THE PROPOSED

MONTEZUMA FOREST RESERVE

COLORADO

Examination, Report and Recommendations

by Coert DuBois

Bureau of Forestry

U. S. Department of Agriculture

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Location and Area

The area included within the proposed Montezuma Forest Reserve lies in parts of San Miguel, Dolores, San Juan, La Plata, and Montezuma Counties in southwest Colorado, and includes the La Plata, Bear River, and San Miguel mountain ranges. The proposed boundaries include a total acreage of 570,260.

Topography

The mountains divide the area into three watersheds. On the north slope of the San Miguel Range are the headwaters of several small creeks which flow into the San Miguel River. The east slopes of the Bear River and La Plata Mountains are drained by Cascade, Hermosa, and Junction Creeks, all tributaries of the Animas River. The most important division is the drainage basin of the Mancos and Dolores Rivers, or the south and west slopes of the mountains. The heads of the Mancos River rise high up in the La Plata Mountains and consist of three forks fed by many smaller creeks, which join and form the main Mancos near the south boundary. A low mesa divides the waters of the Mancos from those of the Dolores. The Dolores River, the most important in the southwest part of the State, with the exception of the San Juan, has its sources in all three ranges, being fed by a great many mountain streams, the chief of which are the West Fork, Bear Creek, Beaver Creek, and Lost Canon Creek. After leaving the proposed reserve, the Dolores receives no more tributaries until a few miles from its junction with the Grand River in Utah.

Park on the head of the West Fork of the
Dolores River. Dolores Peak in the background.

From the Big Bend of the Dolores, or the southwest corner of the proposed reserve, about 7,000 feet altitude, the land slopes up gradually to the base of the mountains, or 10,000 feet. The creeks run through steep canyons and the divides are flat or slightly rolling mesas. From the 10,000 feet contour line the mountains rise to rough rugged peaks of 13,000 feet or over. The highest point in the proposed reserve is Mt. Wilson, in the San Miguel, which is 14,250 feet in altitude. This canyon and mesa country, which corresponds to foothills in other mountain regions, is a sandstone formation covered, except in the canyons, with a deep loam. The high mountains are of granite and gneiss or volcanic rock overlaid on their slopes with a thin covering of soil, but most of the peak country above timber line is bare rock, slide rock and cliffs.

Climate, Precipitation and Winds

The difference between the climate and precipitation in the proposed reserve and in the surrounding region south and west is very marked. In the low country the mean annual temperature is 5 to 10 degrees higher than that in the mountains and the average annual precipitation 5 inches lower. Practically all of the summer rains in the southwest mesa region are lost. The extremely hot, dry air and the character of the sandstone mesa cut by deep sandy bottomed canyons lower the run-off to less than 10 per cent of the precipitation. The desert character of the vegetation, stunted cedar and pinon, sage brush, greasewood, bear grass and cactus, shows more plainly than anything else the aridity of this region. On the other hand, in the mountains the annual precipitation of 20 inches upon which the surrounding region must depend for its irrigation water, is filtered through the humus and soil and at least 75 per cent of it discharges into the streams.

The prevailing winds are from the west and southwest across the dry Utah and Arizona sage plains. Rain laden clouds brought by these winds, condense on the high snow covered summits of the La Platas and San Miguels and let fall their moisture.

The Forest

As is usual throughout the Rocky Mountain region, increasing altitude divides the forest into distinct types. In the proposed reserve there are three such types: The Alpine Type, The Sub-Alpine Type, and The Pine Type.

The Alpine Type

Above timber line the country is rough and rugged, comprising scarcely anything but bare rock, and what very scanty vegetation there is, is wholly inaccessible for domestic sheep. The high slopes, from 11,500 to 9,700 feet, are covered with a dense stand, the Alpine Forest. The species are Engelmann spruce, Alpine fir, and aspen. Above 10,000 feet the stand is composed of spruce and fir – about 60 percent of the former.

