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THE HARVEY VALLEY EXPERIMENTAL RANGE IMPROVEMENT PROGRAM

Lassen National Forest

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THE HARVEY VALLEY EXPERIMENTAL RANGE IMPROVEMENT PROGRAM

INTRODUCTION

A range improvement program that was started on the Harvey Valley Experimental Cattle Allotment on the Lassen Forest in 1951 will be 76 percent completed on June 30, 1957. This program got underway when the Regional Office, Lassen Forest and The California Forest and Range Experiment Station agreed in 1950 to set up a pilot test of a grazing management system that was developed by the Station at the Burgess Spring Experimental Range from 1936 to 1950. The Harvey Valley Allotment - approximately 32,000 acres in size - was chosen for the test.

The Experiment Station agreed to make the needed measurements on both range and livestock for evaluating the grazing system. The Regional Office and Lassen Forest agreed to shoulder the job of establishing and maintaining the necessary grazing management facilities and range improvements. These included structures like fences, water developments, cattleguards, gates, corrals and scales and cultural improvements like artificial reseeding and brush and weed control by spraying. Because of limited Station funds the Regional Office agreed to provide $1,000.00 yearly to help finance the experimental program as well. The test was designed to run for about 20 years.

The grazing management plan called for subdivision of the allotment into 5 pastures or units. This required the establishment of additional improvements on the allotment. Old improvements existing at the start of the range improvement program and the additional improvements that were planned are shown in Table I. Most of the existing improvements could be used in the test, but many units required betterment.

TABLE I - EXISTING AND ADDITIONAL PLANNED RANGE IMPROVEMENTS ON THE HENRY VALLEY RANGE ALLOTMENT [illegible]

Improvement	Existing Units	Planned Additional Units
Fences		
Boundary	6.21	12.86
Pasture	5.86	13.48
Holding fields	6.04	-
Experimental area	5.68	-
Total	23.79	26.35
Cattleguards		
Wood	7	-
Concrete - iron	0	20
Total	7	20
Gates		
Wood	5	-
Barb-wire	29	18
Metal frame	-	-
Total	34	18
Corrals and Scales		
Corrals and Scales	1	1
Corrals (Permittee)	1	-
Total	2	1
Water Developments		
Tanks, Dams	7	9
Springs	1	7
Windmills	3	3
	11	19
Cultural Work		
Reseeding (introduced)	-	544
Reseeding (native)	-	480
Spraying	-	4581
		5605

COST OF THE PROGRAM

The cost of new improvements to January 1, 1957 totalled $46,136. The present estimated cost of the final program is $69,290 - some $6521 above $62,769 estimated in 1951. The structural work will cost $11,229 more than planned because of a decision to install metal gates in many cases where barb-wire gates were planned and to the higher cost of cattle guards and a corral set up than estimated. The cultural program will cost $4708 less than planned mainly because it was decided to reduced the acreage of spraying.

New improvements

The number and cost of the various types of improvements planned in 1951, established by January 1, 1957, to be established between January 1, 1957 and the end of the program in 1965, and the complete final program are shown in Table II. About 58 percent of the cost of the complete program will be in terms of fences, cattleguards and gates; 10 percent in water developments; 9 percent in special livestock handling facilities and 23 percent in reseeding and spraying.

