

OPEN-SPACE PROTECTION IN COCHISE COUNTY:

A PEER-BASED BENCHMARK ANALYSIS

by

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Statement by Author

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Abstract

Numerous studies compare open space policies in amenity-rich high-growth rural counties in the American West. Less common is research on similar counties before these large population shifts occur. This study selects Cochise County and 18 peer counties to benchmark another important segment of the American West—counties of moderate growth. The intent is not to explain causation between policy and open space characteristics but instead to expose open space trends among peers that may be valuable for Cochise County planners. The study begins by reviewing the role of open space in the American West before discussing the federal, state, and local policy context. Interviews with planners and a review of comprehensive plan policies at each county then provide material to benchmark Cochise County and offer recommendations. The results demonstrate that Cochise County planners take a relatively modest approach to open space planning and may benefit from:

1. Elaborating on the Comprehensive Plan purpose
2. Employing stronger language for open space goals
3. Including all applicable goals of open space protection
4. Increasing the number of moderately worded open space tools
5. Recognizing cooperation as a key to open space protection
6. Maintaining strong leadership

Expected population growth and a high demand for Cochise’s many natural and cultural amenities only reinforce the need for these recommendations.

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Introduction

In 2004, a group of residents living in northern Cochise County, Arizona solicited the planning program faculty at the University of Arizona for research associated with the impact of population growth on local groundwater supplies. In particular, they were concerned about the conversion of Smith Ranch into a master planned development. As an outgrowth of that inquiry, I have chosen to study open space issues in Cochise and similar counties throughout the western United States. The goal of my research is twofold. First, I seek to understand how counties like Cochise may respond to population growth while balancing various social, environmental, and economic open space interests. And second, evaluate how well Cochise protects open space in comparison to similar counties.

Part I begins by acknowledging the unique character of the American West, as epitomized by places like Cochise County, with a focus on open space. What is it? Why is it important? And how do counties conserve it? The popularity of the American West creates land use challenges for county planners throughout the region. In response, counties must work within a state and federal policy framework while tailoring their comprehensive plans to local preferences. For this reason, the study explores the many policies that influence open space conservation and what Cochise County might learn from its peers.

In Part II, the study turns to the peer-based benchmarking analysis. I created a group of peer counties selected from the western states to benchmark Cochise County's open space planning efforts. Interviews with peer county planners and an extensive policy review of their comprehensive plans allowed me better understand open space trends. Having this perspective, I make recommendations to enhance open space protection efforts in Cochise County.

Part 1: The American West in Cochise County

Land conservation in the rural American West is the focus of this study. Though half of the region consists of protected public lands, the majority of these sit at high elevations away from towns, the most productive soils, and the bulk of species diversity (Scott *et al.* 2001 in Ewing *et al.* 2005). The lower elevation valley bottoms and foothills hold the private ranches, farms, businesses, and homes of a growing American population. In these areas, counties are responsible for balancing the land use interests of a wide variety of residents. Westerners want to maintain the rural character, farm and ranch, protect wildlife, avoid floods and droughts, recreate, and build all within a limited space. And so counties enact ordinances, guided by comprehensive plans, to protect these private lands from conflicting uses. In the process, private land may be set aside from development for economic, social, or environmental reasons. These protected lands go by various names, mostly commonly open space.

The term open space deserves special consideration due to its diverse, and sometimes opposing, definitions. For example, a popular western author converts the physical aspects of open space into a political desire where “in the open space of democracy the health of the environment is seen as the wealth of our communities” (Williams 2004). This contrasts with the more cynically mundane perspective that “open space is merely that area left over by mandated minimum setbacks and conveniently placed buffer areas between incompatible uses—a mere ploy to gain the approval of some regulatory authority” (Hall and Porterfield 2001). As the focus of land conservation in this study, a clarified description is in order.

Open Space

Defined

Though all counties in this study (see page 25) mention open space, Arizona's Coconino and Santa Cruz counties provide the most concise definitions. Open space is "a primarily undeveloped landscape that provides scenic, ecological, or recreational values or that is set aside for resource protection or conservation; an area of managed production such as forestland, rangeland, or agricultural land that is essentially free of visible obstructions" (Coconino County 2003). Similarly, open space is "characterized by great natural scenic beauty or whose existing openness, natural condition or present state of use, if retained, would maintain or enhance the conservation of natural or scenic resources, or the production of food and fiber" (Santa Cruz County 2004). With a few additional comments in mind, these similar definitions serve as the basis of the study.

First, the wording acknowledges that open space is not always designated as such.¹ This is more accurate, especially in West, than the EPA (2005) and Smith and Riggs (1975) definition which considers open space as land that is permanently or semi-permanently set aside from development. However briefly, open space exists whether or not it has been protected as such—highlighting the functional, opposed to regulatory, view. The temporary nature of open space is the element that spurs counties to advocate for its conservation.

Second, Coconino and Santa Cruz open space definitions imply a diversity of regulatory intensities or protection levels. Whereas Press (2002: p. 13-14) defines "open space as land purchased by local governments or conservation land trusts," the peer group counties examined

¹ In Arizona, for example, state statute expressly prohibits counties from designating areas as open space unless the landowner either consents to the change or receives the option to rezone their property to one residence per 36,000 square feet. Thus, a rural land use designation of one residence per two acres actually provides more open space (via lower densities) than most potential open space designations.

in this study all acknowledge the varying intensities of protection status (for example, zoning ordinances and conservation easements) that complement land acquisition. This study includes temporary and permanent open space due to the admittedly wide range of open space options.

Lastly, the definitions appropriately illustrate the variety of open space goals. The prevalence of open space policies in peer group county comprehensive plans is due in large part to the many social, economic, and environmental goals they accomplish. The most commonly mentioned goals of open space protection among Cochise County peers are listed in the Coconino definition of open space.

How much is enough?

The goal of open space protection is more easily achieved with measured progress. Some counties use GIS software to quantify their acreage of designated and/or undesignated open space (Appendix D-3). Yet one question remains: how much, and what quality of, open space satisfies the numerous open space goals? In many western counties, the federally-enforced Endangered Species Act provides an incentive for environmental measurement. Pima County, Arizona achieves open space goals when developers conserve the habitat of the County's threatened species in their Conservation Lands System according to the Regional Plan Policies (Pima County 2003). Environmental standards may indeed be the most appropriate given that the counties involved in the following peer group study cited the environmental benefits of open space protection twice as often as the next most common goal—agriculture and related rural activities. Ecology, hydrology, and other fields possess a wealth of objective standards for gauging the success of environmental open space goals (Noss and Cooperrider 1994).

In counties where agriculture is a major driver of open space protection, the Natural Resources Conservation Service's LESA (land evaluation and site assessment) system provides a tool for measuring progress towards open space goals. The LESA system combines farmland

quality indicators with development potential indicators. As of 1997, the system had been used in 30 states and 220 local governments for prioritizing farmland protection efforts like transfer of development rights (Daniels and Bowers 1997: p. 81). The success of an agriculture-related open space goal could be measured against the achievement of protecting a certain percentage of the highest-ranking farmlands in a county.

Cochise County

What's so special about open space in Cochise County?

From its start, Cochise County has epitomized the popularized American West—“the land of Indians, cowboys, miners, outlaws, ranchers, gunslingers, and Western lore” (Lonely Planet 2004). Today, though, Cochise County invites visitors and residents with its natural amenities. According to McGranahan (1999: p. i), “climate, topography, and water area are highly related to rural county population change over the past 25 years.” Compared to all U.S. counties (but common for the American West), Cochise County scores in the highest rank for natural amenities and has experienced well above average population growth over the past 25 years (McGranahan 1999: p.11). Cultural heritage and natural amenities are a good start to understanding the common ground that Cochise County shares with the American West. The following subsections expand on these interdependent characteristics while pointing out the contribution of open space to the topic.

Historic places. Besides the Old West attractions in Tombstone and Bisbee, Cochise County is also home to the Coronado National Memorial, which commemorates the first major exploration of the American Southwest by Europeans, and Fort Bowie National Historic Site, where the U.S. Army focused military operations against the Chiricahua Apache (NPS *undated*). Though federal lands protect these historic locations, open space preservation could benefit other historic sites if found within county jurisdiction.

Recreation and tourism. The historic towns and sites mentioned above plus Chiricahua National Monument, San Pedro River National Conservation Area, Kartchner Caverns State Park, Cochise Stronghold, Arizona Trail, and many other locations attract visitors. As an indicator of the rise of tourism, the Cochise County Tourism Council Strategic Plan (2004) points out that hotel sales increased 38.5% from 1997 to 2003.

Kartchner Caverns provides one example of how open space may benefit tourism. In a report to Arizona State Parks, hydrogeologist Tom Aley found that the “maintenance of the natural conditions and internationally recognized beauty of Kartchner Caverns depends upon maintenance of an adequate water supply (both in quantity and quality) in the Kartchner Aquifer” (Aley *undated*). In addition, development in a nearby land parcel would also affect the food sources of endangered bats that roost in the caves (Toomey III *undated*). Open space tools, such as groundwater pumping restrictions or limited development in the surrounding area, could preserve various qualities of the Park.

Ranching and farming. Cochise County is “home of the largest weekly cattle auction in Arizona and “specialty crops...play an important role in the local economy” (Arizona Department of Commerce 2004). According to the Natural Resource Conservation District (*undated*), “one of the attractions of owning rural land in southeastern Arizona is to raise livestock [where] intermountain valleys and mountain ranges are well suited for range cattle.” Various subdivision characteristics that favor open space could help maintain ranching and farming activities.

Biological diversity. The diversity of the Cochise County landscape may be attributed to its location in a region commonly referred to as the sky islands or the Madrean Archipelago. Here four ecoregions meet: the temperate Rocky Mountains, the subtropical Sierra Madre Occidental, the lower elevation Sonoran Desert, and the higher elevation Chihuahuan Desert

(Wildlands Project 2005). The name sky islands comes from the prevalence of “island” mountain ranges separated by “seas” of desert and grassland. The Chiricahua Mountains claim one of the highest levels of mammal diversity in the world while the last free flowing river in Arizona, the San Pedro, is habitat for 350 species of birds, most of which are migratory (SPRNCA *undated* and The Nature Conservancy 2004). The Nature Conservancy utilizes open space friendly tools such as land acquisition and deed restrictions to enhance habitat for many sensitive species in Cochise County.

Rural character and scenery. The history, ranching, and sky island topography combine to create a culturally and aesthetically appealing landscape. Though the number of parks may be a good indication of this, Rand McNally offers additional insight. Of the eight major roads and highways traversing Cochise County, Rand McNally designates six as scenic routes (Rand McNally 1999). Some counties similar to Cochise use scenic highway overlay zoning to preserve the scenic highway characteristics.

Natural hazards. Cochise County shares two common natural phenomena with many western counties—fire and drought. The Coronado National Forest, partially located in Cochise County, “leads the southwest in average annual acreage burned by lightning fires” and is working to restore the natural fire regime in the wildland-urban interface (Barrows 1978, Swetnam *in press*, Huachuca Area Fire Partners 2005). After nearly a century of fire suppression, wildland fires associated with uncharacteristically high fuel loads impact local biodiversity and increase the threat to rural homes (Lombardo 2005). In response, open space buffers serve as fuel breaks for fire.

According to the Köppen climate classification system, the Cochise region has a semi-arid climate. The droughts that are commonly associated with arid regions are no exception to the County—especially without augmentation from the Central Arizona Project. The Upper San

Pedro Partnership, among many others, addresses these water management issues in Cochise County (USPP 2005). The Upper San Pedro Partnership and The Nature Conservancy influence water usage with open space tools such as deed restrictions on agricultural use.

Growth management. From 1990 to 2000, the Cochise County population rose by 21% (U.S. Census 2000). The Cochise College Center for Economic Research (2004) expects 27% growth for the next ten-year period. Master planned developments in unincorporated areas, like Smith Ranch, will likely accommodate some of the associated housing demand. According to Mark Apel (*pers. comm.*) at Cochise County, Smith Ranch would add 1,125 homes to northwest Cochise County over the next 15 years. The cumulative effect of this residential expansion may adversely affect open space. Given that immigration may be amenity-driven, as suggested by McGranahan (1999) and Booth (2002), the loss of the open space amenity associated with residential development could weaken the County's appeal. The County has responded with zoning and subdivision policies directed at open space protection.

What's not to love?

Current population growth in America's West has a cost. Suburbanites leave "clogged highways, burgeoning crime rates, and mile after mile of look-alike shopping malls, franchise architecture, and soulless housing tracts" in search of inexpensive housing, new recreational opportunities, and open space in rural communities (Howe *et al.* 1997: p. 1). These sources of dissatisfaction, though, threaten to be replicated as the new rural developments consume farmland, rangeland, water, and wildlife habitat in a manner reminiscent of the suburbs. In response, many counties and their residents have attempted to mitigate these negative effects with county open space policies that address these concerns.

The changes occurring in the rural environment are widespread and increasing. This can be confirmed from U.S. Census Bureau, city data, and many academic studies (Wardwell and

Copp 1997, Henderson 1997). For example, residential developments suburbanize the landscape in a manner popularized by the term sprawl. This well-documented trend has characteristics that are easily measured, including: separation of land uses, detached single-family homes on large lots, automobile ownership and long commutes, and employment at low-rise workplaces with easily accessible parking (Booth 2002: p. 4). The explanation for movement into previously undeveloped rural areas is generally attributed to dissatisfaction with the suburban lifestyle (Booth 2002: p. 18, Howe et al 1997: p. 9). Only within the last decade or two, though, has the media widely begun to recognize the shortcomings of the suburbs (Jackson 1985, Kunstler 1993, Kunstler 1996, Duany 2000).

A booming population in turn often looks to surrounding agriculture and ranching lands for new homes. Over one million acres of land a year are converted to development across the United States. Colorado loses about 90,000 acres of ranchland a year and California loses about 100,000 acres of farmland a year (Daniels and Bowers 1997: p. 1). These estimates include lands near urban areas, yet these statistics are nonetheless indicative of expansion in the rural West (Waterfield 1986). In addition to land, the impacts of sprawl to flora and fauna have been well documented. NatureServe (2005) concluded that land development could “threaten the survival of nearly one out of every three imperiled species in the U.S. In some cases, lands marginalized by agriculture, ranching, mining, and forestry only compound the problem (Booth 2002).

Author Wallace Stegner (1982, p. 163-164) noted that the West’s “vast open spaces create the illusion of a continuing opportunity that its prevailing aridity prohibits.” Cochise County is no exception. Without the waters of the nearby Central Arizona Project, Cochise County meets its demand from watersheds like the San Pedro River. In July 2005, though, “for the first time in at least 75 years, the San Pedro River dried up along a short stretch downstream

of Sierra Vista” (The Arizona Republic 2005). A recent Harvard study of the San Pedro River offers a GIS-based simulation model to suggest alternative scenarios for development (Steinitz *et al.* 2002). Nonetheless, the strong opinions voiced in a local newspaper regarding proposed master planned developments attest to the difficulty of choosing a winning scenario (San Pedro Valley News 2005). The next section addresses how counties balance these costs of growth with the goals of open space.

