



Rural Connections brief

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The Role of Extension in Land Use Planning and Sustainable Development in the West

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Introduction

University-based Extension programs throughout the West have long been known as a credible resource to help rural communities address a multitude of issues ranging from childhood obesity to better gardening practices and water conservation. However, as the West has seen an influx of new residents and its rural areas transformed in a relatively short period of time, several compelling trends have emerged to engage university-based Extension efforts in a new programmatic direction of land use planning and sustainable development. This paper will: discuss those emerging trends; highlight the reasons why Extension is in a good position to address land use planning and sustainable development; give an example of how one university Extension program in Arizona is tapping into its academic resources to develop such a program; identify the stakeholders that stand to benefit; and lastly, propose some suggestions on how other university-based Extension programs throughout the west may follow suit.

Changing Trends – Making the Case for Planning

While the West is known for its vast and picturesque open spaces, high mountain ranges, deserts and rangelands, other issues and trends are overshadowing the western landscape and dominating its headlines. One trend has been a dramatic increase in population growth where the rate of growth in the west has exceeded the national average for the last four decades. As William R. Travis notes in his 2007 book, *New Geographies of the American West*, between 1990 and 2000, Nevada, Arizona, Utah, Colorado and Idaho made up the five fastest-growing

states in the nation. The rate of growth for these five states as a whole was almost three times the national average (37% for the five western states versus 13% for the entire US). Demographers agree that this trend will continue well into the future. As a more acute example of growth, the 2007 Arizona Department of Economic Security's population estimate for the state of Arizona was 6.5 million people, making it the second fastest-growing state in the nation behind Nevada. Compared to the 2000 population estimate of 5.1 million, this represents a 27% growth rate in seven years, or an average of 3.9% a year. The US Census Bureau projects Arizona's population to reach over 10.7 million people by the year 2030, more than doubling the state's population since the year 2000 (US Census Bureau, 2005). Where and how these new residents will be accommodated becomes the question of the day for planners everywhere in the Interior West. Belying the illusion of vast open spaces in the West to accommodate new growth is the fact that nearly half of the land is federally owned, thereby further restricting where and how residential development could occur.

Climate change projections, in addition to the most recent population trends, also create the imperative for land use planners everywhere to incorporate the best emerging ideas and innovations to offset and mitigate the effects of future development – especially as it relates to sustainability, carbon footprints, adaptation, and the abatement of greenhouse gases (American Planning Association, 2008). This is especially important in the Interior West where we see a convergence of development (as a result of increased population) and the potential for increased carbon emissions.

Abstract

This article highlights the regional imperative for and implementation of a new Extension emphasis in land use planning and sustainable development, citing population growth and climate change as issues in the West that create the imperative. While planning is normally the domain of state and local government, resources that support planning and sustainable development are readily available in land grant universities like the University of Arizona. Extension programs throughout the Interior West have an opportunity to utilize these resources and branch out to address the issues transforming the rural landscapes of the West. Non-traditional stakeholders that stand to benefit from this new program emphasis as well as new delivery methods are enumerated in this article.

Other factors characteristic of the Interior West contribute to this convergence. For example, one typical development pattern in the West, exurbanization, has led to a fragmentation of rural landscapes and wildlife habitat, loss of prime arable and grazing lands, the introduction of exotic species, and an increase in the intensity of natural processes like fire and flooding. Exurbs are defined as: large-scale permanent settlement patterns by urban people in non-metropolitan areas beyond typical commuting distances on lots ranging from one acre to 40 acres; a development type that blurs the distinction between suburban and rural; and a settlement type that is characterized by more land consumption per capita and a mix of populations and housing. In fact, nationwide, exurbs account for ten times the amount of land in urban and suburban uses (Travis, 2007). This development pattern and its impacts may not be unique to the Interior West. But, because of the Interior West's vast open spaces and the long distances people are willing to live from metropolitan areas, settlement patterns exacerbate "vehicle miles traveled" or VMT – a telling indicator of potential carbon emissions, in terms of personal vehicle emissions, energy consumption and the construction of new roads to accommodate traffic.

