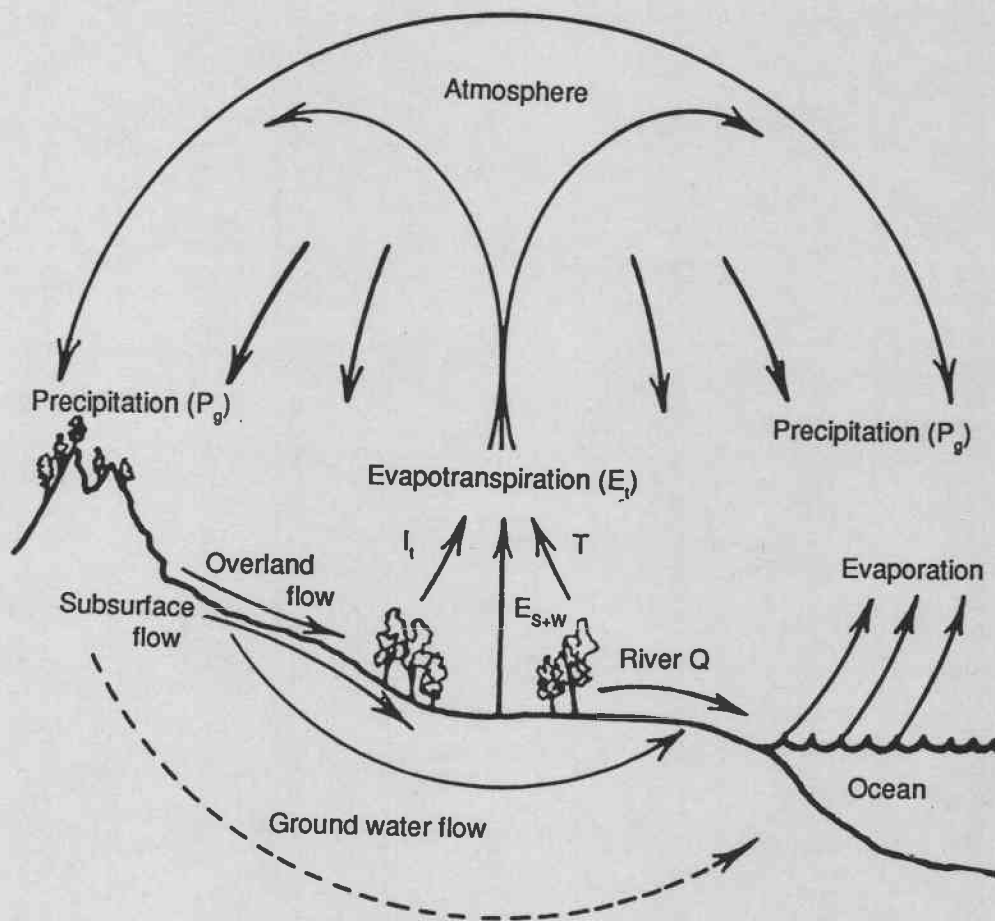


Wildland Watershed Management Short Course



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WILDLAND WATERSHED MANAGEMENT

SHORT COURSE

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AUTHORS

JOHN C. BUCKHOUSE.

Professor. Department of Rangeland Resources. Oregon State University. Corvallis Campus.

J. BOONE KAUFFMAN.

Assistant Professor. Department of Rangeland Resources. Oregon State University. Corvallis Campus.

LARRY L. LARSON.

Assistant Professor. Department of Rangeland Resources. Oregon State University. La Grande Campus.

