

Backhoes

Paul W. Blackburn

Backhoes were as indispensable as helicopters to the timely completion of soil surveys in Nevada. Why? They can dig pits quite rapidly, exposing the soil profiles so that they can be accurately described to the prescribed depth. Backhoes were obtained from two sources. These sources were BLM and the private sector, which included local heavy equipment operators or local farmers or ranchers. When not tied up for fire season, the BLM Unimogs were available for our use in the field to dig pits. These machines had a backhoe attachment that was used to mount a backhoe. This arrangement was very cost effective as we were using government equipment supplied to us by BLM. An added benefit was that the machines, along with the operator who dug the pits, could go back to these holes and backfill them once we gave the OK to do so. The disadvantage to this arrangement was that the Unimogs were unavailable for the better part of the mapping season because of the fire season. When the Unimogs were unavailable, we resorted to contracting with the private sector, which usually was a local farmer or rancher who had a backhoe and the means and willingness to move it and operate it in remote areas.

Of all the operators we had, Marvin Jesson and Bob Burton were the most dependable and enjoyable to work with. They were very accommodating with our desires on pit placement, depth, and location even after they had bounced over miles of dusty road during very hot days or during some pretty intense thunderstorms. Like helicopters, we utilized backhoes to dig pits in soils that we already had a pretty good idea what they were from our small hand dug mapping holes. This maximized efficiency. Using the backhoe as a mapping tool was discouraged, as it was rather expensive. There was also the added hazard of muddling series concepts with an excessive amount of unnecessary detail from too many descriptions.

In about 1983, while working on the Elko Northeast Soil Survey, I arranged to meet a backhoe operator that we had contracted to do some work in an area of Shores Siding. I met the operator along Highway 93 where he had pulled his semi off of the highway. However, as it turns out, he was stuck and could not pull back onto the highway. It was during the spring and the shoulder of the highway was muddy. Without any discussion of how best to handle this situation, the operator climbed into the cab of the backhoe, started it up and proceeded to maneuver the backhoe sideways on the trailer. He extended the arm of the backhoe into the northbound lane of Highway

93, which sent me scurrying to stop oncoming vehicles. Deftly using the arm and the front bucket, the operator lowered the backhoe to the pavement and we went to work.

As interesting as it was to watch this fellow unload the backhoe, he had an equally hazardous method of loading the backhoe that took place at another location. To get the backhoe up on the trailer of the semi, this man employed a ramp fashioned from two tree stumps and two railroad ties. The stumps were placed equidistant from the end of the trailer and the railroad ties were placed on top of the stumps and angled against the rear edge of the trailer. As he attempted the impossible, the backhoe rolled off of the ramp and landed on its side. This man was smart enough, or he had done it before, but he stayed in his seat and held onto the steering wheel as the backhoe hit the ground. This fellow had already lost one leg in some kind of prior accident.

The only real down side to using backhoes was the time necessary to accompany them for backfilling operations if you could not get the same guy who dug the pits. This was very frustrating and, indeed, there are pits still open today that were never backfilled.

Fearless

Alan Wasner

The crew at this time consisted of Paul Blackburn, Leon Lato, Dave Pickel, Ian Reid, and me. We were mapping near Currie, Nevada, and Paul got a backhoe contract with a local rancher. I soon got to meet the ranch's only hand, a young fellow who was in his twenties. My first experience with him was when he took the backhoe out to the work site on an ancient flatbed truck. He had no way to get it off the back of the truck, no ramps or boards, so he just drove it off the back of the truck promptly tipping it over on its side. To my surprise, he got it upright and we were able to do our job, for awhile. Then he ran out of gas and had no reserve. Several times during the work, he tipped the backhoe over or operated it in an unsafe manner. I chided him and tried to get him to be more careful, and he did try:

He was a very interesting person and friendly. I found out one time, when I had to have him sign a statement of the hours he had worked, that he could not read or write. He looked at the statement for the longest time, studying it intently. Then he asked me where he was to sign, and I showed him. He then, with the greatest deliberation, signed a great big "X". He had me come by and meet his girlfriend at the ranch one time. They lived together in a one-room house made out of railroad ties with a dirt floor and no windows. I found out that all they had to eat were fish from the alfalfa irrigation ditches and crab apples from an old tree. I started bringing them food each week after that. We worked on and off a lot that summer together. I heard he had later been killed in a train versus car accident in Oregon.

