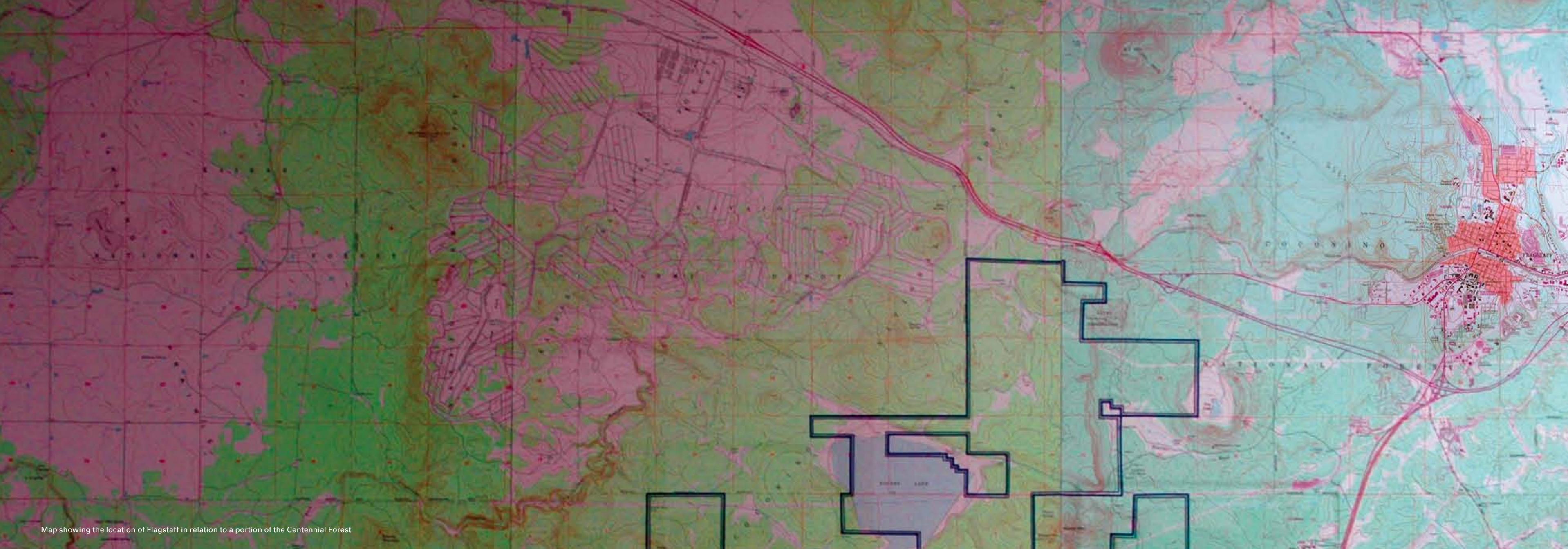




SCHOOL OF FORESTRY

Celebrating a half-century of teaching, research, and innovation



Map showing the location of Flagstaff in relation to a portion of the Centennial Forest

**The School of Forestry
wishes to acknowledge the collaborators
who have contributed to our success
over the years.**

USDA Forest Service
Rocky Mountain Research Station
Coconino National Forest
Kaibab National Forest

**We also appreciate those from whom we
have received long-term financial support.**

McIntire-Stennis Program
USDA Forest Service
National Science Foundation

**We would also like to offer very special
thanks to our alumni and friends.**



The book was written by Professor Emeritus Ernie Kurmes (pictured left), with some content provided by Jim Allen, and editing by Michael John Wolcott. The layout and design was done by RenSu Yang. Additional assistance was provided by Kathy Maloney, Lauri Patton, and April Sandoval.

