SPECIAL INTEREST EVENTS

This section includes a variety of interest stories submitted to the Committee. These special interest stories represent only a small number of similar stories that have occurred in doing the soil surveys over the years. The parts by Don Yost and Bob Pollock are taken from a personal story of their life. The section on Soil Correlation is a National overview of the organization over time and process used.

The history and activities of the Nebraska Society of Professional Soil Scientists, the selection of an official state soil - "Holdrege," and Land Judging are included in this section.

Career of A Soil Scientist
By: Don Yost

I worked as a Soil Scientist in several locations in Nebraska from 1949-1980 under the Bureau of Plant Industry and Soils and the Soil Conservation Service. In 1986 Don wrote a book "Stories by Grandpaw Don." This brief resume of Don's career as a Soil Scientist is from this book.

My first full-time job after finishing college was with the Farm Security Administration - USDA in June 28, 1941 at Hugoton, Kansas at a salary of $1,640 per year. During World War II from September 8, 1942 through December 8, 1945 Don was in the United States Army.

I took advantage of the educational benefits provided to veterans of World War II and was accepted into graduate school at Kansas State College under the GI Bill of Rights.

I completed the spring semester of schooling there and enrolled in summer school. Officially I was in graduate school, but actually I wanted a job. One of the courses that I took and enjoyed was "Development and Classification of Soils." During the spring of 1946, Dr. James Thorpe, Principal Correlator of the Great Plains Regional Office of the Bureau of Plant Industry, Soils and Agricultural Engineering (BPISAE) came to the campus to interview students who were qualified and interested in becoming soil scientists with that organization. I talked with Dr. Thorpe and indicated an interest. Two weeks later, while still in summer school, I received a telegram asking if I would accept a position with the BPISAE as a soil scientist, P-1 grade. I was glad to accept. I reported to Knoxville, Tennessee, on July 15, 1946 and was shortly thereafter reassigned to Marks, Mississippi. My beginning salary with the new organization was $2,644.80 per year.

I was challenged and anxious to go to work. There was one big problem, though, and that was the initial move for my family. The climate in Mississippi was hot and humid. But I was learning what it meant to be a soil scientist and was enjoying the work.

During the spring of 1947, our work crew completed a soil survey of Quitman County, Mississippi. I was transferred to Cleveland, Mississippi, a larger, more prosperous town, and we were glad to make the move. The weather was still hot and humid.

After moving to Cleveland, I received a promotion to "party leader" of a new soil survey in adjacent Sunflower County. We were allowed to continue living in Cleveland. A new employee of the State of Mississippi, James C. (Claytie) Powell, was assigned to work with me. Claytie and I became good friends and enjoyed working with each other. On July 25, 1948, 1 was promoted to soil scientist, P-2 grade.

An interesting experience that Claytie and I had was mapping the soils on the state prison farm at Parchman, Mississippi. The farm was a large one, consisting of perhaps 20 sections of land. We could go anywhere necessary, with the one exception that we must never move between a guard and the prisoners. The farm consisted of about 14 camps of prisoners who worked the land. During the time that we surveyed soil on this "farm," we did not bring our lunches. We were advised that we should eat at the home of the warden as his guest. Each morning we stopped at his home and told the cooks to prepare 2 additional dinners. Everyone ate at the same time, around a huge oblong table, and the food was served family style. Usually there were several choices of meat, salads, vegetables and sometimes 3 or 4 kinds of dessert. All was excellently prepared and so delicious. For dinner one day we had squirrel and dumplings. In addition to Claytie and I, other guests for dinner would commonly include state senators, other elected state officials, guests of the State, and once the governor of Mississippi ate with us. Early arrivals for dinner would wash up and then sit in the parlor to chat awhile. The waiters, waitresses, and kitchen help were prisoners (trusties) and wore white uniforms. Claytie and I enjoyed eating our noon meals at Parchman.

One day I received a telephone call from the soil correlator for the Southeast Region. He asked me if I would consider a move to the Midwest, where they were beginning a new soil survey program designed to delineate land suited to development for irrigation. The program was in cooperation with the Bureau of Reclamation. Without hesitation, I said that I would like this new opportunity. About a month later (in August 1949 1 believe it was), I had the firm offer of a transfer to Grand Island, Nebraska. Lois and I were excited as this was an opportunity to leave the Deep South and to move back to the Midwest, where we would feel more at home.

I was designated as party leader for the soil survey of Hall County, Nebraska, and soon after my arrival, other members of the survey team began to arrive. The other men who helped with this survey were Francisco Matanzo, Fritz Bean, Hall Hill, Harry Paden, and Bob Pollock. We began the survey in the fall of 1949. It was completed about 3 years later. I wrote my first complete soil survey report without an outline or format of any kind to guide me. I designed my own outline. Following completion of the Hall County survey, the survey team was disbanded and I was assigned other duties surveying soils on a farm-to-farm basis in Adams, Webster, Merrick, and Washington Counties. During the latter part of the Hall County survey I was promoted to GS-9 grade.

On November 23, 1952, I was transferred from BPISAE to the Soil Conservation Service. This move was part of a mass transfer of all personnel and equipment of the Soil Survey Division of BPISAE. The purpose was to make the soil survey program of the United States more efficient. It was a good move. Although there were a few bad feelings that had to be dealt with, the move generally went smoothly. I had no serious problem with the transfer. I had always been strongly supportive of the conservation movement and was now glad to be a part of it in a personal way. Some of the SCS men in the field kidded me a bit about being from the "BPI," but I didn't mind that too much. The soil classification system that we were going to follow was the one that I had been trained in at BPI and so I actually had an advantage over the SCS fellows. I made a good effort to adjust to SCS, and as the months and years rolled along, I got along fine and was accepted well by the people in my new organization. It wasn't long until I considered myself as a good and regular SCS employee.

During our third year in Grand Island, I began to have serious problems with osteoarthritis in my knees. This was a worry for me. However, at about that same time, two new inventions came on the market. One was a hand probe, which replaced the "backbreaking" soil auger. The other was a hydraulically operated power-probe, which was mounted on the side of the pickup truck. With it, the operator could bring to the surface for his study and inspection a core of soil 2 inches in diameter and 3-1/2 feet long. I credit the invention of these two gadgets for my ability to remain in soil survey work. Without them, I would have been forced to find another kind of work.

Once when I was surveying soils in Hall County, during the springtime, I cut a deep gash in my foot while digging a hole. The wind was blowing very hard that day, and it caught the flat side of my sharpshooter and deflected it onto my boot. The spade cut through the leather and into the arch of my foot. I sat down, took off my shoe, saw the blood, put the shoe back on and drove to the doctor in Grand Island. The government paid all the bills since the injury was in the line of duty.

Once on a special soil-sampling trip, it was necessary to dig a large pit in order to sample the soils properly. I had tried to obtain permission of the landowner, but no one was at home. I knew the farmer well, and so we went ahead with our job, knowing that he would certainly give his permission. We dug the pit, sampled the soil horizons, and then ate our lunch. After a short rest, we carefully filled the pit, packed the soil, and went on our way. One day, the sheriff of Hall County stopped in my office and asked about the kind of work that we were doing. We explained the soil survey program, noting that it involved examining soil profiles at intervals across the landscape. He wanted to know how big the holes were. We said that they were usually about 12 inches in diameter and from 3 to 5 feet deep. He thought for a moment, then asked, "Do you ever dig any really big holes, like 7 feet long and 4 feet wide?" I thought a bit and then acknowledged that in our special sampling program, we dig that kind of pit. He asked if we had dug such a pit on a certain farm between the towns of Wood River and Cairo about a month previously. I said, "Yes, we had." He began to laugh. It seems that a woman had disappeared and his office was searching for her. The news of her disappearance had been in the papers and the county residents knew about the problem. Our farmer friend had seen the disturbed soil on his farm. It looked about the size of a grave, and he began to arrive at certain unwarranted conclusions. He called the sheriff and told him what he had seen in his field and about his suspicions. The sheriff and his deputies immediately went to the farm and with spades

and shovels, they opened that pit again, expecting to find the body of the missing woman. They even dug out the steps we had originally made to make entry into the pit easier. When all they found were some sandwich wrappers and paper sacks, they still did not know why anyone would dig such a large pit in a field. They and the farmer were even more baffled now than before. When the sheriff left my office that day, he laughed and said, "Now the next time you dig a pit, be sure you get the farmer's permission."

During the spring of 1958, a new soil survey program was beginning in an area of the Great Plains where soil blowing was severe. This included the Panhandle of Nebraska. Lloyd Mitchell, State Soil Scientist of Nebraska, asked me if I would like to move to Scottsbluff, to be party leader of the new survey in Scotts Bluff County. Lois and I talked about this for only a few minutes before readily agreeing. We were excited about the move to another part of the State and about the challenge of a new environment, new friends, and a new survey.

The soil survey of Scotts Bluff County was so different from the one of Hall County that it seemed like I was in another country. But I had good personnel in my survey party and we finished it in about 3 years. Helping me in the survey were Louie Buller and Dennis Brown. During the course of this survey, I was promoted to GS-11 grade. After completing the manuscript of the report, I was again assigned to surveying soils in nearby counties, mainly on a farm-to-farm, request type basis. This continued for about 9 years, during which time I surveyed soils in 12 additional counties of western Nebraska.

