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Development of a Climate Resilience Screening Index (CRSI): An Assessment of Resilience to Acute Meteorological Events and Selected Natural Hazards

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Development of a Climate Resilience Screening Index (CRSI): An Assessment of Resilience to Acute Meteorological Events and Selected Natural Hazards

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Notice/Disclaimer Statement

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Acronyms and Abbreviations

BRIC	Baseline Resilience Indicators for Communities
CBNRM	Community-Based Natural Resource Management
CDRI1	Climate Disaster Resilience Index 1
CDRI2	Climate Disaster Resilience Index 2
CEQ	Council on Environmental Quality
CRS	Community Rating System
CRSI	Climate Resilience Screening Index
CWPPRA	Coastal, Wetlands Planning, Protection and Restoration Act
DOC	Department of Commerce
DOI	Department of the Interior
EPA/USEPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GAO	Government Accounting Office
ICLEI	Local Governments for Sustainability (previously the International Council for Local Environmental Initiatives)
LUST	Leaking Underground Storage Tanks
M-CRD	Metrics for Community Resilience to Disaster
MERLIN-RC	Model for External Reliance of Localities In Regional Contexts
M-RD	Metrics for Resilience to Disaster
NCA	National Climate Assessment
NHEERL	National Health and Environmental Effect Research Laboratory
NFIP	National Flood Insurance Program
NGO	Non-Government Organization
NRC	National Research Council
NRCS	National Resource Conservation Service
OECD	Organization for Economic Co-Operation and Development
OMB	Office of Management and Budget
PCA	Principal Components Analysis
PRISM	Patterns of Risk using an Integrated Spatial Multi-Hazard Model
RC4A	Resilient Communities for America
RCRA	Resource Conservation and Recovery Act
SBA	Small Business Adminstration
SHC	Sustainable and Healthy Communities Research Program
SHELDUS	Spatial Hazard Events and Losses Database
SOVI	Social Vulnerability Index
TRI	Toxic Resource Inventory
USFS	United States Forest Service
USGS	United States Geological Survey

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Executive Summary

This 2017 research report, *Development of a Climate Resilience Screening Index (CRSI): An Assessment of Resilience to Acute Meteorological Events and Selected Natural Hazards* is a synthesis report detailing research in the development and demonstration of the CRSI approach at both the national and regional scales using county data. The report also includes an extensive analysis of the conceptual framework along with methods for metric, indicator and domain calculation.

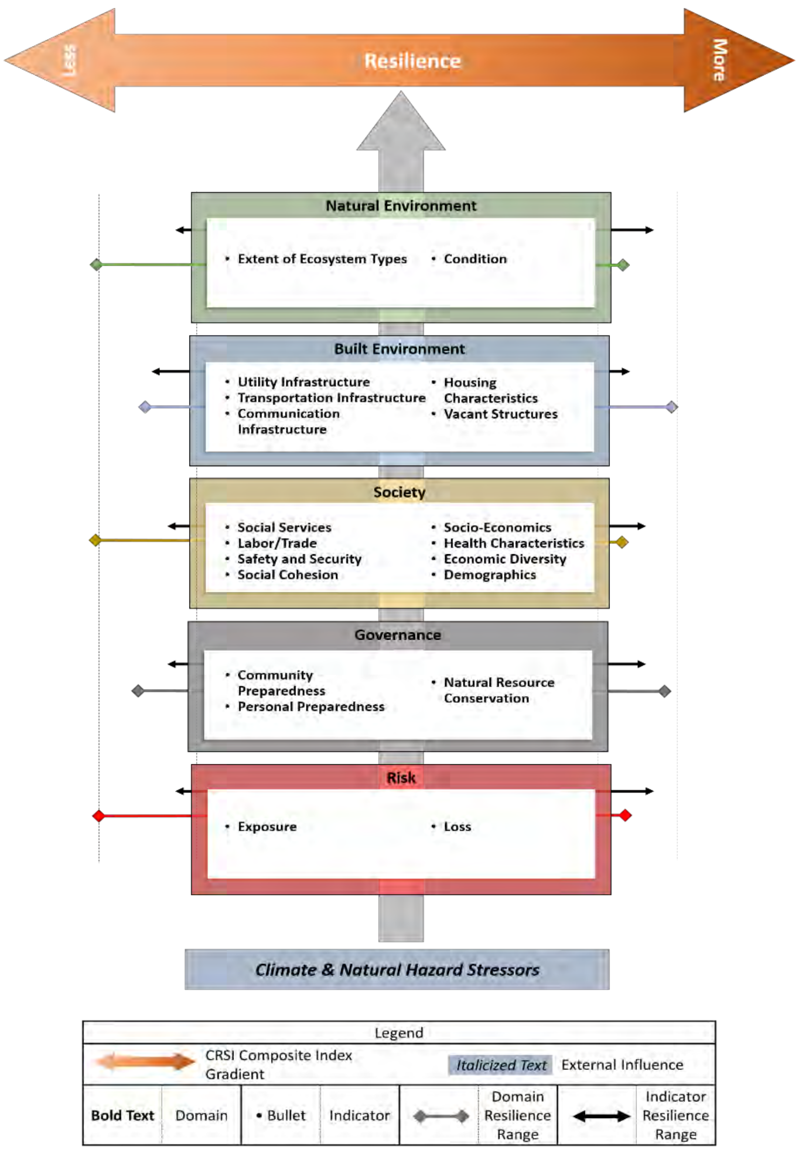


Figure E-1. Conceptual representation of the Climate Resilience Screening Index (CRSI) Approach.

Natural disasters often impose significant and long-lasting stress on financial, social and ecological systems. From Atlantic hurricanes to Midwest tornadoes to Western wildfires, no corner of the U.S. is immune from the threat of a devastating climate-event. Across the nation, there is a recognition that the benefits of creating environments resilient to adverse climate events helps promote and sustain county and community success over time. The challenge for communities is in finding ways to balance the need to preserve the socio-ecological systems on which they depend in the face of constantly changing natural hazard threats.

The Climate Resilience Screening Index (CRSI) has been developed as an endpoint for characterizing county and community resilience outcomes that are based on risk profiles and responsive to changes in governance, societal, built and natural system characteristics. The

Climate Resilience Screening Index (CRSI) framework (Figure E-1) serves as a conceptual roadmap showing how acute climate events impact resilience after factoring in the county and community characteristics. By evaluating the factors that influence vulnerability and recoverability, an estimation of resilience can quantify how changes in these characteristics will impact resilience given specific hazard profiles. Ultimately, this knowledge will help communities identify potential areas to target for increasing resilience to acute climate events (Figure E-2).

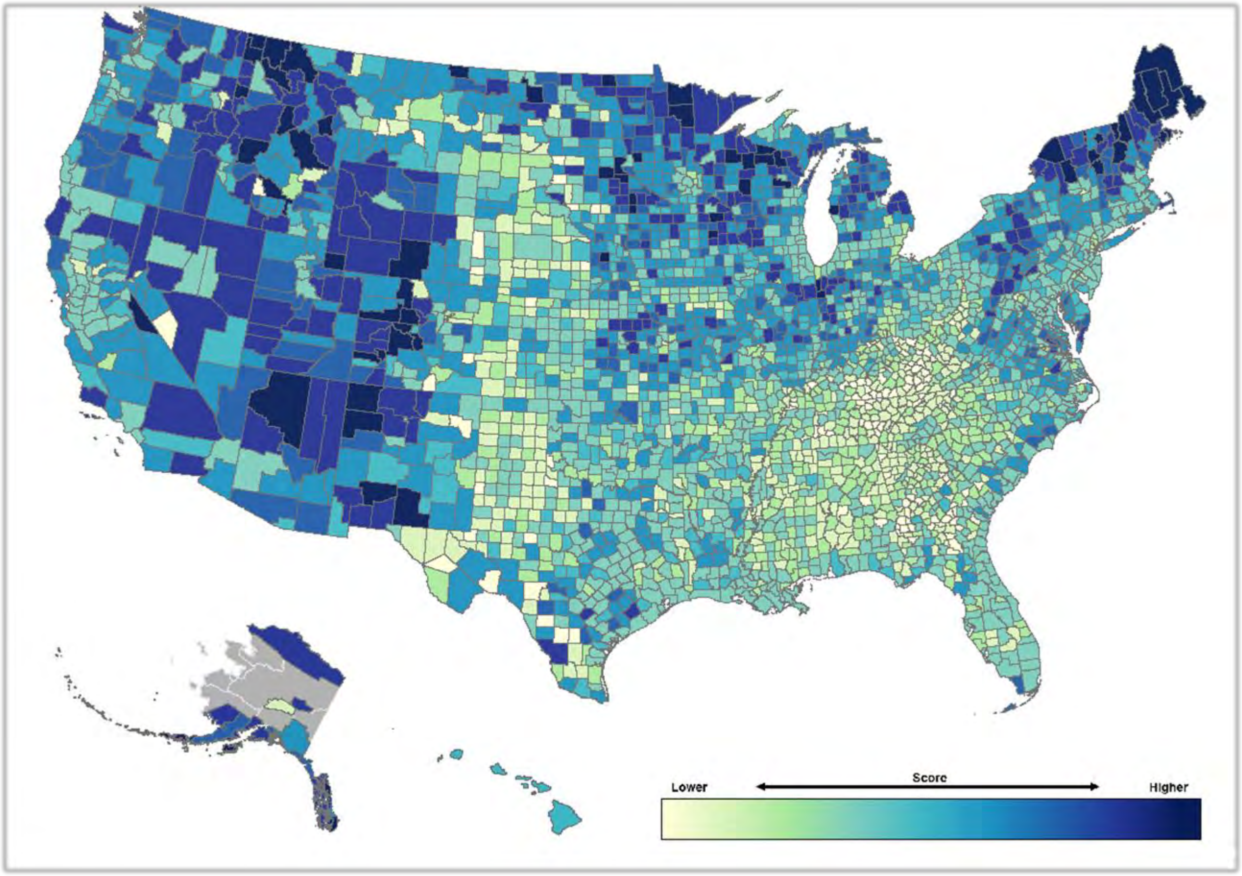


Figure E-2. Map showing distribution of final CRSI Scores across the U.S. (2000-2015). Darker colors indicate higher resilience scores; lighter colors indicate lower resilience scores.

The index is a composite measure comprised of five domains (Risk, Governance, Society, Built Environment, and Natural Environment), represented by 20 indicators, calculated from 117 metrics. CRSI scores have been calculated at the county level (or parish or borough) and community resilience, and additional break out assessments are presented for individual domains of the index as well as regional level as a composite for the years 2000-2015 (Figure E-3). In addition, to a national assessment of resilience, EPA regional and county measured are calculated and mapped.

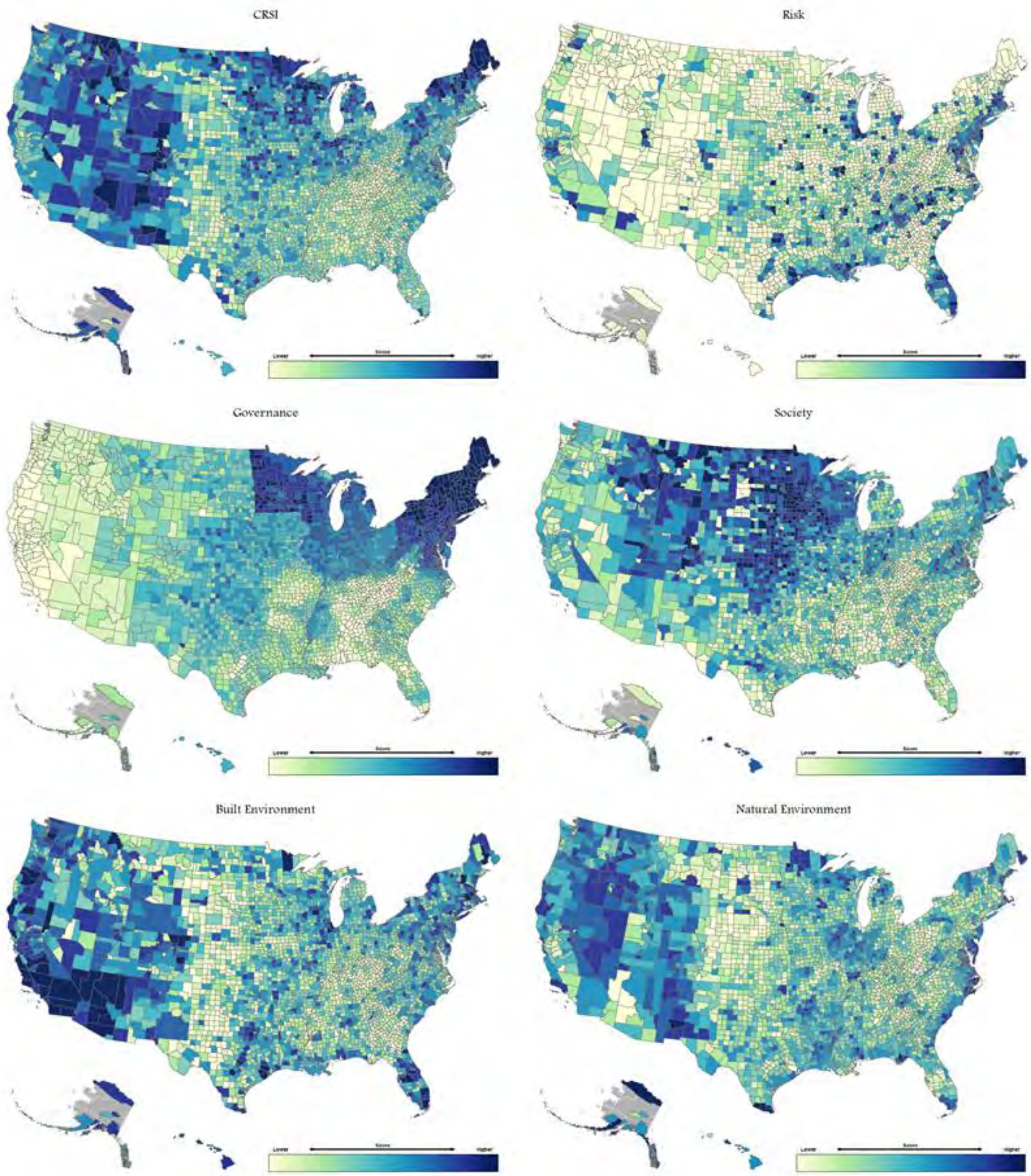


Figure E-3. The distribution of CRSI values and domain scores (Risk, Governance, Society, Built Environment, and Natural Environment).

Regional analyses characterize risk components, evaluate relative domain contributions to resilience, and delineate indicator contributions within the geography. Polar plots are utilized as a method to easily discern indicator influence (Figure E-4).

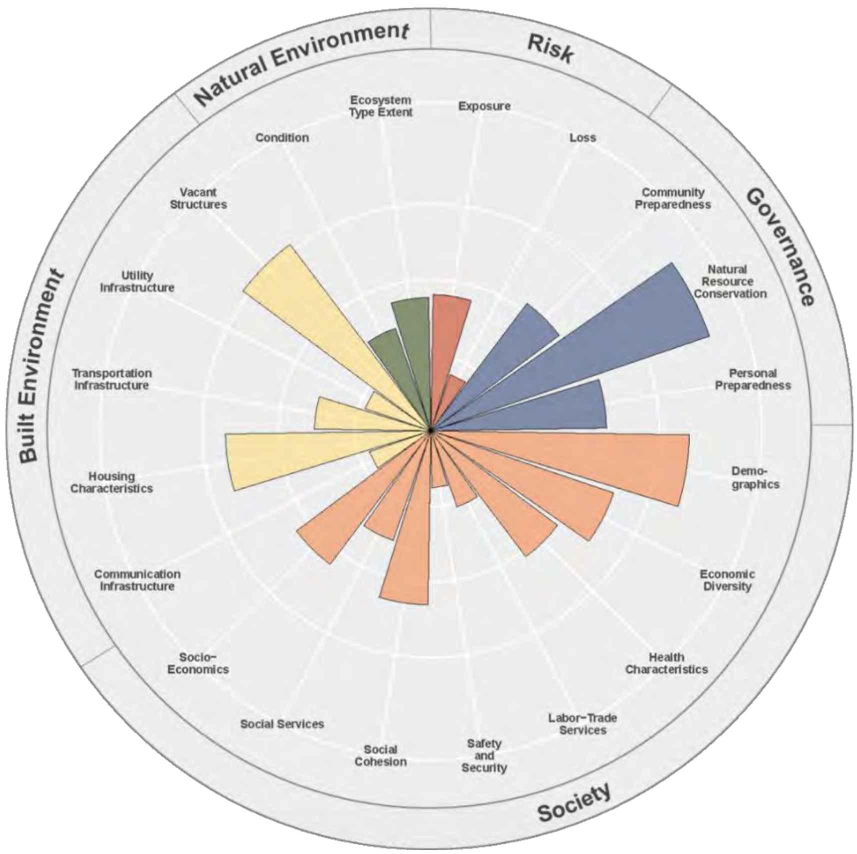


Figure E-4. Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 5. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

CRSI was developed with input from EPA Regional Climate Coordinators and ORD Regional Science Liaisons. The demonstration results by county and by EPA region can be used by the Regions to engage communities in resilience discussions, be vetted with local knowledge and potentially be used to target resources for improving resilience. CRSI results data, like EQI and HWBI results can be made available through the Geoplatform for use in SHC tools. Overall CRSI values, and domain scores at the county-level can inform sustainability assessments research (4.61) and could complement climate and vulnerability assessments for developing resilience strategies (e.g., developing water resilience strategy for Merrimack River, Lawrence, MA (SHC 2.62)).

‘Your effort is “laudable and important.” I very much appreciate the focus on a multi-dimensional approach to assessing climate related resilience. The report cites important literature defining resiliency and vulnerability. The graphics are visually appealing and, as long as the data are accurate behind them, likely to be helpful for various users. But I have some concerns about the data being used in ways that might not be appropriate given the aggregation and operationalization issues that relate to data availability. I appreciate that such an index endeavor is limited to existing available data. But these limitations need to be much more clearly acknowledged.’

--Dr. Courtney Flint, Utah State University

Great care has been taken to ensure that the aggregations used in CRSI are correct and the authors have attempted to provide examples of how to use the index. Might elements of CRSI be misused? Of course, this is the case with any index or aggregation of data; however, the authors have taken great pains to ensure the accuracy and limitations of the available data.

– Dr. Kevin Summers, U.S. EPA

Highlights of Results

In the section above, the maps and analytic results of the national application are shown. The highlights of the national analysis show moderate to strong resilience to climate events throughout many of the counties in the U.S. Areas with weaker overall resilience include the Appalachians, many counties in the southeast and the western Mid-West and some counties in southwestern Texas. Strong contributors to the final CRSI scores are natural resource conservation, local demographics, and information pertaining to vacant structures. Weak contributors include infrastructure associated with utilities and communications and safety and security issues as well as the local mix of labor skills. Increases in these weak contributors could substantially enhance resilience to acute climate events on a national scale.

Regional analyses (Table E-1) and mapping show that EPA Region 10 (14.8) and EPA Region 1 (10.7) have the strongest overall resilience scores with EPA Region 4 (0.6) and EPA Region 6 (2.8) having weaker scores. The remaining six EPA Regions cluster together with moderate scores (3.4-6.1). Disassembly of the CRSI scores shows that Region 10 strengths lie in its low risk score which result in a high basic resilience score even though its governance low is less than the national average. Although lower, its governance domain score is more than three times the Region's risk domain score. Region 1 strengths lie in the highest governance score in the Nation with moderate risk, and above average domain scores for social, built environment and natural environment. On the other hand, Regions 4 and 6 have above average risk domain scores and below average governance related to climate events scores. Driving down these lower basic resilience scores, both regions have below average society domain scores suggesting a poorer population, increased ethnicity (making communication for emergency response more difficult), lower levels of social services, poorer access to health facilities, and higher level of undocumented skilled trade laborers (making an assessment of the abundance of trade labor difficult). Region 4 also has a below average score for its built environment suggesting less stringent building codes, higher levels of vacant structures and weaker levels of public infrastructure especially in Georgia and Alabama.

The utility of the index is addressed in Section 3 although the greatest level of confidence in utility can be found in the quotes listed below by reviewers from EPA Regions in response to the questions, "In your opinion, does the index have utility for EPA (e.g., Regions and Program Offices)?" and "Does this utility extend to community decision makers, community planners, and other potential stakeholders?".

"Yes - Using the data in work we do in each of our programs relative to pollution control implications and sustainability"
--Joyce Stubblefield, Region 6

"Absolutely! I like the discussion of ORD research related to natural disaster and other climate event resiliency topics …"
--Laura Farris, Region 8

"I look forward to seeing the final report and using it in my own work."
--Matt Nicholson, Region 3

Table E-1. CRSI and domain scores for EPA Regions with National Average scores (including Alaska); (Bold denotes significantly below national average for CRSI and above national average for domains).

EPA Region	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
Region 1	0.2403	0.8956	0.4916	0.4445	0.5987	10.6968
Region 2	0.3084	0.8292	0.4694	0.3860	0.5202	4.9988
Region 3	0.2715	0.6885	0.3821	0.3778	0.5117	3.3911
Region 4	0.2547	0.4976	0.3421	0.4027	0.4141	0.5849
Region 5	0.2217	0.7135	0.4070	0.4343	0.5722	6.0213
Region 6	0.2392	0.5479	0.3937	0.4229	0.4739	2.7718
Region 7	0.2087	0.5968	0.3576	0.3800	0.6092	4.1134
Region 8	0.1623	0.5572	0.3983	0.3956	0.6167	6.0857
Region 9	0.2345	0.3579	0.6204	0.4704	0.4795	6.0778
Region 10	0.1370	0.4319	0.4776	0.5315	0.4920	14.8380
National Average	0.2288	0.5876	0.3932	0.4136	0.5156	4.2125

> *"Yes, there is potential use. Regions and programs are being asked that same question for other indices based on similar structure (national databases; selecting domains; comparison at a county scale) developed by ORD (e.g., HWBI). … Certainly, this will have utility at the county level and for others who can use it as is to aggregate above counties (such as coastal states or coastal counties). … Again, a community of practice across index developers could help quickly identify many issues that stakeholders have raised."*
> *--Bruce Duncan, Region 10*

To be fair, not all reviewers were as enthusiastic. Several reviewers not associated with EPA Regions found greater difficulty with the utility of the index. These reviewers thought it would be very helpful to indicate how the index could be used and how it should not be used. However, the target audience of CRSI is the EPA Regional staff working on resilience and sustainability issues and the index and its utility appears to resonant with the Regional reviewers.

Overall, the U.S. shows good levels of resilience to acute climatic events. However, analyses demonstrate that selected counties (hundreds of them) with higher levels of risk and low levels of governance can improve their resilience by specifically addressing issues associated with the governance, built environment, natural environment, and society domains. CRSI, which is meant to be a screening tool, provides those directions investment, assistance and action by the EPA Regions and Program Offices.

1. Introduction and Background

Natural disasters often impose significant and long-lasting stress on financial, social and ecological systems. From Atlantic hurricanes to midwest tornadoes to western wildfires, no corner of the U.S. is immune from the threat of a devastating climate-event. Statistics from the Office of Management and Budget show the federal government has incurred more than $357 billion in direct costs due to extreme weather and fire events alone over the last ten years (OMB and CEQ 2016). Starting in 2013, the U.S. Government Accountability Office (GAO) began monitoring the high risk fiscal exposure that the federal government faces because of climate-related events, both acute and chronic. The GAO recognized the sweeping impacts of these events across multiple sectors including defense, infrastructure, health, agriculture and local economies. In the most recent GAO report (2017), steps to better manage this fiscal risk had only been partially implemented. Further, the U.S. National Security Strategy (2015) highlights efforts in strengthening county and community resilience, suggesting that impacts from adverse climate events represent an area of credible national security concern.

In general terms, resilience is a characteristic in human and natural systems exhibiting a capacity to withstand and recover from an adverse shock or event. In towns and cities, resilience is promoted through planning while in nature, this trait is assumed inherent (NRC 2012; Meadows 2008). Over the last decade, there has been a notable increase in communities seeking sustainable economic, social and ecological solutions for local planning concerns. However, more county and community decision makers are recognizing that recurring and anomalous climate events may impede achieving their sustainability goals without appropriate and actionable preparation. Therefore, it is not surprising that interest in the subject of resilience related to natural disasters, both cyclic and evolving, is growing. Across the nation, there is a recognition that the benefits of creating environments resilient to adverse climate events helps promote and sustain county and community success over time. The challenge for communities is in finding ways to balance the need to preserve the socio-ecological systems on which they depend in the face of constantly changing natural hazard threats.

SUSTAINABILITY AND RESILIENCE

"…RESILIENCE THEN BECOMES A THEORETICAL CONSTRUCT FOR SUSTAINABILITY THAT: A) GUIDES AGAINST BREACHING UNKNOWN SYSTEMS BOUNDARIES; B) SUGGESTS THAT CONTINUOUS CHANGES IN CERTAIN DRIVING VARIABLES ARE INHERENTLY DANGEROUS (E.G., CONTINUOUSLY INCREASING FISHING PRESSURE, ESCALATING GREENHOUSE GAS EMISSIONS, OR CONSTANT MATERIAL GROWTH) AND; C) WARNS THAT SURVIVING THE BREACH OF A MAJOR TIPPING POINT, WHETHER HUMAN INDUCED OR NATURAL, WILL REQUIRE UNPRECEDENTED LEVELS OF INVESTMENT, COOPERATION AND OTHER FORMS OF INSTITUTIONAL AND SOCIETAL ADAPTATION. HUMAN-INDUCED CLIMATE CHANGE WILL ALMOST CERTAINLY VALIDATE ALL THESE ASSERTIONS."

SUSTAINABILITY VS. RESILIENCE
PUBLISHED BY RESILIENCE.ORG ON 2014-07-16
BY WILLIAM E. REES

SOURCE URL:
HTTP://WWW.RESILIENCE.ORG/STORIES/2014-07-16/SUSTAINABILITY-VS-RESILIENCE

Resilience applies to both human and natural systems, yet the examination of resilience is often described without appreciation of one another or in the context of opposing roles (Handmer et al. 2012)—with one system making the other more vulnerable. Previous research suggests that positive aspects of county and community quality of life are linked to not only built environments, but natural ones as well (Smith et al. 2012; Summers et al. 2012). Any discussion of county and community resilience would be incomplete without considering the role of natural ecosystems, as they have the ability to influence many of a county's and community's vulnerability and recoverability characteristics (Summers et al. 2012, 2015).

In the context of this research, vulnerability describes the propensity or predisposition to be adversely affected, while resilience describes the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner (IPCC 2012). Much of the existing resilience literature focuses on either vulnerability or recovery (e.g., Cutter et al. 2003; Frazier et al. 2014) as independent constructs of resilience. Summers et al. (2016) suggests a more holistic relationship exists, where an intersection of vulnerability and recoverability sits along a spectrum of resilience. The position along this gradient where human and natural systems rest depends on their ability or capacity for resilience. In terms of climate events, for example, both people and nature can absorb, recover from and adapt to adverse events (Gunderson 2010; Berkes and Ross 2013). However, the degree of resilience is reflected in the mechanisms for recovery. Natural ecosystems have innate internal structures and functions to facilitate recovery from an adverse event (such as diversity and redundancy) (Holling 1986; National Fish, Wildlife and Plants Climate Adaptation Partnership 2012; Melillo et al. 2014). Human systems rely on planning and preparation to mitigate against known natural hazard exposures and reduce vulnerabilities (Tobin 1999; Magus 2010). In both systems, the success of the recovery process is dependent on the robustness of the mechanism. This robustness refers to the system's ability to resist or tolerate change without adapting its initial stable configuration. In the case of nature, ecological conditions may be the determining factor while the depth and breadth in resilience planning or governance is a pillar for resilience in built environments. Clearly, resilience is a disputed and heavily debated subject with regard to anthropogenic and natural systems (Patel et al. 2017). Community resilience remains an amorphous concept that is understood and applied differently by different groups. Yet in spite of the differences in conception and application, there are well-understood elements that are widely proposed as important for a resilient community. All seem to agree that community resilience (non-individual) relates to the sustained ability of a community (or other entity) to utilize available resources to respond to, withstand, and recover (hopefully quickly) from adverse difficulties or perturbations (FEMA 2011, 2012, 2017; RAND 2017).

Operationally, in this report, a broad definition of community has been taken. Using a community definition of a social group of any size whose members reside in a specific locality, share government, and often have a common cultural and historical hertitage,"community" could be synonymous with "county". Thus, the term "community," when used in this report means the grouping is a county unless specified otherwise. Resilience clearly can apply to a smaller community unit or neighborhood. That is not the case in this report. However, in many situations smaller communities resilience can be directly related to or driven by governance and activities at the county scale.

Many counties and communities are seeking assistance from the U.S. Environmental Protection Agency (EPA) to help fill resilience information gaps for disaster resilience planning. To better assist counties and communities, EPA's Office of Research and Development (ORD) has invested in research related to natural disaster and other climate event resiliency topics including:

- National Homeland Security Research Center's investigation of community resilience to acute disaster events (USEPA 2015b)
- National Center for Environmental Assessment research on resilience to climate change (USEPA 2016b)
- National Exposure Research Laboratory's (NERL) work with counties and communities to assess resilience to climate events, particularly flooding (Lawrence, MA) (Zartarian 2016)
- National Risk Management Research Laboratory's (NRMRL) research focusing on linking resilience measures to adaptive management and governance to help frame sustainability assessments (Garmestani and Benson 2013; Garmestani and Allen 2014; Eason et al. 2016).

Of particular interest to EPA are the development of approaches to assess county and community resilience readiness in the face of adverse climate events. As part of EPA's Sustainable and Healthy Communities (SHC) Research Program, a suite of indicators was developed to form the basis of a composite index—the Climate Resilience Screening Index (CRSI). CRSI characterizes county and community resilience based on a suite of indicators that are grouped into broad categories or domains of county and community resiliency traits in the context of natural disasters. CRSI is intended to be used by EPA Regions and others who work closely with counties and communities to gauge resilience of built and natural systems to acute climate events (e.g., hurricanes, wildfires, tornadoes, flooding). The CRSI approach focuses on characterizing county and community resilience to these natural hazards through an understanding of the existing conditions in socio-ecological systems – the baseline against which resilience is quantified. The index and constituent components serve to characterize baseline conditions for targeting resources and assessing the effectiveness of programs, policies and interventions specifically designed to improve climate resilience. Five broad areas of common county and community characteristics or domains are the basis for formulating the screening tool. CRSI represents a synthesis of vulnerability and recoverability of a county's and community's built, natural and social environments in relation to the governance of these systems and context of the risk of natural hazard exposure (Figure 1.1).

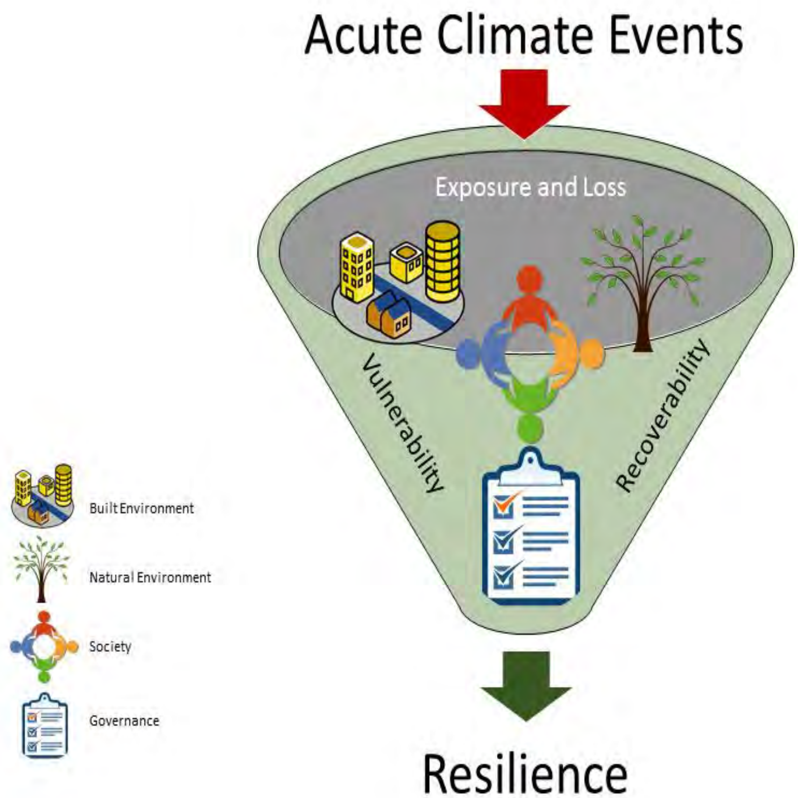


Figure 1.1 Conceptual representation of the Climate Resilience Screening Index (CRSI) Approach.

2. Approach

2.1. Overview of Indicator/Indices Development

The methodological challenge in deriving an index of resilience to acute climate events lies in constructing domains and indicators that are accurate representations of environmental or societal states and trends but are easily understood by their target audiences. Methodological challenges involve two broad sets of questions: those concerned with the design and development of the index/indicators and those concerned with the purpose and use of the index/indicators. Basic concerns over data availability, data quality, and the adequacy of the algorithms used can be resolved largely through technical, scientific agreement. However, the central issue of adjusting methods to index relevance and use has to be addressed through trade-offs between form and function in specific societal and political settings.

WHAT IS AN INDEX?

An index is made up of many components and indicator research has a language all its own. Here are few key definitions:

INDEX - An interpretable and synergistic value or category describing the nature, condition or trend of a multidimensional concept. An index can be an endpoint or final value as well as one of several values used to create what is called a composite index. CRSI is a composite index.

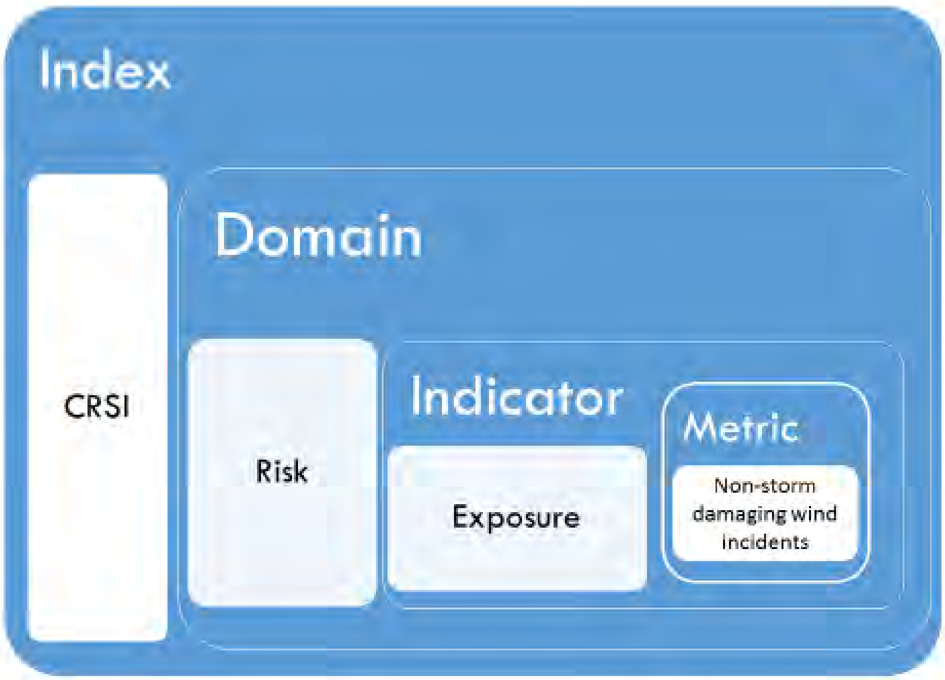
DOMAIN - Summary grouping of characteristics that is based on one or more indicators and represents a major component of a composite index. A domain and sub-index generally refer to the same level of information.

INDICATOR: An interpretable value describing a trend or status a specific feature or characteristic. An indicator may be comprised of one or more metrics.

METRIC: A measurable or observable value – typically referred to as "the data".

The general technical approach is based on a familiar and common one, in use for several decades to develop indices and compare components in a way to describe the current condition and help stakeholders identify areas to investigate for potential management actions/decisions (Stanners et al. 2007).

The relationship among domains, indicators and metrics is shown here as a nested box using the example of the CRSI index, the risk domain, the exposure indicator and a specific metric of exposure.



2.2. A Review of Existing Resilience Indicators and Indices

A review of existing community resilience characterization methods and approaches was conducted. The intent was to identify mainstream resilience indicators and indices and determine the applicability of each within the scope of CRSI. A Google Scholar search was analyzed through Publish or Perish® software (7/28/15) using the following keywords: "resilience index", ecosystems, social, economic, human resilience, and climate change. The time period of interest was 2000-2015. The initial search produced 369 print and web publications. Material was considered for in-depth review if described index or framework met the following criteria:

- Provided quantified or demonstration results
- Comprised of a suite of indicators or sub-indices
- Exhibited spatially scalable characteristics
- Integrated some combination of economic, ecological and social factors
- Focused on climate events or natural disasters.

Fifty-seven candidate indicators were described in the materials reviewed. This representative group of existing resilience indices favored integrated socio-economic and ecological development approaches, but to varying degrees. Similarly, review results showed a notable trend toward the use of composite indices to characterize community resilience over the 2000-2015 time period (Figure 2.1).

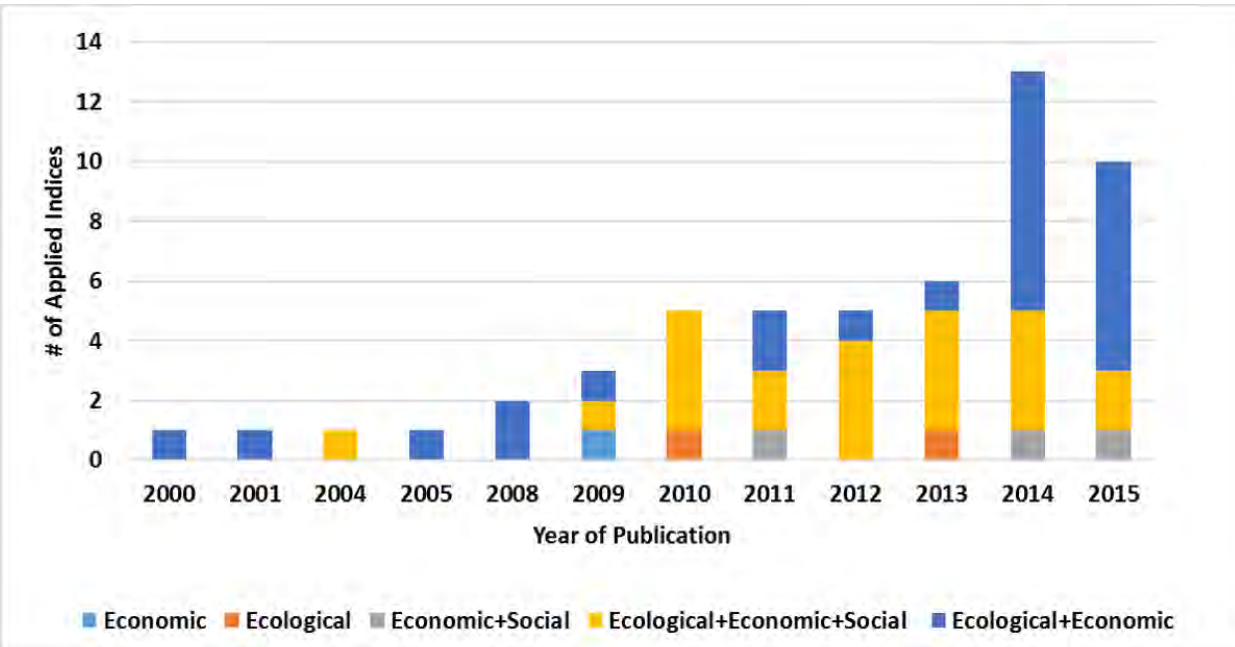


Figure 2.1 Number of applied resilience indices found using multi-factor composite index measures.

A pool of 27 published indices met all of the criteria. This final set of existing index development approaches were used to further develop CRSI research efforts. Figure 2.2 briefly decribes the literature review and culling process. Collectively, the remaining selected literature offered 297 indicators, topical categories or domain groups with 624 related metrics (Table 2.1).

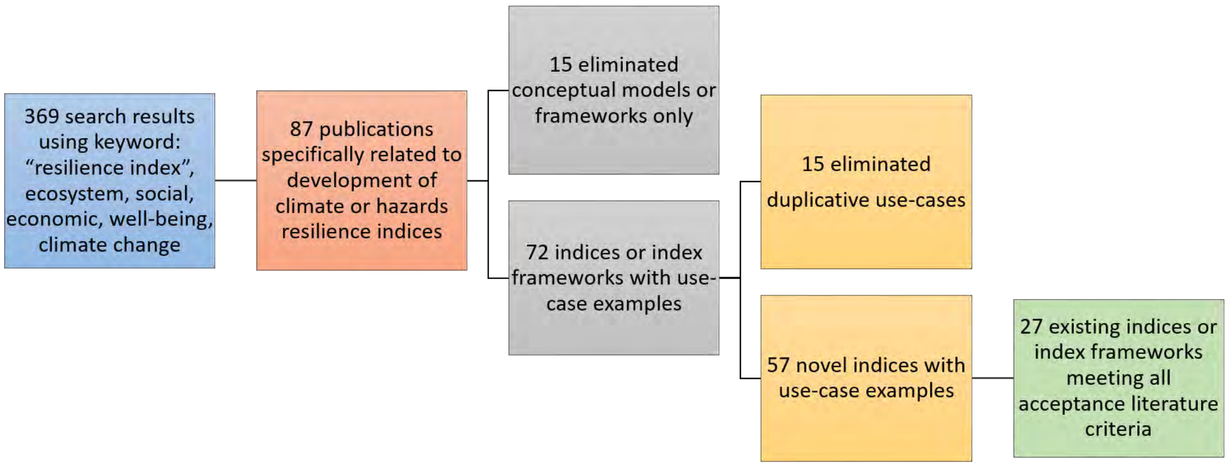


Figure 2.2 Publication elimination summary based on existing climate index development literature (2000-2015) used to inform CRSI research efforts.

Table 2.1 Existing measures of climate resilience included in this review, the number of domains/indicators and metrics used in each measure.

Index	Domains or Indicators	Metrics
Agriculture Resilience Index (Ciani 2012)	11	27
Arctic Water Resource Vulnerability Index (Alessa et al. 2008)	9	22
Baseline Resilience Indicators for Communities (Cutter et al. 2014)	49	49
City Resilience Index (ARUP 2014)	12	12
City Resilience Index to Sea Level Rise (Baraboo and Hassan 2014)	6	13
Climate Disaster Resilience Index (Joerin and Shaw 2011; Peacock et al. 2010)	25 38	120 82
Community Resilience Index (Kafle 2012; Renschler et al. 2010)	6	29
Community Resilience Index for the Gulf of Mexico (Baker 2009)	30	30
Composite Measure of Ecological Integrity (Vickerman and Kagan 2014)	22	22
Displacement Risk Index (Esnard et al. 2011)	15	51
EJ Screen Index (U.S. EPA 2015a)	12	12
Environmental Performance Index (Hsu et al. 2016)	20	20
Environmental Sustainability Index (Esty et al. 2005)	21	76
Environmental Vulnerability Index (Pratt et al. 2004)	50	50
Flood Resilience Index (Batica 2015)	43	91
Flood Vulnerability Index (Balica 2012)	19	19

Index	Domains or Indicators	Metrics	Index	Domains or Indicators	Metrics
Community Risk Index (Daniell et al. 2010)	27	46	Household Resilience Index (Cassidy and Barnes 2012)	16	16
Composite Measure of Coastal Community Resilience (Li 2011)	6	27	Metrics for Community Resilience to Disaster (Burton 2015)	22	75
Composite Measure of Community Resilience (Meher et al. 2011)	52	130	Resilience Factor Index (Ainuddin and Routray 2012)	16	17
Composite Measure of Regional Resilience (Martini 2014)	7	27	Resilience Inference Measurement Model (Li 2013; Lam et al. 2016)	10	33
Composite Measure of Resilience to Disasters (Kusumastuti et al. 2014)	22	63	Sustainable Society Index (van de Kerk and Manual 2014)	21	21

A review of indicator categories and related measures presented in the literature showed that vulnerability concerns stood out as a major recurring theme. This is not surprising since identifying vulnerability is typically the first step toward defining resilience i.e., recognizing hazard exposure weaknesses (e.g., Balica 2012; Batica 2015). However, vulnerability alone is not sufficient to characterize climate resilience. In several cases, existing indices offered well-rounded considerations for exposure vulnerability but often lacked similarly extensive measures of recoverability from these same exposures. (e.g., Alessa et al. 2008; Joerin and Shaw 2011).

There were examples of resilience indices that included both recovery and vulnerability indicators but these tended to compartmentalize the constructs into two distinct considerations (e.g., Cutter et al. 2014) rather than in a synthesized fashion. While several existing indices (ARUP 2014; Cutter et al. 1996, 2003, 2014) provided a more balanced suite of vulnerability and recoverability resilience measures, scale or scope limited the generalizability of these indices to fully generate suites of nationally comparable measures.

2.3. Determination of Climate Event Factors to be Included in CRSI

The National Climate Assessment summarizes the current and future impacts of climate change in the United States (http://nca2014.globalchange.gov/report). In this report, the likely changes in climate events associated with geographic regions throughout the United States were assessed, as well as the infrastructure challenges these changes would likely create (Table 2.2). Extended heat waves (with associated drought), more frequent heavy downpours (with associated flooding), sea level rise, enhanced insect outbreaks, increased wildfires, altered timing of streamflow, increased and faster sea ice and glacial loss, and increased major storm events (including hurricanes, tornadoes and superstorms) are all resultant climate changes that will likely be seen in the coming decade. Communities (human and natural) will need to "adapt" to meet the challenges presented by these changes. In human communities, that adaptation can take the form of enhanced governance to increase recoverability to these events. In natural communities, the "adaptation" likely will take the form of enhanced structural and functional redundancy to recover from stress. This combination of modified exposure and increased recoverability through governance and natural ecosystem processes is the basis of resilience.

In initial CRSI development discussions, climate experts in each of the ten EPA regions were interviewed to understand their views on the greatest climate challenges in their regions. These reported challenges matched well with those identified in the National Climate Assessment and the 100 Resilient Cities report (Rockefeller Foundation and ARUP 2014), as depicted in Figure 2.4 Rockefeller's 100 Resilient Cities helps cities around the world become more resilient to the physical, social and econommic challenges of the 21st century. The EPA Regional interviews, the 100 Resilient Cities findings and the National Climate Assessment were combined to determine the eleven (11) climate events that would be tracked in CRSI. These eleven climate event types are:

- Hurricanes
- Tornadoes
- Inland Floods
- Coastal Flooding
- Earthquakes
- Wildfires
- Drought
- High Winds
- Hail
- Landslides
- Temperature Extremes (high and low deviations of temperature).

Table 2.2 Summarized climate impacts for regions of the U.S. from the 2014 National Climate Assessment Report. EPA regions within the regional assessment are identified in parentheses.

<table>
<tr><th colspan="2">National Climate Assessment 2014
http://nca2014.globalchange.gov/report
Regional Assessments</th></tr>
<tr><td>Northeast (EPA Region 1, Region 2 and Region 3 (excluding VA)

Heat waves, heavy downpours, and sea level rise pose growing challenges to many aspects of life in the Northeast. Infrastructure, agriculture, fisheries, and ecosystems will be increasingly compromised. Many states and cities are beginning to incorporate climate change into their planning.</td><td>Southwest (EPA Region 9 and Region 8 (UT and CO) Region 6 (NM))

Increased heat, drought, and insect outbreaks, all linked to climate change, have increased wildfires. Declining water supplies, reduced agricultural yields, health impacts in cities due to heat, and flooding and erosion in coastal areas are additional concerns.</td></tr>
<tr><td>Southeast and Caribbean (EPA Region 3 (VA), Region 4, Region 6 (AR and LA))

Sea level rise poses widespread and continuing threats to the region's economy and environment. Extreme heat will affect health, energy, agriculture, and more. Decreased water availability will have economic and environmental impacts.</td><td>Northwest (EPA Region 10 excluding Alaska)

Changes in the timing of streamflow reduce water supplies for competing demands. Sea level rise, erosion, inundation, risks to infrastructure, and increasing ocean acidity pose major threats. Increasing wildfire, insect outbreaks, and tree diseases are causing widespread tree die-off.</td></tr>
<tr><td>Midwest (EPA Region 5 and Region 7 (IA and MO))

Extreme heat, heavy downpours, and flooding will affect infrastructure, health, agriculture, forestry, transportation, air and water quality, and more. Climate change will also exacerbate a range of risks to the Great Lakes.</td><td>Alaska (EPA Region 10)

Alaska has warmed twice as fast as the rest of the nation, bringing widespread impacts. Sea ice is rapidly receding and glaciers are shrinking. Thawing permafrost is leading to more wildfire, and affecting infrastructure and wildlife habitat. Rising ocean temperatures and acidification will alter valuable marine fisheries.</td></tr>
<tr><td>Great Plains (EPA Region 6 (TX and OK), Region 7 (KS and NE) and Region 8 (excluding UT and CO))

Rising temperatures are leading to increased demand for water and energy. In parts of the region, this will constrain development, stress natural resources, and increase competition for water. New agricultural practices will be needed to cope with changing conditions.</td><td>Hawaii (EPA Region 9)

Warmer oceans are leading to increased coral bleaching and disease outbreaks and changing distribution of tuna fisheries. Freshwater supplies will become more limited on many islands. Coastal flooding and erosion will increase. Mounting threats to food and water security, infrastructure, health, and safety are expected to lead to increasing human migration.</td></tr>
</table>

Table 2.3 Summarized climate impacts and resilience issues for selected cities of the U.S. from 100 Resilient Cities and ICLEI/RC4A (Local Governments for Sustainability (previously the International Council for Local Environmental Initiatives)/Resilient Communities for America).

EPA Region	City/Climate Impacts	Extreme Heat; Warming	Severe Drought	Extensive Wildfire	Air Quality	Extreme Rainfall; Flooding	Storms; Sea-level rise; Erosion	Water Quality/ Quantity	Infrastructure Damage	Other Resilience Issues
1	* Boston, MA					-	-		-	affordable housing, social inequity
1	Cambridge, MA					x			x	
2	** New York, NY	x					x			poor transportation system
3	Washington, DC	x				x	-		x	transportation and evacuation bottlenecks
3	Norfolk, VA					x	x		x	
3	Lewes, DE						x			
3	* Pittsburgh, PA					-	-		-	environmental degradation, infrastructure failure
4	Atlanta, GA	x								
4	Broward County, FL						x		x	
4	Miami Dade County, FL						x	x	x	
5	Minneapolis, MN	x				x				
5	Milwaukee, WI		x			x			x	
5	Grand Rapids, MI	x				x	x		x	
5	Ann Arbor, MI	-								
5	** Chicago, IL	x				x	x		x	endemic crime, infrastructure failure, public health
6	* New Orleans, LA						x	x	x	infrastructure failure
6	Houston, TX	x	x			x	x		x	
6	* Dallas, TX					x			x	energy shortages, infrastructure failure
6	** El Paso, TX	x	x			x		x		social inequity, epidemic drug & alcohol abuse, poor
6	* Tulsa, OK					-	-		-	social inequity
6	Tucson, AZ	x	-					x		
7	Dubuque, IA	x	x			x			x	crop failures
7	* St. Louis, MO	-				-	-		-	social inequity, endemic crime, civil unrest
8	* Boulder, CO	x		x	x	x			x	invasive species, disease, affordable housing
8	Colorado Springs, CO	x		x	x				x	
8	Denver, CO	x		-	x					
8	Salt Lake City, UT	-		-				-		
9	San Diego Bay Region, CA	-	-	-			-			
9	* Los Angeles, CA		x					x	x	earthquake, tsunami
9	* Oakland, CA						-			social inequity, earthquake, affordable housing
9	* San Francisco, CA	-	-	-						earthquake
9	* Berkeley, CA	x		x						earthquake
10	Eugene, OR		x	x						cold water species diminishing, invasive species
10	Beaverton, OR	-	-	-		-		-		
10	King County, WA	x				x	x		x	

(*) 100 Resilient Cities (**) ICLEI/RC4A & 100 Resilient Cities (x) Impacts Experienced (-) Projected Impacts

2.4. The CRSI Conceptual Framework

No singular approach among existing composite measures of climate resilience met all of the expected needs for developing CRSI. Collectively, however, the reviewed literature provided many of the building blocks (e.g., suites of indicators, indicator groupings, domains). A "heat map" table (Table 2.4) depicts the metric distribution of the final 27 existing indices across resilience topics of interest to CRSI. To varying degrees, all of the existing indices offered patterns of indicator groupings supporting the broad areas of interest for CRSI which formed the basis of five sub-indices or "domains" to describe overall resilience:

- Natural Environment
- Society
- Built Environment
- Governance
- Risk.

While none of the indices reviewed provided all possible indicators of interest to CRSI, 10 of the 27 publications included information relevant for describing all five CRSI domains. The Natural Environment, Governance and Risk domains were most frequently excluded from existing measures. Five indices (BRIC, CDRI1, CDRI2, M-RD and M-CRD) offered fairly comprehensive descriptions of indicators relevant for quantifying CRSI domains. The Climate Disaster Resilience Index 2011 (CRDI1) contributed the most to the proposed CRSI structure; addressing all domains based on a suite of 18 indicators.

Indicators and metrics from the selected literature were paired with one of the five CRSI domains. Twenty-one domain-specific indicators were derived from 117 unique metrics. Figure 2.3 depicts the final CRSI conceptual framework. Constituents of CRSI: Domains and Indicators of Community Resilience to Acute Climate Events. In this section, a summary description of each CRSI domain and related indicators is provided.The summaries highlight the importance of the domains in climate related resilience and the indicators used to characterize the five domains. For each indicator,example measures (metrics) are listed. For more detailed information about the individual metrics for each indicator, refer to Appendix A.

Table 2.4 Summary of literature reviewed index by topical areas of interest for development of CRSI. (ARI -Agricultural Resilience Index AWRVI -Arctic Water Resource Vulnerability Index BRIC -Baseline Resilience Indicators for Communities CRI-City Resilience Index CRISLR -City Resilience Index to Sea Level Rise CDRI1-Climate Disaster Resilience Index 2011 CDRI2-Community Disaster Resilience Index 2010 CResI-Community Resilience Index CRIG -Community Resilience Index for the Gulf of Mexico CRiskI-Community Risk Index MCCR -Composite measure of coastal community resilience MCR-Composite measure of community resilience MRR -Composite measure of regional resilience M-RD -Composite measure of resilience to disasters M-EI -Composite measures of ecological integrity DRI-Displacement Risk Index EJSI-EJ SCREEN Index EPI -Environmental Performance Index ESI-Environmental Sustainability Index EVI-Environmental Vulnerability Index FRI-Flood Resilience Index FVI -Flood Vulnerability Index HRI -Household Resilience Index M-CRD-Metrics for community resilience to disasters RFI-Resilience Factor Index RIMM -Resilience Inference Measurement model SSI-Sustainable Society Index).

CRSI Review Summary			Selected Index/Framework																										
Domains of Resilience	Topic of Interest	Candidate Measurement Categories	ARI	AWRVI	BRIC	CRI	CRISLR	CDRI1	CDRI2	CResI	CRIG	CRiskI	MCCR	MCR	MRR	M-RD	M-EI	DRI	EJSI	EPI	ESI	EVI	FRI	FVI	HRI	M-CRD	RFI	RIMM	SSI
Natural Environment	Extent of Natural Areas	• Managed Lands																											
		• Ecosystem Type																											
	Integrity	• Condition																											
Society	Economy	• Economic Diversity																											
		• Employment																											
		• Insurance																											
	Critical Services	• Safety and Security																											
		• Social																											
		• Labor/Trade																											
	Characteristics	• Demographics																											
		• Health																											
Built Environment	Infrastructure Integrity / Continuity	• Communication																											
		• Transportation																											
		• Utilities																											
	Structure / Housing Characteristics	• Non-Residential																											
		• Residential																											
		• Shelter																											
Governance	Preparedness	• Planning																											
		• Investment																											
	Response	• Expenditure																											
		• Time																											
Risk	Losses	• Property																											
		• Human																											
	Hazard Exposure	• Geophysical																											
		• Technology Hazards																											

 # Existing Measures related to Topic of Interest 3 5 10 20 +

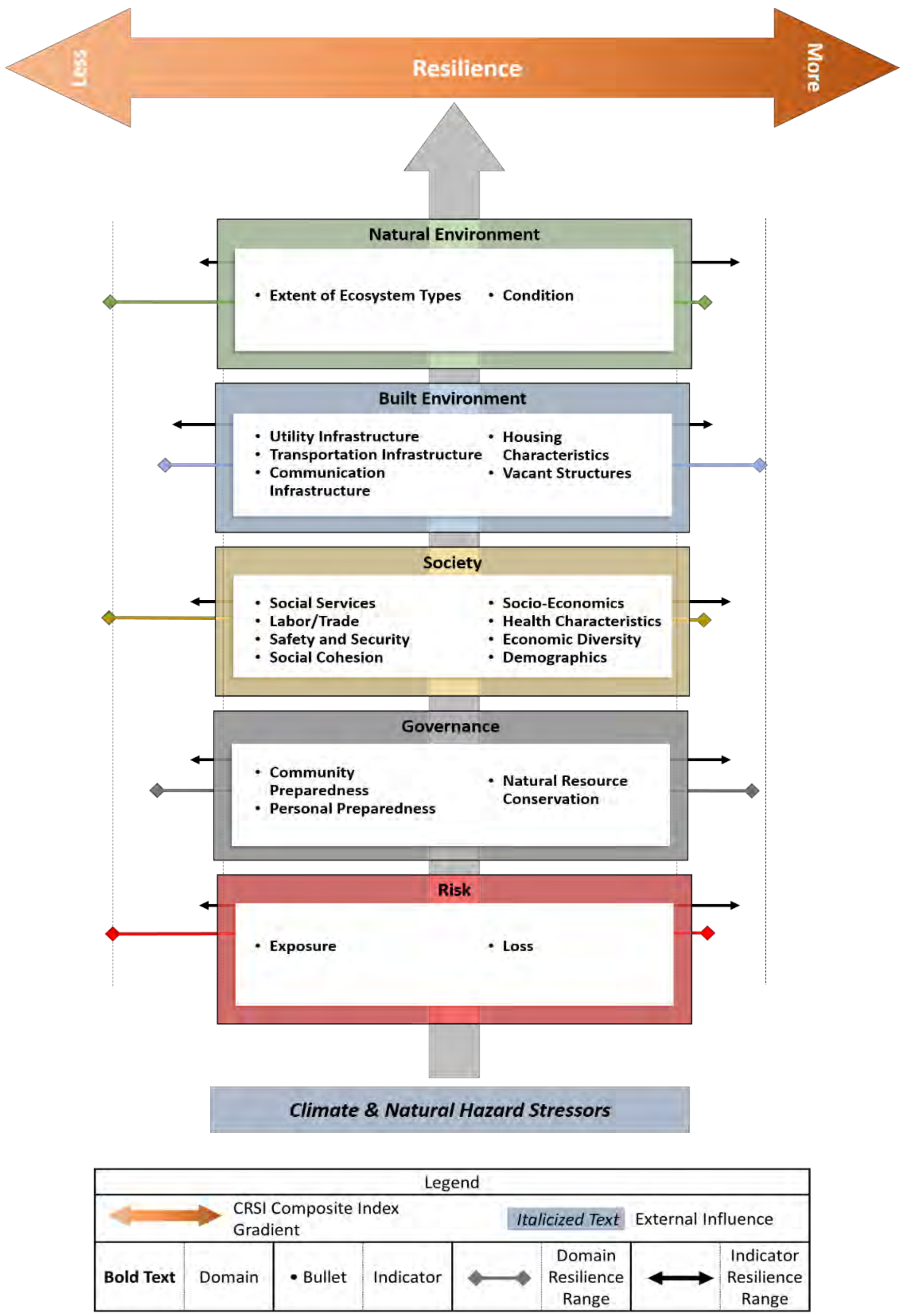


Figure 2.3 Final CRSI conceptual framework. Arrows projected from boxes to the left and right represent hypothetical increases and decreases in ranges for indicators (black arrows) and domains (colored arrows).

2.4.1. Risk Domain

The risk domain of CRSI represents the characteristics of a place that contribute to a level of exposure or loss resulting from specific hazards (climatic events, e.g., sea level rise, hurricane, tornado, wildfire, drought, etc.). Risk, as a construct, typically represents the likelihood that an interaction with a hazard will result in an adverse outcome. Within the CRSI framework, hazard exposure is dealt with wholly within the risk domain. This contrasts with vulnerabilities, handled as both losses in the risk domain, and socioeconomic characteristics, dealt with across multiple domains. Socioeconomic characteristics are typically the focus of interventions taken to increase resilience. Most geologic and atmospheric hazards cannot be controlled or predicted, and only the likelihood of an event occurring in a specific timeframe can be calculated. In the climate resilience arena, this is the likelihood that a storm with specific severity will occur, that sea level will rise by a certain amount, that a wildfire will occur, or extreme total rainfall will occur. Potential for exposure results when there is more than zero likelihood of a threat occurring in the same location as human and natural populations or the built environment.

Risk is assessed as a product of exposure probability and vulnerabilities, or the consequences associated with that exposure. For example, assets (e.g., a county, community or built environment) constructed in a river's floodplain have enhanced potential exposure to flooding; or an oil rig located near a natural ecosystem (e.g., forest), enhances the potential exposure of the ecosystem to oil. Similarly, managed ecosystems (e.g., managed forests, agriculture) constructed in drought prone areas, have enhanced potential exposure to drought. In each of these scenarios, risk is the result of exposures and vulnerabilities in a system that could yield a loss. If the goal of a county or community is to minimize negative impacts, there are two options: reduce the exposure or reduce the vulnerability. Depending on the structure of the county or community and the nature of the vulnerability, one option may be easier to achieve. In a flood prone county and community, for example, risk can be reduced by either reducing exposure potential, e.g., using residential zoning to eliminate building in flood prone areas, or by reducing vulnerability, e.g., by raising houses in a flood zone. In either case, identification of exposure and resulting impacts is necessary as a means to inform the decision, and this is the intent of the risk domain. In the CRSI model, risk is characterized by two indicators – exposure and loss. The specific natural hazard events and technological hazard types are listed in Table 2.5. A more in-depth discussion of the risk domain can be found in Buck et al. (2017).

Indicator: Exposure

The exposure indicator addresses the probability of hazard occurrence across a full spectrum of geologic and atmospheric events as well as additional technological hazards that may coincide with, or be exacerbated by, the events. The geophysical category of metrics represents the likelihood of occurrence of a geologic or atmospheric hazard based on location of populations (human and non-human) and built environment. This category of metrics is represented by metrics that characterize both historic and proximity-based likelihood of hazard occurrence. The technological hazards category of metrics represents the probability of exposure to hazards resulting from built technologies (e.g., nuclear power plants, oil pipelines, chemical manufacturing). The exposure indicator includes measures of:

- earthquake probability
- extreme high temperature incidents
- extreme low temperature incidents
- flood probability
- hailstorm probability
- hurricane probability
- landslide probability
- damaging wind incidents
- tornado probability
- wildfire probability.

CRSI calculates risk of exposure to acute climate events and selected natural geological hazards (e.g., earthquakes and tektonic landslides). The index does not address long-term climate change and its secondary effects. The one exception is sea level rise; however, CRSI uses sea level rise as part of coastal flooding based on historic rise and not as a future measure of predicted sea rise level from climate change. Similarly, CSRI does not directly address secondary effects of some acute climate events (e.g., pest abundance, hydrologic shifts) but rather addresses these through the direct acute climate events associated with them (e.g., drought, high temperatures). Similarly, CRSI does not include standard climatic events (e.g., rainfall, snowfall).

In addition, exposure for each county, parish and borough is modified by the proximity of technological or anthropogenic hazards including the presence of:

- Nuclear sites
- Toxic release sites
- Superfund sites
- Resource Conservation and Recovery Act (RCRA) sites.

This exposure modification is the result of the probability of exposure to a climate event in a pixel multiplied by one plus the probability of a technological hazard being located with a 5-mile radius for Superfund sites and a 10-mile radius of the pixel for other technological hazards; thus, enhancing the overall exposure.

Indicator: Loss

The loss indicator addresses an aspect of a place's vulnerability represented through historical loss of life and property (including crops) associated with specific hazards. The property loss indicators describe estimated and actual costs associated with property and crop losses as a direct result of a hazard. Many of the potential metrics for this indicator would come from the Spatial Hazard Events and Losses Database (SHELDUS). Similarly, the human losses indicator represents the loss of human life directly resulting from a hazard with metrics largely coming from the SHELDUS database. The loss indicator includes human loss (i.e., fatalities and injuries), property loss (i.e., property damage) and natural area loss (i.e., increase in impervious surface).

2.4.2. Governance Domain

" Governance" describes the collaboration of government agencies and Non-Governmental Organization (NGOs) or private actors (e.g., companies, citizens, etc.) towards joint objectives within a system of rules and regulations (e.g., hierarchies, markets, networks, counties and communities, etc.) (Benz 2001; Liesbet and Marks 2003; Bache and Flinders 2004a, b). Consequently, governance includes both formal and informal coordination processes among, across and beyond different sectors of public administration. It has been increasingly recognized that resilience problems related to climate events can only be sufficiently handled in an integrative and ive way to include diverse policy fields from all scales (Benz 2001) and actors from different fields (Huiteman et al. 2009; Pahl-Wostl et al. 2012; ARUP 2014). However, the administrative systems of many U.S. federal, state, county, city and community agencies are predominantly organized by sector. This organization makes coordination a major challenge in the wake of a severe climate event; such as, flooding and sea level rise (Adger 2001; Adger et al. 2005b; Pahl-Wostl 2007; Unwin and Jordan 2007; Knieling and Filho 2012), storm readiness (Wachinger et al. 2013; Adger 2001), water/river basin management (Cosens and Williams 2012), and fire protection readiness (Abrams et al. 2015). In light of these challenges, governance requirements for improving collaboration between sector-administrations, governmental, and non-governmental actors and new forms of governance must be introduced (e.g., integrated coastal zone management for storm events, oil spills, etc.) to bolster the ability of each state, county, parish and borough to recover from climate-related severe events (Crowder et al. 2006; Ramseur 2010; Colten et al. 2012). In CRSI, we have included three indicators in the governance domain to represent the importance of governance in resilience to climate events. These are community preparedness, natural resource conservation and personal preparedness.

Indicator: Community Preparedness

The community preparedness indicator addresses county and community resilience strengthening and structure hazard mitigation. While there is general consensus that community resilience is defined as the ability of communities to withstand and mitigate the stress of a disaster, there is less clarity on the precise resilience-building process (Chandra et al. 2011). In other words, we have limited understanding regarding the specific components that counties and communities can change or the "levers" for action that enable counties and communities to recover more quickly (although as a screening tool a selection of actions can be determined). Clearly, community preparedness and planning for such events helps to foster continuity and stability, defining roles and functions, and how rebuilding of lives, homes, livelihood, kinship and community will occur (Walsh 2007). Structural hazard mitigation is another form of community preparedness. Structural measures are any physical construction designed to reduce or avoid the possible impacts of hazards. Common structural preparedness measures could include dams, flood levees, ocean wave barriers, earthquake-resistant construction and evacuation shelters. The community preparedness indicator in CRSI includes measures of both county and community resilience strengthening, from Community Rating System (CRS) information, and structural hazard mitigation, from Small Business Administration (SBA) recovery mitigation information.

Indicator: Personal Preparedness

The personal preparedness indicator addresses individual or household activities that help protect personal property from acute climate events. Personal preparedness plans run the gamut, including developing a written plan identifying risks, access to facilities and functional needs, protection of children and the elderly, shelter plans and caring for pets. While ideal measures, CRSI does not include measures to address all of these issues because nationally consistent data are lacking. Instead, CRSI targets two major personal preparedness actions that protect property; namely, availability and coverage of homeowner's insurance and participation in the National Flood Insurance Program (NFIP). Flooding is the most common natural disaster but many home insurance policies do not cover natural or climatic event flooding. In 1968, Congress created the NFIP to fill this void by providing flood insurance protection to property owners. Insurance or insurability relates to numbers of structures/property that are insured (which can initiate recovery through an infusion of cash to start rebuilding) (Cutter et al. 2009).

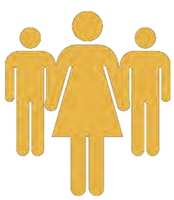
Indicator: Natural Resource Conservation

The natural resource conservation indicator addresses the protection of natural resources from anthropogenic activities. Protected natural ecosystems are usually better able to recover from acute climate events. Natural resource conservation management refers to the management of natural resources (i.e., ecosystems) with particular focus on how management affects the quality of life for both present and future generations as well as the sustainability of the ecosystem itself. The Community-Based Natural Resource Management (CBNRM) approach combines conservation objectives with the generation of economic benefits for counties and communities (Kellert et al. 2000). A limitation of using the CBNRM relates to the difficulty of reconciling and harmonizing the objectives of socioeconomic development, diversity protection, and sustainable resource utilization. The issue of biodiversity conservation is regarded as an important element in natural resource management as well as in recovery potential from acute climate events. The CRSI's use of natural resource conservation indicator related to biodiversity land protection (Land Protection Priority Index for preserving biodiversity) targets the use of conservation protection by states/counties/communities.

2.4.3. Society Domain

The concept of society, as used in CRSI, includes all human aspects of a community except the built environment. These are the constructs that represent the economic, demographic, and social interactions common to all urban and rural populations. Society is a group of people involved in persistent social interaction or a large grouping of people sharing the same geographical or social territory. These groups typically are subject to some political authority and often similar dominant cultural expectations. More broadly, a society may be characterized as an economic, social, industrial or cultural infrastructure made up of, yet distinct from, a collection of individuals. Thus, society can include the objective and subjective relationships people can have with the material world and other people. Proposed society indicators in CRSI include demographics, economic diversity, health characteristics, labor and trade services, safety and security, social cohesion, social services and socio-economics.

Indicator: Demographics



The demographics indicator includes aspects of vulnerable populations. Demographics of a county or community reflect attributes of the county's or community's general population; namely age structure, ethnicity, and socio-economic levels. All of these factors can influence the ability of a county or community to recover from a disaster (Lugo 2000; Vasques-Leon et al. 2003; Heltberg et al. 2009; Ibarraran et al. 2009; Steinbruner et al. 2013). Vulnerable populations represent those fractions of the population that may be particularly susceptible to impacts resulting from acute climate events. The vulnerable populations include:

- proportion of the population that is 65 years or older and living alone
- enclaves isolated by language (Non-English speaking populations)
- groups of persistent homeless persons/families
- proportion of the population under the age of 5 years

Indicator: Economic Diversity

The economic diversity indicator represents factors associated with economic stability and recoverability. Economic diversity addresses issues associated with a society's ability to monetarily respond and recover from a climate event. Economic diversity relates to the array of business sectors a county or community might have and the equitable distribution of economy. Lack of business sector diversity can suggest a more difficult path for economic recovery (Adger et al. 2005a; Reusch et al. 2005; Adger 2010). Employment and employment conditions can be important for a county's or community's recoverability.

The economic diversity indicator is represented by two indices – the Gini Index (Gastwirth 1972) and the Hachman Index (Hachman 1994). The Gini Index is a measurement of the income distribution of a county's residents. This number, which ranges from 0 to 1 and is based on residents' net income, helps define the gap between the rich and the poor, with 0 representing perfect equality and 1 representing perfect inequality. It is typically expressed as a percentage and is often referred to as the Gini coefficient. The Hachman Index incorporates location quotients, which measure relative industrial concentration in one area compared to that in another area. Location quotient (LQ) is a valuable way of quantifying how the concentration of a particular industry, cluster, occupation, or demographic group in a spatial unit (e.g., region, state, county) compared to the nation. It can reveal what makes a particular area unique compared to the national average. The Hachman Index is a measure of economic diversity that compares the industry composition of a state to the industry composition of the nation by taking the total employment of an industry in a state divided by total state employment, and comparing it to the nation's equivalent.

Indicator: Health Characteristics

The health characteristics indicator addresses factors associated with healthcare access, special health vulnerability populations, and specific health problems related to or exacerbated by acute climate events. The general health characteristics of a population emphasize conditions associated with greater vulnerability to climate events such as respiratory or cardiac condition changes during periods of intense heat; hospitalization conditions requiring electronic equipment during times of loss of power during floods, hurricanes or tornadoes; or, injuries or premature death related to extreme weather events (Greenough et al. 2001; McMichael et al. 2003; McMichael et al. 2006; Melillo et al. 2014). Access to healthcare means the timely use of personal health services to achieve the best health outcomes; such as, gaining entry into the health care system, accessing a health care location where needed services are provided and finding a health care provider with whom the patient can communicate and trust. Healthcare access is represented by a single measure of the proportion of the county's population with health insurance. Special health-care needs vulnerabilities represents any individual, group or community whose circumstances create a barrier to accessing emergency services because of pre-existing health conditions or vulnerabilities. Of particular concern are the more than 23 million U.S. residents (roughly 12% of the total population aged 16 to 64 years) with special health-care needs due to disability (U.S. Census Bureau 2016). This population is diverse and broadly distributed and deserves special attention because there is an 80% chance that any person will experience a temporary or permanent disability at some point in their lives (Kailes and Enders 2007). Specific health problems represent the proportion of a county's population with special health issues that can be exacerbated by acute climate events. These health conditions include:

- asthma
- cancer
- diabetes
- heart disease
- obesity
- stroke.

Indicator: Labor and Trade Services

The labor and trade services indicator addresses factors related to recoverability from an acute climate event associated with construction. In short, does a county or community have the appropriate construction skills to provide for accelerated recovery and represent a resilient construction workforce? Skilled construction labor is a segment of the workforce with a high skill level that creates significant economic value or, in this case, recoverability through the work performed by human capital. Labor and trade services represent the availability of skilled labor and tradecraft that can be utilized in the aftermath of a climate event (e.g., carpenters, bricklayers, engineers, roofers, construction workers, civil servants). This indicator includes construction skills (represented by adjusted numbers) relating to:

- concrete construction
- framing
- highway construction
- masonry
- power construction
- roofing
- steel construction
- water construction.

Indicator: Safety and Security

The safety and security indicator addresses the provisioning of emergency and civil services. The primary definition of safety is “the condition of being free from harm or risk”, which is essentially the same as the primary definition of security, which is “the quality or state of being free from danger.” The hierarchy considers safety needs secondary only to basic physiological needs like food and water. The need for safety has to do with our natural desire for a predictable, orderly world that is somewhat within our control. In relation to the development of the CSRI, safety targets the provisioning of the types of emergency services that would be necessary for a reasonable and rapid recovery from an acute climate event. Safety and security services encompass the availability of emergency first responders, medical personnel, civil order, and legal services. Measurements related to these services demonstrate a county’s or community’s ability to respond and the timing of that response to the results of a climate event (e.g., flood, hurricane, tornado, wildfire). The specific emergency and civil services included in the safety and security indicator include adjusted numbers of personnel associated with emergency services, law enforcement personnel, law enforcement support personnel and public safety personnel.

Indicator: Social Cohesion

The social cohesion indicator represents the willingness of members of a society to cooperate with each other in order to survive and prosper. We define social cohesion as a society that works toward the resilience of all its members, fights exclusion and marginalization, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward mobility. Social cohesion can be an important element of recoverability after a climate disaster. It represents community and family-centric networks and value structures with an emphasis on the characteristics that increase the likelihood of vulnerability (e.g., sense of place) and/or recoverability (e.g., family and social networks) (Schwartz and Randall 2003; Adger et al. 2005b; Baussan 2015). Social cohesion plays a significant role in the planning for resilience to acute climate events and in the execution of that planning after an event.

The constituent elements of social cohesion (OECD 2011), include social inclusion, social capital, and social mobility. Social capital, the resources that result from people cooperating together toward a common end, can play an important role in event. In the CRSI framework, social cohesion addresses access to social support. The measures of social cohesion include volunteering and volunteer organizations, ethnic diversity and the proportion of population native to a county or community.

Indicator: Social Services

The social services indicator for CRSI is represented by a range of public services provided by government, private, and non-profit organizations. Access to these services is critical for recovery from an acute climate event and include the availability of services unrelated to infrastructure, labor/trade, emergency services and civil control important for a county's or community's response to a climate event. These services would relate to laws, childcare, education, healthcare, and faith-based organizations. In the CRSI framework, this indicator is represented by:

- index depicting the average medically underserved population
- number of blood and organ banks in a county relative to the county's population
- access and availability of child care facilities
- number of emergency shelter and goods providers in a county relative to the county's population
- number of food service providers in a county relative to the county's population
- number of hospitals in a county relative to the county's population
- number of insurance claims in a county relative to the county's population
- number of educational facilities in a county relative to the county's population and support for those facilities
- mental health services
- percent of the county population living in a health professional shortage area (HPSA)
- number of physician services in a county relative to the county's population

- number of rehabilitative services in a county relative to the county’s population
- number of religious organizations in a county relative to the county’s population
- number of social advocacy facilities in a county relative to the county’s population
- number of special needs transportation facilities in a county relative to the county’s population.

Indicator: Socio-Economics

The socio-economic indicator for the CRSI society domain relates to employment opportunity and issues associated with personal economics, primarily level of income. Employment opportunity is represented by overall county-level unemployment rate. Employment and employment conditions can be important for a county’s or community’s recoverability. This indicator would include metrics like unemployment rates, underemployment rates and the formation of human capital (Marston 1985; Cohen 2011; Peiro et al. 2015). Personal economics relate to personal finances and involves all financial decisions and activities of an individual or household. The most basic of these activities is income, both actual income and relative income. For the socio-economic indicator, personal economics is represented by three measures: the proportion of a county’s population that earns less than 150% of the poverty guidelines for a specific household size, county unemployment rate and the median income for the county.

2.4.4. Built Environment Domain

The concept of a built environment is relatively recent and it was initially coined by social scientists (Rapoport 1976). The “built environment” describes the man-made surroundings that provide the setting for human activity, ranging in scale from buildings and greenspaces to neighborhoods and cities. The scope of the built environment typically includes supporting infrastructure such as water supply, energy networks and transportation corridors. The built environment is a material, spatial and cultural product of human labor that combines physical elements and energy in forms for living, working and playing (Roof and Oleru 2008). In recent years, public health research has expanded the definition of “built environment” to include healthy food access, community gardens, “walkability” and “bikeability” (Lee et al. 2012). The urban fabric is a complex socio-technical system that encompasses different scales – buildings, building stocks, neighborhoods, cities and regions – each with different time constants, actors and institutional regimes. The term “built environment” has also been adapted to address the relation between the built and the “unbuilt” part of the environment. This corresponds to the definition of a socio-ecological system where the “built environment” can be considered an artifact in an overlapping zone between culture and nature, with causation occurring in both directions. The sustainability debate and the growing awareness of risks to the built environment due to climate change and climate events have all helped to focus attention on the fragilities and the need to create resilience in the built environment (Hassler and Kohler 2014). In CRSI, we have included five indicators in the built environment domain to represent the importance of built environment in resilience to climate events; communications infrastructure, housing characteristics, transportation infrastructure, utility infrastructure, and vacant structures.

Indicator: Communications Infrastructure

Continuity of communications is the ability of a county, community or organization to execute its essential functions at its continuity facilities. This continuity depends on the identification, availability and redundancy of critical communications and information technology systems to support connectivity among key government leadership personnel, internal elements, agencies, critical customers and the public during crisis and/or disaster conditions. The communications infrastructure indicator primarily addresses a county's or community's communications continuity in the aftermath of an acute climate event. This indicator encompasses the number and distribution of:

- cell phone towers
- land mobile towers
- microwave towers
- paging towers
- radio broadcast towers
- TV transmission towers
- areas of no internet coverage.

Indicator: Housing Characteristics

Housing characteristics relate to the types of households distributed throughout a county and their structural vulnerability. Structural vulnerability is a distinct likelihood of encountering major difficulties within the county or community atmosphere or the threat to the county or community itself because of deficient housing or building conditions. While this concept applies to engineered structures and the meeting of building codes and requirements in order to sustain acute climate events, the primary issue in the indicator is physical structure (e.g., buildings), the construction of which usually has not been through the formal building permit process. Such buildings are obviously prevalent in the rural or non-urban areas along the periphery of municipalities. These types of constructions also include old historic buildings. Structural vulnerability generally pertains to the structural elements of building, e.g., load bearing walls, columns, beams, floor and roof. The structure vulnerability indicator in CRSI addresses issues of home overcrowding, age of home, housing unit density, major home construction and functional problems and number of mobile homes in a county or community.

Indicator: Transportation Infrastructure

Transportation infrastructure refers to the framework that supports our transport system. This includes roads, railways, ports and airports. National and local governments are responsible for the development and maintenance of our transport infrastructure. Transportation infrastructure is the fixed installations that allow vehicular traffic to operate. Transport is often a natural monopoly and a necessity for the public and a critical element of community infrastructure in the event of an acute climate event or the recovery from such an event. In the CRSI index, the transportation infrastructure indicator is represented by transportation flow continuity including:

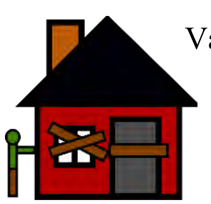
- access to highway entrances and exits
- number of and access to airports
- number of and miles of arterial roads in a county
- collector road lengths
- freight railroads
- heliports
- miles of local roads in a county
- roadway bridge access
- roadway bridge structures in a county
- seaplane bases.

One reviewer questioned the absence of public transit as a metric in this indicator. We agree with the potential importance of public transit to resiliency from an acute climate event. However, public transit was not included in the Transportation Infrastructure indicator for two reasons; one technical and one practical. The technical reason is that public transit is no more part of transportation infrastructure than automobiles. Transportation infrastructure consists of the fixed installations supporting transportation (e.g., roads, railways, terminals). The practical reason is that we considered the inclusion of public transit as a separate indicator but, while there was adequate data for the topic in metropolitan areas, data was sparse or non-existent for non-metropolitan areas which make up the bulk of the U.S.

Indicator: Utilities Infrastructure

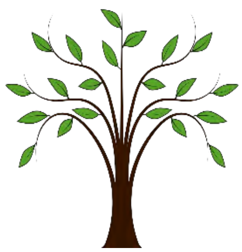
Public utilities are organizations that produce, deliver and maintain the infrastructure for supporting public access to critical public health services and power. Robust utility networks are essential for promoting quality of life during the disaster recovery process. Utilities networks are one of the most protected resources within any county or community, but areas that are sparsely populated may lack any redundancy or rerouting options should the main utility service(s) be compromised as a result of an adverse climate event. Within CRSI, the utilities infrastructure indicator describes the relative availability of drinking water, sewer and power services based on number and location.

Indicator: Vacant Structures



Vacant structures (residential and non-residential) are generally at greater risk to an acute climate event than occupied structures. This vulnerability is often due to a lack of maintenance, general deterioration and/or owner disinterest. Although not related to acute climate events, these structures are also a matter of increasing concern for fires. For example, Cleveland is plagued by over 12,000 vacant structures including houses, blighted buildings, schools, former manufacturing plants and forgotten warehouses. The issue is of such concern to Detroit (with over 78,000 vacant structures), that the city has demolished nearly 12,000 structures since 2014 resulting in a 25% reduction in vacant structure fires over the past two years (Helms 2016). By removing dangerous vacant buildings and empty houses, safety and quality of life in Detroit is improved. These types of buildings are particularly vulnerable to acute climate events. The CRSI vacant structures indicator includes the number of vacant business structures in a county, the number of vacant residences in the county and the number of other vacant buildings in the county (e.g., hospitals, schools, government buildings).

2.4.5. Natural Environment Domain



The natural environment is a domain that encompasses all living and non-living things, occurring naturally in the United States. The concept of natural environment can be distinguished by two primary components: 1) complete ecological units that function as natural systems without extensive human inventions (often called ecosystems) and 2) universal natural resources and physical phenomena that lack clear-cut boundaries (e.g., air, water. climate, radiation, magnetism) not originating from anthropogenic activities. In this domain the natural environment is represented by two indicators - the extent of ecosystem type and condition of natural ecosystems and managed lands. Open space and green space are included in appropriate

Indicator: Extent of Ecosystem Types

CRSI addresses the resilience of natural ecosystsems as well as the resilience of developed lands and dual-purpose lands. The extent domain is necessary to gauge resilience on the proportion of land that is undeveloped and includes the spatial extent or acreage of each ecosystem type that occurs naturally without any significant human intervention. Some of these measures include:

- wetlands,
- forested areas
- deserts
- aquatic areas or “blue space”
- grasslands
- tundra.

Indicator: Condition

CRSI addresses the resilience of natural ecosystsems as well as the resilience of developed lands and dual-purpose lands. The condition domain is necessary to gauge the original condition of the proportion of land types or ecosystems that is undeveloped and includes an assessment of the ecological condition of each ecosystem type that occurs naturally without any significant human intervention. This condition estimate is based on surveys completed by EPA’s Office of

Water (USEPA 2017) and Office of Air and Radiation (USEPA 2016a), USDA's Forest Service (USFS 2017) and and Natural Resources Conservation Service (NRCS 2017a, b). The condition indicator is related to metrics that describe the following ecological conditions in natural communities and resources:

- biodiversity
- aquatic ecosystems condition
- forests condition
- air condition
- soils condition.

Comparison of Differing Versions of CRSI

An earlier version of the CRSI framework was published as a conceptual model (Summers et al. 2017). The earlier conceptual model included five sub-models (risk, governance, social, built environment and natural environment), eleven domains and 25 indicators. The authors believed after further investigation that the domains and the indicators were largely duplicative. In order to maintain the structural integrity of the earlier index framework, the five sub-models were renamed domains. The original domains and indicators where combined to create a single set of well-rounded indicators. These changes did not significantly alter the structure of CRSI but rather introduced a different nomenclature to simplify the CRSI structure.

2.5. Metric Selection and Data Sources

A candidate list of potential metrics was identifed based on existing literature and expert opinon. The inventory of metrics was largely driven by the relevancy for measuring climate-events and natural hazard impacts, ecological connections of natural systems to built and natural environments and how well the sets of metrics fit as "proxies" for respective indicators. Metric redundancies across the literature were encountered. Over 600 metrics were described in the literature, many of which were duplicative. Based on the data acceptance criteria and other approaches such as autocorrelation analysis, duplicate measures review, etc. the candidate list of metrics were distilled through group consensus and expert counsel. Only the most robust metrics were retained for quantification. Data acceptance criteria are described as follows:

To the extent possible, data sources were selected based on the following criteria:

- Availability and access: The data are publicly available and easy to understand, access and extract.
- Reliability and data credibility: The data owners collected data in a manner that is vetted by the professional community and have metadata available for review.
- Spatial preference: County-level data is preferred spatial unit for population-based information and acres, meters, hydrologic units or similar for geospatial units.
- Coverage: Nationally consistent in scope.

- Chronological history and the likelihood that the data will continue to be collected: Data exhibit a consistent collection history from 2000-2015.
- Types of Data: Subjective and/or objective data specifically relevant for development of CRSI.

Table 2.5 offers a brief overview regarding the indicators and general description for interpretation. Detailed metric information is located in Appendix A.

2.6. Data Handling and Standardization

Acquired raw data used to populate CRSI metrics are maintained as an archive in their original format to help ensure data transparency. Metric data are derived from raw data, are stored in plain text format (e.g., ASCII) and are organized in hierarchical or nested structures that match the CRSI conceptual framework. This data structure allows each level of CRSI data, from raw data to final scores, to be examined either individually or as a whole. The plain text format makes the data not only more available to a variety of softwares (e.g., ESRI ArcGIS®, SAS®, R, JavaScript), but also makes the data more readable.

Table 2.5 List of CRSI domains, indicators, scope and number of metrics. Numbers in parentheses for domains show the total number of indicators/total metrics in the domain.

