

Patterns, Patience, and Purpose: Kelly W. Allred

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In the spring of 1846 a large group of Mormon pioneers under the leadership of Brigham Young were encamped on the east side of the Missouri River in what is now southwestern Iowa. They harbored plans to move en masse to the west to seek a permanent homeland and wished to have federal assistance. An emissary was sent to Washington, DC, to meet with high-level government officials and, eventually, President James K. Polk. An agreement was reached by which the US government gave permission for the Mormon community to occupy Indian land along the Missouri River for the winter, with the proviso that the Mormons supply a contingent of troops in support of the US efforts in the newly declared Mexican War. By mid-July more than 500 volunteers were mustered into service for the period of one year and by August had arrived at Fort Leavenworth in Kansas as part of the Army of the West commanded by Colonel Stephen W. Kearny. The Mormon Battalion had been formed. In mid-October, the new battalion commander, Captain Philip St. George Cooke, reported that 486 volunteers had reached Santa Fe, New Mexico.

According to Cooke's report to the US Senate in 1849, about 60 men were unfit for service due to illness. In addition, "twenty-five women and many children" accompanied the battalion. Cooke felt that the women and children would be quite out of place on the difficult journey that was to be the mission of the battalion, and ordered them to be sent with the sick back to winter quarters at Pueblo, Colorado, but "reluctantly consented to take five women, the wives of officers and serjeants [*sic*]." On October 19 the remaining group headed south from Santa Fe to travel through central New Mexico to the south end of the Black Range and then west and south through New Mexico and Arizona to San Diego. Although not involved with actual combat, the battalion made a remarkable and historic march across uncharted territory, arriving at the California coast on January 29, 1847. From Cooke's report:

The Lieutenant-colonel commanding congratulates the battalion on their safe arrival on the shore of the Pacific ocean, and the conclusion of the march of over two thousand miles. History may be searched in vain for an equal march of infantry. Nine-tenths of it has been through a wilderness where nothing but savages and wild beasts are found, or deserts where, from want of water, there is no living creature. . . . [T]hus, marching half-naked and half-fed, and living upon wild animals, we have discovered and made a road of great value to our country.

Cooke's record of this incredible journey by the Mormon Battalion provides one of the earliest glimpses of plants, animals, and landscapes of New Mexico.

The men completed their term of service by training and performing other military duties in southern California and were discharged there on July 16, 1847, but there was more history to be made. A group of about 150 of these "veterans" headed north to the Sacramento area seeking work. About 100 decided to stay through the winter. They heard that a man named Sutter was looking for workers to build a sawmill. The men offered their services and in January of 1848 the facility began operating. On January 24, a small group of the ex-soldiers were working on some refinements when James Marshall, Sutter's partner, walked up from the millrace, which had been freshly scoured by water the night before. He showed the men a handful of shiny nuggets. The history of California was forever changed.

One last contribution to New Mexico from this nontraditional battalion has come from one of the descendants of this group, who has had quite an impact on the botany of the state. In his own words: "I had seven ancestors in that battalion or maybe even more. So I have been in New Mexico for a long time. I've been here since before I was born."

His name is Kelly Wayne Allred.

Kelly

Kelly was born on August 23, 1949, in Sutter Hospital in Sacramento, California. His father was Wendell Union Allred, who acquired his middle name as a result of his birth in 1918 at the end of World War I. Early in 1942 Wendell was among the first to be drafted for service in World War II. He had met Kelly's mother, Norma Hall, in Portland, Oregon, during the war. They subsequently married. Both were Mormons. Their first child, Kelly's brother Cory, was born in November of 1946. But all was not gold in the marriage, and when Kelly was just two years old, Norma abandoned the family. "My first mother was less devout than she should have been." A divorce was inevitable. A year later Wendell married Virginia Boothe from Provo, Utah. "I was adopted by my stepmother and raised by my stepmother and my father." He was "raised in a household of faith" in Sacramento.

In the early fifties Wendell moved the family to Provo in order to finish his college education at Brigham Young University under the GI Bill. He completed his degree in engineering and the Allreds returned to Sacramento, where he took a job with the US Geological Survey. He had spent the war making topographic maps for the army. Kelly's half sister, Beverly, was born there on May 1, 1958. Kelly spent kindergarten



Kelly 1951

and his first four grades at Dyer-Kelly Elementary School in Sacramento.

In 1958 Wendell accepted a position in Menlo Park at the headquarters of the USGS and the family took up residence in Palo Alto, southeast of San Francisco. Kelly entered fifth grade at Grendell Elementary with Miss

Juckland. "I couldn't do long division and I was always staying after class to finish my long division." He mastered the math. Schoolwork was not really a problem. In sixth grade he had Mr. Small. That year he had a very unnerving incident with a girl and a surprising response from Mr. Small.

I was very good on the monkey bars and Jennifer Leghorn, a redhead, would chase me around the monkey bars. Finally, I was swinging around and I landed, I sort of jumped off and she jumped on top of me and kissed me on the lips. So I smacked her in the face and then she went crying to Mr. Small and we told what happened and he said, "Well, I guess you got what you deserved."

It would be a long time before he experienced another kiss.

