

The Public Lands Debate: *How current rates of urban growth are threatening federally-managed lands*

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ABSTRACT

Current patterns of urban growth in the United States focus on the explosive expansion of urban centers and low-density development characterized by sprawling shopping centers and “McMansions”. As this growth continues, many of the lands in our country that have been set aside as public lands to be protected, shared, and used by our citizens have come under pressure from encroaching growth. This research focuses on the current hazards and future risks that urban development may pose to the federally-managed federal lands in our nation. To do this, I analyze census data from recent decades to find locations in the United States where population growth has been significant and then use USGS data concerning the spatial location of public lands to identify correlations between public lands and urban growth. Additionally, I look at potential future urban growth to identify public lands which might face future threats of urbanization. From this analysis, I determined that sixty-four counties in the U.S. have experienced a population growth ratio above 1.5 from 1990 to 2000 and also have public land parcels within their boundaries. Eight-nine percent (57 counties) were located in the Western United States. Twenty-three of the parcels were National Forests managed by the Forest Service. With urban land cover to increase from 3.1% to 8.1% by 2050, it will be important to manage urban growth to protect our nation’s public lands.

I. INTRODUCTION

Since our country’s birth, there have been extended debates about the role government plays in owning and maintaining public lands. Some believe that the government should own a majority of the land in the country to “protect” it from the destructive effects of development and use. Conversely, others believe that private ownership better protects land and associated resources and that public lands (such as National Wildlife Refuges, National Forests, and National Parks) are an abuse of individual rights. As urban growth expands exponentially, some of these federally-protected areas are threatened by encroaching development and habitat destruction. Some citizens advocate the sale of public lands in order to allow for this rapid development, but this has the potential to destroy the precious natural resources of our nation.

This project stems from my interest in public lands and previous work that I have done related to the protection of public lands. During an internship this past summer with The Conservation Fund, I researched a piece of legislation named the Federal Land Transaction Facilitation Act (FLTFA) which allows for the sale of public lands that hold no economic, recreational, or ecological value. I found that these parcels of land were often located near or within areas of high urban growth and I wondered if extra pressures were placed on government agencies to sell these lands for the sole purpose of urbanization, even at the risk of environmental degradation and habitat loss.

Additionally, I noted that population dynamics in the United States are shifting from population centers in the East to large population centers in the Western states such as Colorado, Utah, Nevada, and California. With the knowledge that a majority of the federally-managed lands are located in the West, I can see how potentially exponential growth of urban centers could threatens these fragile and important public lands. With the use of urban growth projections, I hope the identify possible areas where high rates of urban growth could threaten important public lands in the West in the next 50 years.

II. METHODOLOGY

For this project, I first did found a data layer that contained all public lands in the United States. This layer included everything from public-access sites as well as those parcels held by agencies but not accessible to the public. I used all of the lands included in this layer because I wanted to determine the impact of urban growth on both public-access lands and limited-access lands that provided a public service or resource.

Using United States Census data concerning population by county, I mapped the change in population between 1990 and 2000. This highlighted areas which experienced significant growth over these ten years and allowed me to focus my research on locations which have exhibited growth patterns and have the potential to experience future growth. In addition, this narrowed my analysis of the public lands to areas where growth was correlated to the presence of public lands.

For each county that showed a population growth ratio over 1.5, I identified each type of federally-managed public land within the county. In the case of some counties, no public lands were present. In others, there were multiple categories of public lands located either fully or partially within the county.

PROJECTION INFORMATION AND DATA SOURCES

All extent rectangles for the United States and county-level views were referenced to the GCS North American Datum (1983).