Two other important factors in the West that amplify the need for sustainable planning with regard to climate change are long-term drought and vulnerable water supplies. For example, new research from the University of Arizona suggests that rainfall in March and April is becoming more infrequent, lengthening the critical dry period between late winter storms and summer thunderstorms in Arizona and New Mexico. This could have deleterious impacts to plants and animals, water supplies and wildland fuels (McAfee and Russell, 2008).

New Directions

The significant increases in population as well as the latest climate change projections have compelled many communities, state agencies, researchers, planners, elected officials and natural resource managers in the West to look for creative solutions and tools to manage the changes occurring to their rural landscapes. Although western metropolitan areas are not immune to the issues discussed here, they are generally better equipped to address the impending trends. It is the rural areas that are bearing the brunt of the population dispersal patterns with the incidence

of exurbanization, as well as changing economies through the conversion of agricultural and grazing lands. It is also in these rural areas that Extension agents in the West are already well established, providing important education and outreach services on behalf of their land grant universities.

While the idea of integrating land use planning into Extension programs is not new (Haines, 2002; Seidl, 2001; Arnold, 2000), the concentration of universities with this kind of Extension emphasis lies largely outside of the Interior West in states like Wisconsin, Indiana, Michigan, Pennsylvania, Ohio, Florida and Connecticut. A few western universities do address planning and growth issues and have conducted excellent research. University of Colorado's Center of the American West, Arizona State's Morrison Institute for Public Policy, and the University of Wyoming's William D. Ruckelshaus Institute of Environment and Natural Resources are all fine examples of academic engagement in this important topic. Utah State University's program in Rural Intermountain Planning, through its Extension Department, is active in community planning. However, educating the masses on sustainable living will be the job of all Extension agents (Elliot et al., 2008). Land use planning and sustainable development are an integral component of that imperative.

Extension agents are in an advantageous position to tap into the research, data, best practices, designs and innovations that are coming forth from their respective land grant universities to help address these issues.

For example, the Climate Assessment for the Southwest (CLIMAS) program, as part of the University of Arizona's Institute for the Study of Planet Earth, was established to help improve the ability of the Southwest to respond sufficiently and appropriately to climatic events and climate changes. Extension agents can use the data from this program to support education efforts in best practices with regard to planning for and developing healthy, low-impact and sustainable communities. Other western land grant universities, such as Colorado State University, New Mexico State University, and Montana State University have similar programs with focused research on climate change and greenhouse gas mitigation. The University of Arizona's Cooperative Extension Program is one



institution in the Interior West that is assisting community leaders, decision-makers, small acreage landowners, and ranchers with the development issues that are affecting the rural areas in which they live. Under the auspices of Community Resource Development, a new Land Use Planning and Sustainable Development



(LUPSD) program area has been created to model the regional environmental, economic and social changes that will accompany rural transformation in Arizona. This program came about largely due to the University of Arizona's Cooperative Extension administration recognizing the need to engage in the state's growth and development issues. Through state support, two new positions in Community Resource Development in Cooperative Extension were created at the University of Arizona with the mandate to design programs that help explain the outcomes of alternative models of rural transformation so that stakeholders can understand the likely outcomes of policy alternatives. These two new Extension agent positions were designed to address local, regional and state growth issues through a variety of delivery methods that will be discussed later.

Although a relatively new program in Extension, a number of outreach efforts have evolved since the program's inception. For example, all the county supervisors and planners in the state now have access to a new website developed by the authors called Arizona's Changing Rural Landscapes (<http://ag.arizona.edu/rurallandscapes/>) that serves as an internet resource for community planning and sustainable development links, economic data, publications, and other similar programs. The Arizona County Supervisors Association, County Planning Directors Association and the Arizona Planning Association were all collaborators in promoting this new website.