Once when driving my truck over some stony rangeland, I hit a large stone that was centered between the ruts of a trail. The tie-rod of the truck was bent so badly that I could not drive the truck. I removed the tie-rod, walked several miles to a ranch headquarters and asked the lady there if I could use a hammer and some tools in their shop. I straightened the tie-rod as best as I could. Then I returned to the truck, reinstalled the tie-rod and continued surveying soil. That night I took the truck to the garage to have the tie-rod straightened and the wheels realigned, and the mechanic said that everything was perfect just the way it was.

During each mapping season, I would invariably get my truck stuck three or four times. I have been stuck in dry sand, in sticky gumbo, and in meadowlands of the Sandhills. I never met a farmer or rancher who refused to pull my truck out. I always offered them money for their service, but they would refuse when I told them that I was with SCS.

One day in the spring of 1970, 1 again received a telephone call from Lloyd Mitchell, State Soil Scientist in the SCS State Office. This time he wanted to know if I would consider moving to Lincoln to be an editor of soil survey manuscripts. I called Lois to ask what she thought about moving, and she said, "I think we should accept. It's an opportunity." The next morning I called Mitch and told him I would accept the offer. We sold our house (this time at a price above what we had paid) and were soon packed and ready to move again. Lois did almost all of the packing and making arrangements with the moving company as I was working out of the county during most of those last few weeks.

I edited soil survey manuscripts, one after the other, for 5 years. I enjoyed the work, but it was all indoor work and I was not accustomed to that. In the meantime, Mitch retired and Jim Culver was appointed as the new State Soil Scientist. I requested fieldwork in addition to the office work. Soon after, some staff responsibilities were reorganized and my requested change became possible. I was then responsible for field reviews, for soil correlation (naming of soils), and for soil classification in the counties assigned to me. This arrangement allowed me to travel throughout most areas of the state and to help the field men with surveys that were in progress. I continued to edit manuscripts for those counties under my supervision. The new duties were wonderfully suited to my needs, and I was promoted to GS-12 grade.

I continued my work until August 30, 1980, when I retired from federal service. I had been thinking about retirement for several years but had been enjoying my work and so just kept on working. Inwardly, I began to feel that NOW was the right time for retirement. I had worked a total of 39 years, 2 months and 1 day for the federal government. My job in the State Office was assumed by Robert Pollock, a good friend and working associate whom I had known ever since moving to Nebraska 31 years before my retirement.

Dain Root, Area Conservationist, Broken Bow, Nebraska greatly assisted with the development and management of the Accelerated Soil Survey Program in Area II. 1975.

Break time during a Progress Field Review in Northwest Nebraska. L-R: A Forest Service Soil Scientist, Don Yost, Chuck Mahnke, Dave Hoover, Craig Derickson, and Dan Shurtliff.

Don Yost and Bob Pollock, Hamilton County Soil Survey, Aurora, Nebraska

Hamilton County Soil Survey Field Review. L-R: Roger Hammer (standing), Ted Pickering, Jim Culver, Bob Pollock, Dick Base (standing), and an unidentified person.

Career of A Soil Scientist
By: Bob Pollock

My first contact with the Soil Conservation Service (SCS) was when the administrator for personnel visited the East Campus in the spring of 1947. He was inquiring to see if any students wanted to leave school and go to work for SCS as Conservation Technicians with a wage of $1.92 per hour. Three of the students left school at mid-term. I almost made it four but decided to stay in school.

The next encounter was when I registered for a summer field course. I was assigned to the SCS office in Butler County. Part of the training was to spend two days with a soil scientist. I was impressed by the way he could kick the surface soil with his boot and state that it was a silt loam or silty clay loam. The number of subsurface observations were limited.

There were ten to twelve students who graduated in December 1949 who wanted to go to work for SCS. We were all told that SCS wasn't hiring anybody at that time or in the near future. The first of January I took a job as an instructor for teaching Ag classes to WWII veterans who had signed for on-the-job training at Wahoo, Nebraska. Within three weeks I received a letter from the state SCS office wanting to know when I would be available to go to work as a Soil Scientist. My first choice for a job was to be a conservationist and second was a soil scientist. I returned the application stating I wouldn't be available till the first of May. Three days later I received a letter back advising me that I could start to work May 1st, at Kearney. It wasn't until after I started working for SCS, that I realized they didn't really want a soil scientist to start in mid winter, they wanted someone after the fieldwork had started. That is why they accepted my three months' delay before going to work.

I started to work the first of May 1950, and was assigned to work three-fourths time mapping soils with the Bureau of Plant Industry (BPI) and one-fourth with SCS. The BPI was mapping the terrace sod for the Mid State Irrigation project in Buffalo, Hall, and Merrick Counties. John Elder was the party leader in Buffalo County and Don Yost was the party leader in Hall County for the BPI. I shared a pickup with Hal Hill, BPI soil scientist, the first summer. Progress was about a quarter section a day because all the holes were dug with a sharp shooter spade and orchard auger to a depth of five feet, with more than half the holes logged on each side of the 13-inch to the mile aerial maps. The other one-fourth of my time was mapping soils for conservation farm planning. Soil Scientist Bill Bryan, SCS, also was located at Kearney doing soil mapping for conservation farm planning in seven other counties.

The state organization of SCS in 1950 consisted of E. G. Jones as State Conservationist, Art Marquardt and John Hall as Administrative Officers, Sid Burton as State Forester, D. Vallicott as State Engineer, and secretarial personnel. These were all located in the Rudge & Guenzel Building. Lloyd Mitchell was State Soil Scientist, with an office in the old Nebraska Hall on the University of Nebraska campus. The BPI correlation staff was also located at Nebraska Hall. The SCS Regional offices were also located in the Rudge & Guenzel. The Regional office also had what they called Zone Teams. They assisted with special problems throughout the Region.

The outstate field offices consisted of 14 Districts, with a title of District Conservationists (later in 1953 to be called Area Conservationists with a reduction to 8 areas. The county Soil Conservation field offices had a title of Work Unit Conservationist (later to be call District Conservationist). In the late fifties the SCD name was changed from Soil Conservation District to Soil and Water Conservation District. Soil Scientists and Engineers generally located with the Area Offices, but those located in the county field offices were considered Area Staff.

The mapping and publishing of soil survey information were lagging behind in the late 50's. Generally, throughout the soil survey program, the position of Soil Survey Supervisor was discontinued and the people were assigned asParty Leaders on Progressive Soil Surveys. I was assigned as Party Leader in Buffalo County in the fall of 1958. During the mid 50's I mapped soils with Don Yost on the bottomlands in Hall County. In 1961, I was assigned to be Party Leader in Thayer County at Hebron. The field mapping was completed for Thayer County.

During the summer of 1964, I spent 5 months mapping soils in Alaska. I started the progressive soil survey in Jefferson County in the fall of 1964, and the field mapping was completed in 1968. The progressive soil survey for Nuckolls County was started in 1969, and the field mapping was completed in the spring of 1973. Later that year I was assigned Party Leader for the Merrick County Progressive Soil Survey. The field mapping was completed in 1977. The progressive soil survey for Hamilton County was started in late 1977, and the field mapping was nearly completed in late 1980. I was assigned to the State Office as a soil specialists in 1981. The career as Soil Scientist with the Soil Conservation Service was frozen in concrete the night of my retirement with a temperature of 20° below and a wind chill index of 50° below.

Soil Scientists' "Tidbits"

? The National Soil Survey Laboratory was located in Mandan, North Dakota, in the early 1950's. The lab sent a crew to Hall County to take soil samples for permeability studies. They were working with Party Leader Don Yost. The field procedure for obtaining these samples was to dig a pit that was 30" wide, 60" long, and 48" deep. The major soil horizons were sampled as the pit was being dug. The sampling took up the better part of a day. Yost had obtained permission from the landowner to take the samples. After the sampling was completed, the pit was filled and the surface area was mounded for settling. After the sampling crew left the site, a curious neighbor had been watching the activity and decided to visit the site to see what had been going on. Since the site looked like a grave, he called the Sheriff to investigate the site and the government vehicles that were there.

? The Upper Salt Creek special soil survey project was started in early September 1953. The party was informed by the State Office that no annual leave was to be taken during the seven weeks of the detail. Since the detail was going to last more than 30 days, we would be on reduced per diem. The regular per diem at that time was only $5 a day. We all rented rooms by the month around 17th & R streets. Lyle Davis joined the survey party a week late. He had been informed about the no leave policy. He had a room at the same house as the rest of us. We ate our evening meal together in downtown Lincoln. The first evening he was there, we were all outside waiting for him to go eat. He finally came out and stated that he was talking to his wife in Hebron. His wife told him that his hunting dog was so disturbed about him being gone that it was tearing the curtains off the wall, so she let the dog outside and the dog went to the garage and came out carrying his shot gun in his mouth. He told Herb Kollmorgen he would have to take some leave to take his dog hunting. The dog never got to go hunting until after the survey was completed.

? Herb Kollmorgen was the party leader on the Upper Salt Creek survey. He was working with Kenny Good one afternoon. They had entered an area of native grass pasture at the far end of a cornfield. In the cornfield two men were picking corn by hand with a team and wagon. Herb and Kenny entered the pasture three or four hundred yards away and were digging a hole when they heard the rumbling of the team and wagon coming towards them, with two men hollering and waving their arms. Both men jumped off the wagon before it stopped and over the fence they came. One grabbed the map board from Kenny and tossed it, and the other man tried to grab the spade from Herb but he was able to keep it. Herb and Kenny was escorted by this father and son all the way back to the road with a lot of non-printable words.

