

**BULLETIN NO. 5, A REPORT
UPON THE GRASSES AND
FORAGE PLANTS OF THE
ROCKY MOUNTAIN REGION**

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Bulletin No. 5, A report upon the Grasses and forage plants of the rocky mountain region by P. A. Rydberg & C. L. Shear

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P. A. RYDBERG & C. L. SHEAR

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U. S. DEPARTMENT OF AGRICULTURE.

DIVISION OF AGROSTOLOGY.

(Grass and Forage Plant Investigations.)

A REPORT 188

UPON THE

GRASSES AND FORAGE PLANTS

OF THE

ROCKY MOUNTAIN REGION.

BY

P. A. RYDBERG AND C. L. SHEAR.

PREPARED UNDER THE DIRECTION OF THE AGROSTOLOGIST.



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LETTER OF TRANSMITTAL

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF AGROSTOLOGY,
Washington, D. C., November 20, 1896.

SIR: I transmit herewith for publication as Bulletin No. 5 of this division a report upon the work done in the field by Messrs. P. A. Rydberg and C. L. Shear in 1895, together with an enumeration of the plants collected by them.

Respectfully,

F. LAMSON-SCRIBNER,
Agrostologist.

CHAS. W. DABNEY, JR.,
Assistant Secretary.

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INTRODUCTION.

In June, 1895, Messrs. P. A. Rydberg and C. L. Shear were commissioned by the Secretary of Agriculture, for three months, as field agents to visit certain points in Nebraska, Idaho, Montana, Utah, and Colorado. They were instructed to collect live roots of grasses, grass seeds, and sheaves of all the species observed. They were also instructed to collect three sets of herbarium specimens of all the native grasses and forage plants found, and to gather all the information possible from stockmen and farmers relative to any and all the plants which are held to be especially valuable during drought, and also to make observations relative to the abundance and apparent value of the various grass species and the value of the regions visited for grazing or for the production of hay. The collections made by Messrs. Rydberg and Shear under these instructions were large and extremely valuable, the herbarium specimens and sheaves particularly so. Owing to the extent of territory covered and the time which it was possible to devote to actual field work, the collection of seeds was not so large as it might otherwise have been. The number of herbarium specimens amounted to over 4,000, among which was a new species of oat grass, which has been named, in honor of the Secretary of Agriculture, *Avena mortoniana*. The field notes and general observations made by Messrs. Rydberg and Shear are embodied in the following report, presented by them at the close of their season's work. To this report is appended a classified list of the grasses and forage plants collected, giving the locality and date of collection of each species. Sets of these grasses have been distributed under the numbers designated in the list, and the list will be of value to botanists in working upon the geographical distribution of plants. There will doubtless be some modifications in the names of the species of *Poa* and *Festuca* when these genera come to be more critically studied, but the determinations have been made with great care and are as exact as our present knowledge of grasses will permit. The regions visited by the agents are of particular interest to farmers, and especially to stock raisers, and any addition to the knowledge of the grasses and forage resources of this section of our country can not fail to be of value to those engaged in these pursuits.

Experiments in the cultivation of native grasses of which seeds were obtained are being made, and important and valuable results are looked for in this work. Some of the species are of particular promise, indicating productiveness and excellent quality for hay or pasturage.

Thanks are due Prof. L. H. Bailey for determining the *Carices*, to Dr. N. L. Britton for determining the other *Cyperaceæ*, to Mr. F. V. Coville for determining the *Juncaceæ*, and to Mr. C. L. Pollard for determining the *Leguminosæ*.

F. LAMSON-SCRIBNER.

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A REPORT UPON THE GRASSES AND FORAGE PLANTS OF THE ROCKY MOUNTAIN REGION.

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FIELD NOTES AND GENERAL OBSERVATIONS.

MONTANA.

Our observations and collections made in Montana were limited to the Beaver Head, Big Hole, Deer Lodge, Gallatin, Madison, and upper Missouri valleys.

BEAVER HEAD VALLEY.

In this valley we visited three places—Lima, Red Rock, and Dillon. At Lima the valley is about 5 miles wide. It is mostly dry, except along the Beaver Head Creek and in small areas here and there irrigated in a very primitive fashion from springs among the mountains and foothills. Very little is under cultivation, but there is much good land available for that purpose, and much could be irrigated if all the water at hand were properly used. Most of the valley is used for pasture, but on account of the dryness the grass is scanty and poor. The most common grasses were *Agropyron spicatum* S. & S., *Agropyron divergens* Nees (fig. 1), *Poa buckleyana* Nash, and *Koeleria cristata* Pers. A sedge (*Carex filifolia*) is also very common. East of the town, along the tributaries of Beaver Head Creek, there were some fair meadows. The principal grasses were *Calamagrostis neglecta* Gærtn. (fig. 2), a species of *Poa* (near *P. fendleriana*) and *Deschampsia cespitosa* Beauv.

The lands most valuable for grazing were the foothills and mountain sides, on account of the moisture from the melting snows which still remained on the higher slopes and peaks in the early part of August. The most valuable



FIG. 1.—Wire Bunch-grass
(*Agropyron divergens*).