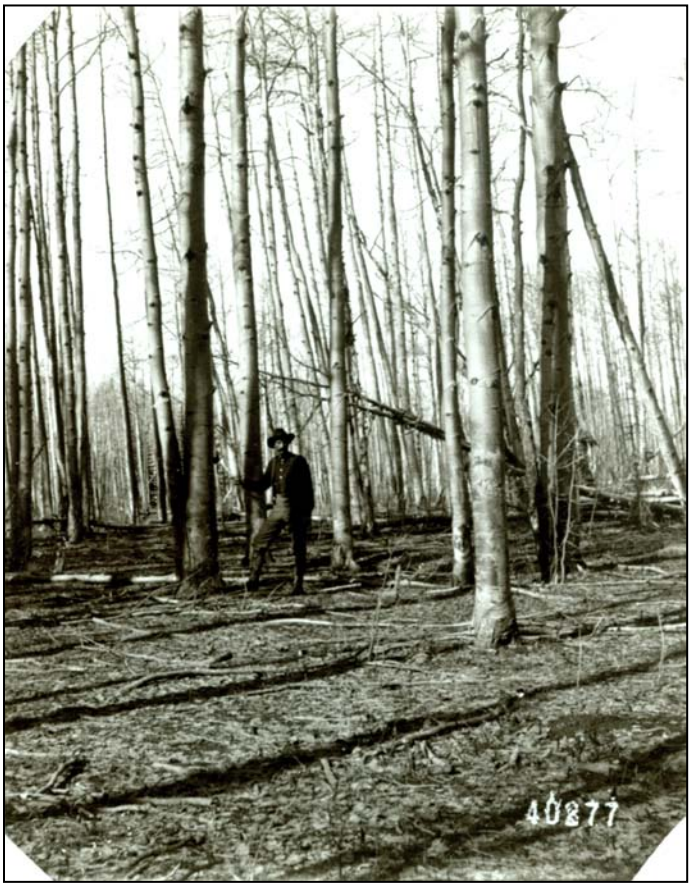
Good body of mixed spruce and fir—Alpine type—on the divide between Bear Creek and Lost Canon, averaging 2,000 feet, board measure, per acre. The snow is from one to four feet deep in the timber and melted in the parks.

Group of young Alpine fir coming in under mature aspen on the edge of a mountain park. Snow-bank in the timber.

On the divide between Bear Creek and Lost Canon, on the Main and West Dolores divide, and around the head of Scotch Creek, are beautiful bodies of this timber. The trees are long, clear, and straight, averaging 17 inches in diameter and 100 feet in height, and on small areas running as high as 8,000 feet, board measure, to the acre. A general average for the type would be about 3,000 feet, board measure, per acre. Outside these areas mentioned the timber is smaller and more knotty, with a lighter stand per acre, and below 10,000 feet, aspen occurs in the mixture. Below the conifer forest, where the slopes join the mesas, is a belt of parky country. The open land is located on the heads of streams and is covered with heavy bunch grass range. Surrounding these parks are groves of aspen with occasional groups of Alpine fir mixed in. This aspen is not scrubby and brush-like, but reaches timber size – a diameter of 24 inches and 30 feet of clear length. Most of the large specimens, however, are unsound at the butt. The highest of these Alpine parks are surrounded by pure coniferous timber and the lowest by pure aspen.

The soil through the Alpine Type is a moist loam of moderate depth, except just below the timber line where it is very shallow. In the heavy timber the ground is covered by needles, kinnikinic, and a little juniper. In the parks and throughout the aspen forest, is good cattle range consisting of bunch grass, lupines, vetches, and other flowering weeds. This region being almost entirely free from underbrush, it is an ideal summer range for cattle.

In the small blanks in the pure conifer forest, caused by fire, windfall, or cutting, excellent reproduction of fir and spruce is appearing, fir usually predominating. Also in any places along the upper edge of the aspen, young conifers are coming in in small groups under the thin leaf canopy. There is little doubt but that with proper forest management and fire protection, much of the land now covered with aspen could in time be made to bear a good coniferous stand.



Pure stand of aspen of merchantable size at an altitude of 9,500 feet. The snow has just gone off and no grass has started yet.

