



*Shaping the Future of the West*

# The Capitalization of Our Climate



Attracting Highly Skilled Workers  
to Arizona's Sun Corridor



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# Sonoran Institute

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## Mission

The Sonoran Institute inspires and enables community decisions and public policies that respect the land and people of western North America.

## Vision

The Sonoran Institute contributes to a vision of a West with:

- Healthy landscapes—including native plants and wildlife, diverse habitats, open spaces, clean air and water—from northern Mexico to western Canada.
- Vibrant communities where people embrace conservation to protect quality of life today and in the future.
- Resilient economies that support prosperous communities, diverse opportunities for residents, productive working landscapes, and stewardship of the natural world.

## A Collaborative, Community-Based Approach

The nonprofit Sonoran Institute, founded in 1990, works across the rapidly changing West to conserve and restore natural and cultural assets and to promote better management of growth and change. The Institute's community-based approach emphasizes collaboration, civil dialogue, sound information, local knowledge, practical solutions, and big-picture thinking.

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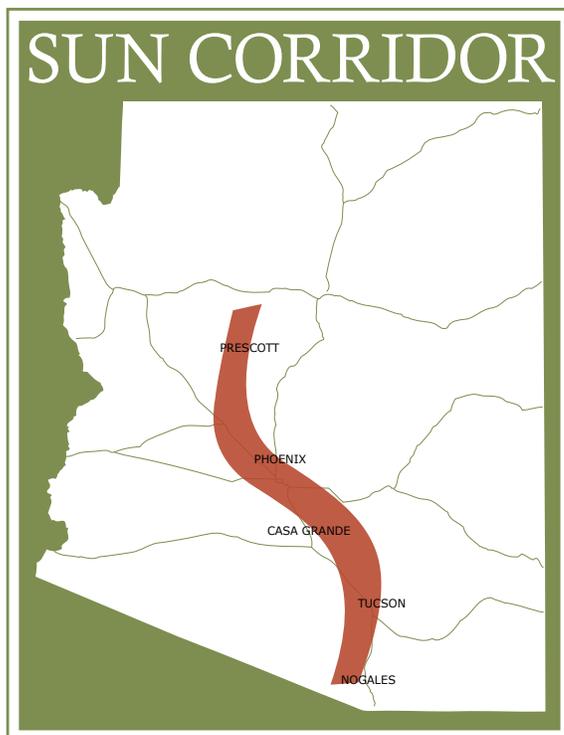
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## About the Sun Corridor

The “Sun Corridor” refers to Arizona’s megapolitan area stretching from Nogales in the south to Prescott in the north, with Phoenix and Tucson at its core. The megapolitan is growing at a tremendous rate, and that rapid growth comes with the challenge of conserving natural desert and open space while improving urban quality of life. The Sun Corridor Legacy Program is one of the four keystone initiatives of the Sonoran Institute. The program’s goals include:

- *Advance the availability of clean and secure energy for the Sun Corridor.*
- *Conserve more than one million acres in Arizona for future generations.*
- *Encourage state policies to protect and restore free-flowing rivers in Arizona.*



The Sun Corridor’s desirable climate, housing options, and relatively low cost of living are reasons why this area continues to attract new residents. The area’s future quality of life, environmental quality, and economic prosperity will be determined largely by how well growth is managed. Going forward, regional solutions that comprehensively address conservation, development, transportation, water, and energy issues will be critical to a sustainable future.

Arizonans must consider these regional issues when making decisions about how to develop communities, preserve cherished open spaces, ensure an adequate high-quality water supply, protect our quality of life, and enhance economic prosperity. New approaches to problem solving are needed to make this happen, and the Sonoran Institute

finds them through work with federal, state, and local governments, and stakeholder groups to determine the best mix of use and conservation for lands in the region. To find out more about the program’s work, visit [www.sonoraninstitute.org](http://www.sonoraninstitute.org).

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## Acknowledgments

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The Sonoran Institute would like to express our deep gratitude to the Bureau of Land Management team for the insight and information they provided to study and report on Arizona's great outdoors and its impact on the state's economy.

We would like to thank the George B. Storer Foundation, Arizona Public Service, Southwest Gas, and Outdoor Alliance for the funding support they contributed to the project. Additionally, we wish to acknowledge the financial contribution of an anonymous donor whose support and enthusiasm for the Sonoran Institute's efforts to promote conservation and prosperous communities in Arizona is profoundly important. Special thanks to Kathleen Lee of the Greater Phoenix Economic Council for helping connect us to Arizona's industry leaders.

It was a pleasure to work with the talented team from the University of Arizona, Eller College of Management. Bob Conover, Raphael Avraham, Brian Fitzpatrick, and Bryson Beirne conducted excellent research and contributed substantially to the final results. Their faculty advisor, Dr. Price Fishback, the Frank and Clara Kramer Professor of Economics, provided invaluable guidance.

Many thanks to those whose creative energy made this report possible: Terry Moody of Studio Orange Street designed the report; Kathleen Fitzpatrick, of Coe & Van Loo Consultants, generously contributed photos from the CVL Hiking Club; and most importantly, Dan Hunting, who designed the research program, developed the questionnaire, conducted interviews and focus groups, and wrote the report.

Lastly, I would like to acknowledge former Sonoran Institute Executive Director Luther Propst's contribution to the process. Without his leadership and vision on the original concept, this report would never have been produced.

Sincerely,  
Dave Richins  
*Sun Corridor Legacy Program Director*

### About the Author

Dan Hunting is an Economic and Policy Analyst for the Sonoran Institute. His research interests include sustainable economic development in light of the Sun Corridor megapolitan concept, state trust land reform, and the role of arts and culture in economic development. After a career as a photojournalist, he pursued his interest in public policy at Arizona State University, where he helped develop core concepts of the Sun Corridor geography at the Morrison Institute while working on his master's in public administration. Upon graduation, he took a job with the Arizona legislature, working as a fiscal analyst for the Joint Legislative Budget Committee. His duties included budget development and program analysis for nine state agencies, including the Arizona Department of Environmental Quality and Department of Administration. He has authored and contributed to works on domestic violence, sustainability, public art, and education.

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## Executive Summary

- 6 | The economic health of the highly urbanized Sun Corridor is closely tied to its setting in the midst of a magnificent natural landscape. This study demonstrates that outdoor recreation in a natural setting is a key element in attracting the highly skilled workers necessary for a modern economy. In the midst of a large megapolitan area, recreational opportunities on public land are a key component of the economy.

The subtle effects of public land and highly skilled workers on a \$200 billion economy are difficult to measure directly. The Sonoran Institute, in partnership with the Bureau of Land Management, developed a survey-based approach to study the question,

*Does public land help employers in the Sun Corridor attract and retain highly skilled workers?*

Firms employing 10 percent of the Sun Corridor's 200,000 highly skilled workers were part of this study, and included a variety of industries ranging from aerospace and electronics to health care and financial services. Human resource professionals from these firms were interviewed to gauge their perceptions of how outdoor recreation on public land affects recruitment of skilled workers. Next the highly skilled workers themselves provided their views in a series of focus groups.

The survey and focus group results support the idea that access to recreation on public land is an important factor in attracting these vital employees. Those most responsible for bringing skilled professionals to our region consider lifestyle nearly as important as pay and cost of living in their recruitment efforts. The survey also provides solid evidence that outdoor recreation in a natural setting is second only to climate and more important than urban sports and cultural amenities among four factors that contribute to lifestyle. The survey indicates and the focus groups confirm the idea that the attraction of living in the Sun Corridor comes from the region's natural lands and climate more than it does from urban attributes.

State and local policy makers have no control over what firms pay their workers and only limited ability to lower the cost of living through tax changes. However, policies that affect quality of life can be enacted. Decisions to build civic infrastructure such as roads, parks, and schools, for instance, can have a dramatic effect on the quality of life in a region, as can decisions to preserve land for recreational purposes.

Arizona companies should capitalize on the region's natural amenities to attract highly skilled workers to the area. This segment of the workforce is responsible for increased economic prosperity that benefits the entire community. This study shows that in the Sun Corridor, economic development is closely tied to our spectacular natural amenities.

## Introduction

In 1940 Barry Goldwater, then a young businessman and civic booster, attributed the rapid growth of Phoenix to “the capitalization of our climate, our natural beauties, and the romance of our desert” (Luckingham 1989, 110). Decades before becoming Arizona’s political icon, Goldwater neatly summarized a prime driver of the state’s economy. In doing so, he anticipated the even more dramatic growth the state would see in the decades after World War II.

The Sonoran Institute, in partnership with the Bureau of Land Management (BLM) and the University of Arizona, and with the support of the George B. Storer Foundation, Arizona Public Service, and Southwest Gas, has been investigating the connection between Arizona’s iconic landscape and the economy of the Sun Corridor. The Sun Corridor is the economically connected heart of Arizona, encompassing metropolitan Phoenix and Tucson and surrounding areas. This project provides a quantitative look at what has been acknowledged anecdotally for years: the economy of the Sun Corridor is intimately tied to the availability of public land that attracts highly skilled workers to the region. It explores the following question:

*Does public land help employers in the Sun Corridor attract and retain highly skilled workers?*

Considerable research has looked at the economic benefits of public lands (Sonoran Institute 2006; Rasker et al. 2004; Trust for Public Land 2012). This work has clearly demonstrated the ability of nearby public land to bolster the economy of rural counties in the West. The line of inquiry presented in this report is unique in two significant ways. First, it proposes that public land has positive effects on the largest metropolitan area in the Intermountain West. The effects of public land on this dense urban environment with its complex, globally connected economy will be much different than those seen in rural counties. Second, previous work has, in addition to focusing on rural areas, also focused largely on the ability of public land to help the hospitality and tourism sectors of a region’s economy. While this is undoubtedly important, this report indicates that there is an additional effect at work in metropolitan areas. In metropolitan areas, the proximity of public land stimulates the economy by attracting the highly skilled workers (HSW) that are crucial to a thriving business sector.<sup>1</sup> This report begins the task of identifying how public land near Phoenix and Tucson is critical to maintain and grow a modern economy.

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*In 1957, a manager for Motorola, which reigned for decades as the state’s top employer, laid out the company’s strategy for locating in Arizona: “The principal reason we’re here is the serious shortage of engineers. We can run an ad in the trade magazines mentioning three places to work – Phoenix, Chicago, and Riverside, in California. We’ll draw 25-to-1 replies for Phoenix compared with the other cities. . . . We don’t have to pay a premium to get engineers and other skilled employees to live here, either. The premium is free – sunshine.*

(LUCKINGHAM 1989, 156)

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## Background

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### 8 | Previous Studies

Previous studies of the connection between public land and economic prosperity have concentrated largely on the impacts these lands have on the hospitality and tourism industries in a region. Several studies have indicated that areas with public land and tourist services fare better than those that rely on extractive industries (Lorah, Southwick, and Allen 2010; Sonoran Institute 2006; Rasker et al. 2004). The tourism sector of the Sun Corridor economy certainly benefits from the availability of public land in the region. However, the Sun Corridor's tourism industry, with its luxurious golf-centered resorts in an urban setting, is very different from that of a rural area whose tourism services are often based on activities and accommodations like mountain biking and small bed-and-breakfast inns. The impact of public lands is much easier to identify in the latter case, where the overall economy is not nearly as large and complex. In fact, previous research in this field has focused only on rural counties and small cities. A literature review uncovered no studies of the impact of public land on the economy of a major metropolitan area.

Although there have been no direct studies of the effect of outdoor recreation on public land upon the economy of the Sun Corridor, studies by the National Park Service (NPS) and the Bureau of Land Management (BLM) shed some light on the issue. The NPS estimates that there were 10.5 million visitors to NPS units in Arizona in 2010, with \$671 million in nonlocal visitor spending, generating a total of 11,012 jobs (Stynes 2011). Note that spending and job estimates at the statewide level are reported only for nonlocal visitors. If workers are drawn to the Sun Corridor because of the opportunity for outdoor recreation, statewide spending by local visitors should be significant. The BLM reports 5.6 million recreational visitors to BLM public lands in Arizona during 2011, generating \$269 million in direct spending and \$227 million in indirect spending (Bureau of Land Management). Nationwide, the NPS estimates



that 29 percent of visits to parks are from local residents, accounting for 9.8 percent of total national park visitor spending; so it is apparent that in-state visits to NPS and BLM lands in Arizona generate some economic impact, but to what degree is unknown (Stynes 2011).

A larger problem with estimating the impact of public lands on the Sun Corridor economy is that counting visitors to most land is generally not possible. Visitors to national park units are counted at staffed stations where entrance fees are collected, but National Forest, BLM, and state trust lands typically do not have such entrance stations. Those lands generally have open, uncontrolled access and make up the prime recreational areas in close proximity to population centers of the Sun Corridor. Without direct measurement of the characteristics or even the number of visitors to these areas, it is difficult to judge their economic impact.

A recent publication by Small Business Majority, a business advocacy group based in Washington, DC, begins to make a connection between public land and business growth using a survey-based approach. In the group's survey of small business owners in Arizona, 42 percent said that access to outdoor opportunities on public lands is a large reason they live and work in the state and 68 percent said that "protecting public lands would positively impact small business opportunities, local economies, and Arizona job growth" (Small Business Majority 2012, 4). Positive outcomes like this one indicate that public lands can play a role in the economy of a large urban area such as the Sun Corridor.

