

Illinois

A representative of the Office of the Governor summed up flood damages in Illinois to the United State Congress:

The great flood of 1993 represents the worse disaster in Illinois in the century-- sixteen thousand citizens were forced out of their homes; 872,000 acres of farmland were inundated; entire communities were flooded; hundreds of small businesses were damaged or destroyed; and overall, millions of dollars of personal property were lost.²³⁵

In the context of the problems listed above, the Service's work must be seen as an attempt to restore both the economic and environmental health of the state.

The 1993 floods hit the western half of Illinois, that is, the area from Peoria westward to the Mississippi River. Flooding in upland areas was the result of heavy rainfall; lowland flooding was primarily caused by the rise in the Mississippi River due to rainfall in Minnesota, Wisconsin, and the Dakotas. By mid-July, SCS reported that half a million acres were under water in Illinois. A major problem in Illinois, as in all states, was that the Service was unable to assess damages immediately due to high water.²³⁶ For example, the Illinois River first rose due to heavy rains in the uplands, then went down, then went back up yet again due to rising water on the Mississippi. State staff reported that this river backed up due to Mississippi River flooding and overtopped levees.

Even before SCS employees began EWP work, many became involved in the flood as victims of the rising water or volunteers in relief efforts. The August/September issue of *Current Developments*, published by the Service in Illinois, detailed some of the efforts of individual SCS-ers in responding to the flood. At least one district conservationist, Ron Hall, served in the National Guard and assisted in shoring up levees. Another, Joe Gates from the Moline office, took the initiative to fly his own airplane to help survey flooded areas. Rob Meats not only worked on the Sny Levee, but also helped supply food and water to others struggling to save that structure. Some SCS employees in areas outside the floodplains helped gather donations of food and clothing.²³⁷

²³⁵ Statement of Allen Grosboll, Executive Assistant, Office of the Governor, Springfield, Illinois, in *Federal Response to the Midwest Floods of 1993*, 22.

²³⁶ Karl F. Otte, Acting Director, Watershed Projects Division, to Leonard P. Mandrgoc, USDA Emergency Coordinator, Report #9, July 13, 1993.

²³⁷ Paige Mitchell, "Conservationists Fight the Flood of 1993," *Current Developments*, (August/September 1993): 2-5.

U.S. Department of Agriculture

Soil Conservation Service

Illinois



- Legend
- ☆ State Capitol
 - SCS State Office
 - Major City



SCS Soil Scientist Karla Hanson wades through the muck while gathering soil and sediment samples at a flooded site. Photo from SCS-Illinois.

Overall, assistant state conservationist Gary Park managed the EWP program in Illinois. One difference from many of the other states was that the area around the state office in Champaign suffered no flood damage. Much of the staff moved out of the Champaign headquarters to five emergency response centers--in Rock Falls, Monmouth, Quincy, Edwardsville, and Carbondale.²³⁸ The centers were set up as flood damages spread downstream--the Rock Falls office was established in August while Carbondale, in the south, was set up in November. Engineers, some detailed from the state office, headed all five of the response centers.

By early July of 1994, SCS had completed 558 Damage Survey Reports (DSR's). Of these, 372 were eligible for assistance and 357 had already been completed. Of the eligible projects, 143 were for debris removal, 195 for erosion repair, and thirty-four for levee repair. Scouring around bridges was the single most prevalent problem. County highway departments were frequently sponsors of EWP projects. It is important to bear

²³⁸ As explained by Gary Parker and others, state conservationist Charles Whitmore wanted most repair decisions concerning the EWP program to be made in the field by those most familiar with local conditions, not in the state office hundreds of miles away.

in mind, however, that these are statewide figures. The type of EWP work could vary a great deal within the state--for example, some counties along the Mississippi or between the Mississippi and Illinois rivers had no problems other than levee breaks.

Those hardest hit by the floods lived along the Mississippi River where water stayed high and delayed the Corps' mainline levee repairs. Most of the Service's flood recovery efforts, however, was completed by early 1994. Unlike some of the other flood states, the state staff in Champaign stated that they did not expect that their 1994 workload would be beyond their capabilities. They also did not plan to grant many variances to the conservation compliance provisions of the 1985 and 1990 farm bill. Assistant state conservationist Harry Slawter pointed out several reasons for this. First, while Iowa had excessive moisture in 1992 and 1993, Illinois faced this problem only in 1993. Illinois did not have the upland damage of Iowa or the sand deposits in the floodplain that Missouri did. Most farmers who were impacted by the flood or rainfall in Illinois were only two or three weeks late in bringing in their crops in 1993. Second, the cropland most devastated by the flood was flat bottom land along the major rivers. This was not highly-erodible land (HEL). Therefore, it had not required extensive measures to limit erosion in the first place.

The Service had little involvement with Illinois' levees prior to the flood. As was the case in most states with levees, more time was spent discussing their repair than many staff felt was necessary. All but two of the levees along the Mississippi River were repaired by the Corps. SCS was briefly involved with one of the remaining levees. In this case, the Corps staff in St. Louis had agreed with SCS's plan to repair the Len Small Levee along the Mississippi. The Corps leadership in Washington, however, strongly objected to this plan. The Service then turned the project over to the state, which made the repairs with FEMA funds and the SCS's original design. The remaining mainline levee was repaired by a county government. Reflecting the relative lack of conflict or major problems in levee repair in Illinois, no SCS personnel were assigned to the state DFO in Moline; rather arrangements were carried out by telephone. When the \$50 million in supplemental funds were made available for levee repair in early 1994, only one request was expected for this assistance.

Besides the more common tasks of stabilizing streambanks, removing debris from streams, and repairing levees, the Service was involved in three unusual projects that illustrate the range of work and cooperators involved in EWP efforts. In Scott County, a stream was blocked by debris under a railroad bridge. The Norfolk and Southern Railroad Company was eager to work with SCS to protect this vital transportation link. The railroad hauled the rock needed to shore up the banks around the bridge without charge, thus speeding repairs. In a widely-publicized project, one of the volunteers from

Canada played a key role in protecting the town of Havana, Illinois. Citizens did not face the threat of erosion caused by rainfall or flooding caused by a rising river, but rather from water percolating up through sandy soil outside of Havana, which had become saturated by the constant rain. The water threatened to flood the town. Stella Fedeniuk, an engineer from Canada's Prairie Farm Rehabilitation Administration, along with SCS staff and a local engineering firm, developed a plan to pump water about one mile from the sandy area to the Illinois River. One of the main barriers was finding enough pipe on short notice to move the water. After this was done, SCS permanently loaned the city the pumps and followed up with a more comprehensive watershed planning effort.²³⁹

Finally, EWP work was directed toward protecting important sources of income for communities. Many of those who enjoy Edgar Lee Masters' classic of American literature, *Spoon River Anthology*, have made a pilgrimage to the town of London Mills along that river.²⁴⁰ Tourist income from the site was threatened by streambank erosion. SCS moved quickly to use rock fill and rip-rap along about three hundred feet of the river to protect the town's infrastructure and economic well-being.

The experience of Illinois provided one example of how SCS dealt with cultural resource and environmental issues in its EWP work. Technically, neither the environmental nor the cultural resource impact statements were required for each EWP job, since a program-wide Environmental Impact Statement (EIS) had already been completed by SCS. Several states, however, developed supplementary checklists in order to focus staff attention on these increasingly important issues.²⁴¹ The one-page impact assessment used in Illinois looked at the short- and long-term effects upon a site with and without the EWP treatment or repair measure. The specific environmental factors included wetlands, wild/scenic rivers, endangered species, floodplains, cultural resources, natural areas, channel modification, prime/important farmland, riparian areas, visual resources, special aquatic sites, erosion, and water quality. The state office made available to field staff a short primer of the requirements and major laws concerning each of these environmental concerns.

²³⁹ For more details about a variety of specific EWP projects in Illinois, see *Current Developments*, a bi-monthly publication produced by the Public Affairs staff in the Champaign state office.

²⁴⁰ Masters grew up in Lewisburg, a town along the Spoon River in central Illinois. His monologues, written in free verse, were based upon life in this and other small towns. The names given to characters in the book were taken from graveyards in the area.

²⁴¹ During the summer of 1994, some SCS staff and others in the cultural resources field advocated requiring a finding of no significant impact upon cultural resources for each separate EWP job. Those involved in performing the emergency work generally objected to this requirement. First, there were no major problems with EWP work during this, the largest disaster response in SCS history. Second, timeliness is one of the key factors in the emergency program. Could these new requirements slow the Service's response?

Illinois had no full-time cultural resource specialist or archaeologist on staff; rather these duties were handled by William Lewis, Jr., an agricultural economist. The environmental impact statement which accompanied every DSR, however, included a short section on cultural resources. These were reviewed by an archaeologist from the U. S. Forest Service in southern Illinois, Mary R. McCorvie.²⁴² In light of the emergency nature of the repair work, decisions had to be made quickly. Review of sites was prioritized based upon the expected start dates for EWP work. The archaeologist then visited the twenty-seven sites that seemed most likely to have an impact upon cultural resources. The report prepared by the archaeologist stated that no sites were harmed by the Service's EWP work. Eventually, the state historical preservation officer (SHPO) sent letters to the SCS state office in Champaign, confirming that no cultural resources were disturbed by the emergency repair work.

One particular site where SCS helped protect an important historical resource was at Fort De Chartes, a park managed by the Illinois Historical Preservation Agency. The fort is listed in the National Register of Historic Places because it served as a center of French influence in the region from the 1720's until surrendered to the English in 1765. Floodwaters cut a large gully eight feet deep and over one thousand feet long through the park. As the Corps rebuilt a nearby levee, SCS contracted to repair erosion damage around the walls and buildings at this site. The Service took special care to assure that borrow, fill material used in the repair, taken from a nearby site did not disturb any local cultural resources.

