y'$	66		-1-24
		$x'y^{1.5}$			-0-56

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
$X^{1.2} Y^0$	$X^0 Y^0$	$X^{1.2} Y^{0.2}$	132	24-31	
		$X^{1.2} Y^{0.3}$	19.8		
		$X^{1.2} Y^{0.7}$	46.2		
		$X^{1.2} Y^{0.8}$	52.8		
		$X^{1.2} Y^{1.2}$	79.2		
		$X^{1.2} Y^{1.3}$	85.8		

Dif Ho on stks. from  $X^{1.3} Y^0$  to  $X^{1.3} Y^{1.3}$

$X^{1.5} Y^0$	$X^0 Y^0$	$X^{1.5} Y^{0.5}$	33	24-31	-3-35
		$X^{1.5} Y^1$	66		-1-55
		$X^{1.5} Y^{1.5}$			-1-15

Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
	$X^{1.7}Y^0$	$X^0Y^0$	$X^{1.7}Y^{0.2}$	13.2	24-31
			$X^{1.7}Y^{0.3}$	19.8	
			$X^{1.7}Y^{0.7}$	46.2	
			$X^{1.7}Y^{0.8}$	52.8	
			$X^{1.7}Y^{1.2}$	79.2	
			$X^{1.7}Y^{1.3}$	85.8	

Ditto on sths, from  $X^{1.8}Y^0$  to  $X^{1.8}Y^{1.3}$

$X^{2.0}Y^0$	$X^0Y^0$	$X^{2.0}Y^{0.5}$	33	24-31	-4-00
		$X^{2.0}Y^1$	66		-2-33
		$X^{2.0}Y^{1.5}$			-2-05

Sta.	B5	FS	Hor. Dist.	Azimuth	Vert. L
$X^{2.2}Y^0$	$X^0Y^0$	$X^{2.2}Y^{0.2}$	13.2	24-31	
	$X^{2.2}Y^{0.3}$		19.8		
	$X^{2.2}Y^{0.7}$		46.2		
	$X^{2.2}Y^{0.8}$		52.8		
	$X^{2.2}Y^{1.2}$		79.2		
	$X^{2.2}Y^{1.3}$		85.8		

Ditto on stks. from  $X^{2.3}Y^0$  to  $X^{2.3}Y^{1.3}$ ,  
 stks.  $X^{2.3}Y^{0.7}$  to  $X^{2.3}Y^{1.3}$  lined in by

Eye as tree obstructed line from transit.

$X^{2.5}Y^0$	$X^0Y^0$	$X^{2.5}Y^{0.5}$	33	24-31	-4-59
	$X^{2.5}Y^1$		66		
	$X^{2.5}Y^{1.5}$			-3-19	

## Plot 3

August 24, 1931

Kevin, Hormay, Hasel (transit)

Decl. Assum.  $18^{\circ}30'$ 

Transit and steel tape

 $X^{\circ}Y^{\circ}$  is S. cor. of plot.

Sta. BS FS Hor. Dist. Azimuth Vert. L

$X^{\circ}Y^{\circ}$	Due N.	$X'Y^{\circ}$	66'	319-08	-3-23
		$X^{0.5}Y^{\circ}$	33	"	-2-49
		$X^{\circ}Y^{0.2}$	13.2	49-08	
		$X^{\circ}Y^{0.3}$	19.8	"	
		$X^{\circ}Y^{0.5}$	33.0		+12-42
		$X^{\circ}Y^{0.7}$	46.2		
		$X^{\circ}Y^{0.8}$	52.8		
		$X^{\circ}Y^1$	66.0		+13-54

## Witnesses to corners of Plot 3

Sta.	Azimuth	Hor. Dist.	
X°Y°	339-26	29.5'	to "X" at base 8" WF
X'Y°	356-52	31.1'	" " " " 12" YP
X'Y°	123-45	39.2	" " " " 8" WF
X'Y'	97-02	21.4'	" " " " 24" YP
X'Y'	276-11	48.75'	" " " " 14" YP
X°Y'	57-17	20.0'	" " " " 6" WF
X°Y'	134-55	37.2	" " " " 32" YP

Sta.	B5	F5	Hor. Dist.	Azimuth	Vert. L
$x'y^0$	$x^0y^0$	$x'y^{0.5}$	33	49-08	+11-32
		$x'y'$	66	.	+12-09
$x'y'$	$x'y^0$	$x^{0.5}y'$	33	139-08	+5-20
		$x^0y'$	66	"	+4-55

Error of closure 0.1' to S.W. and  
0.05' to N.W.

