

A PROPOSED GREAT PLAINS NATIONAL MONUMENT

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PROGRESS of civilization with accompanying development is changing the face of nature. In the eastern United States there remains hardly a square mile of unmodified vegetation. Even the surface of the earth itself—the hills and valleys, the course of streams—in places has been changed, either directly by engineering or indirectly by erosion. Life dependent upon these habitats must change with them or become extinct. Except through written descriptions, man loses contact with historical phases of his environment and opportunities for scientific work on it.

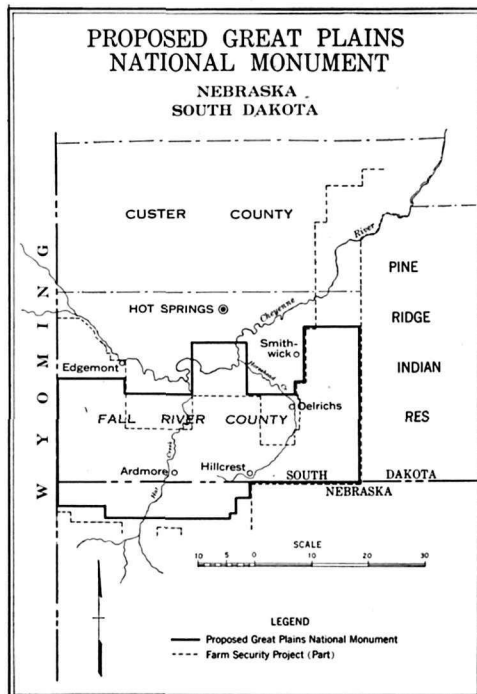
In the following paper, I have drawn freely from writings and unpublished reports of Dr. V. E. Shelford and other members of the Ecological Society's Committee on Preservation of Natural Conditions. Certain information on the animal and plant life of the area has been taken from Petry and Visher's account in the "Naturalist's Guide to the Americas" (1926). The forecast of probable vegetative cycles under protection, described on pages 132 and 133, is adapted from an unpublished report by Dr. W. B. McDougall.

A system of national reservations has therefore been devised within which samples of original America, with their plants and animals, may be perpetuated. National parks preserve outstanding scenery; national monuments protect natural phenomena and historic sites and structures. A comprehensive system of national monuments should include samples of ecological plant associations and, with them, their characteristic animals.

¹ Formerly chief, Wildlife Division, National Park Service.

Surely the prairie is a highly important kind of environment, and a small portion is worthy of preservation. The National Park Service, therefore, aided by the National Research Council and by the Ecological Society of America, has been for a number of years considering possible areas in the short-grass prairie region. Recent field inspections have indicated that a typical one has been found.

An area suitable for designation as a Great Plains National Monument must meet a number of important specifications if it is to serve its purpose. It must for several reasons be of large size. From



OUTLINE MAP OF PROPOSED MONUMENT



Photo, 1938, by C. H. Wegemann, National Park Service

VALLEY OF A TRIBUTARY OF THE HAT CREEK DRAINAGE

EAST OF PROVO, SOUTH DAKOTA. THE YELLOW PINES IN THE MIDDLE DISTANCE ARE ON THE DAKOTA FORMATION WHERE IT COMES TO THE SURFACE. SOME DIVERSITY OF COVER AND SURFACE IS ESSENTIAL FOR THE LARGER MAMMALS OF THE GREAT PLAINS, AND THIS EXISTS IN THE NORTHERN PORTION OF THE PROPOSED GREAT PLAINS NATIONAL MONUMENT ALONG THE CHEYENNE RIVER.

the recreational point of view size is important, for the greatest inspirational value of the plains is to be gained from large areas free from traces of human developments. The scientist also demands large natural areas for some types of research. The preservation of truly natural conditions of vegetation requires that outside, man-caused factors be excluded. To prevent pollution of even a comparatively small central area by exotic plants that may spread and travel as seeds on the wind, a wide surrounding buffer zone under rigid control is a requirement. A long step toward permanent protection of numerous bird species consists in preservation of their normal habitat in some expansiveness. Also, if the larger members of the fauna of the Great Plains are to be restored under natural conditions a great acreage is necessary. Bison, antelope and elk need large amounts of forage, which in the short-grass type is not truly abundant. If the bison, particularly, is to be pre-

served as a wild species in the United States, it must be granted a large natural range free from the domesticating confinement of small fenced parks. From a consideration of all these points, it seems that a million-acre tract would be needed.