Field Living Accommodations

Paul W. Blackburn

Regardless of when you worked on soil surveys, 80 years ago or today, it becomes a way of life. Most of us involved in soils mapping in Nevada have spent the majority of time either camped out in the field or checked into some motel near the survey area. Camping out on surveys in Elko County consisted of pulling a BLM supplied travel trailer to some remote location centered within the area to be mapped. In this respect, life in the field had not changed that much from Grant Kennedy's accounts of field living arrangements in 1938. Camp trailers were placed in Midas, Currie, and a few other choice locations, some of which were quite beautiful. However, most of the time there was a motel, located in some small community that was not too far from the area to be mapped, for the whole survey crew. Motel accommodations were preferred as not only could one get reasonably cleaned up with a hot shower but also there was usually a restaurant somewhere close to the motel. Having someone cook your meals was a luxury that was not taken for granted, even when the food selection and variety were not that good.

Working out of a camp trailer also required an extra time commitment on weekends. Groceries had to be purchased on Sunday, properly packed and cooled for the upcoming week. All necessary camping gear, propane for the trailer, extra gasoline for the vehicle, etc., required a lot of extra time on Monday mornings. Having to face cooking your own meal after 10 hours in the field, day after day, week after week, was just not something I looked forward to doing.

In the summer of 1980, five of us on Terry Bowerman's crew dry camped at the "Falls" below the outlet of Wilson Reservoir. We were at this location while we were mapping the Elko County Northwest Soil Survey. We each used our own camping equipment, if we had any, or some of us, like myself, just unrolled a sleeping bag and slept in the back of a Jeep Wagoneer. Other than the good company of the party and the banter around the evening campfire, this was a miserable summer. Many days were very hot with temperatures hovering near the 100-degree mark. The ice that we brought with us to the field was usually melted by Tuesday night or, at best, Wednesday morning. The water in our canteens and coolers warmed by Wednesday afternoon. Hot showers were eagerly anticipated by Thursday morning, as we would head back to town on Thursday afternoon. It was an absolute treat to stop at Jack Creek Resort on the way home and purchase a real cup of brewed coffee.

A few people preferred to camp in the field where they ended the day mapping as they did not like to drive any distance at all back to the trailer or motel location. This was not an option for me. For the most part, variety and quality of food served in restaurants at field locations was fair, at best. An exception to this was summers that we stayed at Wendover while mapping either Elko Northeast or Elko Southeast. The casinos that provided our lodging had very good restaurants. Red's Café in Montello, without question, had the best and coldest beer of any place I have ever stayed.

Man Hunt

Alan Wasner

During the period that the soil survey crew was mapping the Owyhee Desert and adjacent areas, a large manhunt was in progress. Claude Dallas, a self-styled mountain man, had murdered two Idaho Fish and Game wardens who were trying to arrest him for poaching. Claude was well known in these areas of Nevada. He had vowed not to be taken alive. And here the soil survey crew was wandering around in the desert in very obvious government vehicles. Several times, Terry Bowerman and I would spend time in the evenings, after dark, looking out across the desert with binoculars, looking for campfires or other signs of Dallas' whereabouts. We were all relieved when he was finally captured. During this period, we spent time in the small Nevada town of Midas. The crew, Paul Blackburn, Terry Bowerman, Rod Douglass, and I, stayed behind the Midas bar (where there were snapshots of many people on the walls, including Claude Dallas) in a small camp trailer provide by BLM. The "town" had only one source of electrical power, an old one-stroke generator. This generator was noisy with a loud "boom" "boom" "boom" at each stroke of the engine. We'd lie there in the trailer trying to sleep, listening to that thing until about 10 p.m. when finally it would shut down for the night. That does not seem too late until you realize we had to get up at 5:30 or 6:00 a.m. and dig holes by hand all day in the heat.