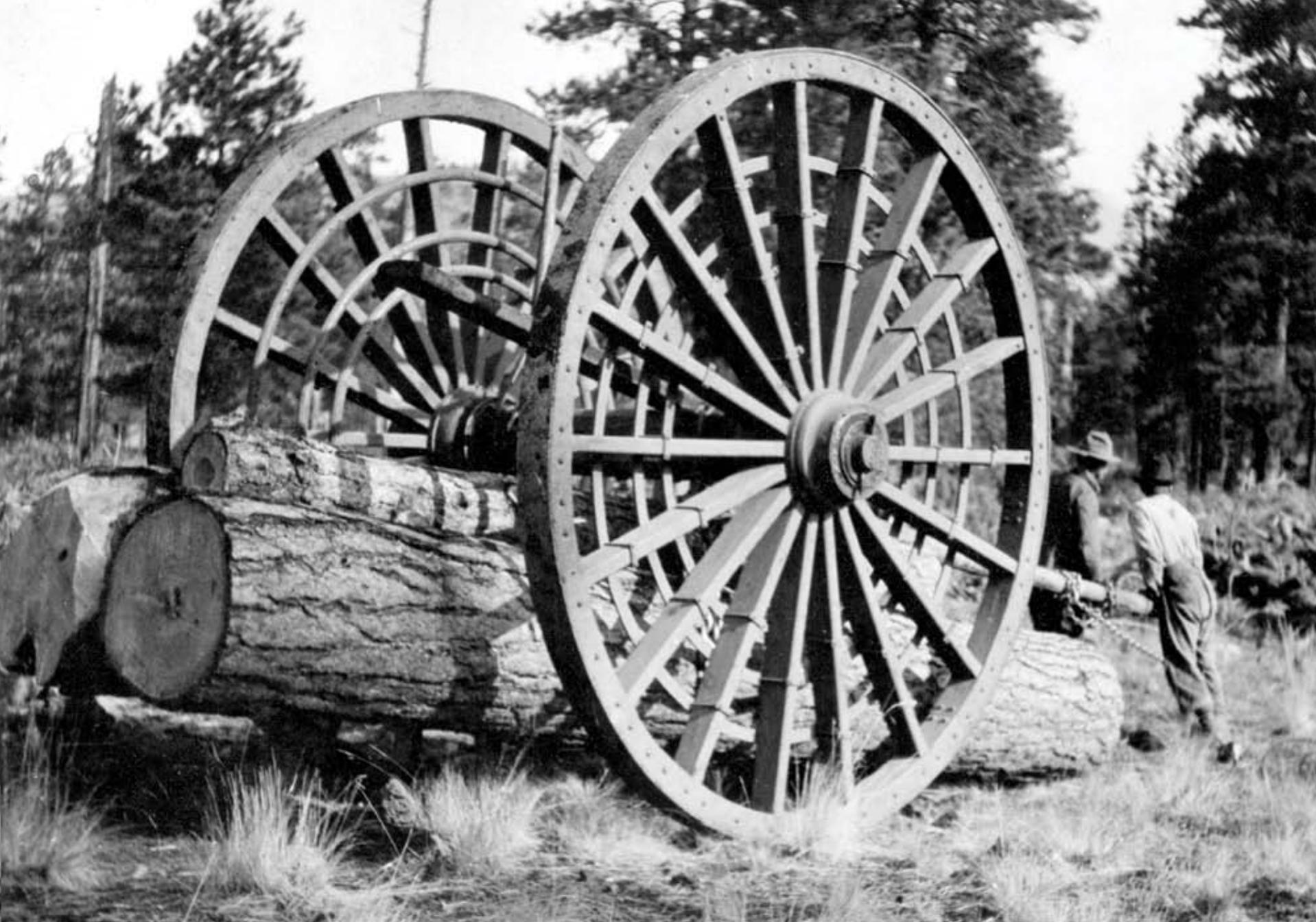
School of Forestry Celebrates 50 Years *by* Looking Forward

From its humble start a half-century ago, the School of Forestry at Northern Arizona University has grown into a world-class research and teaching institution. While climate change, dwindling natural resources, and growing consumption create new problems, the forestry program is poised to train new professionals equal to the challenges ahead.