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*The outdoors is important when thinking about moving to Arizona. We could not have recruited such excellent people to our organization if it had not been for the outdoor recreational opportunities.*

”

Survey participant

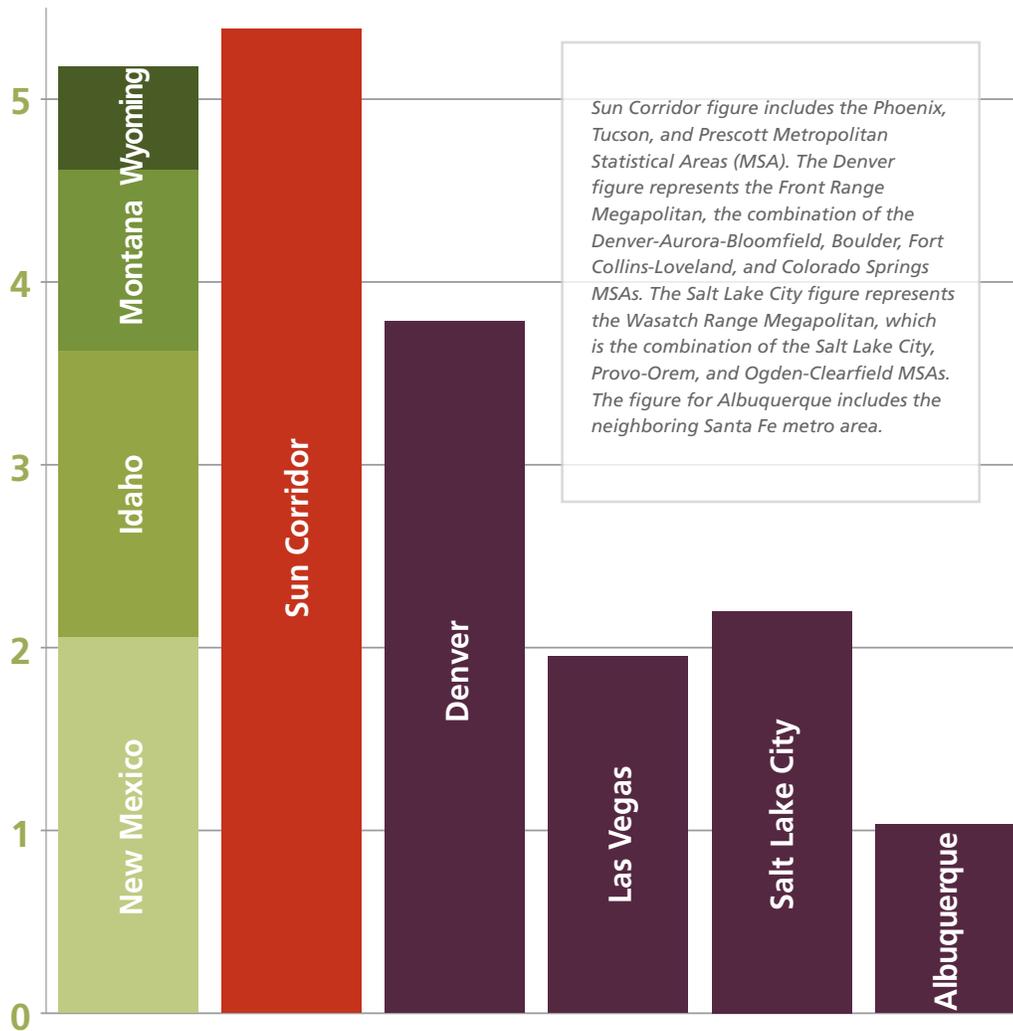
## The Sun Corridor

The Sun Corridor is the geographic focus of this study. The term Sun Corridor is used to refer to the megapolitan region of Arizona including the metropolitan areas of Phoenix and Tucson (Gammage et al. 2008). It is the economic heart of Arizona, containing 84 percent of its population and producing 88 percent of the state's gross domestic product on just 15 percent of the total land. The Sun Corridor is a highly integrated economy, with close ties between the Phoenix and Tucson metro areas, especially in the aerospace and transportation industries.

## 10 | Greatest Economic and Population Concentration in the West

The 5.3 million residents of the Sun Corridor represent the largest population center in the Intermountain West (Figure 1). The region is also the dominant economy of the Intermountain West, with a 2010 gross domestic product of more than \$206 billion. The Sun Corridor economy is larger than the economy of any metro or megapolitan area in the Intermountain West and is larger than that of New Mexico, Idaho, Montana, and Wyoming combined (Figure 2). In an economy of this size, even a small positive effect from public land recreation has large consequences. For example, if outdoor recreation can be demonstrated to contribute to 1 percent of the economy, that translates into over \$2 billion annually injected into the Sun Corridor.

**FIGURE 1** 2010 Population (millions)

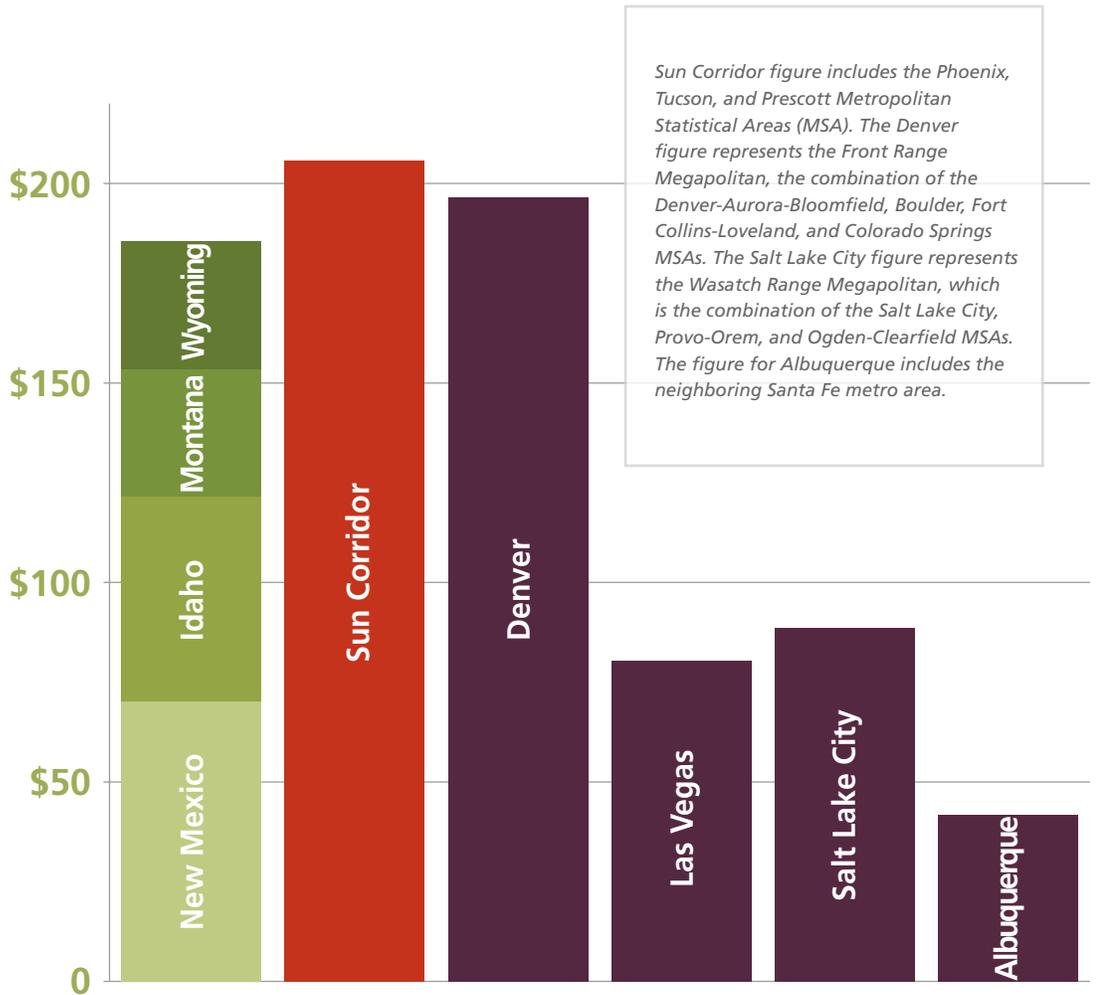


Source: U.S. Census Bureau

### A Dense Urban Area

Although the Sun Corridor stretches across much of central and southern Arizona, the 5.3 million residents of the region mostly live in the dense urban areas of Phoenix and Tucson (Figure 3). While these major metropolitan areas are connected economically, they are separated by miles of sparsely populated land. Much of the land surrounding the population centers is dedicated as national forests, national parks, or other public space and available for recreational purposes. There is also a considerable amount of state trust land and land administered by the BLM, which is often available for recreation.

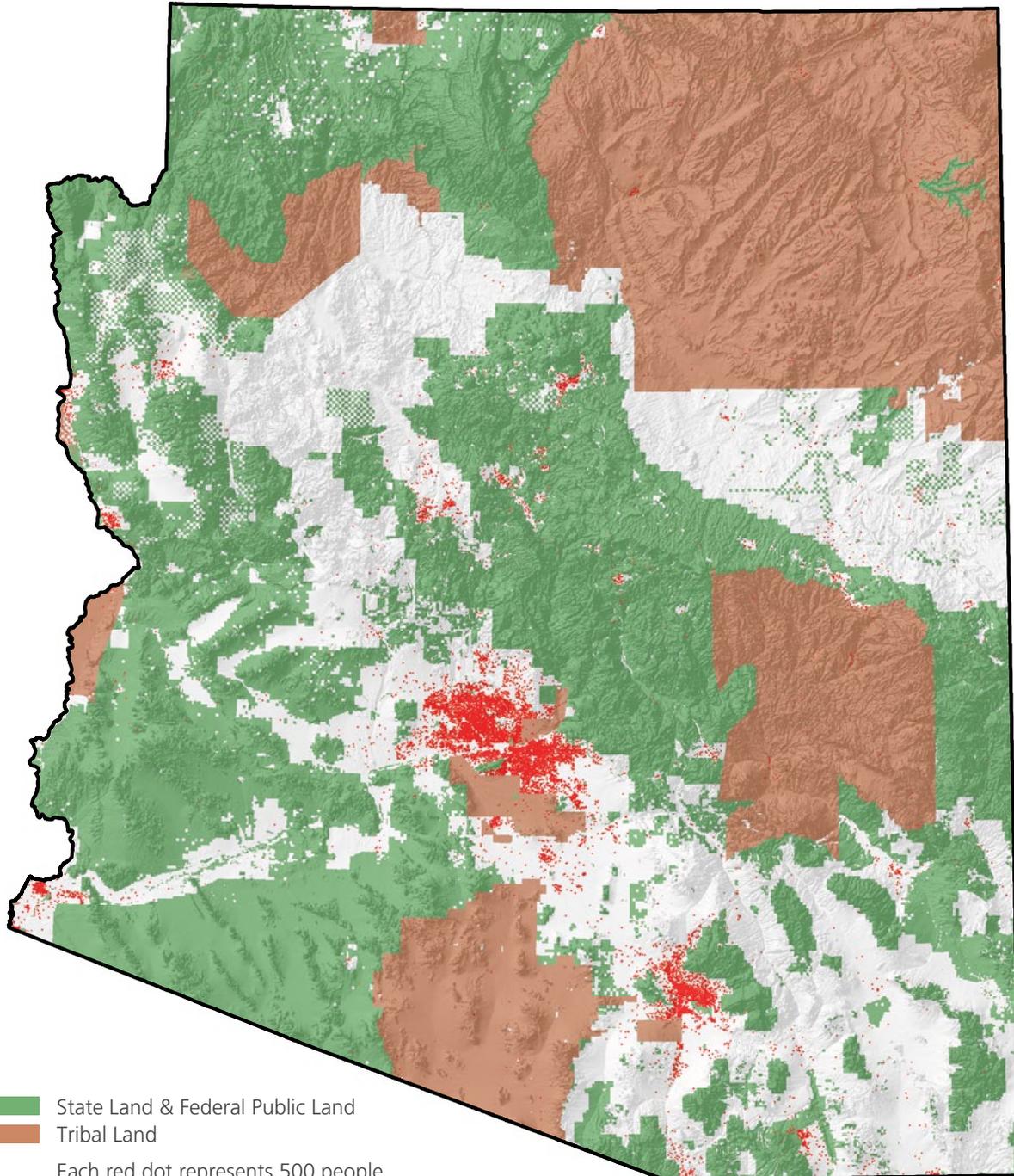
**FIGURE 2** 2010 Gross Domestic Product (billions of 2010 dollars)



Source: Bureau of Economic Analysis

FIGURE 3

### Population Concentration in Arizona



- State Land & Federal Public Land
- Tribal Land

Each red dot represents 500 people.

Source: Sonoran Institute

Metropolitan Phoenix and Tucson are often imagined as sprawling, low-density suburbs, but the populated areas of the Sun Corridor are actually densely settled. Although the cities do sprawl over a large area, they sprawl at a surprisingly high density. At an average of 700 persons per square mile, the Sun Corridor is denser than Seattle at 576 persons per square mile, Minneapolis–St. Paul at 245 persons per square mile, and Pittsburgh at 502 persons per square mile (Nelson and Lang 2011).

### Readily Accessible Outdoor Recreation

One characteristic that distinguishes the Sun Corridor from other megapolitan areas is the large amount of public land within and adjacent to the urbanized area (Figure 4, Figure 5). The Sun Corridor's dense urban settlement pattern, combined with the large amount of nearby public land, puts high-quality outdoor recreation within an hour drive of the region's 5.3 million residents. Residents of the Sun Corridor can easily access unparalleled outdoor recreation opportunities as well as the urban cultural amenities and other benefits of living in a major economic center.