The summer of 1980 was extremely hot. Paul, Terry, a person who is no longer in soils named Mike Richter, and I were staying in the Jack Creek campground of the USDA Forest Service along a perennial stream. We had a lot of concern about safety during this period of triple digit daytime temperatures in areas of rigid duripans, skeletal soils, and lots of clay. One evening, Terry and I became concerned when Paul did not return by 7 p.m. We were just mounting up to go find him when, thankfully, here he came. I watched with concern as Paul rolled into camp, got out of the vehicle, walked around to the back of his Jeep Cherokee, opened the back, pulled out most of the shovels and equipment, crawled in, and curled up in a ball, immediately falling fast asleep in the back of the dusty truck. He was obviously very tired. About 10 p.m., Terry and I were going to go to sleep, and I was concerned about Paul as he still had his boots on and no blanket or anything. So I went over and quietly said, "Paul? Are you OK?" at which point he woke up, said, "Yeah, I'm fine." I really didn't want to bother him so I left him alone. But I watched as he got out a tall cold drink, a can of corn which he ate, a bunch of Roloids, took his boots off, and then went right back to sleep.

Personal Hygiene

Alan Wasner

While mapping Elko County Northwest, Central, Northeast, and Southeast, as well as White Pine West, I spent a lot of time camping out as did many of the other soil scientists. We had two crews in Elko during part of this time, one led by Terry Bowerman and one led by Dennis Worrel. Terry's crew was the one that camped out while Dennis' crew stayed in close enough to commute.

Camping out was, for the most part, a lot of fun and not a hardship at all. But cleanliness was difficult. There were so few places with water, and almost no streams or lakes where you could swim. Often we would swim in "cow ponds" of dubious water quality or even "take a dip" in a water trough. I only saw one hot spring the entire time I mapped in Elko County and it was at a rolling boil. We would spend all week working with a pick and shovel in holes in the ground so by Thursday night it was an understatement to say we smelled very bad and looked even worse.

During one period, we all had to park our vehicles away from the office due to lack of parking space, so we would car pool down and back to the trucks. One time, Terry's field crew just happened to be there at the same time as Dennis Worrel so we all piled into one truck to drive back to the office. Dennis started to get in the back and I said, "No, Dennis, you want to sit up front." He assumed I was just being nice because he was a project leader and I was a new employee. After he got into the vehicle, he turned around and started to say something like, "Gee, thanks Al . . ." but that was about as far as he got. He spent the rest of the trip back to the office hanging out the window saying, "You guys stink!"

Field Crews

John L. Swenson

The crew arrived at the campsite, about 80 miles north of Elko, Nevada, with their trailer houses ready for a summer of interesting work. Each of the men brought their wives, no one knowing just what the living conditions would be. Even though all the married people were past 60 years old, we all soon learned to cope without any of the modern facilities. Even though the Owyhee Desert Survey was made under contract with the BLM, the crew members doing the survey were mainly former Soil Conservation Service people.

During the final field review, I was given an opportunity to defend my classification of a soil. I had called it a Natrargid. It had good columnar or prismatic structure in the upper Argillic, with a pH of about 8.0, and 6 to 8 inches thick. Below this was what I was calling a B3ca horizon. It had clay films on the peds, a fairly strong blocky structure, very little decrease in clay, a pH of 9.0 or higher, and exchangeable sodium in excess of 30 percent. My argument was that this horizon was part of the Argillic and therefore qualified it as a Natric horizon. George Staidl would not have any part of it. He insisted that even though there were clay films and at least moderate structure, it was not a part of the Argillic. We had been discussing this for some time, when I looked around and most of the party was just standing around looking bored. I suggested that I would drop my claims so that we could get on with the review and not keep everyone waiting. Upon which George said, "Let them wait. We are going to settle this." In the end, it went George's way.

