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BRUSHLAND RANGE IMPROVEMENT - 1973

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Cover Photo

Demonstration game management area on Cow Mountain in Mendocino County. Brush mashed in summer by a Tomahawk brush crusher, when burned in fall.

California Division of Forestry
Sacramento

May, 1974

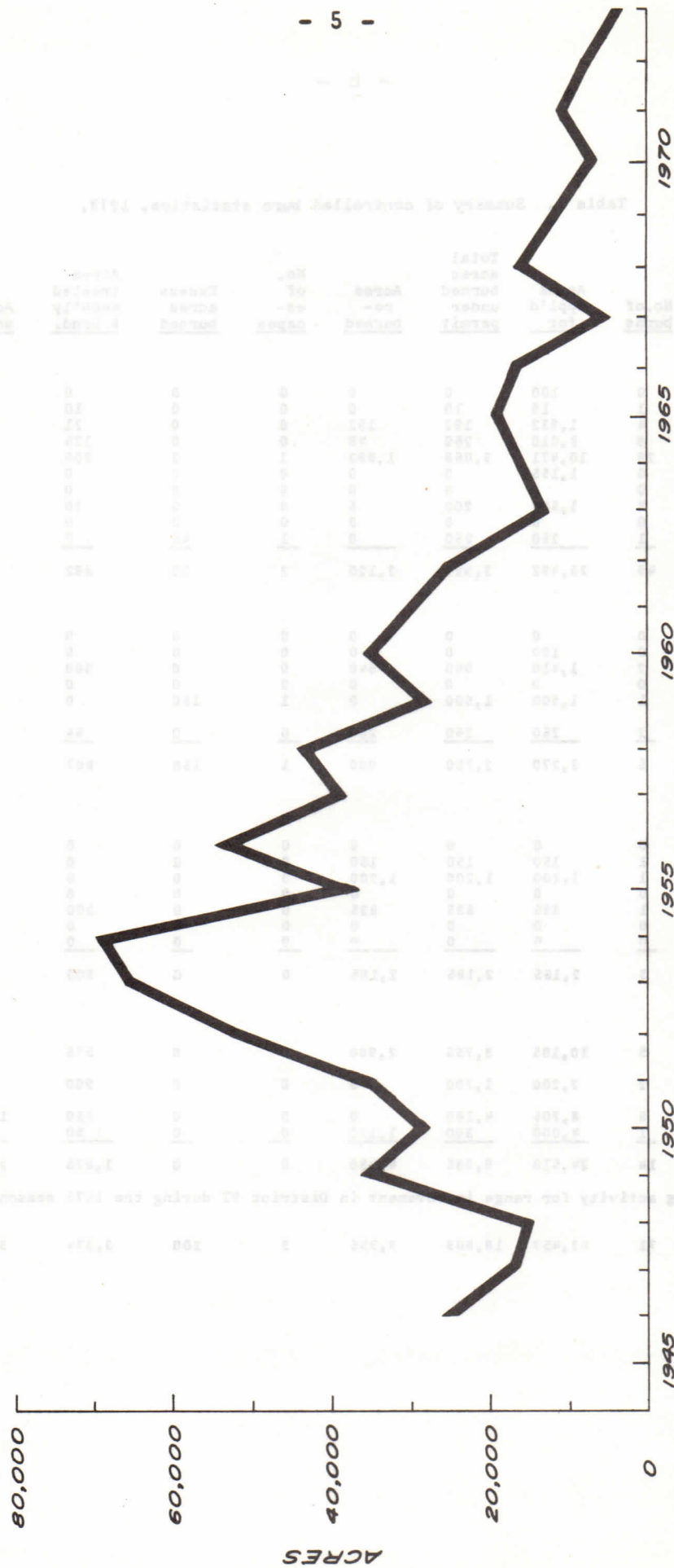


FIGURE 4. ACREAGE SEEDED

Table 1. Summary of controlled burn statistics, 1973.