Sub-Alpine Type

This type of timber forms a narrow belt between the Alpine and pine type, extending from an elevation of 9,700 feet down to 9,000 feet. The species are aspen, red fir, blue spruce, and an occasional white pine. Aspen and blue spruce are found mixed by groups on the mesas, while aspen and small scrubby red fir are found in the shallow rocky soil on the south slopes of canyons. White pine occurs in deep warm soil on the upper south slopes. None of these three conifers occur in sufficient quantity to be commercially important, but are very valuable for protecting the soil from erosion.

On the steep canyon walls the soil is thin and rocky, but on the mesas and moderate slopes it is deep. The ground cover throughout the Sub-Alpine type is heavy, consisting of bunch grass, larkspur, pea vines, and other flowering plants. Oak and service brush on the lower edge comprises the scanty underbrush.

This type of forest is open and there is young growth throughout, aspen reproducing everywhere on the blanks, and groups of young red fir appearing near mature seed trees. Blue spruce, however, scarcely seems to be holding its own, very few seedlings being found. The average stand per acre in the Sub-Alpine forest is low – not over 1,500 feet, and this is nearly all in the form of red fir ties.

The Pine Type

From 9,000 down to 7,000 feet the lower slopes are covered with bull pine forest. In the hollows, or northerly slopes, and around the edge of parks in the higher parts of this type, aspen is found in small groups, but as the altitude decreases, it dwindles in size and quantity until at about 8,000 feet it gives way to oak brush. The pine timber varies with varying soils and exposures, but averages well throughout. The deep soil on the mesas supports trees that reach 36 inches in diameter and a height of 120 feet, while that in the rocky canyons produces poor scrubby trees 14 inches in diameter, branching 30 feet from the ground. A considerable amount of cutting has taken place in the pine forest, which of course reduces the average stand – one

to two thousand feet per acre is the average for the more open forests, while in some of the best bodies of virgin timber, for instance, that on the Beaver Plateau Creek divide, the average is 10,000 feet per acre.

The soil on the mesas is a deep clayey loam capable of growing crops when cleared and irrigated, but very little has been done towards the utilization of these areas. Throughout the timber there is a cover of blue stem grass and weeds affording excellent cattle range. The underbrush of oak, service berry, wild rose, thornbush, and buffalo berry is very heavy. West of the Big Bend of the Dolores River is an open scrubby stand of bull pine growing on thin rocky soil which has underbrush of stunted pinon, cedar, and sage brush.

On some of the older cuttings the reproduction is excellent, the young growth coming in in dense groups. In the virgin forest and in the poor open stand on thin soil there is practically no reproduction.

In the following economic classification of all lands in the proposed reserve, the species types just described are ignored and all areas bearing timber of any kind now suitable for lumber or mining material are called economical forest. Woodland signifies all bodies of immature or worthless forest too large to be classed as brush or seedlings growth.

TABLE I

Area and Classification of Lands

Class	*Acres*	*% of whole*
Commercial forest	*262,226.2*	*45.95*
Woodland	*224,703.8*	*39.45*
Cut-over forest land	*5,504.0*	*.96*
Burned-over forest land	*8,958.4*	*1.55*
Open grass land	*10,818.8*	*1.89*
Permanent brush land	*1,252.8*	*.21*
Barren (Rock or Snow)	*46,799.2*	*8.24*
Cultivated land	*9,997.4*	*1.75*
Total	570,260.6	100.00

Fine body of pure yellow pine on the Plateau– Beaver divide, averaging ten to Fifteen thousand feet per acre. All taken up by timber and stone claims.

Fairly good stand of yellow pine on the Lost Canon—Dolores divide with heavy underbrush of oak.

Allowing an average stand of 3,000 feet to the acres on the unburned commercial forest and 500 feet per acre on one-half of the woodland, which is conservative, it is estimated that there is 842,853,000 feet, board measure, on the area.

Industries

The chief industry of the region is farming. Those of secondary importance are cattle rising, mining, sheep raising, and lumbering.

The farming region is located east, south and southwest of the proposed reserve and receives all of its irrigation water supply from streams rising in it. The most important ones are the Animas, the La Plata, the Mancos, and the Dolores Rivers.