Trials, Tribulations, and Absolution

George Borst

My contribution to soil survey in Nevada was relatively modest, and was confined to mapping in North Smoky, Ione, and Upper Reese River Valley under BLM contract awarded to Woodward-Clyde Consultants of Denver. When I arrived in Eureka, I found Arnold Knecht working with four Woodward-Clyde laborers trying to develop a legend for the survey of BLM lands south of Eureka. None of these men had any previous experience in soil survey and were assigned simply to “dig holes” for Arnold. They had spent several months in the area with very little progress.

Rather than contribute further to the confusion, I decided to proceed with the work in the other three portions of the Woodward-Clyde contract. Initially, I established a base at Frontier, at the northern end of Smoky Valley. This was an area of Entisols and weakly developed Aridisols that formed in sandy alluvium on the valley floor and gently sloping fans of the Toiyabe Range. These included soil that had weak durinodes which, at that time, had recently stirred a flurry of excitement in the soil fraternity. Bob Zimmerman of the Reno SCS State Office was assigned to provide technical supervision for these surveys and was very helpful to me on many details. I recall, on one occasion, he showed me a strongly developed argillic horizon in an Aridisol under a desert pavement of gravels and cobbles that I had assumed to be no more than bedrock—a real surprise to me in central Nevada!

With the arrival of Thanksgiving and the first flurries of snow, I retreated to California for the winter, and then returned the following March. Woodward-Clyde then provided me with a small camper, which I located in a trailer park in Austin. This was a great improvement over the facilities at Frontier! John Asktn joined me soon after. John had mapped with me before and had a good knowledge of soil surveys and taxonomy. This was the time of the cold war and someone in the Defense Department had developed a scheme to mount a missile launching system on a large circular track in Reese Valley. This would extend under the mountains to the east of the valley that included reservation lands. The local Indians were highly suspicious of this scheme and had concluded that my soil mapping effort was involved with this plan. It was only after I had convinced the Chief that I was not involved in this scheme that the Indians in Reese Valley would communicate with me.

Shortly after meeting with the Chief, I had the misfortune of losing the coolant from the radiator of my pickup as I was coming in one evening. After pulling off the road and contemplating my steaming radiator, an Indian woman and her young son stopped to offer me help. She had a jug of water in her car which she kindly poured in my radiator while her son protested,

“Mommy, I’m thirsty!” After she poured in the last of the water, I knew the Indians had absolved me.

Those were the days of the “Sagebrush Rebellion” when many of the ranchers in Reese and Smoky Valley were resentful of the Federal bureaucracy efforts to control livestock numbers on public lands. It was therefore difficult to gain access to some private land, but I succeeded in convincing most of them that I was wholly disinterested in this problem and that it was in their interest to have good information on the nature and extent of their soils.

We ate breakfast and packed lunches in our trailer, but we ate most of our dinners at an eating place on a corner of what had been the leading general store in Austin, run by Carol Givens, wife of a retired rancher. She served magnificent meals of prime rib or steaks with a glass of burgundy to wash it down. We missed these dinners after we moved the trailer to a Forest Service ranger station in the southern end of Reese Valley, to be nearer to our survey areas. Mapping proceeded rapidly that spring. As I was about to wrap up the work and deliver the field sheets and mapping unit descriptions to Bob Zimmerman, we discovered to our horror that portions of an entire township included in the Woodward-Clyde contract had been omitted from the map of the survey furnished us by BLM. To resolve this dilemma, Bob worked with me over the weekend to extend the delineations into this area. We were careful not to recognize any additional mapping units in this township!

Contribution of the Laboratory to the Nevada Soil Survey Program

W. D. Nettleton

As far as this young man knows, the first sampling of Nevada soils was by C.F. Marbut, who sampled a Gray Desert soil about 12 miles south of Ely, Nevada. The USDA, Bureau of Chemistry and Soils Laboratory at Beltsville, Maryland, analyzed the samples. This was the only data reported for the Soils of Nevada in the Atlas of American Agriculture (Marbut, 1935). Nikiforoff included Nevada in his paper on the general trends of the desert type of soil formation published in 1937, but it was not supported by soil characterization data. Harper, in his paper on Calcisols in 1957, included Nevada soils in the field study, but did not include laboratory data on them.