Even before entering his junior high school years, he had developed an interest in the natural world around him. His father had gotten him a microscope. "I had little nature books." He went out into the backyard and marked out a square one foot on each side, set four pegs, and surrounded it with string. "I tried to nose around and find every living organism in this little square." He even kept notebooks of his activities and explorations. His grandmother sent him a book of the birds of eastern North America. "I got interested in birds and I tried to identify birds with this book." He was interested in things biological but without any specific goal.

In 1961 Kelly began attending Wilbur Junior High School. There he had his first official science class. "I had for science, at Wilbur Junior High, Mrs. Acevado, and we did some very interesting things. I remember being enthralled with the word *environment* because it had an m and an n next to each other." Hardly a ringing endorsement for studying science! In fact, Kelly was not really that interested in his classes. He made reasonably good grades, but his real passion was much more down to earth, namely basketball. "My life was basketball."

He carried his love for the sport into Cubberly High School. He was a devoted fan of the Boston Celtics in the

National Basketball Association and had a special place in his heart for their star center, Bill Russell. Another idol was Bill Bradley. "Bill Bradley graduated college in 1965 from Princeton. He went to be a Rhodes Scholar, came back to the NBA and played on the New York Knicks. Then he became a senator and ran in the primaries for president.

I'd have voted for him in a drop, a heartbeat." Kelly was a starting guard for the Cubberly Cougars basketball team as a junior and senior, averaging about 10 points and 10 assists per game. "I thought of myself as a star but I was not." In a curious twist, his coach was Bud Presley, who was quite a sports star at the New Mexico Military Institute in Roswell, where he roomed with Ty Cobb's son.

His success in athletics did nothing to create more scholarly behavior. "I guess I was a B student. I just didn't pay a bit of attention to academics." His athletic success did, however, affect his social status. Cubberly High held an annual "Hukilau" dance with a Hawaiian theme. Girls had the privilege of inviting the boys. Each girl would make a muumu dress for herself and, out of the same material, a shirt for her date. Everyone wore a lei. "And so they had a contest for Hukilau King and I was somehow chosen. I have no idea how that happened." Yet there was still time for his own private interaction with the world of biology. "My dad had two old tree-identification books. He took a trees and shrubs class in college, I think. So I got those and started identifying the trees around the house. I'd walk into the hills of Palo Alto and start to identify the trees a little bit if I could."

In the fall of 1967 Kelly began his college education at BYU. "Somehow I ended up at BYU. I don't remember applying, but I guess I did." He continued the long history of

his family at BYU. He entered his freshman year with dreams of becoming a writer. In high school he had been a devoted fan of John Steinbeck. That dream never caught fire. For a time he considered becoming a forest ranger, but there was a certain aimlessness in his early career at BYU. As a freshman he enrolled in a general botany course, but his dedication to athletics got him



High school basketball

Hukilau King
(Kelly second from left)

into trouble. The class involved a lab that met at four o'clock in the afternoon. The gymnasium opened at three thirty. His priorities were clear. As a result of not attending the labs, he failed the botany course.

Because of his success in high school, he very much wanted to play on the freshman basketball team at BYU. He had played ball all through the previous summer and knew several guys who ended up on the team. He decided to talk with the coach about trying out for the team. He went to the coach's office.

There was a guy in his office talking to him who was on the varsity team and I'd played with him. He kind of said some nice things . . . We talked and the coach said "great" and shook my hand. I walked out and got halfway down the hall and realized he didn't tell me when the practice was, nor did he invite me there. So, they weren't the least bit interested. I could have been the greatest player in the world.

Kelly's future on the hardwood faded to black.

There were, of course, warmer dimensions as well to those early days of college. One August day, not long after Kelly had arrived on campus, he and some friends gathered in a dorm room. One of his friends made a phone call to a girls' dorm to talk to a girl he had been seeing. After a few minutes, he passed the phone to Kelly, who found himself talking to a girl named Lynda.

Both the boys and the girls continued to pass the phone around. The next day the guys "went up to meet these girls we'd been talking with" and Kelly met Lynda face to face. As the semester continued they would see each other and say hello or even talk a bit, but things didn't seem to progress much. Kelly dated a few other girls, but "there wasn't any chemistry there." Then in November the girls' dorm held a "Buddy Party." A girl could select a young man to be her date, but could not invite him. A roommate had to do the actual inviting. Lynda chose Kelly and her roommate invited him. At the party they got to know one another much better and discovered that they enjoyed each other's company. They began dating regularly.



Kelly passport 1969

At BYU every young man of faith was expected to go on a mission for the Church of Jesus Christ of Latter-day Saints. This generally occurred after the freshman year. Kelly did not feel ready to go at the

end of his first year and continued his studies for another year. He retook Botany 105, this time earning an A. He also took a trees and shrubs class with a professor by the name of Stan Welsh, who would later have a strong influence on Kelly. Kelly continued to pursue his relationship with Lynda. By the end of his sophomore year he decided that he was ready to undertake his mission.

So my decision to go came with a sort of a spiritual experience that I had, that kind of whispered to me that you need to do this, it's time to do this. That's all part of my foundation of things that I say. I'd had enough experiences in my life that I no longer wondered about the existence of God or these kinds of things. So it was a matter of growing up, maturing, having experiences and developing my own faith that now it's time to go.

