

2010 Annual Report

Delivering Science-Based Education to Yavapai County Citizens

Contents

Program Overview	2-3
Food Safety Education	4
Early Care Education/ Camp Verde Office	5
4-H Youth Development	6
Wildfire Defensible Space Education	7
Community Resource Development	8
Master Gardener and Horticulture	9
Natural Resources	10
Invasive Species and Website	11
Range Management and Livestock	12
Water Resources Education	13
Personnel/Advisory Board/Visiting Faculty	14

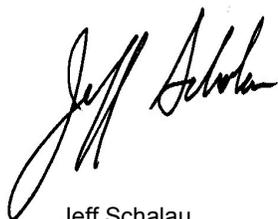
The faculty and staff of the University of Arizona Cooperative Extension respectfully submit this report of program accomplishments to the Board of Supervisors and citizens of Yavapai County. This report highlights the impacts of Cooperative Extension programming from January 1 to December 31, 2010.

The University of Arizona Cooperative Extension transfers science-based knowledge from the University of Arizona campus to communities statewide and provides leadership in the application of that information to address local issues and needs. In Yavapai County, major program areas are 4-H Youth Development, Agriculture, Community Resource Development, Natural Resources, Animal Science, and Family and Consumer Health Science.

Our success is based on valuable partnerships between individuals, other educational institutions, county departments, citizen's groups, cities and towns, and state and federal agencies. The University of Arizona College of Agriculture and Life Sciences provides education, leadership, and expertise. Each day, Cooperative Extension Agents, Specialists, and Staff work together to deliver quality educational programs to Yavapai County residents.

In 2010, Cooperative Extension served 31,739 Yavapai County residents through our programs and services. In addition, 301 citizens served as Cooperative Extension volunteers. These valuable volunteers enhanced Extension programming by helping Cooperative Extension educators deliver relevant educational programs and information to the citizens and communities of Yavapai County. The contribution of these trained volunteers totaled 20,763 hours of service for an estimated value of \$421,233.

Finally, we would like to acknowledge and thank the Yavapai County Extension Advisory Board for their support and assistance in identifying and addressing high priority issues in Yavapai County.



Jeff Schalau
County Extension Director



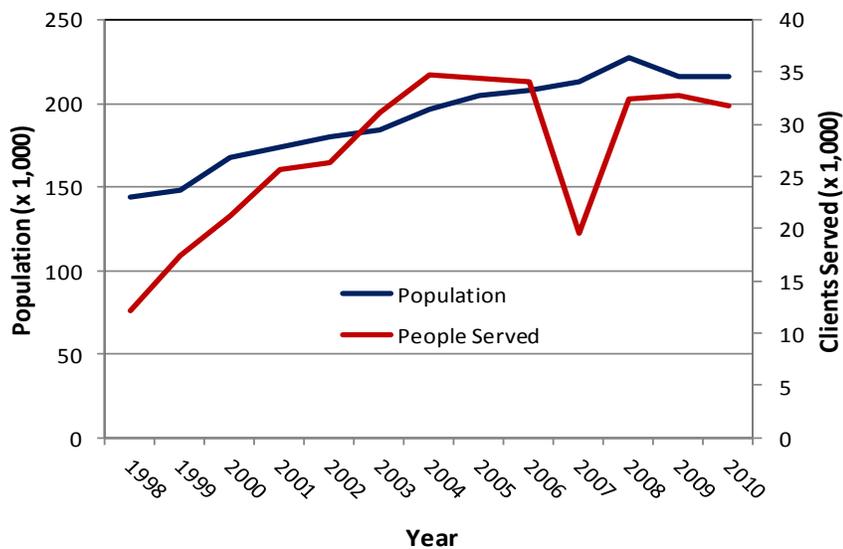
Nora Graf
Chair, Extension Advisory Board



Yavapai County Cooperative Extension 2010 Quick Facts

Our Mission: Yavapai County Cooperative Extension provides science-based education and information that addresses local issues and needs in the fields of agriculture, animal science, family consumer sciences, horticulture, natural resources, and positive youth development to enhance the economic, social, and environmental well-being of individuals, families, and communities.

Yavapai County Population and Numbers of County Residents Served



- Service to the public has roughly kept pace with population growth between 1998 and 2010.
- Budget reductions during 2009 and 2010 impacted our ability to serve the public causing us to reduce our business hours and cut staff positions. We have worked diligently to preserve programs and services offered.
- The decline in number of people served during 2007 was largely due to the absence of water resource education programs which were reinstated in 2008.