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*The sunshine factor presents the availability for outdoor activities and hiking. People are willing to give up a little bit of money to have access to the outdoors.*

”

Survey participant

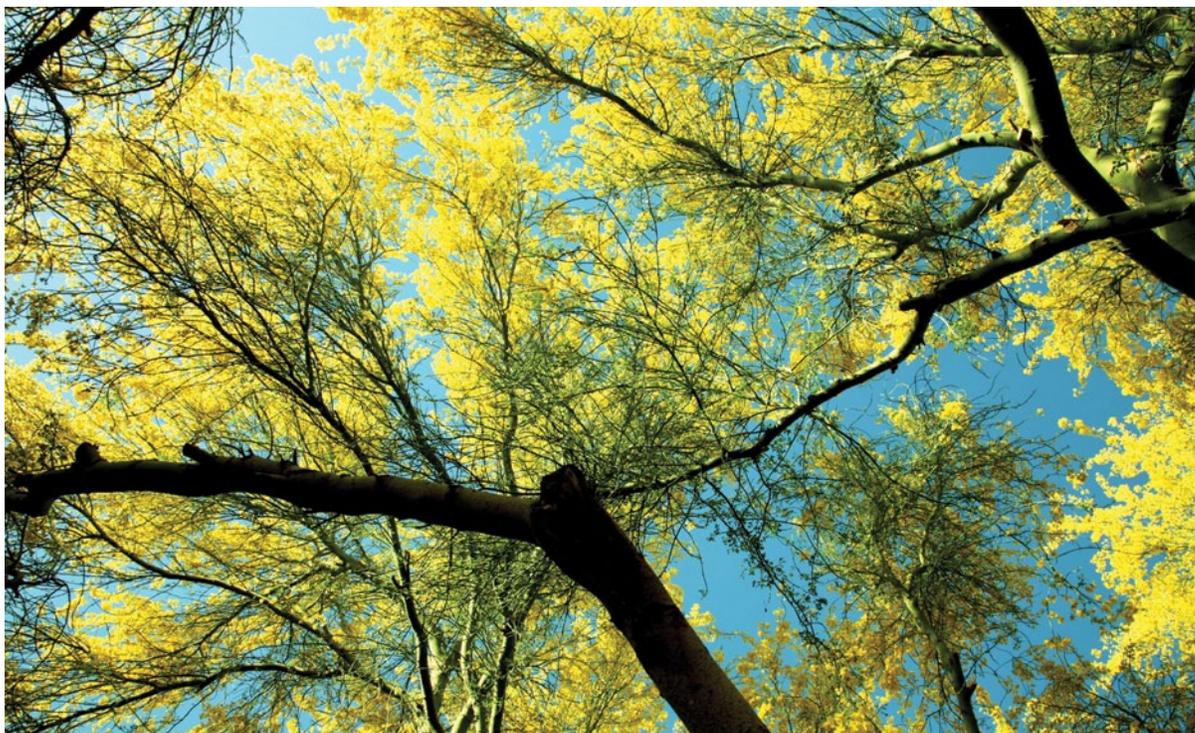
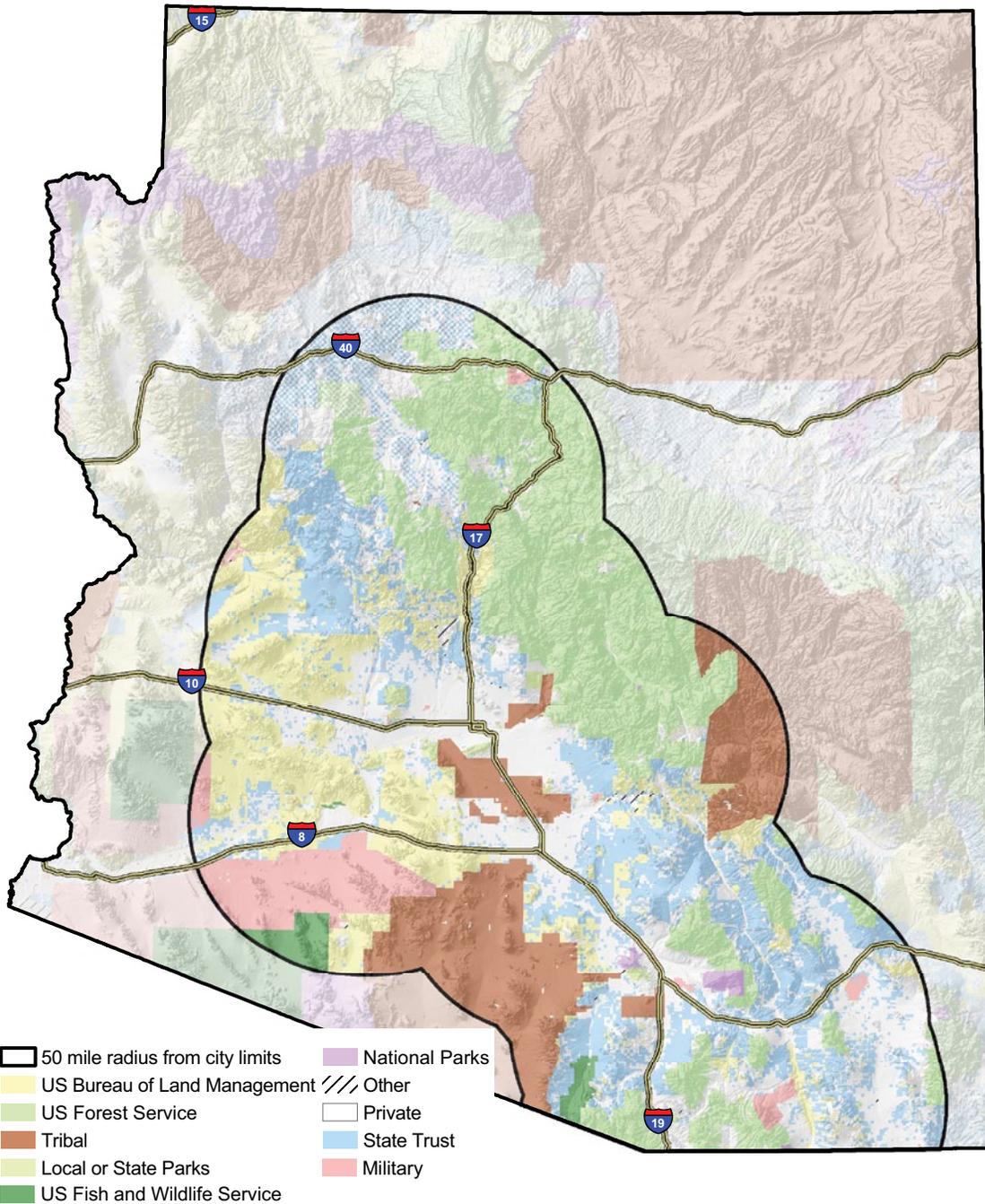


FIGURE 4 Land Ownership Within 50 Miles of Sun Corridor City Limits



Source: Sonoran Institute

FIGURE 5

## Land in Proximity to Sun Corridor Cities (sq. miles)

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## Distance in Miles from City Limits

Land Category	In City	0–5	5–10	10–25	25–50	Total
National Forests	0	882	1,430	3,764	4,463	10,539
National Parks & Monuments	1	56	62	40	2	1,254
Local or State Parks	67	113	24	14	1	219
Wildlife Preserves		7	1	12	510	531
BLM	215	834	990	2,162	2,852	5,959
<b>Subtotal: Preserved Lands</b>	<b>284</b>	<b>1,891</b>	<b>2,506</b>	<b>5,993</b>	<b>7,828</b>	<b>18,501</b>
State Trust Land	435	1,349	1,325	2,900	3,053	9,063
Military Lands	147	43	68	645	1,122	2,025
Tribal Lands	3	722	214	817	3,468	5,224
Private Property	2,474	2,270	964	2,000	3,319	11,026
Other	47	36	32	20	14	149
<b>Total Square Miles</b>	<b>3,390</b>	<b>6,310</b>	<b>5,110</b>	<b>12,374</b>	<b>18,803</b>	<b>45,988</b>

Source: Sonoran Institute

## Highly Skilled Workers in the Sun Corridor Economy

Population growth in Arizona since 1940 has been significantly greater than in the nation as a whole (Figure 6). Although the state's growth rate has slowed since 2007, Arizona's population is still expected to grow tremendously in coming years. The explosive growth, both in population and economic output, has been made possible by the rise of industries requiring highly skilled and highly paid workers in fields such as engineering and health care.

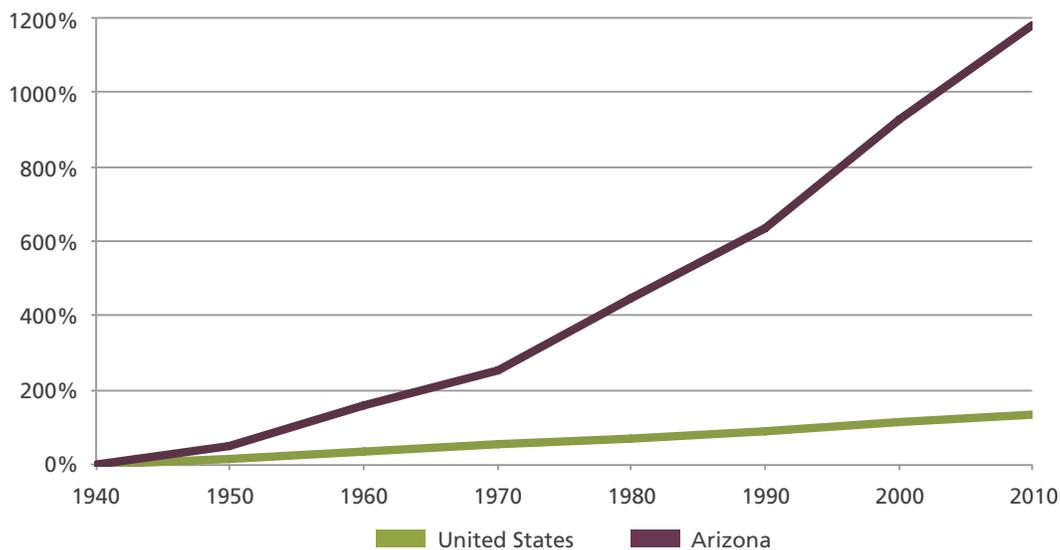
Prior to World War II, the economies of Phoenix and Tucson were based primarily on servicing the agricultural and mining activities surrounding each city. The region's favorable flying weather made it a center of pilot training beginning in the 1940s. Sensing that California-based industries might be vulnerable to attack, the Federal government moved critical defense manufacturing industries to the area during WWII (Gober 2006). These two events combined to form the nucleus of the technology-based economy that would dominate the Sun Corridor for decades to come. The dramatic growth of the region in the second half of the twentieth century is largely attributable to the emergence of defense-based electronics and aerospace industries.

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Note that population growth in Arizona and the Sun Corridor has mostly been due to in-migration from other states, rather than natural increase from children born to existing residents; people make a conscious choice to move to the state. The salaries and spending of these in-migrants have powered Arizona's economic growth. Understanding what factors attract people to relocate to Arizona as opposed to other areas is critical to understanding the drivers of the state's economic health.

FIGURE 6

### Population Change Since 1940



Source: U.S. Census Bureau

### Pursuing High-Skill, High-Wage Workers as an Economic Development Strategy

The pursuit of highly skilled workers (HSW) is a logical development strategy for any region. Local governments and economic development authorities throughout the country spend considerable effort to attract firms that employ these workers. A few numbers illustrate why. HSW make nearly twice the salary of their nonskilled peers, so attracting one new skilled worker has the same economic impact as two new unskilled workers.<sup>2</sup> Furthermore, total wages have traditionally increased at a greater rate for HSW than for nonskilled workers, even though HSW comprise a smaller share of the workforce. Total wages for HSW in the Sun Corridor have risen by 57 percent since 1999, compared to a 31 percent increase for nonskilled workers (Bureau of Labor Statistics). In the Sun Corridor, HSW comprise 21 percent of the workforce, but they generate 38 percent of the income. The growth in absolute number of workers shows a similar trend in the Sun Corridor. Since 1999, HSW employment has increased by 48 percent, non-HSW by 20 percent (Bureau of Labor Statistics).

Strengthening the share of the economy that arises from HSW has broad effects that help the nonskilled workforce as well. Richard Florida postulates that “the spillovers in knowledge that result from talent-clustering are the main cause of economic growth” (2009, 22). Similarly, Abel and Gabe also noted that a highly developed workforce “linked higher levels of human capital to increases in employment and population growth, wages, and housing prices” (2008, 1). An economic development strategy that emphasizes a highly skilled workforce benefits the entire community, whether or not it is directly involved in the high-skill industry.

### **Availability of Highly Skilled Workers is a Primary Factor in Firm Location**

While local governments and chambers of commerce are busy trying to attract firms that employ HSW, those firms must decide where to locate based on their own criteria. Although land costs, taxation, and the regulatory environment all play a role in firm location, high-technology firms have an even more important consideration. “Labor costs are the most expensive part of running a business,” according to an analysis of high-technology jobs in the *Economic Development Journal* (Watt 2010, 13). “Corporations looking to expand and relocate are first and foremost interested to know that their labor needs will be met with a pool of eligible and talented individuals to move their organization forward” (Watt 2010, 13). The *Journal of Regional Science* notes this idea in an earlier article stating that high-technology firms are “dominated in their location decision by their ability to obtain and retain individuals with specific technical, scientific, and engineering occupations” (Herzog, Schlottman, and Johnson 1986, 445).



## 18 | Characteristics of Highly Skilled Workers

We have shown that HSW are in demand by both industry and economic development interests. So, what do we know about these desirable workers that might help us attract them? Richard Florida, in his widely read book *The Rise of the Creative Class*, asserted that these workers have portable job skills that are not tied to a specific location (2002). This portability makes skilled workers highly mobile; they are able to relocate to an area with amenities that suits a desired lifestyle. Data from the 2010 American Community Survey Public Use Microdata Sample supports this claim for the Arizona workforce. Eighty-four percent of the highly skilled workforce in the state is not native to Arizona, a significantly higher portion than the 75 percent among the overall workforce who come from out of state. Interestingly, the \$60,000 median personal income of non-Arizona-born HSW is quite a bit higher than the \$48,000 for HSW who were born in the state.<sup>3</sup> HSW in Arizona who have moved here from out of state earn an average of 25 percent more than native-born HSW. This statistic is a strong indication that the state not only recruits many HSW to move here, but also imports the most valuable and highly paid of those workers. These are the workers who can contribute the most to the economy of the state and make life better for all Arizonans.