Since its inception, the School of Forestry has hired the best possible faculty and staff, improved its facilities, and pioneered curriculum development and research. We invite our friends and more than 1,600 alumni to celebrate this important landmark.

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Beginnings

The Arizona Board of Regents approved a forestry program at what was then the Arizona State College at Flagstaff on May 12, 1958, after lengthy and sometimes acrimonious debate. Some contended that a school of forestry belonged at the state's one land grant institution, the University of Arizona in Tucson. (Forestry programs nationwide are typically located at land grant institutions.) But others argued for Flagstaff, which sits amid the world's largest contiguous ponderosa pine forest, and is much closer to the "action" of commercial forestry and forest-based recreation.

Arizona politicians Robert Prochnow and John Babbitt lobbied for Flagstaff, with support from the Arizona Cattle Growers Association and the Southwestern Section of the Society of American Foresters. Two presidents of what would become Northern Arizona University—Lacey Eastburn and J. Lawrence Walkup—also played key roles.



Perhaps no one lobbied harder than President Walkup, who spent long hours studying forestry to bolster his arguments for locating the school in Flagstaff. This advocacy was motivated in part by his ambitions for the institution as a whole, according to Regents' Professor Wallace Covington.

“It was more than just his love of forestry,” Covington said. “By having a professional school at Arizona State College it would then meet the criteria to become a university.”

Immediately after the Regents' decision,

Walkup hired a director for the new program. Dr. Charles O. (Chuck) Minor arrived from Louisiana State University in mid-August. With help from the Rocky Mountain Forest and Range Experiment Station in Flagstaff, Minor hastily put together a half-dozen courses for fall semester 1958. Four of the initial six students to enroll would constitute the first graduating class, in 1961.

Dr. Minor's longtime friend, Martin Applequist, became the second faculty member in spring 1959. Don Dwyer

joined the following fall. Herbert Ruckes, Jr., John Krier, and Jimmie Dodd came on board in 1960. With the exceptions of Minor and Applequist, early faculty members did not stay long, but offered important contributions. Three professors hired in 1961—Bill Thompson, Dick Berry and Glenn Voorhies—did serve out their careers at NAU, and are remembered fondly by alumni.

1. Dean Minor and students of first class, 1959
2. President Walkup, second from left and Dean Minor, second from right at dedication of Forest Service Building on campus
3. Field day activities at Budweiser Tank, School Forest



Summer Forestry Camp

In the summer of 1959, Dr. Minor and Applequist instituted a student summer camp which became the prerequisite to upper-division forestry classes. This eight-week session included field work in forest measurements, surveying, silviculture, and dendrology. Student crews inventoried stands, ran land lines, and thinned tenth-acre plots. With help from four faculty members, Dr. Minor supervised most summer camp work in the school forest, then consisting of a 4,000-acre block of state land five miles west of Flagstaff.



“The first students that we had were pretty wild and wooly,”

“We had a lot of tobacco chewing—people with snuff tucked under their lips, spitting in cans in the classroom.”

- Professor Emeritus Ernie Kurmes

1. Summer camp students in front of Frier Hall, 1961
- ◀ Students relaxing after a hard day's work, 1980

Consequently, the first camp sessions were rough-and-ready affairs. One summer, considerable “varmint” damage was observed—young ponderosas with porcupine-chewed bark, and heaps of immature cones harvested by Abert squirrels. Bounties were established. Students began packing pistols in the field. The Class of 1962 records a shooting spree that knocked five “porkies” from the branches of a single tree. When bounty was claimed, Dr. Minor (who had become Dean Minor, by then) produced a five-dollar bill but declared the bounty revoked.

The last week of camp was reserved for study trips across the Southwest, with locations including the Navajo Reservation, southern Colorado, and the White Mountains. The early forestry fleet included surplus pickups, flatbed trucks, and carryalls, augmented later by the “Blue Goose”, a faded Air Force bus. In the mid-60s bigger budgets allowed for new 20- and 32-passenger Ford buses—green and white with “Northern Arizona University School of Forestry” emblazoned on each side. Not all publicity is good publicity, however. Ribald, off-key verses of “Minor’s Little Raiders”, pouring from the windows, were not seen as a public relations asset.