Perhaps more than any other state, the SCS staff in Illinois directly connected data they gathered on DSR's in the field to summary reports in the state office and information made available to the public and Congress. The Public Affairs staff used this unified database to create "Illinois Floodlines," which included charts of every possible EWP site, including location, impairment, cost, start date, and other information broken down by congressional district. Further, SCS made clear on these sheets which projects were ineligible for EWP assistance. Providing information on the status of all requests for assistance helped cut down on the number of queries from the public and assured them that the Service was acting upon their requests. It was particularly useful information for congressmen and their staffs, since many citizens turn to them when they want disaster assistance.

²⁴² SCS paid for travel expenses while the Forest Service continued to pay her regular salary.

SCS employees brought together a wide variety of organizations and technology. For example, at the request of a congressman, SCS's Resources Inventory and Geographic Information System Division (RIGIS) created a series of hydric soils maps of Illinois.²⁴³ These maps utilized an AVHRR satellite image from June and July of 1993. The images were compared in order to indicate the areas of flooding. This was then combined with the USDA-SCS State Soil Geographic database. As a result, a map was produced which indicated soils which were sixty percent or less hydric, sixty-one percent to eighty percent hydric, or greater than eighty-one percent hydric. Finally, the Service developed a list of total acres flooded and acres of hydric soils flooded for each county in the state. Such materials helped locate concentrations of wetlands.

Although the wetlands program proved popular in neighboring Iowa and Missouri, in Illinois there was little interest among landowners. Perhaps the most important reason for this was the higher land values, especially in the fertile Mississippi River floodplain, which made the \$800 per acre offer for a permanent easement too low.²⁴⁴ Harry Slawter provided some other reasons that only about one thousand acres were offered in the first EWRP sign-up. First, some farmers wanted to sell title to all their land, not just the easement, then retire and move away from the area. Second, Illinois had less cropland inundated than Iowa or Missouri (the two states with the greatest interest in WRP and EWRP). Third, the area inundated, the Mississippi floodplain, was behind levees which the Corps was repairing. Fourth, Illinois was not in the original WRP pilot program. As was the case with the pilot program in other states, in their first experience with wetlands easements, landowners were at times unrealistic in their expectations of what lands would be eligible and how much they could get for that land.

As was the case with the lack of interest in EWRP, the success or failure of SCS policies was often at the mercy of outside forces. For example, the Service was at times drawn into local disputes over which it had little control. One controversial incident occurred near Peoria, Illinois. SCS became caught up in a labor dispute as unions picketed an out-of-state non-union contractor performing two EWP jobs.²⁴⁵ There was vandalism and at least one fight. Union members alleged that the contractor was paying illegal wages, that is, not paying the rates mandated by the Bacon-Davis Act. In the end, there was no evidence of impropriety. The incident was forgotten quickly as the firm is no

²⁴³ Hydric soils are defined as soils "which are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions on the upper part." The soils are one key criteria for wetlands determinations. The other two are the presence of standing water and certain plants.

²⁴⁴ This value was set by a committee made up of SCS, FWS, Extension Service, ASCS, FmHA, the Rural Appraisers, Farm Bureau, and the state Department of Agriculture.

²⁴⁵ Actually, only about ten percent of the contracts went to out-of-state firms. These contracts, however, were usually larger than average.

longer in the area. Given the fact that the picketed contractor had submitted the lowest bid, there was relatively little SCS could do to reject it without evidence of incompetence or wrong-doing.

Area conservationists (AC) played an important role in the EWP program. One good example of their work can be seen in the efforts of Richard Macho, an AC in Edwardsville, Illinois. He defined his role first as "logistics," that is, helping the head of the local emergency response office set up and begin flood recovery work. His goal was to free the hands of the EWP manager while remaining focused on his regular work, especially FSA, as much as possible. His tasks included coordinating detailees and obtaining vehicles and equipment, and serving as a liaison between sponsors, Congress, and SCS when questions or disputes arose over work. For example, some drainage districts wanted SCS to contract for work which was not eligible for EWP assistance, such as raising levees or cleaning out ditches that had been clogged even before the floods.²⁴⁶ Macho reviewed EWP rules with unhappy drainage district managers and contacted congressmen to explain eligibility requirements. Despite these disputes, he felt that the Service was very popular and that the public was very confident in the organization's ability to assist after a disaster. He contrasted this with criticism of FEMA for not understanding the needs and culture of agriculture or small, rural communities.

Macho also pointed out a dilemma often mentioned by SCS employees in the flood areas: they valued the help and new perspectives that detailees from other states could bring. At the same time, they felt that the ability of these detailees was uneven and that many had been sent as much for EWP training as to actually help in this disaster. Also, some detailees stayed only two weeks. It was inefficient and disruptive to have such a high turnover of personnel during such a frantic time.

Staff in Illinois made clear that SCS's flood response work greatly raised the agency's profile. The Service was now thought of as more than an "erosion agency." Further, the ability to see a problem, react quickly, and produce concrete results within a few weeks was a great boost to the morale of SCS personnel in the field.²⁴⁷ Many emphasized that the field office structure was key to what they saw as a very successful EWP effort

²⁴⁶ EWP allows repairs only to restore pre-flood conditions. Also, SCS may only assist with damage actually caused by a disaster. Maintenance of draining ditches and channels was often a delicate issue due to disagreements over what damage was caused by the rains or floods of 1993 and what damage was the result of the lack of long-term, routine maintenance by the local drainage district. See the sections on North Dakota and South Dakota for other approaches to this problem.

²⁴⁷ This feeling of accomplishment must also be understood in the context of the Small Watershed Protection program, where a single project may require decades to plan and implement.

because it built close ties with rural America. SCS's experience was contrasted with that of FEMA and the Corps, which were sometimes accused of lacking an understanding of and rapport with small towns and farmers.²⁴⁸

Unfortunately, 1993 was only the beginning of the flood disaster and EWP recovery work in Illinois. While attracting relatively little notice outside the areas directly affected, heavy rains in April of 1994 led to eleven Illinois counties receiving disaster declarations. The counties included some that had been devastated in 1993. Because the ground was already saturated and many structures had been weakened by the event of 1993, damage was heavy. SCS responded by re-opening an emergency office in Edwardsville, which is located directly east of St. Louis. One hundred and eighty-one applications for assistance were received; 125 for erosion control, thirty for debris removal from channels, and twelve for levee repair. The estimated cost of these repairs was \$5.5 million. Even with the assistance of detailees from other states, this work was expected to continue well into 1995. It was only in the shadow of the massive 1993 flood that this level of EWP activity received as little attention as it did.

²⁴⁸ There is a great deal of anecdotal evidence to support this view. However, it is also important to bear in mind that in many quarters of SCS, support of the field office structure has been elevated almost to the level of gospel.

Iowa

Lying between the Mississippi and Missouri rivers, Iowa was the state hardest hit by the floods of 1993. In early July, the Iowa state office reported that 1.1 million acres were flooded in that state: half a million acres had erosion greater than twenty tons per acre, eight hundred thousand acres had erosion between ten and twenty tons per acre, and there were two hundred and fifty thousand acres of standing water in upland areas.²⁴⁹ Flood damage and EWP work were concentrated in two corners of the state, where small and medium sized rivers flow into the Mississippi River (southeast corner) and Missouri River (southwest corner). Because Iowa had only managed one EWP contract in the twenty-five years prior to the 1993 flood, staff had to become familiar with the emergency program's procedures very quickly. Between July of 1993 and January of 1994, they received over twelve hundred requests for assistance, more than any other state.²⁵⁰

The flood directly disrupted SCS operations. On July 8, up to ten inches of rain fell in the Des Moines area. During the weekend July 10 and 11, floodwaters cut-off access to the SCS state office in the state capitol.²⁵¹ That Monday, the Service shifted its operations to the West Des Moines ASCS offices. Many staff members were sent out to the district or area offices. Others, such as the public affairs staff, worked out of employees' homes. The first EWP contracts were prepared by July 16 even as the heavy rains continued. Up to ten inches fell in southwestern Iowa on July 24 and 25. On August 9, four to seven inches of rain fell in central Iowa, reflooding many areas.

Under state conservationist Jeffrey Vonk, the flood response effort in Iowa was led by assistant state conservationist Lyle Asell. On July 19, an Emergency Operations Center was established in Indianola, which is also the location of an area office. After the initial start-up of the program, Marty Adkins, a former Resource Conservation and Development Coordinator, assumed responsibility for day-to-day operations in Indianola. Engineering offices were established in Atlantic (for western Iowa) and Williamsburg (for eastern Iowa). Staff in these offices drew up most of the plans for EWP repairs. The Service provided one hundred percent of repair costs on eligible projects until early December of 1993. Projects approved between this time and the end of the EWP sign-

²⁴⁹ James M. Reel, Iowa WRPS Leader, to Larry Babich, Watershed Projects Division, July 9, 1993.

²⁵⁰ Much of the information in this section comes from three sources: a short booklet produced by the Public Affairs staff in Iowa entitled "The Flood of 1993: Response, Repair, and Recovery," (March 1994); a report by the state office, "Iowa Emergency Watershed Protection (EWP) Program-July 1993 through Present," (March 1994); and interviews.

²⁵¹ Simultaneously, the Des Moines water works, which served two hundred and fifty thousand customers, was shut-down. For more details on the 1993 flood and attempt to protect municipal water supplies, see *Iowa Groundwater Quarterly* 4, 4 (December 1993).

up on January 15, 1994, were done under a 80:20 cost-share arrangement. In March of 1994, the Iowa state office ordered that all future cost-sharing follow the new 75:25 split as mandated in the watershed manual.

