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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

RESOURCES COMMUNITY
AND ECONOMIC DEVELOPMENT
DIVISION

B-210983

AUGUST 3, 1984



124843

The Honorable Gary Hart
United States Senate

Dear Senator Hart:

Subject: Information on Forest Service Below-Cost Timber
Sales for National Forests in Colorado
(GAO/RCED-84-184)

In response to your letter of March 23, 1984, concerning the Forest Service's forest management plans for the national forests in Colorado, we met with your office on May 11, 1984. During our meeting, we discussed the feasibility of addressing the issues raised in your letter. On the basis of that discussion and our interest in providing some information as quickly as possible, we agreed to pursue two specific areas.

For the first, which is the subject of this report, we are providing detailed information on the profitability of Forest Service timber sales made by the national forests in Colorado for fiscal years 1981 and 1982--the most current fiscal years for which data are currently available. This detailed information is being furnished together with a summary of findings on the below-cost timber sales that we recently reported to the Congress.¹ The findings in our report to the Congress were based on our analysis of 3,244 advertised Forest Service sales made in 9 western states, including 92 sales in Colorado. Copies of that report were provided to your office.

For the second area, on which we will furnish a separate report at a later time, we agreed to evaluate the methodology used in the Forest Service's timber demand forecasts for one or more of the forest management plans completed for the national forests in Colorado. Our evaluation of the methodology will include a review

¹Congress Needs Better Information on Forest Service's Below-Cost Timber Sales (GAO/RCED-84-96, June 28, 1984).

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of the particular steps and economic considerations the Forest Service used in the timber demand computations. We will also look at the Forest Service's computerized system known as FORPLAN to see how the Service considers the trade-offs between recreational activities and timber sales.

The following summarizes pertinent information in our June 1984 report to the Congress; highlights below-cost sales activities in the Forest Service's Rocky Mountain Region, which includes Colorado; and provides more detailed information on individual below-cost sales for the national forests in Colorado.

ANALYSIS OF INDIVIDUAL TIMBER SALES

Our analysis of 3,244 advertised timber sales the Forest Service made in the Northern, Rocky Mountain, Intermountain, and Pacific Northwest Regions during fiscal years 1981 and 1982 showed that, overall, Forest Service revenues exceeded Service sale costs by \$712 million. Although the timber was sold at or above the Forest Service's appraised values for the timber, 433 sales (27 percent) awarded in 1981 and 677 sales (42 percent) in 1982 did not generate sufficient revenues to cover the costs of making the sales. The 1981 below-cost sales had shortfalls of \$64 million, and the 1982 below-cost sales had shortfalls of \$92 million. In the Rocky Mountain Region, 75 sales awarded in 1981 had shortfalls of \$14 million and 73 sales awarded in 1982 had shortfalls of \$13.9 million. As the following table shows, the national forests in Colorado--one of four states in the Rocky Mountain Region--accounted for 47 below-cost sales awarded in 1981 and 44 below-cost sales awarded in 1982. The shortfalls on these sales were \$7.1 million and \$8.2 million, respectively, or 50 percent and 59 percent, respectively, of the Rocky Mountain Region's shortfalls. Over this period, only one sale in Colorado had a gain.

Below-Cost Timber Sales
for National Forests in Colorado

<u>National Forest</u>	<u>Fiscal year 1981</u>		<u>Fiscal year 1982</u>	
	<u>Number of sales</u>	<u>Amount of loss</u>	<u>Number of sales</u>	<u>Amount of loss</u>
Arapaho	1	\$ 357,887	-	\$ -
Grand Mesa, Uncompahgre	3	729,723	4	1,538,620
Gunnison	3	317,234	1	416,579
Pike	6	401,335	1	157,047
Rio Grande	7	1,544,743	8	1,620,869
Roosevelt	2	352,938	4	304,117
Routt	10	1,361,212	9	1,650,420
San Isabel	2	114,658	5	450,959
San Juan ^a	10	1,690,794	4	1,160,799
White River	<u>3</u>	<u>258,964</u>	<u>8</u>	<u>900,006</u>
Total	<u>47</u>	<u>\$7,129,488</u>	<u>44</u>	<u>\$8,199,416</u>

^aOne 1981 sale at this forest had a gain of \$7,085. This was the only above-cost sale in the 10 forests during the 2 fiscal years shown.

Details on individual sales for each Colorado forest are in enclosure I. A description of the methodology we used to compute gains or losses for individual sales is in our June 1984 report to the Congress.

