

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
DISTRICT 6

Studies – Supervision  
Reports – Umatilla National Forest

February 6, 1915

Forest Supervisor,

Heppner, Oregon.

Dear Mr. Cryder:

Enclosed are a copy of the Forester's letter and the interesting report furnished by Mr. Aldous on the Umatilla ranges.

In reference to the last paragraph on page 9 of the report, the suggestions are in line with the plans underway which, I believe, will be the most effective means of restoring the range. With the lack of data and with the very limited force, the greater part of whose time is taken up in the forepart of the season handling the crossing of approximately one-quarter of a million sheep, the general application of an intensive system of rotation grazing is not possible at present. The simple method of expanding the allotments, dividing them into half and protecting one portion until the forage has matured is as far as we can go at present.

This system will bring protection to every part of the allotment and the proper period to use any particular portion to permit added protection may be determined after observation.

I believe that Ranger Keithley should make a good collection of the predominating forage plants on the allotments which he studied when gathering data on the comparative weight of lambs. Forage value information on these plants, added to the type data you already have for these allotments should give you a fair estimate of the capacity of the Forest and the degree of protection it requires.

Full palatability notes for each specimen, made after observing the grazing of stock, will be appreciated. It may appear, as is the case of Geyer's sedge, that many other plants generally considered inferior on most Forests have a high forage value on the Umatilla. I would also suggest that special attention be given the abundance of grasses which appear to be the primary grasses of the range.

Very sincerely yours,  
{signed} [unreadable] MacKenzie  
Assistant District Forester

Enclosures.

February 1, 1915

Studies – Supervision  
Reports – Umatilla.

District Forester,

Portland, Oregon.

Dear Sir:

Enclosed herewith please find two copies of a report by Mr. Aldous, outlining the results of his trip over portions of the Umatilla Forest during last September together with his suggestions for the handling of several matters to which he calls attention. The report as a whole is a very interesting study of conditions on the Umatilla, which seems very opportune in view of the over-grazed condition of that Forest as set forth in the annual report of the Supervisor for the current year. It is evident that the demand for grazing privileges on the Umatilla is so great that every effort should be made to reduce this overgrazed condition without either reducing or excluding stock unless it finally appears to be the only possible means of bringing about a better condition on these overgrazed areas. It would appear that considerable can be accomplished along these lines, especially to follow up the ideas suggested by Mr. Aldous on page 7 of keeping the sheep away from certain areas until the feed is more or less matured. The plan of fencing in a few plots for experimental purposes is also an excellent one which will require comparatively little labor and expense and enable the Supervisor to get a good line on the possibilities of increasing the vegetation on these areas. In his discussion of this matter it is evident that Mr. Aldous does not consider it possible to go into a full system of deferred or rotation grazing on the entire Forest, but feels that it might well be tried out on certain of the areas with a view to gaining some experience for handling the matter in future years. I fully agree with Mr. Aldous in this idea.

His idea of the advisability of concentrating on one Forest the experiment of deferred and rotation grazing and open herding of the sheep seems to be a good one.

This office also agrees with him as to the handling of the reconnaissance by the local force. It is very evident that we are going to be very short of funds for any extension of our grazing reconnaissance work if, in fact, we are able to secure enough to keep up the present moderate number of these studies which we are handling. It therefore seems advisable to have the local men pick up this work wherever the necessity exists rather than let it entirely lapse. Our experience in other Districts is to the effect that frequently the Ranger force will show great interest in this work and it usually results in the development of one or two men on every Forest who have special aptitude for it. In addition to this, as Mr. Aldous well states, the men themselves while doing the work obtain a deeper insight in the grazing needs and possibilities of their districts than they

ordinarily would, hence as an educational matter it is well worth the time expended upon it.

I am sure you will find much of interest in Mr. Aldous' report. The extra copy is enclosed for the Supervisor's information

Very truly yours,

Will C. Barnes  
Acting Assistant Forester.

Enclosures.

Studies – Supervision,  
Reports – Umatilla.

Memo. office Report of Trip on Umatilla Forest, Sept. 15 to 18, inc.

**Itinerary:**

September 15, Heppner, Oregon, to Dixon Ranger Station. September 16, storming, walked over the range in the vicinity of Dixon Ranger Station. September 17, Dixon Ranger Station to Heron Ranger Station by way of Tupper Ranger Station. September 18 Heron Ranger Station east to the top of Arbuckle Mountain.