$x'y'$	$x'y^0$	$x^{0.5}y^{0.5}$	46.65'	184-08	-6-36
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Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
$X^0 Y^{0.8}$	$X^0 Y^0$	$X^{0.2} Y^{0.8}$	13.2	319-08	
		$X^{0.3} Y^{0.8}$	19.8	"	
		$X^{0.7} Y^{0.8}$	46.2		
		$X^{0.8} Y^{0.8}$	52.8		

Ditto on stks. from  $X^0 Y^{0.7}$  to  $X^{0.8} Y^{0.7}$

$X^0 Y^{0.3}$	$X^0 Y^1$	$X^{0.2} Y^{0.3}$	13.2	319-08
		$X^{0.3} Y^{0.3}$	19.8	
		$X^{0.7} Y^{0.3}$	46.2	
		$X^{0.8} Y^{0.3}$	52.8	

Ditto on stks. from  $X^0 Y^{0.2}$  to  $X^{0.8} Y^{0.2}$

## Plot 4

August 25, 1931

Kevin, Hormay, Hase (transitman)

Decl. Assum.  $18^{\circ}30'$ 

Transit &amp; steel tape

 $X^0Y^0$  is SW cor. of plot

Sta.	B5	F5	Hor. Dist.	Azimuth	Vert. L
$X^0Y^0$	Duc N.	$X^0Y^{0.5}$	33	347-06	-0-05
		$X^0Y^1$	66	"	-1-44
		$X^{0.2}Y^0$	13.2	77-06	-1-44
		$X^{0.3}Y^0$	19.8		
		$X^{0.5}Y^0$	33		+15-48
		$X^{0.7}Y^0$	46.2		
		$X^{0.8}Y^0$	52.8		
		$X'Y^0$	66		+16-11

Witnesses to corners of Plot 4

Sta.	Azimuth	Hor. Dist.						
X°Y°	149-45	54.2	to "X" at base	26" YP				
X°Y°	165-04	69.5	to X'Y' of Plot 3					
X°Y°	239-48	21.0	to "X" at base	8" YP				
X°Y'	275-29	72.3	" "	"	"	"	"	28" YP
X'Y°	174-46	10.7	" "	"	"	"	"	20" YP
X'Y'	340-20	74.8	"	"	"	"	"	24" YP
X'Y'	255-11	24.5	"	"	"	"	"	6" WP

Sta.	BS	FS	Hor.Dist.	Azimuth	Vert. L
$X^{\circ}Y'$	$X^{\circ}Y^{\circ}$	$X^{0.5}Y'$	33	77-06	+16-09
.	.	$X'Y'$	66		+16-21
$X'Y^{\circ}$	$X^{\circ}Y^{\circ}$	$X'Y'$	66	347-06	+0-05
		$X'Y^{0.5}$	33		+0-06

Error of closure 0.25' E. and 0.03' S.

of sta.  $X'Y'$

$X'Y'$	$X'Y^{\circ}$	$X^{0.5}Y^{0.5}$	46.65	212-17	-13-09
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Sta.	BS	FS	Hor. Dist.	Azimuth	Vert. L
$X^{0.8}Y^0$	$X^0Y^0$	$X^{0.8}Y^{0.2}$	13.2	347-06	
		$X^{0.8}Y^{0.3}$	19.8		
		$X^{0.8}Y^{0.7}$	46.2		
		$X^{0.8}Y^{0.8}$	52.8		

