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The Civilian Conservation Corps: Demonstrating the value of soil conservation

A public works program of the depression-ridden 1930s became a godsend to Hugh Bennett in his attempt to show how land might be farmed within its capabilities

By Douglas Helms

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MOST conservationists are familiar with the contributions the Civilian Conservation Corps (CCC) made to forestry and recreational projects for the established conservation agencies of the 1930s, the Forest Service and National Park Service. But other agencies or their predecessors, such as the Fish and Wildlife Service, Bureau of Reclamation, Bureau of Land Management, and Soil Conservation Service (SCS), also made use of CCC labor. For example, CCC work enabled SCS to demonstrate the value of conservation activities. The federal role in soil and water conservation, therefore, did not end after the Great Depression and the termination of emergency employment programs.

Today, the CCC is the beneficiary of a positive public reputation that has obscured the history of problems that any large organization of individuals almost necessarily has. But that is not our story for now; it is the CCC's contribution to the cause of conservation.

Putting young men to work

In 1932, one-fourth of America's men between the ages of 15 and 24 could not find work. Another 29 percent worked only part-time (*8*). Incoming president Franklin D. Roosevelt proposed on March 21, 1933, that Congress create "a civilian conservation corps to be used in simple work, not interfering with normal employment, and confining itself to forestry, the prevention of soil erosion, flood control and similar projects."

Congressional deliberations resulted in several alterations to Roosevelt's proposal, one of which held great significance for the future course of soil conservation. Major Robert Y. Stuart, chief of the Forest Service, asked that state and private land be made eligible as work areas. Otherwise, men from the East would have to be transported west of the Rocky Mountains, where 95 percent of the public domain lay (*8*). Stuart's argument was persuasive in part. The Act for the Relief of Unemployment allowed soil erosion control work on state and federal land, but restricted work on private land to activities already authorized under U.S. laws, such as controlling fire, disease, and pests in forests and "such work as is necessary in the public interest to control floods." The future of CCC work in soil conservation on private land henceforth depended on interpreting provisions of the act.

On the day Roosevelt signed the bill, Secretary of Agriculture Henry A. Wallace wired each governor to send a representative to Washington to discuss cooperation on forestry work. He also mentioned the flood control work and surmized that it "probably [included] control of soil erosion."

But soil conservation work was to be severely circumscribed. In April a U.S. Department of Agriculture (USDA) representative met with Roosevelt, who wanted CCC work on erosion and flood control directed to solving flooding problems over broad areas rather than benefiting an individual parcel of land. CCC Director Robert Fechner reiterated the president's reservations about work on private land to the governors in May.

Concern about the public's objections to expenditures of federal funds on private lands caused some of Roosevelt's reservations. He continued to warn Fechner about the criticism that too much work on private land would bring (*3, 4*). Also, Roosevelt, like many of his contemporaries, too often thought soil conservation required land use changes from cropland to woodland and was unfamiliar with the many conservation practices that could be installed on cropland with CCC labor. But he also had to heed the calls for a full share of CCC camps in those states where the acreage of public land was small. Thus, Roosevelt asked Fechner and Wallace to grant requests from midwestern states for

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Gathering lupin seed on stabilized sand dunes, Warrenton, Oregon, June 1941. Cleaned and threshed seed was used to stabilize additional sites.

soil erosion control camps.

Within USDA, the Forest Service administered the erosion camps similarly to its state and private forestry work. Under signed agreements with states, personnel from state agencies and land grant colleges actually operated the camps. CCC efforts followed soil erosion control guidelines established by USDA that limited work to "controlling gullies by means of soil-saving dams, forest planting and vegetation." Gradually the concept was extended to include construction of terrace outlets.

The first soil erosion control camp under Forest Service and state control opened in Clayton County, Alabama, on June 18, 1933. By September 1934, there were 161 such camps.

There the matter of the so-called soil erosion camps rested until August 25, 1933. Then Secretary of Labor Harold Ickes, also acting in his dual role as administrator of the public works, allotted $5 million for soil conservation work under the National Industrial Recovery Act of June 16, 1933. On September 19, 1933, a USDA soil scientist, Hugh Hammond Bennett, the country's acknowledged expert on soil conservation, moved to the Department of the Interior as head of the newly formed Soil Erosion Service (SES). The soil erosion camp guidelines then in effect hardly fit the SES director's notions of soil conservation.

To Bennett's thinking, erosion had to be reduced through a coordinated effort that allowed farmers to continue farming without reducing income. Land that was too steep and erodible would have to be converted to pastureland or woodland to provide groundcover throughout the year. On cultivated land a mixture of interdependent and mutually supportive structural and vegetative practices needed to be tailored to the needs of each farm and farmer. Bennett's years of observation had taught him to be wary of single-method approaches that could create new problems while mitigating existing ones.