If HSW from out of state are an important part of the Arizona economy, it makes sense to identify the features of the state that might attract them. Pay and cost of living are certainly top considerations when workers relocate, but quality of life issues also loom large in relocation decisions. State and local policy makers have no control over what firms pay their workers and only limited ability to lower the cost of living through tax changes. However, policies that affect quality of life can be enacted. Decisions to build civic infrastructure such



as schools, and amenities like parks, for instance, can have a dramatic effect on the quality of life in a region—so too can decisions to preserve land for recreational purposes. The literature suggests that quality-of-life concerns are especially important for high-technology firms and workers.

Finally, demographic data suggests that outdoor enthusiasts tend to be more highly educated and have higher incomes than the population as a whole. The Outdoor Foundation compiles an annual report on participation in outdoor activities; their 2012 report estimates that 40 percent of outdoor enthusiasts have at least a bachelor’s degree.



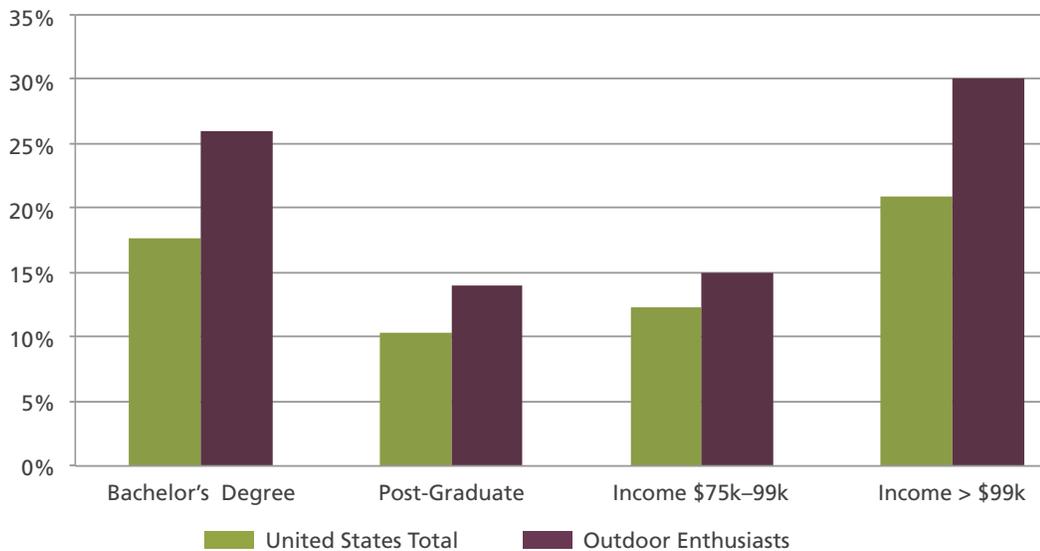
*Most people haven’t been to the urban and regional parks and don’t realize how out of the city you can be once you get behind the mountains. You can be in the middle of the city and be isolated at the same time.*



Survey participant

The report also states that 45 percent of outdoor enthusiasts have household incomes greater than \$75,000 annually (Outdoor Foundation 2012). These numbers compare with 28 percent of the United States as a whole with bachelor’s degrees and 33 percent with household incomes over \$75,000 (Figure 7). These figures strongly suggest that HSW are likely to participate in outdoor recreation. The availability of public land is therefore likely to be seen by these workers as a valuable amenity as they consider where to live.

**FIGURE 7** Demographics of Outdoor Enthusiasts



Source: Outdoor Foundation; U.S. Census Bureau

## The Survey

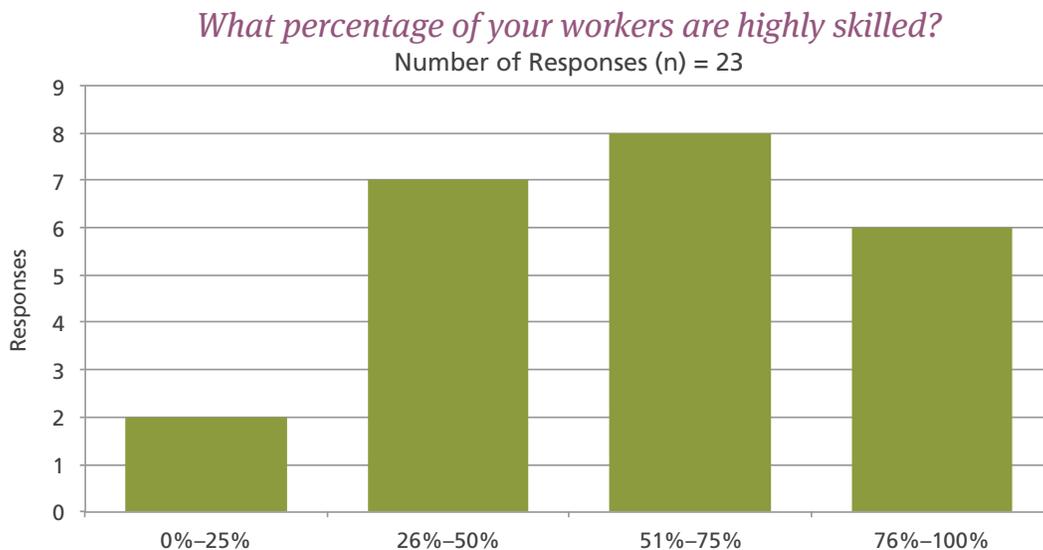
**20** Recognizing that the effects of public land and HSW on a \$200 billion economy are impossible to measure directly, attention focused on the employers that utilize HSW. A research program was designed around the following question: does public land help employers in the Sun Corridor attract and retain highly skilled workers? A survey-based approach was selected to answer this question.

### Target Sample and Methodology

Rather than targeting the workers themselves, our survey targeted human resource professionals and managers at firms employing HSW. Through their recruitment efforts, these people have direct knowledge of the factors that induce HSW to move to the Sun Corridor. A total of 23 firms representing nearly 40,000 total employees within the Sun Corridor were interviewed or surveyed. (See list in appendix 2; some participating firms requested anonymity and are not listed). Most of these firms reported that over 50 percent of their total workforce could be classified as highly skilled (Figure 8). Prospects for growth in HSW employment at these firms appear good, with over half predicting increases in the number of skilled workers hired in coming years (Figure 9). No firm predicted that its high-skill workforce would shrink over time. The study consisted of two components, an online survey and a telephone interview, which included open-ended questions and a pairwise comparison of factors affecting worker attraction. A few respondents failed to complete either the survey or the interview, and a portion of one respondent's responses were removed when analysis showed inconsistent results.<sup>4</sup>

FIGURE 8

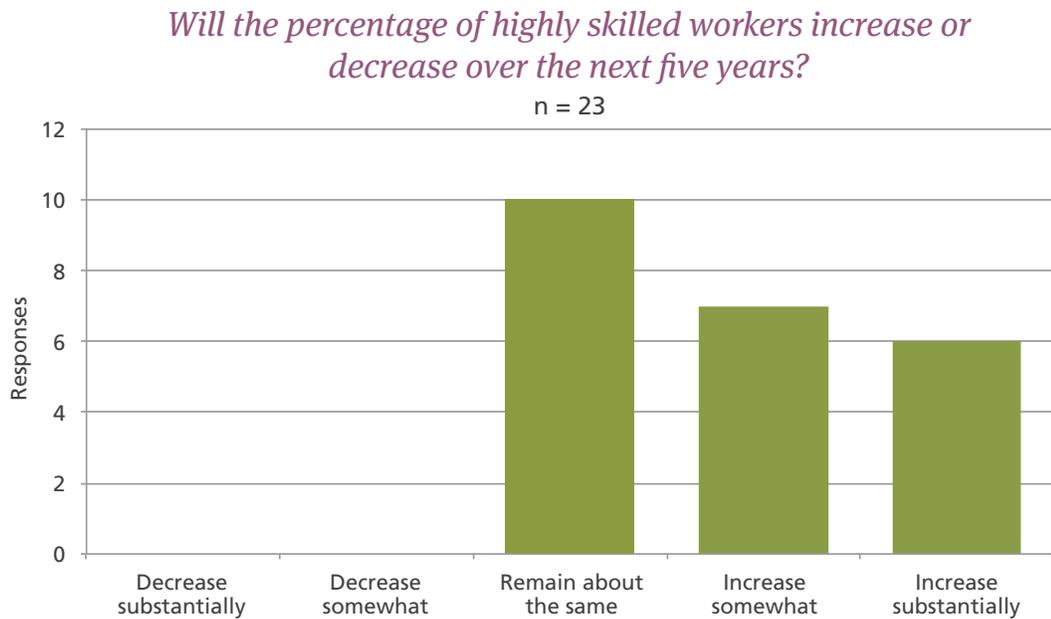
### Highly Skilled Workers at Surveyed Firms



Respondents were sent a link to an online survey with 27 questions focusing on worker attraction and interest in outdoor recreation. The survey, included in appendix 1, also gathered some basic information about the size of the firm and makeup of its workforce. This survey was developed with assistance from Dr. Price Fishback at the University of Arizona and with final approval from the BLM. Nine interviews were conducted by MBA students from the University of Arizona, with the remainder done by the author. The interviews typically lasted 20 to 25 minutes.

At the conclusion of the interview, respondents completed a series of pairwise comparisons to gauge the importance of four major factors of worker attraction. The four major factors considered were pay, cost of living, quality of schools, and lifestyle. These factors, along with the subfactors discussed below, were chosen based upon review of the literature related to worker attraction and after consultation with the BLM. Respondents rated which factor in each comparison they felt to be most important in attracting HSW to the area. Six pairwise comparisons were made so that each factor was rated against the other three. The comparisons were scored on a scale from one to nine. A score of one indicated that the first factor is much more important than the second. At the midpoint of the scale, a score of five showed that the factors are equally important, and a score of nine was used to signify that the second factor is much more important.

**FIGURE 9** Employment Outlook at Surveyed Firms



Source: Sonoran Institute

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Six additional comparisons were made on subfactors that contribute to the lifestyle portion of worker attraction. The four subfactors tested were weather, culture, urban sports, and outdoor recreation in a natural setting. Again, six pairwise comparisons were made to evaluate each factor against all other factors, with scoring identical to the major factors.

### Analytic Hierarchy Process

Thomas L. Saaty developed the analytic hierarchy process (AHP) in the 1970s as a tool to clarify choices in complex policy decisions (1994). AHP was used in this study to gauge the perceived importance of each of the four major factors and four subfactors for worker attraction. The AHP allows the pairwise comparisons to be converted to percentages, showing the contribution of each factor to total worker attraction. A brief description of AHP is given in appendix 3. To arrive at an overall score for the entire survey group, the geometric mean of the pairwise rankings was calculated and entered into the AHP algorithm.

## Results

### AHP Results

Analysis of the major factors affecting worker attraction to the Sun Corridor shows that pay is the most significant factor, contributing 31 percent of perceived attraction (Figure 10). This outcome was expected from a review of the literature on worker attraction; many other studies cite pay as the leading driver of worker attraction as well. It was also expected that cost of living would rank highly. It accounted for 29 percent of the perceived worker attraction by the participants. The “lifestyle” factor was grouped tightly with these prime factors at 28 percent of total attraction. Quality of schools scored just 12 percent of overall attraction.

FIGURE 10

### Ranking of Major Worker Attraction Factors

	Mean*	Minimum	Maximum
<b>Pay</b>	31%	10%	54%
<b>Cost of Living</b>	29%	10%	54%
<b>Lifestyle Factors</b>	28%	11%	42%
<b>Quality of Schools</b>	12%	7%	54%
*Geometric mean of all responses			n = 21

Source: Sonoran Institute

Four subfactors, modeled as contributing to the major lifestyle factor, were also ranked via AHP. As with the major factors, these subfactors were described to the survey participants during the interview. The region’s weather/climate was ranked the most significant by a large margin, at 39 percent of all lifestyle-related attractions (Figure 11). Several respondents commented that the other lifestyle subfactors are often impossible without the good weather found in the Sun Corridor. It is thus likely that some of the preference for the “weather” factor captures aspects of the other factors as well.

FIGURE 11

### Ranking of Worker Attraction Lifestyle Subfactors

	Mean*	Minimum	Maximum
<b>Weather</b>	39%	10%	57%
<b>Outdoor Recreation</b>	27%	13%	43%
<b>Urban Sports</b>	19%	11%	45%
<b>Culture</b>	15%	10%	51%
*Geometric mean of all responses			n = 21

Source: Sonoran Institute

Outdoor recreation in a natural setting contributed 27 percent of the total attraction within lifestyle. Respondents were instructed to consider activities such as hiking, mountain biking, and fishing in the outdoor recreation category. The urban sports category (19 percent) was described as activities such as golf, tennis, and softball leagues. Culture (15 percent) was described as the availability of arts and music, restaurants, nightlife, and spectator sports.

Results from the AHP portion of the study indicate that lifestyle factors are a major consideration when HSW are looking at a possible move to the Sun Corridor and that outdoor recreation in a natural setting is a strong component of that lifestyle, second only to weather. Under this AHP model it is possible to estimate the total impact of outdoor recreation. With lifestyle concerns contributing 28 percent of total worker attraction and outdoor recreation comprising 27 percent of lifestyle, it can be said that outdoor recreation comprises 7.6 percent (28 percent x 27 percent) of total worker attraction.