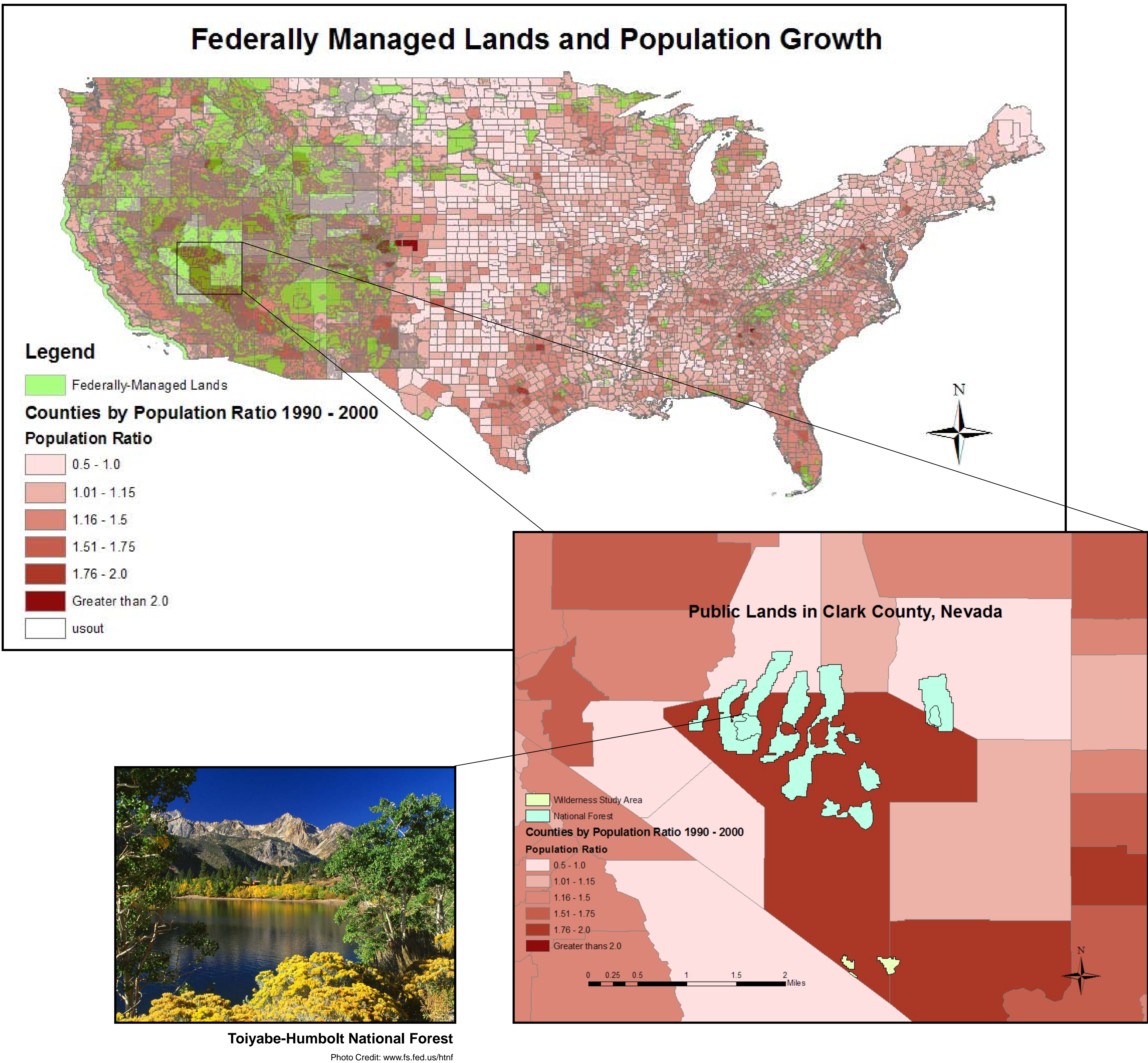
Data for the main figure came from ESRI Data & Maps [CD-ROM], 2005. Redlands, CA: Environmental Systems Research Institute.

¹U.S. Federal Lands data from USGS GEODE database, Federal Lands File http://geode.usgs.gov/geode_frame.htm, accessed 20 February 2009

²Population Growth Projection Maps from Nowak, D., & Walton, J. (2005, December). Projected Urban Growth (2000–2050) and Its Estimated Impact on the US Forest Resource (Albers Projection). *Journal of Forestry*, 383-389.