Yavapai County has experienced 29% population growth over the last 10 years. To keep pace with population growth, Yavapai County Cooperative Extension continues to deliver priority programs, anticipate future needs, and develop educational programs that serve this ever expanding audience. Program priorities are identified with assistance from the Yavapai County Board of Supervisors, Extension Advisory Board, agricultural producers, local governments, agencies, collaborators, and volunteers. Yearly plans of work are reviewed and approved by the Yavapai County Extension Advisory Board. Yavapai County Cooperative Extension faculty and staff are dedicated to meeting the needs of Yavapai County citizens.

A Brief History of the University of Arizona and Cooperative Extension

In 1862, President Lincoln established the “Land Grant College” system so each state could have its own university to teach agriculture and mechanical arts. These colleges (later universities) were designed for the common people rather than private or church-sponsored colleges that predominated at the time. This legislation, called the Morrill Act, was signed the same week as the Homestead Act and was an incentive to settle lands and establish a transcontinental railroad.

The Hatch Act of 1887 established Agricultural Experiment Stations where research would be conducted and the Smith-Lever Act of 1914 provided federal support for Cooperative Extension. These three important Acts are the basis for the Land Grant mission of teaching, research, and extension.

In 1862, Arizona had no public schools, protestant churches, courthouses, stagecoaches, or telegraph lines. By 1885, state lawmakers passed legislation and appropriated \$25,000 to establish a Land Grant university in Tucson. In 1886, 40 acres of land was donated by Tucson residents: a saloon keeper and two gamblers. The Morrill and Hatch Acts provided federal funds and the University of Arizona was on its way to becoming a reality. Old Main was completed in September 1891 and the first classes were offered that fall.

Five departments were in operation at that time: Science, Literature and the Arts; Theory and Practice, and Elementary Education; Agriculture; Normal; and Mineralogy and the School of Mines. By 1915, the College of Agriculture was named and the Forbes Building finished. The College of Agriculture and Life Sciences is still housed in the Forbes Building.



Yavapai County Cooperative Extension 2010 Summary

Yavapai County Citizens Served in 2010

Program Area	Educational Outreach	Office Contacts	Totals
4-H Youth Development	923	7,450	8,373
Animal Science	530	145	675
Community Resource Development	603	1,490	2,093
Family and Consumer Science	911	1,284	2,195
Horticulture	4,911	2,873	7,784
Natural Resources	4,660	5,959	10,619
Totals	12,538	19,201	31,739

Our educational efforts focus on:

Animal Science	V Bar V Ranch Experiment Station, Identifying Nutritional Deficits, Suggested Mineral Supplementation, Livestock Nutrition, Grazing Behavior, and Quality Assurance
Community Resource Development	Small Acreage Landowner Education, Ranching and Land Stewardship, Economic Development and Analysis, Community Business Matching, Sustainability
Family Health & Well-Being	Early Care Education, Early Brain Development, Nutrition Education, and Leadership
Firewise/Defensible Space	Wildfire Risk Reduction, Defensible Space Education for landscapers and the general public, and Forest Health
Food Safety	Food Manager Certification, Consumer Education, and Food Preservation
Horticulture	Master Gardener training and volunteer support, Arizona Certified Nursery Professional training, Insect and Disease Management, and general assistance
Noxious/Invasive Weeds	Weed Management Area Coordination, Agricultural Pesticide Certification, and Public Education
Positive Youth Development	4-H Youth Programs, 4-H Leader training/support, and Youth Leadership
Rangeland Management and Livestock Nutrition	Sustainability of Grazed Rangelands for ranchers and agency personnel and Rangeland Monitoring Education
Water Resources	Master Watershed Steward volunteer support, well water testing, Septic System Education, Project WET (Water Education for Teachers)



Food Safety Education

Certified Professional Food Manager Training

Food safety is a high priority public health issue. This past year was notably significant with the newly created 2009 Food and Drug Administration Model Food Code and the passage of Senate Bill 510, the Food Safety Modernization Act. The food safety education team at the Yavapai County Cooperative Extension provides research-based food safety information and education through one-on-one contacts, telephone, e-mail, publications and community workshops for industry representatives and consumers of Yavapai County to ensure that their food is safe.

Over the past year, the food safety management team trained almost 200 Yavapai County food establishment managers through the Prometric Certified Professional Food Managers' Program. This nationally-recognized, six-hour certification course is aligned with the newly updated 2009 FDA Model Food Code and is offered monthly in Prescott and Cottonwood. Required by the Yavapai County

Environmental Health Department, this course helps restaurant managers and employees increase their knowledge of food safety principles and make informed decisions to reduce risk factors and the incidence of foodborne illness. Evaluations from the participants have included the following comments: "excellent class, really enjoyed the demonstrations of equipment and procedures"; "fabulous, knowledgeable trainer"; and "the class was efficient and informative".