Size being a necessity, it is also evident that the shape of the area selected would be important. The most ideal one would be essentially isodiametric, for an elongated section of land would be more and more exposed to outside influences with any increase in the ratio between length of boundary and acreage.

Although not ideal in all respects, most practical requirements are fulfilled by an area of about three quarters of a million acres occupying southern Fall River County, extreme southwestern South Dakota, with a relatively small extension into adjacent Sioux County, Nebraska. Approximately 50 per cent. of the desirable lands are in federal or state ownership (notably land retirement



Photo, 1938, by C. H. Wegemann, National Park Service

LOOKING EAST FROM A POINT JUST NORTH OF ARDMORE, SOUTH DAKOTA THE LOW HILLS OF THE PIERRE FORMATION, BY SPARSE COVER AND PRESENCE OF WEEDS, SHOW DISTINCT SIGNS OF DROUGHT AND ABUSE THROUGH OVER-GRAZING. THE LINE OF TREETOPS ACROSS THE MIDDLE DISTANCE IS ALONG A (DRY) WATERCOURSE OF THE HAT CREEK DRAINAGE.

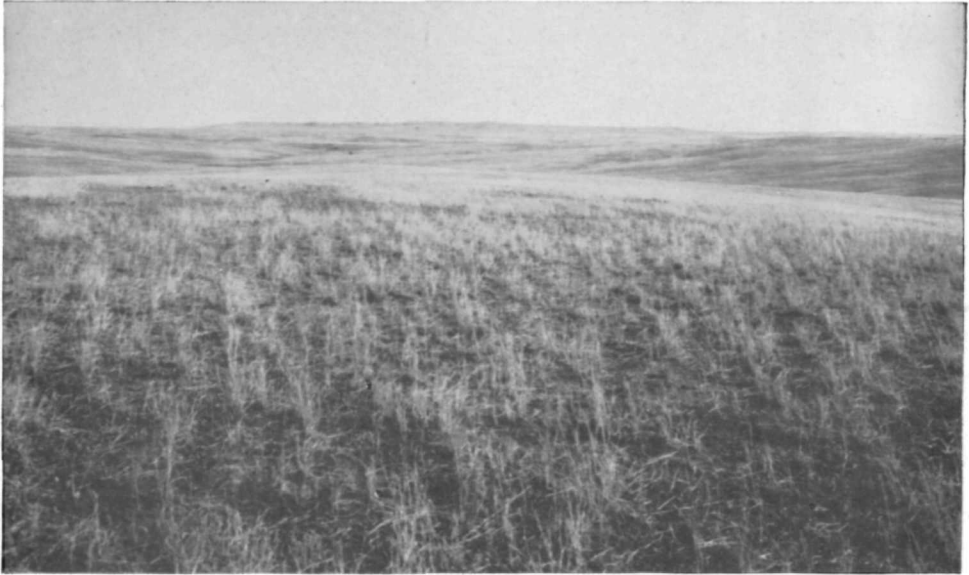
purchases of the Farm Security Administration now under the control of the Soil Conservation Service), while over 8 per cent. more are county property.

The area selected for a Great Plains National Monument project is mostly of Cretaceous (Pierre shale) origin of a type uniform with the plain west of the Missouri River and exclusive of the Black Hills area. The tough gumbo soils of this semi-arid region are much eroded in some places, but the project has escaped severe cutting. The rounded hill-tops vary in elevation from 100 to 300 feet above the valley bottoms, or coulees. Most of the streams are temporary in character, often going dry except in periods of frequent rain.

The climate of southwestern South Dakota is relatively arid, as the average yearly precipitation varies from 16 to 20 inches. A distinct rainy season starts about April 1 and ends early in October. During that time approximately 75 per cent. of the yearly precipitation occurs. Summer rains are more local in character

than those in the spring and fall, and the rainy period coincides with the growing season. November, December, January and February are the driest months of the year. Winter temperatures average about 26° F. January is the coldest month of the year. Snowfall is usually light, except in March. The lowest temperature ever recorded in Fall River County is -42° F. at Oelrichs. Summer temperatures generally average around 65 degrees but exceed one hundred usually more than once a year. July and August are the hottest months. During periods of coldest weather, there is not much wind and the severity of the cold is somewhat mitigated by low humidity at the time.