At summer camp students became competent in forestry field techniques and forged lasting friendships. Intimacy

was inevitable in the early years, when everyone slept in one large military surplus tent. Smaller tents became the rule later, with students using their own gear or renting from Student Services.

During one summer trip to the Apache-Sitgreaves National Forest, students used a work camp at Buffalo Crossing. At the beginning of the following fall semester one student approached Dean Minor, produced a jar of bedbugs, and insisted that the vermin had come from Buffalo Crossing barracks. His request that the school pay for fumigation fell on deaf ears, perhaps because that same student was the first to rush into the barracks to claim the best bed!

Though not on any syllabus, pranks were regular features of summer camp. Professors returning from the field might find the faculty tent dangling from the top of a tall pine tree, or a road-killed porcupine fricassee smoldering on the campfire. Most pranks were tolerated in good humor, but the decommissioning of Bill Thompson’s Chevy Suburban went over the line. The dean archly declared that that summer’s trip would end immediately unless all was set aright. The culpable mechanics reattached spark plug wires and double-checked all systems. The trip resumed—on track again, but no longer firing on all eight.



Richard Schwab (BSF, 1981) and Gorman Yazzie (BSF, 1982) at work during a sawmill exercise ►



“Fine-tuning” the Program

Under Minor’s leadership, and with strong support from President Walkup, the School of Forestry grew. Ten years after its founding, the school was accredited by the Society of American Foresters (SAF). During the 1970s, several faculty members became leaders of SAF national committees and took lead roles in organizing SAF national meetings. These developments enhanced the school’s national reputation and its appeal to prospective students.

By the end of the sixties, the faculty had grown to 10 professors. It was a time for “fine-tuning” the curriculum, a process driven by competing pressures. Nationally, there was serious debate about making the professional forestry degree a five-year program, while in Arizona, there was a push to limit all bachelor’s degree programs to 120 credit hours, encouraging graduation within four years. The initial forestry

curriculum had totaled 139 credit hours, including 10 for summer camp (which was phased out in 1971). Credits required for the forestry degree dropped occasionally through 1995, at which time the Arizona Board of Regents mandated the 120 credit-hour requirement.

Dean Minor's fine-tuning sought to eliminate duplication in coursework—separate classes traveling to the same location to study dendrology, soils, range management, and silviculture. He proposed combining three classes into one, an idea which evolved over the next two years into a unified program without specialization. Team-teaching was integral to this new concept—unique among North America's forestry programs. It soon became known as the “Integrated Curriculum.”

Three or even four teachers typically participated in each class, which placed heavy time demands on faculty, and conflicted

with research obligations. President Walkup, a strong supporter of team-teaching, was less concerned with research productivity. Professor T.E. “Gene” Avery—then the faculty's most research-oriented member—would resign over the issue.

The final curriculum proposal, implemented in 1971, included three semesters of 16-credit blocks, taken during fall and spring of the junior year and the fall of the senior year. Advanced or specialized courses could be completed in spring of the senior year. Classes were held all day, three times a week, and twice for half-days. Full-day sessions usually involved field trips.

Management concepts were introduced through case studies and role-playing. One study involving the use of a wilderness area by a commercial horseback trip outfitter included a court case with local judge Fred Croxon “presiding” in the classroom.

During fall of a student's senior year, three-person crews would map and inventory resources on several square miles of the Coconino National Forest. Crews would then pool data to produce larger maps and tables covering the entire area. Each student then wrote a management plan, completed before the Thanksgiving break. The remainder of the semester was devoted to a resource policy course with the plans evaluated by faculty members.

Public interest in natural resources increased during the 1970s and resulted in growing enrollment. This topped out in 1973 when more than 70 students entered the first semester of the junior year. Due to high enrollment, the school began accepting students based on merit. This process continued for several years, until enrollment reflected a slowing job market.