The headwaters of the La Plata River are in the high basin formed by the split of the main range which makes the La Plata Mountains. For only the first eight miles of its course this river runs through mountain country and receives tributaries from forest covered slopes. South of Parrott City its course is through low dry sage brush flats, nevertheless in this dry region 8,710 acres on 107 farms are watered from it.

The Mancos River and its three large forks rise on the western slope of the La Plata Mountains and flow southwesterly through a region that is extremely fertile when well watered. Measurements taken at Mancos by the U. S. Geological Survey, show that enough water goes to waste in flood season to irrigate all of the available land along the stream, if properly stored. Also much land could probably be irrigated on the Southern Ute Indian Reservation below the Mancos Canon. As it is, practically all of the available supply is used near the town of Mancos – 7,235 acres being irrigated in this vicinity.

The most important irrigating stream of the region – the Dolores – rises on the south and west slopes of the mountains and receives all its tributary waters within the proposed boundaries. Besides watering land along its course, a tunnel and a canal, the headgates of which are 2 miles west of the town of Dolores, convey water across a low divide into Montezuma Valley. This valley and its town, Cortez, are entirely dependent on this stream for their water supply. Before its

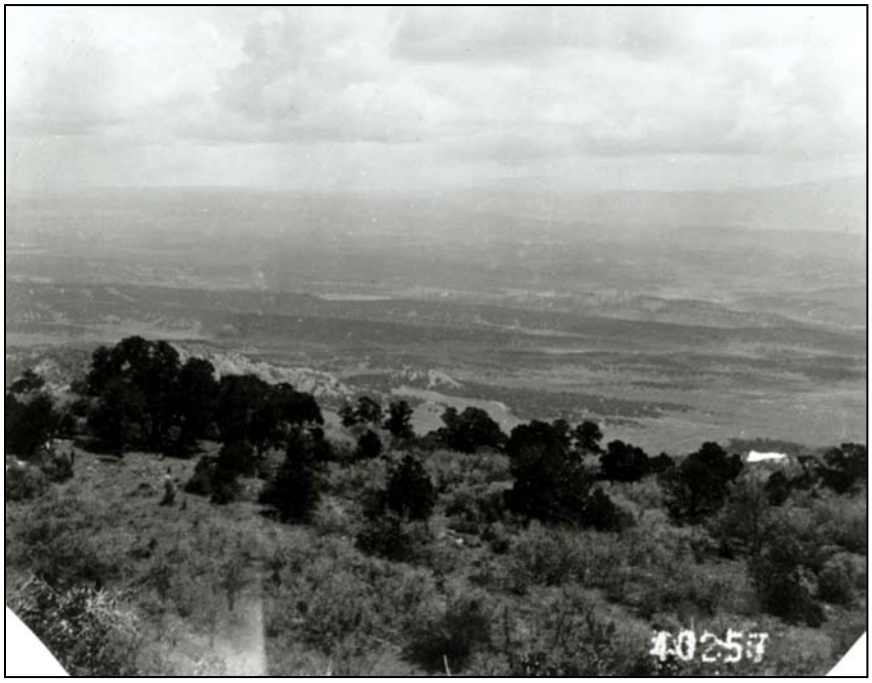
construction the valley was an adobe flat covered with sage brush and pinon, while now it is a prosperous farming community. The Dolores River waters in all 25,720 acres.

The total area irrigated in 1902 (an exceptionally dry year) from streams rising in the proposed Montezuma Forest Reserve was 54,129 acres on 632 farms, the water being carried by 441 miles of ditch. These figures were collected by the Census Bureau by correspondence and are conservative rather than exaggerated.

The Forest as a Protection Cover

It has been shown that all the streams rising in the mountains are most important for irrigation purposes. The upper slopes, where the streams rise and where the heaviest precipitation occurs, are normally covered with a dense growth of spruce and fir which shades the ground and greatly retards the melting of snow.