Stakeholders

A program in land use planning and sustainable development has the potential to cultivate new relationships with stakeholders/clientele not currently benefiting from other county Extension programs, and those who may not be considered "traditional" Extension clientele. While ranchers, farmers and youth have benefited in the past from Extension's traditional programs, a new cadre of stakeholders is emerging. Since growth and climate change issues affect everyone in the West, the audience for Extension's outreach efforts in this arena is broad and can include developers, realtors, builders, planners, dispersed ex-urbanites, and elected officials. For most county Extension programs, the networks of stakeholders and community leaders are already in place to begin a new land use and sustainable development program that will reach non-traditional audiences. In Arizona, the LUPSD program is currently targeting:

1. Ranchers, Farmers and Other Large Property

Owners - A category populated by people whose primary asset may be the very land on which they live and/or work, who are faced with development pressures due to estate taxes, low productivity, drought, or other reasons. Through workshops, Arizona Cooperative Extension is providing information on the fundamentals of planning and zoning, estate planning, area

planning and alternative economic opportunities to this group of stakeholders. Under the LUPSD program, Cooperative Extension is working with one group of ranching families in southeastern Arizona on a Rural Plan Area designation and developing a plan for their holdings that addresses future land uses, conservation of open space and range resources, as well as alternative economic opportunities to supplement their ranching income. This process will also include federal land managers from the Forest Service, Bureau of Land Management and National Park Service since their lands border the planning area. The plan, once completed, will then be adopted into the county's overall comprehensive plan by the Board of Supervisors and guide the Board's decision-making with regard to future development in this region.

2. **Exurbanites** - A group of new rural residents that do not necessarily depend on large tracts of land for their livelihoods, but who choose to live in rural areas on parcels as small as one acre or as large as 40 acres, beyond typical commuting distances to metropolitan areas for work or services. Arizona Cooperative Extension is expanding its outreach efforts to this group by providing fact sheets about living on small acreages – everything from the care of their private wells to procedures for obtaining zoning information and building permits. The fact sheets will be accessible to anyone through mailings and on Extension's website. Little statistical data on the demographics of this group is available in Arizona. Future involvement with these stakeholders may include demographic research into their income levels, places of origin, age distribution, and levels of education to get a better handle on how Extension can better serve this population.
3. **Community Leaders** - Those groups and individuals in rural areas that serve as the voice of their communities to elected officials. Arizona Cooperative Extension's Project CENTRL (Center for Rural Leadership) is an intensive two-year educational program that gives selected individuals, through a call for nominations process, an exceptional personal and professional leadership development experience. The new LUPSD program is providing components of their training related to land use planning and exurbanization. This component is intended to help future community leaders be effective "citizen planners" either as community organizers or as appointed members of their respective planning commissions.

4. Elected/Public Officials - The group of stakeholders that make up the regulatory framework from which patterns of land use and economic development activity emerge. This group includes county boards of supervisors, planning commissioners and planning staff. County governments already provide support to Extension programs throughout Arizona, but the LUPSD program presents an opportunity to better inform elected and public officials about land use and economic development alternatives in the hopes that those ideas will be transformed into policy and good decision-making. For example, with the help of undergraduate and graduate students, and the cooperation of an interested developer, Extension in Arizona was able to present a viable, sustainable development alternative on a real piece of property in southeastern Arizona to the county's Board of Supervisors, Planning Commission and planning staff. The county is following up with its own voluntary green building program and will likely incorporate the recommendations from the presentation into a pending update of its subdivision regulations.