Student Life in Forestry

Early on, the School of Forestry developed a reputation for active student life. In a letter to President Walkup, Dean Minor wrote:

“The Forestry Club grew and prospered along with the school during these years. They became extremely active in campus events. Fortunately, we always had enough mature individuals with good common sense so that even though the club managed to win most of the events they entered, whether it was a homecoming float, snow sculpture, touch football, or whatever, they didn’t get big-headed about it, and they didn’t arouse too much jealousy on campus. I have always been thankful for that maturity, especially on the part of the officers of the club who kept things on an even keel. They became known on campus as an extremely active group and available to help. I remember Joe Rolle [Dean of Students] used to say, ‘If I need something done on campus, I just call the ASC Forestry Club, and they will jump right in and do it.’ It didn’t make any difference if it was planting crab apple trees or cleaning up the campus, they were always there and we were proud of them.”

The Forestry Club published a yearbook, *Annual Yield*, and held dances, picnics, and field days. Annual parties for incoming students were held at Budweiser Tank and included student-faculty softball games on the rocky field. To mitigate human impact, Professor Dick Bury supervised construction of a “two-holer” at the site in the early sixties. Budweiser Tank was used to water sheep, so new freshmen often shared the woods with herders who camped nearby, preparing to lead their flock on the long trek back to the valley.

Parties, dances, and the annual Foresters Ball were held on and off campus. The clubroom in Frier Hall was adequate for small parties, but larger ones took place at the Odd Fellows Hall in east Flagstaff, at Mormon Lake Lodge, and in the Mormon Lake Fire Department meeting hall. The Forestry Wives Club brought a little “yin” to the program before female students first joined.

A team from the Forestry Club regularly participated in the Association of Western Forestry Colleges Conclave, a combination of competitive timber sports events, field trips, and seminars. NAU hosted the conclave in 1964 and 1970.



1.Members of the Forestry Wives Club, 1968



The Forestry Club experienced a lull in the late 1970s-early 1980s, when the Integrated Curriculum’s heavy workload, especially during junior and senior year, took a toll on student activities. Few upper classmen could provide the necessary leadership for the club.

Participation in the annual conclaves also ceased for several years. Students eventually resurrected the Forestry Club and launched several other student organizations. Today, active forestry groups

also include student chapters of *Xi Sigma Pi* (the national forestry honor society), the Society of American Foresters, the Student Association for Fire Ecology (S.A.F.E.), and the Wildlife Society. In 2007, a small team from the School of Forestry renewed NAU’s participation in the annual conclave.

2.Students from Dr. Martha Lee’s Wilderness Management class clearing a trail, 2007



Remembering Faculty and Staff

The school's strength and the cohesiveness of faculty and staff have been tested repeatedly—by budget cuts during economic downturns, and by the growing pains of peak enrollment in the late 1970s–early 1980s.

The untimely deaths of two well-loved faculty members—Martin Applequist in 1966 and William Thompson in 1974—presented special challenges. Grief on campus was complicated by necessarily rapid adjustments to cover key classes. Several forestry faculty members covered Dr. Applequist's courses in silviculture, dendrology, and silvics, and the chemistry department's Dr. Scott Savage taught the forest soils course. Faculty members filled in for Thompson until a successor, Brent Wood, was hired in fall 1976. Memorial funds now honor the memories of Thompson and Applequist.



Gisela McCormick, who served with four forestry deans and four university presidents, was one of the staff's brightest stars. Hired as a secretary in 1962, McCormick retired in 1996 as assistant to the dean. Her special interests were developing scholarships for forestry students and organizing the annual Forestry Honors Convocation. "Mrs. M" kept the school in touch with alumni through *Forest Seasons*, an alumni publication. She also played key roles in the design and furnishing of the new forestry building.