In the summer of 1969 he began preparation for his mission at a missionary training center. By autumn he was in northern France, where he would spend the next two years in service to his church. There he was paired up with a companion to spread the word of the church. "I had about six or eight companions in the two-year period that I was in about six different cities." Life in Provo went on without him.

Lynda

Lynda Street was born on March 5, 1949, in Pittsburg, a steel town, but not in Pennsylvania, rather in California, somewhat inland on the east side of San Francisco Bay, not far from the mouth of the Sacramento River. Her father was Carl Wilson Street from Provo, where he was a steel worker. He was a Mormon. In Provo he met and married Zella Peterson. She was a Mormon. There were Mormon pioneers in her lineage. The steel mill in Provo transferred Carl to Pittsburg.

Lynda was the youngest of four daughters. Judy was the oldest, followed by Kathy and then Sherry, all born in Provo. "I was always the baby, that's the way my mother introduced me." Lynda was actually raised in West Pittsburg (now Bay Point). In 1954 she entered first grade at Ambrose Elementary. Schooling was simple and easy to fit into, but not a focus. "I was a tomboy. I liked to play outdoors." When she was about 11, she took roller-skating lessons at a rink, on



Lynda age 4

old-fashioned skates with two wheels on the front and two wheels on the back. She got rather good at it. She could even skate backward. In competition she won a trophy. "Then they paired me up with a guy and we competed. I don't remember winning anything, but we went to meets and we skated together." She had fun.

By the time she entered seventh grade, life at home wasn't the best. Her sisters had completed high school and she was the only daughter left at home. It had become apparent that her father was an alcoholic. The void between her mother's and her father's commitment to faith had reached crisis proportions. When Lynda was 13, her parents formalized their divorce. Zella and Lynda left California and settled in Provo. Lynda completed ninth grade at Farr Jr. High School there, but she and her mother were not getting along. "I really didn't like Utah or the relationship my mother was in, so I went back and lived with my sister."

Back in West Pittsburg, Lynda moved into a spare room offered by Sherry and her husband. She enrolled at Pacifica High and began her high school career in earnest. As always, schoolwork was not a problem for her. "I was a B+ student or A-." She was no fan of math or science, but she worked her way through them. Her real interest was in the area of language. She very much enjoyed English and Spanish, but it was in extracurricular areas that she displayed the most energy. She was quite involved with student government, even becoming the vice president of the student council. She went to conferences for leadership for high school girls. She was in a play. She was a pom-pom girl.

I was in the chorus in high school. I had my fingers in many different things. Clubs, student council, honor society, Spanish club. I was very involved. I liked to be involved.

She was moving forward with her life. Sherry and her husband were members of the church. This provided Lynda with a degree of comfort with her faith. "There were only three or four of us in the high school in California. It helped me live my religion." In the summer of 1966, Sherry and her husband moved. Lynda lived with Judy for the remainder of the year.



Then in January of her senior year, she was invited to live with the family of Mr. McQueen, a math and science teacher at Pacifica and a church member, for her final semester. While back in California, she visited her mother every year.

Lynda and Sherry

She graduated in the spring of 1967. In high school she wanted to have good grades and to be active outside the classroom so that she could go to college. Her father had told all of her sisters that girls shouldn't go to college. Judy had to fight to go to college. She did and got a degree. Lynda yearned to go on to a university.

I decided to go back to Utah because I'd always heard about BYU. Neither of my parents graduated from college. Growing up in the church, BYU was the mecca and I thought I wanted to go there.

She applied there. It was her only application. She was accepted and offered a scholarship of \$100 per semester for her freshman year. In the summer of 1967, Lynda and a girlfriend got jobs as maids in a Lake Tahoe resort and Lynda saved every penny she could for college. In August she was back in Provo living in a dorm, determined to get a college education.

Lynda paid her own way through college. "My father was no support. There was no support from my mother." With the scholarship and the money she had saved, she was able to meet all of her expenses in her freshman year. Tuition was only \$200 per semester for members of the church. But for most of the rest of her career at BYU, she had to work to pay all the bills. She didn't want to borrow money. After her freshman year she lived in an apartment with friends. It was less expensive than staying in the dorm. "All I remember is that I was a waitress. I was a maid. I worked in the laundry at BYU." Meanwhile, she took her academics seriously. Not surprisingly, she concentrated on language, English and Spanish. At the end of her junior year she crystallized her study of Spanish by spending a summer in Mexico City. The church had a high school there to try to provide a good education for local students. BYU professors accompanied their students on the trip. "We got the culture and flavor of it all." The trip was her only exception to her policy of not borrowing money.

Of course, her life at BYU was not just work and study. She also had a social life, even from the beginning. In her first few weeks at BYU, she was already part of the dating scene. Her sister Sherry had an acquaintance in California who was going to BYU. She had given him Lynda's phone number. Lynda had gone on a couple of dates with him. One day that August he called her at her dorm.

I was in my dorm and I was dating this guy in their dorm and the guy passed the phone around and I talked to a guy named Kelly. I never knew a guy named Kelly. So we talked. He was dating this girl and I was dating this guy.