By early July of 1994, contracting had been completed for 305 of 763 eligible projects.²⁵² Hundreds of repair requests were referred to agencies better able to respond. Sponsors included not only county governments, cities, and levee districts, but also the Iowa Department of Natural Resources and the Iowa Department of Transportation. The most common problem requiring SCS help was bank stabilization and erosion control work--about seventy percent of the total requests. Next came debris removal from water courses--about twenty percent of the requests.²⁵³

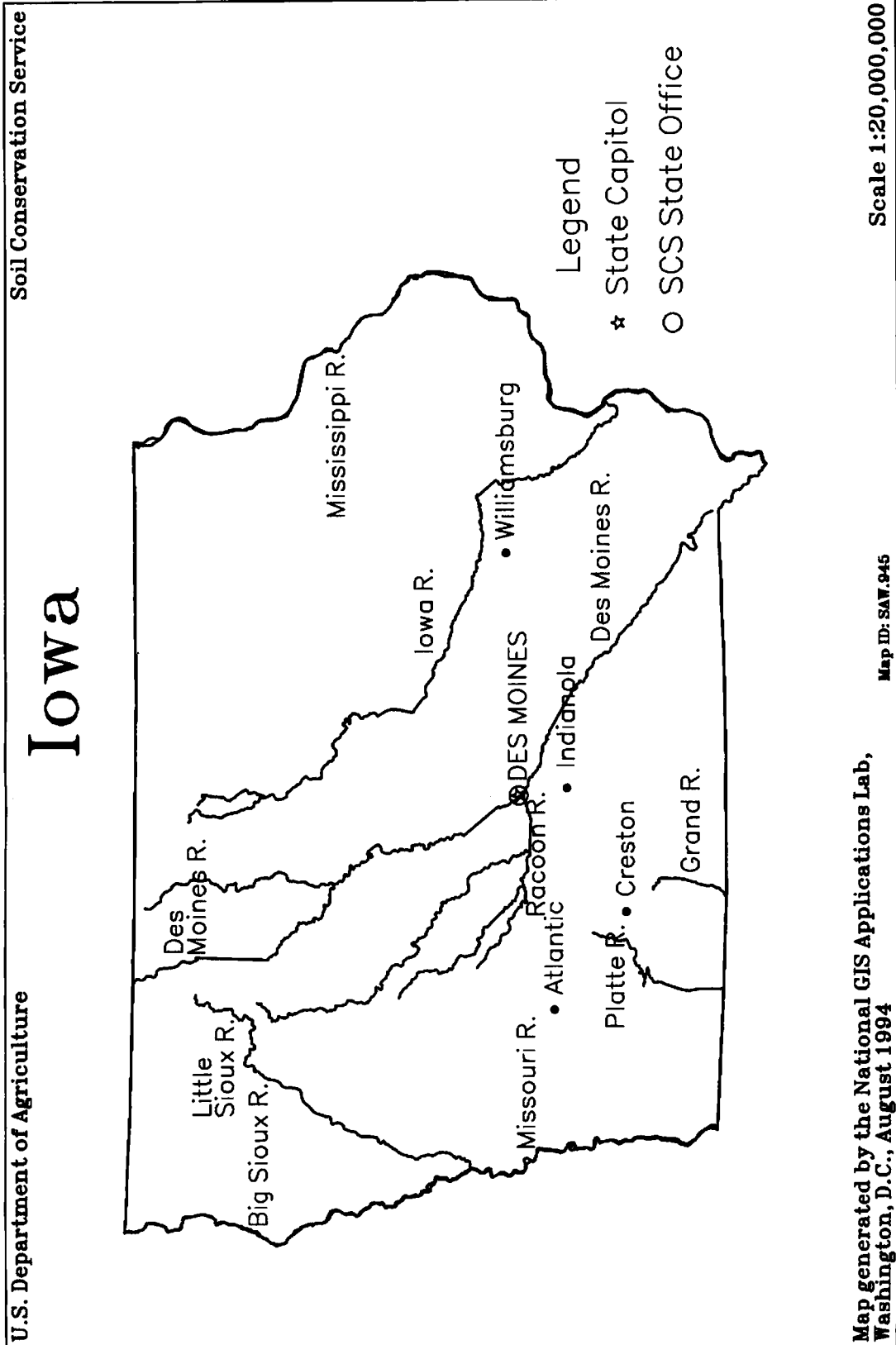
Levee repairs made up only about ten percent of the requests. As was the case in most of the flood states, the amount of attention and interest from Washington and the national media tended to outweigh the actual importance of levee work when compared to other tasks.²⁵⁴ Under the guidance of Iowa's Governor, Terry Branstad, staff from the Service met weekly with personnel from the Corps, FEMA, state, and other agencies in Des Moines to discuss problems and progress in levee repair. Water Resource Planning Staff Leader James M. Reel was the initial SCS representative, then EWP Coordinator Marty Adkins took over his duties. At these meetings, agencies exchanged lists of repair requests, many DSR's ruled ineligible by one agency were passed on to another, and conflicts over jurisdiction and funding were resolved in a relatively informal manner. The meetings continued on a bi-weekly basis into the spring of 1994. Utilizing the supplemental funds provided in early 1994, SCS held a sign-up for levee and other types of repairs. The levee repairs were primarily at sites rejected by the Corps.²⁵⁵ SCS in Iowa planned to repair about twenty additional levees.

²⁵² It is important to bear in mind that one contract may cover repairs at several sites. These sites are combined under a single cost-sharing agreement with one sponsor.

²⁵³ The increased volume and speed of water caused many streambanks to erode away. This was especially prevalent around bridges or other structures that restricted the course of the water. In other cases, the streambed eroded away, thus lowering the bed by several feet and creating a sudden-drop off in the stream (a "head-cut"). This shelf would erode its way upstream and undermine roads and bridges. SCS often responded by placing rock or concrete in the streambed in order to create a "permanent" waterfall that would not move further upstream.

²⁵⁴ SCS staff in Iowa stressed that their levee repair work and cooperation with the Corps was generally good, except when the national level of the Corps countermanded local agreements or the Washington staff of SCS attempted to "micro-manage" their work. These disputes must be seen in the context of the search for consistency by staff in Washington versus the drive to respond quickly to local needs seen by staff at the state level.

²⁵⁵ These were the levees on drainage areas of over four hundred square miles.

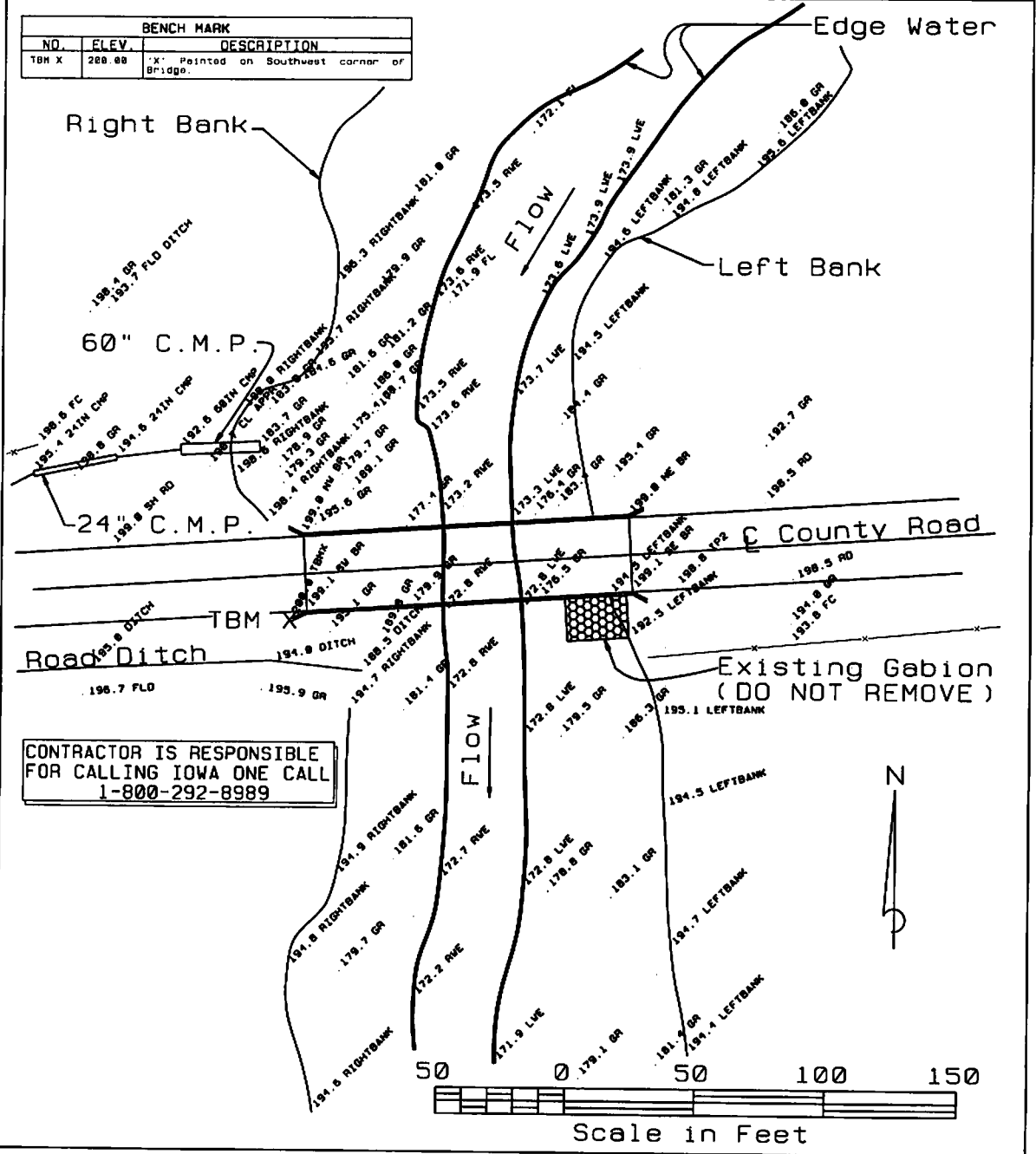


In order to keep pace with the great demand for engineering services, SCS relied upon computer-aided design (CAD). The engineering offices in Atlantic and Williamsburg, as well as the EWP Center in Indianola, all had trained staff on hand to use Versacad software. As a result, it became very easy to exchange, modify, and make consistent construction plans throughout the state. It also saved time by allowing engineering staff to select portions of previous designs and paste them into new projects. This capability was especially useful in some of the more complicated projects such as streambank and streambed stabilization around bridges.