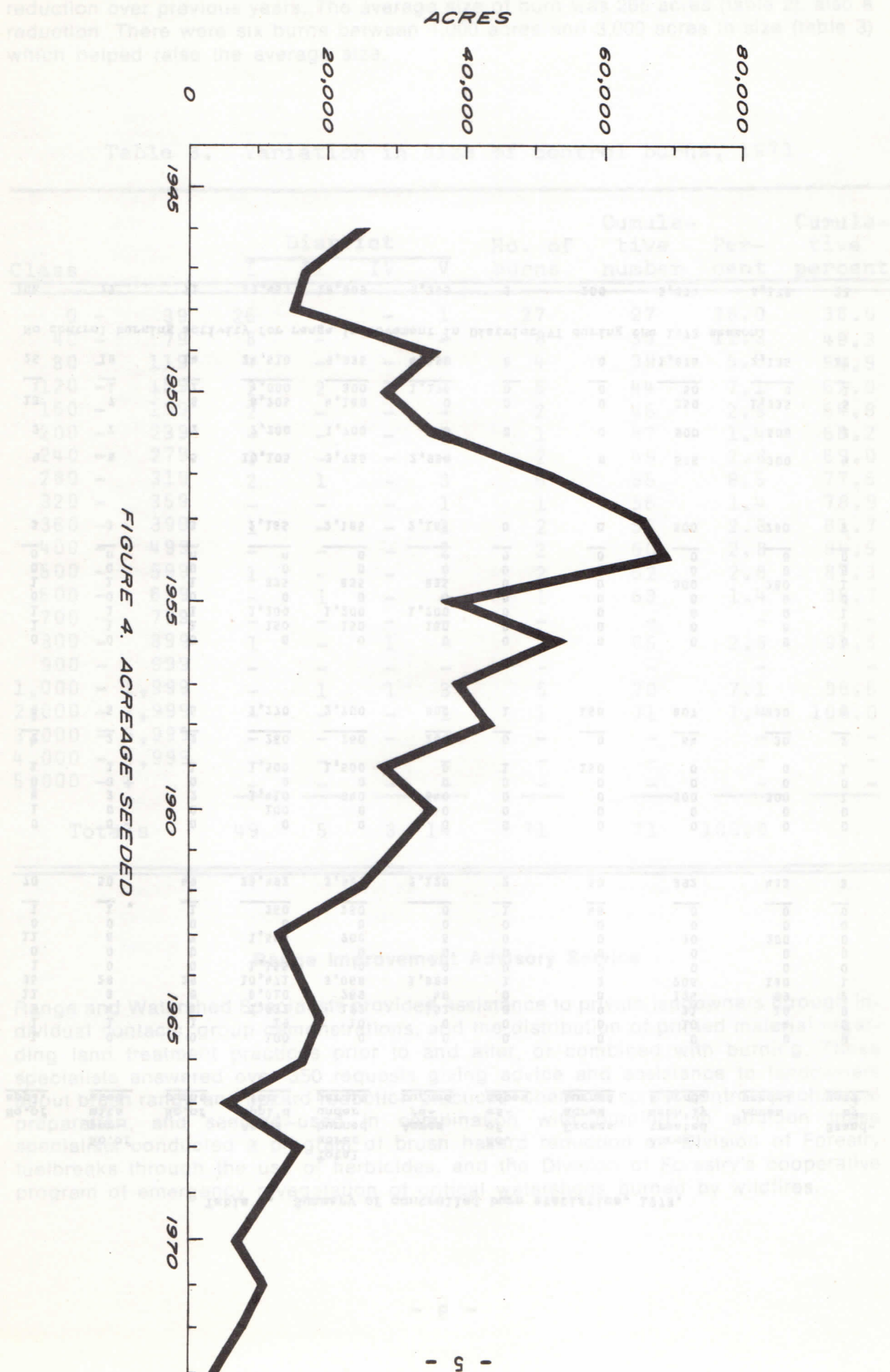
County	No. of appl.	No. of permits used	No. of burns	Acres appl'd for	Total acres burned under permit	Acres re-burned	No. of escapes	Excess acres burned	Acres treated mech'ly & brnd.	Acres seeded	Stand-by used	Stand-by acres
<u>DISTRICT I</u>												
Colusa	1	0	0	100	0	0	0	0	0	0	0	0
Del Norte	1	1	1	19	10	0	0	0	10	4	0	0
Humboldt	9	4	4	1,932	192	192	0	0	21	10	0	0
Lake	11	8	8	8,010	269	40	0	0	125	89	2	140
Mendocino	35	28	28	10,471	3,068	1,883	1	2	206	130	1	897
Napa	1	0	0	1,155	0	0	0	0	0	0	0	0
Solano	0	0	0	0	0	0	0	0	0	0	0	0
Sonoma	11	8	7	1,555	200	5	0	0	30	200	0	0
Trinity	0	0	0	0	0	0	0	0	0	0	0	0
Yolo	1	1	1	250	250	0	1	48	0	0	0	0
Total	70	50	49	23,492	3,989	2,120	2	50	392	433	3	1,037
<u>DISTRICT II</u>												
Butte	0	0	0	0	0	0	0	0	0	0	0	0
Lassen	1	0	0	100	0	0	0	0	0	0	0	0
Shasta	4	2	2	1,410	940	640	0	0	300	300	1	640
Siskiyou	0	0	0	0	0	0	0	0	0	0	0	0
Tehama	1	1	1	1,500	1,500	0	1	150	0	0	1	1,500
Nevada-Yuba												
Placer	2	2	2	260	260	260	0	0	64	30	2	260
