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CALIFORNIA FOREST AND RANGE
EXPERIMENT STATION 1/

FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
IN COOPERATION WITH THE UNIVERSITY OF CALIFORNIA
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STANDARDS FOR JUDGING THE DEGREE OF FORAGE UTILIZATION ON CALIFORNIA ANNUAL-TYPE RANGES

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by

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Annual plants make up 90 to 100 percent of the forage on more than 25,000,000 acres of foothill and valley ranges in California. A healthy, productive range condition in these annual types depends on the amount of old forage left on the ground at the end of the grazing season. This residue forage determines both the amount and the quality of forage produced in following years. An adequate cover of vegetation serves to protect the soil from the direct action of rain, wind, sunshine, and other forces that may cause erosion or lower the fertility of the soil. It not only protects the soil but helps to build it up. Too little cover will permit the range to deteriorate. Too much means forage waste.

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Advantages of Moderate Range Use

Experiments have shown that moderate use of the range leaves about the right amount of forage on the ground for continued production. Advantages of moderate use in one study[1/] of the annual-type range were found to be:

1. The cattle made better net gains over a 7 months' green feed grazing period from January to August.
2. The range was ready for grazing 2 to 3 weeks earlier in the winter.
3. Old forage left on the ground in the fall was eaten with the new green forage and provided the cattle with roughage.
4. The old forage remaining in the fall provided added insurance against washing and gullying of soil at the start of the new rainy period.
5. There were indications that soil fertility was maintained.

1/ Cooperative experiments on cattle range conducted by the Forest Service and the University of California at the San Joaquin Experimental Range, in Madera County. Preliminary results are reported in University of California Bulletin 663, issued April, 1942.

Utilization Standards

The following standards are based on the amount of the current year's forage crop that should remain on the ground at the time the next year's crop starts to grow. These standards consist of a series of photographs taken in pastures at the San Joaquin Experimental Range and show different degrees of range utilization. One photograph (No. 4) illustrates moderate use, which is considered most desirable. The others show either light or heavy use. In judging range utilization, the object is to match the range against the photographs to determine degree of use. Common sense and the experience and training of the range examiner are very important in arriving at a utilization rating. Many factors have to be balanced in forming a final decision, for no single yardstick has yet been devised that will accurately measure the degree of forage use on annual-type ranges. The details of how to use the standards are given in the following pages.

HOW TO USE THE STANDARDS

1. Examine the range in the fall at the beginning of the new growing season. If examinations are made earlier, allowances should be made for any utilization or loss of forage by drying, crumbling, and blowing away that may take place up to the start of the new growing season.
2. Examine all portions of the range thoroughly enough to get a good cross section of use. (Where practicable judge small or similar units of the range separately, such as fenced pastures, forage types within pastures, hillsides, or other areas, and summarize these separate units for an estimate of the whole range.)
3. Compare the use you see on each range unit with photographs 1 to 6 and decide which photograph most nearly matches it.
4. Examine the range more closely for specific indicators of degree of use (described on pages 8 to 10) to check and if necessary to adjust the first estimate you made when you compared the range with the photographs in a general way.
5. Carefully observe the condition of the range (pages 11 to 13). Be sure that you are judging current use and not the condition of the range.
6. From the photographs and accompanying descriptions (page 8) rate the use of the range unit as a whole by number, from 0 to 100, using the scale on page 5.

RANGE UTILIZATION RATING SCALE

(For ranges in good condition)

	Utilization	Rating number	Illustrations of rating Photograph No.
NONE		0	
		5	
	Very light	10	 1
		15	
		20	
		25	
LIGHT	Light	30	 2
		35	
		40	
	Moderately light . .	45	 3
		50	
MODERATE		55	
	Moderate	60	 4
		65	
		70	
		75	
CLOSE	Close	80	 5
		85	
		90	
	Very close	95	 6
		100	

Photograph
No. 1
Very
light

Photograph
No. 2
Light

Photograph
No. 3
Moderately
light

Photograph
No. 4
Moderate

387988

Photograph
No. 5
Close

387978

Photograph
No. 6
Very
close

387961

DESCRIPTIONS OF DEGREES OF FORAGE UTILIZATION

Photograph Nos. 1, 2, and 3 Very light to moderately light

It would not be good economy to leave this amount of forage on the range. Much more of it could be turned into livestock products. This light degree of use favors the growth of tall grasses at the expense of such excellent forage plants as filaree, bur clover, soft chess, and others that help keep the range in better nutritive balance. More economic management would therefore call for closer use, about that shown in photograph 4, but not so close as shown in photographs 5 and 6.