Policy Context

Counties have the primary responsibility for land use in rural unincorporated areas, but must also uphold state and federal policies.² The following section describes many of those policies influencing open space conservation. First, all county policies and tools affecting land conservation operate within a framework of United States federal laws and customs. These federal controls reach into state, county, and private lands to varying degrees. The following summarizes the different ways that federal involvement may restrict or promote conservation for county planning departments.

Federal framework

The most fundamental level of policy is the United States Constitution and associated Amendments. All land use actions, regardless of ownership or location, are subject to these basic tenets of the country. Two Articles of the Constitution and, more importantly, two Amendments reference the land. Article 1 defines the areas of exclusively federal jurisdiction and Article 4 sets the rules and regulations for federal property (U.S. Constitution). The Fifth Amendment, though, is the law that requires the most careful observance for proponents of land

² Cities also play an important role in county land use. In the absence of regionally integrated policies and/or a high quality of life in cities, surrounding counties may experience uncharacteristically high in-migration (Howe *et al.* 1997: p. 1). The scope of this study, though, does not allow for a review of city policies in all of the 11 western states.

conservation—citizens may not be “deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation” (U.S. Constitution). The last phrase justifies the condemnation of private lands by public entities under their power of eminent domain. As a safeguard, the courts must rule that the action has a valid public use. To the favor of conservationists, courts consider historic preservation and aesthetic motivations as legitimate public purposes that can be controlled under police power. In the event that a land use regulation eliminates all economically viable use of property, the action is considered a regulatory taking. Open space protection may also warrant a taking if the designation lacks an “essential nexus” to the exclusion of development or the designation is not in “rough proportionality” to the excluded development (*Nollan v. California Coastal Commission*, *Dolan v. City of Tigard*). Lastly, the Tenth Amendment delegates certain powers to the states. This enables state legislatures to tailor their interpretation of federal law to their regional interests. For example, the Uniform Conservation Easement Act (UCEA) has been adopted by many states but not always in an equivalent form. As demonstrated in Appendix A, this Amendment is a source of disparity between conservation practices in western states.

Federal public lands

Federal land policy dominates the West, as demonstrated by federal ownership of over half of the 11 western States (National Wilderness Institute 1995). Four Acts of Congress are largely responsible: the Forest Service Organic Act (1897), Antiquities Act (1906), National Park Service Organic Act (1916), and Taylor Grazing Act (1934). These are the most representative Acts that shaped the federal West but hardly the only ones. For example, in 1891 Congress had already begun setting aside forested areas for federal control and the Pickett Act (1910, since repealed) allowed for public withdrawal of western lands. By the 1960s and 1970s, Federal protections focused more on preservation than conservation. Notable examples include the

Wilderness Act (1964), the National Historical Preservation Act (1966), National Wildlife Refuge System Administration Act (1966), and Federal Land Policy and Management Act (1976). These Acts created the framework around which counties now build open space programs because federal lands do not always satisfy the many environmental, scenic, and economic drivers of open space. In some cases, though, the abundance of public land does create a disincentive for planners to protect private land as open space (as stated in interviews for this study).

Federal influence on state, county, and private land use

Federal natural resource legislation that commonly influences lands beyond federal borders includes the National Trails System Act (1968), Wild and Scenic Rivers Act (WSRA 1968), Endangered Species Act (ESA 1973) and National Recreation Areas and National Scenic Areas opportunities. The designation of a National Scenic Trail across state and private lines provides various opportunities for legitimizing conservation. Among them, the “rails-to-trails” program “directs Federal agencies to facilitate the conversion of unused railroad rights-of-way into state or locally managed hiking trails” (Glickman and Coggins 2001: p. 280). The WSRA areas often run through state and private lands as well. Thus, they are subject to conservation by land management agencies. The ESA has a far-reaching impact on land use because endangered species habitat may not be harmed (*Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*). This means that developers, under Section 10 of the act, often elect to draft habitat mitigation plans in order to receive incidental take permits. In this way, the Act opens the door to the involvement of numerous environmental interests and local governments (Porter 1995: p. 38). The statutes guiding the definition of National Recreation and Scenic Areas also allows for significant state involvement by the absence of an organic act, which would have placed responsibility in federal hands (Glicksman and Coggins 2001: p. 281). For example, the

Columbia Gorge National Scenic Area receives support at the local level. The federal government also provides for state and local environmental planning. Examples include the Coastal Zone Management Act (1972) program grants, Clean Water Act (1972) funds, and Section 404 of the Clean Water Act which authorizes the Secretary of the Army to “maintain and restore the ... integrity of the waters of the United States” with wetland regulations (EPA 2003, Corps of Engineers Wetlands Delineation Manual 1987).

The increasingly regional planning approach of the federal government is also apparent. Numerous examples exist in the West of the USDA Forest Service and BLM considering ecosystems larger than their own borders. The Malpais Borderlands Group, Quincy Library Group, and Interagency Grizzly Bear Committee are good examples of policy influencers that nod in favor of land conservation. The largest attempt to accomplish regional planning came in the early 1990s with the Interior Columbia Basin Ecosystem Management Project. The idea was to develop an ecological restoration policy for over 63 million acres of public land in Washington, Oregon, Idaho, and Montana (Keiter 2003: p. 162-163). Similarly, congressional bills like the Northern Rockies Ecosystem Protection Act offer a “concrete legislative model for how new preservation concepts might be used to reshape the regional landscape” (Keiter 2003: p. 191). Any analysis of state land conservation should acknowledge the umbrella activities and potential support of federally supported initiatives like these.

Not all federal legislation affecting land conservation concerns the direct regulation of natural resources, though. Federal controls affecting private land use vary considerably. For example, provisions of the Clean Water Act include the withdrawal of wetlands from development and/or funding for open space. For example, the Sodbuster and Swampbuster programs conserve valuable soil areas and wetlands by excluding them from various uses (EPA 2004). The Coastal Barriers Resource Act (1982) also preserves wetlands (Randolph 2004).

Likewise, the National Flood Insurance Program discourages private landowners from building in floodplains by withdrawing federal funding for loans (Randolph 2004).

Financial assistance for land acquisition and conservation is a much more visible method of the federal government. The Land and Water Conservation Fund Act (1965) provides the most sizeable funds. “Special taxes and earmarked receipts from activities such as offshore oil and gas leasing” have allowed federal agencies to purchase nearly three million acres and state agencies an additional two million acres of private land with these funds (Glickman and Coggins 2001: p. 271). A 1962 report entitled *Outdoor Recreation for America* by the Outdoor Recreation Resources Review Commission spurred the law that “stipulated that up to 60 percent of all appropriations for the fund could be devoted to the new state grant program” (McQueen and McMahon 2003: p. 2-4). This translates into \$11.8 billion over the fiscal period from 1965 to 2002 and impacts every county and major city in America (McQueen and McMahon 2003: p. 4).

Federal legislation also affects private property conservation through the farmland protection measures of the Farmland Protection Policy Act (1981). In states with policies or programs in place to conserve farmland, “the governor may file suit in federal district court to compel the federal agency [which has solicited for a federal project affecting farmland] to comply with the project review procedures” of the Act (Daniels and Bowers 1997: p. 77). Thus, state governments have another federal tool by which to impact local land conservation. An additional section of the Act also “calls for the Natural Resources Conservation Service to help state and local governments and nonprofit groups create farmland protection programs” (Daniels and Bowers 1997: p. 77).

The next major conservation legislation was also passed in 1981. The Uniform Conservation Easement Act has as a purpose “to enable durable restrictions and affirmative obligations to be attached to real property to protect natural and historic resources and to remove

obsolete common law defenses that might obstruct such efforts” (Gustanski and Squires 2000: p. 9). Among all measures used by the private sector for land conservation, the conservation easement is the most widely utilized (Gustanski and Squires 2000: p. 9). Not all states, though, have adopted the enabling legislation and those that have often differ in their approach. Thus, the resulting differences in incentives, like tax deductions, may impact the degree of such conservation from state to state.

Various other federal acts and programs have affected local conservation efforts. The Housing Act (1961), for example, included a “pioneering program to aid city and county governments in acquiring open space” (Rome 2001: p. 133). This was one of many early responses to post-World War II suburban sprawl and the activism of William Whyte (Rome 2001: p. 131). Other federal programs include tax incentives for agricultural and conservation easements, Conservation and Wetlands Reserve Programs, mitigation of impacts to open space under the National Environmental Policy Act, the Agricultural Conservation Program, and other general federal grants for community-based programs. As demonstrated, the states of the western United States have an extensive web of federal resources that affect how they conserve open space. The next step, then, is to examine state policies.

State influence on open space protection

For all the protection afforded by federal controls, state governments found them insufficient during the 1960s and 1970s. Their state level initiatives to moderate land development were largely a result of a failed campaign for national land use legislation (Hays 1987: p. 164-170, 450-453). The best example may be the 1972 national land-use bill unsuccessfully pushed by President Nixon. The National Environmental Policy Act’s newly created outgrowth, the Council on Environmental Quality, encouraged this legislation by stating in its first annual report that “the time has come when we must accept the idea that none of us

has a right to abuse the land, and that on the contrary society as a whole has a legitimate interest in proper land use” (CEQ 1970: p. xvi). And in anticipation of a bill, the Council recommended an “administrative and regulatory mechanism necessary to assure wise land use and to stop haphazard, wasteful, and environmentally damaging development” (CEQ 1972: p. 373). Nonetheless, the country’s perception of the threat and hesitancy for federal regulation varied sufficiently to prevent such “regulatory mechanisms.”

Thus began the rise of state land use regulations. The result has been what a popular study of the period called a “quiet revolution” whereby states began establishing ambitious programs to regulate land use (Bosselman and Callies 1971, Rome 2001: p. 225). The state level response highlights the regional differences on how to respond to population growth and land use changes. Hawaii and other states with the most visible impacts of growth began the movement. More recently, states in the western United States have followed suit depending on their unique circumstances. Legislative statutes, funding mechanisms, and spending in combination with state demographics, geography, and cultural history also play into the nature of their land use policies.

The role of the state takes various forms (See Appendix A for a complete discussion). For example, all western states have enabling legislation that allows their cities and counties to create comprehensive plans with various forms of regulatory mechanisms—different types of land use controls being the most prevalent. States may also enact rules for tools such as easements, which by their nature are voluntary. For example, the passage (and quality of) enabling legislation for the Uniform Conservation Easement Act promotes this with tax discounts and other incentives. Some states choose to pass additional statewide legislation specifically for growth control and mandate open space protection elements (for example, California, Oregon, and Washington). In other cases, citizens may advocate for municipal and county bond measures to provide funds for

open space purchases and other growth abatement programs. This form of political activism also provides insight into the conservation-oriented culture of a state.

Of course, the popular vote can also influence restrictions on land use planning. The November 2004 passage of Measure 37 in Oregon provides an example. The Measure requires the applicable government entity “to pay owners, or forgo enforcement, when certain land use restrictions reduce property value” (State of Oregon 2004). Due to a potentially prohibitive cost of payment, certain open space regulations may end up ineffective in the absence of enforcement. County planners should understand that such measures might affect their open space regulations in the future.

County policies regarding open space

Most states in the West have empowered counties to enact comprehensive plans and associated policies. In turn, these policies dictate the intensity of various ordinances that have a direct effect on open space quantity and quality. In some states, such as New Mexico, comprehensive planning and land use policy is optional without open space requirements. In other parts of the west, for example Oregon and California, county policies on land use and open space are mandatory. Part II of this study explores the many variations of these policies.

In Cochise County, the goal of the Comprehensive Plan is to “promote the future growth of Cochise County in an orderly, harmonious, environmentally and economically responsible manner” (Cochise County 2003). In addition, community and area plans amendments to the Comprehensive Plan “offer an opportunity for citizens who live and work in an area to have a voice in location, type, and intensity of growth in their community” (Cochise County 2003). This empowers citizens to define how unincorporated portions of the county will look in the future. The Plan also stipulates that master planned developments set aside 50% of land to open space and assure a water supply for future residents and businesses (Pascoe 2004). Another role of the

County is to “expand affordable housing options, promote home ownership, and improve the quality of housing in Cochise County” through the work of the Housing Authority (Cochise County 2004). The Cochise County Water Conservation Office also plays a role in shaping development in the County. The Office uses U.S. Army funding to “address the environmental challenges facing Fort Huachuca” in light of the “economic importance of Fort Huachuca to Cochise County” (Cochise County 2004). The peer group analysis in Part II provides recommendations for Cochise County within the context of these related concerns.

Part 2: Peer-based open space analysis of Cochise County

Benchmarking Introduction

Given that Cochise County shares so much in common with other rural counties in the American West, it stands to reason that open space comparisons be made. Numerous studies have compared the policies of amenity-rich high-growth rural counties but less common is the study of counties yet to experience these large population shifts. In this respect, the peers of Cochise County represent another important segment of the American West—those of moderate growth. The intent is not to explain causation between policy and open space characteristics but instead to expose open space trends among peers that may be valuable for Cochise County planners.

The peer counties serve to benchmark Cochise because counties with similar social and physical characteristics should be expected to have similar policy outcomes (Goggin et al. 1990). Cochise County peers, who share nine such characteristics, can be expected to operate under related policies. Well-selected peers may expose comparative strengths and weaknesses of Cochise County (for instance, greater peer county concern for recreation-oriented open space) while acknowledging reasonable differences (for instance, hazard mitigation open space policies due to the frequency of earthquakes in certain California counties). The purpose of the descriptive research will be to “collect precise and detailed information; make comparisons; identify or justify current patterns, conditions or practices; and determine what others are doing or saying in the face of the same or similar problems” (Grosf and Sardy 1985). The first step utilizes nine indicators to determine which group of counties in the American West is most like Cochise County. The second and third steps use interviews and a comprehensive plan review to understand how this newly created peer group addresses the topic of open space in their counties.

Methods

Peer group selection

Eighteen counties serve as the peer group for the analysis of Cochise County open space protection. I chose these counties from the 413 counties in the western continental United States, rather than all 3,066 United States counties (NACO 2005), because I consider the American West as a distinct region in terms of frontier history, independent attitudes, local politics, varied natural geography, and public land ownership. In short, I am interested in the West's treatment of open space rather than a more general U.S. perspective.

I chose the following nine criteria to shape the selection of Cochise County peers:

Population size. This is the total population of the county in 2000 according to the U.S. Census Bureau.

Relative population change. This is the percent change in total county population from 1990 to 2000 according to the U.S. Census Bureau.

