Although conservation efforts in the Black Hills National Forest are well known and carefully studied, few people outside the United States Forest Service realize that systematic tree planting as a conservation practice on South Dakota’s prairies is older than the state itself. In fact, legislative efforts on the territorial, state, and national levels have been directed since 1862 to conserving the region’s forest lands. Schools, immigrant groups, individual farmers and ranchers, and the federal government have all planted and cared for trees in South Dakota. Most of the efforts were small and restricted, but some were bold and colorful, designed to cross South Dakota and much of the Great Plains with forest shelterbelts.

A modest beginning was made in early frontier days when the settlers occupied only a small southeastern portion of the territory. Even then, Dakota’s sparse woodlands, which were confined to the areas along rivers and streams, had begun to disappear as fuel for steamboats, ties for railroad tracks, fence materials, and, eventually, buildings for the homesteads.

In 1862 the legislature recognized the importance of halting the rapidly disappearing forests. It enacted legislation providing a fine not to exceed $100 and thirty days in jail for cutting, digging, or injuring any trees within the highway right-of-way. The law also made it permissible for a landowner to plant trees

six feet into the highway right-of-way. The latter feature of the law was especially attractive because it eliminated the major objection of the property owners to tree planting—that trees took up extensive areas of valuable crop and grazing land. Although at the time only that portion of the territory along the Missouri River as far up as Yankton was settled, the law was significant because a precedent had been established for territorial sponsored forest conservation.

Seven years later a second territorial law to encourage tree planting was passed.² It provided landowners with tax exemption for planting forty acres of timber. The ambiguous law reflected the legislator's inexperience in tree culture, for it contained no provision regarding the length of time the trees would have to be cultivated. Presumably, landowners were required to care for the young plants during the first growing season only. Most trees on the Dakota prairies, however, required more than one year's attention. Moreover, the law contained no provision concerning the spacing of the trees, nor any recognition of the fact that the planting and caring for forty acres of timber left the homesteader with little time to operate his farm land.

Because statistical information is unavailable, it is difficult to evaluate the law's effect upon the cultivation of trees in the territory. Undoubtedly, thousands of trees were set out, but the total number of acres planted to trees under the provisions of the law is unknown.

It is known, however, that thousands of young trees planted in the 1860s and early 1870s survived the scorching summer winds and heat on the prairies.³ Indeed, South Dakota's demonstration that new timber stands could be developed by systematic tree planting contributed to the passage by the federal government of the Timber Culture Act in 1873.⁴ This law, a variation of the Homestead Act of 1862, provided that

any person who planted, protected, and kept in healthy growing condition forty acres of timber for ten years, with trees not more than twelve feet apart, would receive title to the quarter section—which included the forty acres of timber.

The “tree claims” act, however, did not supply sufficient incentive to the majority of settlers either in Dakota or in other plains regions. From the beginning, objections were registered to specific provisions of the act. Major criticism was aimed at the forty-acre provision. To plant and care for forty acres of trees was a full-time job that left the farmer without enough time to devote to his income-producing activities. As a result, the Timber Act was amended in 1874 by reducing the number of acres to ten. A decade later, only 11,199 timber culture claims had been made in Dakota.

Because of the lack of restrictive provisions in the act, many fraudulent practices were easily devised. Actual settlement on the tree claim was not required, nor was it necessary to be a resident of the state in which the claim was made. In his report for 1885, the commissioner of the General Land Office indicated that many claims had been taken up in large blocks by employees of cattle owners who had hoped to acquire huge landholdings. By this method, one cattle company in Dakota acquired twenty-six sections of land along good streams.

Judged a failure by the General Land Office, the Timber Culture Act was repealed in 1891. Although over 2 million acres eventually were disposed of under the law, only 190,000 acres in Dakota had been disposed of by 1891. Hundreds of the required ten-acre plots were never planted, and others were often given little attention.

While the Timber Culture Act was in effect, various

territorial projects and inducements to plant and conserve prairie forest lands operated. In fact, acres set in trees under the Timber Culture Act represented less than one-third of the total planted during the period.9

One such inducement was the territorial legislation in 1873 that called, for the first time, for tree planting in shelterbelt formations. This law, recognizing that shelterbelts, windbreaks, and other forms of forest conservation on the prairies provide significant benefits to the farmers and ranchers, authorized adjacent property owners to use one rod of the section line for the planting of timber and trees.10 Undoubtedly, the trees were placed in rows along the section line, thus forming protective windbreaks.

