

Land Trusts in the United States

Analyzing Abundance

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Millions of acres of forests, riverbanks, meadows, and historic battlefields have been paved over in the past 10 years. In response to this, governments at all levels have taken steps to preserve millions of acres of land. However, citizen groups across the country, feeling that this is not enough, have formed large numbers of trusts to protect even more land.

Land trusts are not a new idea. Landscape architect Charles Eliot was the impetus behind the first one in Massachusetts, which was set up in 1891 to preserve 20 acres of woodland. By 1950, there were 53 land trusts in 26 states and now, 54 years later, there are 1,200 trusts conserving more than 6 million acres nationwide.

The sharp rise in the number of land trusts—a 50% increase over the past decade—raises interesting questions. Local land trusts are finding ways to protect an average of 500,000 additional acres each year. How is this possible? How do land trusts make decisions? And why do we see so much variation in the number of trusts across states? Does that variation signal that some states have more trusts than they can handle efficiently and others may not be protecting valuable wildlife and natural resources?



States where federal, state, and local agencies protect vast areas often have a high concentration of land trusts as well. Is it because their citizens are more conservation minded?

Over the past few years we have undertaken an in-depth statistical analysis of the land trust “industry,” looking at where they are and how their number corresponds to a wealth of factors ranging from population density and total land area to voting patterns in the 2000 presidential election and the number of endangered species. We were also curious about whether the amount of government-held land being conserved had a bearing on the total number of private land trusts in a state. This would allow us to see if public agencies needed to step in to conserve land in states where there were few trusts and perhaps to coordinate among trusts in states where many splintered organizations attempt to manage diverse plots of land.

Land Trusts and the Benefits They Provide

Although all land trusts use land conservation as the mechanism to achieve their goals, the goods and services provided can be very different. Some land trusts focus on providing recreational benefits through conserving recreation areas. For example, in Maine, the Downeast Rivers Land Trust and several partners recently protected the 40-foot Saco Falls on the Pleasant River and the surrounding 14 acres for use by picnickers and hikers. Other land trusts aim to provide open space in highly developed areas. In Rhode Island, the Block Island Land Trust, the Block Island Conservancy, The Nature Conservancy, and the town of New Shoreham jointly acquired 25 acres of open space with a scenic overlook of Block Island Sound.

Land trusts also protect plant and animal species by purchasing large tracts of vulnerable habitat. In Yolo County near

Sacramento, California, a land trust bought easements on nearly 2,000 acres of contiguous farmland to serve as a bulwark against the county’s rapid development and to protect a three-mile stretch of riparian habitat along Cache Creek. Farther south, the Big Sur Land Trust and The Nature Conservancy purchased nearly 10,000 acres of land near Carmel that contains old growth redwoods and serves to connect 13 other parks and reserves.

Though land trusts often have a specific goal in mind for conservation, they provide a range of services. For example, the 14 acres conserved for picnickers and hikers along the Pleasant River in Maine also serve to protect the quality of the natural habitat of the endangered Atlantic salmon.

Location, Location, Location

The conservation benefit of a parcel of land is not simply a function of the quantity of the land in total acreage. Rather, it is a function of which pieces of land have been conserved. An acre of forestland near a stream may provide erosion control, but another nearly identical acre farther from the stream would provide fewer benefits. In addition, the number of species protected by one particular acre of land in trust may be far greater than a similar acre in another location. This variation in benefits across similar-sized parcels adds to the complexity of the decisions faced by land trusts when they decide which parcels to acquire.

The benefits of conserving particular parcels of land are interconnected with the location and number of other parcels held by land trusts. As with most goods, the benefits from conserving a marginal parcel may be low if many parcels are

already conserved. In some cases, however, such as watershed and habitat protection, there are threshold levels of land that need to be conserved to provide benefits, and if conserving a particular parcel achieves that threshold, that changes the value of all the other conserved parcels.

Further complicating decisions, the benefits from a parcel are also related to its configuration. For example, a parcel that creates a wildlife corridor between two parks would provide fewer benefits if those parks were not protected as well. Correspondingly, we see land trusts that seek to link protected lands with corridors and to purchase private land to provide “infilling” of national and state lands.

Where Are These Land Trusts?

An analysis of the private land trusts in the United States reveals a wide variation in the numbers of trusts per state. These trusts are not spread evenly around the country. The

greatest concentration is in the northeast and California. Some large states such as Alaska have very few trusts while some small ones have the most, such as Massachusetts with more than 135. (See map below.)

