

UNITED STATES GOVERNMENT

Memorandum

Forest Service, Region 3  
Albuquerque, New Mexico

2220  
1310 (2200)

*EW*  
*R/at*

TO : Director, Pacific Southwest Forest & Range  
Exp. Station

DATE: June 7, 1962

Your reference: 5/18/62

FROM : Fred H. Kennedy, Regional Forester

SUBJECT: Management  
Planning

The dates of September 11 to 20 are satisfactory for Mr. Hormay's visit to Region 3.

We will work up a program and schedule as we have had requests from representatives of the Arizona Farm Bureau Federation and the Tall Pines Farm Bureau to meet with Mr. Hormay while he is in the Region. This can be a joint meeting to which we will endeavor to get a good grazing permittee attendance. The meeting will be held in and around Flagstaff, Arizona, on the Coconino National Forest and will require two days near the end of Mr. Hormay's visit.

It is suggested that Mr. Hormay come to Albuquerque, and we will make the trip to Flagstaff by car visiting several of the forests enroute.

*Fred H. Kennedy*

6/22/62 - Copies sent to Frank J. Smith, Division of Range Management, W. O. *(From Bartleson)*

4210-Ran 6/12/62

1

## SPEED-MEMO

TO Ray Ratliff, Susanville	SUBJECT 4210-Range and Wildlife Habitat Programs <i>ccc</i>
FROM <del>Ray</del> Gene Conrad, Berkeley	<i>MR</i>

MESSAGE (Write concise message. Sign and forward parts 1 and 2 to addressee. Retain part 3)

Ray:

Mert gave me your memo of May 23 in which you asked several questions about the ranked plot technique. Unfortunately, I didn't see your questions before seeing Meredith Morris, but I believe we can at least partially answer you. I did ask Morris some of the same questions. However, since you will probably be coming down here fairly soon, let's discuss this technique then.

By the way, your data is all punched except for determining interception and punching a numerical species code in each card. So, as soon as we can get together with a statistician and set up the analysis, we can start to answer some questions. By the way, I am sending a species list which enumerates by code the major grass, forb, and shrub species found at Harvey Valley. Would you look this list over and rank the species in each group by general importance. We will then use the numerical code to identify the species for computational purposes. It is not critical if your ranking of the species is wrong; the main thing I want is an idea of which species will occur commonly. I think the enclosed list is pretty self-explanatory but if you have any question, let me know soon.

Enclosure

SIGNATURE

REPLY (Use this space for reply. Sign and date. Return part 1 to sender. Retain part two)

Gene,  
I hope this gives what is needed. I am still waiting to learn when I am to come to Berkeley. Looks like we may need more than the two days I had planned on. If Mert is going to Eureka the 21 & 22, perhaps we could get together then and I could get with Mert on the 25 & 26. Check with Mert on this, and let me know.

SIGNATURE

Raymond D. Ratliff

DATE

6-15-62

# Office Memorandum • UNITED STATES GOVERNMENT

4200

DATE: June 22, 1961

TO : Mert J. Reed  
Division of Range Management

FROM : Lynn Rader, Center Leader

SUBJECT: Range Management and Wildlife Habitat Research

*MJR*  
*EJR*

With regard to our questions on the types of transects at Harvey Valley and standards used in the 50" line intercept method of measurement. Attached for your reference are copies of all of the material I have been able to find. This, along with ideas I got from talking with Gus, answers most of our questions. From this I gleaned the following:

1. Transects have designated head and tail stakes. Hormay's instructions (which Dave and Doug had) say to begin readings at the head end of the transect.

2. There are two kinds of transects at Harvey Valley. There are:  
(a) Condition and trend transects, all of which have been read at least once.  
(b) Density, Yield and Utilization transects. Only part of these have been established (of those Gus originally intended to put in). Of those which are in, some have been read, according to Gus, but we do not have the data sheets at Susanville. If we are going into other sampling procedures we probably won't want to use these transects.