Ditto on stks. from  $X^{0.7}Y^0$  to  $X^{0.7}Y^{0.8}$

$X^{0.5}Y^0$	$X'Y^0$	$X^{0.3}Y^{0.2}$	13.2	347-06
		$X^{0.3}Y^{0.3}$	19.8	
		$X^{0.8}Y^{0.7}$	46.2	
		$X^{0.8}Y^{0.8}$	52.8	

Ditto on stks. from  $X^{0.2}Y^0$  to  $X^{0.2}Y^{0.8}$

# Elevation Computations

(29)

Oct. 8, 1931

Plot 1      El.  $x^0y^0$  Assum. - 5550'      a.a.N.

Sta.	F5	Hor. Dist.	Vert. L	Dif. El.	El. F5
$x^0y^0$	$x^{0.5}y^0$	33	+18-45	11.2	5561.2
	$x^1y^0$	66	+16-41	19.8	5569.8
	$x^{1.5}y^0$	99	+15-36	27.6	5577.6
	$x^2y^0$	132	+14-50	35.0	5585.0
	$x^0y^{0.5}$	33	+8-41	5.1	5555.1
	$x^0y^1$	66	+8-00	9.3	5559.3
	$x^0y^{1.5}$	99	+7-07	12.3	5562.3
	$x^0y^2$	132	+6-21	14.7	5564.7
	$x^0y^2$ $x^2y^2$	132	+12-00	28.1	5592.8

Sta.	FS	Hor. Dist.	Vert. L	Diff. El.	E/FS	Var.
$X^2Y^2$	$X^2Y^{1.5}$	33	-2-20	1.3	5591.5	(3)
$X^2Y^1$	66	-3-03	3.5	5589.3		
$X^2Y^{0.5}$	99	-3-21	5.8	5587.0		
$X^2Y^0$	132	-3-18	7.6	5585.2		
$X^{0.5}Y^2$	99	-12-38	22.2	5570.6		
$X^1Y^2$	66	-13-37	16.0	5576.8		
$X^{1.5}Y^2$	33	-14-11	8.3	5584.5		
$X^{1.5}Y^0$	$X^{1.5}Y^{0.5}$	33	+3-18	1.9	5579.5	
$X^{1.5}Y^1$	66	+3-03	3.5	5581.1		
$X^{1.5}Y^{1.5}$	98.6	+2-58	5.1	5582.7		
$X^{1.5}Y^2$	131.6	+2-43	6.2	5583.8	0.7	

Sta.	FS	Hor. Dist.	Vert. L	Diff. El	E. FS	Var.
$x' y^0$	$x' y^{0.5}$	33	+3-32	2.0	5571.8	
	$x' y'$	66	+2-58	3.4	5573.2	
	$x' y^{1.5}$	98.6	+3-02	5.2	5575.0	
	$x' y^2$	131.6	+2-55	6.7	5576.5	0.3
$x^{0.5} y^0$	$x^{0.5} y^{0.5}$	33	+4-05	2.4	5563.6	
	$x^{0.5} y'$	66	+4-04	4.7	5565.9	
	$x^{0.5} y^{1.5}$	98.6	+3-51	6.6	5567.8	
	$x^{0.5} y^2$	131.6	+3-57	9.1	5570.3	0.3

## Plot 2

E. X°Y° Assum. - 55-70

Sta.	F.S	Hor. Dist.	Vert. L	Diff. E.I	E/F.S
X°Y°	X°.5Y°	33	+9-24	5.5	5575.5
X'Y°		66	+9-45	11.3	5581.3
X°.5Y°		99	+9-48	17.1	5587.1
X°Y°		132	+9-56	23.0	5593.0
X°.5Y°		165	+10-12	29.7	5599.7
X°Y°.5		33	-2-02	1.2	5568.8
X°Y'		66	-0-45	0.9	5569.1
X°Y°.5		99	-0-54	1.6	5568.4
X°.5Y°	X°.7Y°	11.22	+14-08	2.8	5602.5
X°.7Y°	X°.7Y°.5	33	-5-40	3.3	5599.2
X°.7Y'		66	-4-03	4.7	5597.8
X°.7Y°.5		99	-3-35	6.2	5596.3