Rural population size. This is the percentage of the county population not located in an urban area according to U.S. Census Bureau data for 2000. As a note, rural classification cuts across other hierarchies. Thus, any area not classified as urban, either metropolitan or non-metropolitan, can be classified as rural.

Per capita income. This is the per capita income of each county according to U.S. Census Bureau data for 2000.

Agriculture related employment. This is the percentage of a county's civilian population 16 years and over that is employed in the agriculture, forestry, fishing and hunting, or mining industry in 2000.

Percentage of federal land. This is calculated by dividing county federal land area by the total county land area. The data for the latter comes from U.S. Census Bureau data for 2000.

Data on federal land area is from the Bureau of Land Management's 2004 data from the Payment in Lieu of Taxes (PILT) program (BLM 2005). Federal lands according to PILT includes: Bureau of Land Management, Forest Service, Bureau of Reclamation, National Park Service, Corps of Engineers, Fish and Wildlife, and various military lands. The U.S. Code PILT description contains a more complete definition of applicable federal lands.

Population density excluding federal lands. This is the total county population divided by county federal land area subtracted from total county land area. Total population and land area comes from the Census Bureau, federal land area is from the Bureau of Land Management (2005).

Proximity to an urban center. This is defined as the number of miles by major highways (excludes ferries) from each county's seat to the nearest city with a population of 85,000 or more in 2000. County seat listings come from the National Association of Counties. Eligible urban centers are selected from the Rand McNally Commercial Atlas and Marketing Guide (2004). Distance is calculated using the MapQuest (www.mapquest.com) website.

Number of imperiled species. This is defined as the number of G1-G2 and federally listed species in a county. G ranks are assigned by NatureServe (2005-a) and federally listed species are those with status under the U.S. Endangered Species Act (1973). Species location records with a "Last Observed Date" older than 1970 are not included in the count. The Natural Heritage Program in each state supplies NatureServe with species counts. NatureServe received the counts on the following dates: Arizona 2/18/2004, California 3/27/2003, Colorado 11/3/2003, Idaho 1/4/2005, Montana 10/10/2003, New Mexico 12/5/2003, Navajo Nation (Coconino County) 8/7/2004, Nevada 4/4/2003, Oregon 2/3/2004, Utah 11/28/2003, Washington 2/4/2004, Wyoming, 7/14/2004 (NatureServe 2005-b).

The nine criteria are then consolidated in an Excel spreadsheet for comparison; see Appendix B. Three methods are used to determine which western counties are the most similar to Cochise County:

The first is the sum of Euclidean distance squared (shown below).

$$d(x, y) = \sqrt{\sum_i (x_i - y_i)^2}$$

The second is median distance, whereby the median is taken from the absolute value of $x_i - y_i$ for the nine criteria. In both methods, x_i is the z-score for each of the 413 counties and y_i is the Cochise County z-score for each criteria.

The third method uses statistical software (SPSS) to classify all 413 counties into 30 clusters based on Euclidean distance squared and Ward's Method of agglomeration. The most similar counties to Cochise County are then selected for analysis.

Interviews with planners

Next, I interviewed a staff member at Cochise County and 16 of the 18 peer counties during May and June 2005 (Klamath and Shasta counties declined to participate). I used purposive (or non-random) sampling of the planning department staff because they hold significant responsibility for land use management in unincorporated areas and are familiar with the policy details. Though this responsibility (compared to elected officials) may be debated, Burby (2003) found that planners' ideas affect government action through informing and empowering stakeholders on various topics that receive little attention from elected officials (Benveniste 1991, Catanese 1984). Additionally, I expected planning department staff to be more familiar with open space implementation tools and more accessible for interviews than elected officials. Though various university researchers and non-profit staff are also familiar with county

land use in the peer group counties, I could not find a sufficient number of specialists for the 19 counties.

I created my interview list by calling each planning department front desk and arranging an interview with the most appropriate planner. The recommendation of the front desk constituted a snowball (or selection by referral) sampling technique for interviewee selection. Seventeen of the nineteen counties granted me a phone interview or filled-out the interview questions independently. Without visiting each county, I deemed additional interviews as prohibitively difficult due to staff unavailability in the initial round. Thus, I relied on the large peer group size and avoided the generalization of single interview responses to minimize any survey error associated with having only one interview per county.

The semi-structured interviews consisted of eleven multi-part questions (Appendix C). The first question asked about the interviewee's background. Cochise County and two-thirds of the peer county interviewees held senior positions and all counties averaged 12.8 years of experience with land use planning in their respective counties. These figures reflect a high level of experience with, and knowledge about, their respective counties.

The second question asks about development trends. This is important because certain open space policies cater to certain forms of development. For example, clustered housing is more applicable to subdivisions and master planned communities than lot splits. The tools to protect open space should complement the most prevalent forms of development.

The third and fourth questions introduce the topic of open space concerns and policy in the county. County planners that do not perceive a concern for open space may not incorporate strong open space policies into comprehensive plans.

Questions five and six ask about the intention of open space protection while the seventh solicits information on open space inventories. Question eight addresses the many tools that a

county might use to protect open space. The last three questions request the interviewee to evaluate the effectiveness of the county's open space policies and to make recommendations for improvement.

Comprehensive plans reviewed

I began by looking at state policies regarding open space protection. State statutes (Arizona, New Mexico, and Oregon) and codes (California and Utah) typically enable counties to plan for land use. This allowed me to understand which states require or allow counties to: (1) write a comprehensive plan, (2) enact land use-related ordinances, and (3) address open space issues.

Next, I obtained comprehensive plans (or general plan in California) for all 19 counties. Most counties provided easily downloaded copies from their websites, while a few required a by-mail purchase or third-party web searches (i.e. California's Land Use Planning Information Network). Cochise County and sixteen peer counties possessed enacted comprehensive plans (15 available on-line, 2 by mail). Nearly every comprehensive plan contained comparable sets of policies that governed a wide variety of topics, including open space (Madera County, California was the exception with goal-like recommendations rather than policies). Of these 3,160 policies, I picked out those that addressed open space and evaluated them on two factors: (1) what goal did open space seek to achieve and (2) what implementation tool would be utilized to achieve it. I categorized goals and their implementation tools into 12 and 10 categories, respectively. These categories are based on a University of Georgia county open space survey but modified for more detail (Mumford and Myszewski 2004).

In addition, I distinguished each goal and tool as either weak or strong based on the language of the text. For instance, a strong policy required an action while a weak policy only suggested an action. The language of the comprehensive plan directly influences the regulations

within a county and is therefore important for open space protection. Arizona Revised Statutes affirm that the comprehensive plan should bring about “coordinated physical development,” the California Government Code says they should be “integrated, internally consistent and compatible,” and Oregon Revised Statutes state specifically that, “zoning, subdivision or other ordinances or regulations... shall be designed to implement the adopted county comprehensive plan” (ARS 11-806.B, ORS 215.050.B, CAC 65300.5). In other words, a strongly worded comprehensive plan translates into strong regulations for open space protection.

Compatibility between interviews and plans

After completing the interviews and plan review, I next compare them to each other. The assumption is that planners direct the comprehensive plan just as the comprehensive plan directs county regulation. Ideally, a planner would be familiar with the comprehensive plan so that s/he could effectively carry out the county’s open space vision. The planner would also be aware of any weaknesses deserving improvement in future amendments. The interview and plan review results will clarify the interviewee’s familiarity with the plan and may point to inconsistencies on open space planning.

Results and Discussion

Though this research is non-experimental, I selected the Cochise County peers in a manner amenable to quasi-experimentation. Quasi-experimentation allows for quantitative analysis in social science research where experimental methods are not possible or appropriate—e.g., estimating state or county policy impacts (Grosf and Sardy 1985, Reed and Rogers 2003). As in the experimental method, both have treatment groups compared to control groups. The quasi-experiments are different, though, in that they “primarily depend on self-selection or administrative decisions to determine who is to be exposed to a treatment” and the construction of a control group “that achieves the closest match possible” to the treatment group (Black 1999, Reed and Rogers 2003). In this study, the peer (control) group is created only to compare their open space policies to the pre-selected Cochise County.

The open space policy study relies on non-experimental descriptive research for two reasons. First, the policy event in the treatment county (Cochise) is not as substantial as, for example, the significant one-time tax change analyzed in Reed and Rogers (2003). Instead, Cochise County incrementally modifies various open space-related policies with each amended comprehensive plan (five times between 1992 to 2003). Second, open space policies fulfill various goals that are not easily measured or comparable, such as aesthetics. Pre- versus post-facto status of the only quantifiable indicator, open space size, does not necessarily reflect a successful or unsuccessful policy.

Peer group selected

Twenty counties, or the top five percent, provided a manageable amount from the first two comparison methods. The third method provided a cluster of eighteen counties most similar to Cochise County. Thus, these three methods created three filtered county lists. Eleven counties

appeared on all three lists and seven appeared on two of the lists (See Appendix B). The first eleven counties are:

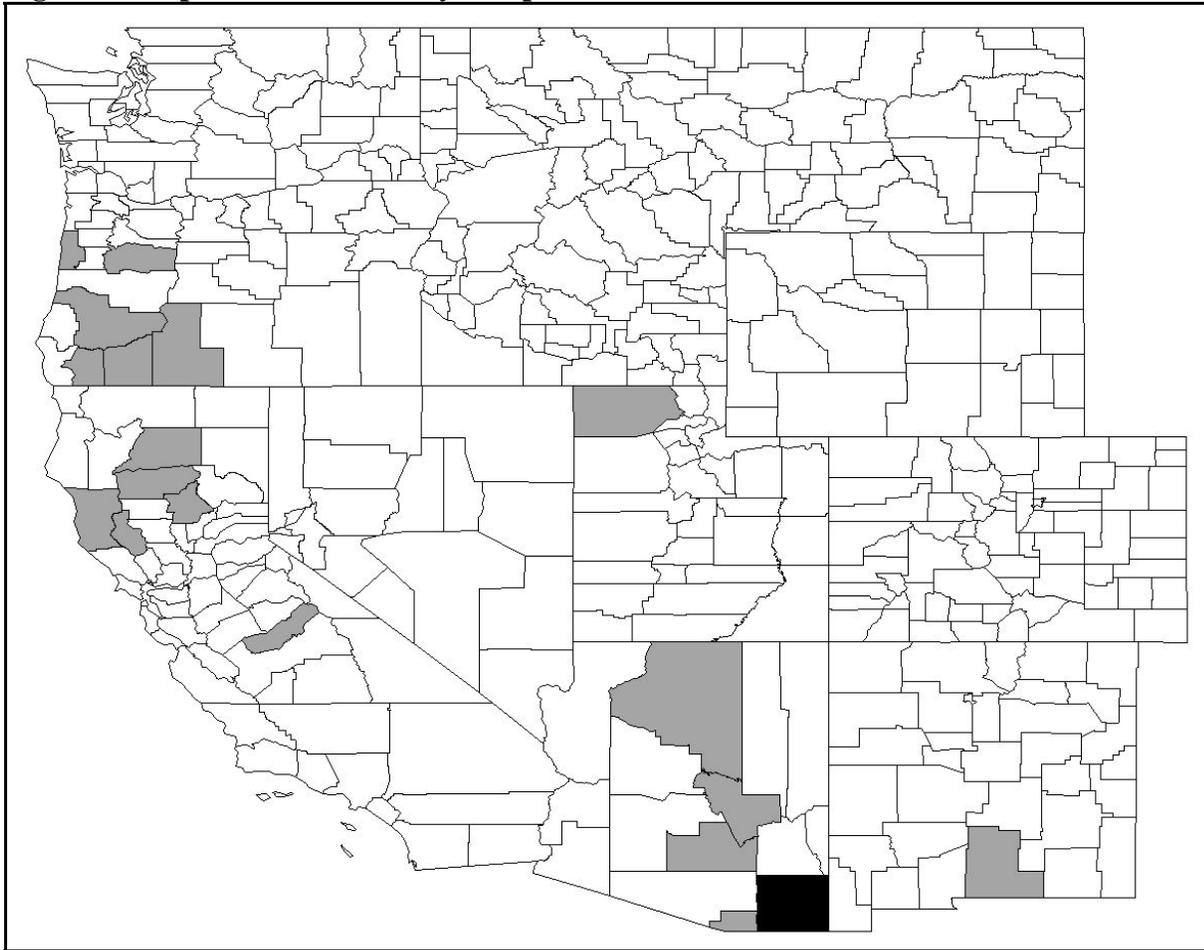
- 1) Coconino County, Arizona
- 2) Mendocino County, California
- 3) Santa Cruz County, Arizona
- 4) Tehama County, California
- 5) Jackson County, Oregon
- 6) Douglas County, Oregon
- 7) Lake County, California
- 8) Josephine County, Oregon
- 9) Lincoln County, Oregon
- 10) Shasta County, California
- 11) Gila County, Arizona

Coincidentally, the twelve counties (adding Cochise) represent four counties in only three western states. The second seven counties are:

- 12) Otero County, New Mexico
- 13) Box Elder County, Utah
- 14) Linn County, Oregon
- 15) Pinal County, Arizona
- 16) Madera County, California
- 17) Butte County, California
- 18) Klamath County, Oregon

These counties only introduce two new states to the peer group, New Mexico and Utah. Cochise County and all 18 peer counties are shown in Figure 1 on the following page.

Figure 1. Map of Cochise County and peers



Interview results

Interviewees at peer counties noted that lot splits are the most common form of development meeting housing demand in unincorporated areas of the county. Other forms of low-density development were also common—subdivisions and building on existing lots. The prevalence of building on existing lots may be attributed to lot splits that occurred previously, as was the case in Santa Cruz County where landowners split their property before currently enacted subdivision ordinances. Subdivision ordinances now take effect with five or more splits (except four splits in Oregon). The Cochise County interviewee noted that medium and high-density development independent of a master planned community (also called a planned area

development) is unlikely throughout the West. Lot splits and subdivisions were more common in Cochise than among the peers but master planned communities had the same prevalence. Given the limited number of open space policies at Cochise, comparisons between forms of development and policy tools were inconclusive.

Nearly two-thirds of peer counties said they had open space policies and that open space was a concern for residents. Cochise County matched the majority of the peer group on the existence of open space policies and public concern. As may be expected, the six peer counties without a concern for open space had a lower average: population size (90,186 vs. 98,153), population growth (18% vs. 23%), population density (39 vs. 63), and fewer imperiled species (23 vs. 34). They also had more federal land (36% vs. 31%). The only surprise was their proximity to an urban center (81 vs. 85 miles). Social factors may also explain the difference. For example, counties where open space was not perceived as a concern tended to vote more conservatively than concerned counties (66% vs. 49% Republican in the 2004 Presidential election, CNN 2004).

