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Restoration of Native Grassland at Homestead National Monument

By

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The Homestead National Monument, which consists of the first homestead filed, lies about 5 miles from Beatrice, Nebraska. Its size which is that of the usual homestead in this area, is 160 acres. A small creek bordered by trees flows through the area and a highway cuts across a portion of it. There is undoubtedly more woods present now than originally, due either to planting or natural spread made possible by the cessation of prairie fires. The fields have been under cultivation until recently.

E. A.Hummel, Regional Historian is making plans to restore the conditions on the homestead as they were when the homesteader, Mr. Freeman, first settled on it. Among other things, Hummel wishes to restore the native vegetation so far as that is possible, and we have discussed this phase of the picture a number of times, and on February 2 discussed it with Dr. Weaver of the University of Nebraska. From the wildlife standpoint, the restoration of the prairie in the area as an aid to establishing the early historical picture seems very much worthwhile. In carrying out this proposal no doubt much could be learned about the prairie habitat. Any information concerning prairie restoration is of special importance today because of the large amount of grassland under agriculture which should never have been plowed, and which will eventually probably be restored to grass.

The homestead lies in the tall grassland region which includes the eastern one-third of Nebraska and continues eastward over Iowa and into Illinois. When the homesteaders first came into the country the grasses were so tall in places that they hid the stock, making it sometimes difficult to find the cows and horses. Some of the grasses grew to a height of ten feet.

Description of Prairie Habitats

In the area where the homestead lies there were several grass species which were assorted and grouped in a more or less definite manner, depending upon the slope of the hill, exposure, soil moisture, aeration of soil, and other factors.

Six Important Prairie Habitats:

In moving from the wet to the dry habitats in the prairie the following plant types occurred:

1. Very wet habitats contained the sedges: (Carex vulpinoidea, Carex hystricina), and the rushes, one of which was Scirpus atrovirens.

2. Wet, poorly aerated habitats frequently saturated: Slough grass (Spartina michauxiana) was the dominant grass.

3. Intermediate lowland habitat, slightly less moist than the previous habitat. It occurs on soils where conditions are intermediate between those occupied by slough grass and big blue stem. Where the land slopes gradually this belt is sometimes broad but where the slope is more abrupt there is only a narrow belt of this type. The principal grasses are tall Panic grass (Panicum virgatum), and nodding Wild Rye (Elymus canadensis). The herbs in this habitat are similar to those found with Spartina.

4. Well aerated lowland type of habitat. This habitat was dominated by the Big Bluestem (Andropogon furcatus) and was one of the two most important types on the prairie. It occupied the broad lowland valleys of the larger streams in the true prairie association, It is best developed on lower moist slopes and well aerated lowlands and was in practically complete possession of them.

5. Upland type of habitat. This habitat occurs on lands slightly drier than that occupied by Big Bluestem. The dominant grass in this habitat is Little Bluestem (Andropogon scoparius). In the prairie region this species dominates an area very much larger than that occupied by Big Bluestem. It ordinarily forms an interrupted sod, the mats or tufts being so dense that few other species can invade. Accompanying species grow between the mats. On drier steep slopes there is a tendency for this grass to grow in bunches. Its seedlings are vigorous and tiller both early and abundantly. Flower stalks are produced in abundance only in wet years or in more favorable situations.

6. Dry upland type. On the drier areas such as hilltops and in sandy thin soils Needle grass (Stipa spartea) is the chief dominant. The chief associates are bluestems and June grass (Koeleria cristata).

Prairie Habitats on the Homestead Monument

As I recall the Homestead area, I would judge that there were principally two habitats present, The well aerated lowland type occupied by Big Bluestem (Andropogon furcatus) and what I have called the upland

type occupied by Little Bluestem (Andropogon scoparius). The former on the lower ground, the latter on the higher part of the Homestead. It is possible that the entire area was occupied by one or the other of these types, and after a close examination it may be found that a little of the wet habitat occupied by Slough grass is present. The wet habitat will probably if it is present be occupied by vegetation now and will probably not be represented in any of the open fields which have been cultivated.

I believe we can go on the assumption that the higher portions of the homestead were occupied by Little Bluestem and the lower portions by Big Bluestem. If plantings are made on this basis we will give both types an opportunity to become established. If the whole area is adapted to one or the other of these types a natural adjustment will probably be made over a period of years. Also if both types belong on the area the extent of the area each type should occupy should become automatically adjusted in time. If future study shows that Needle grass or any other type is a normal type for the area it can later be restored.