Bennett's approach did not require drastic changes in the crops that farmers grew. But his ideas about farming land according to its capabilities did entail rearrangement of fields to follow contour lines, changes in planting methods, and use of cover crops. It would have been difficult enough to sell the new conservation farming system without asking farmers, during the depth of the Depression, to borrow money for seed, fertilizer, equipment, and labor to install terraces, waterways, and fences and to improve pastures. Furthermore, Bennett wanted to demonstrate the values of conservation on an area larger than the individual farm—demonstration projects of watershed size where the concentration of CCC labor would be ideal.

SES encountered difficulty acquiring camps, however, especially because soil conservation, in the eyes of the CCC administrators, was being attended to in USDA. Nonetheless, CCC allotted 22 camps, less than half the number requested, to SES in April 1934.

Linking the two pieces of legislation—the CCC act and employment act under which SES operated—permitted Bennett to implement his coordinated, comprehensive plans for conservation farming. Money from the public works appropriation bought the supplies, while CCC supplied the labor. The solicitor of the U.S. Department of the Interior ruled that the public works money could be used for work on private land, as proposed by Bennett. The restrictions on CCC work in soil conservation largely were reinterpreted.

Coon Valley leads the way

In May 1934, Fred Morrell, in charge of CCC work for the Forest Service, visited Coon Valley, Wisconsin, which was destined to become one of the most successful demonstration projects. There he found Ray Davis, director of the project, ready to

use the "camps to further any and all parts of their program...to demonstrate proper farm management to control sheet erosion." What Bennett and Davis had in mind for Coon Valley and other areas went far beyond simply plugging gullies, planting trees, and building terrace outlets.

The Coon Valley project, characterized by the narrow, steep valleys of southwestern Wisconsin's Driftless area, illustrated how Bennett and the CCC broadened the scope of soil conservation activities. Through the winter of 1933-1934, erosion specialists on Davis' staff contacted farmers to arrange five-year cooperative agreements. Many of the agreements obligated SES to supply CCC labor as well as fertilizer, lime, and seed. Farmers agreed to follow recommendations for stripcropping, crop rotations, rearrangement of fields, and conversion of steep cropland to pasture or woodland. Alfalfa was a major element in the stripcropping. Farmers were interested in alfalfa, but the cost of seed, fertilizer, and lime to establish plantings had been a problem during the Depression (*13*).

Another key erosion-reducing strategy was increasing the soil's water-absorbing capacity by lengthening the crop rotation and keeping the hay in stripcropping in place longer. A typical three-year rotation had been corn, small grain, then hay (timothy and red clover). Conservationists advised farmers to follow a four- to six-year rotation of corn, small grain, and hay (alfalfa mixed with clover or timothy) for two to four years.

Grazing of woodlands had contributed to increased cropland erosion. Trampling soil and stripping groundcover reduced the forest's capacity to hold rainfall and increased erosion on fields downslope. Moreover, grazing slowed the growth of trees while providing little feed for cows. Most of the cooperative agreements provided that the woodlands would not be grazed if CCC crews fenced them off and planted seedlings where needed.

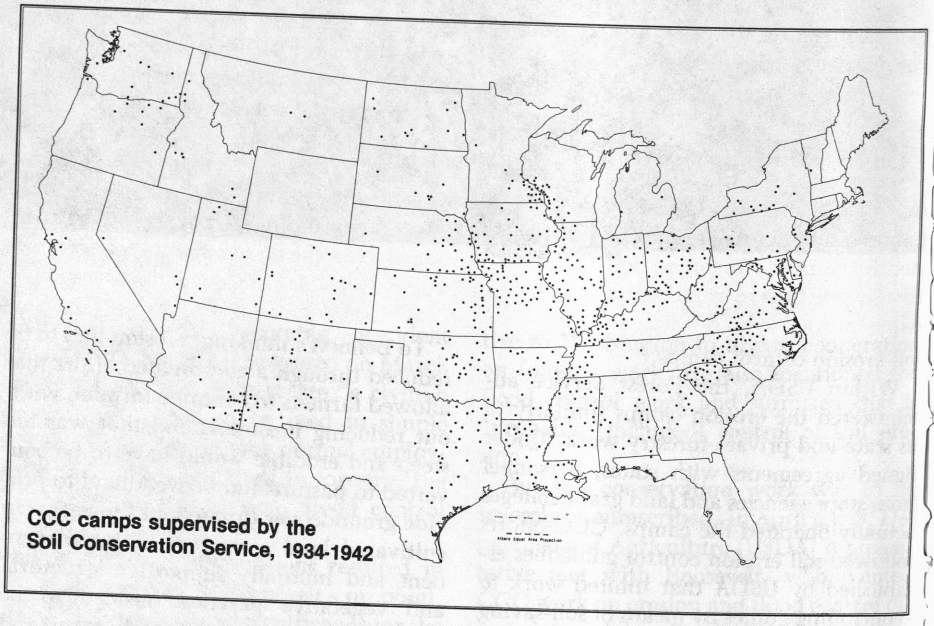
SES also tried to control gullying, especially when gullies hindered farming operations.