The percent of sales made below cost by the four regions reviewed for fiscal years 1981, 1982, and both years combined was as follows.

<u>Region</u>	<u>Percent of sales below cost</u>		
	<u>1981</u>	<u>1982</u>	<u>Combined</u>
Northern	49	70	60
Rocky Mountain	94	99	96
Intermountain	89	96	93
Pacific Northwest (total)	14	30	22
Pine subregion	34	51	42
Douglas-fir subregion	6	23	15
Total	27	42	34

Although all regions showed higher percentages of below-cost sales in 1982 than in 1981, their rankings did not change. For the national forests in Colorado, the percentages of sales below cost were 98 percent in 1981 and 100 percent in 1982.

LOW PRODUCTIVITY LANDS, LOW TIMBER
VALUES, AND LOW TIMBER SALE VOLUMES
SIGNIFICANTLY INFLUENCE SALE ECONOMICS

Each timber sale is unique, and an analysis of each would be necessary to determine why it did not recover costs. However, as we said in our June 1984 report to the Congress, low productivity of timberlands, lower unit prices received for predominant species sold, and low volumes of timber sold appear to be the primary reasons for significantly higher percentages of below-cost sales in the Rocky Mountain and Intermountain Regions than in the Northern and Pacific Northwest Regions.

National forest timberland productivity

Commercial timberlands are commonly classified according to their capability to grow wood. Their capability or productivity depends on such factors as soil fertility, moisture, slope of the land, and elevation. Productivity classifications are called site classes, which are expressed in terms of the number of cubic feet of timber per acre the land is capable of producing per year. From the highest to the lowest, the site classes are 120 or more, 85 to 120, 50 to 85, and 20 to 50. Site class 20 to 50 land is low in productivity and responds slowly to timber management activities. Generally, land incapable of growing 20 cubic feet per acre per year is not considered to be commercial timberland.

In the Rocky Mountain Region, about three fourths of the commercial national forest land is in the lowest site class of 20 to 50. Only about 1 percent of the Region's land is in the highest

productivity category. In contrast, only about 5 percent of the land in the Pacific Northwest Region's Douglas-fir subregion in western Oregon and Washington is in the lowest productivity category, and more than 40 percent is in the highest category.

Unit sales prices of predominant timber species

The average unit sales price for two of the three predominant tree species sold in the Rocky Mountain Region decreased from 1981 to 1982, as shown below.

<u>Timber species</u>	<u>1981</u>		<u>1982</u>	
	<u>Percent of total volume</u>	<u>Average sales price</u>	<u>Percent of total volume</u>	<u>Average sales price</u>
		(MBF) ^a		(MBF) ^a
Ponderosa pine	46.2	\$16.94	25.5	\$8.51
Lodgepole pine	20.5	4.86	22.0	2.64
Englemann pine	13.6	4.52	26.3	4.67

^aThousand board feet.

The average unit sales prices for ponderosa and lodgepole pine decreased about 50 percent and 46 percent, respectively; whereas, the average unit sales price for Englemann pine increased 3 percent.

Volume of timber sold

In terms of volume sold, the Rocky Mountain Region accounted for about 4 percent of the total timber sold by all Forest Service regions in fiscal years 1981 and 1982. Since sale preparation and sale administration unit costs result from dividing forest total costs for those activities by timber volumes sold, it appears that economies of scale resulting in lower unit costs occur when volume increases faster than costs. The higher volume regions generally have lower unit costs.

Average unit costs--costs per thousand board feet--for sale preparation and sale administration costs were relatively high in the Rocky Mountain Region and in the 10 national forests in Colorado. For 9 of the 14 national forests in the Rocky Mountain Region, average unit costs for these activities exceeded \$30, and for 4 they exceeded \$20. One forest's average unit cost was less than \$20. The average unit costs for 7 of the 10 national forests in Colorado exceeded \$30, and for 3 they exceeded \$20. None of the Pacific Northwest Region's 19 forests had average unit costs for these activities exceeding \$25; 16 were below \$20 and 9 were below \$15.