The Mennonites who migrated to the Dakota region in the 1870s were well acquainted with shelterbelts. Coming from the Russian Steppes, where their ancestors had planted what amounted to shelterbelts under Catherine the Great, these newcomers began to do the same in Dakota.11

In 1885 a tree-planting project was undertaken by South Dakota State University, a land-grant college at Brookings. Founded only four years before, the school planted during the spring term a “considerable” number of trees for shelterbelts. Because of drought conditions followed by severe winters in 1886 and 1887, the trees entirely disappeared.12

During the territorial period, the trees most commonly planted for conservation purposes were cottonwood and tamarack seedlings, which were abundant along the rivers and streams. Few, if any, conifers were planted, but such fruit bearing trees as mulberry and chokecherry were fairly common.

9. Ross A. Williams, Chief, Regional Forestry Division, to Elmer A. Starch, Head, Agriculture College, Lincoln, Nebraska, 10 November 1948, in the files of Soil Conservation Service, Huron, S.D.


Honeysuckle, dogwood, and buckthorn were also used in the farmstead plantations.\textsuperscript{13}

During this period, the shelterbelt was often of a symmetrical design. Accordingly, tall fast-growing deciduous trees were planted in the center rows, tall medium-to-slow-growing deciduous trees in the rows on either side, then conifers, and finally, shrubs, on the outside. The number of rows in a shelterbelt was seldom uniform; it depended upon the number of seedlings available, the amount of land to be planted to trees, and other variables.

Territorial conservation came to an end when South Dakota entered the Union as the fortieth state on 2 November 1889. The state government, however, continued the program of forest conservation, haltingly. The first legislature, meeting in sparsely settled Pierre, the new capital, passed a shelterbelt law in 1890. The act provided for the payment of a two-dollar bounty per acre for planting trees for a ten-year period east and west across quarter section tracts.\textsuperscript{14} The law also provided that a total of six acres each year be allowed, with not less than nine hundred trees per acre and at least one hundred evergreen trees.

As a measure to encourage tree planting, the law was ineffective. The problem was not so much the law itself as the geographic conditions. The years following 1890 lacked sufficient rainfall for favorable tree planting, and a great drought occurred in 1894. In some areas, up to 90 percent of the people abandoned their farms.\textsuperscript{15} The trees, without water and attention, withered and died.

Nevertheless, the law illustrates the state’s concern over the question of forests. The fact that bounties were paid for windbreaks and shelterbelts suggests that at an early date the planting of trees had merit. Indeed, it was reported that tree shelterbelts limited the drifting of soil and seed from the field; improved living conditions in the region; checked excessive

\textsuperscript{13} “Letters Received on Shelterbelt Planting,” \textit{Journal of Forestry}, 32 (December 1934):970.

\textsuperscript{14} South Dakota, \textit{Session Laws} (1890), p. 320.

evaporation from the soil; provided ever-needed wood products for the farmer, such as fence posts, poles, rough lumber, and fuel; lessened the danger of crop damage caused by hot winds; and provided a haven for small animals, including the opossum, racoon, skunk, and coyote (fig. 1).16

At the turn of the century, two facts were clear concerning South Dakota tree plantations: there was a general aimlessness and a lack of system in both planting and management, and there was but a small number of successful plantations. In most cases, planters had made little effort to have their trees serve any definite purpose. Aware of these facts, the United States Department of Agriculture attempted to deal with the problem. In 1898 Charles A. Keffer of the Division of Forestry described early tree planting experiments conducted by state agricultural experiment stations and by the United States Department of Agriculture, through the Division of Forestry at field stations in western states.17 The purposes of the experimental work were to test different tree and shrub species for adaptability and to determine the best methods for the planting, spacing, and caring of trees for the production of windbreaks. Two years later William L. Hall, also of the Division of Forestry, outlined a program for Great Plains tree planting in the Yearbook of Agriculture.18

Following the droughts of 1910 and 1911, two important developments affected tree planting in South Dakota. The United States Department of Agriculture established a dry land experiment station at Ardmore, in Fall River County, and a Northern Great Plains Field Station at Mandan, North Dakota. While the station at Ardmore was mainly concerned with drought resistant grasses, the Mandan station, starting in 1916,


Fig. 1. Effect of Shelterbelt on Wind Velocity

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experimented specifically with tree planting in South Dakota, North Dakota, and the eastern counties of Montana and Wyoming.