Sta. F5	Hor. Dist.	Vert. L	Dif. E.I.	E.I. F5	Var.
$X^{2.7}Y^{1.5}$	$X^{2.5}Y^{1.5}$	11.22	-7-17	1.4	55 94.9
$X^{2.0}Y^{1.5}$		44.22	-8-30	6.6	55 89.7
$X^{1.5}Y^{1.5}$		77.22	-8-19	11.3	55 85.0
$X^1Y^{1.5}$		110.22	-8-37	16.7	55 79.6
$X^{0.5}Y^{1.5}$		143.22	-8-37	21.7	55 74.6
$X^0Y^{1.5}$		176.22	-9-10	28.4	55 67.9
$X^{0.5}Y^0$	$X^{0.5}Y^{0.5}$	33	-1-58	1.1	55 74.4
$X^{0.5}Y^1$		66	-0-40	0.8	55 74.7
$X^{0.5}Y^{1.5}$		99	-0-14	0.4	55 75.1
$X^1Y^0$	$X^1Y^{0.5}$	33	-2-42	1.6	55 79.7
$X^1Y^1$		66	-1-24	1.6	55 79.7
$X^1Y^{1.5}$		99	-0-56	1.6	55 79.7 0.1

Sta.	F5	Hor. Dst.	Vert. L	Dif. El	El. F5	Vari.
$X^{1.5}y^0$	$X^{1.5}y^{0.5}$	33	-3-35	2.1	5585.0	
$X^{1.5}y^1$		66	-1-55	2.2	5584.9	
$X^{1.5}y^{1.5}$		99	-1-15	2.2	5584.9	0.1
$X^2y^0$	$X^2y^{0.5}$	33	-4-00	2.3	5590.7	
$X^2y^1$		66	-2-33	2.9	5590.1	
$X^2y^{1.5}$		99	-2-05	3.6	5589.4	0.3
$X^{2.5}y^0$	$X^{2.5}y^{0.5}$	33	-4-59	2.9	5596.8	
$X^{2.5}y^1$		66	-3-19	3.8	5595.9	

Plot 3 El. x<sup>0</sup>y<sup>0</sup> Assum. - 5600

Sta. FS	Hor. Dist.	Vert. L	Diff. El	El. FS
x <sup>0</sup> y <sup>0</sup>	x' y <sup>0</sup>	66	-3-23	3.9 5596.1
	x <sup>0.5</sup> y <sup>0</sup>	33	-2-49	1.6 5598.4
	x <sup>0</sup> y <sup>0.5</sup>	33	+12-42	7.4 5607.4
	x <sup>0</sup> y'	66	+13-54	16.3 5616.3
x' y <sup>0</sup>	x' y <sup>0.5</sup>	33	+11-32	6.7 5602.8
	x' y'	66	+12-09	14.2 5610.3
x' y'	y <sup>0.5</sup> y'	33	+5-20	3.1 5613.4
	x <sup>0</sup> y'	66	+4-55	5.7 5616.0 0.3
x <sup>0.5</sup> y <sup>0.5</sup>	46.65	-6-36	5.4	5604.9

5610.3  
5-1

5604.9

(36)

Plot 4 El. x<sup>0</sup>y<sup>0</sup> Assum.- 5610

Sta.	FS	Hor. Dist.	Vert. L	Diff. El.	El. FS.	Var.
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x <sup>0</sup> y <sup>0</sup>	x <sup>0</sup> y <sup>0.5</sup>	33	-0-05	0.0	5610	
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x <sup>0</sup> y'	66	-1-44	2.0	5608.0	
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x <sup>0.5</sup> y <sup>0</sup>	33	+15-48	9.3	5619.3	
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x'y <sup>0</sup>	66	+16-11	19.2	5629.2	
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x <sup>0</sup> y'	x <sup>0.5</sup> y'	33	+16-09	9.6	5617.6	
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x'y'	66	+16-21	19.3	5627.3	
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x'y <sup>0</sup>	x'y'	66	+0-05	0.1	5629.3	2.0
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x'y <sup>0.5</sup>	33	+0-06	0.1	5629.3	
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x'y'	x <sup>0.5</sup> y <sup>0.5</sup>	46.65	-13-09	10.9	5618.4	
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FILE COPY