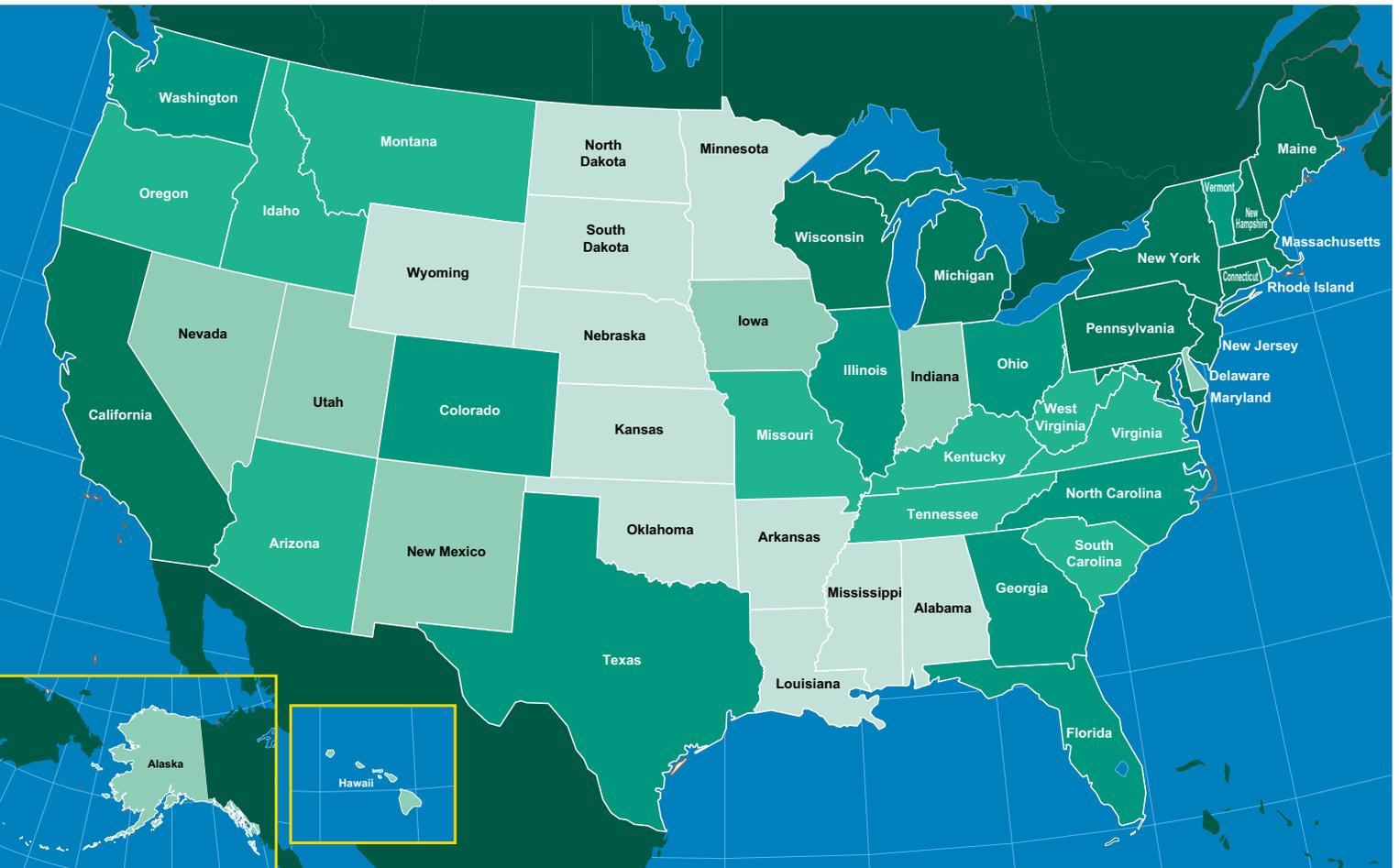
To the extent that specialization on niche conservation issues—protection of one local area or one particular species—is beneficial, we would expect to see more land trusts in a state. On the other hand, one large trust may be better able to coordinate benefits than several disparate ones. For example, to protect habitat for animals with large home ranges who will only move through one type of habitat, total contiguous or connected acreage is more important than it would be if the goal were to protect habitat for certain bird species, where small plots in the same general area would be just as effective.