Plate 9 shows a mountain park on the head of Lost Canon from which the snow has entirely disappeared while it is plainly seen under the surrounding timber. The photograph was taken June 3. The case would be the same if the park was a burn or a heavy cutting. The present supply of irrigation water is barely sufficient and any shortage means a serious loss to the farmers. The creation of large blanks in the high conifer forest on the heads of any of these streams, whether by fire, windfall, or cutting, will cause more rapid melting of the snow and a more rapid run-off which will culminate in a series of spring floods and summer shortages. This has already happened in the case of the Mancos, the headwaters of which are but scantily forested. The pine type, while exerting little influence on melting snow, by depositing a layer of needles and twigs on the soil and preventing it from becoming sun-baked, greatly retards erosion. On the steep lower slopes north of Thompson Park, where the pine has been practically clear cut and no reproduction of any species has come in, the ground is being rapidly cut by gullies and arroyos.



General view of the dry foot hill country south and west of the Montezuma Reserve. Pinon and cedar on the ridges and sage brush in the hollows. Much of this country could be farmed if water could be brought to it.

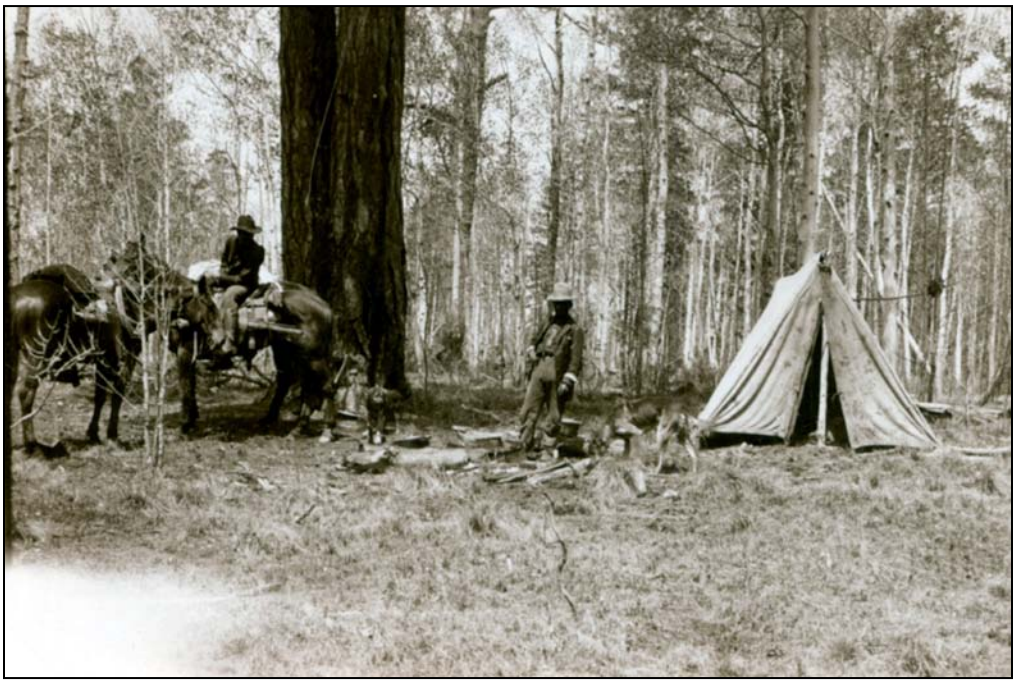
Park on the head of Lost Canon from which the snow has melted, while it is still lying from one to three feet in the surrounding spruce and fir timber.

Grazing

Cattle: The cattle industry is second in importance to farming and is in reality a part of it, for nearly every rancher who farms irrigated land in the low country owns a small herd of cattle which he ranges in the hills. In La Plata County the assessment rolls give 60 herds averaging 38 head. Montezuma County runs higher – about 125 herds averaging 80 head. These small bands are ranged in the sage brush flats around the Mesa Verde, or on the lower waters of the La Plata and Animas Rivers in winter and early in June are taken into the mountains for the summer, seldom going higher than 10,000 feet. There is no water in the sage brush country in summer and these ranchers are absolutely dependent on the mountain cattle range. Most of the cattle ranging in the mountains are owned by the ranchers in the vicinity and the range is ample for them. The danger of overstocking comes from outside cattle that are shipped in from New Mexico, ranged for the summer and sent East in the fall. About 500 outside cattle were grazed on the head of the West Fork of the Dolores in the summer of 1903. It is estimated that 8,500 head of cattle are summer-ranged in these mountains, 5,000 coming in from the south and west, 2,500 from the southeast and east, and 1,000 from the north. The grazing of cattle has had no evil effect on the mountain forests. Throughout the pine type there is an abundance of blue stem range, while higher up in the aspen there is a cover of underbrush and weeds that can furnish browse to considerably more cattle than it does at present. Even the bunch grass range in the parks on the head of Lost Canon and Turkey Creeks is thick and high, and shows no signs of overstocking. It is only along the cattle trails in narrow gulches that the range looks badly. Permits to the number of 10,000 could be granted without injury to the range or forest.