Extension's Ability to Meet These Needs

As many planners in the public and private sectors already know, it is not difficult to make the case for sound planning. Population growth and climate change are not unique to the West. Yet, as described earlier, there are compelling factors in the Interior West creating the need to engage as many resources and stakeholders as possible to address these important issues. Extension agents are in a position to facilitate, consult and educate stakeholders on land use planning and sustainability issues where rural county and small town planning staff only have the resources to handle day-to-day development requests. Most rural jurisdictions have little time or staff to address long-term planning. Private sector planning firms have filled this niche in some areas of the West. Yet, apart from the well-established networks of stakeholders, what enhances an Extension agent's ability to address land use planning and sustainable development in rural jurisdictions is the wealth of credible resources they have access to in their respective universities. Some of those resources found at the University of Arizona, as well as most major universities throughout the West, are:

- GIS technology
- Mapping and other web-based tools
- Planning and design degree programs
- Natural resources specialists
- Geography specialists
- Climatologists
- Economic development research

Extension agents are already playing an important role in helping to bring these resources to stakeholders through their Natural Resources, Agriculture, and Family Consumer Sciences programs. Now is the time for Extension programs to take into consideration sustainability, economic diversity, and innovation. In order to be effective in dealing with rural issues in their respective counties, agents also need to be well informed about their state and local planning policies and regulations. Usually, a visit to a county's website or planning department will provide an agent with the necessary background and information on their local jurisdiction's

planning processes, subdivision regulations and development policies. Throughout the West, a county's comprehensive plan, or a town's general plan, are great places to start to understand the planning issues affecting their rural areas.

Arizona Cooperative Extension is using a diverse array of delivery methods in its outreach efforts. The delivery method chosen by any Extension agent will depend upon the audience s/he is hoping to reach. Extension agents, nationwide, are experts at using the more traditional methods like fact sheets, hands-on demonstration workshops, and more recently, presentations using PowerPoint, as well as web-based resources. In the area of land use planning and sustainable development, other non-traditional outreach methods can be used. For example, creating three-dimensional visualizations greatly enhances the ability of stakeholders to understand and picture development alternatives. New software technology has opened the door for virtually anyone with computer skills to put their ideas into three-dimensional renderings, which can then be incorporated into workshops, fact sheets and a variety of other mediums. Free software programs like Google Earth and Google Sketch-Up, when combined, are powerful tools for visualizing development on a particular landscape and are fairly easy to learn. In addition to computer-savvy Extension agents, universities are brimming with enthusiastic, technologically advanced students eager to display their talents – especially in the area of Web 2.0 technology. These students, especially in the areas of land use planning and sustainable development, are easy to recruit as interns or staff support since the work of Extension can provide them an opportunity to be better prepared for the job market upon graduation.

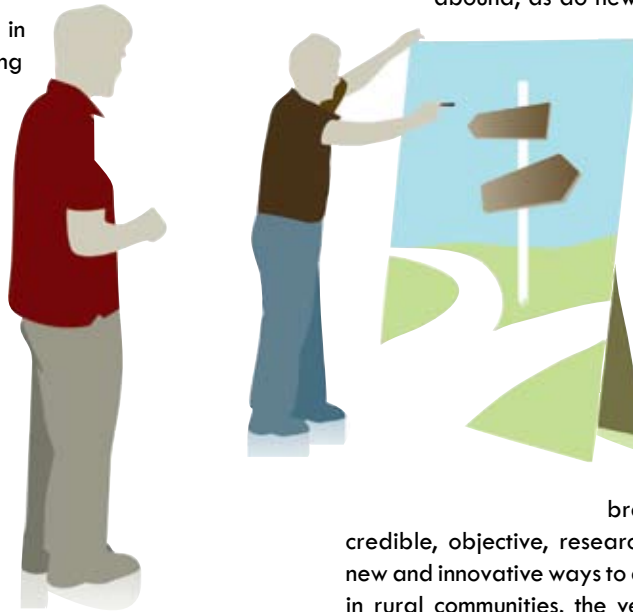
Another delivery method that may be new to Extension, but has its roots in architecture, is the use of "charrettes." Charrettes are short-term, intensive, team-based, planning workshops for a specific property, neighborhood, building or community. They have been used in the planning and design world as a way to engage a community and team of experts, usually made up of planners, architects, and community development specialists for a short timeframe. Workshops usually last from a few days to a week, where the expert team seeks input from the community through open houses and formal presentations, to develop alternative designs and policies for a particular place. Then, several times over the course of the process, the team reports back to the community on its designs and ideas, while continually soliciting additional input to refine its ideas. In the end, this method has the effect of creating community ownership towards a project. Typical longer-term community planning processes can last anywhere from a year to several years, and these tend to lose their momentum. Communities experience planning fatigue by the time a final plan or design is proposed.