◀ Jackie Craig (BSF, 1983) measuring the height of a tree

Diversity in the School of Forestry



The School of Forestry's half-century has seen dramatic changes in the forestry profession and in the larger culture. During the sixties, women and members of minority groups were scarce in forestry. A few women who had started as forestry majors were actively discouraged by Dean Minor, whose main concern was a lack of separate facilities in the field. Finally, in 1969, Susan Varin (now Billingsley) broke the "summer-camp bar." In 1971, she became NAU's first female forestry graduate.

Given Dean Minor's initial resistance to a co-ed program, it is worth noting that the School of Forestry's Class of 1981 included his daughter Charlotte Minor. Today, women typically account for 25 percent of forestry graduates. Ten percent of current undergraduate students are Native American, another 10 percent are Hispanic, and a few students represent other demographics.



At first, the school's students were drawn mostly from the Southwest, but its growing national profile has spurred geographic diversity. So has the Western Interstate Commission for Higher Education's student exchange program, which offers reduced tuition for students from western states. Undergraduate degrees have been awarded to students from Nigeria, Malaysia, Mexico, Japan, and Germany. The graduate program attracts students from China, Mexico, Yugoslavia, Nepal, Bangladesh, Iran, and Germany.

Faculty size and diversity has grown, as well. The roster grew to 16 in 1986 when Dr. Margaret Moore (now a full professor) became the school's first female faculty member. Currently, the 24-member faculty includes

eight women, one Native American, and four professors from other continents (Africa, South America, and two from Asia).



New Facilities, New Emphases

The addition of graduate degree programs also profoundly changed the School of Forestry, placing stronger emphasis on research. The Master of Science in Forestry was initiated in 1969 and a doctoral program (currently one of nine at NAU) was added in 1994. In 2004, the school also initiated a master's degree program without a thesis requirement. Today, the graduate student body ranges from 60-80 members.

University programs that last 50 years have often occupied more than one "home," and the School of Forestry is no exception. Its early location in Frier Hall served well until the 1987-88 academic year, when Frier's leaky steam pipes and other problems prompted a major renovation.



The character-rich Old Main building provided a temporary home for the School of Forestry. But Old Main had its own problems—termites in the basement and fleas everywhere (from feral cats living under the building). After moving back into Frier Hall, forestry continued to use Old Main for a computer lab and storage. But more and better space was needed to accommodate growth and the school’s increasing emphasis on research.

Meanwhile, Arizona State University had decided to build a new facility in Tempe that would displace the U.S. Forest Service’s Rocky Mountain Forest and Range Experiment Station. Although the Forest Service owned the Tempe site, the agency agreed to

relocate. Its Flagstaff office was not large enough, so a new building would be required. The University of Arizona and Northern Arizona University competed for the building. School of Forestry Dean L. David Garrett eventually prevailed. This opened a new possibility: could a new building house both the School of Forestry and the Forest Service? Dean Garrett worked closely with U.S. Senator Dennis DeConcini to obtain federal funding which, with additional state moneys, financed construction of the new Southwest Forest Science Complex on south campus. Occupied in 1992, the building houses the Rocky Mountain Forest Experiment Station’s Flagstaff laboratory and the School of Forestry.

1.The San Francisco Peaks

The Southwest Forest Science Complex created new space for graduate study and research, and helped cement the School of Forestry’s place as a leader in the discipline. It also strengthened partnerships with Forest Service scientists, resulting in more research productivity. The complex also houses the Ecological Restoration Institute, led since its inception in 1997 by Wally Covington. ERI is prominent in the critical and growing field of forest restoration.

“A lot of the work done by folks like Dr. Covington, Dr. Margaret Moore, and Dr. Pete Fulé has really inspired on the ground changes in forest management. We’ve also done really important work recently in forest entomology and pathology, forest health, conservation biology, and wildlife ecology.”

- Executive Director James Allen, School of Forestry



Soon after construction of the complex, the university’s 4,000-acre experimental forest was expanded. A 75-year agreement signed in April 2000 by Governor Jane D. Hull established the new 47,200-acre Centennial Forest. The land is owned by the state, managed by the School of Forestry, and overseen by a multi-agency committee. More than a mere “forestry department forest,” the Centennial Forest is a true interdisciplinary outdoor laboratory that provides teaching and research space for many disciplines, including: anthropology, geology, geography and public planning, and biology.