Only a short trip was possible on the Umatilla Forest, due mainly to stormy weather. As a result, only the western half of the west division of the Forest was covered.

**Description:**

The territory at the western side of the west division is more or less rolling in contour, the ridges being flat and not very well defined, while the canyons are rather deep but rounded and easily accessible for grazing. These get deeper and steeper as they approach the John Day River. The breaks along this stream are quite precipitous.

The area east and northeast of Tupper Ranger Station has more definitely defined ridges and canyons and is much higher in elevation. The highest in the country in the vicinity of Arbuckle Mountain is approximately 2,000' higher than the divides at the western part of the Forest.

**Grazing Types:**

The portion of the Forest that I was able to cover contained five grazing types, classified as follows: (1) open bunch grass; (2) meadows; (3) scab land; (4) conifer range; (5) waste range.

The open bunchgrass range is scattered in small areas on southern slopes through the yellow pine timber, but is found mainly on the breaks of the John Day River, where it is the predominant type. It has an approximate average density of 4/10. Wheat bunch grass (*Agropyron spicatum*) makes up 75% of the stand of vegetation. The weeds do not constitute more than 1/10 of the vegetative stand. The meadow type is limited to the flats at the heads of the drainage channels and along the creeks. These vary in size from less than an acre to approximately ¼ of a section. They have a complete ground cover density (10/10) of vegetation, principally sedges, Brown top (*Deschampsia caespitosa*), with a little timothy. In actual acreage this type does not constitute any more than 1/20 of the area of the Forest, yet it furnishes approximately ¼ of the feed, as it will stand very close and frequent grazing without any apparent injury to the vegetation.

The scab land occupies a large area in both the eastern and western divisions. It was estimated that it makes up approximately  $\frac{1}{4}$  of the area of the Forest, but from what I saw of the Forest this estimate appeared to be rather high.

This type is usually located on ridge tops and on southern slopes on portions of the Forest where the topography is more or less rolling. The soil is a very fine reddish composition of volcanic origin, containing varying quantities of lava particles, which range in size from about two to eight or ten inches in diameter. The amount of this rock in the soil varies from  $\frac{3}{10}$  to  $\frac{9}{10}$  of the exposed surface cover. Every patch seemed to have about a uniform quantity of lava. This soil or formation is very soft when it becomes saturated with water, and regardless of the large quantities of lava that are contained in some areas, they will readily mire at this time.

At the present time these lava lands are supporting a very scattering stand of vegetation, principally onions, *Caus (Lomatium caus)*, Bunchgrass (*Agropyron spicatum*), and small patches of no-see-um-grass (*Deschampsia elongata*). There is some difference of opinion among "old timers" as to the condition of these areas in their virgin state, but most of them stated that these lands produced a good growth of bunchgrass, the amount depending, no doubt, on the amount of lava present in the soil.

Since the Forest has been very much overgrazed in the past, these types would undoubtedly be injured to a maximum degree, due to their having a rather deficient or rocky soil. In addition, under present and past methods of management, there is little chance for these areas to recover, as they are grazed when the sheep are first put on the Forest in order to get the Caus and Onions and the early annuals, this type of feed being the first to start growth in the spring. At this time the perennial vegetation, which includes a scattering of bunchgrass, is undoubtedly closely grazed and does not have time to mature seed before the soil dries out. By this system the bunchgrass would gradually lose its vitality. It is also a question whether the present stand of forage plants (principally Caus and Onions) will not be reduced, as they have little opportunity to reseed.

In planning a new system of grazing management for these overgrazed areas, it is a question whether the increase in the amount of vegetation that could be produced by protecting them for a certain length of time each season would be sufficient to justify this action. It would be rather difficult from the little I saw of the Forest to intelligently answer these questions, but it appeared that the advisability of taking such action on any area would depend largely upon the character of the soil or the percentage of lava it contains. Where the lava occupies  $\frac{7}{10}$  or more of the surface cover of the soil, it is not believed that any protective measure would be justified, as the area would only support a scattering stand of vegetation. From what was seen of the lava patches on cattle range and other places where they were partially protected, it appeared that where lava occupied less than  $\frac{7}{10}$  of the surface cover the vegetative cover can be sufficiently increased to warrant the use of some protective measure.