Laboratory attention increased after the USDA Soil Conservation Service established the Riverside Soil Survey Laboratory in the early 1950's. By this time, Eddie Naphan was state soil scientist in Nevada. He saw to it that his surveyors had the data needed to guide interpretations for irrigation agriculture. They got the data from the Riverside Soil Survey Laboratory located on the U. S. Salinity Laboratory grounds at Riverside, California. George Harper, soil correlator for Nevada and Arizona; Rueben Nelson, head of the laboratory; and a staff of four were located in an old building at the foot of Mount Rubidoux.

The staff was small with Cliff Henry and Leo Klameth, who were chemists like Rueben. Lothair Grant guided sample preparation, did the particle size analysis, and analyzed for Wakley Black organic carbon and Kjeldahl nitrogen. George Holmgren, after a brief career as a soil surveyor in Nevada, joined the Riverside staff as a chemist before transferring to the Lincoln Soil Survey Laboratory. The laboratory staff all had graduate degrees and some analytical experience. They had the new laboratory up and running in a short time. The laboratory and soil survey in general benefited greatly from the salinity methods and experience gained from scientists next door at the U. S. Salinity Laboratory.

To sample, after correlation and Washington approval, a couple of members of the staff would drive out from Riverside. Many discoveries were made. For example, in analyzing the Fang Soils they had collected in Penoyer Valley in 1959, they found large quantities of nitrate. Dr. Nelson continued to search out the distribution of nitrate in Nevada soils throughout the rest of his career.

Speaking of experience, George Harper had a few. He may be one of the few soil scientists hired, fired, and later rehired by Charles E. Kellogg. Not

surprisingly, it was over a difference of opinion about soils. In the interim, George worked in Central America. George was the "Desert Fox." Water is the daytime drink in desert areas. George kept his supply in the car. Upon returning to the car for refreshment, he found to his dismay that the canteen had been contaminated by an oily sardine taste. It seems that no one was off limits for practical joking in Nevada.

Eddie Naphan was a Berkeley graduate and had a good understanding of the value of a balanced field and laboratory approach to soil survey. He was appreciative of the research of Max Springer on the desert pavement and the geomorphic studies of Roger Morrison on Lake Levels of Ancient Lake Lahontan and the relationship of these features to soils. The geomorphic-soils relationships were later extended by the thesis work of University of Illinois graduate students John Hawley and W. E. Wilson. Eddie Naphan involved Joe Kubota from the U. S. Plant, Soil and Nutrition Laboratory, Soil Survey Investigations, SCS, USDA at Cornell University, in a study of selenium and molybdenum toxicities. Eddie also supported study of mirabolite, the sodium sulfate mineral that was so destructive to some housing developments in Las Vegas.

The need for background soils data for the development of Soil Taxonomy sent the Riverside soil scientists to Nevada again and again. Ahead of that was one of Guy D. Smith's visits. The morning field trip grew long and noon approached with no restaurant in sight. The great man's comments grew short. One more stop had been planned. It was at a series of dunes. They all were relieved when the party leader dug steak and potatoes out of the sand. Nevada always prepared well!

Dr. Klaus Flach, Benny Brasher, and I were the ones making most of the trips as Soil Taxonomy developed. Although desert soils were intensively studied at the Desert Project in New Mexico by field scientists and by the Lincoln Laboratory, it became apparent that the project lacked examples of desert soils that were influenced by volcanic ash. Furthermore, though both states had deserts, the deserts in New Mexico received precipitation in the summer whereas those in Nevada more commonly received precipitation in the winter as snow. Klaus Flach and his staff, as a result, provided the data to characterize soils (xerollic subgroups) that were found suitable for increasing range production by replacement of sagebrush by crested wheatgrass. They also did the analysis of soils cemented by silica. This work was guided by the detailed descriptions of the soils by Lou Langan, Eddie Spencer, and Eddie Naphan. Eventually, criteria were written to differentiate between soils cemented by calcite and those cemented by silica.