She and Kelly saw each other now and then during the fall. Then in November she decided to "invite" Kelly to her dorm's Buddy Party. A relationship began that night. They continued dating steadily for the next year and a half, until Kelly started off on his mission.

The Couple

Kelly returned from France in August of 1971 a bit more focused and ready to take his education seriously. It was good to be back in Provo. Commonly, young men would come back from their missions and find their girlfriends in serious relationships or married. He had missed Lynda and was very glad that she was still unattached. That summer she was taking her last class toward the completion of her studies. She was a semester behind, since earlier she had taken a semester off to help Judy, who was pregnant with a third child. That month she graduated with a degree in secondary education. Mitt Romney gave the valedictory address.

Fall began for Kelly with a new attitude toward academics. He enrolled in a plant taxonomy class taught by Welsh.

Somehow he and I hit it off, his personality, my personality, and I said that's what I want to be. I remember the day when I went to Lynda and said I know what I want to be. I want to be a botanist, do floristic studies and have a little herbarium, specialize in some little group of plants.

Welsh was a major figure in the study of the botany of Utah and the intermountain region and was the lead author of *A Utah Flora*. "He gave me a B and I'm still kind of perturbed about that." Despite the perturbation, Welsh would later be his major professor. His lab instructor in the taxonomy course was another famous Utah botanist, Duane Atwood. Kelly became a botany major.

During the fall of 1971 Lynda did her student teaching. She lived with her mother. She also held down a job as a secretary in an insurance office. Kelly also landed a job. Despite being an undergraduate, he became a teaching assistant. His first assignment was in the general biology class, a course he had not taken. Kelly and Lynda spent a lot of time together. Their relationship had acquired an aura of permanence. Although not quite on bended knee, Kelly sought her hand in marriage in January of 1972. Lynda recalls the event. "All I remember is him saying, 'I'll take care of you.' And I said, 'Are you asking me to marry you?' And he said yes." So did she. They decided to wait until the following summer.

As his studies progressed, Kelly solidified his mastery of the scientific content of his courses, but also began to develop a field dimension. He took a course from a professor



Kelly & Lynda, Spring 1968

who had been raised in Palo Alto. Kelly's mother had known this professor as a youngster and remembered him as "a little hellion in church." A field project was required in the course. Kelly decided to study the diatom population in a small creek that ran through the campus. "I was very much intrigued by the patterns of the diatoms. Taxonomy is pattern recognition to a great extent." A plant morphology course from Professor Tidwell had a powerful effect. In order to encourage students to be thoroughly prepared in class, Tidwell would have a student stand in front of the class. He would then show slides of tissues and cells and ask detailed questions. *What kind of section is this? Tangential? Cross-section? Longitudinal section? What tissue are we in?* Kelly was an early victim.

As soon as he discovered that you hadn't prepared well, he would keep you up there and humiliate you, which he did. And I sat down after the first humiliation because I hadn't known what to prepare for. I'm going to show that #@*%! So I really studied hard. I got an A in the class and took three more classes from him. It motivated me because I was humiliated in front of the whole class, but I wasn't the only one. It only took two or three of us up there making fools of ourselves and suddenly everyone was studying.

Coupled with his clear vision of where he wanted to head, this adjustment of his intensity and dedication was a perfect complement. Tidwell's courses also did much to broaden Kelly's experience base with fieldwork.

The summer came. Arrangements for the wedding were gradually finalized. Lynda's sister Kathy provided a special surprise. Kathy was living in Hawaii. She went out and gathered local orchids, packed them carefully in a box, and shipped them to Lynda. "I took them down and had them



made into bouquets at the florist." The ceremony took place in the Salt Lake Temple of the Church of Jesus Christ of Latter-day Saints on August 9, 1972. Kelly's parents, Wendell and Virginia, were there, as were Cory and Beverly, Cory as best man. Judy and Kathy came, as did the McQueens. Lynda's maid of honor was her dearest friend from junior high, Paula Bailey. Lynda became an Allred.

That fall they set up housekeeping together and began the pursuit of Kelly's vision of his future. Lynda continued her employment. Kelly remained a teaching assistant but concentrated his energies on his studies, broadening his base in botany, but also taking a few lower-division courses required for graduation. Even though he had been involved in teaching the general biology class, he also had to take the course. At the end of the spring semester of 1974 he was awarded his Bachelor of Science degree in botany. 1974 also saw the birth of the newest Allred, a son, Nathan.

There was never a question about the next step. He would pursue a master's degree. During his final undergraduate semester he had applied and been accepted into the graduate program at BYU. He was granted an assistantship and Lynda was able to leave her job and take care of the baby. Immediately after graduation he began work on his thesis research on the flora of Mount Timpanogos, a mountain in central Utah. Mount Timpanogos, Sleeping Maiden, is the second highest peak in the Wasatch Range, at 11,752 feet. "The flora was 600-and-something species. I went from about 6,000 feet to 12,000 feet." He completed his research and wrote his thesis in a single year and received his Master of Science in botany in 1975.