? Bob Pollock had an experience with one of the local landowners when mapping on the Upper Salt Creek survey. His quarter was the last to be mapped on the field sheet. Most the farmers living around a quarter section of land on my map told me that I would never get permission to go that certain quarter section. They said the owner was two bricks short of a load. The neighbors said that he was hostile to any form of government. During WWII when the planes used to come off the Lincoln air base and fly over his farm, he would shoot at them with his 12-gauge shotgun. The farmstead was in the middle of the quarter section.

The gate on the lane to his house from the south was always locked. He also had another lane from the house to the west road but had no gate to the county road. He drove a 1937 two-door Ford sedan. Most of the time when he was driving on the county road or on his lanes, he would always be honking the horn -beep beep beep. I guess this let the neighbors know he was moving about. Many of the fenceposts were surrounded at their base with spent shotgun shells. I asked Herb to come along that afternoon when I was going to contact the farmer. The gate was locked and the Ford wasn't sitting near the house, so we knew he wasn't home. We sat there for about ten minutes, hoping he would come home. Within a few minutes you could hear the beep beep and I said here he comes. He pulled into the driveway to open the gate, that was when Herb and I approached him and introduced ourselves. First nothing was said about our mission. Anybody who has ever worked with Herb knows how diplomatic he can be. Herb was able to get him to explain the purpose of the red and white cloth that was on a cross arm nailed to a long pole fastened to about every fifth post along the road. A high voltage power line also ran along the fence line. The red cloth indicated danger on the road side of the fence, and the white cloth indicated the area that was safely away from the power line. After visiting with him for fifteen or twenty minutes, Herb in his very best diplomatic way asked him if we could go on his place to complete a soil map. His response was that he had no problem with that. We could go any place on the farm and stay as long as we needed to. It turned out to be another afternoon of soil mapping.

? Bob Pollock and Orville Indra kept a secret for more than 20 years about an incident that happened in the hills of Boyd County. We were field checking a soil map. Pollock was driving his new 1955 Ford pickup. We had pulled into the field at the top of a long sloping hill to check on the location of some slope lines. After about ten minutes we decided to get out and check the soil profile. We had our back to the pickup while digging the hole. The next thing we observed was the pickup moving down the hillside toward a drain. The driver had forgotten to put the vehicle in gear after turning off the motor. We proceeded to where the pickup came to rest at the bottom of the drainageway, which had a ditch three feet wide and four feet deep. The front wheels were suspended in the ditch. A road maintainer was working nearby, so we were able to get him to pull the pickup out. The principal damage to the pickup was the front bumper bent back towards the right front wheel. A log chain, a tree, and a fast reverse made it driveable. I returned to Kearney later that week and purchased a new bumper. This is what you call an in-house incident. I don't recall any paper trail.

? During the Special Soil Survey detail at Sargent in the spring of 1955, a couple of soil scientists participated in the Wednesday night polka dance at the local community hall. One soil scientist was overheard to say that his wife forgot to pack his dancing shoes, so he had to make the field boots do.

? In the late fifties on a special watershed soil survey detail headquartered in Curtis, Nebraska, two soil scientists, Kenny Good and Dean DaMoude, made a bet of some kind, with the loser buying the tickets to go to the movie. Kenny lost the bet. That evening Dean was ready to go to the movie, thinking they both would go. Kenny walked with Dean to the theater, bought one ticket, and bid Dean farewell.

? Ross Greenawalt was on a progressive field review in Custer County, accompanied by Merritt Plantz and Duane Reike. They were in a field of tall corn checking mapping completed by Reike. The soil profile was not in accord with the map symbol. Ross was always ready to give the mapper the benefit of the doubt when checking field mapping. He suggested they move further into the field, so he and Plantz proceeded to check other locations. Reike never did catch up with them, so they backtracked to the first site and then to the car on the road. He was nowhere around, so they called out to him but got no response. After a half-hour of waiting they returned to Broken Bow. He had gone to the road and hitchhiked a ride into town. The next day Ross returned to Lincoln but was not a happy camper. He turned the matter over to Lloyd Mitchell, the State Soil Scientist. Within a short period of time Mitch returned to Broken Bow. Strict agreed-on items were set up for Reike to follow in his mapping and collecting of support data, such as 232's, etc. Six weeks later Mitch returned to Broken Bow for a progress review. It was in the middle of the afternoon, and Mitch was going over the 232's and noticed the color notations were written 3/2 10YR. His concern turned to anger when he got the response from Reike that he would change the sequence of the color notation when he recopied the 232's. Mitch's response was that the 232's were field notes and were not to be recopied. Reike got up from his desk and left the office without saying where he was going. He had gone home. The next morning Mitch stopped by the SCS office but wouldn't go in. He and Plantz visited by the car. Reike's decision to take educational leave that fall was not by choice.

Dave Vyain, Soil Scientist, Valentine, NE

? Upon arriving in Nebraska, I worked on the Soil Survey of Cherry County, during the period 1993-1995 and of my memorable experiences of working in the Sandhills a couple of stories come to mind. One day Phil Young (UNL Soil Scientist) and I were in the Sandhills south of Merriman, comparing aerial photos before going our separate ways to start field mapping. Phil had set six photos atop my truck toolbox and forgot to retrieve them before he left. I took off down the highway in the opposite direction for a few miles and when I pulled off the road to open a gate I spotted the six photos still atop my toolbox. Somehow (miraculously) they didn't get blown off along the way. About fifteen minutes later Phil showed up looking for his photos!

? The other two memorable experiences dealt with turbulent weather conditions for which Nebraska is famous! During June 1993 Phil and I camped out on the Snake River and worked on adjacent maps. We enjoyed 95-100 degree days, spent our evenings observing massive storm cloud formations, and endured high winds, lightning, and hailstones every night!

? The other weather incident happened in August 1994 while staying at first-class hotel accommodations in Merriman. One evening, violent storms were brewing and tornado warnings were out. About 10 p.m., all of the power in Merriman went out just before the storm broke, and believe me there was an ominous sense of foreboding in the air (no pun intended)! If you've ever seen the movie “Twister,” (with the night time storm scenes where a small town in Oklahoma is wrecked), that scenario fit the atmosphere in Merriman that night. Fortunately though, we didn't have a tornado, but those winds packed such a wallop that at times one thought a tornado was approaching. As an afterthought; after experiencing a few summers of Nebraska weather, I think I just might hang up my bucket auger and become a full-time meteorologist and storm-chaser!

Soil scientist who completed the soil survey of private cropland affected by the Farm Bill Program of the 1980's in Sioux County. L-R bottom: Wayne Vanek, Dean DaMoude, Mark Willoughby, Chuck Hammond, and Craig Derickson. L-R top: Francis Belohlavy, Bob Pollock, Dave Hoover, and Roger Hammer.

Students participating in Land Judging - 1983.

National Collegiate Soil Judging Contest in Otoe County, Nebraska - 1981.

Last Ditch Blitz to Complete Modern Soil Surveys for All Private Cropland in Nebraska

In the late 1980s a National project to complete soil surveys of all private farmland by the Soil Conservation Service to carry the requirement of the Farm Bill Program was a high priority. Nationally, funds were redirected to soil surveys, new soil scientists were employed, soil surveys were contracted, and SCS soil scientists were relocated or detailed to the field. Through the accelerated State soil survey program, quality soil surveys were completed for a very high percentage of the cropland affected by the Farm Bill Program of the 1980s in Nebraska. One exception was about 55,000 acres in Sioux County along the high terraces of the North Platte River, which did not have a soil survey. Larry Brooks, Area Conservationist, and Jim Culver, State Soil Scientist, detailed several soil scientists at one time to complete this project. Mark Willoughby, Soil Scientist and then Project Leader for the Sioux County Soil Survey, gave the following excellent briefing on the accelerated mapping of this critical area to complete the availability of quality soil maps to administrate the Farm Bill Program in Nebraska:

"One of the more fun things we did in Sioux County during the course of the survey was called the south Sioux blitzkrieg. There were about 55,000 acres of unmapped irrigated farmland in the southwest corner of the county on the high terraces of the North Platte River. The Scottsbluff Field Office needed the soil data so that the FSA plans could be completed. So in October of 1987 we put together a crew of eight other soil scientists to do a soil survey blitz of the area. The field soil scientists doing the mapping included Dean DaMoude, Bob Pollock, and Chuck Hammond, who came out of retirement to help with the project. Roger Hammer, Dave Hoover, Wayne Vanek, Craig Derickson, and myself were SCS soil scientists who also helped with the work. The project went much faster and worked out better than anybody had planned on. It had originally been thought that we would need time the following spring to complete the mapping, but we were able to complete all the field work in two weeks. We mapped about 15 series and 50 map units and even discovered a new series that I established later on. Our retired soil scientists were in some cases equipped with older pickups that maybe should have been retired too. Dean DaMoude had a hard time keeping his old Dodge pickup running. One evening we were about to send out a search and rescue party when Dean finally got back to the motel an hour and a half later than the rest of us. Craig Derickson had a close encounter of the "third kind" with a red chicken. I was following Craig out to the field one day when all of a sudden a shower of red feathers and a slightly flattened chicken came rolling out from under Craig's pickup. Being superstitious, I was concerned about the Big Red in Memorial Stadium after I saw big red get creamed on a Sioux County gravel road, but I think that they (BIG Red) won anyway that weekend."