In order to properly control the grazing the reserve should be divided into three districts. No. 1 should include the territory drained by the Mancos and Dolores Rivers, and 6,000 head of cattle should be allowed grazing privileges there.

Band of 800 head of sheep at an altitude of 9,000 feet. The snow is barely off and the ground, being wet and spongy, is badly trampled.



Mexican sheep herder and camp.

Dry sage brush and pinon country northwest of the reserve. Good winter range.

The country drained by the La Plata and the Animas Rivers should support 3,000 cattle and be known as District No. 2. North of the Dolores – San Miguel divide, in District No. 3, there is range for 1,000 head. The largest cattle country – Narraguinnep Park and the head of Ground Hog Creek, has been excluded from the reserve.

Sheep: For many years in the past the cattle men held this summer range undisturbed and only recently have any sheep been introduced. In the summer of 1903 there were about 4,000 head of sheep on the Lost Canon-Dolores divide south of the road to Dolores and 1,500 on the high benches around Lizzard Head. On account of the opposition met with from the cattlemen, the sheep owners running their bands on the north side of Lost Canon agreed to dispose of their stock in the fall and go into the cattle business. So, with the exception of a very few sheep ranged high up in the San Miguels, this may be considered as cattle country.

It is therefore recommended that sheep be excluded from the reserve with the exception of District No. 3, where permits for 2,000 may be granted.

Lumbering

Four sawmills, with an average daily capacity of 10,000 feet, are at work at the present in the pine forests south and southwest of the proposed reserve boundaries, cutting almost entirely on patented timber and stone claims, and state land. The Biggs Lumber Company of Durango has secured control of a large tract of the best pine in the region – that on the Plateau-Beaver divide. As the original timber was an old stand of bull pine with little reproduction or sapling growth, cutting to 12 inches on the stump, as many of these millmen do, leaves the ground in very bad shape, especially so as their logging methods are wasteful. In many cases a 16 foot log 14 inches in diameter was left in the top, and in one case a skidway containing 100,000 feet of logs was left to rot in the woods when the mill for which they were cut moved into another location. These cut-over areas in the pine, being on patented land, were eliminated from the proposed reserve, and the cutting going on inside is limited to spruce and red fir for lumber and mining timbers for the districts of Rico, Dunton, and La Plata.

There are two such mills now operating within the boundaries, one 4 miles southeast of Rico, which has cut about 3,000,000 feet of spruce from the head of Ryman Creek, the other on the extreme head of the Dolores near where the D. & R. G. R. R. crosses the divide. Investigation would very probably show that both of these millmen are cutting on Government land. As in all mining countries, the demand for timber is considerable. The mines near Rico and Dunton use a great deal, but the supply in their vicinity is ample. The wide divide between the Dolores and the West Dolores carries a body of spruce that should, with proper management, furnish both camps indefinitely, but the very density and size of this forest and its proximity to the Rico mills and the railroad, render it extremely liable to destruction by fire.

In the La Plata district, on the other hand, the supply of timber is nearly exhausted. Cutting and fire have reduced the merchantable spruce timber to a narrow strip along the rim of the valley just below timber line. The rest of this area is covered with young aspen with occasional groups on conifers. In Lewis Gulch about 1,000 acres have been culled for the best spruce, but enough was left to eventually restock the area. At present the cutting is restricted to small areas near the larger mines, where timbers are hewn when needed.