³Bernstein, R., & Edwards, T. (2008, August 14). An Older and More Diverse Nation by Midcentury. In *U.S. Cesus Bureau, Newsroom*. Retrieved April 9, 2009, from <http://www.census.gov/Press-Release/www/releases/archives/population/012496.html>

Federally Managed Lands and Population Growth



III. DISCUSSION AND RESULTS

When the layer of population growth was overlaid with the layer of public lands, I was able to identify counties which had experienced a population growth ratio above 1.5 and also had federally-managed public lands within their boundaries. Of the counties in the United States that had a population growth ratio above 1.5 for the period between 1990 and 2000, sixty-four had at least one parcel of federally-managed public land within its boundaries. Of these sixty-four counties, fifty-seven (89%) were located in the Western United States and the remaining seven (11%) were in the East (see Figure 1). Colorado was identified to have the most counties that fit the criteria with twelve counties having public lands in counties that experienced the required population growth from 1990 to 2000.

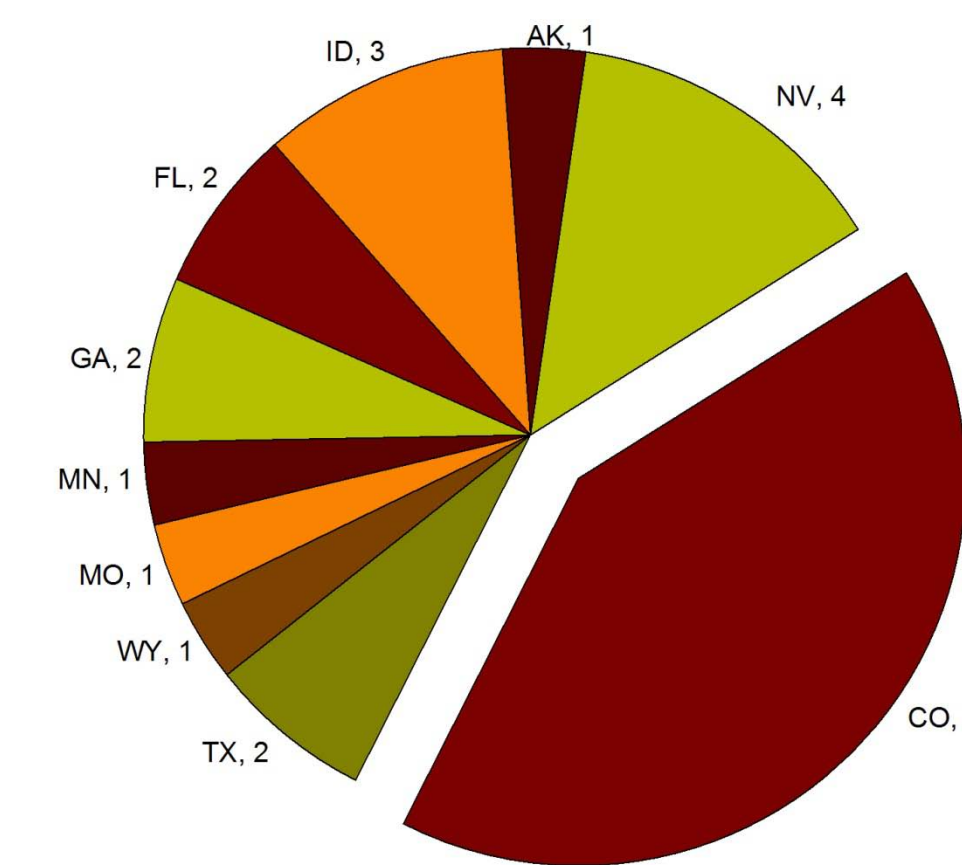


Figure 1: State Breakdown of Public Lands in Growth Areas

Twenty-three (38%) of the federally-managed parcels were held identified as National Forests managed by the National Forest Service. The second most frequent land use type identified was Wilderness Areas managed by the National Forest Service, making up 28% (17) of the total parcels (see Figure 2).