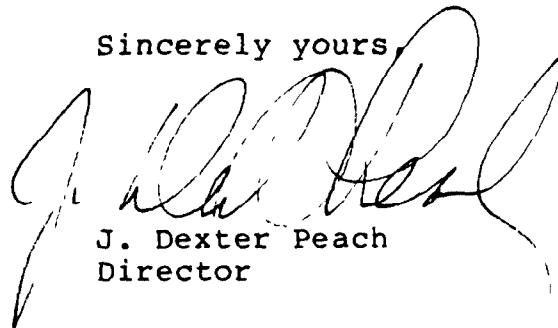
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As discussed in our report to the Congress, on the basis of sale economics alone, some national forest lands should not be managed for timber production. We recognized, however, that the Forest Service must also consider other factors in managing the federal timber resources. For example, contributing to local area economic stability by providing timber-related employment may offset the federal subsidy involved in continuing to sell timber from such land for less than cost. As such, it would be unwise to impose rigid or inflexible economic constraints on timber sales to all forest lands nationwide. Accordingly, we did not suggest in our report to the Congress that all future sales recover costs. Instead, we suggested that management of federal timber resources could be improved by developing and using financial data in the timber sale planning and decisionmaking process.

We demonstrated in our report to the Congress that the costs and revenues of timber sales could be reasonably estimated using computerized Forest Service data supplemented by other data available at the national forests. We recommended, therefore, that the Secretary of Agriculture require the Forest Service to develop a capacity to systematically determine the costs to sell timber for all national forest timber sales and, on a statistically valid basis, compare these costs with the estimated values to be received from sales. Developing and using financial data in the forest management process could, in our opinion, help improve the management of the multiple-use concept of the national forest system.

Because this report is a summary of the material we reported to the Congress and the Chief of the Forest Service has already commented on that material, we have not obtained agency comments on this report. Copies of this report are being sent to the Director, Office of Management and Budget; the Secretary of Agriculture; and other interested parties. We will also make copies available to others upon request.

Sincerely yours,



J. Dexter Peach
Director

Enclosure

FOREST SERVICE
TIMBER SALES IN COLORADO
FISCAL YEAR 1981

NATIONAL FOREST	SALE NAME	VOLUME (MBF) ^a	TOTAL VALUE RECEIVED	SALE PREPA- RATION	SALE ADMINIS- TRATION	SILVI- CULTURE EXAMS	VALUE EXPENDED			PAYMENT TO COUNTIES	TOTAL	GAIN OR (LOSS)
							LAND LINE SURVEY	ROADS	SALE AREA REFORESTATION			
Arapaho	SUPPLY CREEK	5500	11000	67320	34485	66880		189202	8250	2750	368887	(357887) (357887) *****
Grand Mesa, Uncompahgre	TABEGUACHE	950	56050	11476	7182	19333		0	8391	14013	60395	(4345)
	COLUMBINE	4420	79872	53394	33415	89947		212166	1820	19968	410710	(330838)
	LOCKHART	2620	120417	31650	19807	53517		402375	5984	1824	514957	(394540) (729723) *****
Gunnison	STAGESTOP T51	624	4146	7538	4717	12698		0	2648	1037	28638	(24492)
	CAKE RIDGE	1266	7431	15293	9571	25763		0	6796	1858	59281	(51850)
	SARGENTS MESA #3	4200	65301	50736	31752	85470		132219	4380	1636	306193	(240892) (317234) *****
Pike	SIGNAL BUTTE #1	362	7381	7045	2491	7783		0	478	1845	19642	(12261)
	LONG PARK	380	798	7395	2614	8170		0	570	200	18949	(18151)
	VOLZ	400	566	7784	2752	8600		0	364	142	19642	(19076)
	STAR	165	2128	3211	1135	3548	26264	24398	831	532	59919	(57791)
	KELSEY CREEK	701	19251	13641	4823	15072	9849	42293	880	4813	91371	(72120)
	MILLER GULCH	1657	22936	32245	11400	35626		138024	21843	5734	244872	(221936) (401335) *****
Rio Grande	BOAT RAMP	470	9390	5551	5753	2811		0	4953	2348	21416	(12026)
	DEMIJOHN	1490	2735	17597	18238	8910		105143	1980	684	152552	(149817)

^aThousand board feet

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FOREST SERVICE
TIMBER SALES IN COLORADO
FISCAL YEAR 1981

NATIONAL FOREST	SALE NAME	VOLUME (MBF) ^a	TOTAL VALUE RECEIVED	SALE PREPA- RATION	SALE ADMINIS- TRATION	SILVI- CULTURE EXAMS	VALUE EXPENDED			PAYMENT TO COUNTIES	TOTAL	GAIN OR (LOSS)
							LAND LINE SURVEY	SALE AREA REFORESTATION	ROADS			
Rio Grande (cont'd)	NEFF MOUNTAIN	3100	6200	36611	37944	18538		80667	4650	1550	179960	(173760)
	COCHETOPIA	2620	5064	30942	32069	15668		108059	3750	1266	191754	(186690)
	CATHEDRAL	3200	6400	37792	39168	19136		110115	4800	1600	212611	(206211)
	BLACK MOUNTAIN #2	2390	5934	28226	29254	14292	11286	128891	3150	1484	216583	(210649)
	KREPS	6600	11904	77946	80784	39468		407770	8550	2976	617494	(605590)
												(1544743)