The dry plains of the western part of the State of South Dakota, including the area under consideration, are covered by a short grass sod in which grama grass (*Boutelous gracilis*) and buffalo grass (*Buchloe dactyloides*) were originally dominant. Many xerophytic herbaceous plants as loco (*Oxytropis lambertii*),



Photo, 1938, by U. H. Wegemann, National Park Service

SOUTHEAST FROM ABOUT 6 MILES EAST OF ARDMORE, SOUTH DAKOTA
 THE VEGETATION HAS BEEN NOTICEABLY THINNED BY OVER-GRAZING, DROUGHT AND ACCOMPANYING
 FACTORS, ALTHOUGH THE SOD HAS NOT BEEN DISTURBED. THIS SCENE IS NEAR THE CENTER OF THE
 GREAT PLAINS NATIONAL MONUMENT PROJECT.



Photo, 1938, by U. H. Wegemann, National Park Service

SOUTH FROM ABOUT 12 MILES EAST OF ARDMORE, SOUTH DAKOTA
 THE MORE DROUGHT-RESISTANT AND UNPALATABLE PLANTS HAVE RESISTED STRESS AND HERE FORM
 ONE OF THE HEAVIEST COVERS IN THE AREA. THE MOST DISTANT RIDGE IS IN NEBRASKA.

Artemisia frigida and *Chrysopsis villosa* are mingled with the short grass sod and have become more important elements as range deterioration progressed. Small remnants of the short grass vegetation persist in the badlands.

Along the few stream courses, most of which cease to flow at least during the long hot summer, cottonwoods and willows are the most prominent floral

tailed jack rabbit, Wyoming cottontail and the Osgood deer mouse. The gray wolf, bison and mule and probably white-tail deer formerly occurred there but are now extinct in the region. The Audubon bighorn, which once lived along the rivers and in "badlands" of any size, is now completely extinct. Pronghorn antelope were numerous in early times and may occur accidentally as they are



U. S. Department of Interior

SITE OF CAMP NEAR CHURCH BUTTES, WYOMING, IN 1870

NOTE CLEAR STREAM WITHIN ITS BANKS AND VALLEY BOTTOM COVERED WITH TALL GRASS, UNLIKE CONDITIONS TO-DAY. THE RANK GROWTH OF GRASSES SHOWN WAS PROBABLY WESTERN WHEAT-GRASS, PRAIRIE CORD GRASS AND SOME JUNCUS SPECIES.

elements. Elm and box elder, however, are not uncommon. Scattered red cedars are found on the upper reaches of the tributaries and in most situations a buffalo berry (*Lepargyrea argentea*) occurs.

The grassland is the home of the northern skunk and spotted skunk (*Spilogale*), the badger, prairie coyote, black-footed ferret, swift fox, black-tailed prairie dog, the pallid striped ground squirrel (*Citellus tridecem lineatus pallidus*), sage pocket gopher, pocket mice (*Perognathus* ssp.), kangaroo rat, white-

present west of the project in Wyoming and some distance to the south around Agate, Nebraska.

Along the larger stream courses the list of mammals may be somewhat larger. Bats come to drink here and raccoons to catch crawfish. An occasional western fox squirrel is found in the groups of large cottonwoods and willows. The Cheyenne and White Rivers and many of their larger tributaries are known to contain Missouri River beaver (*Castor canadensis missouriensis*). Under present



Soil Conservation Service

SAME SITE AT CHURCH BUTTES, WYOMING, AT PRESENT TIME

THE VEGETATION IN THIS PHOTOGRAPH, 67 YEARS LATER THAN PRECEDING PICTURE, IS PREDOMINANTLY A SAGEBRUSH TYPE. THE MAIN SPECIES ARE BIG SAGE AND RABBIT BRUSH, WITH TRACES OF WESTERN WHEAT, PRAIRIE CORD, JUNCUS AND DROPSEED SCATTERED THROUGHOUT THE AREA.

conditions, it is fairly certain that no beaver occur within the boundaries of the proposed grasslands area.