The University of Nevada at Reno hired Fred Peterson in the late 1960's and, in so doing, greatly benefited soil research there. Fred had been part of the Desert Project in New Mexico and a professor at the University of California, Riverside, before coming to Reno. One of the first things he did was to define and illustrate *Landforms of the Basin and Range Province Defined for Soil Survey*. Soon, work to obtain moisture and temperature data on mountains, ranges, and the deserts was also underway. This was important in a state with few areas having a surplus of water and a great area of soils having a moisture deficit. Otto Baumer participated in these studies as he completed his master's degree there at Reno. Fred Peterson also intensively studied desert A horizon morphology, which in some of its forms has a very low water infiltration rate. He also brought to Nevada the orderly system he had helped develop for describing soils cemented by carbonate. He had a large part in defining orders for soil survey. Above all, he was a teacher that added much to our problem solving techniques.

I must also mention the impact of Harry Summerfield on the soils program of Nevada. He was Fred Peterson's graduate student and became one of the leading soil scientists in Nevada. He had a good understanding of plants and animals as well as of soils. He eventually became part of a team of scientists working in these three fields of science. It was through his help that Dewayne Mays and I got to Table Mountain. There the USDA Forest Service hoped to increase range production enough to support both the cowherds normally taken there and to also support the elk that hunters wanted to introduce there. Trouble struck upon our saddling up for the ride to the mountain. A group of ichthyologists was also leaving for the mountain. They had a fish shocker on a long pole and expected it to be carried up the mountain by one of the 'docile' pack mules. Well, that docile animal was spooked by the long contraption and began bucking and jumping. The packhorse Harry had loaded with the eggs packed for us then got involved. Soon the eggs were running down the sides of our packhorse. Harry was mad! Upon cooling down, he repacked all their train and we could see that here was a cowboy as well as a scientist.

On the mountain, each of us shared in the food preparation. My part was to get the fire going in the morning. Those were cold times; some snow fell while we were there. The tent and sleeping bag were tough to leave in the morning, but it had to be done. Impatience is dangerous when a fire is slow to catch. The gas can helped greatly, except for one time. That time, the stream of gas to the fire served as path for the fire to reach the can. Reacting to that, I threw the can far across the camp to the sagebrush beyond. Now that was a good toss, but it did not end the problem. As the can hit the ground, the fire carried to the bushes setting the can fire free. I quickly retrieved the can and began on the brush fire. But I was not the only one

now fighting the fire in the brush. The fiery comet across the opening of the tent had Harry and Dewayne on the scene now, too. Saddle sore, frightened, but well fed; camping with Harry was such fun! Down off the mountain with a little time left, I took Dewayne around to see the Sierras. Table Mountain, by the way, became part of Dewayne's thesis on Mollisols.

We helped with another thesis study encouraged by Eddie Naphan. This time it was for Oliver Chadwick from the University of Arizona. It was on duripans. Oliver's major professor was David Hendrix, a careful analyst with experience in chemistry and mineralogy. We characterized the soils; they did the mineralogy. They found the cement in duripans to be opal-A and opal-CT. The covalent nature of monosilicic acid drives it into the soil matrix where it bonds to soil particles as opal. This is in contrast to calcite, which as a result of its ionic nature, fills in the pores. Calcite is the more soluble of the two kinds of minerals, so redissolves and moves deeper in the soil tending, thus, to leave the opal higher in the profile. The tendency for opal to occur above carbonate makes recognition of duripans easier in soils that also contain carbonate.

