

RANGE AND QUAIL HABITAT IMPROVEMENT PROJECT

An Economic Analysis

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Range and quail habitat improvement work started on the Sugar Loaf Land and Cattle Company, a 3,620 acre area in Yuba County, in November 1968. Twenty-seven months later, at the end of January 1971, the company manager declared the improvement program on the area completed: all brush moved and piled, 13 springs developed and fenced, 20 miles of roadways, and 6 miles of firebreaks constructed at a cost of \$29,696.04 (table 1). Costs of posting and patrolling are also shown. Time cards were used in accumulating the economic data.

The largest development cost was for brush clearing and amounted to \$6.67 per acre. The brush cover consisted of live and deciduous oak, poison oak, coffeeberry, and Ceanothus. It varied from sparse to extremely heavy.

Brush and trees were pushed into fairly evenly spaced piles varying from 10 to 29 feet in diameter and from 3 to 5 feet in height; they were left for quail cover and nesting purposes. Around the springs, brush was moved to within 5 to 15 feet of the waters' edge to provide escape routes from hawks and other enemies of the quail.

TABLE I. Cost of Water Development, Brush Clearing, and Road and Firebreak Construction.

Activities	Labor	Jeep	Bulldozer	Pickup Truck	Horse	Chain Saw	Total	Cost/Unit
Water Development (13 springs)	\$ 934.80	\$ 544.03	\$ 494.50	—	—	—	\$ 1,973.33	\$151.79/spring
Brush Clearing (3,620 acres)	6,915.53	536.98	14,749.00	—	—	\$1,948.80	24,150.31	6.67/acre
Roads & Firebreaks (26 miles)	889.20	—	2,683.20	—	—	—	3,572.40	137.40/mile
Total	\$8,739.53	\$1,081.01	\$17,926.70	—	—	\$1,948.80	\$29,696.04	\$ 8.20/acre
Post & Patrol	\$5,731.35	\$4,316.95	—	\$240.00	\$42.00	—	\$10,330.30	—

The following hourly rates were used in the table:

Labor	\$2.85	Pickup truck	\$3.00
Jeep	2.35	Horse	.50
Bulldozer	8.60	Chain saw	4.06 - Rent

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No brush burning has yet been done in the habitat but in the future some piles may be individually burned to reduce the amount of land covered to about 20 or 30 percent of the area. This amount of cleared space appears to be optimum for both livestock and quail production.

Several natural springs occur on this tract but 13 of these were enlarged with a bulldozer and fenced to keep out cattle. The developed springs were spaced where possible to provide water within half a mile anywhere on the area for the birds. Newly hatched chicks will travel only up to about 200 yards to water. The cost of developing the springs averaged \$151.79 each not including fencing materials.

Twenty miles of roads and 6 miles of fire-breaks were constructed. The time required to build these facilities was about 12 hours per mile and cost \$137.40 for bulldozer and operator.

Posting and patrolling the area against trespassers cost \$10,330.30 during the 27

month period. It is anticipated these costs may diminish somewhat in the future as the public learns that the area is being patrolled.

The time cards revealed 503 hours of labor largely devoted to remove and build a new perimeter fence to control cattle.

January 1971 marked the end of the development period. Maintenance of the improvements and control of regrowth of brush and trees will be a continuing task. Chemicals and control burns will be employed in controlling regrowth. Some re-seeding to improve grazing species will be done.

Comparable brush control practices on similar type areas in northern California have resulted in an average of 300 percent increase in cattle carrying capacity. About the same increase should be expected here.

Note: Manager Ray Conway of the Sugar Loaf Land and Cattle Company made this study possible.

Category	Quantity	Unit Cost	Total Cost
Water Development (13 springs)	13	\$151.79	\$1,973.27
Brush Clearing (2,620 acres)	2,620	\$6.71	\$17,580.20
Roads & Firebreaks (26 miles)	26	\$137.40	\$3,572.40
Total			\$21,525.87
Post & Patrol			\$10,330.30

The following hourly rates were used in the table:

Labor	\$2.85
Jeep	2.38
Bulldozer	8.00
Chain saw	4.00 - Rent
Horse	.50
Pickup truck	\$3.00