

Research shows Silicon Valley land conservation didn't hurt housing development

March 10 2010, By Aimee Miles

(PhysOrg.com) -- It's no secret that the San Francisco Bay Area, where the median house price is \$350,000, is home to expensive real estate. Developers have often blamed conservationists for the high costs by arguing that making land off-limits for new construction shrinks the area's housing supply and drives up prices.

But Stanford researchers say that argument holds little water. Only 51,000 more homes would have been built in the southern Bay Area's Silicon Valley if land had not been set aside by nonprofit groups and the government, they say.

In a study conducted by the university's Bill Lane Center for the American West, executive director Jon Christensen, sociology graduate student Carrie Denning and landscape ecologist Robert McDonald analyzed whether land conservation efforts in Silicon Valley - which has about 116,000 acres of protected parks, forests, waterfronts and wildlife refuges - have hurt housing development.

Their findings, published online in the journal [Biological Conservation](#), suggest that land protection may not have much of an impact on the number of housing units available in the region. That's because most of the protected land isn't suitable for development, they say.

"The conserved lands that were saved in the Bay Area tended to be

higher elevations in the foothills and along the Bay, and they weren't necessarily prime for urban development," said Denning, the project's lead researcher.

She said the findings are "very significant given the contemporary debate about conserving land in the Bay Area."

"Conservation is just one factor of many that influences housing," she said.

Silicon Valley: Conserve or develop?

Since the 1960s, local conservation groups have campaigned to preserve bayfront property and native biodiversity by buying tracts of land. Their efforts, coupled with new zoning regulations aimed at curbing congestion, made sure that large portions of land in Alameda, San Mateo and Santa Clara counties are off-limits to real estate and commercial developers.

Critics say the conservation stymied development and led to reduced housing stock and higher local land prices. And that has spurred the growth of sprawling communities in surrounding areas, they say.

Their arguments have been backed by several academic studies conducted within the past few years arguing that Silicon Valley - an area of scenic foothills, bayfront vistas and diverse ecological microcosms - has fallen victim to its own robust tradition of conservation.

But the new Stanford study challenges those findings.

In order to understand the impact of land conservation on housing development, researchers created a model to predict how many housing units could have been built on the preserved tracts.

The model measured details such as the slope of the land, the wetness of the ground and the land's proximity to highways and historical centers to determine whether it would be suitable for development.

The researchers wound up with a map showing that the conserved tracts would have held only 51,000 homes, a number equal to 6.5 percent of the 790,000 homes now in [Silicon Valley](#).

That's a relatively insignificant amount, Denning and Christensen argue. According to data from the U.S. Census Bureau, Silicon Valley's population was just over 2 million in 2000, up from the 530,000 people who lived in the area in 1950.

The model also predicted that because of difficult terrain, 41 percent of the hypothetical living units would have been spaced fairly far apart from one another - fitting about 1.2 houses on every acre.

And that likely would have made those houses very costly, because homes built in less crowded areas tend to be more expensive, Christensen said.

The study showed that small parks in existing urban areas would have been more heavily developed than any other category of conserved land. Had these parks been converted to [real estate](#), said Christensen, urban communities would have lost the few open patches of greenery that now punctuate their otherwise concrete cityscape.

High-tech history

Christensen first thought of doing the study in 2008, when he became aware of a database of all protected lands in the Bay Area maintained by a San Francisco-based nonprofit group, the GreenInfo Network. He came across the U.S. Geological Survey's Bay Area development survey

at around the same time and began brainstorming research ideas.

"I thought, what if you put those two things together?" said Christensen. "Would it reveal interesting patterns between conservation and development?"

He began trading ideas with McDonald, a scientist at the Nature Conservancy, who became the spatial modeling specialist for the study. Then Christensen recruited Denning, who was just completing her undergraduate degree in history and art history at Stanford, to spearhead the research.

The team created their estimated housing map using a synthesis of historical research techniques and computer graphics technology, a hybrid research approach that forms the backbone of studies developed under the Lane Center's Spatial History Project.

"Stanford is a place where there's an emerging collaboration between humanities scholars and scientists that you don't have in a lot of other places," said Christensen. "We're much more trained as humanities scholars to do close reading. ... It's a very different way of doing history."

Provided by Stanford University

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