

*THE NATION; Vulnerable to terror: NYC, New Orleans and . . . Boise?; Idaho's capital is the only Western city in the top 10 in a recent study. The researchers are surprised too.
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Idaho's capital is the only Western city in the top 10 in a recent study. The researchers are surprised too.

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BODY:

People in Boise, Idaho, have taken pride in favorable lifestyle rankings their city has picked up recently: No. 2 on Forbes' best places for business and careers; No. 9 on Inc.com's hottest cities for entrepreneurs; No. 1 National Geographic adventure town; and No. 8 on Money magazine's best places to live.

But one title startled and baffled nearly everyone: city most vulnerable to terrorism in the Western United States.

In a study funded by the Homeland Security Department, Idaho's state capital was the only Western city in the top 10 among 132 urban centers ranked by vulnerability based on a unique mathematical calculation.

The top five seemed logical: big cities with exposed ports and bridges. The list reads like a who's who of Eastern and Southern port cities: New Orleans; Baton Rouge, La.; Charleston, S.C.; New York City-Newark, N.J.; and Norfolk, Va.

Not a single West Coast city, from Seattle to San Diego, raised more than an eyebrow.

Juneau, Alaska, ranked least vulnerable.

Out West, at No. 10, stood landlocked Boise, population about 200,000, nicknamed the City of Trees.

"It surprised us too," said researcher Walter W. Piegorsch, a mathematics professor at the University of Arizona, coauthor of "Benchmark Analysis for Quantifying Urban Vulnerability to Terrorist Incidents."

Researchers' methods

The report, which relies on a complex formula for a "place-based vulnerabilities" score, first appeared in December in the journal Risk Analysis. Communities it identified have since been trying to absorb its meaning.

Scores depended on three main considerations: social demographics, natural hazards (floods, wildfires, earthquakes, extreme weather, etc.) and infrastructure vulnerability (roads, bridges, tunnels, ports, dams, skyscrapers, etc.).

Boise, it seems, faces high risk from extreme events such as wildfires or failure of a large dam upstream, Piegorsch said. Seventeen miles northeast of Boise, Lucky Peak Dam extends 2,340 feet long and 340 feet high. The 12-mile-long reservoir behind it stores 300,000 acre-feet of water.

"That dam could be a very likely target, or possible target," he said, noting that Boise's recent experience with disaster, flooding, property loss and casualties also elevated its rank.

The index says more about experience and ability to cope than about where terrorists might strike, Piegorsch said.

"You can't predict the next terrorism," he said. "That's why it's terrorism. But you can predict vulnerability."

The high vulnerability rating stunned Idaho law enforcement and emergency management agencies.

"Everybody was surprised," said Charles McClure, a spokesman for the Boise Police Department. "Basically, we don't understand how they arrived at that conclusion."

Idaho officials are working with the FBI and the study's authors to determine if the findings can lead to improved procedures, said Lt. Col. Tim Marsano, spokesman for the Idaho Bureau of Homeland Security.

"It raised some flags among the emergency management community within this state, and we are taking it seriously," Marsano said. "We hope to pull things out of it that will

further enhance our preparedness."

Co-written by Susan L. Cutter at the University of South Carolina and Frank Hardisty at Pennsylvania State University, the research investigated relationships between vulnerability and terrorist outcome.

The project, four years in the making, crunched data from 1970 through 2004 related to natural or man-made disasters and hazardous events, including terrorism. The data boiled down to a single place-based vulnerability index.

The index borrowed from statistical methods used in research involving identifying cancer-causing substances. The National Cancer Institute funded part of the study.

Researchers assigned the cities threat-level color codes: green (low), yellow (medium) and red (high).

A swath of red cities stretched from Houston up to New York. Several cities in the Carolinas (Raleigh/Durham, Charlotte, Charleston and Columbia) were red.

On the West Coast

Most cities in the West and North were yellow or green. Western localities, in general, covered more land. ("Once you sprawl, you lower vulnerability," Piegorsch said. "You can't hit a less concentrated location as effectively.")

California cities scored reasonably well (none were red) in part because their infrastructures have already been hardened, the researchers said. San Francisco (yellow) shares traits of higher vulnerability with Eastern cities -- ports, bridges, skyscrapers and a high-density urban area -- but repeated disasters have actually led to higher rankings because the Bay Area has focused on constructing safer buildings and taking other preparedness measures.

"San Francisco has had earthquakes, but emergency response has improved because of it," Piegorsch said.

Los Angeles and San Diego, both yellow, benefited from experience as well as being geographically spread out.

'What are they missing?'

Some critics have questioned whether statistical research about America's most vulnerable places should be so easily accessible, Piegorsch said, but he thinks it's better to understand vulnerabilities and address them.

"The bad guys have figured this out already," Piegorsch said.

Studying vulnerability is an important part of understanding risk, said Henry H. Willis, a researcher at Rand Corp., a Santa Monica-based think tank. He called the study "a novel way of thinking about the vulnerability of cities."

"They developed a measure of vulnerability that goes beyond what people have used in the past," he said.

"The study suggests they have some ability to predict where events with catastrophic consequences will occur. The question is, are they measuring the right components? Have they identified the full set of components, and what are they missing?"

Willis recently co-wrote a Rand Corp. study on terrorism risk modeling. It concluded that terrorism risk is concentrated in a few cities. Most cities, it said, have negligible relative risk.

"In our judgment, the threat was higher in larger cities because of density of people and property values," he said.

"We don't really know where a terror group would attack if they had a weapon of mass destruction.

"It would be tragic, regardless of what city it is."

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GRAPHIC: PHOTO: NORTHERN EXPOSURE: Placid, tree-laced Boise is more accustomed to ranking high in livability. The terror vulnerability index says more about experience and ability to cope than about where terrorists might strike, one of the researchers said. PHOTOGRAPHER: Troy Maben Associated Press **GRAPHIC:** Scale of peril (includes map of the United States) **CREDIT:** Los Angeles Times

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