Yavapai County Supervisors presenting Golden Plate Awards

Food Safety Industry Council

Established in 2002, the Yavapai County Food Safety Industry Council, continues its mission to promote and maximize food safety through education, research and policy provided by leadership of representatives from the food industry, consumers, academia and the regulatory agency. The Yavapai County Board of Supervisors (BOS) appoints the 15 members who include food establishment representatives and consumers. Ex-officio members include representatives from the Yavapai County Health Department and the University of Arizona Yavapai County Cooperative Extension. Significant accomplishments this past year included: the implementation of the redesigned Food Worker Training Class; the creation and approval of 12 Food

Safety Fact Sheets to be used by restaurant managers when training employees; the recognition procedures for the first five year recipients of the Golden Plate Awards; and the review and development of information to support website design for Yavapai County food establishment inspections.



Consumer Education "Be Food Safe"

As part of their community outreach, the food safety team addresses issues of concern of consumers through educational seminars and trainings, as well as through phone calls, e-mails, and one-on-one visits. This past year the food safety team presented to students of the Joint Technological Educational District and to several senior centers. The team also offers High Altitude Cooking classes and information on the principles of home canning for consumers. Pressure canners can be brought in to be tested for accuracy, as well.



Early Care Education

Brain Builders for Life-Prenatal to Age Three

The current research in neuroscience and early brain development indicate the most critical stage of healthy early brain development is from zero-to-three years of age. Research also emphasizes the importance of healthy development of the basic architecture and function of the brain. There is strong evidence that early neurological development affects healthy behavior and learning in the later stages of life. We also know that the quality of child care is a strong predictor of a child's performance at the time of school entry.

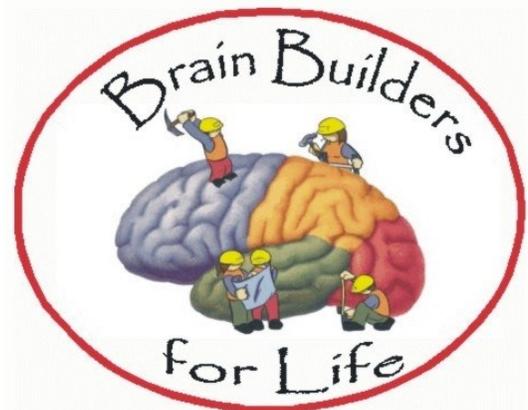
Through a grant provided by the Department of Economic Security (DES), the University of Arizona College of Agriculture and Life Sciences Cooperative Extension conducted the Brain Builders for Life Prenatal to Age Three Training Institutes (BBFL) across the state of Arizona for childcare providers. Childcare professionals increased their

knowledge about early brain development to improve the quality of health and learning for infants and toddlers, zero-to-three years of age. BBFL is a 16 hour interactive training that focuses on integrating early brain development and typical child development for children prenatal to age three. Lori Brandman, Program Coordinator with Family Consumer Sciences delivered in Yavapai County, the BBFL training institute to 28 participants, in Coconino County to 29 participants and in Apache/Navajo Counties to 19 participants.

In addition, information on early brain development and how it impacts the growth of young children, was also presented to 45 participants at the Project CENTRAL XX class, 16 students at Yavapai College, and 42 attendees at the Arizona Association for Early Care Education Conference in Cottonwood.



Participants create journals to record their experiences during BBFL institute.



Yavapai County Board of Supervisors Provides New Office Space to Cooperative Extension in Camp Verde

Cooperative Extension wishes to thank the Yavapai County Board of Supervisors for our new office space at the Camp Verde Justice Facility. Much of 2010 was spent in preparation for this move. Yavapai County Government has provided an 1,800 sq. ft. office space which includes utilities, phone service, Internet, and janitorial. We look forward to serving Verde Valley residents from this new location. Come and visit us in our new Verde Valley Office at 2830 N Commonwealth Dr, Ste 103, Camp Verde, AZ 86322. Office hours are 9 a.m. to Noon and 1:00 p.m. to 4:00 p.m. Monday thru Thursday.



Our new office at the Camp Verde Justice Facility.