Total	8	5	5	3,270	2,700	900	1	150	807	330	4	2,400
<u>DISTRICT IV</u>												
Amador-												
El Dorado	0	0	0	0	0	0	0	0	0	0	0	0
Calaveras	1	1	1	150	150	150	0	0	0	0	1	150
Fresno	1	1	1	1,200	1,200	1,200	0	0	0	0	1	1,200
Madera	0	0	0	0	0	0	0	0	0	0	0	0
Mariposa	1	1	1	835	835	835	0	0	300	280	1	835
Tulare	0	0	0	0	0	0	0	0	0	0	0	0
Tuolumne	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	3	3	2,185	2,185	2,185	0	0	300	280	3	2,185
<u>DISTRICT V</u>												
Monterey												
San Benito	9	9	5	10,105	3,755	2,980	0	0	575	300	4	3,380
San Luis												
Obispo	2	2	2	2,200	1,700	0	0	0	900	500	2	1,700
Santa												
Barbara	13	7	5	8,205	4,180	0	0	0	350	1,335	5	4,180
Santa Clara	1	1	1	4,000	300	1,170	0	0	50	0	1	300
Total	25	19	14	24,510	9,935	4,150	0	0	1,875	2,135	12	9,560
<u>DISTRICT VI</u>												
No control burning activity for range improvement in District VI during the 1973 season.												
STATE TOTAL	106	77	71	53,457	18,809	9,355	3	200	3,374	3,178	23	15,182