Although this section of the plains is not a vitally important habitat for vanishing bird species, several rare or uncommon kinds use it during at least a portion of the year. The long-billed curlew, once common, is still found nesting there. Four were seen at Hillcrest on June 14, 1938, and several others the following day near Folsom, about 20 miles north of the northeastern corner of the proposed monument. The whooping crane was recorded by H. H. Sheldon on October 4, 10 and 16, 1915, on the Pine Ridge Indian Reservation. The writer also saw a flock passing very high over Sheep Mountain, at the western end of the Badlands, on October 13, 1935. Prairie sharptailed grouse were once common and would regain their former numbers with adequate protection and the return of normal vegetation. There are records of the greater prairie chicken

from nearby areas (Badlands, Pine Ridge Indian Reservation). Water-loving birds are comparatively scarce, for their special environment is of course very limited, but four herons, five sandpipers, two geese and seven species of ducks have been noted in the project or within 25 miles of the boundaries. A few mallards and pintails are found on every permanent stream, even though small in size. Surface water is at a premium on the plains, especially in the southward migration, and ducks are surprisingly abundant in fall. Birds of prey are numerous in species and individuals. Eight kinds of hawks have been recorded in addition to the golden and bald eagles and the osprey.

The only permanent avian resident represented by many individuals is the desert horned lark, which in late summer and fall is very abundant. Great numbers are killed at this time by speeding automobiles. Probably these are almost entirely young of the year, for no dead

larks are to be found after the end of December, although survivors are still abundant on the roadsides. Longspurs of some species are found in all seasons, the chestnut-collared and McCown's longspurs nesting here abundantly and the Lapland longspur wintering. Two other members of the sparrow family, the lark bunting and the western vesper sparrow, are very numerous; the former is quite characteristic. Other prominent nesting birds are the Brewer blackbird, Sennett's nighthawk, upland plover and burrowing owl. The latter, unfortunately, is comparatively scarce, for extermination campaigns aimed against prairie dogs have indirectly affected the birds dependent on the burrows for dwelling and nesting places. Several kinds of birds nest in the groves of scattered trees along the streams, but often feed on the steppe far from their nests. Examples are: the ferruginous rough-legged, Swainson's and sparrow hawks.

Cliff and barn swallows, nesting on cliffs or about buildings, are also seen often, as well as the bank and violet-green swallows. The total number of bird species is especially large, because the western Dakotas lie on the meeting-line of eastern and western avian faunas, where forms common to both mingle. A great increase in the number of individuals would almost certainly follow restoration of normal ground cover and the re-elevation of the water table to its natural level.

The most common snake is the plains bull-snake (*Pituophis sayi*), with the plains blue racer (*Coluber constrictor flaviventris*) next and the prairie rattlesnake (*Crotalus confluentus*) third in most places and seasons. The horned-lizard (*Phrynosoma*) is numerous in many localities. The common toad (*Bufo woodhousii*) is seen frequently. The Great Plains toad (*Bufo cognatus*) is characteristic but not abundant.

The area proposed for establishment



U. S. Bureau of Biological Survey

AUDUBON BIGHORNS ONCE LIVED IN THE BREAKS

THE LAST AUDUBON BIGHORNS OR BADLANDS MOUNTAIN SHEEP WERE EXTERMINATED FROM THEIR GREAT PLAINS HABITAT ABOUT 1918; CONSERVATION POLICIES ARRIVED TOO LATE TO SAVE THEM. THEIR SURVIVING RELATIVES OF THE ROCKY MOUNTAIN VARIETY WERE PHOTOGRAPHED ON THE NATIONAL BISON RANGE, MONTANA.

as a Great Plains National Monument has been much abused by overgrazing and to a small extent by plowing. Any plans for restoration to a normal condition must take this into account. While some erosion control work can probably be carried on in order to hasten rehabilitation of the land, time is the agent that will heal the scars most effectively.