*We always talk about different outdoor options. That’s what you’re living in Arizona for—the outdoors!*



Survey participant

## 24 | Other Quantitative Results

The survey provides a description of the typical high-skill worker sought by these firms. The highly educated workers employed by the surveyed firms tend to be midcareer professionals (Figure 12), yet 64 percent of the firms reported hiring HSW directly out of undergraduate institutions. Fifty-nine percent of the firms responded to the question “Are highly skilled workers available within Arizona?” by marking “Frequently, most come from Arizona,” and 41 percent chose “Occasionally.” No respondents chose the answer “Rarely, most come from out of state.” Somewhat paradoxically, 77 percent of the firms answered yes to the question “Do you have to recruit highly skilled workers from outside of Arizona?”

Less than half (48 percent) of the firms said that they use access to outdoor recreation as a tool to attract skilled workers. The same percentage said that they sponsor clubs focusing on outdoor recreation. However, only 17 percent of those firms said that they use those clubs as a recruitment tool.

“

*We’re working this year to create employee resource groups, so if people are hiking enthusiasts or into ornithology, we want to try to respond to our employees’ needs that way, since it leads to higher levels of employee engagement.*

”

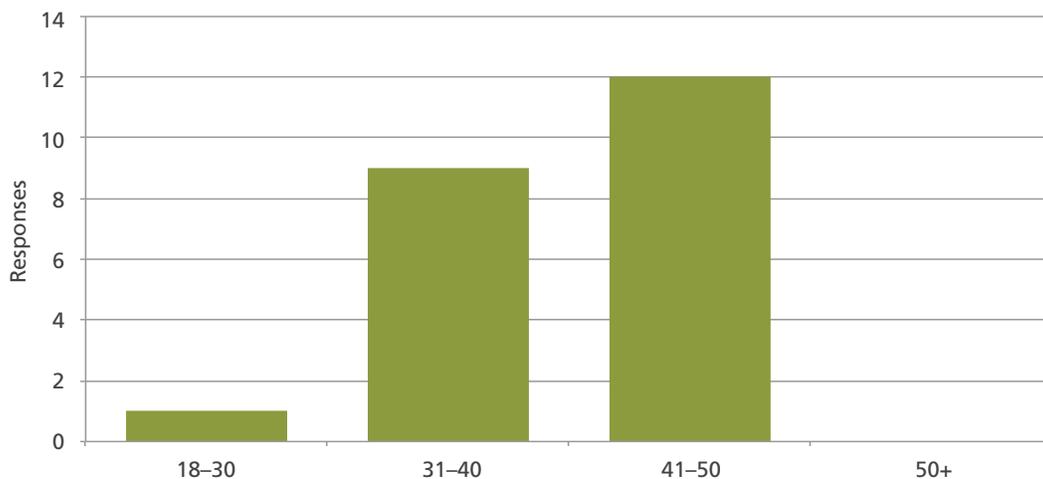
Survey participant

FIGURE 12

### Age of Highly Skilled Workers at Firms Surveyed

*What is the typical age of highly skilled workers at your organization?*

n = 22



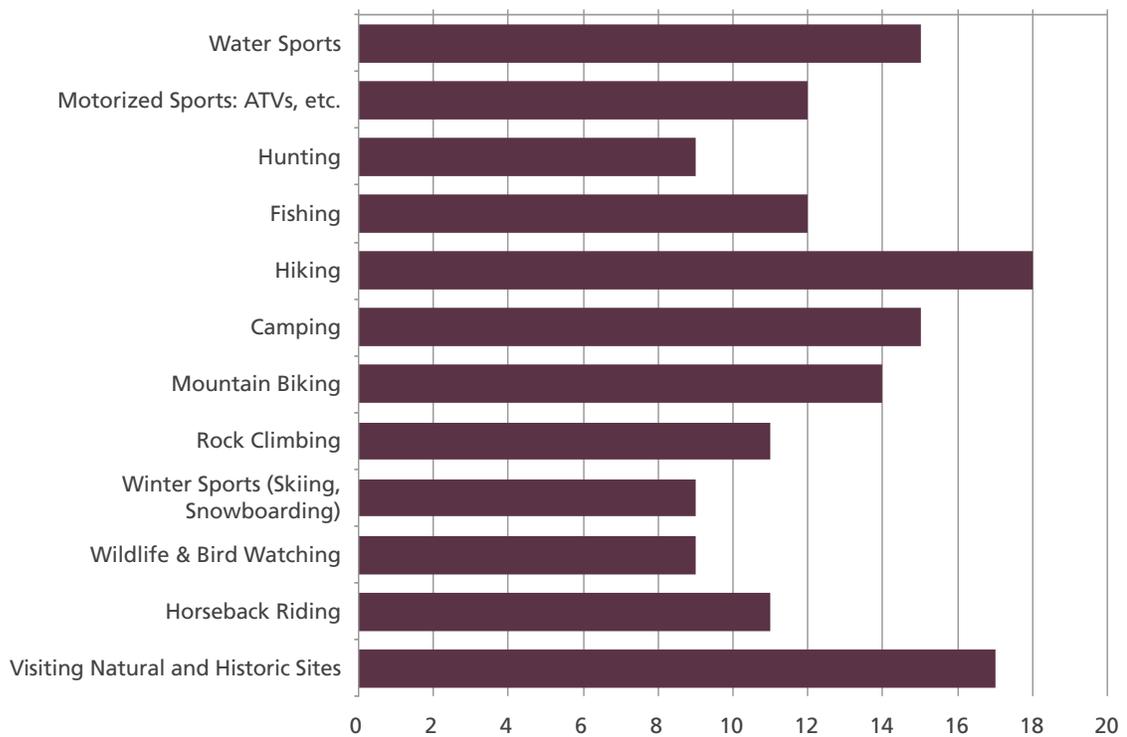
There was solid support for a broad array of outdoor pursuits when interviewees were asked to rate the “importance of these activities in attracting highly skilled workers” (Figure 13). Hiking was the most prominent response, being rated as “very important” or “somewhat important” by 18 of 23 respondents.

FIGURE 13

**Outdoor Activities Rated Very or Somewhat Important**

*What is the importance of each of these activities in attracting highly skilled workers at your organization?*

n = 23



Source: Sonoran Institute

When specifically asked in the on-line survey about the types of land used by employees for outdoor recreation, respondents most frequently mentioned national forests and national parks (Figure 14). The state lands category includes both state trust lands and Arizona state parks. Bureau of Land Management (BLM) was mentioned by a minority of respondents. Two explanations for this are the lack of prominent signage and formal entrance stations at many BLM units, and confusion over the status of significant BLM holdings that are classified as national monuments. It is likely that visitors to Ironwood Forest National Monument or Agua Fria National Monument, for example, identify these areas as falling under the management of the National Park Service rather than BLM.

## 26 | Qualitative Results

Although winter sports were not rated very highly in the quantitative portion of the survey (Figure 13), in the telephone interviews, the ability to get out of the desert and onto the ski slopes was frequently cited as a selling point for prospective employees. A common theme expressed in the interviews was the variety of scenery and climate available in Arizona. Respondents often contrasted the cool high country with the desert near the city. Several interviewees said they made a point of telling out-of-state recruits that it is easy to escape the desert heat to areas near Flagstaff or Payson.

Similarly, there were many mentions of recreation on area lakes as a complement to a desert lifestyle. Respondents consistently described the variety of recreational opportunities as an attraction to those unfamiliar with the state. Feeling that people from other states see Arizona solely as a desert environment, they try to highlight the state’s variety for prospective employees.

“

*You can be at the water, you can be in the mountains in the snow, or you can be on the golf course in a short-sleeve shirt; all within two hours of Phoenix. It’s a good selling point.*

”

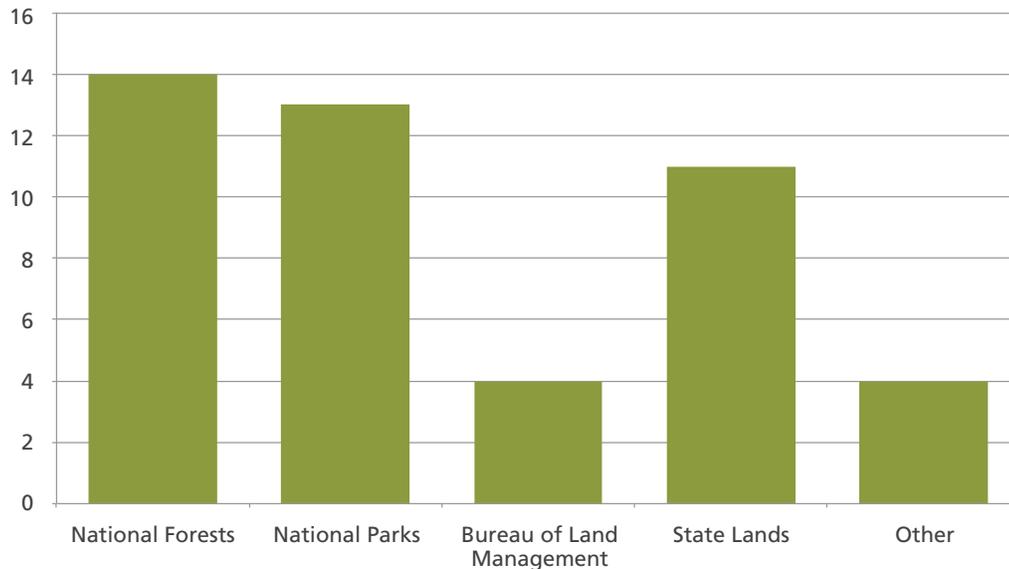
Survey participant

FIGURE 14

### Lands Used for Recreation

*In thinking about your encounters with employees regarding their outdoor recreation experiences, which types of land are often mentioned? (Check all that apply)*

n = 23



Not all firms actively used outdoor recreation as a tool to recruit their workers, but nearly all recognized that outdoor activities and public land played a role in drawing people to the Sun Corridor. There were two notable exceptions. Interview subjects from two firms had never even considered this concept. The president of a small local firm answered definitively when asked if his company uses access to outdoor recreation as a recruitment tool, “We do not. It’s not a criteria that people have asked about or we promote, or have felt a need to.”



At a firm with over 1,000 employees, a vice president for human resources, who specializes in attracting executive-level talent, had a remarkable evolution in thinking over the 20-minute interview. To the opening prompt, if your firm uses access to outdoor recreation as a recruitment tool, please describe these efforts, he responded, *“In all honesty we don’t. I’ve never even thought about it from that perspective.”* Midway through the interview came this comment, *“Your survey is interesting because I hadn’t thought of that as something to use as a recruiting tool.”* When asked for final comments at the close of the interview the respondent queried, *“Are you going to try and produce something like collateral material that leverages Arizona in those regards, outdoor spaces and stuff like that? Something like that would be really helpful. It’s something I would use as part of recruiting.”* The desire for collateral materials aimed at workers considering a move to the area was heard in other interviews as well. This insight indicates that there is an unmet need to educate firms in the Sun Corridor about the potential advantages of actively promoting the outdoor amenities of the area as a recruitment tool.

Although other studies cite school quality as a significant factor in the choice to relocate, this factor came in at a surprisingly low 9 percent in the AHP analysis. During the interview process, several respondents expressed negative assessments of Arizona’s school system, saying that to attract top workers they needed to pay them enough to put their children in private schools to compensate for the perceived low quality of the public school system.<sup>5</sup>

“

*We don’t have specific materials or advertising, but one of the selling points is outdoor recreation. We also mention good cost of living, great weather, geographic diversity, and great outdoor activities.*

”

Survey participant



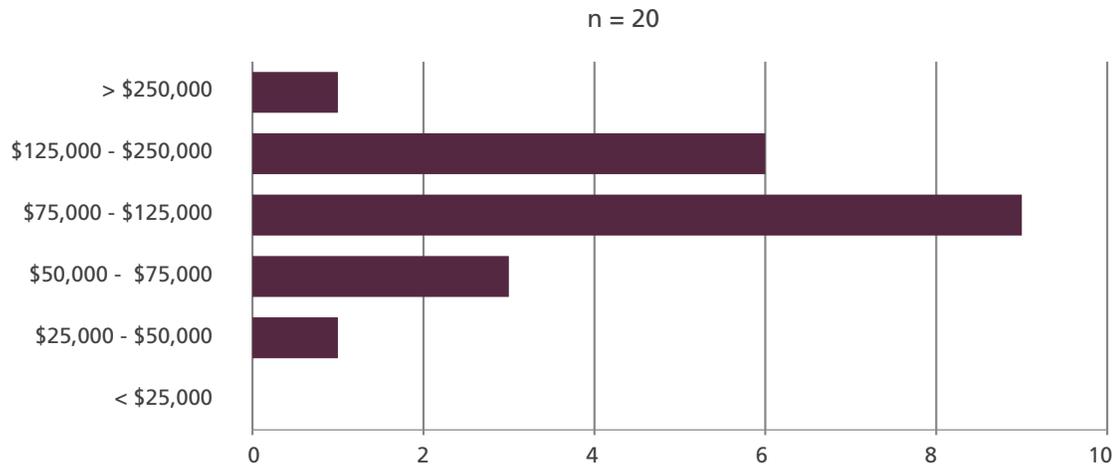
## Focus Group Results

### Group Composition

A total of 22 people participated in the focus groups. The respondents were highly paid workers, with 16 of 20 (two respondents did not provide an income range) reporting annual household incomes in excess of \$75,000 (Figure 16), which is well above the median household income of \$48,596 for the Phoenix area.<sup>6</sup> Twenty-one of the twenty-two respondents had college degrees, and ten had advanced degrees. The job titles of respondents indicated that all but a few were in management positions. Only five respondents were native Arizonans, and several of those had returned to the state after working or going to college in another state. All respondents were born in the United States, with an average Arizona residency of 26 years. The average age of the sixteen male and six female respondents was 48 years old.