Table 2. Summary of activity in controlled burning and reseeded for range improvement, 1945-1973 inclusive.

Year	No. of appl's	No. of permits used	Total acres burned under permit	Less acres re-burned	Net acres burned	Excess acres burned by escape	Acres seeded	Per-cent seeded	Ave. Size permit burn
1945	*	252	50,424	*	*	15,232	*	*	200
1946	266	212	54,164	*	*	9,320	24,574	38.7	255
1947	216	170	32,945	*	*	6,106	17,253	44.2	194
1948	180	154	24,462	*	*	6,786	15,103	48.3	159
1949	408	344	87,909	*	*	14,628	34,760	33.9	256
1950	469	337	83,249	*	*	14,125	28,493	29.3	333
1951	558	438	133,885	14,847	138,691	19,653	35,469	23.1	468
1952	750	617	181,710	45,464	145,349	9,103	53,032	27.8	453
1953	819	593	178,354	26,821	155,212	3,679	65,855	36.2	410
1954	980	699	227,131	51,670	181,803	6,342	69,232	29.7	552
1955	750	524	137,370	37,002	109,210	11,842	38,327	23.3	417
1956	620	453	149,043	59,291	97,588	7,836	53,106	29.5	476
1957	507	373	109,731	36,185	87,771	14,225	39,019	31.5	451
1958	571	448	150,564	67,178	95,003	11,617	42,981	24.6	447
1959	443	330	83,079	30,732	54,752	2,405	28,069	32.8	308
1960	523	451	128,430	58,714	74,471	4,755	35,006	26.3	389
1961	445	331	85,416	32,272	56,126	2,982	29,519	28.9	357
1962	390	331	73,421	19,614	57,870	4,063	24,175	41.8	298
1963	362	300	68,275	31,242	38,482	1,449	14,307	20.5	303
1964	352	280	78,984	32,019	55,798	8,743	15,970	19.2	349
1965	242	209	67,874	31,200	43,044	6,370	19,496	26.3	435
1966	227	201	58,588	31,378	29,449	2,239	16,823	28.0	380
1967	202	180	64,543	49,315	16,713	485	5,323	8.2	471
1968	182	168	53,042	34,191	21,295	2,444	13,770	24.8	373
1969	195	141	48,490	25,797	23,125	432	10,816	22.1	408
1970	183	131	38,594	19,834	18,760	1,216	6,140	15.7	327
1971	150	107	37,246	19,770	17,246	2,519	8,793	23.8	414
1972	98	59	31,172	16,472	14,650	610	7,367	23.6	528
1973	106	77	18,809	9,355	9,454	200	3,178	16.8	265
TOTALS	11,194	8,910	2,533,904	780,363	1,940,122	191,406	755,956	-	-

* Data not available for these years.

Over 52 percent of the burns conducted were less than 100 acres in size. A considerable reduction over previous years. The average burn size was 285 acres. Also a reduction. There were six burns between 100 and 200 acres in size (table 3) which helped raise the average to 285.



North Coast District

Range Improvement activity in the North Coast District was up slightly in most all categories during 1973. During the season, the Ranger Units in the North Coast District received and processed 70 applications, up 13 percent over 1972, but down to only 55 percent of the 10-year average. The total acres applied for (23,492) was up 13 percent over 1972 but was only 46 percent of the ten-year average. The acreage burned under permit was 3,989 acres only 24 percent of the 10-year average while 2,120 acres, or 53 percent, was recorded as reburned.

There was only one cooperative burn conducted during the 1973 season. It occurred in Sonoma County. Two cooperators burned jointly on an area totaling 15 acres.

Three burns were conducted exclusively for wildlife habitat improvement on 195 acres, with an average size of 65 acres per burn. Since 1955, the counties of Mendocino, Sonoma, Lake and Napa have recorded 513 brush range improvement burns solely for wildlife habitat, totaling 57,011 acres of land cleared for this use with fire. In addition to the above figure, 9 burns totaling 610 acres were conducted as multiple purpose burns for both domestic livestock and wildlife management, which increases the total effort towards this phase of the burning program. Three non-permit winter burns were recorded during 1973 which included 70 acres, all in Sonoma County.

The total acres reported as mechanically treated and burned (392) is only 37 percent of the previous ten-year average. Also, seeding after burning was accomplished on only 433 acres, 12 percent of the 10-year average. Range mix variations listed included Harding grass, clover, and perennial and annual ryegrasses. Perennial and annual ryegrass were the predominant species listed. The seeding was accomplished by hand seeding or drilling.



Fig. 5. Tomahawk brush crusher mounted on front of D-6 bulldozer. Teeth mounted on rotating rings not only mash the brush but also chop part into the soil to help reduce erosion.

Burning activity was about equally divided between the north and south halves of the district. Santa Barbara County range improvement burning was up sharply, even though they only burned about half the proposed acreage. Results of burning as usual showed wide variation depending on preparation, fuel, and weather conditions. Most burns were not as successful as expected. Air pollution "no burn" days limited some otherwise good burning days.