Streambank erosion presented another problem. While the conservation measures on cropland would ultimately reduce sediment flowing into Coon Creek, streambank erosion was still a problem. The young CCC'ers built wing dams, laid willow matting, and planted willows.

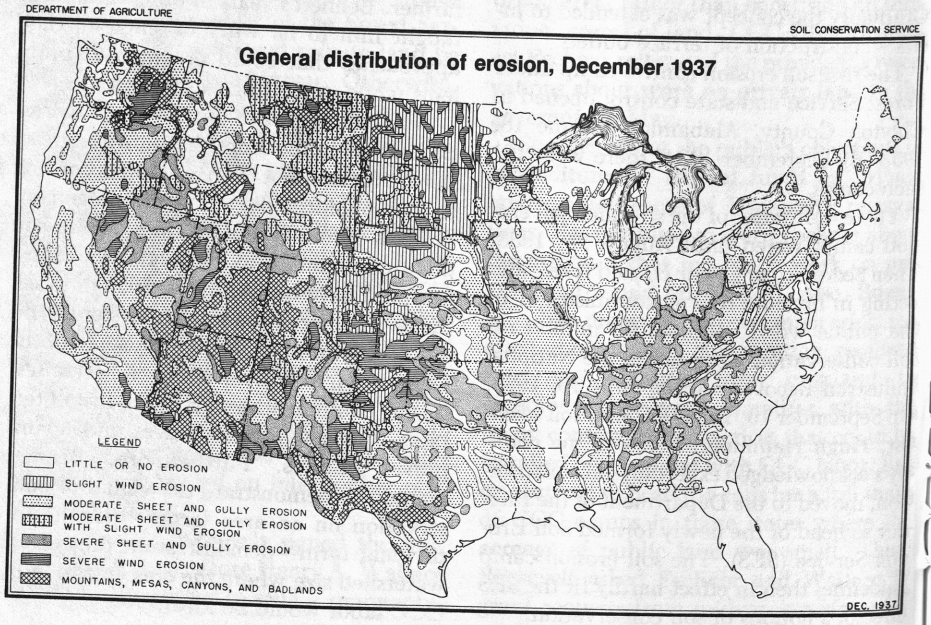
In the area of wildlife enhancement, workers established some feeding stations to carry birds through winter. But generally the schemes to increase wildlife populations were of a more enduring nature. Gullies and out-of-the-way places that could not be farmed conveniently served as prime wildlife planting areas. Some farmers agreed to plant hedges for wildlife that also served as permanent guides to contour stripcropping. Insofar as possible, trees selected for reforested areas were also ones that provided good wildlife habitat (*13*).

Between the fall of 1933 and June 1935, 418 of the valley's 800 farmers signed cooperative agreements. Aerial photographs revealed that long after the demonstration project closed, additional farmers began stripcropping. From Coon Valley, this practice spread during the 1940s, 1950s, and 1960s into adjacent valleys of the Driftless area (*15*). To James G. Lindley, head of CCC operations for Bennett, this dissemination was the "sincerest form of flattery."

The discrepancy between this program and the more restricted one operating through the states did not go unnoticed. Director Fechner certainly preferred uniformity. The Forest Service had no great enthusiasm for keeping the soil erosion camps, but to turn them over to SES would cause problems with the states. Nor was the Forest Service inclined to broaden its program to resemble Bennett's SES program. After visiting Coon Valley, the CCC representative for the Forest Service, Fred Morrell, believed that SES was contraven-



CCC camps supervised by the Soil Conservation Service, 1934-1942



ing the President's instructions because the "Act [CCC] is apparently a forestry Act."