With the master's in hand, a PhD program became an imperative. Kelly's closest adviser, Stan Welsh, had come to BYU from Iowa State University and had sent other graduate students there. It seemed natural for Kelly to apply there. He received a letter in return from ISU professor Duane Isely, indicating that Kelly was certainly qualified and would be welcome but that no assistantship was available. Isely also mentioned that the ISU grass expert, Richard Pohl, had heard that Frank Gould, agrostologist at Texas A&M University, had an assistantship available. Kelly wrote Gould. Gould responded, inviting Kelly to go to College Station. "So that's how I got into grasses. I wasn't planning to study grasses. I had one grass course at BYU using Gould's book as a text. So I went down to Texas A&M in the fall of 1975."

The young family traveled deep into the heart of Texas in late summer. Summer in south-central Texas is not the same as summer in north-central Utah. Lynda was shocked. "Texas was too hot and humid. How do people live in this place?" The situation was compounded by the fact that she was pregnant. Their married-student housing was in an old recycled army barrack, the last in a group being replaced by more modern units. The barrack had a roach infestation. Kelly and Lynda were quite distressed. "We would come home at night and they were on the walls. That was a little hard on us." As the birth drew near, in 1976, Lynda returned to Utah to have the baby, a second son, Jesse. Back in Texas, she tried to make the best of the situation. "I didn't work so we were

very poor. We lived on \$600 a month, the four of us, and we just did it. After a year, we moved out of the barracks into married-student housing that was brick and more modern."

Despite the difficulties, Kelly energetically went to work on the final phase of his education. In 1976, the *Great Basin Naturalist* published his first major paper, a result of his researches at BYU, concerning the gentian family in Utah. Then it was time to begin new research at Texas A&M. Gould suggested a direction for his dissertation research, the systematics and patterns of evolution in the grass genus *Bothriochloa*. Kelly began an in-depth study of the group. He and Gould started to suspect that some species might be the products of hybridization of others. "In the greenhouse I hybridized them, planted the seeds, up they came and there they were." By the spring of 1978, most of his research was complete and things seemed to be moving along. But he was in for an unfortunate surprise. Dr. Gould came to see him. He said, "I'm sorry, my assistantship money has run out. The grant is gone and I don't have any money for you." The year Kelly had counted on for the final crafting of his dissertation vanished. The young family was in dire straits.

The proximity of the long-sought goal and this sudden roadblock brought sadness and disappointment, but eventually determination and perseverance as well. There had to be a way, and there was. Kelly found and accepted a position at the State University of New York at Geneseo, about 60 miles east of Buffalo. It was a one-year position teaching courses in biology. The situation was far from ideal. The biology department occupied a two-story building and there was a schism in the department, with the lower floor at war with the upper floor. The Xerox machine was not on Kelly's floor. He did not have copy privileges and had to pay for every copy out of his own pocket. But the pay was steady, his teaching responsibilities were manageable, and the snowy winter conducive to progress with his dissertation. In fact, on February 26, 1979, Geneseo had its largest single-day snowfall in its history, 23 inches.

My research was basically done. So I did much of the analysis, all the writing, all the photography development in Geneseo. I taught at the college, teaching from eight to five. Home, dinner. Seven o'clock I'd go back, one mile back. I'd walk or maybe drive. Be there until midnight or so. I had all these pictures of chromosomes and things for my dissertation.

After he had drafted the dissertation, he would have liked some suggestions from his advisor, but Gould had gone to Mexico. He turned to another member of his PhD committee, Paul Fryxell, who was "very, very helpful." In the summer of 1979, as he was putting the finishing touches on the dissertation, he began applying to a number of universities for employment for the next academic year. "I applied everywhere." He scheduled his dissertation defense back in College Station for early August. As the summer progressed, he had no success with his applications. Finally, after he had



Niagara Falls, 1979

made plane reservations for the trip back to Texas, New Mexico State University contacted him for an interview. “They said, ‘Why don’t you change your tickets?’ So I went to my thesis defense, flew over to Las Cruces, did my presentation there and flew back to Geneseo.” Two days later he received a call from the range science department head saying that NMSU would like to offer him the job. Kelly accepted on the spot.

Kelly’s dissertation defense had gone well and he was officially Dr. Allred. And he had a job. The only problem was that classes would be starting in a week and a half at a university nearly 2,000 miles away.

It took us three or four days from Geneseo. We had two kids in the back of our Dodge Dart. We were pulling a double-axle trailer. We had to replace the transmission before we got there. We came from White Sands up the big hill. Back then there was nothing. The valley where it goes into the Jornada was just bare, and it was dry and brown. And Lynda asked, “Is this where we are living?” and I said this is it.

Lynda had never seen New Mexico before (nor had Kelly before his interview). As a child she had traveled in summer with her family across the desert west of the Great Salt Lake in order to visit her grandparents. Her memories of desert were “just brutal.” Those US-70 miles in New Mexico decades later were certainly less than comfortable. “But when we got into town, it was fine.” From Geneseo they had contacted church members in Las Cruces. “They got us an apartment, and the day we drove in they had a crew

of people there to unload the trailer.” It was an important beginning.