TABLE II - UNITS AND COST OF HARVEY VALLEY RANGE IMPROVEMENT PROGRAM

Type of Improvement	1951 Plan		Established 1951-57		To be established 1957-1965		Complete Final Program 1951-1965		
	Units	$ (A)	Units	$ (B)	Units	$ (C)	Units	$ (B)+(C)	Per-cent
Structural									
Fences									
Boundary	12.85	12850	8.40	8450	5.55	5550	13.95	14000	
Interior	13.48	13480	13.26	13260	-	-	13.26	13260	
Total	26.33	26330	21.66	21710	5.55	5550	27.21	27260	40
Cattleguards									
Total	20	6000	9	2400	4	2500	13	8700	14
			2	1105 ✓				1105	
			11	7505				9805	
Gates									
Barb-wire	18	✓	18	126	6	42	24	168	
Metal frame	0	-	8	825	19	1900	27	2725	
Total	18	-	26	951	25	1942	51	2893	4
Water developments									
Dams, pits	9	4500	1	105	4	2000	5	2105	
Spring-trough	7	1400	0	-	10	4250	10	4250	
Windmill	3	1950	2	800	-	-	2	800	
Total	19	7850	3	905	14	6250	17	7155	10
Corrals & Scales									
Total	1	1750	1	4200	1	1850	1	6050	9
Subtotal		41930		35267		17692		52958	73
				1105				1105	
				36370				54159	
Cultural									
Reseeding (introd.)	544	5041	452	5368	89	505	513	6574	
Reseeding (Natives)	400	2205	-	-	200	300	200	300	
Surveying	4321	13593	1635	5001	1485	4455	3120	9457	
Subtotal	5565	20839	2087	10869	1774	5260	3853	16151	23
Grand Total		62769		45085		25152		69290	100
				✓1105					
				46136					

✓ These barb-wire gates were considered part of the fence and were included in fence costs.

Each improvement such as fence segement, cattleguard, gate, water development, reseeded area etc., is identified by number. Tables showing these numbers and details on each improvement are available at the Lassen Forest and Susanville Research Center offices. The improvements are also shown and identified by number on two maps A and B. Map A shows all improvements (old and new) on the allotment on January 1, 1957. Map B shows the improvements proposed for completion between January 1, 1957 and July 1, 1962. These maps are a part of this report.

MAINTENANCE

The cost of maintaining all improvements - existing in 1951 and those established from 1951 to 1957 totalled $10,081 or an average of $1672 per year. About $6080 was spent on old existing facilities and $3974 on new facilities. Both these costs were above average because there were two years of heavy snow during the period. Fence breakage was unusually high and some reseeded areas were damaged.

The estimated average annual cost of maintaining all improvements after the program is completed in 1965 was calculated to be $2942. Of this amount $2567 is for maintenance of structural improvements - mainly fences and $375 for culturally treated areas. The latter amount is mainly for spraying to keep brush and weed species from reinvading reseeded and sprayed areas. The annual cost is based on spraying once in 20 years. The estimated annual cost of maintaining a unit of the various improvements is shown in Table III.

EXPENDITURES BY YEARS

The monies allotted and spent on the improvement program by years from June 1, 1951 to January 1, 1957 are shown in Table IV.

ACCOMPLISHMENT SCHEDULE

The cost of establishing and maintaining various improvements from 1951 to 1957 is shown in Table V.

TABLE III - ESTIMATED ANNUAL COST OF MAINTAINING RANGE IMPROVEMENTS

Improvement	Cost $
Fences (old)	50 per mile
Fences (new)	25 per mile
Cattle guards	5 each
Barb-wire gates	2 each
Dams	5 each
Spring - troughs	5 each
Windmills	20 each
Corrals - Scales	25 each
Reseeded Areas	0.15 per acre
Spraying Areas	0.15 per acre

TABLE IV - YEARLY COSTS OF ESTABLISHING NEW IMPROVEMENTS AND MAINTAINING OLD AND NEW IMPROVEMENTS 1951 to 1957

Fiscal Year	Expenditures			Allotments	
	Structural Improvements $	Cultural Improvement $	All Improvements $	Revegetation Money $	Other/1 Money $
1951	-	4629	4629		4629
1952	7263	2355	9618	4000	5618
1953	12556	2545	14701	6800	7901
1954	6471	1293	7764	6000	1764
1955	10438	538	10976	8200	2776
1956	6694	355	7049	4250	2799
1957	1108	547	1650	1650/2	
Total	44,525	11,842	56,167	25,900	30,267

1/ These amounts were made up by Regional Office P&M money (other than revegetation money) Lassen Forest CRI and P&M money, Lassen Forest available fire crew time and CP&RBS funds.