The short grasses of the plains region may be considered as representing the climax type of vegetation for the region—in other words, the most mesic vegetation that the climate, especially the water supply factor, will support. The hillocks will probably be too dry for the climax vegetation, but these will be worn down until conditions suitable for the climax are attained. On the other hand, if there are shallow depressions too wet for the climax, they will gradually fill up until the same medium conditions are reached. When the climax vegetation has been established, it will persist indefinitely unless destroyed by one means

or another, or a change occurs in the climate. When the climax vegetation is destroyed by any means, the resulting bare area will always be drier or wetter than it was when occupied by the climax vegetation. As a result there will be a natural succession of plant forms on the area until the medium conditions that will support the climax vegetation have returned.

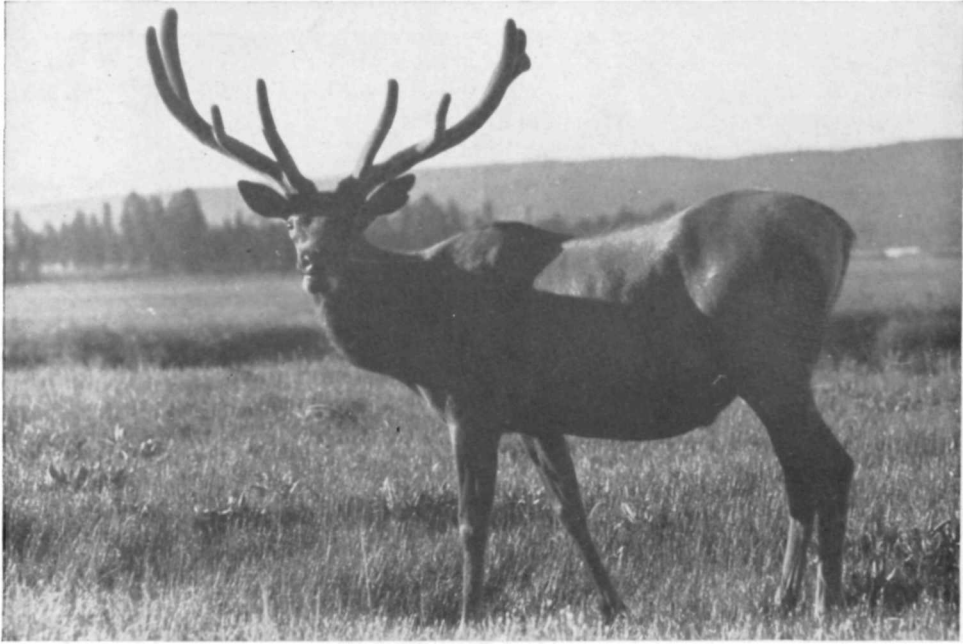
When the short-grass plains climax vegetation is destroyed, the resulting bare area is moister than the areas occupied by the vegetation because an immense amount of water is lost through the plants. The first stage in the succession on such an area is an early weed stage, which occurs from one to three years after the area has been abandoned. The plants are principally smartweed (*Polygonum aviculare*), Russian thistle (*Salsola pestifer*), verbena (*Verbena bracteosa*), gum weed (*Grindelia squarrosa*), plaintain (*Plantago purshii*) and six-weeks fescue (*Festuca octoflora*).



National Park Service, by Frank Oberhanstley

BISON AND ELK WERE ONCE PLAINS DWELLERS

BUT ECONOMIC DEMANDS EXTIRPATED THEM FROM AGRICULTURAL AND GRAZING LANDS ON THE AMERICAN PLAINS. EXCEPT FOR A HERD IN CANADA, BISON NOW PERSIST IN A TRULY WILD STATE ONLY IN THE WOODED MOUNTAINS OF THE YELLOWSTONE NATIONAL PARK.



U. S. Bureau of Biological Survey

BULL ELK IN VELVET

ELK OR WAPITI WERE ONCE RESIDENT IN BRUSHY CREEK-BOTTOMS THAT FURROW THE GREAT PLAINS.

During the second stage these weeds increase until they use all of the available surface water during the season. This stage lasts for two to five years and, before it ends, young plants of tumblegrass (*Schedonardus paniculatus*), *Gutierrezia sorothrae* and false mallow (*Malvastrum coccineum*) will be found.

In the third stage, lasting four to eight years, tumblegrass is dominant. This is a short-lived perennial grass and a surface feeder. It crowds out the annual weeds. Along with it will be found many plants of *Gutierrezia*, which is a deep-feeding perennial.