3. With regard to location of 2" plots and 50" lines, the 50" lines straddle the 100' transect at each foot marker, while the 2" squares are located on the left side of the line (when you are facing the tail stake). I think from our discussion with Zusman that this may create some problems in comparing the two methods of measurement.

4. 50" lines are always read from left to right--measurements on a 50" line used basal intercept, where basal intercept was defined as the area of bud influence. A set of Gus's standards for the area of bud influence for different plants is attached. As I understand it, Dave and Loug had these standards but took actual basal intercept. I suspect if you are measuring to the nearest half inch, (as per Gus's instructions) it doesn't make much difference, on most plants, if you ignore this bud influence business.--I think, to eliminate as much subjectivity as possible and gain some additional accuracy, we should measure actual basal intercept down to at least  $\frac{1}{4}$ " and record seedlings as having no intercept. This means, on some transects, we will have to make three readings.

*Re par. above, I'm still unclear. Do you mean each shoot of Idaho pine get 0.1 sq' inch, i.e. a single shoot as well as each shoot of many in an intercept of a bunch. What does "length of side" mean in his bud influence test?*

*I don't believe so - I'll use a segment of the 50" line of 2' length.*

*any thing less than 1/2"?*

*50" line*

*50" line  
2' of each plot*

2 - Mert J. Reed - 6/22/61

I haven't worked out final ideas for study plans on other phases of this Summer's work, but thought I would send this on down. If you concur that measurement to  $\frac{1}{4}$ " will give sufficient accuracy I think we can record this year's data so we can get some ideas as to the length of lines needed. That is, how much we can reduce these 50" lines. We can use this year's measurements on the nearest  $\frac{1}{2}$ " basis along with previous data to get some idea of how many lines are needed.

Attachments

Recording to closest  $\frac{1}{4}$

lynn

would require measurement to closest  $\frac{1}{8}$ . Is this what you mean? Believe if rule in tenths of inches could be had, this would be better + record to closest  $\frac{1}{10}$  inch.

For single shoots, it bothers me to record 0 (or nothing) if less than  $\frac{1}{8}$ " and  $\frac{1}{4}$ " if slightly less than  $\frac{3}{8}$  slightly over  $\frac{1}{8}$ " Perhaps field Trial + familiarity w/ species will be the only thing that will solve what is practical + still precise enough to pick up change sensitively

See additional tablet sheets  
Mert

August 12, 1954  
A. L. Horsey

METHOD OF MEASURING VEGETATION AND SOIL  
CONDITIONS ON LINE TRANSECTS

Harvey Valley Experimental Range

1. Laying out the line transect

A 100-foot long line transect is laid out between two guide points as follows:

- (a) Drive a 5-foot steel fence post with spade up 2 feet into the ground. This is the guide post of the line.
- (b) Determine orientation of the line.
- (c) At 25 feet from head post drive a stake (5/8 inch x 1 foot reinforcing rod) to within 1 inch of the soil surface. This marks the beginning of line transect.
- (d) At 24.6 feet and 59.6 feet drive similar stakes marking control corners of two 24-inch square quadrats.
- (e) At 100.6 feet drive end stake of transect.
- (f) At 125.0 drive 5-foot steel fence post 2 feet into the ground, spade down.

This is the line transect tail end guide post.

2. Colors of posts and stakes

Head guide post including spade -- orange

Tail guide post -- yellow

Line stakes -- orange top

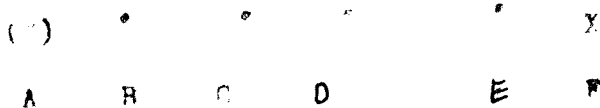
Transect number is stencilled in black on head guide post spade

3. Quadrats on line

Lay a frame 24 inches square metal frame on the line at the 24.6 foot and 59.6 foot stake so the quadrat lies to the right and toward the head end of the transect when viewed from the head end of the transect.

Set 3 stakes in addition to one already on the line to mark two quadrats A and B (see diagram following).