2.Mogollon Rim



Alumni Leaders

The ultimate measure of an academic program's success is the professional performance of its graduates. Many School of Forestry alumni have gained prominence in the U.S. Forest Service, including Robert Joslin (Class of 1964) and Rick Cables (1976), both of whom rose to the rank of regional forester.

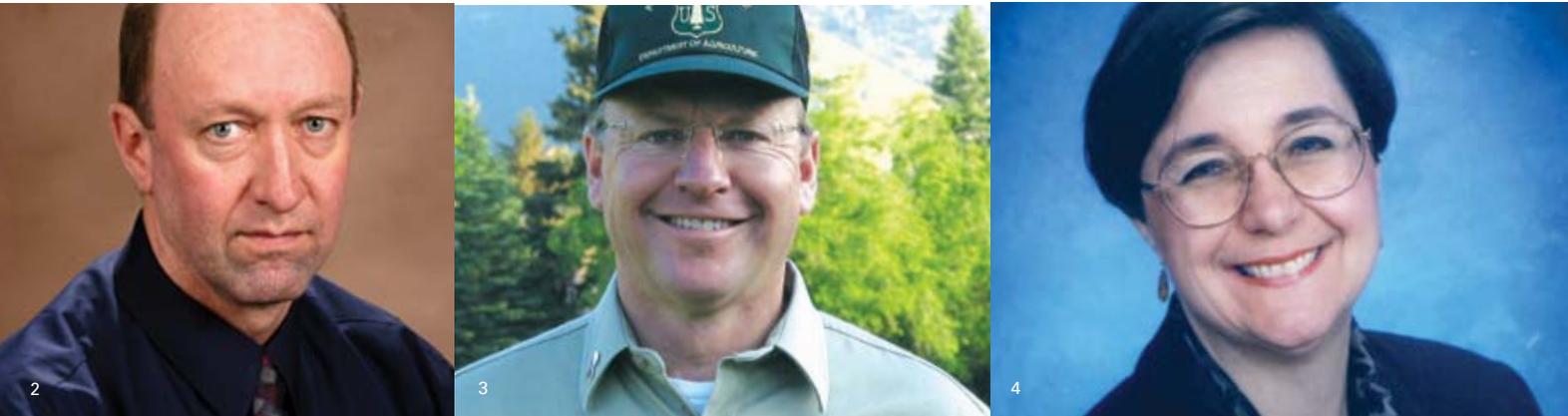
Other graduates with distinguished careers in the Forest Service are: John Kirkpatrick (1966) and Kathleen (Butler) McAllister (1975), both deputy regional foresters; Forrest Cole (1976) who supervises Alaska's 17-million acre Tongass National Forest; and Cecilia A. (Romero) Seesholtz (1986), recently named supervisor of Idaho's Boise National Forest.

1. Forrest Cole, Class of 1976

◀ Creative students extending the length of a bench during a class field trip, 1982

“I loved NAU’s integrated approach to providing a forestry education. The idea of forcing students to think about the multiple resources and how they interact with each other as an entire ecosystem has proven to be innovative and ahead of its time.”

- Rick Cables, Class of 1976



Rick Cables, who oversees operations on the Forest Service’s Rocky Mountain Region, says NAU’s unique teaching approach prepared him well for the complicated job of managing large, ecologically diverse forest lands.

Many other alumni have succeeded in the Bureau of Land Management (BLM), Bureau of Indian Affairs, and other federal agencies; or in tribal and state forestry organizations. Ray Sowers (1974) is state forester for South Dakota, and John Stephenson (1963) has served as the BLM’s chief of biological resources for Arizona.

Mary Coulombe (1984), chief of natural resources for the Army Corps of Engineers, says that NAU’s School of Forestry “changed my life and my career. The school continues to move forward, advancing the art and science of forestry and offering excellent opportunities for students to learn, engage with, and support each other.”