Bob Grossman (C) presenting Dick Arnold (L) a plaque for his about 17 years of service as Director of the Soil Survey Division, NRCS. Jim Culver (R), National Soil Survey Center, Lincoln, 1997.

Burt County Soil Survey Field Review, 1973. L-R: Herb Kollmorgan & Orville Jones, Area Conservationists, unidentified person, and Dean DaMoude.

Rudy Hraban, Area Conservationist (L) was a Management Leader in the Accelerated Soil Survey Program. Jim Culver (R). Cheyenne County Field Review, 1982.

Norm Helzer (R) providing information to Dick Arnold, Director, Soil Survey Division, NRCS, at a State Soil Scientists workshop in Arizona, 1994.

Nebraska Society of Professional Soil Scientists

The Nebraska Society of Professional Soil Scientists (hereafter referred to as the society) was organized in 1975. The objective of the society shall be to advance and promote the science of soil and the soil scientist profession by encouraging professional communications and cooperation among soil scientists, allied scientists, other earth scientists, and all other persons sincerely interested in Earth Sciences through the medium of formal and informal meetings, field trips, and other activities.

The first State meeting of the Nebraska Society of Professional Soil Scientists (NSPSS) was held at Kearney on October 16, 1975, at the Fort Kearney Inn. The large attendance indicated a common interest and goal in promoting the professional organization. At that first meeting several committees gave reports. The awards committee will recognize the society members for various achievements that have been made. Communication between the society members will be through a newsletter and with special announcements.

The society accepted the invitation to a joint meeting with the Soil Conservation Society of America and Society of Range Management in Chadron on August 19-21, 1976. Time was set aside for individual society meetings. At several of these joint meetings the Nebraska Society of Professional Soil Scientists organized field trips showing the various aspects of soil and their interpretations. These joint meetings continued until the June 1987 meeting when it was decided to have separate meetings on our own.

At the February 15, 1978, meeting in Lincoln, a design for a banner for the society was approved. This new banner was introduced at the January 20, 1979 meeting. A new logo was approved at the May 4, 1989 meeting. This logo will be used on t-shirts and caps, which were made available to the members.

On June 30, 1979, a soil display case was installed at the Gere Branch Library in Lincoln by Mark Kuzila, Jim Culver, John Overing, and Glenn Borchers. The sponsoring organizations were the Nebraska Society of Professional Soil Scientists, the Lower Platte South Natural Resources District, the Conservation and Survey Division of the University of Nebraska at Lincoln, and Lincoln Chapter of Soil Conservation Society of America.

The highlight of the meeting in the summer of 1984 at Ogallala was the relay race between Jim Culver and Mark Kuzila versus the rest of the soil scientists at the meeting. The soil scientists won the race. We did observe some of the sandhill soils.

On July 9, 1987, a field trip to the Black Hills of South Dakota followed our meeting in Chadron. Approximately 25 members went on the trip. We were able to see soil that weathered from shale, limestone, and micaceous schists, just to name a few of the parent materials. For recreation the softball diamond was used for a game between the soil scientists from the east and the soil scientists from the west. The west won by a score of 21 to 16 with much protest by the losing team.

May 3-5, 1989, a field trip to Iowa was held. About 20 members participated. It gave us a chance to meet the soil scientists in Iowa and to see some of the soils in western and north central Iowa. We also exchanged caps that had our organization logos on.

We had a joint meeting with Kansas in Beatrice, Nebraska on April 14, 1993. The field trip included looking at soils and landscapes in Northeastern Kansas and Southeastern Nebraska.

The unofficial "Last Acre Ceremony" was held on Friday, September 29, 1995, at Mahoney State Park. A total of 55 people attended the event including several of our retired soil scientists. Following the meal, President Corey Brubaker presented Steve Chick, State Conservationist, and a representative of the Conservation and Survey Division at the University of Nebraska with plaques commemorating the completion of the initial inventory of Nebraska's soil resource. He also recognized the efforts of Steve Scheinost and Tyler Labenz in organizing the event and Glenn Borchers for developing a commemorative mug. Following the presentations several individuals then shared slides and stories of soil survey activities in Nebraska. It was indeed a very enjoyable evening and certainly was the highlight of 1995 for NSPSS.

An awards committee was set up to recognize members and others who had made special contributions to the society and/or the soil survey program. The awards are as follows:

1) The "Information" award is an internal award presented to members of the Society who do an outstanding job of reporting soil survey, conservation, and other related activities to the public through oral or written communications.

2) The "Special Achievement" award is an internal award presented to members of the society who have made special contributions to the Society and/or the soil survey program.

3) The "Special Recognition" award is an external award presented to individuals outside the Society who have made special contributions to the Society and/or the soil survey program.

The first Special Recognition award went to Senator Jules Burbach at the meeting on February 1, 1976, in Lincoln. It was for his strong support of the Soil Survey Program in Nebraska, leading to passage of LB180 to provide state money for the acceleration of soil surveys.

4) The "Accomplishments" award is an internal award presented to soil scientists who have contributed significantly to the completion of a modern soil survey

5) The "Bent Probe" award is an internal award presented annually to one member of the Society who has distinguished himself (perhaps through no fault of his own) by accomplishing the unusual or the unexpected. It is not to be presented to cause undue embarrassment or a slap in the face, but is to be on the humorous side. It will consist of a traveling trophy depicting a bent probe. This will be passed from one recipient to another.

The coveted and revered bent probe award has been presented to distinguished members of the society. Orville Indra received the first Bent Probe award on February 1, 1976, for his many years of hard work in completing the Boyd County, Nebraska, soil survey. In 1979 the bent

probe award went to the Box Butte County Soil Survey Party of Charles Mahnke, Dan Shurtliff, Dave Hoover, and Jeff Worm for their extraordinary ability to get stuck. Recognition has been given for mechanical mishaps in the field, an incredible string of bad luck for being "stuck" for coffee, noteworthy examples of "foot in mouth disease," and group recognition for a survey party that spent a lot of time getting their vehicles out of blowouts and water holes. The bent probe has been awarded to Doug Witte, Dean DaMoude, Paul Bartlett, Jeff Worm, Cam Loerch, Larry Ragon, Dan Shurtliff, Jay Wilson, Mark Willoughby, Tyler Labenz, and others.

A meeting of the Executive Board was held on October 1, 1976, at the UNL East Campus. The purpose of the meeting was to discuss steps to take to introduce a bill in the Nebraska Legislature for registration and certification of Soil Scientists. Bill McKenzie and Andy Aandahl made a draft of the bill for Nebraska. After studying several other bills it was decided to use the one from North Dakota as a model.

February 15, 1978, meeting in Lincoln. Bob Pollock, Jim Culver and Paul Bartlett had a meeting with State Senator Maurice Kremer from Aurora about sponsoring legislative bills establishing the State Soil and the Soil Classifier bill in the 1979 Legislative Session. The membership was to contact their senators about supporting the two bills.

January 20, 1979, meeting it was reported that Senator Kremer introduced the registration bill LB 62 to the Agricultural Committee. It was killed in the committee.

At the October 2, 1980, meeting Bob Pollock and Jim Culver reported on our bill for professional certification, which was defeated in committee. Culver reported that the mood in the unicameral is not to pass professional certification bills. It was recommended to wait a few years before we try it again. It was then recommended that we obtain ARCPACS certification. That motion passed at the meeting.

The letter received from ARCPACS stating that we are an Affiliated Chapter of ARCPACS was read at the February 12, 1982, meeting.

A List of Officers for the Nebraska Society of Professional Soil Scientists (NSPSS).

Year	President	Secretary/Treas.	Exec. Bd. Mem.
1999	Mark Kuzila		
1998	Chuck Markley	Wayne Vanek	Steve Schaefer
1997	Casey Latta	Larry Ragon	Steve Scheinost
1996	Renee Gross	Larry Ragon	Steve Scheinost
1995	Corey Brubaker		
1994	Bob Rayer	Tyler Labenz	Larry Ragon
1993	Clayton Lee	Tyler Labenz	
1992	Jay Wilson	Tyler Labenz	Mark Kuzila
1991	J. Cameron Loerch	Clayton Lee	Phil Young
1990	Francis Belohlavy	Bob Rayer	Steve Hartung
1989	Glenn Borchers	Jay Wilson	Steve Scheinost
1988	Dave Hoover	Charles Morris	Francis Belohlavy
1987	Larry Ragon	Jim Husbands	Bob Pollock
1986	Roger Hammer	Dan Shurtliff	Wayne Vanek
1985	Richard Zink	Monte Babcock	Francis Belohlavy
1984	Steve Scheinost	Phil Young	Marv Dixon

The office of secretary and treasurer was combined in 1984.

Year	President	Secretary	Treasurer
1983	Charles Mahnke	Dave Hoover	J. Cameron Loerch
1982	Mark Kuzila	Glenn Borchers	Robert Pollock
1981	Charles Hammond	Rich Zink	Robert Pollock
1980	Dean DaMoude	Mark Willoughby	Glenn Borchers
1979	Paul Bartlett	Francis Belohlavy	Rod Harner
1978	Bill McKinzie	Mark Kuzila	Marv Dixon
1977	Dave Lewis	Doug Witte	Marv Dixon
1976	Bob Pollock	John Brubacher	Larry Brown
1975	Jim Culver		

Starting in 1976, every president was voted into the office of President-elect the year before their term of presidency.