Only three-quarters of the peer counties said that open space policies were evident in their comprehensive plans and 56% of counties said that county ordinances addressed open space (Table 1). Compliance with State or regional plans (44%) was the second most common way to

Table 1. Comparison of open space documents and inventory

| Type | Cochise | Peers (% Yes) |
|--------------------------------------|---------|---------------|
| Comprehensive plan | Yes | 75% |
| Ordinances | Yes | 56% |
| Parks and Recreation | No | 31% |
| Open space plan | No | 6% |
| State or regional plan | Yes | 44% |
| None | No | 6% |
| Complete inventory | No | 6% |
| Development-by-development inventory | Yes | 19% |
| No inventory | n/a | 75% |

address open space planning. Only one (6%) of the peer counties said that they inventory open space while others measured open space on a development-by-development basis (19%). The majority (75%) did not inventory open space. Cochise County addressed open space in their comprehensive plan with ordinances and area plans. The County measured open space only in association with master planned developments.

Cochise County peers scored the protection of farm and ranchland (3.9/5.0) just above quality of life and environmental benefits (both 3.8/5.0) as the most important motivating factors in open space protection (Table 2). Safety and aesthetics were the next most common goals (both 3.4/5.0). Cochise County, though, considered growth management (5/5) as the most important motivating factor with farm and ranchland protection (1/5) as the least important. Also unique to Cochise was the high consideration of two economic goals: increasing the economic value of nearby lands (4/5) and attracting visitors (4/5). Cochise shared a similar priority on aesthetics, quality of life, and environmental benefits. Cochise County and its peers placed a low value on open space for social space and recreation.

Table 2. Comparison of open space goals (interview)

| Open space goals | Cochise | Peers |
|---|---------|-------|
| Promotes economic development | 2 | 2.7 |
| Increases economic value of nearby land | 4 | 2.3 |
| Attracts visitors | 4 | 2.8 |
| Serves as a growth management tool | 5 | 2.4 |
| Protects farmland and/or ranchland | 1 | 3.9 |
| Increases safety (fire, flooding, landslides, etc.) | n/a | 3.4 |
| Creates a community social space | 3 | 2.4 |
| Improves visual aesthetics | 4 | 3.4 |
| Promotes fitness and exercise (including recreation connectivity) | 1 | 2.6 |
| Contributes to quality of life | 4 | 3.8 |
| Provides environmental benefits (water quality, aquifer recharge, habitat) | 4 | 3.8 |

Peer counties cited the involvement of private organizations (63%) and floodplain ordinances the most often when asked about tools for open space protection (Table 3). Riparian (56%) and clustering ordinances (50%) were the next most common. Transfer of development rights (3%), land acquisition (9%), and conservation easements (13%) were the least common category of open space protection. Cochise County relied primarily on subdivision mitigation requirements like density bonuses in exchange for 50% open space, but also clustering, conservation easements (on a limited basis), and private organizations to address open space goals. Nearly all interviewees declined to associate the effectiveness of tools with specific open space goals. For this reason, I disregarded question nine.

Table 3. Comparison of open space tools (interview)

| Open space tools | Cochise | Peers (% Yes) |
|---|----------------|----------------------|
| Hillside development, peaks and ridges | No | 25% |
| Riparian resource | No | 56% |
| Flood control | No | 63% |
| Scenic or gateway corridor | No | 38% |
| Scenic viewshed | No | 6% |
| Farmland protection | No | 44% |
| Environmentally sensitive resource | No | 31% |
| Buffer overlay | No | 19% |
| Overlay district | No | 13% |
| Natural open space | No | 25% |
| Mandatory dedication | No | 19% |
| Environmental mitigation | Yes | 31% |
| Open space impact fees | No | 6% |
| Cluster options | Yes | 50% |
| Density bonuses for open space | Yes | 31% |
| Tax incentives for open space | No | 6% |
| Habitat conservation plans | No | 0% |
| Conservation easements | Yes | 13% |
| Purchase/transfer of development rights | No | 3% |
| Land acquisition | No | 9% |
| Federal programs | No | 31% |
| State programs | No | 38% |
| Private/Non-profit programs | Yes | 63% |

The counties of the study listed numerous suggestions when asked what tools would benefit open space protection in the future. The most common responses fall into five categories: new general or specific plans, new ordinances, improvements to existing ordinances, cooperation from private and public programs, and increased authority or enforcement. New ordinances were the most commonly cited suggestion (for example, transfer of development rights and revenue generating ordinances such as impact fees). Improvements to zoning ordinances were the next most common tool. Peer counties also mentioned outside cooperation as important. Cochise County similarly recommended area plans, transfer of development rights, zoning improvements, and cooperation with other agencies as useful tools for the future.

Comprehensive plan results

All peer states, except New Mexico, require counties to write a comprehensive plan while only Arizona, California, and Oregon call for associated ordinances. California and Oregon require county open space planning, though Arizona counties with populations exceeding 200,000 residents must also address open space (Appendix E-1). Thus, Oregon and California have created the strongest framework for county planning with Arizona as a close second. New Mexico and Utah have the weakest state mandates.

The average age of comprehensive plans among peer counties was nine years (1996). California counties were generally much older (1988) than Oregon (2000) or Arizona (2003) plans (Appendix E-2). All peers discussed open space and, with the exception of Gila and Pinal counties in Arizona, devoted a section of their plan to the topic. The Cochise County Plan (2003) is more current than the overall peer group but in line with Arizona peers. The Cochise Plan does not provide a section on open space, though. Among all counties specifically addressing open space, Oregon and California do so under state mandate, while Arizona's Coconino and Santa Cruz counties do so voluntarily (open space planning is required only for counties exceeding a

population of 200,000). Interestingly, Coconino and Santa Cruz are also the only counties to discuss a vision for their counties that relies heavily on open space characteristics (Coconino 2003, Santa Cruz 2004).

The next step compares the 8 of 48 policies found in the Cochise County Comprehensive Plan against the 477 of 3,112 policies found in the 15 peer county plans with enacted open space policies. First, I looked at how the peer county policies addressed open space goals (Table 4). Two goals stand out as the most prevalent—environmental benefits (33% of goals) and agriculture or related uses (17%). Hazard mitigation (9%),³ aesthetics (8%), recreation (7%), historic resources (6%), and growth management (6%) were less common. County plans rarely mentioned attracting visitors (<1%), social space (<1%), or quality of life (3%), and never mentioned economic goals for open space protection. The peer counties addressed between six and seven of these goal categories in an average 41 open space goal references per county (615

Table 4. Comparison of open space goals (policy review)

| Open space goals | Cochise | Peers |
|---|---------|-------|
| Promotes economic development | 0% | 0% |
| Increases economic value of nearby land | 0% | 0% |
| Attracts visitors | 0% | <1% |
| Protects farms, ranches, timber, etc. | 0% | 17% |
| Increases safety (fire, flooding, landslides, etc.) | 0% | 6% |
| Serves as a growth management tool | 55% | 9% |
| Preserves cultural or historic sites | 9% | 6% |
| Improves visual aesthetics | 9% | 8% |
| Contributes to quality of life | 0% | 3% |
| Creates a community social space | 0% | <1% |
| Promotes recreation | 0% | 7% |
| Provides environmental benefits | 27% | 33% |
| Generic open space | 0% | 7% |
| No open space goal specified | 0% | 2% |

³ Three of the four most prevalent hazard mitigation goals came from California Counties, required by State law to protect against earthquakes.

references divided by 15 counties). In comparison, Cochise County focused on growth management (55%), environmental benefits (27%), hazard mitigation (9%), and historic resources (9%)—only four of the goal categories in 11 references. Given the discussion in Part I, the Cochise Comprehensive Plan does not address many of the county’s open space concerns.

I also distinguished between weak and strong goal statements. Peer counties used strong, or forceful, language (54%) more often than weak, or voluntary, language (47%). For example, compare a Josephine County policy on waterway protection to a similar Cochise policy: “Class 1 and 2 streamside vegetation shall be substantially protected...” vs. “the protection of significant resources areas, which may include...floodplains...shall be taken into consideration” (Cochise County 2003, Josephine County 2001). Not only is the language of the Josephine policy stronger, but also more specific. Oregon counties typically utilized the strongest language while Lake County, California and Pinal County, Arizona plans were among the most leniently worded. The Cochise County Plan tended to apply somewhat weak goal statements (55%).

The counties use various tools to implement their open space goals (Table 5). By far, the most common tools were traditional zoning and density ordinances (46%) tailored to the needs of

Table 5. Comparison of open space tools (policy review)

| Open space tools | Cochise | Peers |
|--|---------|-------|
| General zoning | 58% | 46% |
| Conservation-oriented design | 0% | 2% |
| Clustering | 8% | 5% |
| Infill | 8% | 2% |
| Setbacks, buffers, overlays, corridors, etc. | 8% | 8% |
| Impact fees, tax incentives, grants, etc. | 0% | 2% |
| Acquisition, dedications, easements, etc. | 17% | 7% |
| Cooperation | 0% | 12% |
| Compliance | 0% | 8% |
| Growth areas | 0% | 2% |
| No open space tool mentioned | 0% | 9% |

Note: Rounding error accounts for the disparity from a 100% total.

open space protection. Cooperation with other organizations and agencies (12%) and compliance to state or federal mandates (8%), both centered on outside influences, were the next most common. An assortment of setbacks, buffers, overlays, corridors, and gateways (8%) along with land acquisition, conservations easements, and transfers of development rights (7%) and clustering (5%) were less common. Among the least mentioned tools were: growth areas or boundaries (2%), conservation-related design guidelines (2%), infill and the discouragement of leapfrog development (2%), and monetary tools such as impact fees, tax incentives, in lieu of fees, and grants (2%). The peer counties addressed between six and seven of these goal categories in an average 38 open space tool references per county (571 references divided by 15 counties). While Cochise County shared a focus on traditional zoning ordinances (58%), the County was unique in its silence on cooperation and compliance. Cochise also mentioned deed restrictions (17%), increased setbacks (8%), and discouragement of leapfrog development (8%), and clustering (8%) as tools for open space protection—only five of the tool categories in 12 references. Given the popularity of diverse open space tools in other counties, Cochise may benefit from expanding their choice of tools.

Concerning the strength or weakness of tool statements, peer counties used strong language (49%) only slightly less often than weak language (51%). Oregon and California counties typically utilized the stronger language than Arizona counties. The Cochise County Plan applied comparatively weak tool wording (66%). For example, Cochise states that “viable, cost-effective, VOLUNTARY development alternatives [clustering, etc.]... will be provided” while Linn County, Oregon “shall require clustering provisions for new dwellings located in the major and peripheral [fish and wildlife] habitat” (Cochise County 2003, Linn County 2001). The Linn County Plan not only uses stronger language, but also clarifies when the tool is applicable.

Interviews and plans compared

County planners and plans consider population growth as inevitable in their counties. The plans discuss land use controls for growing populations, not stable or declining populations. They also place a high value on their county's rural characteristics. The comprehensive plans and interviewees regularly sought to do what Cochise County may have said best, "enhance the customs, culture, economy and the qualities of the places where people choose to live" (Cochise County 2003). Even with a somewhat limited concern for open space as a factor of this rural quality (10 of 16 counties), the average peer group comprehensive plan advocated for open space goals much more often (41 vs. 11 references) and for more reasons (6.2 vs. 4) than Cochise County (Appendix D-1, E-3).⁴

Only the peer with the highest percentage of federal land, Gila County, referenced open space goals less often than Cochise. According to the Gila County Comprehensive Plan, "abundance of, and proximity to, open spaces [is an] item highly valued by residents" (Gila County 2003). Nonetheless, the Gila interviewee explained that this does not translate into a concern because so much land is protected as public open space. Surprisingly, the ten peer counties that did share a concern for open space referenced open space goals less often (40 vs. 44 average references) and for fewer reasons (6.5 vs. 7 average categories) than those not concerned about open space.

Peer county planners describe the goals of open space protection differently than their comprehensive plans (Table 6). Though plans cited the environmental benefits of open space twice as often (204 vs. 103 references) as agriculture-related protections, interviewees gave the latter a higher open space motivation (3.9 vs. 3.8 average score). Conversely, interviewees

⁴ Calculation: Total number of goal references (615) divided by the number of peers (15) equals 41 average goal references and similarly for the average number of goal categories.

Table 6. Summary of results between Cochise County and peers

| Similarities | Differences |
|---|--|
| General | |
| Open space is a concern for residents | Peers: growth control |
| Open space is not often inventoried | Cochise: growth promotion |
| Open space motivation/goals (interview) | |
| Important for environmental benefits | Peers: important for farm and ranchland |
| Important for quality of life | Cochise: important for growth management |
| Important for visual aesthetics | |
| Open space goals (policy review) | |
| Important for environmental benefits | Peers: important for farm and ranchland |
| Important for cultural and historical resources | Cochise: important for growth management |
| Important for visual aesthetics | |
| Open space tools (interview) | |
| Cooperation with private/non-profit programs | Peers: riparian, flood, scenic zoning |
| Clustering | Cochise: conservation easements |
| Open space tools (policy review) | |
| General zoning | Peers: cooperation and compliance |
| Setbacks, buffers, overlays, corridors, etc. | Cochise: conservation easements and infill |
| Clustering | |

ranked quality of life as the second most important motivating factor of open space protection even though only 2% of peer county plans mention the goal. The disparity is important because it points out that either (1) the planners are unfamiliar with most open space intentions or (2) that the plans are not capturing the intentions of the planners.

The introduction to the Cochise County Comprehensive Plan and interviewee both highlighted open space as a benefit to growth management, unlike most of the peers. The emphasis on growth management (55% of Cochise open space goals vs. 6% among peers) may be a repercussion of Cochise County’s favorable attitude toward growth. While the Cochise County Comprehensive Plan often uses language such as “*promote* the future growth...such that it proceeds in an orderly, well-planned manner,” counties with a focus on the environmental benefits of open say the following regarding growth: “the Plan sets a course for *balance* between growth, development, and conservation” and “encourage development patterns that safeguard habitat resources...while *accommodating* growth” (Cochise County 2003, Coconino County

2003, Santa Cruz County 2004, emphasis added). Peer counties share similar population growth rates (20% vs. 21%) and, as shown above, generally temper their desire for growth more than Cochise County. As a result, the Cochise emphasis on growth management may link to its growth promotion.

The interviews also indicate that planners do not consider many of their comprehensive plan policies as open space-oriented. Even though every peer county plan describes policies that benefit open space, over one-third (6 of 16) of interviewees said that their county did not have policies to protect open space. In addition, these six counties had on average more open space policies (19% vs. 15% of total) and more strongly worded tools for open space protection than the total peer group average (81% vs. 49%). The disparity is important because it points out that planners may be unfamiliar with how their county regulations benefit open space protection.

