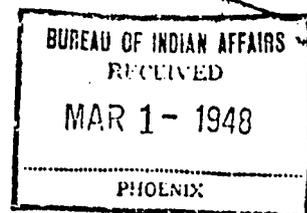


UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of Land Utilization



SURVEY OF THE RANGE RESOURCES AND LIVESTOCK ECONOMY
OF THE NAVAJO INDIAN RESERVATION

BY

LEE MUCK

Assistant to the Secretary
In Charge of Land Utilization

WR 1955

THE SECRETARY OF THE INTERIOR
Washington

January 26, 1948

Memorandum

To: Acting Commissioner of Indian Affairs
From: The Secretary
Subject: Muck Report on the Navajo Range

The within report of Mr. Lee Muck on the range and livestock economy of the Navajo Indian Reservation is transmitted for your immediate attention. The objectives of the report insofar as they seek to secure fairer distribution and better management of livestock on the reservation range and insofar as they urge greater participation and responsibility of the Navajos themselves in regulating range use, have my approval. Compatible with the Secretary's responsibility for sustained-yield use of tribal lands, you are authorized to proceed at once along the following lines in order to reach these objectives at the earliest date:

(a) Hold in abeyance any further reductions of stock under the present Navajo-Hopi special grazing regulations until such time as revision of the regulations can be agreed upon and approved by the Secretary. Special range permits now in force should be continued until the new regulations shall be put into effect:

(b) In order to initiate the discussions on modifications of the regulations, you should arrange at once with the Chairman of the Navajo Tribal Council for a meeting at the District Office in Phoenix between representatives of the Indian Service and the newly-elected General Advisory Committee of the Navajo Tribal Council to discuss the revision of the present Navajo-Hopi grazing regulations, with particular reference to the controversial sections;

(c) Since the General Advisory Committee is not authorized to commit the tribal Council in any discussions of such changes in the regulations, arrangements should be perfected to have the Advisory Committee present any revisions of the regulations to an early meeting of the Navajo Tribal Council which would, it is expected, wish to refer the changes to the constituent district councils for further discussion in local district meetings. The agreed-upon revisions should come back up for the Secretary's review and action with all reasonable dispatch;

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(d) Concurrent with the discussions of the grazing regulations, range utilization checks should be conducted on any areas where early restocking is contemplated. I am informed that such checks can be completed with present personnel in about three months, and the work should start at once;

(e) The Superintendent of the reservation should be instructed to take whatever steps are necessary to complete the organization of district councils and to initiate discussions with responsible members of the tribe and of his staff on the authorities and responsibilities to be given to such councils. This organizational problem should also be included for discussion in the meetings with the General Advisory Council in Phoenix proposed in section (b) above;

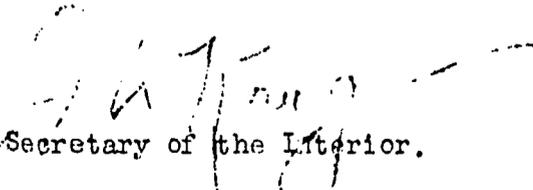
(f) The lag in securing greater Indian participation in the conservation and stock improvement program on the reservation is stressed in the Muck report and has been confirmed by other reports reaching the Secretary's Office. The discussions contemplated in the preceding sections should help in part to remedy this regrettable neglect but it is imperative that additional steps be taken to strengthen the educational and cooperation phases of the range and conservation programs. Among others, the following steps should be considered at once:

1. Expand the work of the sheep breeding laboratory;
2. Develop and carry out on the reservation basic educational programs of conservation, livestock improvement, proper land use practices;
3. Establish lamb and wool selling pools to increase Navajo income for better grades of wool and stock.

In putting into effect the above directives, it should be borne in mind that the Navajo Tribe can no longer live by sheep alone and that other resource development must take place on the reservation and additional opportunities for livelihood be created off the reservation. The comprehensive long-range program for the Navajos, which will secure Congressional attention during the coming months, should go far in developing alternative means of livelihood for many members of this disadvantaged population.

Inasmuch as the Hopi Indian area within the Navajo Reservation is almost impossible of separate consideration and treatment in conservation work and range use, you should make whatever arrangements are necessary to secure participation of the Hopi Indians in discussions set forth above.

Please keep me informed of progress on all significant items of the program.


Secretary of the Interior.

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INTRODUCTORY STATEMENT

Pursuant to departmental instructions of October 7, 1947, the writer has conducted an intensive study of the range management plans in effect on the Navajo and Hopi Reservations. The investigation required a period of about 30 days during the months of October and November and consisted of a study of the entire range problem, including management practices, carrying capacities, the degree of stocking, and the procedures being followed in the allocation of the ranges.