We were involved with Oliver and George Staidl in a study of a transect of soils in Lamoille Canyon on the north side of the Ruby Mountains. Besides adding soil experience, George also identified the plants at the sites. The study used soil properties to show that over the 150,000 years of the history of the soils, effective moisture averaged 2 to 4 centimeters per year greater than at present. During glacial times, effective moisture was 7 to 9 centimeters per year greater. Over the long term, desert loess increased the water holding capacity of the soils by 25 percent. Drying at the end of the Pleistocene decreased the depth of leaching by 150 centimeters.

Accelerated Soil Surveys

Paul W. Blackburn

I was introduced to the soil survey party in the summer of 1976 as a student trainee in Winnemucca, Nevada. The party consisted of Lee Larsen, who was the party leader; Steve Slusser, who was on detail from his duty station in Elko; and Jim Mitchell, who was on detail from Yerington. I believe John Fisher also spent some time on this survey during this summer, as well as Bob Smith from Elko. It was a fantastic summer as I had the opportunity to work with several people on the party and learn the ways of a soil scientist in the field. The area being mapped was the Bilk Creek Mountains and we were staying at the motel in Denio. During this time, most field parties consisted of the party leader and maybe one additional soil scientist who may have been a trainee. This was the case for Dave Candland, in Douglas County, who was the party until I showed up in the summer of 1977 as a second year student trainee. In 1978, I began work in Minden for Dave as a GS-5 entry-level soil scientist. In 1979, we completed the mapping in Douglas County and I was informed I was going to be transferred to Battle Mountain, Nevada, because of a realignment of priorities. This realignment of priorities was fueled by the acceleration of mapping on BLM administered lands.

Many soil scientist and party leader positions were filled all across the state. This increase in manpower accelerated the rate of mapping production. I spent only three months in Battle Mountain and was transferred to one of the two soil parties located at the Elko Field Office. One of these parties had been in Elko for some time concentrating their work on the area that would become the Elko County, Nevada, Central Part Soil Survey. The other party was new and was assigned to complete mapping in the Elko County, Nevada, Northwest Part. I was assigned to this crew. There was also a party leader/quality control position established in Elko at this time to work with Goodson and Associates who had contracted with BLM to map the Owyhee Desert. Priorities established by BLM requested that our field mapping begin in the Wilson Reservoir area and in the Tuscarora Mountains. It was customary to check with the Bureau and, as much as possible, coordinate our area of mapping with their priority areas.

In the spring of 1980, the two parties, consisting of 10 soil scientists from both agencies, moved out of the field office and into BLM provided office space in the upstairs of the Vitality House, a drug and alcohol rehabilitation center. Entering this building on the main drag of Elko on Thursday afternoons, after spending the week dry-camped, created some interesting community reaction. Quite often, we had to straighten out misconceptions of

some people, who were unaware of the government office space upstairs and thought we were entering the building all grubby and dirty after a few too many drinks.

Approval was given at this time for a 10-hour workday, which everyone was excited about. The work schedule was from 0630 to 1700 Monday through Thursday. Being in the office during the winter and early spring made for some extremely long days, especially since we had to endure the cooking odors that permeated the building in the morning and midafternoon from the kitchen that fed the residents of the Vitality House.

Supervisory control of our soil survey office rested with the soil correlators in the state office as we were removed from local affiliation with the SCS field office. This management structure slowly eroded over time and we were eventually recombined and moved back to the field office in 1982.

Progress field reviews that took place during this time seemed to draw numerous people not only from our agency but also from the BLM. Everyone wanted a chance to go to the field and find out what the state of the art was relative to soil series concepts and interpretations as well as newly identified range sites. Most of the field reviews required long days, as there were many new series to be reviewed and long distances between pit

Everyone wanted a chance to go to the field . . .