4-H Youth Development

Yavapai County 4-H Program Overview

As the youth development outreach program of the University of Arizona and the land-grant system of the USDA, the 4-H program in Yavapai County upholds the research-based educational concepts of the University. This program is administered and delivered by Stephanie Shank, 4-H Youth Development Agent and Michelle Stevens, 4-H Instructional Specialist. Active 4-H participation augments and enhances a youth's educational experiences by intentionally designing programs and activities which teach leadership, citizenship and life skills. The vision of Yavapai County 4-H Youth Development is to be the preferred choice for young people and parents who want the extra edge for life success provided through 4-H's research-based, hands-on learning and informal educational experiences. This program was delivered through 4-H Community Clubs located in Cottonwood, Chino Valley, Bagdad, Prescott, Prescott Valley, Wickenburg and Dewey by 41 caring, dedicated and enthusiastic adult volunteers.

In 2010, Fifty-one percent of our 4-H members were in grades four through seven. 13.7% of our 4-H enrollments were 4-H Cloverbuds, ages 5-8 years old. Yavapai County 4-H clubs engaged 287 youths in their communities and provided them with valuable life experiences and learning opportunities in a variety of project areas. Through these projects 4-H members learn independence, responsibility, decision making and persistence as they dedicate themselves to mastering the subject. The six most popular projects in Yavapai County were rabbits, foods and nutrition, leadership, swine, horse and goats.



A 4-H volunteer instructs a member how to properly shear his lamb.

Community service is an integral part of the 4-H Youth Development program. 4-H members are developing a sense of generosity and giving back to the community in meaningful ways. Each member contributes time and energy to 4-H Community Service projects in their local area.

Yavapai County 4-H recognizes that a majority of the county's population resides in urban or suburban areas. It is important to develop and expand the program in ways that address the needs of the local citizens. 4-H Afterschool programming is in the seminal stages of development. Two AmeriCorps members are on-board and are working to carry the 4-H programs to underserved areas of Yavapai County. Small neighborhood 4-H Clubs are being encouraged to form around the interests of the residents.

Special 4-H Events, Fairs and Exhibitions

Yavapai County 4-H/FFA Expo

The 2010 4-H/FFA EXPO was held at the Prescott Frontier Days Rodeo Grounds, April 20-24. The EXPO was the principal 4-H event where 180 4-H and FFA youths exhibited their projects. Featured were contests for public speaking, small and large livestock, still exhibits, displays and a livestock auction.

Arizona 4-H International Exchange Program

Four Yavapai County 4-H families hosted Japanese 4-H members through the Arizona 4-H International Exchange Program. This exchange program is a way to challenge local youth to become global citizens by expanding cultural awareness and unique life experiences through exposure to international youth.

J.O.L.T.

J.O.L.T. (Journey: Opportunities for Leaders of Tomorrow) is an Arizona Teen Leadership camp, that promotes personal

development, team building and self-confidence. Sixteen Yavapai County 4-H members and two adult volunteers attended this year's camp.

Yavapai County 4-H members also showcased their projects and skills at the Verde Valley and Yavapai County Fairs. Several Yavapai County 4-H members also participated in other regional or statewide events such as 4-H Camp, the Arizona State Fair, and the Arizona National Livestock Show.

National 4-H Conference

The National Association of Extension 4-H Agents Conference was held at the Arizona Grand Resort in Phoenix on October 24-28, 2010. Yavapai County Cooperative Extension faculty members Stephanie Shank and Jeff Schalaus and Instructional Specialist, Michelle Stevens, assisted with planning and delivery of this conference. This national conference was attended by 1,004 participants and Arizona's diverse 4-H programs were well represented.



Survivable Space (Wildfire) Education

Survivable Space educator Mark DiLucido conducts educational programs that teach home and property owners how to create and maintain survivable landscapes. Formerly known as defensible space, survivable space emphasizes survivability of landscapes and homes in the event that fire crews are not able to respond to all wildfire locations. Mark has combined his experience as a landscape architect with survivable space principles and fire resistive plant materials to help homeowners create attractive outdoor living spaces that are both FIREWISE and aesthetically pleasing.

The programs underscore the compatibility of survivable and well-designed outdoor spaces. Highlights include selection and placement of fire resistive plant materials, landscape and hardscape design, vegetation maintenance, and a return to pre-fire suppression Ponderosa densities. Other integrated strategies such as rain water harvesting, erosion and sedimentation prevention, plant health, and habitat preservation are also included.