Charter Members of Nebraska Society of Professional Soil Scientists

Member	Organization	Location
Aandahl, Andrew R.	SCS, retired	Lincoln
Bartlett, Paul A.	SCS	Fremont
Belohlavy, Francis V.	Conservation & Survey, University of Nebraska	O'Neill
Berdanier, C. Reese	SCS	Lincoln
Bowman, Gilbert A.	SCS	Broken Bow
Brown, Laurence E.	SCS	Lincoln
Brubacher, John I.	SCS	Lincoln
Buller, Louie L.	SCS	Lincoln
Culver, James R.	SCS	Lincoln
DaMoude, Dean W.	SCS	West Point
Gengenbach, Dale R.	SCS	Bridgeport
Good, Kenneth J.	SCS, retired	Lincoln
Greenawalt, Ross D.	SCS, retired	Lincoln
Hammond, Charles L.	SCS	Norfolk
Hoppes, Ronald R.	SCS	McCook
Indra, Orville	SCS	O'Neill
Jackson, Richard K.	SCS, retired	Lincoln
Koepke, Byron E.	SCS	Fremont
Kollmorgen, Herbert L.	SCS, retired	Lincoln
Lewis, David T.	Dept. of Agronomy, University of Nebraska	Lincoln
Loges, David R.	Conservation & Survey, University of Nebraska	Imperial
McKinzie, William E.	SCS	Lincoln
Mahnke, Charles F.	SCS	Alliance
Mitchell, Lloyd E.	SCS, retired	Lincoln
Paden, Harry E.	SCS	Imperial
Plantz, Merritt A.	SCS	Ainsworth
Pollock, Robert S.	SCS	Aurura
Quandt, Loyal A.	SCS	Little Rock, Ark.
Ragon, Larry G.	SCS	O'Neill
Scheinost, Steven A.	SCS	Lincoln
Schulte, Ronald B.	SCS	Creighton
Seevers, Vernon C.	SCS	O'Neill
Sherfey, Lester E.	SCS	Ogallala
Slama, Norman L.	SCS	Wakefield
Stout, Maurice, Jr.	SCS	Lincoln
Turner, Robert I.	SCS	Lincoln
Wahl, Frank E.	Tri-Basin NRD	Elwood
Wilson, Jay R.	SCS	Lincoln
Witte, Douglas A.	Conservation & Survey, University of Nebraska	Lyons
Worth, Larry D.	State of Nebraska Department of Revenue	Lincoln
Zink, Richard R.	SCS	Broken Bow
Drew, James V.	Dept. of Agronomy, University of Nebraska	Lincoln
Johnson, Paul R.	SCS	Lincoln
Rieke, Duane	SCSI	Norfolk
Wentling, Gayle	Conservation & Survey, University of Nebraska	Alliance

Nebraska Society of Professional Soil Scientists Ceremony for Soil Scientists Contributing to Nebraska's Soil Survey Mapping Completion

The Nebraska Society of Professional Soil Scientists held a special recognition meeting and dinner for all current and retired soil scientists on Friday, September 29, 1995, at Mahoney State Park. A total of 55 people attended the event including several retired soil scientists.

Corey Brubaker presented plaques to USDA-NRCS and UNL-C&SD recognizing the cooperation between these two agencies in completing the soil survey of Nebraska, which read:

"THE NEBRASKA SOCIETY OF
PROFESSIONAL SOIL SCIENTISTS
recognizes the cooperative efforts of the
USDA NATURAL RESOURCES
CONSERVATION SERVICE and the
CONSERVATION AND SURVEY DIVISION
UNIVERSITY OF NEBRASKA-LINCOLN
in completing the initial inventory of
Nebraska's soils as part of the National
Cooperative Soil Survey Program 1954-1995."

He also recognized the efforts of Steve Scheinost and Tyler Labenz in organizing the event and Glenn Borchers for developing a commemorative mug. A good number of commemorative mugs on completion of the soil survey were prize possessions of the soil scientists.

Presentations included:

List of soil scientists who mapped in Nebraska,
Brief history of the Soil Survey Program in Nebraska by Glenn Borchers, which follows,
Comments on future soil survey by Norm Helzer, and
Slides and Stories for soil survey activities in Nebraska.

It was indeed a very enjoyable evening and certainly was the highlight of 1995 for NSPSS.

History of Nebraska Soil Surveys
By: Glenn Borchers at the NSPSS Meeting
September 9, 1995

Introduction

The first soil surveys in Nebraska were made in 1903, just four years after the first survey in the United States. These surveys were the Grand Island Area and the Stanton Area. The U.S. Department of Agriculture, in cooperation with State agricultural experiment stations and other Federal and State agencies, has been making soil surveys ever since.

The first surveys of the Grand Island and Stanton areas were crude by today's standards. Soil classification has improved as our knowledge of soils has increased: from the horse and buggy days to the space age; from when a soil scientist had to create a base map to the finest aerial photography; from the most basic understanding of soils and science to the most advanced scientific knowledge. The soil survey in Nebraska has experienced all those changes and the users of that information are the better for it.

Background

In the United States, soil surveys were started in 1899. Describing and mapping by soil series began in 1903. The number of soil series grew rapidly during the first few years. A listing of soils in the United States in 1909 listed about 230 series. The listing in 1990 included more than 17,000 series. The concept of a series in 1903 differed from our concept today. For example, the initial concept of the Miami Series could include any texture and any drainage class. This series was identified from Kentucky to North Dakota and in all glaciated areas to the north and east. It included soils formed in loess, outwash, and till.

The soils named on the Grand Island map included the Miami Series, as well as the Marshall, Meadow, and Sioux Series. The soils on the Stanton map also included the Miami series, as well as the Arkansas, Elkhorn, and Marshall Series.

That first Stanton Area map had four soils mapped, and the most recent survey of 1982 had 32 soil series and 55 map units. None of the original soils mapped in 1903 were on the 1982 maps. Inavale, Boel, and Ord soils replaced the Arkansas soils on bottom lands. Muir, Shell, and Hobbs soils replaced the Elkhorn soils on bottom lands and stream terraces. Thurman, Hadar, Clarno, Nora, and Crofton soils replaced the Miami soils on uplands. The Marshall soils, which are still mapped on uplands in eastern Nebraska, were replaced in Stanton County by Moody, Nora, and Crofton soils.

At first, the Marshall series included soils formed in loess, till and outwash. This series was established in Lyon County, Minnesota in 1903 and was separated from the Miami series because of the thick, dark surface horizon. Later, the Carrington soils formed in till were mapped out of the Marshall series. In turn the Carrington series was divided and subdivided. Today, probably more than a dozen series have been mapped in place of the Carrington soils.

By the 1930's, Marbut developed the first hierarchical classification of soils. In 1938, another system of classification was published. In 1965 after about 15 years of study, the present Soil Taxonomy was first used. The first soil survey published in Nebraska using the present Soil Taxonomy was Red Willow County in 1967.

Soil surveys were started in 1903 by mapping areas of the state, for example the Grand Island, Stanton, Kearney and the North Platte areas. The first soil surveys to be published were those for Sarpy and Lancaster Counties in 1905 and 1906, respectively. Soil surveys soon covered the entire state. Six counties-- Arthur, Grant, Hooker, Logan, McPherson, and Thomas did not have separate soil surveys, but they were included in the Western Reconnaissance Survey of 1911. These soil surveys included brief descriptions of the soils with a line soil map generally at a scale of 1 inch to 1 mile. The last county to be published in this format was Cherry County in 1956. It had a scale of 1:62,500. There were four counties that had an updated second soil survey. The counties were Cass, Lancaster, Otoe, and Sarpy. Those first areas that were surveyed were later surveyed as Buffalo, Hall, Lincoln, and Stanton Counties.

The next phase of surveys were started by the publication of the Nance County soil survey in 1960. It was correlated in 1954. The last county was Cherry County, which was correlated in 1995 with the completion of this series of mapping. Our publications have more detailed soil descriptions and include more interpretations. The soil maps were on a photo base generally at a scale of 1:20,000. In 1965 we started classifying soils by using the current Soil Taxonomy. In the early 1970's an accelerated effort was made to complete the mapping of the State. That resulted in the publication of soil surveys for nine counties in 1974. For the next 12 years soil surveys were published at an average of about four counties per year.

We have begun the next phase of soil surveys with the update surveys of Deuel, Dundy, Gage, Hall, Saunders, and Washington Counties. We are entering the computer age with the digitization of the soil maps. Our soil surveys are changing to meet demands of the public. Our surveys are not only for the agricultural uses for which the first surveys were designed, but also now are used in many other ways.

This is just a brief history of the soil surveys in Nebraska. Interest has been shown that some type of history book should be written about the soil surveys of Nebraska.

Nebraska State Soil – Holdrege

The State Soil Committee of Dave Lewis, Dean DaMoude, Mark Kuzila, Jim Culver, and Bob Pollock recommended Holdrege or Valentine as the state soil at the February 15, 1978, meeting in Lincoln. Following considerable discussion, a vote was taken and Holdrege was selected. Some of the factors taken into consideration were that the soil should be entirely in Nebraska, a good agricultural soil, and a soil that we can be proud of. Bob Pollock, Jim Culver, and Paul Bartlett had a meeting with State Senator Maurice Kremer from Aurora about sponsoring the legislative bill to establish Holdrege as the State Soil in the 1979 Legislative Session. Bob Pollock was acquainted with Senator Kremer in his extensive work with irrigation and water management in central Nebraska. The members of the Nebraska Society of Professional Soil Scientists contacted their senators about supporting this bill.