locations. George Staidl, the correlator for this area, was extremely thorough in his examination of the draft field descriptions and took every opportunity possible to provide instruction on the fine points of soil genesis, formation, and classification. Most days, we did not arrive back until 8 or 9 p.m. These field reviews were critical, however, as they gave each of us a chance to observe what other party members had been mapping which enhanced the consistency of our soil-range correlations. By the spring of 1985, field operations in the Elko Central, Elko Northwest, and Elko Northeast Soil Survey areas had been completed. The summer of 1985 saw the initial field review for the last remaining survey area in Elko County. This survey required only one soil party leader and his party of five soil scientists. Soil survey work on this area was interrupted in 1987. We were reassigned to upgrade and remap 3.2 million acres of the Western White Pine County Soil Survey Area. Corrections to the original mapping of this survey centered on revisions to soil series and range site concepts and correlations. Work on the Elko Southeast Soil Survey was recommenced in the summer of 1988 with the winter of 87/88 and 88/89 utilized for completion of the Western White Pine draft manuscript.

Field safety had always been a concern with many people scattered over the half million acres that was typical for a soil survey party to be working on in the summer. It was customary for each of us to inform others where we were working so if we did not show in the evening or by the next morning, someone could launch a search for us. One evening, Dave Pickel had not shown up at the trailer in Currie by 9:00 p.m. so a search was begun. We knew Dave was working in Goshute Valley so we divided up into two vehicles and started our search north from Alternate Highway 93.

Thunderstorms that afternoon had centered on this area and the lakeplain soils were rather slick. Goshute Valley is a large valley but I never realized how large until I experienced it on a pitch-black night with a million stars overhead. We finally located Dave stuck in the mud resulting from a high intensity thunderstorm. We dug him out and were glad that we could find someone under these conditions.

By 1992, the soil survey party in Elko had dwindled to a party leader and a field soil scientist, as mapping in Elko Southeast ground to completion. By 1993, only the party leader left was in Elko completing the manuscript. In 1993, the BLM District Office in Ely decided it was time to recommence mapping in the White Pine County, Nevada, East Part, so a party leader was hired by the SCS headquartered in Ely. Gary Medlyn was party leader and was assigned a trainee field soil scientist. Progressive work was conducted in this survey area until 1995 when reimbursable funding for the survey area was terminated.

Making of a Soil Correlator

George J. Staidl

To do this justice, one has to look back over time. From my point of view, it then becomes an interesting review of the steps taken and events that transpired on the road toward a career as a soil scientist or, more notably, a soil correlator. To put it differently, "How does one ultimately become a soil correlator in the formerly called Soil Conservation Service (SCS), now the Natural Resource Conservation Service (NRCS)?" I can imagine it happens a number of different ways. Each individual's story is uniquely different. This is my tale.

The making of this soil correlator cannot be devoted entirely to my career in Nevada. It also involved a number of individuals and circumstances outside the state that influenced my direction. It started with my first soils course at the University of Wisconsin resulting in a change of majors from Forestry to Soils. At that point, interest in soils developed into a challenge and a career was launched.

Upon graduation in 1963, my first position with SCS was at Woodland, California, as a soil mapper in the Yolo County Soil Survey Area. This is where I was to first meet Grant Kennedy. (*Where did I hear that name before, Nevada?*) Grant was the area soil scientist at that time. He had a major influence in improving my technical expertise with the soils in the area. This was at a time when we were in transition from the 7th Approximation to Soil Taxonomy. The preliminary criteria to be incorporated into Soil Taxonomy were available to all soil scientists for testing. With Grant's guidance, identifying, describing, and placement of soils for the soil survey area was a challenge and unique experience.

To put things in perspective, the soil survey area was in the northern part of the Sacramento Valley. It encompassed part of the agricultural valley and annual range of the coast range. Interspersed with my duties were details to the adjoining Solano County SSA, Suisun Bay portion. This is a marshy wetland area that provided an opportunity to test proposed Soil Taxonomy criteria for identification and separation of organic soils. The experience gained in testing the proposed criteria provided me with ground floor learning and a challenge to work in new areas.

Transferring to Grass Valley, California, to work in the Nevada County Soil Survey Area in the Sierra Nevada Mountains, allowed me to broaden my soils background. This was an opportunity to gain experience in climate and elevation changes of soils and vegetation. The area ranged from the annual oak-grass zone to mature coniferous forests along with a multitude of