The fourth stage, lasting seven to fourteen years, consists largely of the deep-feeding *Gutierrezia*, together with some tumblegrass and occasional plants of buffalo grass (*Buchloe dactyloides*).

The fifth stage, 12 to 25 years, is dominated by buffalo grass, together with some plants of the earlier stages.

Finally, in the sixth stage, 25 to 50 years, buffalo grass and grama grasses (*Bouteloua*), long-lived, surface-feeding,

short grasses, kill out the deep feeders by utilizing all available water before it penetrates to the deeper layers. Thus the typical short-grass vegetation is re-established.

This succession may be modified by any number of local factors or by such climatic factors as wet and dry cycles. In general, however, it may be expected that it would take from 25 to 50 years to reestablish the typical short-grass vegetation in places where it has been destroyed.

This great area, if set aside for national monument purposes, would present peculiar problems in restoration, administration and protection. Keeping in mind the primary need for recuperation of the vegetation, provision must necessarily be made for the reintroduction of small numbers of the more conspicuous mammals now exterminated. Restoration of bison, elk and antelope presuppose the construction of a fence sufficient to prevent the animals from wandering to agricultural areas and such a project,



U. S. Bureau of Biological Survey

WATERFOWL FIND WATER SCARCE FOR NESTING
BUT PARENTS, LIKE THESE CANADA GEESE, REARED BROODS WHEREVER WATER WAS AVAILABLE.

involving approximately 200 miles of boundary, would be a large task. Fence construction on such a scale would be by no means out of reason, as barriers of much greater length have been completed in Australia as public or state projects. In a large area, however, it is probable that fencing would not be needed for some time if watch were maintained over the animals' movements. Periodical herding of a comparatively small number of bison or other grazing mammals should suffice to prevent straying beyond the exterior boundaries.

Restoration of that large carnivore, the wolf, would, however, be attended with more serious difficulties. Nothing of this nature could be attempted until a tight fence could be constructed around the project in order to prevent natural gravitation of wolves to regions where their presence would interfere with economic interests.

It is probable that in time an entirely new road system could be laid out to suit the distinctly different uses of the land. The type of construction would be simple, for only low-speed traffic, principally seeking views instead of mileage records, would need accommodation. The traditional type of road for the Great Plains is the rudimentary one or two wheel tracks. It is believed that this, probably oiled to allay dust, would be sufficient for most of the monument and quite in keeping with its purposes.

A large staff, at least for administrative and protection purposes, would never be needed. Protection of the "game" mammals and other wildlife would also be less troublesome than in forested country and poaching much more easily detected.

Because of the nature of the experiment there should be no development in the popular sense of the term. The only



Haynes, Inc., Yellowstone Park

THE ANTELOPE ONCE WERE PLENTIFUL

IN THE PLAINS REGION WHERE THEY FORMED AN INTEGRAL PART OF THE BIOLOGICAL COMMUNITY. A BUCK PHOTOGRAPHED IN YELLOWSTONE NATIONAL PARK WHERE A HERD OF 800 IS FLOURISHING.



U. S. Bureau of Biological Survey

THE PLAINS WHITE-TAIL DEER NEEDS BRUSHY VALLEYS
AND DISAPPEARED FROM THE PLAINS WHEREVER THESE WERE "CLEANED UP" OR SETTLED.

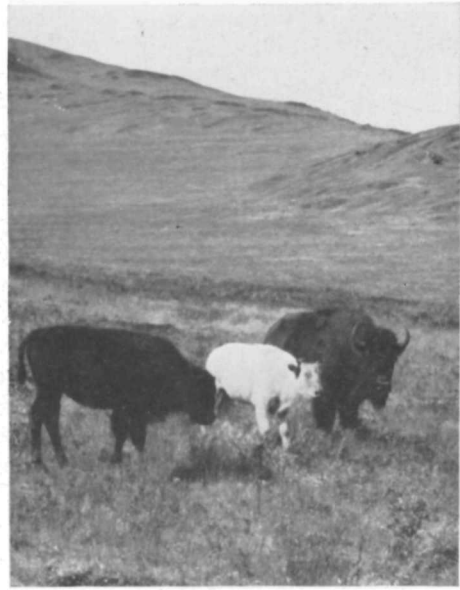
development permitted would be that necessary for the protection of the area and to accomplish the purposes for which it would be set aside.

