THE BEND BULLETIN

"For every man a square deal, no less and no more."

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FOREST POLICY INCREASES FEED.

W. C. Neff, head ranger on the Goose Lake national forest reserve, makes a report that contains one item of especial interest and an item of news that should be seriously pondered over by those newspapers in the West that have heretofore been so anxious and ready to criticise President Roosevelt's forest reserve policy. Ranger Neff says that in talking with cattle men he finds that the feed on the reserve has increased 25 per cent in the past year. The reason for this is that cattle and sheep have not been allowed on the range so early in the spring, thus stopping the tramping out and killing of grass when it is tender. Another reason for the abundance of feed is that, by the supervision of the forest officials, the range is not overstocked. Thus the action of the government has bettered the range and made it able to support more stock, and it was only last winter that many newspapers in Central Oregon were calling Pinchot, the man at the head of the forest service, a long-eared idiot and like complimentary names. We need a few more long-eared idiots of the same class as Pinchot.

Another statment made by Mr. Neff that is worthy the attention of those papers that had the vigorous kick coming is the remark that if the range improves in the future as it has in the past year he is of the opinion that the number of stock feeding thereon can be increased 20 per cent.

The facts in the case are that the government's forest reserve policy is one of the wisest movements ever undertaken by any government. It saves and protects the range from destruction by prohibiting too early grazing and overstocking; it protects the water supply of great irrigation projects by refusing to allow the denudation of vast forest areas that are natural water sheds; it protects the forests from disastrous fires through the watchfulness of its rangers, and it will provide a supply of lumber for the future through its system of cutting only the mature trees and leaving the young ones to grow.

A few months ago The Bulletin said that some day the West would thank President Roosevelt for having established so many forest reserves. That day is not far distant. Indications now show that the people are already beginning to realize the great importance of protecting the nation's forests. Ranger Neff's statement of an increased supply of feed is only one of the first reports showing benefits that will come from such protection.

Admiral Sakamoto of the Japanese navy says that it is likely most of the American crews would desert and leave the ships in case of war between Japan and the United States. Have the American crews ever deserted in time of war? The admiral displays a childish ignorance of American make-up. In case of an American-Japanese war Admiral Sakamoto would find the American fighters fighting with an invincible spirit as long as there was any Japanese navy left.

The Bulletin correspondent from Powell Buttes writes that many families in that vicinity are planning on moving to Bend during the school year to send their children to the Bend school. This will be a wise move on their parts. Bend has a school that ranks with the best and the people in the surrounding country recognize that fact. If you wish to give your children a good public school education you can find the necessary instructors in the Bend institution of learning.

ABOUT FOREST RESERVES.

How the National Forests Serve the Public.

"The Use of National Forests," a publication just printed by the Department of Agriculture, is a brief, clear manual for public information as to the forest policy of the national government.

It is too true, as the short preface to the public says, that "many people do not know what national forests are. Others may have heard much about them but have no idea of their true purpose or use." It is the object of this publication to explain just what the national forests mean, what they are for, and how to use them.

In the first place, it is explained how the forests are created and how their boundaries are drawn. Next, their direct use and value are shown from the point of view of the homeseeker, the prospector and miner, the user of timber, the user of the range, the user of water, and other users of forest resources. Third, it is shown how the forests are intended for use, for the production of usable products, and for the establishment and maintainance of homes; how on all of them the timber is protested from fire, the water flow is kept steady, the forage on the range is increased and guarded from abuse; and how, in addition, they serve as great public playgrounds and as breeding places and refuges for game. Finally, the management of national forests is described.

Here it is that the great usefulness of the forests is brought out most clearly and strikingly: for the forests are managed by the people in their own interests, and every means is used to meet the desires and wants of all forest users half way by dealing with them in the main directly on the ground and in all cases with the utmost practicable dispatch and freedom from red tape.

In a word, the special interest of this manual lies in its showing that the forest policy of the government, both in principle and practice, is for the benefit of the ordinary man, for the benefit of every citizen equally. There is a tendency to think of the national forests as "preserves" closed to use, and to leave the public lands exposed to unregulated individual exploitation. Where these misapprehensions still prevail "The Use of National Forests" will go far to correct them.

The book is written by Mr. Frederick E. Olmstead, whose intimate knowledge of conditions in the West and the policy under which the national forests are managed especially fits him to deal with the subject.

Don't read your neighbor's Bulletin. Subscribe for it yourself.

Problems That Confront The Irrigator.

Loss of Water by Evaportion and Means of Checking It.

From Bulletin No. 177, U. S. Department of Agriculture.