RS

My

Effect of grazing  
on reproduction

California Forest Experiment Station

R.R.  
R.S. - Mr.  
Plumas

July 29, 1931

B - G  
Effect of Sheep Grazing  
on W.Y.P. Reproduction  
(Clover Val.Lbr.Co. Sale)

Study of the effect of regulated sheep grazing on restocking.  
Clover Valley Lumber Company sale area - Plumas National Forest-

History of the Project:

In the Western yellow pine - Jeffrey pine type on the east slope of the Sierra Nevada restocking of cut-over areas is usually secured only at long intervals. Considerable areas in that type have been grazed by sheep for many years and are still being grazed by this class of stock after the timber has been cut. While evidence of injury to established reproduction is not striking, it seems probable that the lack of more abundant reproduction may be due in part to trampling or nipping by sheep.

The eastern part of the Plumas National Forest contains a considerable area of cut-over land in the timber type in question which is being grazed by sheep. During an inspection of this Forest in August, 1930, Assistant Regional Forester Woodbury brought up the question of effect of grazing on the restocking of an area cut over in 1930 in North Draw (Long Canyon), Secs. 28 and 29, T. 25 N., R. 13 E. - within the Clover Valley Lumber Company sale area. Early in July, 1931, Assistant Regional Foresters Woodbury, Nelson, and Supervisor Rogers examined this area and decided that a study was desirable. On July 23 and 24 Woodbury, Beeson, Dunning, Delaney, Kevin and Hormay visited the area to select plot locations. Two pairs of plots were selected in Long Canyon, one of each

D. D. Deel  
Copy for  
2/4 sent to Plumas  
for Range Survey  
Effect of grazing  
on reproduction

copy in F.M.

to be fenced. Final survey and charting was deferred until fencing had been completed under Ranger Delaney's direction. A week or ten days time will be necessary to complete this fencing. It was agreed that the detailed work on the plots would be done by Kevin and Hormay and that Hazel would accompany these men for a time to assist with the survey and initiation of records.

The area shows many variations in respect to slope, aspect, soil, degree of cutting, logging damage, distribution of seed trees, advance growth and lower vegetation. The intensity of grazing seems to be extremely variable. Consequently, it proved to be quite difficult to select paired fenced and unfenced areas of considerable size in which grazing was the only variable. In view of the importance of grazing in this east-side Jeffrey pine type, and the immediate prospect of initiating a large program of grazing - silvicultural studies, it was decided to begin on a small scale, with a limited number of varying factors.

Properly the first steps in this program of study would seem to be a survey of the situation to determine the methods of handling the sheep on this range, the portions of the area in a critical condition from the standpoint of grazing use and requirements of restocking. This should be done by the Grazing experts connected with the California Forest Experiment Station, or under their direction.

Purpose of present study:

To determine the effects of sheep grazing under proper methods of handling on restocking in the Jeffrey pine type, site IV, immediately after logging and slash disposal. (1) on a moderate east slope, with

average soil conditions, little surface rock, adequate seed trees and practically no shrubby or herbaceous vegetation; and (2) on a steeper, southwest slope, with poorer soil conditions, considerable surface rock, few seed trees and scanty shrubby and herbaceous vegetation.

The areas:

The east slope pair of plots is located on a bench west of Long Canyon about 1/2 mile up from Red Clover Creek. The fenced plot is 2 ch. square. The unfenced plot is 1½ ch. n.s by 2.67 ch. e.w. (approximate bearings). Temporary stakes mark approximate corners of the plots. The fence is to be placed 6 - 10 ft. outside plot boundaries.