Principles

L. L. LARSON

A. PRECIPITATION**1. Sources of Moisture****2. Lifting and Cooling of the Air****a. thermal lifting****b. orographic lifting****c. frontal lifting****3. Precipitation Characteristics on Wildlands****a. distribution****b. intensity****4. Storm Rainfall Analysis****5. Measurement and Estimation of Precipitation**

B. INFILTRATION**1. Methods of Measurement****a. watershed studies****b. plot studies****2. Natural Communities as Influenced by Grazing****a. meadows and forests****b. grasslands****c. shrubs****d. woodland****3. Effects of Fire****a. temperature****b. aerial extent of the burn****4. Effects of Rangeland Improvement Practices****a. depression in rates due to intensity of practice****b. ameliorations****1. vegetation success****2. time**

L. L. LARSON

C. RUNOFF

1. "Variable Source Area" Concept

2. Runoff from Natural Communities

3. Influence of Grazing

4. Effects of Rangeland Improvement

5. Influence of Cryptogams

L. L. LARSON

D. EROSION/SEDIMENT

1. Erosion

2. Sediment

3. Structures and Mechanical Land Treatments

Management

J.B. KAUFFMAN

A. UPLAND/RIPARIAN ZONE RELATIONSHIPS

1. Interrelationships

2. Values for Natural Resources

J.B. KAUFFMAN

B. RIPARIAN ZONES

1. Values & Perceptions

2. Functions

J.C. BUCKHOUSE

C. STRUCTURES AND VEGETATION**1. Size of Structures****2. Maintenance****3. Role of Vegetation**

J.C. BUCKHOUSE

D. WATER QUALITY

1. SEDIMENT

2. CHEMICALS

3. BACTERIA

Predictive Tool

J.C. BUCKHOUSE

A. VALUE OF PREDICTION EXERCISES

B. CALCULATION OF PRECIPITATION PROBABILITIES

Example:

High Desert Rangeland

Elevation: 4200-4800'

Soils: sandy loam, 24-30" deep

Vegetation: Vaseganna Big Sage, some Squirrltail and

Bluebunch Wheatgrass, considerable Cheatgrass (in some years)

Precipitation: 6-15" annually

Records: 3 gages with 5 years of record each.

Precipitation Records:

	1983	1984	1985	1986	1987
gage 1	6.8	9.2	8.1	6.9	7.7
gage 2	8.3	11.3	10.1	8.8	9.2
gage 3	12.0	15.0	13.2	11.7	12.8

Hazan Formula:

$$F = \left(\frac{m - 1/2}{n} \right) 100$$

where F = frequency

m = order number

n = total number of observations

Calculations, gage 1:

order	ppt value	F
1	6.8	$\left(\frac{5 - .5}{5} \right) 100 = 90\%$
2	6.9	$\left(\frac{4 - .5}{5} \right) 100 = 70\%$
3	7.7	$\left(\frac{3 - .5}{5} \right) 100 = 50\%$
4	8.1	$\left(\frac{2 - .5}{5} \right) 100 = 30\%$
5	9.2	$\left(\frac{1 - .5}{5} \right) 100 = 10\%$

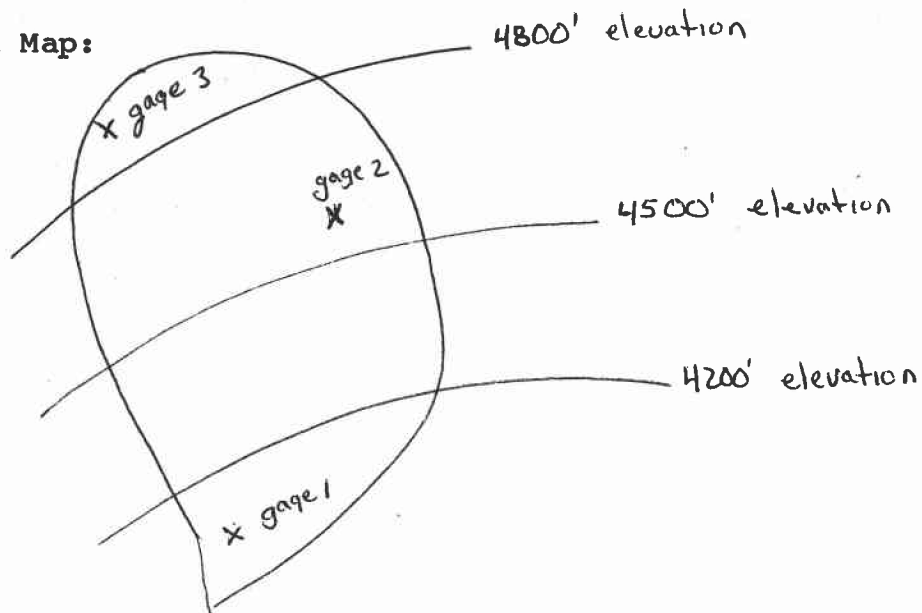
Calculations, gage 2:

order	ppt value	F
1	8.3	90%
2	8.8	70%
3	9.2	50%
4	10.1	30%
5	11.3	10%

Calculations, gage 3:

order	ppt value	F
1	11.7	90%
2	12.0	70%
3	12.8	50%
4	13.2	30%
5	15.0	10%

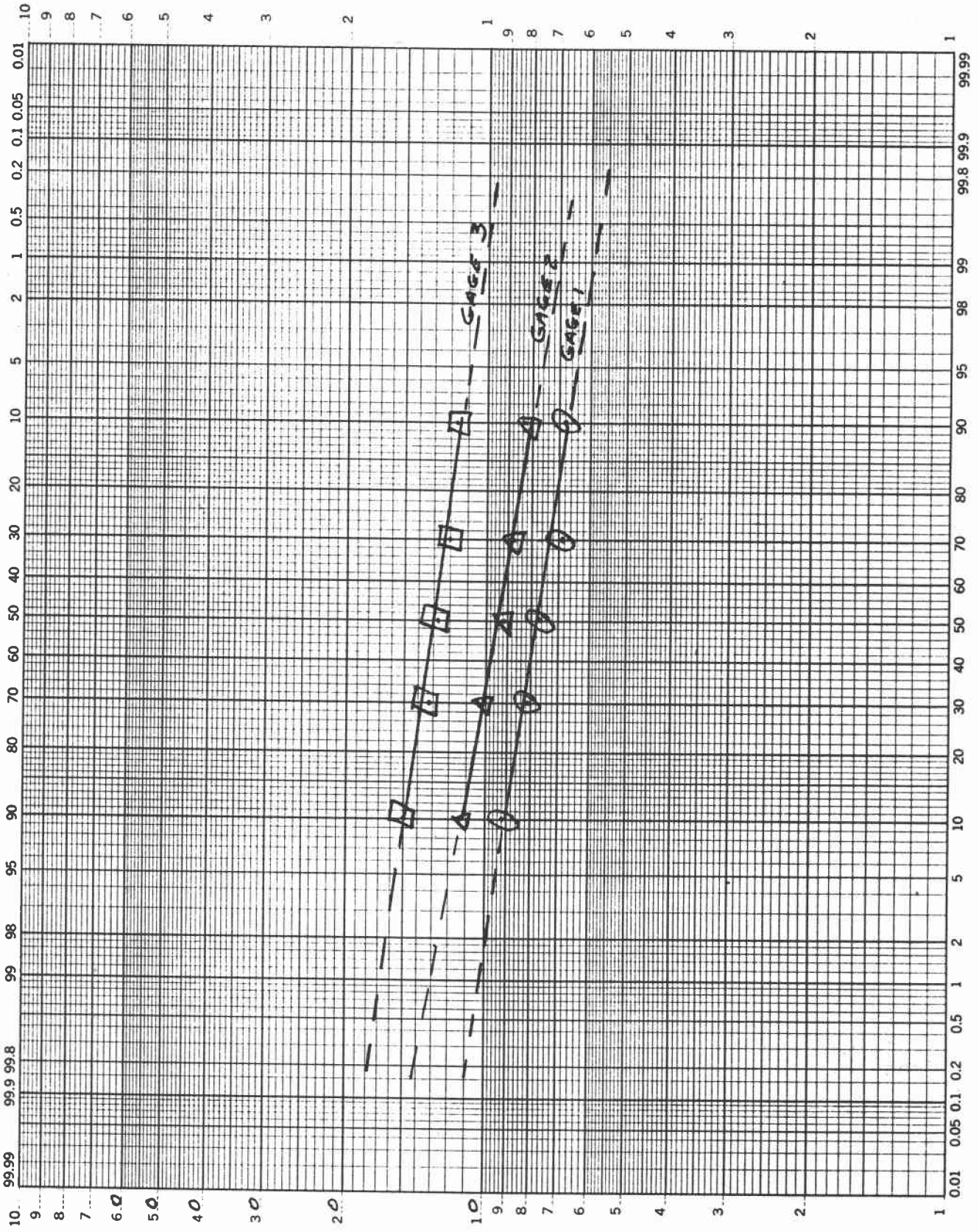
Watershed Map:



Plot Information:

(see probability x 2 log cycle graph paper)

46 8040

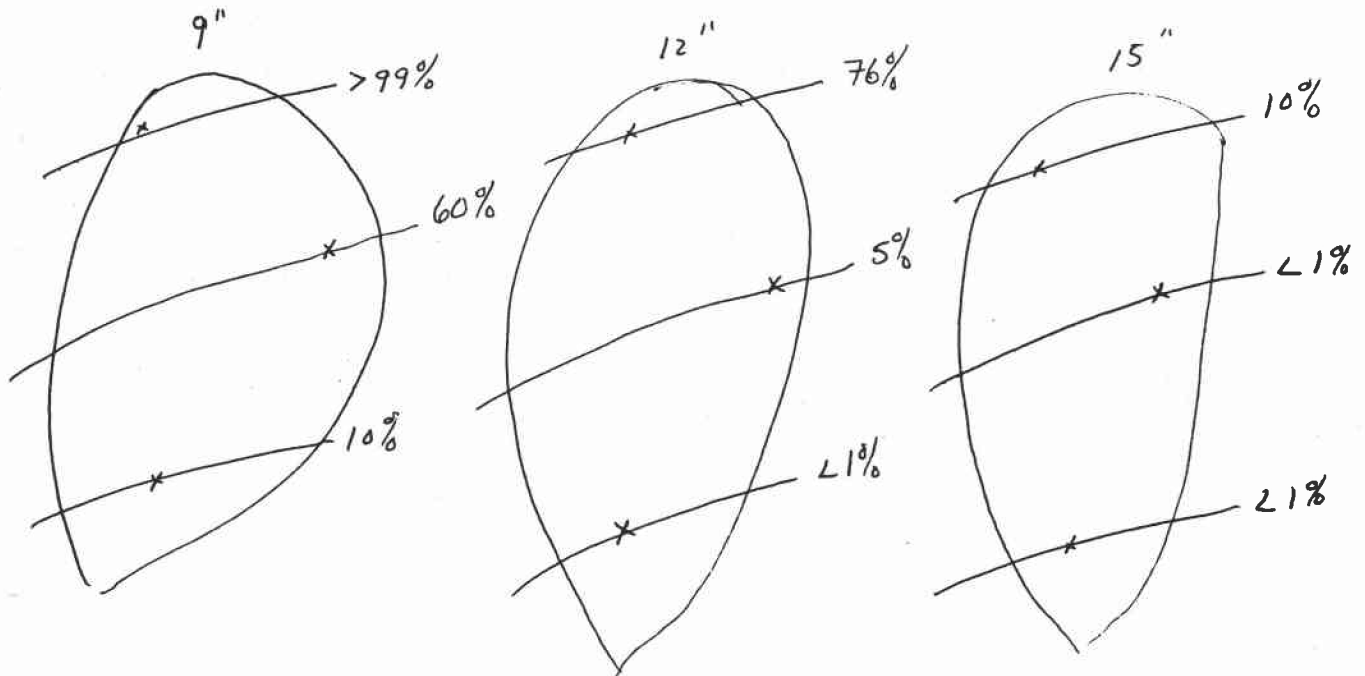


Use:

What if I plant crested wheatgrass (needs at least 9")?

What if I plant tall wheatgrass (needs at least 12")?

What if I plant smooth Brome (needs at least 15")?



Decision:

What level of assurance do I need prior to undertaking this project?