#### 4. Diagram of transect layout



A = Head line transect guide post

B = Beginning transect stake (25 feet from A) and 4'-6" x 6'-0" quadrat

C = Quadrat A control-corner stake (24.6 feet from B) and 24-inch square quadrat

D = Quadrat B control-corner stake (59.6 feet from B) and 24-inch square quadrat

E = End transect stake (200.5 feet from B)

F = Tail end transect guide post (25 feet from E)

Lay out the third quadrat (4'-6" x 6'-0") astride the line at the head end of the transect as follows:

Set stakes at right angles and on both sides of the transect line 2 feet, 3 inches out from the line at the beginning line stake and out from a point 6 feet along the line from the beginning line stake.

#### 5. Orientation of the line

In order to obtain the vertical photos of the 24-inch quadrats from a height of 6 feet and avoid having the shadows of the tripod legs cross the quadrat, orient the transect line so as to have the sun rays cross the line at right angles. Record the date and time of day of establishment of each transect to permit repeat photos to be taken under the same conditions. The 24-inch quadrat photos are thus taken facing the sun with the head end of the transect located to the left. The shadows in the oblique photos along the line fall at right angles to the direction the photos are taken.

#### 6. Photographs

(a) Quadrats A and B  
Vertical from 6 feet

(b) Quadrat 4'-6" x 6'-0" at head end of transect  
light oblique from height of 11 feet. Camera on line between A and about 22 feet from A

(c) Non oblique of line transect  
Taken from position in (b) above to take in foreground between points B and C and the rest of the line to F and beyond

## 7. Vegetation and soil measurements

(See Form CPMES-257 and article, "Getting Better Records of Vegetation Changes with the Line Interception Method", by A. L. Horsey)

Vegetation and soil measurements are made at foot intervals along the line transect starting at the 1 foot mark and ending on the 100 foot mark.

At each point an estimate is made of the percentage area within a 2-inch square frame covered by vegetation and soil criteria. The basis for judging the area covered by individual plant species is outlined in the article cited above. The area influenced by the average bud in a plant crown must be set up for each species by sites. This permits determining the limits of the edges of plant crowns and what can be considered crown area. Thus the normal area influenced by an average bud on Festuca idahoensis may be  $1/8$ -inch square, Carex spp.  $1/4$ -inch square, and Wyethia mollis 1-inch square. The sum of the percentages obtained for plant species and soil criteria should add up to 100.

All seedlings of desirable forage species in the first year of growth found within the frame are counted by species. The species for which seedlings are counted are determined ahead of time on each transect. They usually are limited to the important grasses but may cover sedges, rushes, forbs, and shrubs.

Some standard definitions that will be applicable in all records follow:

- (a) A hole in the crown of a shrub is an area 4 square inches or larger. A hole that permits the recording frame to drop through.
- (b) Soil - rock particles (and organic matter) less than  $1/8$  inch in diameter.
- (c) Erosion pavement - rock particles  $1/8$  inch. to  $2^{3/4}$  inches in diameter.
- (d) Rock - rock fragments  $2^{3/4}$  inches and larger in diameter.
- (e) Litter - all dead plant residue lying on the soil surface whether detached from the living plant or not but can still be recognized as a plant tissue. All animal products.

Area and percent equivalents in 2-inch square frame

<u>Size of area</u>	<u>Percent of 2-inch square frame</u>
1/8" square	0.39
1/4" "	1.56
1/2" "	6.25
3/4" "	14.06
1" "	25.00

8. Where measurements are taken

// Looking along the transect from the head and all measurements are made on the left side of the line. One side of the measuring frame is held parallel and a long side of a vertical plane through the transect line. *head end?*

9. What is measured

Vegetation

The most important (abundant) perennial species; live and dead portions separately.

Percent density values covering portions of live plants that are not available to grazing are enclosed in a circle.

Annual plant<sup>s</sup>, perennial seedlings and unimportant established perennials are lumped into one estimate under the heading "others."