Experiments show that the conditions having the greatest influence on evaporation from soils are the quantity of water in the top soil, the temperature of the soil and water, and the wind movement. All of these can be controlled to a large extent by the irrigator by his methods of applying water and by subsequent cultivation of the soil. The application of the water in such a way as not to wet the top soil decreases the quantity of water in the top layer, and at the same time places the moisture in the soil beyond the influence of wind movements, and, to a considerable extent, beyond the influence of the high temperatures of unusually hot days. The daily variations in temperature almost disappear at a depth of one foot, the decrease in temperature from the surface down being very rapid on hot days. Records kept at the Nebraska station show that during the month of July, 1889, the average difference in temperature at noon between the soil at depths of one and three inches was 8 degrees F., while on the hottest days the difference was more than 15 degrees. The records at Riverside, Cal., show an average difference in the temperature of dry soil in the sun and dry soil in the shade for 10 consecutive days of 35 degree F. It is evident, therefore, that applying water at depths of three inches or more below the surface reduces greatly the temperature to which it is subjected. Cultivation after irrigation has the same effect, since loose earth is a poor conductor of heat. King found in an extreme case a difference of 10 degrees in temperature at the depth of 1½ inches between adjacent soils, one of which was compacted and the other loose. Against such extremes a loose soil mulch is a very effective protection.

The experiments did not include the measurement of evaporation losses from soils at different temperatures, but that from water surfaces kept at different temperatures was determined. Averaging the results from four stations: Decreasing the temperatures from 88.7 degrees F. to 80.4 degrees F. reduced evaporation 20 per cent; reducing it to 73.5 degrees F. decreased evaporation 40 per cent; at 61.3 degrees F. the decrease was 67 per cent, and at 53.4 degrees F. it was 85 per cent. Expressing the results of these experiments in daily rate of evaporation, other conditions being equal, there is an average difference in the daily evaporation of 0.014 inch for each change of 1 degree in temperature. That is, about 7 degrees reduction in temperature decreases evaporation from a water surface 0.1 inch per day. The amount evaporated from soils depends on the wetness of the soil, but the proportionate saving with reductions in temperature is probably as great as that from water surfaces.

This points to the possibilities of saving by applying water at night, when the surface soil is cool; by applying it at sufficient depths to keep it from coming in contact with the hot surface layer of soil, and by frequent cultivation to maintain a mulch of loose soil, which will prevent the excessive heat of summer reaching the moist soil, as well as destroying capillarity.

The following paragraphs give a quantitative statement of the saving of water by the various means just mentioned:

CULTIVATION AFTER IRRIGATION.

From soil which received sufficient water to cover it to a depth of 12 inches 1.65 inches were evaporated in the first five days after irrigation. At the end of that time half of it was cultivated. During the next six days the loss from the uncultivated soil was 1.38 inches, and from the cultivated soil 0.63 inch, the saving for the six days being 0.75 inch, or 6.25 per cent of the water applied. In a second experiment the depth applied was reduced to eight inches, and the soil in one-half the tanks was cultivated at the end of three days. The loss for the first three days was 0.84 inch. During the next three days the loss from the uncultivated soil was 0.20 inch, and from the cultivated 0.1 inch, the difference in favor of cultivation being 0.19 inch or 2.38 per cent of the amount applied.

SOIL MULCHES.

From soil receiving water enough to cover it to a depth of 3.14 inches the losses in 14 days were: With no mulch, 0.72 inch; with a 4-inch mulch, 0.21 inch; with an 8-inch mulch, 0.1 inch; and with a 10-inch mulch, 0.03 inch. Taking the loss with no mulch as a basis, the saving with the 4-inch mulch was 0.51 inch, or 16.24 per cent of the amount applied; with the 8-inch mulch it was 0.62 inch, or 19.75 per cent of the amount applied; and with the 10-inch mulch it was 0.69 inch, or 21.97 per cent of the amount applied. These mulches were made by placing dry soil on top of the tanks used in the experiments after the water was applied, and the results are better than can be secured in field practice, as the top soil is always more or less wet when fields are watered, but they show that large savings can be made by maintaining soil mulches by cultivation.

APPLYING WATER IN FURROWS.

From tanks receiving 5.19 inches of water the loss in 10 days was 1.11 inches when water was applied to the surface; when it was applied in 3-inch furrows the loss was 0.99 inch; with 6-inch furrows, 0.94 inch; with 9-inch furrows, 0.82 inch; and with 12-inch furrows, 0.63 inch. Taking the loss from the surface application as a basis, as before, the savings were as follows: Three-inch furrows, 0.12 inch, or 2.31 per cent of the amount applied; 6-inch furrows, 0.17 inch or 3.28 per cent of the amount applied; 9-inch furrows, 0.29 inch or 5.59 per cent of the amount applied; 12-inch furrows, 0.48 inch or 9.23 per cent of the amount applied. Other tanks in the same experiments received 4.9 inches of water. The loss when water was applied to the surface was 1.34 inches, and the saving when water was applied in the 3-inch furrows, 0.15 inch or 3.06 per cent of the water applied; in 6-inch furrows, 0.43 inch, or 8.77 per cent. In all these cases the soil was cultivated to a depth of four inches on the third day after the water was put on. In another experiment lasting 35 days the soil received two inches of water in 3-inch and in 12 inch furrows. The soil with the 3-inch furrows was 1.81 inches, and with the 12-inch furrows, 0.49 inch, the saving with the deeper furrows being 1.32 inches, or 66 per cent of the amount applied. The last experiment is outside the limits of field practice, as such light irrigation at such long intervals is not practicable.