Area farmers and public schools were encouraged to participate in the program to stimulate interest in shelterbelts. The Mandan station maintained rigidly specified requirements. The farmer had to agree to plant his shelterbelt on ground broken at least two years and left in summer fallow at least one year before the planting and to plant the trees no closer than four feet in a row, in rows eight feet apart. He further had to provide regular cultivation to insure that weeds and grass would not inhibit growth. No trees were furnished to areas under irrigation or likely to be irrigated in the future. Between 1917 and 1920 some 1,486,658 trees in 1,234 shelterbelts were planted under this program. 19

A survey taken by the Mandan station in 1923 showed that 58 percent of the trees still survived. The largest loss occurred in the first three years of the project and averaged slightly under 50 percent. The plantings of 1919 and 1920, however, had a loss rate of only 23.7 and 3.3 percent, respectively. In the years to 1933, participating farmers planted another 1,466 shelterbelts. 20 The Mandan project was the first attempt at systematic shelterbelt planting on the Great Plains. Although limited in area, the project proved that shelterbelts could be grown in areas of low rainfall and early frost.

Because government sponsored tree culture programs were gaining in public favor and because the 1890 bounty law was unsatisfactory, the South Dakota legislature passed a second bounty law for tree planting in 1919. This new law provided five dollars per acre for a maximum of ten acres having 150 trees per acre that were well cultivated and living at the end of


two years.\textsuperscript{21} This was a real improvement over the first bounty act, and it stimulated tree planting in the state.

Another program for forest conservation and tree planting on the prairies was created by the federal government with the passage of the Clarke-McNary Act of 1924. This law provided matching federal money for, among other things, forest fire protection and tree planting.\textsuperscript{22} Starting in 1925, South Dakota cooperated with the federal government on section two of the act, calling for the protection of any timbered or forested lands from fire. But it was not until eight years later, during the depression and after some dry, dusty years, that the state formally cooperated with section four of the law. Section four specifically called for assistance in buying, producing, and distributing forest-tree seeds and plants to farmers and ranchers for use in planting denuded or non-forested lands. Under provisions of this act, 124,425 trees were sold to 379 persons in 1934, and 137,500 trees to 506 persons in 1935.

As a result of the Clarke-McNary law, forestry became a part of many county extension programs. County agents encouraged tree planting and handled orders for Clarke-McNary trees as part of their services to farmers and ranchers. With few exceptions, some trees were sent each year to various counties of the state. The American elm, ash, black locust, boxelder, caragana, Chinese elm, cottonwood, hackberry, honeylocust, Russian mulberry, Russian olive, soft maple, and wild plum were the most popular species planted under the Clarke-McNary program. The price of trees to farmers and ranchers was one dollar per hundred, or one cent per tree until 1945, when rising costs necessitated increasing the price.

Perhaps the most colorful and effective stimulus to plains forest planting and conservation was the federal government sponsored Prairie States Forestry Project, until 1937 known as the Great Plains Shelterbelt. Made public through a Department of Agriculture press release in July 1934, the project was the subject of a great deal of confusion and misunderstanding. The

\textsuperscript{21} South Dakota, Session Laws (1919), p. 430.

\textsuperscript{22} U.S., Statutes at Large, 43:653-55.
A contoured farmstead windbreak and a feedlot tree windbreak.

A newly planted tree shelterbelt.
Tree shelterbelts collecting snow.
Tree plantings providing a wildlife habitat.
Tree plantings preventing wind and water erosion.
press release indicated that approximately one hundred shelterbelts would be planted running north and south one mile apart in an area one hundred miles wide from Canada to the Texas Panhandle (fig. 2). Accordingly, many people thought that trees ultimately would be planted in near continuous strips in the 1,100 mile long zone. However, the Forest Service, which was in charge of the project, was never actually committed to a series of rigidly regimented north-and-south shelterbelts. Indeed, the first shelterbelts set out by the project were planted east and west and were fitted to individual farm and ranch needs.