Among all peer counties, planners describe the tools of open space protection in a similar manner as their comprehensive plans (Table 6). As with the interviews, peer county plans refer to various zoning tools most commonly. Cooperation from outside organizations, primary private non-profits, and clustering were also consistently mentioned. Nonetheless, peer county comprehensive plans did recommend or require some open space tools that interviewees passed on citing. The most commonly non-cited tools were in the conservation easements, transfer of development rights, and land acquisition category. Eight peer county plans include this category as a means of protecting open space—though the interviewees did not mention it. Monetary tools, such as impact fees and tax incentives, experienced a similar disregard. Interviewees may not have mentioned these tools because their counties fail to implement them for open space protection. Political resistance and/or staffing limitations (for instance, time and training) may explain the lack of implementation. The Cochise County Comprehensive Plan and interviewee

both discussed open space tools in a similar manner, though the interviewee emphasized cooperation with outside organizations, which the Plan did not.

Acknowledging the caveats

To create peers for any county is inherently difficult. The comparison can only be as good as the indicators. Not only must this handful of indicators—selected from potentially thousands—be representative, but it must also be accurate. First, I chose to concentrate on general population and landscape characteristics as proxies for other indicators. For example, I was unable to attain open space acreage by county. Instead, I looked at rural population size and density, agriculture related employment, and urban city proximity to approximate open space prevalence. Second, data accuracy is always a concern. For instance, an Otero County Commissioner pointed out during an interview (the only interviewee not a planner, by the way) that the U.S. Census Bureau likely undercounted the County population in 1990, which led to an inflated figure for population change. In another example, I used the BLM PILT (2005) data to approximate federal land ownership. In some instances, County documents contain figures that differed from the BLM. I decided to rely on the PILT data in order to maintain consistency across all 413 counties.

Certain data sources proved to be unavailable for the peer group study. For example, the Natural Resources Conservation Service regularly inventories land use information on non-federal lands (called the Natural Resources Inventory). Unfortunately, though, I was unable to attain county-by-county figures for all 413 western counties.

According to NatureServe (2005), the following imperiled species data gaps exist: Arizona data does not include tribal lands except the Navajo Nation. Idaho data, except some invertebrate species, comes from Idaho Fish and Game, which is not equivalent to the Natural Heritage methodology. Montana counts include only data from private lands where the heritage

program received permission to inventory. New Mexico data is not available for some tribal lands, White Sands Missile Range, or Fort Bliss Military Reservation. Utah data is not available for tribal lands. Wyoming data on non-vascular plants, invertebrates, and from the Wind River Indian Reservation is not available.

Additional peer group analysis may benefit from more detailed population indicators. Variations include resident voting patterns, non-earned income (ranges from interest to welfare income), and human capital (for example, education levels)—all of which are available for the 413 western counties. Alternatively, the landscape characteristics could be expanded to include the natural amenities discussed in McGranahan (1999).

I conducted county interviews before the comprehensive plan review with the expectation that a plan review would be unnecessary. After completing the interviews and comparing results to county documents, I decided that a plan review would indeed be necessary due to three factors. First, the sample size of interviews was too small to derive substantive conclusions. Second, interviewees were not sufficiently familiar with county policy on some occasions. And third, information provided by interviewees sometimes conflicted with a cursory review of county policy. The plan review also indicated that the open space categories for goals and tools should be modified to agree with common language within comprehensive plans, as listed in Appendix E. The re-categorization compromised some cross-referencing between interviews and the plan review.

The plan review required the evaluation of thousands of pages of county documents. Though many counties approached open space in a similar manner, especially within each state, no two counties spoke with identical terminology. In some cases, the term “open space” was not even mentioned but implied. A policy sometimes inferred open space conservation with a goal of hazard mitigation or agriculture preservation. Various explanations can be given. For example,

Berke (2000: p. 27) proposes that “‘code words’ for sustainable development may not be politically acceptable in many communities, but the principles, being less well known, are accepted as common sense.” Regardless of intentions, a county may conserve open space without actually saying so. For this reason, I cast the net wide on open space policies and included many policies that do not state open space an explicit goal.

Benchmarking Conclusion

Assuming continued population growth and valued rural amenities (by residents and tourists alike), Cochise County may benefit from open space-oriented updates to its comprehensive plan. The Results section above demonstrated that Cochise County open space policies are not as extensive as peer counties. The treatment of open space planning may have an affect on the many unique characteristics of Cochise mentioned in Part I, for instance: historic places, recreation and tourism, ranching and farming, biological diversity, rural character and scenery, natural hazards, and growth management.

Of course, the County must also recognize political barriers that compel additional alternatives. As highlighted in the interview, Cochise county residents have resisted past open space-friendly Plan amendments.⁵ Press (2002: p. 26, 86-87) suggests expanding the policy approach to include civic environmentalism (grassroots advocacy of public goods) and policy entrepreneurship (leadership through networking, problem definition, political mobilization, fund-raising, and improved technical expertise). Civic environmentalism expands on the cooperation that peer counties commonly relied on for achieving open space goals, and policy entrepreneurship lends itself to the politically conservative Cochise County.⁶ For example, fund-raising allows for the purchase of open space resources rather than regulatory measures, which may compromise private property rights.

Recommendation #1: Elaborate on the Comprehensive Plan purpose

Updates to the Comprehensive Plan should take various forms. The first addresses the importance given to promoting growth (presumably population and associated land

⁵ The Cochise County interviewee mentioned strong opposition to open space policies preceding the 1996 Plan amendment and promotion of ARS 11-824F by a politician from Cochise County.

⁶ 60% of Cochise County voted Republican in the 2004 Presidential Election, compared to 55% among peer counties. Republicans are assumed to be associated with a conservative stand on land use issues.

development). The introductory page of the Plan promotes growth three times as a purpose, goal, and policy of the County. Though the references promote “orderly, harmonious, environmentally and economically responsible” growth in some cases, other statements leave the impression that growth itself is the goal (Cochise County 2003). The County should clarify the benefits of encouraging growth and promote those benefits instead (for example, increased public services or housing options). None of the peer counties used comparable language, or frequency of such language, in their plans.

Similarly, a discussion of open space benefits would also be useful. The Plan references a desire for environmentally responsible growth and the public’s legitimate interest of conservation but does not elaborate (Cochise County 2003). In contrast, the Coconino Plan includes an introductory Conservation Framework detailing five guiding principles (Coconino County 2003). The Cochise County political climate may discourage such environmentalism but should not eliminate it. For example, water scarcity as a driver of land use planning is not mentioned in the introduction to the Plan. An expanded explanation of conservation based on hydrology rather than ecology may be more palatable to County residents. Likewise, economic drivers of open space, such as ranching and tourism, may also provide a surrogate for detailing the environmental benefits of open space.

Recommendation #2: Employ stronger language for open space goals

The goals within open space policies should be strengthened. For example, Cochise planners could focus the strongest language on the most important goals of open space protection. For instance, they could require the protection of hydrologic recharge areas rather than permit it. The purpose of the Plan is to “enhance the customs, culture, economy and the qualities of the places where people choose to live” (Cochise County 2003). As discussed in Part

1 and evident among peer counties, open space should be recognized as a more important component of these desired characteristics.

Recommendation #3: Include all applicable goals of open space protection

In addition to moderating the County’s enthusiasm for growth, open space policies should be broadened. The Plan does not mention popular goals of open space protection even though total open space references are more common than peer counties (17% vs. 15% of policies). Popular goals of peer counties—aesthetics, recreation, or even politically favorable ranching preservation—go unmentioned in the Cochise Plan. The benefit of open space for tourism also deserves pointing out. These could be added without compromising the Plan’s conservative stance.

Recommendation #4: Increase the number of moderately worded open space tools

In Cochise County, open space protection may benefit from more open space tools rather than stronger language. Stronger language implies a reliance on regulation—an objectionable method within conservative counties. The County should provide a wide range of voluntary options that can be justified and promoted by County planners. The Coconino County Plan provides many examples of moderately worded tools for open space protection.

Recommendation #5: Recognize cooperation as a key to open space protection

As stated above, expanding the tools for open space protection is also important. The first is cooperation, a component of civic environmentalism. For example, the policy section of this study points out cooperative tools found in federal, state, and private programs. Cochise County can also voice the support of public groups engaged in outreach efforts (for example, Upper San Pedro Partnership), private nonprofits (for example, the David and Lucile Packard Foundation Conservation Program and Trust for Public Land), and concerned residents. “Civic

environmentalism provides an important, local complement to (and in some cases, is a driver of) governmental provision of collective environmental goods like open space” (Press: 2002: p. 86).

Recommendation #6: Maintain strong leadership

Policy entrepreneurship is a form leadership that may benefit County staff in a conservative political environment (Press 2002). The skills and resources of strong leadership facilitate the tools of open space protection. Three of the five entrepreneurial assets listed by Press apply to the interview and plan review of this study. The first is networking. When asked about county role models, 40% of Cochise County peers said that they did not keep track of open space protection efforts in other counties and therefore did not have role models. The Cochise County interviewee explained that he did network with other Arizona county colleagues and supported a joint effort to enact county-level transfer of development rights legislation to protect water resources. Continued awareness of regional open space activities and involvement with State authorities should benefit Cochise County. For example, Santa Cruz’s accommodation of the A.R.S. §11-824 F open space designation process may be helpful to Cochise County. The second asset is fund-raising. As mentioned, a conservative political constituency may look more favorably upon funding entrepreneurship than increased regulations. Instead of a campaign for bond, tax, or fee funding, Cochise planners may want take advantage of intra-County community pushes for open space. The success of area plans in Cochise County, as stated by the interviewee, indicates that the residents within them may support special assessments or help pay outright for open space (Press 2002: p. 117). Finally, Cochise County staff need to be persistent. They have amended their Comprehensive Plan three times in the last five years and should do so again until open space protections are adequately represented.

Conclusion

All indicators point to continued population growth for amenity-rich counties like Cochise (McGranahan 1999). The County's proximity to the City of Tucson (located in nearby Pima County) will likely intensify this trend. The findings of Shen (1996) indicate that Pima County's land use controls associated with the Sonoran Desert Conservation Plan may shift population growth towards Cochise County, especially since neighboring Santa Cruz County also has a relatively high priority on growth management. In the absence of strong regional planning among the three counties, open space in Cochise would likely benefit from the peer group study recommendations. Cochise stands to benefit from the example of similarly growing counties where open space remains a priority and defining characteristic of the American West.

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Appendices

Appendix A: Western state conservation

Arizona has a number of programs for conservation. The earliest may be the adoption of legislation very similar to UCEA in 1985. Conservation easements have not been popular, though, because of the misperception that sufficient land is already conserved due to large tribal and federal holdings (Gustanski and Squires 2000: p. 362). The Growing Smarter Act (Proposition 303, 1998) provides \$20 million in yearly grants until 2011 for the acquisition and lease of state trust land for conservation (Arizona Department of Commerce 2002). A portion of that fund is specifically allocated to programs on ranch and farmland. In the first three years of the program, 2,620 acres had been acquired (McQueen and McMahon 2003: p. 175). A 1990 referendum created the Arizona Heritage Fund, which directs lottery revenues to the Arizona Game and Fish Department and the Arizona State Parks Board (Arizona State Parks 2004). Lottery revenue is on the decline but still provided \$18.6 million to the Heritage Fund in 2003 (Arizona Lottery 2004). The Indian Gaming Preservation and Self-Reliance Act (2002) has resulted in further funding for wildlife habitat protection through gaming funds deposited to the Arizona Wildlife Conservation Fund. Finally, the Central Arizona Project provides for river and stream protection through 1994 legislation directing appropriations to the Arizona Water Protection Fund. By statute, the fund receives \$5 million yearly from the legislature (Arizona Department of Water Resources 2004).

California has extensive conservation controls due to its size, population, and continuing growth. Bond funds include Proposition 12, 13, 40 and 50. These are generally for parks and water resources, totaling over \$10 billion as of 2002. The cigarette tax provides revenue for the departments of Fish and Game, Parks and Recreation, and Habitat Conservation Fund. This

source represents about \$30 million a year in funding (McQueen and McMahon 2003: p. 176-177). Other tax funds are directed to conservation due to the Natural Heritage Preservation Tax Credit Act (2000), California Wildlife Protection Act (1900), California Farmland Conservancy Program, and Coastal Resources Grants program. The Environmental Enhancement and Mitigation Program (1989) uses state gas tax revenue of \$10 million a year for state transportation development mitigation. The California Coastal Zone Conservation Act (1972) and California Coastal Act (1976) and other similar acts also played a role in preserving coastline from sprawling development. They were the first large-scale successful measures even though the threat had been identified as early as 1931 in a joint legislative committee report (DeGrove 1984: p. 210). The 1970s also marked the created of conservation easement legislation as Civil Code sections 815 through 816. The differences in topography and populations (besides sheer size) of the state have been attributed with the wide variety and number of programs—well over 100 land trusts (Gustanski and Squires 2000: p. 366).

Like California, the environmental movement coincided with the western population boom in very visible terms for Colorado. To illustrate, three fourths of the population lives in a 40-mile stretch expanding out from Denver (DeGrove 1984: p. 292). Because of this, the majority of voters witnessed first hand the fast and damaging effects of development. As a result, Colorado established a state role in land use early on with the Colorado Land Use Act (1970), which allowed a commission to establish a land-management system and statewide land use plan. Unfortunately, the commission was not as successful as California or Oregon commissions because it did not receive sufficient funding and was “unable to use financial assistance as an effective tool for persuading or coercing counties to move aggressively” limit development (DeGrove 1984: p. 313). Six years later the Conservation Easement Act (1976) passed. An important part of this legislation, in comparison to others of the Rocky Mountain region, is to

maintain agricultural property tax rates even after placement of the property into conservation easements (Gustanski and Squires 2000: p. 428).

The most notable current conservation activity in Colorado is the Great Outdoors Colorado (GOCO) Amendment (1992). This provides about 50% of lottery proceeds for parks, wildlife, outdoor recreation, trails, and open space. In sum, the amendment has awarded \$338 million for about 1,800 projects. There is also a Native Species Conservation Trust Fund that allocates \$10 million over 7 years to threatened and endangered species programs.

Idaho does not have significant growth management policies due to a small population and relatively lower growth amidst sizeable federal lands. The legislature did enact the Idaho Conservation Easement Act (1988) but neglected to add any property tax incentives (Gustanski and Squires 2000: p. 371). Besides the conservative nature of the population, the counties offer the best explanation for weak land protection incentives. “A change in the property tax characteristic of conservation easements is strongly opposed by most counties, especially those that are substantially composed of federal lands and already significantly strapped for revenue sources” (Gustanski and Squires 2000: p. 373). Hunting licenses and wildlife license plate sales are the only conservation programs but the recipient, Idaho Department of Fish and Game, receives less than \$0.5 million yearly for habitat and easement acquisition (McQueen and McMahon 2003: p. 181).