Domain	Indicator(s)	Metric(s)
Built Environment (5/24)	Communication Infrastructure	Communication continuity (7)
	Housing Characteristics	Structure vulnerability (5)
	Transportation Infrastructure	Transportation flow continuity (6)
	Utility Infrastructure	Utility Continuity (3)
	Vacant Structures	Structure vulnerability (3)
Governance (3/5)	Community Preparedness	Community resilience strengthening (2)
	Natural Resource Conservation	Natural Resource Recovery (1)
	Personal Preparedness	Personal property hazard protection (2)
Natural Environment (2/18)	Condition	Biodiversity, using birds as a proxy (1)
		Coastal Condition (1)
		Forest Condition (1)
		Inland Lake Condition (1)
		Percentage of clean air days (1)
		Rivers and Streams Condition (1)
		Soil Growth Suitability (1)
		Soil Productivity (1)
		Wetlands Condition (1)
	Extent of Ecosystem Types	Agriculture Area (1)
		Forested Area (1)
		Grassland Area (1)
		Inland Surface Water Area (1)

Domain	Indicator(s)	Metric(s)
		Marine/Estuarine Area (1)
		Perennial Ice/Snow Area (1)
		Protected Areas (1)
		Tundra Area (1)
		Wetland Area (1)
Risk (2/20)	Exposure	Earthquake probability (1)
		Extreme high temperature incidents (1)
		Extreme low temperature incidents (1)
		Flood probability (2)
		Hailstorm probability (1)
		Tornado probability (2)
		Hurricane probability (2)
		Landslide probability (1)
		Major toxics presence (1)
		Non-storm damaging wind incidents (1)
		Nuclear presence (1)
		RCRA sites (1)
		Superfund sites (1)
		Toxic release presence (1)
		Wildfire probability (1)
	Loss	Developed area loss (includes human and property measures) (1)
		Natural area loss (1)
		Dual-benefit area loss (includes cropland and managed area measures) (1)
Society (8/50)	Demographics	Vulnerable population (5)
	Economic Diversity	Economic stability/recovery (2)
	Health Characteristics	Health problems that may impact personal Resilience (9)
	Labor and Trade Services	Construction recovery (8)
	Safety and Security	Provisioning of emergency and civil services (4)
	Social Cohesion	Access to social support (4)
	Social Services	Access provisioning to critical services (15)
	Socio-Economics	Employment opportunity (1)
		Personal economics (2)

A team consensus approach was used to rate every candidate metric as to whether it was or was not a valid measure for a specific indicator. A final comprehensive review of the pool of indicator metrics was performed to identify potential data sources. If data for a metric could be obtained from two or more data sources, then a single source for the metric data was chosen based on the data acceptance criteria. Metric data were averaged across all years of available data. Any remaining data gaps were not imputed for count data, as a rule. Where missing data existed and were not expected (e.g., wetlands condition, scored indicator) then missing value was set to null. If missing data represented a metric where a zero was meaningful, the missing value was set to zero. For geospatial data interpolation methods were used to fill in missing data. The interpolation method varied by metric depending on measurement—aerially-weighted, modeled, etc. Box-and-Whisker analyses were completed for each fully enumerated CRSI metric. Extreme lower and upper outlier measures were set to minimum and maximum values, respectively. The maximum values were calculated to be three times the 75% percentile for each metric and the minimum values were calculated as minus three times the 25% percentile. Any outliers of this three times maximization technique were set to the metric value closest to the fence (Baum et al. 1970). Except for measures presented in percent or proportion, data were standardized on a scale from 0.01 to 0.99 using a min-max normalization process as follows: (p)ˆ=((x - xmin)/(xmax-xmin)). The resulting CRSI metric data set included measured, modeled and filled standardized data for the 3,135 counties of the U.S. Approximately 1.3 million metric data points were extracted and synthesized to quantify CRSI indicators.

2.7. Calculations

2.7.1. Built Environment, Governance, Natural Environment and Society Domains

Four basic steps were used to summarize metrics to domains (Figure 2.4), except for the Risk domain which will be discussed separately. Indicators and domains were derived using the following approach:

- Metric data were adjusted for age, population or spatial area, as appropriate, prior to standardization (e.g., number of hospitals in a county adjusted by the population of the county). Count information contributing to continuity measures were not weighted.
- Average of related standardized metric values served as the basis for indicator scores
- Domain scores were obtained from the sum of appropriate standardized indicator values.
- Domains for built environment, natural environment, society and governance were standardized in preparation for the final CRSI calculation.

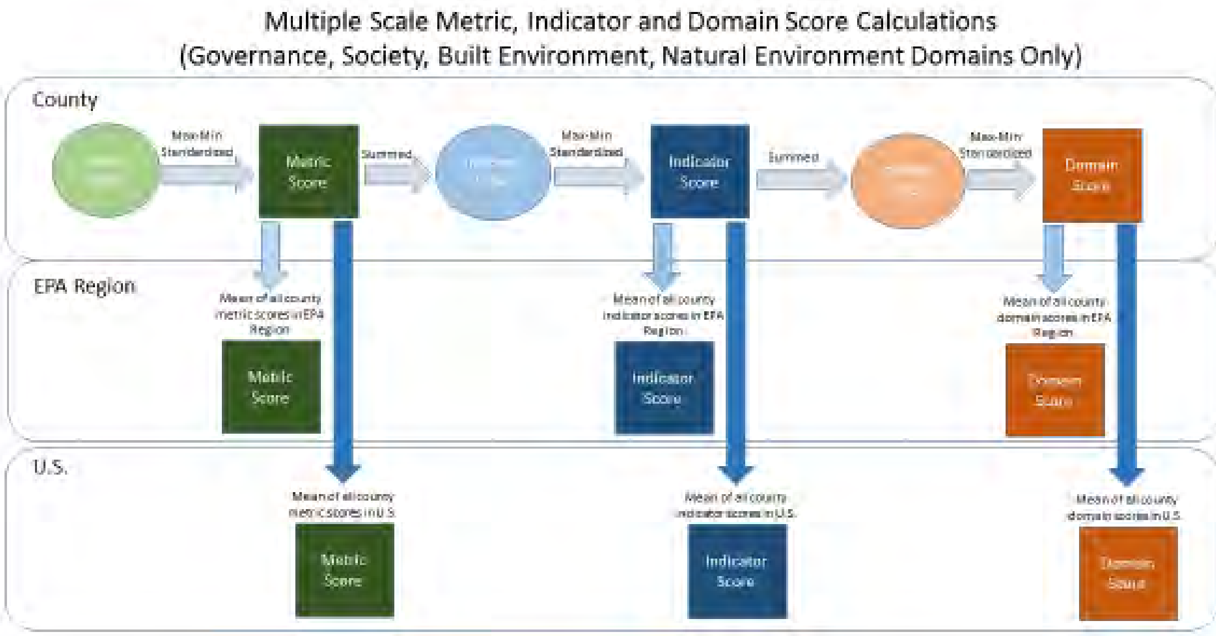


Figure 2.4 Representation of the Metric, Indicator and Domain scores for Governance, Society, Built Environment and Natural Environment Domains of CRSI. For this report, aggregations were made at the EPA regional scales and national scale. Similar aggregations could be accomplished at any appropriate scale (e.g., western regions, intermountain regions, coastal regions).

2.7.2. Risk Domain

The Risk domain is a probabilistic calculation based on geophysical and technological exposure and loss described in Buck et al. 2017. The components include historical exposure, basic likelihood of exposure factor, anthropogenic exposure, and human, property and natural ecosystem losses. All metrics were min-max standardized. A sum of metric values representing incidents of past natural disaster events and exposure likelihood for each county, parish and borough was used as the basis for calculating metric scores for the Exposure Indicator. The Loss indicator was derived from the sum of loss metric scores identified as three land type categories--natural, developed and dual use. The domain measures were calculated as the standardized product of total exposure divided by total loss. The approach used to calculate the Risk domain scores is presented in Figure 2.5.

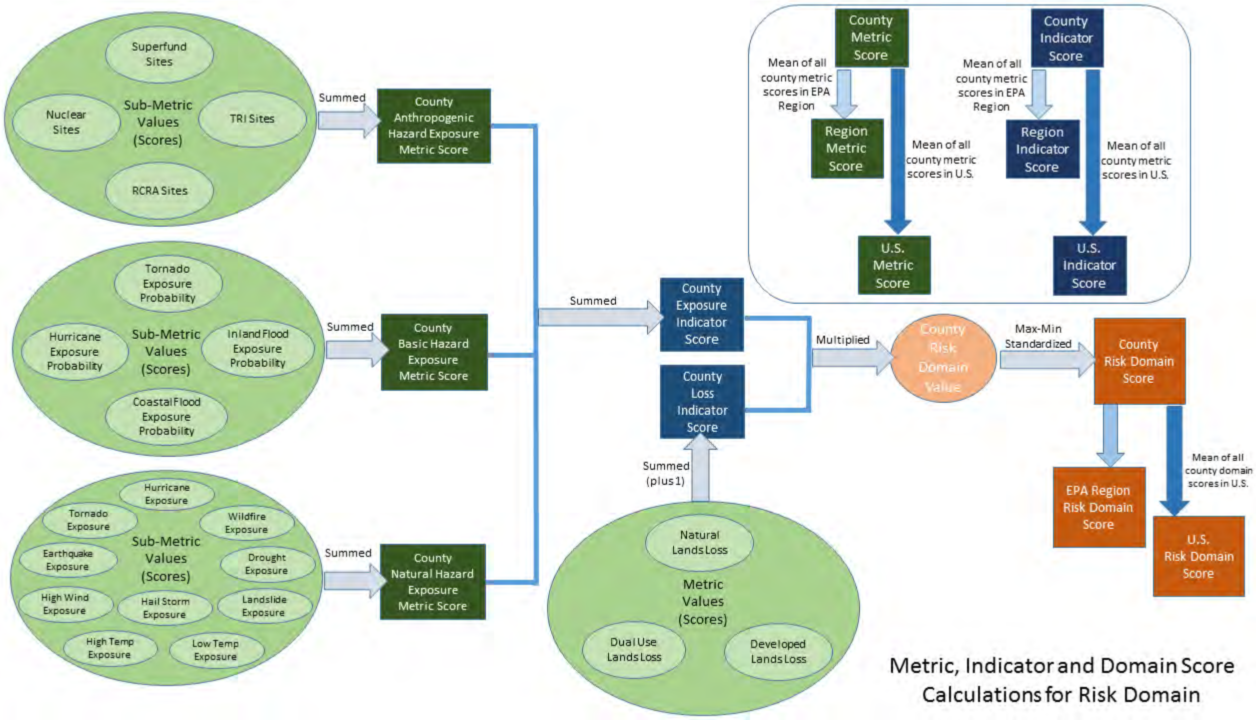


Figure 2.5 Representation of the Metric, Indicator and Domain scores for Risk Domain of CRSI.

2.8. The Final Steps to CRSI

All domains for each county, parish and borough (all referred to as county below) were min-max standardized on a scale from 0.01 to 0.99. The final CRSI calculation begins as a scaled value for recoverability/ vulnerability derived from Governance and Risk (basic CRSI) with the Governance value being adjusted by the remaining domain scores for social, built environment and natural environment to complete the calculation of CRSI as shown below:

$$CRSI(B)_i = R_i/V_i = Gov_i/Risk_i$$

where $CRSI(B)_i$ = value of basic resilience (Recovery/Vulnerability or R_i/V_i) and R_i/V_i = Governance in county i/Risk in county i. The overall CRSI score is calculated as:

$$CRSI_i = (Gov_i + Soc(a)_i Gov_i + BE(a)_i Gov_i + NE(a)Gov_i) / Risk_i$$

where $CRSI_i$ = the value of CRSI or adjusted resilience for county i and $Soc(a)_i$, $BE(a)_i$, and $NE(a)_i$ are the adjustment multipliers for Society, Built Environment, and Natural Environment in each county i, and $Risk_i$ is the Risk score for county i. The adjust factors are calculated as:

$$Soc(a)_i = {(Soc_i - Soc_m)} \Big/ {Soc_m}$$

where $Soc(a)_I$ is the adjustment multiplier for society in county i, Soc_i is the social domain score for county I and Soc_m is the median social domain score for all counties;

$$BE(a)_i = {(BE_i - BE_m)} \Big/ {BE_m}$$

where $BE(a)_I$ is the adjustment multiplier for built environment in county i, BE_i is the built environment domain score for county I and BE_m is the median built environment domain score for all counties;

$$NE(a)_i = {(NE_i - NE_m)} \Big/ {NE_m}$$

and where $NE(a)_I$ is the adjustment multiplier for natural environment in county i, NE_i is the natural environment domain score for county I and NE_m is the median natural environment domain score for all counties.

The calculation process is depicted pictorially in Figure 2.5. The domains are weighted equally in the calculation of CRSI in this report. By no means do the domains have to be weighted equally. If communities or counties have specific data to inform CRSI then weights can be added to the final CRSI calculation based on local priorities regarding the domain issues. Even if, no new data is added, domains can be weighted based on local knowledge of priorities.

2.9. Uncertainty Analysis

Uncertainty analyses is recognized as an important step in the presentation of new index frameworks. For CRSI, this analysis will be completed as part of Next Steps for further development of the index.

2.10 Technical Soundness of Approach

The approach used for CRSI is based on a basic method of creating an index to describe current condition and to be used as a screening tool to determine locations in need of improvement to increase resilience to acute climate events. The use of metrics to develop indicators and indicators to develop domains is a standardized approach. The selection of indicators and metrics based on scientific and social literature adds to the technical soundness of the approach. However, there are also limitations. Literature and team technical evaluation suggested several metrics that would be useful in representing the indicators but the decision to develop CRSI at the county level made the use of these metrics impossible as the data representing the metrics do not exist at the county level. Would CRSI likely be improved by their inclusion? Probably. Limitations of data always reduce the power of indices but using the available data certainly provides a screening level of accuracy for CRSI. Reviewers were asked specifically, “Is the approach for the index technically and conceptually sound?” Their responses provide a better measure of the soundness of approach than anything the authors could add:

"Yes, the general technical approach is based on a familiar and common one, in use for several decades to develop indices and compare components in a way to describe the current condition and help stakeholders identify areas to investigate for potential management actions/decisions (i.e., conceptually sound). Polar plots, scatterplots, ranked lists, maps, and examples by county and regions present a useful array of ways to engage stakeholders. A key area in my opinion is Figure 3.1 (now Figure 4.1) where the scatterplot is compared to a 45-degree line – I think the discussion and the figure can be made more impactful by explicitly drawing ellipses/circles on the plot itself and indicating potential management decisions/actions. I do think this document is very clear about distilling and clarifying new thinking around climate resilience. I did not identify any flaws, ..."
--Bruce Duncan Region 10

"The literature review/synthesis is a good approach that takes advantage of existing work."
--Megan Sussman, Office of Sustainable Communities

"Yes. Well written and succinct. I like the graphic on pg. 3." (Figure 1-1)
--Laura Farris, Region 8

One reviewer felt the report suffers from conceptual underexplication as well as a lack of transparency in the operationalization of concepts in the form of measures (Dr. Courtney Flint, Utah State University). While some reviewers felt selected indicators needed further explaination, most appreciated the level of explanation.

The reviewers were also asked: "Do the methods, results and discussion sections adequately describe the index development approach?" and "Are tables and graphics helpful?". Again their responses provide more information than the authors can provide through additional explanation. In addition, the responses suggest that the level of detail and explanation is sufficient for EPA Regional staff.

"Yes, from my point of view."
"Resilience Graphics and Tables clear."
--Joyce Stubblefield, Region 6

"Overall, yes, it is straightforward to follow the developmental approach and to see how additional information could be incorporated as new nationally accessible knowledge is developed. I do like the discussion here for a region – the overall comparison and then differences within the region by location and by domain is a good approach. However, as much as I appreciate the evaluation by region, I think there may be some other constructs, but maybe not for this effort. States and Tribal lands come to mind as being particularly useful unless you think county governance tends to outweigh state governance, which it probably does when it comes to land use decisions. I think your discussion around page 35 or so is very helpful example of how the index can be used."
--Bruce Duncan, Region 10

"Yes. I really like the graphic on pg. 12." (now Figure
--Laura Farris, Region 8

"In general, it would help to have more of the details of how different elements and indicators add up. Having some counties where scores came out very different and showing how that happened would be useful."
--Jeff Peterson, Office of Water

"As for adequately describing the index development approach, my biggest concern is that the operationalization is still a bit of a black box."
--Courtney Flint, Utah State University

3. How to Use CRSI – Its Utility and Potential Applications

3.1. Introduction

The potential for use of the Climate Resilience Screening Index (CRSI) is very broad and with additional localized data additions, even broader. Below, the potential uses are outlined by spatial unit (nation, region, county, community) and a few relevant specific examples (e.g., specific risks, specific county comparisons with similar circumstances but different CRSI scores, and comparisons of EPA Regions) are discussed.

Categories of purposes/uses of CRSI include:

- Describing the state of the condition of resilience at the county level and aggregated levels above the county (i.e., the minimal intended use of the index)
- Providing a framework that might be useful for communities to expound upon the county information using county- or community-specific data to create county- or community-level resilience scores
- Identifying areas for management/action decisions
- Tracking changes over time at the county, state, region, and national levels (potential use that would really need more research on which elements respond on what time scales to management decisions)
- Improving/further developing/vetting the index (i.e., ORD furthering the research in response to stakeholder identified uses)

The multiple application options discussed below address the utility of CRSI's extension to community decision makers, planners and other potential stakeholders.

3.2. General Broad Use

CRSI is not intended to be "run" based on the information in this report. CRSI has been run and its results provided for all counties in the United States (except for a few boroughs in Alaska and no counties in U.S. Territories) in this report. Users at this point will simply apply the results that are or can be easily provided (e.g., CRSI scores, domain scores, listings, plots of contributions to CRSI score, maps). For any other reasonable information at the county scale and higher, readers can contact the authors of this report and get most information. These available results can provide broad scale comparisons of large areas across the United States. For example, at the national level, the Appalachians, deep South and much of the West Coast states show relatively low governance associated with climate events and higher than average levels of risk to those climate events. The western states show higher CRSI scores than most of the U.S. (i.e., higher resilience) even though its governance levels associated with acute climate events is lower than much of U.S. However, the scores associated with built environment and natural environment are higher than much of the U.S. offsetting the minimal levels of climate event governance. This increases a low to moderate base resilience score (governance/risk) to a moderate to high CRSI score due to strong building codes, lower level of vacant structure, large areas of preserved and conserved lands, and higher levels of insured homeowners.

On a broad scale, EPA regions can be compared to assess which regions (based on the mean of county CRSI scores) have higher levels of resilience and which regions have lower levels. EPA Region 3, 4 and 6 have lower overall levels of climate event resilience based on CRSI scores. This does not mean that all counties in these regions have low scores. In fact, in Region 3, areas in northern Pennsylvania and in Maryland and Virginia on the lower shores of Chesapeake Bay have among the highest CRSI scores in the U.S. and can serve as models with valuable "lessoned learned" for areas of West Virginia with considerably lower CRSI scores. By disassembling the county CRSI scores, counties with low CRSI domain scores can learn from counties with higher scores. Similarly, in Region 4, counties with low governance scores related to climate events often show moderate to high risk to climate events scores. The Region can determine which counties need particular assistance in becoming more resilient to climate events. In Region 6, a region that lists enhancing resilience to climate events as a major goal, lower than average CRSI scores are seen along the Gulf Coast with very high risk scores in Harris. Brazoria, Jefferson and Chambers counties and low governance scores in all of these counties except Harris County. All of these counties have been major flood victims of Hurricane Harvey. While Harris County a reasonable level of governance associated with climate events, it's natural environment score is very low resulting in a diminution of the governance score (i.e., Harris County has been developing much of its natural acreage leaving small amounts of natural ecosystems to help ameliorate flooding conditions). Aransas County, second landfall of Hurricane Harvey, has a lower risk score with reasonable governance; however, that governance is diminished by a very low built environment score suggesting large numbers of vacant structure, on the whole, older buildings and poorer overall infrastructure for utilities, communications and transportation. These low built environment domain scores suggest that, if the area experienced a major climate event, the county would be a risk to broad scale destruction (as was evidenced in Rockport, TX).

Finally, individual counties can use CRSI scores on a broad scaled to determine nearby or similar counties with better domain scores – finding counties which can be consulted for "lessons learned". Counties may even be able to use CRSI scores and domain scores to pursue federal or state funding for improvement. Most utility benefits for counties and communities are shown below in Section 3.5.

3.3. Use by EPA Regions

This report provides CRSI and domain score information for all counties within an EPA region specifically to allow the regions to assess climate event resilience at the spatial scales of use to them rather than at the national level. The results by Region are shown as composites of the national scores (i.e., average county scores from within the region but based within a national context. This means that counties have the same CRSI and domain scores in the regional analysis as they do in the national analysis. This permits direct comparison of EPA Regions and counties within the regions. While direct regional comparisons may have limited value from some regional perspectives. It does allow Program Offices (see below) to assess comparative regional trends and allows Regions to locate other Regions with higher scores for CRSI or the domains to be assessed as models for improvement. Regional analysis does permit comparisons of the specific counties in their Region and allows the delineation of county CRSI and domain scores to ascertain which counties are in the most need of assistance in selected domains or overall resilience to climate events. For example, EPA Region 4 has a low overall CRSI score due to a number of counties in Alabama and Mississippi with relatively high risk and low governance for climate events. Similarly, these counties also have low society and built environment domain scores further reducing the impact of climate-related governance. In short, the counties have minimal governance related to climate events and, if an event were to strike, these counties do not have the composite skill mixes and demographic characteristics to ensure recoverability. To exacerbate the situation, these counties often have large numbers of vacant structures, less stringent building codes, and older public infrastructure. Examining these attributes of the CRSI and domain scores permits Region 4 decision makers to determine those counties most in need of assistance in developing their resilience to climate events.

EPA Regions can ascertain which counties in their jurisdictions are most at risk to climate events overall as well as to individual climate event types. The Regions can also determine which high-exposure or moderate-exposure counties have their risk levels elevated due to the proximity of technological hazards. Harris County, Texas's low risk domain score is the product of the combination of natural climate hazard exposures and multiple technological hazards (e.g., Superfund sites, RCRA sites, petro-chemical plants). Unfortunately, this exacerbation of risk has proven true in the aftermath of Hurricane Harvey in the Harris County metropolitan and suburb area of Houston with multiple explosions and fires at these types of technological hazards. Similarly, Regions can ascertain the major contributors to CRSI scores at the Regional level as well as the county level.

3.4. Use by EPA Program Offices

EPA Program Offices are most concerned with the establishment of policies and programs across the nation and, as such, are less interested in individual county information. However, Program Offices are interested if whole regions of the United States show relatively poor resilience to climate events and if certain areas of the country demonstrate high exposure to climate events in conjunction with high exposure to technological hazards addressed by EPA. EPA's Office of Land and Emergency Management (OLEM) has a special interest in this union of climate event exposure and technological hazards (e.g., Superfund, RCRA, active waste sites) in its development of guidance and technical assistance to establish safe waste management practices. Knowing the juxtaposition of counties at risk and placement of technology hazards is useful to OLEM for both guidance and organization of clean-up activities resulting from a major waste event.

EPA's Office of Water (OW) ensures that drinking water is safe and restores and maintains watershed and ecosystems to protect human health, support economic and recreational activities, and provide healthy habitats. Drinking water issues were a major problem in the aftermath of Hurricane Katrina and is a major continuing issue in several major Texas cities as a result of Hurricane Harvey. Wildfires can be a major source of watershed devastation, particularly in the West as evidenced by the magnitude and spatial spread of fires during late summer 2017 in California, Arizona, Oregon and Washington. Earthquakes, prominent in the West, can also be source of modified drinking water as well as infrastructure destruction. Through interactions with the ten EPA Regions, state and local governments and American Indian tribes, OW helps to build capacity and resilience for water resources.

EPA's Office of Air and Radiation (OAR) is concerned with air pollution prevention, radiation protection and climate change issues among many other issues. Knowing the juxtaposition of counties with high climate event risk exposure with radiation producing facilities (e.g., nuclear power plants) and chemical producing facilities could be important data for the Office of Atmospheric Programs (OAP). The interaction of climate change indicators and climate event exposure rates as well as recovery rates for regions of the United States could also be of importance.

EPA's Office of Sustainable Communities (OSC) supports locally led, community-driven efforts to revitalize local economies and attain better environmental and human health outcomes contributing to community sustainability and resilience. Knowing which counties (and communities) display lower resilience to acute climate events could be an important factor in evaluating which resources are placed to contribute to clean air, clean water, and other important resilience goals of communities and counties. OSC is also interested in the development of tools, research and case studies that promote understandings of resilience and sustainability. Finally, the use of shared examples among counties and communities (learning from each other) in order to provide models of behavior and action is one cornerstone for OSC.

3.5. Use by States, Counties, Metropolitan Areas and Communities

The use of CRSI results or CRSI modification is important at the state, county, metropolitan area, and community level. While one could argue that every community is different with regard to its likely exposure to acute climate events, governance associate with climate events and its resilience to climate events, it is clear the counties in much of the United States can set the tone, guidance and often specifics for emergency operations plans, and emergency response to disaster recovery and hazard mitigation (FEMA 2011) even those developed at smaller spatial scales. Emergency and disaster planning involves a coordinated, co-operative process of preparing to match urgent needs with available resources (Alexander 2016). For successful responses to acute climate events, there must be high levels of coordination and continuing cooperation among, federal, state, county and community infrastructures (Plough et al. 2013).

Many states develop basic disaster management plans and require counties to develop comprehensive emergency management plans and county emergency management programs that must comply with the basic plan. Counties often engage with larger communities in the same manner. However, in many cases smaller communities (without significant resources) simply adopt the county plan and jointly administer the plan in their jurisdictions. For example, Florida (a state with significant acute climate event risks) has established a Comprehensive Emergency Management Plan (CEMP) (FDEM 2016) as the master operations document for the State of Florida establishing a framework through which the state handles emergencies and disasters. The CEMP consists of a basic plan which describes the process for preparedness, response, recovery and mitigation and provides local CEMP compliance criteria (CEMP-001). In the vast majority of counties, the County CEMP drives these activities in all communities within the county. The exceptions are in counties with large metropolitan areas (e.g., Miami, Tampa, Orlando, Jacksonville) which will have their own CEMPs that are required to meet the county criteria. Thus, the county governmental unit becomes a major actor in the resilience of counties' and communities' to acute climate events. As a result of this necessary cooperation at all levels of government for satisfactory resilience to acute climate events, counties are often the central focus of specific disaster planning and preparedness for all towns, communities and jurisdictions within the specific county. This is the case in Pensacola, FL where responsibility for this type of preparedness and planning and the execution of emergency management falls to Escambia County. Similarly, in Rockport, TX (the site of the second landfall of Hurricane Harvey), one of the primary actors in emergency planning and response in Aransas County, TX. Therefore, in the majority of cases throughout the U.S., collection of data at the county-level in appropriate and can be augmented by specifics associated with the individual community affected by the event.

CRSI and domain scores at the county-level permit state, county and community planners to ascertain, risks to climate events in their jurisdictions, likelihood of recovery from such an event (resilience), the likely causes of low levels of recovery, and the identification of counties in similar circumstances (similar risk) that have strong resilience scores.

3.6. Examples

Hurricane Harvey

In August, 2017, Hurricane Harvey had two landfalls in Texas – Rockport, TX in Aransas County and Port Aransas, TX in Nueces County. In addition, rainfall from Hurricane Harvey resulted in massive flooding in Houston and surrounding areas (Harris and Brazoria Counties) and Beaumont and surrounding areas (Jefferson and Chambers Counties). Some of the worst damage appeared to be in Rockport, a coastal city of about 10,000 that was directly in the storm's path. Many structures were destroyed and Rockport's roads were littered with toppled power poles. Extensive damage was also registered in Port Aransas, TX (site of the second Texas landfall). It is estimated that it will be a long time before the storm’s catastrophic damage is repaired. Flooding in the Houston/ Beaumont areas is the worst in history, displacing millions of people and with flood waters expected to recede over the course of weeks to months. As an exercise, CRSI results were examined (after the fact) to determine the magnitude and likely locations of extensive damage and low resilience along the Texas Gulf Coast (Table 3.1).

Of these counties, CRSI scores for Aransas, Chambers, Harris, Jefferson and Refugio Counties are significantly below the national average for CRSI suggesting significantly lesser resilience to climate events. Of these counties, only Aransas and Refugio Counties (first Texas landfall) display a low risk domain scores suggesting little history of major climate events (until Hurricane Harvey) but both counties have significantly reduced built environment domain scores suggesting that if an event were to strike these counties both would suffer significant structural damage due to reduced public infrastructure and large proportions of vacant buildings. Both counties also showed lower than national average levels for the society domain score suggesting that neither county has the skills diversity to easily rebuild and neither have strong security and security infrastructures. Hurricane Harvey also devastated Port Aransas, TX in Nueces County. Nueces County has a significantly higher risk domain score than the national average associated primarily with historical hurricane paths. The county is dominated by Corpus Christi, TX which avoided much of the devastation associated with the hurricane; however, Port Aransas suffered extensive structural damage. Port Aransas is likely much more similar to Rockport, TX in Aransas County which demonstrates a significantly lower than average CRSI score.

The other counties with lower CRSI scores – Chambers (1.81), Harris (1.62) andJefferson (2.82) – all show high risk domain scores well above the national average. The Harris County risk score is exacerbated by significant technological risks located there (e.g., chemical and oil refinery facilities, Superfund sites). Brazoria County, located southwest of Harris county, has a lower than average CRSI score but a significantly higher than average risk domain score. All four of these counties are at significant risk to flooding and all four counties significantly flooded due to the intense rainfall associated with Hurricane Harvey. Houston (in Harris County) is reported to have had historic flooding than likely will not recede for weeks and possibly months.

Resilience from the flooding in these counties appears to be driven by differing factors based on the CRSI and domain scores. Brazoria County has a less than average resilience score that appears to be the result simply of a high risk but all the remaining factors tend to reduce the risk and increase the resilience score to 3.38 (somewhat below the national average). Harris County, on the other hand, has among the highest risk scores in Texas (0.758) again associated with flooding and several exacerbating factors. The CRSI score for this county in significantly below the national average at 1.62 suggesting recovery from a major event could be a very long process. This lower resilience seems to be driven by a very low natural environment score (0.192) suggesting that increasing development in the last decade and loss of natural lands is significant (particularly to the north and west of Houston). Natural and open lands often provide a buffering impact to acute climate events. They are usually damaged but tend to recover quickly while reducing the impact of the event on surrounding populated areas. This low level of natural ecosystems in the Houston area (often replaced by impervious surfaces) would enhance the impact of flooding. Chambers and Jefferson Counties also have high risks levels associated with flooding with both counties displaying significantly lower than average resilience scores (Chambers County – 1.811 and Jefferson – 2.82). However, the remaining domain scores in both counties suggest more rapid recovery than Harris County with Chambers County recovering at a slower rate than Jefferson County.

Table 3.1. CRSI and domain scores for select counties along the Texas Gulf Coast and National Average scores (excluding Alaska); (Bold denotes significantly below national average for CRSI and above national average for domains).

County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
Aransas	0.18045	0.51250	**0.33419**	0.52163	**0.40423**	**2.657135**
Brazoria	**0.60166**	0.58813	0.77630	0.54926	0.52368	3.384523
Chambers	**0.57128**	0.57957	0.51116	0.50005	0.43950	**1.811030**
Calhoun	0.21731	0.52463	0.43549	0.49039	0.42868	3.372704
Fort Bend	**0.41124**	0.59683	0.78479	0.42022	0.58024	4.526797

County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
Harris	**0.75794**	0.56306	0.83741	**0.19155**	0.49091	**1.623658**
Jackson	0.12093	0.55163	**0.33742**	0.48061	0.53769	5.693879
Jefferson	**0.52977**	0.50619	0.69823	0.44851	0.52149	**2.820717**
Matagorda	0.25589	0.52457	0.43992	0.50342	0.43102	3.053307
Nueces	**0.46478**	0.55470	0.69866	0.41923	0.47736	2.980723
Refugio	0.11600	0.57228	**0.26566**	0.46778	0.44307	**2.590426**
San Patricio	0.18896	0.54902	0.48926	0.44391	**0.40174**	3.881974
Victoria	0.14123	0.52892	0.51231	0.51035	0.54069	8.575635
National Average	0.23017	0.58827	0.39262	0.41210	0.51587	3.845290

County Comparisons

Direct comparisons of counties can be made with CRSI. These comparisons, might reflect comparisons of counties with "perceived" similarities. Appendix C provides the information necessary to compare counties (i.e., CRSI and Domain Scores). As was done in the above examples, a reader can determine differences between or among counties from the CRSI scores and then determine which domains drive the observed differences. These comparisons would permit the viewer to compare counties with "perceived" similar risks and governance and, if the CRSI scores are different, to determine what drives the differences (e.g., low domain scores in particular areas.

EPA Regional Screening Comparisons

Regional analyses (Table 3.2) and mapping show that EPA Region 10 (14.8) and EPA Region 1 (10.7) have the strongest overall resilience scores with EPA Region 4 (0.6) and EPA Region 6 (2.8) having weaker scores. The remaining six EPA Regions cluster together with moderate scores (3.4-6.1). Disassembly of the CRSI scores shows that Region 10 strengths lie in its low risk score which result in a high basic resilience score even though its governance low is less than the national average. Although lower, its governance domain score is more than three times the Region's risk domain score. Region 1 strengths lie in the highest governance score in the Nation with moderate risk, and above average domain scores for social, built environment and natural environment. On the other hand, Regions 4 and 6 have above average risk domain scores and below average governance related to climate events scores. Driving down these lower basic resilience scores, both regions have below average society domain scores suggesting a poorer population, increased ethnicity (making communication for emergency response more difficult), lower levels of social services, poorer access to health facilities, and higher level of undocumented skilled trade laborers (making an assessment of the abundance of trade labor difficult). Region 4 also has a below average score for its built environment suggesting less stringent building codes, higher levels of vacant structures and weaker levels of public infrastructure especially in Georgia and Alabama.

Overall, the U.S. shows good levels of resilience to acute climatic events. However, analyses demonstrate that selected counties (hundreds of them) with higher levels of risk and low levels of governance can improve their resilience by specifically addressing issues associated with the governance, built environment, natural environment, and society domains. CRSI, which is meant to be a screening tool, provides those directions investment, assistance and action by the EPA Regions and Program Offices.

Table 3.2. CRSI and domain scores for EPA Regions with National Average scores (including Alaska); (Bold denotes significantly below national average for CRSI, significantly above national average for risk domain and simply below national average for remaining domains which results in negative adjustment factors).

EPA Region	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
Region 1	0.2403	0.8956	0.4916	0.4445	0.5987	10.6968
Region 2	**0.3084**	0.8292	0.4694	**0.3860**	0.5202	4.9988
Region 3	**0.2715**	0.6885	**0.3821**	**0.3778**	**0.5117**	**3.3911**
Region 4	**0.2547**	**0.4976**	**0.3421**	**0.4027**	**0.4141**	**0.5849**
Region 5	0.2217	0.7135	0.4070	0.4343	0.5722	6.0213
Region 6	0.2392	0.5479	0.3937	0.4229	0.4739	**2.7718**
Region 7	0.2087	0.5968	**0.3576**	**0.3800**	0.6092	4.1134
Region 8	0.1623	0.5572	0.3983	**0.3956**	0.6167	6.0857
Region 9	0.2345	**0.3579**	0.6204	0.4704	0.4795	6.0778
Region 10	0.1370	**0.4319**	0.4776	0.5315	0.4920	14.8380
National Average	0.2288	0.5876	0.3932	0.4136	0.5156	4.2125

4. Results and Discussion – National and EPA Regions

4.1. Organization of Results

The results of the CRSI application are shown in this section as a series of maps and graphics that delineate CRSI scores, first across the national and then across all ten EPA Regional scales. Each series for each of the scales consists of the same six maps and two graphics: one map for overall CRSI county results; five maps depicting county results for each of the CRSI domains (Overall Risk, Governance, Built Environment, Natural Environment and Society); and two graphics that break down the index to demonstrate the contributions of the five domains and the 20 indicators to the overall CRSI score. This disassembly of the index within the EPA Regions allows each region to assess the most significant contributors to strong and/or weak resilience to climate events.

Results from the national scale CRSI scores are further examined to explore how basic resilience (governance/risk) relates to goverance. This is accomplished by analyzing the number of counties, represented in a 5x5 matrix depicting the quintiles of governance and overall risk domain scores. In essence this matrix ranges from low-low (lowest 20% risk and governance) to high-high (highest 20% risk and governance). This analysis examines whether the distribution of basic resilience in the U.S. is characterized by greater risk scores being matched by greater governance scores. Similarly, the analysis assesses the number of counties with high levels of governance but low levels of risk as well as counties with low levels of governance but high levels of risk. Counties in either of these categories would be of interest to EPA Regions as areas of potential investment (low governance and high risk) or areas to understand the level of governance investment given the low level of risk (high governance and low risk).

4.2. General Broad Analyses and Results of Basic Resilience (Governance/Risk)

An initial analysis was performed to assess whether the CRSI results associated with basic resilience (governance and risk) varied in a predictable way. Plotting the domain values of risk vs. governance would, from a policy standpoint, be expected to have a positive relationship – greater risk should be accompanied by greater governance. This was tested in three ways: (1) assessment analysis of risk domain versus governance domain scores, (2) examination of the number of counties in the quintiles of risk versus governance (i.e., the number of counties in each quintile combination and testing for expectation using a chi-squared test) and (3) mapping the 25 quintile combinations to examine potential patterns.

An assessment of risk domain versus governance domain is the governance/risk ratio. The expected result of the assessment is a 45 degree angle from low risk-low governance to high risk-high governance. This finding would demonstrate that governance is developed in proportion to likely risk (i.e., if you experience high risk there are governance activities/structures in place to counter act that risk). Significant deviation from this finding could reflect an under- or overreaction to likely risk in terms of governance activities. Placing results into quantiles allows characterization of clusters of counties as over- or under-reacting to risk in terms of governance. In this categorical relationship, generally any combination of risk and governance along the 45 degree angle (slope=1.0) plus or minus one category would be in the expected range. A combination of high risk and low governance would suggest under-reacting, where as or low risk and high governance would suggest over-reacting (new figure showing categories). Mapping these risk-governance ratio categories by county demonstrates any clustering throughout the U.S. to detect spatial trends.

The assessment results based on normalized risk and governance domain are shown in Figure 4.1. These results indicate that the governance score is generally higher than the risk score (206 counties, 6.6% of U.S. counties, have risk scores greater than their governance scores). This suggests that governance activities in the majority of counties outweigh the risk of exposure to extreme climate events.

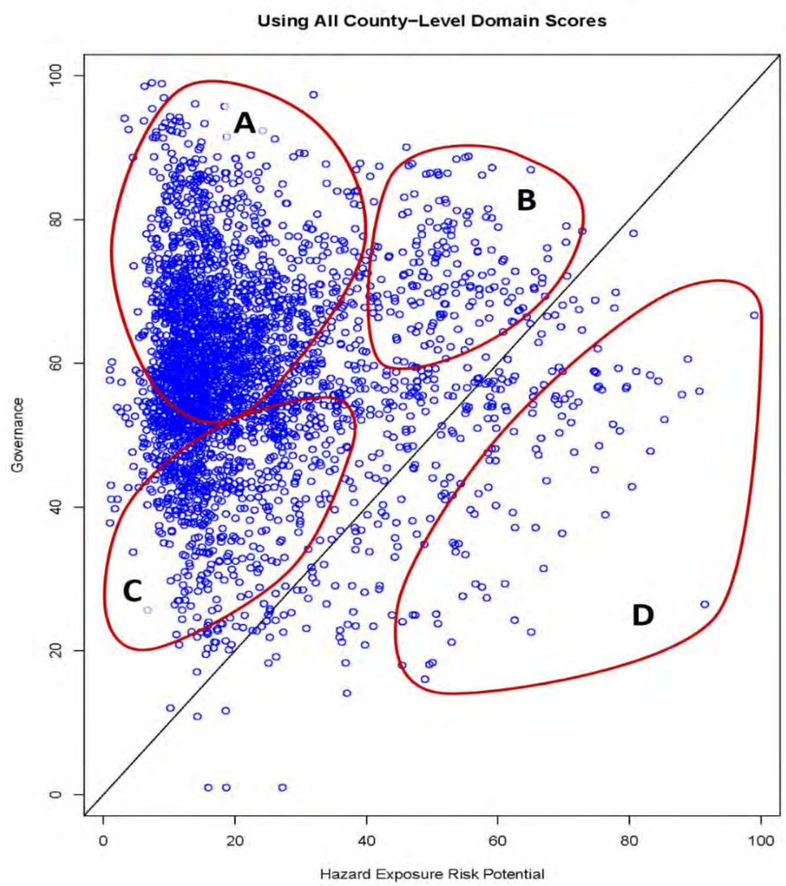


Figure 4.1 Linear assessment of risk versus governance based on domain scores. Ellipses represent differing management implications with A: Low Risk-High Governance (little increased governance necessary other than improvements for selected below-average indicators; B: High Risk-High Governance (likely appropriate governance but any improvement in below-average indicators a likely improvement to resilience); C: Low Risk-Low Governance (likely appropriate governance for level of potential risk; D: High Risk-Low Governance (improvements to governance and indicator of the CRSI domains necessary).

Figure 4.2 shows the county data from the assessment analysis distributed across the categories of risk-governance. For the majority of counties, risk is clustered in the second and third quintiles, while governance clustered between the third and fourth quintile. While this result is positive for the U.S., it can be misleading. The result may occur because the risk of exposure to extreme climate events clusters largely in the second quintile demonstrating relatively low risk while governance clusters in the fourth quintile giving the appearance of “excessive” governance. To account for this, the distribution of basic risk among the counties was examined using a min-max of risk-governance based on the distribution of the county scores to determine the roughly 500-1000 counties with the largest risk to governance disparities (Figure 4.3). These disparities focus on those counties with lower risk and higher governance ratios and higher risk and lower governance allowing the identification of counties where increased governance might be beneficial.

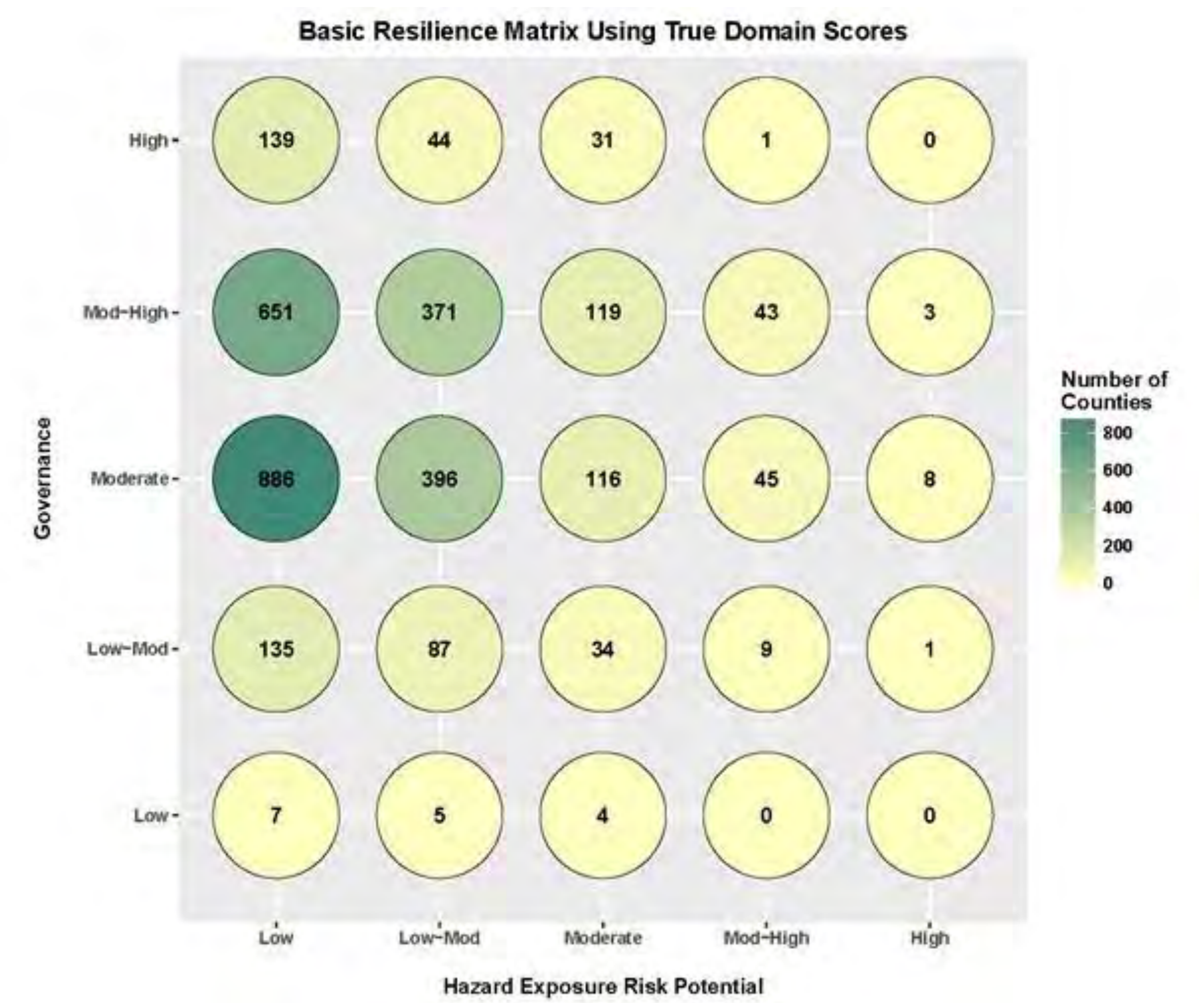


Figure 4.2 Distribution of number of counties in quartiles for risk and governance domains based on the domain scores.

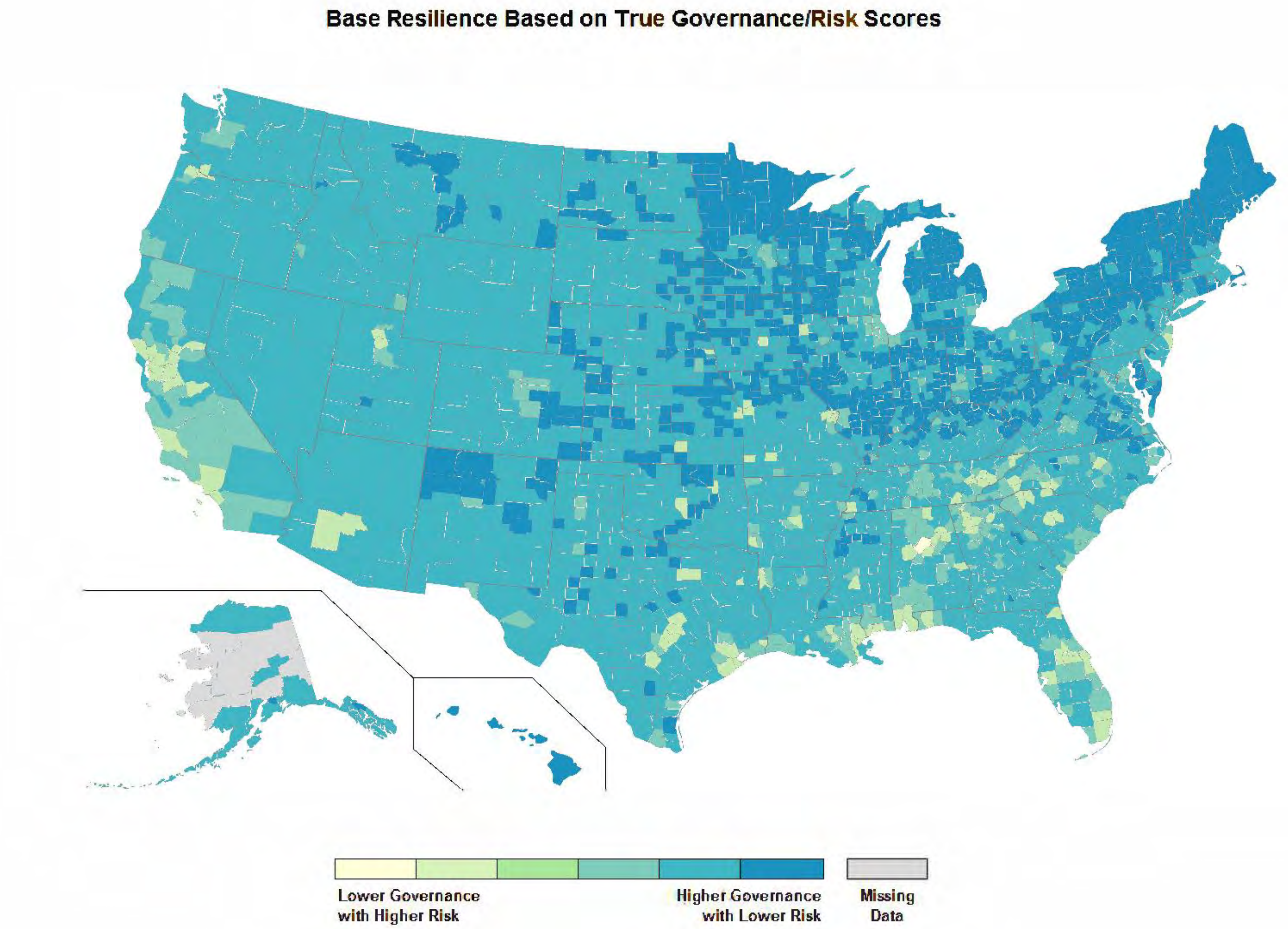


Figure 4.3 Map of the distribution of county scores for basic resilience.

These county min-max scores were mapped to explore the spatial distribution of the quintiels for any potential trends (Figure 4.3). Areas with the highest governance to risk ratio tend to be in the northeast and scattered through midwest and Wisconsin. Areas with the lowest governance to risk ratios appear along the west coast, and in northern and eastern North Dakota. Twenty-two counties (<1% of total) showed very high risk scores coupled with very low governance scores. These counties are located in EPA Region 4 (8 – Alabama, Florida, Georgia and Tennessee), EPA Region 6 (8 – Arkansas, Louisiana, Oklahoma and Texas), EPA Region 7 (2 – Missouri and Nebraska) and EPA Region 9 (4 – California). This clustering of the min-max scores needs to be investigated to see if spreading out the clusters creates a better understanding of the risk versus governance interactions.

Figure 4.4 redistributes the scores in Figure 4.2 to "spread out" the variability of both the risk and governance scores. This helps to identify the counties where the greatest return can be expected for the governance investment dollar. This redistribution identifies 487 counties where low governance investment will show a modest increases in resilience; the 373 counties where moderate investment in governance should result in moderate increases in resilience; and the 355 counties (including the original 206 counties described above) where greater investment in governance should result in the highest increases in resilience. Approximately 1204 counties would benefit in a small way from further governance investment while 728 counties would not really benefit from increased resilience from further investment in governance activities.

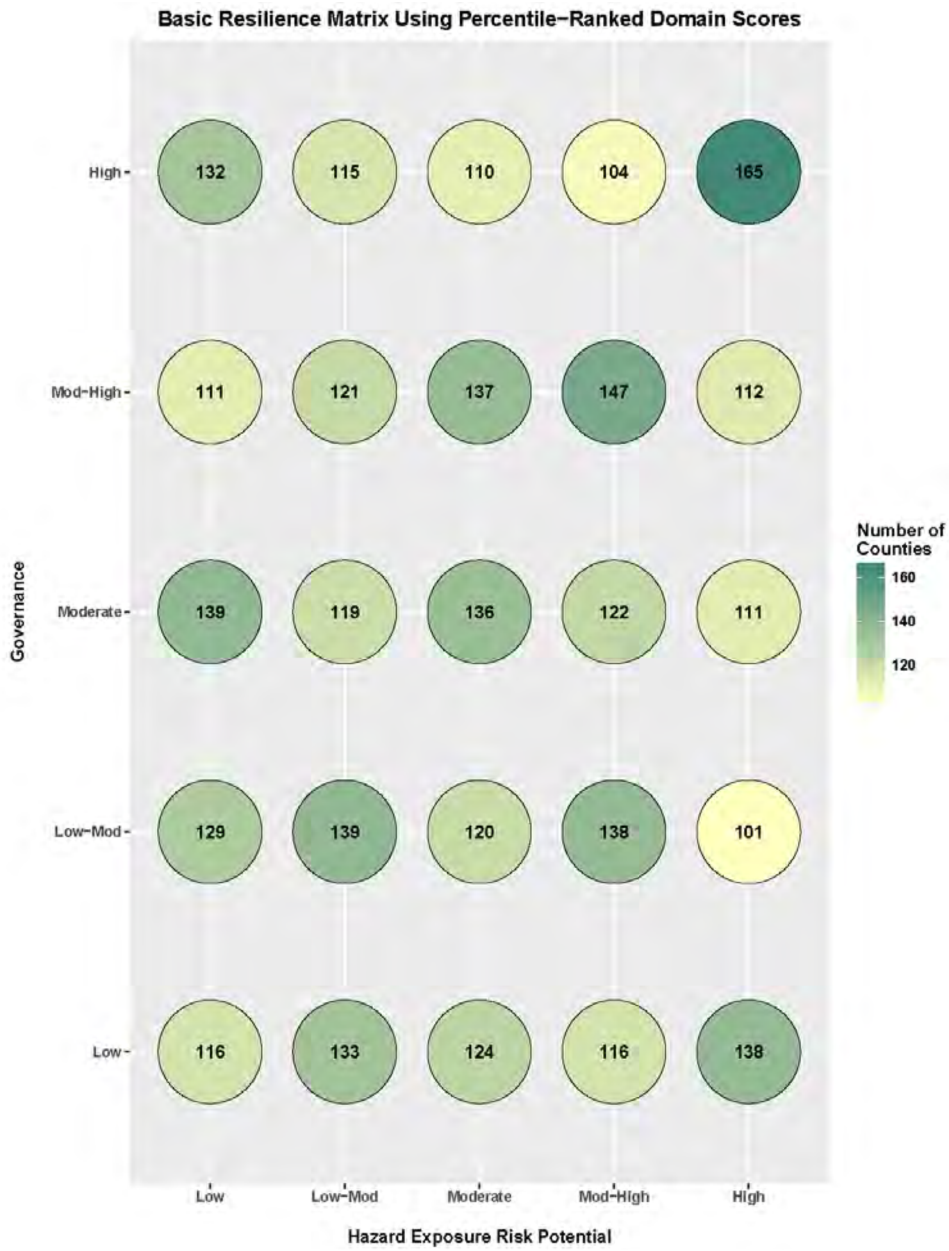


Figure 4.4. Distribution of number of counties in quartiles for risk and governance domains based on number of samples (redistributing the basic resilience scores).

The spatial distribution of these counties is shown in Figure 4.5. The areas with the highest and lowest governance to risk ratios remain consistent with Figure 4.3 (as expected). Throughout the eastern seaboard the ratio of scores is moderate governance to higher risk, as are the Ohio Valley area and Great Lakes region. Lower governance to moderate risk ratios are seen through much of the midwest and the northwest (east of the Cascades). In addition to the west coast, the lowest ratios are seen in much of California, Indian country, Arizona, Nevada, and Utah.

Basic resilience can be modified by social activities and structures, the built environment and the natural environment to represent overall resilience (the CRSI score). If these attributes are strong then resilience (mainly through recoverability) can be enhanced. If these attributes are weak then resilience for a area can be deterred. The next sections will examine basic resilience as modified by these factors for the nation and each EPA region.

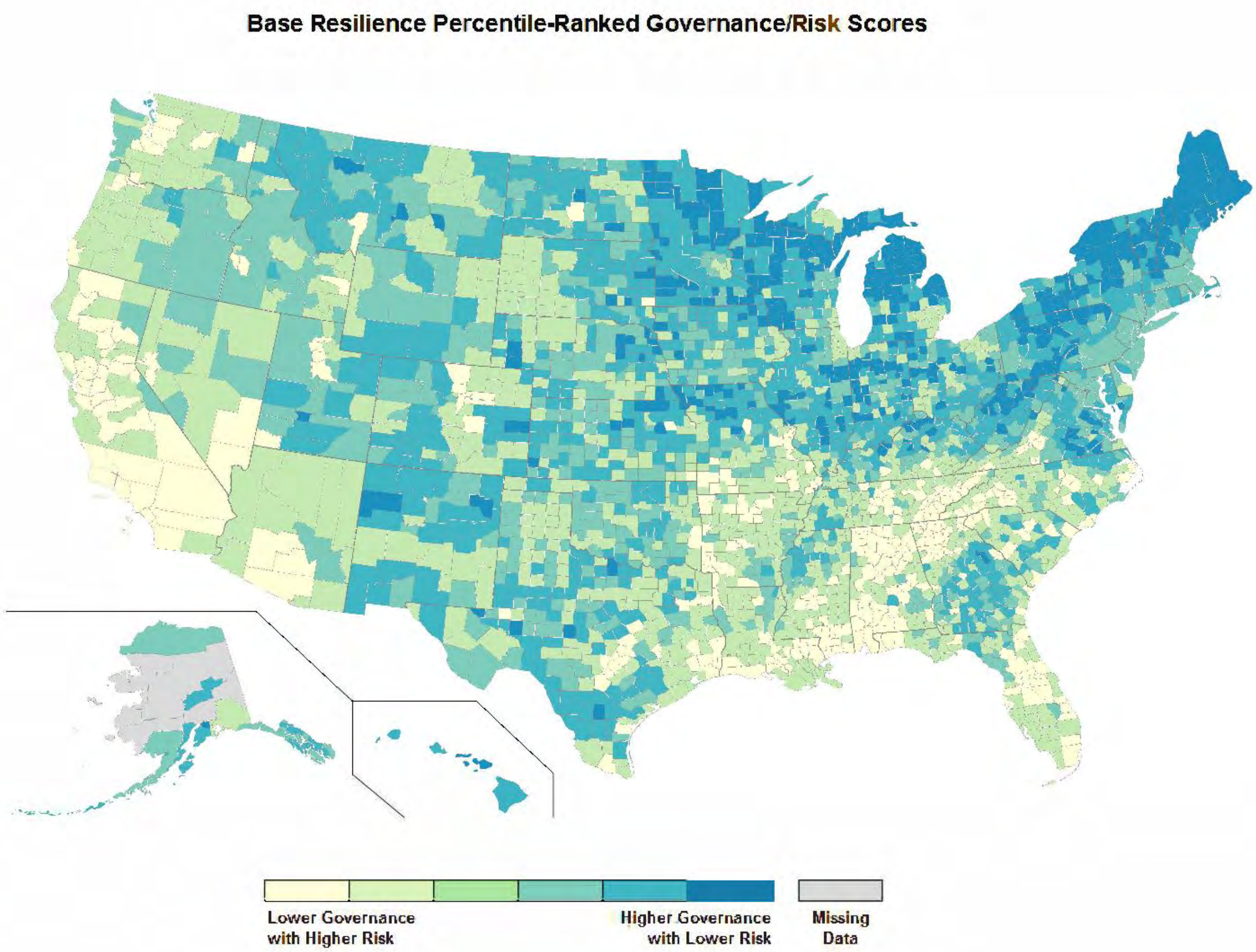


Figure 4.5 Map of the re-distribution of counties to demonstrate the likelihood of increased resilience with increased governance.

4.3. Presentation of Results

Results in the following sections are organized by spatial sub-division (nation and EPA regions). Figures 4.6-4.10 provide information to interpret the results in the graphics presented for the sub-divisions. Each national and regional section includes:

- Figure 4.6: CRSI and Domain score bar graph depicting the scores and the adjustment values for the Society, Built Environment and Natural Environment domains.
- Figure 4.7: Six-panel maps showing the distribution of the CRSI and domain scores by county.
- Figure 4.8: Table of the highest ~5% of CRSI values.
- Figure 4.9: Characterization of the Risk Domain with breakdowns of the exposure and loss indicator scores.
- Figure 4.10: Polar bar plots describing the contributions of the indicators to the domain scores. These plots show the scores for each indicator with the five domains. Longer bars represent higher scores; shorter scores represent lower scores. The polar plots show the contribution of indicator scores to the domain score.

Discussion of results follow the graphic results in each section. All CRSI and domain scores for each region by state and each region by state and county are listed in Appendices B and C.

4.3.1. CRSI and Domain Score Bar Graphs

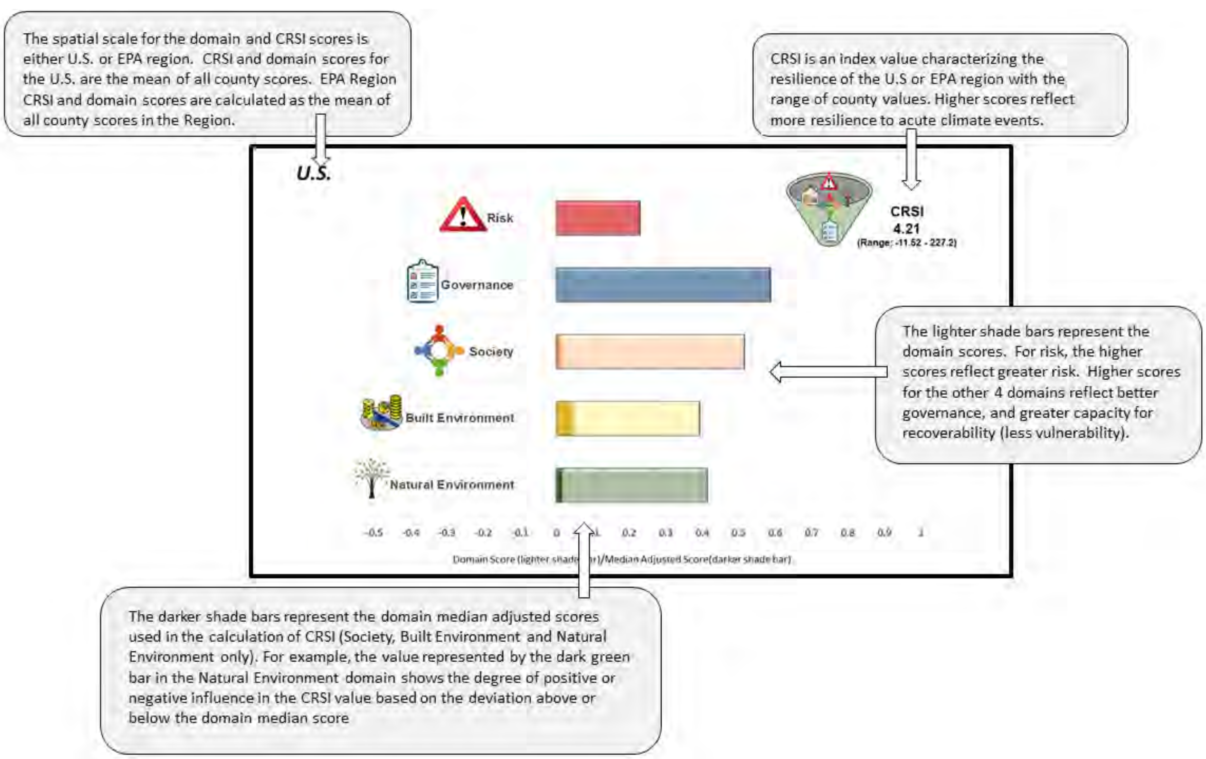


Figure 4.6 Example summary of CRSI and domain available for the nation and each EPA region.

4.3.2. Six Panel Maps

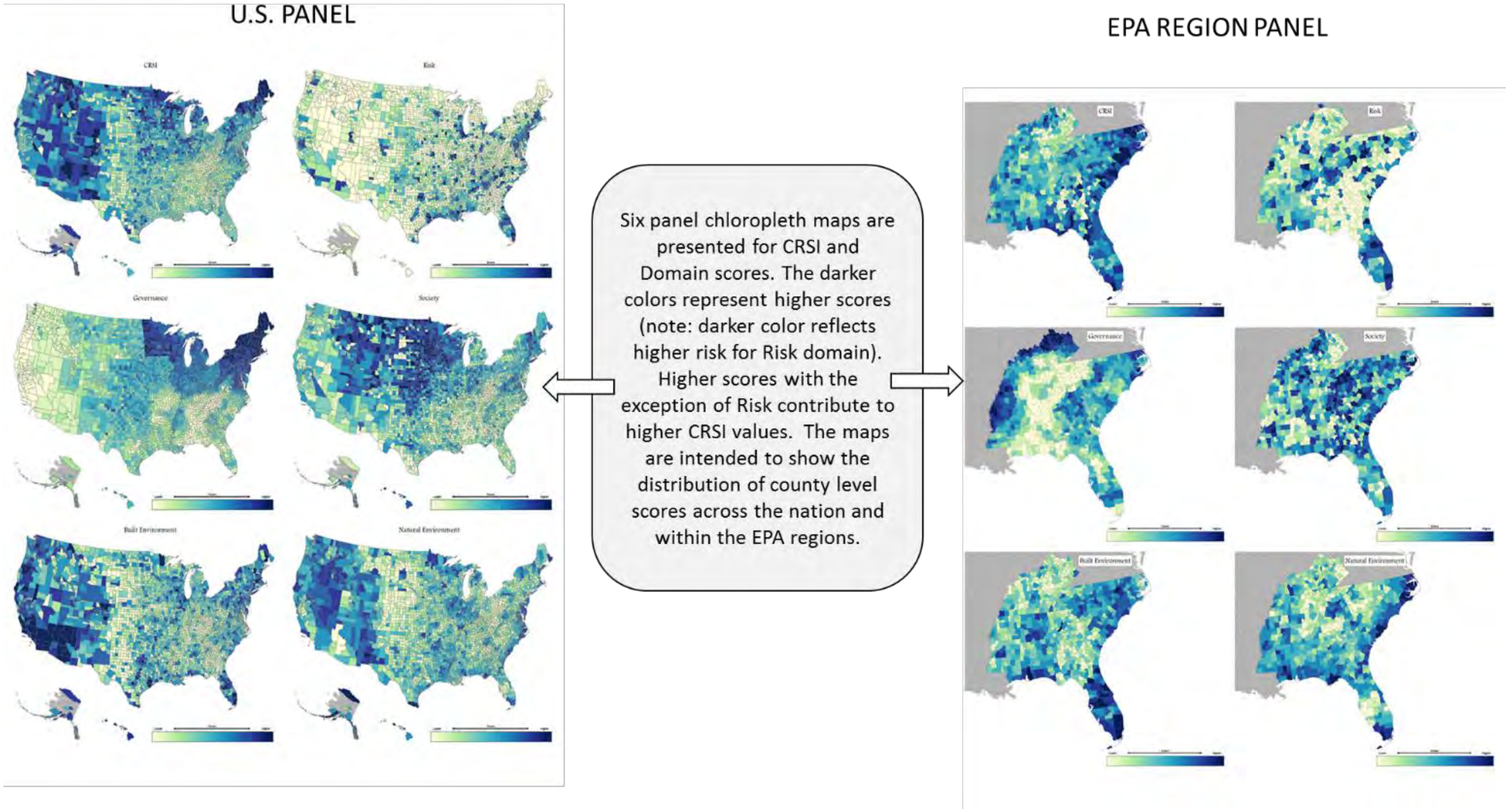


Figure 4.7 Example of six-panel maps showing the distribution of county-level CRSI and domain scores available for the nation and for the EPA Regions.

4.3.3. Top County CRSI Values

Rank	County	EPA Region	Rank	County	EPA Region	Rank	County	EPA Region
1.	Kodiak Island Borough, Alaska	Region 10	51.	Skagway Municipality, Alaska	Region 10	101.	St. Louis County, Minnesota	Region 5
2.	Juneau City and Borough, Alaska	Region 10	52.	Oneida County, Wisconsin	Region 5	102.	Washington County, Vermont	Region 1
3.	Ketchikan Gateway Borough, Alaska	Region 10	53.	Pipestone County, Minnesota	Region 5	103.	Pulaski County, Indiana	Region 5
4.	Aleutians East Borough, Alaska	Region 10	54.	Price County, Wisconsin	Region 5	104.	Baker County, Oregon	Region 10
5.	North Slope Borough, Alaska	Region 10	55.	Clark County, Wisconsin	Region 5	105.	McLean County, North Dakota	Region 8
6.	Haines Borough, Alaska	Region 10	56.	Lamoille County, Vermont	Region 1	106.	Grant County, New Mexico	Region 6
7.	Prince of Wales-Hyder Census Area, Alaska	Region 10	57.	Uinta County, Wyoming	Region 8	107.	Caledonia County, Vermont	Region 1
8.	Hancock County, Maine	Region 1	58.	Day County, South Dakota	Region 8	108.	Sweetwater County, Wyoming	Region 8
9.	Sitka City and Borough, Alaska	Region 10	59.	Koochiching County, Minnesota	Region 5	109.	Wrangell City and Borough, Alaska	Region 10
10.	Hoonah-Angoon Census Area, Alaska	Region 10	60.	San Juan County, New Mexico	Region 6	110.	Huron County, Michigan	Region 5
11.	Waldo County, Maine	Region 1	61.	Ravalli County, Montana	Region 8	111.	Lake County, Minnesota	Region 5
12.	Dukes County, Massachusetts	Region 1	62.	Coconino County, Arizona	Region 9	112.	Kalkaska County, Michigan	Region 5
13.	Dillingham Census Area, Alaska	Region 10	63.	Lincoln County, Maine	Region 1	113.	King William County, Virginia	Region 3
14.	Kenai Peninsula Borough, Alaska	Region 10	64.	Pitkin County, Colorado	Region 8	114.	Morrison County, Minnesota	Region5
15.	Petersburg Census Area, Alaska	Region 10	65.	Blaine County, Idaho	Region 10	115.	Umatilla County, Oregon	Region 10
16.	Fairbanks North Star Borough, Alaska	Region 10	66.	Beaverhead County, Montana	Region 8	116.	Missoula County, Montana	Region 8
17.	Yakutat City and Borough, Alaska	Region 10	67.	Pembina County, North Dakota	Region 8	117.	Franklin County, Maine	Region 1
18.	Maui County, Hawaii	Region 9	68.	Gunnison County, Colorado	Region 8	118.	Deschutes County, Oregon	Region 10
19.	Bonner County, Idaho	Region 10	69.	Chaffee County, Colorado	Region 8	119.	Teton County, Montana	Region 8
20.	Aleutians West Census Area, Alaska	Region 10	70.	Benton County, Indiana	Region 5	120.	Lewis County, New York	Region 2
21.	Bristol Bay Borough, Alaska	Region 10	71.	Honolulu County, Hawaii	Region 9	121.	Cass County, Minnesota	Region 5
22.	Hamilton County, New York	Region 2	72.	St. Lawrence County, New York	Region 2	122.	Jasper County, Indiana	Region 5
23.	Flathead County, Montana	Region 8	73.	Essex County, Vermont	Region 1	123.	Jackson County, Wisconsin	Region 5
24.	Anchorage Municipality, Alaska	Region 10	74.	Shawano County, Wisconsin	Region 5	124.	Polk County, Wisconsin	Region 5
25.	Latah County, Idaho	Region 10	75.	Sierra County, New Mexico	Region 6	125.	Winneshiek County, Iowa	Region 7
26.	Washington County, Maine	Region 1	76.	San Miguel County, Colorado	Region 8	126	Summit County, Colorado	Region 8
27.	Valley County, Idaho	Region 10	77.	Ward County, North Dakota	Region 8	127.	Livingston County, Illinois	Region 5
28.	Addison County, Vermont	Region 1	78.	Routt County, Colorado	Region 8	128.	Huntingdon County, Pennsylvania	Region 3
29.	Knox County, Maine	Region 1	79.	Chickasaw County, Iowa	Region 7	129.	Valdez-Cordova Census Area, Alaska	Region 10
30.	Lincoln County, Minnesota	Region 5	80.	Jefferson County, Montana	Region 8	130.	Elko County, Nevada	Region 9
31.	Roberts County, South Dakota	Region 8	81.	Newton County, Indiana	Region 5	131.	Clayton County, Iowa	Region 7
32.	Kauai County, Hawaii	Region 9	82.	Forest County, Wisconsin	Region 5	132.	Wasco County, Oregon	Region 10
33.	Penobscot County, Maine	Region 1	83.	Sawyer County, Wisconsin	Region 5	133.	Deuel County, South Dakota	Region 8
34.	Pierce County, Nebraska	Region 7	84.	Grant County, Minnesota	Region 5	134.	Rio Arriba County, New Mexico	Region 6
35.	Aroostook County, Maine	Region 1	85.	Ouray County, Colorado	Region 8	135.	Luna County, New Mexico	Region 6
36.	Carbon County, Wyoming	Region 8	86.	Oceana County, Michigan	Region 5	136.	Nez Perce County, Idaho	Region 10
37.	Itasca County, Minnesota	Region 5	87.	Sanders County, Montana	Region 8	137.	Newaygo County, Michigan	Region 5
38.	Lake and Peninsula Borough, Alaska	Region 10	88.	Piscataquis County, Maine	Region 1	138.	Tioga County, Pennsylvania	Region 3
39.	Hawaii County, Hawaii	Region 9	89.	Vilas County, Wisconsin	Region 5	139.	Sanilac County, Michigan	Region 5
40.	Rutland County, Vermont	Region 1	90.	Eagle County, Colorado	Region 8	140.	La Plata County, Colorado	Region 8
41.	Somerset County, Maine	Region 1	91.	Fillmore County, Minnesota	Region 5	141.	Duchesne County, Utah	Region 8
42.	Grand Isle County, Vermont	Region 1	92.	Otero County, New Mexico	Region 6	142.	Missaukee County, Michigan	Region 5
43.	Boundary County, Idaho	Region 10	93.	Garfield County, Colorado	Region 8	143.	Idaho County, Idaho	Region 10
44.	Lincoln County, Montana	Region 8	94.	Grant County, South Dakota	Region 8	144.	Union County, Oregon	Region 10
45.	McKinley County, New Mexico	Region 6	95.	Navajo County, Arizona	Region 9	145.	Lassen County, California	Region 9
46.	Daniels County, Montana	Region 8	96.	Merrimack County, New Hampsh	Region 1	146.	Benewah County, Idaho	Region 10
47.	Grafton County, New Hampshire	Region 1	97.	Door County, Wisconsin	Region 5	147.	Ashland County, Wisconsin	Region 5
48.	Mono County, California	Region 9	98.	Steuben County, New York	Region 2	148.	White Pine County, Nevada	Region 9
49.	Coos County, New Hampshire	Region 1	99.	Florence County, Wisconsin	Region 5	149.	Windham County, Vermont	Region 1
50.	San Juan County, Washington	Region 10	100.	Washburn County, Wisconsin	Region 5	150.	Humboldt County, California	Region 9

A table including counties with the top 150 CRSI values in the U.S. follows the chloropleth maps. Counties are color-coded by EPA Region. For the EPA Regions, the table includes counties with the top 25 CRSI values in each Region.

Region 7	
Rank	County
1.	Pierce County, Nebraska
2.	Chickasaw County, Iowa
3.	Winneshiek County, Iowa
4.	Clayton County, Iowa
5.	Fayette County, Iowa
6.	Wabaunsee County, Kansas
7.	Nodaway County, Missouri
8.	Marshall County, Kansas
9.	Ottawa County, Kansas
10.	Macon County, Missouri
11.	Miami County, Kansas
12.	Richardson County, Nebraska
13.	Bremer County, Iowa
14.	Nemaha County, Kansas
15.	Washington County, Kansas
16.	Shelby County, Iowa
17.	Washington County, Iowa
18.	Osage County, Missouri
19.	Kossuth County, Iowa
20.	Cherokee County, Iowa
21.	Lafayette County, Missouri
22.	Pottawatomie County, Kansas
23.	Brown County, Kansas
24.	Cedar County, Iowa
25.	Vernon County, Missouri

Figure 4.8 Example Table of highest ranking CRSI values for all U.S. counties and counties within EPA Regions. All state and county CRSI scores can be found in Appendices B and C.

4.3.4. Breakdown of the Risk Domain

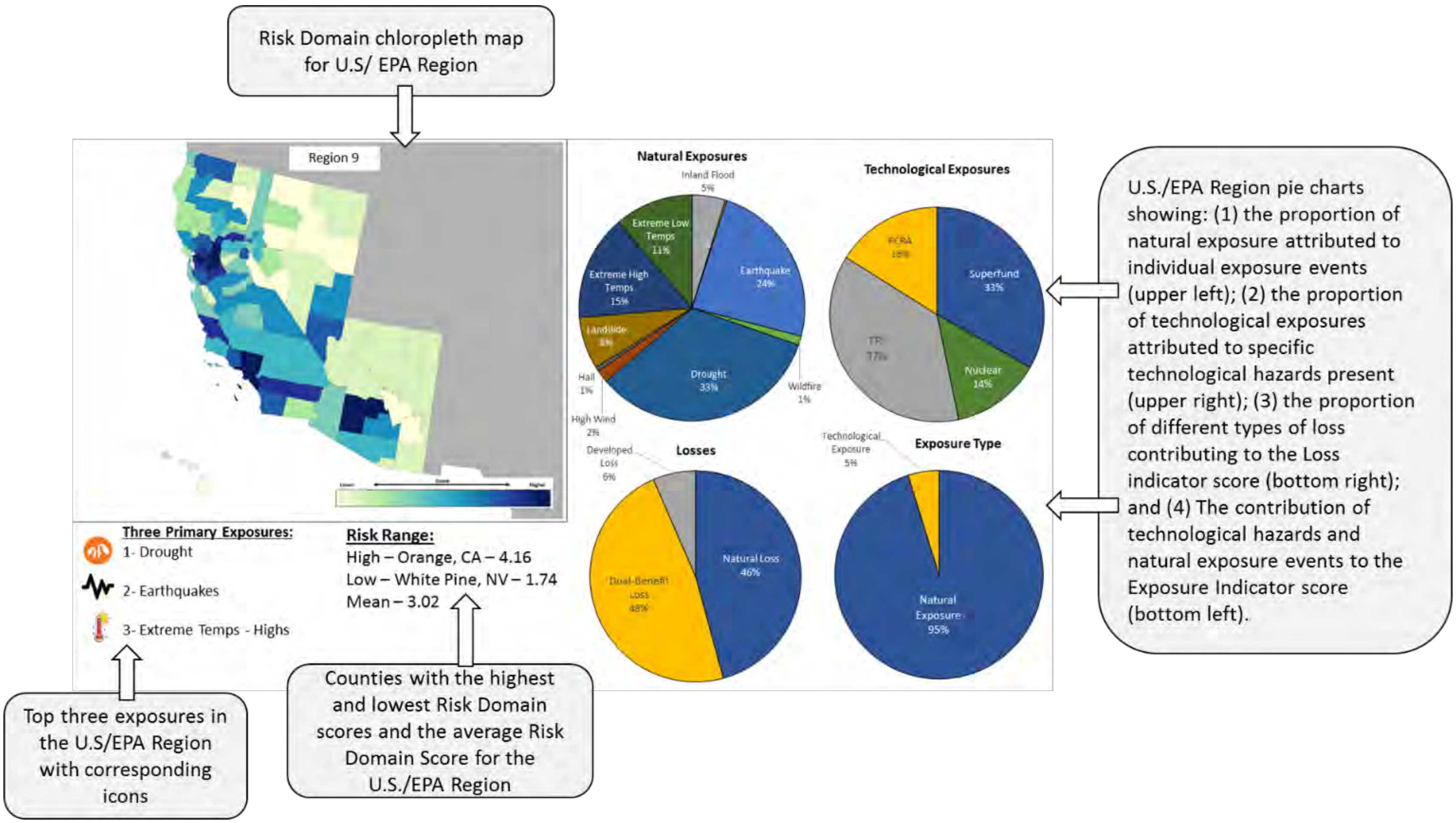


Figure 4.9 Example summary of Risk domain presented for the nation and the EPA Regions.

4.3.5. Polar Plots for Nation and EPA Regions

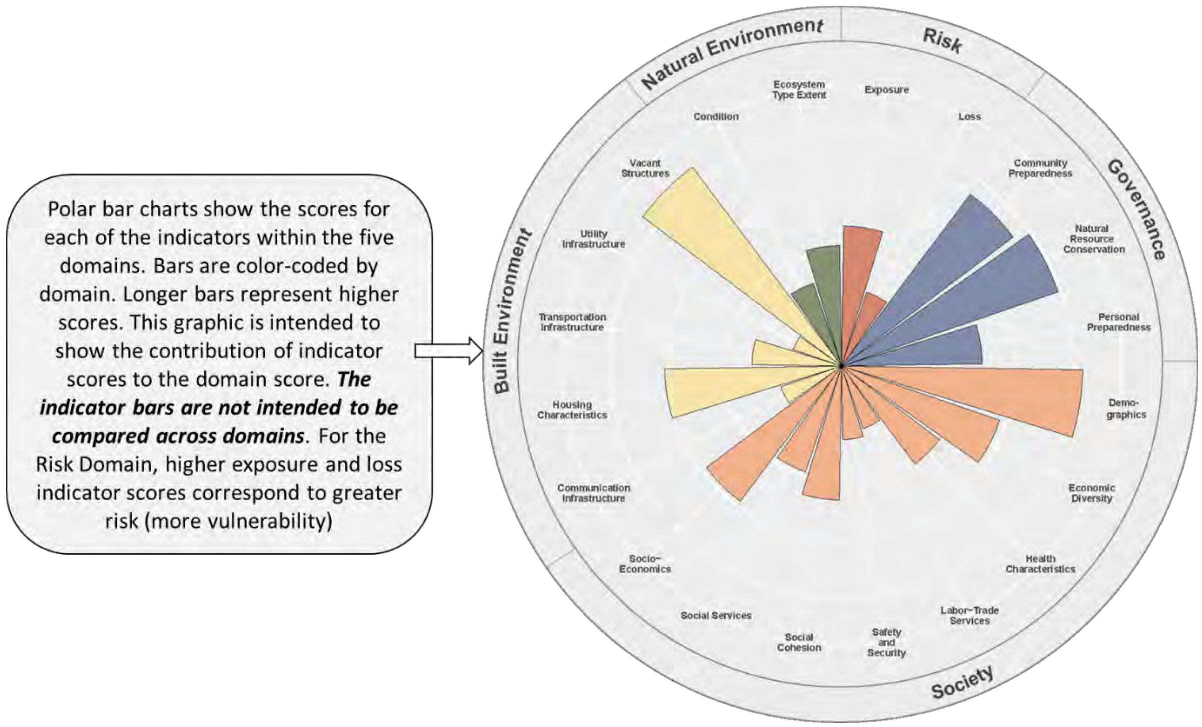


Figure 4.10 Example polar plot describing the contributions of the 20 indicators to the domain scores.

4.3.6. National Results

The U.S. is comprised of 3,143 boroughs and counties. The Climate Resilience Screening Index (CRSI) includes 3,135 counties; excluding eight boroughs from Alaska. These eight boroughs could not be included because they had too little data and metric values could not be imputed or interpolated accurately. With the increase in the frequency and severity of climate events over the last decade (e.g., Hurricanes Katrina, Ivan and Rita; Superstorm Sandy; increases in flooding, hailstorms, and wildfires; increases in maximum temperatures; and decreases in minimum temperatures), many U.S. Federal Agencies (e.g., FEMA, U.S. EPA, DOC and DOI) have been assisting states prepare for these types of climate events. and Natural Environment scores. The U.S. CRSI score is 4.21 based on the average of CRSI scores for all counties in the U.S. ranging from -7.2 to 50.1 (including Alaska increases the max to 227.2).

The CRSI and domain scores for the nation are shown in Figure 4.11. The nation is characterized by moderate risk, moderate to high Governance, moderate to high Society, Built Environment. The distribution of overall CRSI values as well as the domain scores by county for the U.S. are shown in Figure 4.12. Examples of inferences that can be made from the maps are:

- The western U.S., the Great Lakes area and the upper northeast have higher CRSI values (higher resilience to climate events).
- The western mid-west, the southeast, western Texas and Appalachian region have lower

CRSI values.

- The lower northeastern coastal area, southeast/Gulf coasts, a small area associated with southern Lake Michigan, and southern California have the highest risk domain scores albeit for different types of risk.
- Lower risk scores are seen in the west and upper mid-west, Alaska and Hawaii.
- Higher Governance scores are seen in the northeast, mid-Atlantic and Great Lakes areas of the U.S.
- Lower Governance scores related to climate were observed in Appalachia, the deep south and much of California.
- Higher Society scores are seen in the upper mid-west and mountain west.
- Lower Society scores are seen in Appalachia and the deep south. Both built and Natural Environment domain scores were higher in the west and lower in the western Midwest and southeast.

Many other inferences can be determined from the mapped distributions.

