# Effects from Long-Term Nongrazing After 75 Years

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Does removal of cattle grazing
promote development of stable climax plant communities
and preserve prairie grasslands in perpetuity?

The nonagricultural public of the United States have repeatedly been told that cattle grazing damages the nations public grasslands. Lacking conclusive scientific facts, these claims have been corroborated by locating and documenting areas of public rangelands that have deteriorated as a result of poor grazing management. With rhetoric spin, cattle grazing, not poor management, becomes the cause and effect for damage to rangeland areas. Furthermore, rather than following the rational evidence that indicates the need for implementation of better grazing management practices, this controversial argument concludes that cattle grazing should be removed from public rangelands. What are the consequences to grassland ecosystems if cattle grazing were successfully removed from public rangelands?

A long-term project for studying the effects from nongrazing compared to the effects from seasonlong grazing by large grass-eating herbivores (graminivores) on mixed grass prairie plant communities was initiated by Dr. Warren C. Whitman in 1936. This ongoing long-term project monitors changes in herbage biomass production, plant species composition, and soil characteristics on nongrazed areas inside of barbed wire exclosures and on grazed areas outside of the exclosures at four two-way rangeland ecological site reference areas.

This report quantitatively describes the effects from long-term nongrazing as determined by differences in plant community characteristics of the grazed area and ungrazed area at North Dakota's four oldest rangeland reference areas after 75 years of treatment.

**Development of Study Areas**

European settlement of western North Dakota was encouraged by the Homestead Act of 1862 and followed the construction of the first railroad across North Dakota. The Federal Railroad Land Grant Act of 1864 granted the Northern Pacific Railroad 39 million acres of land in a checkerboard pattern from Duluth, Minnesota to Puget Sound, Washington. Construction of the railroad started in 1870 at Superior, Wisconsin and reached Moorhead, Minnesota in December 1871. The tracks reached Bismarck, North Dakota in June 1873, Dickinson in 1880, and the Montana border in 1881. The human population of western North Dakota greatly increased during 1898 to 1915 with the peak period of activity between 1900 and 1910.

Title to 160 acres of surveyed public domain land west of the Mississippi River was transferred from the US Government to private citizens as a provision of the Homestead Act. Several attempts to adjust the law to meet the needs of the people and the natural resources were made. However, none of the many revisions of the Act met the needs of western United States. Failure of the lawmakers to address the requirements of the natural resources in semiarid regions caused numerous long-lasting management problems. In addition, the economic depression of 1929, the severe drought conditions of 1934 and 1936, and the low agricultural commodity prices received during the late 1920's and early 1930's created extreme hardships for homesteaders. The people living on lands declared to be submarginal were given the option to sell their land back to the federal government.

The Taylor Grazing Act of 1934 removed all unappropriated public domain lands from homestead, which included 68,442 acres in North Dakota. The Land Utilization Project was established in 1935 and a resettlement plan was completed that same year. Under these legislative acts, 1,104,789 homesteaded acres were purchased by the US Government in North Dakota (Hibbard 1965; Carstensen 1968; Manske 1994, 2008). The homestead acres repurchased under the Land Utilization Projects were designated for