As the stand of perennial vegetation, outside of Onions and Caus, is very scattering, it would undoubtedly take several years to revegetate the areas. Some difficulty would no doubt be encountered in protecting them, as they occupy different sized areas throughout the different portions of the Forest, the individual patches varying in size from an acre to almost a section. In order to protect the areas in question, it would necessitate reducing the number of sheep grazed on the Forest or to make the grazing season shorter, preferably by postponing the time the sheep enter the Forest.

While it would not be advisable to protect all the lava areas, yet it is believed that an effort should be made to keep the sheep off the less rocky ones, especially at the beginning of the season. This feed could be used after the seed had matured. In addition, since no specific examples of the effect of protection are available, and since it is not known how much forage the areas are capable of producing, it is believed advisable to fence several small patches in soils having different quantities of lava, so definite data can be collected on natural revegetation. These fenced plots need not be any more than an acre in size. It would also be advisable to list or chart several quadrants inside of each fenced plot, in addition to an equal number outside in similar habitats so that any changes in the vegetative stand can be readily detected and recorded. With this information available the advisability of protecting different areas could be more readily determined.

#### **Type 6:**

The conifer type makes up the major part, or approximately 6/10 of the area of the Forest. This is possibly  $\frac{3}{4}$  a yellow pine type, the remainder being lodgepole.

The yellow pine subtype has an open stand of yellow pine timber, with an occasional mixture of Douglas-fir and larch. It supports a rather scattering stand of herbaceous vegetation, varying in density from 0 to 7/10, with a possible average of 3/10. This is approximately 60% pine grass and 15% elk grass (*Carex geyeri*). The weeds constitute about 15% of the vegetation, and are arnica, woolly weed (*Hieracium* sp.) fox glove (*Pentstemon*), Potentilla, Scenecio, lupines, geranium, Valeriana, and asters. This type has a rather low carrying capacity, due mainly to the scattering stand of vegetation.

In the transition zone between the yellow pine and bunch grass, the bunch grass predominates, with weeds forming 35% of the vegetation. The species are small sunflower (*Helianthella uniflora*), balsam root (*Balsamorhiza sagittata*), geranium, woolly weed, everlasting (*Antennaria* sp.), yarrow, and a scattering of loco and death camas. The two latter species were not abundant enough to be considered dangerous.

The lodgepole subtype predominates on the higher elevations of the Forest and on the steeper north slopes at lower elevations. The carrying capacity of the lodgepole lands is moderately low. The density of the vegetation varies from 1/10 to 7/10, with a possible average of 4/10. This is made up principally of pine grass, elk grass, large and small huckleberry, arnica, meadow rue, and paintbrush (*Castilleja* sp.), listed in the

order of abundance. Approximately 1/3 of the lodgepole area is ungrazable on account of the density of the timber.

Throughout the conifer type there is ample reproduction to more than replace the present stand of timber. The major part of the reproduction has come in since the Forest has been protected against fires. Several areas were noticed where the yellow pine seedlings were so thick that it was almost impossible to ride through them. Conditions appeared to be favorable for natural reforestation on all the areas visited, and what little injury grazing may have on reproduction, due to improper methods of handling, is unnoticeable.

Practically all of the stockmen were complaining that the reproduction is coming in so thick on their allotments that it is greatly decreasing the carrying capacity of the range. I do not think there is any question that this is true, but not to the extent claimed by the stockmen, nor would the remedies suggested by them, which in all instances were burning the range, be applicable or practicable and make reforestation possible.

Practically all of the more readily accessible range on the Forest had been very heavily grazed for years before the Forest was created. As a result, large areas have been badly overgrazed. Included in these are the scab lands described previously, and a large part of the open and scattering yellow pine lands. The latter types have undoubtedly improved since the grazing has been regulated, but the stand of vegetation is yet 1/10 to 2/10 below what the areas appear to be capable of producing. In addition, the more palatable forage species have been killed off to a large extent and other species having little forage value have taken their place.

It is believed that by the application of a deferred and rotation system of grazing, and by the adoption of the open herding system of handling sheep, a sufficient improvement can be made in the understocked timber lands without closing them to grazing.

It may not be possible to apply an intensive system of deferred or rotation grazing, but it is believed that certain portions of every allotment can be protected each year until after seed maturity without making any great changes in the present method of grazing the allotment, or without affecting the present carrying capacity to any appreciable extent.