In both the EWP efforts and more routine conservation work, perhaps no single job is as important in SCS as that of the district conservationists (DC). They are the employees who manage the field offices and work most closely with farmers and other landowners across the country. District conservationists have the most in-depth knowledge of local economic and environmental conditions, local media, and local politics. One individual, district conservationist Paul Goldsmith of Union County in south-central Iowa, illustrates the role of the DC in the EWP effort. He described his task as primarily that of a liaison between the county government and the EWP office in Indianola. His specific tasks included notifying the local newspapers about the emergency program, meeting with county government officials to help explain the program, checking damage sites, helping sponsors apply for assistance, and working with the county engineer on plans for repairs. The majority of the EWP work in Union County was to protect bridges and secondary roads. The county engineer provided the sponsor's portion of the cost-share payment through survey, administrative, and inspection services. In these cases, SCS's main role was to insure that the construction work met Service standards. Another important aspect of Goldsmith's work was ASCS's Emergency Conservation Program (ECP). The Service supplied technical assistance for over four hundred ECP jobs. ASCS, in turn, provided cost-sharing aid to landowners so that they could implement SCS's suggestions.

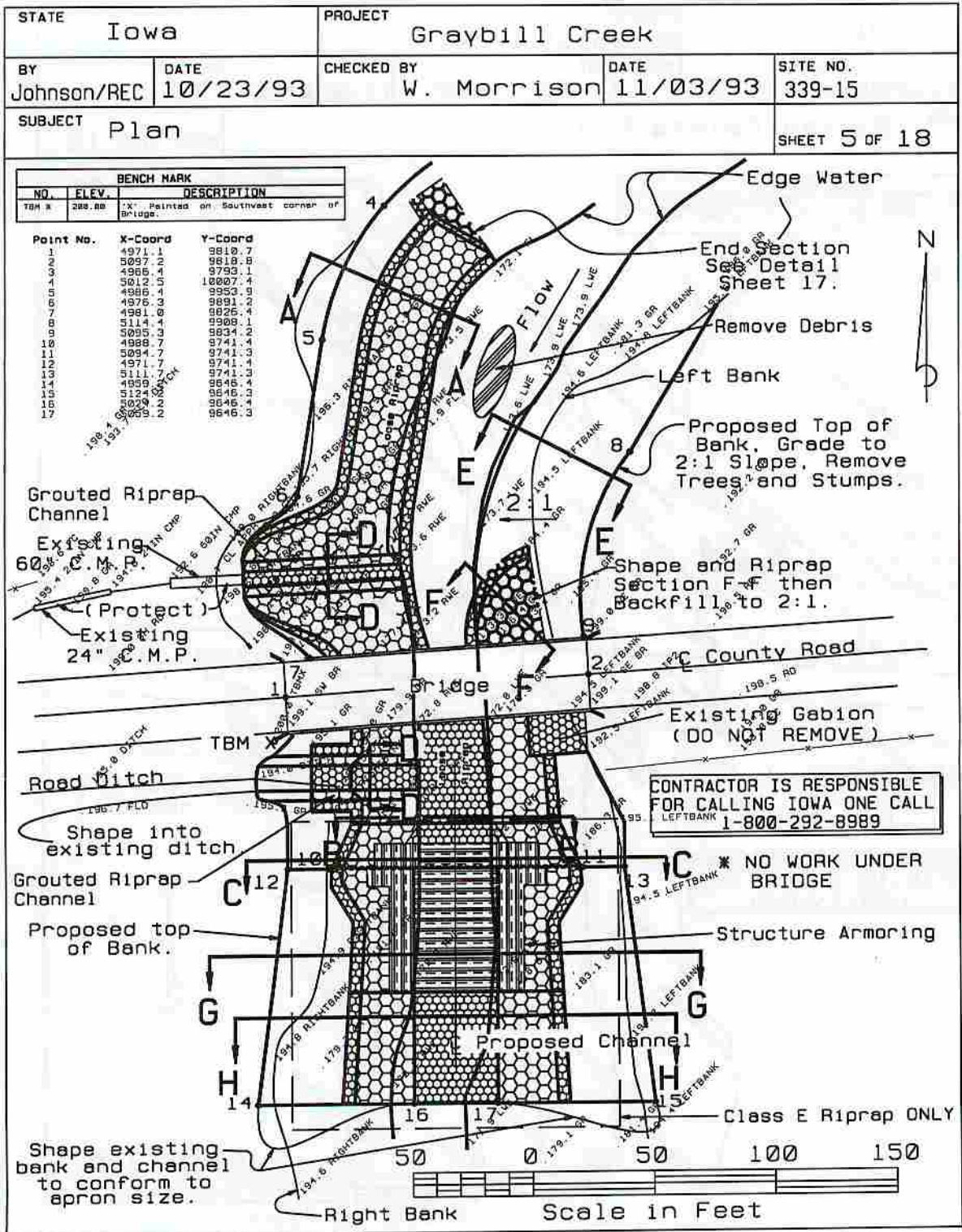
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BY Johnson/REC	DATE 10/23/93	CHECKED BY W. Morrison	DATE 11/03/93	SITE NO. 339-15
SUBJECT Survey Points Plot				SHEET 4 OF 18

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NO.	ELEV.	DESCRIPTION
TBM X	280.88	* Pointed on Southwest corner of Bridge.



CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL 1-800-292-8989

An Emergency Watershed Protection project. The above diagram shows the situation on Graybill Creek in Iowa as floodwaters went down. Streambank erosion, especially on the right bank of the creek, threatened to undermine a bridge.

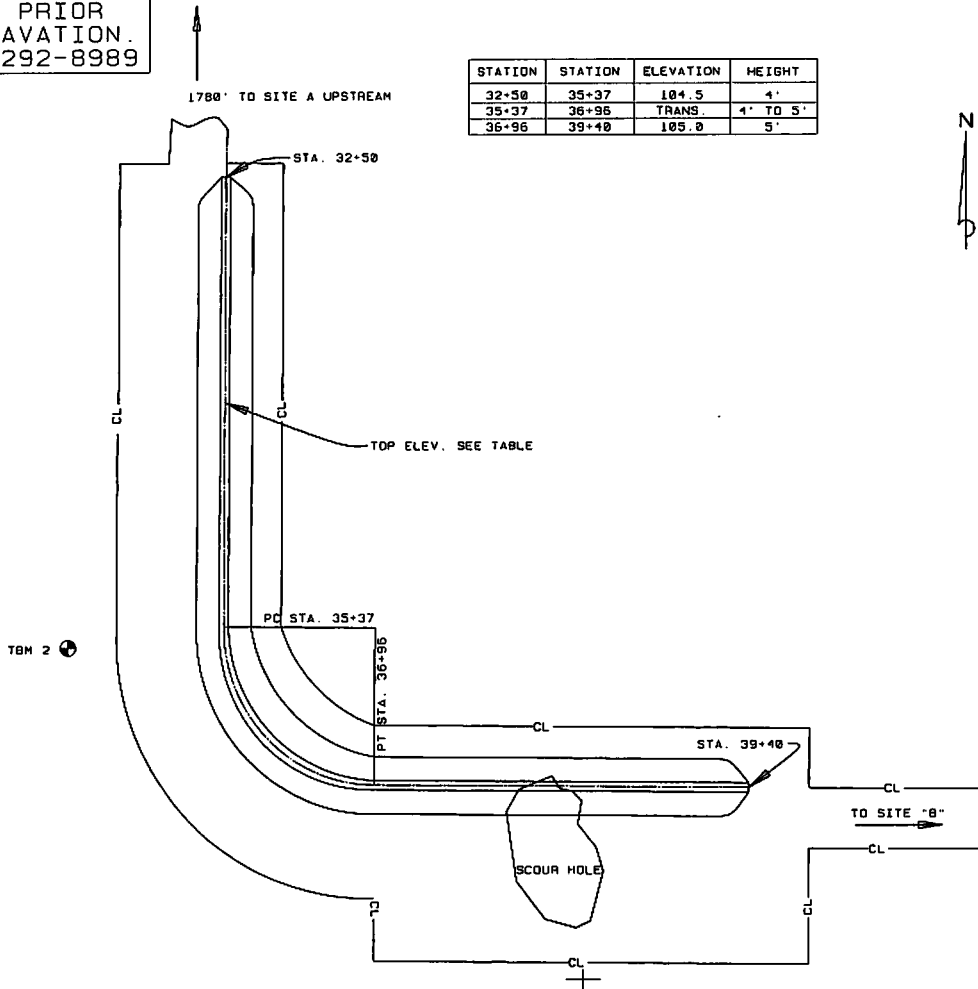


Above is the SCS plan, prepared using CAD, for the repair of flood damage on Graybill Creek. Although the amount of work required here was extensive, it cost much less than replacing the bridge.