At the January 20, 1979, meeting, it was reported that Senator Kremer introduced the official State Soil bill LB 475. Bob Pollock, Dave Lewis, and Warren Sahs testified in behalf of the bill. There were no objections to the bill. It was voted out of committee to the floor of the Legislature. This bill passed on the floor of the legislature a short time later.

At the February 13, 1981, meeting, it was moved and passed that a brochure be made up to publicize the state soil. Farmland Industries, Inc. agreed to cover the cost of printing the state soil brochure. 10,000 copies were printed at a cost of $1,200. At the February 12, 1982, meeting, a plan was approved to distribute the state soil brochure to all the libraries and schools in the state. Copies were available for members to distribute on their own.

The Nebraska Blue Book contains an official listing of legislated special days, events, and recognition. The following documents the official soil:

Nebraska State Soil

> Approved by the Governor on April 5, 1979, LB 475, introduced by Sen. Maurice Kremer, Aurora, adopted the Official State Soil; soils of the Holdrege series, classified as Typic Argiustolls, fine-silty, mixed, mesic.

One of the highlights of the National Soil Survey Centennial celebration was a national display of State Soil Monoliths at Earth Day in Washington, D.C., in April of 1999. A soil monolith of the Holdrege soil was sent to Washington, DC for this National Soil Collection exhibit. Soil monoliths and a short description of each soil for all 52 states, displayed as a large semi-circle under a tent in the Washington Mall, were very impressive. Dan Glickman, Secretary of Agriculture, George Rominger, Under Secretary of Agriculture, and Pearlie Reed, Chief of Natural Resources Conservation Service, USDA, visited this display.

Holdrege - Nebraska's State Soil

In 1979, the Nebraska Legislature found that designating one soil, representing the soil resource of the state, would benefit the people of the state. The Holdrege soil selected took its place with the goldenrod, the meadowlark, and the cottonwood as representatives of one of our very important natural resources. Soils in the Holdrege series are recognized by features of their "profile" (created by horizontal layers) that is the result of the prairie environment. They are suggestive of soils formed under mixed grasses, in a climate where moisture stress is common, but where enough movement of water through the profile has resulted in downward movement of clays and lime. These processes have led to a soil with a thick, dark colored topsoil, a clay enriched subsoil, and a substratum that contains free lime. Holdrege soils are among the most extensively cultivated soils in the state. Presently, nearly all Holdrege soils are cultivated. A very large part is irrigated. Corn and grain sorghum are the principal row crops. Winter wheat is the most commonly grown small grain. Their natural fertility, desirable tilth, and the landscape on which they exist join with irrigation water and the skillful management of Nebraska farms to provide a valuable agricultural resource.

Holdrege soils exist on 1.8 million acres (.72 million ha) of landscape in central Nebraska. They were initially separated from other soils during soil surveys of Phelps County in 1917. A good example of a Holdrege soil profile can be seen 325 feet north and 250 feet east of the southwest corner, sec. 25, T. 6 N., R. 19W., 6th principal meridian.

Holdrege soils are well drained, but will hold between 10 and 11 inches (25.4-28 cm) of water available to the plants within a 5-foot (150 cm) depth. Some additional statistics about them are presented in table 1.

The chemical properties of Holdrege soils (table 2) are those of a soil that formed under grasses in a climate where dryness is a fact of life that cannot be ignored. The lack of acidity in the soil accompanied by a limey subsoil and a relatively high amount of organic matter (around 3 percent under native grass) in the top soil attest to a low amount of leaching, to a recycling of basic elements by grass roots, and to a high level of native fertility.

Sand content is quite low, as is expected of soils formed in loess (table 3). Nearly all of the sand that exists is very fine sand; and since silt is the major component of the mineral part, Holdrege soils are silty. Even so, clay content is high enough to bring about a high water and available nutrient holding capacity.

Because of properties that reflect the conditions under which they formed, Holdrege soils are in the Mollisol Soil Order. Mollisols are mostly soils of the grasslands. They are rich in basic elements, such as calcium, magnesium, and potassium. Their family name is fine-silty, mixed, mesic Typic Argiustolls. "Fine-Silty" indicates that the subsoil is between 18 and 35 percent clay with less than 15 percent sand. The term "mixed" suggests that no one kind of mineral is most important in their mineral part. "Mesic" refers to an average annual soil temperature of between 8 ? and 15 ?C (46-52 ? F.)

Earlier classifications of soils in the United States referred to Holdrege soils as Peclocals and Chernozems. Such soils are typical throughout the world on the vast steppe regions. Here, before irrigation, nearly all cultivated land was used to grow wheat and stretched to the horizons. Before that, prairie supported buffalo and countless other wild creatures. The Holdrege soil profile is the result of that environment. The landscape is the result of geologic process operating over tens of thousands or more years. This is a soil of which we can be proud. It is one for which we must care, for it and other like it must sustain our agriculture - and our culture - for uncounted generations to come.

Table 1: Some features of the Holdrege soils

Slope	--0.3% (for 75% of their area); range 0-11%
Intake rate of water	--moderately low
Permeability	--moderate (0.6-2.0 in/hr.)
Soil reaction	--medium to slightly acid (surface layer) --neutral (subsoil) --moderately alkaline (underlying material)
Capability class	--I-IV depending on irrigation and slope
Erosion hazard	--slight 0-3% slopes moderate 3-6% slopes severe 6-11% slopes
Uses	--irrigated row crops (corn), dryland wheat and sorghum some native rangeland
Predicted Yields: Corn	--150 bu/A irrigated, 0-1% slopes 28 bu/A dryland, 3-6% slopes
Wheat	--40 bu/A dryland, 0-1% slopes 30 bu/A, 3-6% slopes
Grain Sorghum	--130 bu/A irrigated, 0-1% slopes 40 bu/A dryland, 3-6% slopes

Table 2: Some chemical properties of the Holdrege soils[1]

Horizon	Depth Inches	pH	Organic C Carbon[2]	C E C	Extractable Cations Ca	Mg	Na	K	Base Sat.
			%						%
Ap	0-7	6.6	1.7	19.5	11.7	3.9	0.1	1.8	90
A	7-13	7.1	1.3	24.0	17.0	5.2	0.1	1.0	97
Bt1	13-16	6.8	0.9	25.1	17.3	6.5	0.1	1.0	99
Bt2	16-24	7.1	0.5	24.5	16.5	6.8	0.1	1.2	100
Bt3	24-30	7.7	0.3	22.7	17.1	6.6	0.1	1.4	100
BC	30-34	8.5	.02	21.8	Calc	Calc	0.2	1.5	Calc
BCk	34-42	8.6	0.2	20.0	Calc	Calc	0.2	1.7	Calc
Ck	42-60	8.8	0.1	19.8	Calc	Calc	0.3	2.1	Calc

[1] From Soil Survey Staff. 1966. Soil Survey Laboratory Data and Descriptions for some soils of Nebraska. Soil Survey Investigations Report #5. S.C.S. USDA. [2] O.C. x 1728 = % organic matter

Table 3: Some physical properties of the Holdrege soil

Horizon	Depth Inches	Sand	Silt	Clay	Textural Class	Available Water Capacity	Water Held at 15 A[1]
			-------%-------			In/in	%
Ap	0-7	16.6	61.4	22.0	sil[1]	0.22-0.24	9.9
A	7-13	12.0	58.4	29.6	sicl[2]	0.18-0.20	13.5
Bt1	13-16	13.3	55.3	31.4	sicl	0.18-0.20	14.4
Bt2	16-24	11.2	58.9	29.9	sicl	0.18-0.20	13.5
Bt3	24-30	13.1	62.1	24.8	sil	0.20-0.22	11.8
BC	30-34	14.9	64.3	20.8	sil	0.20-0.22	11.0
BCk	34-42	16.2	65.1	18.7	sil	0.20-0.22	10.3
Ck	42-60	16.8	64.5	18.7	sil	0.20-0.22	9.8

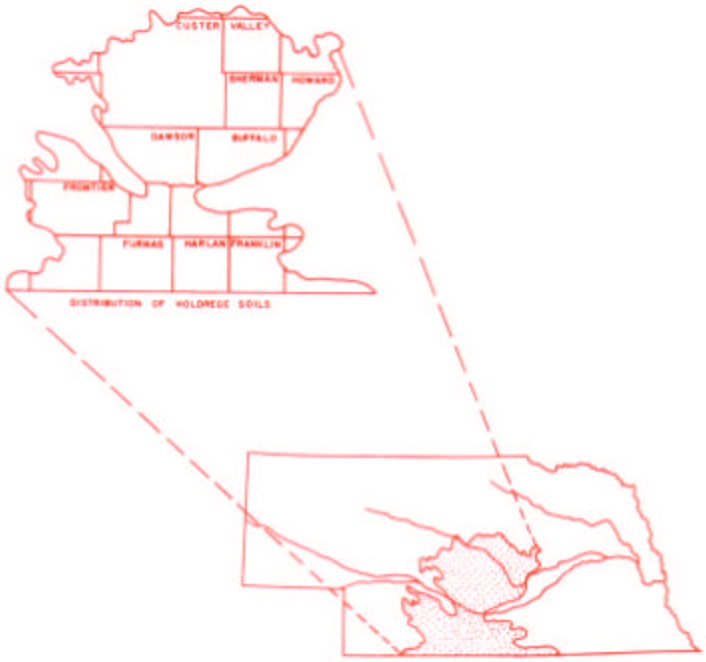
[1] sil = silt loam [2] sicl - silty clay loam

[1] Water held at 15 atmosphere of tension. This means that a force 15 times that of the atmosphere is required to remove the water. This is the "permanent wilting point," or point where most plants cannot get water. It is used as the lower boundary of available water, and is governed by the clay and organic matter content in Holdrege soils.