Besides the grasses in the prairie there were many herb species present. Some of these herbs bloomed in the spring and others bloomed through the summer and in the fall. The herbs of early spring were small, completing their blooming before overshadowed by the grasses. The flowers that bloomed in the fall were tall, as tall as the grasses or taller. In restoring the prairie grasslands the ultimate aim is to approach as near the original as possible. How near the original we can come is not known. But it would seem desirable to make an effort early in the program to restore some of the more prominent spring, summer and fall flowers to show a part of Nature which no doubt gave some cheer to the first settlers.

Examples of spring and early summer flowers are: Antennaria campestris, Erigeron ramosus, Psoralea argophylla, Fragaria virginiana, Baptisia leucophaea, Echinacea pallida, Sisyrinchium angustifolium, Galium tinctorium. Examples of later summer and fall flowers: Helianthus rigidus, Aster multiflorus, Asclepias tuberosa, Liatris punctata, and Liatris scariosa.

Suggestions for Program of Prairie Restoration

To restore the prairie two methods can be used and perhaps both should be tried. The best method is to secure the prairie sod from doomed prairie areas and transplant them on the area. Dr. Weaver thought that original prairie sod could be purchased in the vicinity of the Homestead and was in favor of using this method of restoration. Since some of these relict areas are rather certain to be destroyed it is felt that we would be justified in using part of one for our purpose. In grafting the prairie sod there is a special advantage in that not only is prairie grass brought into the area but also native species of prairie herbs. The sod should probably be restored in several patches scattered over the area, not all in one place. This would permit a more rapid spread of the

prairie species over the area. I am not sure how large each sod patch should be but possibly 15 or 20 yards or a little more, in diameter should be the minimum. Care should be taken to have a sufficient nucleus in each patch so that a healthy growth would be assured. The sod should be placed at various elevations, the Little Bluestem sod on higher ground, and Big Bluestem sod on the lower ground. South exposures dry out faster than other exposures so that it may be well to avoid placing the sod on south exposures if others are available and the supply of sod is limited. Before bringing in the sod the fields probably should be plowed and harrowed.

Since it is likely there will not be sufficient sod available to cover the area, parts not covered by sod could be sown with grasses, Big Bluestem grass on the lower ground, Little Bluestem on the higher ground. Various prairie herbs can be planted with the grass, or later be brought into the area. Caution should be used, however, in planting herbs for certain species are aggressive and may tend to compete too strongly with the grasses before the latter become established.

Some shrubs such as Amorpha canescens, Rosa arkansana, Ceanothus pubescens, Salix humilis and Rhus rydbergii were part of the prairie and should also be restored in their proper habitat. The shrubs could be brought in after the grass is established.

Cooperation with University of Nebraska

Dr. J. E. Weaver of the University of Nebraska has been carrying on studies of the prairie for over twenty years. He is the outstanding authority in this field. In our efforts to restore the prairie at Homestead his advice should be obtained whenever possible. When we discussed the project with him he was very enthusiastic and thought that it was very worthwhile. Although it would be difficult, especially by means of seeding, to restore the original prairie because of the intricate balance of plant groups within the prairie, Dr. Weaver felt that a fairly good job of restoration could be made even by the seeding method, and that as time went on adjustments would occur among the plants which would bring the grass community nearer and nearer to the original prairie. He suggested that sod be brought in and as above stated knew where sod could probably be obtained. Dr. Weaver felt that the project contained the possibilities of an excellent experiment and expressed an interest in being rather closely associated with the project. It would be desirable to make it possible for him to assign a graduate student to carefully supervise the restoration. Such an arrangement would give the best assurance to the success of the undertaking for Dr. Weaver's supervision would be the very best anywhere available. As a guide in the work the best publication is "The Prairie," by J. E. Weaver and T. J. Fitzpatrick.

Recommendations:

1. That a fence be built around the area to prevent the trespass of hogs and other livestock.

2. That the fields be plowed and made ready for seeding and sodding.

3. That original prairie sod be purchased and transported to the homestead.

4. That the part of the area not sodded be seeded to Big Bluestem on the lower ground, Little Bluestem on the higher ground.

5. That some attempt be made to get Dr. J. E. Weaver's close cooperation and supervision of the work.