Montana, like Idaho, has limited state land conservation programs. Two acts combined to form the Open Space Land and Voluntary Conservation Easement Act (1975). This predates the UCEA and regrettably overlooks agricultural lands from its purpose statement (Gustanski and Squires 2000: p. 375). Nonetheless, over 300,000 acres have been placed in easements since passage of the act (Montana State University 1996). The Habitat Montana Program and mitigation funding from a pair of Bonneville Power Administration dams provide about \$4

million a year for land and conservation easement purchases. The Habitat Montana Program includes hunting license, duck stamp sales, and auctions of hunting permits for funding. Also, the Montana State Tax Credit For Endowed Philanthropy of House Bill 616 provides tax incentives to support nonprofit land acquisitions (The Nature Conservancy 2004). Like Wyoming, Montana has struggled unsuccessfully to pursue legislation but has been more prolific. The Montana Natural Resource Utilization Act (1988), Montana National Forest Management Act (1991), and Montana Wilderness Act (1994) are examples.

Although the vast majority of Nevadan lands are held by the federal government, voters have nonetheless approved land acquisition favorable programs. Influenced by high growth rates, the legislature enacted its version of the UCEA in 1983. Nonetheless, the scarcity of private agricultural and ranching lands has kept the volume of conservation easements low.

Additionally, the majority of residents in the south have “little incentive to preserve the land because they have yet to develop a commitment to the area and the community” (Gustanski and Squires 2000: p. 378-379). Another piece of legislation was the Nevada Parks and Wildlife Bond Act, which provides \$47.2 million for land and water right purchases in addition to allocating funds to county governments for open space planning. In 2002, voters approved \$200 million bond measure that specifically provides \$54.5 million for land acquisition (McQueen and McMahon 2003: p. 193).

One of the most environmentally sensitive regions of Nevada, the Tahoe Basin, has responded to local growth concerns by forming the Tahoe Regional Planning Agency. Through a mitigation program, conservation easements have been purchased around the lake. The Nevada Division of State Lands has also played a role in acquisitions (MacDonnell and Bates 1993: p. 221).

New Mexico has limited state resources for land conservation. The legislature did pass the New Mexico Land Use Easement Act in 1991. Unfortunately, the economy is one of the poorest in the country. Thus, the state has been unable to purchase conservation easements and open space in any sizeable amounts (Gustanski and Squires 2000: p.434). New legislation hopes to offset that: the New Mexico Land Conservation Incentives Act (2003) “encourages the protection of private lands by allowing taxpayers to deduct half of the appraised value of [a] donation from the state income taxes they owe” (The Nature Conservancy 2004). Also, a portion of the \$12 million from the document stamp program, including hunting licenses, goes towards land acquisition (McQueen and McMahon 2003: p. 184).

In the western United States, Oregon has the most extensive legislation for sprawl prevention and land conservation. The reason may be described best as traditional environmental awareness in the growing shadow of Californian land consumption. Oregon possesses four distinct regions (a rugged Pacific coastline, fertile central valley, prized forests and expansive rangeland) that have garnered a strong sense of place. The voting state majority in the Willamette Valley feared that California’s clogged Santa Clara and San Fernando Valleys would be their future if they did not act progressively.

Although the Willamette Valley received the most concern, land development along the coast and east of the Cascade Mountains was also important. For example, an Oregon Department of Revenue 1972 study showed that about 160,000 acres of the eastern rangelands had been subdivided into 43,000 lots in often illegal and environmentally damaging ways (DeGrove 1984: p. 237). Although some states like Arizona still allow such activity, Governor Tom McCall at the time decided this growth was a “shameless threat to our environment and to the whole quality of life...sagebrush subdivisions, coastal ‘condomania’, and the ravenous rampage of suburbia...all threaten to mock Oregon’s status as the environmental model for the

Nation. We are in dire need of a state land use policy, new subdivision laws, and new standards for planning and zoning by cities and counties” (Little 1974: p. 11).

Soon afterwards, Governor McCall received his wish—the Land Conservation and Development Act (1973). Among the 19 goals of the act, goal number 14 on urbanization mandated all cities negotiate urban growth boundaries with their bordering county. This was the primary state land use policy envisioned by the governor. Unlike Colorado’s similar attempt, though, “Oregon’s law has withstood numerous legal challenges over the years from groups and property owners dissatisfied with the level of regulation” (Stokes, Watson, and Mastron 1997: p. 305). These boundaries are just one component of comprehensive plans now required for the 242 cities and 36 counties in Oregon. In addition, they must be consistent with all state goals and guidelines (DeGrove 1984: p. 245). Other goals also affect conservation, like the goal 3 on agricultural lands.

Numerous other programs also tie into this early initiative. The Highway Scenic Preservation Easements, Willamette River Greenway Program, and Oregon Scenic Waterways system all provide for the purchase of conservation easements in these valuable corridor areas (Gustanski and Squires 2000: p. 381). Additionally, the Wildlife Diversity Program receives revenue from a tax check-off and a portion of interest income from the Oregon Department of Fish and Wildlife checking account. As another source of revenue, Oregon Parks and Recreation and the state Watershed Enhancement Board share approximately \$100 million in lottery profits for buying and restoring parkland. Hunting and Fishing licenses and fees also contribute to an Access and Habitat Program, Fisheries Restoration and Enhancement Fund, and Oregon Wetlands Joint Venture. This generates over \$3 million in revenue each year. Finally, and most recently, the state passed the Oregon Sustainability Act (2001), which includes among its goals “compact development that saves infrastructure investments and natural resources [and] healthy

urban and rural watersheds and species abundance and diversity” (Sustainable Oregon 2004). Oregon leads the nation in conservation minded legislation. For example, the 1991 *Green Index* by the Institute for Southern Studies and 2001 Resource Renewal Institute *State of the States* report rank Oregon as the number one environmentally minded state—by ranking an assortment of policies, from recycling to land use (Hall and Kerr 1991; Siy, Koziol, and Rollins 2001).

Utah adopted the provisions of the Uniform Conservation Easement Act in the Land Conservation Easement Act (1985). Nonetheless, land trust activity has not been historically strong in the state. The more recent Agricultural Preservation Area legislation and Farmland Assessment Act both seek to curb the eight square miles of open land lost a year during the mid-1990s (Gustanski and Squires 2000: p. 437). Utah created the LeRay McAllister Critical Land Conservation Fund because of the Quality Growth Act (1999) (Governor’s Office of Planning and Budget 2004). By 2002, this provided “matching grants and loans to local governments, private individuals, and nonprofit organizations to preserve or restore critical open or agricultural lands...[totaling] 33,553 acres” with \$8.8 million leveraged into \$43.4 million (McQueen and McMahon 2003, p. 203). State appropriations, environmental license plates, and hunting and fishing licenses also contribute to conservation through the Utah Division of Wildlife Resources for Heritage Program.

Washington receives a substantial amount of conservation funding from direct appropriation. The Trust Land Transfer Program (1989) provided over \$420 million to transfer 70,000 acres away from timber harvesting during the 1990s (The Nature Conservancy 2004). The Washington Wildlife and Recreation Program (1990) has acquired lands for wildlife conservation with over \$363 million appropriated since its inception (The Nature Conservancy 2001). The Washington Salmon Recovery Funding Board (1999) has distributed approximately \$100 million for similar programs.

Tax incentives also form a substantial part of conservation. The Open Space Tax Act (1971) “gives municipalities the opportunity to levy a tax for the sole purpose of acquiring conservation futures. Taxes garnered may be placed in a conservation futures fund” (Gustanski and Squires 2000: p. 383). Counties are able to use this tool to discourage farmers from selling open space in the face of high growth areas by reducing taxes 50 to 90 percent (Gustanski and Squires 2000: p. 385). These tools preempted the Uniform Conservation Easement Act. The importance of conservation easements is seen throughout the government—the Department of Natural Resources, municipal organizations, conservation districts, and at the core, the state’s growth management plan, all encourage “conservation easements and other innovative techniques to manage growth in rural areas” (Gustanski and Squires 2000: p. 385). The Growth Management Act (1990-1991) has only given further impetus to this trend.

Like most of its Rocky Mountain neighbors, Wyoming has little in the way of state conservation policies. Wyoming does have a Wildlife Trust Fund that receives about \$1 million in interest from wildlife conservation stamp license sales (McQueen and McMahon 2003: p. 204). After numerous attempts, the state has not adopted a conservation easement enabling act, though. The most recent attempt in 2003 failed by a narrow margin (Gustanski and Squires 2000: p. 438). Instead of statutory authority, landowners rely on a common-law rule for the creation and enforcement of conservation easements (Dana and Ramsey 1989). Under common-law, perpetual agreements are not available for easements. Nonetheless, northwest Wyoming has two successful conservation organizations. The Jackson Hole Land Trust (JHLT) and The Nature Conservancy both have a strong presence. For example, the JHLT protects over 9,000 acres through conservation easements (Gustanski and Squires 2000: p. 439). Unfortunately, funding is a major obstacle and without the tax break of a donation under easement legislation, there is little incentive for ranchers. Similar to its neighbors to the west and south (Utah, Colorado, and New

Mexico), the state relies on a preferential property tax law that allows agricultural land to be assessed at a lower fair market value than lands held for development (Wyoming Statute Annotated 1997). As long as the land is producing, this provides an incentive. But landowners who wish to retire or leave an estate to heirs uninterested in agriculture would be faced with considerable property and estate taxes.

Appendix B: Peer group selection

| County | State | Population Size | Population Change | Rural Population | Population Density | Urban Proximity | Income | Imperiled Species | Federal Land | Ag. Related Employment | Euclidean Distance | Median Distance | Cluster | Interviewed | Policy Reviewed |
|------------|-------|-----------------|-------------------|------------------|--------------------|-----------------|--------|-------------------|--------------|------------------------|--------------------|-----------------|---------|-------------|-----------------|
| Cochise | AZ | 117,755 | 21% | 34% | 25 | 93 | 15,988 | 52 | 23% | 3.3% | 0 | 0 | 1 | Y | Y |
| Coconino | AZ | 116,320 | 20% | 36% | 10 | 140 | 17,139 | 55 | 40% | 1.7% | 0.9 | 1.85 | 1 | Y | Y |
| Mendocino | CA | 86,265 | 7% | 46% | 28 | 61 | 19,443 | 48 | 13% | 7.1% | 1.22 | 3.11 | 1 | Y | Y |
| Santa Cruz | AZ | 38,381 | 29% | 32% | 68 | 71 | 13,278 | 44 | 55% | 2.8% | 1.45 | 3.12 | 1 | Y | Y |
| Tehama | CA | 56,039 | 13% | 49% | 25 | 131 | 15,793 | 29 | 24% | 7.7% | 1.61 | 3.26 | 1 | Y | Y |
| Jackson | OR | 181,269 | 24% | 22% | 88 | 166 | 19,498 | 36 | 26% | 2.8% | 1.54 | 3.38 | 1 | Y | Y |
| Douglas | OR | 100,399 | 6% | 42% | 28 | 72 | 16,581 | 24 | 29% | 5.4% | 1.84 | 3.42 | 1 | Y | Y |
| Lake | CA | 58,309 | 15% | 45% | 88 | 66 | 16,825 | 32 | 47% | 4.6% | 1.58 | 3.44 | 1 | Y | Y |
| Josephine | OR | 75,726 | 21% | 48% | 69 | 139 | 17,234 | 23 | 33% | 3.7% | 1.9 | 3.51 | 1 | Y | Y |
| Lincoln | OR | 44,479 | 14% | 38% | 64 | 83 | 18,692 | 18 | 29% | 4.3% | 2.12 | 3.6 | 1 | Y | Y |
| Shasta | CA | 163,256 | 11% | 31% | 73 | 162 | 17,738 | 31 | 41% | 2.5% | 1.72 | 3.8 | 1 | N | Y |
| Gila | AZ | 51,335 | 28% | 45% | 26 | 73 | 16,315 | 28 | 58% | 7.6% | 2.03 | 4.22 | 1 | Y | Y |
| Otero | NM | 62,298 | 20% | 29% | 15 | 89 | 14,345 | 15 | 35% | 3.1% | 2.25 | 3.3 | 1 | Y | N |
| Box Elder | UT | 42,745 | 17% | 34% | 11 | 59 | 15,625 | 13 | 33% | 5.0% | 2.37 | 3.63 | 1 | Y | N |
| Linn | OR | 103,069 | 13% | 37% | 67 | 25 | 17,633 | 20 | 32% | 5.5% | 2.15 | 4.12 | 1 | Y | Y |
| Pinal | AZ | 179,727 | 54% | 35% | 41 | 62 | 16,025 | 21 | 18% | 6.3% | 2.44 | 4.39 | 1 | Y | Y |
| Madera | CA | 123,109 | 40% | 34% | 91 | 25 | 14,682 | 34 | 37% | 14.0% | 2.02 | 4.72 | 1 | Y | N |
| Butte | CA | 203,171 | 12% | 18% | 145 | 68 | 17,517 | 32 | 14% | 3.7% | 1.45 | 3.29 | 2 | Y | Y |
| Klamath | OR | 63,775 | 11% | 35% | 25 | 173 | 16,719 | 45 | 57% | 6.1% | 1.71 | 3.65 | 3 | N | Y |

Headings: Total populations size, population change, rural percentage, population density on non-federal lands, per capita income, imperiled species, percentage of federal land, agriculture related employment, Euclidean distance, median distance, cluster analysis, counties interviewed (Y = yes, N = no), and county policies reviewed

Appendix C: Interview form

1. With whom am I speaking?

| | |
|---|--|
| Name | |
| Position | |
| County Name | |
| Years of familiarity with land use planning in the county | |

2. The U.S. Census Bureau indicates population growth in your County, what are the predominant forms of development meeting the associated housing demand in unincorporated areas?