Roosevelt	HOUSE ROCK	820	10660	10037	5141	9971	29876	50866	1230	2665	109786	(99126)
	JUG GULCH	7350	79383	89964	46085	89376		106853	0	917	353195	(253812)
												(352938)

Routt	TIMBERLINE SALVAGE	409	2135	4802	4237	1002		0	354	534	10929	(8794)
	DOMO	831	4720	9756	8609	2036		0	0	1180	21581	(16861)
	OAK CREEK SALVAGE	1581	7900	18561	16379	3873		0	875	1975	41663	(33763)
	#2 COLUMBINE	1520	3040	17845	15747	3724		23953	2280	760	64309	(61269)
	#3 NORTH ELKHEAD	1375	32566	16143	14245	3369		58755	2063	688	95263	(62697)
	CRANE PARK	5100	183605	59874	52836	12495		79475	7650	45900	258230	(74625)
	LITTLE GREEN CREEK	1962	66309	23034	20326	4807		153586	2550	883	205186	(158877)
	SANDPOINT	3948	332345	46350	40901	9673		401343	4876	1960	505103	(172758)
	BLACK WHISKEY	5848	119050	68656	60585	14328		322532	8681	2906	477688	(358638)
	#6 ILLINOIS	4900	9800	57526	50764	12005		312635	7350	2450	442730	(432930)
												(1361212)

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FOREST SERVICE
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								ROADS	SALE AREA REFORESTATION				
San Isabel	MONARCH BASIN	135	270	2627	929	2903		12715	202	68	19444	(19174)	
	LOCKE PARK	1278	34273	24870	8793	27477		57053	2996	8568	129757	(95484)	
												(114658)	

San Juan	LANGE CANYON	210	19320	2094	1598	1913		0	1800	4830	12235	7085	
	LIFT #6 TIMBER SETTLEMENT	1553	3106	15483	11818	14148		0	0	777	42226	(39120)	
	UNCLE CHARLIE ASPEN	890	14073	8873	6773	8108		29770	840	498	54862	(40789)	
	CAN BEAR IT	1400	26163	13958	10654	12754		47147	0	176	84689	(58526)	
	TURKEY SPRINGS 2	4400	233870	43868	33484	40084		136667	11000	58465	323568	(89698)	
	CHICKEN CREEK	3500	111895	34895	26635	31885		157075	8100	2625	261215	(149320)	
	WILLOW DRAW #2	2200	183449	21934	16742	20042		241900	5496	41305	347419	(163970)	
	BUTLER	4185	166410	41724	31848	38125		241685	3278	1988	358648	(192238)	
	FOURMILE	6650	70862	66301	50607	60582	5879	92147	7600	3420	286536	(215674)	
	FREEMAN CREEK	5400	265666	53838	41094	49194	7349	375619	10300	13323	550717	(285051)	
	LONE CONE	6058	231666	60398	46101	55188	44094	441000	966	40327	688074	(456408)	
		Gains											7085
		Losses											(1690794)
												(1683709)	

White River	NEW YORK MOUNTAIN	1000	9765	14650	5770	2780		40577	975	534	65286	(55521)	
	EAGLE SALVAGE	4800	25200	70320	27696	13344		0	1500	6300	119160	(93960)	
	BAR HL #1	1640	48052	24026	9463	4559		105032	2442	12013	157535	(109483)	
												(258964)	

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							LAND LINE SURVEY	ROADS	SALE AREA REFORESTATION			
Grand Mesa, Uncompahgre	BUCKTAIL POINT	900	41400	10872	6804	18315		0	2208	10350	48549	(7149)
	FLAG CREEK	5218	24302	63033	39448	106186		149385	9965	6076	374093	(349791)
	PARK CREEK	5965	24301	72057	45095	121388		143058	21225	6075	408898	(384597)
	DIVIDE NORTH	7570	12187	91446	57229	154050		500082	3416	3047	809270	(797083)
												(1538620)

Gunnison	WILLOW-PINOS	7060	17783	85285	53374	143671		139246	8340	4446	434362	(416579)
												(416579)