FIGURE 16

Income Distribution of Focus Group Participants



Source: Sonoran Institute

### Outdoor Activity Preferences

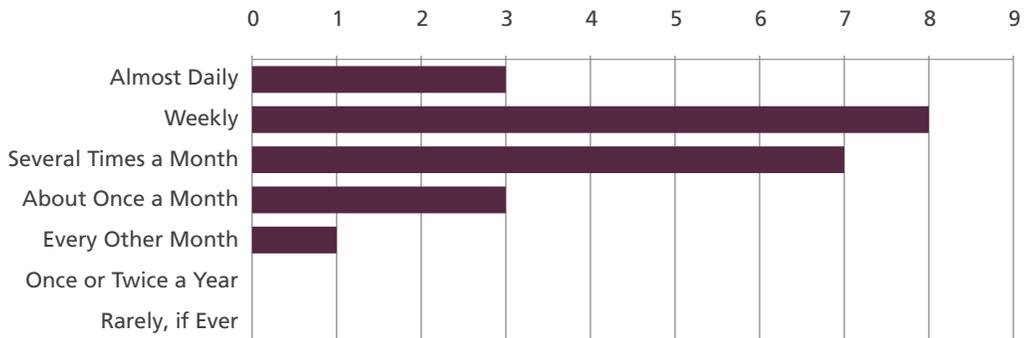
With the assumption that HSW are more likely than others to be active in the outdoors, focus group members were specifically selected for their participation in outdoor activities (Outdoor Foundation 2012). The respondents who attended the sessions reported engaging in outdoor recreation in a natural setting on a regular basis (Figure 17). Responses to the survey indicate that the group represented a very wide range of outdoor interests (Figure 18). Hiking was the most popular activity; cited as being ‘important’ or ‘very important’ by every respondent. However, all other activities were mentioned by at least four respondents, suggesting that they all enjoyed many different activities at one time or another.

FIGURE 17

Frequency of Outdoor Activity

*How often do you participate in outdoor recreation in a natural setting?*

n = 22



Source: Sonoran Institute

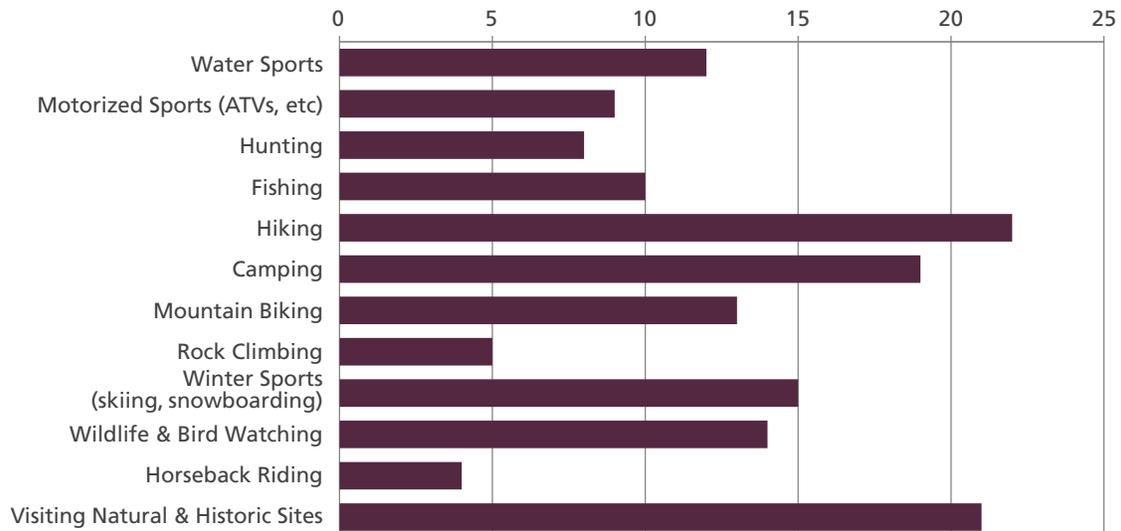
FIGURE 18

Outdoor Recreation Activities

*How important are each of these outdoor activities to you?*

'Important' or 'Very Important' responses

n = 22



Source: Sonoran Institute

### Geographic Preferences

The survey included the question, “How often do you visit the following types of land?” followed by a list of land management agencies. Answers of ‘Often’ and ‘Very Often’ illustrate that a broad range of land types are important to the recreation activities of the respondents (Figure 19). It should be noted that although National Landscape Conservation Units (NLCS) were cited as being visited ‘often’ by three respondents on the survey, when asked specifically about NLCS during the focus group discussion, only one of the respondents was familiar with the term.

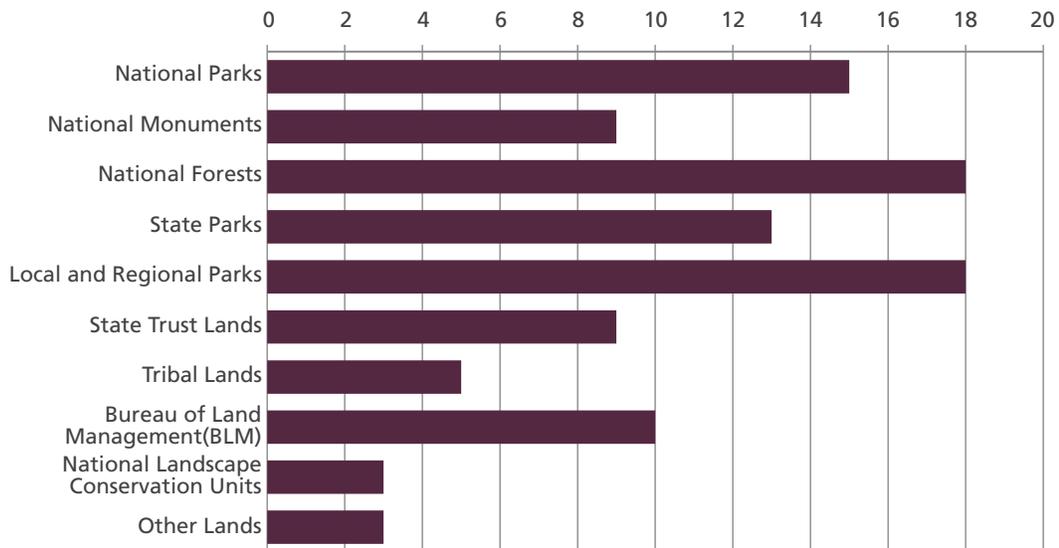
FIGURE 19

### Outdoor Activity by Land Type

*How often do you visit the following types of land?*

‘Often’ or ‘Very Often’ responses

n = 22

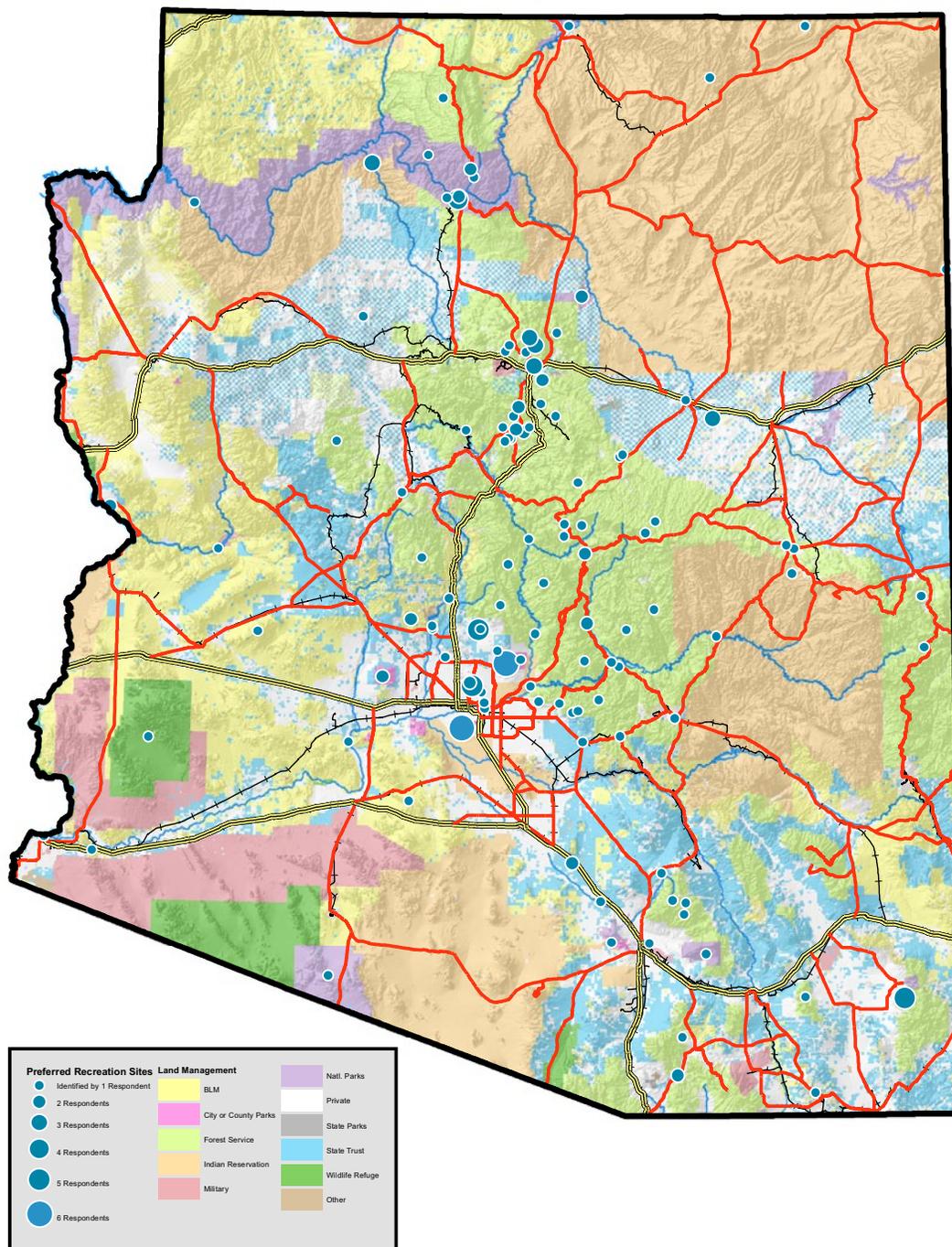


Source: Sonoran Institute

Respondents placed their colored stickers on a large map of the state to indicate up to nine places in Arizona that were of importance to them and described on the questionnaire the activity pursued at that location.<sup>7</sup> Not all respondents used all nine stickers. The 22 respondents identified 115 locations across the state as particularly important (Figure 20). Answers regarding how frequently respondents visited each of these locations annually ranged from 1 to 100. A total of 1,098 visits per year to these locations were reported by the 22 respondents (Figure 21). Repeat visits to these 115 important sites were common; each site averaged 10 visits each year from those surveyed.

FIGURE 20

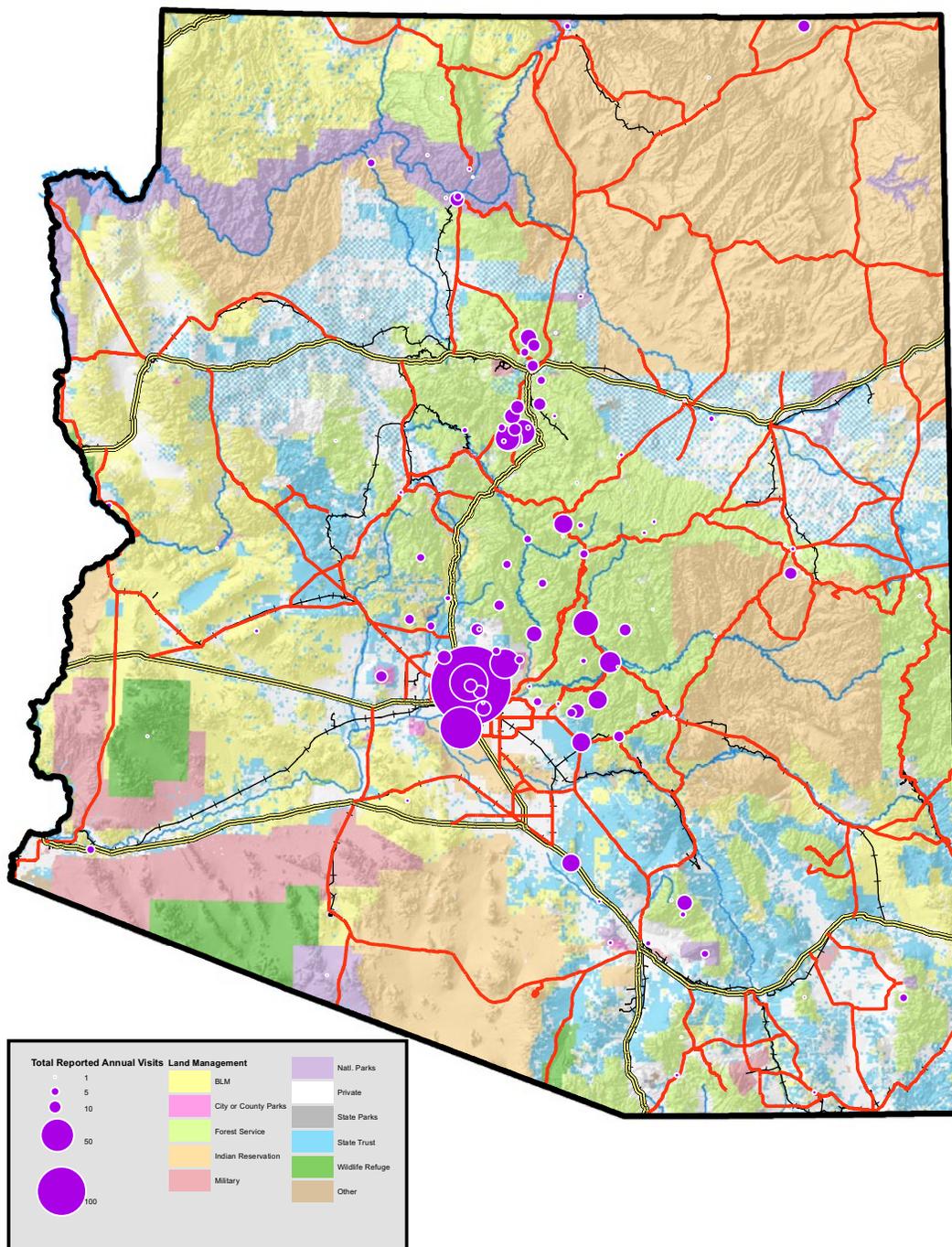
Significant Recreation Sites Identified by Focus Groups