HOLDREGE SOIL PROFILE

Profile of Holdrege silt loam, a deep, well-drained soil that has a well developed subsoil. Depth is marked in centimeters and feet.

Representative landscape of Holdrege soil.



General location of Holdrege soils in Nebraska.

L-R: Jim Drew (lower), Charles Eberspacher, District Conservationist, Paul Bartlett (holding probe), Lloyd Mitchell, Bob Eikleberry, and unidentified person during the final "Acre Ceremony" of Douglas County, 1968

Ron Hoppes conducting soils demonstrations for Conservation Day, Frontier County, 1967.

Don Yost explaining soils to Boy Scouts. Scottsbluff, 1956.

L-R: John Overing, Glenn Borchers, Glenn's two sons, and Mark Kuzila putting up a soil display at Gere Library, Lincoln, for the Nebraska Society of Professional Soil Scientists.

Land Judging Contest

For many years Nebraska has been a leading state in providing grade school and high school students the opportunity to learn about soils. There have been and continue to be very active 4-H Extension programs and Vocational FFA programs in nearly all counties in the state. Land judging contests were started in the 1950's and have been extensive from the 1960's to the present.

Harold H. Gilman, Extension Conservationist, provided the leadership, enthusiasm, and can-do attitude that have made land judging contests so popular in the state. Harold was excellent in working with County Extension and Vocational Instructors in making land judging an important part of their teaching curriculum for the students with a farm background throughout the state. He was also very effective in working with the Soil Conservation Service soil scientists in developing the guidelines and criteria used to conduct these land judging contests. At all contests, the local soil scientists were usually the ones who assisted with the site locations for the contest and made the official score card used to evaluate the work of each contestant in the contests.

Following is an account of Bob Pollock, Soil Scientist, who assisted with the first program in the state: "The first land judging contest was held on the fairgrounds at Loup City. The participants were about 40 SCS personnel from Area IV. The next year the contest was open to Voc Ag and 4-Hers. Participants came from all parts of the state. Broken Bow held the state land judging contest for two years in a row, and the number of participants was over 300. The next year the teams had to participate in area contests, and only the winners were permitted to attend the state contest."

As interest in land judging contests expanded, the total number of participants in the state increased to about 600 to 1000 annually. The state was divided into several land judging regions. All teams competed in their region, and the top teams in each division were qualified to compete at the state contest. Each team consisted of four to seven participants. The score of the top four participants on the team was used for the official team placing. The contest was normally held in the morning, and often some local group would sponsor a free lunch for the participants. A strong effort was made to have all of the official scoring done before the end of lunch, and the winners were announced at the close of lunch.

Harold Gilman developed an effective system of scoring for the contest. Normally, there were four different soil pits which each participant judged. Participants were divided into four groups, and a group leader guided the participants to a specified soil pit to begin the judging. After a predetermined amount of time, all participants were rotated to a second pit. The process was repeated until all four of the pits were judged. At the end of the judging of the first pit, runners collected the completed score cards and took them to a central scoring place. As soon as the second pit was scored, runners took the score cards for that pit to the central point for scoring. This process was repeated until the contest was over. This system enabled those doing the scoring to begin the scoring before the participants were done and the official scoring to be completed in time for the announcement of award winners by the end of lunch. Later, with the

use of computers and electronic scoring, the number of scorers required decreased and the time needed to do the scoring was significantly less.

The guide “Land judging in Nebraska” prepared by Harold H. Gilman in 1963 and revised on several later dates provided the score card and the criteria and guides for the participants who competed in these contests. In addition to the 4-H and FFA contests, there were open classes that all adults could attend. An example of a score card included in the 1968 version of Land judging in Nebraska follows this write-up.

Each year a national soil-judging contest was held at Oklahoma City, Oklahoma. The teams that placed in the Nebraska state contest were qualified to go to Oklahoma to compete in the national contest. There were often local community groups who provided money to assist the state winners with lodging, travel, and other expenses for this contest. Through the years Nebraska teams did quite well and were recognized by other states as a team to beat at the national contest. At the national contest there were several SCS soil scientists who assisted in coaching teams and went with the teams to the national contest. Dean DaMoude and Paul Bartlett assisted with several teams from northeast Nebraska during their careers as soil scientists.

Form 18-86-2

NEBRASKA LAND JUDGING SCORE CARD

Contestant No._____ Field No._____

PART I—PHYSICAL FEATURES OF THE SOIL

(Indicate your answer by an X in the square)
Possible score—60 points

DEPTH FAVORABLE TO ROOT DEVELOPMENT		
Deep		
Moderately deep		
Shallow		
Very shallow		
SURFACE TEXTURE		
Heavy (H)		
Moderately heavy (F)		
Medium (M)		
Moderately light (S)		
Light (L)		
Very light (C)		
PERMEABILITY OF SUBSOIL		
Slow (2)		
Moderately slow (3)		
Medium (4)		
Moderately rapid (5)		
Rapid (6)		
Very rapid (7)		
THICKNESS OF SURFACE SOIL		
Thick		
Moderately thick		
Thin		
WETNESS OR OVERFLOW		
Well drained		
Moderately wet		
Very wet		
SLOPE		
Nearly level (.....%)		
Gently sloping (.....%)		
Moderately sloping (.....%)		
Strongly sloping (.....%)		
Steep (.....%)		
Very steep (.....%)		
EROSION—WATER AND WIND		
None to slight		
Moderate		
Severe		
Very severe		
ORGANIC MATTER		
High		
Medium		
Low		
PART I — SCORE		

PART II — LAND CAPABILITY CLASS

I. II. III. IV. V. VI. VII. VIII.

(Circle one of the above)
Possible score — 10 points **SCORE** ☐

Form 1- 16M—4-59—Ag.

PART III

RECOMMENDED LAND TREATMENT
(Circle numbers that apply)
Possible score — 30 points

1.	
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35.	
36.	

Part III Score ☐

OFFICIAL TABULATION

Score—Part I_____

Score—Part II_____

Score—Part III_____

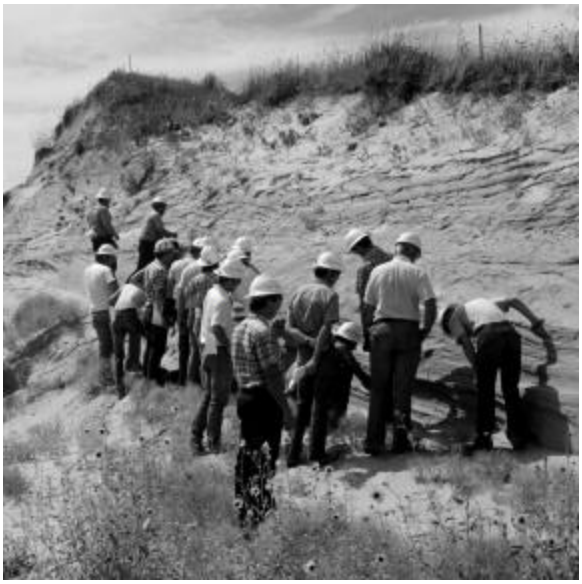
TOTAL SCORE_____

PART III (Possible Score—30 points)

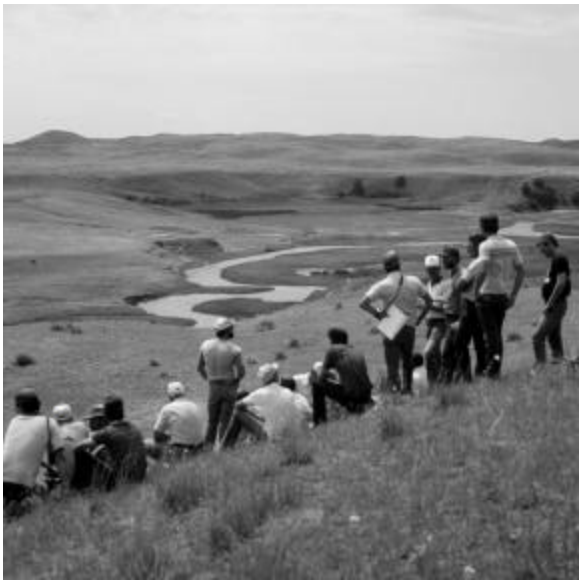
Select from the list below, the proper conservation practices needed to conserve both soil and water and to maintain or improve the productivity of the land. CIRCLE the corresponding numbers on the opposite side of this card under PART III that should be applied to this field.