Forestry graduates have also held responsible positions in the private sector. Edward Richards (1969) currently manages the Navajo Tribal Sawmill. Jim Matson (1965) was a vice president of Kaibab Forest Industries and Lee Alford (1969) recently retired as a senior vice president for Weyerhaeuser Company.

In academe, Dr. Daniel Binkley (1977) a professor in the Warner College of Natural Resources at Colorado State University, has become an international authority on forest biogeochemistry. Dr. Gerald Tuskan (1979) leads the laboratory Science Program at the Joint Genome Institute and is a distinguished scientist in the Plant Genomics Group at Oak Ridge National Laboratory in Tennessee. Tuskan’s research interests include genetic improvement of Populus species for bio-fuels. He recently led an

international team that was the first to succeed in sequencing the genome of a tree species.

The forestry school’s graduate program has also produced many successful alumni. Dr. Michael Ryan (MS, Forestry 1978) is research forest ecologist with the Forest Service’s Rocky Mountain Research Station in Fort Collins, Colorado, where he became an international authority on carbon and water exchanges between forests and the atmosphere—especially relevant in the era of climate change. Dr. James Vose (MS, Forestry 1984) is project leader and supervisory research ecologist for the Forest Service’s Southern Research Station’s Coweeta Hydrologic Laboratory in Otto, North Carolina. His work on watershed ecosystem responses to disturbance has received widespread recognition. Dr. Brian Oswald (MS, Forestry 1981) is the Lacy H. Hunt Professor of Forestry at Stephen F. Austin University in Nacogdoches, Texas, where his research focuses on fire ecology and silviculture. Recent PhD graduate Jon Bakker (2005) has joined the faculty of the College of Forest Resources at the University of Washington.



Preparing Foresters for Future Challenges

The graduate program has earned a strong reputation for research and routinely attracts top quality students. A recent study ranked the School of Forestry among the nation's top ten forestry schools for research, based on per capita volume of publications, research citations by other scientists, and grants received.

The School of Forestry's current research program focuses largely—but by no means entirely—on issues of importance to Arizona and the Southwest, including ecological restoration, forest ecosystem ecology, forest health, fire ecology, and conservation biology. Work in the school and at the Ecological Restoration Institute has helped guide management practices in the Forest Service, BLM, and other agencies. Restoration research includes studies of the pre-settlement structure of ponderosa pine forests, thinning and burning treatments, and the effects of restoration treatments on plants and wildlife.



The School of Forestry has broadened its mission to include youth environmental study programs and continuing education for forestry professionals. Youth camps at the Centennial Forest each summer have been a great success. School of Forestry faculty members have also offered courses in environmental education. Recent initiatives in continuing education include a series of courses for federal fire management officers.

International education is a strong new focus. The annual International Seminar on Forest Administration and Management (ISFAM) enrolls about 20 students per year, from nearly as many countries. Recent courses in tropical forest management or ecology have involved travel to Ghana, Nicaragua, and Panama. Current faculty research projects are unfolding in Ghana,



Mexico, and Spain. An exciting new curriculum development is the Peace Corps Masters International Program, which combines a master's degree in forestry from NAU with two years of service as a Peace Corps volunteer.

As the world changes, the School of Forestry will change with it and continue to lead, says Executive Director Jim Allen.

"The issues are changing and foresters need to keep up. Who knows what the issues will be 25 or 50 years from now? But I guarantee you forests will be important. As long as that's the case there will be a bright future for the School of Forestry."

- Executive Director James Allen, School of Forestry



Current research at NAU responds to the effects of global climate change and the role of forests in sequestering carbon. Impacts of bark beetles and other forest pathogens are another key area of concern. Conservation biology studies range from the effects of forest management on bats to new

methods for identifying wildlife travel corridors through rapidly-urbanizing America. Other research focuses on natural resource economics and outdoor recreation. Much of this work takes place on the region's Indian reservations and national parks.





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