In 2010, survivable space and Healthy Forests Initiative knowledge was imparted to 138 homeowners in the FIREWISE communities of Hidden Valley and Hassayampa. Related information was conveyed to an additional 68 homeowners and landscape professionals. Outreach at public events such as the 2010 County Fair and FIREWISE Expo also helped get the word out. Ongoing projects begun in 2010 and slated for completion in 2011 include a series of WaterSmart and FIREWISE brochures (digital and



This landscape combines the use of non-flammable mulches with turf, deciduous, and evergreen plant materials to create survivable space.

hardcopy) for each major vegetation community of the County; a WaterSmart FIREWISE demonstration landscape at the Black Canyon City Fire Station; and research and compilation of listed FIREWISE plant species from all western U.S. states. Collaboration with the Prescott Area Wildland Urban Interface Commission (PAWUIC), local fire departments, land management agencies, and organizations across Yavapai County is ongoing.

Cooperative Extension continues to offer its unique and highly successful course, Survivable Space for Landscape Professionals, a 12-hour certificated course in the art and science of survivable space landscaping targeting the nursery and landscape profession but also suggested for committee members working in FIREWISE community designation, and the general public. Visit our website at the address listed below for a list of landscapers who have completed the course (currently at 64).

Look for Survivable Space information and educational materials on-line at: <http://extension.arizona.edu/yavapai/wildfire-survivable-space>.



FIREWISE treated area near Granite Basin and Iron Springs Roads.



Community Resource Development

Regional Center for Sustainable Economic Development

University Centers are designed to provide economic development technical assistance services for entire states. In 2009, Erik Glenn, Area Assistant Agent for Community Resource Development and others were successful in obtaining EDA funds for three years at \$405,000, creating the Regional Center for Sustainable Economic Development ("The Center"). Projects include a variety of undertakings, including a Community Business Matching project in Kingman designed to identify industries that are good matches for the community; an economic contribution analysis of winemakers in the Verde Valley; the creation and dissemination of a youth gardening/entrepreneurship curriculum in Yavapai County and beyond; grant-writing seminars; direct marketing efforts for small farmers; and community land use suitability assessments. The winemaker study was completed in late 2010, and the final report for that project should be available in early 2011; the other projects are ongoing.

Arizona Economic Development Course

Thirty-five students—three of them from Yavapai County and the others representing 12 of Arizona's other 14 counties—attended the week-long 2010 Arizona Economic Development Course. Participants heard from expert speakers on economic development topics such as retention & expansion of existing businesses, entrepreneurship and workforce development. In addition, the attendees spent time working in groups on a real-world community problem requiring creative solutions.

Small Acreage Landowner Education

Many of rural Arizona's newest residents have recently moved from urban settings. In order to better integrate these newcomers into the existing fabric of rural counties, it is vital that they learn the skills and information necessary for successful rural living. In addition, it is important that small-acreage landowners mitigate impacts upon their land, water, plant and animal resources. Erik Glenn spent the entire year managing and supervising a part-time staff person who rewrote an existing small-acreage curriculum in order to make it more Arizona-specific. The curriculum was largely finished by year-end, and will be fine-tuned by faculty in early 2011. It will be implemented in several locations in Yavapai County in 2011. Work also continued on planning and writing publications for the *Tips for Arizona's Rural Landowners* series. In particular, Erik wrote one publication in the series and also served as editor. All publications in this series are hosted on the *Arizona's Changing Rural*

Landscapes Website. Finally, Erik collaborated with other members of the National Network of Sustainable Living Educators to create an online course called "Living Sustainably" that is hosted on the eXtension site.



Attendees at a workshop discussed strategies for protecting agricultural lands in the Verde.

Publications, Presentations and Other Work

Through the Community Resource Development program in 2010, a variety of additional presentations were made, and several publications were authored. In particular, three presentations on the basics of economic development were made around the state to **154 people**. In addition, Erik Glenn participated in Stronger Economies Together, a USDA-Rural Development program designed to train regional economic development groups; **eight communities** received data and education through this program in 2010. Finally, along with the *Tips for Arizona's Rural Landowners* publication mentioned above, Erik published two chapters that appeared in *Building Arizona's Future: Jobs, Innovation & Competitiveness. Background Report for 96th Arizona Town Hall*. Chapter 3 was titled "The Role of Economic Development" and Chapter 4 was called "Arizona's Economic Development Organizations".

Arizona's Changing Rural Landscapes Website

The *Arizona's Changing Rural Landscapes* website (ag.arizona.edu/rurallandscape) is designed to educate public and private stakeholders about exurban growth in Arizona and the effect that growth is having on landscapes, economies and people. The site contains interactive maps, tools, publications and other resources for governmental officials, landowners and citizens. The site was updated consistently throughout 2010, and saw approximately **4,200 visits & 12,100 page views** during the course of the year.