The southwest slope pair is directly across Long Canyon from the above pair. Each plot on this area is one chain square.

Procedure:

Survey the areas with transit and tape - stake the corners of the major plots with permanent cedar posts, (Delaney will provide stakes) witness corners to trees in usual way. Set 1" x 1" x 18" cedar stakes at the corners of each 1/2 ch. square. In the center of each 1/2 ch. square, stake out one mil-acre quadrat.

Ties to land survey will be unnecessary as fences will be sufficient for relocation. There is no patented land in this drainage.

Post sample plot signs.

Map major plots with plane table, alidade and tape, scale 1" = 10'.

Show all stakes, bearings and witness lines and distances, and quadrats.

Map stumps, large rocks, large shrubs, clumps of seedlings or other

vegetation, logs, piles of slash, skidding trails, areas of bare soil or other features which might influence establishment of reproduction or protect it from grazing. Indicate seed trees on the plots and for 2 chains surrounding them by species, diameter and tree class. (Trees over 12" in dia.)

Map the quadrats in detail on the forms in the usual way, showing all vegetation, etc., and recording number, species, height and year of germination of each seedling. Designate the quadrats by coordinates in the usual way.

In October a seed crop survey should be made by counting cones on selected trees.

In October definite numbers (about 100) jeffrey pine seeds should be placed in each quadrat, if seed crop is insufficient. Later planting selected nursery stock should be tried if seeds give no results.

Each year, about June 15 - July 1, or before stock graze, and again after the sheep have left the area for the season, the quadrats should be remapped. It may be desirable to change this remapping schedule later.

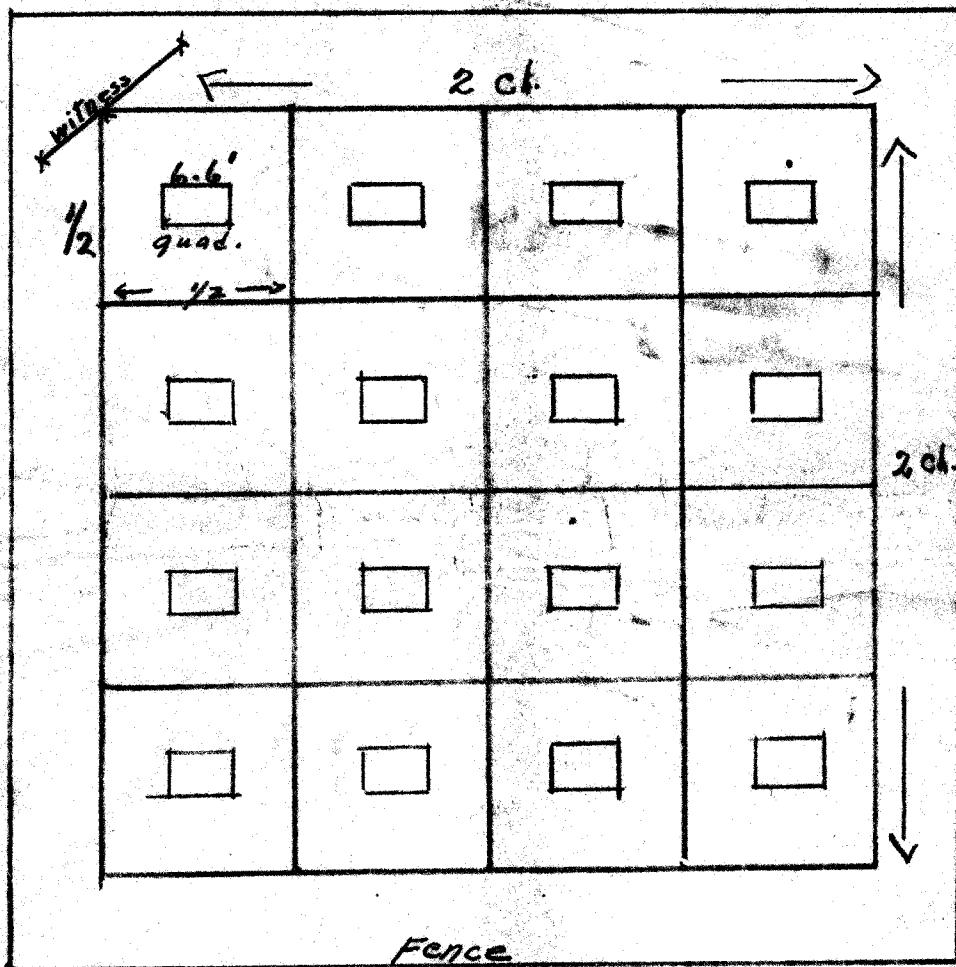
#### Grazing:

Each season the sheep should be handled on this area in a manner satisfactory to the Office of Range Management. No sheep should be permitted to cross the areas except for the proper utilization of the forage. The District Ranger should be present when the area is grazed to see to it that the stock are being properly handled, and to record the number of stock, time on the area, direction of travel, whether driven, crowded, etc.

This is primarily a Plumas Forest administrative research project at present. The offices of Grazing and Forest Management and the California Forest Experiment Station will cooperate from time to time in carrying out various phases of the work in which they are particularly skilled or interested.

Cost and Financing:

It is estimated that the fencing of the two areas will cost about \$ \_\_\_\_\_. The cost of fence and fencing will be divided equally between the range improvement appropriation and the California Forest Experiment Station.



## Plumas Long Canyon Plots

July 1/64

Normay

Section 32 T25N, R13E

Plot 1 Fenced; 132' square plot fence

" 2 Unfenced 100' x 180'

" 3 Fenced; 66' square plot inside fence

" 4 Unfenced " " " SW cor 59.5'  
north of NE cor of plot 3

Number of subplots 5130

Plot 1	16	6.6' sq.
" 2	15	"
" 3	4	"
" 4	4	"

RR  
Pine Range  
Plumas

August 25, 1931

Plants found on or in the vicinity of the Long Canyon Plots

Plot I

Grasses

Bromus sp.  
Sitanion hystrrix

Herbs

Wyethia mollis  
Phacelia  
Lupinus  
Viola ?  
Circium  
Kelloggia  
Umbellifer (sweet odor)  
Helianthella  
Lathyrus  
Balsamorhiza  
Hydrophyllum  
Delphinium nudicaule

Shrubs

Purshia tridentata  
Amelanchier  
Rosa

Trees

Pinus ponderosa, jeffreyi  
Abies concolor  
Juniperus

Plot III

Grasses

Sitanion hystrix

Herbs

Monardella odoratissima  
Apocynum androsaemifolium var. pumilum  
Penstemon sp.  
Wyethia mollis  
Kelloggia galiooides  
Lupinus sp. 1 pl.  
Stephanomeria sp. 1 pl.

Shrubs

Purshia tridentata  
Ceanothus prostratus

Trees

Abies concolor  
Pinus ponderosa  
" jeffreyi

Plants found on or in the vicinity of the Long Canyon Plots - Cont'd

Plot IV

Grasses

*Sitanion hystrix*

Herbs

*Apocynum androsaemifolium* var. *pumilum*  
*Penstemon* sp.  
*Wyethia mollis*  
*Eriogonum nudum*  
*Gayophytum ramosissimum*  
*Momardella odoratissima*  
*Kelloggia galiooides*  
*Mentzelia dispersa*  
*Potentilla* sp.  
*Lupinus* sp.

Shrubs

*Ceanothus prostratus*  
*Purshia tridentata*  
*Chrysothamnus bloomeri*

Trees

*Abies concolor*  
*Pinus ponderosa*  
" *jeffreyi*  
*Juniperus* (calif. or *occidentalis*)

Cabin

Grasses

*Aira elongata*  
*Sitanion hystrix*  
*Agrostis exarata*  
*Poa pratensis*

Grass-like

*Juncus bufonius*  
" *balticus*  
" *ensifolius*  
*Carex oregonensis*