Rust’s sawmill at the head of House Canon. Capacity 40,000 feet per day.

Group of pine saplings left in a cutting. The ground in this operation is in fairly good shape.

Mining

Although mining has sunk in importance since the decline of silver, there is still considerable capital invested in mines, mills, and prospects in all three of the mountain ranges involved. In the San Miguels are only a few scattered claims which surround the solid area of mineral land in the vicinity of Telluride. In the Bear River Range much valuable ore has been taken out and treated in the mills at Rico. Much of the ore in this vicinity ran higher in silver than in gold and when silver depreciated in value to such an extent that it was no longer possible to work it, most of the mills shut down and the town of Rico was nearly depopulated. Of late, however, new prospects having been found and cheaper processes of milling being introduced, the mining industry is recovering. In the La Plata Mountains are several paying mines and a large number of locations. Recent prospects showed a large body of ore on the east side of Mt. Moss, which was taken in hand by the East Mancos Mining Company and by now enough development work has been done to show plainly that there is a future ahead for these properties. Most of these mines have a small stamp mill from which they ship the concentrates to the Durango smelter.

In all these mineral districts there is a continuous demand for cordwood and timber for mine props and lumber for their mills and buildings. The spruce forests of these mountains must be made to supply not only the local mines, but those at Telluride and, it may be, still farther north. With care and protection it can be accomplished, but if the present indiscriminate cutting and burning continues the end of the supply is not far off.

Settlements

Besides the ranches on the bottomlands of the Dolores River and on the uplands of the forks of the Mancos River, settlement within the reserve boundaries is restricted to the mining camps of La Plata, Dunton, and Rico, with a population of 30, 21, and 811 respectively. Outside of the area, but within eight miles of its boundaries, are the towns of Dolores, Mancos, and Durango, each dependent for its water supply upon streams rising in the mountains. In each of these towns, especially Durango, with a population of 3,300, is a large number of people who spend a part of each summer camping in the mountains, so their value as a source of pleasure is worth consideration.

Railroads, Roads and Trails

From Durango a single track narrow gage branch of the D. & R. G. runs westerly through Mancos to Dolores, thence northeasterly along the Dolores River diagonally across the reserve, climbing the San Miguel divide at Fish Lake and dropping down to Ophir on the north slope. This line runs through Rico on the Dolores, and also connects with La Plata by stage line from Hesperus, thus affording shipping facilities for timber and cordwood to either of the mining towns. A good system of wagon roads traverses the foothill mesas and follows the largest water courses. On horseback or with a pack outfit it is possible to travel anywhere with or without trails, except in the high mountains. The La Platas, as any region where in the early days supplies were packed in to the mines by burro trains, are crossed and re-crossed by narrow trails which are practicable for pack outfits still. Few new trails will be necessary under reserve management and, except in the highest mountains, a ranger carrying an ax can, by travelling two or three times over a new route, build all the trail necessary.

Fire

The table showing the area and classification shows 8,958 acres, or 1 ½ per cent of the area, as burned-over, but this does not give an idea of the full extent of the damage done. It is safe to say that 50 per cent of the area classified as woodland has been run over and seriously damaged by fire. This would give 121,300 acres or about twenty per cent of the total area, thus affected. These burns are in all stages, from areas covered with dead standing trees and down timber with no re-growth what so ever on the ground, such as the area at the head of Burnt Timber Creek in the La Plata, to large areas covered by stands of aspen of varying ages with a few scattering groups of conifers in mixture, such as are found on the hills on each side of the main Dolores along which runs the railroad.

The causes of these fires are numerous. Sparks from the locomotives and from the stamp mills are doubtless responsible for most of the fires along the right of way of the railroad and near the mining towns. Sheep herders have set fires in the past, but now that the cattlemen have secured control of the larger part of the area, fires from this cause will practically cease. The Indians coming in from the southern Ute Reservation in the spring or fall to hunt set many fires, some to drive out game and others by leaving camp fires burning. Fires are started also by prospectors, hunter, and cowboys.