Ordinarily a discussion of the facts covering a range conservation program so diversified and far-reaching as that in effect on the Navajo Reservation would require the compilation of a voluminous report. However, a review of the record indicates that the Navajo range problem, together with the plans in effect looking to its solution, has been exhaustively described and analyzed in previous reports already on file in the Department.

The writer has heretofore been connected with three former range investigations on the Navajo Indian Reservation, namely:

1. An extensive survey conducted in the year 1928 in association with Mr. J. P. Kinney and Mr. William Heritage, both of the Indian Service;

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2. The survey of 1929 and 1930, which was made available to the Office of Indian Affairs and the Congress under the title "An Economic Survey of the Range Resources and Grazing Activities on Indian Reservations", and

3. A special investigation conducted for the Secretary of the Interior in the year 1938, in association with Mr. Frank B. Lenzie, Range Examiner, and Mr. William H. Zeh, Regional Forester, both of the Indian Service. The report covering this survey was filed in the Department under date of June 14, 1938.

Much valuable assistance was rendered by officials of the Indian Service in connection with the conducting of the survey under discussion in this report. Acknowledgment is especially due to Mr. William H. Zeh, District Director, and Mr. Raymond Bitney, District Forester, of the Indian Service, for assistance in the field; and to the Superintendent and employees of the Navajo Indian Agency for the compilation of detailed information essential to an analysis of the problem.

THE NAVAJO COUNTRY

The Navajo country consists of approximately 15,000,000 acres of land lying between the Colorado River and its two branches--the Little Colorado and the San Juan. It embraces the northeastern corner of Arizona, the northwestern corner of New Mexico, and a little of southern Utah. It is a land of high plateaus, flat-top mesas, inaccessible buttes, deep canyons, and sand and gravel washes. The river valleys are canyons or wide-open washes. The rocks are chiefly sedimentary in formation. The climate is arid, the vegetation sparse, and a very substantial part of the area may be classified as unsuitable for any productive use.

As a broad generalization, the Navajo province may be characterized as a vast plateau in which the depths of the canyons approximate the heights of the mountains. It is a land in which downward departures from the average plane about equal upward departures; none of the important streams or washes have been reduced to grade throughout their courses; and a state of dynamic movement exists throughout the entire area.

Second to the spectacular and picturesque results of erosion in this broad region, the most outstanding feature is the extreme aridity of the climate. The precipitation over that part of the area below 7,000 feet, which is roughly half of the territory, averages about 8 inches or less annually. At higher elevations the average annual rainfall increases about 1 inch for each 500 feet, so that the points of extreme elevation experience an annual rainfall of in the neighborhood of 20 inches. In addition to being so limited, a further feature of the rainfall reduces its natural beneficial effects. It is irregularly distributed throughout the year and falls largely in sudden and violent storms and torrential summer showers. As a result, heavy runoff occurs, which, combined with the general absence of a cover of sod-forming vegetation, causes serious erosion and material damage.

Vegetation in the Navajo country is characteristic of the Colorado plateau province. Above 7,000 feet on the highlands along the Arizona-New Mexico boundry, yellow pine of good quality occurs, which is at

present under development by an Indian owned and operated sawmill. Between 6,000 and 7,000 feet, pinon pine and juniper are commonly found. Sagebrush and greasewood grow in limited amounts at elevations below 7,000 feet, and grass, which is fairly abundant at higher elevations, is also found in limited amounts below 6,000 feet.

Grassland occurs typically on residual and outwash soils of rolling plains and mesas at the middle elevations. This type includes bunch grass areas, grama areas, and other open grasslands. Weeds or browse, or both, frequently occur in mixtures with the grasses. The principal grass species on the reservation are blue grama, galleta, western wheat grass, wire grass, ring grass, sand drop seed, mountain muhly, and Arizona fescue. The grasses and shrubs occurring on the reservation form the base of the livestock economy and the wise use and conservation thereof is essential to the future of the industry and the prevention of man-induced soil erosion.

The present state of erosion which exists in the Navajo country is the result of thousands of years of wind and water action, and the topographic features present clearly disclose the influence of aridity over geologic ages. The flood channels are generally without water; there is an accumulation of a large volume of alluvium; and the evidence of violent floods predating the advent of civilization is to be seen on all sides.

All observers are agreed that the Navajo Indian Reservation is situated in a region subject to rapid erosion by reason of the character of the soils and the aridity of the climate. Some believe that a substantial part of the gnawing away of the surface and the gullying which has occurred has been caused by the improper use of the land by man, while others feel that man's misuse of the area has been a minor contributing factor. Regardless of which school of thought is right, it must be admitted that the existing situation is the result of a combination of forces operating over many years and that it will be necessary to apply corrective land-use measures for several generations in order to reduce the man-induced erosion which obtains. The most economical practices to be applied consist of proper stocking, better distribution of the animals, and adjustment of grazing to seasonable conditions, together with adequate stock water development, water spreading, and conservation of the limited rainfall which occurs in the region.