Source: Sonoran Institute

FIGURE 21

### Number of Annual Visits by Focus Group Members



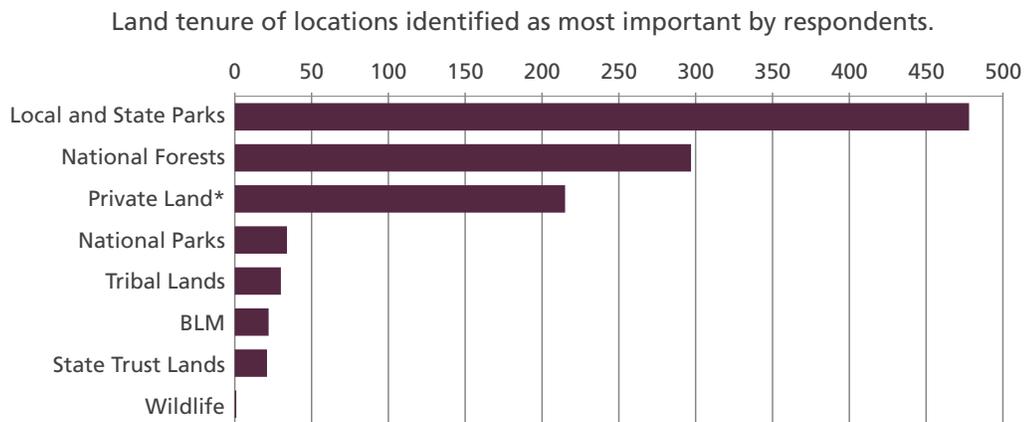
Source: Sonoran Institute

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The stickers also permitted an alternate means to demonstrate the significance of land management agencies to the respondents by noting which land types were most often reported as places of importance. The results of this analysis (Figure 22) differed greatly from the focus group survey question results (Figure 19). Local and state parks received by far the highest visitation, followed by private land. Two factors explain this difference. The high levels of visitation to local and state parks are driven by very frequent use of public land in and around metro Phoenix. For example, one respondent was an avid trail runner living near the Phoenix Mountain Preserve who reported 100 visits annually to the preserve.

FIGURE 22

### Reported Annual Visits by Land Tenure



\* Private Land includes responses such as 'Tucson, touring in natural settings.'

Source: Sonoran Institute

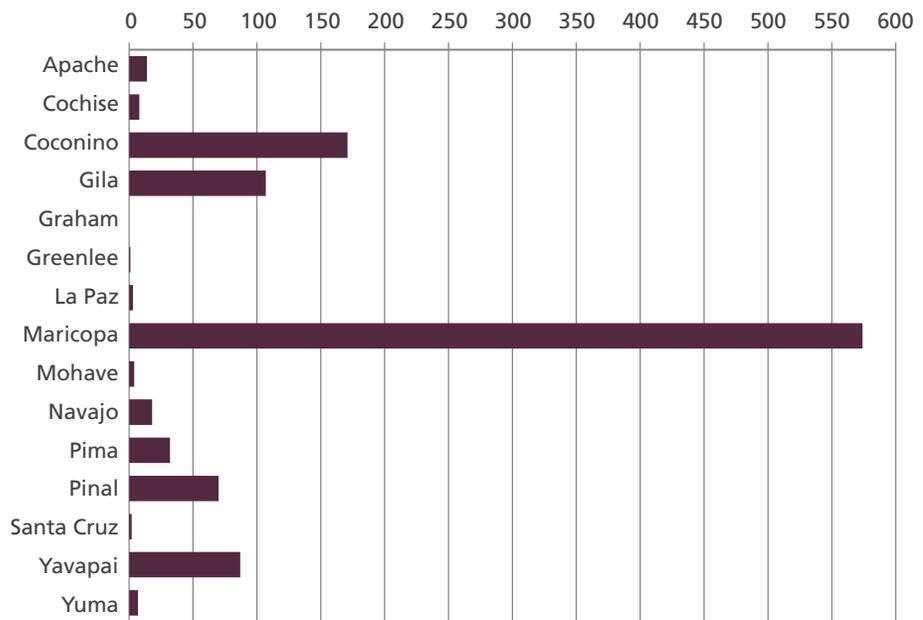
Analysis of the location of dots showed a large number of visits to private land. This is due to how respondents categorized the land they described as private. Flagstaff, Tucson, and other municipalities were mentioned as general locations for recreation. For example, a response identified Patagonia, a small, Southern Arizona town, as a significant site of outdoor recreation, with "off-roading, hunting, and camping" as activities pursued at that location. The respondent was probably enjoying these activities on the National Forest and State Trust lands in the vicinity of the town, but it's unlikely he was hunting within the town limits. Lacking greater specificity than the name of a municipality, the land tenure of the recreation site itself cannot be accurately narrowed down to a single agency. Furthermore, responses indicate that recreation takes place in a wide region around towns and cities, probably encompassing several types of land tenure. It was decided that responses referring to municipalities would be coded with the land tenure of the municipality itself, namely private land.

Maricopa County logged the most visits, driven by repeat visitation to local mountain preserves in the urban core of the county (Figure 23). A strong preference was shown for Coconino and Gila counties, due to repeat visits to the Grand Canyon and areas surrounding Flagstaff and Payson. The average distance from the center of Phoenix to the 1,098 sites identified as important was 55 miles.

FIGURE 23

### Reported Annual Visits by County

County of locations identified as most important by respondents.



Source: Sonoran Institute

## 36 | Discussion Results

The discussion that followed completion of the questionnaire and placement of dots on the map was free-flowing and broad, lasting approximately one hour.

Participants enthused that outdoor recreation provides a strong incentive for people to move to Arizona. One respondent replied that, *"It (outdoor recreation) was the only reason I moved here,"* adding that she would not have considered moving to Arizona without these recreational opportunities. Another participant, who had grown up in Phoenix and lived in Texas for several years after college, returned to his home state saying,

“

*There's zero open space in Houston, Texas, all the land is owned. There's no outdoor recreation. As a hunter, you pay a farmer to go sit in a shack in the corner of his field. That's not very sportsmanlike... I moved back here because of the outdoor recreation.*

”

Focus group participant

A similar sentiment was expressed by a participant who was concerned that many public lands in California were unavailable for motorized travel:

*"I moved here from southern California and the opportunity for outdoor recreation here is much greater than it is over there."*

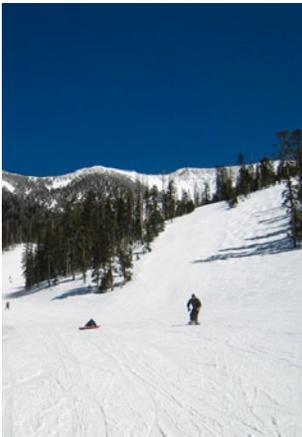
One participant moved to Arizona primarily because of a career opportunity, but acknowledged that recreation in the state's varied natural settings is an enticing bonus:

“

*I came here for job purposes, but because of the recreation here you can in two hours be in the snow or in an hour be at the lake.*

”

Focus group participant



The variety of recreational opportunities also impressed a participant who thought of Arizona merely as a land of arid deserts:

“

*I originally wanted to move to Colorado, but my wife dragged me to Arizona. When we moved here I had no idea of the diversity of outdoor recreation that was here. That was a real nice surprise for me.*

”

Focus group participant

The hikers in the group were heavily in favor of increased signage in their preferred recreation areas, with an indication of which agency manages the land, trail signs, etc. One woman remarked, *“I like trails that are very well marked because I tend to get lost. For me to venture out to the unknown is sometimes difficult because I’m a city slicker. I need to know exactly where I’m going at all times.”* Hunters, on the other hand, resist additional signage, preferring to keep their hunting grounds confidential.

The discussion of land management agencies and their influence was best summed up by the hunter who replied, *“I don’t care who maintains it, I just want to see it opened and maintained.”*



38

As noted above, participants were unfamiliar with the terms 'National Landscape Conservation System' or 'NLCS,' but two participants reported visiting Agua Fria National Monument. They were impressed with the scenic nature of the area, yet unaware that it was managed by the Bureau of Land Management (BLM). As expected, hunters and off-road enthusiasts expressed concern about access to their recreation lands. BLM and state trust lands were singled out as lacking or neglecting roads that provide recreational access:

*"The BLM, as far as I can tell, doesn't maintain anything. State land doesn't maintain anything; they just fence it off and put up padlocks. The one that does do good maintenance is the Forest Service. So Forest Service the roads are maintained. The BLM doesn't have a great road anywhere that I'm aware of, it just erodes forever."*

BLM land left negative impressions with others as well:

*"I use BLM land the least. I used National Forest land almost exclusively. It's not just because National Forests have the Ponderosa Pines. When I have a winter deer hunt I'm down in the desert, but still on forest land." When asked why he hunts on National Forest land, not BLM he replied, "I've just found that National Forest land has the best habitat that I'm looking for. For my interests, National Forest has the land for what I'm after."*

*"BLM land seems like it's a little more raw and a little less regulated."*

Finally, several participants commented directly on the concept of public land attracting highly skilled workers to Arizona:

“

*The places that are treasures like the Grand Canyon and Tonto National Monument, I only get there maybe once a year. I think if you're looking to attract people for these high paying jobs, it's important to have lots of options in close to town.*

”

Focus group participant

*"I think one of the more important things is letting people know how to access those areas. Tell them, 'this where they're located, this is what you can do there, this is how you do it.'"*

“

*When you talk about recruiting and getting people interested in applying for jobs, a big part of that is promoting the brand of what Phoenix is. We have a generation that figured that golf was the last word, but if you look at the generations that are coming up now, that's not what they're looking for. They're more interested in things like hiking and biking. As a community, we don't brand ourselves that way.*

”

Focus group participant

## Conclusion

The results from these surveys support the argument that recreation on public land is an important resource for drawing highly skilled workers (HSW) to the Sun Corridor. The analytic hierarchy process (AHP) successfully quantified the significance of lifestyle attributes to this attraction. The process highlighted that lifestyle is nearly as important as pay and cost of living in worker attraction, with outdoor recreation being an important component of lifestyle. Qualitative data collected during the interviews supported the findings from the AHP. Both the quantitative data and qualitative information gathered via extensive interviews clearly support this conclusion.

Interview subjects generally expressed strong support for the role that recreation on public land plays in bringing workers to the Sun Corridor, even if not all firms explicitly highlighted this in their recruitment efforts. A large majority of respondents said that outdoor activities such as hiking, water sports, and visiting cultural sites are important for attracting HSW to the Sun Corridor. Moreover, several respondents expressed a desire for promotional materials that could be used to showcase the recreational opportunities available to those considering moving to the area.

The interview subjects for this study provided secondhand information about what attracts HSW to the Sun Corridor. First-hand data from focus groups confirms the results of the larger Worker Attraction Study. The results show that recreation opportunities on public land are a powerful attraction to bring a high-skill, high-wage workforce to Arizona. The participants in these groups were unified in their enthusiasm for Arizona's public lands despite their wide-ranging recreation preferences. Hikers, hunters, and off-road enthusiasts showed somewhat differing preferences in regards to how public land should be managed, but they agreed on the importance these lands have to the state and its economy

“

*The last few recruiting trips we've done for some higher-level positions included a trip halfway up to Mt. Lemmon. These were people coming from the East Coast and the Midwest. It's vital to showcase the Southwest.*

”

Survey participant



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## Recommended Next Steps

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40

This study has provided support for the idea that public lands are an important factor in recruiting HSW to the Sun Corridor. An understanding of the outdoor recreation habits of HSW will help land stewards, firms, and economic development interests tailor their recruitment efforts. Research can now proceed from interviewing firms and conducting focus groups to in-depth surveys of HSW. The Sonoran Institute is considering two additional phases of research.

### Phase Two Research

Second-phase research would center on a pilot survey. Information gathered from the focus groups would be used to refine survey methodology in preparation for a pilot survey of a larger group of public land users. Using the survey-and-map methodology utilized in the focus groups, respondents would be engaged at recreational equipment stores such as Summit Hut, Recreational Equipment, Inc. (REI), and shops selling off-highway vehicles. Data collected from this survey would be from both HSW and non-HSW to detect and differentiate preferences between the two groups. This study can serve two important functions in the overall research plan. First, the results of the focus groups and the pilot survey can be included in a report which will provide a first look at the impacts of public land on the Sun Corridor's major urban economy. Second, responses from this survey will help refine and inform a larger Phase Three study.

### Phase Three Research

Using the techniques refined during the previous phases, Phase Three would gather a much larger, statistically robust sample using the survey-and-map technique administered to likely users of public lands. This expanded survey would provide a solid profile of how Sun Corridor residents use public lands for recreation, education, and volunteer work. Although some public land managers such as the National Park Service have performed extensive surveys of their visitors, this type of information has not been available for users of other areas such as National Forest, BLM, and state trust lands. This research would provide important insight into the public's use of these lands, allowing for a more strategic allocation of funding for management and conservation. Furthermore, most visitation surveys are designed to provide data on out-of-state visitors. Rather than looking at characteristics of visitors to a single area such as the Grand Canyon, the study would profile visitors from the Sun Corridor to a wide array of public land in the state. There is interest in how the economic health of the Sun Corridor relates to public land, so the more appropriate unit of analysis is public land users who live and work in the region. A survey along these lines, enhanced with the mapping component, would establish recreational preferences from various locations as well as demographic profiles. Finally, results from this and previous phases of the project could be analyzed and compiled into a series of recommendations for land managers and businesses. These recommendations could then be incorporated into materials, including marketing collateral and social media made available to land managers, businesses, policy makers, residents, and prospective employees.