Soil

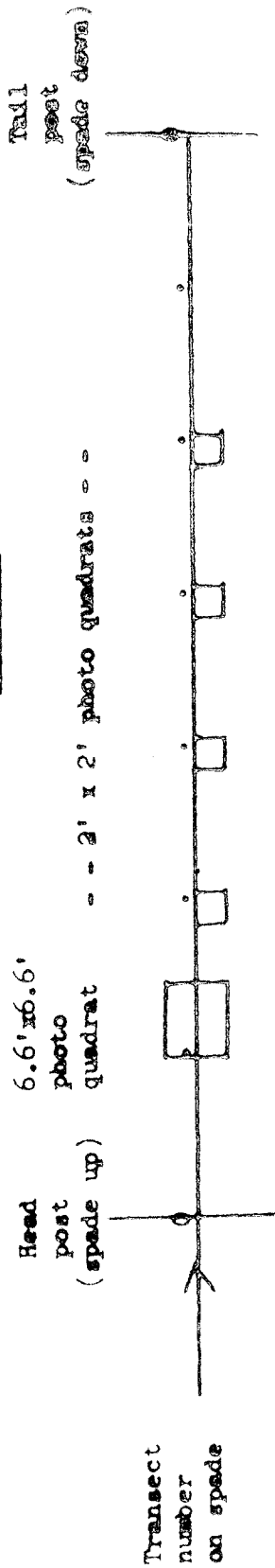
Estimates are made separately for erosion, pavement, rock, soil and litter.

Supplementary notes are made of the depth and extent of erosion and the location of seedlings on and about the transect.



LAYOUT OF RANGE CONDITION AND TREND TRANSECTS, HARVEY VALLEY RANGE ALLOTTMENT

PLAN VIEW



Transect segment on which measurements are made

NOTE: Transect marker posts are painted the following colors:  
 Head post yellow, spade orange, transect number black  
 Tail post all yellow

PLANT NAMES

Harvey  
June 13, 1960

PLANT NAMES AND SYMBOLS  
(Harvey Valley Allotment)

Bud Influence

POORAGE SPECIES

Scientific Name	Area	Common name	Length of side (inches)	Symbols Used
Achillea millefolium	0.8	Common yarrow	0.9	ACm
Agropyron cristatum	0.1	Crested wheatgrass	0.3	Acr
Agropyron intermedium	0.1 to 0.5		0.3 - 0.7	AI
Agrostis hiemalis	} 3rd ✓	Winter redtop	} 3rd	AGh
Agrostis spp.		Redtop or bent grass		AG spp.
Antirrhinum spp.	—	Snapdragon	—	ANT spp.
Aster canescens	} 0.8	Aster	} 0.9	ASfo
Aster spp.				ASTapp.
Bromus inermis	3rd	Smooth brome	3rd	BI
Bromus tectorum (annual)		Cheatgrass (downy chess, downy brome, junegrass)		BT
Carex exerta (saxifl.)	0.8	Shorthair sedge	0.9	Cex
Carex nebraskensis	3rd	Nebraska sedge (coarse sedge)	3rd	Cnb
Carex rossii (saxifl.)	0.8	Ross sedge	0.9	Cr
Carex spp.	—	Sedges	—	Cspp
Carex spp.	—	Sedges	—	CAx (Cspp)
Lanthonia americana	} 0.1	California oatgrass	0.3	La
Lanthonia spp.		Oat grass		La spp.
Eleocharis palustris	1.0	Common spike-rush	1.0	ELp
Eleocharis spp.	1.0	wiregrass		ELspp
Elymus condensatus	0.8	Spike rush	1.0	EL
Erigeron bloomeri	0.8	Giant wild rye	0.9	ERGB
Eriogonum spp.	} 1.0 shrub	Sulphur Eriogonum	1.0	ERGapp
Eriogonum umbellatum				EGu
Eriophyllum lanatum				EYI
Festuca idahoensis	0.10	Idaho fescue	0.3	FI
Fimbristylis (annual)		Full-up sedge		FI spp (FIM)
Hordeum nodosum	0.2	Meadow barley	0.5	Hn
Juncus balticus	} 3rd	Coarse rush	0.5	Jb
Juncus spp.		Rushes		J spp
Koeleria cristata	0.1	Junegrass	0.3	Ko
Linum lewisii	1.0 (plant)	Blue flax	1.0	LNI
Lupinus spp. (saxifl.)	0.1	Lupine	1.0	L spp
Muhlenbergia spp.	} 3rd	Muhly grass	0.3	Mu spp.
Muhlenbergia squarrosa		Mat muhly		MUo