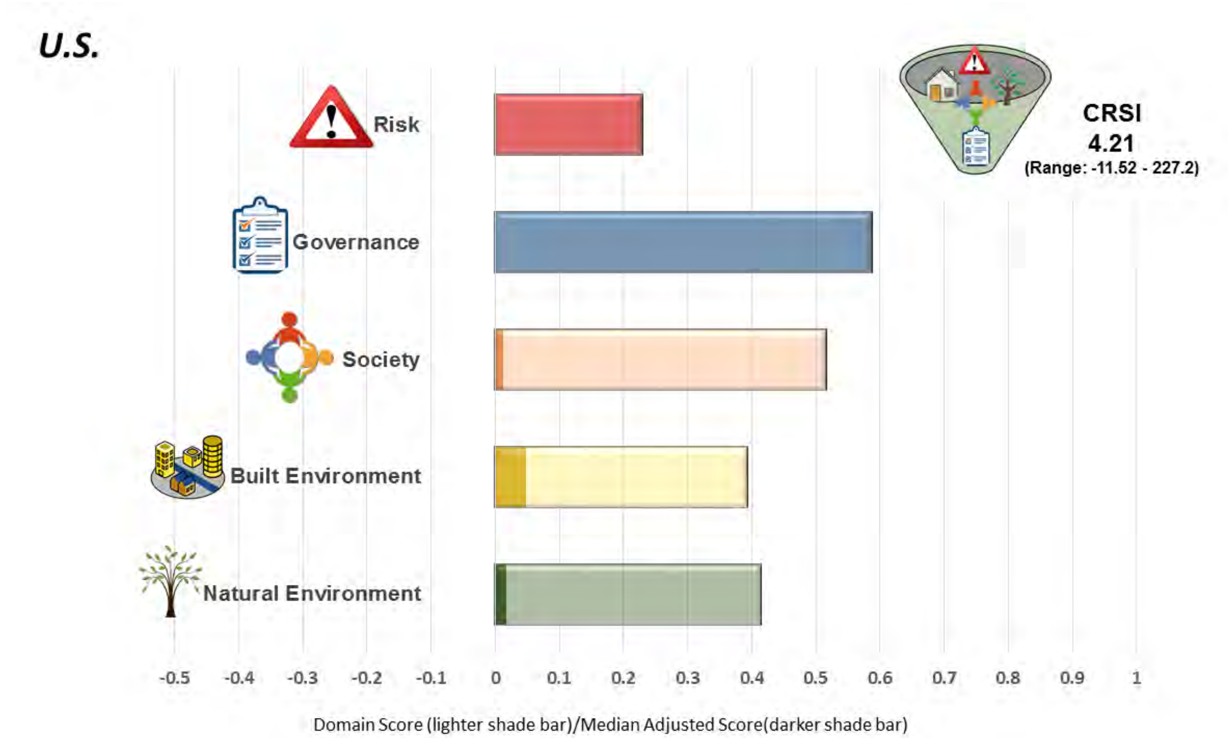


Figure 4.11 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for the U.S, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

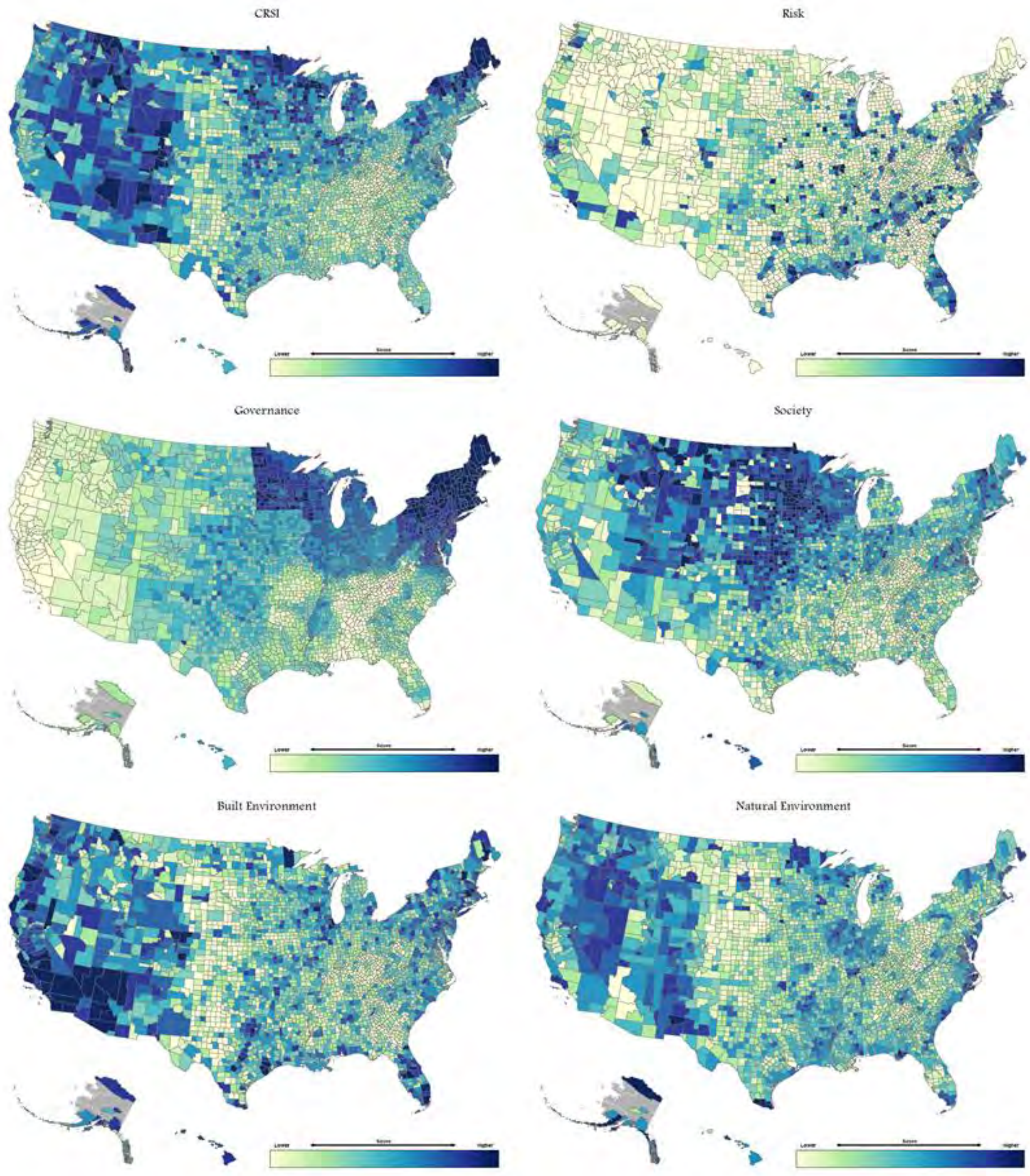


Figure 4.12 The distributions of CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

In order to provide regions and counties with examples of the higher CRSI-scored counties in the U.S., Table 4.1 shows the 150 counties in the U.S. with the highest CRSI values. Region 10 has the most counties in the top 150 list (37 counties) followed by Region 5 (34), Region 8 (30) and Region 1 (19). All of the remaining EPA regions (except Region 4) have three or more counties in the top 150. This provides each EPA region with several example counties to use as role models for counties characterized by lower CSRI scores. Counties with the lowest scores (25 counties) are predominated by Region 4 (16 counties primarily in Georgia) followed by Region 8 (5) and one each in Regions 6, 7 and 10.

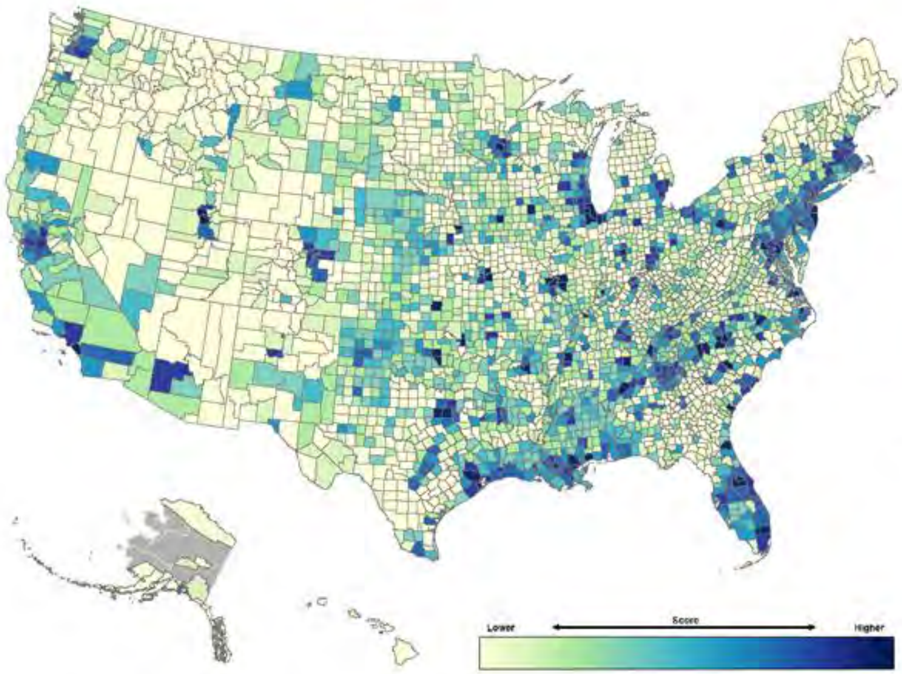
Risk due to climate events across the U.S. is examined in more detail in Figure 4.13. Natural exposures due to climate events are predominated by drought (34% of counties), extreme high temperatures (22%) and extreme low temperatures (17%). All other types of exposure due to natural climate events are represented at <10%. Superfund sites and TRI (Toxic Release Inventory) sites dominated the technological exposure indicator at 44% and 39%, respectively. Technological exposure adds potential risk to counties prone to natural climate event exposures. Nationally, losses are seen primarily on dual benefit and natural land use types (e.g., forests, wetlands, agriculture). Most exposure comes from natural climate events although 6% of exposure is due to exacerbated exposure resulting from proximity to technological features that pose hazards (6%). Risk ranges from the lowest score of 0.70 in the Kodiak Island burrough of Alaska to 7.02 in Los Alamos County, New Mexico with a national average CRSI score of 2.73.

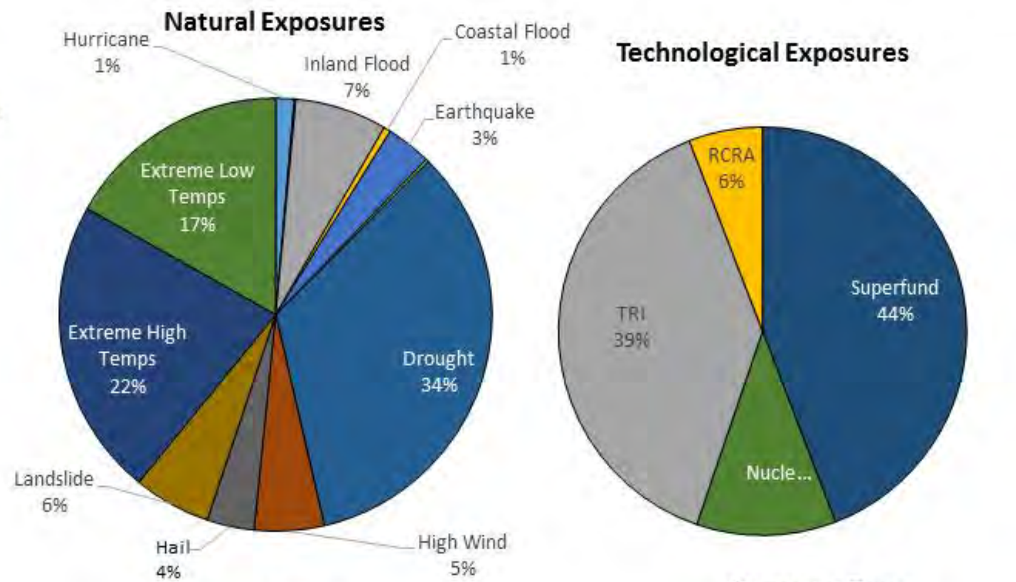
The contributions of the 20 indicators to the national domain scores are shown in Figure 4.14. Natural resource conservation (Governance), number of vacant structures and housing characteristics (Built Environment) as well as demographic characteristics (Society) most strongly influenced national domain scores. Secondary influences included levels of loss (Risk), socio-economic characteristics and economic diversity in the Society Domain, community and personal preparedness (Governance) and acreage of ecosystem types (Natural Environment).

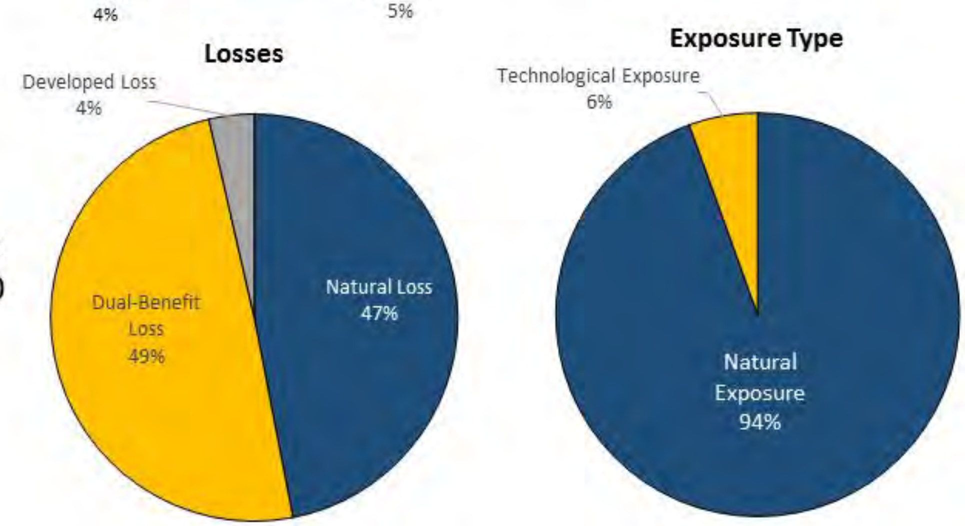
Overall, CRSI values, domain scores and indicator contributions all paint a picture for the U.S. of reasonable resilience to climate events. However, the distribution of these scores is broad. While there are many relatively resilienct counties in the U.S., there are a number of counties in which overall resilience to climate events is low or one or more of the domain scores are low. Therefore, more specific results and analyses should be examined for each of the regions.

Table 4.1 Top 150 counties according to CRSI values (i.e., potentially higher resilience to climate events).

Rank	County	EPA Region	Rank	County	EPA Region	Rank	County	EPA Region
1.	Kodiak Island Borough, Alaska	Region 10	51.	Skagway Municipality, Alaska	Region 10	101.	St. Louis County, Minnesota	Region 5
2.	Juneau City and Borough, Alaska	Region 10	52.	Oneida County, Wisconsin	Region 5	102.	Washington County, Vermont	Region 1
3.	Ketchikan Gateway Borough, Alaska	Region 10	53.	Pipestone County, Minnesota	Region 5	103.	Pulaski County, Indiana	Region 5
4.	Aleutians East Borough, Alaska	Region 10	54.	Price County, Wisconsin	Region 5	104.	Baker County, Oregon	Region 10
5.	North Slope Borough, Alaska	Region 10	55.	Clark County, Wisconsin	Region 5	105.	McLean County, North Dakota	Region 8
6.	Haines Borough, Alaska	Region 10	56.	Lamoille County, Vermont	Region 1	106.	Grant County, New Mexico	Region 6
7.	Prince of Wales-Hyder Census Area, Alaska	Region 10	57.	Uinta County, Wyoming	Region 8	107.	Caledonia County, Vermont	Region 1
8.	Hancock County, Maine	Region 1	58.	Day County, South Dakota	Region 8	108.	Sweetwater County, Wyoming	Region 8
9.	Sitka City and Borough, Alaska	Region 10	59.	Koochiching County, Minnesota	Region 5	109.	Wrangell City and Borough, Alaska	Region 10
10.	Hoonah-Angoon Census Area, Alaska	Region 10	60.	San Juan County, New Mexico	Region 6	110.	Huron County, Michigan	Region 5
11.	Waldo County, Maine	Region 1	61.	Ravalli County, Montana	Region 8	111.	Lake County, Minnesota	Region 5
12.	Dukes County, Massachusetts	Region 1	62.	Coconino County, Arizona	Region 9	112.	Kalkaska County, Michigan	Region 5
13.	Dillingham Census Area, Alaska	Region 10	63.	Lincoln County, Maine	Region 1	113.	King William County, Virginia	Region 3
14.	Kenai Peninsula Borough, Alaska	Region 10	64.	Pitkin County, Colorado	Region 8	114.	Morrison County, Minnesota	Region5
15.	Petersburg Census Area, Alaska	Region 10	65.	Blaine County, Idaho	Region 10	115.	Umatilla County, Oregon	Region 10
16.	Fairbanks North Star Borough, Alaska	Region 10	66.	Beaverhead County, Montana	Region 8	116.	Missoula County, Montana	Region 8
17.	Yakutat City and Borough, Alaska	Region 10	67.	Pembina County, North Dakota	Region 8	117.	Franklin County, Maine	Region 1
18.	Maui County, Hawaii	Region 9	68.	Gunnison County, Colorado	Region 8	118.	Deschutes County, Oregon	Region 10
19.	Bonner County, Idaho	Region 10	69.	Chaffee County, Colorado	Region 8	119.	Teton County, Montana	Region 8
20.	Aleutians West Census Area, Alaska	Region 10	70.	Benton County, Indiana	Region 5	120.	Lewis County, New York	Region 2
21.	Bristol Bay Borough, Alaska	Region 10	71.	Honolulu County, Hawaii	Region 9	121.	Cass County, Minnesota	Region 5
22.	Hamilton County, New York	Region 2	72.	St. Lawrence County, New York	Region 2	122.	Jasper County, Indiana	Region 5
23.	Flathead County, Montana	Region 8	73.	Essex County, Vermont	Region 1	123.	Jackson County, Wisconsin	Region 5
24.	Anchorage Municipality, Alaska	Region 10	74.	Shawano County, Wisconsin	Region 5	124.	Polk County, Wisconsin	Region 5
25.	Latah County, Idaho	Region 10	75.	Sierra County, New Mexico	Region 6	125.	Winneshiek County, Iowa	Region 7
26.	Washington County, Maine	Region 1	76.	San Miguel County, Colorado	Region 8	126	Summit County, Colorado	Region 8
27.	Valley County, Idaho	Region 10	77.	Ward County, North Dakota	Region 8	127.	Livingston County, Illinois	Region 5
28.	Addison County, Vermont	Region 1	78.	Routt County, Colorado	Region 8	128.	Huntingdon County, Pennsylvania	Region 3
29.	Knox County, Maine	Region 1	79.	Chickasaw County, Iowa	Region 7	129.	Valdez-Cordova Census Area, Alaska	Region 10
30.	Lincoln County, Minnesota	Region 5	80.	Jefferson County, Montana	Region 8	130.	Elko County, Nevada	Region 9
31.	Roberts County, South Dakota	Region 8	81.	Newton County, Indiana	Region 5	131.	Clayton County, Iowa	Region 7
32.	Kauai County, Hawaii	Region 9	82.	Forest County, Wisconsin	Region 5	132.	Wasco County, Oregon	Region 10
33.	Penobscot County, Maine	Region 1	83.	Sawyer County, Wisconsin	Region 5	133.	Deuel County, South Dakota	Region 8
34.	Pierce County, Nebraska	Region 7	84.	Grant County, Minnesota	Region 5	134.	Rio Arriba County, New Mexico	Region 6
35.	Aroostook County, Maine	Region 1	85.	Ouray County, Colorado	Region 8	135.	Luna County, New Mexico	Region 6
36.	Carbon County, Wyoming	Region 8	86.	Oceana County, Michigan	Region 5	136.	Nez Perce County, Idaho	Region 10
37.	Itasca County, Minnesota	Region 5	87.	Sanders County, Montana	Region 8	137.	Newaygo County, Michigan	Region 5
38.	Lake and Peninsula Borough, Alaska	Region 10	88.	Piscataquis County, Maine	Region 1	138.	Tioga County, Pennsylvania	Region 3
39.	Hawaii County, Hawaii	Region 9	89.	Vilas County, Wisconsin	Region 5	139.	Sanilac County, Michigan	Region 5
40.	Rutland County, Vermont	Region 1	90.	Eagle County, Colorado	Region 8	140.	La Plata County, Colorado	Region 8
41.	Somerset County, Maine	Region 1	91.	Fillmore County, Minnesota	Region 5	141.	Duchesne County, Utah	Region 8
42.	Grand Isle County, Vermont	Region 1	92.	Otero County, New Mexico	Region 6	142.	Missaukee County, Michigan	Region 5
43.	Boundary County, Idaho	Region 10	93.	Garfield County, Colorado	Region 8	143.	Idaho County, Idaho	Region 10
44.	Lincoln County, Montana	Region 8	94.	Grant County, South Dakota	Region 8	144.	Union County, Oregon	Region 10
45.	McKinley County, New Mexico	Region 6	95.	Navajo County, Arizona	Region 9	145.	Lassen County, California	Region 9
46.	Daniels County, Montana	Region 8	96.	Merrimack County, New Hampsh	Region 1	146.	Benewah County, Idaho	Region 10
47.	Grafton County, New Hampshire	Region 1	97.	Door County, Wisconsin	Region 5	147.	Ashland County, Wisconsin	Region 5
48.	Mono County, California	Region 9	98.	Steuben County, New York	Region 2	148.	White Pine County, Nevada	Region 9
49.	Coos County, New Hampshire	Region 1	99.	Florence County, Wisconsin	Region 5	149.	Windham County, Vermont	Region 1
50.	San Juan County, Washington	Region 10	100.	Washburn County, Wisconsin	Region 5	150.	Humboldt County, California	Region 9







Top Three Primary Exposures:

1- Drought

2- Extreme Temps – Highs

3- Extreme Temps – Lows

Risk Range:

High – Los Alamos, NM – 7.02

Low – Kodiak Island, AK – 0.70

Mean – 2.73

Figure 4.13 Map of Risk Domain scores by county; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types.

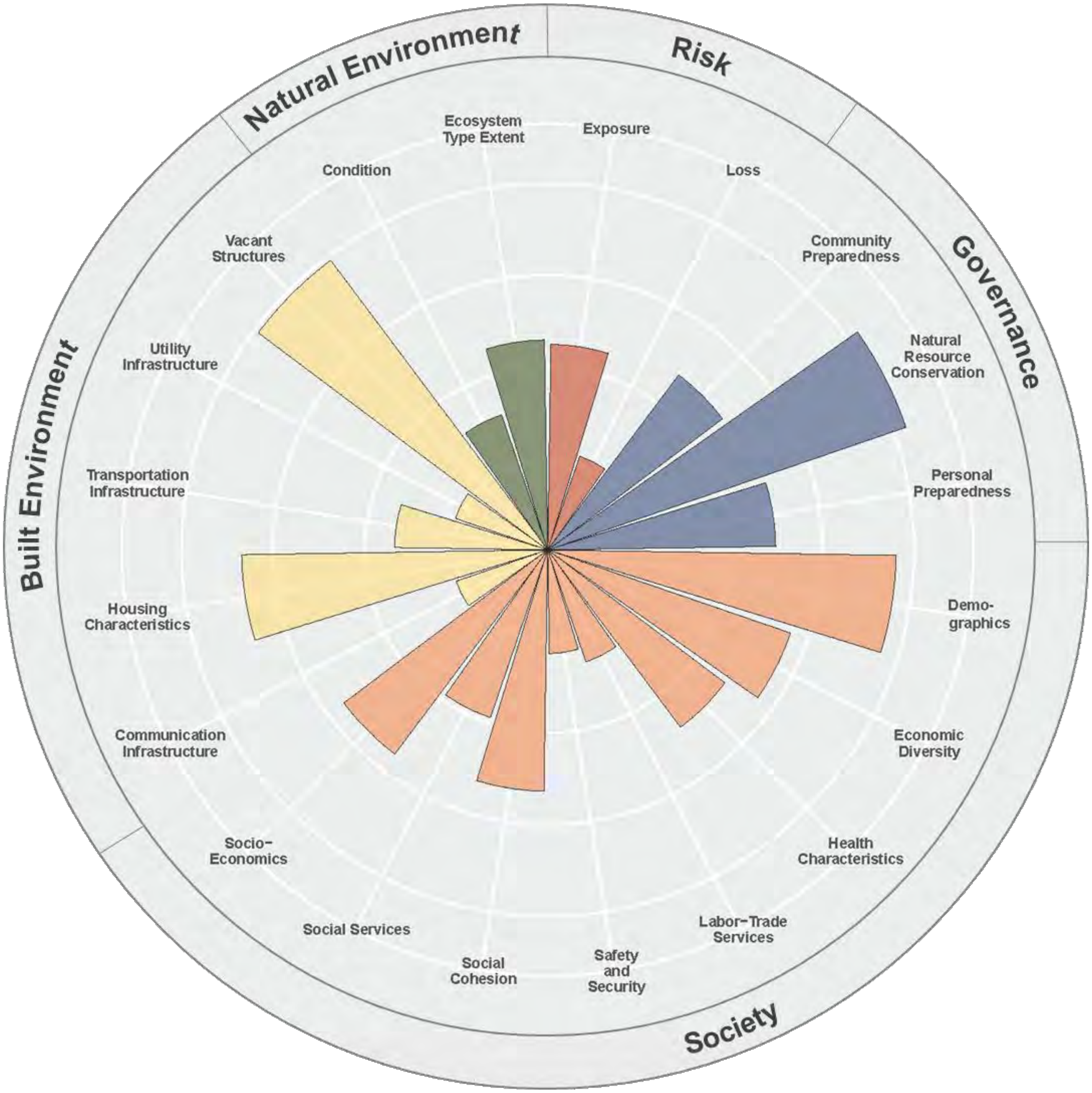


Figure 4.14 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the nation. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain.

4.3.7. Regional Results

The following sections depict the results for all ten EPA Regions.

EPA Region 1

EPA Region 1 serves Connecticut, New Hampshire, Maine, Massachusetts, Rhode Island, and Vermont. Region 1 also serves ten federally recognized tribes within Maine, Massachusetts, Connecticut and Rhode Island. Areas within Region 1 are prone to, and often impacted by, intense rainfall, sea level rise, and heatwaves. For example, Cambridge, MA has experienced extreme rain events leading to flooding and compromising infrastructure. Nearby, Boston, MA, is projected to experience the same types of extreme rain events, but given its proximity to the coast, flooding will be exacerbated by sea level rise and erosion impacts are more of a concern. Since Boston is more urban, these issues have to be dealt with in the context of affordable housing and social inequity. The 2014 EPA Region 1 Climate Change Adaptation Plan (USEPA-R1 2014) suggests re-nourishing coasts with dredged material, performing marsh restoration and considering "living shorelines" to combat coastal wetland erosion. Suggested actions around severe rainfall and sea level rise focused on determining where the impacts would occur and focusing current restoration or infrastructure improvement efforts based on that information. For example, prioritizing restoration of tidal wetlands that have room to migrate with sea level rise.

The CRSI and domain scores for EPA Region 1 are shown in Figure 4.15. The Region is characterized by moderate risk, moderate to high Governance, moderate to high Society, Built Environment and Natural Environment scores. The domain scores for Society, Built Environment and Natural Environment showed positive influences on the overall CRSI score of 10.70. The Region 1 CRSI score ranked 2nd among the ten EPA Regions.

The overall CRSI score and 5 domain scores for EPA Region 1 are depicted in Figure 4.16. The higher CRSI values are seen in the northern counties of Maine, a number of eastern counties in New Hampshire and select counties in Vermont (Table 4.2). Lower CSRI scores are seen in Connecticut (3 counties), middle Massachusetts (2), Rhode Island (2), and New Hampshire (2). The highest risk domain scores are seen in middle Massachusetts, and most of Connecticut.

Risk due to climate events across Region 1 is examined in more detail in Figure 4.17. Natural exposures due to climate events are dominated by drought (33% of counties), hail (22%) and extreme high temperatures (21%). Extreme low temperatures also represent a sizeable portion of the risk potential (13%). All other types of exposure due to natural climate events are represented at <10%. TRI (Toxic Release Inventory) sites and Superfund sites represent a majority of the technological exposure indicator at 64% and 28%, repectively. RCRA sites contribute only 8% of the exposure potential. In the region, losses are represented almost exclusively (96%) in natural lands, with the other 4% of regional losses coming from dual-benefit lands. Natural climate risk potential dominates the region, with only 21% of risk being attributable to technological exposure potential. Risk ranges from a low score of 1.83 in Dukes County, Massachusetts to a high score of 3.35 in Middlesex County, Massachusetts. The mean regional risk falls below the national at 2.43.

The contributions of the 20 indicators to EPA Region 1 domain scores are shown in Figure 4.18. Higher scores for indicators of community preparedness, natural resource conservation, demographic characteritics and number of vacant structures contributed to higher scores in each respective domain. These influences combined with low loss contribution from the risk domain are reflected in the Region's higher CRSI value of 10.7 Safety and security, labor-trade services and ecosystem condition had minimal influence on the EPA Region 1 domain scores.

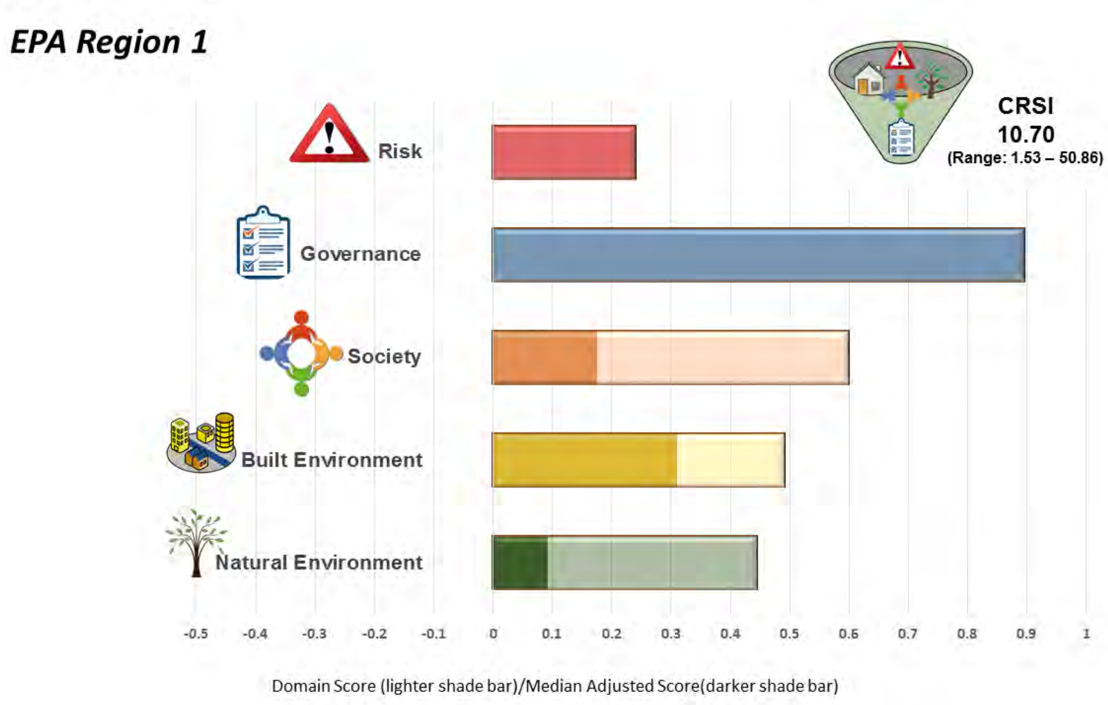


Figure 4.15 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 1 along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

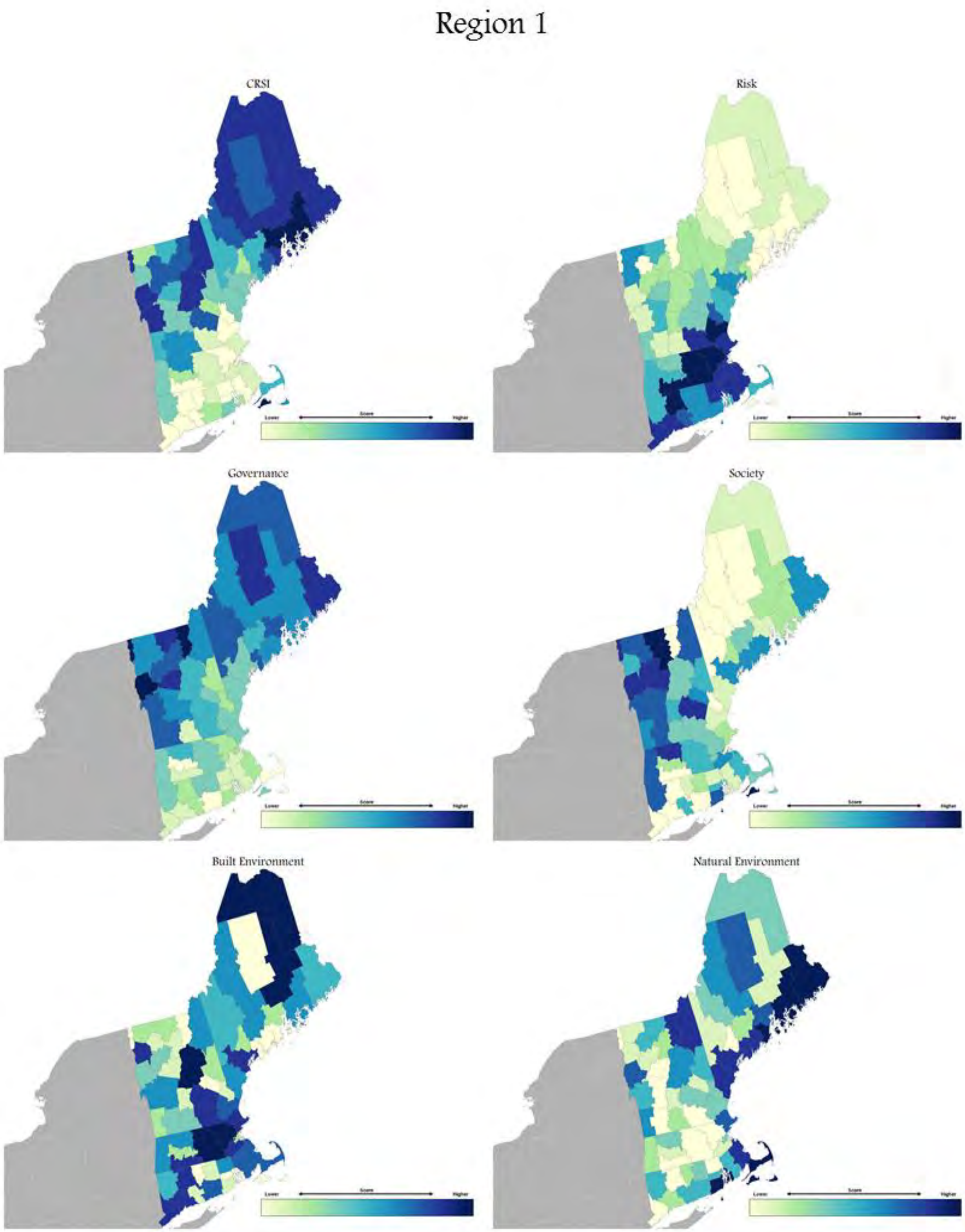


Figure 4.16 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for Region 1, along with domain median adjusted scores showing influence of each domain on CRSI (dark colored bars).

Table 4.2 Top 25 counties according to CRSI values in EPA Region 1 (i.e., higher resilience to climate events).

Region 1	
Rank	**County**
1.	Hancock County, Maine
2.	Waldo County, Maine
3.	Dukes County, Massachusetts
4.	Washington County, Maine
5.	Addison County, Vermont
6.	Knox County, Maine
7.	Penobscot County, Maine
8.	Aroostook County, Maine
9.	Rutland County, Vermont
10.	Somerset County, Maine
11.	Grand Isle County, Vermont
12.	Grafton County, New Hampshire
13.	Coos County, New Hampshire
14.	Lamoille County, Vermont
15.	Lincoln County, Maine
16.	Essex County, Vermont
17.	Piscataquis County, Maine
18.	Merrimack County, New Hampshire
19.	Washington County, Vermont
20.	Caledonia County, Vermont
21.	Franklin County, Maine
22.	Windham County, Vermont
23.	Franklin County, Massachusetts
24.	Cheshire County, New Hampshire
25.	Nantucket County, Massachusetts

1

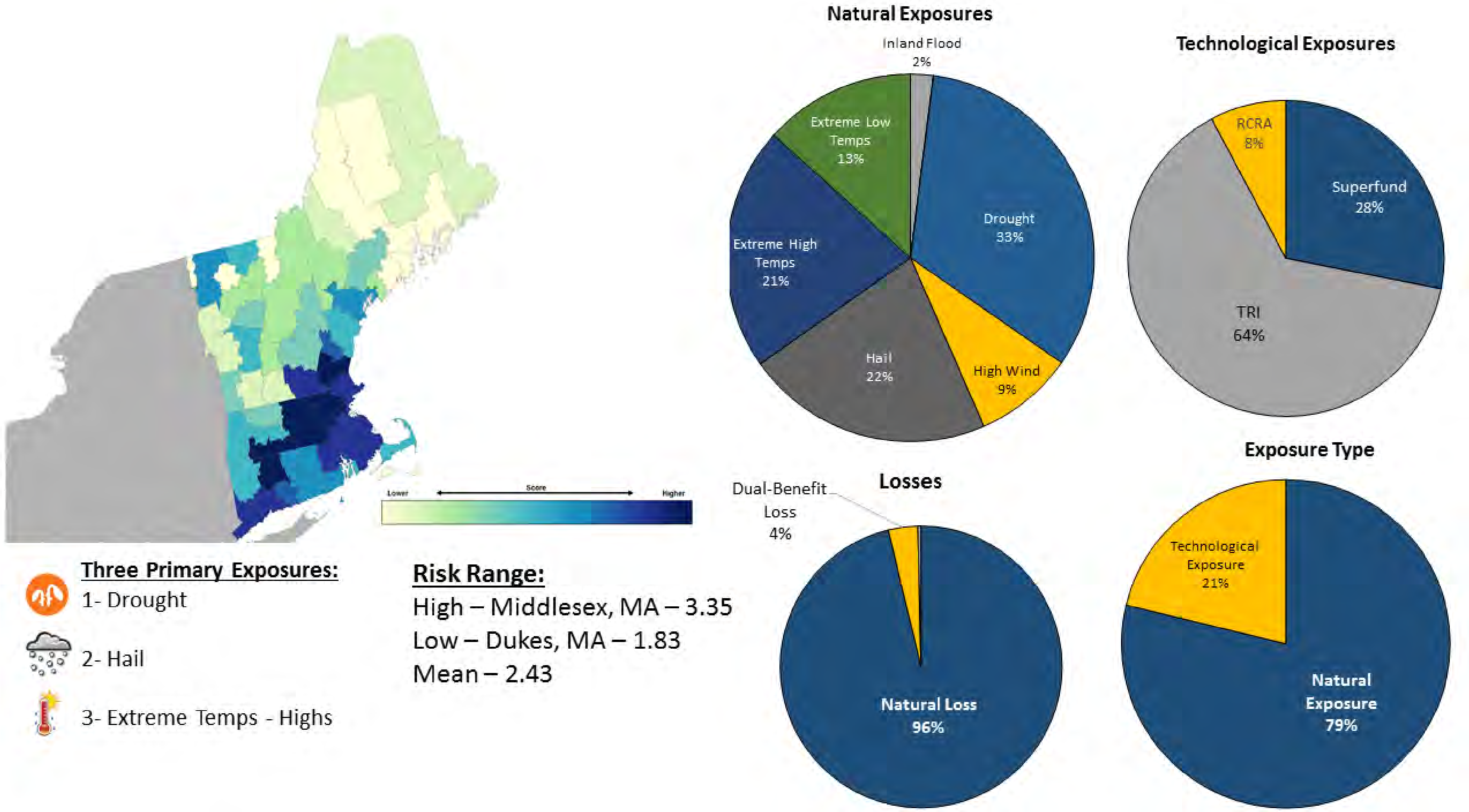


Figure 4.17 Map of Risk Domain scores by county for Region 1; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region (If a category was represented by <0.1%, it was not included).

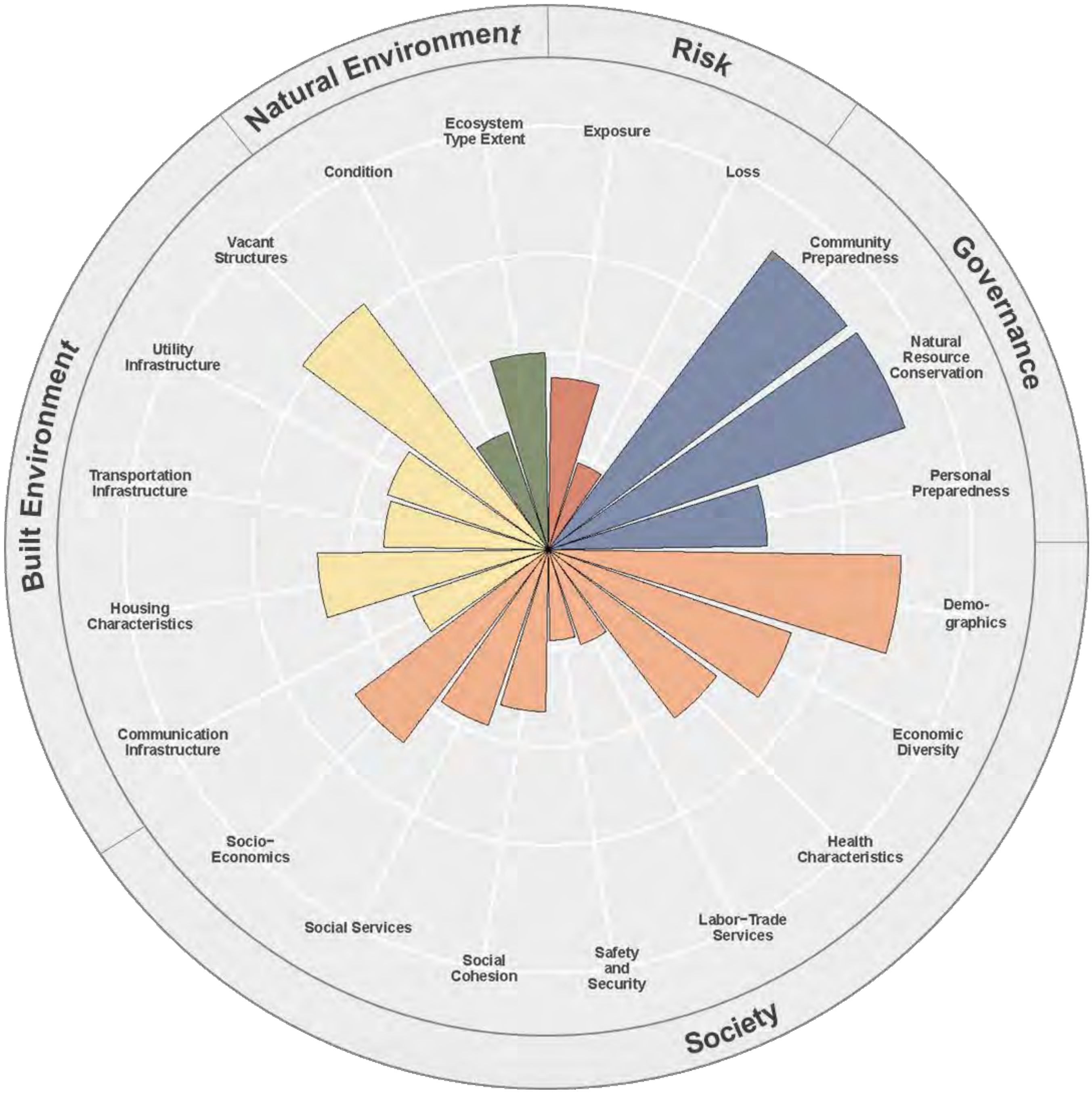


Figure 4.18 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 1. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 2

Region 2 of the EPA serves New Jersey, New York, and the territories of Puerto Rico and the U.S. Virgin Islands. Region 2 also serves eight federally recognized Indian Nations, all within New York. Region 2 shares the same regional impacts as Region 1; intense rainfall, sea level rise, and heatwaves. Cities such as New York, NY have experienced multiple impacts, including extreme heatwaves, sea level rise, severe storms and erosion. The age and scale of New York's transportation infrastructure combined with the dense population raises some unique resilience concerns. The EPA Region 2 Climate

Change Adaptation Plan of 2014 (USEPA-R2 2014) suggests managing increased storm water using green infrastructure and building more resistance to climate change impacts through investments in infrastructure.

The CRSI and domain scores for EPA Region 2 are shown in Figure 4.19. The Region is characterized by about average risk; high Governance; moderate to high Society and Built Environment; and, lower Natural Environment scores. The domain scores for Society and Built Environment showed positive influences on the overall CRSI score of 5.00 while the Natural Environment score had a negative influence on the CRSI score. Region 2 CRSI score ranked above average in terms of overall resilience to climate events among all EPA Regions. The higher resilience to climate events risk scores in EPA Region 2 were seen in upper New York while the lower risk counties were in upper and western New York (Figure 4.20 and Table 4.3). The lower resilience scores were observed in both New York and New Jersey with five counties in each state with low CRSI values. The higher risk of climate events counties are seen primarily in New Jersey and Long Island, New York.

Risk due to climate events across Region 2 risk is examined in more detail in Figure 4.21. Natural exposures due to climate events are dominated by extreme high temperatures (26% of counties), drought (23%) and hurricanes (19%). Extreme low temperatures also represent a sizeable portion of the risk potential (12%), while all other types of exposure due to natural climate events are represented at <10%. Superfund sites represent a majority of technological exposure indicator at 93%. TRI (Toxic Release Inventory) and RCRA sites contribute only a combined 7% of the exposure potential. In the region, losses are represented evenly by dual benefit lands and natural lands at 49% each, with the other 2% of the regional losses coming from developed lands. Natural climate risk potential dominates the region, with only 21% of the risk attributable to technological exposure potential. Risk ranges from a low score of 1.47 in Schoharie County, New York to a high score of 5.07 in New York County, New York. The mean regional risk falls well below the national at 2.57.

The contributions of the twenty CRSI indicators are shown in Figure 4.22. Strong positive influences on the Region 2 domain scores come from community preparedness and natural resource conservation (Governance), demographic characteristics (Society) and vacant structures (Built Environment). In the Society Domain, secondary positive incluences are seen from economic diversity, socio-economic charcateristics and higher social cohesion scores. Weak influences (and sometimes strong negative influences) on the Region 2 score come from safety and security and labor-trade services (Society) as well as greater exposure risk.

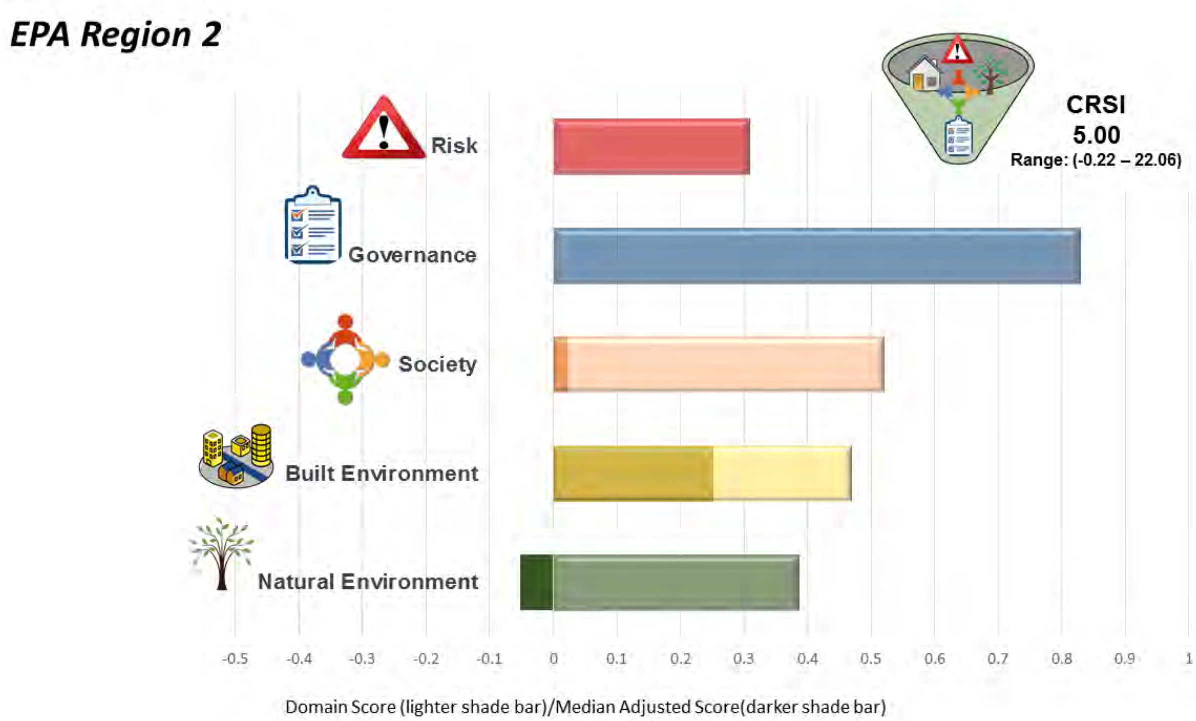


Figure 4.19 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 2, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

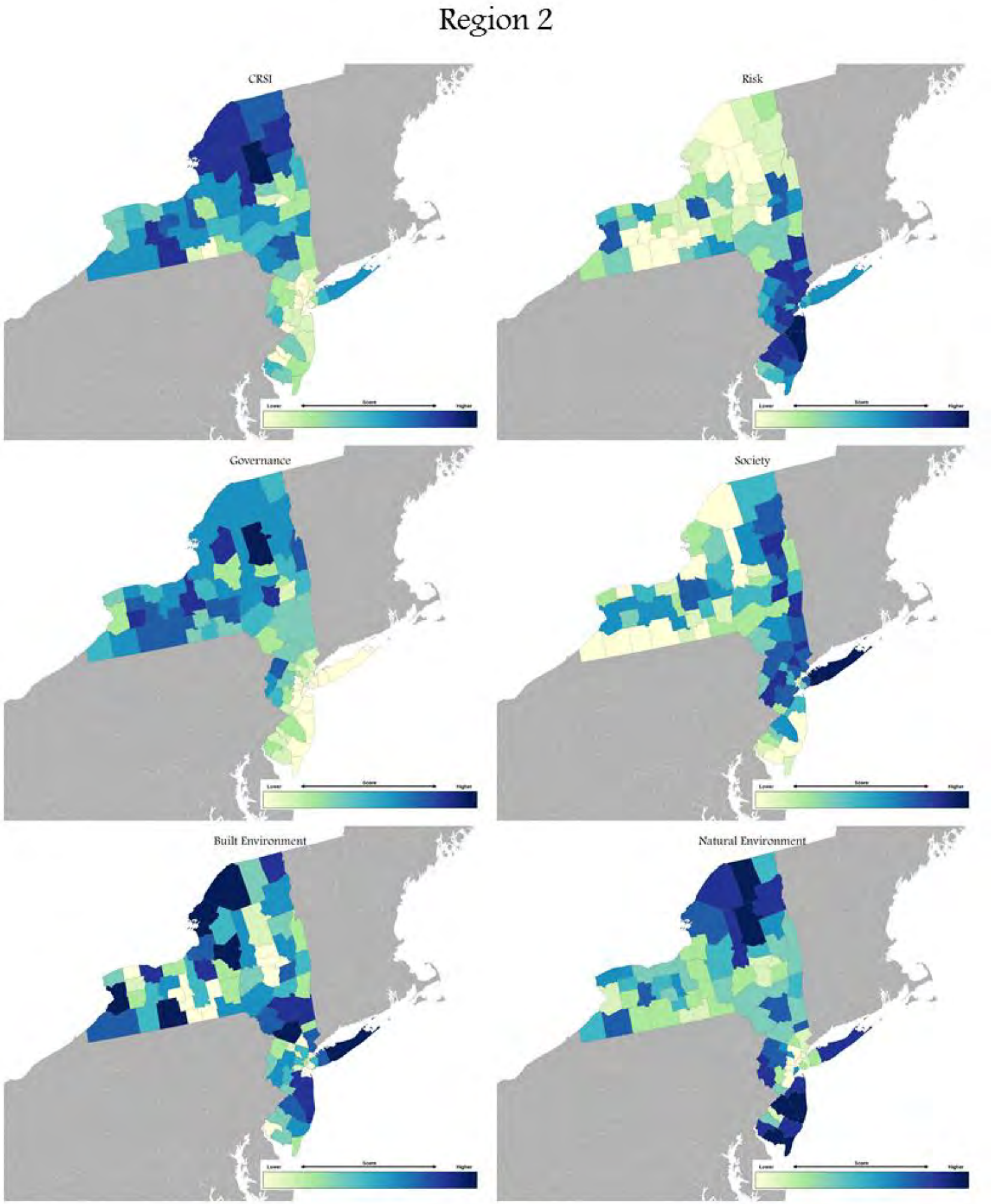


Figure 4.20 The distributions of EPA Region 2 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.3 Highest 25 CRSI values in EPA Region 2 by county.

Region 2	
Rank	**County**
1.	Hamilton County, New York
2.	St. Lawrence County, New York
3.	Steuben County, New York
4.	Lewis County, New York
5.	Essex County, New York
6.	Jefferson County, New York
7.	Livingston County, New York
8.	Herkimer County, New York
9.	Franklin County, New York
10.	Clinton County, New York
11.	Warren County, New York
12.	Ontario County, New York
13.	Cayuga County, New York
14.	Ulster County, New York
15.	Schuyler County, New York
16.	Chautauqua County, New York
17.	Tompkins County, New York
18.	Madison County, New York
19.	Cattaraugus County, New York
20.	Oneida County, New York
21.	Schoharie County, New York
22.	Columbia County, New York
23.	Wyoming County, New York
24.	Sullivan County, New York
25.	Yates County, New York

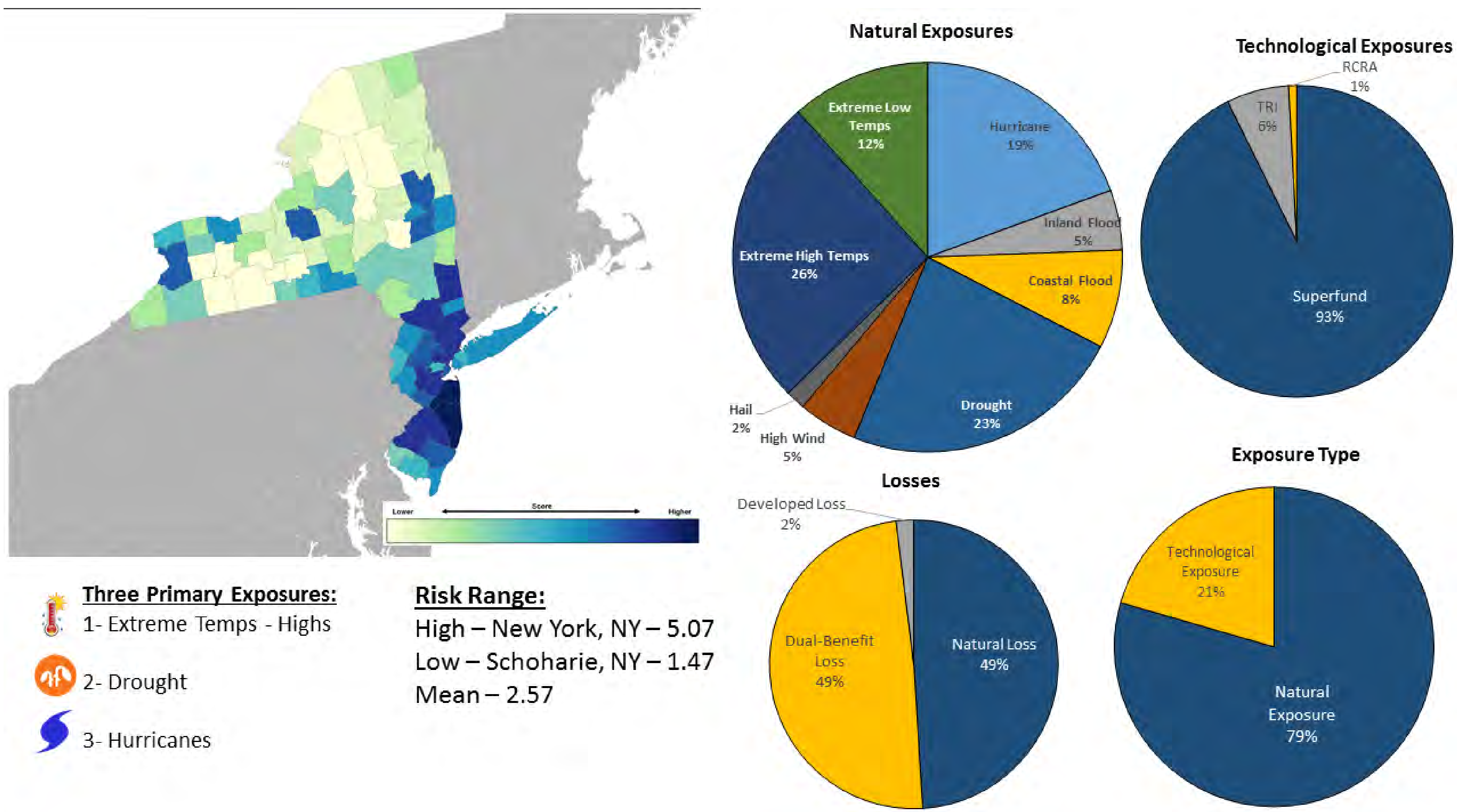


Figure 4.21 Map of Risk Domain scores by county for Region 2; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

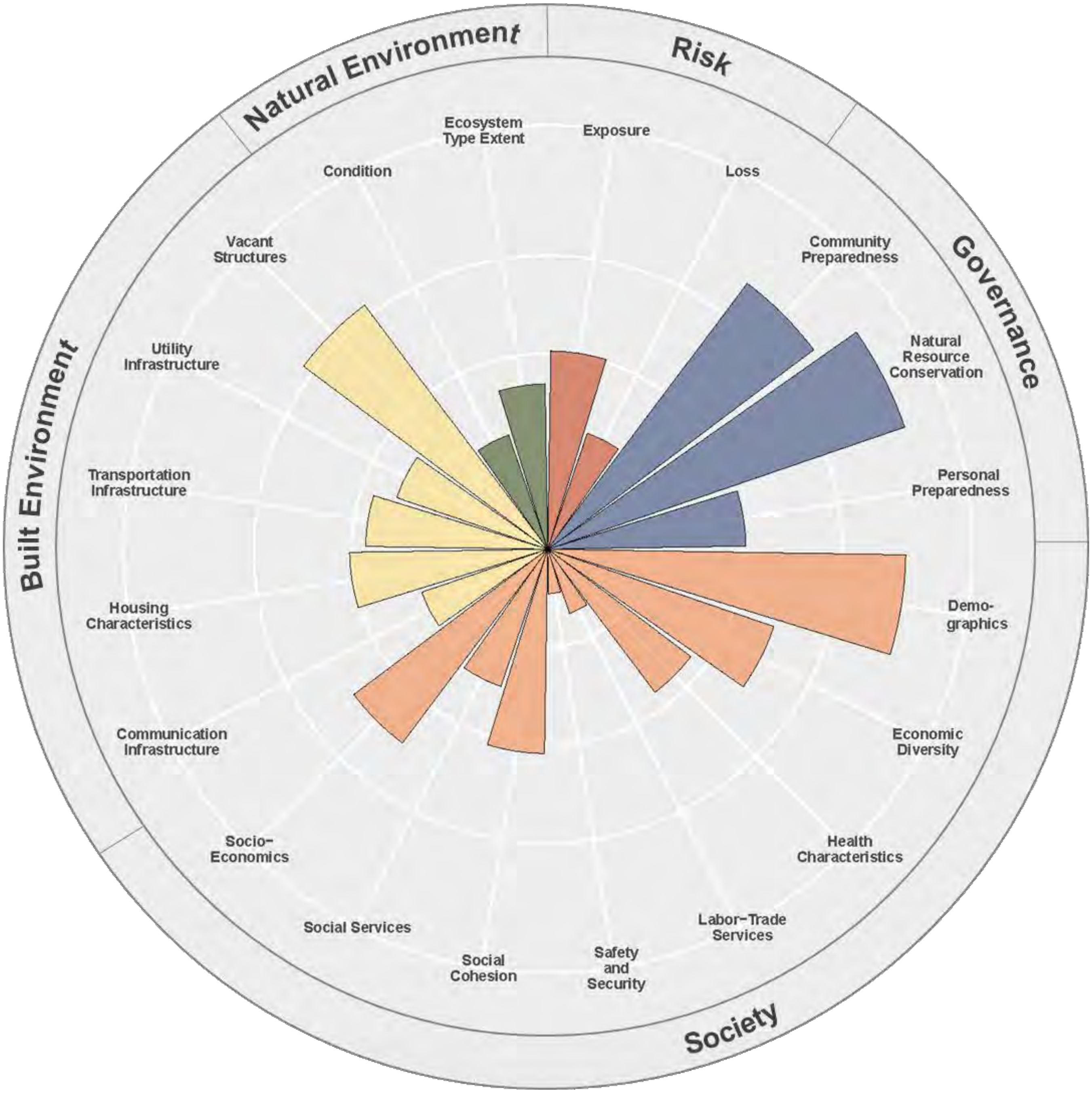


Figure 4.22 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 2. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 3

Region 3 of the EPA serves the states of Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. There is one federally recognized tribe in this region. The majority of the Region is impacted by heatwaves, intense rainfall, and sea level rise. Washington, D.C. has been impacted by extreme heat and rainfall events, the latter leading to flooding and infrastructure damage. The cities' infrastructure is also a resiliency concern when it comes to evacuating during an emergency because bottlenecks could be an issue. With the exception of extreme heat events, Norfolk, VA, has been burdened by the same concerns and damages as Washington D.C. Norfolk, a coastal city, is already dealing with the impacts of erosion and sea level rise. Lewes, DE is another coastal city being impacted by sea level rise and erosion. Pittsburgh, PA is forecasted to experience extreme rainfall, flooding and erosion from storms, but also faces concerns about environmental degradation, infrastructure damage, and eventual infrastructure failure. The EPA Region 3 Climate Change Adaptation Plan of May 2014 (USEPA-R3 2014) focuses on increasing tools and training materials available to help counties and communities choose between the different adaptation strategies available to them.

A summary of the CRSI and domain scores is displayed in Figure 4.23. The CRSI score for Region 3 (3.39) is below the national average and ranked 8th among the ten EPA Regions. The regional Governance score is moderate to high and the risk domain score is about average. The Society domain score is average and has little influence on the CRSI score while the Built Environment and Natural Environment domain score are below average and negatively affect the regional CRSI score. The counties with higher resilience scores in EPA Region 3 are in upper Pennsylvania and lower Virginia (Figure 4.24 and Table 4.4). The higher CRSI values in Region 3 occur in Pennsylvania (11 counties), Virginia (9), Maryland (4) and West Virginia (1). The lower CRSI values were predominantly in Virginia and West Virginia. Risk domain scores were highest in western Chesapeake Bay counties, Delaware, and southeastern Pennsylvannia.

Risk due to climate events across Region 3 is examined in more detail in Figure 4.25. Natural exposures due to climate events are dominated by drought (27% of counties), extreme high temperatures (20%) and extreme low temperatures (19%). Landslides also represent a sizeable portion of the risk potential (17%), while representation of all other types of exposure due to natural climate events are <10%. TRI (Toxic Release Inventory) sites and Superfund sites represent a majority of technological exposure indicator at 44% and 43%, respectively. Nuclear and RCRA sites also contribute a combined 13% of the exposure potential. In the region, losses are represented evenly by dual benefit lands and natural lands, with less than 1% of the regional losses coming from developed lands. Natural climate risk potential dominates the region, with only 12% of the risk attributable to technological exposure potential. Risk ranges from a low score of 1.63 in Bradford County, Pennsylvania to a high score of 4.79 in Hopewell City, Virginia. The mean regional risk falls above the national at 2.91.

Contributions of CRSI's twenty indicators to the overall Region 3 domain scores is displayed in Figure 4.26. The highest indicator scores contributing each domain include vacant structures (Built Environment), demographic charcateristics (Society) and natural resource conservation and community preparedness (Governance). Secondary contributors include housing characteristics (Built Environment), economic diversity and socio-economic factors (Society) and higher scores for the exposure indicator influenced higher risk to climate events in this Region. Lower contributors to the Region 3 domain scores are communications and transportation infrastructure (Built Environment), safety and security, and labor-trade services (Society) and loss (Risk).

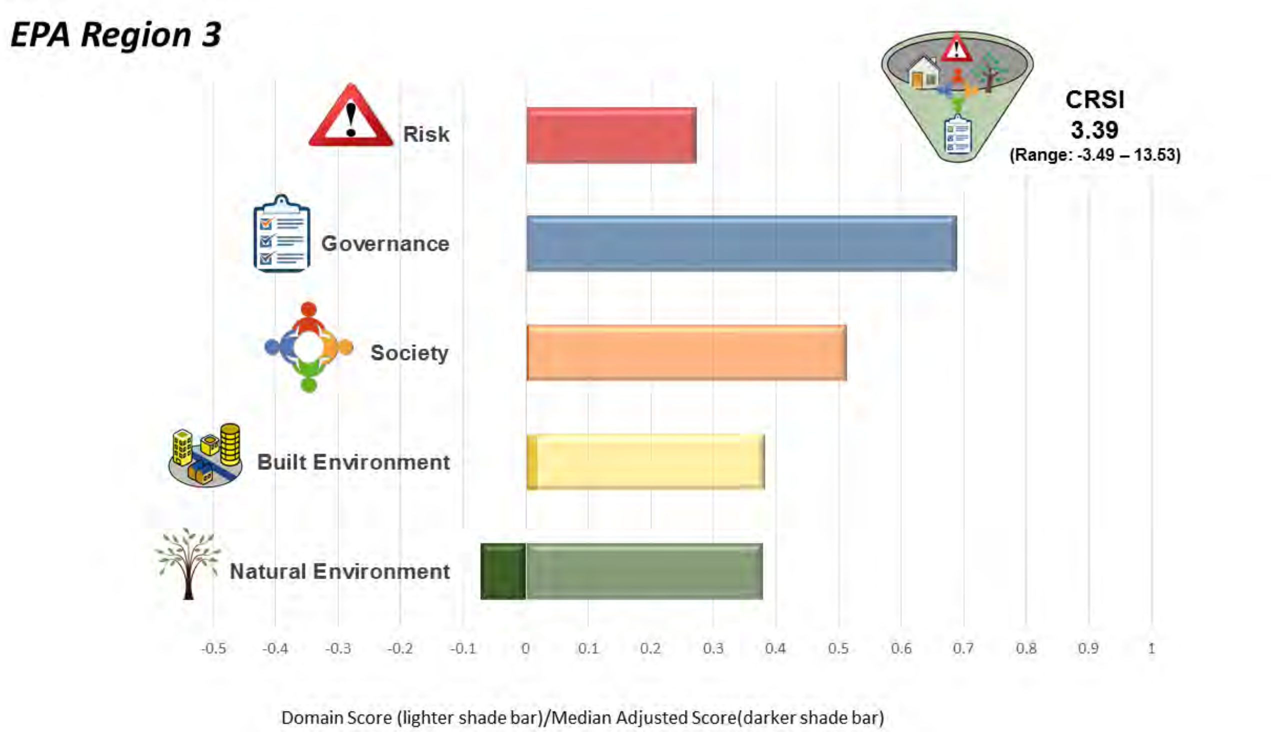


Figure 4.23 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 3, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

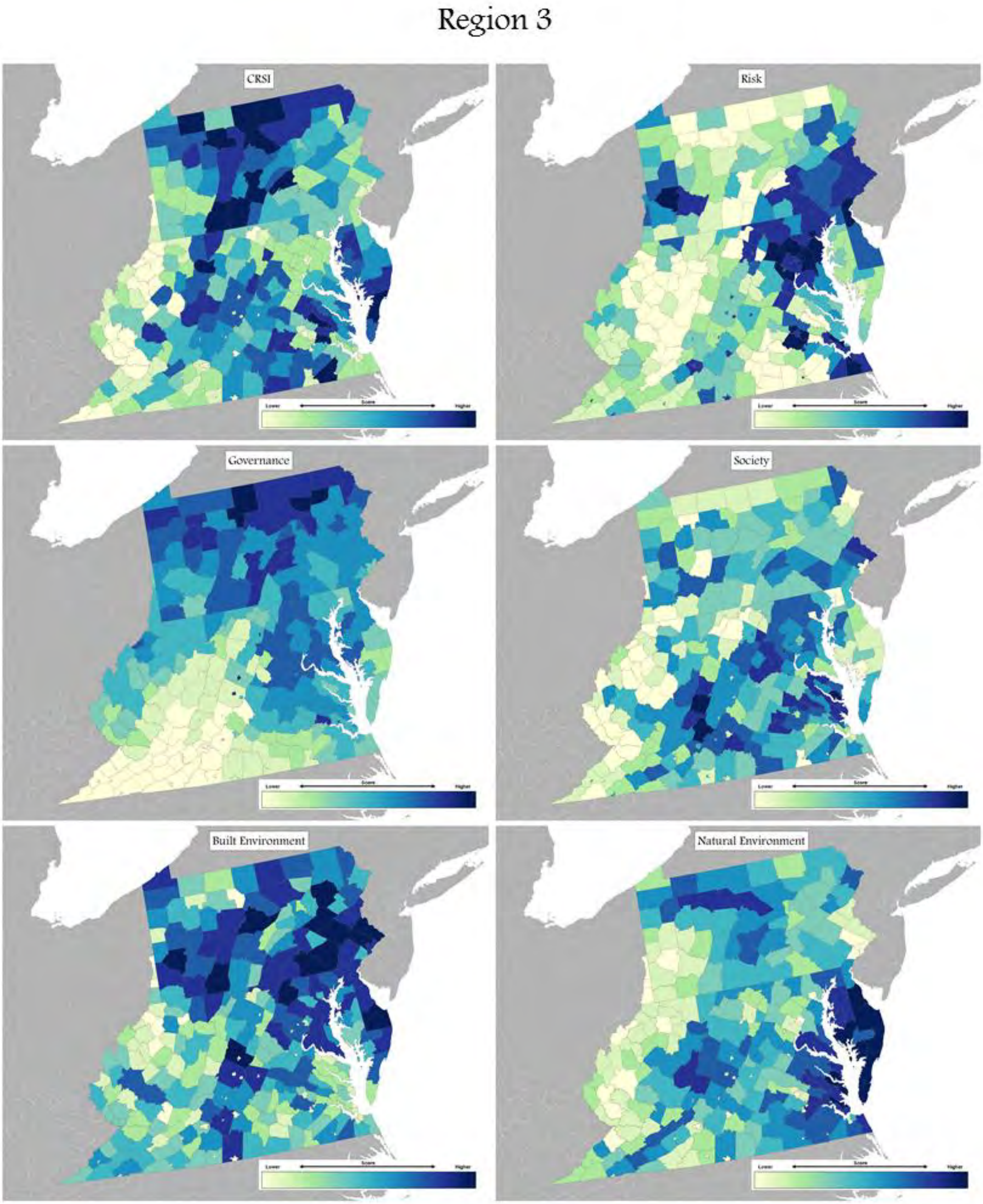


Figure 4.24 The distributions of EPA Region 3 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.4 Counties in EPA Region 3 with the highest CRSI values.

Region 3	
Rank	**County**
1.	King William County, Virginia
2.	Huntingdon County, Pennsylvania
3.	Tioga County, Pennsylvania
4.	Perry County, Pennsylvania
5.	Potter County, Pennsylvania
6.	Somerset County, Pennsylvania
7.	Elk County, Pennsylvania
8.	Tucker County, West Virginia
9.	Clinton County, Pennsylvania
10.	Accomack County, Virginia
11.	Charles City County, Virginia
12.	Southampton County, Virginia
13.	Warren County, Pennsylvania
14.	Bedford County, Pennsylvania
15.	King and Queen County, Virginia
16.	Worcester County, Maryland
17.	Queen Anne's County, Maryland
18.	Lycoming County, Pennsylvania
19.	Caroline County, Virginia
20.	Garrett County, Maryland
21.	Amelia County, Virginia
22.	Cambria County, Pennsylvania
23.	Powhatan County, Virginia
24.	Page County, Virginia
25.	Somerset County, Maryland

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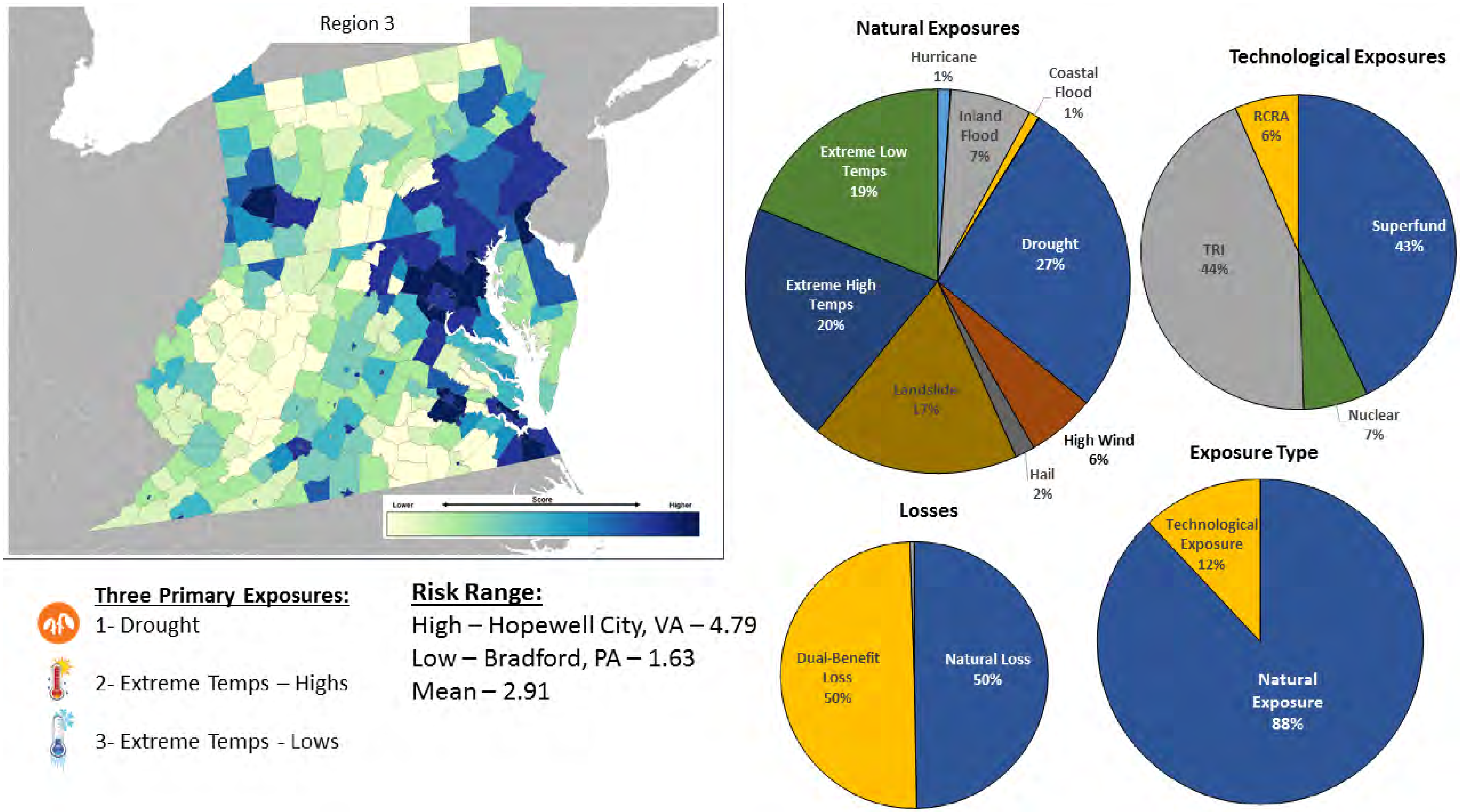


Figure 4.25 Map of Risk Domain scores by county for Region 3; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

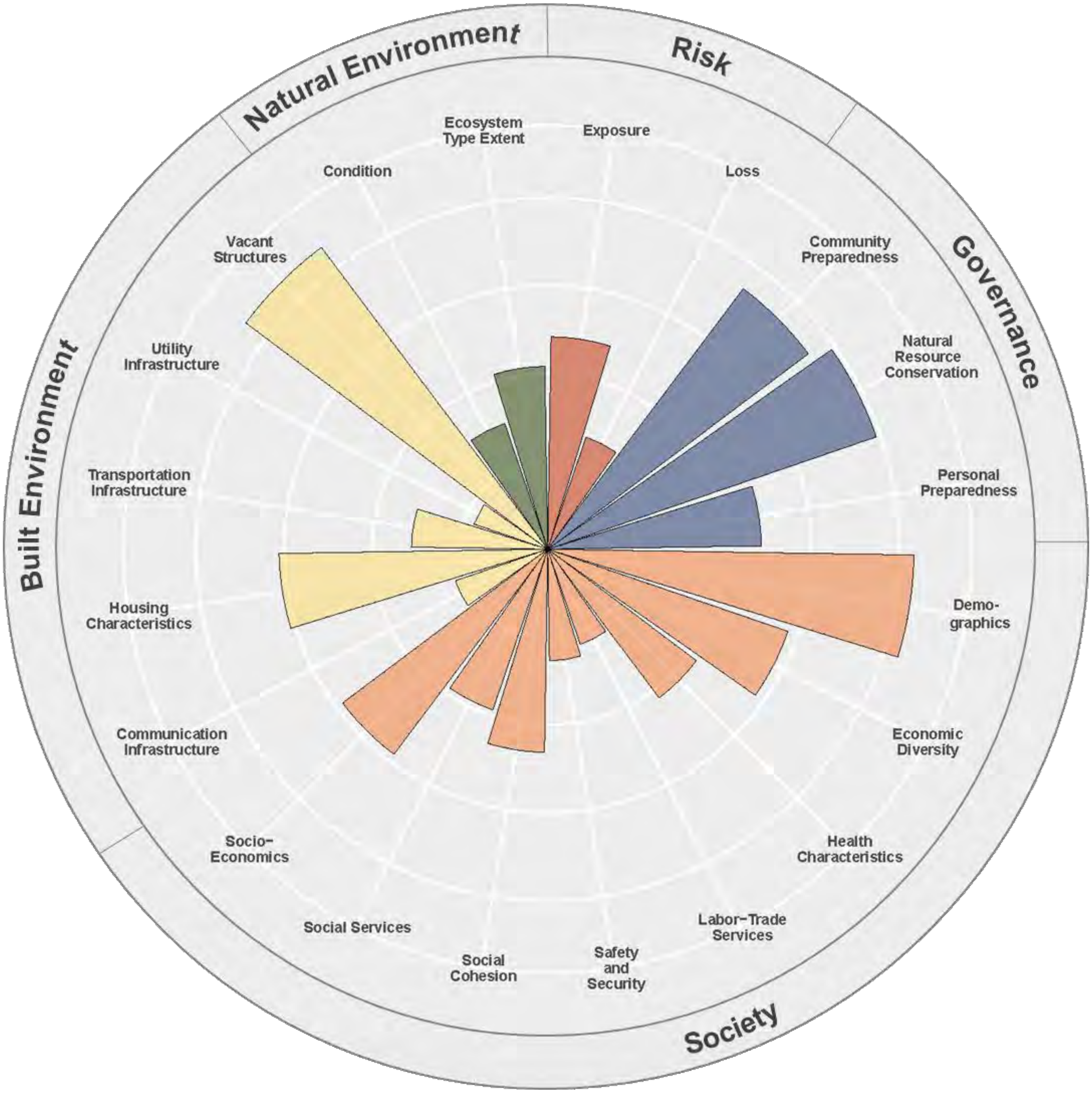


Figure 4.26 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 3. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 4

EPA Region 4 includes Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. Region 4 serves six federally recognized tribes in the southeast. This region is threatened by sea level rise and extreme heat. Inland cities, such as Atlanta, GA, have suffered from rising temperature and extreme heat. Broward and Miami-Dade Counties in Florida have already been impacted by sea level rise, and infrastructure damage from storms. Miami- Dade County, FL has also suffered related issues with water quality and quantity as salt water intrusion increases with sea level rise. The EPA Region 4 Climate Change Adaptation Implementation Plan of 2014 (USEPA-R4 2014) lists encouraging low-impact development and green infrastructure to abrogate increased storm events; ensuring water conservation and efficiency are considered in water resource project permitting to protect water quality and quantity; using dredge material to protect from sea level rise and storm surge, and developing protocols for emergency dredging after hurricanes since they may become more frequent or severe.

A summary of the EPA Region 4 CRSI and domain scores are shown in Figure 4.27. The overall CRSI, 0.58, is well below the national average and ranked lowest among EPA Regions. The CRSI values reflects relatively high risk to climate events, lower Governance associated with climate events, and lower than average Society, Built Environment and Natural Environment domain scores. Figure 4.28 shows the distribution of these scores among the counties in Region 4. The higher CRSI values are shown in coastal North Carolina and some coastal counties in Florida. Areas of high risk to climate events are seen in the coastal regions of the Florida peninsula and the southern Appalachians. Lower risk scores are seen in much of Georgia and the Big Bend area of Florida. Governance scores in Region 3 are higher in northern Kentucky and lowest in Appalachia and much of Alabama. Strong Built Environment domain scores are seen in mid- and south peninsula Florida.

Table 4.5 lists the 25 counties in EPA Region 4 with the highest CRSI values. The higher scores are seen in counties in North Carolina (11), South Carolina (5), Georgia (3), Florida (3) and Kentucky (1). The counties with lower CRSI values occur almost exclusively in Georgia and in one county in Kentucky.

Risk due to climate events across Region 4 risk is examined in more detail in Figure 4.29. Natural exposures due to climate events are dominated by drought (35% of counties), extreme high (23%) and low (13%) temperatures. All other types of exposure due to natural climate events are represented at <10%. TRI (Toxic Release Inventory) sites and Superfund sites represent a majority of the technological exposure indicator at 45% and 35%, respectively. Nuclear sites also contribute a sizeable portion of the risk potential at 18%, while RCRA sites contribute a negligible portion at 2%. In the region, losses are represented primarily by dual benefit lands (49%) and natural lands (48%). Only 3% of losses come from developed lands. Natural climate risk potential dominates the region, with only 4% of the risk being attributable to technological exposure potential. Risk ranges from a low score of 1.53 in Taylor County, Georgia to a high score of 5.26 in Shelby County, Tennessee. The mean regional risk falls slightly above the national at 2.83.

Contributions of CRSI's twenty indicators to the overall Region 4 domain scores is displayed in Figure 4.30. The strongest positive influences on the domain scores in Region 4 include vacant structures and housing characteristics (Built Environment), and demographic characteristics (Society). Secondary influences are seen in community preparedness and natural resource conservation (Governance), economic diversity social cohesion and socio-economic characteriustics (Society), and exposure to climate events. Lower indicator scores are seen for safety and security and labor-trade services (Society), and utility and communications infrastructure (Built Environment).

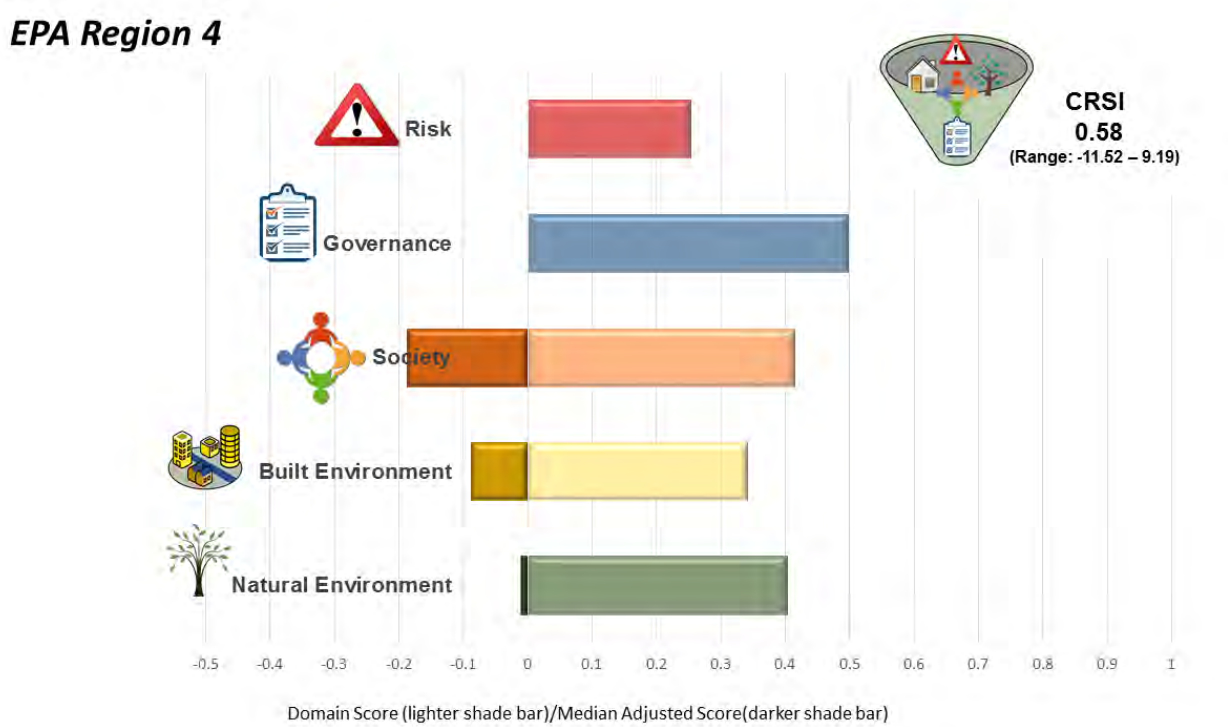


Figure 4.27 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 4, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

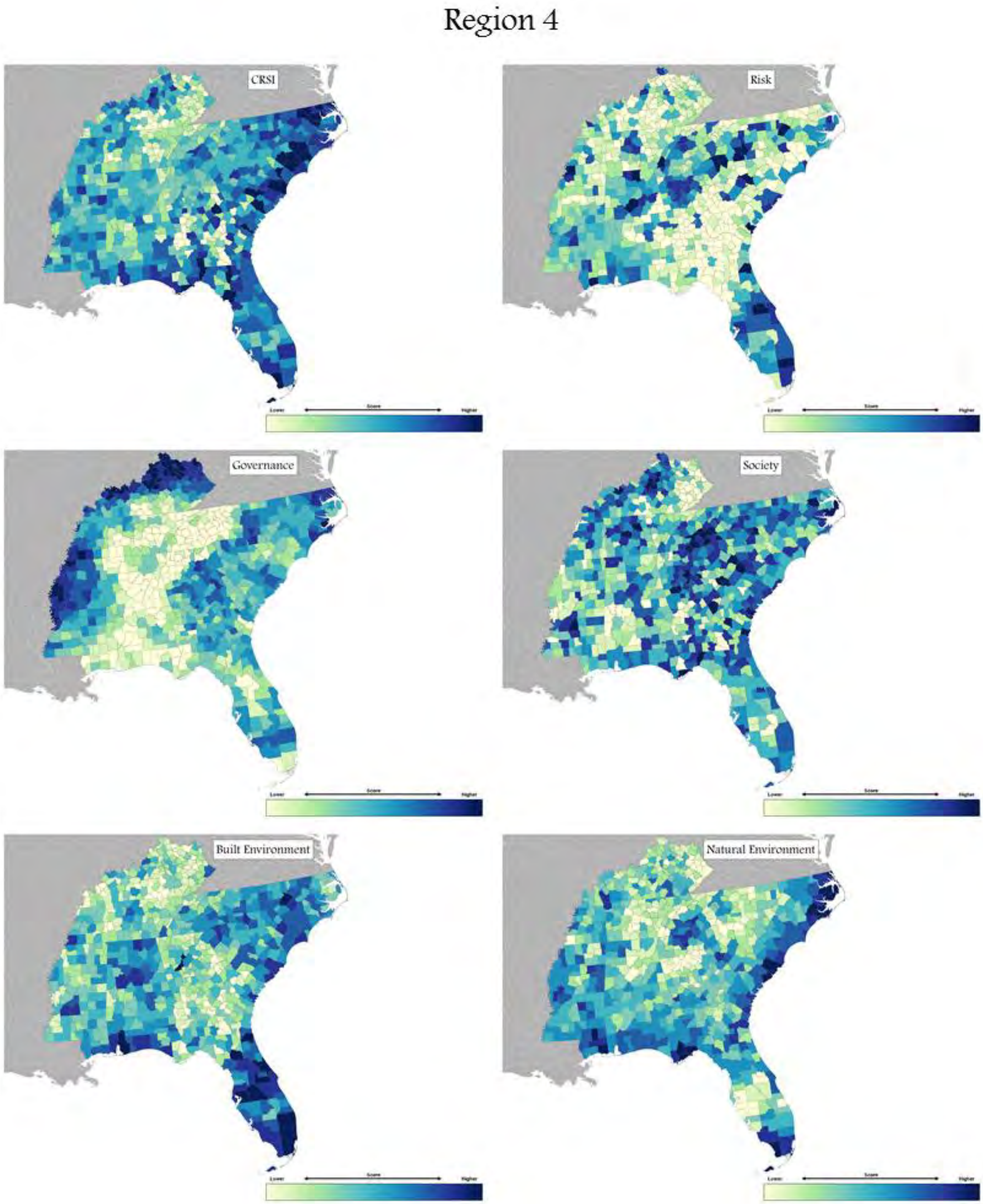
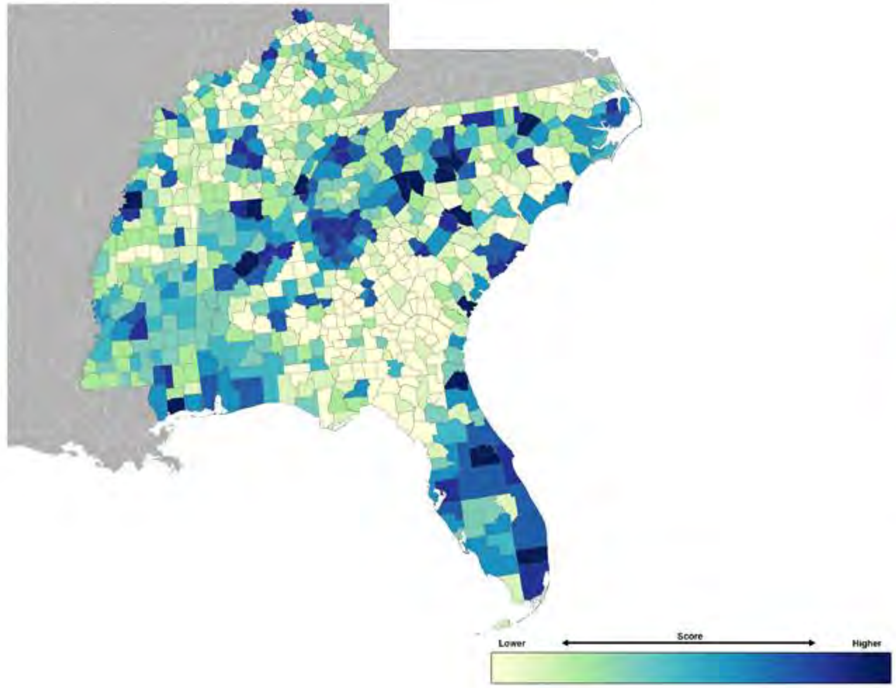


Figure 4.28 The distributions of EPA Region 4 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.5 Twenty-five counties in EPA Region 4 with the highest CRSI values.