Scale 1-5 (5 most common)

| Development in unincorporated areas | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------|
| Low density residential: lot splits | | | | | |
| Low density residential: subdivisions | | | | | |
| Low density residential: on existing lots | | | | | |
| Medium & high density residential | | | | | |
| Master planned developments (of any density) | | | | | |
| Other: | | | | | |

3. Given this pattern of development, does your County have policies to create/maintain open space?

| | |
|-----|--|
| Yes | |
| No | |

4. Is loss of open space a common concern to residents in your county?

| | |
|-----|--|
| Yes | |
| No | |

5. What are the motivating factors of creating/maintaining open space in your County? What's the goal?

Scale 1-5 (5 most important)

| Goals | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------|
| Promotes economic development | | | | | |
| Increases economic value of nearby land | | | | | |
| Attracts visitors | | | | | |
| Serves as a growth management tool | | | | | |
| Protects farmland and/or ranchland | | | | | |
| Increases safety (fire, flooding, landslides, etc.) | | | | | |
| Creates a community social space | | | | | |
| Improves visual aesthetics | | | | | |
| Promotes fitness and exercise (including recreation connectivity) | | | | | |
| Contributes to quality of life | | | | | |
| Provides environmental benefits (water quality, aquifer recharge, habitat) | | | | | |
| Other: | | | | | |

6. Are these goals explicit in planning documents?

| Yes, in the following plan(s): | |
|--|--|
| County comprehensive land use plan (or general plan) | |
| County ordinances, zoning, subdivision standards, etc. | |
| County park and recreation plan | |
| County open space plan | |
| County area plan | |
| State plan (that addresses open space) | |
| Regional plan (that addresses open space) | |
| Other: | |

| | |
|-----------|--|
| No | |
|-----------|--|

7. Does your County measure the status of open space (quantity and class)?

| Yes, in the following manner: | |
|--|--|
| Countywide inventory and/or mapping program | |
| Development-by-development review | |
| Other: | |
| | |
| Is the amount classified (by type, quality, use, or connectivity)? | |

| | |
|-----------|--|
| No | |
|-----------|--|

8. Which tools does your County use to create/maintain open space?

| Ordinances | |
|--|--|
| Hillside development, peaks and ridges | |
| Riparian resource | |
| Flood control | |
| Scenic or gateway corridor | |
| Scenic viewshed | |
| Farmland protection | |
| Environmentally sensitive resource (native plants, etc.) | |
| Buffer overlay | |
| Overlay district | |
| Natural open space | |
| Others: | |

| Subdivision requirements | |
|--|--|
| Mandatory dedication (open space, parks and recreation, agriculture) | |
| Environmental mitigation | |
| Open space impact fees | |
| Others: | |

| Subdivision options | |
|---|--|
| Residential development cluster options | |
| Density bonuses for open space | |
| Tax incentives for open space | |
| Habitat conservation plans | |
| Others: | |

| Easements, development rights, and land acquisition | |
|--|--|
| Conservation easements | |
| Is there connectivity among easements, open space? | |
| Are they within or outside new subdivisions? | |
| Who holds and monitors? | |
| Purchase/ transfer of development rights (if so, which?) | |
| Land acquisition (if so, fee simple or donation?) | |

| Outside involvement in your County | |
|---|--|
| Federal | |
| Any federal programs aiding the County open space program? | |
| If so, which program(s)? | |
| State | |
| Any state programs aiding the County open space program? | |
| If so, which program(s)? | |
| Private | |
| Do any local land trusts operate in the county? Which ones? | |
| What about other non-profits like The Nature Conservancy? | |
| Other: | |

9. How well are these open space protection tools accomplishing your goals and objectives?

This may be measured by the type, quality, and amount of land protected to accomplish your goals.

| Goals | Effectiveness (Scale: 1-5, 5 most effective) | | | | |
|---|--|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Promotes economic development | | | | | |
| Increases economic value of nearby land | | | | | |
| Attracts visitors | | | | | |
| Serves as a growth management tool | | | | | |
| Protects farmland and/or ranchland | | | | | |
| Promotes fitness and exercise | | | | | |
| Improves visual aesthetics | | | | | |
| Provides environmental benefits | | | | | |
| Overall | | | | | |

| | |
|-----------|--|
| Comments? | |
|-----------|--|

10. What other tools do you think the County might benefit from in the future?

| |
|--------------------------|
| Name one or more: |
| |
| |
| |

11. Many rural western US counties deal with these open space issues, which (if any) counties do you consider a role model for your County?

| |
|--------------------------|
| Name one or more: |
| |
| |
| |

Appendix D: Interview summary

D-1. Interviewee background, county development, open space policies and concern

| County | Title | Yrs. | Low: splits | Low: subdiv | Low: existing | Med/ High | PADs | Policies | Concern |
|-------------------|-------------------------|------|----------------|----------------|------------------|--------------|------|----------|---------|
| Cochise | Senior Planner | 7 | 5 | 4 | 1 | 2 | 2 | Yes | Yes |
| Coconino | Comm. Dev. Director | 30 | 5 | 4 | 4 | 1 | 2 | Yes | Yes |
| Mendocino | Senior Planner | 14 | 4 | 3 | 3 | 4 | 4 | Yes | Yes |
| Santa Cruz | Comm. Dev. Director | 5 | 5 | 4 | 5 | 4 | 4 | Yes | Yes |
| Tehama | Planner II | 15 | 3 | 2 | 3 | 2 | 3 | No | Yes |
| Jackson | Long-range Planner | 7 | 4 | 2 | 4 | 3 | 1 | No | No |
| Douglas | Sr. Long-range Planner | 10 | 3 | 2 | 3 | 1 | 1 | Yes | No |
| Lake | Associate Planner | 5 | 4 | 4 | 5 | 2 | 3 | Yes | Yes |
| Josephine | Asst. Planning Director | 25 | 5 | 3 | 3 | 1 | 3 | Yes | Yes |
| Lincoln | Senior Planner | 18 | 5 | 4 | 4 | 1 | 3 | Yes | Yes |
| Gila | Plan. Dept. Mgr | 8 | 5 | 3 | 4 | 4 | 1 | No | No |
| Otero | County Commissioner | 24 | 2 | 4 | 3 | 1 | 1 | No | No |
| Box Elder | Planning Director | 5.5 | 4 | 2 | 1 | 1 | 1 | No | No |
| Linn | Associate Planner | 25 | 3 | 1 | 3 | 1 | 1 | No | No |
| Pinal | Planning Manager | 2 | 3 | 3 | 2 | n/a | 4 | Yes | Yes |
| Madera | Senior Planner | 4 | 3 | 2 | 5 | 1 | 1 | Yes | Yes |
| Butte | Principal Planner | 7 | 5 | 4 | 3 | 2 | 1 | Yes | Yes |
| Peer Total | | 205 | 63 | 47 | 55 | 29 | 34 | 10 | 10 |
| Peer Responses | | 16 | 16 | 16 | 16 | 15 | 16 | 16 | 16 |
| Average | | 12.8 | 3.9 | 2.9 | 3.4 | 1.9 | 2.1 | 63% | 63% |

See Appendix C (Questions 1-4) for complete headings.

D-2. Open space goals

| County | Ec Dev | Ec Value | Visitors | Grow. Mgt | Farmland | Safety | Social Sp | Aesthetic | Exercise | Qual. Life | Enviro |
|-------------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|------------------|------------------|-----------------|-------------------|---------------|
| Cochise | 2 | 4 | 4 | 5 | 1 | n/a | 3 | 4 | 1 | 4 | 4 |
| Coconino | 3 | 2 | 3 | 3 | 4 | 3 | 3 | 5 | 2 | 5 | 5 |
| Mendocino | | n/a | 2 | n/a | 4 | n/a | n/a | 3 | n/a | 4 | 4 |
| Santa Cruz | 3 | 3 | 2 | 4 | 4 | 2 | 2 | 4 | 2 | 5 | 5 |
| Tehama | 2 | 4 | 4 | 4 | 5 | 3 | 2 | 5 | 3 | 4 | 5 |
| Jackson | | | | | | n/a | | | | | |
| Douglas | 3 | 1 | 2 | 1 | 3 | 3 | 2 | 1 | 1 | 1 | 1 |
| Lake | 4 | 2 | 3 | 3 | 5 | 5 | 2 | 4 | 4 | 5 | 4 |
| Josephine | 3 | 1 | 5 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 |
| Lincoln | 3 | 4 | 3 | 3 | 5 | 4 | 5 | 5 | 3 | 5 | 5 |
| Gila | | | | | | n/a | | | | | |
| Otero | | | | | | n/a | | | | | |
| Box Elder | 4 | 3 | 5 | 1 | 3 | 4 | 1 | 2 | 4 | 4 | 4 |
| Linn | | | | | | n/a | | | | | |
| Pinal | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 4 | 4 | 5 | 3 |
| Madera | 1 | 1 | 1 | 1 | 5 | 3 | 1 | 2 | 1 | 1 | 3 |
| Butte | 3 | 3 | 3 | 4 | 5 | 3 | 2 | 3 | 2 | 3 | 4 |
| Peer Total | 30 | 25 | 34 | 26 | 47 | 34 | 26 | 41 | 29 | 45 | 46 |
| Peer Resp | 11 | 11 | 12 | 11 | 12 | 10 | 11 | 12 | 11 | 12 | 12 |
| Average | 2.7 | 2.3 | 2.8 | 2.4 | 3.9 | 3.4 | 2.4 | 3.4 | 2.6 | 3.8 | 3.8 |

See Appendix C (Question 5) for complete headings.

D-3. Open space documents and inventory

| County | Documents | | | | | | Inventory | | | | |
|-------------------|-----------|-----------|-----|------------|--------|------|-----------|------------|-------|-------|-----|
| | Comp Plan | Ordinance | P&R | Open Space | Region | None | Complete | Dev by dev | Other | Class | No |
| Cochise | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Coconino | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| Mendocino | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Santa Cruz | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Tehama | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Jackson | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Douglas | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Lake | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Josephine | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Lincoln | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Gila | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Otero | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Box Elder | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Linn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Pinal | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Madera | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Butte | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Peer Total | 12 | 9 | 5 | 1 | 7 | 1 | 1 | 3 | 0 | 0 | 12 |
| Peer Resp | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| % Yes | 75% | 56% | 31% | 6% | 44% | 6% | 6% | 19% | 0% | 0% | 75% |

See Appendix C (Question 6 and 7) for complete headings.

D-4. Open space tools

| County | Ordinances | | | | | | | | | | Subdiv requir | | | Subdiv options | | | Other | | | Outside | | | |
|-------------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|---------------|------------|-----------|----------------|------------|-----------|------------|------------|------------|------------|------------|------------|------|
| | Hills | Ripar | Flood | Scen | View | Farm | Env | Buff | Overl | OS | Dedic | Mit | Imp | F | Clust | Dens | Tax | CE | TDR | Acq | Fed | State | Priv |
| Cochise | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Coconino | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5 | 1 | 1 | 1 | 1 | 1 |
| Mendocino | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Santa Cruz | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Tehama | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jackson | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Douglas | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lake | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Josephine | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Lincoln | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 1 | 1 | 1 | 1 |
| Gila | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Otero | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Box Elder | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Linn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pinal | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Madera | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Butte | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Peer Total | 4 | 9 | 10 | 6 | 1 | 7 | 5 | 3 | 2 | 4 | 3 | 5 | 1 | 8 | 5 | 1 | 2 | 0.5 | 1.5 | 5 | 6 | 10 | |
| Peer Resp | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | |
| % Yes | 25% | 56% | 63% | 38% | 6% | 44% | 31% | 19% | 13% | 25% | 19% | 31% | 6% | 50% | 31% | 6% | 13% | 3% | 9% | 31% | 38% | 63% | |

See Appendix C (Question 8) for complete headings. Note: No counties mentioned the habitat conservation plan as an open space tool.

D-5. Goal effectiveness

| County | Econ Dev | Econ Value | Visitors | Growth Mgmt | Farmland | Exercise | Aesthetics | Enviro benefits | Overall |
|-------------------|-----------------|-------------------|-----------------|--------------------|-----------------|-----------------|-------------------|------------------------|----------------|
| Cochise | n/a | n/a | n/a | n/a | n/a | 3 | 4 | n/a | n/a |
| Coconino | 2 | 2 | n/a | 4 | 3 | 1 | 4 | 4 | 4 |
| Mendocino | n/a | n/a | 2 | n/a | 3 | n/a | 2 | 2 | n/a |
| Santa Cruz | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 2 |
| Tehama | 5 | 5 | 5 | 5 | 5 | 1 | 5 | 5 | 4 |
| Jackson | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 2 |
| Douglas | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 4 |
| Lake | 1 | 1 | n/a | n/a | n/a | 1 | 5 | 3 | 3 |
| Josephine | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 |
| Lincoln | 3 | 4 | 5 | 3 | 5 | 2 | 5 | 5 | 3 |
| Gila | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 3 |
| Otero | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 3 |
| Box Elder | 4 | 3 | 5 | 1 | 1 | 3 | 5 | 4 | 4 |
| Linn | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Pinal | n/a | n/a | n/a | n/a | n/a | 3 | 4 | 3 | 2 |
| Madera | n/a | n/a | n/a | n/a | 3 | n/a | n/a | 2 | 2 |
| Butte | 2 | 2 | 2 | 4 | 4 | 2 | 2 | 3 | 4 |
| Peer Total | 22 | 22 | 24 | 22 | 29 | 21 | 41 | 36 | 44 |
| Peer Responses | 7 | 7 | 6 | 6 | 8 | 9 | 10 | 10 | 14 |
| Average Response | 3.1 | 3.1 | 4.0 | 3.7 | 3.6 | 2.3 | 4.1 | 3.6 | 3.1 |

See Appendix C (Question 9) for complete headings.

D-6. Suggestions for protecting open space

| County | Tool | New plan | New ordinance | Improved ordinance | Outside cooperation | Authority, enforcement |
|--------------------|---|----------|---------------|--------------------|---------------------|------------------------|
| Cochise | Transfer of Development Rights | 0 | 1 | 0 | 0 | 0 |
| | Cooperation with other agencies | 0 | 0 | 0 | 1 | 0 |
| | Area plans | 1 | 0 | 0 | 0 | 0 |
| | Zoning improvements | 0 | 0 | 1 | 0 | 0 |
| Coconino | More authority over lot splits | 0 | 0 | 0 | 0 | 1 |
| | Transfer of Development Rights | 0 | 1 | 0 | 0 | 0 |
| Mendocino | Promote state open space legislation | 0 | 0 | 0 | 1 | 0 |
| | Impact fees | 0 | 1 | 0 | 0 | 0 |
| | Clustering | 0 | 1 | 0 | 0 | 0 |
| | Open space corridor plan | 1 | 0 | 0 | 0 | 0 |
| | Agriculture for open space | 0 | 1 | 0 | 0 | 0 |
| | Open space ordinance | 0 | 1 | 0 | 0 | 0 |
| Sta Cruz | Exactions ordinance | 0 | 1 | 0 | 0 | 0 |
| | Minimum parcel size | 0 | 0 | 1 | 0 | 0 |
| Tehama | Language in ordinances for preservation of open space | 0 | 0 | 1 | 0 | 0 |
| Jackson | Stronger density ordinance | 0 | 0 | 1 | 0 | 0 |
| | Less stringent urban growth boundaries | 0 | 0 | 1 | 0 | 0 |
| Douglas Lake | Open space plan | 1 | 0 | 0 | 0 | 0 |
| | Transfer of Development Rights | 0 | 1 | 0 | 0 | 0 |
| | New comprehensive plan | 1 | 0 | 0 | 0 | 0 |
| | Enforcement | 0 | 0 | 0 | 0 | 1 |
| Lincoln | Conflicting goals among state and local governments | 0 | 0 | 0 | 1 | 0 |
| | Avoid linear development | 0 | 0 | 1 | 0 | 0 |
| | Lack of oversight | 0 | 0 | 0 | 0 | 1 |
| Otero | Subdivision ordinance | 0 | 1 | 0 | 0 | 0 |
| Box elder | Generate money for land acquisition | 0 | 1 | 0 | 0 | 0 |
| | Public education on cluster development | 0 | 0 | 0 | 1 | 0 |
| Pinal | Open space plan | 1 | 0 | 0 | 0 | 0 |
| Madera | Improve hillside ordinance language | 0 | 0 | 1 | 0 | 0 |
| | Use state open space legislation | 0 | 0 | 0 | 1 | 0 |
| Butte | Greater state investment in agriculture protection | 0 | 0 | 0 | 1 | 0 |
| Peer Totals | | 4 | 9 | 6 | 5 | 3 |

D-7. Counties of influence

| County | Other county influence |
|---------------|---|
| Cochise | Pima, Coconino |
| Coconino | None |
| Mendocino | None |
| Santa Cruz | Pima |
| Tehama | None |
| Jackson | None |
| Douglas | Multnomah, Clackamas |
| Lake | Sonoma |
| Josephine | All Oregon counties during monthly Planning Director meetings |
| Lincoln | None |
| Gila | None |
| Otero | All forested counties in the West |
| Box Elder | None |
| Linn | None |
| Pinal | Maricopa, Pima |
| Madera | None |
| Butte | None |

See Appendix C (Question 11) for complete headings.