✓ All 3rd species and shrubs BA = 4 sq" Lengthside 2" = Hok  
This is the same as BA = 1.0 and Lengthside = 1.0 abm

PLANT NAMES AND SYMBOLS  
(Harvey Valley Allotment)

FORAGE SPECIES CONTINUED

<u>Scientific Name</u>		<u>Common Name</u>		<u>Symbol Used</u>
Pentstemon spp.	0.8	Pentstemon	0.9	PSpp
<i>protonsis</i> Poa compressa	Sod	Aster (Pink composite)		P
Poa nevadensis	0.1	Canada bluegrass		Ca
Poa sandbergii	0.1	Nevada bluegrass	0.3	N
Purshia tridentata	shrub	Sandberg bluegrass	0.3	SB
		Bitterbrush		BT
Sitanion hystrix	0.1	Squirrel-tail	0.3	St
Stipa elmeri	0.1		0.3	St
Stipa occidentalis	} 0.1	Western needlegrass	0.3	St
Stipa spp.		Needlegrass (porcupine-speargrass)	0.3	St
Stipa thurberiana	0.1		0.3	Stp (Stp)
Trifolium macrocephalum	} 1.0	Bighead clover	1.0	Tm
Trifolium spp.		Clover		Tpp (TR)
Wyethia mollis	1.0	Wooly mules-ears	1.0	W

Types of influence areas

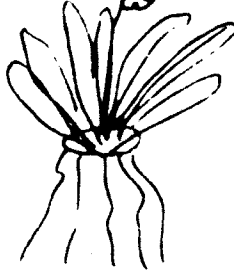
1. Buds



2. Fascicles  
(Bud groups from a common point)



3. Plants  
The plant is the unit rather than a bud



Examples

Dandelion  
Biscuit root

PLANT NAMES AND SYMBOLS  
(Harvey Valley Allotment)

NON-FORAGE SPECIES

<u>Scientific Name</u>		<u>Common Name</u>		<u>Symbols Used</u>
Agoseris spp.	} 1.0	Fringy composite (Dandelion)		F
Agoseris spp.		Mountain dandelion	1.0	AGspp
Antennaria argentea	} 0.5			ANar
Antennaria dimorpha			0.7	ANd
Antennaria spp.				ANspp
Arctostaphylos patula	1.0	Pussytoes		Ap
Artemisia arbuscula	1.0	Greenleaf manzanita	1.0	ARa
Artemisia cana	1.0	Black and hardpan sage	1.0	ARa (ARa)
Artemisia tridentata	1.0	Silver sage	1.0	ARb
		Big sage	1.0	
Camassia quamash (plant)	1.0	Blue camas	1.0	CAMq
Cardamine spp.		Bitter cress		CARspp
Carum quirdneri (plant)	1.0	Yampa	1.0	CRMg
Ceanothus prostratus	1.0	Squaw carpet	1.0	Cp
Chrysothamnus bloomeri	1.0	Bloomer rabbitbrush	1.0	CHYb (ORYb)
Chrysothamnus spp.	1.0	Rabbitbrush	1.0	CRY (CHY)
Cirsium aculeosens	4.0	Thistle	2.0	Cia
Cogswellia spp. = Lomatium lepto	1.0	Biscuit root	1.0	COGspp
Hemizonia spp. (annual)		Tar weed		HSspp
Leptodactylon pungens	1.0		1.0	LE Dp
Leucocorinum spp. plant	1.0	Lily-grass	1.0	LCCspp
Lomatium spp.		Hog-fennel		LOMspp
Phlox spp. (wooly)	1.0	Phlox	1.0	PHLspp
Ranunculus alismifolius	} 1.0 plant	Bittercup	1.0	RA spp (RANa, RAN)
Ranunculus spp.		Bittercup		
Silene spp (plant)	1.0	Catchfly, campion	1.0	SI spp
Viola purpurea (plant)	1.0	Violet	1.0	Vp

6/26/61

Lynn. Had no intention<sup>of</sup> starting a dissertation.