Pike	TOPAZ	1551	18808	30182	10671	33347		78921	18032	4702	175855	(157047)
												(157047)

Rio Grande	TREASURE PASS RESALE	548	6414	6472	6708	3277		0	399	1604	18460	(12046)
	MASON SALVAGE	524	7912	6188	6414	3134		0	7650	1978	25364	(17452)
	BUG TRAP 2	2600	30524	30706	31824	15548		10554	3000	7631	99263	(68739)
	LAKE FORK	1900	54243	22439	23256	11362	12415	68023	2648	13559	153702	(99459)
	DIVIDE	3100	111753	36611	37944	18538	13543	144972	4650	27939	284197	(172444)
	BUG TRAP 1	5870	53236	69325	71849	35103		78799	8250	2800	266126	(212890)
	SPANISH BEAR	6450	12397	76175	78948	38571		199004	8850	3099	404647	(392250)
	DIFFICULT BEAR	9800	18778	115738	119952	58604		351578	13800	4695	664367	(645589)
												(1620869)

^aThousand board feet

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							LAND LINE SURVEY	ROADS	SALE AREA REFORESTATION			
Roosevelt	VOYAGER FUELWOOD	125	2500	1530	784	1520		0	0	625	4459	(1959)
	DEADHORSE III	800	1680	9792	5016	9728		0	0	420	24956	(23276)
	TOWER	1360	47944	16646	8527	16538		20781	2040	11985	76517	(28573)
	BEAR GULCH	2780	5588	34027	17431	33805	44814	120253	4170	1397	255897	(250309)
												(304117)

Routt	HARRISON CREEK											
	DEADWOOD #3	475	2498	5577	4921	1164		0	1248	625	13535	(11037)
	WHISKEY BLOWDOWN	1100	2200	12914	11396	2695		0	1647	550	29202	(27002)
	RAM'S RIDGE	1402	7603	16459	14525	3435		0	792	1901	37112	(29509)
	MILL CREEK	1271	10333	14922	13168	3114		0	9695	2583	43482	(33149)
	MILK CREEK SALVAGE	1400	3500	16436	14504	3430		0	2800	875	38045	(34545)
	STATELINE BLOWDOWN	1800	3600	21132	18648	4410		0	1800	900	46890	(43290)
	NORTH ELK	5400	66312	63396	55944	13230		228916	63599	16578	441663	(375351)
	ONION PARK	5800	11600	68092	60088	14210		316083	8667	2900	470040	(458440)
RABBIT EARS	14000	98840	164360	145040	34300		276696	91831	24710	736937	(638097)	
												(1650420)

San Isabel	FALLS	346	14479	6733	2380	7439		0	420	3620	20592	(6113)
	MARSHALL PASS	832	21632	16191	5724	17888		0	1248	5408	46459	(24827)
	LOST PARK I	712	19337	13856	4899	15308		0	18900	4834	57797	(138460)
	RUSSELL BRIDGE	1800	49233	35028	12384	38700		82591	28172	12308	209183	(159950)
	DITCH CREEK	2676	59567	52075	18411	57534		137621	3576	11959	281176	(221609)
												(450959)

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								ROADS	SALE AREA REFORESTATION			
San Juan	MULE MOUNTAIN	2140	50869	21336	16285	19495		82413	4164	1479	145172	(94303)
	GROUSE POINT	2200	76975	21934	16742	20042	11024	190816	5478	1650	267686	(190711)
	MOSCA #2	7210	206175	71884	54868	65683		389903	8014	6002	596354	(390179)
	DUNTON	8000	87770	79760	60880	72880		354447	3488	1921	573376	(485606)
												(1160799)

White River	EAST RIFFLE CREEK	455	2285	6666	2625	1265		0	2057	571	13184	(10899)
	WILDERNESS FUELWOOD	568	4970	8321	3277	1579		0	2500	1243	16920	(11950)
	CRESCENT LAKE	610	3050	8937	3520	1696		0	2745	763	17661	(14611)
	RIPPLE CREEK #1 SALVAGE	590	12390	8644	3404	1640		0	12095	3098	28881	(16491)
	SPRING CREEK #7	650	28737	9523	3751	1807		86063	952	6988	109084	(80347)
	FOUR MILE	1752	23339	25667	10109	4871		89102	1986	815	132550	(109411)
	LEEMAN GULCH	2400	26588	35160	13848	6672		113214	6210	1854	176958	(150370)
	GRIZZLY CREEK	20040	100279	293586	115631	55711		111218	5010	25050	606206	(505927)
												(900006)