Charrettes, though intensive, are an effective way for an Extension agent participating as an expert team member to bring the best and brightest ideas to the table from their pool of university resources. Arizona's Cooperative Extension participated in one such charrette for the San Jose neighborhood in the city of Bisbee, a small community located near the US border with Mexico. As

a result, the weeklong process resulted in guiding principles for sustainable development that the city will use in their decision-making for future growth in the San Jose District. The framework and products of this charrette can be viewed on the city's website at: www.cityofbisbee.com.

In summary, Cooperative Extension in Arizona is focusing its land use planning and sustainable development outreach efforts through:

- Workshops and facilitated planning processes for ranchers on fundamentals of planning and zoning, rangeland conservation, estate planning, direct-marketing strategies, and sustainable development;
- A website for community organizations, planners and decision-makers on statewide demographics, economic trends, maps, planning tools and other land use and economic resources called Arizona's Changing Rural Landscapes (<http://ag.arizona.edu/rurallandscapes/>);
- A quarterly magazine targeting new residents in Arizona called *Backyards and Beyond* (<http://cals.arizona.edu/backyards/index.html>) with articles written quarterly by Extension agents, specialists and natural resource managers;
- Sustainable subdivision design presentations to elected officials and decision-makers that include a checklist for best building practices, using three-dimensional visualization and GIS tools;
- Fact sheets covering a range of topics for small acreage land owners, such as easements, land use laws, wells, and wildlife;
- Training for community leaders on the topics of exurban trends and how to be effective citizen planners;
- Team member participation in rural community planning charrettes.



own university's degree programs in planning, landscape design or geography as well as the internet to tap into the plethora of information on sustainable development, green building practices, model planning policies or mapping resources for the West. New opportunities to engage non-traditional Extension audiences abound, as do new methods of delivery, like visualizations and charrettes.

A number of universities are engaged in the changes that are transforming rural landscapes throughout the Interior West, either through academic research or through Extension programs like Utah State's Rural Intermountain Planning Program (RIPP) or the University of Arizona's Land Use Planning and Sustainable Development (LUPSD) program. Other land grant universities can look to these institutions to better understand how Extension can

branch out and use its reputation as a credible, objective, research-based information broker to deliver new and innovative ways to deal with growth and sustainability issues in rural communities, the very places where innovation is needed most. Just as Extension educators have banded together to form the National Network for Sustainable Living Education (NNSLE), the opportunity exists for regional collaboration between universities in the areas of land use planning and sustainable development, an important component of sustainable living education. As noted earlier, the task of educating the public about living on our planet in a more sustainable manner is an imperative for all Extension agents. The community of Extension agents in the Interior West is relatively small compared to other parts of the country and the issues of growth and climate change are acute. Yet, because of its vast open spaces and the richness of its resources, the West, with the help of Extension, still holds the promise of implementing the best planning and sustainability practices. 🌱

Authors' Picks for Further Reading

Arizona's Changing Rural Landscapes website:

<http://ag.arizona.edu/rurallandscapes/>

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[Journal of Extension](#) – multiple issues (see references)

Conclusion

Growth issues, climate change and development trends affecting the West's rural landscapes have created the imperative to engage as many resources and people as possible in addressing these issues. The time is ripe to utilize Extension's reputation as a trusted information provider to foster and pass along new and emerging ideas on land use planning, sustainable development, and efficient designs. Extension agents currently in the fields of natural resources and community development need not look any further than their



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