It is believed that the reservation of an adequate sample of the Great Plains, under administration that would preserve *all* factors of the environment, can be justified on scientific, economic and recreational grounds. Grassland is one of the most important of all vegetational features. Shantz's "Plant Resources" in *Encyclopedia Britannica*, 1930, pages 858-860, estimates the division of the 52 million square miles of the earth's land area as follows: desert, 13 million square miles; forest, 17 million square miles; grassland, 22 million square miles.

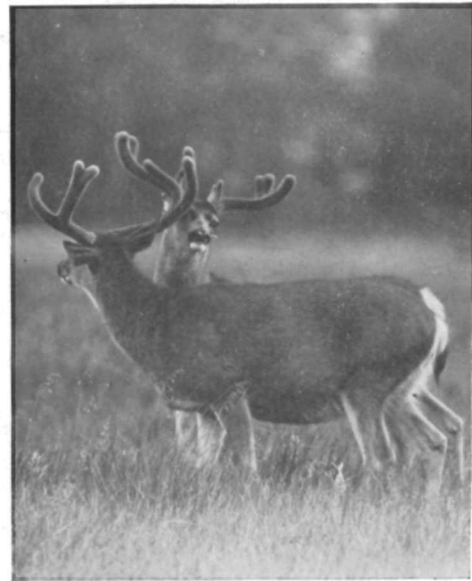
Furthermore, Shantz and Zon (*Atlas of American Agriculture, Natural Vegetation*, 1924, page 3) have estimated that 38 per cent. of the original total area of the United States was grassland. Agricultural use has converted some of this to tillage, and misuse has further reduced the arable area. From the economic and scientific point of view, therefore, it is of enormous importance that the remaining grassland receive further study and proper treatment.

Approximately half of the world's total land area can never be cultivated, for much of the desert has no water, some areas of forest are too rocky, poorly drained or otherwise unsuitable, and vast acreages of grassland would be ruined by erosion if the sod cover were broken. It is important, therefore, to learn as much as practicable concerning use of these lands for other purposes.

We have no assurance that our present methods of handling our western plains are those that will result in maintaining an unimpaired resource. As a matter of fact, the severe test to which the prairies have been subjected during the recent cyclic drought would indicate otherwise. Various signs have pointed out that many



U. S. Bureau of Biological Survey
AN ALBINO BISON CALF
 IS A RARITY THAT WAS REGARDED WITH RELIGIOUS
 AWE BY THE PLAINS INDIANS. NATIONAL BISON
 RANGE, MONTANA.



U. S. Department of Interior
MULE DEER WERE FOUND
 ON THE GREAT PLAINS WHEREVER PATCHES OF
 WOODS AFFORDED SHELTER.

areas have been seriously damaged by unwise plowing or overgrazing and that a radical departure in methods of handling must be instituted. Otherwise, great tracts of grasslands will revert to semi-desert that will require impossible lengths of time for rehabilitation. Possession of a large check area that will be allowed to remain in its natural condition would be a continuing standard against which it would be easy to establish divergence of similar grasslands under economic use. Adoption of new methods of use would be in order if agricultural or grazing areas showed indications of excessive damage. The presence of such a check area also would make it possible to apply new methods and desist from old ones before extensive damage made it obligatory to use costly means for rehabilitation.

The great cereal-growing and grazing



A. A. Allen

SANDHILL CRANES

SIMILAR TO THIS FLORIDA CRANE, NESTED IN SLOUGHS. NOW THEY ARE UNCOMMON MIGRANTS OVER THE PLAINS AREA.

areas of central North America were originally grassland, supporting a large animal community characterized by many of the best-known large mammals and birds and many rodents and small carnivores, as well as reptiles and invertebrates. Its original life has largely been destroyed without adequate study, from the standpoint of either pure or applied science. Results valuable to the general sciences of paleontology, geology, geography, botany and zoology, and especially to modern ecology could have and even now can be obtained. Fortunately, representatives of all the species of animals (except bighorn) are still available for research purposes.