The administration of the Prairie States Forestry Project in South Dakota was conducted from the state headquarters at Brookings. Although regional directors at Lincoln, Nebraska, wanted the state headquarters located at Pierre, the state capital, A. L. Ford, the state director, was able to get the project offices established at Brookings, where important information on soils, climate, and agricultural economy were readily available at South Dakota State University. Brookings remained the state headquarters throughout the eight-year period of the project.  

The state was divided into four project districts with headquarters at Huron, Aberdeen, Mitchell, and Watertown. Each of the four districts was divided into from ten to fourteen subdistricts, with the subdistricts varying in size from a single county to several counties, depending upon the concentration of work. The subdistrict officer was directly accountable to the district leader, who in turn was accountable to the state director. There were twenty-six state project officers in South Dakota during the first years of operation, providing a compact, highly technical organization.

Tree culture in South Dakota under the auspices of the Prairie States Forestry Project officially started on 12 April 1935, when the first tree was planted on the Ed Casey farm near Mitchell. As a public relations event, a special “field day”

23. Ford to Author, 16 January 1967. A. L. Ford was South Dakota State Director for the PSFP.

Fig. 2. **THE SHELTERBELT ZONE**

had been planned for the first day of planting, but, ironically, it was called off because of rain. Nevertheless, a few trees were set out to mark the beginning of the first planting season.25

State Director Ford and the other project officers faced several serious difficulties as work got underway. One such difficulty was maintaining good public relations, a necessity because of the widespread criticism of the project in the fall of 1934. The criticism stemmed from the mistaken idea that the “Great Plains Shelterbelt” would be a nearly solid growth of trees in the huge zone between Canada and Texas and from the Department of Agriculture announcement of 1934 that the shelterbelt project would modify climatic and other agricultural conditions on the Great Plains. Skeptics and people opposed to the project, it seemed, were waiting for the chance to laugh and condemn the tree-planting program.

The nursery program represented another of the early difficulties. Commercial nurserymen opposed the announced plan to establish a chain of federal nurseries along the shelterbelt zone. The nursery industry not only believed it had the facilities and skills to provide stock for the project, but it also reasoned that furnishing the stock would provide a large volume of business in a time of depression. The difficulties were surmounted, however, and the government cooperated with commercial nurserymen insofar as conditions permitted. Four nurseries in South Dakota furnished trees for the state plantations: Baltic Shelterbelt Nursery, Baltic; Farm Island Nursery, Pierre; Hanson Nursery, Brookings; and Gates Nursery, Rapid City. The Farm Island Nursery was a project nursery; the others were leased from commercial nurserymen at seventy-five dollars annually.26

Inadequate funds to operate the program represented a third problem for the Prairie States Forestry Project. So strongly ridiculed that the initial appropriation of $15 million


was cut to $1 million, more than 93 percent, the project survived on emergency funds during the entire eight-year period of its existence. In fact, Congress, after the first growing season in 1935, appropriated $170,000 to liquidate the program. It was allowed to continue, however, but only by executive direction with Works Progress Administration money (fig. 3).

Other major problems included the terrific weather conditions. Drought, heat, desiccating winds, quick freezes, and other adverse conditions encountered by the project affected nursery operations, field planting, seed collecting, water supplies, and hindered the work. The difficulties in developing seed treatment, storage practices, and methods of handling vast quantities of seed on a scale never approached before had to be overcome. The successful development and use of the first tree planting machines encountered problems and delays. Even the lack of adequate fencing materials was a serious problem. It represented the most important single reason why some South Dakota farmers did not participate in the program. Moreover, there were complicated political, economic, social, and administrative difficulties that may never be fully understood.