Region 4	
Rank	**County**
1.	Columbus County, North Carolina
2.	Monroe County, Florida
3.	Pender County, North Carolina
4.	Thomas County, Georgia
5.	Williamsburg County, South Carolina
6.	Franklin County, Florida
7.	Bertie County, North Carolina
8.	Northampton County, North Carolina
9.	Washington County, Georgia
10.	Martin County, North Carolina
11.	Gates County, North Carolina
12.	Jefferson County, Florida
13.	Georgetown County, South Carolina
14.	Bryan County, Georgia
15.	Halifax County, North Carolina
16.	Colleton County, South Carolina
17.	Orangeburg County, South Carolina
18.	Columbia County, Florida
19.	Robeson County, North Carolina
20.	Sampson County, North Carolina
21.	Levy County, Florida
22.	Duplin County, North Carolina
23.	Currituck County, North Carolina
24.	Spencer County, Kentucky
25.	Marion County, South Carolina



Three Primary Exposures:

1- Drought

2- Extreme Temps – Highs

3- Extreme Temps - Lows

Risk Range:

High – Shelby, TN – 5.26

Low – Taylor, GA – 1.53

Mean – 2.83

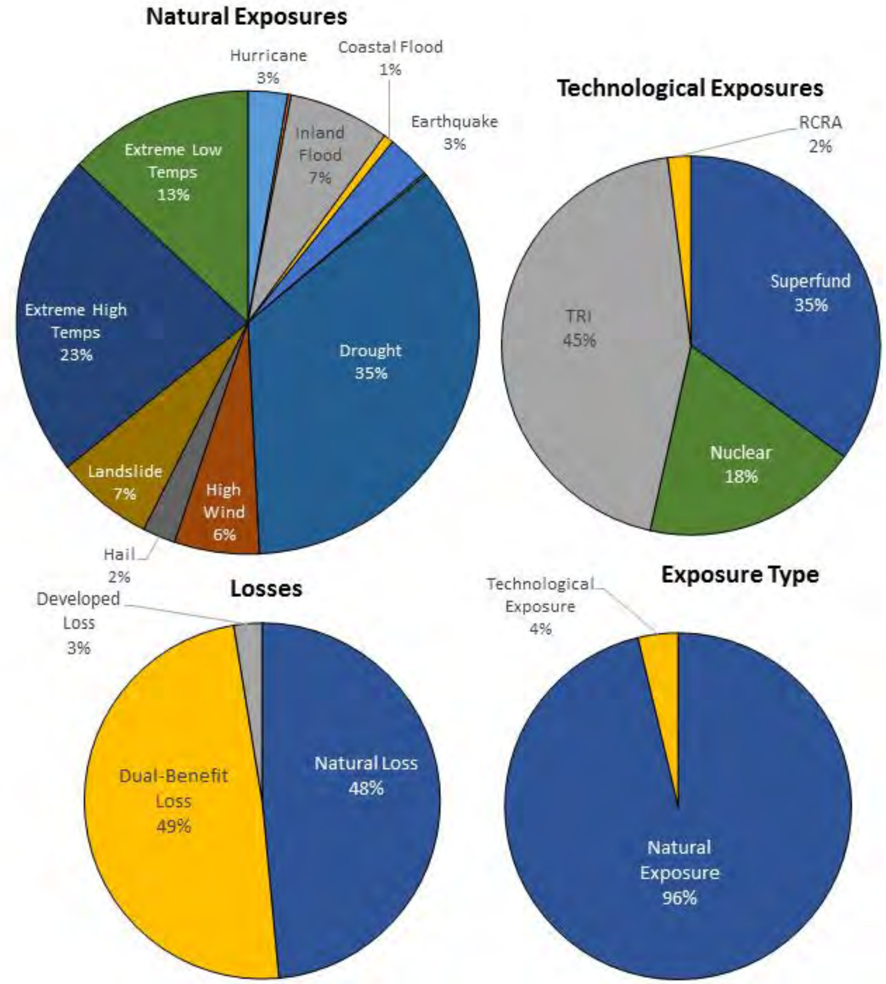


Figure 4.29 Map of Risk Domain scores by county for Region 4; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

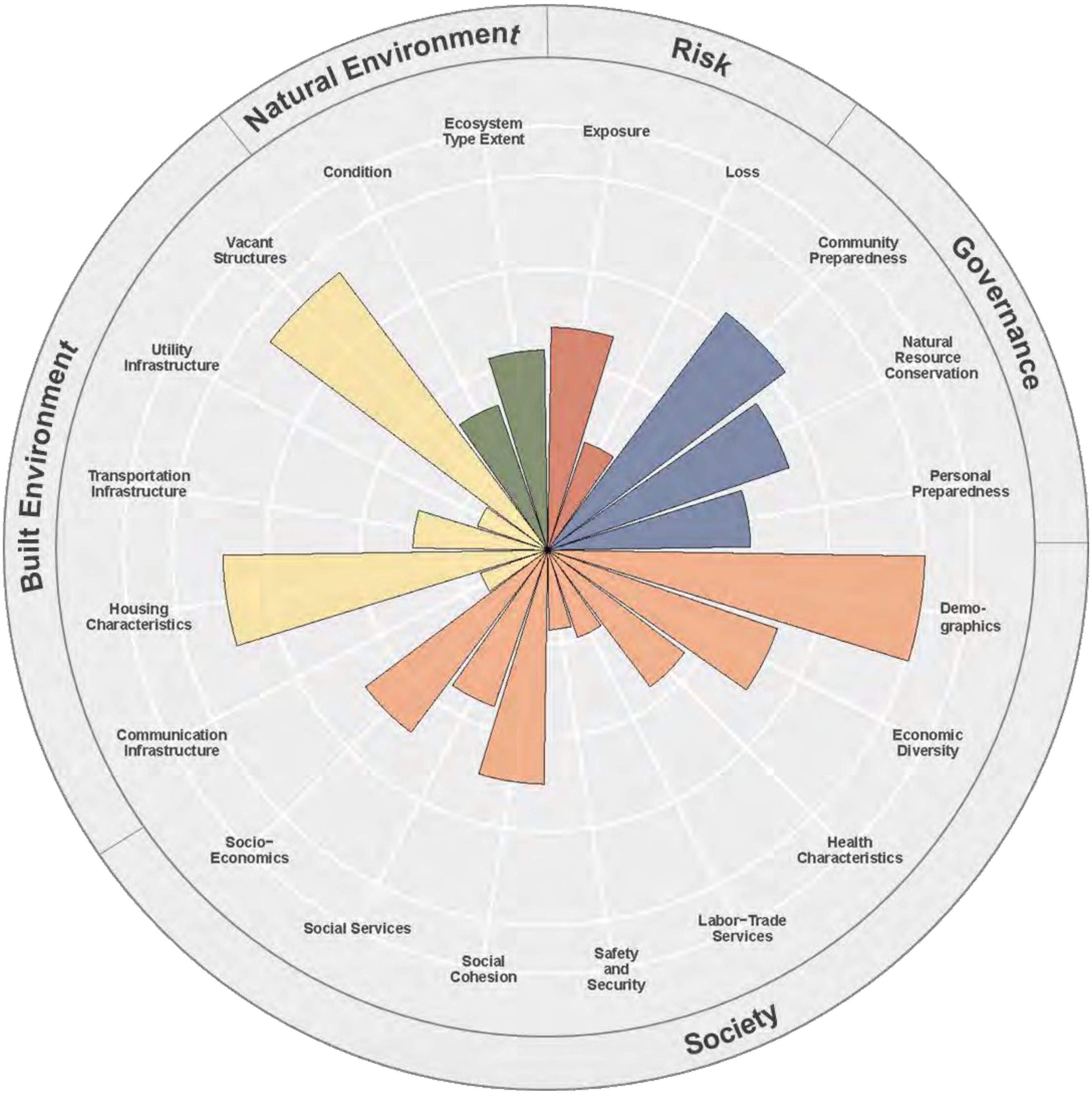


Figure 4.30 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 4. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 5

Region 5 of the EPA includes Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. Region 5 serves 35 federally recognized tribes in Michigan, Minnesota and Wisconsin. Region 5 is impacted by extreme rainfall events that lead to flooding, and extreme heat. Minneapolis, MN has been affected by warming trends, and flooding from extreme rainfall. Milwaukee, WI has suffered both cases of severe drought and extreme rainfall that resulted in flooding and infrastructure damage. Grand Rapids, MI and Chicago, IL have both experienced rises in temperature, and extreme rainfall resulting in flooding, erosion and infrastructure damage. Chicago has additional resilience issues of endemic crime, public health, and infrastructure failure. Ann Arbor, MI is forecasted to suffer from rising temperatures. The EPA Region 5 Climate Change Adaptation Implementation Plan of May 2014 (USEPA-R5 2014) states that Region 5 is striving to use water source protection tools in order to improve the resilience of highly vulnerable water systems. Additionally, remediation techniques for incorporating vegetation are in review in order to become more tolerant of heat, excessive rain, and drought in the EPA's Superfund processes.

A summary of the overall CRSI score and the domain scores for EPA Region 5 is shown in Figure 4.31. The overall CRSI value of 6.02 is above the national average while the Risk domain score is slightly lower than the national average (less risk). The Region 5 Governance domain score is relatively high as is the Society domain score. The scores for the Built Environment and Natural Environment domains are above the national average. Region 5 CRSI value ranked 5th among the ten EPA Regions.

The distribution of the overall CRSI values and the domain scores among the counties in Region 5 is shown in Figure 4.32. Higher CRSI values, as shown in Figure 4.32 and Table 4.6, occur in the counties of Wisconsin (10 counties), Minnesota (9), and Michigan and Indiana (3 each). The counties with the lower CRSI values occur in Indiana and Ohio (3 counties each), Illinois (2), and one county in each of Minnesota and Michigan. Risk domain scores are generally the lowest in northern Michigan, northwestern and middle Wisconsin and some counties in Minnesota. The highest risk domain scores occur along the southwestern shore of Lake Michigan. Governance and Society domain scores are higher in many of the counties of Wisconsin and Minnesota.

Risk due to climate events across Region 5 risk is examined in more detail in Figure 4.33. Natural exposures due to climate events are dominated by drought (33% of counties), extreme high temperatures (24%) and extreme low temperatures (22%). All other types of exposure due to natural climate events are represented at <10%. Superfund sites and TRI (Toxic Release Inventory) sites evenly dominated the technological exposure indicator at 43% each. Nuclear exposure potential is also a significant contributor to risk in this region at 11%. Regionally, losses are seen primarily in dual benefit and natural land types (e.g., forests, wetlands, agriculture). Most exposure comes from natural climate events, although 7% of exposure results from proximity to anthropogenic, technological infrastructure. Risk ranges from a low score of 1.79 in Cook County, Illinois to 4.79 in Mecosta County, Michigan, with a regional average slightly lower than the national at 2.69.

The contributions of the 20 indicators to EPA Region 5 domain scores are shown in Figure 4.34. The strongest contributors domain scores are natural resource conservation (Governance), demographic characteristics (Society), and vacant structures (Built Environment). Secondary contributors include economic diversity, social cohesion, socio-economic characteristics and health characteristics (Society), housing charcateristics (Built Environment), and personal and community preparedness (Governance). Lower indicator scores are shown for communication and utilities infrastructure in the Built Environment domain and saftery and security and labor and trade services in the Society domain.

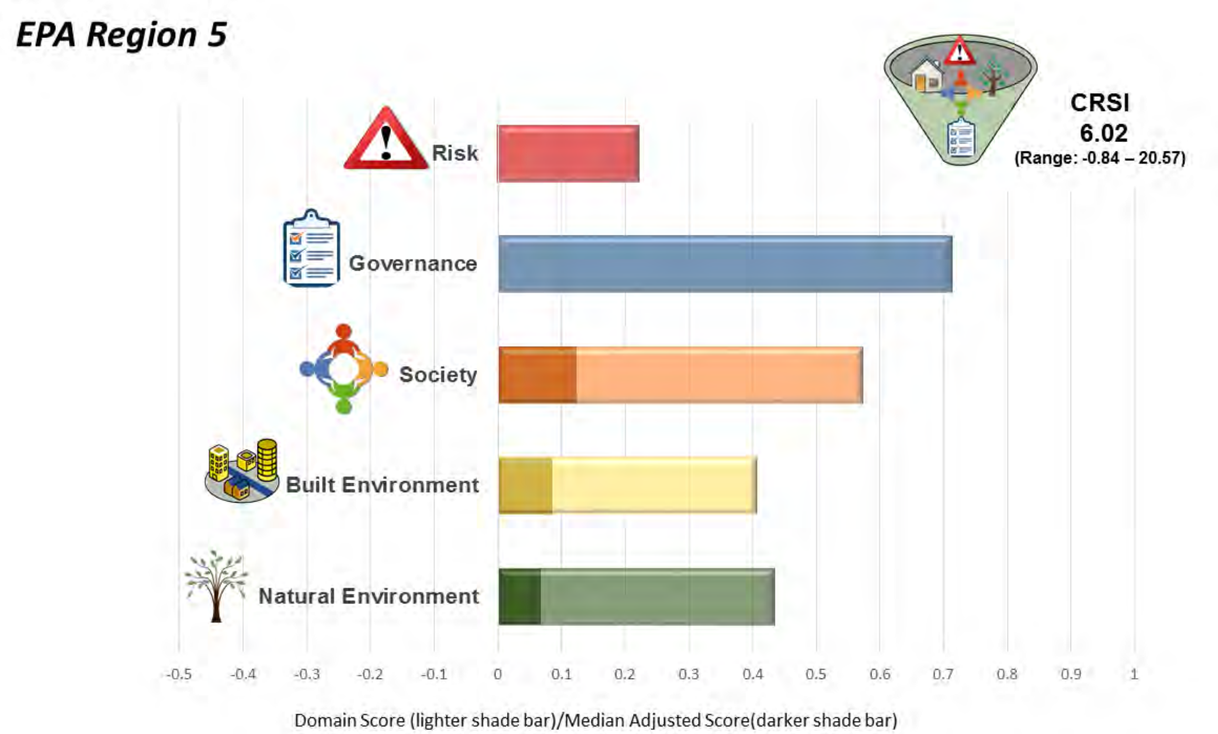


Figure 4.31 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 5, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

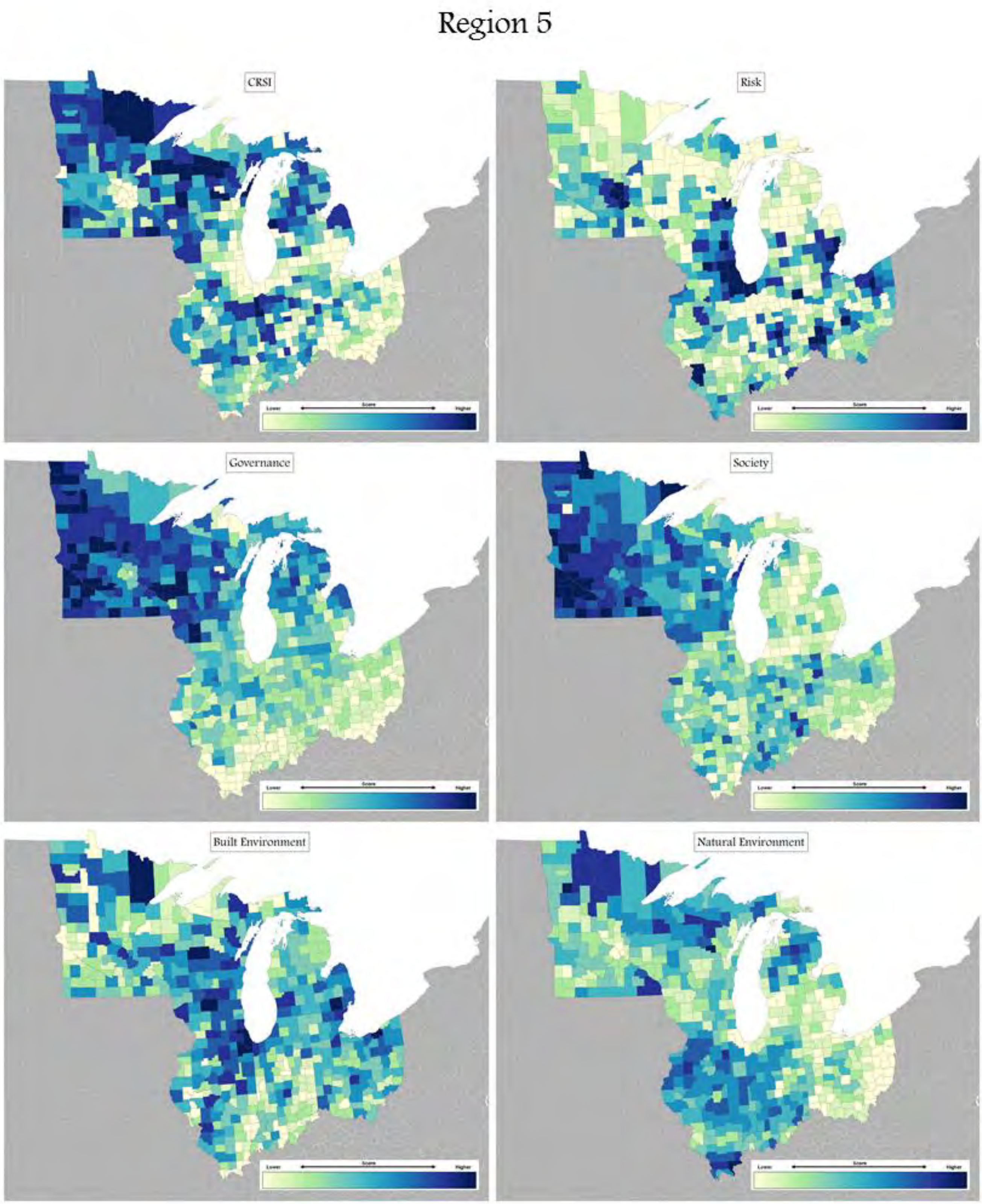


Figure 4.32 The distributions of EPA Region 5 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.6 Twenty-five counties in EPA Region 5 with the highest CRSI values.

Region 5	
Rank	**County**
1.	Lincoln County, Minnesota
2.	Itasca County, Minnesota
3.	Oneida County, Wisconsin
4.	Pipestone County, Minnesota
5.	Price County, Wisconsin
6.	Clark County, Wisconsin
7.	Koochiching County, Minnesota
8.	Benton County, Indiana
9.	Shawano County, Wisconsin
10.	Newton County, Indiana
11.	Forest County, Wisconsin
12.	Sawyer County, Wisconsin
13.	Grant County, Minnesota
14.	Oceana County, Michigan
15.	Vilas County, Wisconsin
16.	Fillmore County, Minnesota
17.	Door County, Wisconsin
18.	Florence County, Wisconsin
19.	Washburn County, Wisconsin
20.	St. Louis County, Minnesota
21.	Pulaski County, Indiana
22.	Huron County, Michigan
23.	Lake County, Minnesota
24.	Kalkaska County, Michigan
25.	Morrison County, Minnesota

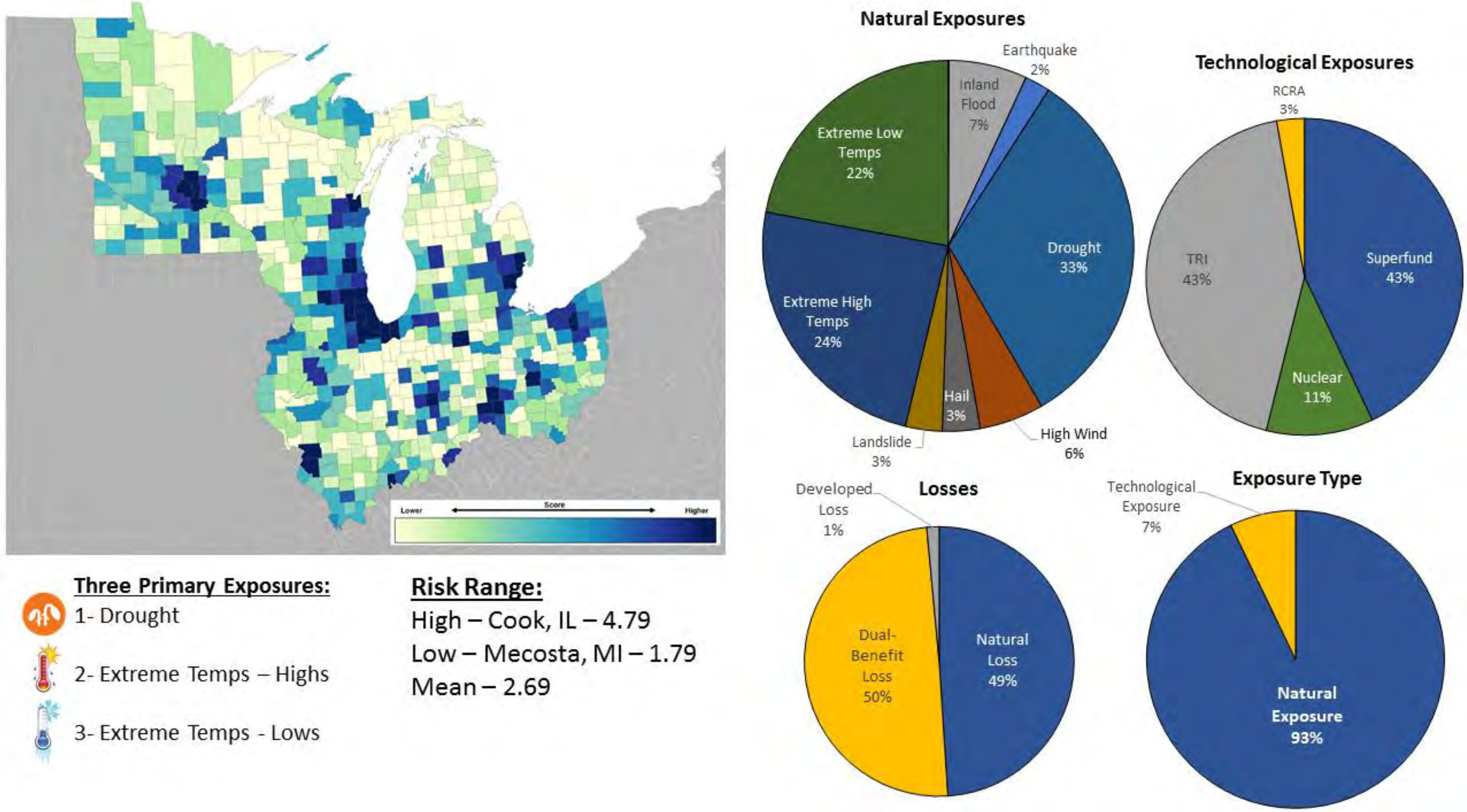


Figure 4.33 Map of Risk Domain scores by county for Region 5; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

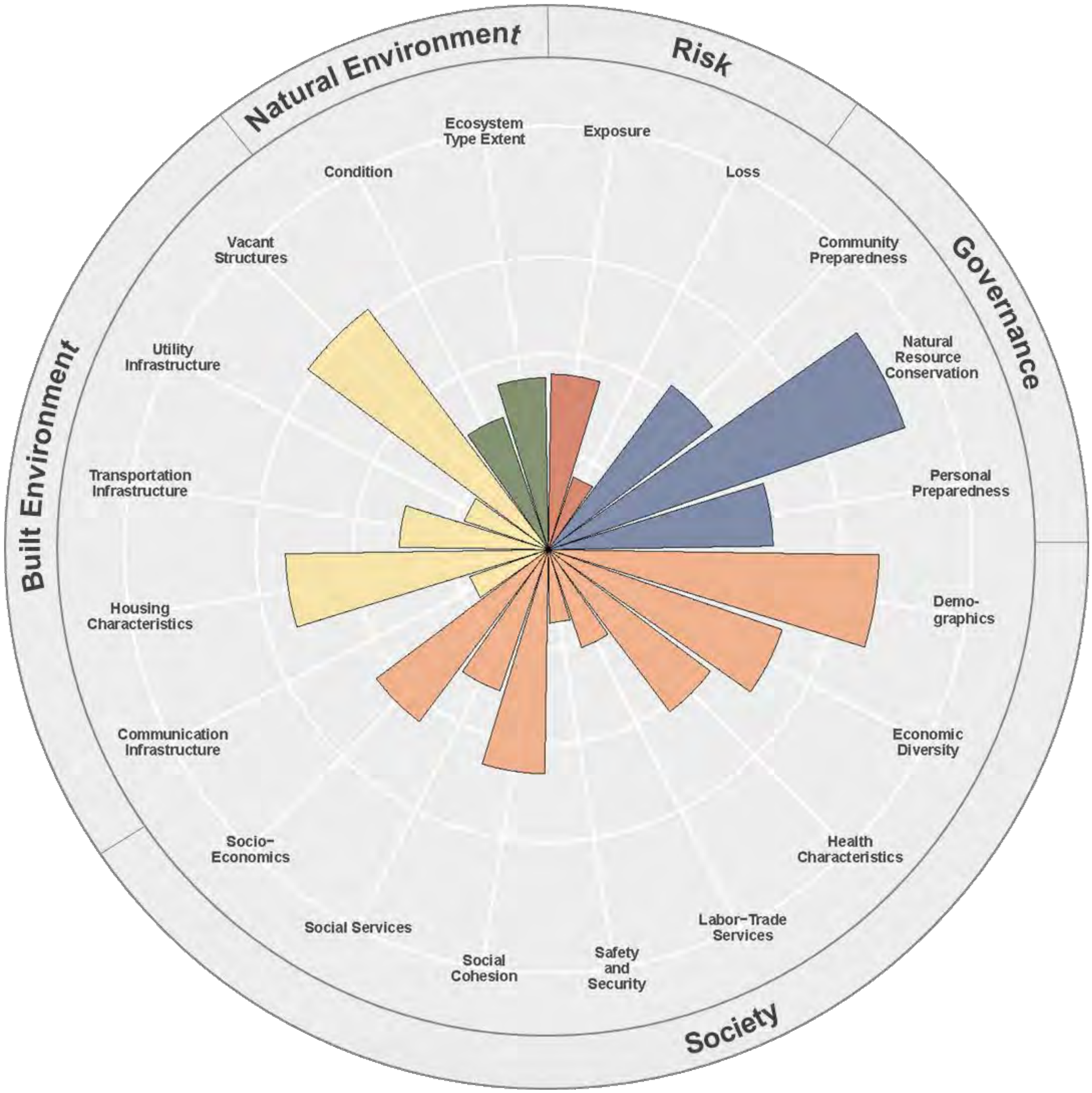


Figure 4.34 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 5. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 6

Region 6 of the EPA serves Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Region 6 includes 66 federally recognized tribes in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The entire region is threatened by extreme heat events and rising temperatures. For example, Tucson, AZ, Houston, TX, Dallas, TX, and El Paso, TX, have all experienced different issues due to warming trends. In cities where the heat has been, or is projected to be, accompanied by drought, such as Houston, El Paso and Tucson, water quality and quantity sometimes becomes a concern. In New Mexico rising temperatures, combined with drought, and insect outbreaks, has led to increased wildfire risk. In Dallas, TX heat waves have caused energy shortages. In Houston, TX, Dallas, TX, and El Paso, TX there has been extreme rainfall and flooding too, resulting in erosion and damages to infrastructure in Houston; and infrastructure damage and even failure in Dallas. The Region's coastal states, specifically Louisiana, are threatened by sea level rise. New Orleans, LA has not only suffered infrastructure damage and failure, but has also had issues with storm surge and erosion. Some cities in the region face other compounding resilience issues such as social inequity in El Paso, TX and Tucson, AZ, and severe drug and alcohol abuse in El Paso. The EPA Region 6 Climate Change Adaptation Implementation Plan of May 2014 (USEPA-R6 2014) suggested mitigating the impact of sea level rise and coastal land loss to erosion using restoration projects developed and implemented through three National Estuary Programs in the region, Climate Ready Estuaries Programs, and the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA); with a goal of protecting or restoring 9,000 acres of coastal wetlands.

A summary of the EPA Region 6 overall CRSI and the domain scores is depicted in Figure 4.35. The overall CRSI score of 2.77 is less than the national average ranks 9th among EPA Regions.The score appears to be the result of lower than average Governance for climate events and lower than average scores for the Society, Built Environment and Natural Environment domains. The distribution of these scores across the counties of Region 6 is shown in Figure 4.36. The higher CRSI values in EPA Region 6 are in New Mexico and some scattered counties in Texas and Oklahoma. The highest scores for the risk domain occur in coastal Louisiana. Higher Governance and Society domain scores occur in northern Oklahoma and New Mexico. Table 4.7 lists the 25 counties with the highest CRSI values in EPA Region 6. These counties are in New Mexico (12), Texas (12) and Oklahoma (1). The counties with the lowest CRSI values are in Texas (9) and Oklahoma (1).

Risk due to climate events across Region 6 risk is examined in more detail in Figure 4.37. Natural exposures due to climate events are predominated by drought (37% of counties), extreme high temperatures (24%) and extreme low temperatures (15%). All other types of exposure due to natural climate events are represented at <10%. Superfund sites represent a majority of the technological exposure indicator at 43%, while TRI (Toxic Release Inventory) sites and nuclear facilities represent a collective 55% of the exposure potential (29% and 26% respectively). Loses in the region are seen primarily in dual benefit and natural land use types (e.g., forests, wetlands, agriculture). Most of exposure comes from natural climate events, with only 2% resulting from proximity to anthropogenic, technologic infrastructure. Region 6 risk ranges from the lowest score of 1.54 in the Winkler County, Texas to the highest in the nation, 7.02 in Los Alamos County, New Mexico, with a regional average slightly higher than the national at 2.80.

The contributions of the 20 indicators to the domains that comprise CRSI are shown in Figure 4.38 for EPA Region 6. The natural resource conservation indicator score is the strongest contributor to the Governance domain. Secondary contributions are associated with vacant structures and housing characteristics (Built Environment), and demographic characteristics (Society). Weaker contributors are transportation and communications infrastructure scores in the Built Environment domain and (Built Environment), and labor-trade services scores in the Society domain.

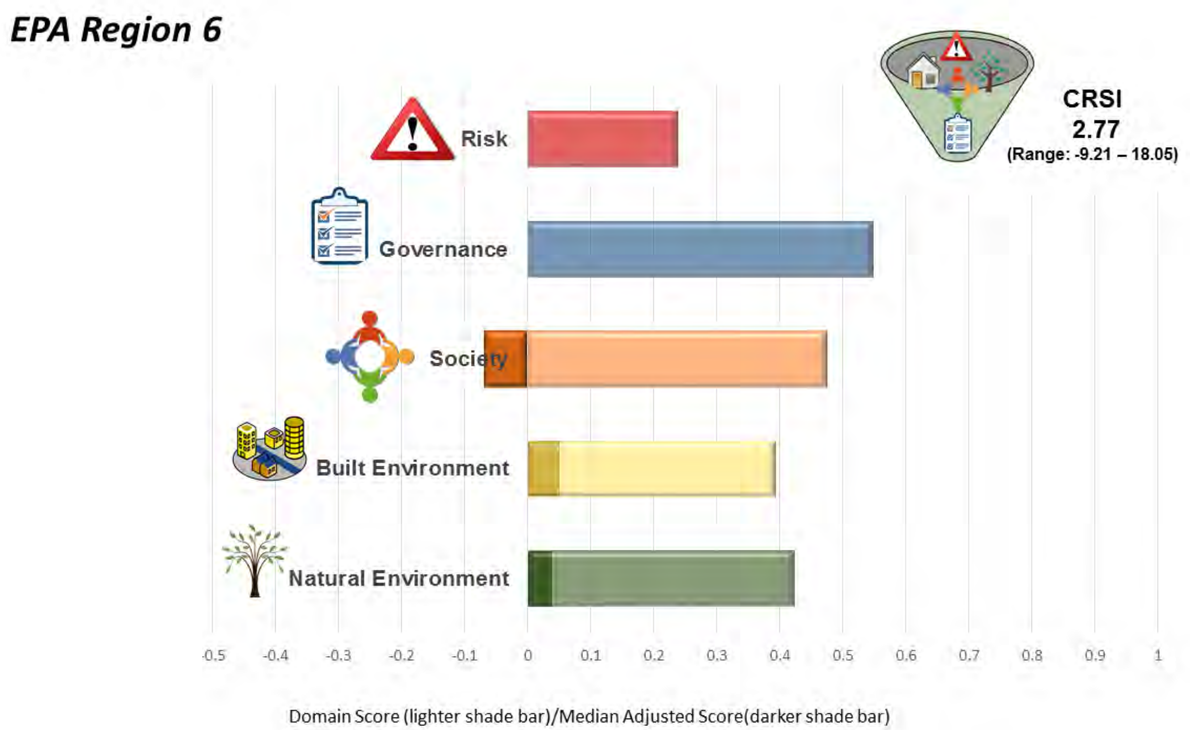


Figure 4.35 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for the U.S, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

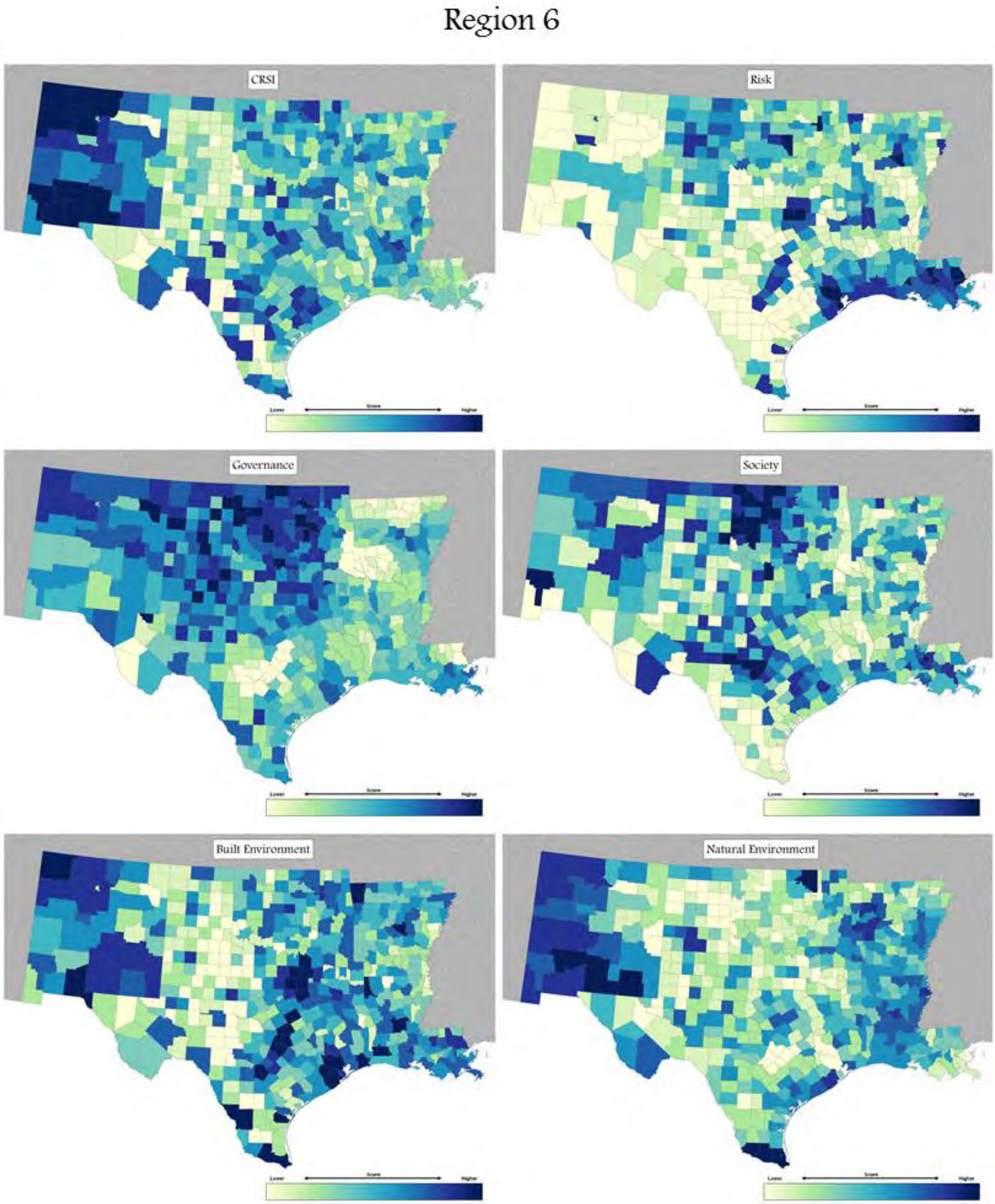
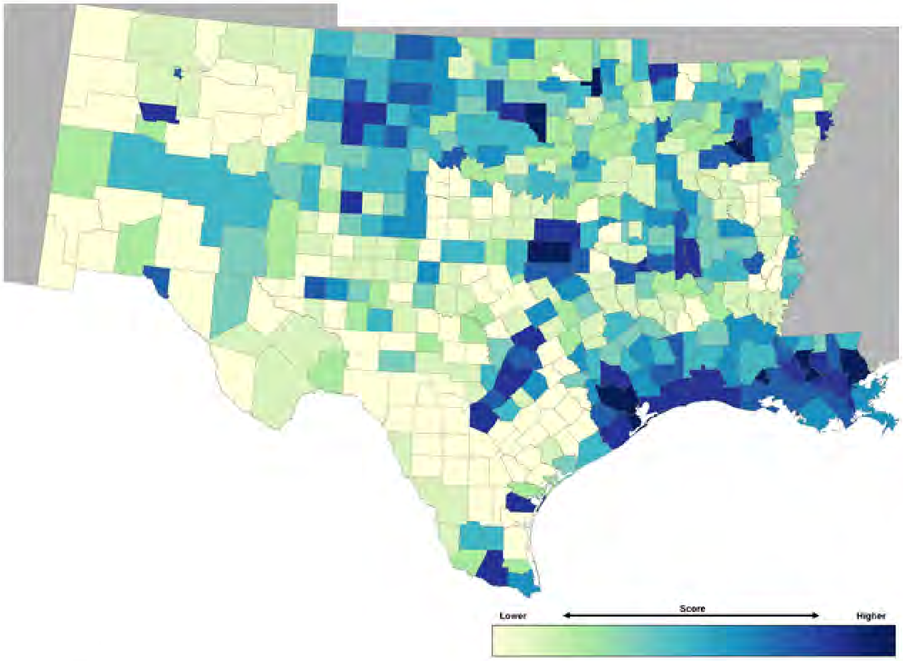
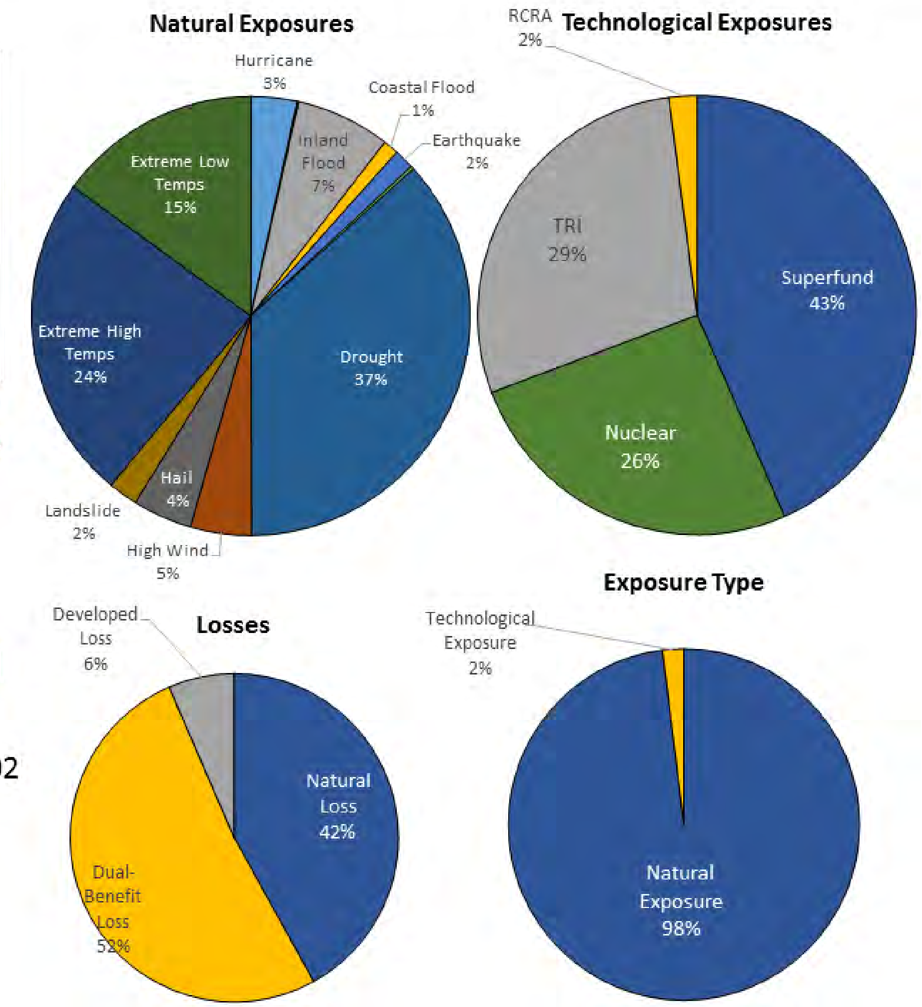


Figure 4.36 The distributions of EPA Region 6 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.7 Twenty-five counties in EPA Region 6 with the highest CRSI values.

Region 6	
Rank	**County**
1.	McKinley County, New Mexico
2.	San Juan County, New Mexico
3.	Sierra County, New Mexico
4.	Otero County, New Mexico
5.	Grant County, New Mexico
6.	Rio Arriba County, New Mexico
7.	Luna County, New Mexico
8.	Doña Ana County, New Mexico
9.	Taos County, New Mexico
10.	Sandoval County, New Mexico
11.	Santa Fe County, New Mexico
12.	Wilson County, Texas
13.	Wharton County, Texas
14.	Webb County, Texas
15.	Cibola County, New Mexico
16.	Clay County, Texas
17.	Wise County, Texas
18.	Erath County, Texas
19.	Osage County, Oklahoma
20.	Uvalde County, Texas
21.	Victoria County, Texas
22.	Fayette County, Texas
23.	Live Oak County, Texas
24.	Kerr County, Texas
25.	Tom Green County, Texas





Three Primary Exposures:

1- Drought

2- Extreme Temps – Highs

3- Extreme Temps - Lows

Risk Range:

High – Los Alamos, NM – 7.02

Low – Winkler, TX – 1.53

Mean – 2.80

Figure 4.37 Map of Risk Domain scores by county for Region 6; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

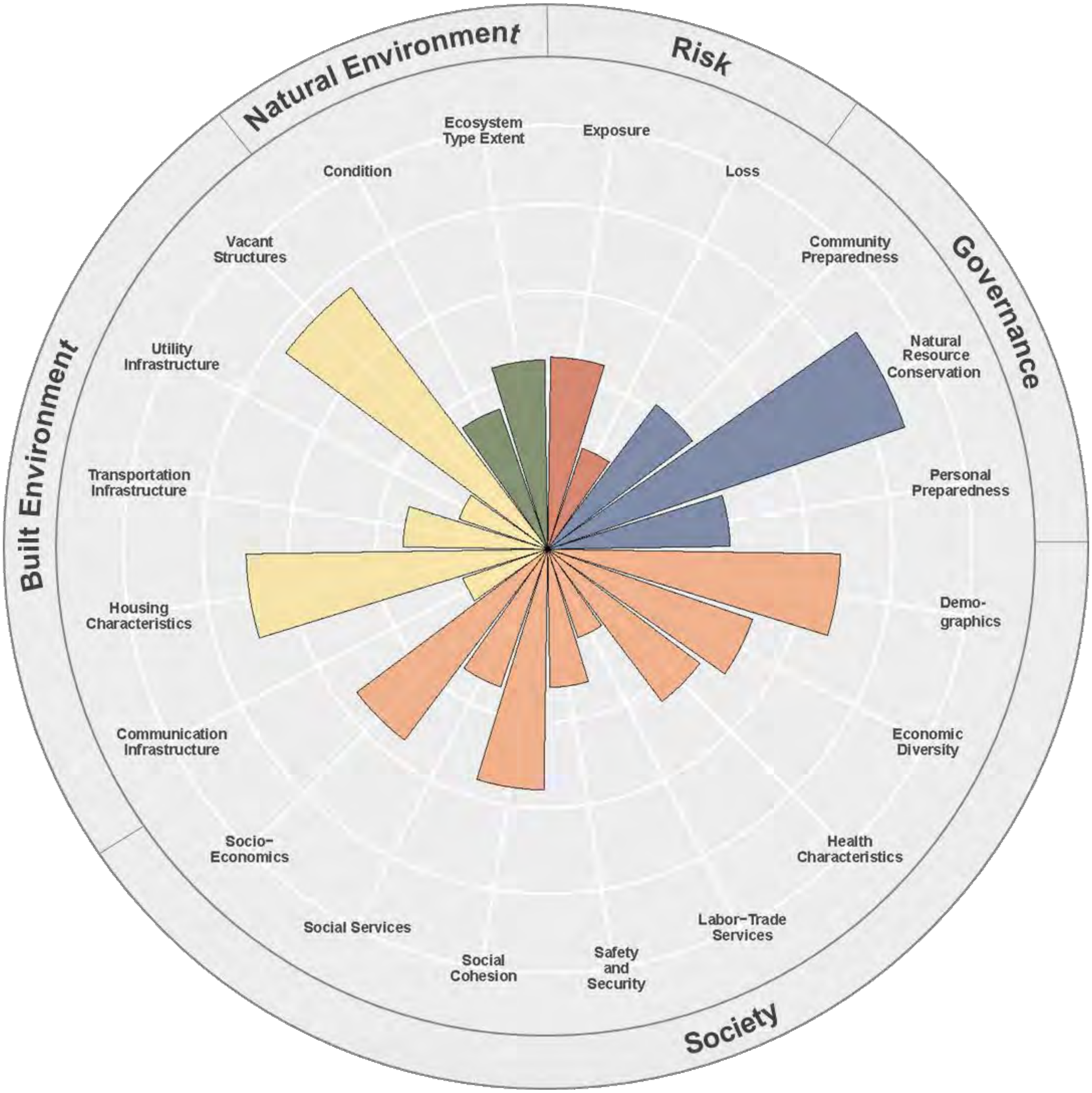


Figure 4.38 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 6. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 7

Region 7 of the EPA serves Iowa, Kansas, Missouri, and Nebraska. Region 7 serves 7 federally recognized tribes in Kansas, Nebraska, and Iowa. All of Region 7 has experienced extreme heat and rising temperatures, in some instances creating increased demand for resources such as water and energy. Parts of the region have also witnessed extreme rainfall events, and flooding. Dubuque, IA has suffered crop failures due to extreme heat and severe drought, and infrastructure damages due to extreme rainfall and flooding. St. Louis, MO is projected to experience these same impacts of extreme heat and rainfall events, with the additional concern that rainfall will cause additional erosion. St. Louis has other resilience issues, such as social inequity, endemic crime, and civil unrest. Most of the actions being taken by Region 7 under the regional Climate Change Adaptation Implementation Plan (USEPA-R7 2014) are focused on the availability of water. Actions include prioritizing watershed improvements to sources of drinking water impacted by nutrients and other contaminants, promoting precipitation neutral technologies and practices for site remediation, and helping work within the region to incorporate water conservation practices, energy conservation and green infrastructure.

A summary of the overall CRSI score and the domain scores for EPA Region 7 are provided in Figure 4.39. The overall CRSI score of 4.11 is close to the national average and ranks 7th among the EPA Regions. While the Risk domain score is relatively low, the Governance and Society domain scores are relatively high.The Built Environment and Natural Environment domain scores are lower then the national average. Figure 4.40 shows the spatial distribution of these domain scores across the counties comprising EPA Region 7. Table 4.8 shows the highest CRSI values are scattered through the region with the highest county scores occuring in Iowa (10 counties), Kansas (8), Missouri (5) and Nebraska (2). The counties with lower CRSI values are primarily in Nebraska (8 counties) and one county each in Kansas and Missouri. Lower Governance scores are seen in southern Missouri.

Risk due to climate events across Region 7 is examined in more detail in Figure 4.41. Natural exposures due to climate events are dominated by drought (36% of counties), extreme high temperatures (23%) and extreme low temperatures (18%). All other types of exposure due to natural climate events are represented at <10%. Superfund sites and TRI (Toxic Release Inventory) sites evenly influenced the technological exposure indicator at 45% and 43%, respectively. Potential nuclear exposure is also a major contributor to risk potential in this region at 9%. Losses in the region are seen primarily in dual benefit and natural land use types (e.g., forests, wetlands, agriculture). Most risk exposure comes from natural climate events, with only 3% resulting from proximity to anthropogenic, technology. Risk ranges from a low score of 1.46 in Madison County, Nebraska to 4.27 in Sedgwick County, Kansas with a regional average slightly under the national at 2.65.

The contributions of the twenty indicators to the overall domain scores for EPA Region 7 are shown in Figure 4.42. The strongest contributors are natural resource conservation scores (Governance), and vacant structures (Built Environment). Secondary contributors are the housing characteristics indicator score in the Built Environment domain and demographic characteristics, social cohesion, socio-economic characteristics, economic diversity and health characteristics indicator scores in the Society domain. Communication and utility infrastructures scores (Built Environment), and safety and security scores (Society) are weaker contributors.

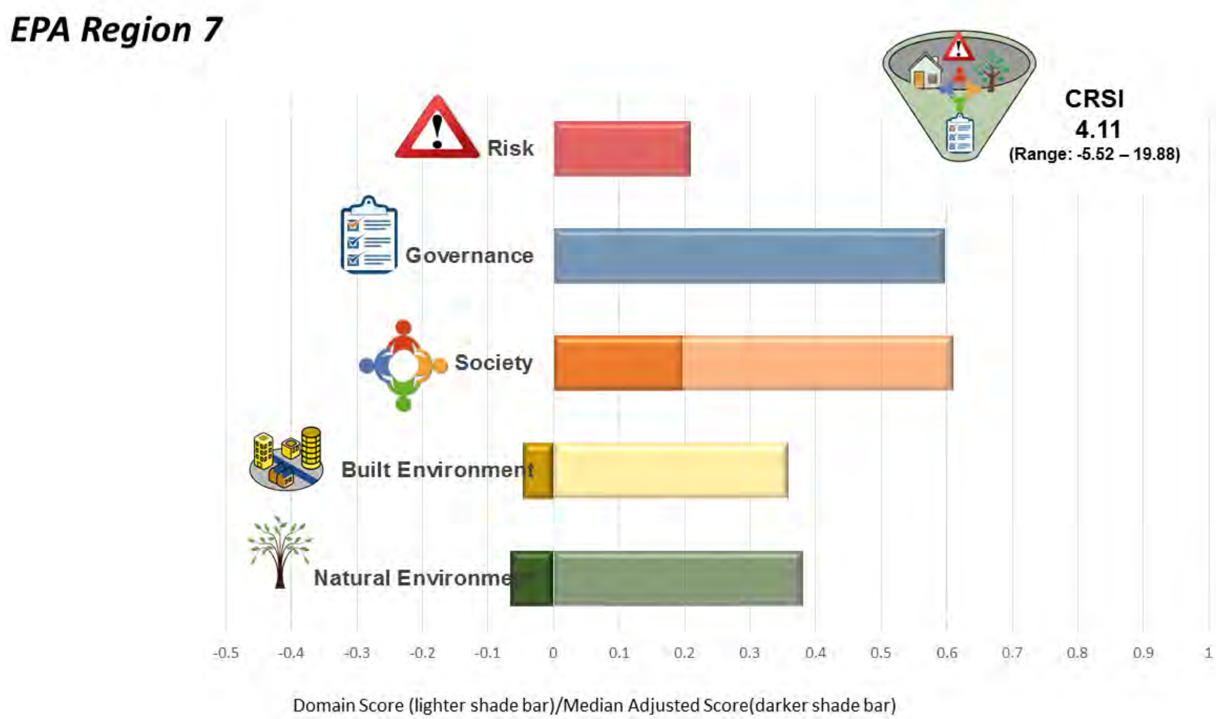


Figure 4.39 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 7, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

Region 7

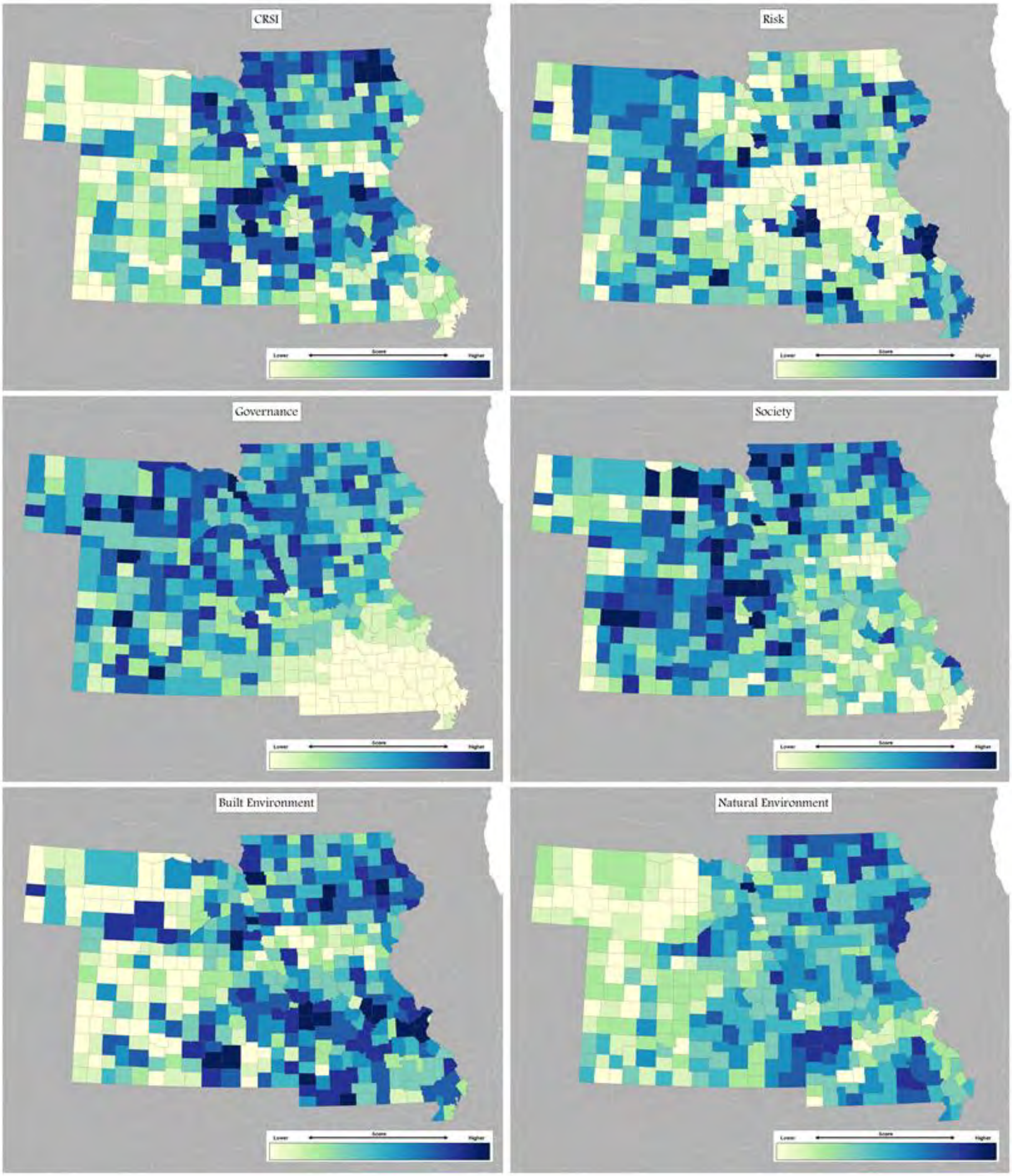
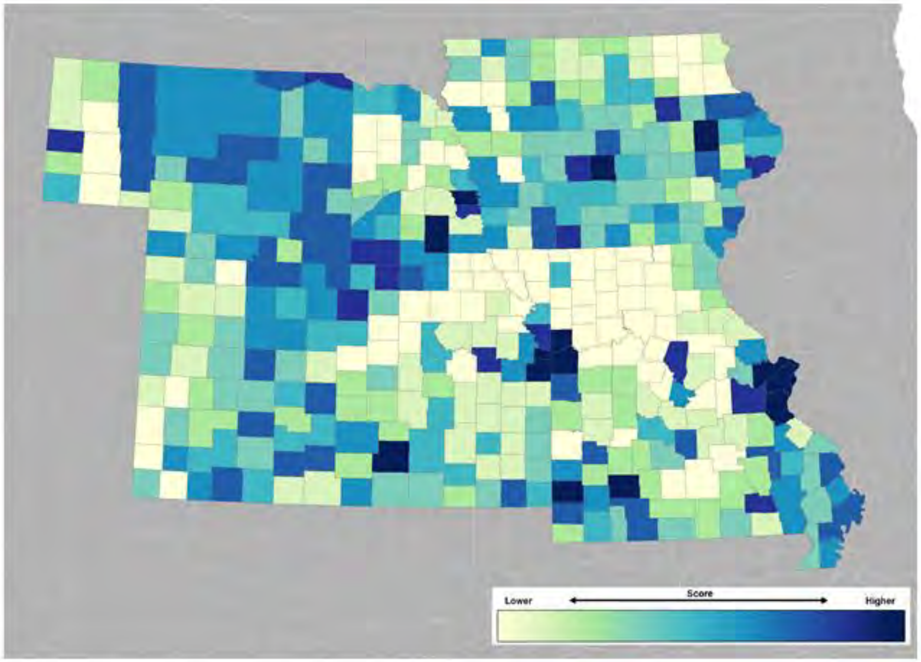


Figure 4.40 The distributions of EPA Region 7 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.8 Twenty-five highest CRSI values in the counties of EPA Region 7.

Region 7	
Rank	**County**
1.	Pierce County, Nebraska
2.	Chickasaw County, Iowa
3.	Winneshiek County, Iowa
4.	Clayton County, Iowa
5.	Fayette County, Iowa
6.	Wabaunsee County, Kansas
7.	Nodaway County, Missouri
8.	Marshall County, Kansas
9.	Ottawa County, Kansas
10.	Macon County, Missouri
11.	Miami County, Kansas
12.	Richardson County, Nebraska
13.	Bremer County, Iowa
14.	Nemaha County, Kansas
15.	Washington County, Kansas
16.	Shelby County, Iowa
17.	Washington County, Iowa
18.	Osage County, Missouri
19.	Kossuth County, Iowa
20.	Cherokee County, Iowa
21.	Lafayette County, Missouri
22.	Pottawatomie County, Kansas
23.	Brown County, Kansas
24.	Cedar County, Iowa
25.	Vernon County, Missouri



Three Primary Exposures:

1- Drought

2- Extreme Temps – Highs

3- Extreme Temps - Lows

Risk Range:

High – Sedgwick, KS – 4.27

Low – Madison, NE – 1.46

Mean – 2.65

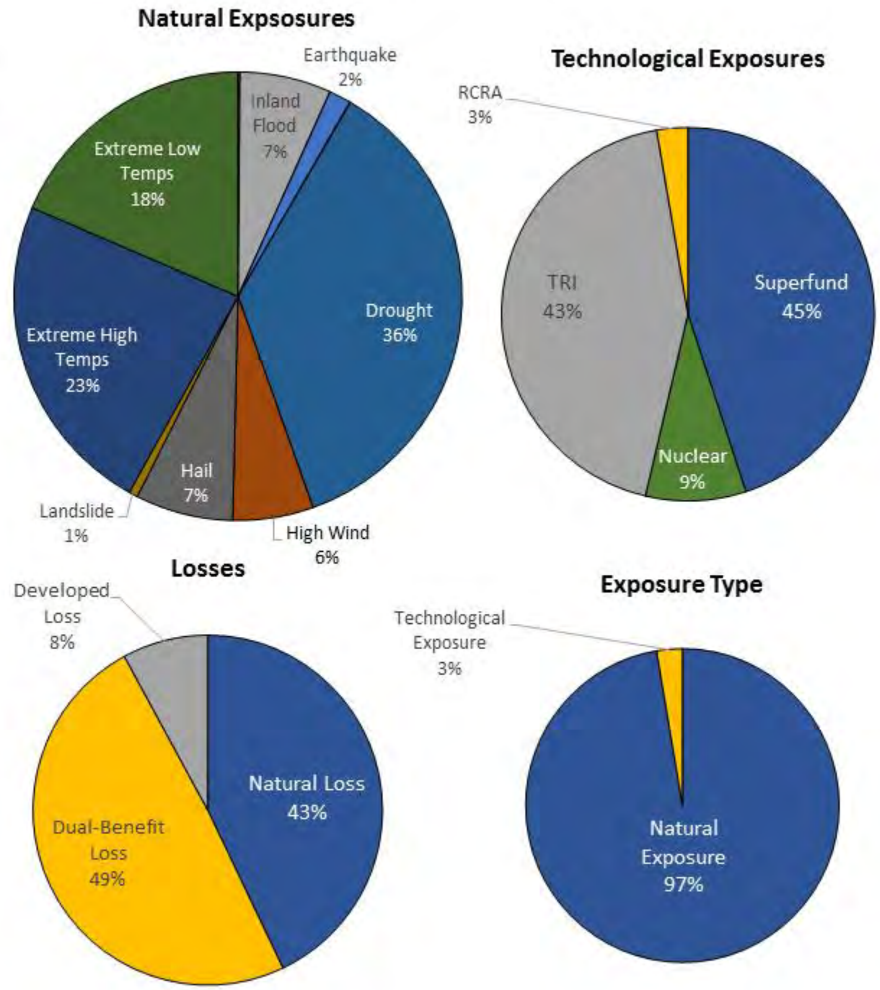


Figure 4.41 Map of Risk Domain scores by county for Region 7; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

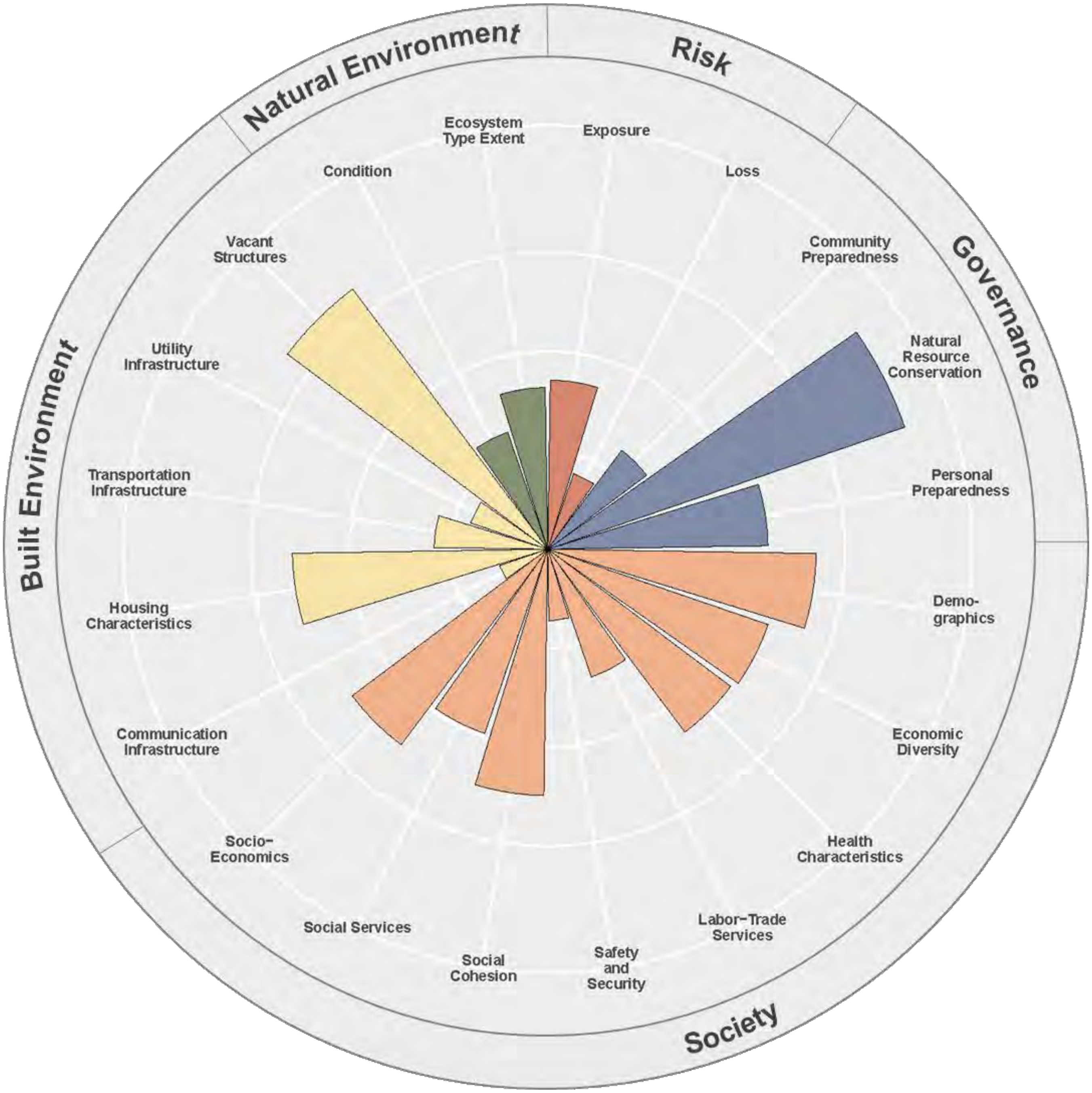


Figure 4.42 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 7. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 8

Region 8 of the EPA includes Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. Region 8 serves 27 federally recognized tribes, located in Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. The Region is threatened by extreme heat events and rising temperatures and at risk of increased demand for energy and water resources as a result. These rising temperatures in combination with drought and insect outbreaks, has increased the risk of wildfire for some parts of the region, specifically Utah and Colorado. Boulder and Colorado Springs, CO have both experienced temperature rises, extensive wildfires, air quality issues, and damages to infrastructure. Boulder, CO has experienced extreme rainfall and flooding too. In Boulder, both extreme heat and extreme rainfall have to be considered alongside other resilience issues like invasive species, disease and affordable housing. Denver, CO has experienced extreme heat, temperature rises and air quality issues, but not wildfires or infrastructure damage. It is projected that Denver will eventually experience extensive wildfires as well. Salt Lake City, UT is forecasted to face extreme heat and temperature rises potentially leading to wildfire risks, and water quality and quantity concerns. Efforts to improve resilience in EPA Region 8 include working with states and tribal nations to integrate climate considerations into their water programs and consider how funding mechanisms may support increased investments in water infrastructure (USEPA-R8 2014).

A summary of the overall CRSI score and the domain scores for EPA Region 8 is provided in Figure 4.43. The CRSI value for Region 8 is 6.09, above the national average and ranking 3rd highest among the EPA Regions. This Region also has alow Rsk score indicating a less risk to acute climate events. The Governance and Built Environment domain scores are moderate and the Society domain score is above the national average. The spatial distribution of these scores among the counties in Region 8 is shown in Figure 4.44. Higher overall CRSI values are seen in western Montana, most of Wyoming and along and below the eastern slope of the Rocky Mountains in Colorado. The highest overall CRSI values are shown in Table 4.9 and includes counties in Colorado (8 counties), Montana (7), and North Dakota, South Dakota and Wyoming (3 each). The counties with lower CRSI values are found in South Dakota (6), Colorado (2) and Montana (2). Risk for climate events is relatively low throughout the region.

Risk due to climate events across Region 8 is examined in more detail in Figure 4.45. Natural exposure due to climate events are dominated by drought (37% of counties), extreme high temperatures (18%) and extreme low temperatures (16%). All other types of exposure due to natural climate events are represented at <10%. Superfund sites and TRI (Toxic Release Inventory) sites influence a majority of the technological exposure indicator at 62% and 37%, respectively. RCRA sites have little influence and nuclear exposure potential is non-existent. In the region, losses are seen primarily in dual benefit and natural land use types (e.g., forests, wetlands, agriculture). Most exposure comes from natural climate events, with only 1% resulting from proximity to technological hazards. Risk ranges from a low score of 1.42 in Daniels County, Montana to 4.14 in Meade County, South Dakota with a regional average well under the national at 2.54.

The contributions of the twenty indicators to the domain scores that comprise CRSI shown in Figure 4.46 for Region 8. The strongest contributions come from the natural resource conservation indicator (Governance), and the vacant structures indicator (Built Environment). Secondary contributions come from housing characteristics (Built Environment); socio-economic characteristics, demographic characteristics and health characteristics (Society); and, exposure (risk).

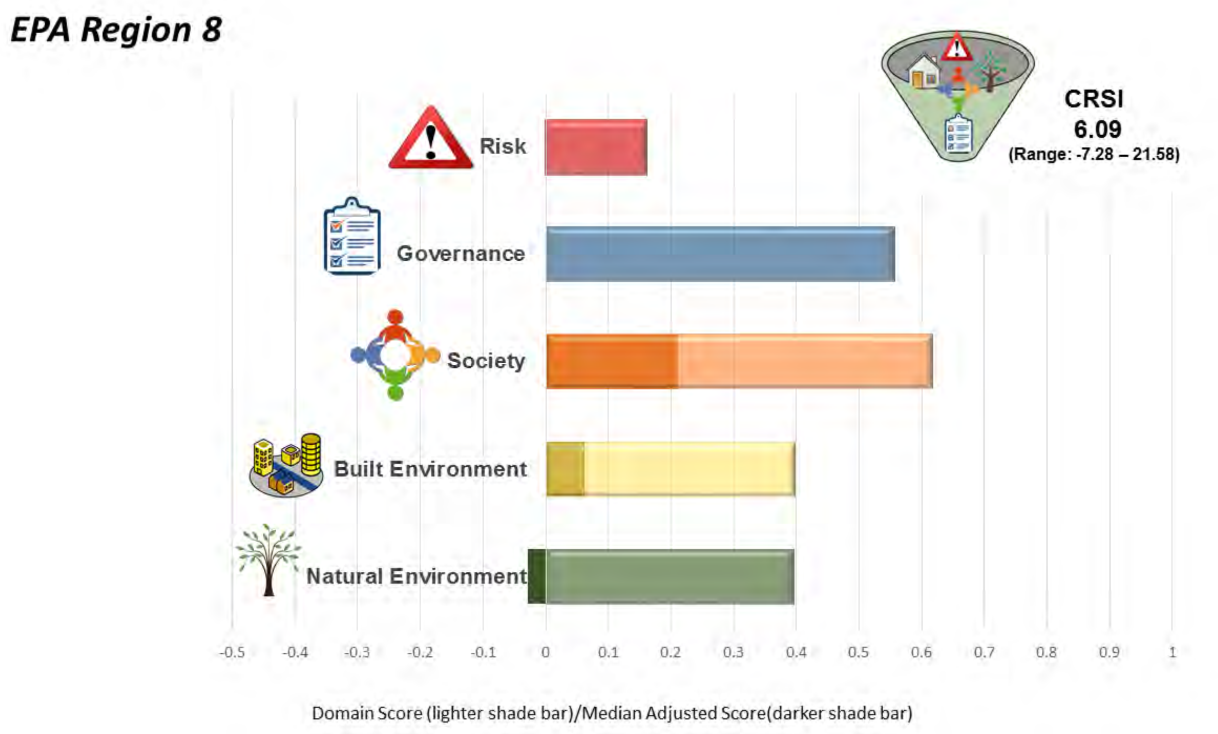


Figure 4.43 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 8, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

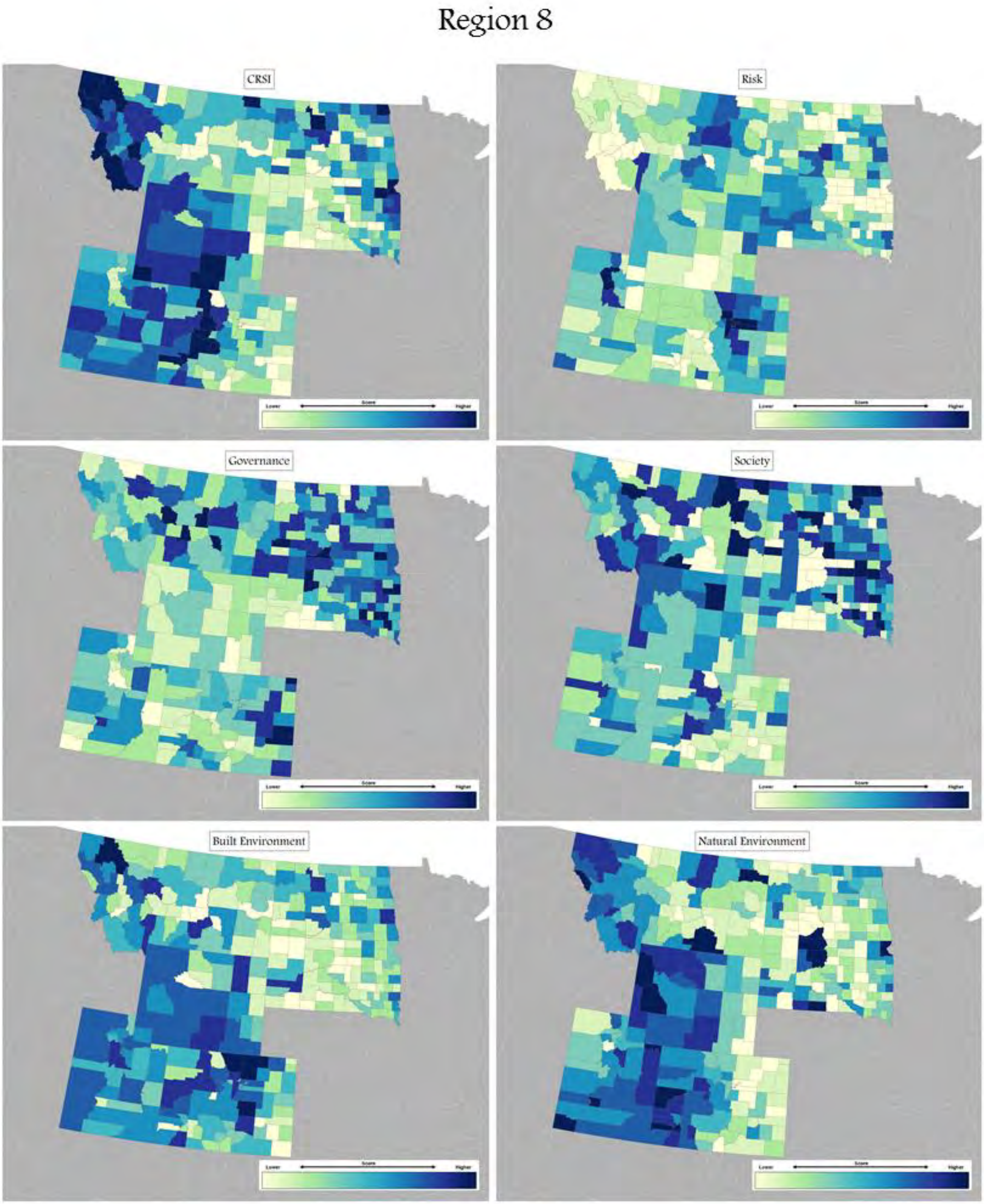
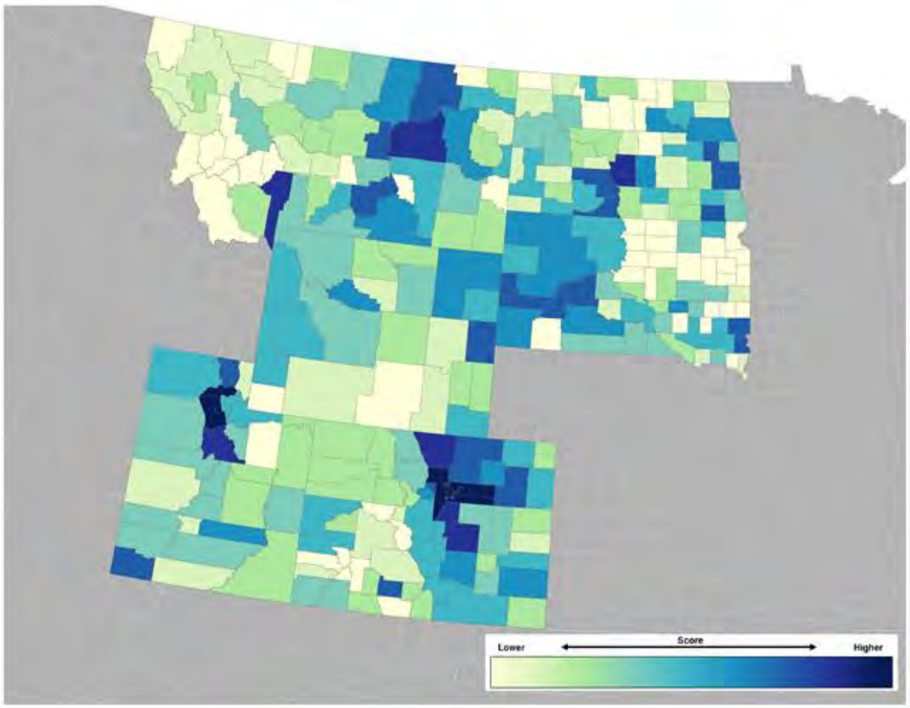


Figure 4.44 The distributions of EPA Region 8 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.9 Twenty-five counties in EPA Region 8 with the highest CRSI values.

Region 8	
Rank	**County**
1.	Flathead County, Montana
2.	Roberts County, South Dakota
3.	Carbon County, Wyoming
4.	Lincoln County, Montana
5.	Daniels County, Montana
6.	Uinta County, Wyoming
7.	Day County, South Dakota
8.	Ravalli County, Montana
9.	Pitkin County, Colorado
10.	Beaverhead County, Montana
11.	Pembina County, North Dakota
12.	Gunnison County, Colorado
13.	Chaffee County, Colorado
14.	San Miguel County, Colorado
15.	Ward County, North Dakota
16.	Routt County, Colorado
17.	Jefferson County, Montana
18.	Ouray County, Colorado
19.	Sanders County, Montana
20.	Eagle County, Colorado
21.	Garfield County, Colorado
22.	Grant County, South Dakota
23.	McLean County, North Dakota
24.	Sweetwater County, Wyoming
25.	Missoula County, Montana



Three Primary Exposures:

1- Drought

2- Extreme Temps – Highs

3- Extreme Temps - Lows

Risk Range:

High – Meade, SD – 4.14

Low – Daniels, MT – 1.42

Mean – 2.54

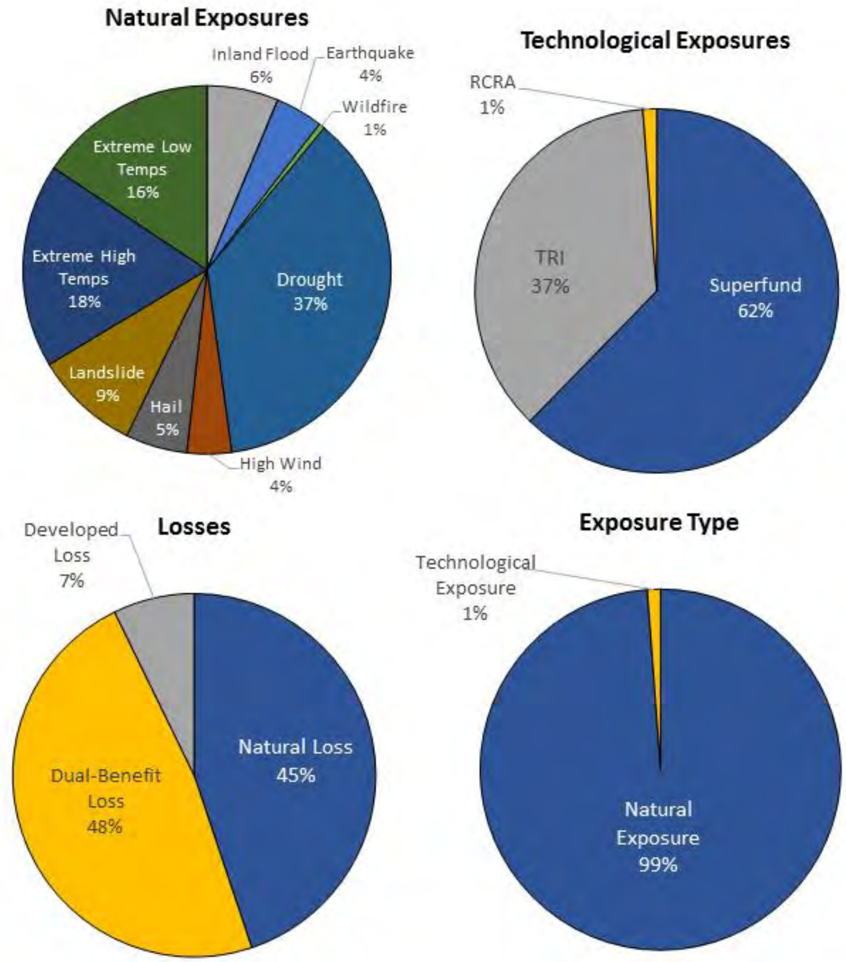


Figure 4.45 Map of Risk Domain scores by county for Region 8; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

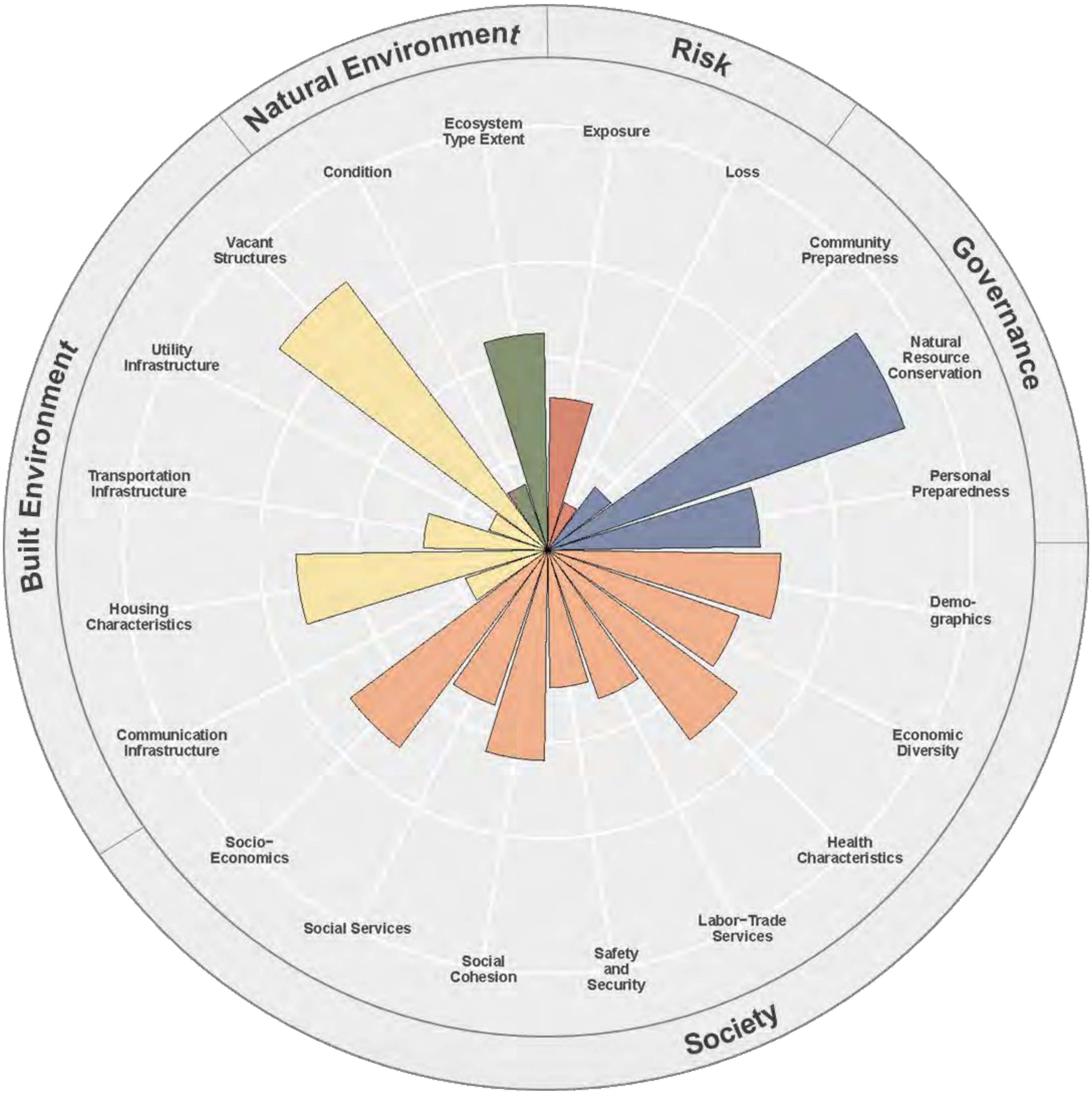


Figure 4.46 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 8. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 9

Region 9 of the EPA includes Arizona, California, Hawaii, and Nevada. Also included in this region are the Pacific Islands (Northern Marianas, Guam, and American Samoa). Region 9 serves 148 federally recognized tribes in Arizona, California, and Nevada. Across the region heat, drought, and insect outbreaks have all led to increased wildfires. In Hawaii, increased ocean temperatures have heightened risks of coral bleaching and disease. Hawaii also faces increased coastal flooding and erosion concerns. In the San Diego Harbor region of California, extreme heat, rising temperatures, severe drought, and extensive wildfire are all projected. Los Angeles, CA has suffered severe drought, issues in water quality and quantity, and infrastructure damage. Earthquakes and tsunamis are additional concerns in regards to resilience in Los Angeles. Oakland, CA is projected to experience problems associated with sea level rise, in addition to the resilience issues it already faces around social inequity, earthquakes, and affordable housing. Across the Bay in San Francisco, CA earthquakes are also a concern, and projections of rising temperatures and severe drought have will increase risk of wildfire. Berkley, CA has experienced extreme heat and warming, extensive wildfires, and additional resilience issues around earthquakes. The EPA Region 9 Climate Change Adaptation Implementation Plan (USEPA-R9 2014) states that regional resilience goals include the promotion of water efficiency, conservation, and recycling. The region also has a Coral Reef Strategy to reduce local pollution and increase coral reef climate change resiliency.

A summary of the overall CRSI domain scores for EPA Region 9 is presented in Figure 4.47. The overall CRSI score is above the national average and ranks 4th among the ten EPA Regions. The risk domain score is above the national average and the Governance for climate events domain score is below the national average. The Built Environment domain score is the highest in the nation and the Natural Environment domain score is moderate to high. The spatial distribution of these scores among the counties in EPA Region 9 is shown in Figure 4.48 with some of the higher CRSI values in Hawaii, northern Nevada, northern Arizona and northern California. Table 4.10 shows the counties with the highest CRSI values in Region 9 are in California (8 counties), Arizona (6), Nevada (5) and Hawaii (4). The counties with lower CRSI valuesare in Calfornia (6), Nevada (3) and Hawaii (1). Low risk for climate events is shown in Figure 4.48 for much of Arizona and Nevada and all of Hawaii. High Governance domain scores are shown for Hawaii and much of Nevada and Arizona as well as southern California. Higher Built Environment domain scores are seen in southern California, a swath through the middle of Arizona and the Las Vegas region of Nevada.