But if we have to make a whole additional  
set of measurements this yr. To bring the  
Technique + records up to acceptable sensitivity + objectivity,  
I wonder if we should stick to intercept  
or shift to distance measures using the  
2<sup>nd</sup> closest plant of each  
species or species group in pt.-center quarter  
approach. I'm sure it would be no  
more time consuming than the intercept  
measurement along a 50" line + infinitely  
more precise + objective. At the same  
time we could cut no. individual species  
& groups considerably beyond what A.H. has.

We don't know how good this approach  
would be - having no data to judge nor  
hard applicable to dry meadow where  
intercept has never been applied by A.H. We  
would have to take the jump on faith + guess.  
But I feel the 2<sup>nd</sup> closest plant level would  
give us a good chance to come out on  
top. This intercept thing shatters me. In  
order to get enough sensitivity we have to make

the intervals of reading finer & finer, which in turn requires more & more time in reading.

I propose this for your reaction - only for the "3rd" measurement per transect. To give us this yr. forward a ~~more~~ <sup>more</sup> substantial base. I do not suggest <sup>omitting</sup> the other readings using AH's techniques & standards to measure change from the base record till now however good a measure they will provide.

met,

Lakeview, Oregon

June 25, 1962

District Managers - Baker, Burns,  
Prineville, Vale

District Manager - Lakeview

Gas Normay's visit to Lakeview and  
Burns to review Rest-Rotation Grazing

Mr. Normay has informed us that he plans to spend the week of July 16 - 20 in the Lakeview and Burns Districts to examine Rest-Rotation grazing plans on the demonstration allotments in the two districts.

Monday, July 16, will be an office day in Lakeview for a session on the principles of rest-rotation grazing. Gas believes this background to be essential for sound application of his system.

We wish to invite all of you to send representatives to attend this session and as much of the following four days in the field in the Little Juniper and Ruby Springs - Mason Hill allotments as your schedules will permit.

Copies to:

State Director (100.3a)  
A. L. Normay, 1960 Addison St.,  
P.O. Box 243, Berkeley 1, Cal.

UNITED STATES GOVERNMENT

Memorandum

U.S. FOREST SERVICE  
P.O. BOX 4137  
PORTLAND 8, OREGON

2220

DATE: June 29, 1962

TO : Director, PSW Station  
Berkeley 1, California

FROM : J. Herbert Stone, Regional Forester, R-6, By

SUBJECT: Management

Reference is made to DeNio's letter of February 7 regarding A. L. Hormay's availability this summer for visits to regions other than Region 5.

We learned this week from Frank Smith of the Washington Office that Hormay will be visiting certain Bureau of Land Management ranges in Oregon this summer. We would like to have Hormay's schedule for the BLM trip to Oregon and, if possible, have him consider spending a few days on Region 6 National Forest ranges either before or after his BLM visit.

We are interested particularly in Hormay's visiting the Ochoco. The Fremont, Okanogan, Umatilla, Wallowa-Whitman and Deschutes will all welcome a visit from Hormay if he has free time this summer.

He would need two weeks to cover all of the above. One week will cover the Ochoco and maybe the Fremont and Deschutes.

We will welcome a report on Hormay's availability. If he is booked solid, we will get our bid in earlier next year.

*F.O. Wilson*

*AKH*  
*AKH*  
*AKH*

*Let me know what you arrange.*

*24*  
*AKH*  
*AKH*