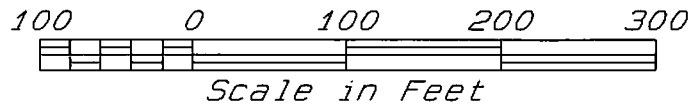
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*CALL ONE-CALL
2 DAYS PRIOR
TO EXCAVATION.
1-800-292-8989

STATION	STATION	ELEVATION	HEIGHT
32+50	35+37	104.5	4'
35+37	36+96	TRANS.	4' TO 5'
36+96	39+40	105.0	5'



⊕ TBM 2 - SCS SPIKE & DISC IN TOP OF FENCE POST ON NORTH SIDE EAST/WEST ROAD.



A levee in need of repair in Iowa. Although the public image of levee breaks and their repair was shaped by television news pictures of massive flooding along the Mississippi and Missouri rivers, the Service's EWP efforts generally focused on work along tributaries.

Even as SCS assisted the SAST efforts to compile data on the success or failure of soil conservation measures and small watershed projects in limiting flood damage, local anecdotal reports were positive.²⁵⁶ Lou Waite, SCS Technician in Iowa, has provided some interesting examples of how SCS projects benefit specific landowners and communities.

Harold (Shorty) Ray says that walking through the buffer strips on his Cass County farm feels like "walking on marshmallows". This is due to the soil caught and held by the grasses, and kept from washing down the hills into Indian Creek or Turkey Creek and floating away on the Nishnabotna River.

His wife, Shirley, confided that at first she and her husband felt the twenty-five acres put into the buffer strips was quite a loss of valuable cropland. "We had to pay for the seeding, the gas to operate the machinery and so forth," she said, "and knew we wouldn't be harvesting a cash crop on those acres."

But after the excessive rains of this year, the Rays realized the value of that particular conservation measure. "This year, with all the rain we've had, the run-off was greatly reduced from what it used to be."

Structure B-3 is a dam built on the Mill-Picayune Watershed through SCS's P.L. 566 program. It was built to control erosion on the lands containing the two creeks for which it was named. But it is also an outstanding example of how conservation benefits not only farmland, but recreation areas and natural habitats. The area around B-3 is known today among the residents of Dunlap as "Pleasant View Park."

After the 1993 flood, Dunlap mayor Martin Smith said, "First, we wouldn't have had the lake without SCS constructing the dam. And, if we hadn't had the dam, flooding like we have seen this summer would have caused terrible damage in town."

²⁵⁶ SCS staff in Des Moines said that less than one percent of the 2,250 Small Watershed Program structures in that state suffered significant damage. Some of those involved in the Small Watershed Program felt frustrated that the overall success of the program, especially its structures, was not being relayed to the public at large or to Washington policy makers. They also struggled to make clear the difference between the small watershed projects and the larger-scale work by the Corps of Engineers.

The 149 landowners in Shelby County's Long Branch Watershed, another P.L. 566 project area, first became very aware of the benefits of watershed protection after record rainfall in 1990. Farmer Eugene Monson said, "I thought that was great, but this year, when we had the worst flooding in the history of the county, the water in the [Long Branch] Creek was two to three feet below bank height. Furthermore, my terraces were still half to three-fourths full of water twelve hours later. These facts speak for themselves." Monson also credited the increase of no-till in the watershed and the five hundred or so acres of CRP with reducing the volume and retarding the velocity of the heavy rainfall run-off.

Francis Ballou, farmer and SCS District Commissioner, has been involved in the Troublesome Creek Watershed project since construction began in 1974. He recalled, "Back when the structures were put in the Troublesome Creek Watershed, I said I would like to see what a heavy rain would do, once they were in place. I was remembering what terrible devastation we had in 1958, and wondering what the difference would be. Well, this year, I finally got my wish--not that I was asking for that kind of trouble. But unlike 1958, Troublesome Creek barely went out of its banks after we had eleven inches of rain in one night! Not only were all the structures filled, but it took two or three days for the water to go out. They held all that water with no problems! It was really gratifying to see."²⁵⁷

These examples indicate two things: first, the flood improved the Service's public image. Second, specific local benefits were key to forming views of SCS and its work; small structures were the most visible and easy way to measure the Service's success or failure.

Besides performing the most EWP work, Iowa had the second greatest response to the Emergency Wetlands Reserve Program (EWRP) in the wake of the flood.²⁵⁸ Perhaps the most important single incident of the EWRP was the purchase of easements for about three thousand acres of land along the lower reaches of the Iowa River.²⁵⁹ This wetlands buy-out was important for several reasons. First, it was widely publicized by SCS, USDA, and the press. The Secretary of Agriculture was interested enough in the issue to visit Louisa County in the fall of 1993. Besides extensive local newspaper and agricultural press coverage, the Levee District 8 buy-out was cited as an example of the success of the wetlands program in the national press. Second, the project illustrated the

²⁵⁷ Materials gathered from the Public Affairs Staff at the Iowa state office. Lou Waite has written a variety of interesting reports about SCS and its effects upon local communities.

²⁵⁸ See the section on "Wetlands" for details about each state's participation in the program.

²⁵⁹ This was also known as the Levee District 8 buy-out.

increasingly important role of private organizations in helping achieve conservation goals. Their cooperation stemmed from shared interests in wetlands and the environment, the limited funds available to SCS, and the flexibility which private organizations possess. Many farmers were willing to offer the easement to SCS only after being assured that they could sell the title (to the Iowa Natural Heritage Foundation) and be free of local tax obligations (assumed by the Fish and Wildlife Service).²⁶⁰ Third, this was the clearest case where the repair of a levee was prevented due to the availability of an alternative. In fact, prior to the easement purchases, the Corps had already drawn up plans for the repair and was preparing to award a contract. The Army Engineers had estimated that repairing the levee would cost \$700,000 to \$800,000.²⁶¹ Local Corps staff proved eager to cooperate. They agreed to delay their contracting process while SCS, FWS, and private groups organized the Levee District 8 buy-out.²⁶² The easement value determined by the state committee in Des Moines was \$683 per acre. This amount was supplemented by funds from private organizations under the leadership of the Iowa Natural Heritage Foundation. They arranged to add funds to the SCS easement offer in order to buy outright title to the land. The land was then donated to the FWS. The levee district itself was dissolved as a condition of the purchase of easements and land titles. The successful Levee District 8 buy-out was a model for future wetlands or environmental easement programs. It also illustrated the difficulty of such endeavors and the need for coordination between landowners, state and federal agencies, and non-government organizations.

Each state faced different barriers to EWP work. The lack of construction materials was a problem in Iowa. Prices for riprap, the rock used to stabilize streambanks quickly, rose after the flood. Riprap is generally the cheapest way to stabilize streambanks, since it involves placing rock on a slope following bank-shaping work. It is not, however, always feasible on steep slopes.²⁶³ Also, it was difficult at times to find rock that met SCS standards. For riprap, the key qualities are the hardness of the stone and its size.

²⁶⁰ Bruce Mountain, who oversaw the Iowa Natural Heritage Foundation's work on the Levee District 8 buy-out, stressed that the ultimate success of this project hinged on the flexibility of the government agencies involved. Agencies had to be willing to put aside conflicting rules on issues like easements. The Fish and Wildlife Service was particularly interested in Levee District 8 because it could serve to expand the Mark Twain Wildlife Refuge.

²⁶¹ Cynthia Mayer, "Turning Farms into Wetlands," *Philadelphia Inquirer*, December 29, 1993. Jim Patrico, "Practice Makes Perfect," *Top Producer* (April 1994): 42-43.

²⁶² Overall, the effort led by the White House to provide alternatives for levee rebuilding in 1993 and 1994 was a failure. As mentioned in the previous section on levees, the only viable alternative was the EWRP, which had no rules until late November of 1993. Also, much of the land in the floodplain did not meet the criteria for wetlands. Most of the offers under the EWRP were for relatively scattered plots, not an entire levee district (as was the case in Louisa County).

²⁶³ In those cases, more expensive alternatives such as gabions may be necessary. Gabions are large metal baskets which are placed along the streambank then filled with stone. They can be stacked and are most appropriate in areas where the slope is steep.

The Service often uses standards for construction materials set by the state highway department. Since many contractors involved in EWP work have experience in road construction or maintenance, they are already familiar with the standards. SCS responded to the shortage of quality riprap in four ways: First, employees simply rejected some stone, thus setting the tone for better quality materials from all contractors. Second, staff went to the source and inspected stone at the quarry. Third, SCS ordered some contractors to dump their riprap and sort it for the acceptable material. Fourth, the problems of cost, quality, and availability led to innovative use of different materials. Slabs of concrete, three feet square and one foot thick with a metal hook for lifting, were written into the construction specifications for some sites. Grouted riprap and gabions were used at other locations.

One requirement SCS and other federal agencies faced was assuring adequate representation of woman- and minority-owned firms. These are sometimes called "8-A" firms because of they are covered under a program mandated by the Small Business Investment Act of 1953 (as amended by P.L. 95-507 in 1978). Staff in Iowa and other states pointed out some difficulties in finding suitable firms under the 8-A program. First was the general shortage of woman- or minority-owned companies which do earth-moving or construction work in the Midwest. Second was the great demand for contractors to perform work for the Corps, SCS, FEMA, states, counties, towns, and individuals as the flood waters began to recede. At times, the Service's contracting officers had difficulty finding enough firms of any type to bid on EWP jobs. SCS contracts were generally smaller and shorter-term, and thus less sought after, than work offered by agencies like the Corps of Engineers. Although not all were part of the 8-A program, Iowa did better than most in locating and contracting woman-owned firms for emergency repair work. By early February 1994, ten of the 126 contracts valued at over \$25,000 and seven of the seventy-one contracts valued at less than \$25,000 were with woman-owned firms.

