

State Cooperative Soil - Vegetation Survey

CALIFORNIA DIVISION OF FORESTRY
Department of Conservation, The Resources Agency

PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION
Forest Service, U. S. Department of Agriculture

DIVISION OF AGRICULTURAL SCIENCES
University of California

April

1964

SOIL FERTILITY STUDIES: NO. 1 - Guenoc series

W. Robert Powell

Department of Agronomy, University of California, Davis

This leaflet, a product of the Soil-Vegetation Survey, is one of a series giving results of greenhouse pot tests and field fertilizer trials on soils primarily associated with range lands. The data indicate fertility status with regard to nitrogen, phosphorus, and sulfur. Field trials also give preliminary data on potential range forage production and species changes resulting from fertilizer treatments. Methods are detailed in: Powell, W. Robert. 1964. Procedures used in range land soil fertility studies. State Cooperative Soil-Vegetation Survey, Calif. Div. of Forestry, Sacramento, 15 pp.

FIELD NUTRIENT TRIAL No. 45-3

Shasta County

Plot 9 of Quad 32A-1

NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 17, T30N, R2W, MDBM

Slope south-2%; elevation 870 feet

Grassland opening in woodland-grass

Fertilized 25 October 1960

(Greenhouse soil sample No. FA61-45-103)

Table 1. Herbage Yields, pounds per acre, oven-dry

Fertilizer Treatment ^{1/}	24 May 1961	5 May 1962	24 May 1963
Check	622 a	617 a	922 a
S	509 a	391 a	---
P	1315 b	1704 b	2720 c
PS	1154 b	1865 b	2448 b c
N	1142 b	624 a	---
NS	1185 b	497 a	---
NP	3379 c	1770 b	1928 b c
NPS	3708 c	1857 b	1824 a b

^{1/} N = 150, P = 88, S = 100 lb/A

Table 2. Per cent ground cover of herbaceous species, 24 May 1961.

	Fertilizer Treatment							
	Check	S	P	PS	N	NS	NP	NPS
<u>Grasses and Grass-like Plants</u>								
<i>Aira caryophyllea</i> ^{1/}	7	5	14	15	10	9	21	24
<i>Aristida oligantha</i>	+	1	+	+				
<i>Briza minor</i>		1	+	1	1	1	2	
<i>Bromus mollis</i>	+	+	1	1	1	+	9	8
<i>Deschampsia danthonioides</i>	1	1	3	1	3	5	23	21
<i>Festuca bromoides</i> ^{2/}	1	+	1	1	1	3	12	9
<i>Festuca microstachys</i>		+	1	+			1	+
<i>Festuca reflexa</i>	1	1	1	2	2	2	5	3
<i>Hordeum hystrix</i>		+	+	1	+	1	1	2
<i>Juncus bufonius</i>	+	+		+	+	1		
<i>Poa scabrella</i>		+		+	+			
<i>Scribneria Bolanderi</i>	+	+	+	+	1	3	5	9
<u>Forbs</u>								
<i>Boisduvalia stricta</i>		+	1	3	+	1	3	3
<i>Brodiaea elegans</i>					+	+		
<i>Brodiaea hyacinthina</i>		+			1	+		
<i>Chlorogalum pomeridianum</i>	1			1		1		
<i>Epilobium paniculatum</i>	+		1	+		+	1	+
<i>Erodium</i> ^{3/} <i>obtusiplicatum</i>	+	1	2	1	+		2	3
<i>Hemizonia Fitchii</i>		1	1	+		1	1	
<i>Layia Fremontii</i>	+	+		+				
<i>Navarretia</i> spp. ^{4/}	5	4	9	8	7	9	6	4
<i>Pogogyne zizyphoroides</i>	+	+			2	1		
<i>Trifolium</i> spp.	3	2	8	4	1	2	2	6
Other species ^{5/}	4	2	4	5	4	7	6	7
TOTAL HERBACEOUS COVER	24	20	47	45	37	47	100	100

^{1/} Includes *Aira elegans* and *Agrostis exiqua*

^{2/} Includes *Festuca myuros*

^{3/} Includes *Erodium botrys*

^{4/} *Navarretia leucocephala* and *N. intertexta*

^{5/} Includes *Gastridium ventricosum*, *Isoetes Howellii*, *Plantago Hookeriana* var. *californica*, *Centaureum venustum* spp. *Abramsii*.

Table 3. Per cent ground cover of herbaceous species, 5 May 1962

	Check	S	P	PS	N	NS	NP	NPS
<u>Grasses</u>								
Aira caryophyllea ^{1/}	13	6	22	32	5	9	12	6
Agrostis exigua	2	1		1	2	1		
Briza minor	+		1		+	+	1	1
Bromus mollis	+		2	5	1	2	17	19
Deschampsia danthonioides	3	1	2	2	1	2	3	8
Festuca bromoides ^{2/}			4	4	1	1	13	13
Festuca microstachys		1		1		+		
Festuca reflexa	1	1	4	3	1	2	4	2
Hordeum hystrix			1		1		1	6
Scribneria Bolanderi		+			+	+		
<u>Forbs</u>								
Baeria chrysostoma spp.								
gracilis		1	1	1		1	3	3
Brodiaea hyacinthina	+		1	1				
Epilobium paniculatum	1	1	1	7	2	2	2	5
Erodium obtusiplicatum ^{3/}	+		2				1	
Isoetes Howellii		+			+	1		1
Layia Fremontii	1	2	4	2	3	2	2	5
Limnanthes floccosa		+	1	1	2	1	1	1
Linum micranthum	1	1	3			3		
Microseris acuminata	2	1	2		1	+		
Navarretia intertexta	1	1				+		
Navarretia leucocephala	6	1	3	1	4	5		
Plagiobothrys sp.	1	1	3	2	8	3	4	1
Pogogyne zizyphorides					+	1		
Thysanocarpus radians	2	+						
Trifolium depauperatum	2		3	7	1	2	5	1
Trifolium variegatum			3	3	+		3	1
Other species ^{4/}	2	2	3		2	3	3	1
TOTAL HERBACEOUS COVER	38	22	66	73	35	41	74	74
LITTER	61	77	28	24	65	59	25	20
ROCK AND GRAVEL	1	1	6	3			1	6

^{1/} Includes A. elegans.

^{2/} Includes F. myuros

^{3/} Includes E. botrys

^{4/} Includes Aristida oligantha, Achyrrachaena mollis, Allium amplexans, Chlorogalum pomeridianum, Eschscholzia Lobbii, Lepidium nitidum, Orthocarpus sp.