Risk due to climate events across Region 9 is examined in more detail in Figure 4.49. Natural exposures due to climate events are dominated by drought (33% of counties), earthquakes (24%) and extreme high temperatures (15%). Extreme low temperatures account for 11%, while the remainder of the natural exposures are represented at <10%. TRI (Toxic Release Inventory) sites and Superfund sites represent a majority of technological exposure indicator at 37% and 33%, respectively. RCRA and nuclear sites also contribute a sizeable portion of risk potential in this region at 16% and 14%, respectively. In the region, losses are seen primarily in dual benefit (48%) and natural land use types (e.g., forests, wetlands, agriculture), with 46%. Most exposure comes from natural climate events, with only 5% resulting from proximity to technological hazards. Risk ranges from a low score of 1.74 in White Pine County, Nevada to 4.16 in Orange County, California; with a regional average well above the national at 3.02.

The contributions of the 20 indicators to the domains that comprise CRSI for Region 9 are shown in Figure 4.50. The strongest contributors to the Built Environment score are vacant structure and housing characteristics., Demographic characteristics (Society), exposure to climate events (Risk), and natural resource conservation (Governance) also show strong contributions to domain scores. Secondary contributor indicators scores include health characteristics and economic diversity (Society), as well as ecosystem type extent (Natural Environment). Weak contributionsare shown for the following indicators: community preparedness (Governance), safety and security and labor-trade services (Society), and condition of ecosystems (Natural Environment).

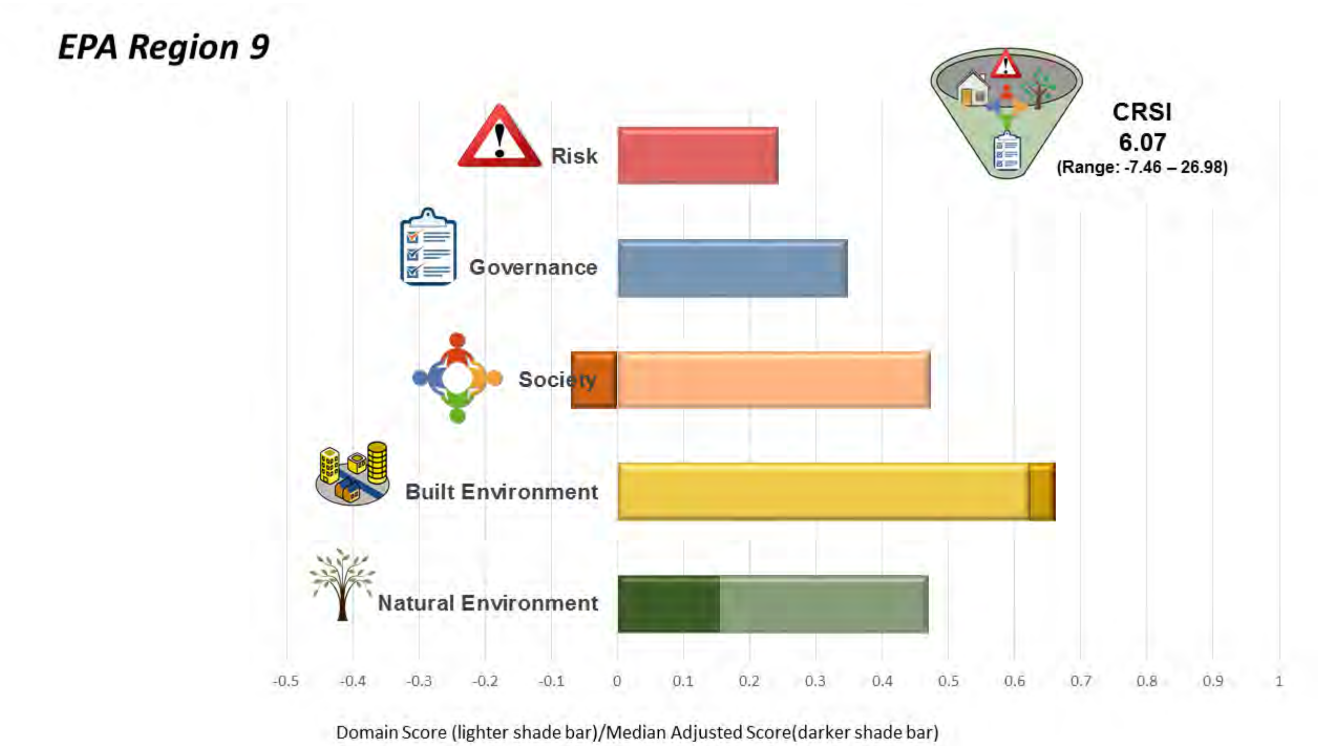


Figure 4.47 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 9, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

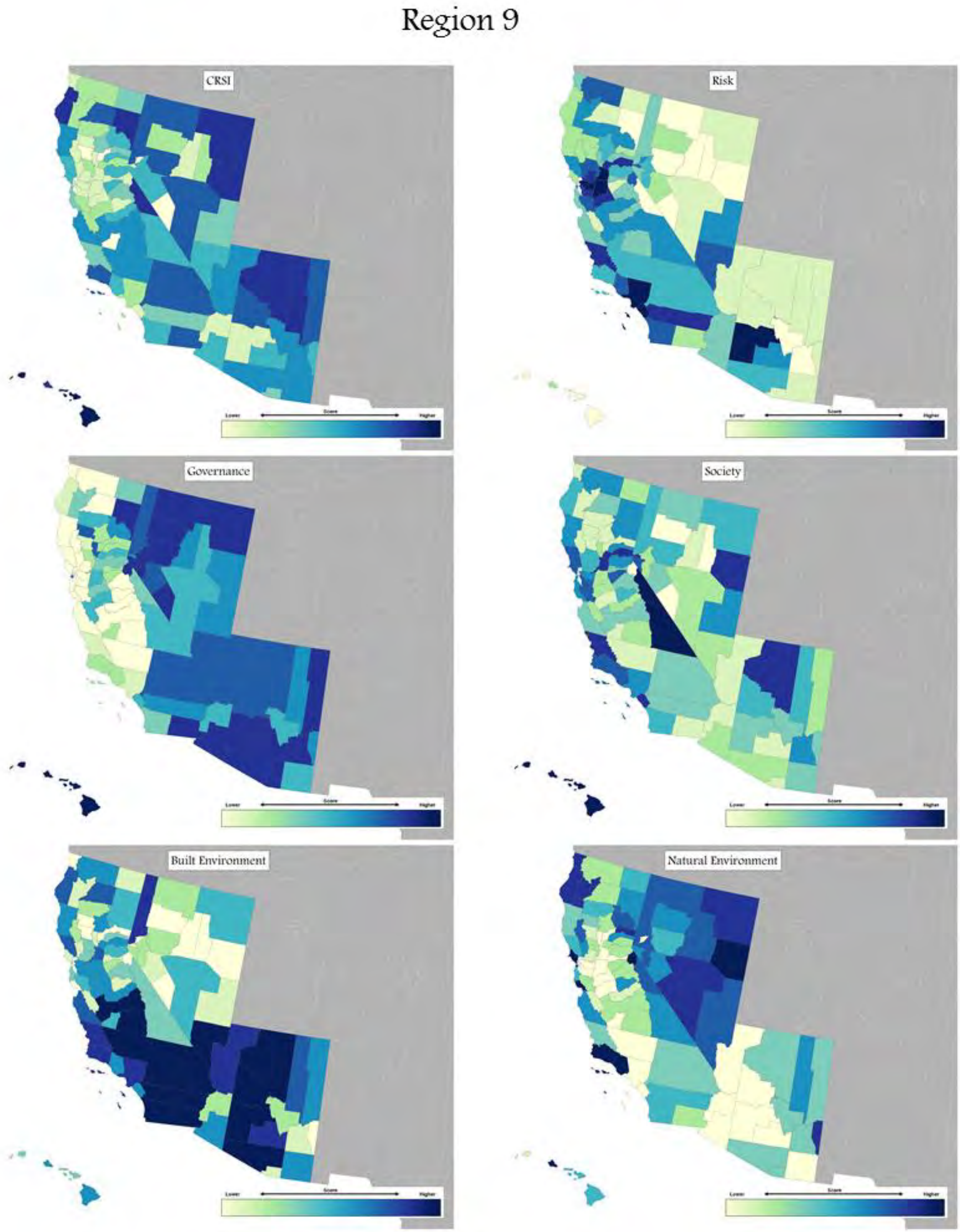


Figure 4.48 The distributions of EPA Region 9 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.10 Twenty-five counties in EPA Region 9 with the highest CRSI values.

Region 9	
Rank	**County**
1.	Maui County, Hawaii
2.	Kauai County, Hawaii
3.	Hawaii County, Hawaii
4.	Mono County, California
5.	Coconino County, Arizona
6.	Honolulu County, Hawaii
7.	Navajo County, Arizona
8.	Elko County, Nevada
9.	Lassen County, California
10.	White Pine County, Nevada
11.	Humboldt County, California
12.	Apache County, Arizona
13.	Yavapai County, Arizona
14.	Washoe County, Nevada
15.	Nye County, Nevada
16.	Imperial County, California
17.	Humboldt County, Nevada
18.	Churchill County, Nevada
19.	San Bernandino County, California
20.	Santa Barbara County, California
21.	Shasta County, California
22.	Cochise County, Arizona
23.	Mohave County, Arizona
24.	Pima County, Arizona
25.	Mendocino County, California

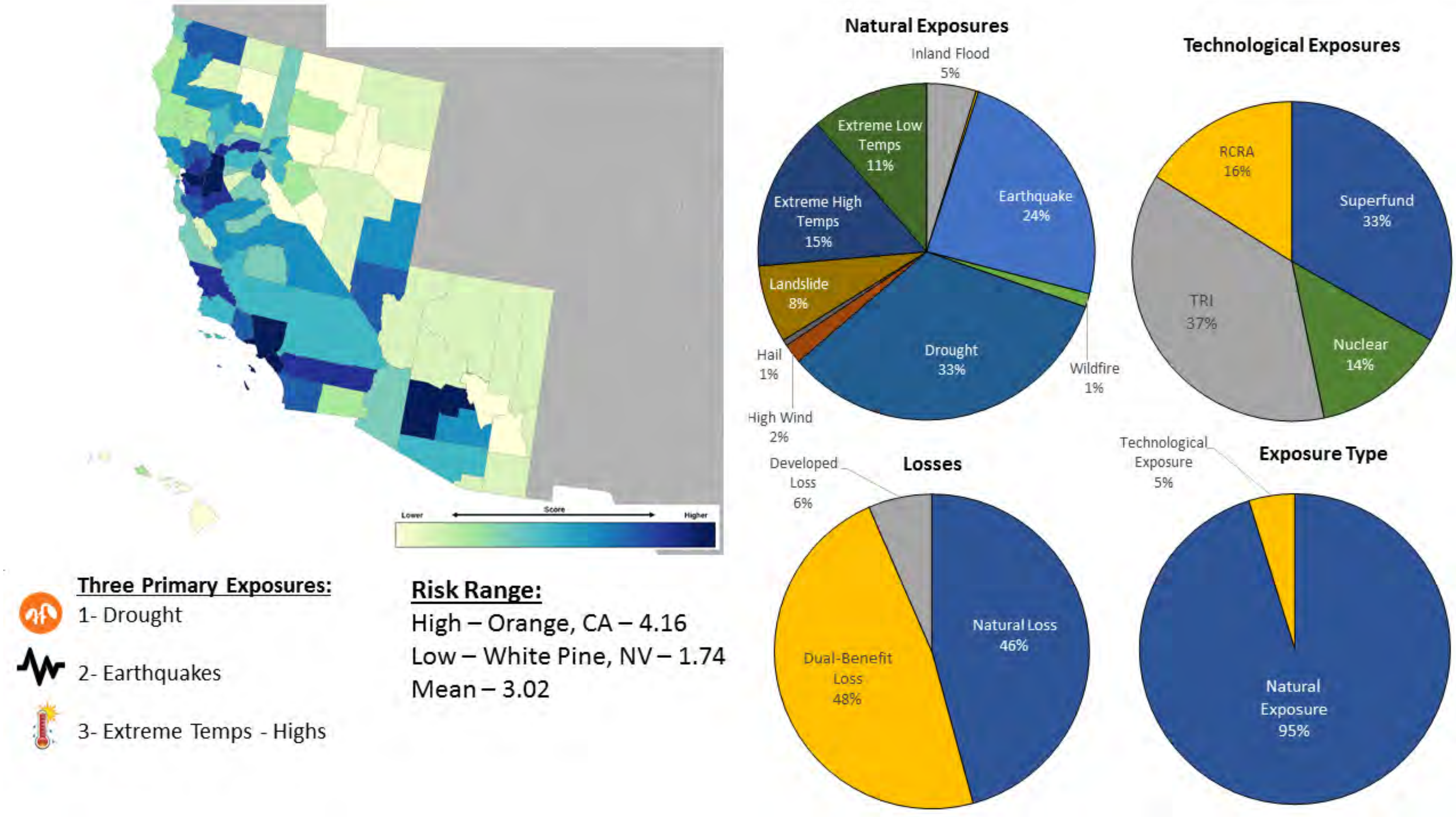


Figure 4.49 Map of Risk Domain scores by county for Region 9; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

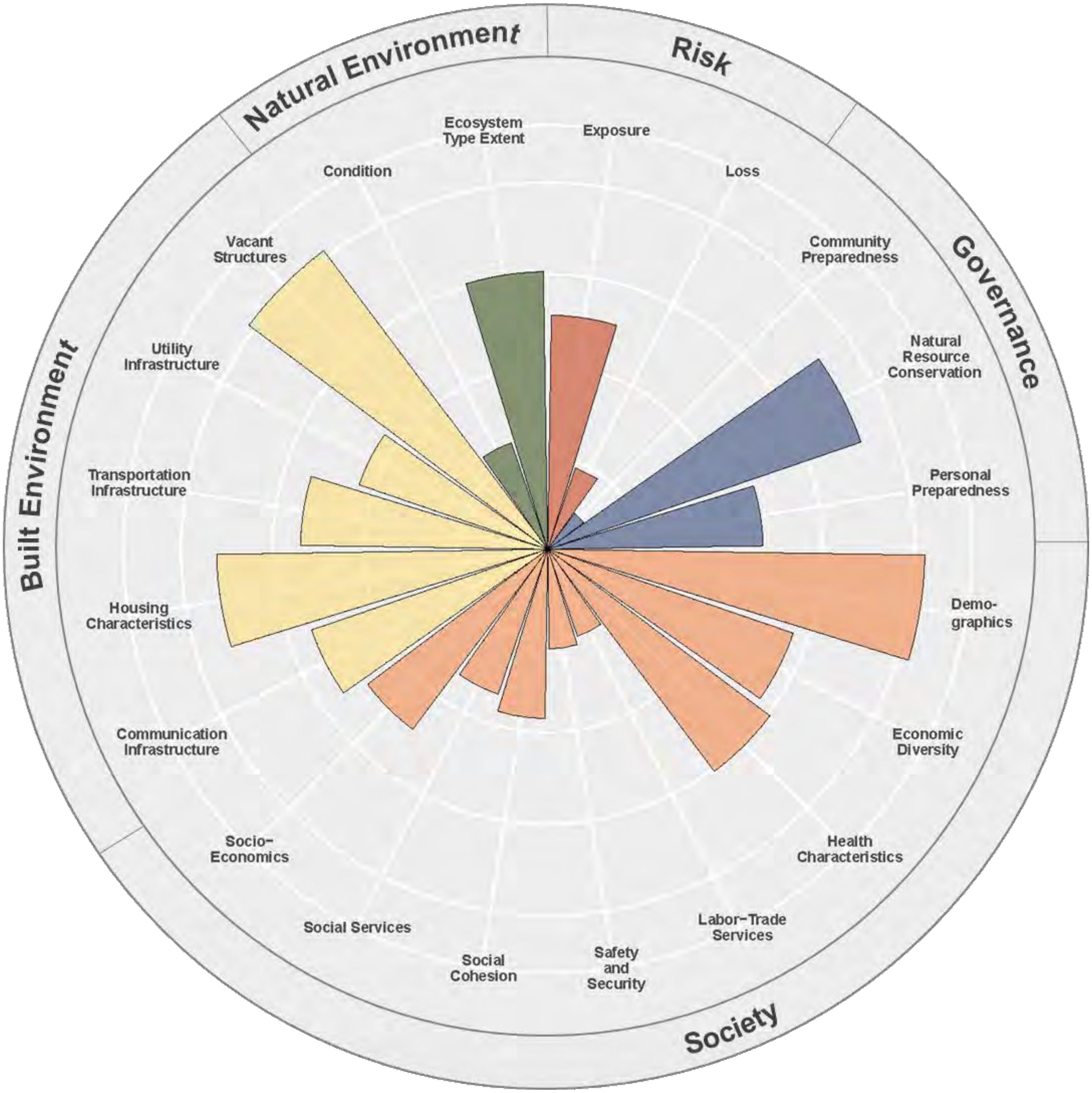


Figure 4.50 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 9. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

EPA Region 10

Region 10 of the EPA includes Alaska, Idaho, Oregon, and Washington. EPA Region 10 office serves 271 federally recognized tribes in Alaska, Idaho, Oregon, and Washington. Regional threats include increasing ocean acidity, sea level rise, erosion, inundation, infrastructure risks. The combination of insect outbreaks, tree disease and wildfire is resulting in widespread tree die-offs across Region 10. Alaska has experienced significant temperature rises, increasing at double the speed of the rest of the United States, causing glaciers to shrink and sea ice to recede. The permafrost is thawing, leading to more wildfires. Eugene, OR has experienced severe drought and extensive wildfire. Changing ocean temperatures have allowed for more invasive species and diminishing cold water species. Beaverton, OR is projected to experience temperature rises, severe drought, extensive wildfires, extreme rainfall, flooding, and issues in water quality and quantity. King County, WA has been impacted by extreme heat, extreme rainfall, flooding, erosion, infrastructure damage and sea level rise. According to the EPA Region 10 Climate Change Adaptation Implementation Plan (USEPA-R10), regional actions to improve resilience include using Water Sense to encourage water efficiency, including ocean acidification language in NEPA review comments, and incorporating green infrastructure as part of settlement agreements.

A summary of the overall CSRI score and the domain scores for EPA Region 10 is shown in Figure 4.51. The overall CRSI score of 14.83 – is the highest in the nation. The Risk domain and Governance domain scores are below the national averages. The Society domain score is similar to national average and the Built Environment and Natural Environment domain scores are well above the national average. The spatial distribution of the overall CRSI score and the domain scores among the counties of EPA Region 10 are shown in Figure 4.52. Table 4.11 shows the higher CRSI values occur in Alaska (19 boroughs), Idaho (5 counties) and Washington (1 county). The lower CRSI values occur in Washington (4 counties). Idaho (4), Oregon (1) and Alaska (1 borough). Overall risk for climate events appears moderate through the region while the Governance for climate events scores are lower in southern Oregon.

Risk due to climate events across Region 10 is examined in more detail in Figure 4.53. Natural exposures due to climate events are dominated by drought (34% of counties), extreme high temperatures (18%) and extreme low temperatures (16%). Earthquakes account for 15%, while the remainder of the natural exposures are represented at <10%. Superfund sites and TRI (Toxic Release Inventory) sites represent the majority of the technological exposure indicator at 65% and 27%, respectively. RCRA and nuclear sites contribute a negligible portion of risk potential in this region at 1% and 7% respectively. Losses in the region are distributed relatively evenly across dual benefit (37%), natural lands (35%) and developed lands (28%). Most exposure comes from natural climate events, with only 2% resulting from proximity to technological hazards. Risk ranges from the lowest score in the nation at 0.70 in Kodiak Island Borough, Alaska to 3.99 in Curry County, Oregon, with a regional average well below the national at 2.42.

The contributions of the twenty indicators to the domain scores that comprise CRSI are shown in Figure 4.54 for EPA Region 10. The strongest contributors to the Built Environment domain score is vacant structures), Natural resource conservation indictor scores (Governance) and lower exposure and loss scoresRrisk) are also strong contributors. Secondary contributions are shown for the following indicators:housing characteristics (Built Environment); demographic characteristics, health characteristics and economimc diversity (Society); and extent of ecosystems (Natural Environment). The weakest contribution scores are for safety and security (Society), utility infrastructure (Built Environment) and ecosystem condition (Natural Environment).

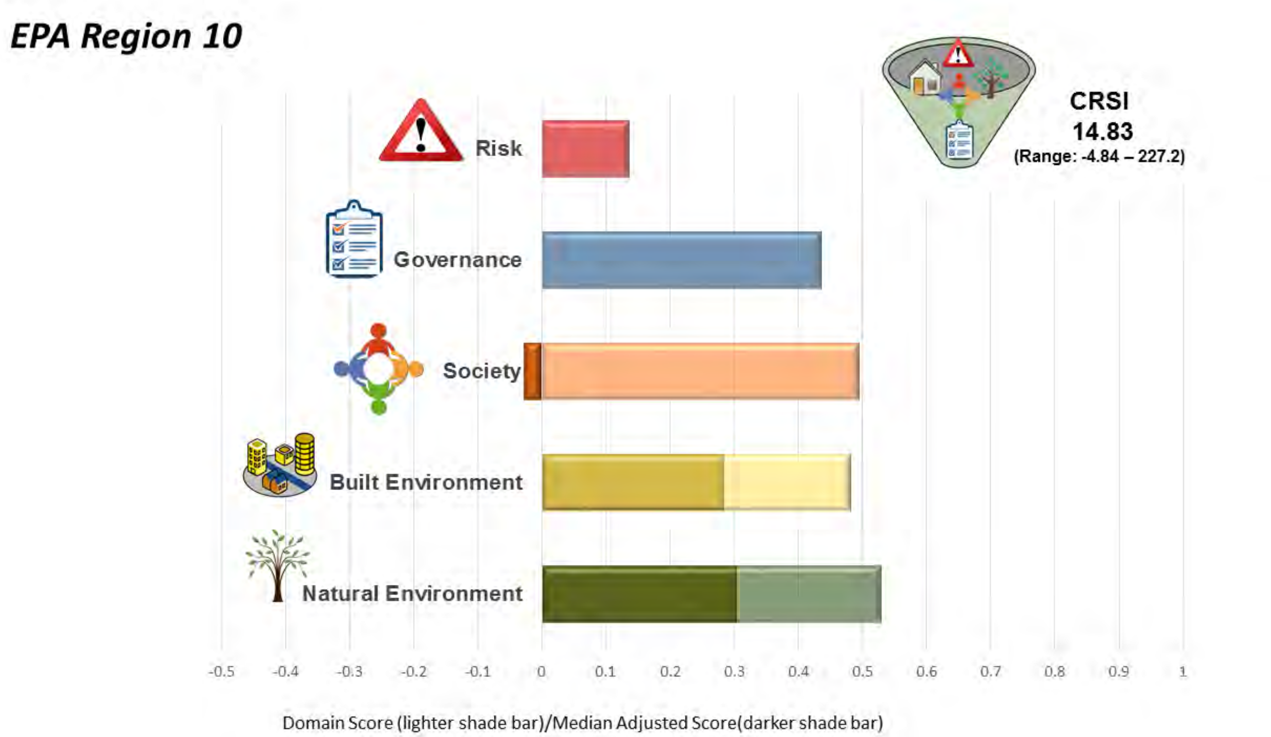


Figure 4.51 Summary of CRSI (upper right hand value) and domain scores (light colored bars) for EPA Region 10, along with domain median adjusted scores showing influence of each domain on final CRSI score (dark colored bars).

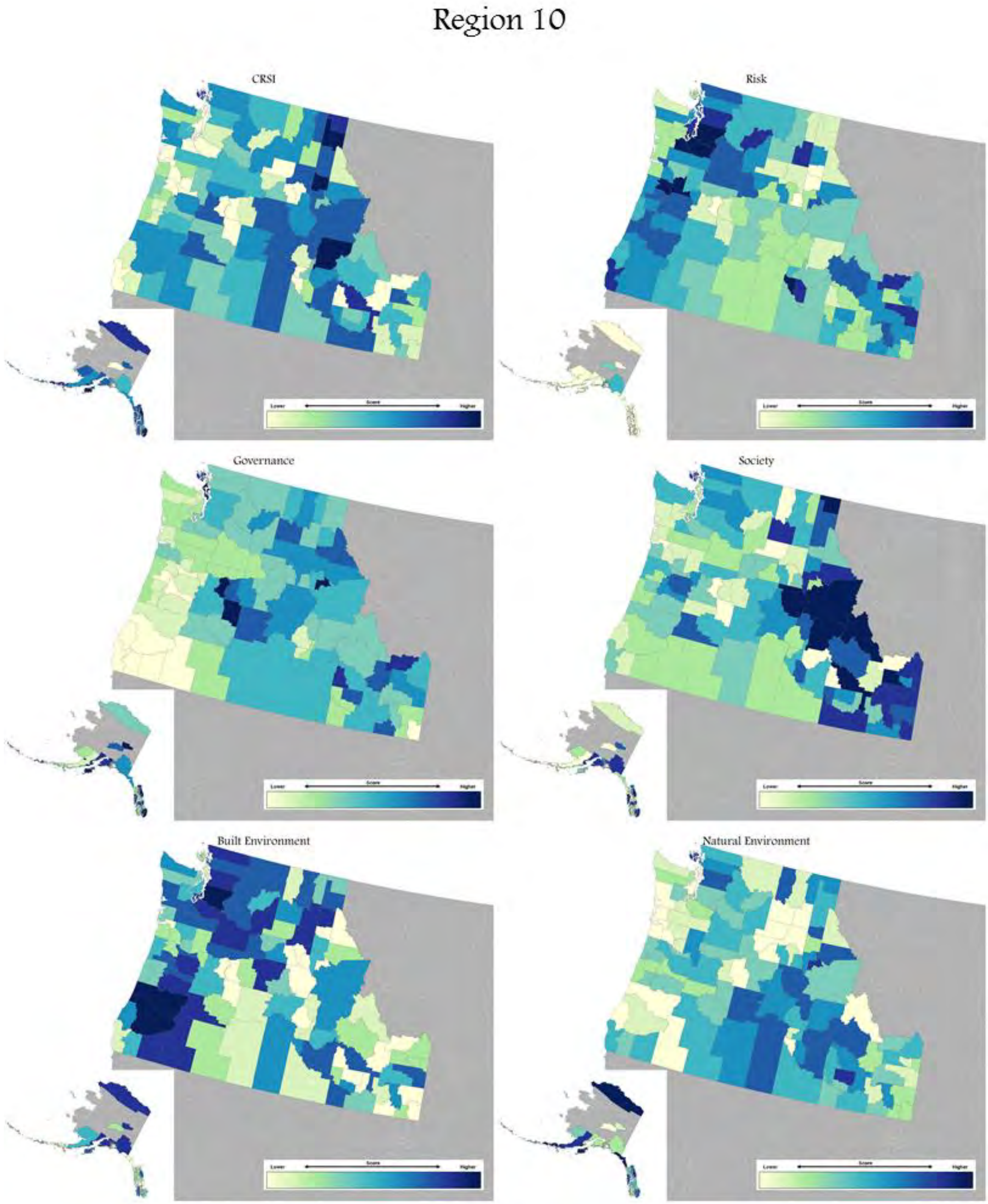
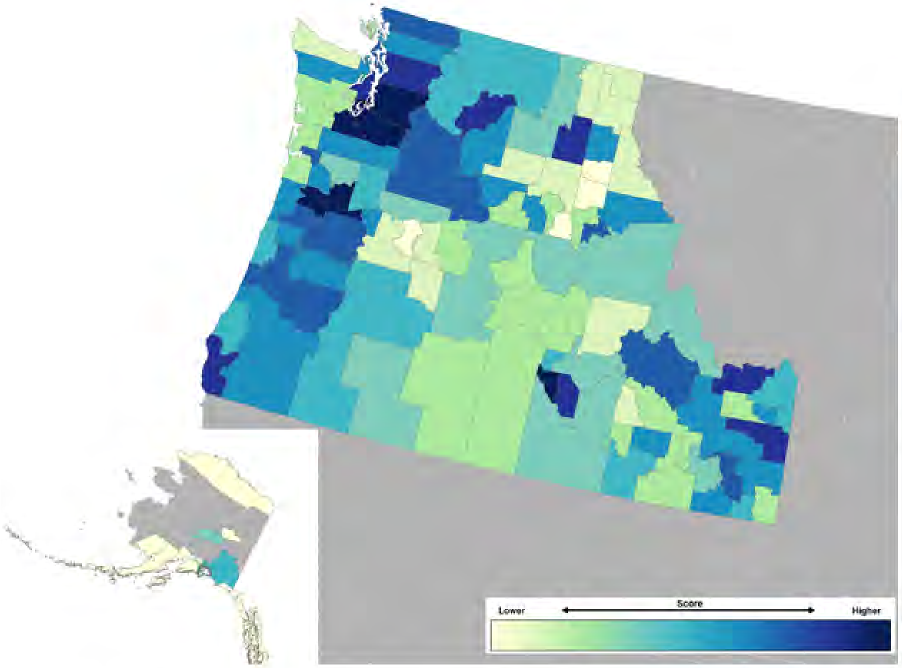
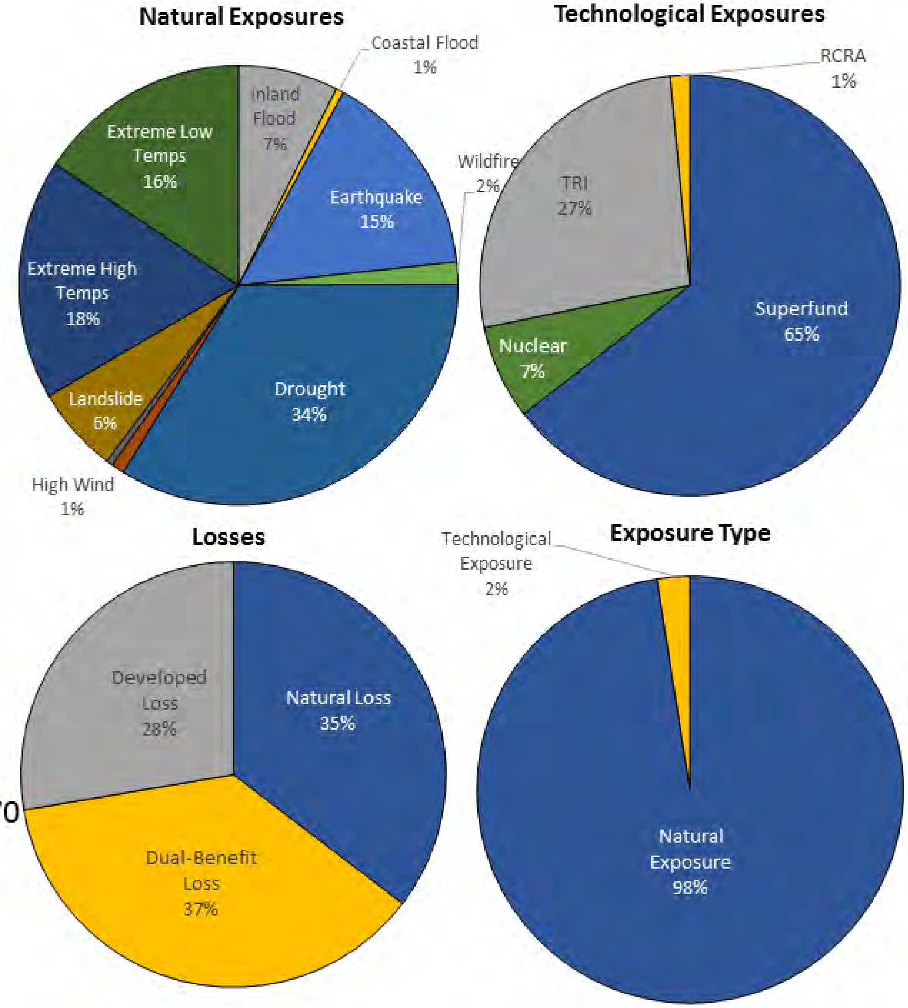


Figure 4.52 The distributions of EPA Region 10 CRSI values and domain scores (Risk, Governance, Society, Built Environment and Natural Environment).

Table 4.11 Twenty-five counties in EPA Region 10 with the highest CRSI values.

Region 10	
Rank	**County**
1.	Kodiak Island Borough, Alaska
2.	Juneau City and Borough, Alaska
3.	Ketchikan Gateway Borough, Alaska
4.	Aleutians East Borough, Alaska
5.	North Slope Borough, Alaska
6.	Haines Borough, Alaska
7.	Prince of Wales-Hyder Census Area, Alaska
8.	Sitka City and Borough, Alaska
9.	Hoonah-Angoon Census Area, Alaska
10.	Dillingham Census Area, Alaska
11.	Kenai Peninsula Borough, Alaska
12.	Petersburg Census Area, Alaska
13.	Fairbanks North Star Borough, Alaska
14.	Yakutat City and Borough, Alaska
15.	Bonner County, Idaho
16.	Aleutians West Census Area, Alaska
17.	Bristol Bay Borough, Alaska
18.	Anchorage Municipality, Alaska
19.	Latah County, Idaho
20.	Valley County, Idaho
21.	Lake and Peninsula Borough, Alaska
22.	Boundary County, Idaho
23.	San Juan County, Washington
24.	Skagway Municipality, Alaska
25.	Blaine County, Idaho





Three Primary Exposures:

1- Drought

2- Extreme Temps – Highs

3- Extreme Temps - Lows

Risk Range:

High – Curry, OR – 3.99

Low – Kodiak Island, AK – 0.70

Mean – 2.42

Figure 4.53 Map of Risk Domain scores by county for Region 10; proportion of natural exposures by climate event type, technological exposures, losses and exposure type nationwide; and the range of risk with the highest risk and lowest risk counties identified; as well as, the three primary exposure types in the region.

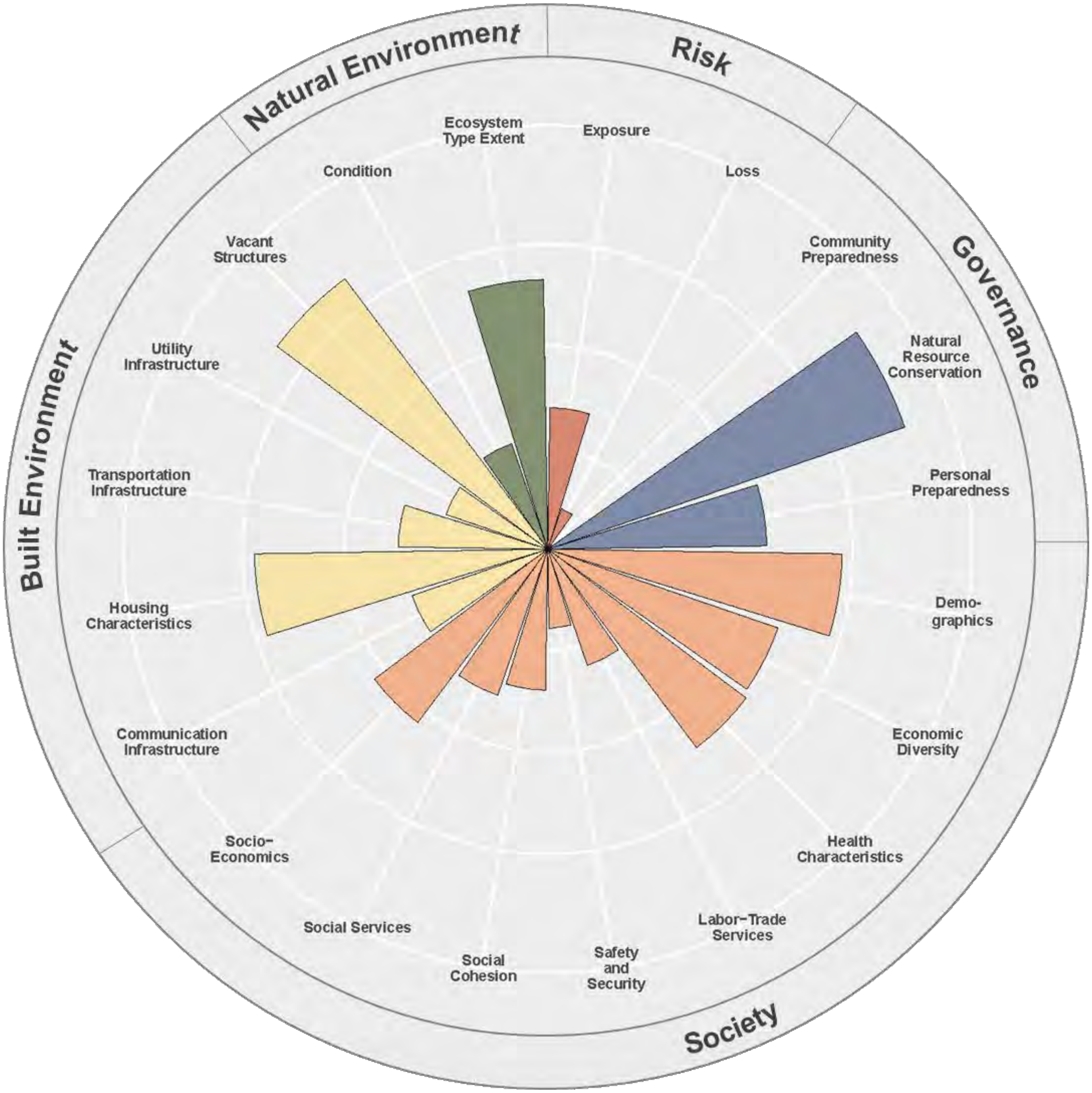


Figure 4.54 Polar plot showing the contribution of the 20 indicators associated with the domain scores for the EPA Region 10. The length of the bars corresponds to the indicator score. Within a domain, the higher indicator scores show a greater contribution to the domain score (sum of indicator scores).

7. Future Directions for Community Resilience to Extreme Weather Events

Every year, U.S. counties and communities face devastating losses caused by weather-related disasters. Fires, floods, storms, other hazards and their associated consequences have significant impacts on counties and communities, the economy, infrastructure and the environment. The U.S. has recently experienced a number of large scale and devastating natural disasters, including catastrophic wildfires, far reaching floods, and damaging storms. Such events can have personal, social, economic and environmental impacts that take many years to dissipate. The increasing prominence of extreme weather events makes it critical for governments, businesses and individuals to examine their anticipatory adaptation and organizational resilience to these events (Linnenluecke et al. 2012). The private sector and all levels of government are embracing resilience as a holistic, proactive framework to reduce risk, improve services, adapt to changing conditions, and empower citizens (e.g., National Disaster Resilience Competition; HUD 2017; Leadership in Community Resilience; NLC 2016, 2017).

The U.S. has and continues to cope well with natural disasters, through established and cooperative emergency management arrangements, effective capabilities, and dedicated professional and volunteer personnel. Americans are also renowned for their resilience to hardship, including the ability to innovate and adapt, a strong community spirit that supports those in need and the self-reliance to withstand and recover from disasters. A collective responsibility for resilience is needed to effectively build capacities at multiple scales.

Our desire to have counties and communities that are minimally impacted by climate events is nearly impossible without a strong recoverability plan and its execution following an event. These plans and their execution maintain a community at a significant distance from ecological, economic and social tipping points (e.g., stability, sustainability, joblessness, social inequity, ecosystem condition). Little attention has been given to the interconnectedness of the aspects of resilience (Summers et al. 2014) as they relate to a community's climate resilience. A community may be naturally vulnerable to climate events or vulnerable through anthropogenic activities but its resilience to these vulnerabilities is guided by the combination of environmental, social, economic and governance drivers.

Given the increasing regularity and severity of natural disasters, U.S. national, state and local governments have recognized that an integrated, coordinated and cooperative effort is required to enhance their capacities to withstand and recover from weather-related emergencies and disasters. A disaster resilient community is one that works together to understand and manage the risks that it confronts. Disaster resilience is the collective responsibility of all sectors of society, including all levels of government, business, the non-government sector and individuals. If all these sectors work together with a united focus and a shared sense of responsibility to improve disaster resilience, they will be far more effective than the individual efforts of any one sector.

Potential role of governments

Governments, at all levels, have a significant role in strengthening the nation's resilience to disasters:

- Developing and implementing effective, risk-based land management and planning arrangements and other mitigation activities;

- Having effective arrangements in place to inform people about how to assess risks and reduce their exposure and vulnerability to hazards;
- Having clear and effective education systems so people understand what options are available and what the best course of action is in responding to a hazard as it approaches;
- Supporting individuals and counties and communities to prepare for extreme events;
- Ensuring the most effective, well-coordinated response from our emergency services and volunteers when disaster hits; and
- Working in a swift, compassionate and pragmatic way to help counties and communities recover from devastation and to learn, innovate and adapt in the aftermath of disastrous events.

Local, state and national governments are working collectively to incorporate the principle of disaster resilience into aspects of natural disaster arrangements, including preventing, preparing, responding to, and recovering from, disasters. Further future enhancements and local applications of CRSI can provide advancements in these disaster-related resilience activities.

The Federal Emergency Management Agency (FEMA) established the Strategic Foresight Initiative (SFI; FEMA 2012) to address this need. This initiative has brought together a wide cross-section of the emergency management community to explore key future issues, trends and other factors, and to work through their implications. Working collaboratively and with urgency, we are beginning to understand the full range of changes we could encounter and the nature of our future needs; and we can begin to execute a shared agenda for action. One of the first tasks of this initiative group should be to bring together the representative views of all governments, business, non-government sector and the community into a comprehensive National Disaster Resilience Strategy. This group should also be tasked with considering further those lessons arising from the recent bushfires, floods, tornadoes and super-storms that could benefit from national collaboration.

Role of business

Businesses can and do play a fundamental role in supporting a community's resilience to disasters. They provide resources, expertise and many essential services on which the community depends. Businesses, including critical infrastructure providers, make a contribution by understanding the risks that they face and ensuring that they are able to continue providing services during or soon after a disaster.

Role of individuals

Disaster resilience is based on individuals taking their share of responsibility for preventing, preparing for, responding to and recovering from disasters. They can do this by drawing on guidance, resources and policies of government and other sources such as community organizations. The disaster resilience of people and households is significantly increased by active planning and preparation for protecting life and property, based on an awareness of the threats relevant to their locality. It is also increased by knowing and being involved in local community disaster or emergency management arrangements, and for many being involved as a volunteer.

Role of non-government organizations and volunteers

Non-government and community organizations are at the forefront of strengthening disaster resilience in the United States. It is to them that Americans often turn for support or advice and the dedicated work of these agencies and organizations is critical to helping counties and communities to cope with, and recover from, a disaster. Building and fostering partnerships between U.S. national, state and local governments and these agencies and organizations is essential to spreading the disaster resilience message and to finding practical ways to strengthen disaster resilience in the counties and communities they serve. Strengthening the U.S.'s disaster resilience is not a stand-alone activity that can be achieved in a set timeframe, nor can it be achieved without a joint commitment and concerted effort by all sectors of society. But it is an effort that is worth making, because building a more disaster resilient nation is an investment in our future.

Potential Utility of CRSI

This report has outlined the approach and application of an index to examine the resilience of U.S. counties, EPA Regions and the nations to extreme-weather events. Further research and application efforts to adapt CRSI for use for individual counties and communities would clearly be useful for the development of community-specific resilience plans. The potential of using CRSI-related information by EPA regional staff tasked with assessing resilience in their areas of the counties seems particularly useful. Allowing EPA regions to see in one application the specifics of risk, governance, societal attributes, built environment information and natural environment information will be important in further development local and county-level resilience plans. Similarly, at the county level, EPA can:

(1) Assess relative risks of differing weather-related events
(2) Disassemble CRSI to determine why the resilience of certain counties are projected to be low and others are projected to be high
(3) Provide lessons learned from one county to the next on governance and other activities that have increased local resilience to weather-related events
(4) Provide a comparative database permitting one way to assess where investments might have the greatest return in terms of improved resilience
(5) Provide a database that can be updated to include the most recent information on the CRSI metrics, indicators and domains so that improvements can be tracked.

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9. Appendices

Appendix A – CRSI Database Overview

EPA's Climate Resilience Screening Index (CRSI) characterizes community resilience based on a suite of indicators that are grouped into broad categories or domains of community resiliency traits in the context of natural disasters. Data collected by the following institutions and organizations were used to populate indicator metrics to quantify CRSI:

- American Lung Association
- Association of Religion Data Archives
- Centers for Disease Control and Prevention
- Instituto de Pesquisas Ecológicas Brasil
- National Telecommunication and Information Administration
- United States Census Bureau
- United States Department of Agriculture
- United States Department of Agriculture
- United States Department of Health and Human Services
- United States Department of Homeland Security
- United States Department of Housing and Urban Development
- United States Department of Justice
- United States Department of Labor
- United States Department of the Interior
- United States Department of Transportation
- United States Energy Information Administration
- United States Environmental Protection Agency
- University of Wisconsin Population Health Institute

To the extent possible, specific data sets and sources were selected for use in the development of CRSI based on the following criteria:

- Data were publicly available and easy to obtain
- Data collection methods were credible and reliable
- Data sets were available at county-scale for population-based information and acres, meters, hydrologic units or similar for geospatial
- Data collected was national in scope
- Data were available for all or a portion of 2000 – 2015 and were likely to collected in the future

Metrics serve as the foundation of CRSI. The following pages contain indicator heading and details about corresponding metrics including basic information such as the data source(s) and years available, as well as calculations performed to create the final datasets. We examined the distribution for all metrics for pooled data (2000-2015). The distribution graphics are provided at the end of each indicator-metric section. The y-axis scale shown in each graph reflects the true unit scale of results.

Domain: Risk

Indicator: Exposure

The exposure indicator likelihood of hazard occurrence across a full spectrum of geologic and atmospheric events as well as additional technological hazards that may co-occur.

Metric List for Domain: Risk – Indicator: Exposure

Metric Variable: SprFnd_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land that falls within a 5-mile radius of any listed Superfund Site. Generated using ArcMap 10.4, NLCD 2011, and superfund site locations (U.S. EPA).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Nuke_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land that falls within a 10-mile radius of any nuclear power, weapons, research, or storage facility. Generated using ArcMap 10.4, NLCD 2011, and nuclear site locations (multi source)
Data Source: Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: TRI_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land that falls within a 1/4 mile radius of a TRI listed facility. Generated using ArcMap 10.4, NLCD 2011, and TRI site locations.
Data Source: Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: RCRA_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County

Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land that falls with a ¼ mile radius of any RCRA site (LQGs, TSDs, and TRANSs). Generated using ArcMap 10.4, NLCD 2011 and U.S. EPA FRS geodatabase.
Data Source: Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Basic_Hurr
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Potential tornado exposure factor based on proximity to historic hurricane hazard source. Generated using ArcMap 10.4 and historic hurricane data (NOAA).
Data Source: Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Basic_Tndo
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Potential tornado exposure factor based on proximity to historic tornado hazard source. Generated using ArcMap 10.4 and historic tornado data (NOAA).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Hurr_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land impacted by past hurricane hazards. Generated using ArcMap 10.4, NLCD 2011 and historic hurricane data (NOAA).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Torn_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land impacted by past tornado hazards. Generated using ArcMap 10.4, NLCD 2011, and historic tornado data (NOAA).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Inflood_Exp
Source Measurement: Score

Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land potentially impacted by inland flooding hazards. Generated using ArcMap 10.4, NLCD 2011, and rivers and streams data (USGS).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: CFlood_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land potentially impacted by coastal flooding hazards. Generated using ArcMap 10.4, NLCD 2011 coastal elevation data (EPA).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: EQ_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land impacted by earthquake hazards at a peak ground acceleration (PGA) above the chosen threshold. Generated using ArcMap 10.4, NLCD 2011 and earthquake hazard mapping data (USGS).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Fire_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land impacted by wildfire. Generated using ArcMap 10.4, NLCD 2011 and historic wildfire data (USGS).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Drght_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land impacted by drought. Generated using ArcMap 10.4, NLCD 2011 and historic drought data (USGS).

Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Wind_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Average number of annual wind events with gusts > 45 mph.
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

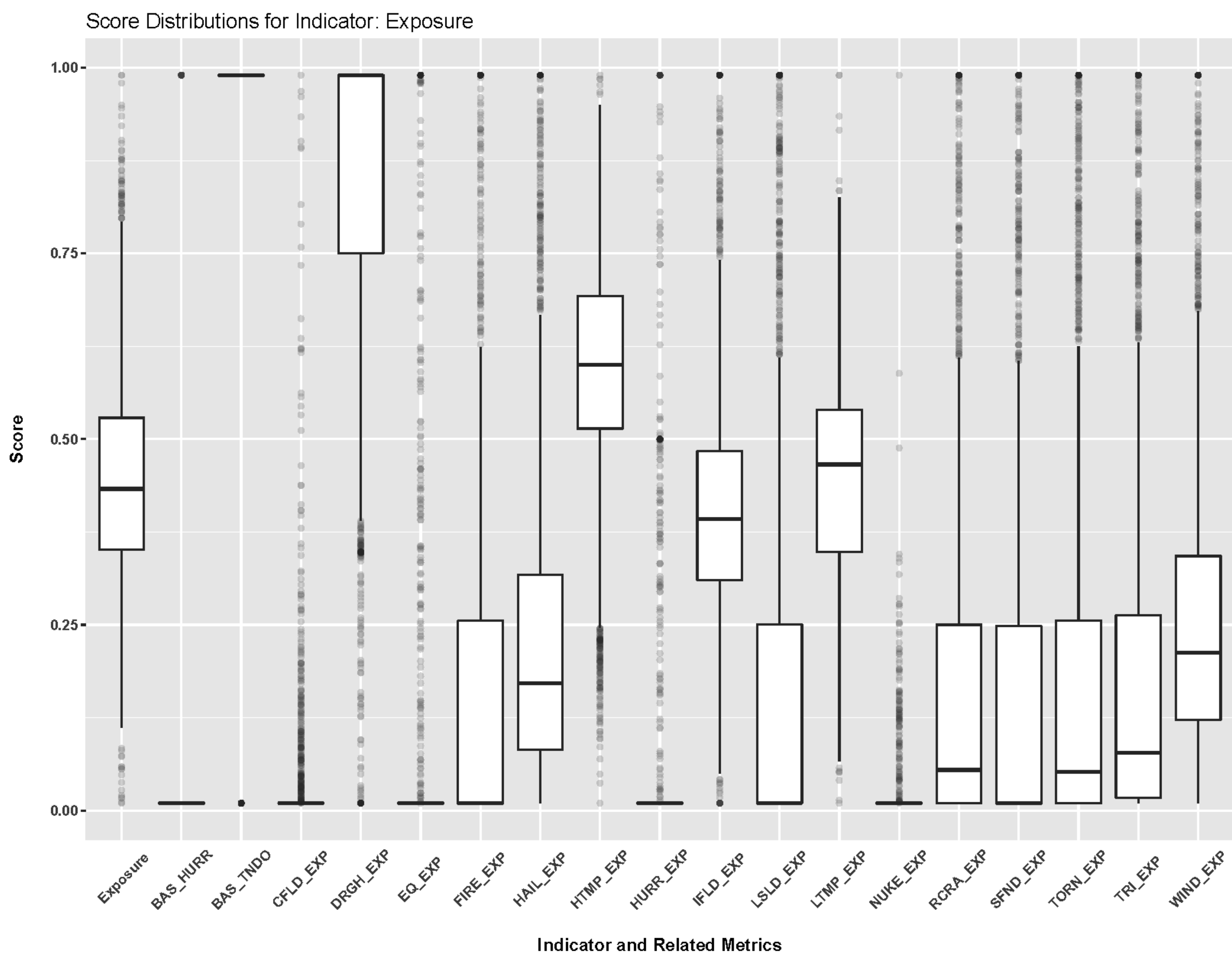
Metric Variable: Hail_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Average number of annual hail storms.
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: LndSld_Exp
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the proportion of land at moderate risk of exposure to landslide activity. Generated using ArcMap 10.4, NLCD 2011 and landslide hazaed data (USGS).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: ExHTemp_Exp
Source Measurement: Average deviation of annual maximum values from the 32-year average high temps.
Years Available: 2000 - 2011
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Proportion of land exposed to extreme high temperatures. Three time periods are derived from a suite of measures from 2000-2011.
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: ExLTemp_Exp
Source Measurement: Average deviation of annual minimum values from the 32-year average high temps.
Years Available: 2000 - 2011
Smallest Geospatial Level Available: County
Missing Data Handling: Zero

Calculation Method: The low temperature extreme values calculated for each U.S. County. Three time periods derived from a suite of measures from 2000-2011.
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page



Indicator: Loss

The loss indicator addresses an aspect of a place's vulnerability represented through historical loss of life and property (including crops) associated with specific hazards.

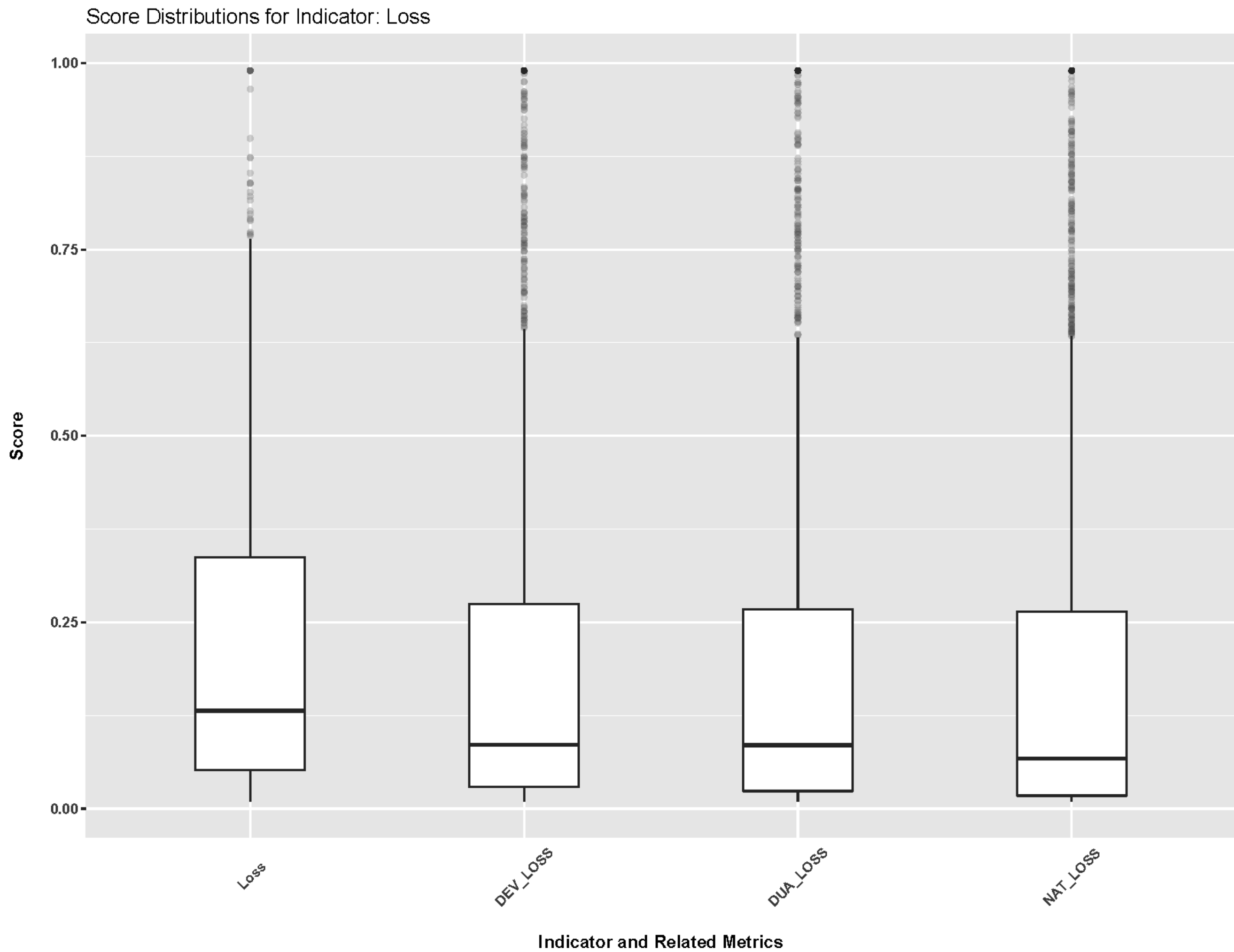
Metric List for Domain: Risk – Indicator: Loss

Metric Variable: Nat_loss
Source Measurement: Score
Years Available: 2000 - 2011
Smallest Geospatial Level Available: County
Missing Data Handling: Zero

Calculation Method: Score calculated based on the loss of natural land to impervious surfaces. Calculated using ArcMap 10.4, NLCD 2011, 2006 to 2011 Percent Developed Imperviousness Change (NLCD).
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Dua_loss
Source Measurement: Score
Years Available: 2000 - 2011
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the loss of natural land to impervious surfaces and crop land. Calculated using ArcMap 10.4, NLCD 2011, 2006 to 2011 Percent Developed Imperviousness Change (NLCD) and changes in land type such as croplands and managed areas.
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: Dev_loss
Source Measurement: Score
Years Available: 2015
Smallest Geospatial Level Available: County
Missing Data Handling: Zero
Calculation Method: Score calculated based on the loss of human life and property as result of adverse natural hazards. Summary of losses derived from Spatial Hazard Events and Losses Database (SHELDUS) available at http://hvri.geog.sc.edu/ SHELDUS)
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page



Domain: Governance

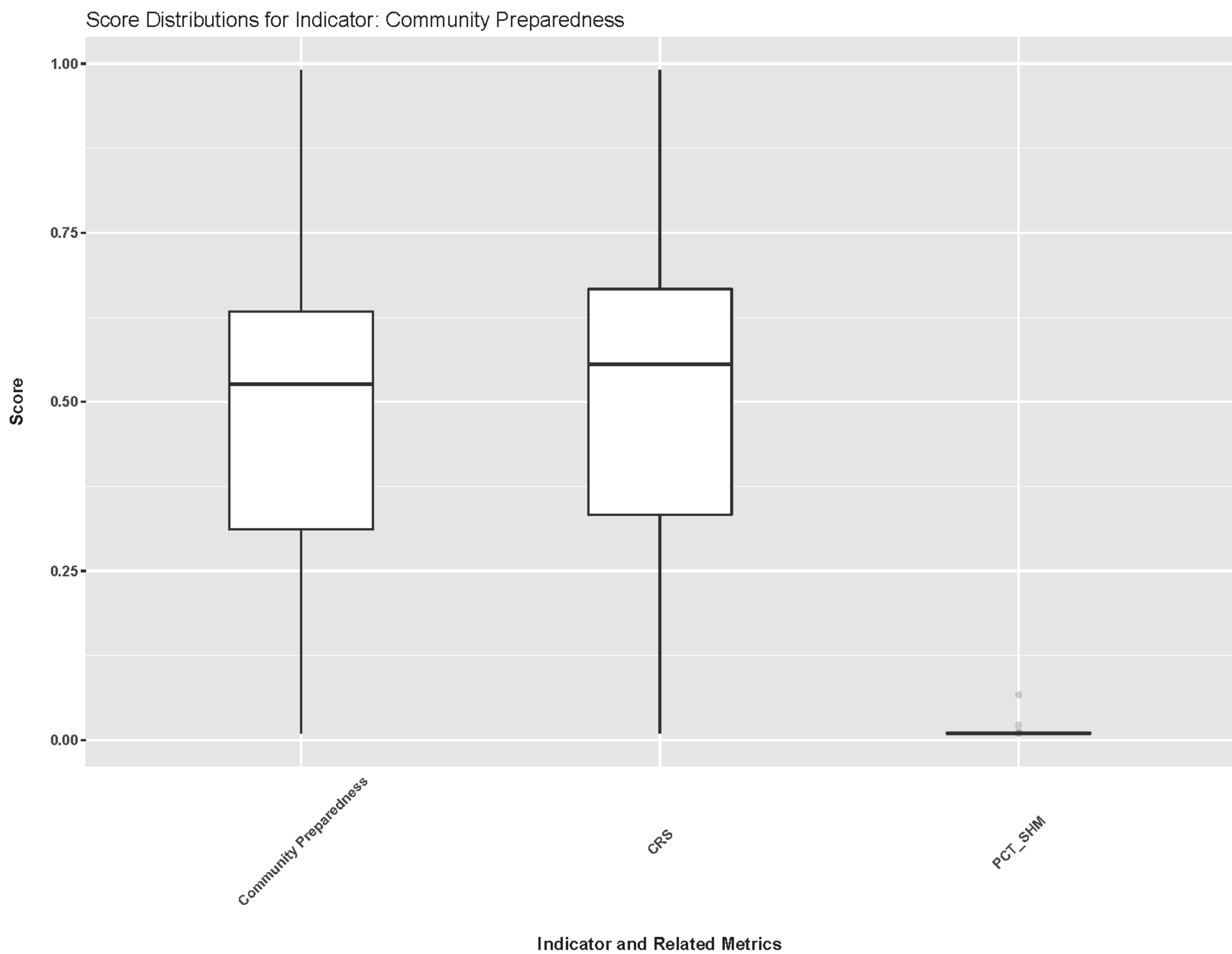
Indicator: Community Preparedness

The community preparedness indicator addresses community resilience strengthening and structure hazard mitigation.

Metric List for Domain: Governance – Indicator: Community Preparedness

Metric Variable: CRS
Source Measurement: Community Rating System class designation for floodplain management
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: Federal Emergency Management Agency https://www.fema.gov/media-library/assets/documents/27808

Metric Variable: PCT_SHM
Source Measurement: Percent of Small Business Administration recovery funds spent on hazard mitigation
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Federal Emergency Management Agency https://www.fema.gov/data-feeds



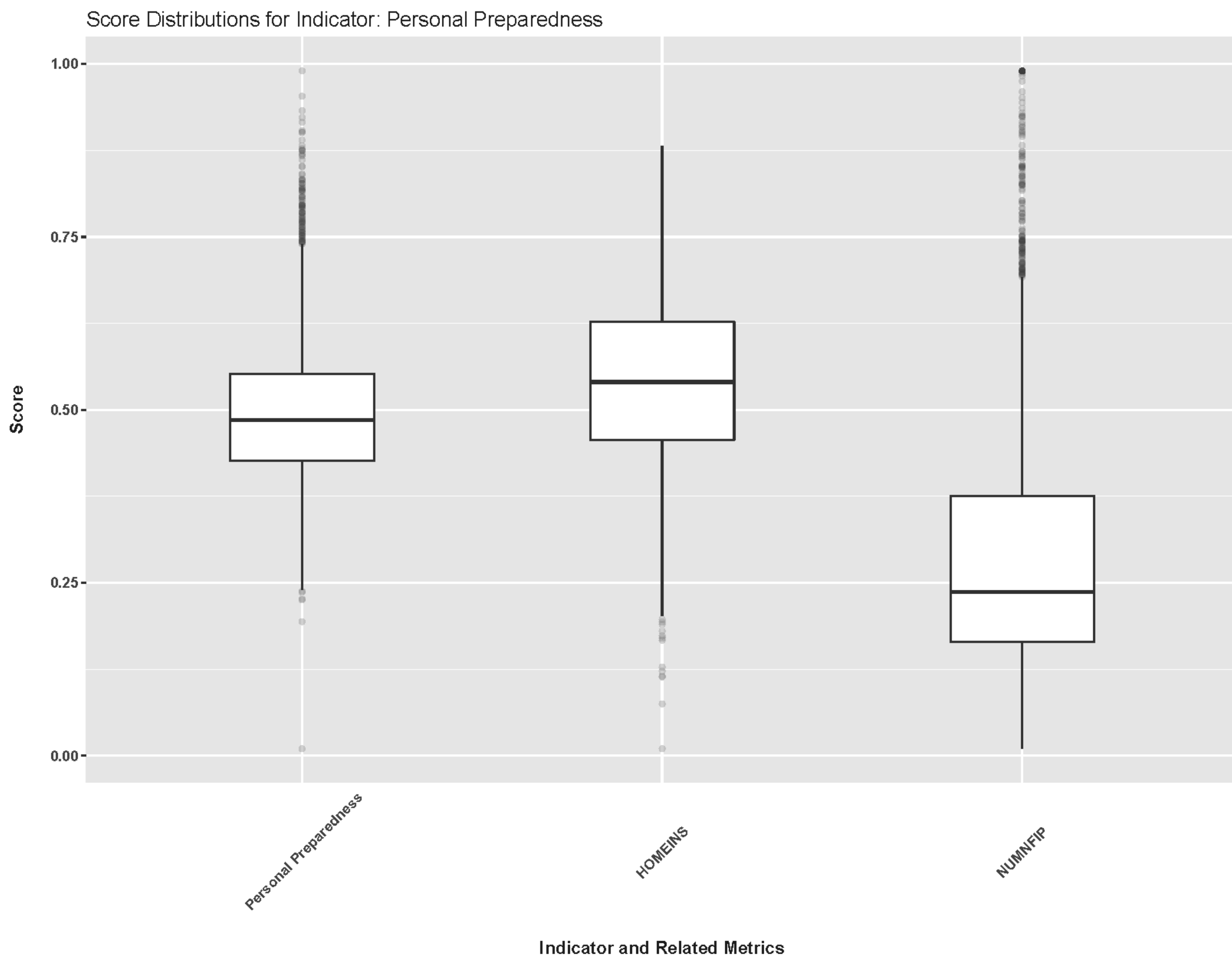
Indicator: Personal Preparedness

The personal preparedness indicator addresses individual or household activities that help protect personal property from acute climate events.

Metric List for Domain: Governance – Indicator: Personal Preparedness

Metric Variable: HOMEINS
Source Measurement: Percent of homes with mortgages (which assumes insurance coverage).
Years Available: 2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: NUMNFIP
Source Measurement: Number of National Flood Insurance Program community participants
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: Federal Emergency Management Agency https://www.fema.gov/data-feeds

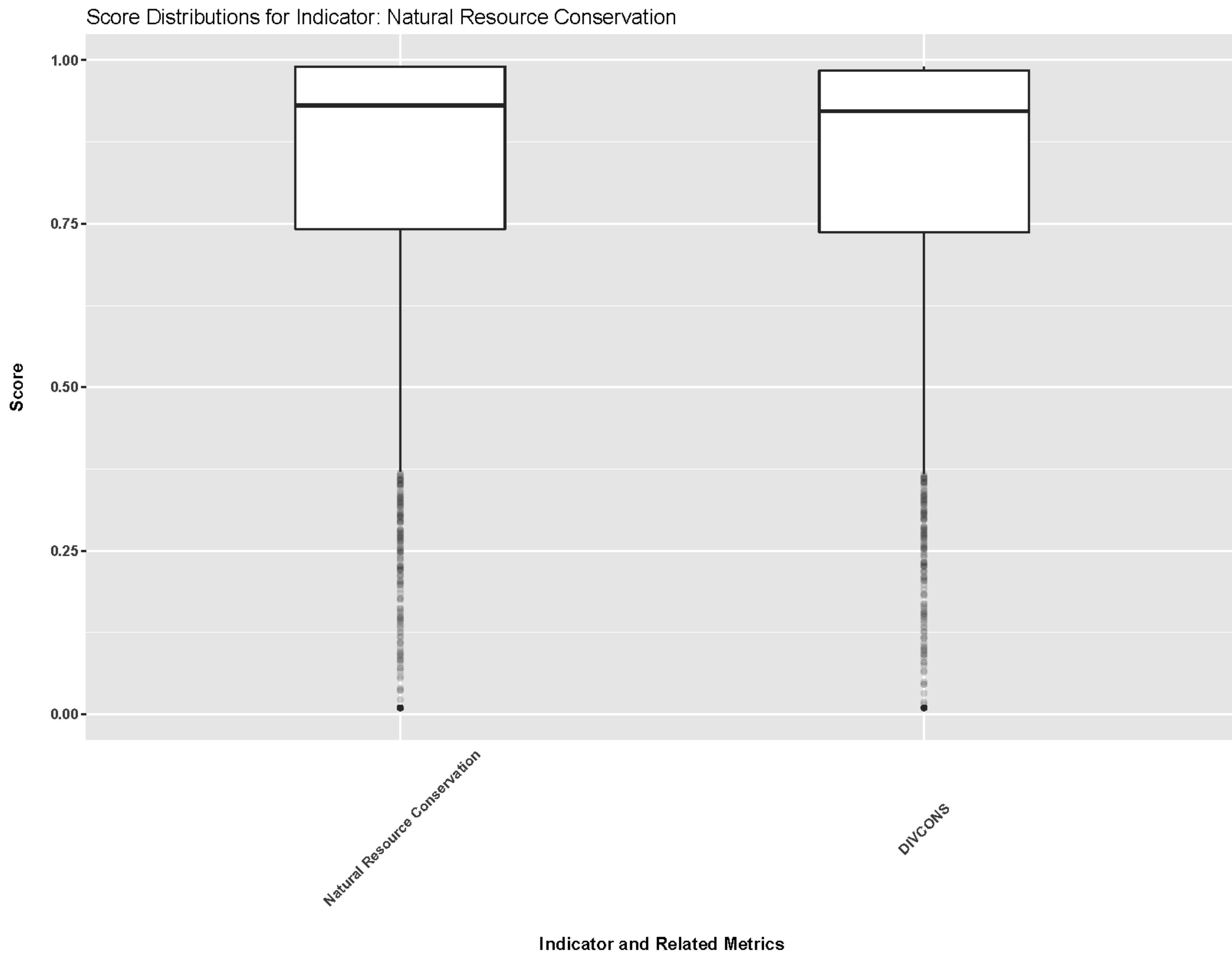


Indicator: Natural Resource Conservation

The natural resource conservation indicator addresses the protection of natural resources from anthropogenic activities which usually aids an ecosystem's ability to recover from acute climate events.

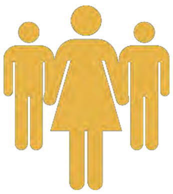
Metric List for Domain: Governance – Indicator: Natural Resource Conservation

Metric Variable: DIVCONS
Source Measurement: Land Protection Priority Index for preserving biodiversity*
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: Instituto de Pesquisas Ecológicas Brasil http://www.ipe.org.br/
* Index is an inverse ordinal scale where a zero or near-zero index is best.



Domain: Society

Indicator: Demographics



The demographics indicator reflects attributes of a community's population and includes aspects of employment potential and vulnerable populations.

Metric List for Domain: Society – Indicator: Demographics

Metric Variable: ALONE65
Source Measurement: Percent of population age 65 or greater and living alone
Years Available: 2008-2015
Smallest Geospatial Level Available: County
Calculation Method: Counts were calculated as the sum of two variables—male and female individuals over the age of 65 and living alone.
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

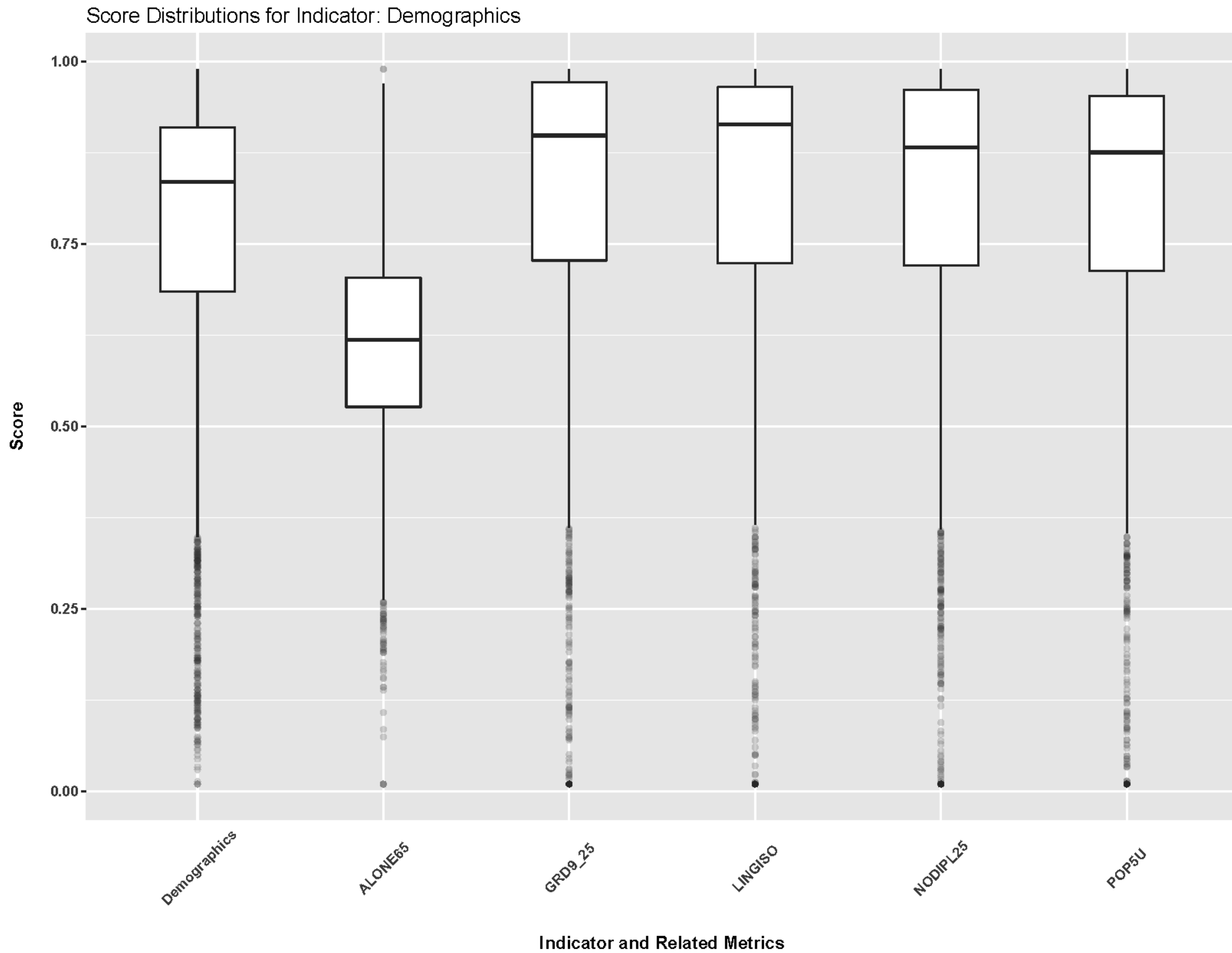
Metric Variable: GRD9_25
Source Measurement: Percent of population age 25 years and over with less than 9th grade education attainment
Years Available: 2005-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: LINGISO
Source Measurement: Percent of population exhibiting limited English language skills
Years Available: 2005-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: NODIPL25
Source Measurement: Percent of population age 25 years and over who attended high school but did not receive a diploma
Years Available: 2006-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: POP5U
Source Measurement: Percent of population under 5 years of age
Years Available: 2005-2015

Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/



Indicator: Economic Diversity

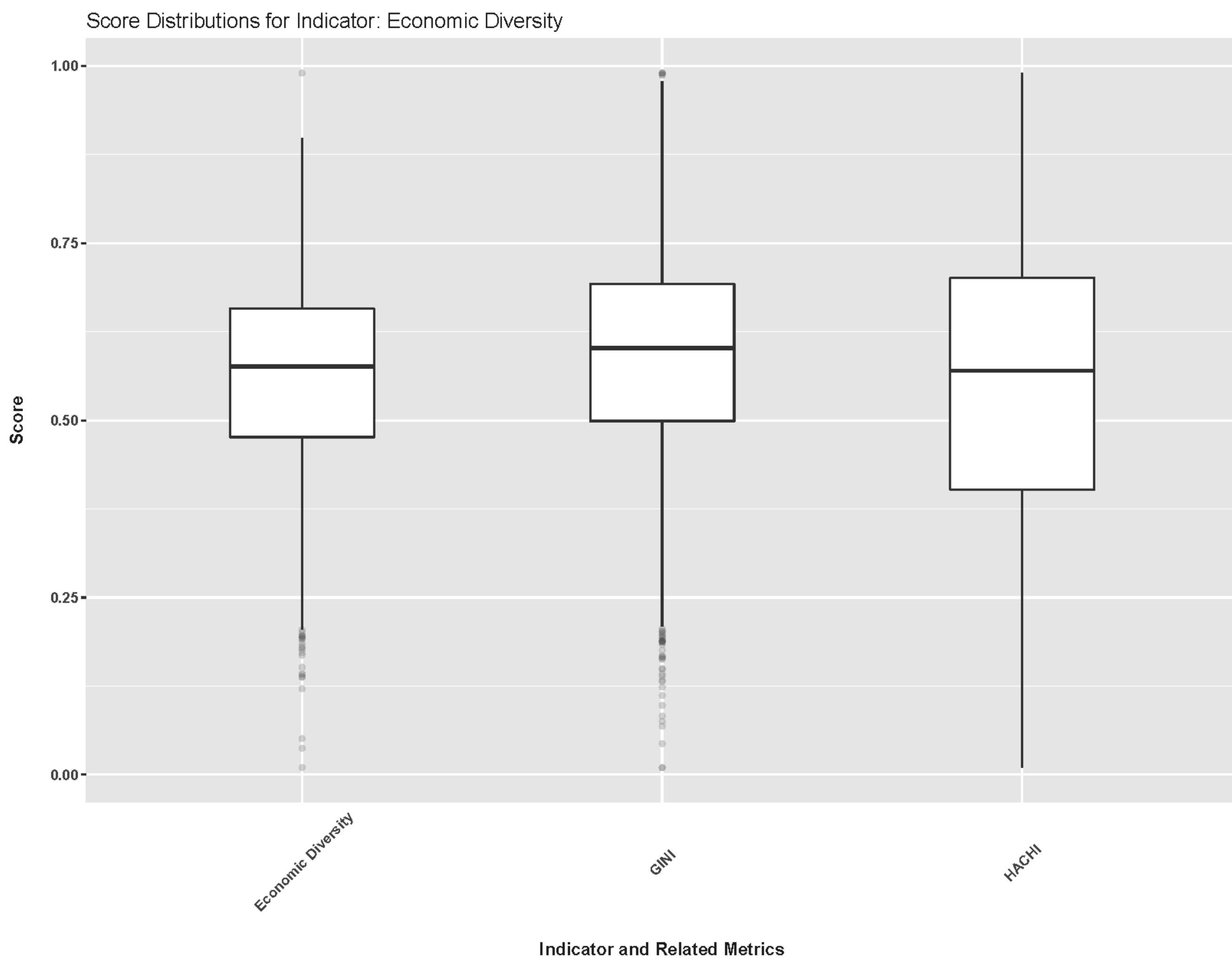
The economic diversity indicator represents factors associated with economic stability and recoverability within communities.

Metric List for Domain: Society – Indicator: Economic Diversity

Metric Variable: GINI
Source Measurement: Income inequality based on Gini Index
Years Available: 2006-2015
Smallest Geospatial Level Available: County

Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: HACHI
Source Measurement: Index of economic diversity based on Hachmann calculation method
Years Available: 2005, 2010, 2014
Smallest Geospatial Level Available: County
Calculation Method: For each county, the index is calculated as the reciprocal of the sum of location quotients, which measures industry dependencies, weighted by the distribution of businesses as classified by the North American Industry Classification System (NAICS).
Missing Data Handling: Null fill
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page



Indicator: Health Characteristics

The health characteristics indicator addresses factors associated with healthcare access, special health vulnerability populations, and specific health problems related to or exacerbated by acute climate events.

Metric List for Domain: Society – Indicator: Health Characteristics

Metric Variable: ASTHMA_A
Source Measurement: Percent of adult population living with asthma
Years Available: 2012, 2014, 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were calculated as the average of adult individuals with asthma over the total adult population counts for 2012, 2014, and 2015.
Missing Data Handling: Null fill
Data Source: American Lung Association, http://www.lung.org/our-initiatives/research/monitoring-trends-in-lung-disease/

Metric Variable: ASTHMA_C
Source Measurement: Percent of population under 18 years of age living with asthma
Years Available: 2012, 2014, 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were calculated as the average of individuals under 18 with asthma over the pediatric population counts for 2012, 2014, and 2015.
Missing Data Handling: Null fill
Data Source: American Lung Association http://www.lung.org/our-initiatives/research/monitoring-trends-in-lung-disease/

Metric Variable: CNCR
Source Measurement: Incidence of cancer per 100,000 population
Years Available: 2009-2013
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: National Cancer Institute https://www.cancer.gov/research/resources/data-catalog

Metric Variable: DBTS
Source Measurement: Percent of population living with diabetes
Years Available: 2004-2016
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: University of Wisconsin Population Health Institute
http://www.countyhealthrankings.org/rankings/data

Metric Variable: HLTHINS

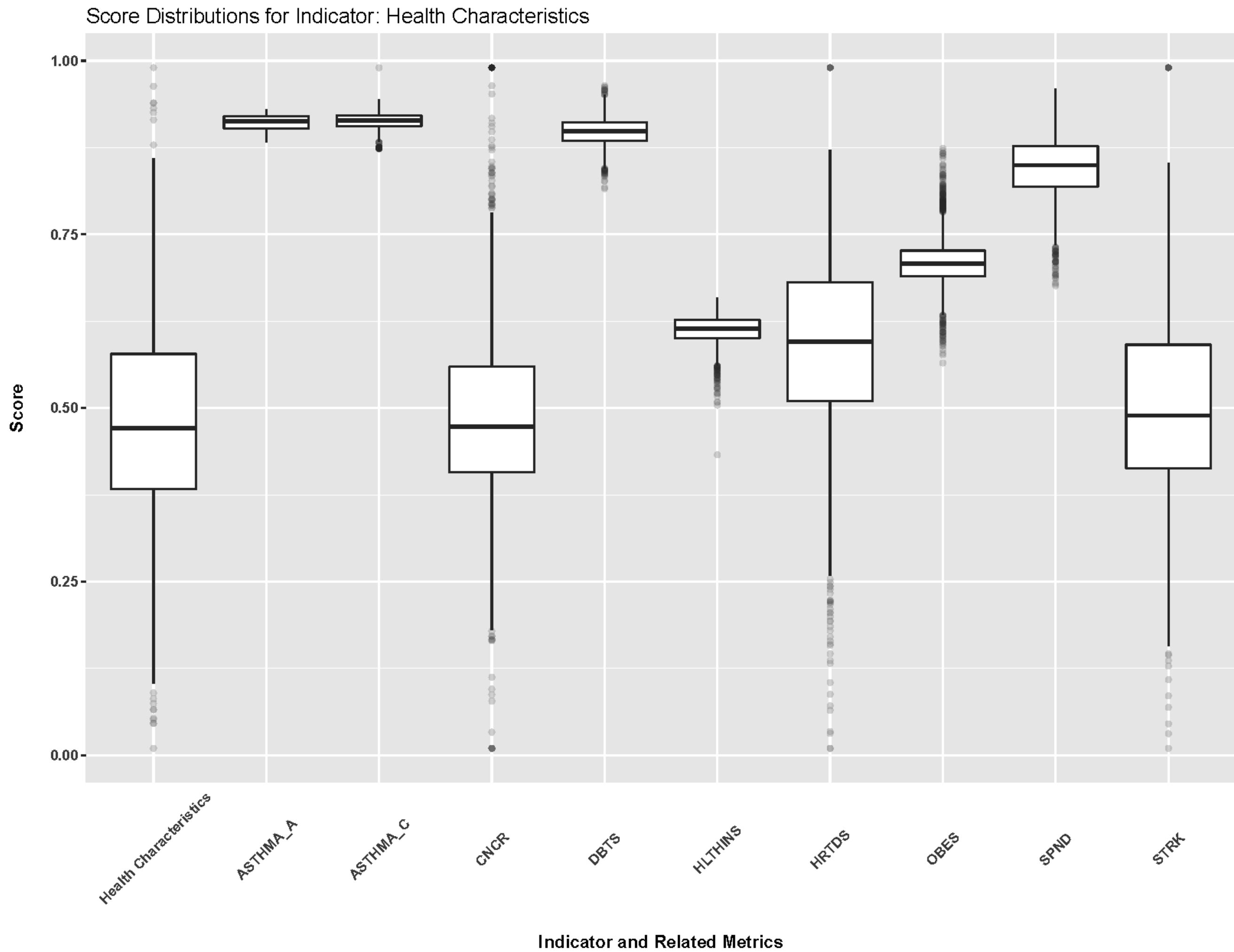
Source Measurement: Percent of population with at least some health insurance coverage
Years Available: 2013-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: HRTDS
Source Measurement: Incidence of heart disease per 1,000 population
Years Available: 2007-2013
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: United States Department of Health and Human Services,
https://www.hhs.gov/about/agencies/omha/about/health-data-sets/index.html

Metric Variable: OBES
Source Measurement: Percent of population diagnosed with obesity
Years Available: 2004-2013
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: University of Wisconsin Population Health Institute,
http://www.countyhealthrankings.org/rankings/data

Metric Variable: SPND
Source Measurement: Percent of population with cognitive and/or physical special needs
Years Available: 2008-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: STRK
Source Measurement: Incidence of stroke per 1,000 medicare population
Years Available: 2007-2013
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: United States Department of Health and Human Services,
https://www.hhs.gov/about/agencies/omha/about/health-data-sets/index.html



Indicator: Labor and Trade Services

The labor and trade services indicator addresses factors related to recoverability from an acute climate event associated with construction.

Metric List for Domain: Society – Indicator: Labor and Trade Services

Source Measurement: Number of concrete construction services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: FRAME
Source Measurement: Number of construction framing services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: HWYCON
Source Measurement: Number of highway construction services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
American Community Survey https://www.census.gov/programs-surveys/acs/

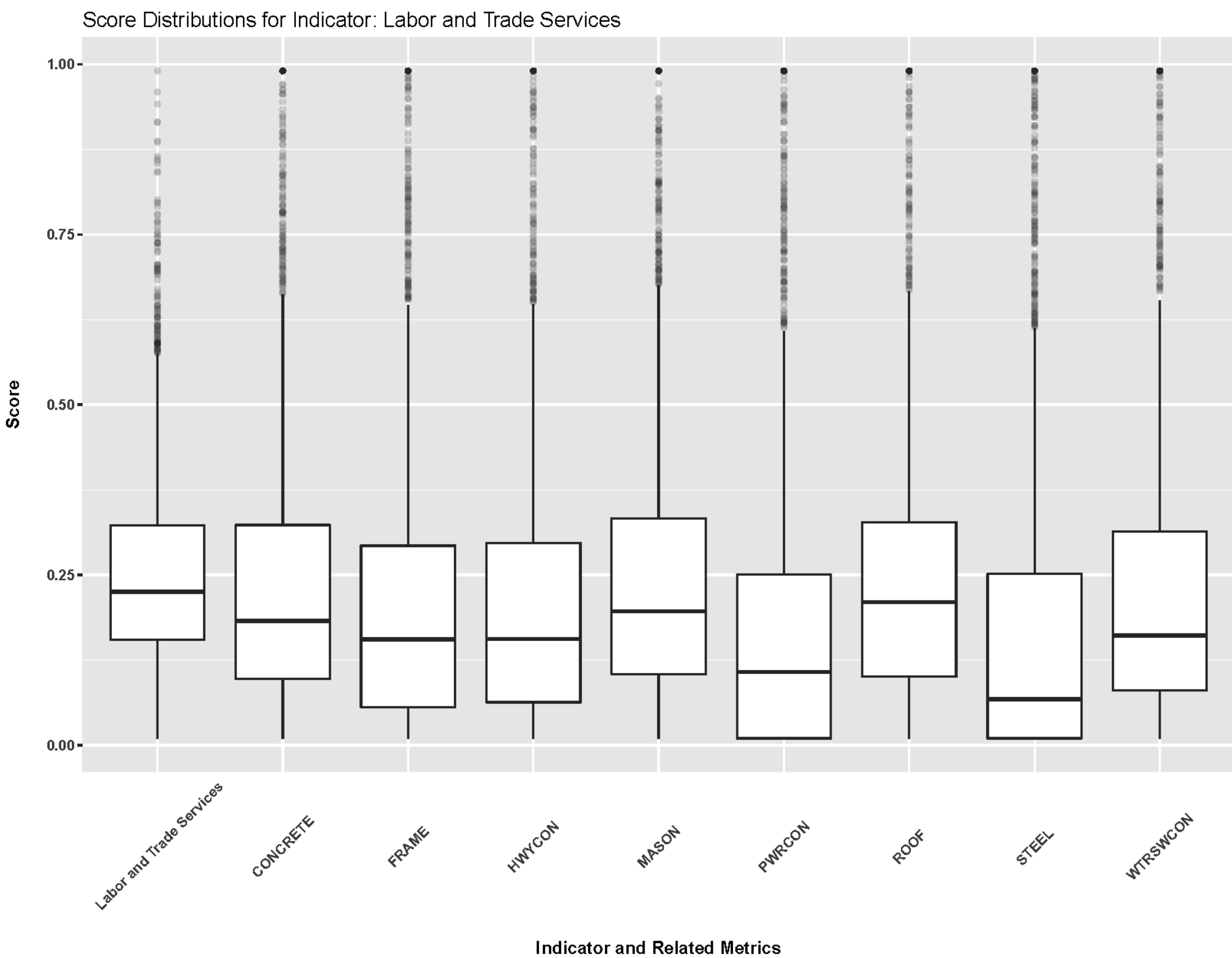
Metric Variable: MASON
Source Measurement: Number of masonry services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: PWRCON
Source Measurement: Number of power construction services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: ROOF
Source Measurement: Number of roofing construction services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: STEEL
Source Measurement: Number of steel construction services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: WTRSWCON
Source Measurement: Number of water and sewer construction services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/



Indicator: Safety and Security

The safety and security indicator addresses the provisioning of emergency and civil services.