HISTORY OF THE NAVAJO LIVESTOCK INDUSTRY

Sheep were first introduced in the Southwest about the year 1581 by the Franciscan Friars who accompanied the Spanish Conquistadores on their journeys into the region from Mexico in search of the fabled "Cities of Cibola." During that year a few sheep were given to the Indians of the Pueblo of Zuni by Friar Padre Luiz. The pueblo Indians took kindly to sheep and in a comparatively short time the raising thereof had become a regular business with them.

The Navajos were well acquainted with sheep almost from the time of the introduction of these animals into the region, by reason of the predatory habits of these people and their raiding of the herds of the pueblos and the Spaniards. However, the Navajos did not enter actively into the sheep business until they were moved to the reservation now occupied by them in the year 1868. In addition to the livestock owned by the Navajos at that time, the Government supplied the tribe with about 30,000 sheep and 2,000 goats; it being the hope of the officials in charge of the Indians that through such means they would give up their warlike methods and become peaceful.

Official observations with respect to overgrazing on the Navajo Reservation were made as early as 1881. During that year, in a special report to the Office of Indian Affairs, the Navajo agent described the drought of 1879-80 and made special reference to livestock losses. He stated that at least 10,000 sheep had died during the winter of 1879-80; that the precipitation received was insufficient for the production of feed; and that the Navajo sheep and goats were in an extremely poor condition. The agent estimated at that time that the Navajos had 1,000,000 sheep, 400,000 goats, 500 cattle, 60,000 horses, 500 mules, and 100 burros. The area then encompassed within the Navajo Reservation was much smaller than the present reservation, since substantial additions were made subsequent to 1881. It follows therefore that the degree of overstocking which existed at that time was more serious than that which has obtained during subsequent years and that the problem is one of long standing.

In the year 1928, when the writer first visited the Navajo Reservation, it was estimated that the Indians owned in the neighborhood of 1,300,000 sheep units.^{1/} The livestock business constituted the principal source of income and, although the ownership of the animals was not distributed equitably among the people, almost every family on the reservation owned some sheep. A substantial reduction in numbers has been made since that time and marked changes have taken place in the ownership pattern. According to the records of the Navajo Indian Agency, there were 465,000 sheep units on the Navajo and Hopi Reservations in the year 1946, thus reflecting a reduction of about 835,000 sheep units since 1928. An accurate count has not been made for the year 1947, but it is the well-considered judgment of your observer that there are less sheep units on the Navajo and Hopi Reservations at the present writing than the 1946 estimate has recorded, since it appears that large sales have been made during the current year.

THE CURRENT GRAZING SITUATION

As indicated above, a substantial reduction has been made in livestock numbers on the Navajo and Hopi Reservations. So far as the range is concerned, it can support an additional 100,000 sheep units without

^{1/} Carrying capacities on the Navajo Reservation are stated in terms of sheep units year long, the ratio being: 5 sheep = 1 horse; 4 sheep = 1 cow; and 1 sheep = 1 goat.

↓ refer to Page 4 of Exhibit G.

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This page should be under Exhibit G P 8

(f) MAXIMUM LIMIT. That number of livestock to which all of the larger family groups in a district would have to reduce their herds in order to eliminate the livestock grazed in excess of the carrying capacity of the district (See the chart in paragraph (d) this section for further explanation of the meaning of this term.)*

(g) HOPI RESERVATION. For the purpose of the regulations in this part, District 6, as now established or hereafter established shall constitute the Hopi Reservation until such time as the boundaries thereof are definitely determined in accordance with Article I of the Constitution and Bylaws of the Hopi Tribe.

(h) NAVAJO TRIBAL COUNCIL. The legally elected delegates of the Navajo Tribe, meeting in a body in a general session duly authorized by the Commissioner of Indian Affairs.

ii) DISTRICT COUNCIL. The legally elected delegates to the Navajo Tribal Council representing the district in which they reside.

(j) DISTRICT GRAZING POOL. That portion of the carrying capacity of a district which through non-use or for other reasons is unassigned and so constitutes a forage reserve available for apportionment among the livestock owners of the district, as provided in Sec. 72.7a. (R.S. 161, 465, secs. 6, 16, 17, 43 Stat. 986, 987, 988; 5 U.S.C. 22, 25 U.S.C. 9, 466, 476, 477) [As amended April 13, 1943.]

72.14 LAND MANAGEMENT DISTRICT NO. 6. Effective April 1, 1943, the regulations in this part shall not apply to Land Management District No. 6 as now established or hereafter established. (R.S. 161, 465, sec. 6, 48 Stat. 986; 5 U.S.C. 22, 25 U.S.C. 9, 466) [New section approved April 13, 1943.]

* Chart referred to is included in the printed volume of Title 25 CFR.