Yavapai County Horticulture Programs

Master Gardener Program

The Yavapai County Master Gardener program teaches interested citizens to become valuable horticultural volunteers in their communities. Extension Agent Jeff Schalau taught and coordinated the 2010 Master Gardener Training Course and managed the program in conjunction with Mary Barnes, Master Gardener Volunteer Coordinator.

After 15 weeks of practical training, class members become Associate Master Gardeners. The Training Course is offered to 40 residents each spring and alternates yearly between Prescott and the Verde Valley. After volunteering 50 hours they become Certified Master Gardeners. Each subsequent year, Master Gardeners provide a minimum of 25 hours of volunteer service and six hours of continuing education to maintain their certification.

In 2010, **158 Master Gardeners** contributed **14,1470 hours of volunteer service** to citizens and institutions of Yavapai



Yarnell Community Garden crew.

Arizona Highlands Garden Conference

Yavapai County Master Gardeners cooperated with Coconino, Gila, and Navajo Counties to plan and deliver the Eleventh Annual Arizona Highlands Garden Conference on August 27 and 28, 2010, at the Mazatzal Casino and Conference Center in Payson, AZ. The conference was attended by 186 Arizona Master Gardeners and gardening enthusiasts from across northern Arizona as well as the Phoenix and Tucson areas. The conference theme was "Sustainable Gardening for Homes and Communities." Yavapai County Master Gardeners will host the Twelfth Annual Arizona Highlands Garden Conference on October 21 and 22, 2011. The conference theme will be "Backyards and Beyond".

County. This included 3,418 face-to-face, 1,099 phone, and 204 E-mail contacts. Master Gardener Volunteer Coordinator, Mary Barnes, maintained records, facilitated communication, conducted program planning, and tracked volunteer activities. She also designed and continues to update the Yavapai County Master Gardener Web Site. Ms. Barnes' valuable volunteer service is integral to Yavapai County Cooperative Extension's success. Master Gardener, Nora Graf, edited and managed the monthly newsletter *Yavapai Gardens* and has initiated an MG blog. Master Gardeners also provided volunteer service to school gardens (6), museums (2), one hospital, staffed educational displays at 13 public events, coordinated Master Gardener Association meetings/activities (10), and organized the Yavapai County Master Gardener recognition picnic. An updated Master Gardener website was launched with information resources, forms, meetings, and forms where questions could be submitted. The Master Gardener Speaker's Bureau also gave presentations to 44 community groups. Yavapai County Cooperative Extension continues to have one of the most ambitious and successful Master Gardener Programs in the state.

Yavapai County Native and Naturalized Plant Database

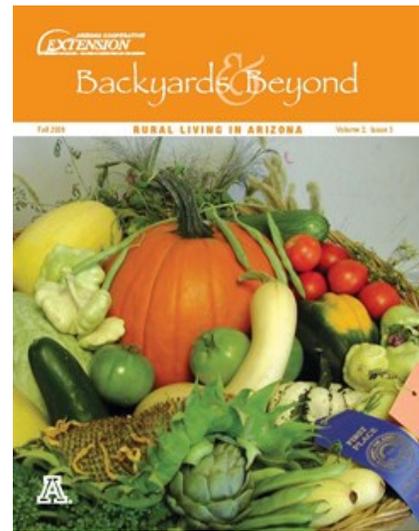
Yavapai County Master Gardener, Sue Smith, created and led a team of Master Gardeners in creating the Yavapai County Native and Naturalized Plant Database (<http://cals.arizona.edu/yavapaiplants/>). Using her skills as a former Ebay programmer, Sue and her team photographed and described over 150 plants which are searchable in a SQL Database. This project is ongoing and plants continue to be added. V Bar V Ranch Range Specialist, Doug Tolleson and Research Specialist, John Kava also assisted with this project.



Plant identification walk.



Natural Resource Education



Backyards and Beyond Magazine

Backyards and Beyond is a quarterly magazine that addresses small acreage land management and rural living. Three issues were published in 2010 by the University of Arizona. Agent Jeff Schalau served on the editorial board and authored multiple articles. Grant funding was used to support publication costs and subscriptions are being offered to sustain its publication. Back issues and subscription information is available on the web at: ag.arizona.edu/backyards/.