Metric List for Domain: Society – Indicator: Safety and Security

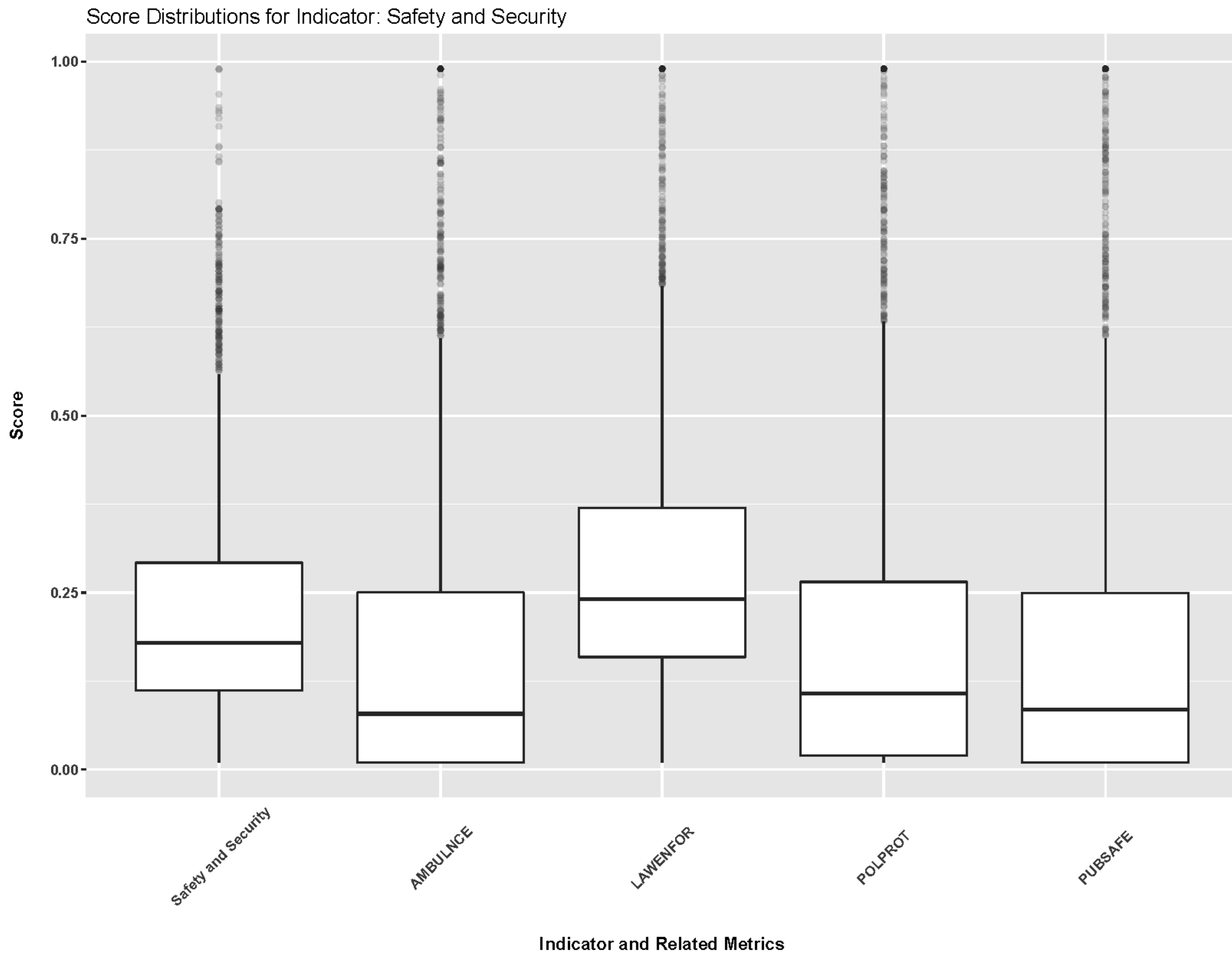
Metric Variable: AMBULNCE

Source Measurement: Number of emergency and civil services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: LAWENFOR
Source Measurement: Number of law enforcement officers per 100,000 population
Years Available: 2004-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Federal Bureau of Investigation https://ucr.fbi.gov/

Metric Variable: POLPROT
Source Measurement: Number of criminal and civil services per 100,000 population
Years Available: 2000-2015
Smallest Geospatial Level Available: County
Calculation Method: Data were calculated as the aggregated sum of all State, Local, and Federal government employees employed in the Police Protection field.
Missing Data Handling: Zero fill
Data Source: Bureau of Labor Statistics https://www.bls.gov/data/

Metric Variable: PUBSAFE
Source Measurement: Number of other public safety services per 100,000
Years Available: 2005-2015
Smallest Geospatial Level Available: County
Calculation Method: Data were calculated as the aggregated sum of all State, Local, and Federal government employees employed in the Police Protection field.
Missing Data Handling: Zero fill
Data Source: Bureau of Labor Statistics https://www.bls.gov/data/



Indicator: Social Cohesion

The social cohesion indicator represents the willingness of members of a society to cooperate with each other in order to survive and prosper.

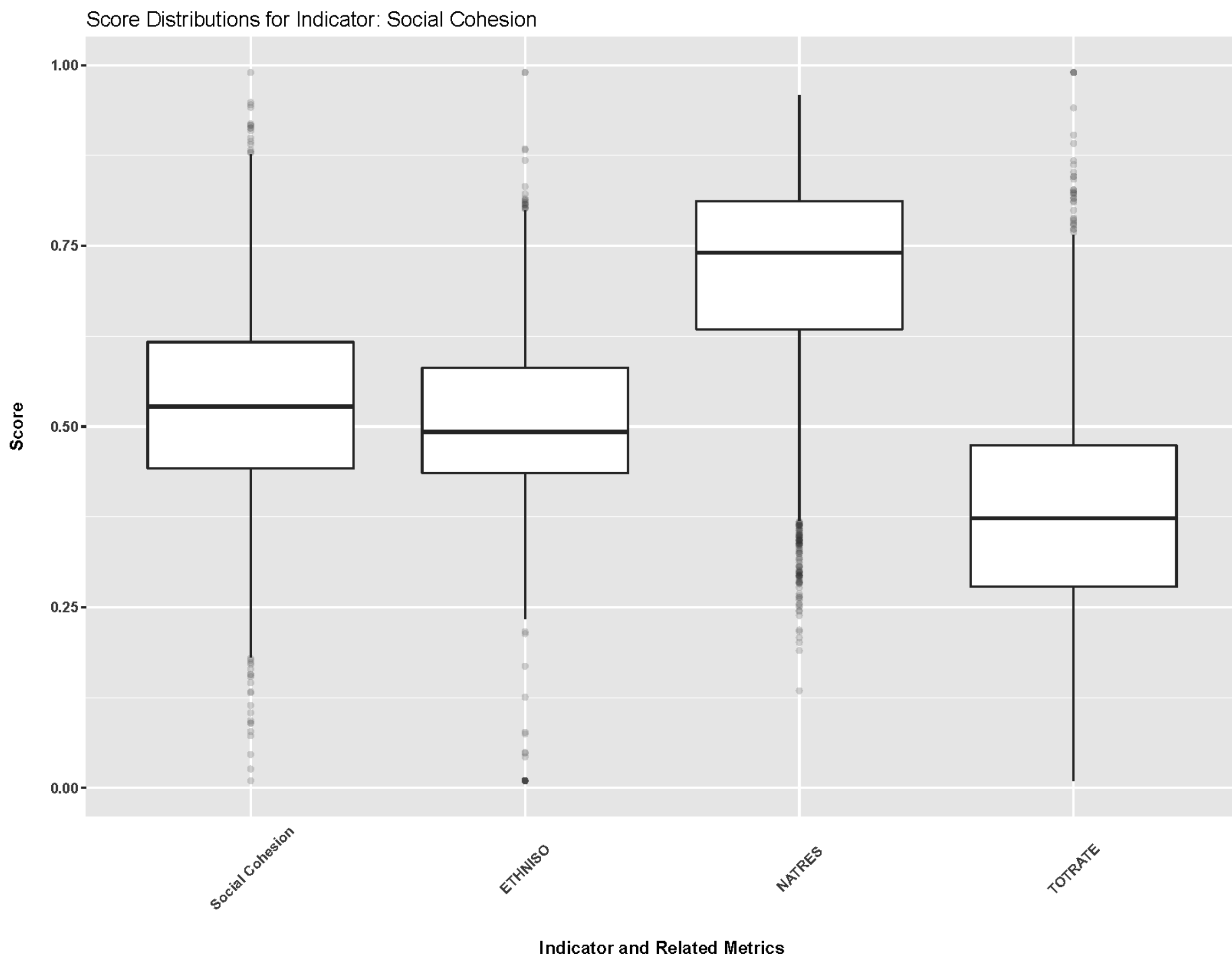
Metric List for Domain: Society – Indicator: Social Cohesion

Metric Variable: ETHNISO
Source Measurement: Degree of ethnic isolation based on calculated index
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: NATRES

Source Measurement: Percent of population born in current state of residence
Years Available: 2005-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: TOTRATE
Source Measurement: Religious congregation participation per 1,000 population
Years Available: 2000, 2010
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Association of Religion Data Archives
http://www.thearda.com/Archive/browse.asp



Indicator: Social Services

The social services indicator represents a range of critical services provided by government, private, and non-profit organizations.

Metric List for Domain: Society – Indicator: Social Services

Metric Variable: AMBSURG
Source Measurement: Number of outpatient and emergency facilities per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: BDORGBNK
Source Measurement: Number of blood and organ banks per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: CHLDCARE
Source Measurement: Number of child care services per 100,000 population under 14
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: EMSOCSRV
Source Measurement: Number of emergency shelter, food and goods services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: HOSP
Source Measurement: Number of hospitals per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: HPSA_M

Source Measurement: Percent of population with sufficient access to mental healthcare providers based on Healthcare Provider Service Area rating for mental health
Years Available: 2009
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Health Resources and Services Administration https://datawarehouse.hrsa.gov/

Metric Variable: HPSA_P
Source Measurement: Percent of population with sufficient access to primary healthcare providers based on Healthcare Provider Service Area rating for primary care
Years Available: 2009
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Health Resources and Services Administration https://datawarehouse.hrsa.gov/

Metric Variable: INSADJ
Source Measurement: Number of insurance claims establishments per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: **MHTHSERV**
Source Measurement: Number of mental healthcare facilities per 100,000 population
Years Available: 2005-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: MUAP
Source Measurement: Score calculated based on the ability of population to access healthcare based on average medically underserved area per population
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: Health Resources and Services Administration https://datawarehouse.hrsa.gov/

Metric Variable: RELIGORG
Source Measurement: Number of religions organizations per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County

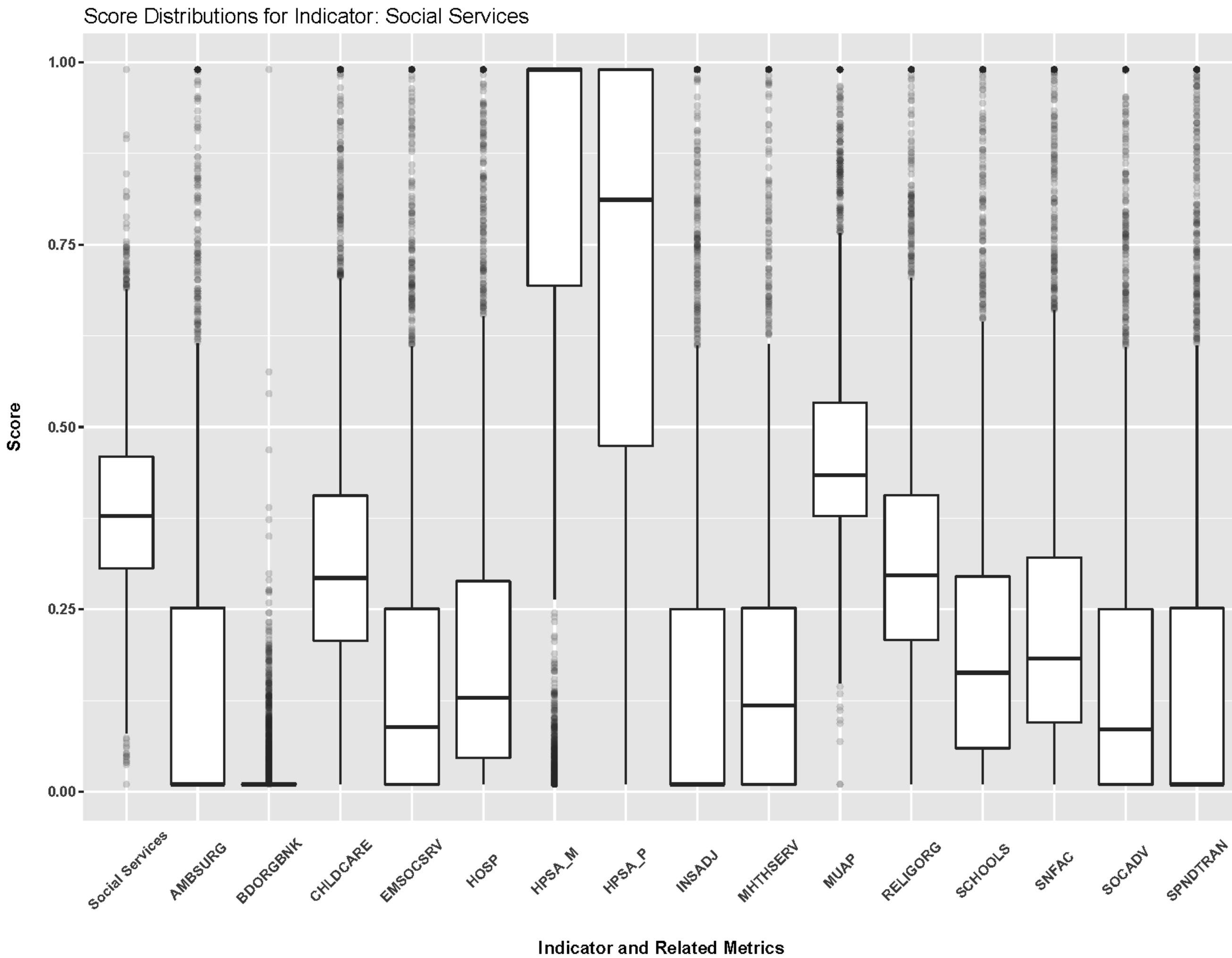
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: SCHOOLS
Source Measurement: Number of K-12 education and support facilities per 100,000 population ages 5 to 18
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: SNFAC
Source Measurement: Number of rehabilitative service facilities per 100,000 population
Years Available: 2012-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: SOCADV
Source Measurement: Number of social advocacy services per 100,000 population
Years Available: 2003-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: SPNDTRAN
Source Measurement: Number of special needs transportation services per 100,000 population with special needs
Years Available: 2005-2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/



Indicator: Socio-Economics

The socio-economic indicator relates to employment opportunity and issues associated with personal economics, primarily level of income.

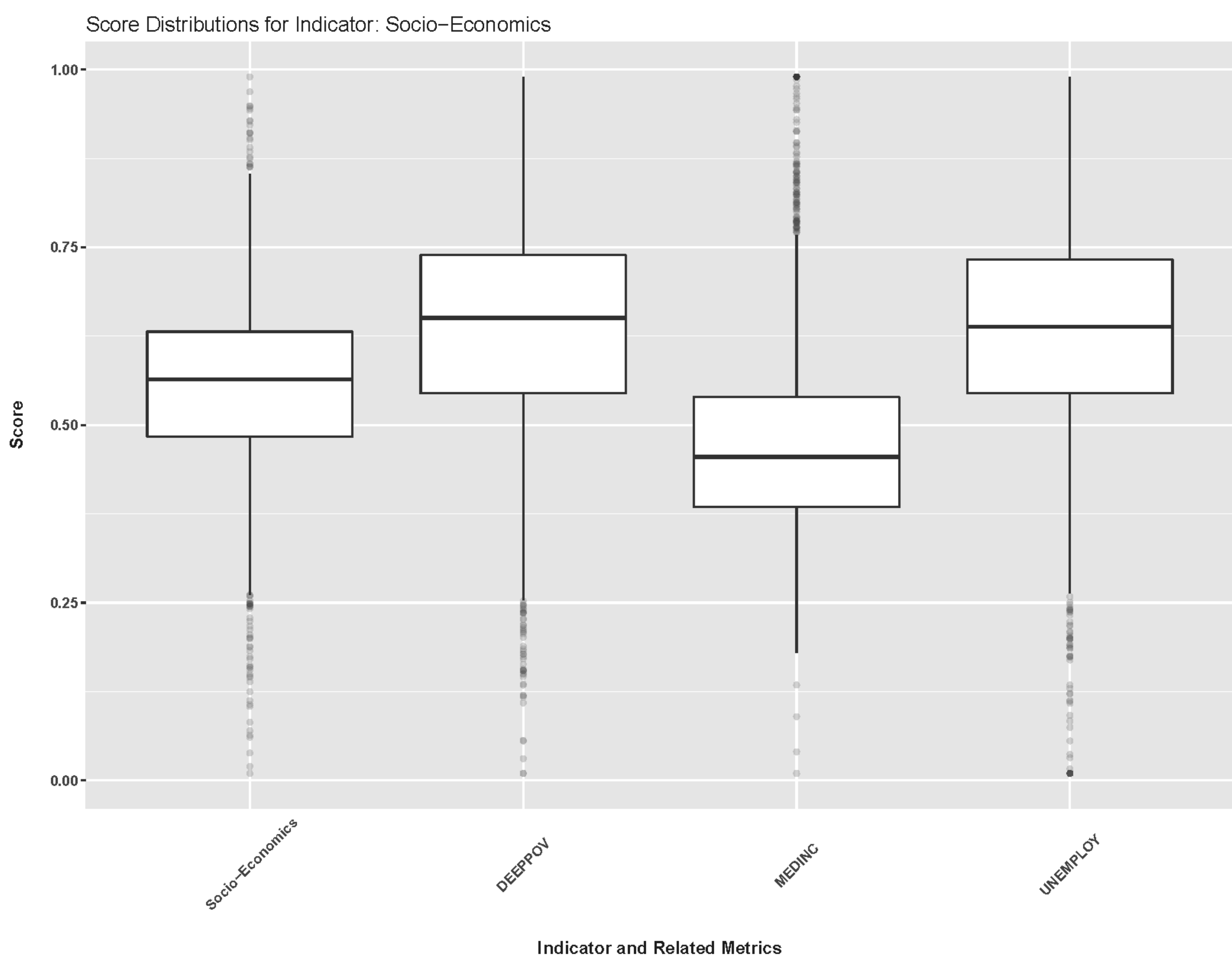
Metric List for Domain: Society – Indicator: Socio-Economics

Metric Variable: DEEPPOV
Source Measurement: Percent of population living at or below 150 percent of poverty threshold
Years Available: 2005-2015
Smallest Geospatial Level Available: County

Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: MEDINC
Source Measurement: Median household income in inflation adjusted dollars
Years Available: 2005-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

Metric Variable: UNEMPLOY
Source Measurement: Unemployment rate of population ages 16 years and greater
Years Available: 2006-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/



Domain: Built Environment

Indicator: Communications Infrastructure

The communications infrastructure represents a measure of communication continuity to support the ability of a community to perform essential functions before, during and after a natural hazard event.

Metric List for Domain: Built Environment – Indicator: Communication Infrastructure

Metric Variable: CELLTOWER
Source Measurement: Number of cell service towers
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: INETACC
Source Measurement: Percent of homes with access to internet service provider(s)
Years Available: 2011, 2012, 2013, 2014
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: National Broadband Map Datasets https://www.broadbandmap.gov/analyze

Metric Variable: LMBROAD
Source Measurement: Number of land mobile broadcast towers
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

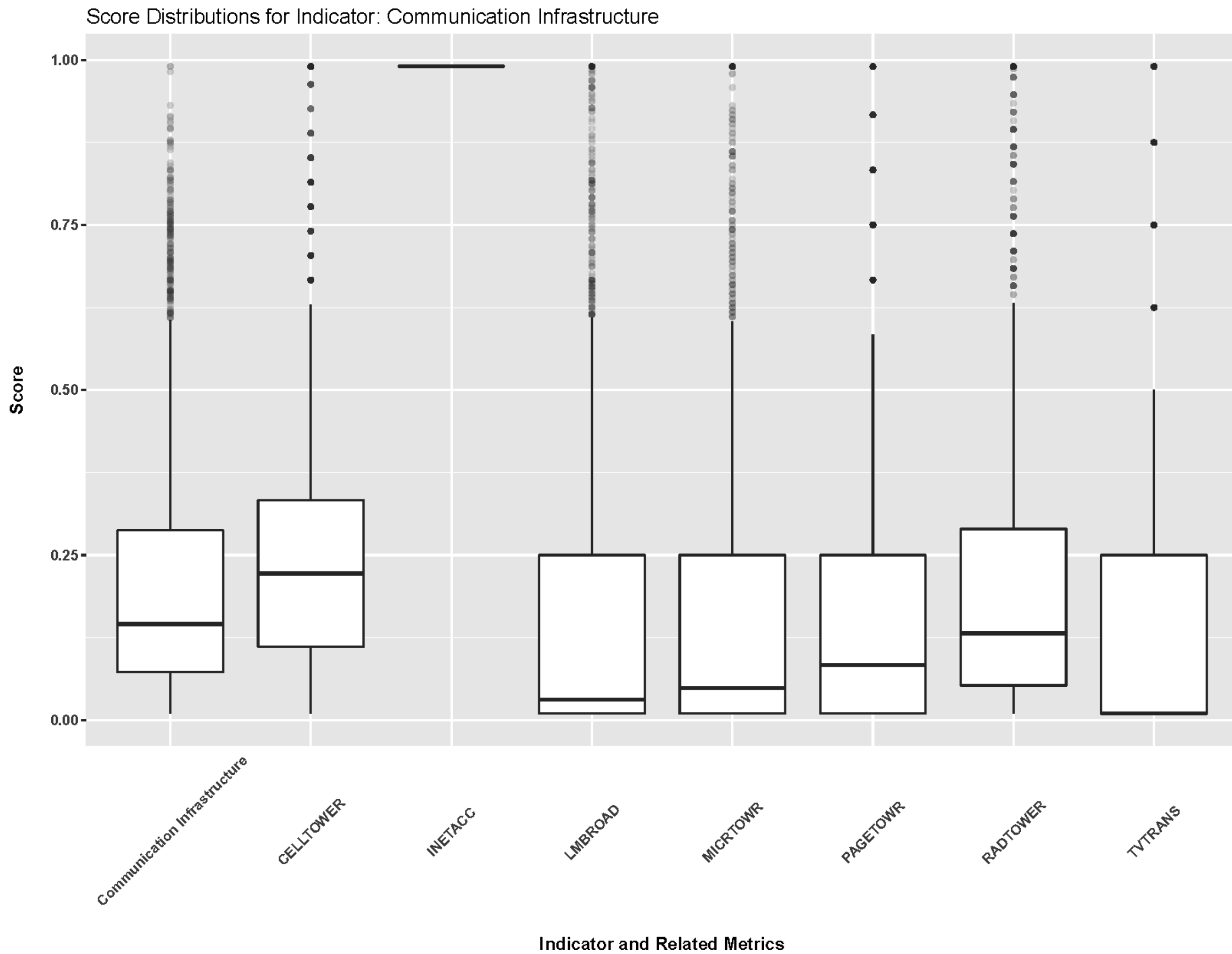
Metric Variable: MICROTOWR
Source Measurement: Number of microwave service towers
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.

Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: PAGETOWR
Source Measurement: Number of paging transmission towers
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: RADTOWR
Source Measurement: Number of AM and FM radio broadcast transmission towers
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: TVTRANS
Source Measurement: Number of TV station transmitters
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level https://hifld-dhs-gii.opendata.arcgis.com/



Indicator: Housing Characteristics

Housing characteristics relate to the potential resilience weaknesses that the distribution or condition of dwellings introduce to a community in context of adverse climate events.

Metric List for Domain: Built Environment – Indicator: Housing Characteristics

Metric Variable: HOMEAGE
Source Measurement: Median age of residential housing
Years Available: 2005-2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/

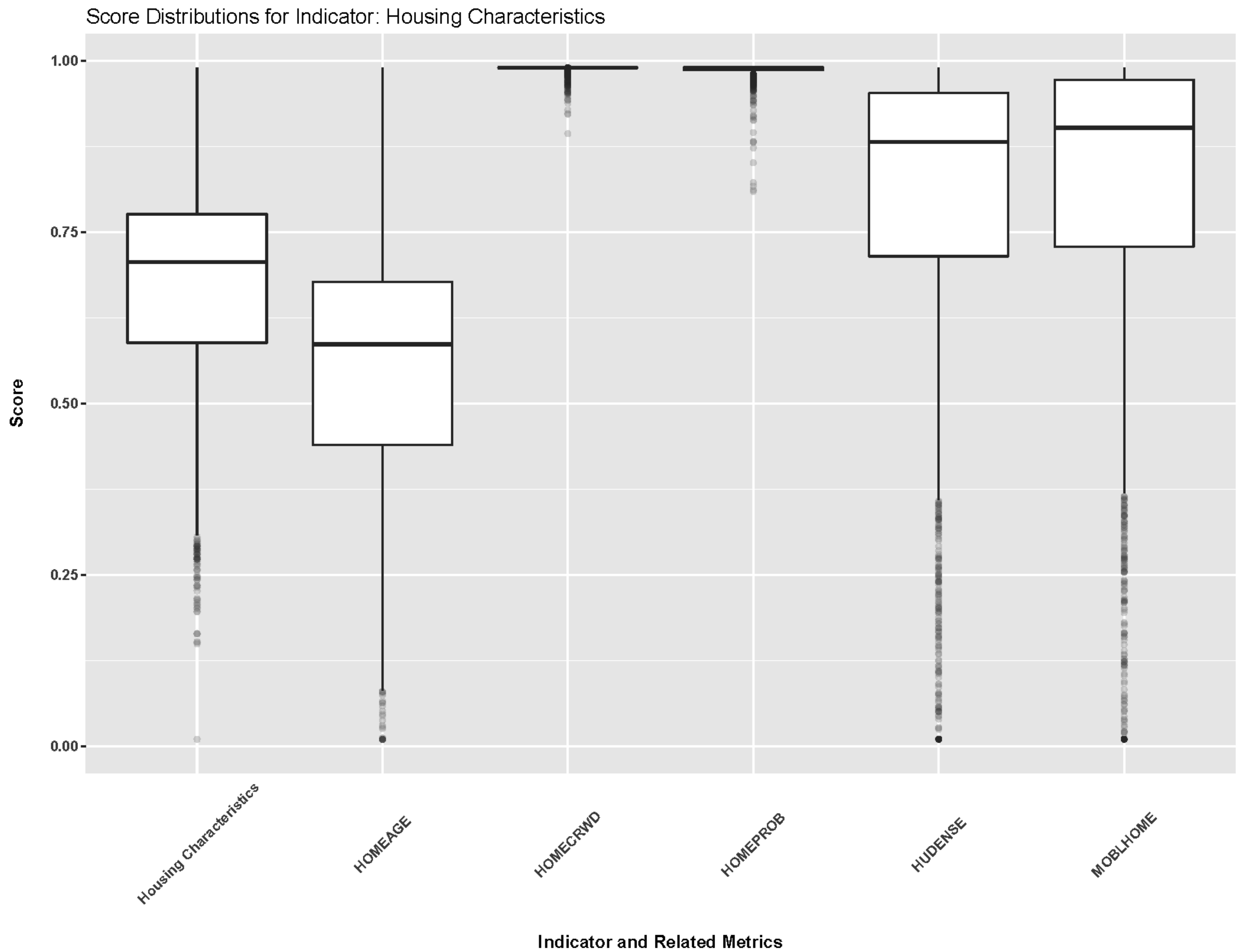
Metric Variable: HOMECRWD

Source Measurement: Median age of residential housing
Years Available: 2009, 2013
Smallest Geospatial Level Available: County
Calculation Method: Data from the original dataset were calculated based on the sum of renter and owner occupancy levels.
Missing Data Handling: Zero fill
Data Source: Comprehensive Housing Affordability Strategy
https://www.huduser.gov/portal/datasets/cp/CHAS/data_querytool_chas.html

Metric Variable: HOMEPROB
Source Measurement: Percent of homes with inadequate plumbing and kitchen facilities
Years Available: 2009, 2013
Smallest Geospatial Level Available: County
Calculation Method: Metric is the of sum of renter and owner occupant measures that reflect the same condition.
Missing Data Handling: Zero fill
Data Source: Comprehensive Housing Affordability Strategy
https://www.huduser.gov/portal/datasets/cp/CHAS/data_querytool_chas.html

Metric Variable: HUDENSE
Source Measurement: Number of homes per square mile
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Calculated as total number of housing units/total square miles (within a county)
Missing Data Handling: Null fill
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: MOBLHOME
Source Measurement: Percent of non-permanent or mobile residential structures (excluding vans, campers, etc.)
Years Available: 2007-2013
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: American Community Survey https://www.census.gov/programs-surveys/acs/



Indicator: Transportation Infrastructure

Transportation infrastructure refers a measure of continuity that supports flow of people, goods and services before, during and after a climate event. This includes roads, railways, ports and airports.

Metric List for Domain: Built Environment – Indicator: Transportation Infrastructure

Metric Variable: AIRPORT
Source Measurement: Air Transportation Facilities
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill

Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: **HELIPORT**
Source Measurement: Air Transportation Facilities
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: **SEAPLANE**
Source Measurement: Air Transportation Facilities
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/

Metric Variable: **ARTROAD**
Source Measurement: Total miles of urban and rural arterial roads
Years Available: 2014
Smallest Geospatial Level Available: County
Calculation Method: Counts were calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: National Bridge Inventory https://www.fhwa.dot.gov/bridge/nbi/ascii.cfm

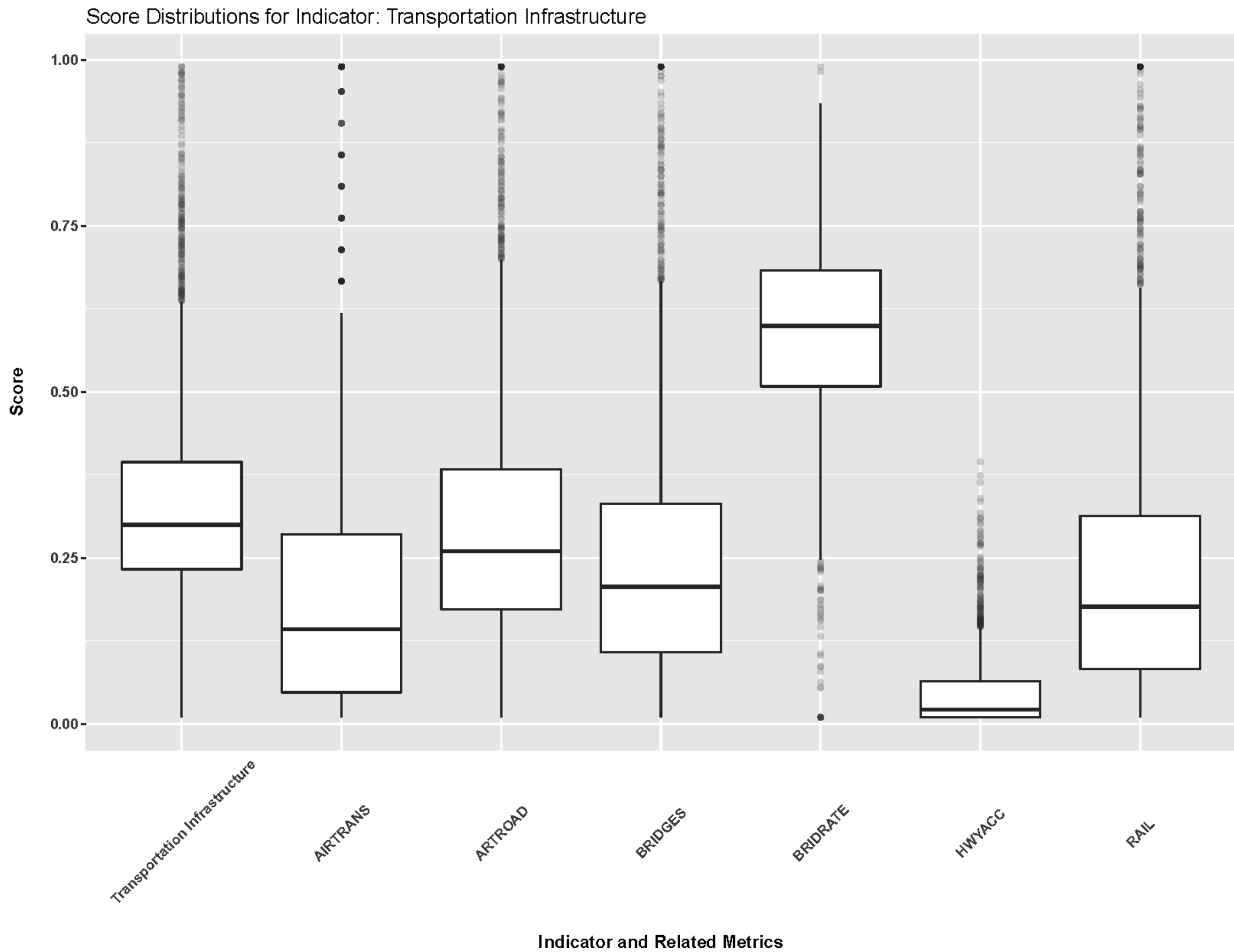
Metric Variable: BRIDGES
Source Measurement: Number of roadway bridge structures
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Zero fill
Data Source: National Bridge Inventory https://www.fhwa.dot.gov/bridge/nbi/ascii.cfm

Metric Variable: BRIDRATE
Source Measurement: Roadway bridge structural and functional assessment rating
Years Available: 2015
Smallest Geospatial Level Available: County

Calculation Method: Data were geolocated to identify the county FIPS codes based on latitude and longitude provided in original dataset. Counts were then calculated as the sum of the number of data records associated with each county.
Missing Data Handling: Null fill
Data Source: National Bridge Inventory, United States Department of Transportation: https://www.fhwa.dot.gov/bridge/nbi/ascii.cfm

Metric Variable: HWYACC
Source Measurement: Percent population residing within 10-minute drive of highway entrance/exit.
Years Available: 2014
Smallest Geospatial Level Available: County
Calculation Method: Measures derived using ArcMap 10.4, U.S. Census population estimates and ESRI interstate access points data layer.
Missing Data Handling: Zero fill
Data Source: U.S. Environmental Protection Agency
https://edg.epa.gov/metadata/catalog/main/home.page

Metric Variable: RAIL
Source Measurement: Miles of operating freight rails
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: Counts were calculated as the sum of the miles of operating rail line reported by major rail operators within a county.
Missing Data Handling: Zero fill
Data Source: Homeland Infrastructure Foundation-Level Data https://hifld-dhs-gii.opendata.arcgis.com/



Indicator: Utilities Infrastructure

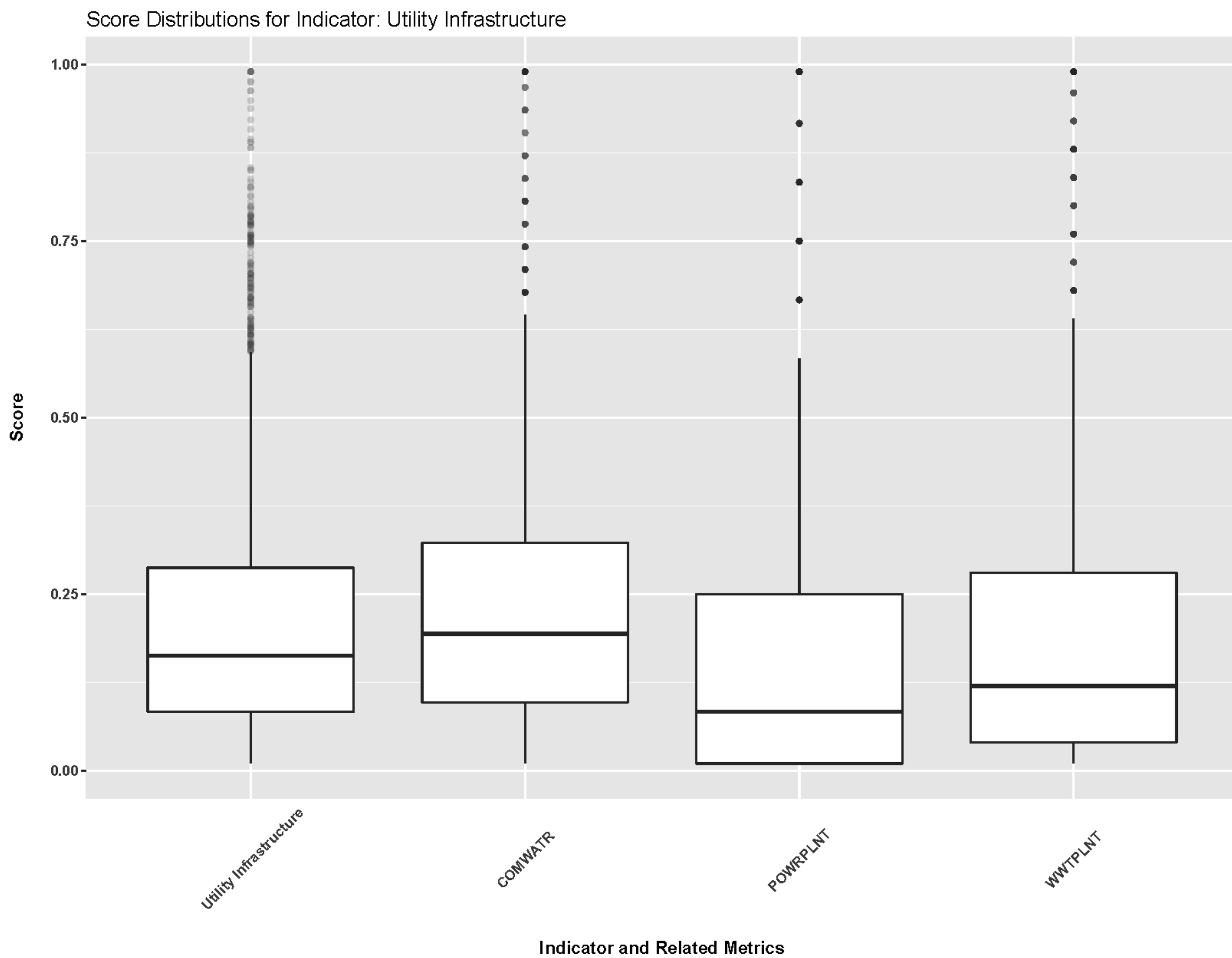
Utilities infrastructure refers to a measure of potential continuity for communities to promote access to critical services in context of an adverse natural hazard exposure.

Metric List for Domain: Built Environment – Indicator: Transportation Infrastructure

Metric Variable: COMWATR
Source Measurement: Number of public drinking water supply facilities
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Safe Drinking Water Information System https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information-system-sdwis-federal-reporting

Metric Variable: POWRPLNT
Source Measurement: Number of power generating facilities
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: United States Energy Information Administration https://www.eia.gov/

Metric Variable: WWTPLNT
Source Measurement: Number of wastewater treatment facilities
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Zero fill
Data Source: Enforcement and Compliance History Online https://echo.epa.gov



Indicator: Vacant Structures

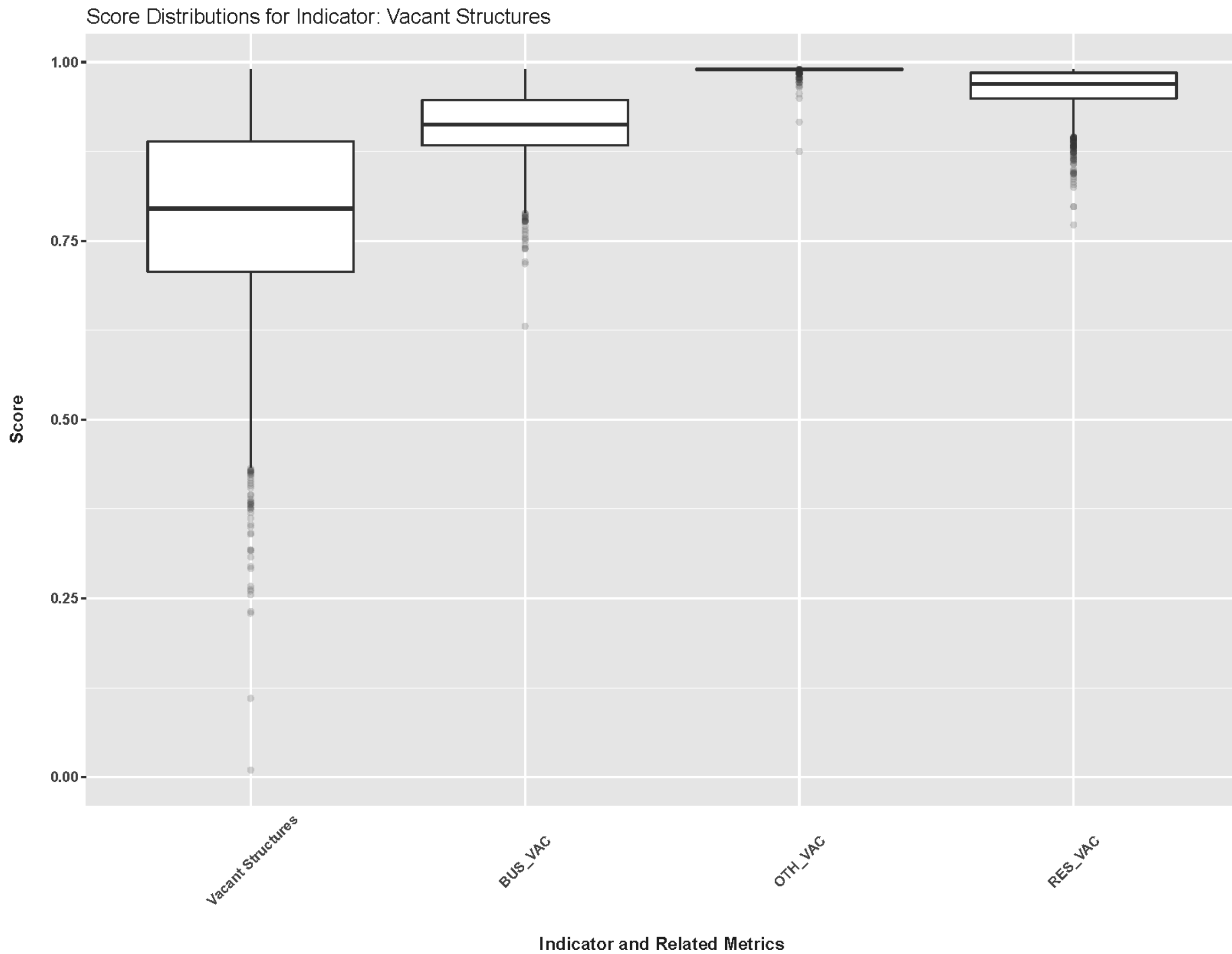
The vacant structures indicator includes the number of vacant business structures, residential and public-access buildings in the county (e.g., hospitals, schools, government buildings).

Metric List for Domain: Built Environment – Indicator: Transportation Infrastructure

Metric Variable: BUS_VAC
Source Measurement: Percent of vacant business structures
Years Available: 2008-2015
Smallest Geospatial Level Available: County
Calculation Method: Counts were calculated as the sum of the number of data records associated with each county divided by total structures.
Missing Data Handling: Zero fill
Data Source: United States Postal Service https://www.huduser.gov/portal/datasets/usps.html

Metric Variable: OTH_VAC
Source Measurement: Percent of vacant structures that are not identified as business or residential
Years Available: 2008-2015
Smallest Geospatial Level Available: County
Calculation Method: Counts were calculated as the sum of the number of data records associated with each county divided by total structures.
Missing Data Handling: Zero fill
Data Source: United States Postal Service https://www.huduser.gov/portal/datasets/usps.html

Metric Variable: RES_VAC
Source Measurement: Percent of vacant residential structures
Years Available: 2008-2015
Smallest Geospatial Level Available: County
Calculation Method: Counts were calculated as the sum of the number of data records associated with each county divided by total structures.
Missing Data Handling: Zero fill
Data Source: United States Postal Service https://www.huduser.gov/portal/datasets/usps.html


Score Distributions for Indicator: Vacant Structures
Score
1.00
0.75
0.50
0.25
0.00
Vacant Structures
BUS_VAC
OTH_VAC
RES_VAC
Indicator and Related Metrics

Domain: Natural Environment

Indicator: Extent of Ecosystem Types

The extent domain includes the spatial extent or acreage of each ecosystem type that occurs naturally without any significant human intervention.

Metric List for Domain: Natural Environment – Indicator: Extent of Ecosystem Types

Metric Variable: AGLAND
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent agriculture area calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD categories 81 (Pasture/Hay) and 82 (Cultivated Crops)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: CSTLWATR
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent Marine/Estuarine area calculated using county census tracts (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD category 11 (Open Water)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: FOREST
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent forested area calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD categories 41 (Deciduous Forest), 42 (Evergreen Forest), and 43 (Mixed Forest)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: FRSHWATR
Source Measurement: Percent
Years Available: 2011

Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent area of inland lakes/rivers/streams calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD category 11 (Open Water)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: GRASSLANDS
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent area of grasslands calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD category 71 (Grassland/Herbaceous)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

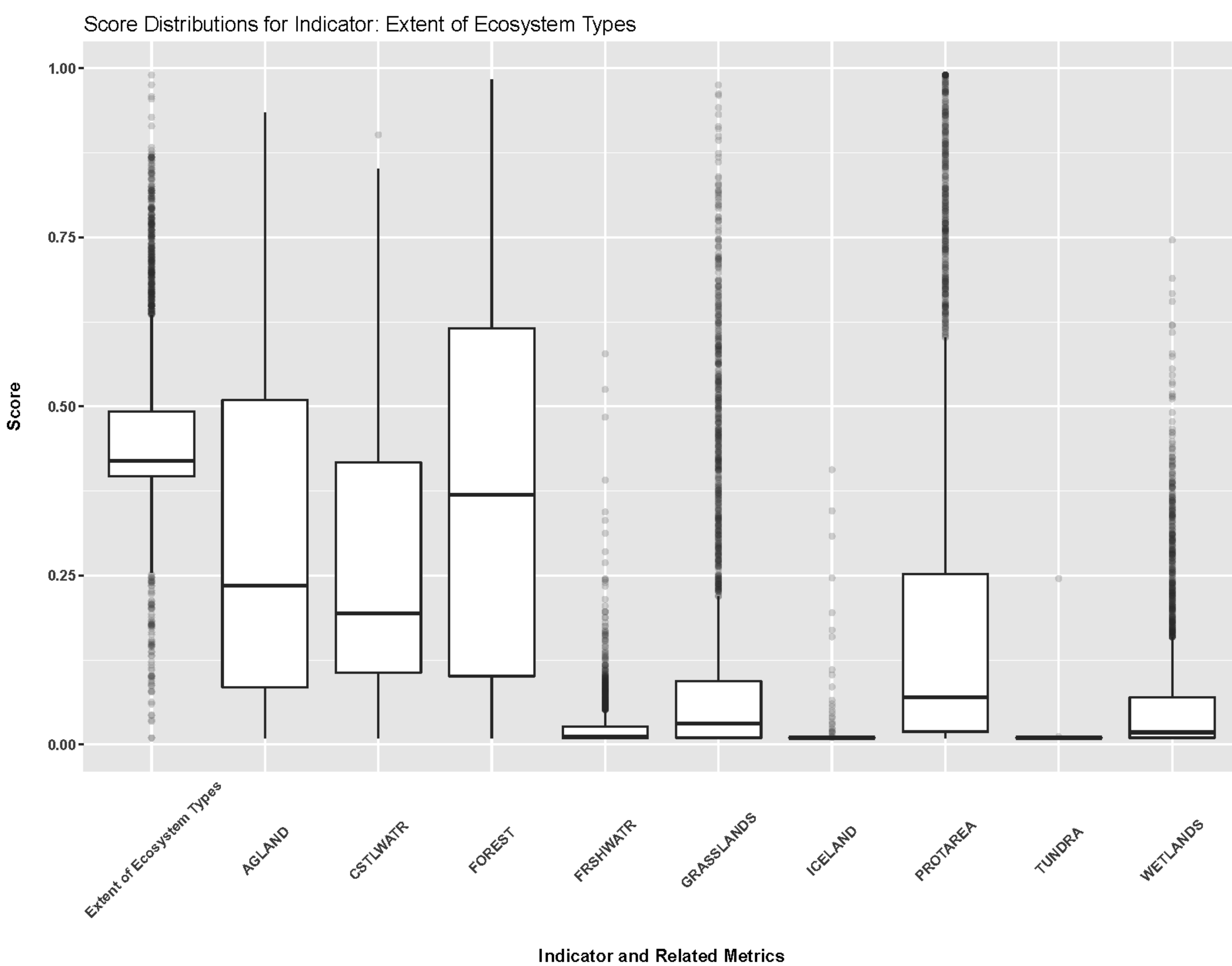
Metric Variable: ICELAND
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent area of ice/snow calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD category 12 (Perennial Ice/Snow)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: PROTAREA
Source Measurement: Percent
Years Available: 2016
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Calculated percent of area classified as conservation lands and preservations including marine protected areas, state recreational areas and urban greenspace using county boundaries (U.S. Census Bureau), ArcMap 10.4, and the Protected Areas Database of the United States (USGS)
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: TUNDRA
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL

Calculation Method: Percent area of tundra calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD categories 72 (Sedge/Herbaceous), 73 (Lichens), and 74(Moss). Alaska only
Data Source: Environmental protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.mrlc.gov/nlcd2011.php

Metric Variable: WETLANDS
Source Measurement: Percent
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Percent area of wetlands calculated using county boundaries (U.S. Census Bureau), ArcMap 10.4, and 2011 NLCD categories 90 (Woody Wetlands) and 95 (Emergent Herbaceous Wetlands)
Data Source: Environmental protection Agency
Derived Data : https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data : https://www.mrlc.gov/nlcd2011.php



Indicator: Condition

The condition indicator is related to metrics that describe the condition of various natural and managed ecosystems.

Metric List for Domain: Natural Environment – Indicator: Condition

Metric Variable: BIODIV
Source Measurement: Biodiversity based on avian taxa richness
Years Available: 2015
Smallest Geospatial Level Available: County
Calculation Method: N/A
Missing Data Handling: Null fill
Data Source: Jenkins, C.N., Van Houtan, K.S., Pimm, S.L., Sexton, J.O. 2015. U.S. protected lands mismatch biodiversity priorities. Proceedings of the National Academy of Sciences. 112(16): 5081-5086. http://biodiversitymapping.org/wordpress/index.php/home/

Metric Variable: CLEANAIR
Source Measurement: Percent
Years Available: 2016
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Sum of days AQI rated as Good and Moderate, divided by Total number of days with AQI data
Data Source: U.S. Environmental protection Agency
https://www.epa.gov/outdoor-air-quality-data/air-quality-index-report

Metric Variable: CSTLCOND
Source Measurement: Score
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: NA
Calculation Method: Great Lakes and near-coastal condition assessment score based on NARS costal data. Overall condition scores were calculated for each geo-referenced location as follows based on used for the national assessment (U.S. Environmental Protection Agency. Office of Water and Office of Research and Development. 2015. National Coastal Condition Assessment 2010 (EPA 841-R-15-006). Washington, DC. December 2015). Final scores averaged by summation of all sample points falling within county boundaries using census tracts (U.S. Census Bureau) and ArcMap 10.4
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.epa.gov/national-aquatic-resource-surveys

Metric Variable: LAKECOND
Source Measurement: Score
Years Available: 2011
Smallest Geospatial Level Available: County

Missing Data Handling: Interpolation
Calculation Method: Inland lakes condition assessment score based on NARS Lake data. Overall condition scores were calculated for each geo-referenced location as follows based on used for the national assessment (U.S. Environmental Protection Agency. 2009. National Lakes Assessment: A Collaborative Survey of the Nation's Lakes. EPA 841-R-09-001. U.S. Environmental Protection Agency, Office of Water and Office of Research and Development, Washington, D.C.). These values were standardized on a 0 – 1 scale, summed and re-graded based on actual score to highest possible score ratio. Final scores created by distance weighted average of all sample points falling within a 70-mile radius from county centroids using county boundaries (U.S. Census Bureau) and ArcMap 10.4
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.epa.gov/national-aquatic-resource-surveys

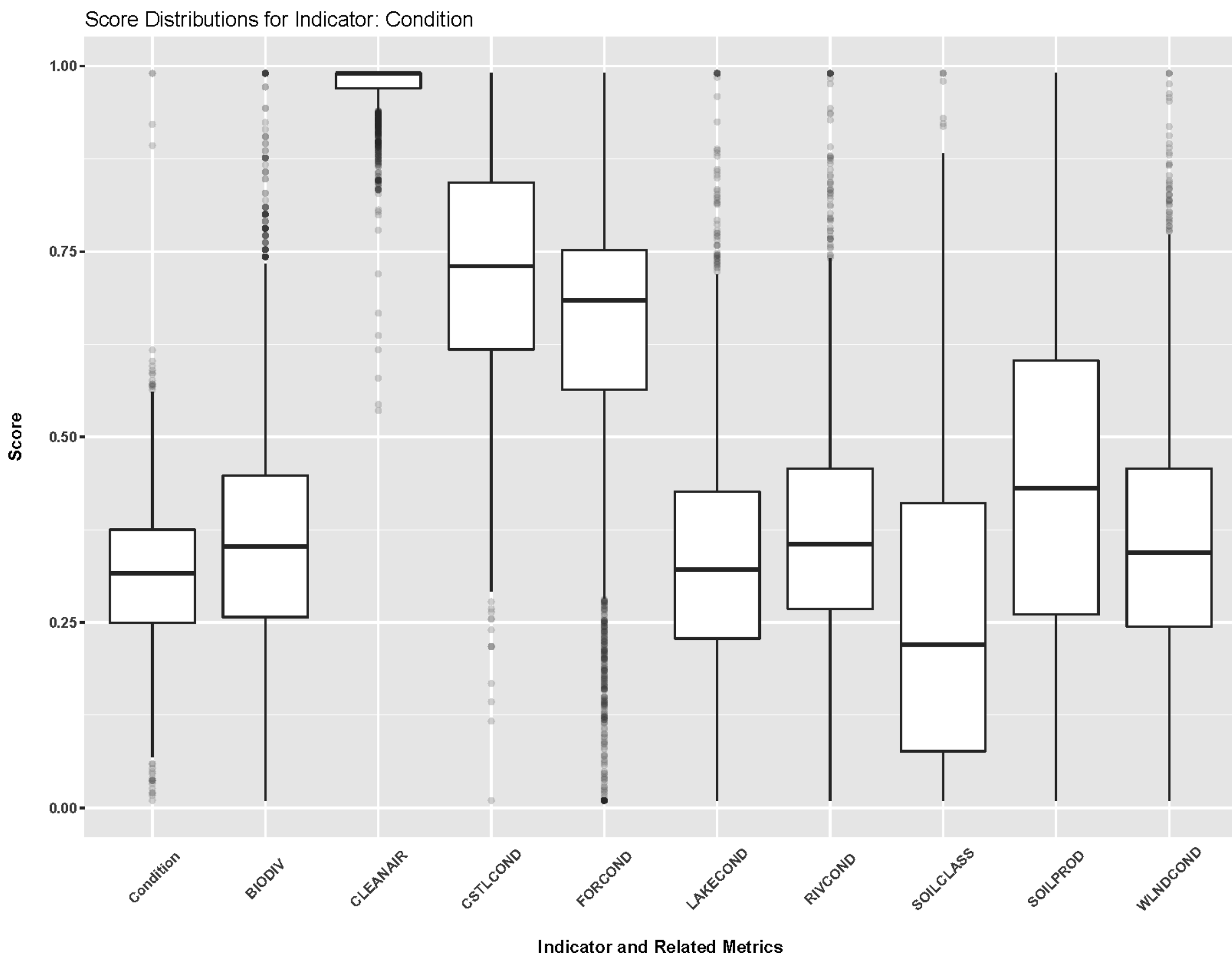
Metric Variable: RIVCOND
Source Measurement: Score
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: Interpolation
Calculation Method: Rivers and streams condition assessment score based on NARS Rivers and Streams data. Overall condition scores were calculated for each geo-referenced location as follows based on used for the national assessment (U.S. Environmental Protection Agency. Office of Water and Office of Research and Development. National Rivers and Streams Assessment 2008-2009: A Collaborative Survey. EPA/841/R-16/007. Washington, DC. March 2016). These values were standardized on a 0 – 1 scale, summed and re-graded based on actual score to highest possible score ratio. Final scores created by distance weighted average of all sample points falling within a 50-mile radius from county centroids using county boundaries (U.S. Census Bureau) and ArcMap 10.4
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.epa.gov/national-aquatic-resource-surveys

Metric Variable: WLNDCOND
Source Measurement: Score
Years Available: 2011
Smallest Geospatial Level Available: County
Missing Data Handling: Interpolation
Calculation Method: Wetlands condition assessment score based on NARS wetlands data. Overall condition scores were calculated for each geo-referenced location as follows based on used for the national assessment (U.S. Environmental Protection Agency. 2016. National Wetland Condition Assessment: Technical Report. EPA 843-R-15-006. U.S. EPA, Washington, DC). These values were standardized on a 0 – 1 scale, summed and re-graded based on actual score to highest possible score ratio. Final scores created by distance weighted average of all sample points falling within a 100-mile radius from county centroids using county boundaries (U.S. Census Bureau) and ArcMap 10.4
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.epa.gov/national-aquatic-resource-surveys

Metric Variable: FORCOND
Source Measurement: Score
Years Available: 2000 - 2015
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: Forest condition assessment score is a synthesized value created from four Forest Inventory and Analysis Database (FIAB). These are: stand age, basal area of live trees, and disturbance observations (last observation). These three metrics were consistently measures across all years of the assessment and more nationally complete. Disturbance codes were recoded into 3 sub-index values where no disturbance was graded best; pest, disease and anthropogenic disturbance graded most disturb; and remaining disturbance observations (e.g., wildfire, wildlife damage) was considered moderate disturbance. All values were standardized on a 0 – 1 scale, summed and re-graded based on actual score to highest possible score ratio.
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.fs.fed.us/

Metric Variable: SOILCLASS
Source Measurement: Percent of soil classified as suitable for farming
Years Available: 2016
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: The USDA cropland GIS layer and the classification field from the NCCPI dataset were used to calculate land-area weighted estimates. Census tract results were generated using ArcMAP 10.4. Results were summed to create a final county-level measure.
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/

Metric Variable: SOILPROD
Source Measurement: Average Soil Productivity Index Score
Years Available: 2016
Smallest Geospatial Level Available: County
Missing Data Handling: NULL
Calculation Method: The USDA cropland GIS layer and the productivity index field from the NCCPI dataset were used to calculate land-area weighted estimates. Census tract results were generated using ArcMAP 10.4. Results were averaged to create a final county-level measure.
Source: U.S. Environmental Protection Agency
Derived Data: https://edg.epa.gov/metadata/catalog/main/home.page
Raw Data: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/


Score Distributions for Indicator: Condition
Score
1.00
0.75
0.50
0.25
0.00
Condition
BIODIV
CLEANAIR
CSTLCOND
FORCOND
LAKECOND
RIVCOND
SOILCLASS
SOILPROD
WLNDCOND
Indicator and Related Metrics

7.2 APPENDIX B

CRSI and Domain Scores Arranged by EPA Region and State

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.240	0.896	0.492	0.445	0.599	10.697
1	Connecticut		0.395	0.874	0.520	0.398	0.547	3.702
1	Maine		0.115	0.923	0.499	0.484	0.565	17.971
1	Massachusetts		0.361	0.841	0.557	0.447	0.601	7.889
1	New Hampshire		0.229	0.893	0.519	0.421	0.596	9.154
1	Rhode Island		0.372	0.864	0.302	0.511	0.586	3.533
1	Vermont		0.135	0.945	0.450	0.417	0.671	12.848
EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.308	0.829	0.469	0.386	0.520	4.999
2	New Jersey		0.488	0.803	0.471	0.397	0.518	2.296
2	New York		0.248	0.838	0.469	0.382	0.521	5.914
EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.272	0.688	0.382	0.378	0.512	3.391
3	Delaware		0.474	0.725	0.586	0.547	0.472	3.495
3	District of		0.676	0.745	0.402	0.200	0.506	0.445
3	Maryland		0.366	0.741	0.494	0.463	0.518	4.506
3	Pennsylvania		0.257	0.783	0.481	0.383	0.503	5.311
3	Virginia		0.297	0.639	0.331	0.378	0.548	3.014
3	West Virginia		0.168	0.666	0.324	0.328	0.435	1.525

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.255	0.498	0.342	0.403	0.414	0.585
4	Alabama		0.296	0.387	0.408	0.397	0.385	0.501
4	Florida		0.312	0.467	0.485	0.426	0.434	2.236
4	Georgia		0.224	0.498	0.282	0.395	0.420	-0.266
4	Kentucky		0.200	0.591	0.255	0.371	0.388	-0.619
4	Mississippi		0.273	0.550	0.337	0.444	0.382	1.046
4	North Carolina		0.273	0.495	0.419	0.431	0.463	2.543
4	South Carolina		0.279	0.518	0.393	0.420	0.437	1.776
4	Tennessee		0.260	0.425	0.305	0.370	0.409	-0.612

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.222	0.713	0.407	0.434	0.572	6.021
5	Illinois		0.242	0.679	0.414	0.489	0.515	5.120
5	Indiana		0.219	0.679	0.360	0.452	0.570	5.757
5	Michigan		0.177	0.720	0.412	0.418	0.492	6.277
5	Minnesota		0.220	0.789	0.389	0.443	0.735	8.034
5	Ohio		0.246	0.667	0.421	0.352	0.514	3.451
5	Wisconsin		0.220	0.764	0.457	0.441	0.623	8.051

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.239	0.548	0.394	0.423	0.474	2.772
6	Arkansas	6	0.235	0.487	0.393	0.446	0.451	2.373
6	Louisiana	6	0.338	0.529	0.430	0.457	0.479	2.535
6	New Mexico	6	0.166	0.582	0.472	0.502	0.505	7.551
6	Oklahoma	6	0.244	0.611	0.384	0.401	0.530	3.075
6	Texas	6	0.223	0.547	0.377	0.404	0.459	2.236

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.209	0.597	0.358	0.380	0.609	4.113
7	Iowa		0.210	0.622	0.382	0.419	0.653	5.369
7	Kansas		0.195	0.604	0.332	0.369	0.651	4.155

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Missouri		0.206	0.536	0.399	0.389	0.530	3.912
7	Nebraska		0.226	0.638	0.311	0.340	0.613	2.979

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.162	0.557	0.398	0.396	0.617	6.086
8	Colorado		0.203	0.551	0.453	0.396	0.555	5.565
8	Montana		0.135	0.562	0.381	0.403	0.638	7.024
8	North Dakota		0.150	0.576	0.374	0.354	0.662	5.745
8	South Dakota		0.142	0.566	0.314	0.377	0.608	4.329
8	Utah		0.211	0.537	0.495	0.463	0.617	7.772
8	Wyoming		0.142	0.520	0.464	0.441	0.658	8.950

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.235	0.358	0.620	0.470	0.480	6.078
9	Arizona		0.183	0.436	0.710	0.410	0.458	8.129
9	California		0.279	0.299	0.641	0.462	0.485	4.765
9	Hawaii		0.092	0.552	0.570	0.479	0.589	14.926
9	Nevada		0.172	0.433	0.485	0.548	0.446	6.145

EPA REGION	State		Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		Regional Average	0.137	0.432	0.478	0.531	0.492	14.838
10	Alaska		0.038	0.500	0.475	0.627	0.479	56.177
10	Idaho		0.137	0.439	0.420	0.537	0.545	8.363
10	Oregon		0.149	0.387	0.499	0.517	0.465	6.705
10	Washington		0.182	0.427	0.524	0.485	0.465	6.331

7.3 APPENDIX C

CRSI and Domain Scores Arranged by EPA Region, State and County

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.240	0.896	0.492	0.445	0.599	10.697
1	Connecticut	Fairfield	0.508	0.866	0.675	0.346	0.494	2.923
1	Connecticut	Hartford	0.650	0.869	0.646	0.311	0.525	2.135
1	Connecticut	Litchfield	0.224	0.890	0.489	0.431	0.657	6.881
1	Connecticut	Middlesex	0.420	0.874	0.396	0.439	0.598	2.816
1	Connecticut	New Haven	0.491	0.863	0.659	0.403	0.499	3.243
1	Connecticut	New London	0.273	0.849	0.587	0.433	0.490	5.285
1	Connecticut	Tolland	0.306	0.892	0.341	0.403	0.551	2.855
1	Connecticut	Windham	0.289	0.887	0.370	0.420	0.561	3.483
1	Maine	Androscoggin	0.174	0.887	0.424	0.365	0.565	5.895
1	Maine	Aroostook	0.101	0.943	0.744	0.413	0.546	19.853
1	Maine	Cumberland	0.298	0.892	0.671	0.525	0.615	7.302
1	Maine	Franklin	0.094	0.934	0.490	0.421	0.502	13.434
1	Maine	Hancock	0.038	0.925	0.543	0.603	0.559	50.855
1	Maine	Kennebec	0.145	0.897	0.533	0.395	0.581	9.871
1	Maine	Knox	0.076	0.914	0.344	0.617	0.621	20.753
1	Maine	Lincoln	0.080	0.914	0.309	0.548	0.613	16.162
1	Maine	Oxford	0.116	0.936	0.505	0.388	0.505	10.568
1	Maine	Penobscot	0.104	0.923	0.786	0.390	0.565	19.975
1	Maine	Piscataquis	0.075	0.954	0.342	0.491	0.524	14.789
1	Maine	Sagadahoc	0.126	0.930	0.304	0.534	0.615	9.977
1	Maine	Somerset	0.081	0.917	0.542	0.463	0.523	18.903
1	Maine	Waldo	0.032	0.941	0.410	0.486	0.538	39.711
1	Maine	Washington	0.092	0.969	0.483	0.588	0.628	21.016
1	Maine	York	0.201	0.885	0.553	0.516	0.547	8.475
1	Massachusetts	Barnstable	0.197	0.850	0.585	0.591	0.580	10.134
1	Massachusetts	Berkshire	0.202	0.885	0.552	0.402	0.671	8.230
1	Massachusetts	Bristol	0.523	0.864	0.572	0.451	0.552	3.023

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
1	Massachusetts	Dukes	0.045	0.886	0.289	0.595	0.811	38.030
1	Massachusetts	Essex	0.537	0.884	0.671	0.487	0.565	3.685
1	Massachusetts	Franklin	0.147	0.901	0.542	0.419	0.707	11.983
1	Massachusetts	Hampden	0.576	0.862	0.649	0.340	0.517	2.506
1	Massachusetts	Hampshire	0.197	0.826	0.429	0.389	0.563	5.236
1	Massachusetts	Middlesex	0.591	0.872	0.819	0.259	0.585	3.115
1	Massachusetts	Nantucket	0.060	0.444	0.220	0.609	0.572	10.893
1	Massachusetts	Norfolk	0.497	0.864	0.633	0.387	0.618	3.457
1	Massachusetts	Plymouth	0.469	0.878	0.614	0.542	0.598	4.303
1	Massachusetts	Suffolk	0.465	0.875	0.417	0.426	0.465	2.037
1	Massachusetts	Worcester	0.550	0.886	0.804	0.359	0.604	3.813
1	New Hampshire	Belknap	0.151	0.883	0.350	0.385	0.621	6.505
1	New Hampshire	Carroll	0.169	0.870	0.441	0.445	0.599	7.792
1	New Hampshire	Cheshire	0.108	0.856	0.457	0.400	0.574	10.981
1	New Hampshire	Coos	0.112	0.922	0.536	0.549	0.640	17.434
1	New Hampshire	Grafton	0.129	0.905	0.785	0.468	0.571	17.559
1	New Hampshire	Hillsborough	0.461	0.900	0.631	0.334	0.574	3.327
1	New Hampshire	Merrimack	0.149	0.908	0.667	0.410	0.728	14.260
1	New Hampshire	Rockingham	0.555	0.888	0.578	0.420	0.554	2.788
1	New Hampshire	Strafford	0.338	0.877	0.380	0.419	0.505	2.697
1	New Hampshire	Sullivan	0.120	0.920	0.363	0.379	0.594	8.200
1	Rhode Island	Bristol	0.385	0.869	0.110	0.531	0.584	1.601
1	Rhode Island	Kent	0.510	0.862	0.240	0.443	0.605	1.529
1	Rhode Island	Newport	0.207	0.854	0.232	0.643	0.551	5.483
1	Rhode Island	Providence	0.510	0.863	0.535	0.326	0.551	2.298
1	Rhode Island	Washington	0.248	0.874	0.391	0.614	0.637	6.756
1	Vermont	Addison	0.089	0.989	0.473	0.490	0.712	20.832
1	Vermont	Bennington	0.154	0.933	0.435	0.469	0.613	9.414
1	Vermont	Caledonia	0.115	0.942	0.401	0.396	0.815	13.744

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
1	Vermont	Chittenden	0.261	0.912	0.661	0.387	0.604	6.946
1	Vermont	Franklin	0.242	0.923	0.427	0.386	0.651	5.319
1	Vermont	Grand Isle	0.063	0.985	0.334	0.365	0.714	18.709
1	Vermont	Lamoille	0.080	0.922	0.389	0.438	0.665	16.702
1	Vermont	Orange	0.140	0.961	0.400	0.351	0.689	8.895
1	Vermont	Orleans	0.185	0.957	0.436	0.439	0.793	9.509
1	Vermont	Rutland	0.090	0.929	0.520	0.441	0.662	18.980
1	Vermont	Washington	0.110	0.937	0.469	0.381	0.720	13.996
1	Vermont	Windham	0.104	0.932	0.467	0.364	0.638	12.735
1	Vermont	Windsor	0.188	0.915	0.558	0.367	0.651	8.435

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.308	0.829	0.469	0.386	0.520	4.999
2	New Jersey	Atlantic	0.477	0.770	0.520	0.507	0.431	2.617
2	New Jersey	Bergen	0.582	0.804	0.464	0.202	0.586	1.184
2	New Jersey	Burlington	0.538	0.812	0.567	0.558	0.547	3.290
2	New Jersey	Camden	0.532	0.795	0.444	0.296	0.506	1.315
2	New Jersey	Cape May	0.382	0.755	0.401	0.565	0.462	2.934
2	New Jersey	Cumberland	0.313	0.794	0.437	0.549	0.444	3.780
2	New Jersey	Essex	0.519	0.791	0.467	0.100	0.531	0.628
2	New Jersey	Gloucester	0.553	0.806	0.453	0.379	0.489	1.638
2	New Jersey	Hudson	0.525	0.797	0.402	0.233	0.465	0.679
2	New Jersey	Hunterdon	0.386	0.839	0.512	0.480	0.598	4.034
2	New Jersey	Mercer	0.496	0.797	0.448	0.362	0.492	1.708
2	New Jersey	Middlesex	0.522	0.785	0.601	0.253	0.561	2.125
2	New Jersey	Monmouth	0.728	0.784	0.615	0.485	0.534	2.282
2	New Jersey	Morris	0.511	0.826	0.524	0.449	0.595	2.929
2	New Jersey	Ocean	0.806	0.781	0.596	0.546	0.448	1.974
2	New Jersey	Passaic	0.494	0.816	0.384	0.432	0.522	1.877
2	New Jersey	Salem	0.209	0.816	0.338	0.503	0.459	4.096
2	New Jersey	Somerset	0.585	0.815	0.486	0.339	0.573	1.829
2	New Jersey	Sussex	0.406	0.860	0.405	0.468	0.563	2.945
2	New Jersey	Union	0.337	0.777	0.388	0.129	0.561	0.685
2	New Jersey	Warren	0.339	0.850	0.441	0.493	0.513	3.671
2	New York	Albany	0.455	0.807	0.542	0.343	0.639	2.973
2	New York	Allegany	0.118	0.871	0.482	0.343	0.385	6.393
2	New York	Bronx	0.529	0.785	0.297	0.203	0.409	-0.225
2	New York	Broome	0.381	0.822	0.505	0.335	0.497	2.543
2	New York	Cattaraugus	0.186	0.856	0.560	0.460	0.421	7.030
2	New York	Cayuga	0.139	0.878	0.464	0.368	0.571	8.215

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
2	New York	Chautauqua	0.152	0.834	0.567	0.399	0.414	7.490
2	New York	Chemung	0.204	0.829	0.339	0.304	0.472	2.002
2	New York	Chenango	0.160	0.867	0.393	0.362	0.474	4.597
2	New York	Clinton	0.154	0.837	0.587	0.412	0.534	9.484
2	New York	Columbia	0.155	0.829	0.412	0.387	0.603	6.865
2	New York	Cortland	0.146	0.863	0.331	0.341	0.527	4.245
2	New York	Delaware	0.210	0.836	0.519	0.375	0.485	5.207
2	New York	Dutchess	0.521	0.823	0.612	0.366	0.587	2.895
2	New York	Erie	0.463	0.810	0.713	0.296	0.550	3.278
2	New York	Essex	0.126	0.850	0.530	0.493	0.561	12.497
2	New York	Franklin	0.138	0.853	0.440	0.560	0.531	10.467
2	New York	Fulton	0.140	0.813	0.282	0.406	0.464	3.386
2	New York	Genesee	0.205	0.864	0.377	0.393	0.544	4.406
2	New York	Greene	0.188	0.830	0.465	0.356	0.495	4.869
2	New York	Hamilton	0.062	0.937	0.354	0.565	0.556	22.062
2	New York	Herkimer	0.112	0.850	0.503	0.490	0.422	10.901
2	New York	Jefferson	0.147	0.856	0.672	0.446	0.485	11.523
2	New York	Kings	0.366	0.768	0.310	0.330	0.502	1.065
2	New York	Lewis	0.095	0.901	0.463	0.456	0.516	13.405
2	New York	Livingston	0.116	0.869	0.480	0.449	0.539	11.341
2	New York	Madison	0.144	0.853	0.420	0.403	0.538	7.063
2	New York	Monroe	0.375	0.832	0.623	0.364	0.519	3.765
2	New York	Montgomery	0.143	0.856	0.260	0.322	0.492	2.146
2	New York	Nassau	0.351	0.772	0.564	0.342	0.703	4.263
2	New York	New York	0.569	0.756	0.376	0.259	0.460	0.523
2	New York	Niagara	0.279	0.822	0.432	0.425	0.481	3.453
2	New York	Oneida	0.235	0.820	0.676	0.398	0.525	6.946
2	New York	Onondaga	0.458	0.831	0.590	0.353	0.567	3.025
2	New York	Ontario	0.159	0.855	0.528	0.413	0.555	8.615

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
2	New York	Orange	0.520	0.828	0.704	0.362	0.591	3.379
2	New York	Orleans	0.162	0.858	0.325	0.431	0.443	4.025
2	New York	Oswego	0.166	0.852	0.565	0.330	0.389	5.619
2	New York	Otsego	0.149	0.857	0.441	0.337	0.528	6.022
2	New York	Putnam	0.411	0.825	0.403	0.463	0.633	3.106
2	New York	Queens	0.336	0.764	0.467	0.318	0.578	2.750
2	New York	Rensselaer	0.371	0.838	0.478	0.359	0.531	2.802
2	New York	Richmond	0.508	0.789	0.314	0.431	0.579	1.620
2	New York	Rockland	0.556	0.811	0.345	0.340	0.618	1.402
2	New York	Saratoga	0.473	0.836	0.535	0.355	0.566	2.631
2	New York	Schenectady	0.390	0.820	0.218	0.274	0.528	0.282
2	New York	Schoharie	0.077	0.887	0.320	0.310	0.525	6.912
2	New York	Schuyler	0.099	0.872	0.312	0.394	0.545	7.514
2	New York	Seneca	0.134	0.879	0.328	0.427	0.492	5.743
2	New York	St. Lawrence	0.117	0.857	0.691	0.508	0.453	15.680
2	New York	Steuben	0.105	0.862	0.707	0.353	0.445	14.118
2	New York	Suffolk	0.383	0.787	0.738	0.512	0.683	6.145
2	New York	Sullivan	0.183	0.815	0.553	0.361	0.512	6.476
2	New York	Tioga	0.266	0.836	0.343	0.321	0.450	1.596
2	New York	Tompkins	0.111	0.823	0.457	0.343	0.459	7.105
2	New York	Ulster	0.219	0.824	0.636	0.455	0.542	7.770
2	New York	Warren	0.139	0.847	0.435	0.439	0.599	9.113
2	New York	Washington	0.147	0.863	0.408	0.365	0.484	5.411
2	New York	Wayne	0.132	0.847	0.403	0.365	0.466	5.586
2	New York	Westchester	0.591	0.802	0.544	0.310	0.589	1.979
2	New York	Wyoming	0.122	0.882	0.406	0.353	0.504	6.711
2	New York	Yates	0.110	0.860	0.322	0.376	0.542	6.465

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.272	0.688	0.382	0.378	0.512	3.391
3	Delaware	Kent	0.434	0.747	0.566	0.609	0.463	3.832
3	Delaware	New Castle	0.609	0.745	0.546	0.437	0.520	2.127
3	Delaware	Sussex	0.380	0.682	0.646	0.596	0.434	4.527
3	District of Columbia	District of Columbia	0.676	0.745	0.402	0.200	0.506	0.445
3	Maryland	Allegany	0.277	0.716	0.421	0.429	0.441	2.728
3	Maryland	Anne Arundel	0.675	0.760	0.539	0.446	0.553	2.044
3	Maryland	Baltimore	0.594	0.706	0.393	0.156	0.381	-0.192
3	Maryland	Baltimore	0.494	0.719	0.567	0.363	0.585	2.576
3	Maryland	Calvert	0.317	0.786	0.440	0.472	0.541	3.734
3	Maryland	Caroline	0.155	0.766	0.389	0.568	0.494	7.527
3	Maryland	Carroll	0.296	0.776	0.501	0.429	0.620	4.672
3	Maryland	Cecil	0.432	0.696	0.522	0.483	0.398	2.445
3	Maryland	Charles	0.484	0.788	0.562	0.524	0.565	3.483
3	Maryland	Dorchester	0.172	0.779	0.373	0.601	0.447	6.557
3	Maryland	Frederick	0.529	0.778	0.632	0.373	0.603	2.954
3	Maryland	Garrett	0.140	0.737	0.583	0.409	0.497	9.092
3	Maryland	Harford	0.465	0.726	0.513	0.485	0.531	2.856
3	Maryland	Howard	0.565	0.768	0.399	0.355	0.627	1.652
3	Maryland	Kent	0.190	0.717	0.428	0.555	0.492	6.265
3	Maryland	Montgomery	0.590	0.757	0.530	0.344	0.569	1.920
3	Maryland	Prince George's	0.704	0.768	0.565	0.368	0.610	1.961
3	Maryland	Queen Anne's	0.173	0.769	0.531	0.529	0.581	9.384
3	Maryland	Somerset	0.124	0.715	0.407	0.609	0.390	8.549
3	Maryland	St. Mary's	0.303	0.760	0.521	0.547	0.483	4.759
3	Maryland	Talbot	0.197	0.746	0.422	0.555	0.570	6.858
3	Maryland	Washington	0.470	0.709	0.549	0.419	0.497	2.505

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
3	Maryland	Wicomico	0.281	0.672	0.498	0.505	0.506	4.384
3	Maryland	Worcester	0.160	0.657	0.559	0.598	0.453	9.433
3	Pennsylvania	Adams	0.262	0.768	0.530	0.382	0.508	4.269
3	Pennsylvania	Allegheny	0.705	0.721	0.706	0.151	0.529	1.435
3	Pennsylvania	Armstrong	0.188	0.789	0.487	0.295	0.480	4.018
3	Pennsylvania	Beaver	0.360	0.757	0.430	0.290	0.497	1.646
3	Pennsylvania	Bedford	0.099	0.799	0.438	0.410	0.511	9.927
3	Pennsylvania	Berks	0.367	0.759	0.666	0.365	0.513	3.919
3	Pennsylvania	Blair	0.231	0.716	0.509	0.437	0.537	5.196
3	Pennsylvania	Bradford	0.129	0.831	0.512	0.349	0.473	7.642
3	Pennsylvania	Bucks	0.521	0.752	0.724	0.318	0.634	3.280
3	Pennsylvania	Butler	0.413	0.763	0.476	0.320	0.587	2.350
3	Pennsylvania	Cambria	0.165	0.785	0.580	0.388	0.587	8.685
3	Pennsylvania	Cameron	0.107	0.882	0.214	0.584	0.467	7.528
3	Pennsylvania	Carbon	0.164	0.770	0.401	0.416	0.515	5.320
3	Pennsylvania	Centre	0.201	0.740	0.612	0.430	0.497	6.987
3	Pennsylvania	Chester	0.480	0.753	0.601	0.409	0.544	2.973
3	Pennsylvania	Clarion	0.126	0.810	0.412	0.409	0.553	7.925
3	Pennsylvania	Clearfield	0.142	0.780	0.542	0.383	0.495	8.041
3	Pennsylvania	Clinton	0.132	0.856	0.478	0.518	0.491	10.353
3	Pennsylvania	Columbia	0.193	0.808	0.398	0.375	0.491	3.917
3	Pennsylvania	Crawford	0.173	0.814	0.461	0.443	0.462	6.000
3	Pennsylvania	Cumberland	0.508	0.752	0.533	0.370	0.549	2.286
3	Pennsylvania	Dauphin	0.534	0.759	0.524	0.370	0.558	2.171
3	Pennsylvania	Delaware	0.485	0.721	0.388	0.252	0.526	0.844
3	Pennsylvania	Elk	0.110	0.745	0.354	0.572	0.562	10.912
3	Pennsylvania	Erie	0.303	0.754	0.596	0.351	0.504	3.944
3	Pennsylvania	Fayette	0.226	0.703	0.532	0.352	0.445	3.795
3	Pennsylvania	Forest	0.097	0.832	0.263	0.590	0.369	7.325

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
3	Pennsylvania	Franklin	0.303	0.710	0.575	0.396	0.505	3.987
3	Pennsylvania	Fulton	0.090	0.813	0.357	0.394	0.427	6.388
3	Pennsylvania	Greene	0.144	0.794	0.409	0.290	0.386	2.462
3	Pennsylvania	Huntingdon	0.102	0.847	0.478	0.486	0.525	13.197
3	Pennsylvania	Indiana	0.180	0.766	0.565	0.323	0.386	4.578
3	Pennsylvania	Jefferson	0.156	0.819	0.427	0.403	0.512	6.120
3	Pennsylvania	Juniata	0.144	0.823	0.365	0.431	0.525	6.159
3	Pennsylvania	Lackawanna	0.418	0.762	0.439	0.359	0.546	2.122
3	Pennsylvania	Lancaster	0.389	0.722	0.741	0.391	0.578	4.604
3	Pennsylvania	Lawrence	0.225	0.773	0.283	0.346	0.553	2.062
3	Pennsylvania	Lebanon	0.402	0.725	0.380	0.391	0.550	1.941
3	Pennsylvania	Lehigh	0.505	0.746	0.556	0.316	0.513	2.006
3	Pennsylvania	Luzerne	0.405	0.755	0.650	0.378	0.522	3.559
3	Pennsylvania	Lycoming	0.167	0.820	0.599	0.453	0.524	9.376
3	Pennsylvania	McKean	0.213	0.788	0.327	0.453	0.439	2.982
3	Pennsylvania	Mercer	0.238	0.786	0.448	0.389	0.521	4.025
3	Pennsylvania	Mifflin	0.161	0.747	0.332	0.466	0.512	4.842
3	Pennsylvania	Monroe	0.307	0.767	0.492	0.398	0.422	2.891
3	Pennsylvania	Montgomery	0.521	0.762	0.631	0.220	0.604	2.244
3	Pennsylvania	Montour	0.157	0.784	0.324	0.358	0.481	2.990
3	Pennsylvania	Northampton	0.500	0.754	0.522	0.320	0.509	1.865
3	Pennsylvania	Northumberland	0.189	0.758	0.418	0.348	0.475	3.492
3	Pennsylvania	Perry	0.096	0.846	0.420	0.418	0.595	12.109
3	Pennsylvania	Philadelphia	0.507	0.703	0.530	0.063	0.403	0.120
3	Pennsylvania	Pike	0.189	0.797	0.402	0.464	0.355	3.738
3	Pennsylvania	Potter	0.091	0.913	0.427	0.440	0.454	11.271
3	Pennsylvania	Schuylkill	0.244	0.766	0.617	0.365	0.508	5.370
3	Pennsylvania	Snyder	0.150	0.829	0.414	0.385	0.476	5.436
3	Pennsylvania	Somerset	0.124	0.781	0.638	0.374	0.493	11.050

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
3	Pennsylvania	Sullivan	0.102	0.924	0.349	0.413	0.470	7.803
3	Pennsylvania	Susquehanna	0.116	0.845	0.458	0.384	0.461	7.885
3	Pennsylvania	Tioga	0.087	0.858	0.558	0.383	0.427	12.958
3	Pennsylvania	Union	0.162	0.798	0.374	0.444	0.516	5.552
3	Pennsylvania	Venango	0.155	0.789	0.381	0.473	0.486	5.964
3	Pennsylvania	Warren	0.084	0.801	0.361	0.490	0.444	10.023
3	Pennsylvania	Washington	0.341	0.754	0.544	0.277	0.548	2.825
3	Pennsylvania	Wayne	0.152	0.809	0.486	0.393	0.588	8.086
3	Pennsylvania	Westmoreland	0.546	0.712	0.506	0.303	0.588	1.761
3	Pennsylvania	Wyoming	0.206	0.874	0.426	0.391	0.501	4.641
3	Pennsylvania	York	0.507	0.749	0.666	0.340	0.502	2.655
3	Virginia	Accomack	0.162	0.687	0.504	0.650	0.534	10.342
3	Virginia	Albemarle	0.263	0.721	0.563	0.398	0.540	4.788
3	Virginia	Alexandria	0.607	0.742	0.255	0.117	0.495	-0.522
3	Virginia	Alleghany	0.198	0.618	0.349	0.451	0.657	4.785
3	Virginia	Amelia	0.111	0.720	0.331	0.445	0.651	8.800
3	Virginia	Amherst	0.256	0.664	0.447	0.418	0.602	4.163
3	Virginia	Appomattox	0.132	0.688	0.343	0.433	0.628	6.823
3	Virginia	Arlington	0.538	0.738	0.257	0.118	0.491	-0.600
3	Virginia	Augusta	0.208	0.584	0.558	0.498	0.574	6.847
3	Virginia	Bath	0.181	0.573	0.357	0.550	0.726	7.178
3	Virginia	Bedford	0.234	0.309	0.541	0.384	0.601	3.741
3	Virginia	Bland	0.082	0.404	0.291	0.480	0.485	3.793
3	Virginia	Botetourt	0.224	0.315	0.480	0.361	0.756	4.322
3	Virginia	Bristol	0.546	0.276	0.119	0.159	0.546	-1.727
3	Virginia	Brunswick	0.115	0.640	0.361	0.427	0.532	6.082
3	Virginia	Buchanan	0.150	0.532	0.402	0.265	0.394	0.180
3	Virginia	Buckingham	0.170	0.708	0.360	0.391	0.502	3.616
3	Virginia	Buena Vista	0.395	0.617	0.095	0.250	0.424	-1.733