Considerable feed is wasted on the Forest by the use of the camp system of herding sheep, which is used by all the permittees. The importance of having the open system of herding used is realized by the local Forest officers and a campaign of education has been started to get the sheepmen to use it. An experiment was initiated on the Forest in 1913 to collect comparative data on the two methods of herding. The information collected to date has not been very satisfactory, possibly due to the fact that sufficient time was not taken in selecting similar areas or to the supervision of the handling of the sheep. In addition, a reconnaissance should be made of the areas, in order to determine more definitely the size of the allotments, types of feed, and the amount of forage used by each band. With this information available figures can also be obtained on carrying capacity.

It is believed that instead of conducting an experiment on each Forest, as was done in the case of both the Umatilla and Ochoco, the experiment be confined to one Forest, and that more time be given to it, in order that more conclusive data can be collected. Experiments of this character have always had considerable effect in convincing the sheepmen that the benefits derived from using an open system of herding are more than sufficient, from the point of view of increased profits to them, to justify its adoption.

On account of the more or less rolling nature of a large area of the Forest, with no natural topographic features to separate the cattle and sheep ranges, the cattle drift a great deal onto the sheep allotments. This drifting makes it rather difficult to properly proportion the size of the sheep allotments. In addition, the cattle do not do as well, possibly on account of not getting the proper quantity of salt, causing more or less uneasiness. There is also some dissatisfaction among the sheep permittees having the allotments adjoining the cattle range, on which the stock mainly drift.

A majority of cattle allotments are separated from the sheep range by drift fences, and to properly handle the stock fences ought to be constructed on all the large cattle ranges to prevent the excessive drifting.

### **Grazing Reconnaissance:**

The great demand for range on the Umatilla Forest makes it imperative that the most economic use of the forage should be made. On account of the overgrazed condition of a large part of the Forest, it is a question just how close the range can be grazed in order that the areas understocked with forage plants will revegetate and the areas now producing a normal stand of vegetation will not deteriorate. The most intelligent solution of these questions, along with the question of the proper time of grazing and to what class of stock each unit of the range is best adapted, can best be made by having a systematic examination made of the ranges.

It will undoubtedly be several years before a reconnaissance can be initiated on the Forest by a regular force. Therefore, any work done by the local Forest officers will aid very much toward solving the present grazing problems if the work is conscientiously done in accordance with the outlines prepared by the District office. It is realized that any work done by the local force has to be accomplished at odd times, making it harder to retain interest, which is necessary to do the best work, but there is an advantage in ranger reconnaissance in that each man will become more familiar with his District and will be much better prepared to put into application the grazing reconnaissance data, as it will be left largely to the local Forest officers to apply the data whether it is collected by them or by a special crew.

During the season of 1913 a start was made in grazing reconnaissance by the local Forest officers in completing the field work and making Forms 765 for two allotments. The work done by Ranger McAllister showed that considerable time had been spent on it. About the only criticism that could be made was that no plants were listed in the type



descriptions. This was undoubtedly due to lack of knowledge of the important plant species making up each type. The grazing comments were very good. No map had been assembled for the area, nor a working plan prepared. Since practically all the field work has been completed for one allotment, a special effort should be made to put the data into form so it can be used. After a working plan has been perfected for the allotment, it should be used as closely as possible, and where any defects are found these ought to be remedied. It is believed that by applying the data that has been collected, it will be the means of obtaining additional data on the carrying capacity and proper management of the different range units. During the past season no further field work was done. This was due primarily to the bad fire season and a reduction in the local administrative force.

The large area of private land in the Umatilla Forest greatly adds to the importance of having a grazing reconnaissance made for it.

As the present time no accurate estimate can be made on the carrying capacity of these areas. By basing their carrying capacity on the average carrying capacity of the forest there is no question that more stock are allowed for certain holding that they will carry while others will probably support more than is allowed.

This basis for determining the number of stock that will be allowed under Reg. G 7 causes considerable dissatisfaction among these permittees.

[signed] A. E. Aedous  
Grazing Examiner



Scab land where the lava occupies less than 7/10 of the exposed surface cover, where it is believed protective measures would be justified.



Scab land where protection would not be advisable on account of the lava occupying at least 8/10 of the exposed surface cover.