Since Kelly had done his PhD at Texas A&M in the range science department, he had a PhD in range science. In actual fact, he had never taken a single class in range science. In the fall semester of 1979 he taught courses in range science, range plants, range grasses, and plant identification. Undaunted, he approached his assistant professorship with intensity and enthusiasm. The family settled in at their apartment on Missouri Avenue, within walking distance of the NMSU campus. And his salary was twice what he had received in Geneseo. There was, however, to be a dimming to their bright new life in Las Cruces. Even before they had arrived there, it had become clear that young Nathan had serious health problems. Soon after the end of that first semester, their first son lost his battle with spinal muscular atrophy. 1980 began darkly.

Such loss eludes acceptance, but eventually time, indomitable optimism, and the very essence of faith softened the sorrow for Kelly, Lynda, and Jesse. Future, so silenced by past and present, found its usual place again. Kelly wanted very much to have a successful career at NMSU, as part of his collegiate vision of a life in botany, and for his family. He continued his commitment to teaching and guiding his students. He had inherited a graduate student from his predecessor, Dr. Stephen Hatch, who had, amazingly, just accepted a position at Texas A&M. Kelly helped that student, Robert Soreng (now a botanist at the Smithsonian), through his studies in the grass genus *Poa* and to the completion of his master’s degree in 1980. Kelly also published a paper in 1981 and another in 1982. By 1981 the family had moved out of their apartment and into a house on Jordan Road, also near campus, which is still home to this very day. By 1982 Kelly had moved into quarters in Room 321 in the recently completed Knox Hall, the brand new home of the Department of Animal and Range Sciences. In that same year Jesse entered school and his new brother, Brady, entered the world. Two years later, another Allred son, Corby, arrived in the household to complete the family.

In 1983, Kelly reached two milestones. He formally published the results of his earlier researches in *Bothriochloa* and, more importantly, became an associate professor and gained tenure. It was then time to seek a new direction in research. He recalled that he had always had difficulty identifying grasses in the genus *Aristida*. “I’ll just start collecting all the *Aristida* that I can and see what I can do, and that gradually worked into a major focus.” As the eighties progressed he not only collected in the field but also began visiting other herbaria. “I visited all the ones in New Mexico and the two big ones in Arizona. I visited in California, mostly Berkeley, Rancho Santa Ana Botanic Garden, and Chico.” He visited the Smithsonian. He even made four excursions into Mexico for “a week or two” to study the species there with Jesús Valdés-Reyna, a Mexican agrostologist he had met while both were graduate students at College Station. “So I spent a lot of time looking at plants, looking, looking, looking. Finally, I started to understand the variation patterns.” Ultimately he came to

realize that previous workers had named a large number of species without understanding these subtle patterns and that the taxonomy of the group could be greatly simplified. He continued to publish papers on *Aristida* for another 20 years.

Kelly's academic world was by no means limited to *Aristida*. In his first semester at NMSU he had taught plant identification. In the range science department this meant that the instructor was the coach of the "plant team." The plant team was a group of students chosen from the identification class to participate in a very difficult plant identification competition against teams from around the United States and even Canada and Mexico, at the annual meeting of the Society for Range Management. The 1980 team from NMSU won first place. "Then we won four or five times in a row, with the team from Saltillo, Mexico, where Jesús Valdés-Reyna was, finishing second." Kelly continued with plant teams for most of his career, but the Saltillo team gained the upper hand and dominated the competitions for many years.

Kelly also taught the course on range grasses every semester of his career. In the early years he began writing identification keys for the grasses of New Mexico. He and his students continually tested and improved them as more were developed. He began to envision writing a book on New Mexico grasses. "The way I work in research is I'll get interested in a project and the first thing I think of is the title." In this case it was *A Field Guide to the Grasses of New Mexico*. In 1993 the first edition was published, through the Department of Agricultural Communications at NMSU. A new and improved second edition appeared in 1997 and then a third in 2005.

In the eighties Kelly made a point of going to meetings "with all the grass people." He had been in contact with botanists all over the country for his researches in *Aristida*. Through his published papers in the decade, he had become well known in the grass world. In the early nineties he was selected to author treatments of *Aristida*, *Bothriochloa*, and 13 other grass genera for the 1993 edition of *The Jepson Manual: Higher Plants of California* for the University of California Press. Nine years later he authored treatments of 10 grass genera for *The Jepson Desert Manual*. Then in 2003 he was selected by the *Flora of North America* editorial committee to prepare treatments of *Aristida*, *Bothriochloa*, and 5 other grass genera for Volume 25 of the *Flora of North America* project for Oxford University Press.

Throughout his three decades at NMSU he worked steadily to improve the small collection of three or four thousand dried plant specimens that the range science department used for teaching. He collected plants extensively. He arranged with other herbaria around the country to receive duplicate specimens or to have an exchange of specimens. He also had a number of graduate students in his charge over the years doing research for their master's degrees who did field studies and contributed many specimens. Several of these students went on to tremendous careers in botany. "Travis Columbus [now a grass systematist at the Rancho Santa Ana Botanic Garden in California] has been our most famous one. He has now become the world authority in [the grass

genus] *Bouteloua*." Columbus contributed more than 2,000 specimens. Thanks to the efforts of Kelly and his graduate students, the Range Science Herbarium at NMSU, now with almost 30,000 specimens, is recognized as a significant research herbarium and is officially listed as NMCR in the *Index Herbariorum*, the directory of the world's herbaria by the New York Botanical Garden.