It is an ideal habitat type in which to study biotic interrelations, fluctuations in abundance of animals and other basic principles. There is need for checking the philosophical doctrines of biology by observations in nature. Very little work of this kind has been done and observations lack continuity. The various doctrines of biology, past and present, such as natural selection, sexual selection, emergent evolution, etc., doctrines concerned with the changes in abundance of animals, involving theories of immunity, disease, competition, sunspots and favorable and unfavorable weather or radiation conditions, biotic potential and environmental resistance, have never been checked by continuous observations in nature. Experimental work intended to throw light on these questions, especially those concerned with abundance, has not been guided by the relations of the animal in nature but rather by the dicta of physics and chemistry or even the operation limits of commercial apparatus.

Continuous quantitative and qualitative observations of organisms in nature in correlation with the surrounding physical conditions, especially their fluctuations, should in itself form a basis for important discoveries. Theories may also be developed. These may be experimentally tested when a suitable foundation

has been laid. The study of the complete biotic community should add much to our knowledge of interactions.

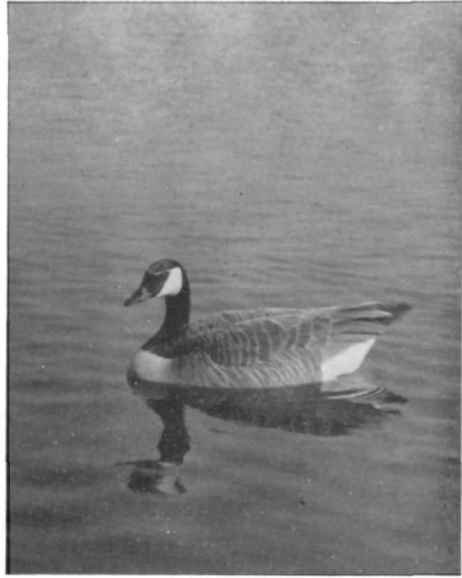
Grassland is an excellent field of scientific study for the following reasons:

1. It affords full visibility of most important animals and plants.
2. The life histories and life span of the dominant plants is about one-tenth that of forest trees, which greatly facilitates observation.
3. Although there is great ecological interest, much less research of this kind has been done here than in the forest.
4. There is a close relationship of these problems to agriculture.

Scientists have long been interested in the study of nature from the standpoint of plant and animal communities, the physiographical and competitive relations of their constituents, and similar matters. This field of knowledge has important bearings on various other scientific and philosophical questions.

The Great Plains have figured extensively in our history both in colonial times and during the period of westward expansion. Although the area proposed for establishment as a grasslands national monument is north of the old main travel route, the Oregon Trail, it is nevertheless typical of many of the high plains over which the colonists made their way. Much of the north and south travel from Forts Kearney and Niobrara in Nebraska to the Black Hills went through the area. The early stage route from the North Platte River through Buffalo Gap to Deadwood traversed this country crossing the Cheyenne River at a ford south of Buffalo Gap.

It is certain that there will be considerable public interest in a restoration of the prairie with its vegetation and fauna. It is not likely that the general public would want to stay in it for long periods of time. The landscape and its plant and animal communities are not sufficiently diversified to hold unspecialized interest.



U. S. Department of Interior
CANADA GOOSE

MANY CANADA GEESE NESTED IN THE PONDS OF
THE GREAT PLAINS AND ALONG THE RIVERS.

Herds of the larger mammals, however, as well as the numerous species of prairie birds, would be certain to attract large numbers of the public and it is undeniable that the landscape has an appeal peculiar to itself. It makes a tremendous impression, similar to the effect created by unlimited ocean or other vast expanses. As Van Dyke says:

How often have we wondered why the sailor loves the sea, why the Bedouin loves the sand! What is there but a strip of sky and another strip of sand or water? But there is a simplicity about large masses—simplicity in breadth, space and distance—that is inviting and ennobling. And there is something very restful about the horizontal line. Things that lie flat are at peace and the mind grows peaceful with them. Furthermore, the waste places of the earth, the barren deserts, the tracts forsaken of man and given over to loneliness, have a peculiar attraction of their own. The weird solitude, the great silence, the grim desolation, are the very things with which every desert wanderer eventually falls in love.²

² "The Desert," pp. 18-19.

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