SCS assumes a greater role

If Roosevelt knew, and he probably did not, that soil erosion had been interpreted so broadly, he certainly did not reprimand anyone. The President appreciated an innovative mind, initiative, and a facility for bending the rules. Bennett received a compliment rather than a scolding. Years afterward, he told and retold the story of being summoned to the White House. Roosevelt explained how he, without detailed knowledge of the program, knew Bennett and his colleagues were doing a good job because established agricultural organizations wanted to absorb the new and as yet temporary agency. According to Roosevelt's political instincts, the desire for conquest was a measure of the quality of the prey.[1]

But Roosevelt did act to unify the programs by moving SES to USDA in March 1935. Bennett and his group's impressive showing were no small part in the President's decision to support and sign the Soil Conservation Act in April 1935. Later that month the newly renamed Soil Conservation Service took over more than 150 CCC camps previously under the general supervision of the Forest Service.

As the Depression continued, SCS assumed a greater role in supervising youth work through CCC. For example, in fiscal year 1937 an average of 70,000 enrollees occupied about 440 camps. Ninety percent of the camps worked not on the watershed-based demonstration projects but in a work area whose radius encompassed about 25,000 acres. As local communities began organizing soil conservation districts and signing cooperative agreements with USDA in 1937, SCS began supplying a CCC camp to further each district's conservation program (*11*). During the life of CCC, SCS supervised the work of more than 800 of the 4,500 camps. Black enrollees worked in more than 100 of those camps.

The expanded camp program brought CCC crews to new farming areas with a variety of conservation problems. Nonetheless, a majority of camps were located in the prairie states and eastward, especially the areas of row crop farming in hilly areas under humid conditions. The Reconnaissance Erosion Survey of 1934 provided additional guidance on where demonstrations were most needed. The map of CCC camps under the expanded program often coincided with maps of the areas of severe erosion.

In addition to the type work performed at Coon Valley in a dairying and general farming area, CCC crews also worked with orchardists in the Northeast. There, CCC labor was used as an inducement to get farmers to lay out orchards on the contour, build terraces and provide outlets for established orchards and, most importantly, plant cover crops (*9*).

An agent of change

Generally, the CCC camps and demonstration projects served as agents for agricultural change. An SCS engineer reported from Columbus, Nebraska, that "the terracing prompted by the camp is the first that has been done in this county." Southern farmers had terraced land for a long time, but feared grassed outlets and waterways as sources of weeds. Thus, camp SCS-2, a black CCC camp at Collierville, Tennessee, received compliments for convincing tenants to accept Bermudagrass outlets and pastures. The project was judged to be the best example of such work in the state. Not one farmer in the Duck Creek Demonstration Project at Lindale, Texas, used Bermudagrass for soil conservation when the project began, but there were 2,138 acres of Bermudagrass a few years later (*14*). During an era when fertilizer was used sparingly, if at all, on pastures, the labor and supplies available through the CCC made possible a demonstration of the importance of pasture improvement.

As Hugh Benentt's plan to work with nature involved more vegetation, especially on highly erodible areas, there was a great need for planting materials. CCC crews worked at the nurseries established in conjunction with demonstration projects. Sometimes a CCC camp worked exclusively at a larger nursery. In 1936, after taking over the Bureau of Plant Industry's erosion nurseries, SCS had 48 major nurseries, which produced 130 million trees and seedlings for the CCC work areas and demonstration projects. CCC crews took to the pastures, range, and woods in the same year and collected 664,973 pounds of native grass seed and 1,647,064 pounds of conifer and hardwood seed for nursery stock (*10*).

Collecting grass seed was also part of the conservation program in semiarid areas, where regeneration of rangeland for grazing often involved CCC work in seeding and fencing for grazing distribution and contour furrowing, developing springs, and building water spreaders and stock water dams for water conservation. Enrollees at Camp SCS-4 near Huron, South Dakota, for instance, spent most of their time in 1938 and 1939 building stockwater ponds. During the life of the SCS-supervised camps, enrollees built 134,167 miles of contour furrows to improve range and reduce erosion.

In areas of small, irrigated farms, work on leaky canals, overuse of water, and control of erosion on steep, irrigated slopes had to be incorporated into the program to attract cooperation. One strength of CCC and SCS leaders was their ability to recog-

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Operating terracing equipment (top), Yanceyville, North Carolina, May 1940. Building and installing forms and cement drops in an irrigation distribution channel (bottom), Weiser, Idaho, June 1941.

[1]Bennett, Hugh H. "To the Rescue of Soil Conservation." Address to the National Association of Soil Conservation Districts, San Diego, California, February 2, 1955.

nize the need for new work and add it to the conservation program and concept.