In the mid-nineties Kelly began to develop some new interests. He and a different graduate student, Eric Roalson (now a highly respected plant molecular systematist at Washington State University), hatched the idea of establishing a master checklist of the plants of the state. "The idea was to get all the names, get the documentation and where it was reported from New Mexico." Eric did a tremendous amount of work on the project and was the main author of the first *Working Index of New Mexico Vascular Plant Names*. Kelly continued expanding and improving it for years. The nineties also spawned another long-term project. Kelly decided that it might be beneficial to put together a newsletter to help keep the state's botanists abreast of new developments. In September of 1995, he began publishing *The New Mexico Botanist* through the Cooperative Extension Service. It presented articles of interest, announcements of new plant records, and references to pertinent literature. By the end of the decade 13 editions had appeared. Also during this era, he initiated his study of a whole new vista in botany, the mosses. In 1998 he published his first papers on the moss flora of the state. In 2001 he published, with Carl Darigo of the Missouri Botanical Garden, *Mosses of New Mexico County Checklist*. His studies in muscology became a lifelong passion.

Not far into the first decade of the new century Kelly began to think that the Working Index might be developed into something more. As was his wont, the title came first, *Flora Neomexicana*. In early 2007 he produced what would be the last interim draft edition of the Working Index. By the end of the year the plan for the *Flora Neomexicana* project had crystallized. It would consist of three volumes. The first would be an expanded and improved version of the Working Index. The second would be a detailed survey of the origins and meanings of the Latin and Greek words used to generate the scientific names of the plants. The third would be an identification manual down to species, subspecies, and variety levels, with range and habitat data. By 2008 the project was off and running. *Flora Neomexicana I: The Vascular Plants of New Mexico* came out. Kelly was also hard at work on the second volume. In odd moments he concentrated on developing identification keys. And he started thinking of how nice it would be to have illustrations in the third volume. He contacted the state's foremost plant illustrator, Robert DeWitt Ivey, about the possibility of collaboration, and the third volume gained a wonderful new dimension.

In 2009 the second volume in the series, *Flora Neomexicana II: Glossarium Nominem*, was complete. Kelly also produced the 132-page guide *Identification Keys to the Vascular Plants of New Mexico: Families and Genera*. Yet much more work was necessary to bring the keys to the species level and below. Although accomplishing much of the task himself,



Kelly, 2008

Kelly elicited assistance from several other botanists in the state. It took another three years to complete the text, perfect the formatting, and integrate more than 1,600 illustrations. The 8½-x-11 inch, 715-page *Flora Neomexicana III: An Illustrated Identification Manual* reached publication in 2012. Later that year Kelly created an 8-x-9 inch, 482-page *Flora Neomexicana IIIa: Field Keys*, without illustrations.

Also during the same period, he had a remarkable visit from his old friend *Aristida*. His extensive studies of the genus had made him into a highly regarded authority, but a new day had dawned with the advent of DNA analysis. Things came full circle when a graduate student at the Rancho Santa Ana Botanic Garden undertook a molecular study of *Aristida*. Her advisor was none other than Travis Columbus. Kelly was asked to be on her committee in order to verify identifications of specimens used in the research. After some six years, in 2011, her analysis was published.

She went through and ran the molecular analyses on all these species that I had studied and said these are all related and those are all related. I had all the relationships exactly correct. So I was very gratified that all the relationships that I had divined and figured out just based on a lot of experience, how it grows, structure of the hairs, what the leaves look like, some curl, some don't. So all this stuff I had figured out just matched up with her DNA analysis.

This level of parallelism between morphological analysis and molecular methods is unusual in botany. In his patient and intensive study, Kelly had produced unquestionable science by combining an extreme thoroughness in observing minute details, an uncommon capacity to perceive patterns, and a strength of intellect to correlate and organize data.

The relationship between religion and science has forever been contentious, if not vitriolic. Numerous in the world of science are those for whom rational inquiry and religious faith would appear to be in direct conflict. Kelly Allred maintains a strong presence in both his church and his biology. Clearly his pursuit of scientific understanding is not impeded by his beliefs.

The revealed religion that we have in our faith, in Mormonism, really doesn't speak about biological origins at all, and the Church, by the way, has no stand on evolution. I think that true science and true religion are one and the same. One of the tenets of Mormonism is that truth, no matter where you find it, is part of this religion.