The protective measure adopted must get at the root of these causes. The D. & R. G. Railroad should be required to equip its engines with modern spark arresters. Cattlemen and sheep men granted grazing permits must be made responsible for the fires started by their herders, and all Indians and white men going into the mountains to camps should be closely watched by rangers.

Sentiment

Local sentiment is strongly in favor of the creation of this reserve. Twelve years ago it was first petitioned for by residents of the district and several times since, until in July, 1903, a petition was transmitted to the Department, signed by 138 men representing every interest in Montezuma and Dolores Counties. The cattlemen and ranchers are especially interested in the movement and in fact inaugurated it. The opposition, what little of it there is, comes from lumbermen and miners and their protest is based on an imperfect knowledge of the facts. Nearly all of the pine land on which lumbermen would think it profitable to begin logging operations, has been entered on under the Timber and Stone Act and all, or nearly all, of such land was left outside the reserve, conceding more to them here than in any other proposed reserve in the State. In the summer of 1903 a large area was withdrawn, pending the final decision as to the boundaries. This withdrawal was made by townships and half townships and necessarily included much more land than the final reserve, and many people, thinking this permanent, signed petitions which otherwise they would have ignored. Two such petitions were received last December, one from Rico with 49 signatures and one from Dolores with 53.

Alienated Land

Practically all the agricultural land is already under patent or valid claim and too valuable to be offered for lieu scrip. About 50 per cent of the patented land is timber and stone claims. The following table shows the area and class of all adverse holdings:

Class of Claim	Area in Acres	Per cent
Patented land	22,080	3.87
Homestead entry	1,440	.25
Timber and Stone entry	560	.10
Approved State selection	1,520	.24
Coal entry	1,080	.19
School land	27,520	4.83
Mineral land	4,960	.86
Total	59,160	10.37 (of whole)

Administration

Practically all the applications for free use and purchase of timber will come from the southwest edge of the reserve where the settlements are. In the vicinity of La Plata, Rico, and Dunton, mining timbers will be required. The D. & R. G. R. R. will need a great many ties, which will be cut wherever tie timber can be found. And, besides the regulation of the grazing of probably 8,000 head of cattle, a great deal of patrol riding will be necessary, especially near the railroad.

The proper administration of the reserve will require the services of a supervisor and four rangers. The supervisor's headquarters should be in Durango. District No. 1, which includes the watersheds of the La Plata River, Lightner, Junction, Hermosa, and Cascade Creeks, and the head of the South Fork of the San Miguel, should be covered by a ranger stationed at the Neglected Mine on the head of Junction Creek. District No. 2, embraces the territory from the south line to the road on the Lost Canon-Dolores divide, and the valley of the main Dolores to Rico on the north side and Scotch Creek on the south. The ranger for this district should make his headquarters at some ranch on the head of Turkey Creek – Marselina's for instance. District No. 3 follows the divide between the West Dolores and Stoner Creek over the top of Anchor Peak on the north, the north line of District No. 2 on the east and south, and the reserve boundary on the south. The headquarters for this ranger should be at a ranch somewhere near the junction of the Main and West Dolores. District No. 4, covered from Dunton, comprises the San Miguel Range from the D. & R. G. R. R. west. One second class ranger and the supervisor can very probably attend to all necessary business in the winter, the other three being needed from June 1 to December 1.

Recommendations

Through investigation of this proposed reserve shows conclusively that conditions demand immediate measures, to preserve an even flow of numerous irrigation streams, to insure a lasting supply of timber for local mines, ranches, and settlements, to regulate the grazing of cattle, and to protect local stock owners from the competition of alien sheep, and it shows also that practically the entire local population desires

its creation. It is recommended, therefore, that the Montezuma Forest Reserve be established, the boundary thereof to be described as follows:

Alienated Land

Amended table showing ownership of land in the proposed Montezuma Forest Reserve, Colorado as recommended

	Acres	Per cent
Patented land	22,800	3.95
Timber and Stone entries	560	.09
Homestead entries	1,600	.28
Coal entries	1,080	.19
Mining claims surveyed for patent	4,960	.86
School land	27,840	4.82
State selections	1,520	.26
Public land	517,180	89.55
Total	577,540	100.00