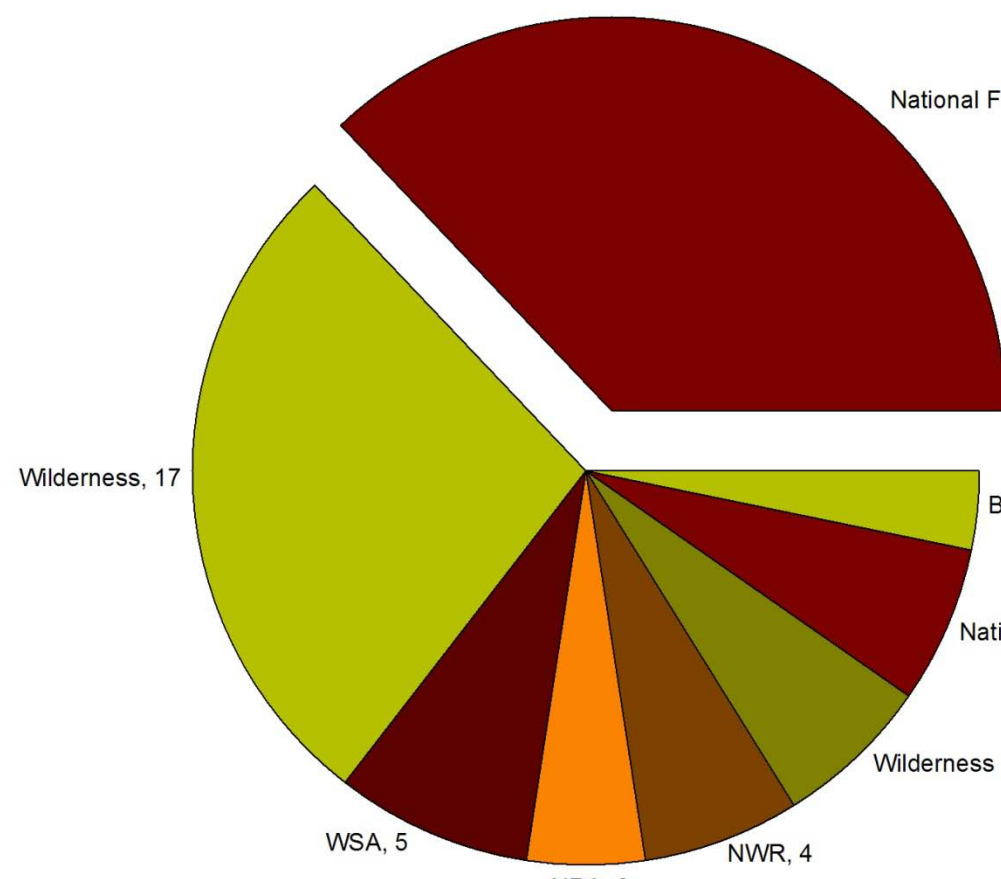


Figure 2: Agency Breakdown of Public Lands in Growth Areas

As the figure in the center shows, a significant majority of the federally-managed public lands are located in the West. Similarly, there is a higher concentration of counties that meet the criteria of having a population growth ratio above 1.5 from 1990 and 2000. Much of the lands identified in this figure as federally-managed lands are parcels held by the Bureau of Land Management as general “public lands,” having no specific recreational, economic, or ecological purpose.

IV. CONCLUSIONS

In 2000, urban land cover made up 3.1% of the land area in the United States. It is now predicted that this number will reach as high as 8.1% by 2050². In addition, a 13% increase in national population from 1990 to 2000 is only a sign of the population growth that is to come. Some predictions place population in 2050 at 420 million, a nearly 50% increase since 2000³. This population growth will bring more urban growth and more land area developed into urban centers.

As population centers continue to shift from the east coast to the west coast, the likelihood that urban development will encroach upon public lands will increase as a majority of these protected lands are found in the West. Not only does this mean that many of our public lands could be encroached upon and surrounded by urban development, strangling the habitats that lie within, but it also raises the possibility of these lands being sold off for further development. With the introduction of the Federal Land Transaction Facilitation Act (FLTFA) in 2000, profits from lands sold under the FLPLMA provision must be used to purchase additional lands to be federally-managed. In effect, this allows for the expansion and further protection of our nation’s public lands.

As our nation continues to grow and our urban centers shift and expand, it will be important to use sustainable and smart growth methods for planning future urban growth. From exercises such as this, we can identify areas where urban development and expansion poses a threat to our public lands in order to make smart decisions about urban planning.

V. ACKNOWLEDGEMENTS

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Projected Urban Growth, 2000-2050