2/ $3000 was allotted in 1957. Of this amount $1650 was spent by December 31, 1956. The remaining $1350 will be spent by June 30, 1957 for sagebrush spraying.

TABLE V - ESTABLISHMENT COSTS OF TYPES OF NEW IMPROVEMENTS AND MAINTENANCE COST OF BOTH OLD AND NEW IMPROVEMENTS (1951 - 1957)

ESTABLISHMENT COSTS (NEW IMPROVEMENTS) Fiscal Years

Type of Improvement	1951 Units	1951 $	1952 Units	1952 $	1953 Units	1953 $	1954 Units	1954 $	1955 Units	1955 $	1956 Units	1956 $	1957-to Dec.31,1956 Units	1957-to Dec.31,1956 $	Total Units	Total $
Fences (All)		-	4.48	4480	9.57	9620	5.16	5160	4.45	4450		-		-	21.66	21,710
Cattleguards		-	1	200	2	1600	2	1600	1	800	3	2200	2	1105	11	7,505
Gates		-	3	149	5	35	7	255	1	100	5	452	-	-	26	951
Corrals & Scales		-		-		-		-	1	3000	-	1200	-	-	1	4,200
Water Developments		-	1	105		-		-	2	800	-	-	-	-	3	905
Cultural Work	1648	4629	157	2555	180	2545	168	1295	-	0	-	0	19	247	2087	10,869
Total		4629	-	7287	-	13,900	-	6286	-	9150	-	3852	-	1350	-	46,136

MAINTENANCE COSTS

Old and new improvements		-		2551		1101		1488		1606		3217		300		10,081

ESTABLISHMENT AND MAINTENANCE COSTS

All improvements		4629		9838		14,701		7764		10,756		70219		1650		56,167

It should be mentioned that from 7 to 46 percent of the total amount spent yearly was used for maintenance.

COMPLETION SCHEDULE

The remainder of the improvement program is planned to be carried out by years as shown in Table VI. See map for location of these projects.

FENCES

All the interior pasture fences are completed, but 5.55 miles of fence remains to be built on the allotment boundary. A total of 5.55 miles in 6 different locations are needed to extend existing fences to natural barriers. Two miles of fence are needed in the northeast corner of the allotment to close the boundary.

CATTLE GUARDS

Four cattle guards remain to be built. Two are on the allotment boundary on heavy traffic roads. One is onthe Jessom Valley road on the north boundary and the other on the Logan Spring road on the south boundary. The other two cattle guards are on interior pasture fences also on heavy traffic roads. One connects pastures 1 and 2 in the southwest corner of Harvey Valley proper and the other connects pastures 2 and 4 where pastures 2, 3 and 4 come together.

FYE

	Total Remaining Program Units	$	1957 Units	Cost	1958 Units	Cost	1959 Units	Cost	1960 Units	Cost	1961 Units	Cost	1962 Units	Cost	1963 Units	Cost
							Establishment									
				$		$				$		$		$		$
Fences (Boundary)	5.55	5550	-	-	3.00	3000	2.55	2550	-	-	-	-	-	-	-	-
Cattleguards	4	2300	-	-	1	500	1	600	1	500	1	300	-	-	-	-
Gates	25	1942	-	-	10	442	4	400	4	400	4	400	3	300	-	-
Corrals & Scales	1	1850	-	1850	-	-	-	-	-	-	-	-	-	0	-	-
Water development	14	6250	-	-	5	2150	4	1700	4	1800	1	600	-	-	-	-
Cultural Work	1774	5260	1485A	4455	56	330	135	325	-	-	100	150	-	-	-	-
Total		23,152	-	6305	-	6722	-	5775	-	2700	-	1350	-	300	-	-
							Maintenance									
All Improvements		19,066		2296		2619		2665		2812		2877		2937		2942
							Establishment and Maintenance									
All Improvements		42,198		8601Δ		9341		8458		5512		4227		3237		2942

Δ $1650 already spent

GATES

Twenty-five gates remain to be built. Six of these are barb-wire which cost about $7.00 each. The remainder are metal frame gates costing about $100.00 each. See map for locations.