Because the project had been designed initially as an emergency relief program, planting crews were made up of relief labor, area farmers, Works Project Administration laborers, and, in some cases, Civilian Conservation Corps workers. These workers received wages of thirty-five cents per hour, except the crew foreman, who received fifty cents per hour. Each crew in South Dakota consisted of from ten to sixteen men. Forty crews in 1936 planted two hundred acres per day, even though they had to confine their operations to within a reasonable distance from the field operating bases. The latter were maintained at Aberdeen, Britton, Brookings, Clark, DeSmet, Huron, Madison, Mitchell, Redfield, Salem, Webster, Wessington Springs, and Woonsocket. The crews planted


Fig. 3. MAJOR AREAS OF SHELTERBELT PLANTING IN THE GREAT PLAINS REGION BY THE PRAIRIE STATES FORESTRY PROJECT DURING 1935-1942

some sixty-five to seventy species of trees and shrubs. The most successful were eastern red cedar, caragana, juniper, American plum, boxelder, Russian olive, green ash, cottonwood, American elm, Chinese elm, buckthorn, hackberry, western yellow pine, and western chokecherry.  

Besides tree planting as a forest conservation practice in the state, the project attempted a program of land reclamation and water and soil conservation, and it provided work in the winter through the removal of undesirable trees. All three of these supplementary programs, designed primarily as work relief measures, were soon dropped. The removal of trees could hardly be justified as a federal shelterbelt planting program; the land reclamation program was discontinued for lack of acceptance; and the water and soil conservation program was abandoned at the end of the first planting season in 1935, because Congress failed to appropriate money for the work and because the Soil Erosion Service—later renamed the Soil Conservation Service—was created.

The Prairie States Forestry Project came to an end on 30 June 1942, when the Secretary of Agriculture transferred the responsibility for its administration to the Soil Conservation Service (fig. 4). During eight years of existence, 1935-42, the project had planted 41,599,770 trees and shrubs on 44,227 acres, which provided more than 3,206 miles of shelterbelts on 5,820 farms in South Dakota (see tables 1 and 2).  

A survey of the shelterbelts, made by the Forest Service in 1944, indicated that 89 percent were adequately serving the purposes for which they had been planted. A second survey ten years later indicated that over 73 percent of the shelterbelts planted between 1935 and 1942 were still in good condition.  

30. *Annual Planting Accomplishment Report*, Prairie States Forestry Project, 1 June 1942, table 18, in the files of Great Plains Range and Experiment Station, Lincoln, Nebraska. See also the tree planting records in the files of the South Dakota Soil Conservation Service.

31. *Annual Planting Accomplishment Report*, Prairie States Forestry Project, 1 June 1942, tables 1, 7, in the files of Great Plains Range and Experiment Station, Lincoln, Nebraska.

### TABLE 1

**SHELTERBELT PLANTINGS**

<table>
<thead>
<tr>
<th>Year</th>
<th>Miles of Belt Planted</th>
<th>Acres</th>
<th>No. of Farms Involved</th>
<th>No. of Trees Planted</th>
<th>No. of Replacement Trees Planted</th>
<th>Total Trees Planted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1935</td>
<td>28.12</td>
<td>554</td>
<td>54</td>
<td>498,250</td>
<td>—</td>
<td>498,250</td>
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<tr>
<td>1936</td>
<td>235.88</td>
<td>4467</td>
<td>445</td>
<td>4,484,000</td>
<td>60,310</td>
<td>4,544,310</td>
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<tr>
<td>1937</td>
<td>148.00</td>
<td>1788</td>
<td>251</td>
<td>1,537,635</td>
<td>2,511,260</td>
<td>4,048,825</td>
</tr>
<tr>
<td>1938</td>
<td>431.75</td>
<td>6041</td>
<td>805</td>
<td>4,522,762</td>
<td>1,475,377</td>
<td>5,998,139</td>
</tr>
<tr>
<td>1939</td>
<td>801.00</td>
<td>11213</td>
<td>1448</td>
<td>6,342,933</td>
<td>1,471,091</td>
<td>7,814,834</td>
</tr>
<tr>
<td>1940</td>
<td>659.25</td>
<td>9229</td>
<td>1226</td>
<td>4,715,510</td>
<td>2,807,890</td>
<td>7,523,400</td>
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<tr>
<td>1941</td>
<td>593.88</td>
<td>7333</td>
<td>1075</td>
<td>3,815,600</td>
<td>2,812,051</td>
<td>6,627,651</td>
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<tr>
<td>1942</td>
<td>308.50</td>
<td>3602</td>
<td>516</td>
<td>1,865,290</td>
<td>2,679,001</td>
<td>4,544,291</td>
</tr>
</tbody>
</table>

**SOURCE:** *Annual Planting Accomplishment Report*, Prairie States Forestry Project, 1 June 1942, tables 1 and 7, in the files of Great Plains Range and Experiment Station, Lincoln, Nebraska.