# Appendix 1 – Survey Questions

## Worker Attraction Study

This study is designed to gather information about what factors attract your company’s highly skilled workers to live in Arizona. It consists of a brief online survey, to be followed by an interview with a series of open-response questions. The interview process should take about 30 minutes, and will be recorded to ensure that conversations are accurately depicted.

Results of the survey will be kept confidential, but with your permission we would like to identify your company with quotes from this interview to illustrate our findings.

*For the purposes of this survey, a highly skilled worker is defined as a college-educated worker with specialized skills and knowledge.*

1	How many locations does your company have nationwide?					
2	How many locations does your company have in Arizona?					
3	Approximately how many employees do you have at this location?					
4	What percentage of your workers are highly skilled?	0%–25% <input type="checkbox"/>	25%–50% <input type="checkbox"/>	51%–75% <input type="checkbox"/>	76%–100% <input type="checkbox"/>	
5	Will that percentage grow or shrink over the next 5 years?	Shrink Substantially <input type="checkbox"/>	Shrink Somewhat <input type="checkbox"/>	Remain About the Same <input type="checkbox"/>	Grow Somewhat <input type="checkbox"/>	Grow Substantially <input type="checkbox"/>
6	What are the education requirements for these highly skilled workers?	Some College <input type="checkbox"/>	Bachelor’s Degree <input type="checkbox"/>	Advanced Degree <input type="checkbox"/>		
7	Is a Science, Technical, or Engineering Degree usually required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
8	Is a Professional Degree, e.g., legal, medical, or business, usually required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			

<b>9</b>	What is typical age of these workers?	18-30 <input type="checkbox"/>	30-40 <input type="checkbox"/>	40-50 <input type="checkbox"/>	50+ <input type="checkbox"/>	
<b>10</b>	Do you recruit new employees directly out of college?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
<b>11</b>	Are these workers available from within the state of Arizona?	Rarely, most come from out of state <input type="checkbox"/>	Occasionally <input type="checkbox"/>	Frequently, most come from Arizona <input type="checkbox"/>		
<b>12</b>	Do you actively recruit highly skilled workers from outside of Arizona?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			

<b>13</b>	Estimate the percentage of highly skilled workers at your company that come from each of these regions:	
	International	%
	Eastern U.S.	%
	Midwest U.S.	%
	Southern U.S.	%
	California	%
	Arizona	%
	Other Western U.S.	%

<b>14</b>	<b>Please rank your recruitment methods in order of importance for attracting highly skilled workers. (1 is most important)</b>	
	Trade publications	
	Job fairs	
	Company website	
	Professional recruiting companies	
	Personal connections	
	Other	

<b>15</b>	Do you use access to outdoor recreation as a tool to attract workers?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
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<b>16 In respect to attracting highly skilled employees, rate the relative importance of each of these factors.</b>											
Factor A	Factor A is more important			Both factors are equally important			Factor B is more important			Factor B	
Pay	1	2	3	4	5	6	7	8	9	Overall cost of living	
Pay	1	2	3	4	5	6	7	8	9	Quality of schools	
Pay	1	2	3	4	5	6	7	8	9	Lifestyle factors	
Lifestyle factors	1	2	3	4	5	6	7	8	9	Overall cost of living	
Lifestyle factors	1	2	3	4	5	6	7	8	9	Quality of schools	
Overall cost of living	1	2	3	4	5	6	7	8	9	Quality of schools	

<b>17 In regard to lifestyle choices that attract skilled employees, rate the relative importance of these factors.</b>											
Factor A	Factor A is more important			Both factors are equally important			Factor B is more important			Factor B	
Weather	1	2	3	4	5	6	7	8	9	Culture (arts, music, restaurants, nightlife, spectator sports)	
Weather	1	2	3	4	5	6	7	8	9	Urban sports (golf, tennis, jogging, etc.)	
Weather	1	2	3	4	5	6	7	8	9	Outdoor recreation in natural settings	
Outdoor recreation in natural settings	1	2	3	4	5	6	7	8	9	Culture (arts, music, restaurants, nightlife, spectator sports)	
Outdoor recreation in natural settings	1	2	3	4	5	6	7	8	9	Urban sports (golf, tennis, jogging, etc.)	
Urban sports (golf, tennis, jogging, etc.)	1	2	3	4	5	6	7	8	9	Culture (arts, music, restaurants, nightlife, spectator sports)	

<b>18</b>	<b>Within the “Outdoor recreation” category above, please describe the importance of each of these activities in attracting highly skilled workers.</b>				
		Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant
	Water sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Motorized sports: ATVs, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Hiking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Camping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Mountain biking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Rock climbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Winter sports (skiing, snowboarding)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wildlife & bird watching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horseback riding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Visiting natural & historic sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>19</b>	If so, are these clubs used as recruitment tools?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<b>20</b>	Does your firm sponsor outdoor recreation clubs or similar groups? (E.g., clubs focused on mountain biking, hiking, fishing)	Yes <input type="checkbox"/>	No <input type="checkbox"/>

<b>21</b>	<b>In thinking about your encounters with employees regarding their outdoor recreation experiences, which types of land are often mentioned? (Check all that apply)</b>					
	National Forests <input type="checkbox"/>	National Parks <input type="checkbox"/>	Bureau of Land Management (BLM) <input type="checkbox"/>	State Lands <input type="checkbox"/>	Other <input type="checkbox"/>	Don't Know <input type="checkbox"/>

<b>22</b>	<b>In thinking about your encounters with employees regarding their outdoor recreation experiences, which types of recreation are most often mentioned? (1 is most important)</b>	
	Within or directly adjacent to city—accessible on a daily basis.	
	Near the city—easily accessible on a weekend day trip.	
	Within Arizona—usually requires an overnight outing.	
	Outside Arizona—usually requires at least a long weekend.	

## Appendix 2 – Survey Participants

### The following firms participated in the survey:

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Arizona Public Service  
Arizona Regional Medical Center  
Banner Health  
Boeing  
Blue Cross Blue Shield of Arizona  
Bryan Cave  
Cessna Aircraft Company  
Coe & Van Loo Consultants, Inc.  
Cox Communications  
Dibble Engineering  
Freescale Semiconductor  
Job Brokers, Inc.  
Kelly Engineering Resources  
Lee Engineering  
McCarthy Building Companies, Inc.  
Merrill Lynch  
National Bank of Arizona (affiliate of Zions Bancorp)  
Raytheon  
Sundt Construction, Inc.  
Tucson Electric Power/Unisource  
University of Arizona, Eller College of Management  
University of Arizona, College of Medicine  
Wells Fargo—Wealth Management

Other firms participated in the study but desired to remain anonymous.

## Appendix 3 – The Analytic Hierarchy Process

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The analytic hierarchy process (AHP) is a technique for converting ordinal-level data to ratio data. Ordinal data establishes the rank of items in a list; e.g., “A is more significant than B,” but it does not indicate the degree of that significance. Furthermore, there may be complex relationships between multiple factors that are not fully explained by a simple ordered ranking. Thomas L. Saaty (1994) developed AHP as a tool to clarify choices in complex policy decisions.

In an AHP questionnaire, a series of pairwise comparisons rank the preference for each contributing factor against every other factor. These choices are then placed in a matrix that can be analyzed to produce an estimate of the percent that each factor contributes to the overall question. Saaty’s technique also allows for the ranking of subfactors using AHP. These subfactors can be said to contribute proportionally to the primary factors. An excellent explanation of AHP may be provided in *The Analytic Hierarchy Process: An Exposition* (Forman and Gass, 2001).

In this study, worker attraction was initially modeled as being a combination of four factors: pay, overall cost of living, quality of schools, and lifestyle factors. Analyzing these factors required six pairwise comparisons, as seen in questions 3.1.1.1 through 3.1.1.6 in the survey instrument. Four subfactors, which are components of the larger “lifestyle” factor, were then tested in questions 3.1.2.1 through 3.1.2.6.

An overall score for both the primary and subfactors was calculated using the geometric mean of the individual responses, as Saaty recommends. These values were then run through the AHP algorithm to produce the reported results. Use of the geometric mean, rather than the more common arithmetic mean, reduces the effects of outliers on the data.

Saaty recommends that the “consistency index” produced by AHP for each respondent should ideally be less than 10 percent. It was understood before the survey was administered that the consistency indices for this project would likely be somewhat higher than 10 percent. This is because the factors that were analyzed are not entirely independent of one another. For instance, pay and cost of living are related to the degree that a prospective employee will accept a lower salary if housing costs are lower in the Sun Corridor. Likewise, the weather subfactor is closely related to outdoor recreation and urban sports. Several respondents observed that outdoor activities in the Sun Corridor are attractive largely because of the favorable weather and climate. The factors *pay*, *cost of living*, and *weather* were included in the survey because previous research in worker attraction and firm location suggests they are significant and should be considered.

During one interview, the respondent did not seem to fully understand the comparisons he was being asked to make. The AHP algorithm confirmed this by generating a consistency index of 75 percent, so data from this respondent was removed from the final analysis.

In this analysis, the primary factors have a consistency index of 19 percent and the subfactors, 3 percent.

## Appendix 4 – Focus Group Survey Form

### Worker Attraction Study

This study is designed to explore the connection between Arizona’s economy and recreation on the state’s public lands.

*All responses will remain confidential.*

How important are each of these outdoor activities to you?				
	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant
Water sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motorized sports: ATVs: etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hiking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Camping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mountain biking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rock Climbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Winter Sports (skiing, snowboarding)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildlife & bird watching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horseback riding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visiting natural & historic sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often do you visit the following types of land?					
	Very Often	Often	Occasionally	Never	Don't Know
National Parks	<input type="checkbox"/>				
National Monuments	<input type="checkbox"/>				
National Forests	<input type="checkbox"/>				
State Parks	<input type="checkbox"/>				
Local and Regional Parks	<input type="checkbox"/>				
State Trust Lands	<input type="checkbox"/>				
Tribal Lands	<input type="checkbox"/>				
Bureau of Land Management (BLM)	<input type="checkbox"/>				
National Landscape Conservation Units	<input type="checkbox"/>				
Other Lands	<input type="checkbox"/>				

How often do you participate in outdoor recreation in a natural setting?	
Check one	Description
<input type="checkbox"/>	Almost daily
<input type="checkbox"/>	Weekly
<input type="checkbox"/>	Several times a month
<input type="checkbox"/>	About once a month
<input type="checkbox"/>	Every other month
<input type="checkbox"/>	Once or twice a year
<input type="checkbox"/>	Rarely, if ever

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What is your current job title? \_\_\_\_\_

What is your current age? \_\_\_\_ years

What is your gender?	
<input type="checkbox"/>	Male
<input type="checkbox"/>	Female

Check the box that best describes your household income (Including spouse or other partner)	
Check one	Description
<input type="checkbox"/>	Household income less than \$25,000 annually
<input type="checkbox"/>	Household income between \$25,000 and \$50,000 annually
<input type="checkbox"/>	Household income between \$50,000 and \$75,000 annually
<input type="checkbox"/>	Household income between \$75,000 and \$125,000 annually
<input type="checkbox"/>	Household income between \$125,000 and \$250,000 annually
<input type="checkbox"/>	Household income greater than \$250,000 annually

Check the box that best describes your education level	
Check one	Description
<input type="checkbox"/>	No high school diploma
<input type="checkbox"/>	High school diploma or GED
<input type="checkbox"/>	Some college, including AA degree
<input type="checkbox"/>	Bachelor's degree
<input type="checkbox"/>	Advanced degree, incl. master's, PhD, MD, JD.

Check the box that best describes where you were born	
Check one	Description
<input type="checkbox"/>	In Arizona
<input type="checkbox"/>	In another State
<input type="checkbox"/>	In another country

How long have you lived in Arizona? \_\_\_\_ Years

How long have you worked for this company? \_\_\_\_ Years and \_\_\_\_ Months

You have been given a set of nine numbered stickers. Place these stickers on the maps to identify the places in Arizona that are the most important to your outdoor recreation activities. These places may be areas that you frequently visit or they may be favorite spots that you only get to occasionally. In a few words, please describe what you do at this location and how often you visit it. An example is provided.

Pin #	Place Name	Activity	Visits per year
6	<i>Mormon Trail</i>	<i>Mtn. Biking / Hiking</i>	10

Is there anything else you'd like to tell us about your outdoor recreation experiences in Arizona?

[Additional comments may be added on the back of this sheet.]

## Endnotes and References

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## Endnotes

<sup>1</sup> For the purposes of this report, highly skilled workers are defined as college-educated workers with specialized skills and knowledge.

<sup>2</sup> Median wages for highly skilled workers in the Sun Corridor have averaged 182 percent of non-highly skilled workers wages (Bureau of Labor Statistics 2012).

<sup>3</sup> Compiled from the American Community Survey Public Use Microdata Sample 2005–2009 five-year estimates for Arizona.

<sup>4</sup> See Appendix 3 for a description of the data that was removed.

<sup>5</sup> Although the topic of education reform is well beyond the scope of this report, the extremely negative perception of the public school system should be a warning that deficiencies in Arizona’s public education system may bring economic repercussions.

<sup>6</sup> U.S. Census Bureau 2007-2011 American Community Survey 5-Year Estimates.

<sup>7</sup> The prompt reads as follows, “Place these stickers on the maps to identify the places in Arizona that are the most important to your outdoor recreation activities. These places may be areas that you frequently visit or they may be favorite spots that you only get to occasionally. In a few words, please describe what you do at this location and how often you visit it.”



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