By early 1994, some of the staff in Iowa felt in danger of being overwhelmed due to the combined workload of flood recovery, the animal waste management program, the Small Watershed Program, and conservation compliance activities.²⁶⁴ State staff suggested an innovative response to these demands by modifying SCS's role in EWP:

²⁶⁴ Conservation compliance is the work required to assure that farmers who received USDA benefits had in place a conservation plan as mandated by the 1985 and 1990 farm bills. Iowa is the largest pork producer in the United States. The animal waste management program is the effort to reduce runoff which harms water quality.

We are developing plans to change the role of Iowa SCS from that of a provider of technical and administrative services to that of a funding agency that also provides technical and administrative support. Project sponsors will be empowered as partners, providing engineering and contracting functions. SCS will provide construction funds, engineering and contracting support, and take steps to ensure quality control. This new mode of operations should allow for more timely completion of EWP repairs, lessened impacts on other SCS program areas, and the development of a new tool for program delivery in future short-term events.²⁶⁵

In other words, the local sponsor's cost-share would be to provide the administrative and engineering services required for the repair. The Service would then fund the actual repair work and spot-check to assure that engineering standards were maintained. The Service would take on the role of a granting agency. Iowa's EWP effort had been moving slowly in this direction as SCS staff developed confidence in local sponsors' abilities. Not all state offices in the Midwest were eager to try this approach. First, many did not feel that their workload justified the change. Second, some staff members, particularly those with engineering backgrounds, were less than enthusiastic over losing control of project designs. Their question was: What would or could SCS do if the repair was substandard or used substandard materials? Third was the issue of administrative control of funds and assurances that contracting practices would be fair. The attempt to re-invent the relationship between SCS and local sponsors showed great potential, but it will be some time before a complete evaluation can be made.

²⁶⁵ "Iowa Emergency Watershed Protection (EWP) Program-July 1993 through Present," Iowa State Office, March 1994.

Kansas and Nebraska

Most damage in Kansas was in the northeast quadrant of the state. The SCS estimated that about three million of the state's twenty-nine million acres of cropland required restoration work after the flood. Jim Wallace, state conservation engineer and the employee who managed most of the day-to-day flood recovery work in Kansas, stated that up to thirty thousand acres of prime farmland were washed away, severely scoured, or covered with deep sand. In response to these problems, SCS in Kansas held a sixty-day sign-up for EWP assistance beginning in August of 1993. By December, the state office in Salina had already approved 249 of over seven hundred DSR's.

The most common EWP work was removing debris from around bridges and sediment from streambeds and drains. Although these were often small projects costing less than \$20,000, they provided immediate local benefits, such as protecting a bridge or county road. The most critical of the approximately eighty exigency projects focused on streams plugged with debris at bridges, caved-in banks, and eroded bridge abutments. Under these circumstances, even relatively minor rainfall would lead to more flooding and thus threaten near-by infrastructure. Kansas completed most of the exigency work by the end of 1993. Hundreds of less critical projects, however, remained in 1994.²⁶⁶ By the end of June 1994, SCS in Kansas had received 877 DSR's. Of these, 548 were eligible for assistance: 355 for silt/debris removal, 108 to repair erosion damage, and eighty-five for levee repair. The work was valued tentatively at over \$11 million. Well over half of the eligible EWP jobs were either completed or in progress by mid-1994. Most of the DSR's that had been rejected lacked sponsorship, lacked public benefits, or were the responsibility of another agency.

Many of the problems associated with levee repair in Missouri were also present in Kansas, albeit on a smaller scale.²⁶⁷ Most of the major levee breaks were along the Missouri, Republican, Kansas, and Solomon rivers. Kansas was part of the Corps' Kansas City District, which many sources claimed was the least likely to approve levee repair. As was the case in several of the flood states, SCS held a supplemental sign-up for levee repair in April of 1994. During this round, over eighty requests for assistance were received. The vast majority of these were ruled ineligible due to the lack of proper sponsorship or public benefit. Many of these rejected levees had already been turned

²⁶⁶ Much of the information in this section comes from press releases prepared by the Kansas state office under public affairs officer Tim Christian. See also newspaper reports such as Steve Painter, "Scarred Fields Testimony to Floods' Force," *Wichita Eagle-Beacon*, October 17, 1993.

²⁶⁷ See the sections "Missouri" and "Levee Repair" for more detailed information on this issue.

down by the Corps and the Economic Development Administration. If the Service refused to assist, there was almost no chance of federal aid.

Newspaper reports made clear that many farmers, frustrated by the pace or the uncertainty of federal assistance, intended to fund and make their own levee repairs if necessary.²⁶⁸ According to EWP rules, SCS was to provide cost-sharing and technical assistance for repairs only in those cases where sponsors, such as local drainage or levee districts, lacked the financial resources to do the work themselves. It would seem at first glance that any entity that funded its own repair had more money than another which did not. The situation, however, can be more complicated than this. Districts or individual landowners may be willing to pay for repairs because they are desperate to get land back into production (perhaps they are more dependent upon the flood-damaged land for their livelihood) or are more willing to make personal sacrifices to raise assessments, not necessarily because they are "richer" than others.

Interest in alternatives to levee repair, such as the WRP and EWRP, was limited in Kansas. The state had not been part of the WRP pilot program; the first experience the state's landowners had with the easements was with SCS's emergency program. The first EWRP sign-up was held in December of 1993. The state was divided into three regions for easement offers: eastern Kansas--\$650 per acre, central Kansas--\$560, and western Kansas--\$350. Thanks to supplemental funds provided in early 1994, a second sign-up was held from April through December of 1994.

As was the case in many of the flood states, the Service in Kansas attempted to relay to the public the benefits of conservation compliance and small watershed projects. State conservationist James Habiger said that, by the fall of 1993, fifty-nine percent of the farmland in Kansas was under conservation tillage.²⁶⁹ This was a result of efforts to insure compliance with the provisions of the 1985 and 1990 farm bills, which made the implementation of a conservation plan a requirement for receiving certain USDA benefits.²⁷⁰ Conservation tillage not only controls erosion by protecting the soil from the impact of falling rain during years of average rainfall, but it also helps slow run-off during times of heavy rain, as was the case in 1993. Slowing run-off, in turn, lowers local flood peaks. Conservation tillage includes no-till, ridge-till, and crop-residue

²⁶⁸ For a detailed look at one drainage district and its conflict with the Corps over levee repair eligibility, see Jim Suber, "Farmers Race Against River, Red Tape," *Topeka Capital-Journal*, April 5, 1994. Landowners claimed that they were never informed that they had been taken out of the Corps' levee repair program in the 1980s.

²⁶⁹ "KS Farmers Using More Conservation Tillage," *Farmtalk* (September 22, 1992): 121.

²⁷⁰ In Kansas, 84% of the farmers were implementing their conservation compliance plans when the floods hit in 1993.

management. Other popular methods of protecting the soil include terraces, grassed-waterways, and trees.²⁷¹