Appendix E: Comprehensive plan review summary

E-1. State planning context

| State | Legislation | General Plan | | | Ordinances | | | Open Space | | | Notes | |
|--------------|------------------|--------------|-----|-----|------------|-----|-----|-------------------|-----|-----|-------|--------------------------------------|
| | | Must | May | N/A | Must | May | N/A | Must All >200K | May | N/A | | |
| Arizona | Revised Statutes | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | |
| California | Government Code | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | |
| New Mexico | Statutes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | Ordinances must follow general plan |
| Oregon | Revised Statutes | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | |
| Utah | Code Annotated | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | But general plans not always evident |
| Total | | 4 | 1 | 0 | 3 | 2 | 0 | 2 | 1 | 3 | 0 | |

E-2. County comprehensive plan general characteristics and availability

| County | Comprehensive plan? | | | Last Revision | Plan utilizes comparable policies? | | Plan availability | |
|-------------------|----------------------------|------------|------------|---------------|------------------------------------|------------|-------------------|------------|
| | Yes, w/ open space Element | Addressed | No | | Yes | No | Easy | Difficult |
| Cochise | 0 | 1 | 0 | 2003 | 1 | 0 | 1 | 0 |
| Coconino | 1 | 0 | 0 | 2003 | 1 | 0 | 1 | 0 |
| Mendocino | 1 | 0 | 0 | 1981 | 1 | 0 | 1 | 0 |
| Santa Cruz | 1 | 0 | 0 | 2004 | 1 | 0 | 1 | 0 |
| Tehama | 1 | 0 | 0 | 1983 | 1 | 0 | 0 | 1 |
| Jackson | 1 | 0 | 0 | 1994 | 1 | 0 | 1 | 0 |
| Douglas | 1 | 0 | 0 | 2004 | 1 | 0 | 0 | 1 |
| Lake | 1 | 0 | 0 | 1981 | 1 | 0 | 0 | 1 |
| Josephine | 1 | 0 | 0 | 2001 | 1 | 0 | 1 | 0 |
| Lincoln | 1 | 0 | 0 | 2004 | 1 | 0 | 1 | 0 |
| Shasta | 1 | 0 | 0 | 1993 | 1 | 0 | 1 | 0 |
| Gila | 0 | 1 | 0 | 2003 | 1 | 0 | 1 | 0 |
| Otero | 0 | 0 | 1 | n/a | 0 | 1 | 0 | 1 |
| Box Elder | 0 | 0 | 1 | n/a | 0 | 1 | 0 | 1 |
| Linn | 1 | 0 | 0 | 2001 | 1 | 0 | 1 | 0 |
| Pinal | 0 | 1 | 0 | 2001 | 1 | 0 | 1 | 0 |
| Madera | 1 | 0 | 0 | 1995 | 0 | 1 | 0 | 1 |
| Butte | 1 | 0 | 0 | 1995 | 1 | 0 | 1 | 0 |
| Klamath | 1 | 0 | 0 | 1999 | 1 | 0 | 1 | 0 |
| Peer Total | 14 | 3 | 2 | | 16 | 3 | 13 | 6 |
| % of Peers | 78% | 11% | 11% | | 83% | 17% | 66% | 33% |

E-3. County comprehensive plan goals

| Policies that address the following open space goals | Cochise | | Cocon | | Mendo | | Cruz | | Teham | | Jacks | | Dougl | | Lake | | Josep | | Linco | | Shast | | Gila | | Linn | | Pinal | | Butte | | Klama | | Peer Total |
|--|---------|---|-------|----|-------|----|------|----|-------|----|-------|----|-------|----|------|---|-------|----|-------|----|-------|----|------|---|------|----|-------|---|-------|----|-------|-----|------------|
| | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | | | |
| None | | | 5 | | 1 | | 1 | | | | | 1 | | 1 | | | | | | 1 | | | 1 | | | | | | | | | 11 | |
| Combo | 0 | | 6 | 3 | 3 | 2 | 2 | 4 | | | 2 | 2 | 8 | | | | 1 | | 2 | 2 | | 4 | | | 1 | | | 1 | | 1 | 44 | | |
| Econ dev | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | | |
| Econ val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | | |
| Visitors | 0 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 2 | | |
| Farming, etc. | 0 | | 1 | 1 | 5 | 8 | 1 | | 7 | 1 | 8 | 2 | 9 | 4 | | | 11 | | 6 | 1 | 6 | | | | 12 | 1 | 5 | 8 | 2 | 4 | 103 | | |
| Growth | 2 | 4 | 4 | 2 | | | 4 | | | 2 | 4 | 5 | 4 | 2 | | | 2 | | 2 | 2 | | 1 | | 2 | 1 | 2 | | | | 39 | | | |
| Safety | 1 | | 1 | 2 | 3 | 7 | 1 | 1 | | | 2 | | 4 | 7 | | | | | 1 | | 2 | 1 | | 3 | 2 | 6 | 8 | 4 | 2 | 1 | 58 | | |
| Historic | 1 | | 5 | 1 | 1 | 1 | | 1 | | | 1 | | 5 | 2 | | | 1 | | 2 | | 1 | 1 | | 1 | 4 | 4 | 2 | 1 | 2 | 3 | 39 | | |
| Aesthetics | 0 | | 4 | 4 | 4 | 1 | 1 | 2 | | | 1 | 3 | 4 | 2 | 3 | | | | 2 | | 1 | | | 1 | 5 | 3 | 2 | 3 | 1 | 2 | 49 | | |
| Quality of life | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | 1 | 13 | | | | | | 16 | | |
| Social space | 0 | | 2 | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | 5 | | |
| Rec: Gen. | | | 1 | 1 | 2 | 1 | 1 | | 1 | | 1 | | 5 | 2 | | | | 2 | 1 | | | | | 1 | | 1 | 1 | 2 | 1 | 24 | | | |
| Rec: Connect. | 0 | | 3 | 2 | | | 1 | 3 | | | 1 | 2 | | 1 | 1 | | | | | | | | 1 | | 2 | 1 | | 1 | 2 | 21 | | | |
| Enviro: Gen. | | | 6 | 5 | 3 | | 2 | | 2 | 2 | 2 | 2 | 2 | | | | | 2 | | | | | 1 | | 16 | 2 | | | | 47 | | | |
| Enviro: Species | 1 | | 7 | 7 | 12 | 3 | 2 | 4 | 3 | | 2 | 1 | 15 | 7 | | | 3 | | 2 | | 3 | 1 | | 1 | 13 | 8 | 2 | 3 | | 11 | 110 | | |
| Enviro: Connect. | 0 | | | 4 | 2 | | 2 | 2 | 1 | | | | 1 | | | | | | | | 2 | 1 | | | | 3 | | | | | 18 | | |
| Enviro: Water, etc. | 1 | 1 | 2 | 3 | 7 | 1 | | | 1 | 1 | 6 | | 2 | 2 | | | | | 1 | | | | | | | 2 | | | 1 | 29 | | | |
| Goal references | 6 | 5 | 47 | 37 | 43 | 24 | 14 | 21 | 0 | 15 | 8 | 33 | 18 | 59 | 32 | 0 | 5 | 14 | 0 | 22 | 9 | 14 | 7 | 1 | 8 | 42 | 59 | 0 | 25 | 21 | 11 | 26 | 615 |
| Categ. addressed | 4 | | 9 | | 6 | | 6 | | 3 | | 7 | | 9 | | 8 | | 5 | | 7 | | 7 | | 4 | | 8 | | 8 | | 7 | | 7 | 6.2 | |

Counties: Cochise AZ, Coconino AZ, Mendocino CA, Santa Cruz AZ, Tehama CA, Jackson OR, Douglas OR, Lake CA, Josephine OR, Lincoln OR, Shasta CA, Gila AZ, Linn OR, Pinal AZ, Butte CA, Klamath OR.

Goals: None (states an open space tool w/out goal), combination (generic and/or unspecified goal), benefit to econ. development, increases the economic value of nearby land, attracts visitors, farming (also ranching, forestry, astronomy, and research), growth management, safety (floods, fire, landslides, other geological, and chemical hazards), historic preservation (also cultural preservation), aesthetics (visual aesthetics, views, scenic, natural beauty, ability to distinguish towns from each other), quality of life (also rural character), social space (also amenity sites and access), recreation (general), recreation (connectivity, corridors, and trails), environmental benefits (general, wilderness), enviro. (habitat and species), enviro. (connectivity), enviro. (incl. water, air, soil).

E-4. County comprehensive plan tools

| Policies that address the following open space tools | Cochise | | Cocon | | Mendo | | Cruz | | Teham | | Jacks | | Dougl | | Lake | | Josep | | Lincl | | Shast | | Gila | | Linn | | Pinal | | Butte | | Klama | | Peer Total |
|--|---------|---|-------|----|-------|----|------|----|-------|----|-------|----|-------|----|------|---|-------|----|-------|----|-------|----|------|---|------|----|-------|----|-------|----|-------|-----|------------|
| | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | |
| None | | | 7 | | 9 | | 3 | | | | | | 10 | | | | 2 | | | | 1 | | | | 1 | | 12 | | 3 | | 1 | | 49 |
| Zoning, etc. | 3 | 4 | 20 | 6 | 11 | 11 | | 7 | 1 | 13 | 4 | 19 | 12 | 13 | 19 | 1 | 2 | 12 | | 11 | 4 | 10 | 3 | | | 25 | 14 | 17 | 14 | 2 | 12 | 263 | |
| Design | | | 7 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 9 | | |
| Clustering | 1 | | 5 | | 1 | 2 | | | | | 1 | 1 | 1 | | 3 | | | | | | 4 | | 1 | | | 5 | 1 | | 2 | | 27 | | |
| Infill, etc. | 1 | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 | | | | | | 1 | | 1 | | | 1 | | | | | 9 | | |
| Setbacks, etc. | 1 | | 1 | | 1 | 3 | | 2 | | 2 | 1 | 3 | | 5 | 8 | | | | | | 1 | 2 | | | | 2 | 2 | | 1 | 1 | 8 | 43 | |
| Impact fees, etc. | | | | | 1 | 1 | | 1 | | | | | 3 | | 1 | | | | | | | | | | | 1 | | 1 | | | 9 | | |
| Acquisition, etc. | 2 | | 7 | 1 | 2 | 2 | 3 | 1 | 1 | | 6 | | 4 | | 3 | | 1 | | | 1 | | | | | | 3 | | 2 | 2 | 1 | 40 | | |
| Cooperation | | | 4 | 3 | 2 | 1 | 2 | 4 | | 4 | 1 | 9 | 3 | 3 | 5 | 1 | | 1 | | | | | | | | 7 | 3 | | 2 | 1 | 3 | 7 | 66 |
| Compliance | | | 1 | 2 | 1 | 2 | | 1 | | 3 | 4 | 4 | | 5 | 6 | | | | | | | 3 | 2 | 1 | 1 | 5 | | | 2 | 1 | | 1 | 45 |
| Growth areas | | | 1 | | | | | | | | | 2 | 2 | 1 | | | | | | | | | | | | 3 | | | | | 11 | | |
| Tool references | 8 | 4 | 54 | 13 | 29 | 22 | 9 | 16 | 2 | 22 | 18 | 38 | 36 | 27 | 45 | 3 | 5 | 13 | 1 | 13 | 14 | 14 | 6 | 1 | 1 | 48 | 36 | 0 | 27 | 22 | 8 | 28 | 571 |
| Categ. addressed | 5 | | 9 | | 8 | | 7 | | 5 | | 8 | | 9 | | 8 | | 3 | | 3 | | 5 | | 4 | | 9 | 6 | | 8 | | 5 | | 6.4 | |
| Open Sp. policies | 8 | | 53 | | 55 | | 24 | | 15 | | 29 | | 60 | | 35 | | 19 | | 15 | | 22 | | 7 | | 38 | | 37 | | 43 | | 25 | | 477 |
| Total policies | 48 | | 216 | | 430 | | 139 | | 50 | | 150 | | 584 | | 284 | | 65 | | 193 | | 153 | | 125 | | 188 | | 126 | | 269 | | 140 | | 3112 |
| % of policies | 17% | | 25% | | 13% | | 17% | | 30% | | 19% | | 10% | | 12% | | 29% | | 8% | | 14% | | 6% | | 20% | | 29% | | 16% | | 18% | | 15% |

Counties: Cochise AZ, Coconino AZ, Mendocino CA, Santa Cruz AZ, Tehama CA, Jackson OR, Douglas OR, Lake CA, Josephine OR, Lincoln OR, Shasta CA, Gila AZ, Linn OR, Pinal AZ, Butte CA, Klamath OR.

Tools: None (states and open space goal w/out a tool), zoning (density requirements, density bonus, subdivision/master planned development regulations, unspecified ordinance), design (types: conservation, environmentally sensitive, innovative), clustering, infill (unspecified encouragement of infill and discouraging leapfrog development), setbacks (also buffers, overlays, corridors, gateways), impact fees (also tax incentives, in lieu of fees, grants, funding), acquisition (also dedications, easement, deed restrictions, transfer of development rights, exchanges, and retention of public land), cooperation (with other agencies and organizations), compliance (with, and creation of, other plans, mandates), growth areas (includes growth boundaries).