Natural Resources Conservation Workshop for Arizona Youth (NRCWAY)



NRCWAY was held at Mingus Springs Camp July 6-10, 2010. NRCWAY is sponsored by the Arizona Section, Society for Range Management (SRM). Agent Jeff Schalau co-directed this week-long residential program in collaboration with Cochise County agents Kim McReynolds (Camp Director) and Susan Pater (Co-Director). Thirty-six (36) youth from

across Arizona participated in this diverse camping experience. The workshop utilized experienced natural resource professionals and University of Arizona faculty as instructors to build skills/competencies of the youth participants and continues to be the preeminent natural resource camp experience in the state of Arizona.

Invasive Species Education

Noxious weeds are plants known to be injurious or harmful to people, animals, and/or ecosystems and are officially designated by law or regulation as such. Invasive weeds are similar, but have not yet been officially designated. Cooperative Extension Agent, Jeff Schalau, provided instruction and expertise related to noxious/invasive weed management to natural resource managers and members of the public in collaboration with the West Yavapai Weed Management Area and the Verde Weed Management Area. He also provided invited presentations and collaborated with Extension colleagues Kai Umeda and Ed Northam to plan and deliver Pesticide Applicator Training/Testing in Northern Arizona.



Spotted knapweed is a noxious weed invading wildlands across the temperate zones of the United States.



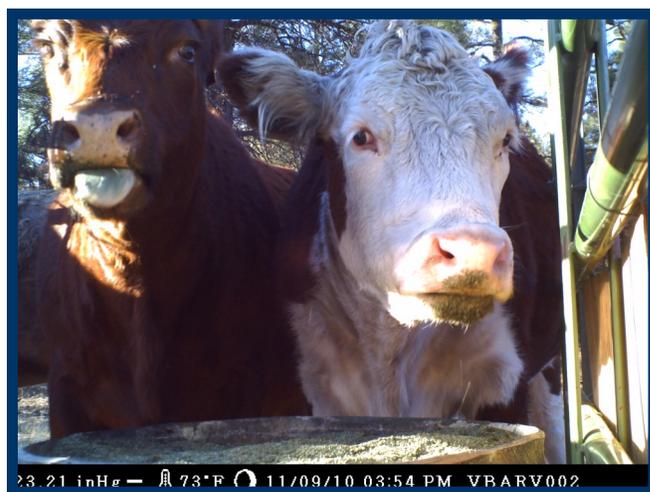
Range Management and Livestock Production

Rangeland Monitoring

Several ranches in Yavapai County have ongoing rangeland monitoring programs. Here, annual data collection is combined with site-specific discussions among agency resource management professionals and ranchers. Animal Science Area Agent, Jim Sprinkle; Agriculture and Natural Resources Agent, Jeff Schalau; and University of Arizona Range Specialist, Doug Tolleson, collaborated on rangeland monitoring programs and subsequent data collection. Monitoring programs at the Yavapai Ranch (Seligman) and Bar Heart Ranch (Upper Verde River) have been ongoing. We have also formed the Rim Grass Range Group which is conducting educational sessions and includes several ranches adjacent to the V Bar V Ranch Experiment Station. These monitoring efforts brought ranchers and land management agency professionals together and allowed them to make effective management decisions that ensure livestock grazing is sustainable. Diverse groups working together ultimately helped build trust between ranchers, agency professionals, and concerned citizens groups.



Moving cattle on the rim at the V Bar V Ranch, photo by Dave Schafer, Resident Director, V Bar V Ranch Experiment Station.



Cattle eating mineral supplement at V Bar V.

Livestock Nutrition

Jim Sprinkle, Doug Tolleson and the U of A Range Livestock Nutrition Committee held workshops titled *Strategies and Tools to meet Tomorrow's Ranching Challenges* in Camp Verde and Seligman. Forty eight people attended these innovative programs. Attendees learned about livestock nutritional supplementation strategies, current livestock nutrition research in Arizona, and economics of supplementation.

Beef cattle trace mineral nutrition research continued at the V Bar V Ranch. In 2010, a research project was initiated that uses motion/infrared sensing cameras paired with mineral supplement containers equipped with digital scales and dataloggers. Supplement intake is measured and paired with individual animals to determine intake and subsequent performance. Doug Tolleson also utilized Near Infrared Reflectance Spectroscopy (NIRS) to analyze forage and fecal samples. NIRS makes use of the fact that organic materials absorb infrared light at characteristic frequencies, such that two materials of different chemical makeup will absorb and reflect infrared light differently. The resulting spectra can be measured, related to some constituent of interest (e.g. crude protein), and quantified. When the technique is applied to fecal samples, the diet quality of grazing animals can be determined.