Further west the mediterranean climate made the Pacific Coast a prime area for vineyards and orchards. As it did for orchards of the Northeast, SCS promoted contour planting and cover crops. Winter cover crops were particularly important on the Pacific Coast, where much of the rain falls during those months. On the Corralitos Creek Demonstration Project at Watsonville, California, enrollees worked on 29 miles of terraces and grade ditches and constructed 33 major outlet structures.

A public land focus too

CCC work on farms and ranches provided the model for future SCS work with landowners. But CCC and SCS established some of their larger, coordinated projects on federal and state lands. The Rio Grande watershed above Elephant Butte Reservoir in New Mexico included both public and private lands. The reservoir, a Bureau of Reclamation project, had a capacity of 2.6 million acre-feet of water when completed in 1917. In the fall of 1935, SCS began deploying CCC camps to work on conservation measures to slow siltation of the reservoir. By 1937 silt had reduced the reservoir capacity 20 percent.

Enrollees from seven camps worked above the dam, while those from three camps below the dam concentrated on flood control for the towns. Within a year the 10 camps built 14 large impoundment dams and 49 smaller ones for stockwater and flood control, 6 miles of fence, and 900 miles of contour furrows. They dug 123,000 feet of ditches to divert water from gully heads. To further control gullies, they built 30,000 check dams, seeded or sodded 19.6 million square yards on banks, and planted 407,000 trees (*1*).

Some projects combined flood control for towns with water retention for agricultural uses. Camp SCS-4-N built a 2,400-foot, wire-bound rock diversion structure across Angel Canyon to protect El Rito, New Mexico, from flooding. The water was diverted along a 20,000-foot dike, where waterspreaders carried it to cultivated land and improved pasture.

Camp SCS-25 at Safford, Arizona, developed water spreaders for water infiltration on state lands in the Gila River Valley. Camp SCS-7 at Leeds, Utah, developed levees and dikes and built flood-control devices to protect irrigation systems.

Native American CCC enrollees worked under the auspices of the U.S. Department of the Interior's Indian Service, which carried out the functions of feeding, clothing, and transporting enrollees that the U.S. Army performed for other camps. SCS developed land management plans for several reservations, including the largest SCS work area, the Navajo Project. Along with other laborers, the Indian CCC workers installed numerous measures from the reservation's conservation plan (*5, 6*).

Enrollees at camp SCS-7, Warrenton, Oregon, participated in a project that became internationally known to experts on coastal sand dunes. A jetty built at the mouth of the Columbia River in the late 19th century resulted in scouring of the channel bottom. The sand drifted down the coast to be driven inland by strong winds onto the overgrazed sand dunes. This combination of events caused a wide sand flat, often covered by water at high tide. CCC enrollees logged and split fire-killed timber, donated by the county, to build a picket fence along the beach. They then planted European beachgrass on the dune that formed over the picket fence. The work restored the coastal area as a popular recreational site (*2, 7*).

Cooperative agreements with state highway departments allowed CCC enrollees to work on roadside erosion problems. Before the close of the CCC camps, 841 miles of roadside demonstration projects were completed (*12*).

To be sure, not all of the ideas for conservation originated with SCS. Local communities and states brought their problems to the attention of SCS and CCC officials. When the CCC program began, the Kansas Forestry, Fish, and Game Commission announced that it wanted to construct a series of lakes in state parks with CCC labor. The commission met objections that large structures were out of the purview of the CCC by agreeing to pay for materials and design work. The Forest Service supervised the work until SCS became part of USDA. The construction of each dam required the fulltime work of a CCC camp. The camps built at least seven lakes larger than 100 acres.

CCC valuable to SCS

In retrospect, the material accomplishments of CCC activities, while important, seem less important than the educational experience for conservation. The work of the CCC crews was valuable to Bennett in proving the validity of his ideas about the benefits of concentrated conservation treatment of an entire watershed. The large-scale approach also permitted experimentation. Few of the conservationists' techniques were new, but the process of fitting them together was. The work led to the refinement and improvement of conservation measures still used today.

This experience, among both SCS staff and the enrollees, provided a trained, technical core of workers for SCS for years to come. Former enrollees joined the staff, and during the early years, CCC funds provided for nearly half of the agency's workforce.

In addition to contributing to the passage of the Soil Conservation Act of 1935, the CCC also was instrumental in helping the soil conservation district movement off to a healthy start. When the states began enacting soil conservation district laws in 1937, it came as no surprise to the SCS field force that the first districts were organized near CCC camp work areas.

CCC's real contribution, however, lay in proving the feasibility of conservation. The positive public attitude associated with CCC work, including soil conservation, helped to create an atmosphere in which soil conservation was regarded, at least in part, as a public responsibility.

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