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Great Sand Dunes National Park

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1946 Soil Erosion General Study with Photographs

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Overbrowsed remnants of wild rose and
gooseberry on Zeigler property. Prac-
tically all other cover destroyed.



Heavy grazing and tramping have resulted in this denuded grass--browse type on Zeigler property.



Concentrated drainage from 3 or 4 acres on Zeigler property caused this old road to gully 3' deep during one heavy rain last August. Cattle have denuded the area.



Typical denuded area located in southern part of monument. Cover is Russian thistle, sunflower, and scattered Indian rice, grama, western wheat, and alkali sacaton grasses.



This debris piled up during one heavy rain last August approximately 300 feet below the gully shown in the picture to the right. Gully erosion is active.



Active gully erosion typical of
the Wellington property.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
REGION THREE
SANTA FE, NEW MEXICO

October 31, 1946.

MEMORANDUM for the Regional Director, Region Three.

October 8 was spent at Great Sand Dunes National Monument, in company of Acting Custodian Glen T. Bean and Regional Archeologist Erik K. Reed, to make a general study of erosion problems there.

The northeast portion of the monument east of Medano Creek was first visited. The private property belonging to George L. Zeigler and John W. Williams in this vicinity has been and is at present terribly overused by cattle. This has resulted in the loss of all vegetative cover, except browsed and trampled remnants of gooseberry, wild rose, sagebrush, rabbitbrush, and a blade of grass now and then. This lack of protective cover on this extremely erodible soil, a deep sandy loam, has resulted in recent gullies two and three feet deep in swales draining only three or four acres above.

The higher country in this area contains a very open stand of Ponderosa pine and a few scattered pinon and juniper trees. The Custodian advised that Mr. Williams is planning to log off all merchantable timber on his lands and possibly that of Mr. Zeigler. This is only in the talk stage, but could come to pass at any time resulting in still less cover, which I doubt could ever be established again naturally. Mr. Zeigler is at present running 100 head of cattle from June to November on his property, which is several times over the carrying capacity of his land holdings. Prior to 1940, Mr. Zeigler and a Mr. Herrard ran approximately 2000 head of cattle on the grazing lands of the monument with headquarters on the Zeigler inholdings.

The area in the vicinity of the Harold E. Wellington property has apparently received extremely heavy use in past years; however, this property has not been occupied during recent years and use has been nil. This area of shallow sandy loam soil shows evidence of slow healing due to this non-use. Quite a bit of new growth of western wheat grass, blue grama, and Indian rice grass are coming in under the Russian thistle, sunflowers, and rabbitbrush. Gully erosion is still active in this area, however, as evidenced by the attached photographs. This is accounted for by the fact that this area receives drainage from steep country above. These gullies could carry the expected runoff without damage had not overuse destroyed the original protective covering.

The last area examined was below the dunes south of Medano Creek. The foothill area on the east has a very thin rocky soil with fairly good ground

cover. This area shows evidence of healing and active erosion was not noticeable. The rolling lands immediately west of the foothill area is a deep sandy loam soil in a very unstable condition. Although only a small amount of trespass grazing exists on this area at present, it was, prior to 1940, the principal area grazed by large numbers of stock belonging to the Zeiglers and Wellingtons. There are several practically denuded areas of 20 to 300 acres, each having no cover except Russian thistle, sunflowers, cacti and very scattered remnants of Indian rice grass, blue grama, western wheat grass, alkali sacaton, etc. The attached photograph is typical of one of these denuded areas. These areas are subject to both wind and water erosion and should be given the best protection possible. With the exception of these denuded areas, most of this southern area has a fair vegetative cover, which should improve with protection from grazing allowing the erosion wounds of past overgrazing to heal.

The monument is protected from trespass stock by fence on three sides, and the steep slope on the east limits the number of stock entering from the adjoining Forest Service lands. Approximately 20 head of stock were noted on the monument from the Zeigler property along Medano Creek, the camp ground, and a few along the entrance road. The fences of Mr. Zeigler were in poor condition which probably accounts for the trespass stock.

The carrying capacity of the 18,000 acres of usable range at Great Sand Dunes as determined by Mr. Bert G. Clarke during the summer of 1943 is 100 animal units or 180 acres per animal. This again indicates that this area has been terribly overgrazed during the past and that with existing soil type and vegetative cover, the use should be very limited to prevent erosion.

Recommendations:

- (1) Purchase of all private lands within the monument, thus eliminating all legal grazing and preventing the planned logging operation.
- (2) Insist that Mr. Zeigler confine his stock to his private property, except while exercising his driving permit across monument lands. (If he would agree to cut his stock to the carrying capacity of his lands plus Mr. Williams' lands, he could run not over 10 head of cattle).
- (3) Prevention of all trespass grazing by fence repair and ranger patrol.
- (4) Consideration be given to reseeding the barren areas south of the dune area with native grasses and shrubs. This will require further study.

Paul L. Balch
Paul L. Balch,

Regional Soil Conservationist.

Enclosure.

Approved for Distribution

W. H. Johnston
Regional Director

Date

11/7/46

cc: Director
Great Sand Dunes