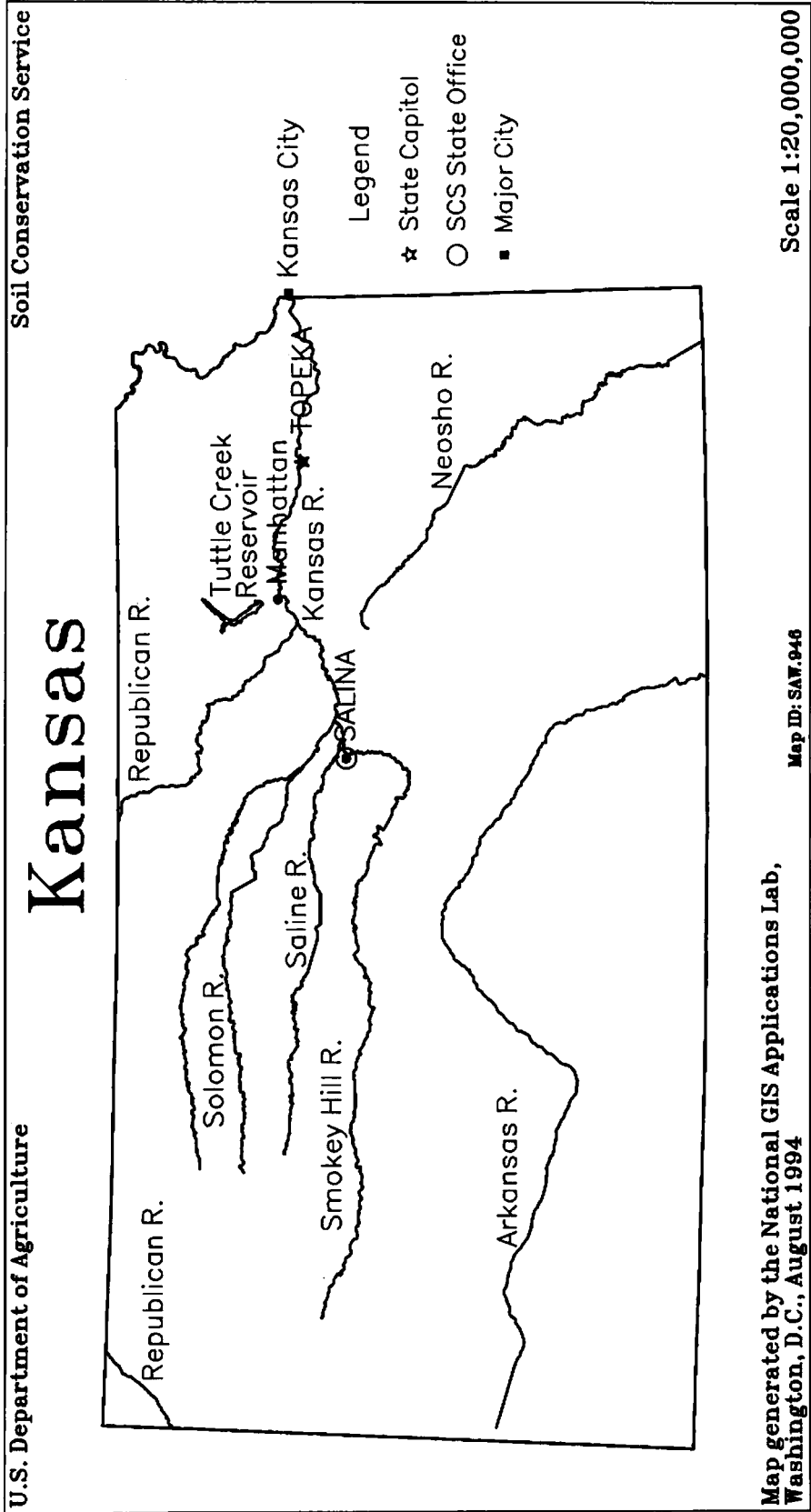
The Small Watershed Program (P.L. 566) has been popular in Kansas since its inception in the mid-1950's. Organizations like the State Association of Kansas Watersheds have consistently supported the Service's efforts in this area. SCS personnel credited these projects, which included measures ranging from small dams to land treatment practices, with preventing greater flood damage. Watershed work was also the focus of public affairs efforts in the Sunflower State. Over seven hundred dams have been built in Kansas since the 1954 law which authorized the program. The complete watershed projects, such as Nebo Creek, Frog Creek, Cross Creek, Irish Creek, Upper Verdigris, and White Clay-Brewery-Whiskey were all credited with reducing local flood damages by sixty-five percent or more. Many sources compared damages in 1993 to the worst previous flood, that of 1951, and emphasized that water levels rose and fell at a slower rate after the P. L. 566 work was completed.²⁷² For example, the Lyons Creek Joint Watershed Number Forty-one, with thirty dams protecting almost twelve thousand acres, provided about \$250,000 worth of benefits in damages prevented in 1993. The Sand Creek watershed project was credited with preventing \$286,000 worth of damages. A project now almost forty years old, the Switzler Creek Watershed, allowed only minor flooding in the town of Burlingame. A more recent accomplishment, the Turkey Creek project, was completed only in 1992. It covered eight thousand acres; its dams held and then slowly released waters that would have caused flooding along the creek in the past.

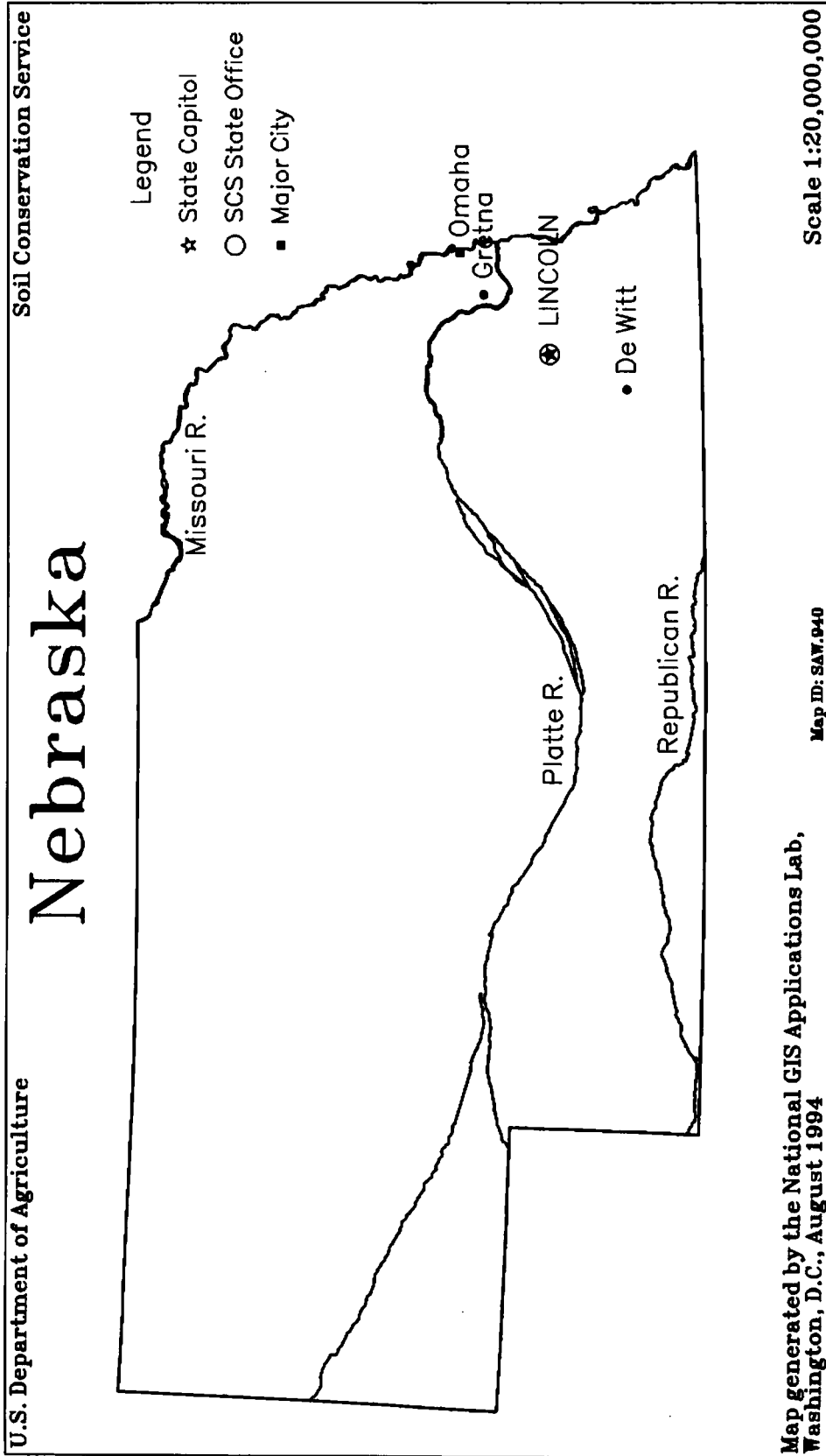
Directly to the north, Nebraska's disaster came from two sources: ice jams in the Platte River during the spring and heavy rainfall in the spring and summer. The floods in Nebraska began in March of 1993, earlier than almost any other place in the Midwest. Even before the rainfall of spring and summer, some farmers determined that they would be unable to plant in some areas of eastern Nebraska or that their harvests would be below average.²⁷³ Eventually, fifty-one counties were declared disaster areas by the federal government. Most flood damage was in the southern and southeastern part of the state.

²⁷¹ See the section entitled "Flood Control and Floodplain Management Debates" for information on how the Interagency and SAST reports evaluated the flood control or prevention values of various SCS programs.

²⁷² Tim Christian, SCS Public Affairs Specialist, "Watersheds Save Property, Money," *Abilene Reflector-Chronicle*, April 29, 1994.

²⁷³ James Ivey, "Farmers May See Tax Relief if Floods Prevent Crops," *Omaha World-Herald*, March 27, 1993.





Overall, the extent of damage which was eligible for EWP assistance in Nebraska during the summer of 1993 was less than in states to the south and east. Even in late July, the state office had received no reports of failure of levees, dams, or channels.²⁷⁴ As was the case in Kansas, Nebraska staff emphasized the benefits of the Small Watershed Program. One P.L. 566 success in the Cornhusker state was the Swan Creek project area, where eleven SCS-designed dams contained water from sixty thousand acres of drainage above the town of Dewitt, thus reducing flood damages dramatically.²⁷⁵

As the requests for assistance began to roll in, however, SCS devoted its initial flood recovery efforts to twelve Natural Resource Districts in the eastern part of Nebraska. A meeting was held in early August which brought personnel from all these districts and SCS together to begin the EWP process. EWP Teams were established for each district. In some areas, Service personnel used National Guard helicopters to survey damage. By November of 1993, thirty-two projects were in progress. In total, the Service approved sixty-nine requests for assistance (of eighty-two received). The work was split between debris removal (forty-four percent) and erosion control (fifty-six percent). Nebraska did not require outside engineering assistance for its EWP efforts for two reasons. First, the engineering staff at the state office and in the field had obtained the type of experience vital for flood recovery work through their Small Watershed Program projects. Second, the use of a computer-aided drafting and design system (CADD) increased staff productivity.

One of the largest EWP projects in Nebraska was the streambank stabilization work done on the Elkhorn River near Gretna, a town about twenty-five miles southwest of Omaha. Portions of the banks of the Elkhorn eroded four hundred feet in 1993, threatening homes and eating away at valuable farmland. Ice jams early that year on the river caused water to back up. This problem was exacerbated greatly by the heavy rainfall in mid-1993.²⁷⁶ The Service worked with the Papio-Missouri River Natural Resources District and Sarpy county to build fifteen jetties and install other streambank protection measures costing almost \$250,000.²⁷⁷

²⁷⁴ Karl F. Otte, Acting Director, Watershed Projects Division, to Leonard P. Mandrgoc, USDA Emergency Coordinator, Office of the Assistant Secretary for Administration, Report #15, July 21, 1993.