Photograph No. 4 - Moderate (about right)

Points to notice:

(1) The range has a protective blanket of old forage growth averaging about 2 inches high.
(2) The remaining forage cover has a mottled, patchy appearance from uneven grazing.
(3) The forage partly hides small ground objects, squirrel mounds, livestock trails, and small bare soil areas at a distance of 20 feet or more.
(4) Livestock have not grazed the forage out from under shrubs and around the edges of rock.
(5) Livestock have eaten the seed heads from the grasses they like best, such as soft chess, but not from grasses like red brome and ripgut grass.
(6) Bur-clover seeds may be found on the ground (if this species grows on the range).

Photographs Nos. 5 and 6 Close and very close

Points to notice:

(1) The range looks smooth, slicked off, and closely mowed; about the same amount of vegetation is left on the ground in the swales and on hill slopes (see photograph 9).
(2) Practically all the grass stubble has been grazed off.
(3) Small rocks, sticks, hoofprints, dung piles, squirrel and gopher mounds, and small areas of bare soil can be plainly seen at a distance of 20 feet or more, because there is not enough old forage to hide them.
(4) Livestock have grazed the forage out from under shrubs and around rocks places that are hard to get at.

(5) Bur-clover seed is difficult to find on the ground (if this species grows on the range) because it has been licked up by the livestock.

387990

Photograph No. 7 - Contrasting use in swales and on adjoining hillsides.

The forage has been grazed much less on the hillsides than in the swales, indicating moderate or proper use of the range as a whole. Compare with photographs 6 and 8. Livestock graze the forage in the swales more closely because it remains green longer there than on the hillsides.

387984

Photograph No. 8 - Close use on hillsides as well as in swales.

When no more forage is left ungrazed on the slopes than in the swales, the range has been too closely used.

375651

Photograph No. 9 - Light use around and under shrubs.

Light or no use around and under shrubs as shown here is one indication that the range has not been grazed closely. Compare with photograph 10.

360236

Photograph No. 10. - Close use in relatively inaccessible places.

When livestock graze closely under shrubs and around and between the limbs and tangled masses of smaller branches of dead trees and bushes lying on the ground, it is an indication that the range has been too heavily grazed.

Range Condition

A clear distinction should be made between range utilization and range condition. Range utilization is the cause; range condition is the effect. Range condition is the result of many years' grazing and reflects the current capacity of the range to produce forage for livestock. Close utilization over a period of years causes poor range condition and low production capacity. Moderate or light use produces good range condition and high production capacity. Some heavily depleted areas may have to be protected from grazing for a season or more in order to restore or encourage better range conditions. The earmarks of good and poor condition are shown in photographs 11 and 12. Recognizing range condition helps in judging current utilization.

378227

Photograph No. 11 - Good range condition.

Annual-type ranges in good condition show the following:

Vegetation

1. Plant cover is relatively thick and even. Soft chess, filaree, bur-clover, and wild oat are abundant on the more fertile areas.

2. Vigorous forage growth.

3. A thin layer of decaying vegetation and litter on soil surface.

Soil

1. No gullies, or only a few with rounded banks, overgrown with vegetation.

2. No lighter colored subsoils showing through soil surface.

3. Surface soil showing darker color than subsoil.

4. No evidence that wind or water is moving the soil.

Photograph No. 12 - Poor range condition.

Annual-type ranges in poor condition show the following:

Vegetation

1. Sparse and stunted growth of plant cover.
2. Absence of thin layer of decaying vegetation and litter on soil surface.
3. Exposed shrub and tree roots.

Soil

1. Lighter-colored, more compact subsoils showing through the surface soil.
2. Gullies without plant covering on banks.
3. Pebbles and rocks left on the soil surface after washing off of soil.
4. No plants on outwash fans of temporary streams, indicating recent erosion.
5. Small dams of debris and soil on the upper side of grass clumps, rocks, fence posts, down logs, and similar objects.
6. Dust and small soil dunes, indicating that the soil surface is not well protected by a blanket of plants.
7. Conspicuous livestock trails.

Other

1. Active undercutting of stream banks.
2. Muddy or silt-laden streams.
3. Flood damage.