Ranching in the Future

Agent, Erik Glenn held three workshops in this series in 2010, serving **96 people**. One took place in Peoples Valley with the assistance of the Central Arizona Land Trust (CALT) and another was held in Flagstaff with the help of the Coconino Natural Resource Conservation District. A third workshop called *Protecting Family Agricultural Lands in the Verde: Past, Present and Future* was conducted in Page

Springs with the help of CALT. The goal of these events is to provide ranchers and other landowners with information about estate planning, land protection and alternative income generation options so that they're able to pass their properties down to the next generation, thereby preserving open space, decreasing lot splits and ensuring traditional land uses don't disappear.



Water Resources Education

Youth Education

Project WET

Wild Over Water, a Project WET direct outreach program, brought additional trained Project WET docents into 14 local fourth grade classrooms. Each docent visited their adopted class on four different occasions, each time presenting a separate lesson. A total of 365 students learned about the importance of water. Project WET is partnering with the Natural Resource Conservation District to bring these lessons to rural schools.

Verde Valley Water Festival

The Verde Valley held its third Water Festival in October! This community-supported event brought together 487 fourth grade students who learned important lessons about their local watershed and their role in taking care of water as a precious resource. This year students from Camp Verde schools joined students from Cottonwood, Jerome and



Groundwater flow model demonstration at Verde Valley Water Festival

Water Resource Education for Adults

Staff helped support Prescott Creeks Watershed Improvement Council and the Oak Creek Canyon Task Force, recipients of ADEQ water quality improvement grants. Support has also been given to numerous other organizations focused on local water issues.

Timely information has been provided to diverse clientele through direct and indirect contact. Educational outreach has been conducted at events such as the Yavapai County Fair, Verde River Days, Earth Day, the Verde Valley Birding and Nature Festival, Sustainable Sedona, World Water Monitoring Day and Water Awareness Month.



Clarkdale schools in the hands-on lessons. Over 80 volunteers helped make the festival a success in spite of rainy weather which required moving the festival indoors.

School Water Audits

In late March and early April four seventh grade classes from Cottonwood Middle School performed a school water audit at the Cottonwood Elementary School. They calculated water usage and savings realized after installing water saving fixtures. Ten community volunteers including the mayor of Cottonwood participated in this project.

Teacher Workshops

A major focus for educating the youth audience in Yavapai County has been to promote Arizona Project WET (Water Education for Teachers). Arizona Project WET provides training and resources to K-12 teachers to help in the integration of water resource education into their curriculum. A particular emphasis was to encourage teachers to take their students outside to do streamside field investigations. Project WET gave water chemistry sets to over 30 teachers to allow classes to continue to monitor water quality in local streams. A total of 143 teachers attended Project WET trainings in 2010. In addition, a special training was held for youth conservation corps leaders.

Teachers continue to borrow Project WET teaching supplies, a clear indication that they are delivering water education lessons in their classrooms, reaching an additional 2089 students.

Water monitoring test kits have been made available for sale so that private well owners can test their well water for arsenic and other contaminants.



Yavapai County Cooperative Extension Faculty and Staff

Jeff Schalaus	County Director, Associate Agent, Agriculture & Natural Resources, jschalau@cals.arizona.edu
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Doug Tolleson	Assistant Range Management Specialist, V Bar V Ranch Experiment Station
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Janick Artiola, Water Quality Research Scientist, SWES
Stacey Bealmear
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Robin Grumbles, ANR Agent, Mohave County
Larry Howery, Rangeland Specialist, SNR
Chris Jones, ANR Agent, Gila County
Colin Kaltenbach, Director, Agric. Experiment Station
Mike Kilby, Specialist, Plant Sciences Department (retired)
Bob Kattnig, Specialist, Dept. of Animal Sciences
David Kopec, Turf Specialist, Plant Sciences Department
Ed Martin, Irrigation Specialist and Associate Director

Kim McReynolds, Nat. Res. Area Specialist, Cochise County
Terry Mikel, Horticulture Agent (retired), Maricopa County
Joanna Nadeau, Research Analyst, Water Resources Res. Ctr.
Kurt Nolte, Agric. Agent, Yuma County
Mary Olsen, Specialist, Plant Pathology
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Channah Rock, Water Quality Specialist, SWES
Candice Rupperecht, Master Watershed Steward Coordinator
George Ruyle, Rangeland Program Chair, SNR
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Ursula Schuch, Commercial Horticulture Specialist, Plant Sci.
Kerry Schwartz, Arizona Project WET Director
Doug Tolleson, Range Management Specialist, V Bar V ranch
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Beth Tucker, FCS Agent, Coconino County
Kristine Uhlman, NEMO Coordinator, SNR
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