1. Continuous cultivation—wheat fallow.
2. Continuous cultivation including a row crop ¾ time (9 out of 12 years) close growing crops to include grasses and legumes.
3. Continuous cultivation including a row crop ½ time (6 out of 12 years) close growing crops to include grasses and legumes.
4. Continuous cultivation including a row crop ⅓ time (4 out of 12 years) close growing crops to include grasses and legumes.
5. Occasional cultivation including a row crop ¼ time (3 out of 12 years) close growing crops to include grasses and legumes.
6. Permanent vegetation; few restrictions in use.
7. Permanent vegetation; moderate restrictions in use.
8. Permanent vegetation; severe restrictions in use.
9. Wildlife.
10. Seed turn rows and fence lines to permanent grass.
11. Plow under grasses and deep rooted legumes for green manure.
12. Practice crop residue management—no burning.
13. Practice a stubble mulch farming system.
14. Practice field strip cropping or contour strip cropping.
15. Establish and maintain grassed waterways.
16. Plant a field windbreak for wind erosion control.
17. Establish terraces and farm on the contour.
18. Establish diversion terrace with an adequate outlet.
19. Farm on the contour.
20. Establish drainage system (open drains, tile drains).
21. Maintain terraces.
22. Lime and fertilize according to tests.
23. Mow or spray for weed control.
24. Construct pasture furrows, grooves, pitting, etc.
25. Seed or reseed to recommended grasses or grass-legume mixture.
26. Gully control—construct erosion control structures or shape, fertilize, and seed to grass.
27. Terrace prior to establishing permanent hay and/or pasture.
28. Defer grazing until cover is adequate.
29. Mulch and cover is adequate—continue grazing at the proper rate.
30. Graze to utilize up to one-half of each year's growth.
31. Control rodents, prairie dogs, gophers.
32. Plant to legumes, grass, trees, and/or shrubs suitable for wildlife.
33. Fence for wildlife protection.
34. _____
35. _____
36. _____

Earl Cook, Warren Paden, district conservationists, Lou Buller, Rudy Hraban, area conservationists; Lester Sherfey, project leader; Mike Stout, Dale Gengenbach, Pete Jenson, range conservationists; and Jim Culver, State Soil Scientist. Arthur and Grant Counties Final Correlation, 1973.



Nebraska sandhill field study in 1984. Studying soil profile and parent materials.



Nebraska sandhill field soil-landscape study in 1984.

Soil Correlation – A National Overview for the Past 50 Years

The organizational soil correlation staffs significantly changed following the combination of the soils programs of the Soil Conservation Service and the Bureau of Plant Industry, Soils and Agriculture Engineering within the U.S. Department of Agriculture in November of 1952. Prior to this consolidation of soils agencies, there was a Regional Soils Correlation staff for the Great Plains Region located in Nebraska Hall on the campus of the University of Nebraska, Lincoln. Andy Aandahl, Bill Johnson, and other soil scientists operated out of this office.

By January 1, 1953, there were four Regional Soil Correlation Staffs. These were as follows:

1. Northern States, located in several states – Marlin Cline, Cornell University, New York, was a lead person
2. Southern States, located at TVA, Knoxville, TN – Bill Ligon, Principal Soil Correlator
3. Great Plains States, located at Nebraska Hall, University of Nebraska, Lincoln, NE – Bill Johnson, Principal Soil Correlator
4. Western States, located in the Woolesy Bldg., Berkeley CA – Ray Roberts, Principal Soil Correlator

Reorganization in the early 1960's retained the four Regional Soil Correlation offices but three of the offices were relocated to other towns. The location and leadership of these offices on January 1, 1969, were as follows:

1. Northeast RTSC located at Upper Darby, PA – Arnold Baur, Principal Soil Correlator
2. Midwest RTSC located at Lincoln, NE – John McClelland, Principal Soil Correlator
3. South RTSC located at Fort Worth, TX – Lindo Bartelli, Principal Soil Correlator
4. West RTSC located at Portland, OR – Melvin Williams, Principal Soil Correlator

These regional staffs were supported by a National Soil Classification and Correlation staff in Washington, D.C. with Roy Simonson as Director. Charles Kellogg was Deputy Administrator for Soil Survey. During this period the Washington office approved the Final Soil Correlations for each soil survey area.

As the national soil survey program began to accelerate the completion of soil surveys, the National office was no longer able to keep up with the correlation approval process. In the 1970's, final approval for all soil surveys, on both private and public lands, was assigned to the four regional offices.

The process of soil correlation began in the field. The project leader and members of the soil survey party collected soil profile descriptions, transect data, laboratory data, acreage measurements, interpretative data, and other information about each map unit. Each year in Nebraska, the person at the state office responsible for soil correlation usually conducted a field review of the soils. The Final Field Review and Final Correlation Report were made at the state level for recommended national soil correlation. Correlation samples were taken for each map unit. The correlation samples and Final Correlation Report were submitted to the Midwest

Regional Technical Service Center for review and final approval prior to publication of the soil survey by the Government Printing Office.

Normally one week was scheduled at the regional office at the completion of field work. The local project leader, the Nebraska soil correlator, and the regional soil correlation staff would review, discuss, and approve all map units. In some instances, there was considerable discussion where there were differences in opinion about how an individual soil should be named or classified. There was normally some give and take on both sides, and the overall process went quite well. One advantage of this soil correlation process was that several soil scientists with different backgrounds contributed to the final decision. This broad range of experience significantly contributed to making a much better coordinated quality soil correlation and improved the quality of the published data.

Soil scientists at the Midwest National Technical Center (MNTC) who assisted with the correlation and manuscripts of Nebraska soil surveys included John McClelland, Principal Soil Correlator; Mike Stout, Principal Soil Correlator; Rod Harner, Principal Soil Correlator; Bob Turner, Correlator; Bill McKinzie, Correlator; Bob Eikleberry, Interpretations; Dick Jackson, Report Writer; Richard Guthrie, Correlator; Dick Johnson, Interpretations; Roy Smith, Manuscripts; Marvin Dixon, Manuscripts; Dick Base, Correlator; and Roger Haberman, Correlator.

A major reorganization of the soil correlation process occurred in 1988. The soil correlation staffs from each of the four regional offices of the Northeast, Midwest, South, and West, and the staff from the National Office were consolidated into a National Soil Survey Center at Lincoln, Nebraska. The concept of a National Soil Survey Center was a vision and desire of Dick Arnold, Director of the Soil Survey Division. The soil survey laboratories of the SCS at Riverside, CA, and Beltsville, MD, had previously been consolidated in the Lincoln, NE, soil survey laboratory. Each of the four regional offices in the Northeast, Midwest, South, and West retained a lead soil scientist and staff responsible for the interpretations and technical soil services parts of the soil survey program. The Midwest soil correlation staff was assigned to the Soil Survey Quality Assurance Staff of the National Soil Survey Center. The Midwest National Technical Center established a new position called Head of Soils Interpretation on the Soils and Ecological Staff. Jim Culver, State Soil Scientist of Nebraska, was selected for this new position on the MNTC.

The Heads of the Soils Interpretation staff in each of the four Regional Technical Service Centers were as follows in 1988:

Northeast, located at Chester, PA - Karl Langolis
South, located at Fort Worth, TX - Joe Nichols
West, located at Portland, OR - Gary Muckel
Midwest, located at Lincoln, NE - Jim Culver

Steve Holzhey, Assistant Director for the Soil Survey Division, was overall manager of the new National Soil Survey Center (NSSC). The Center had five major sections. They were Soil Classification, Soil Interpretation, Soil Information Systems, Soil Survey Quality Assurance Staff, and the Soil Survey Laboratory.

The National Leader of the Soil Survey Quality Assurance Staff was Rod Harner. There were about 17 soil scientists who traveled throughout the United States working with states on the soil correlation process. This section was organized into three groups. The East group was headed by Roger Haberman, the Midwest group by Larry Ratliff, and the West group by Berman Hudson. In 1991, Rod Harner retired and Jim Culver was selected as the National Leader for Quality Assurance. There were about 14 editors working on the Soil Survey Quality Assurance Staff. These editors, headed by Stan Anderson, edited all soil surveys across the nation for publication by the Government Printing Office.

By the early 1990's, many states were beginning to see the completion of soil surveys in their states. Within SCS management, there began to be a national trend of not filling some soil correlation positions and some state soil scientist positions. From a national perspective, there was a feeling that we were gradually beginning to lose a well-organized system of soil correlation and data base maintenance. Also, it was envisioned that once most of the original soil surveys were completed for the nation, the number of soil correlation staff would be significantly less than when the program was accelerating and there were over 1,500 SCS soil scientists producing soil surveys.

The reorganization of 1995 eliminated the four regional technical offices that included the people doing the soil interpretations and working with states in supporting such programs as wetlands and highly erodible lands. There were 17 Major Land Resource Area (MLRA) soil survey offices set up. The charge for each MLRA office was to do soil correlation and data base management and lead the maintaince of soil survey by natural geographical areas. The MLRA's were assigned on a geographical basis, and several states were served by more than one MLRA office, depending on the various geographical areas in the state. All of the soil correlation positions on the Soil Survey Quality Assurance Staff at the National Soil Survey Center were moved to these MLRA offices. The MLRA office leader was also the state soil scientist for the state where he or she lived. Most of the MLRA positions were GS-14. All official soil series and soil correlation documents were sent from the NSSC to the appropriate MLRA offices. This event was a significant change in the soil correlation approval process. Most of Nebraska was assigned to the MLRA Office 5, located at Salina, Kansas. Richard Schlepp was selected as the first MLRA office leader for MO 5.

Orville Indra using power probe in 1991 soil mapping of Wheeler County.

Harry Paden describing Geary soil in Franklin County, 1971.

L-R: Jim Culver and Ron Hoppes describing soils. Frontier County, 1973.

Ronald Schulte using hand probe in mapping. Knox County, 1975.