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
3	Virginia	Campbell	0.203	0.580	0.451	0.340	0.652	4.431
3	Virginia	Caroline	0.131	0.765	0.474	0.487	0.503	9.244
3	Virginia	Carroll	0.140	0.456	0.396	0.312	0.504	1.941
3	Virginia	Charles City	0.101	0.839	0.329	0.520	0.524	10.148
3	Virginia	Charlotte	0.079	0.585	0.341	0.362	0.593	6.928
3	Virginia	Charlottesville	0.515	0.699	0.164	0.026	0.539	-1.437
3	Virginia	Chesapeake	0.714	0.688	0.398	0.481	0.544	1.398
3	Virginia	Chesterfield	0.626	0.728	0.510	0.407	0.581	1.964
3	Virginia	Clarke	0.106	0.778	0.320	0.389	0.646	8.111
3	Virginia	Colonial Heights	0.655	0.703	0.158	0.169	0.593	-0.455
3	Virginia	Covington	0.309	0.597	0.010	0.207	0.590	-2.296
3	Virginia	Craig	0.159	0.542	0.258	0.502	0.555	3.492
3	Virginia	Culpeper	0.282	0.777	0.372	0.393	0.656	3.624
3	Virginia	Cumberland	0.096	0.721	0.323	0.471	0.538	8.277
3	Virginia	Danville	0.458	0.555	0.040	0.192	0.416	-2.300
3	Virginia	Dickenson	0.129	0.531	0.369	0.437	0.434	3.432
3	Virginia	Dinwiddie	0.149	0.664	0.392	0.479	0.531	6.250
3	Virginia	Emporia	0.528	0.623	0.146	0.265	0.463	-0.810
3	Virginia	Essex	0.216	0.729	0.343	0.508	0.684	5.729
3	Virginia	Fairfax	0.485	0.779	0.175	0.148	0.842	0.541
3	Virginia	Fairfax	0.569	0.755	0.474	0.308	0.557	1.529
3	Virginia	Falls Church	0.320	0.973	0.152	0.225	0.766	1.369
3	Virginia	Fauquier	0.243	0.780	0.546	0.436	0.678	6.738
3	Virginia	Floyd	0.128	0.447	0.336	0.285	0.552	0.985
3	Virginia	Fluvanna	0.158	0.749	0.397	0.359	0.511	4.382
3	Virginia	Franklin	0.331	0.709	0.146	0.330	0.399	-0.928
3	Virginia	Franklin	0.194	0.491	0.422	0.325	0.514	2.182
3	Virginia	Frederick	0.487	0.727	0.451	0.308	0.522	1.460
3	Virginia	Fredericksburg	0.476	0.764	0.144	0.176	0.578	-0.603

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
3	Virginia	Galax	0.272	0.518	0.114	0.193	0.391	-3.439
3	Virginia	Giles	0.113	0.455	0.342	0.485	0.576	6.128
3	Virginia	Gloucester	0.273	0.754	0.347	0.582	0.678	5.282
3	Virginia	Goochland	0.215	0.757	0.422	0.350	0.525	3.597
3	Virginia	Grayson	0.124	0.310	0.363	0.365	0.463	0.688
3	Virginia	Greene	0.155	0.764	0.340	0.378	0.536	4.227
3	Virginia	Greensville	0.122	0.603	0.333	0.436	0.251	0.445
3	Virginia	Halifax	0.154	0.586	0.402	0.361	0.504	3.468
3	Virginia	Hampton	0.576	0.722	0.285	0.570	0.483	1.446
3	Virginia	Hanover	0.399	0.743	0.474	0.376	0.677	3.164
3	Virginia	Harrisonburg	0.391	0.878	0.266	0.142	0.448	-0.476
3	Virginia	Henrico	0.656	0.727	0.374	0.319	0.588	1.009
3	Virginia	Henry	0.370	0.485	0.369	0.325	0.452	0.421
3	Virginia	Highland	0.113	0.623	0.266	0.507	0.695	8.343
3	Virginia	Hopewell	0.561	0.686	0.136	0.240	0.462	-0.813
3	Virginia	Isle of Wight	0.348	0.710	0.390	0.487	0.585	3.149
3	Virginia	James City	0.519	0.706	0.327	0.546	0.539	1.888
3	Virginia	King and Queen	0.107	0.738	0.306	0.551	0.569	9.638
3	Virginia	King George	0.252	0.774	0.418	0.478	0.464	3.861
3	Virginia	King William	0.105	0.764	0.397	0.541	0.648	13.526
3	Virginia	Lancaster	0.301	0.719	0.322	0.597	0.711	4.793
3	Virginia	Lee	0.141	0.339	0.370	0.338	0.418	-0.164
3	Virginia	Lexington	0.240	0.621	0.067	0.078	0.681	-2.798
3	Virginia	Loudoun	0.704	0.791	0.517	0.365	0.618	1.821
3	Virginia	Louisa	0.156	0.752	0.476	0.366	0.501	5.777
3	Virginia	Lunenburg	0.113	0.663	0.282	0.420	0.533	4.363
3	Virginia	Lynchburg	0.507	0.693	0.227	0.134	0.436	-1.017
3	Virginia	Madison	0.136	0.571	0.350	0.451	0.657	6.658
3	Virginia	Manassas	0.435	0.749	0.236	0.115	0.712	0.139

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
3	Virginia	Manassas Park	0.395	0.777	0.147	0.108	0.584	-1.061
3	Virginia	Martinsville	0.460	0.505	0.055	0.160	0.519	-2.032
3	Virginia	Mathews	0.232	0.698	0.264	0.735	0.702	6.852
3	Virginia	Mecklenburg	0.116	0.608	0.410	0.411	0.597	7.637
3	Virginia	Middlesex	0.253	0.727	0.317	0.631	0.632	5.394
3	Virginia	Montgomery	0.288	0.472	0.443	0.390	0.487	1.966
3	Virginia	Nelson	0.150	0.492	0.417	0.375	0.485	3.184
3	Virginia	New Kent	0.164	0.751	0.422	0.499	0.622	8.082
3	Virginia	Newport News	0.558	0.708	0.311	0.556	0.461	1.445
3	Virginia	Norfolk	0.523	0.725	0.294	0.386	0.433	0.587
3	Virginia	Northampton	0.209	0.693	0.335	0.673	0.561	6.402
3	Virginia	Northumberland	0.214	0.711	0.355	0.557	0.612	5.744
3	Virginia	Norton	0.551	0.334	0.026	0.240	0.526	-1.771
3	Virginia	Nottoway	0.128	0.669	0.298	0.431	0.530	4.409
3	Virginia	Orange	0.158	0.773	0.393	0.392	0.502	4.864
3	Virginia	Page	0.125	0.619	0.399	0.505	0.589	8.646
3	Virginia	Patrick	0.156	0.448	0.369	0.309	0.522	1.382
3	Virginia	Petersburg	0.517	0.668	0.177	0.296	0.417	-0.603
3	Virginia	Pittsylvania	0.198	0.569	0.540	0.421	0.530	5.472
3	Virginia	Poquoson	0.253	0.742	0.165	0.596	0.527	2.687
3	Virginia	Portsmouth	0.668	0.719	0.238	0.271	0.487	-0.036
3	Virginia	Powhatan	0.140	0.761	0.390	0.461	0.650	8.661
3	Virginia	Prince Edward	0.109	0.642	0.363	0.391	0.562	6.191
3	Virginia	Prince George	0.319	0.700	0.445	0.554	0.482	3.739
3	Virginia	Prince William	0.600	0.789	0.472	0.345	0.597	1.781
3	Virginia	Pulaski	0.189	0.451	0.369	0.401	0.518	2.308
3	Virginia	Radford	0.331	0.516	0.133	0.266	0.334	-2.477
3	Virginia	Rappahannock	0.132	0.656	0.346	0.439	0.561	5.738
3	Virginia	Richmond	0.551	0.720	0.245	0.105	0.463	-0.836

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3	Virginia	Richmond	0.238	0.687	0.341	0.489	0.550	3.686
3	Virginia	Roanoke	0.460	0.508	0.210	0.104	0.536	-1.358
3	Virginia	Roanoke	0.468	0.508	0.376	0.308	0.600	0.955
3	Virginia	Rockbridge	0.158	0.415	0.446	0.444	0.572	5.193
3	Virginia	Rockingham	0.216	0.687	0.616	0.454	0.555	7.109
3	Virginia	Russell	0.124	0.271	0.398	0.368	0.438	0.780
3	Virginia	Salem	0.451	0.483	0.146	0.116	0.598	-1.485
3	Virginia	Scott	0.139	0.332	0.381	0.346	0.400	-0.134
3	Virginia	Shenandoah	0.196	0.714	0.456	0.394	0.599	5.493
3	Virginia	Smyth	0.159	0.293	0.387	0.461	0.544	3.303
3	Virginia	Southampton	0.110	0.679	0.432	0.474	0.568	10.123
3	Virginia	Spotsylvania	0.517	0.769	0.382	0.377	0.539	1.493
3	Virginia	Stafford	0.554	0.795	0.393	0.439	0.564	1.857
3	Virginia	Staunton	0.356	0.839	0.156	0.260	0.569	0.030
3	Virginia	Suffolk	0.557	0.725	0.494	0.454	0.489	2.013
3	Virginia	Surry	0.242	0.726	0.305	0.504	0.494	3.091
3	Virginia	Sussex	0.110	0.648	0.355	0.476	0.496	6.708
3	Virginia	Tazewell	0.164	0.388	0.409	0.324	0.457	1.061
3	Virginia	Virginia Beach	0.468	0.687	0.377	0.520	0.509	2.070
3	Virginia	Warren	0.363	0.771	0.333	0.354	0.577	1.818
3	Virginia	Washington	0.277	0.290	0.443	0.422	0.475	1.589
3	Virginia	Waynesboro	0.456	0.722	0.133	0.175	0.514	-1.059
3	Virginia	Westmoreland	0.251	0.714	0.297	0.463	0.651	3.676
3	Virginia	Williamsburg	0.387	0.840	0.218	0.365	0.491	0.733
3	Virginia	Winchester	0.383	0.839	0.148	0.076	0.555	-1.281
3	Virginia	Wise	0.161	0.426	0.419	0.351	0.415	1.377
3	Virginia	Wythe	0.153	0.404	0.375	0.431	0.580	3.959
3	Virginia	York	0.590	0.727	0.326	0.679	0.595	2.428
3	West Virginia	Barbour	0.090	0.708	0.327	0.293	0.445	1.920

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3	West Virginia	Berkeley	0.482	0.685	0.349	0.353	0.431	0.683
3	West Virginia	Boone	0.127	0.689	0.276	0.276	0.436	-0.306
3	West Virginia	Braxton	0.075	0.691	0.337	0.435	0.442	7.018
3	West Virginia	Brooke	0.373	0.727	0.251	0.235	0.380	-0.757
3	West Virginia	Cabell	0.243	0.699	0.295	0.323	0.449	0.666
3	West Virginia	Calhoun	0.135	0.676	0.267	0.305	0.370	-0.997
3	West Virginia	Clay	0.119	0.643	0.292	0.345	0.301	-1.175
3	West Virginia	Doddridge	0.091	0.718	0.206	0.302	0.438	-1.444
3	West Virginia	Fayette	0.112	0.624	0.461	0.380	0.551	7.788
3	West Virginia	Gilmer	0.077	0.707	0.222	0.337	0.364	-2.020
3	West Virginia	Grant	0.126	0.666	0.326	0.403	0.539	4.617
3	West Virginia	Greenbrier	0.102	0.297	0.394	0.402	0.554	4.141
3	West Virginia	Hampshire	0.105	0.607	0.417	0.364	0.373	3.285
3	West Virginia	Hancock	0.354	0.700	0.168	0.259	0.359	-1.444
3	West Virginia	Hardy	0.153	0.591	0.384	0.384	0.420	2.512
3	West Virginia	Harrison	0.206	0.735	0.417	0.251	0.544	2.587
3	West Virginia	Jackson	0.150	0.710	0.365	0.272	0.439	1.434
3	West Virginia	Jefferson	0.332	0.732	0.401	0.339	0.449	1.550
3	West Virginia	Kanawha	0.224	0.710	0.475	0.260	0.519	2.846
3	West Virginia	Lewis	0.111	0.711	0.282	0.354	0.443	1.852
3	West Virginia	Lincoln	0.145	0.650	0.316	0.256	0.322	-1.700
3	West Virginia	Logan	0.120	0.679	0.373	0.236	0.363	-0.286
3	West Virginia	Marion	0.222	0.723	0.351	0.280	0.506	1.533
3	West Virginia	Marshall	0.206	0.723	0.358	0.261	0.412	0.629
3	West Virginia	Mason	0.181	0.705	0.360	0.316	0.368	0.913
3	West Virginia	McDowell	0.224	0.618	0.330	0.286	0.335	-0.630
3	West Virginia	Mercer	0.144	0.510	0.345	0.282	0.458	0.153
3	West Virginia	Mineral	0.153	0.681	0.350	0.369	0.377	1.715
3	West Virginia	Mingo	0.143	0.673	0.371	0.276	0.296	-0.547

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3	West Virginia	Monongalia	0.399	0.725	0.385	0.289	0.404	0.646
3	West Virginia	Monroe	0.086	0.504	0.317	0.347	0.557	3.462
3	West Virginia	Morgan	0.105	0.691	0.270	0.340	0.362	-0.412
3	West Virginia	Nicholas	0.112	0.563	0.357	0.391	0.407	2.448
3	West Virginia	Ohio	0.394	0.732	0.199	0.172	0.569	-0.501
3	West Virginia	Pendleton	0.177	0.591	0.332	0.472	0.463	3.080
3	West Virginia	Pleasants	0.154	0.769	0.273	0.267	0.359	-0.908
3	West Virginia	Pocahontas	0.108	0.574	0.309	0.554	0.588	8.469
3	West Virginia	Preston	0.129	0.718	0.460	0.321	0.529	5.995
3	West Virginia	Putnam	0.274	0.718	0.413	0.313	0.573	2.600
3	West Virginia	Raleigh	0.174	0.615	0.408	0.334	0.530	3.242
3	West Virginia	Randolph	0.103	0.593	0.387	0.433	0.519	6.881
3	West Virginia	Ritchie	0.097	0.737	0.246	0.293	0.381	-1.430
3	West Virginia	Roane	0.107	0.698	0.289	0.351	0.390	0.897
3	West Virginia	Summers	0.077	0.522	0.230	0.422	0.482	1.549
3	West Virginia	Taylor	0.107	0.709	0.198	0.317	0.530	0.510
3	West Virginia	Tucker	0.066	0.711	0.320	0.476	0.486	10.510
3	West Virginia	Tyler	0.106	0.761	0.223	0.309	0.421	-0.537
3	West Virginia	Upshur	0.106	0.696	0.355	0.313	0.546	4.595
3	West Virginia	Wayne	0.169	0.683	0.395	0.350	0.365	1.849
3	West Virginia	Webster	0.137	0.565	0.249	0.418	0.222	-2.231
3	West Virginia	Wetzel	0.147	0.718	0.267	0.291	0.397	-0.514
3	West Virginia	Wirt	0.116	0.700	0.240	0.274	0.296	-3.493
3	West Virginia	Wood	0.256	0.733	0.340	0.251	0.477	0.760
3	West Virginia	Wyoming	0.217	0.638	0.317	0.309	0.369	-0.151

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.255	0.498	0.342	0.403	0.414	0.585
4	Alabama	Autauga	0.238	0.425	0.423	0.412	0.477	2.118
4	Alabama	Baldwin	0.418	0.376	0.772	0.490	0.446	3.624
4	Alabama	Barbour	0.093	0.461	0.372	0.449	0.337	2.351
4	Alabama	Bibb	0.246	0.330	0.355	0.433	0.403	0.533
4	Alabama	Blount	0.244	0.266	0.412	0.345	0.456	0.441
4	Alabama	Bullock	0.085	0.366	0.266	0.403	0.332	-3.296
4	Alabama	Butler	0.276	0.422	0.356	0.419	0.405	0.708
4	Alabama	Calhoun	0.669	0.315	0.456	0.396	0.399	0.430
4	Alabama	Chambers	0.140	0.422	0.308	0.369	0.303	-1.814
4	Alabama	Cherokee	0.293	0.398	0.351	0.351	0.379	-0.205
4	Alabama	Chilton	0.158	0.308	0.421	0.401	0.485	2.337
4	Alabama	Choctaw	0.274	0.458	0.262	0.421	0.243	-1.210
4	Alabama	Clarke	0.318	0.310	0.400	0.364	0.359	-0.074
4	Alabama	Clay	0.129	0.305	0.349	0.430	0.372	0.169
4	Alabama	Cleburne	0.131	0.346	0.308	0.440	0.309	-1.084
4	Alabama	Coffee	0.259	0.498	0.406	0.445	0.476	2.346
4	Alabama	Colbert	0.262	0.242	0.432	0.462	0.535	2.214
4	Alabama	Conecuh	0.275	0.330	0.318	0.440	0.172	-1.470
4	Alabama	Coosa	0.114	0.270	0.344	0.409	0.263	-2.562
4	Alabama	Covington	0.298	0.404	0.404	0.454	0.510	2.005
4	Alabama	Crenshaw	0.205	0.505	0.349	0.371	0.380	0.464
4	Alabama	Cullman	0.295	0.285	0.454	0.294	0.467	0.463
4	Alabama	Dale	0.187	0.491	0.416	0.426	0.385	2.160
4	Alabama	Dallas	0.138	0.380	0.326	0.404	0.282	-1.503
4	Alabama	DeKalb	0.287	0.485	0.441	0.322	0.356	0.537
4	Alabama	Elmore	0.360	0.367	0.480	0.440	0.487	1.899
4	Alabama	Escambia	0.347	0.355	0.434	0.475	0.304	0.797

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Alabama	Etowah	0.420	0.291	0.400	0.348	0.470	0.317
4	Alabama	Fayette	0.182	0.444	0.336	0.400	0.385	0.428
4	Alabama	Franklin	0.242	0.407	0.376	0.400	0.336	0.216
4	Alabama	Geneva	0.128	0.427	0.348	0.442	0.390	1.620
4	Alabama	Greene	0.251	0.442	0.312	0.412	0.223	-1.097
4	Alabama	Hale	0.259	0.499	0.295	0.427	0.241	-0.739
4	Alabama	Henry	0.226	0.427	0.326	0.397	0.405	0.289
4	Alabama	Houston	0.308	0.510	0.465	0.407	0.492	2.334
4	Alabama	Jackson	0.207	0.503	0.488	0.400	0.324	2.059
4	Alabama	Jefferson	0.915	0.265	0.668	0.252	0.504	0.719
4	Alabama	Lamar	0.153	0.525	0.381	0.417	0.335	1.463
4	Alabama	Lauderdale	0.215	0.250	0.398	0.437	0.502	1.726
4	Alabama	Lawrence	0.233	0.228	0.380	0.479	0.389	0.786
4	Alabama	Lee	0.445	0.378	0.451	0.381	0.379	0.587
4	Alabama	Limestone	0.597	0.465	0.438	0.458	0.430	1.010
4	Alabama	Lowndes	0.112	0.498	0.372	0.374	0.330	0.525
4	Alabama	Macon	0.113	0.302	0.302	0.352	0.412	-1.924
4	Alabama	Madison	0.804	0.428	0.567	0.324	0.437	0.738
4	Alabama	Marengo	0.276	0.465	0.363	0.425	0.387	0.855
4	Alabama	Marion	0.331	0.525	0.482	0.384	0.353	1.350
4	Alabama	Marshall	0.361	0.479	0.391	0.330	0.356	0.091
4	Alabama	Mobile	0.536	0.338	0.647	0.449	0.457	1.986
4	Alabama	Monroe	0.311	0.273	0.377	0.382	0.362	-0.229
4	Alabama	Montgomery	0.519	0.419	0.484	0.353	0.534	1.207
4	Alabama	Morgan	0.425	0.403	0.458	0.337	0.449	0.782
4	Alabama	Perry	0.160	0.335	0.261	0.381	0.259	-3.271
4	Alabama	Pickens	0.184	0.538	0.369	0.367	0.378	0.911
4	Alabama	Pike	0.142	0.534	0.380	0.453	0.396	3.096
4	Alabama	Randolph	0.119	0.379	0.360	0.319	0.388	-0.961

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Alabama	Russell	0.196	0.448	0.391	0.387	0.389	1.050
4	Alabama	Shelby	0.531	0.351	0.597	0.376	0.495	1.582
4	Alabama	St. Clair	0.566	0.293	0.532	0.337	0.456	0.770
4	Alabama	Sumter	0.275	0.502	0.234	0.434	0.270	-1.012
4	Alabama	Talladega	0.303	0.285	0.485	0.390	0.358	0.793
4	Alabama	Tallapoosa	0.336	0.320	0.404	0.400	0.451	0.794
4	Alabama	Tuscaloosa	0.497	0.384	0.603	0.382	0.488	1.788
4	Alabama	Walker	0.339	0.265	0.481	0.341	0.371	0.336
4	Alabama	Washington	0.352	0.396	0.448	0.415	0.320	0.674
4	Alabama	Wilcox	0.221	0.363	0.308	0.388	0.288	-1.340
4	Alabama	Winston	0.274	0.226	0.348	0.397	0.284	-1.132
4	Florida	Alachua	0.241	0.437	0.700	0.385	0.468	4.845
4	Florida	Baker	0.131	0.545	0.274	0.530	0.476	3.896
4	Florida	Bay	0.266	0.511	0.588	0.406	0.520	4.123
4	Florida	Bradford	0.096	0.465	0.320	0.421	0.524	3.999
4	Florida	Brevard	0.622	0.577	0.673	0.483	0.470	2.382
4	Florida	Broward	0.722	0.546	0.713	0.448	0.479	2.059
4	Florida	Calhoun	0.111	0.223	0.243	0.458	0.396	-2.053
4	Florida	Charlotte	0.273	0.502	0.516	0.390	0.438	2.550
4	Florida	Citrus	0.152	0.526	0.422	0.459	0.361	3.209
4	Florida	Clay	0.356	0.533	0.415	0.490	0.515	2.398
4	Florida	Collier	0.398	0.564	0.583	0.550	0.437	3.342
4	Florida	Columbia	0.156	0.415	0.459	0.488	0.506	5.343
4	Florida	DeSoto	0.242	0.541	0.404	0.301	0.292	-0.273
4	Florida	Dixie	0.122	0.494	0.283	0.456	0.361	0.624
4	Florida	Duval	0.688	0.554	0.809	0.360	0.470	2.206
4	Florida	Escambia	0.519	0.432	0.514	0.452	0.473	1.623
4	Florida	Flagler	0.260	0.513	0.461	0.349	0.449	1.858
4	Florida	Franklin	0.163	0.472	0.287	0.608	0.667	6.388

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Florida	Gadsden	0.160	0.240	0.375	0.453	0.442	1.387
4	Florida	Gilchrist	0.061	0.450	0.256	0.389	0.417	-1.531
4	Florida	Glades	0.366	0.565	0.339	0.460	0.252	0.256
4	Florida	Gulf	0.133	0.428	0.307	0.535	0.461	3.494
4	Florida	Hamilton	0.073	0.519	0.285	0.419	0.437	2.297
4	Florida	Hardee	0.226	0.527	0.434	0.280	0.305	-0.121
4	Florida	Hendry	0.331	0.605	0.474	0.403	0.334	1.551
4	Florida	Hernando	0.253	0.523	0.348	0.405	0.374	0.722
4	Florida	Highlands	0.245	0.495	0.516	0.357	0.383	2.037
4	Florida	Hillsborough	0.604	0.564	0.867	0.298	0.445	2.455
4	Florida	Holmes	0.104	0.366	0.284	0.455	0.434	0.887
4	Florida	Indian River	0.543	0.432	0.462	0.390	0.402	0.760
4	Florida	Jackson	0.143	0.247	0.433	0.430	0.469	2.648
4	Florida	Jefferson	0.087	0.486	0.316	0.439	0.555	5.686
4	Florida	Lafayette	0.145	0.449	0.144	0.488	0.383	-1.490
4	Florida	Lake	0.488	0.348	0.676	0.412	0.430	2.068
4	Florida	Lee	0.430	0.583	0.653	0.331	0.424	2.253
4	Florida	Leon	0.375	0.436	0.518	0.494	0.541	2.915
4	Florida	Levy	0.128	0.511	0.470	0.440	0.421	5.253
4	Florida	Liberty	0.193	0.246	0.195	0.713	0.265	0.202
4	Florida	Madison	0.129	0.490	0.393	0.376	0.474	3.029
4	Florida	Manatee	0.442	0.564	0.423	0.307	0.443	0.716
4	Florida	Marion	0.329	0.354	0.642	0.445	0.411	2.929
4	Florida	Martin	0.456	0.540	0.495	0.395	0.476	1.679
4	Florida	Miami-Dade	0.623	0.392	0.831	0.536	0.456	2.926
4	Florida	Monroe	0.156	0.195	0.595	0.628	0.489	8.239
4	Florida	Nassau	0.252	0.541	0.464	0.384	0.468	2.551
4	Florida	Okaloosa	0.318	0.302	0.595	0.474	0.482	3.146
4	Florida	Okeechobee	0.153	0.565	0.390	0.379	0.263	0.355

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Florida	Orange	0.716	0.476	0.820	0.278	0.462	1.751
4	Florida	Osceola	0.441	0.541	0.652	0.335	0.404	2.032
4	Florida	Palm Beach	0.494	0.592	0.817	0.407	0.470	3.428
4	Florida	Pasco	0.380	0.513	0.588	0.367	0.378	1.908
4	Florida	Pinellas	0.436	0.546	0.598	0.391	0.436	2.200
4	Florida	Polk	0.514	0.416	0.834	0.329	0.429	2.513
4	Florida	Putnam	0.160	0.429	0.495	0.404	0.335	2.487
4	Florida	Santa Rosa	0.470	0.381	0.557	0.469	0.440	1.875
4	Florida	Sarasota	0.428	0.563	0.476	0.285	0.519	1.286
4	Florida	Seminole	0.747	0.452	0.503	0.290	0.524	0.717
4	Florida	St. Johns	0.388	0.573	0.533	0.466	0.448	2.627
4	Florida	St. Lucie	0.532	0.503	0.449	0.311	0.398	0.464
4	Florida	Sumter	0.381	0.406	0.427	0.426	0.346	0.713
4	Florida	Suwannee	0.120	0.427	0.368	0.345	0.446	1.112
4	Florida	Taylor	0.115	0.512	0.326	0.444	0.398	2.188
4	Florida	Union	0.075	0.523	0.253	0.409	0.432	0.674
4	Florida	Volusia	0.474	0.459	0.741	0.447	0.428	2.903
4	Florida	Wakulla	0.216	0.499	0.353	0.640	0.483	4.446
4	Florida	Walton	0.172	0.271	0.538	0.496	0.430	4.461
4	Florida	Washington	0.147	0.378	0.341	0.485	0.431	2.220
4	Georgia	Appling	0.088	0.518	0.265	0.374	0.589	3.426
4	Georgia	Atkinson	0.083	0.576	0.216	0.336	0.140	-8.977
4	Georgia	Bacon	0.095	0.552	0.185	0.387	0.363	-3.063
4	Georgia	Baker	0.090	0.472	0.221	0.488	0.182	-4.248
4	Georgia	Baldwin	0.176	0.549	0.299	0.334	0.450	0.278
4	Georgia	Banks	0.230	0.627	0.246	0.316	0.411	-0.574
4	Georgia	Barrow	0.503	0.578	0.251	0.265	0.470	-0.357
4	Georgia	Bartow	0.583	0.274	0.388	0.387	0.452	0.256
4	Georgia	Ben Hill	0.109	0.536	0.217	0.360	0.373	-2.450

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Georgia	Berrien	0.083	0.547	0.269	0.413	0.330	-0.901
4	Georgia	Bibb	0.531	0.554	0.287	0.253	0.502	-0.133
4	Georgia	Bleckley	0.100	0.518	0.267	0.456	0.449	2.342
4	Georgia	Brantley	0.113	0.517	0.278	0.389	0.352	-0.849
4	Georgia	Brooks	0.080	0.561	0.263	0.442	0.341	0.239
4	Georgia	Bryan	0.172	0.581	0.411	0.504	0.526	5.508
4	Georgia	Bulloch	0.185	0.506	0.388	0.442	0.458	2.847
4	Georgia	Burke	0.129	0.507	0.379	0.403	0.428	2.705
4	Georgia	Butts	0.179	0.583	0.236	0.359	0.483	0.243
4	Georgia	Calhoun	0.077	0.538	0.222	0.457	0.372	-0.242
4	Georgia	Camden	0.259	0.572	0.392	0.549	0.478	3.485
4	Georgia	Candler	0.069	0.468	0.175	0.429	0.434	-2.311
4	Georgia	Carroll	0.304	0.468	0.373	0.301	0.442	0.236
4	Georgia	Catoosa	0.585	0.476	0.221	0.335	0.417	-0.503
4	Georgia	Charlton	0.125	0.530	0.233	0.580	0.342	1.981
4	Georgia	Chatham	0.697	0.526	0.625	0.530	0.566	2.303
4	Georgia	Chattahoochee	0.167	0.469	0.260	0.559	0.238	0.031
4	Georgia	Chattooga	0.138	0.376	0.256	0.385	0.308	-2.811
4	Georgia	Cherokee	0.611	0.293	0.354	0.354	0.535	0.259
4	Georgia	Clarke	0.654	0.553	0.251	0.242	0.427	-0.527
4	Georgia	Clay	0.098	0.411	0.199	0.392	0.216	-6.863
4	Georgia	Clayton	0.477	0.594	0.238	0.202	0.450	-0.818
4	Georgia	Clinch	0.129	0.537	0.185	0.374	0.172	-5.511
4	Georgia	Cobb	0.558	0.396	0.380	0.210	0.514	-0.116
4	Georgia	Coffee	0.124	0.519	0.299	0.324	0.446	-0.089
4	Georgia	Colquitt	0.108	0.564	0.389	0.372	0.470	4.055
4	Georgia	Columbia	0.471	0.485	0.297	0.460	0.544	1.016
4	Georgia	Cook	0.155	0.607	0.223	0.456	0.416	0.903
4	Georgia	Coweta	0.400	0.593	0.387	0.339	0.555	1.367

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Georgia	Crawford	0.121	0.562	0.267	0.380	0.259	-2.364
4	Georgia	Crisp	0.188	0.458	0.289	0.421	0.465	0.933
4	Georgia	Dade	0.275	0.250	0.234	0.325	0.348	-2.344
4	Georgia	Dawson	0.353	0.291	0.242	0.470	0.471	0.045
4	Georgia	Decatur	0.120	0.244	0.357	0.453	0.482	2.123
4	Georgia	DeKalb	0.483	0.545	0.441	0.170	0.493	0.224
4	Georgia	Dodge	0.088	0.574	0.308	0.380	0.391	1.087
4	Georgia	Dooly	0.090	0.516	0.242	0.458	0.349	-0.314
4	Georgia	Dougherty	0.269	0.351	0.342	0.436	0.491	1.120
4	Georgia	Douglas	0.481	0.553	0.259	0.254	0.502	-0.302
4	Georgia	Early	0.096	0.448	0.253	0.456	0.390	0.087
4	Georgia	Echols	0.084	0.533	0.197	0.403	0.094	-9.090
4	Georgia	Effingham	0.257	0.553	0.409	0.452	0.497	2.841
4	Georgia	Elbert	0.165	0.554	0.247	0.379	0.444	0.097
4	Georgia	Emanuel	0.091	0.564	0.301	0.377	0.403	0.913
4	Georgia	Evans	0.085	0.611	0.226	0.492	0.446	3.501
4	Georgia	Fannin	0.224	0.413	0.244	0.566	0.518	2.107
4	Georgia	Fayette	0.470	0.596	0.278	0.354	0.560	0.655
4	Georgia	Floyd	0.382	0.372	0.288	0.379	0.423	-0.257
4	Georgia	Forsyth	0.587	0.465	0.313	0.364	0.533	0.409
4	Georgia	Franklin	0.246	0.603	0.239	0.342	0.442	-0.200
4	Georgia	Fulton	0.551	0.530	0.709	0.210	0.490	1.632
4	Georgia	Gilmer	0.238	0.342	0.278	0.506	0.402	0.490
4	Georgia	Glascock	0.103	0.628	0.125	0.302	0.342	-6.047
4	Georgia	Glynn	0.352	0.466	0.366	0.497	0.552	2.130
4	Georgia	Gordon	0.535	0.347	0.326	0.370	0.376	-0.256
4	Georgia	Grady	0.089	0.494	0.307	0.473	0.389	2.717
4	Georgia	Greene	0.123	0.597	0.309	0.417	0.405	1.968
4	Georgia	Gwinnett	0.569	0.579	0.418	0.150	0.553	0.259

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Georgia	Habersham	0.372	0.237	0.339	0.403	0.475	0.173
4	Georgia	Hall	0.606	0.578	0.380	0.314	0.536	0.687
4	Georgia	Hancock	0.085	0.549	0.234	0.378	0.414	-0.985
4	Georgia	Haralson	0.182	0.370	0.249	0.307	0.383	-2.531
4	Georgia	Harris	0.158	0.523	0.373	0.389	0.447	2.234
4	Georgia	Hart	0.225	0.578	0.275	0.436	0.401	0.762
4	Georgia	Heard	0.138	0.573	0.228	0.350	0.351	-1.959
4	Georgia	Henry	0.457	0.602	0.341	0.351	0.540	0.950
4	Georgia	Houston	0.504	0.565	0.329	0.387	0.470	0.627
4	Georgia	Irwin	0.086	0.533	0.207	0.370	0.437	-1.733
4	Georgia	Jackson	0.489	0.625	0.378	0.303	0.479	0.650
4	Georgia	Jasper	0.099	0.577	0.318	0.381	0.370	0.889
4	Georgia	Jeff Davis	0.084	0.522	0.185	0.352	0.360	-4.915
4	Georgia	Jefferson	0.107	0.562	0.293	0.380	0.441	1.340
4	Georgia	Jenkins	0.088	0.457	0.117	0.424	0.334	-6.054
4	Georgia	Johnson	0.133	0.592	0.269	0.392	0.308	-0.904
4	Georgia	Jones	0.113	0.575	0.340	0.382	0.481	3.233
4	Georgia	Lamar	0.215	0.579	0.228	0.397	0.422	-0.042
4	Georgia	Lanier	0.113	0.561	0.247	0.394	0.337	-1.343
4	Georgia	Laurens	0.147	0.526	0.383	0.386	0.584	4.376
4	Georgia	Lee	0.217	0.585	0.365	0.399	0.515	2.533
4	Georgia	Liberty	0.214	0.567	0.396	0.488	0.366	2.533
4	Georgia	Lincoln	0.120	0.584	0.233	0.545	0.360	2.095
4	Georgia	Long	0.109	0.264	0.268	0.473	0.302	-2.474
4	Georgia	Lowndes	0.334	0.567	0.443	0.388	0.516	2.141
4	Georgia	Lumpkin	0.251	0.250	0.273	0.558	0.393	0.487
4	Georgia	Macon	0.093	0.515	0.218	0.452	0.398	-0.124
4	Georgia	Madison	0.214	0.584	0.275	0.303	0.513	0.319
4	Georgia	Marion	0.101	0.516	0.204	0.438	0.189	-4.856

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Georgia	McDuffie	0.148	0.575	0.236	0.439	0.548	2.430
4	Georgia	McIntosh	0.143	0.219	0.328	0.529	0.453	1.982
4	Georgia	Meriwether	0.145	0.457	0.309	0.390	0.439	0.701
4	Georgia	Miller	0.173	0.507	0.204	0.466	0.486	0.873
4	Georgia	Mitchell	0.156	0.496	0.323	0.420	0.505	2.419
4	Georgia	Monroe	0.205	0.591	0.356	0.318	0.524	1.704
4	Georgia	Montgomery	0.072	0.591	0.237	0.371	0.283	-4.310
4	Georgia	Morgan	0.169	0.575	0.370	0.336	0.541	2.673
4	Georgia	Murray	0.248	0.242	0.295	0.432	0.231	-1.832
4	Georgia	Muscogee	0.472	0.453	0.281	0.365	0.490	0.127
4	Georgia	Newton	0.412	0.570	0.311	0.314	0.475	0.254
4	Georgia	Oconee	0.494	0.586	0.296	0.259	0.592	0.355
4	Georgia	Oglethorpe	0.145	0.585	0.264	0.408	0.311	-0.684
4	Georgia	Paulding	0.444	0.357	0.274	0.343	0.460	-0.370
4	Georgia	Peach	0.431	0.589	0.283	0.390	0.455	0.454
4	Georgia	Pickens	0.397	0.281	0.327	0.336	0.445	-0.368
4	Georgia	Pierce	0.098	0.596	0.290	0.420	0.421	2.331
4	Georgia	Pike	0.128	0.543	0.322	0.408	0.523	3.381
4	Georgia	Polk	0.378	0.290	0.291	0.342	0.416	-0.733
4	Georgia	Pulaski	0.116	0.508	0.232	0.493	0.465	2.161
4	Georgia	Putnam	0.145	0.566	0.270	0.440	0.404	1.111
4	Georgia	Quitman	0.086	0.399	0.171	0.397	0.227	-8.438
4	Georgia	Rabun	0.294	0.442	0.284	0.508	0.493	1.416
4	Georgia	Randolph	0.075	0.421	0.227	0.370	0.357	-4.825
4	Georgia	Richmond	0.591	0.481	0.341	0.355	0.556	0.599
4	Georgia	Rockdale	0.436	0.524	0.216	0.286	0.594	-0.076
4	Georgia	Schley	0.130	0.547	0.216	0.454	0.240	-2.223
4	Georgia	Screven	0.099	0.510	0.221	0.454	0.431	0.606
4	Georgia	Seminole	0.159	0.235	0.223	0.461	0.428	-1.242

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Georgia	Spalding	0.391	0.564	0.238	0.359	0.466	-0.014
4	Georgia	Stephens	0.359	0.219	0.231	0.394	0.496	-0.617
4	Georgia	Stewart	0.094	0.443	0.227	0.403	0.292	-4.131
4	Georgia	Sumter	0.129	0.541	0.333	0.440	0.500	3.802
4	Georgia	Talbot	0.060	0.483	0.237	0.371	0.251	-8.001
4	Georgia	Taliaferro	0.106	0.659	0.057	0.383	0.112	-9.703
4	Georgia	Tattnall	0.065	0.547	0.278	0.451	0.363	1.689
4	Georgia	Taylor	0.109	0.511	0.269	0.400	0.292	-1.964
4	Georgia	Telfair	0.066	0.471	0.259	0.395	0.361	-2.377
4	Georgia	Terrell	0.060	0.560	0.187	0.398	0.332	-5.174
4	Georgia	Thomas	0.111	0.536	0.402	0.475	0.500	6.823
4	Georgia	Tift	0.257	0.534	0.315	0.390	0.515	1.338
4	Georgia	Toombs	0.089	0.554	0.289	0.407	0.420	1.679
4	Georgia	Towns	0.182	0.472	0.191	0.559	0.611	3.057
4	Georgia	Treutlen	0.080	0.522	0.165	0.334	0.459	-3.945
4	Georgia	Troup	0.290	0.501	0.366	0.412	0.448	1.273
4	Georgia	Turner	0.060	0.496	0.239	0.392	0.275	-6.063
4	Georgia	Twiggs	0.070	0.526	0.282	0.390	0.323	-1.854
4	Georgia	Union	0.168	0.204	0.231	0.586	0.543	1.951
4	Georgia	Upson	0.104	0.479	0.257	0.328	0.400	-2.328
4	Georgia	Walker	0.253	0.219	0.274	0.386	0.310	-1.942
4	Georgia	Walton	0.345	0.493	0.382	0.286	0.542	0.810
4	Georgia	Ware	0.157	0.506	0.302	0.459	0.524	2.964
4	Georgia	Warren	0.086	0.640	0.178	0.386	0.258	-4.994
4	Georgia	Washington	0.090	0.589	0.348	0.424	0.500	6.029
4	Georgia	Wayne	0.080	0.475	0.308	0.370	0.448	1.080
4	Georgia	Webster	0.100	0.517	0.130	0.441	0.189	-6.782
4	Georgia	Wheeler	0.066	0.532	0.193	0.366	0.374	-4.862
4	Georgia	White	0.265	0.493	0.219	0.426	0.527	0.606

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Georgia	Whitfield	0.411	0.234	0.289	0.320	0.380	-1.128
4	Georgia	Wilcox	0.061	0.573	0.136	0.413	0.314	-7.121
4	Georgia	Wilkes	0.099	0.579	0.176	0.409	0.371	-2.184
4	Georgia	Wilkinson	0.114	0.590	0.263	0.395	0.509	2.308
4	Georgia	Worth	0.070	0.544	0.308	0.394	0.432	2.623
4	Kentucky	Adair	0.110	0.439	0.259	0.325	0.433	-2.023
4	Kentucky	Allen	0.132	0.318	0.265	0.354	0.259	-4.535
4	Kentucky	Anderson	0.170	0.703	0.275	0.326	0.556	1.929
4	Kentucky	Ballard	0.185	0.666	0.183	0.410	0.473	0.481
4	Kentucky	Barren	0.163	0.355	0.322	0.405	0.407	0.049
4	Kentucky	Bath	0.152	0.677	0.213	0.324	0.269	-2.831
4	Kentucky	Bell	0.199	0.454	0.277	0.451	0.224	-1.301
4	Kentucky	Boone	0.571	0.704	0.289	0.331	0.531	0.580
4	Kentucky	Bourbon	0.124	0.736	0.284	0.447	0.439	3.668
4	Kentucky	Boyd	0.304	0.665	0.236	0.396	0.399	0.166
4	Kentucky	Boyle	0.180	0.655	0.213	0.359	0.478	0.245
4	Kentucky	Bracken	0.095	0.724	0.199	0.360	0.306	-2.700
4	Kentucky	Breathitt	0.153	0.587	0.236	0.336	0.220	-3.430
4	Kentucky	Breckinridge	0.098	0.669	0.276	0.359	0.476	2.268
4	Kentucky	Bullitt	0.386	0.704	0.330	0.372	0.498	1.231
4	Kentucky	Butler	0.089	0.499	0.214	0.352	0.412	-2.896
4	Kentucky	Caldwell	0.148	0.596	0.232	0.390	0.474	0.706
4	Kentucky	Calloway	0.237	0.535	0.304	0.353	0.491	0.747
4	Kentucky	Campbell	0.389	0.719	0.174	0.329	0.473	-0.210
4	Kentucky	Carlisle	0.176	0.604	0.159	0.378	0.338	-2.156
4	Kentucky	Carroll	0.153	0.711	0.257	0.354	0.255	-1.510
4	Kentucky	Carter	0.119	0.649	0.272	0.354	0.275	-1.812
4	Kentucky	Casey	0.084	0.465	0.208	0.369	0.319	-5.279
4	Kentucky	Christian	0.288	0.534	0.363	0.449	0.383	1.230

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Kentucky	Clark	0.172	0.631	0.308	0.350	0.424	0.833
4	Kentucky	Clay	0.163	0.545	0.224	0.424	0.218	-2.370
4	Kentucky	Clinton	0.134	0.437	0.199	0.391	0.348	-2.892
4	Kentucky	Crittenden	0.142	0.568	0.133	0.378	0.336	-3.422
4	Kentucky	Cumberland	0.128	0.437	0.135	0.350	0.353	-5.068
4	Kentucky	Daviess	0.397	0.678	0.359	0.341	0.595	1.618
4	Kentucky	Edmonson	0.099	0.437	0.199	0.443	0.266	-4.267
4	Kentucky	Elliott	0.122	0.622	0.165	0.311	0.240	-5.744
4	Kentucky	Estill	0.179	0.578	0.228	0.353	0.287	-2.137
4	Kentucky	Fayette	0.500	0.652	0.369	0.293	0.481	0.600
4	Kentucky	Fleming	0.163	0.678	0.225	0.319	0.369	-1.310
4	Kentucky	Floyd	0.170	0.621	0.282	0.243	0.385	-1.620
4	Kentucky	Franklin	0.243	0.656	0.226	0.335	0.568	0.814
4	Kentucky	Fulton	0.201	0.564	0.107	0.426	0.206	-3.479
4	Kentucky	Gallatin	0.175	0.720	0.200	0.353	0.324	-1.379
4	Kentucky	Garrard	0.115	0.632	0.253	0.359	0.428	0.242
4	Kentucky	Grant	0.103	0.677	0.299	0.370	0.481	3.164
4	Kentucky	Graves	0.200	0.531	0.288	0.373	0.447	0.473
4	Kentucky	Grayson	0.242	0.541	0.238	0.327	0.401	-0.966
4	Kentucky	Green	0.116	0.486	0.184	0.351	0.431	-2.692
4	Kentucky	Greenup	0.253	0.694	0.346	0.345	0.358	0.659
4	Kentucky	Hancock	0.204	0.731	0.222	0.363	0.475	0.726
4	Kentucky	Hardin	0.283	0.607	0.428	0.376	0.466	2.081
4	Kentucky	Harlan	0.198	0.423	0.266	0.326	0.291	-2.487
4	Kentucky	Harrison	0.135	0.698	0.236	0.394	0.479	1.744
4	Kentucky	Hart	0.138	0.461	0.215	0.332	0.264	-4.580
4	Kentucky	Henderson	0.252	0.693	0.399	0.412	0.432	2.453
4	Kentucky	Henry	0.110	0.715	0.219	0.369	0.443	0.695
4	Kentucky	Hickman	0.159	0.534	0.081	0.398	0.448	-2.468

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Kentucky	Hopkins	0.198	0.593	0.368	0.350	0.494	2.046
4	Kentucky	Jackson	0.145	0.520	0.276	0.418	0.277	-1.200
4	Kentucky	Jefferson	0.675	0.665	0.507	0.230	0.466	0.735
4	Kentucky	Jessamine	0.344	0.632	0.283	0.364	0.436	0.398
4	Kentucky	Johnson	0.232	0.636	0.234	0.293	0.308	-1.786
4	Kentucky	Kenton	0.667	0.711	0.210	0.311	0.474	-0.051
4	Kentucky	Knott	0.123	0.590	0.287	0.346	0.215	-3.020
4	Kentucky	Knox	0.131	0.453	0.222	0.407	0.316	-2.553
4	Kentucky	Larue	0.097	0.581	0.212	0.364	0.513	0.497
4	Kentucky	Laurel	0.313	0.498	0.308	0.410	0.408	0.410
4	Kentucky	Lawrence	0.144	0.656	0.263	0.339	0.240	-2.350
4	Kentucky	Lee	0.174	0.595	0.232	0.356	0.233	-2.594
4	Kentucky	Leslie	0.160	0.552	0.243	0.412	0.164	-2.904
4	Kentucky	Letcher	0.143	0.528	0.278	0.306	0.204	-4.049
4	Kentucky	Lewis	0.138	0.631	0.166	0.328	0.217	-5.040
4	Kentucky	Lincoln	0.121	0.516	0.306	0.352	0.511	1.671
4	Kentucky	Livingston	0.237	0.610	0.189	0.352	0.440	-0.662
4	Kentucky	Logan	0.150	0.545	0.310	0.424	0.423	1.608
4	Kentucky	Lyon	0.188	0.511	0.159	0.532	0.496	1.153
4	Kentucky	Madison	0.373	0.598	0.394	0.379	0.458	1.287
4	Kentucky	Magoffin	0.300	0.596	0.178	0.294	0.214	-2.623
4	Kentucky	Marion	0.109	0.619	0.239	0.407	0.511	2.357
4	Kentucky	Marshall	0.369	0.557	0.278	0.349	0.502	0.384
4	Kentucky	Martin	0.168	0.614	0.238	0.310	0.063	-5.153
4	Kentucky	Mason	0.151	0.686	0.243	0.334	0.451	0.271
4	Kentucky	McCracken	0.615	0.605	0.290	0.373	0.517	0.507
4	Kentucky	McCreary	0.161	0.390	0.213	0.496	0.165	-3.092
4	Kentucky	McLean	0.171	0.666	0.190	0.379	0.407	-0.557
4	Kentucky	Meade	0.114	0.662	0.301	0.393	0.343	0.897

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4	Kentucky	Menifee	0.204	0.612	0.261	0.412	0.386	0.383
4	Kentucky	Mercer	0.180	0.649	0.281	0.337	0.465	0.773
4	Kentucky	Metcalfe	0.067	0.403	0.143	0.375	0.266	-11.520
4	Kentucky	Monroe	0.160	0.359	0.147	0.350	0.244	-5.658
4	Kentucky	Montgomery	0.194	0.677	0.278	0.388	0.393	0.736
4	Kentucky	Morgan	0.339	0.642	0.253	0.304	0.381	-0.551
4	Kentucky	Muhlenberg	0.129	0.543	0.293	0.374	0.508	1.880
4	Kentucky	Nelson	0.162	0.687	0.346	0.404	0.566	4.397
4	Kentucky	Nicholas	0.106	0.688	0.152	0.378	0.390	-2.031
4	Kentucky	Ohio	0.137	0.668	0.299	0.376	0.486	2.522
4	Kentucky	Oldham	0.410	0.747	0.288	0.346	0.538	1.032
4	Kentucky	Owen	0.096	0.639	0.270	0.352	0.410	0.312
4	Kentucky	Owsley	0.227	0.589	0.202	0.377	0.254	-1.961
4	Kentucky	Pendleton	0.119	0.703	0.253	0.384	0.520	2.882
4	Kentucky	Perry	0.195	0.574	0.306	0.299	0.279	-1.687
4	Kentucky	Pike	0.151	0.613	0.478	0.271	0.320	1.218
4	Kentucky	Powell	0.200	0.590	0.272	0.408	0.298	-0.481
4	Kentucky	Pulaski	0.329	0.411	0.307	0.469	0.427	0.671
4	Kentucky	Robertson	0.128	0.671	0.184	0.353	0.195	-4.572
4	Kentucky	Rockcastle	0.200	0.531	0.306	0.375	0.386	0.120
4	Kentucky	Rowan	0.225	0.646	0.321	0.408	0.444	1.676
4	Kentucky	Russell	0.147	0.418	0.192	0.454	0.478	-0.114
4	Kentucky	Scott	0.252	0.708	0.338	0.382	0.453	1.736
4	Kentucky	Shelby	0.215	0.689	0.376	0.411	0.519	3.348
4	Kentucky	Simpson	0.145	0.398	0.240	0.396	0.386	-1.605
4	Kentucky	Spencer	0.087	0.730	0.278	0.349	0.568	5.104
4	Kentucky	Taylor	0.151	0.501	0.215	0.472	0.469	1.029
4	Kentucky	Todd	0.125	0.556	0.230	0.443	0.340	-0.607
4	Kentucky	Trigg	0.134	0.499	0.230	0.564	0.452	2.900

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Kentucky	Trimble	0.148	0.707	0.126	0.342	0.395	-2.303
4	Kentucky	Union	0.138	0.672	0.258	0.416	0.421	1.518
4	Kentucky	Warren	0.297	0.365	0.408	0.324	0.466	0.551
4	Kentucky	Washington	0.120	0.705	0.230	0.354	0.605	3.137
4	Kentucky	Wayne	0.121	0.334	0.188	0.352	0.332	-5.349
4	Kentucky	Webster	0.282	0.692	0.235	0.383	0.475	0.690
4	Kentucky	Whitley	0.210	0.481	0.236	0.384	0.374	-0.994
4	Kentucky	Wolfe	0.189	0.551	0.159	0.384	0.130	-4.377
4	Kentucky	Woodford	0.195	0.651	0.303	0.450	0.471	2.502
4	Mississippi	Adams	0.190	0.602	0.300	0.467	0.467	2.446
4	Mississippi	Alcorn	0.122	0.450	0.317	0.327	0.440	-0.311
4	Mississippi	Amite	0.204	0.508	0.358	0.449	0.364	1.385
4	Mississippi	Attala	0.229	0.602	0.299	0.386	0.353	0.174
4	Mississippi	Benton	0.332	0.600	0.233	0.445	0.164	-1.086
4	Mississippi	Bolivar	0.249	0.681	0.445	0.456	0.365	2.833
4	Mississippi	Calhoun	0.114	0.607	0.326	0.363	0.301	-0.375
4	Mississippi	Carroll	0.268	0.606	0.298	0.367	0.304	-0.378
4	Mississippi	Chickasaw	0.176	0.605	0.339	0.528	0.347	2.767
4	Mississippi	Choctaw	0.310	0.626	0.282	0.418	0.392	0.573
4	Mississippi	Claiborne	0.281	0.505	0.228	0.403	0.386	-0.499
4	Mississippi	Clarke	0.251	0.505	0.347	0.415	0.384	0.815
4	Mississippi	Clay	0.244	0.580	0.341	0.490	0.306	1.212
4	Mississippi	Coahoma	0.204	0.664	0.346	0.463	0.345	1.961
4	Mississippi	Copiah	0.191	0.463	0.355	0.410	0.399	1.055
4	Mississippi	Covington	0.280	0.485	0.334	0.423	0.441	1.006
4	Mississippi	DeSoto	0.638	0.677	0.433	0.423	0.449	1.182
4	Mississippi	Forrest	0.586	0.428	0.394	0.516	0.465	1.127
4	Mississippi	Franklin	0.260	0.586	0.219	0.459	0.377	0.151
4	Mississippi	George	0.178	0.358	0.328	0.533	0.473	2.649

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4	Mississippi	Greene	0.208	0.426	0.324	0.481	0.317	0.448
4	Mississippi	Grenada	0.212	0.616	0.296	0.400	0.376	0.602
4	Mississippi	Hancock	0.429	0.388	0.430	0.451	0.336	0.708
4	Mississippi	Harrison	0.754	0.485	0.462	0.453	0.428	0.891
4	Mississippi	Hinds	0.392	0.521	0.554	0.400	0.519	2.550
4	Mississippi	Holmes	0.214	0.630	0.327	0.444	0.293	0.793
4	Mississippi	Humphreys	0.281	0.666	0.229	0.550	0.242	0.366
4	Mississippi	Issaquena	0.419	0.678	0.232	0.459	0.103	-0.891
4	Mississippi	Itawamba	0.141	0.507	0.262	0.400	0.370	-0.599
4	Mississippi	Jackson	0.427	0.437	0.473	0.599	0.391	2.199
4	Mississippi	Jasper	0.262	0.547	0.365	0.493	0.343	1.541
4	Mississippi	Jefferson	0.298	0.511	0.248	0.409	0.248	-1.128
4	Mississippi	Jefferson Davis	0.241	0.520	0.286	0.438	0.292	-0.279
4	Mississippi	Jones	0.260	0.496	0.415	0.455	0.435	2.216
4	Mississippi	Kemper	0.310	0.555	0.382	0.403	0.313	0.575
4	Mississippi	Lafayette	0.220	0.543	0.448	0.479	0.429	3.446
4	Mississippi	Lamar	0.513	0.501	0.424	0.480	0.442	1.324
4	Mississippi	Lauderdale	0.293	0.538	0.460	0.414	0.482	2.476
4	Mississippi	Lawrence	0.320	0.529	0.315	0.426	0.427	0.790
4	Mississippi	Leake	0.239	0.544	0.302	0.405	0.402	0.555
4	Mississippi	Lee	0.521	0.606	0.401	0.388	0.489	1.132
4	Mississippi	Leflore	0.185	0.645	0.329	0.445	0.380	1.955
4	Mississippi	Lincoln	0.197	0.519	0.383	0.378	0.511	2.387
4	Mississippi	Lowndes	0.391	0.535	0.398	0.505	0.497	2.082
4	Mississippi	Madison	0.478	0.555	0.510	0.420	0.539	2.109
4	Mississippi	Marion	0.271	0.458	0.364	0.445	0.428	1.339
4	Mississippi	Marshall	0.186	0.588	0.386	0.394	0.369	1.655
4	Mississippi	Monroe	0.157	0.546	0.415	0.483	0.429	4.337
4	Mississippi	Montgomery	0.225	0.596	0.235	0.333	0.521	0.290

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Mississippi	Neshoba	0.283	0.559	0.363	0.419	0.366	0.977
4	Mississippi	Newton	0.263	0.588	0.306	0.463	0.475	1.805
4	Mississippi	Noxubee	0.263	0.550	0.251	0.488	0.331	0.256
4	Mississippi	Oktibbeha	0.264	0.565	0.420	0.447	0.363	1.877
4	Mississippi	Panola	0.191	0.592	0.371	0.419	0.396	2.035
4	Mississippi	Pearl River	0.384	0.366	0.427	0.472	0.405	1.202
4	Mississippi	Perry	0.211	0.412	0.318	0.655	0.307	2.234
4	Mississippi	Pike	0.237	0.510	0.346	0.439	0.471	1.841
4	Mississippi	Pontotoc	0.234	0.603	0.315	0.387	0.445	1.136
4	Mississippi	Prentiss	0.142	0.481	0.292	0.333	0.419	-0.692
4	Mississippi	Quitman	0.193	0.667	0.180	0.476	0.272	-0.760
4	Mississippi	Rankin	0.652	0.531	0.566	0.393	0.544	1.645
4	Mississippi	Scott	0.336	0.542	0.385	0.580	0.421	2.442
4	Mississippi	Sharkey	0.301	0.652	0.090	0.572	0.138	-1.440
4	Mississippi	Simpson	0.227	0.503	0.311	0.388	0.530	1.446
4	Mississippi	Smith	0.262	0.552	0.331	0.464	0.398	1.361
4	Mississippi	Stone	0.208	0.398	0.361	0.563	0.425	2.780
4	Mississippi	Sunflower	0.164	0.685	0.357	0.458	0.339	2.613
4	Mississippi	Tallahatchie	0.118	0.640	0.256	0.430	0.318	0.028
4	Mississippi	Tate	0.172	0.622	0.284	0.411	0.401	1.035
4	Mississippi	Tippah	0.144	0.591	0.327	0.330	0.348	-0.291
4	Mississippi	Tishomingo	0.125	0.332	0.278	0.471	0.342	-0.776
4	Mississippi	Tunica	0.386	0.649	0.243	0.478	0.209	-0.306
4	Mississippi	Union	0.165	0.585	0.338	0.342	0.424	0.958
4	Mississippi	Walthall	0.206	0.465	0.291	0.438	0.405	0.543
4	Mississippi	Warren	0.335	0.634	0.360	0.444	0.468	1.806
4	Mississippi	Washington	0.209	0.639	0.324	0.447	0.400	1.858
4	Mississippi	Wayne	0.196	0.426	0.312	0.445	0.304	-0.258
4	Mississippi	Webster	0.261	0.637	0.271	0.360	0.316	-0.524

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Mississippi	Wilkinson	0.210	0.571	0.309	0.413	0.397	0.914
4	Mississippi	Winston	0.384	0.543	0.313	0.449	0.435	0.879
4	Mississippi	Yalobusha	0.095	0.610	0.260	0.460	0.360	1.472
4	Mississippi	Yazoo	0.241	0.600	0.333	0.490	0.296	1.140
4	North Carolina	Alamance	0.376	0.562	0.435	0.336	0.471	1.258
4	North Carolina	Alexander	0.200	0.517	0.335	0.345	0.466	0.856
4	North Carolina	Alleghany	0.123	0.375	0.341	0.362	0.384	-0.577
4	North Carolina	Anson	0.109	0.485	0.356	0.381	0.385	1.165
4	North Carolina	Ashe	0.120	0.257	0.378	0.354	0.480	0.654
4	North Carolina	Avery	0.174	0.259	0.393	0.434	0.481	1.810
4	North Carolina	Beaufort	0.381	0.597	0.459	0.519	0.513	2.897
4	North Carolina	Bertie	0.156	0.624	0.382	0.508	0.545	6.159
4	North Carolina	Bladen	0.132	0.471	0.482	0.481	0.367	4.991
4	North Carolina	Brunswick	0.356	0.541	0.589	0.491	0.418	3.199
4	North Carolina	Buncombe	0.506	0.251	0.502	0.332	0.551	0.964
4	North Carolina	Burke	0.286	0.253	0.444	0.441	0.383	0.953
4	North Carolina	Cabarrus	0.649	0.655	0.363	0.322	0.508	0.633
4	North Carolina	Caldwell	0.284	0.384	0.355	0.405	0.466	0.841
4	North Carolina	Camden	0.226	0.630	0.335	0.556	0.437	3.310
4	North Carolina	Carteret	0.307	0.625	0.440	0.697	0.481	4.747
4	North Carolina	Caswell	0.127	0.570	0.380	0.394	0.347	1.840
4	North Carolina	Catawba	0.506	0.458	0.519	0.370	0.509	1.484
4	North Carolina	Chatham	0.226	0.526	0.535	0.396	0.498	4.002
4	North Carolina	Cherokee	0.227	0.228	0.367	0.456	0.540	1.702
4	North Carolina	Chowan	0.143	0.594	0.287	0.582	0.463	4.907
4	North Carolina	Clay	0.169	0.212	0.325	0.522	0.556	2.681
4	North Carolina	Cleveland	0.291	0.432	0.429	0.369	0.491	1.542
4	North Carolina	Columbus	0.124	0.447	0.546	0.488	0.529	9.187
4	North Carolina	Craven	0.383	0.577	0.512	0.616	0.436	3.427

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	North Carolina	Cumberland	0.585	0.523	0.471	0.389	0.443	1.037
4	North Carolina	Currituck	0.201	0.637	0.397	0.614	0.421	5.123
4	North Carolina	Dare	0.389	0.546	0.444	0.742	0.553	4.219
4	North Carolina	Davidson	0.317	0.599	0.457	0.366	0.466	1.989
4	North Carolina	Davie	0.191	0.609	0.387	0.353	0.536	2.935
4	North Carolina	Duplin	0.105	0.550	0.520	0.383	0.339	5.170
4	North Carolina	Durham	0.585	0.540	0.394	0.328	0.451	0.483
4	North Carolina	Edgecombe	0.150	0.539	0.375	0.438	0.425	2.980
4	North Carolina	Forsyth	0.553	0.566	0.396	0.250	0.456	0.236
4	North Carolina	Franklin	0.210	0.549	0.493	0.448	0.443	3.983
4	North Carolina	Gaston	0.686	0.550	0.534	0.316	0.455	0.937
4	North Carolina	Gates	0.129	0.631	0.318	0.532	0.486	5.737
4	North Carolina	Graham	0.179	0.238	0.328	0.513	0.426	1.176
4	North Carolina	Granville	0.217	0.553	0.416	0.421	0.443	2.599
4	North Carolina	Greene	0.222	0.538	0.332	0.435	0.402	1.277
4	North Carolina	Guilford	0.570	0.572	0.514	0.360	0.470	1.320
4	North Carolina	Halifax	0.129	0.562	0.483	0.439	0.396	5.473
4	North Carolina	Harnett	0.254	0.551	0.443	0.418	0.418	2.292
4	North Carolina	Haywood	0.202	0.234	0.440	0.446	0.559	2.978
4	North Carolina	Henderson	0.474	0.250	0.403	0.301	0.520	0.179
4	North Carolina	Hertford	0.153	0.672	0.361	0.426	0.443	3.606
4	North Carolina	Hoke	0.201	0.528	0.370	0.440	0.389	1.774
4	North Carolina	Hyde	0.441	0.497	0.305	0.662	0.587	2.472
4	North Carolina	Iredell	0.582	0.609	0.471	0.325	0.500	1.109
4	North Carolina	Jackson	0.238	0.288	0.457	0.414	0.520	2.304
4	North Carolina	Johnston	0.406	0.536	0.573	0.412	0.491	2.562
4	North Carolina	Jones	0.191	0.606	0.341	0.605	0.365	3.757
4	North Carolina	Lee	0.432	0.501	0.365	0.349	0.476	0.617
4	North Carolina	Lenoir	0.184	0.530	0.363	0.427	0.465	2.497

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	North Carolina	Lincoln	0.463	0.481	0.374	0.406	0.470	0.863
4	North Carolina	Macon	0.309	0.231	0.407	0.472	0.591	2.070
4	North Carolina	Madison	0.189	0.325	0.405	0.330	0.523	1.285
4	North Carolina	Martin	0.154	0.568	0.434	0.504	0.478	5.856
4	North Carolina	McDowell	0.262	0.280	0.358	0.445	0.360	0.140
4	North Carolina	Mecklenburg	0.693	0.594	0.661	0.231	0.449	1.162
4	North Carolina	Mitchell	0.148	0.226	0.306	0.378	0.522	-0.034
4	North Carolina	Montgomery	0.134	0.522	0.420	0.379	0.355	2.021
4	North Carolina	Moore	0.199	0.503	0.501	0.318	0.483	2.856
4	North Carolina	Nash	0.222	0.551	0.501	0.433	0.474	3.977
4	North Carolina	New Hanover	0.588	0.553	0.389	0.537	0.531	1.619
4	North Carolina	Northampton	0.117	0.597	0.488	0.430	0.389	6.156
4	North Carolina	Onslow	0.390	0.632	0.459	0.555	0.364	2.395
4	North Carolina	Orange	0.184	0.560	0.365	0.442	0.442	2.646
4	North Carolina	Pamlico	0.290	0.684	0.308	0.631	0.502	3.587
4	North Carolina	Pasquotank	0.289	0.636	0.309	0.529	0.448	2.216
4	North Carolina	Pender	0.126	0.567	0.471	0.499	0.494	8.065
4	North Carolina	Perquimans	0.156	0.625	0.315	0.586	0.388	4.270
4	North Carolina	Person	0.132	0.561	0.360	0.385	0.514	3.601
4	North Carolina	Pitt	0.362	0.549	0.514	0.433	0.496	2.644
4	North Carolina	Polk	0.191	0.458	0.370	0.284	0.556	1.232
4	North Carolina	Randolph	0.187	0.564	0.539	0.391	0.435	4.376
4	North Carolina	Richmond	0.195	0.484	0.419	0.366	0.354	0.995
4	North Carolina	Robeson	0.176	0.497	0.561	0.445	0.429	5.291
4	North Carolina	Rockingham	0.224	0.515	0.448	0.383	0.438	2.268
4	North Carolina	Rowan	0.326	0.616	0.436	0.351	0.457	1.655
4	North Carolina	Rutherford	0.195	0.314	0.493	0.376	0.453	2.253
4	North Carolina	Sampson	0.126	0.555	0.489	0.401	0.417	5.259
4	North Carolina	Scotland	0.172	0.529	0.398	0.405	0.386	1.992

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	North Carolina	Stanly	0.204	0.596	0.380	0.329	0.545	2.394
4	North Carolina	Stokes	0.148	0.473	0.415	0.296	0.485	1.761
4	North Carolina	Surry	0.217	0.531	0.399	0.335	0.447	1.370
4	North Carolina	Swain	0.195	0.209	0.417	0.542	0.544	3.698
4	North Carolina	Transylvania	0.221	0.279	0.397	0.431	0.609	2.670
4	North Carolina	Tyrrell	0.565	0.574	0.247	0.701	0.417	1.374
4	North Carolina	Union	0.445	0.636	0.484	0.347	0.518	1.787
4	North Carolina	Vance	0.141	0.513	0.336	0.411	0.490	2.707
4	North Carolina	Wake	0.714	0.540	0.736	0.326	0.509	1.827
4	North Carolina	Warren	0.136	0.572	0.407	0.432	0.347	2.952
4	North Carolina	Washington	0.288	0.544	0.268	0.604	0.399	1.830
4	North Carolina	Watauga	0.165	0.256	0.385	0.353	0.450	0.199
4	North Carolina	Wayne	0.206	0.530	0.473	0.385	0.432	2.847
4	North Carolina	Wilkes	0.150	0.483	0.379	0.341	0.401	0.803
4	North Carolina	Wilson	0.308	0.540	0.380	0.451	0.484	1.978
4	North Carolina	Yadkin	0.112	0.605	0.404	0.370	0.469	4.592
4	North Carolina	Yancey	0.159	0.225	0.281	0.380	0.499	-0.685
4	South Carolina	Abbeville	0.153	0.568	0.335	0.400	0.464	2.332
4	South Carolina	Aiken	0.371	0.522	0.509	0.403	0.491	2.254
4	South Carolina	Allendale	0.192	0.469	0.182	0.390	0.268	-2.910
4	South Carolina	Anderson	0.536	0.567	0.506	0.441	0.506	1.847
4	South Carolina	Bamberg	0.115	0.516	0.275	0.370	0.333	-1.619
4	South Carolina	Barnwell	0.153	0.514	0.278	0.487	0.412	1.693
4	South Carolina	Beaufort	0.432	0.536	0.372	0.502	0.493	1.691
4	South Carolina	Berkeley	0.445	0.588	0.565	0.656	0.428	3.477
4	South Carolina	Calhoun	0.142	0.553	0.338	0.361	0.511	2.412
4	South Carolina	Charleston	0.586	0.574	0.553	0.611	0.508	2.643
4	South Carolina	Cherokee	0.295	0.534	0.376	0.260	0.355	-0.436
4	South Carolina	Chester	0.166	0.570	0.365	0.342	0.370	0.671

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4	South Carolina	Chesterfield	0.148	0.459	0.373	0.383	0.343	0.449
4	South Carolina	Clarendon	0.142	0.588	0.401	0.457	0.380	3.698
4	South Carolina	Colleton	0.150	0.530	0.419	0.488	0.496	5.458
4	South Carolina	Darlington	0.172	0.428	0.402	0.400	0.409	1.665
4	South Carolina	Dillon	0.098	0.498	0.341	0.399	0.338	0.521
4	South Carolina	Dorchester	0.458	0.575	0.409	0.489	0.489	1.807
4	South Carolina	Edgefield	0.157	0.549	0.282	0.510	0.371	1.778
4	South Carolina	Fairfield	0.109	0.504	0.376	0.357	0.469	2.790
4	South Carolina	Florence	0.323	0.500	0.466	0.456	0.501	2.626
4	South Carolina	Georgetown	0.157	0.531	0.458	0.524	0.432	5.631
4	South Carolina	Greenville	0.785	0.506	0.575	0.315	0.513	1.046
4	South Carolina	Greenwood	0.226	0.496	0.325	0.370	0.504	1.163
4	South Carolina	Hampton	0.105	0.522	0.287	0.420	0.411	1.189
4	South Carolina	Horry	0.409	0.470	0.531	0.495	0.433	2.330
4	South Carolina	Jasper	0.159	0.489	0.331	0.427	0.526	2.865
4	South Carolina	Kershaw	0.207	0.454	0.434	0.341	0.526	2.331
4	South Carolina	Lancaster	0.271	0.526	0.361	0.344	0.436	0.703
4	South Carolina	Laurens	0.200	0.544	0.398	0.333	0.398	1.034
4	South Carolina	Lee	0.105	0.514	0.298	0.412	0.322	-0.455
4	South Carolina	Lexington	0.615	0.574	0.476	0.346	0.561	1.291
4	South Carolina	Marion	0.097	0.452	0.354	0.498	0.444	5.097
4	South Carolina	Marlboro	0.102	0.459	0.296	0.419	0.295	-1.373
4	South Carolina	McCormick	0.169	0.516	0.278	0.551	0.343	1.682
4	South Carolina	Newberry	0.172	0.543	0.326	0.437	0.549	3.290
4	South Carolina	Oconee	0.360	0.229	0.411	0.449	0.459	0.919
4	South Carolina	Orangeburg	0.152	0.577	0.511	0.404	0.456	5.443
4	South Carolina	Pickens	0.420	0.475	0.427	0.380	0.491	1.218
4	South Carolina	Richland	0.694	0.503	0.502	0.360	0.515	1.066
4	South Carolina	Saluda	0.107	0.500	0.286	0.439	0.329	-0.116

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4	South Carolina	Spartanburg	0.747	0.588	0.521	0.302	0.483	0.893
4	South Carolina	Sumter	0.287	0.533	0.374	0.409	0.486	1.710
4	South Carolina	Union	0.140	0.571	0.363	0.358	0.353	0.788
4	South Carolina	Williamsburg	0.103	0.537	0.365	0.512	0.459	6.506
4	South Carolina	York	0.698	0.589	0.451	0.299	0.457	0.605
4	Tennessee	Anderson	0.392	0.368	0.308	0.319	0.437	-0.428
4	Tennessee	Bedford	0.228	0.345	0.358	0.283	0.422	-0.765
4	Tennessee	Benton	0.148	0.453	0.212	0.409	0.398	-1.320
4	Tennessee	Bledsoe	0.161	0.351	0.258	0.324	0.352	-2.938
4	Tennessee	Blount	0.626	0.243	0.346	0.408	0.498	0.237
4	Tennessee	Bradley	0.520	0.410	0.293	0.295	0.459	-0.350
4	Tennessee	Campbell	0.177	0.325	0.291	0.399	0.345	-1.357
4	Tennessee	Cannon	0.104	0.367	0.239	0.281	0.377	-5.421
4	Tennessee	Carroll	0.174	0.563	0.324	0.413	0.420	1.521
4	Tennessee	Carter	0.174	0.228	0.277	0.451	0.418	-0.587
4	Tennessee	Cheatham	0.141	0.568	0.306	0.406	0.485	2.370
4	Tennessee	Chester	0.137	0.536	0.244	0.419	0.413	0.202
4	Tennessee	Claiborne	0.164	0.320	0.305	0.382	0.319	-1.847
4	Tennessee	Clay	0.130	0.409	0.225	0.432	0.297	-2.675
4	Tennessee	Cocke	0.209	0.275	0.293	0.400	0.350	-1.309
4	Tennessee	Coffee	0.312	0.342	0.307	0.409	0.523	0.619
4	Tennessee	Crockett	0.139	0.592	0.312	0.359	0.409	0.783
4	Tennessee	Cumberland	0.256	0.325	0.344	0.353	0.412	-0.314
4	Tennessee	Davidson	0.595	0.524	0.524	0.255	0.447	0.716
4	Tennessee	Decatur	0.150	0.465	0.155	0.436	0.331	-2.661
4	Tennessee	DeKalb	0.155	0.296	0.282	0.360	0.375	-2.129
4	Tennessee	Dickson	0.136	0.446	0.358	0.379	0.512	2.487
4	Tennessee	Dyer	0.288	0.549	0.365	0.414	0.478	1.656
4	Tennessee	Fayette	0.234	0.713	0.424	0.358	0.457	2.648

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4	Tennessee	Fentress	0.230	0.396	0.240	0.370	0.330	-1.768
4	Tennessee	Franklin	0.207	0.437	0.355	0.386	0.436	0.913
4	Tennessee	Gibson	0.359	0.575	0.356	0.363	0.485	1.020
4	Tennessee	Giles	0.124	0.449	0.337	0.337	0.416	-0.049
4	Tennessee	Grainger	0.158	0.380	0.228	0.357	0.314	-3.268
4	Tennessee	Greene	0.223	0.382	0.341	0.363	0.411	-0.045
4	Tennessee	Grundy	0.151	0.376	0.303	0.354	0.327	-2.023
4	Tennessee	Hamblen	0.471	0.455	0.244	0.336	0.406	-0.580
4	Tennessee	Hamilton	0.832	0.478	0.517	0.276	0.470	0.552
4	Tennessee	Hancock	0.133	0.263	0.259	0.317	0.318	-4.830
4	Tennessee	Hardeman	0.165	0.653	0.286	0.373	0.302	-0.442
4	Tennessee	Hardin	0.150	0.374	0.274	0.460	0.311	-1.043
4	Tennessee	Hawkins	0.169	0.385	0.317	0.319	0.362	-1.630
4	Tennessee	Haywood	0.149	0.606	0.310	0.404	0.329	0.474
4	Tennessee	Henderson	0.201	0.504	0.284	0.399	0.434	0.462
4	Tennessee	Henry	0.165	0.525	0.334	0.402	0.425	1.438
4	Tennessee	Hickman	0.150	0.305	0.234	0.410	0.460	-1.071
4	Tennessee	Houston	0.203	0.539	0.170	0.373	0.425	-1.263
4	Tennessee	Humphreys	0.157	0.393	0.283	0.441	0.513	1.515
4	Tennessee	Jackson	0.168	0.512	0.265	0.363	0.210	-2.840
4	Tennessee	Jefferson	0.252	0.465	0.291	0.360	0.442	-0.029
4	Tennessee	Johnson	0.115	0.209	0.260	0.431	0.356	-2.925
4	Tennessee	Knox	0.657	0.371	0.521	0.245	0.501	0.525
4	Tennessee	Lake	0.229	0.626	0.194	0.501	0.262	-0.490
4	Tennessee	Lauderdale	0.184	0.613	0.314	0.480	0.300	1.191
4	Tennessee	Lawrence	0.201	0.357	0.322	0.384	0.453	0.242
4	Tennessee	Lewis	0.130	0.285	0.218	0.349	0.299	-5.323
4	Tennessee	Lincoln	0.162	0.436	0.271	0.319	0.462	-0.926
4	Tennessee	Loudon	0.471	0.250	0.338	0.324	0.460	-0.317

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Tennessee	Macon	0.150	0.344	0.243	0.331	0.390	-2.864
4	Tennessee	Madison	0.478	0.574	0.412	0.432	0.501	1.509
4	Tennessee	Marion	0.254	0.500	0.302	0.351	0.375	-0.364
4	Tennessee	Marshall	0.201	0.385	0.304	0.302	0.437	-1.004
4	Tennessee	Maury	0.264	0.323	0.366	0.347	0.500	0.511
4	Tennessee	McMinn	0.368	0.439	0.356	0.349	0.442	0.312
4	Tennessee	McNairy	0.149	0.576	0.346	0.415	0.377	1.734
4	Tennessee	Meigs	0.213	0.463	0.150	0.372	0.286	-3.107
4	Tennessee	Monroe	0.384	0.235	0.319	0.469	0.379	-0.051
4	Tennessee	Montgomery	0.429	0.546	0.359	0.425	0.418	0.856
4	Tennessee	Moore	0.112	0.409	0.237	0.333	0.518	-1.100
4	Tennessee	Morgan	0.154	0.408	0.286	0.347	0.431	-0.846
4	Tennessee	Obion	0.229	0.534	0.336	0.461	0.449	1.938
4	Tennessee	Overton	0.145	0.487	0.253	0.326	0.425	-1.401
4	Tennessee	Perry	0.112	0.389	0.203	0.345	0.381	-4.244
4	Tennessee	Pickett	0.157	0.413	0.102	0.406	0.413	-3.211
4	Tennessee	Polk	0.241	0.366	0.316	0.503	0.389	0.869
4	Tennessee	Putnam	0.215	0.398	0.375	0.309	0.470	0.380
4	Tennessee	Rhea	0.291	0.435	0.295	0.359	0.354	-0.690
4	Tennessee	Roane	0.402	0.389	0.306	0.295	0.408	-0.666
4	Tennessee	Robertson	0.254	0.562	0.355	0.392	0.492	1.731
4	Tennessee	Rutherford	0.597	0.402	0.376	0.309	0.483	0.187
4	Tennessee	Scott	0.182	0.360	0.268	0.359	0.361	-1.840
4	Tennessee	Sequatchie	0.198	0.360	0.268	0.327	0.319	-2.499
4	Tennessee	Sevier	0.509	0.238	0.385	0.401	0.424	0.161
4	Tennessee	Shelby	0.990	0.667	0.595	0.312	0.443	0.899
4	Tennessee	Smith	0.135	0.450	0.258	0.325	0.422	-1.735
4	Tennessee	Stewart	0.147	0.520	0.250	0.532	0.338	1.088
4	Tennessee	Sullivan	0.443	0.331	0.427	0.330	0.448	0.364

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
4	Tennessee	Sumner	0.543	0.496	0.401	0.315	0.515	0.645
4	Tennessee	Tipton	0.365	0.667	0.354	0.377	0.413	0.949
4	Tennessee	Trousdale	0.118	0.509	0.157	0.356	0.452	-2.638
4	Tennessee	Unicoi	0.159	0.204	0.258	0.458	0.403	-1.206
4	Tennessee	Union	0.162	0.367	0.204	0.364	0.366	-2.937
4	Tennessee	Van Buren	0.175	0.305	0.251	0.364	0.210	-4.107
4	Tennessee	Warren	0.116	0.270	0.303	0.296	0.392	-3.677
4	Tennessee	Washington	0.540	0.349	0.286	0.338	0.482	-0.206
4	Tennessee	Wayne	0.195	0.353	0.259	0.379	0.374	-1.494
4	Tennessee	Weakley	0.124	0.567	0.321	0.390	0.502	2.958
4	Tennessee	White	0.144	0.283	0.282	0.348	0.406	-2.170
4	Tennessee	Williamson	0.501	0.440	0.407	0.362	0.547	0.982
4	Tennessee	Wilson	0.414	0.440	0.423	0.337	0.566	1.225

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.222	0.713	0.407	0.434	0.572	6.021
5	Illinois	Adams	0.181	0.642	0.519	0.478	0.592	7.538
5	Illinois	Alexander	0.279	0.539	0.175	0.575	0.176	-0.842
5	Illinois	Bond	0.126	0.691	0.345	0.464	0.470	5.332
5	Illinois	Boone	0.471	0.707	0.378	0.458	0.453	1.551
5	Illinois	Brown	0.095	0.657	0.249	0.439	0.415	2.251
5	Illinois	Bureau	0.172	0.736	0.531	0.560	0.604	9.940
5	Illinois	Calhoun	0.133	0.729	0.320	0.428	0.526	5.031
5	Illinois	Carroll	0.224	0.710	0.336	0.478	0.511	3.506
5	Illinois	Cass	0.117	0.715	0.283	0.493	0.449	4.833
5	Illinois	Champaign	0.240	0.663	0.655	0.516	0.467	6.641
5	Illinois	Christian	0.182	0.695	0.433	0.569	0.610	7.966
5	Illinois	Clark	0.141	0.655	0.353	0.466	0.446	4.369
5	Illinois	Clay	0.126	0.646	0.344	0.448	0.509	5.282
5	Illinois	Clinton	0.189	0.720	0.475	0.441	0.641	7.017
5	Illinois	Coles	0.146	0.632	0.394	0.486	0.413	4.702
5	Illinois	Cook	0.687	0.667	0.828	0.199	0.498	1.953
5	Illinois	Crawford	0.186	0.651	0.282	0.487	0.450	2.589
5	Illinois	Cumberland	0.152	0.693	0.375	0.484	0.487	5.526
5	Illinois	De Witt	0.349	0.681	0.327	0.530	0.597	2.947
5	Illinois	DeKalb	0.273	0.702	0.511	0.433	0.515	4.171
5	Illinois	Douglas	0.222	0.694	0.372	0.489	0.580	4.624
5	Illinois	DuPage	0.698	0.681	0.636	0.181	0.629	1.517
5	Illinois	Edgar	0.102	0.673	0.317	0.526	0.470	7.179
5	Illinois	Edwards	0.144	0.633	0.245	0.418	0.566	2.948
5	Illinois	Effingham	0.127	0.690	0.462	0.498	0.676	11.601
5	Illinois	Fayette	0.117	0.683	0.373	0.485	0.526	7.678
5	Illinois	Ford	0.084	0.711	0.358	0.499	0.585	12.357

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Illinois	Franklin	0.148	0.662	0.399	0.447	0.477	5.138
5	Illinois	Fulton	0.149	0.699	0.477	0.539	0.543	9.159
5	Illinois	Gallatin	0.185	0.664	0.277	0.598	0.326	2.770
5	Illinois	Greene	0.157	0.674	0.293	0.454	0.525	3.841
5	Illinois	Grundy	0.457	0.724	0.511	0.646	0.521	3.710
5	Illinois	Hamilton	0.118	0.641	0.285	0.469	0.511	4.714
5	Illinois	Hancock	0.177	0.721	0.417	0.546	0.558	7.173
5	Illinois	Hardin	0.161	0.625	0.228	0.776	0.141	2.595
5	Illinois	Henderson	0.263	0.724	0.348	0.533	0.535	3.856
5	Illinois	Henry	0.303	0.701	0.457	0.543	0.511	4.151
5	Illinois	Iroquois	0.105	0.742	0.527	0.425	0.544	12.023
5	Illinois	Jackson	0.215	0.568	0.468	0.549	0.424	4.645
5	Illinois	Jasper	0.101	0.669	0.317	0.516	0.571	8.943
5	Illinois	Jefferson	0.151	0.707	0.392	0.404	0.482	4.593
5	Illinois	Jersey	0.113	0.668	0.350	0.478	0.545	7.517
5	Illinois	Jo Daviess	0.216	0.693	0.404	0.455	0.617	5.111
5	Illinois	Johnson	0.198	0.639	0.372	0.660	0.372	4.975
5	Illinois	Kane	0.633	0.701	0.595	0.393	0.553	2.115
5	Illinois	Kankakee	0.282	0.689	0.486	0.515	0.500	4.374
5	Illinois	Kendall	0.354	0.721	0.447	0.475	0.594	3.521
5	Illinois	Knox	0.175	0.685	0.406	0.589	0.448	6.258
5	Illinois	Lake	0.621	0.691	0.613	0.458	0.540	2.429
5	Illinois	LaSalle	0.301	0.692	0.686	0.511	0.566	6.274
5	Illinois	Lawrence	0.162	0.632	0.279	0.499	0.490	3.507
5	Illinois	Lee	0.128	0.718	0.523	0.537	0.538	11.635
5	Illinois	Livingston	0.130	0.714	0.558	0.548	0.593	13.212
5	Illinois	Logan	0.213	0.733	0.369	0.500	0.531	4.640
5	Illinois	Macon	0.205	0.652	0.468	0.403	0.472	3.978
5	Illinois	Macoupin	0.132	0.698	0.511	0.460	0.619	10.658

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Illinois	Madison	0.696	0.651	0.660	0.391	0.497	1.938
5	Illinois	Marion	0.141	0.706	0.404	0.475	0.501	6.634
5	Illinois	Marshall	0.183	0.751	0.351	0.467	0.634	5.910
5	Illinois	Mason	0.150	0.689	0.342	0.487	0.505	5.247
5	Illinois	Massac	0.216	0.596	0.296	0.494	0.436	2.102
5	Illinois	McDonough	0.153	0.675	0.434	0.508	0.430	6.046
5	Illinois	McHenry	0.612	0.714	0.574	0.432	0.604	2.438
5	Illinois	McLean	0.203	0.697	0.677	0.484	0.469	7.935
5	Illinois	Menard	0.126	0.739	0.319	0.492	0.513	6.417
5	Illinois	Mercer	0.287	0.733	0.351	0.517	0.684	4.468
5	Illinois	Monroe	0.242	0.653	0.422	0.408	0.563	3.666
5	Illinois	Montgomery	0.159	0.704	0.449	0.520	0.646	9.086
5	Illinois	Morgan	0.285	0.681	0.407	0.429	0.559	3.231
5	Illinois	Moultrie	0.098	0.693	0.334	0.551	0.513	9.586
5	Illinois	Ogle	0.274	0.718	0.580	0.523	0.531	5.814
5	Illinois	Peoria	0.437	0.671	0.424	0.508	0.522	2.463
5	Illinois	Perry	0.142	0.630	0.354	0.446	0.607	6.081
5	Illinois	Piatt	0.130	0.734	0.400	0.445	0.558	7.598
5	Illinois	Pike	0.149	0.723	0.404	0.503	0.538	7.343
5	Illinois	Pope	0.225	0.570	0.272	0.796	0.529	5.750
5	Illinois	Pulaski	0.222	0.653	0.212	0.471	0.239	-0.693
5	Illinois	Putnam	0.508	0.764	0.346	0.422	0.484	1.329
5	Illinois	Randolph	0.199	0.619	0.434	0.414	0.650	5.379
5	Illinois	Richland	0.116	0.620	0.290	0.465	0.458	3.769
5	Illinois	Rock Island	0.333	0.661	0.411	0.456	0.489	2.513
5	Illinois	Saline	0.202	0.589	0.343	0.556	0.416	3.408
5	Illinois	Sangamon	0.286	0.670	0.618	0.452	0.555	5.297
5	Illinois	Schuyler	0.110	0.653	0.286	0.479	0.536	5.881
5	Illinois	Scott	0.134	0.763	0.267	0.487	0.461	4.319