²⁷⁵ Scott Hoag, Jr., Watershed Projects Division, to Leonard P. Mandrgoc, USDA Emergency Coordinator, Report #19, July 27, 1993.

²⁷⁶ EWP program rules stressed that SCS was to repair structures back to the pre-disaster conditions only. In situations such as this, however, it can be difficult to determine what was damaged by ice jams and what was harmed by rainfall or flooding a short time later.

²⁷⁷ C. J. Hutchinson, "Project Proves Itself Already on Elkhorn," *Omaha World-Herald*, March 3, 1994.

As was the case in other states, complaints about federal responsiveness to levee repair requests in Nebraska were frequent. Also, misunderstandings over the change in Corps policy in 1986 led to a great deal of uncertainty over responsibility for repairs both among the public and in government. One particularly sensitive point was that when any levee was repaired by a federal agency other than the Corps, that entity became responsible for all future repairs.²⁷⁸ For the Service in Nebraska, however, this was not a major problem as only one levee was eligible for repairs under the EWP program.

In Nebraska, the emergency wetlands effort focused on thirteen counties in the eastern part of the state, that is, those areas hardest hit by the floods. The state office determined that an easement value of \$600 per acre would be offered to landowners who wanted to participate in the program. The first sign-up was in December of 1993. SCS expected and received relatively few offers from landowners; most opted to restore the productivity of the land themselves. While many farms suffered crop damage due to excess moisture, fewer met the key EWRP criteria of having been inundated.

The experience of Nebraska also highlighted the limitations of the EWP program. As one article pointed out, returning agricultural land to profitability meant much more than repairing the physical structures which kept flood waters off the land; it also required restoring the topsoil which had been washed away by floodwaters.²⁷⁹ Work of the latter type, which usually focused on individual farms, was not part of EWP, but was covered by the ECP, which combined SCS technical expertise and ASCS funding. While farmers received aid for crop losses in 1993, the long-term economic health of many farms remained in doubt due to high land restoration costs and lowered productivity.

²⁷⁸ Jim Smiley, "Landowners Welcome Funding for Repairs to Broken Levees," *Omaha World-Herald*, November 21, 1993.

²⁷⁹ Art Hovey, "Flood-Stolen Soil not Returning," *The Lincoln Star*, December 1, 1993.

Missouri

Missouri was one of the states hardest hit by the floods of 1993. Except for a few counties in the Ozark country along the southern border with Arkansas, President Clinton declared the entire state a disaster area. As reported in August of 1993, over three thousand businesses were economically damaged by the flood, twenty-five thousand people were laid off, and three thousand homes were destroyed. Damage to an estimated 1.3 million acres of cropland was expected to have ripple effects on the state's economy through the industrial and transportation sectors, possibly resulting in losses of half a billion dollars and seven thousand jobs.²⁸⁰ As the water slowly receded in the fall, the SCS added its own statistics to illustrate the devastation in their state:

- 3.1 million acres flooded
- 1,700 miles of ditches blocked with debris
- \$250 million in crop losses
- 60 percent of the cropland (455,000 acres) in the Missouri River floodplain damaged by sand deposits and scouring
- 59,000 acres covered with two feet or more of sand
- 465 breaches in Missouri River levees (along 498 miles of river).²⁸¹

It is in the context of the economic effects of this disaster, not just the environmental, that SCS's response must be considered. The Service's EWP work was a vital component in helping the state regain its economic footing.

Initially, staff in the SCS state office in Columbia, Missouri, estimated that it would require \$4 million to repair upland areas (terraces, ponds, etc.) and \$10.6 million for ditch repair. They stated that 364 miles of ditches were plugged with debris and 1,262 miles were filled with sediment. More than any other state in the flood area, Missouri relied upon levees to protect industry, homes, and valuable agricultural land. SCS first estimated that \$6.6 million was needed for upstream tributary levee or secondary levee repairs.²⁸² Approximately 2,091 levee breaks plagued upstream tributary river systems or secondary levees on major rivers. The average break was 1,916 feet long. At this time, SCS in Missouri was at least considering work on secondary levees on

²⁸⁰ Statement of Abner Womack, Co-Director, Food and Agricultural Policy Research Institute, University of Missouri, in *Federal Response to the Midwest Floods of 1993*, 32.

²⁸¹ "Impacts of the 1993 Flood on Missouri's Agricultural Land," Soil Conservation Service, Columbia, Missouri, October 1993. See also, Keith Schneider, "Legacy of '93 Flood: Sand, Sand, and More Sand," *New York Times*, June 9, 1994.

²⁸² Lloyd E. Wright, Director, Watershed Projects Division, to Leonard P. Mandrgoc, USDA Emergency Coordinator, Report #33, August 19, 1993, and Report #36, August 30, 1993.

Missouri



- Legend
- ★ State Capitol
 - SCS State Office
 - Major City

Map generated by the National GIS Applications Lab,
Washington, D.C., August 1994

Map ID: SAW.941

Scale 1:20,000,000

major rivers. The number of potential levee repairs quickly soared beyond the Service's funding. The Corps reported that of 795 non-Federal levees previously in the Corps system, only 150 were eligible for repair under their auspices.²⁸³ This increased the number of citizens seeking help from the Service

Despite high water that hampered EWP efforts, by early December about 450 DSR's had been completed in Missouri--about fifteen percent of the total DSR's completed by SCS in the nine flood states. Over half of these were for levee repair. Also important were requests for assistance for debris removal. Many streams were blocked due to trees, sand, and man-made debris (including in at least one instance a mobile home). As was the case with breached levees, debris threatened to cause more flooding in the event of further rainfall.

Missouri proved second only to Iowa in the number of Damage Survey Reports received (1,182), the number of eligible projects (510), and the dollar amount devoted to EWP efforts (over \$18 million). By July of 1994, well over half of the eligible projects (329) had already been completed. In the realm of levee repair Missouri stood out. Almost two hundred of the 452 total eligible repairs were in this state. Since SCS levee repair focused on the smaller tributaries, however, the average levee repair contract was less than \$30,000.

Even before the extent of flood damage became clear, the Service prepared to respond. In July of 1993, state office staff provided information to the public on the EWP program, its purpose, and eligibility requirements. By August, the framework for EWP work had been created. Under the overall supervision of state conservationist Russ Mills, the State Response Team was led by assistant state conservationist for Water Resources, Mike Wells.²⁸⁴ He organized an Emergency Operations Center in the same building as the state office under Ross Braun, water resources planning specialist. The Center coordinated the state's EWP efforts, maintained records of DSR's and applications for assistance, as well as handled contracting duties. It also served as a focal point for managing the work of SCS employees shifted from other states to assist with EWP work. For example, contracting specialists with experience in previous major disaster recovery work, including Hurricane Andrew in Louisiana, came to Columbia. When the Center opened, it contained a manager, three contract specialists, an

²⁸³ Edward J. Hecker, Chief, Readiness Branch, Operations, Construction and Readiness Division, Directorate of Civil Works, Corps of Engineers, "Memorandum for the Record."

²⁸⁴ For a brief overview of EWP plans in Missouri, see "Soil Conservation Service Opening Emergency Offices to Help Landowners Restore Pre-Flood Conditions," *Agriculture Tomorrow* (September 1993): 1.

administrative assistant, and two clerks. On September 1, 1993, a short EWP procedural handbook was published in order to guide SCS employees on administrative chores such as overtime and travel expenses, mobile telephone numbers for key staff, and duties at the state and local levels.

Normally, SCS activities in Missouri are divided into seven areas, each area encompassing ten to twenty counties. The state office set up seven Emergency Project Offices, most of which were in the same location as the area offices. In order to distribute more evenly the workload among areas and place offices closest to the greatest need for assistance, the area boundaries were modified. SCS combined the far southeast area, which suffered relatively little flood damage, with one to the north while parts of four areas were combined around an Emergency Project Office in the central part of the state. Each office had a staff which included a lead engineer who also served as the office manager, another engineer, a lead survey technician, a lead inspector, and a clerk. They could call upon specialists such as biologists, soil scientists, cultural resource coordinators, and other engineers. Finally, the local field offices played a vital role as the first point of contact for most citizens. Their duties included completing DSR's, assisting sponsors with the application process, and providing information to the local media.

Levee repair was a major concern in Missouri. Cordes Potter, civil engineer at the state office, was the Service's representative at FEMA's Disaster Field Office in Earth City (near St. Louis, Missouri). He worked closely with the Corps of Engineers in order to develop a unified approach to levee repair. SCS remained, however, unclear about how the Corps determined which levee districts were not in its program due to improper maintenance. Further meetings with Corps staff in Kansas City proved necessary. The Kansas City District had jurisdiction over the Missouri River basin from its mouth just north of St. Louis westward in an expanding triangle that covered about half of the state. Mike Wells presented Corps staff with several issues at a meeting in late September. First, it would be difficult to follow rigidly the 1986 Memorandum of Understanding between the two agencies since it was never put into effect. This echoed concerns raised by national headquarters staff.²⁸⁵ Second, the Corps threatened to refuse to repair any levee which the Service had dealt with. For example, as part of a small watershed project, SCS placed a single pipe through a levee in the Sunshine Levee District (west of Lexington along the Missouri River). The Corps stated that, according to its own rules, the entire levee could technically become an SCS responsibility. Also, the Service had performed some EWP levee repairs after the 1986 flood. Wells stressed that this work did not mean that SCS was "taking over" these levees or that the Corps should refuse repairs on that basis. SCS had neither the funds nor the intention of performing work on

²⁸⁵ See the previous section in this work, "Levee Policy."