Another interesting trend is the emergence of private organizations that aim to enable land trusts to coordinate their activities more efficiently, which signals that coordination

Number of Land Trusts by State in 1998

■ 23 to 137 (11) ■ 20 to 32 (10) ■ 8 to 20 (10) ■ 4 to 8 (8) ■ 0 to 4 (11)

SOURCE: LAND TRUST ALLIANCE



costs may be important. These examples suggest that specialization and coordination matter in determining the make-up of the land trust industry. Considering these two factors in the emergence of land trusts, is the number of land trusts in each state what we would expect it to be?

In some ways, our results were consistent with our expectations. We found more trusts in states where conservation demand is high, such as states with large populations or a pro-environment ideology. Fewer trusts turned up in states where it may be particularly costly to have a large number of trusts making independent and uncoordinated choices, such as states with roads fragmenting the remaining natural areas or with many different watersheds. There was a strong correlation between the number of trusts and large urban areas; this may reflect both high demand for conservation in such areas and a large payoff to specialization in places where land protection provides very local conservation benefits. Also, as might be expected, there were more trusts in areas where big animals, such as moose or elk, need large areas of land.

Some of our results were counterintuitive. States where federal, state, and local agencies protect vast areas often have a high concentration of land trusts as well. Is it because their citizens are conservation minded? Is it because the land provides such high benefits that demand for conservation is particularly large? Is it because holes in the government conservation network provide important high-valued niches for land trusts to fill? More study is needed before we know the answers to these questions.

Another surprising result of our study was the negative correlation between land area and land trusts. Why are there so many trusts in some tiny states and so few in some large states? This result begs some questions as well: Do economies of scale present a problem in starting trusts in large, disparate areas? Or is it that larger states may be more sparsely populated and don't feel the pressure to preserve the way a smaller, more populous state might?

We determined that there were fewer land trusts in states with many endangered species. One potential reason why is that protecting endangered species requires picking the right plots, not just the right number of plots. Such coordination might be better accomplished by a single trust than a group of trusts. Another factor to consider is the possibility that, while some trusts do focus on protecting one particular species, most consider endangered species protection to be the responsibility of the federal government and so there aren't "enough" trusts overall.

Our results address only the number of land trusts. To be confident that enough conservation is being undertaken in



states with many endangered species, further investigation of the amounts and types of land being conserved is necessary. For example, states like Tennessee and Alabama have relatively few land trusts for the number of threatened species but many of these species are mollusks, and land trusts may not be an appropriate mode of conservation for such species. Hawaii also has very few land trusts but those (both local and national) operating there may have large enough holdings to generate the right amount of conservation benefits.

Our analysis shows that fewer trusts will be more efficient in providing these benefits due to coordination costs. These results regarding land trusts and plant and animal species call for further analysis to ensure that the levels of conservation are appropriate. Many organizations, such as The Nature Conservancy and Conservation International, are calling for more conservation in "hotspots"—areas with many endangered species, which causes us to wonder whether many trusts or few trusts can best provide protection for these species.

More Trusts in the Future

This study of the variation among number of trusts around the country answers some questions and raises others. Yet as we examine the role of coordination costs, the results lead us to believe that this seemingly odd distribution does make sense, at least economically. In addition, we see anecdotal evidence of trusts considering or encountering coordination



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costs and specialization benefits, lending credence to our model and analysis. The results showing a positive correlation between government-protected land and the number of land trusts, and the fact that coordination costs appear to be significant, point to a potential role for government to provide land “seeds” for other trusts to grow from and to provide for assistance in coordination between land trusts.

What Charles Eliot and like-minded people started in Massachusetts more than 100 years ago with the nation’s first land trust continues to flourish. As the amount of land under development grows annually—the U.S. Department of Agriculture’s Natural Resources Conservation Service estimates 2.2 million acres were paved over between 1997 and 2001 alone—the number of people wanting to conserve it also grows. Some regions of the country are increasing the area under land trusts exponentially. States in the Southwest—Arizona, Colorado, New Mexico, and Utah—increased their protected land by more than 1,600% in the past 10 years and the south-central states—Louisiana, Arkansas, Oklahoma, and Texas—increased theirs by more than 1,300%.

In our current research, we are digging more deeply into how land trusts make conservation decisions, with particular emphasis on the spatial aspects of conservation benefits and the role of government in inducing private conservation. This project, funded by the National Science Foundation, combines numerical modeling with empirical analysis and will identify situations in which strategic land purchases by the government and promotion of coordinated actions among public and private groups encourage socially desir-

able patterns of land conservation by private trusts. We hope this body of work will help policymakers and land trusts to find new strategies that translate conservation expenditures into greater levels of conservation benefits. ■

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Further Readings

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The Land Trust Alliance, www.lta.org.