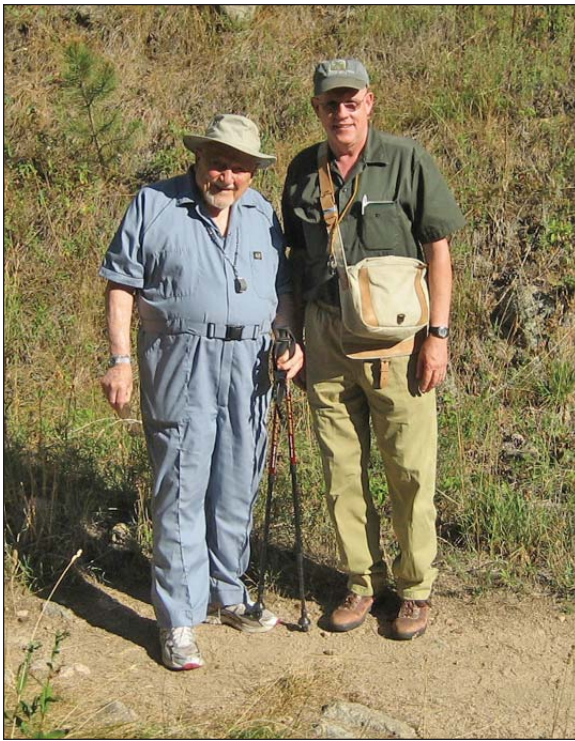
Religion can inculcate, in some, a personal devotion obscuring rational processes, becoming obsession. Kelly maintains a calm and contemplative faith far distant from obsession. In his view, God "oversaw the creation" of the universe in which we play a part.

A lot of Protestants have the idea of creation *ex nihilo*, there was nothing, and God went phoom and there was something, creation from nothing. I think that is totally wrong. I am perfectly content that He is using all the natural processes that we see in action now.

From that perspective, the study of natural processes does not in the least conflict with faith.

Science operates in a domain of observable and measurable things, gathering data, seeking patterns and generalizations. Religion occupies a domain of intangibles, relying on well-established and time-honored resources for insight. Both religion and science are bastions for their devotees. Yet, for many, such domains are not so clearly definable, and, as Kelly has expressed, they may, in some way, be aspects of the same thing, some perpetual quest for understanding. Science itself is not empty of faith. Any graduate student embarking on an advanced degree confronts some hypothesis to explore. Such exploration carries a dimension of faith, if only in an incalculable certainty that something unknown can become known. Therein is a blending of the essential components of inquiry, both spiritual and scientific. Faith need not be inimical to science. Kelly is at home in both domains, and each has its special space. His faith and his church have much more to do with generosity, sincerity, and hope than with *Aristida*.

For Kelly, 2012 was quite a year. The University of California Press published a second edition of *The Jepson Manual: Vascular Plants of California*, with Kelly's treatments of six genera of grasses. At the end of NMSU's fiscal year, he became professor emeritus of the Department of Animal and Range Sciences. Of course, 2012 was a most important year for the *Flora Neomexicana* project and the year would be busy, but there was time for a bit of traveling, trips to the Sangre de Cristo Mountains and Maine in June and a visit to Alaska in August. Kelly spent July tidying up details, and *Flora Neomexicana III* was fully launched by the middle of August. The production of *Flora Neomexicana IIIa* required reformatting and editing of the August volume and became available by the middle of November. Even before the year ended, he began to think of integrating material from *FNM I* into *FNM III* and adding more complete descriptions of genera to produce a new, revised edition.



Mossing with Bill Weber

And he had not abandoned his investigation of the moss flora of New Mexico. Throughout the 2000s he traveled all over the state hunting mosses and refining the skills necessary for their study. He also became associated with other moss aficionados in the western United States in a program called SO BE FREE, which is an acronym for Spring Outing, Botanical Excursion, Foray, Retreat, and Escape to the Environment. Organized in California in 1996, the annual program brings together bryologists and other interested people for a long weekend in March to study the moss flora of some selected area. In 2010, Kelly arranged for the meeting to be

held in the Sacramento Mountains of New Mexico. Kelly has worked quietly on the state's mosses for almost two decades, mostly without assistance until the past few years. The result is a documented moss flora encompassing 42 families, 139 genera, and over 350 species, destined to become a part of the *Flora Neomexicana* project.

Kelly has had a rich and rewarding career. He has worked tirelessly to enrich the worlds of his dedication, his botany, his classroom, his church, and his family. Since 1976 Kelly has produced nearly 200 publications in dozens of scientific journals, government reports and circulars, books, and other venues. He has given countless talks, presentations, and workshops. His wry sense of humor and irrepressible ebullience have put him in demand. His contributions to the botany of New Mexico and the entire world of grasses are legion. The *Flora Neomexicana* project is the first new view of the state's flora in over a third of a century, during which time the science of botany has undergone profound change. For Kelly the uncovering of truth and generality in his science and in his faith has been a simple privilege of sentience and a vital duty of intellect.

He has never been one to quail before a task, however daunting. His quarter century of waltzing with *Aristida* is a testimonial. In the second decade of the new millennium work continues on the revision and expansion of *Flora Neomexicana III*. The moss flora has been mostly defined, and an identification manual is under development. In February of 2010 *The New Mexico Botanist* Number 50 appeared and was the last hard copy distributed by mail. In the following June, Number 51 was the first electronic issue. The newsletter continues and in March of 2015 reached Number 63. Kelly's days remain full.

For his many pursuits, awards have never been necessary. Kelly is not one to seek adulation. Yet sometimes recognition from peers carries special meaning and value. In 2011, a species of flax new to science from southeastern New Mexico, *Linum allredii*, was named for him, a permanent preservation of all that he has accomplished for the state's botany.