### TABLE 2

**MILES OF SHELTERBELT PLANTED IN EACH COUNTY**

<table>
<thead>
<tr>
<th>County</th>
<th>Total Miles</th>
<th>County</th>
<th>Total Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aurora</td>
<td>78.25</td>
<td>Hanson</td>
<td>164.13</td>
</tr>
<tr>
<td>Beadle</td>
<td>229.75</td>
<td>Hughes</td>
<td>75</td>
</tr>
<tr>
<td>Bon Homme</td>
<td>72.25</td>
<td>Hutchinson</td>
<td>22.87</td>
</tr>
<tr>
<td>Brookings</td>
<td>226.87</td>
<td>Jerauld</td>
<td>94.75</td>
</tr>
<tr>
<td>Brown</td>
<td>242.87</td>
<td>Kingsbury</td>
<td>181.75</td>
</tr>
<tr>
<td>Brule</td>
<td>.50</td>
<td>Lake</td>
<td>105.63</td>
</tr>
<tr>
<td>Charles Mix</td>
<td>47.37</td>
<td>McCook</td>
<td>91.88</td>
</tr>
<tr>
<td>Clark</td>
<td>211.88</td>
<td>Marshall</td>
<td>119.62</td>
</tr>
<tr>
<td>Codington</td>
<td>209.50</td>
<td>Miner</td>
<td>122.75</td>
</tr>
<tr>
<td>Davison</td>
<td>182.75</td>
<td>Minnehaha</td>
<td>15.50</td>
</tr>
<tr>
<td>Day</td>
<td>106.63</td>
<td>Moody</td>
<td>25.12</td>
</tr>
<tr>
<td>Deuel</td>
<td>44.62</td>
<td>Roberts</td>
<td>22.00</td>
</tr>
<tr>
<td>Douglas</td>
<td>73.13</td>
<td>Sanborn</td>
<td>171.13</td>
</tr>
<tr>
<td>Grant</td>
<td>75.88</td>
<td>Spink</td>
<td>85.50</td>
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<tr>
<td>Gregory</td>
<td>22.88</td>
<td>Tripp</td>
<td>1.50</td>
</tr>
<tr>
<td>Hand</td>
<td>30.37</td>
<td>Turner</td>
<td>1.00</td>
</tr>
<tr>
<td>Hamlin</td>
<td>124.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** *Annual Planting Accomplishment Report*, Prairie States Forestry Project, 1 June 1942, tables 1 and 7, in the files of Great Plains Range and Experiment Station, Lincoln, Nebraska.
After World War II, shelterbelt planting was resumed in the state. Between then and 1961, the sixty-eight Soil and Water Conservation Districts, assisted technically by the Soil Conservation Service, planted 43,226,000 trees and shrubs for protective windbreaks. These plantations totaled over 76,000 acres on the property of nearly 21,000 cooperating farmers and ranchers. In subsequent years shelterbelt planting has maintained fairly even progress.33

Forest conservation in Dakota began during the Civil War. At that time it represented a nervous and haphazard response to the receding forest lands along rivers and streams. Later, as tree planting conservation practices were used to induce settlers to come to the region, shelterbelts and windbreaks appeared. After the turn of the century, systematic-tree-planting-conservation projects were started. Finally, during the 1930s prairie forest conservation came into its own, first as emergency rural relief and then as a permanent prairie-plains forest conservation scheme. The fact that tree planting programs have continued at a fairly even rate throughout the last quarter century seems to indicate the popularity, if not the success, of forest conservation on the South Dakota prairies.

33. E. J. Daniel to Author, 5 June 1963. Daniel was the South Dakota State Soil Conservationist.
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