WATER DEVELOPMENTS

Fourteen more water developments are needed. Four of these are earth dams, tanks or pits. Two are needed in unused timber areas on the south slope of Harvey Mountain. Another is needed in the center of Pasture 4 and still another on the east edge of Pasture 5.

CORRALS AND SCALES

A corral and scales setup constructed in Harvey Valley in 1955 and 1956 requires modification as follows to make it fully safe and serviceable.

1. Replace present gates on chutes and scales with sliding gates.
2. Put cover over scale for weather proofing.
3. Brace and adjust all corral gates.
4. Construct special holding pen in front of chute leading to scales.
5. Construct wooden wings leading into corrals from pastures.
6. Build up level of soil in squeeze holding pen to be nearly level with bottom of chute to scales.
7. Put cleats on bottom of chutes and scales.

The estimated cost of these modifications is $1850.

CULTURAL WORK

Close study from 1951 to 1957 of the sites proposed for cultural treatment indicated that some of the acreage originally proposed for treatment could not be treated successfully with available equipment and present procedures. In 1957 therefore, the cultural program was reduced by 1732 acres. The area remaining to be treated is 1774 acres. Most of this will be sprayed in June of 1957. The acreage to be treated in different ways from 1957 to 1965 is brought out in the following table:

CULTURAL WORK PROGRAM AT HARVEY VALLEY

TREATMENTS	COMPLETED 1951-57 (acres)	PLANNED 1957-1965 (acres)	TOTAL 1951-1965 (acres)
Reseeding			
1. Disc and drill introduces species	424	-0-	424
2. Spray and drill introduced species	-0-	89	89
3. Spray and harrow native species	-0-	200	200
4. Spray (only)	1665	1485	3150
Total	2089	1774	3863

All the intensive (disc-drill) reseeding work is done. Eighty-nine acres remain to be sprayed and drilled with introduced species. On two hundred acres of sprayed land the seed of native species are to be harrowed into the soil. Some 1485 acres remain to be sprayed. See map for location of these cultural treatments.

SPECIAL CHARACTER OF HARVEY VALLEY ALLOTMENT

The cost of the range improvement program on the Harvey Valley Allotment is greater than it would be for an average eastside allotment of the same size for several reasons. It is crossed by many roads. Three of the roads are heavily travelled by the public. This made it necessary to build several more gates and cattle guards than would have been required otherwise. Furthermore, many of these improvements had to be built to higher standards because of public traffic and recreational (hunter) pressure. A livestock driveway crosses the allotment. This too has required additional gates and expenses. It is estimated that construction costs were increased about $6,200 because of these two factors.

Establishment costs were above average in several cases because not enough time was available for planning the work program. The corral scales development is an example. Some of the reseeding work had to be maintained at a fairly high cost. The grass stand on one 10 acre area was killed out by flooding in a very wet year and had to be reseeded.

All of these adverse factors considered, it is estimated that a comparable new improvement program on an average 32,000 acre allotment could be carried out for about $80,000 or about $9000 less than the Harvey Valley program.

No extra expenses were incurred at Harvey Valley for regulating grazing on the sprayed and reseeded areas. On an open range allotment it would have required approximately 10 miles of fence and 3 water developments to put the treated areas under management control. The total cost of this program would have been about $12,000.

There may be opportunity of reducing the cost of the present completion program by using wire gates where metal ones are proposed in a few cases and by doing without a water development or two. These possibilities will become more evident as full grazing pressure continues to be applied to the pastures involved. A saving of 2 or 3 thousand dollars is possible at most.