Landowners' and Division of Forestry efforts associated with the range improvement program have increased. This has been due to the "Protect the Environment" movement with its associated regulations and pressures, as well as more intensive management practices.

Preparation for burning now involves more serious consideration of such factors as air pollution potential, watershed damage, aesthetic impact, potential liability, as well as more elaborate burn preparations and safety. Often environmental considerations require joint meeting with interested participants and citizens. These increases in activity are not reflected in acres burned each year.

Despite considerable enthusiasm among ranchers about the "Ball and Chain," (fig. 6) as well as conventional chaining, only 1,875 acres were mechanically treated prior to burning in 1973. Several thousands of acres have been chained but not burned. However, some of this may be burned later in the 1974 season.

Reburning activity was well below the five-year average for this district. Only 4,150 acres were reburned during the 1973 season. The total would have been higher but adverse weather conditions curtailed the larger proposed burns.



Fig. 6. Ball and chain being used to crush brush in Monterey County in preparation for burning.

The degree of burning ranged from poor to excellent. Reports indicate fair to excellent on 44 of the 49 burns conducted, with the landowners being generally satisfied with the results. The continued use of fire will be employed to clear their lands.

In this North Coast District there has been a gradual, but steady decrease in the total acreage burned and number of controlled burns conducted each season. This trend can probably be attributed to the added controls imposed upon the permittees by regulating agencies, such as Air Pollution Control Districts, Department of Fish and Game as well as California Division of Forestry.

Sierra Cascade District

Burning activity was considerably down from the 10-year average in this district. Eight landowners submitted control burn applications requesting permits to burn 3,270 acres. However, only five permits were issued and 2,700 acres were successfully burned under permit. There was one control burn escape which burned 150 acres.

About a third of the acreage burned during 1973 was brushland that had been burned once or twice before and was burned again for regrowth control. Only 807 acres were treated mechanically and burned. The control burn results ranged from good to excellent on all five burns.

The number of control burn applications has decreased since 1968. The acreage applied for is far below the current 10 year average. Much of the decrease in burning activity can be attributed to increased land values, liabilities in the event the burn escapes, increased use of herbicides to kill unwanted trees, and conflicts with air pollution standards.

San Joaquin District

There were only three applications received from ranchers proposing to burn 2,185 acres of brush rangeland for range improvement. All of the above acreage proposed was burned under permit. One hundred percent of the acreage was reburned.

There were no escapes during the burning of the three projects.

Only one landowner prepared the brush to be burned on 300 acres by mechanically treating it prior to burning. Crushing the brush with bulldozers, piling, and falling oaks with chainsaws were the methods used. Follow-up treatment on brush sprouts with chemicals was continued during 1973. A number of wood cutting operators continued to use stump treatment with chemicals to reduce sprouting following cutting. The Division received several requests from ranchers for advice on these matters.

Central Coast District

Brushland range improvement activity in the Central Coast District was significantly below the five-year average in number of burns conducted and total acreage burned. During 1973, 19 permits were issued to conduct 14 burns, 39 percent below the five-year average. A total of 9,935 acres was burned, which is 53 percent below the five-year average. Three of the burns were cooperative burns, all of which were conducted by range improvement associations.

techniques for control of brush regrowth on the plots that had not been given follow-up treatments of herbicides. However, the new owner of the property was reluctant to renew the lease for the study.

Bautista Canyon Cooperative Brush Conversion Study

This project is located in Riverside County. It is a cooperative study between the California Division of Forestry, the University of California at Riverside, and the Pacific Southwest Forest and Range Experiment Station.

Approximately 30 acres were treated with herbicides, by helicopter, in 1967. One of the primary objectives of the study was to trace residues from the several herbicides being used in the study. Plans are now being formulated to clear the study area of the dead brush and sprouts by various mechanical means and/or fire.

PUBLICATIONS.....

The following publication pertaining to brush range improvement was completed and distributed in 1973.

BROWN, Robert D. 1973. Pre-burn treatment of oaks with the ball and chain. Calif. Div. of For., Sacramento. Range Improvement Studies No. 21. 6 pp., illus.

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