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Illinois	Shelby	0.156	0.683	0.390	0.531	0.570	7.383
5	Illinois	St. Clair	0.728	0.646	0.506	0.364	0.464	1.100
5	Illinois	Stark	0.204	0.754	0.283	0.577	0.590	5.309
5	Illinois	Stephenson	0.159	0.681	0.355	0.460	0.557	5.346
5	Illinois	Tazewell	0.534	0.666	0.549	0.507	0.567	2.793
5	Illinois	Union	0.227	0.549	0.356	0.652	0.604	5.669
5	Illinois	Vermilion	0.222	0.659	0.464	0.571	0.451	5.324
5	Illinois	Wabash	0.151	0.616	0.290	0.459	0.395	1.942
5	Illinois	Warren	0.139	0.670	0.321	0.581	0.517	6.981
5	Illinois	Washington	0.184	0.739	0.402	0.433	0.513	4.800
5	Illinois	Wayne	0.151	0.654	0.342	0.409	0.537	4.140
5	Illinois	White	0.147	0.645	0.322	0.416	0.414	2.308
5	Illinois	Whiteside	0.153	0.697	0.420	0.545	0.471	7.049
5	Illinois	Will	0.779	0.699	0.776	0.484	0.576	2.679
5	Illinois	Williamson	0.328	0.639	0.461	0.545	0.557	3.968
5	Illinois	Winnebago	0.631	0.673	0.541	0.379	0.481	1.569
5	Illinois	Woodford	0.242	0.715	0.449	0.442	0.641	5.179
5	Indiana	Adams	0.118	0.686	0.315	0.427	0.545	5.458
5	Indiana	Allen	0.587	0.683	0.531	0.381	0.554	1.917
5	Indiana	Bartholomew	0.340	0.684	0.322	0.466	0.552	2.269
5	Indiana	Benton	0.069	0.741	0.341	0.506	0.609	15.746
5	Indiana	Blackford	0.111	0.671	0.228	0.402	0.559	3.306
5	Indiana	Boone	0.318	0.706	0.414	0.506	0.565	3.656
5	Indiana	Brown	0.095	0.664	0.348	0.572	0.585	12.036
5	Indiana	Carroll	0.146	0.690	0.353	0.507	0.592	7.117
5	Indiana	Cass	0.108	0.692	0.304	0.499	0.518	6.924
5	Indiana	Clark	0.572	0.656	0.338	0.400	0.484	0.860
5	Indiana	Clay	0.149	0.693	0.307	0.477	0.646	6.392
5	Indiana	Clinton	0.130	0.686	0.326	0.500	0.599	7.377

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Indiana	Crawford	0.191	0.658	0.191	0.442	0.525	1.501
5	Indiana	Daviess	0.160	0.636	0.369	0.459	0.671	6.651
5	Indiana	Dearborn	0.237	0.687	0.330	0.432	0.606	3.460
5	Indiana	Decatur	0.176	0.683	0.353	0.490	0.655	6.322
5	Indiana	DeKalb	0.197	0.707	0.404	0.458	0.553	5.055
5	Indiana	Delaware	0.216	0.675	0.316	0.391	0.485	1.994
5	Indiana	Dubois	0.241	0.640	0.450	0.405	0.691	4.952
5	Indiana	Elkhart	0.572	0.695	0.430	0.408	0.485	1.396
5	Indiana	Fayette	0.106	0.669	0.240	0.451	0.501	3.798
5	Indiana	Floyd	0.539	0.647	0.286	0.309	0.538	0.414
5	Indiana	Fountain	0.080	0.696	0.294	0.497	0.500	8.536
5	Indiana	Franklin	0.126	0.659	0.311	0.478	0.693	8.136
5	Indiana	Fulton	0.089	0.670	0.329	0.501	0.653	11.916
5	Indiana	Gibson	0.228	0.657	0.384	0.421	0.582	3.760
5	Indiana	Grant	0.200	0.677	0.377	0.378	0.506	3.029
5	Indiana	Greene	0.115	0.635	0.379	0.494	0.558	8.293
5	Indiana	Hamilton	0.453	0.702	0.454	0.323	0.577	1.850
5	Indiana	Hancock	0.406	0.707	0.376	0.408	0.616	2.274
5	Indiana	Harrison	0.135	0.645	0.353	0.405	0.537	4.706
5	Indiana	Hendricks	0.477	0.707	0.475	0.430	0.583	2.465
5	Indiana	Henry	0.146	0.683	0.324	0.427	0.562	4.798
5	Indiana	Howard	0.268	0.677	0.249	0.430	0.525	1.608
5	Indiana	Huntington	0.121	0.728	0.396	0.452	0.611	9.081
5	Indiana	Jackson	0.189	0.659	0.355	0.479	0.601	5.097
5	Indiana	Jasper	0.102	0.690	0.479	0.484	0.612	13.370
5	Indiana	Jay	0.118	0.697	0.302	0.378	0.529	3.990
5	Indiana	Jefferson	0.133	0.673	0.335	0.526	0.539	6.920
5	Indiana	Jennings	0.113	0.661	0.337	0.476	0.558	7.302
5	Indiana	Johnson	0.513	0.664	0.387	0.475	0.592	1.998

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Indiana	Knox	0.205	0.627	0.383	0.449	0.570	4.262
5	Indiana	Kosciusko	0.251	0.700	0.468	0.499	0.548	4.986
5	Indiana	LaGrange	0.097	0.683	0.411	0.459	0.515	9.466
5	Indiana	Lake	0.777	0.677	0.602	0.265	0.467	1.093
5	Indiana	LaPorte	0.296	0.669	0.462	0.356	0.504	2.585
5	Indiana	Lawrence	0.131	0.625	0.367	0.463	0.606	7.094
5	Indiana	Madison	0.218	0.685	0.346	0.398	0.524	2.817
5	Indiana	Marion	0.723	0.675	0.667	0.210	0.444	1.165
5	Indiana	Marshall	0.164	0.695	0.440	0.497	0.615	7.887
5	Indiana	Martin	0.129	0.662	0.300	0.571	0.576	7.689
5	Indiana	Miami	0.115	0.703	0.283	0.485	0.563	6.559
5	Indiana	Monroe	0.361	0.626	0.417	0.542	0.439	2.576
5	Indiana	Montgomery	0.109	0.716	0.392	0.483	0.630	10.901
5	Indiana	Morgan	0.213	0.701	0.465	0.493	0.566	5.913
5	Indiana	Newton	0.070	0.734	0.372	0.508	0.556	15.162
5	Indiana	Noble	0.163	0.671	0.377	0.503	0.480	5.225
5	Indiana	Ohio	0.124	0.693	0.241	0.446	0.620	5.212
5	Indiana	Orange	0.126	0.628	0.287	0.464	0.654	6.479
5	Indiana	Owen	0.181	0.681	0.331	0.489	0.554	4.712
5	Indiana	Parke	0.080	0.665	0.326	0.495	0.573	10.966
5	Indiana	Perry	0.163	0.651	0.269	0.526	0.600	5.145
5	Indiana	Pike	0.132	0.654	0.327	0.468	0.571	6.044
5	Indiana	Porter	0.615	0.685	0.544	0.377	0.564	1.900
5	Indiana	Posey	0.198	0.661	0.343	0.434	0.602	4.160
5	Indiana	Pulaski	0.074	0.685	0.342	0.470	0.647	13.871
5	Indiana	Putnam	0.116	0.700	0.406	0.514	0.618	10.881
5	Indiana	Randolph	0.093	0.695	0.311	0.465	0.575	8.540
5	Indiana	Ripley	0.157	0.705	0.348	0.527	0.780	9.322
5	Indiana	Rush	0.143	0.696	0.296	0.478	0.743	7.823

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Indiana	Scott	0.161	0.651	0.233	0.452	0.497	2.225
5	Indiana	Shelby	0.186	0.698	0.323	0.487	0.599	5.019
5	Indiana	Spencer	0.167	0.699	0.375	0.455	0.655	6.609
5	Indiana	St. Joseph	0.513	0.667	0.480	0.403	0.473	1.690
5	Indiana	Starke	0.105	0.697	0.344	0.418	0.469	5.374
5	Indiana	Steuben	0.158	0.702	0.404	0.443	0.599	6.599
5	Indiana	Sullivan	0.112	0.665	0.391	0.460	0.574	8.657
5	Indiana	Switzerland	0.118	0.677	0.295	0.435	0.460	3.681
5	Indiana	Tippecanoe	0.344	0.672	0.469	0.457	0.501	2.989
5	Indiana	Tipton	0.079	0.669	0.318	0.454	0.696	12.605
5	Indiana	Union	0.094	0.705	0.244	0.491	0.465	5.025
5	Indiana	Vanderburgh	0.752	0.620	0.278	0.355	0.549	0.417
5	Indiana	Vermillion	0.181	0.695	0.288	0.467	0.537	3.664
5	Indiana	Vigo	0.332	0.628	0.357	0.442	0.525	2.106
5	Indiana	Wabash	0.099	0.702	0.365	0.475	0.667	11.576
5	Indiana	Warren	0.102	0.723	0.310	0.546	0.541	9.382
5	Indiana	Warrick	0.324	0.656	0.404	0.423	0.632	3.127
5	Indiana	Washington	0.119	0.658	0.313	0.433	0.571	5.739
5	Indiana	Wayne	0.184	0.687	0.319	0.422	0.534	3.376
5	Indiana	Wells	0.129	0.703	0.308	0.457	0.611	6.569
5	Indiana	White	0.120	0.697	0.447	0.502	0.587	10.591
5	Indiana	Whitley	0.183	0.713	0.324	0.455	0.573	4.462
5	Michigan	Alcona	0.086	0.762	0.347	0.457	0.474	8.627
5	Michigan	Alger	0.104	0.738	0.301	0.473	0.602	8.491
5	Michigan	Allegan	0.135	0.706	0.510	0.372	0.555	7.900
5	Michigan	Alpena	0.131	0.713	0.354	0.485	0.516	6.576
5	Michigan	Antrim	0.129	0.753	0.387	0.395	0.499	5.681
5	Michigan	Arenac	0.066	0.780	0.369	0.389	0.492	10.429
5	Michigan	Baraga	0.255	0.603	0.380	0.480	0.555	3.462

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Michigan	Barry	0.068	0.715	0.447	0.372	0.487	11.412
5	Michigan	Bay	0.186	0.667	0.408	0.345	0.506	3.191
5	Michigan	Benzie	0.106	0.775	0.365	0.366	0.566	7.163
5	Michigan	Berrien	0.216	0.710	0.513	0.363	0.375	3.270
5	Michigan	Branch	0.133	0.741	0.373	0.417	0.414	4.302
5	Michigan	Calhoun	0.250	0.702	0.384	0.385	0.425	2.021
5	Michigan	Cass	0.187	0.710	0.363	0.426	0.358	2.283
5	Michigan	Charlevoix	0.138	0.766	0.384	0.333	0.594	5.597
5	Michigan	Cheboygan	0.095	0.746	0.447	0.446	0.561	11.897
5	Michigan	Chippewa	0.098	0.723	0.490	0.381	0.480	9.310
5	Michigan	Clare	0.082	0.702	0.368	0.401	0.427	6.166
5	Michigan	Clinton	0.165	0.708	0.431	0.390	0.600	6.042
5	Michigan	Crawford	0.133	0.720	0.344	0.660	0.442	8.478
5	Michigan	Delta	0.105	0.694	0.445	0.440	0.603	10.912
5	Michigan	Dickinson	0.203	0.679	0.418	0.546	0.691	7.359
5	Michigan	Eaton	0.234	0.724	0.431	0.395	0.533	3.805
5	Michigan	Emmet	0.141	0.738	0.410	0.523	0.649	9.880
5	Michigan	Genesee	0.511	0.669	0.438	0.331	0.415	0.908
5	Michigan	Gladwin	0.065	0.743	0.378	0.485	0.421	11.933
5	Michigan	Gogebic	0.125	0.706	0.270	0.516	0.532	5.877
5	Michigan	Grand Traverse	0.205	0.699	0.407	0.393	0.603	4.544
5	Michigan	Gratiot	0.114	0.747	0.406	0.386	0.466	6.120
5	Michigan	Hillsdale	0.084	0.745	0.311	0.370	0.441	4.204
5	Michigan	Houghton	0.164	0.647	0.335	0.423	0.533	3.817
5	Michigan	Huron	0.082	0.765	0.513	0.335	0.594	13.684
5	Michigan	Ingham	0.328	0.695	0.442	0.332	0.480	1.921
5	Michigan	Ionia	0.132	0.744	0.371	0.398	0.481	4.968
5	Michigan	Iosco	0.131	0.708	0.349	0.450	0.497	5.485
5	Michigan	Iron	0.169	0.744	0.330	0.510	0.653	6.863

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Michigan	Isabella	0.114	0.741	0.446	0.522	0.416	9.013
5	Michigan	Jackson	0.161	0.696	0.367	0.376	0.484	3.406
5	Michigan	Kalamazoo	0.410	0.670	0.423	0.369	0.473	1.543
5	Michigan	Kalkaska	0.073	0.773	0.384	0.558	0.425	13.664
5	Michigan	Kent	0.450	0.668	0.622	0.319	0.523	2.524
5	Michigan	Keweenaw	0.222	0.770	0.311	0.451	0.279	1.155
5	Michigan	Lake	0.109	0.769	0.341	0.553	0.444	8.340
5	Michigan	Lapeer	0.136	0.720	0.383	0.407	0.513	5.527
5	Michigan	Leelanau	0.243	0.751	0.384	0.371	0.622	3.738
5	Michigan	Lenawee	0.168	0.733	0.424	0.398	0.497	4.868
5	Michigan	Livingston	0.374	0.699	0.446	0.358	0.617	2.614
5	Michigan	Luce	0.226	0.709	0.280	0.500	0.389	1.973
5	Michigan	Mackinac	0.103	0.736	0.423	0.394	0.513	8.191
5	Michigan	Macomb	0.587	0.663	0.520	0.267	0.501	1.173
5	Michigan	Manistee	0.144	0.746	0.328	0.418	0.522	4.671
5	Michigan	Marquette	0.276	0.570	0.609	0.448	0.593	5.297
5	Michigan	Mason	0.130	0.745	0.347	0.424	0.520	5.637
5	Michigan	Mecosta	0.070	0.730	0.398	0.417	0.431	9.476
5	Michigan	Menominee	0.099	0.752	0.376	0.375	0.425	5.183
5	Michigan	Midland	0.137	0.692	0.356	0.389	0.527	4.614
5	Michigan	Missaukee	0.073	0.801	0.368	0.502	0.471	12.836
5	Michigan	Monroe	0.361	0.690	0.455	0.235	0.488	1.219
5	Michigan	Montcalm	0.086	0.738	0.432	0.382	0.434	7.948
5	Michigan	Montmorency	0.092	0.735	0.365	0.524	0.414	8.744
5	Michigan	Muskegon	0.194	0.686	0.356	0.382	0.430	2.156
5	Michigan	Newaygo	0.075	0.750	0.417	0.501	0.445	12.995
5	Michigan	Oakland	0.557	0.679	0.723	0.256	0.523	2.269
5	Michigan	Oceana	0.046	0.735	0.390	0.368	0.511	14.809
5	Michigan	Ogemaw	0.150	0.735	0.363	0.493	0.452	5.363

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Michigan	Ontonagon	0.237	0.767	0.270	0.476	0.582	3.373
5	Michigan	Osceola	0.073	0.789	0.409	0.424	0.448	11.000
5	Michigan	Oscoda	0.123	0.724	0.351	0.563	0.317	5.412
5	Michigan	Otsego	0.110	0.724	0.379	0.499	0.562	9.630
5	Michigan	Ottawa	0.247	0.684	0.584	0.314	0.588	4.728
5	Michigan	Presque Isle	0.129	0.780	0.355	0.430	0.436	4.953
5	Michigan	Roscommon	0.090	0.684	0.388	0.567	0.395	9.825
5	Michigan	Saginaw	0.180	0.675	0.510	0.396	0.439	4.838
5	Michigan	Sanilac	0.083	0.765	0.467	0.477	0.451	12.926
5	Michigan	Schoolcraft	0.121	0.746	0.350	0.535	0.496	8.019
5	Michigan	Shiawassee	0.120	0.711	0.373	0.380	0.515	5.445
5	Michigan	St. Clair	0.188	0.708	0.541	0.403	0.480	5.738
5	Michigan	St. Joseph	0.162	0.717	0.403	0.416	0.376	3.420
5	Michigan	Tuscola	0.093	0.738	0.490	0.415	0.509	11.398
5	Michigan	Van Buren	0.162	0.705	0.425	0.301	0.453	2.888
5	Michigan	Washtenaw	0.405	0.693	0.546	0.360	0.477	2.399
5	Michigan	Wayne	0.608	0.644	0.651	0.160	0.373	0.833
5	Michigan	Wexford	0.135	0.754	0.414	0.486	0.565	8.642
5	Minnesota	Aitkin	0.126	0.797	0.352	0.508	0.696	10.685
5	Minnesota	Anoka	0.655	0.706	0.358	0.299	0.673	1.092
5	Minnesota	Becker	0.154	0.817	0.455	0.567	0.769	12.528
5	Minnesota	Beltrami	0.172	0.764	0.515	0.616	0.654	11.243
5	Minnesota	Benton	0.208	0.758	0.343	0.323	0.745	4.465
5	Minnesota	Big Stone	0.096	0.825	0.187	0.472	0.649	7.903
5	Minnesota	Blue Earth	0.285	0.745	0.462	0.427	0.743	5.213
5	Minnesota	Brown	0.142	0.746	0.358	0.375	0.822	8.693
5	Minnesota	Carlton	0.190	0.797	0.444	0.473	0.673	7.715
5	Minnesota	Carver	0.480	0.741	0.429	0.403	0.688	2.551
5	Minnesota	Cass	0.134	0.827	0.468	0.599	0.631	13.375

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Minnesota	Chippewa	0.207	0.792	0.273	0.456	0.815	6.002
5	Minnesota	Chisago	0.201	0.769	0.421	0.421	0.724	6.729
5	Minnesota	Clay	0.157	0.755	0.531	0.424	0.661	9.658
5	Minnesota	Clearwater	0.140	0.884	0.238	0.601	0.622	8.657
5	Minnesota	Cook	0.120	0.700	0.318	0.434	0.913	11.740
5	Minnesota	Cottonwood	0.273	0.791	0.339	0.354	0.799	4.159
5	Minnesota	Crow Wing	0.175	0.759	0.420	0.406	0.703	7.179
5	Minnesota	Dakota	0.672	0.693	0.552	0.397	0.632	2.057
5	Minnesota	Dodge	0.143	0.815	0.353	0.449	0.823	10.325
5	Minnesota	Douglas	0.199	0.761	0.376	0.445	0.836	7.549
5	Minnesota	Faribault	0.147	0.838	0.400	0.473	0.830	11.502
5	Minnesota	Fillmore	0.131	0.878	0.362	0.588	0.832	14.638
5	Minnesota	Freeborn	0.327	0.772	0.353	0.458	0.695	3.680
5	Minnesota	Goodhue	0.169	0.772	0.424	0.460	0.753	8.956
5	Minnesota	Grant	0.104	0.892	0.361	0.391	0.886	14.946
5	Minnesota	Hennepin	0.748	0.688	0.692	0.254	0.607	1.801
5	Minnesota	Houston	0.169	0.783	0.384	0.599	0.723	10.059
5	Minnesota	Hubbard	0.120	0.811	0.298	0.427	0.729	9.077
5	Minnesota	Isanti	0.160	0.761	0.347	0.363	0.672	5.609
5	Minnesota	Itasca	0.106	0.762	0.534	0.630	0.692	19.703
5	Minnesota	Jackson	0.185	0.823	0.442	0.508	0.826	10.112
5	Minnesota	Kanabec	0.140	0.842	0.260	0.375	0.733	6.406
5	Minnesota	Kandiyohi	0.204	0.779	0.462	0.429	0.739	7.463
5	Minnesota	Kittson	0.136	0.837	0.386	0.402	0.724	9.368
5	Minnesota	Koochiching	0.099	0.698	0.429	0.635	0.628	16.543
5	Minnesota	Lac qui Parle	0.233	0.854	0.272	0.458	0.847	5.887
5	Minnesota	Lake	0.121	0.719	0.359	0.653	0.699	13.677
5	Minnesota	Lake of the Woods	0.162	0.699	0.249	0.628	0.848	9.685
5	Minnesota	Le Sueur	0.241	0.810	0.317	0.415	0.754	4.789

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Minnesota	Lincoln	0.076	0.866	0.351	0.376	0.935	20.574
5	Minnesota	Lyon	0.116	0.774	0.455	0.324	0.846	12.459
5	Minnesota	Mahnomen	0.236	0.865	0.319	0.778	0.380	5.812
5	Minnesota	Marshall	0.136	0.872	0.486	0.449	0.710	12.279
5	Minnesota	Martin	0.144	0.777	0.392	0.469	0.765	10.259
5	Minnesota	McLeod	0.177	0.775	0.373	0.441	0.788	7.933
5	Minnesota	Meeker	0.229	0.816	0.334	0.409	0.776	5.390
5	Minnesota	Mille Lacs	0.144	0.826	0.351	0.404	0.776	8.861
5	Minnesota	Morrison	0.111	0.834	0.408	0.414	0.794	13.504
5	Minnesota	Mower	0.117	0.768	0.457	0.446	0.640	11.412
5	Minnesota	Murray	0.142	0.862	0.345	0.389	0.810	9.355
5	Minnesota	Nicollet	0.232	0.771	0.341	0.407	0.682	4.404
5	Minnesota	Nobles	0.231	0.792	0.460	0.410	0.681	5.896
5	Minnesota	Norman	0.220	0.863	0.340	0.413	0.744	5.657
5	Minnesota	Olmsted	0.423	0.717	0.505	0.414	0.667	3.290
5	Minnesota	Otter Tail	0.195	0.818	0.562	0.366	0.754	8.714
5	Minnesota	Pennington	0.129	0.768	0.348	0.427	0.738	9.230
5	Minnesota	Pine	0.126	0.823	0.362	0.514	0.705	11.400
5	Minnesota	Pipestone	0.078	0.761	0.391	0.396	0.786	16.883
5	Minnesota	Polk	0.153	0.803	0.599	0.414	0.704	11.773
5	Minnesota	Pope	0.176	0.842	0.273	0.414	0.791	6.490
5	Minnesota	Ramsey	0.621	0.658	0.448	0.149	0.607	0.662
5	Minnesota	Red Lake	0.152	0.861	0.313	0.407	0.597	5.723
5	Minnesota	Redwood	0.144	0.839	0.351	0.431	0.825	10.136
5	Minnesota	Renville	0.238	0.843	0.342	0.419	0.853	6.129
5	Minnesota	Rice	0.303	0.754	0.392	0.404	0.692	3.792
5	Minnesota	Rock	0.187	0.823	0.370	0.410	0.670	6.048
5	Minnesota	Roseau	0.278	0.822	0.441	0.462	0.794	6.088
5	Minnesota	Scott	0.504	0.740	0.421	0.404	0.666	2.307

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Minnesota	Sherburne	0.472	0.740	0.411	0.366	0.770	2.643
5	Minnesota	Sibley	0.187	0.865	0.333	0.438	0.795	7.430
5	Minnesota	St. Louis	0.165	0.718	0.861	0.453	0.607	14.060
5	Minnesota	Stearns	0.314	0.743	0.587	0.412	0.746	5.688
5	Minnesota	Steele	0.389	0.748	0.376	0.408	0.708	2.943
5	Minnesota	Stevens	0.229	0.804	0.322	0.405	0.843	5.741
5	Minnesota	Swift	0.213	0.832	0.310	0.426	0.783	5.823
5	Minnesota	Todd	0.161	0.833	0.288	0.375	0.657	5.059
5	Minnesota	Traverse	0.162	0.803	0.093	0.397	0.645	1.801
5	Minnesota	Wabasha	0.154	0.792	0.320	0.584	0.792	10.644
5	Minnesota	Wadena	0.215	0.806	0.279	0.401	0.726	4.488
5	Minnesota	Waseca	0.152	0.749	0.315	0.429	0.746	7.264
5	Minnesota	Washington	0.536	0.698	0.426	0.373	0.683	2.036
5	Minnesota	Watonwan	0.231	0.798	0.341	0.401	0.690	4.545
5	Minnesota	Wilkin	0.134	0.804	0.368	0.415	0.870	11.310
5	Minnesota	Winona	0.149	0.737	0.398	0.598	0.628	10.114
5	Minnesota	Wright	0.455	0.754	0.469	0.440	0.762	3.478
5	Minnesota	Yellow Medicine	0.185	0.865	0.336	0.454	0.818	8.004
5	Ohio	Adams	0.129	0.636	0.365	0.375	0.387	2.256
5	Ohio	Allen	0.271	0.689	0.405	0.339	0.554	2.548
5	Ohio	Ashland	0.134	0.683	0.421	0.385	0.540	6.064
5	Ohio	Ashtabula	0.220	0.684	0.427	0.335	0.466	2.535
5	Ohio	Athens	0.193	0.646	0.436	0.329	0.388	1.960
5	Ohio	Auglaize	0.143	0.701	0.431	0.373	0.583	6.364
5	Ohio	Belmont	0.177	0.655	0.403	0.325	0.504	2.930
5	Ohio	Brown	0.147	0.664	0.358	0.362	0.477	3.008
5	Ohio	Butler	0.625	0.657	0.526	0.262	0.508	1.125
5	Ohio	Carroll	0.115	0.644	0.354	0.319	0.549	3.917
5	Ohio	Champaign	0.111	0.659	0.396	0.453	0.477	6.901

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5	Ohio	Clark	0.313	0.656	0.321	0.389	0.482	1.325
5	Ohio	Clermont	0.346	0.650	0.352	0.317	0.524	1.140
5	Ohio	Clinton	0.223	0.679	0.365	0.333	0.463	1.705
5	Ohio	Columbiana	0.237	0.649	0.379	0.320	0.506	1.851
5	Ohio	Coshocton	0.130	0.665	0.370	0.341	0.495	3.551
5	Ohio	Crawford	0.163	0.660	0.357	0.443	0.554	4.857
5	Ohio	Cuyahoga	0.502	0.656	0.710	0.207	0.490	2.031
5	Ohio	Darke	0.171	0.682	0.413	0.432	0.591	5.899
5	Ohio	Defiance	0.120	0.687	0.368	0.374	0.623	6.775
5	Ohio	Delaware	0.418	0.663	0.457	0.461	0.522	2.490
5	Ohio	Erie	0.228	0.657	0.413	0.321	0.507	2.380
5	Ohio	Fairfield	0.330	0.668	0.457	0.413	0.517	2.785
5	Ohio	Fayette	0.194	0.685	0.386	0.396	0.510	3.547
5	Ohio	Franklin	0.662	0.629	0.671	0.256	0.463	1.447
5	Ohio	Fulton	0.170	0.717	0.424	0.320	0.669	5.551
5	Ohio	Gallia	0.170	0.613	0.372	0.347	0.351	0.878
5	Ohio	Geauga	0.262	0.694	0.481	0.428	0.612	4.708
5	Ohio	Greene	0.480	0.652	0.412	0.383	0.460	1.241
5	Ohio	Guernsey	0.158	0.684	0.433	0.325	0.513	4.095
5	Ohio	Hamilton	0.557	0.630	0.571	0.137	0.502	0.852
5	Ohio	Hancock	0.249	0.698	0.455	0.379	0.545	3.665
5	Ohio	Hardin	0.083	0.684	0.355	0.453	0.522	9.295
5	Ohio	Harrison	0.090	0.687	0.349	0.303	0.477	3.324
5	Ohio	Henry	0.116	0.721	0.393	0.376	0.641	8.179
5	Ohio	Highland	0.114	0.675	0.292	0.360	0.552	3.714
5	Ohio	Hocking	0.132	0.664	0.370	0.366	0.529	4.451
5	Ohio	Holmes	0.123	0.642	0.395	0.293	0.656	5.702
5	Ohio	Huron	0.141	0.686	0.447	0.430	0.539	7.046
5	Ohio	Jackson	0.150	0.619	0.362	0.323	0.461	1.887

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5	Ohio	Jefferson	0.221	0.627	0.381	0.277	0.443	0.885
5	Ohio	Knox	0.108	0.668	0.398	0.356	0.520	5.780
5	Ohio	Lake	0.302	0.685	0.361	0.300	0.587	1.778
5	Ohio	Lawrence	0.286	0.623	0.384	0.374	0.365	0.990
5	Ohio	Licking	0.266	0.677	0.460	0.404	0.528	3.509
5	Ohio	Logan	0.117	0.658	0.429	0.366	0.548	6.631
5	Ohio	Lorain	0.519	0.683	0.498	0.300	0.492	1.376
5	Ohio	Lucas	0.521	0.682	0.483	0.190	0.476	0.713
5	Ohio	Madison	0.139	0.675	0.392	0.434	0.516	5.787
5	Ohio	Mahoning	0.368	0.643	0.460	0.312	0.525	1.813
5	Ohio	Marion	0.213	0.598	0.341	0.445	0.457	2.335
5	Ohio	Medina	0.444	0.686	0.424	0.365	0.614	2.076
5	Ohio	Meigs	0.204	0.635	0.334	0.328	0.351	0.107
5	Ohio	Mercer	0.103	0.689	0.406	0.422	0.681	11.090
5	Ohio	Miami	0.365	0.680	0.354	0.384	0.567	1.861
5	Ohio	Monroe	0.123	0.631	0.342	0.333	0.475	2.389
5	Ohio	Montgomery	0.666	0.641	0.544	0.284	0.479	1.098
5	Ohio	Morgan	0.161	0.656	0.333	0.303	0.474	1.360
5	Ohio	Morrow	0.094	0.655	0.337	0.402	0.481	5.195
5	Ohio	Muskingum	0.212	0.654	0.389	0.318	0.492	2.081
5	Ohio	Noble	0.125	0.624	0.334	0.311	0.476	1.708
5	Ohio	Ottawa	0.225	0.701	0.375	0.289	0.579	2.440
5	Ohio	Paulding	0.119	0.718	0.425	0.356	0.493	5.807
5	Ohio	Perry	0.163	0.670	0.420	0.345	0.393	2.513
5	Ohio	Pickaway	0.212	0.665	0.480	0.432	0.508	4.738
5	Ohio	Pike	0.155	0.623	0.395	0.359	0.425	2.522
5	Ohio	Portage	0.417	0.684	0.476	0.412	0.508	2.312
5	Ohio	Preble	0.131	0.697	0.374	0.423	0.448	4.666
5	Ohio	Putnam	0.159	0.730	0.423	0.318	0.723	6.684

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Ohio	Richland	0.231	0.633	0.489	0.351	0.567	3.958
5	Ohio	Ross	0.167	0.651	0.443	0.394	0.432	3.892
5	Ohio	Sandusky	0.188	0.673	0.438	0.332	0.573	4.168
5	Ohio	Scioto	0.198	0.609	0.448	0.360	0.372	2.113
5	Ohio	Seneca	0.180	0.702	0.397	0.401	0.565	4.745
5	Ohio	Shelby	0.161	0.706	0.377	0.350	0.564	4.205
5	Ohio	Stark	0.497	0.645	0.548	0.268	0.545	1.680
5	Ohio	Summit	0.633	0.674	0.514	0.238	0.543	1.099
5	Ohio	Trumbull	0.310	0.660	0.491	0.398	0.468	2.799
5	Ohio	Tuscarawas	0.260	0.676	0.490	0.301	0.558	3.156
5	Ohio	Union	0.198	0.661	0.429	0.402	0.527	4.160
5	Ohio	Van Wert	0.270	0.689	0.336	0.388	0.531	2.147
5	Ohio	Vinton	0.162	0.663	0.333	0.385	0.363	1.303
5	Ohio	Warren	0.644	0.664	0.408	0.357	0.529	1.041
5	Ohio	Washington	0.208	0.636	0.469	0.332	0.484	3.134
5	Ohio	Wayne	0.260	0.676	0.550	0.382	0.635	5.093
5	Ohio	Williams	0.138	0.713	0.468	0.379	0.535	6.857
5	Ohio	Wood	0.354	0.705	0.594	0.367	0.529	3.467
5	Ohio	Wyandot	0.133	0.710	0.391	0.413	0.555	6.453
5	Wisconsin	Adams	0.161	0.741	0.423	0.394	0.506	5.143
5	Wisconsin	Ashland	0.107	0.766	0.364	0.484	0.737	12.788
5	Wisconsin	Barron	0.173	0.775	0.429	0.449	0.704	8.100
5	Wisconsin	Bayfield	0.113	0.819	0.309	0.497	0.640	9.905
5	Wisconsin	Brown	0.587	0.703	0.599	0.351	0.608	2.310
5	Wisconsin	Buffalo	0.119	0.851	0.365	0.393	0.599	8.096
5	Wisconsin	Burnett	0.325	0.807	0.253	0.520	0.582	2.780
5	Wisconsin	Calumet	0.350	0.727	0.443	0.431	0.623	3.405
5	Wisconsin	Chippewa	0.210	0.749	0.576	0.420	0.624	7.344
5	Wisconsin	Clark	0.102	0.841	0.491	0.508	0.668	16.759

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Wisconsin	Columbia	0.309	0.789	0.578	0.417	0.653	5.291
5	Wisconsin	Crawford	0.138	0.794	0.376	0.384	0.641	7.272
5	Wisconsin	Dane	0.572	0.703	0.803	0.388	0.623	3.533
5	Wisconsin	Dodge	0.236	0.765	0.603	0.475	0.624	7.470
5	Wisconsin	Door	0.107	0.740	0.507	0.407	0.732	14.253
5	Wisconsin	Douglas	0.183	0.748	0.409	0.461	0.570	5.975
5	Wisconsin	Dunn	0.123	0.784	0.519	0.377	0.630	10.843
5	Wisconsin	Eau Claire	0.264	0.715	0.470	0.396	0.590	4.175
5	Wisconsin	Florence	0.081	0.774	0.347	0.617	0.472	14.071
5	Wisconsin	Fond du Lac	0.237	0.735	0.538	0.463	0.647	6.653
5	Wisconsin	Forest	0.098	0.794	0.359	0.616	0.613	14.998
5	Wisconsin	Grant	0.151	0.779	0.663	0.397	0.679	12.316
5	Wisconsin	Green	0.248	0.773	0.424	0.354	0.667	4.382
5	Wisconsin	Green Lake	0.134	0.783	0.345	0.430	0.689	8.296
5	Wisconsin	Iowa	0.115	0.841	0.475	0.353	0.699	11.706
5	Wisconsin	Iron	0.094	0.787	0.321	0.480	0.661	11.893
5	Wisconsin	Jackson	0.094	0.834	0.408	0.470	0.599	13.354
5	Wisconsin	Jefferson	0.297	0.743	0.525	0.452	0.636	5.064
5	Wisconsin	Juneau	0.158	0.794	0.464	0.460	0.570	8.118
5	Wisconsin	Kenosha	0.472	0.681	0.421	0.407	0.477	1.573
5	Wisconsin	Kewaunee	0.140	0.782	0.373	0.465	0.698	9.231
5	Wisconsin	La Crosse	0.377	0.684	0.455	0.416	0.600	2.909
5	Wisconsin	Lafayette	0.117	0.873	0.425	0.366	0.713	11.132
5	Wisconsin	Langlade	0.116	0.778	0.330	0.533	0.655	10.776
5	Wisconsin	Lincoln	0.209	0.761	0.400	0.497	0.672	6.561
5	Wisconsin	Manitowoc	0.324	0.743	0.487	0.413	0.628	3.974
5	Wisconsin	Marathon	0.243	0.744	0.703	0.432	0.615	7.787
5	Wisconsin	Marinette	0.124	0.730	0.583	0.422	0.560	11.417
5	Wisconsin	Marquette	0.115	0.820	0.422	0.393	0.655	10.432

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Wisconsin	Menominee	0.269	0.635	0.331	0.725	0.193	2.526
5	Wisconsin	Milwaukee	0.363	0.677	0.564	0.363	0.467	2.729
5	Wisconsin	Monroe	0.156	0.777	0.511	0.411	0.616	8.732
5	Wisconsin	Oconto	0.137	0.785	0.491	0.398	0.634	9.615
5	Wisconsin	Oneida	0.096	0.730	0.498	0.509	0.691	17.314
5	Wisconsin	Outagamie	0.558	0.705	0.603	0.438	0.690	3.132
5	Wisconsin	Ozaukee	0.266	0.707	0.347	0.463	0.646	3.904
5	Wisconsin	Pepin	0.171	0.857	0.295	0.395	0.592	4.529
5	Wisconsin	Pierce	0.248	0.796	0.423	0.399	0.678	4.982
5	Wisconsin	Polk	0.114	0.806	0.416	0.473	0.729	13.264
5	Wisconsin	Portage	0.164	0.740	0.499	0.367	0.618	7.235
5	Wisconsin	Price	0.092	0.793	0.409	0.499	0.735	16.821
5	Wisconsin	Racine	0.443	0.691	0.374	0.419	0.543	1.770
5	Wisconsin	Richland	0.086	0.813	0.382	0.375	0.610	11.012
5	Wisconsin	Rock	0.320	0.696	0.566	0.419	0.516	3.898
5	Wisconsin	Rusk	0.185	0.823	0.340	0.477	0.568	5.498
5	Wisconsin	Sauk	0.174	0.763	0.566	0.375	0.659	8.547
5	Wisconsin	Sawyer	0.080	0.773	0.308	0.593	0.586	14.953
5	Wisconsin	Shawano	0.091	0.792	0.503	0.418	0.639	15.628
5	Wisconsin	Sheboygan	0.227	0.724	0.460	0.434	0.616	5.403
5	Wisconsin	St. Croix	0.312	0.765	0.520	0.431	0.673	4.911
5	Wisconsin	Taylor	0.098	0.825	0.385	0.460	0.628	12.360
5	Wisconsin	Trempealeau	0.113	0.832	0.476	0.401	0.594	11.117
5	Wisconsin	Vernon	0.119	0.812	0.408	0.371	0.643	9.013
5	Wisconsin	Vilas	0.113	0.733	0.436	0.640	0.611	14.770
5	Wisconsin	Walworth	0.370	0.714	0.510	0.474	0.519	3.406
5	Wisconsin	Washburn	0.086	0.809	0.324	0.500	0.663	14.066
5	Wisconsin	Washington	0.494	0.698	0.463	0.398	0.706	2.623
5	Wisconsin	Waukesha	0.609	0.700	0.522	0.381	0.671	2.214

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
5	Wisconsin	Waupaca	0.152	0.774	0.509	0.365	0.726	9.519
5	Wisconsin	Waushara	0.247	0.795	0.454	0.370	0.606	4.474
5	Wisconsin	Winnebago	0.535	0.709	0.460	0.416	0.578	2.043
5	Wisconsin	Wood	0.258	0.728	0.540	0.417	0.631	5.562

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.239	0.548	0.394	0.423	0.474	2.772
6	Arkansas	Arkansas	0.216	0.560	0.395	0.513	0.566	4.572
6	Arkansas	Ashley	0.139	0.506	0.346	0.456	0.527	4.214
6	Arkansas	Baxter	0.180	0.408	0.433	0.486	0.455	3.621
6	Arkansas	Benton	0.596	0.481	0.710	0.396	0.466	2.120
6	Arkansas	Boone	0.171	0.449	0.383	0.401	0.585	3.541
6	Arkansas	Bradley	0.123	0.499	0.309	0.468	0.416	2.357
6	Arkansas	Calhoun	0.150	0.508	0.310	0.483	0.379	1.766
6	Arkansas	Carroll	0.114	0.421	0.482	0.319	0.484	3.895
6	Arkansas	Chicot	0.165	0.532	0.267	0.424	0.387	0.273
6	Arkansas	Clark	0.134	0.397	0.407	0.469	0.546	5.269
6	Arkansas	Clay	0.164	0.475	0.366	0.402	0.424	1.667
6	Arkansas	Cleburne	0.352	0.453	0.421	0.395	0.490	1.441
6	Arkansas	Cleveland	0.119	0.524	0.301	0.412	0.329	-0.145
6	Arkansas	Columbia	0.229	0.506	0.384	0.457	0.494	2.728
6	Arkansas	Conway	0.259	0.567	0.357	0.401	0.516	2.002
6	Arkansas	Craighead	0.281	0.539	0.542	0.410	0.487	3.367
6	Arkansas	Crawford	0.177	0.518	0.519	0.499	0.474	5.992
6	Arkansas	Crittenden	0.469	0.559	0.427	0.449	0.419	1.334
6	Arkansas	Cross	0.182	0.551	0.375	0.435	0.558	3.927
6	Arkansas	Dallas	0.140	0.451	0.257	0.398	0.487	0.521
6	Arkansas	Desha	0.232	0.556	0.307	0.457	0.379	1.038
6	Arkansas	Drew	0.114	0.514	0.351	0.424	0.385	2.169
6	Arkansas	Faulkner	0.505	0.592	0.461	0.398	0.494	1.523
6	Arkansas	Franklin	0.214	0.526	0.392	0.551	0.411	3.413
6	Arkansas	Fulton	0.185	0.427	0.360	0.435	0.438	1.710
6	Arkansas	Garland	0.345	0.411	0.426	0.435	0.441	1.394
6	Arkansas	Grant	0.123	0.520	0.394	0.440	0.422	3.911

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Arkansas	Greene	0.274	0.503	0.416	0.360	0.429	1.237
6	Arkansas	Hempstead	0.308	0.411	0.468	0.451	0.397	1.778
6	Arkansas	Hot Spring	0.143	0.410	0.356	0.419	0.487	2.410
6	Arkansas	Howard	0.299	0.380	0.362	0.427	0.389	0.534
6	Arkansas	Independence	0.199	0.451	0.461	0.354	0.460	2.267
6	Arkansas	Izard	0.266	0.382	0.379	0.356	0.485	0.832
6	Arkansas	Jackson	0.278	0.547	0.398	0.444	0.458	2.150
6	Arkansas	Jefferson	0.161	0.536	0.447	0.475	0.442	4.750
6	Arkansas	Johnson	0.233	0.538	0.387	0.611	0.373	3.447
6	Arkansas	Lafayette	0.251	0.548	0.238	0.458	0.406	0.422
6	Arkansas	Lawrence	0.185	0.508	0.368	0.410	0.413	1.666
6	Arkansas	Lee	0.142	0.532	0.215	0.461	0.378	-0.130
6	Arkansas	Lincoln	0.127	0.534	0.286	0.460	0.369	1.215
6	Arkansas	Little River	0.260	0.428	0.364	0.495	0.406	1.589
6	Arkansas	Logan	0.171	0.543	0.402	0.481	0.534	4.932
6	Arkansas	Lonoke	0.319	0.605	0.536	0.455	0.511	3.619
6	Arkansas	Madison	0.128	0.447	0.359	0.399	0.392	1.207
6	Arkansas	Marion	0.225	0.435	0.380	0.408	0.442	1.408
6	Arkansas	Miller	0.389	0.461	0.324	0.466	0.467	1.000
6	Arkansas	Mississippi	0.172	0.533	0.492	0.394	0.450	4.053
6	Arkansas	Monroe	0.230	0.567	0.324	0.497	0.511	2.840
6	Arkansas	Montgomery	0.145	0.358	0.324	0.555	0.412	2.736
6	Arkansas	Nevada	0.208	0.464	0.299	0.416	0.461	0.894
6	Arkansas	Newton	0.258	0.449	0.355	0.521	0.329	1.244
6	Arkansas	Ouachita	0.141	0.437	0.315	0.450	0.465	2.102
6	Arkansas	Perry	0.175	0.551	0.352	0.504	0.503	4.073
6	Arkansas	Phillips	0.131	0.540	0.279	0.471	0.307	0.325
6	Arkansas	Pike	0.144	0.444	0.367	0.469	0.471	3.462
6	Arkansas	Poinsett	0.126	0.534	0.404	0.416	0.419	3.628

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6	Arkansas	Polk	0.323	0.295	0.372	0.516	0.540	1.903
6	Arkansas	Pope	0.177	0.525	0.450	0.504	0.470	5.005
6	Arkansas	Prairie	0.244	0.582	0.365	0.464	0.514	2.891
6	Arkansas	Pulaski	0.880	0.556	0.726	0.374	0.536	1.667
6	Arkansas	Randolph	0.144	0.457	0.375	0.390	0.500	2.754
6	Arkansas	Saline	0.419	0.529	0.485	0.471	0.521	2.394
6	Arkansas	Scott	0.151	0.498	0.349	0.584	0.511	5.743
6	Arkansas	Searcy	0.249	0.427	0.338	0.373	0.356	-0.234
6	Arkansas	Sebastian	0.353	0.530	0.457	0.451	0.452	2.111
6	Arkansas	Sevier	0.263	0.192	0.341	0.480	0.326	-0.304
6	Arkansas	Sharp	0.206	0.421	0.380	0.364	0.554	2.022
6	Arkansas	St. Francis	0.135	0.546	0.378	0.473	0.479	4.871
6	Arkansas	Stone	0.247	0.368	0.356	0.419	0.441	0.864
6	Arkansas	Union	0.338	0.487	0.452	0.458	0.522	2.486
6	Arkansas	Van Buren	0.331	0.458	0.400	0.387	0.458	1.133
6	Arkansas	Washington	0.322	0.465	0.668	0.359	0.458	3.195
6	Arkansas	White	0.292	0.532	0.515	0.427	0.463	2.957
6	Arkansas	Woodruff	0.219	0.564	0.310	0.492	0.263	0.529
6	Arkansas	Yell	0.179	0.535	0.414	0.556	0.423	4.672
6	Louisiana	Acadia	0.271	0.539	0.493	0.496	0.480	3.746
6	Louisiana	Allen	0.295	0.546	0.372	0.540	0.470	2.681
6	Louisiana	Ascension	0.907	0.561	0.461	0.429	0.558	1.038
6	Louisiana	Assumption	0.354	0.539	0.331	0.465	0.439	1.203
6	Louisiana	Avoyelles	0.316	0.524	0.445	0.508	0.472	2.812
6	Louisiana	Beauregard	0.261	0.530	0.442	0.482	0.448	2.955
6	Louisiana	Bienville	0.259	0.541	0.356	0.445	0.408	1.483
6	Louisiana	Bossier	0.477	0.567	0.446	0.459	0.474	1.706
6	Louisiana	Caddo	0.611	0.540	0.686	0.442	0.532	2.455
6	Louisiana	Calcasieu	0.467	0.527	0.770	0.465	0.557	3.890

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6	Louisiana	Caldwell	0.129	0.528	0.350	0.464	0.395	2.896
6	Louisiana	Cameron	0.503	0.548	0.386	0.470	0.516	1.482
6	Louisiana	Catahoula	0.149	0.526	0.267	0.496	0.318	0.527
6	Louisiana	Claiborne	0.228	0.526	0.230	0.422	0.408	-0.096
6	Louisiana	Concordia	0.160	0.526	0.342	0.523	0.374	2.853
6	Louisiana	De Soto	0.183	0.560	0.468	0.459	0.475	4.720
6	Louisiana	East Baton Rouge	0.666	0.496	0.589	0.354	0.588	1.637
6	Louisiana	East Carroll	0.293	0.540	0.210	0.482	0.377	0.082
6	Louisiana	East Feliciana	0.265	0.495	0.364	0.371	0.363	0.338
6	Louisiana	Evangeline	0.257	0.522	0.359	0.480	0.421	1.878
6	Louisiana	Franklin	0.125	0.525	0.348	0.462	0.504	4.653
6	Louisiana	Grant	0.132	0.496	0.452	0.579	0.426	7.309
6	Louisiana	Iberia	0.360	0.552	0.399	0.429	0.454	1.557
6	Louisiana	Iberville	0.524	0.555	0.427	0.448	0.584	1.795
6	Louisiana	Jackson	0.244	0.525	0.318	0.416	0.521	1.714
6	Louisiana	Jefferson	0.314	0.554	0.403	0.485	0.477	2.416
6	Louisiana	Jefferson Davis	0.626	0.582	0.483	0.371	0.578	1.463
6	Louisiana	La Salle	0.156	0.523	0.392	0.472	0.487	4.394
6	Louisiana	Lafayette	0.655	0.562	0.596	0.437	0.588	2.106
6	Louisiana	Lafourche	0.442	0.574	0.521	0.397	0.484	2.012
6	Louisiana	Lincoln	0.255	0.503	0.432	0.426	0.400	1.905
6	Louisiana	Livingston	0.515	0.513	0.495	0.423	0.476	1.569
6	Louisiana	Madison	0.224	0.515	0.265	0.573	0.494	2.679
6	Louisiana	Morehouse	0.146	0.499	0.364	0.528	0.481	4.899
6	Louisiana	Natchitoches	0.171	0.546	0.485	0.543	0.418	5.802
6	Louisiana	Orleans	0.692	0.543	0.388	0.386	0.398	0.447
6	Louisiana	Ouachita	0.406	0.528	0.551	0.443	0.535	2.794
6	Louisiana	Plaquemines	0.338	0.568	0.532	0.368	0.486	2.502
6	Louisiana	Pointe Coupee	0.352	0.547	0.434	0.465	0.537	2.562

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6	Louisiana	Rapides	0.313	0.515	0.717	0.507	0.559	5.652
6	Louisiana	Red River	0.202	0.532	0.353	0.462	0.448	2.419
6	Louisiana	Richland	0.129	0.541	0.315	0.483	0.574	5.411
6	Louisiana	Sabine	0.119	0.541	0.420	0.408	0.430	4.255
6	Louisiana	St. Bernard	0.321	0.598	0.450	0.330	0.519	1.954
6	Louisiana	St. Charles	0.554	0.594	0.437	0.457	0.589	1.877
6	Louisiana	St. Helena	0.206	0.419	0.290	0.430	0.443	0.583
6	Louisiana	St. James	0.473	0.562	0.362	0.464	0.550	1.584
6	Louisiana	St. John the Baptist	0.484	0.589	0.392	0.416	0.595	1.713
6	Louisiana	St. Landry	0.261	0.527	0.547	0.481	0.510	4.490
6	Louisiana	St. Martin	0.345	0.541	0.416	0.437	0.529	2.213
6	Louisiana	St. Mary	0.351	0.557	0.501	0.453	0.541	3.047
6	Louisiana	St. Tammany	0.698	0.363	0.597	0.423	0.518	1.450
6	Louisiana	Tangipahoa	0.404	0.444	0.573	0.422	0.438	2.150
6	Louisiana	Tensas	0.269	0.510	0.344	0.532	0.300	1.212
6	Louisiana	Terrebonne	0.335	0.570	0.475	0.364	0.491	2.075
6	Louisiana	Union	0.207	0.510	0.377	0.517	0.475	3.470
6	Louisiana	Vermilion	0.350	0.555	0.500	0.467	0.443	2.584
6	Louisiana	Vernon	0.215	0.578	0.498	0.538	0.412	4.829
6	Louisiana	Washington	0.254	0.258	0.348	0.441	0.371	-0.009
6	Louisiana	Webster	0.234	0.538	0.449	0.460	0.497	3.591
6	Louisiana	West Baton Rouge	0.596	0.564	0.451	0.487	0.691	2.213
6	Louisiana	West Carroll	0.113	0.565	0.328	0.495	0.367	3.342
6	Louisiana	West Feliciana	0.314	0.549	0.370	0.409	0.490	1.608
6	Louisiana	Winn	0.145	0.477	0.364	0.475	0.464	3.635
6	New Mexico	Bernalillo	0.581	0.571	0.611	0.461	0.557	2.459
6	New Mexico	Catron	0.179	0.535	0.394	0.576	0.504	5.553
6	New Mexico	Chaves	0.283	0.584	0.554	0.465	0.511	4.260
6	New Mexico	Cibola	0.100	0.578	0.429	0.534	0.454	9.271

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	New Mexico	Colfax	0.155	0.598	0.463	0.465	0.553	6.846
6	New Mexico	Curry	0.190	0.576	0.482	0.293	0.528	3.260
6	New Mexico	De Baca	0.132	0.625	0.258	0.427	0.583	3.844
6	New Mexico	Doña Ana	0.175	0.560	0.736	0.635	0.497	11.766
6	New Mexico	Eddy	0.204	0.582	0.540	0.645	0.490	7.677
6	New Mexico	Grant	0.114	0.570	0.530	0.535	0.646	13.803
6	New Mexico	Guadalupe	0.104	0.608	0.330	0.341	0.585	4.574
6	New Mexico	Harding	0.087	0.715	0.206	0.372	0.299	-2.708
6	New Mexico	Hidalgo	0.099	0.533	0.298	0.567	0.336	3.866
6	New Mexico	Lea	0.180	0.548	0.570	0.490	0.469	6.629
6	New Mexico	Lincoln	0.248	0.557	0.576	0.502	0.603	6.103
6	New Mexico	Los Alamos	0.365	0.523	0.256	0.557	0.596	2.041
6	New Mexico	Luna	0.077	0.547	0.472	0.617	0.349	13.043
6	New Mexico	McKinley	0.095	0.629	0.624	0.607	0.469	18.046
6	New Mexico	Mora	0.118	0.531	0.329	0.310	0.411	-0.183
6	New Mexico	Otero	0.110	0.517	0.601	0.659	0.438	14.514
6	New Mexico	Quay	0.116	0.570	0.412	0.392	0.608	7.141
6	New Mexico	Rio Arriba	0.134	0.600	0.619	0.574	0.553	13.058
6	New Mexico	Roosevelt	0.221	0.589	0.372	0.311	0.487	1.367
6	New Mexico	San Juan	0.122	0.621	0.693	0.620	0.519	16.431
6	New Mexico	San Miguel	0.130	0.571	0.467	0.423	0.435	5.450
6	New Mexico	Sandoval	0.147	0.643	0.642	0.544	0.510	11.526
6	New Mexico	Santa Fe	0.157	0.602	0.592	0.517	0.629	10.747
6	New Mexico	Sierra	0.087	0.566	0.360	0.762	0.484	15.566
6	New Mexico	Socorro	0.249	0.537	0.446	0.589	0.398	3.834
6	New Mexico	Taos	0.106	0.599	0.545	0.443	0.562	11.730
6	New Mexico	Torrance	0.102	0.593	0.430	0.411	0.516	7.476
6	New Mexico	Union	0.145	0.639	0.234	0.398	0.592	2.799
6	New Mexico	Valencia	0.164	0.594	0.507	0.534	0.490	7.405

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Oklahoma	Adair	0.152	0.540	0.328	0.396	0.322	0.135
6	Oklahoma	Alfalfa	0.257	0.684	0.188	0.303	0.736	1.459
6	Oklahoma	Atoka	0.252	0.651	0.377	0.400	0.416	1.801
6	Oklahoma	Beaver	0.347	0.658	0.353	0.438	0.597	2.448
6	Oklahoma	Beckham	0.180	0.581	0.437	0.326	0.674	4.831
6	Oklahoma	Blaine	0.361	0.627	0.277	0.407	0.659	1.831
6	Oklahoma	Bryan	0.192	0.560	0.464	0.469	0.495	4.809
6	Oklahoma	Caddo	0.268	0.678	0.489	0.428	0.519	3.945
6	Oklahoma	Canadian	0.497	0.627	0.511	0.395	0.577	2.201
6	Oklahoma	Carter	0.250	0.593	0.423	0.380	0.559	3.015
6	Oklahoma	Cherokee	0.189	0.491	0.423	0.489	0.390	3.096
6	Oklahoma	Choctaw	0.135	0.591	0.417	0.516	0.439	6.151
6	Oklahoma	Cimarron	0.269	0.591	0.273	0.450	0.595	2.196
6	Oklahoma	Cleveland	0.889	0.606	0.388	0.389	0.493	0.633
6	Oklahoma	Coal	0.318	0.629	0.226	0.428	0.443	0.488
6	Oklahoma	Comanche	0.312	0.613	0.538	0.354	0.462	2.637
6	Oklahoma	Cotton	0.188	0.650	0.271	0.391	0.422	0.862
6	Oklahoma	Craig	0.150	0.624	0.369	0.529	0.619	7.523
6	Oklahoma	Creek	0.273	0.636	0.473	0.375	0.502	2.944
6	Oklahoma	Custer	0.212	0.620	0.449	0.412	0.691	5.594
6	Oklahoma	Delaware	0.257	0.530	0.459	0.381	0.407	1.900
6	Oklahoma	Dewey	0.269	0.687	0.429	0.358	0.569	3.081
6	Oklahoma	Ellis	0.288	0.688	0.346	0.409	0.634	2.992
6	Oklahoma	Garfield	0.161	0.594	0.469	0.389	0.557	5.549
6	Oklahoma	Garvin	0.168	0.655	0.408	0.342	0.490	3.253
6	Oklahoma	Grady	0.247	0.646	0.464	0.357	0.578	3.617
6	Oklahoma	Grant	0.302	0.689	0.320	0.353	0.693	2.553
6	Oklahoma	Greer	0.199	0.566	0.169	0.378	0.606	0.666
6	Oklahoma	Harmon	0.256	0.617	0.077	0.303	0.325	-3.104

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Oklahoma	Harper	0.287	0.612	0.341	0.415	0.696	3.157
6	Oklahoma	Haskell	0.168	0.599	0.312	0.401	0.466	1.986
6	Oklahoma	Hughes	0.200	0.620	0.288	0.344	0.474	0.825
6	Oklahoma	Jackson	0.346	0.579	0.380	0.398	0.472	1.435
6	Oklahoma	Jefferson	0.209	0.705	0.216	0.426	0.486	1.345
6	Oklahoma	Johnston	0.221	0.627	0.331	0.430	0.383	1.453
6	Oklahoma	Kay	0.179	0.659	0.437	0.458	0.555	5.800
6	Oklahoma	Kingfisher	0.201	0.630	0.359	0.393	0.706	4.673
6	Oklahoma	Kiowa	0.279	0.611	0.320	0.386	0.711	2.893
6	Oklahoma	Latimer	0.191	0.549	0.319	0.420	0.470	1.861
6	Oklahoma	Le Flore	0.236	0.414	0.548	0.533	0.393	4.056
6	Oklahoma	Lincoln	0.206	0.676	0.402	0.372	0.632	4.372
6	Oklahoma	Logan	0.210	0.639	0.392	0.384	0.511	2.998
6	Oklahoma	Love	0.236	0.638	0.294	0.405	0.502	1.702
6	Oklahoma	Major	0.206	0.661	0.288	0.302	0.665	2.310
6	Oklahoma	Marshall	0.237	0.567	0.309	0.405	0.415	0.846
6	Oklahoma	Mayes	0.180	0.554	0.495	0.389	0.487	4.371
6	Oklahoma	McClain	0.240	0.648	0.433	0.363	0.639	3.965
6	Oklahoma	McCurtain	0.157	0.421	0.478	0.458	0.345	3.168
6	Oklahoma	McIntosh	0.171	0.576	0.376	0.434	0.439	2.983
6	Oklahoma	Murray	0.153	0.568	0.331	0.373	0.598	3.525
6	Oklahoma	Muskogee	0.201	0.547	0.497	0.474	0.529	5.356
6	Oklahoma	Noble	0.161	0.661	0.366	0.432	0.580	5.174
6	Oklahoma	Nowata	0.191	0.662	0.260	0.413	0.553	2.385
6	Oklahoma	Okfuskee	0.145	0.666	0.298	0.379	0.428	1.612
6	Oklahoma	Oklahoma	0.783	0.593	0.575	0.264	0.522	1.019
6	Oklahoma	Okmulgee	0.134	0.621	0.368	0.406	0.513	4.533
6	Oklahoma	Osage	0.177	0.628	0.503	0.644	0.501	8.696
6	Oklahoma	Ottawa	0.237	0.643	0.416	0.459	0.411	2.891

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Oklahoma	Pawnee	0.126	0.673	0.346	0.431	0.516	5.302
6	Oklahoma	Payne	0.293	0.597	0.482	0.439	0.489	3.148
6	Oklahoma	Pittsburg	0.193	0.584	0.522	0.369	0.556	5.067
6	Oklahoma	Pontotoc	0.168	0.563	0.432	0.383	0.596	4.906
6	Oklahoma	Pottawatomie	0.194	0.631	0.392	0.364	0.489	2.728
6	Oklahoma	Pushmataha	0.139	0.535	0.389	0.410	0.412	2.786
6	Oklahoma	Roger Mills	0.300	0.686	0.354	0.303	0.649	2.168
6	Oklahoma	Rogers	0.291	0.626	0.501	0.496	0.545	4.302
6	Oklahoma	Seminole	0.180	0.693	0.272	0.344	0.511	1.483
6	Oklahoma	Sequoyah	0.156	0.516	0.439	0.414	0.414	3.319
6	Oklahoma	Stephens	0.157	0.607	0.376	0.336	0.521	2.919
6	Oklahoma	Texas	0.205	0.627	0.483	0.459	0.554	5.514
6	Oklahoma	Tillman	0.171	0.578	0.257	0.412	0.476	1.234
6	Oklahoma	Tulsa	0.832	0.584	0.628	0.301	0.486	1.143
6	Oklahoma	Wagoner	0.235	0.574	0.498	0.445	0.466	3.872
6	Oklahoma	Washington	0.223	0.600	0.320	0.371	0.561	2.094
6	Oklahoma	Washita	0.239	0.657	0.331	0.375	0.699	3.485
6	Oklahoma	Woods	0.173	0.612	0.347	0.342	0.625	3.513
6	Oklahoma	Woodward	0.147	0.599	0.484	0.351	0.672	7.311
6	Texas	Anderson	0.138	0.538	0.475	0.461	0.412	5.416
6	Texas	Andrews	0.108	0.530	0.339	0.352	0.349	-0.155
6	Texas	Angelina	0.195	0.495	0.516	0.441	0.448	4.271
6	Texas	Aransas	0.180	0.513	0.334	0.522	0.404	2.657
6	Texas	Archer	0.123	0.622	0.431	0.361	0.603	6.837
6	Texas	Armstrong	0.330	0.673	0.203	0.354	0.462	-0.028
6	Texas	Atascosa	0.091	0.549	0.451	0.436	0.410	6.916
6	Texas	Austin	0.111	0.543	0.420	0.379	0.535	5.813
6	Texas	Bailey	0.236	0.535	0.241	0.367	0.405	-0.528
6	Texas	Bandera	0.085	0.408	0.373	0.387	0.529	4.629

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Bastrop	0.291	0.549	0.524	0.293	0.465	1.977
6	Texas	Baylor	0.135	0.494	0.134	0.403	0.440	-2.176
6	Texas	Bee	0.102	0.557	0.351	0.484	0.413	4.832
6	Texas	Bell	0.496	0.181	0.680	0.463	0.447	2.038
6	Texas	Bexar	0.530	0.212	0.884	0.391	0.521	2.936
6	Texas	Blanco	0.237	0.314	0.351	0.438	0.691	2.870
6	Texas	Borden	0.139	0.672	0.133	0.396	0.386	-1.728
6	Texas	Bosque	0.114	0.600	0.423	0.424	0.554	7.526
6	Texas	Bowie	0.312	0.500	0.519	0.454	0.458	2.881
6	Texas	Brazoria	0.602	0.588	0.776	0.549	0.524	3.385
6	Texas	Brazos	0.323	0.520	0.531	0.357	0.426	2.011
6	Texas	Brewster	0.151	0.543	0.360	0.511	0.590	6.093
6	Texas	Briscoe	0.237	0.686	0.289	0.394	0.529	1.956
6	Texas	Brooks	0.270	0.513	0.228	0.408	0.165	-2.036
6	Texas	Brown	0.159	0.566	0.414	0.350	0.578	4.186
6	Texas	Burleson	0.128	0.514	0.337	0.420	0.511	3.529
6	Texas	Burnet	0.203	0.543	0.431	0.477	0.596	5.093
6	Texas	Caldwell	0.138	0.429	0.403	0.312	0.509	1.942
6	Texas	Calhoun	0.217	0.525	0.435	0.490	0.429	3.373
6	Texas	Callahan	0.159	0.583	0.384	0.389	0.537	3.904
6	Texas	Cameron	0.334	0.573	0.702	0.690	0.384	5.676
6	Texas	Camp	0.278	0.522	0.244	0.362	0.467	-0.067
6	Texas	Carson	0.468	0.647	0.380	0.426	0.635	2.038
6	Texas	Cass	0.206	0.552	0.380	0.425	0.402	1.935
6	Texas	Castro	0.203	0.556	0.233	0.533	0.324	0.604
6	Texas	Chambers	0.571	0.580	0.511	0.500	0.440	1.811
6	Texas	Cherokee	0.133	0.524	0.506	0.441	0.393	5.479
6	Texas	Childress	0.198	0.557	0.239	0.356	0.481	0.072
6	Texas	Clay	0.108	0.624	0.413	0.380	0.674	9.076

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Cochran	0.247	0.635	0.030	0.339	0.396	-2.725
6	Texas	Coke	0.102	0.596	0.270	0.357	0.228	-3.508
6	Texas	Coleman	0.133	0.571	0.229	0.380	0.501	0.763
6	Texas	Collin	0.549	0.619	0.678	0.351	0.527	2.408
6	Texas	Collingsworth	0.250	0.607	0.168	0.288	0.644	0.112
6	Texas	Colorado	0.095	0.512	0.379	0.403	0.559	6.430
6	Texas	Comal	0.380	0.254	0.505	0.313	0.595	1.419
6	Texas	Comanche	0.115	0.548	0.338	0.417	0.433	2.848
6	Texas	Concho	0.102	0.626	0.208	0.396	0.502	1.371
6	Texas	Cooke	0.135	0.585	0.471	0.339	0.496	4.809
6	Texas	Coryell	0.143	0.562	0.445	0.497	0.446	5.930
6	Texas	Cottle	0.315	0.593	0.228	0.320	0.387	-0.799
6	Texas	Crane	0.143	0.561	0.159	0.413	0.435	-1.015
6	Texas	Crockett	0.102	0.540	0.304	0.489	0.581	6.767
6	Texas	Crosby	0.147	0.636	0.292	0.397	0.476	2.225
6	Texas	Culberson	0.214	0.574	0.187	0.344	0.456	-0.870
6	Texas	Dallam	0.299	0.613	0.258	0.338	0.509	0.435
6	Texas	Dallas	0.844	0.575	0.789	0.236	0.485	1.436
6	Texas	Dawson	0.097	0.571	0.295	0.298	0.463	-0.034
6	Texas	Deaf Smith	0.200	0.571	0.304	0.377	0.455	1.020
6	Texas	Delta	0.289	0.629	0.227	0.421	0.376	0.020
6	Texas	Denton	0.512	0.634	0.711	0.460	0.493	3.180
6	Texas	DeWitt	0.102	0.512	0.298	0.468	0.475	3.814
6	Texas	Dickens	0.212	0.630	0.091	0.401	0.403	-1.657
6	Texas	Dimmit	0.080	0.516	0.328	0.443	0.475	5.180
6	Texas	Donley	0.345	0.569	0.315	0.295	0.527	0.493
6	Texas	Duval	0.108	0.516	0.327	0.380	0.275	-1.273
6	Texas	Eastland	0.120	0.549	0.354	0.374	0.491	3.138
6	Texas	Ector	0.382	0.529	0.507	0.447	0.448	2.248

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Edwards	0.118	0.492	0.205	0.341	0.385	-3.117
6	Texas	El Paso	0.417	0.566	0.709	0.367	0.443	2.941
6	Texas	Ellis	0.446	0.604	0.716	0.371	0.538	3.319
6	Texas	Erath	0.116	0.569	0.452	0.469	0.558	8.793
6	Texas	Falls	0.155	0.536	0.326	0.426	0.405	1.615
6	Texas	Fannin	0.115	0.589	0.452	0.428	0.501	7.214
6	Texas	Fayette	0.091	0.527	0.423	0.395	0.584	8.495
6	Texas	Fisher	0.174	0.638	0.183	0.382	0.475	-0.014
6	Texas	Floyd	0.238	0.597	0.212	0.553	0.552	2.554
6	Texas	Foard	0.096	0.559	0.249	0.364	0.308	-2.910
6	Texas	Fort Bend	0.411	0.597	0.785	0.420	0.580	4.527
6	Texas	Franklin	0.231	0.521	0.271	0.334	0.393	-0.707
6	Texas	Freestone	0.198	0.550	0.406	0.370	0.432	1.969
6	Texas	Frio	0.085	0.515	0.335	0.419	0.378	2.126
6	Texas	Gaines	0.135	0.564	0.294	0.370	0.487	1.595
6	Texas	Galveston	0.753	0.568	0.608	0.408	0.472	1.486
6	Texas	Garza	0.251	0.564	0.219	0.359	0.520	0.205
6	Texas	Gillespie	0.132	0.473	0.385	0.436	0.691	7.024
6	Texas	Glasscock	0.195	0.605	0.162	0.384	0.386	-1.333
6	Texas	Goliad	0.126	0.536	0.277	0.452	0.409	1.483
6	Texas	Gonzales	0.075	0.470	0.356	0.400	0.378	1.912
6	Texas	Gray	0.262	0.539	0.210	0.202	0.478	-1.782
6	Texas	Grayson	0.180	0.547	0.685	0.320	0.512	6.463
6	Texas	Gregg	0.613	0.534	0.396	0.283	0.561	0.633
6	Texas	Grimes	0.237	0.546	0.372	0.328	0.468	1.106
6	Texas	Guadalupe	0.253	0.523	0.557	0.331	0.476	2.994
6	Texas	Hale	0.252	0.583	0.317	0.563	0.496	3.128
6	Texas	Hall	0.235	0.583	0.126	0.408	0.484	-0.542
6	Texas	Hamilton	0.131	0.548	0.311	0.439	0.484	3.087

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Hansford	0.262	0.621	0.340	0.299	0.450	0.560
6	Texas	Hardeman	0.108	0.530	0.235	0.335	0.453	-1.197
6	Texas	Hardin	0.357	0.512	0.365	0.403	0.546	1.534
6	Texas	Harris	0.758	0.563	0.837	0.192	0.491	1.624
6	Texas	Harrison	0.356	0.516	0.523	0.422	0.432	2.233
6	Texas	Hartley	0.233	0.630	0.319	0.289	0.440	0.235
6	Texas	Haskell	0.119	0.577	0.214	0.482	0.492	2.482
6	Texas	Hays	0.454	0.180	0.587	0.310	0.557	1.326
6	Texas	Hemphill	0.393	0.575	0.251	0.320	0.489	-0.023
6	Texas	Henderson	0.141	0.565	0.536	0.441	0.439	6.667
6	Texas	Hidalgo	0.485	0.555	0.731	0.767	0.390	4.439
6	Texas	Hill	0.136	0.572	0.470	0.436	0.459	5.862
6	Texas	Hockley	0.178	0.588	0.387	0.357	0.519	2.909
6	Texas	Hood	0.280	0.566	0.469	0.399	0.535	3.033
6	Texas	Hopkins	0.104	0.583	0.425	0.367	0.559	6.857
6	Texas	Houston	0.273	0.513	0.407	0.453	0.394	1.779
6	Texas	Howard	0.146	0.573	0.322	0.502	0.465	3.939
6	Texas	Hudspeth	0.080	0.585	0.316	0.438	0.256	0.096
6	Texas	Hunt	0.243	0.600	0.576	0.331	0.384	2.899
6	Texas	Hutchinson	0.264	0.563	0.318	0.271	0.486	0.120
6	Texas	Irion	0.240	0.619	0.245	0.475	0.433	1.208
6	Texas	Jack	0.132	0.541	0.297	0.348	0.423	0.153
6	Texas	Jackson	0.121	0.552	0.337	0.481	0.538	5.694
6	Texas	Jasper	0.371	0.483	0.431	0.465	0.463	1.845
6	Texas	Jeff Davis	0.143	0.109	0.292	0.439	0.318	-2.852
6	Texas	Jefferson	0.530	0.506	0.698	0.449	0.521	2.821
6	Texas	Jim Hogg	0.262	0.545	0.219	0.381	0.470	-0.040
6	Texas	Jim Wells	0.109	0.539	0.328	0.391	0.392	1.321
6	Texas	Johnson	0.359	0.559	0.595	0.434	0.515	3.405

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Jones	0.116	0.563	0.266	0.468	0.520	3.825
6	Texas	Karnes	0.098	0.543	0.320	0.398	0.406	1.751
6	Texas	Kaufman	0.446	0.633	0.547	0.392	0.506	2.345
6	Texas	Kendall	0.144	0.420	0.432	0.423	0.678	6.559
6	Texas	Kenedy	0.117	0.610	0.304	0.447	0.273	0.496
6	Texas	Kent	0.308	0.668	0.214	0.395	0.270	-0.845
6	Texas	Kerr	0.098	0.404	0.487	0.412	0.550	8.145
6	Texas	Kimble	0.134	0.490	0.208	0.474	0.747	5.039
6	Texas	King	0.324	0.676	0.215	0.363	0.452	0.094
6	Texas	Kinney	0.097	0.574	0.315	0.416	0.225	-1.285
6	Texas	Kleberg	0.124	0.549	0.314	0.458	0.379	2.054
6	Texas	Knox	0.129	0.601	0.338	0.398	0.490	3.422
6	Texas	La Salle	0.090	0.494	0.176	0.333	0.292	-7.177
6	Texas	Lamar	0.169	0.538	0.481	0.439	0.511	5.341
6	Texas	Lamb	0.157	0.586	0.246	0.406	0.480	1.155
6	Texas	Lampasas	0.111	0.572	0.336	0.393	0.526	4.211
6	Texas	Lavaca	0.098	0.541	0.357	0.414	0.618	7.367
6	Texas	Lee	0.101	0.550	0.337	0.328	0.519	2.718
6	Texas	Leon	0.146	0.551	0.434	0.363	0.457	3.420
6	Texas	Liberty	0.316	0.539	0.508	0.428	0.467	2.731
6	Texas	Limestone	0.176	0.552	0.398	0.408	0.468	3.049
6	Texas	Lipscomb	0.334	0.749	0.332	0.371	0.375	0.850
6	Texas	Live Oak	0.094	0.558	0.384	0.458	0.547	8.289
6	Texas	Llano	0.101	0.516	0.381	0.396	0.482	4.490
6	Texas	Loving	0.092	0.805	0.223	0.411	0.308	0.140
6	Texas	Lubbock	0.492	0.576	0.599	0.437	0.495	2.477
6	Texas	Lynn	0.207	0.618	0.340	0.469	0.448	2.699
6	Texas	Madison	0.148	0.546	0.243	0.352	0.442	-0.501
6	Texas	Marion	0.249	0.523	0.256	0.447	0.341	-0.104

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Martin	0.157	0.610	0.227	0.321	0.528	0.265
6	Texas	Mason	0.130	0.483	0.323	0.400	0.592	3.747
6	Texas	Matagorda	0.256	0.525	0.440	0.503	0.431	3.053
6	Texas	Maverick	0.143	0.572	0.446	0.419	0.269	2.215
6	Texas	McCulloch	0.098	0.504	0.275	0.456	0.414	1.728
6	Texas	McLennan	0.326	0.549	0.691	0.521	0.534	5.280
6	Texas	McMullen	0.110	0.628	0.213	0.347	0.233	-4.501
6	Texas	Medina	0.121	0.428	0.490	0.388	0.491	5.431
6	Texas	Menard	0.191	0.518	0.209	0.394	0.528	0.415
6	Texas	Midland	0.314	0.575	0.461	0.299	0.443	1.306
6	Texas	Milam	0.128	0.541	0.400	0.357	0.458	3.012
6	Texas	Mills	0.178	0.605	0.323	0.412	0.456	2.092
6	Texas	Mitchell	0.134	0.582	0.257	0.400	0.439	0.850
6	Texas	Montague	0.142	0.574	0.320	0.388	0.422	1.476
6	Texas	Montgomery	0.590	0.572	0.644	0.320	0.496	1.780
6	Texas	Moore	0.357	0.558	0.423	0.376	0.423	1.232
6	Texas	Morris	0.271	0.527	0.231	0.357	0.446	-0.386
6	Texas	Motley	0.245	0.649	0.187	0.354	0.412	-0.707
6	Texas	Nacogdoches	0.157	0.514	0.425	0.424	0.413	3.174
6	Texas	Navarro	0.324	0.589	0.498	0.364	0.434	2.050
6	Texas	Newton	0.272	0.476	0.262	0.415	0.357	-0.381
6	Texas	Nolan	0.152	0.553	0.407	0.344	0.455	2.481
6	Texas	Nueces	0.465	0.555	0.699	0.419	0.477	2.981
6	Texas	Ochiltree	0.289	0.523	0.283	0.367	0.451	0.223
6	Texas	Oldham	0.328	0.710	0.278	0.313	0.382	-0.089
6	Texas	Orange	0.624	0.505	0.446	0.394	0.458	0.898
6	Texas	Palo Pinto	0.171	0.510	0.455	0.378	0.411	2.690
6	Texas	Panola	0.186	0.527	0.395	0.443	0.378	2.201
6	Texas	Parker	0.253	0.586	0.630	0.366	0.528	4.741

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Parmer	0.174	0.631	0.342	0.480	0.412	3.064
6	Texas	Pecos	0.157	0.539	0.502	0.372	0.512	5.064
6	Texas	Polk	0.336	0.509	0.481	0.459	0.322	1.641
6	Texas	Potter	0.477	0.566	0.482	0.424	0.607	2.274
6	Texas	Presidio	0.098	0.389	0.343	0.466	0.337	1.127
6	Texas	Rains	0.139	0.586	0.355	0.322	0.530	2.638
6	Texas	Randall	0.474	0.594	0.408	0.425	0.594	1.882
6	Texas	Reagan	0.188	0.558	0.196	0.385	0.525	0.305
6	Texas	Real	0.086	0.455	0.199	0.439	0.407	-1.566
6	Texas	Red River	0.262	0.523	0.298	0.385	0.359	-0.121
6	Texas	Reeves	0.110	0.477	0.292	0.308	0.425	-1.398
6	Texas	Refugio	0.116	0.572	0.266	0.468	0.443	2.590
6	Texas	Roberts	0.349	0.698	0.187	0.314	0.470	-0.310
6	Texas	Robertson	0.173	0.540	0.355	0.410	0.405	1.666
6	Texas	Rockwall	0.476	0.643	0.333	0.420	0.609	1.596
6	Texas	Runnels	0.231	0.554	0.220	0.500	0.546	1.910
6	Texas	Rusk	0.209	0.552	0.507	0.368	0.407	2.912
6	Texas	Sabine	0.127	0.454	0.327	0.490	0.305	1.009
6	Texas	San Augustine	0.132	0.460	0.205	0.494	0.344	-0.790
6	Texas	San Jacinto	0.263	0.513	0.275	0.493	0.347	0.531
6	Texas	San Patricio	0.189	0.549	0.489	0.444	0.402	3.882
6	Texas	San Saba	0.161	0.525	0.188	0.382	0.625	1.197
6	Texas	Schleicher	0.113	0.552	0.229	0.423	0.497	1.583
6	Texas	Scurry	0.149	0.578	0.324	0.375	0.413	1.170
6	Texas	Shackelford	0.247	0.590	0.292	0.415	0.336	0.202
6	Texas	Shelby	0.144	0.512	0.340	0.422	0.287	0.119
6	Texas	Sherman	0.244	0.663	0.239	0.317	0.444	-0.198
6	Texas	Smith	0.366	0.542	0.630	0.387	0.532	3.330
6	Texas	Somervell	0.175	0.552	0.341	0.455	0.529	3.526

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Starr	0.174	0.523	0.473	0.745	0.193	5.698
6	Texas	Stephens	0.262	0.540	0.188	0.351	0.465	-0.702
6	Texas	Sterling	0.170	0.588	0.244	0.392	0.611	2.365
6	Texas	Stonewall	0.291	0.587	0.048	0.389	0.554	-0.825
6	Texas	Sutton	0.230	0.584	0.225	0.393	0.591	1.354
6	Texas	Swisher	0.208	0.607	0.251	0.550	0.382	1.818
6	Texas	Tarrant	0.683	0.589	0.717	0.255	0.497	1.618
6	Texas	Taylor	0.312	0.591	0.559	0.394	0.511	3.371
6	Texas	Terrell	0.169	0.595	0.245	0.376	0.207	-2.481
6	Texas	Terry	0.114	0.565	0.305	0.351	0.377	-0.159
6	Texas	Throckmorton	0.109	0.597	0.194	0.461	0.442	1.057
6	Texas	Titus	0.152	0.556	0.454	0.371	0.413	3.236
6	Texas	Tom Green	0.156	0.556	0.530	0.473	0.556	7.846
6	Texas	Travis	0.489	0.161	0.844	0.308	0.514	2.410
6	Texas	Trinity	0.201	0.499	0.310	0.436	0.381	0.728
6	Texas	Tyler	0.276	0.492	0.371	0.392	0.370	0.622
6	Texas	Upshur	0.151	0.562	0.406	0.369	0.510	3.695
6	Texas	Upton	0.107	0.631	0.292	0.492	0.448	4.648
6	Texas	Uvalde	0.067	0.488	0.378	0.460	0.484	8.659
6	Texas	Val Verde	0.082	0.561	0.485	0.375	0.424	7.420
6	Texas	Van Zandt	0.099	0.576	0.444	0.369	0.492	6.388
6	Texas	Victoria	0.141	0.529	0.512	0.510	0.541	8.576
6	Texas	Walker	0.223	0.510	0.422	0.391	0.463	2.285
6	Texas	Waller	0.311	0.554	0.417	0.371	0.508	1.846
6	Texas	Ward	0.099	0.499	0.351	0.334	0.396	0.349
6	Texas	Washington	0.225	0.509	0.356	0.484	0.541	3.160
6	Texas	Webb	0.133	0.595	0.725	0.404	0.399	9.828
6	Texas	Wharton	0.079	0.526	0.453	0.444	0.505	10.309
6	Texas	Wheeler	0.322	0.601	0.253	0.309	0.436	-0.347

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
6	Texas	Wichita	0.260	0.544	0.504	0.354	0.485	2.731
6	Texas	Wilbarger	0.098	0.556	0.255	0.430	0.472	2.240
6	Texas	Willacy	0.163	0.549	0.285	0.718	0.257	3.536
6	Texas	Williamson	0.368	0.183	0.725	0.451	0.558	3.587
6	Texas	Wilson	0.081	0.564	0.474	0.380	0.551	10.361
6	Texas	Winkler	0.062	0.488	0.189	0.303	0.352	-9.211
6	Texas	Wise	0.136	0.623	0.609	0.432	0.459	8.918
6	Texas	Wood	0.152	0.545	0.396	0.310	0.528	2.638
6	Texas	Yoakum	0.154	0.575	0.248	0.372	0.407	-0.315
6	Texas	Young	0.133	0.530	0.381	0.333	0.527	3.002
6	Texas	Zapata	0.154	0.524	0.384	0.422	0.265	0.692
6	Texas	Zavala	0.110	0.503	0.255	0.401	0.191	-4.160

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.209	0.597	0.358	0.380	0.609	4.113
7	Iowa	Adair	0.229	0.663	0.421	0.423	0.690	5.176
7	Iowa	Adams	0.303	0.670	0.206	0.327	0.647	0.971
7	Iowa	Allamakee	0.131	0.598	0.369	0.378	0.678	6.437
7	Iowa	Appanoose	0.164	0.597	0.306	0.395	0.562	2.959
7	Iowa	Audubon	0.202	0.645	0.255	0.387	0.788	4.067
7	Iowa	Benton	0.158	0.650	0.481	0.393	0.700	8.064
7	Iowa	Black Hawk	0.486	0.581	0.527	0.376	0.561	2.087
7	Iowa	Boone	0.171	0.593	0.364	0.414	0.636	4.863
7	Iowa	Bremer	0.149	0.646	0.434	0.526	0.792	11.109
7	Iowa	Buchanan	0.185	0.646	0.437	0.435	0.675	6.547
7	Iowa	Buena Vista	0.147	0.633	0.425	0.465	0.614	7.586
7	Iowa	Butler	0.202	0.664	0.398	0.488	0.736	6.785
7	Iowa	Calhoun	0.271	0.655	0.324	0.392	0.666	2.909
7	Iowa	Carroll	0.170	0.607	0.439	0.331	0.800	6.819
7	Iowa	Cass	0.191	0.627	0.384	0.445	0.843	7.308
7	Iowa	Cedar	0.146	0.647	0.441	0.511	0.677	9.657
7	Iowa	Cerro Gordo	0.217	0.588	0.423	0.424	0.618	4.480
7	Iowa	Cherokee	0.101	0.597	0.319	0.380	0.830	10.032
7	Iowa	Chickasaw	0.092	0.621	0.376	0.513	0.777	15.283
7	Iowa	Clarke	0.177	0.600	0.297	0.418	0.547	2.781
7	Iowa	Clay	0.188	0.610	0.379	0.487	0.801	7.408
7	Iowa	Clayton	0.113	0.643	0.477	0.417	0.781	13.098
7	Iowa	Clinton	0.217	0.602	0.439	0.473	0.565	4.820
7	Iowa	Crawford	0.146	0.627	0.418	0.327	0.607	5.068
7	Iowa	Dallas	0.399	0.616	0.532	0.477	0.586	3.396
7	Iowa	Davis	0.201	0.594	0.290	0.375	0.460	0.953
7	Iowa	Decatur	0.182	0.644	0.291	0.396	0.509	2.163

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Iowa	Delaware	0.297	0.621	0.430	0.378	0.771	4.078
7	Iowa	Des Moines	0.282	0.574	0.336	0.489	0.561	2.744
7	Iowa	Dickinson	0.186	0.610	0.431	0.485	0.721	7.354
7	Iowa	Dubuque	0.322	0.584	0.494	0.372	0.684	3.600
7	Iowa	Emmet	0.151	0.596	0.302	0.483	0.688	6.204
7	Iowa	Fayette	0.096	0.613	0.362	0.479	0.730	12.385
7	Iowa	Floyd	0.132	0.605	0.385	0.405	0.635	6.609
7	Iowa	Franklin	0.198	0.616	0.312	0.415	0.641	3.668
7	Iowa	Fremont	0.258	0.685	0.253	0.456	0.728	3.526
7	Iowa	Greene	0.170	0.646	0.353	0.386	0.739	5.789
7	Iowa	Grundy	0.156	0.671	0.379	0.486	0.732	8.404
7	Iowa	Guthrie	0.189	0.647	0.390	0.397	0.625	4.720
7	Iowa	Hamilton	0.173	0.641	0.390	0.322	0.578	3.506
7	Iowa	Hancock	0.131	0.629	0.321	0.468	0.674	7.309
7	Iowa	Hardin	0.188	0.633	0.403	0.413	0.683	5.648
7	Iowa	Harrison	0.263	0.677	0.332	0.387	0.677	3.211
7	Iowa	Henry	0.156	0.621	0.395	0.504	0.599	7.000
7	Iowa	Howard	0.115	0.595	0.312	0.486	0.673	8.223
7	Iowa	Humboldt	0.153	0.650	0.328	0.343	0.542	2.822
7	Iowa	Ida	0.105	0.682	0.287	0.389	0.748	8.319
7	Iowa	Iowa	0.188	0.618	0.417	0.430	0.675	5.935
7	Iowa	Jackson	0.233	0.617	0.428	0.396	0.614	4.025
7	Iowa	Jasper	0.200	0.593	0.424	0.369	0.565	3.705
7	Iowa	Jefferson	0.189	0.563	0.271	0.413	0.630	2.842
7	Iowa	Johnson	0.332	0.599	0.550	0.493	0.548	4.076
7	Iowa	Jones	0.204	0.618	0.366	0.412	0.719	4.992
7	Iowa	Keokuk	0.167	0.667	0.340	0.446	0.600	5.081
7	Iowa	Kossuth	0.142	0.650	0.459	0.447	0.745	10.087
7	Iowa	Lee	0.256	0.574	0.401	0.481	0.624	4.100

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Iowa	Linn	0.750	0.587	0.681	0.398	0.623	2.140
7	Iowa	Louisa	0.190	0.648	0.322	0.511	0.570	4.640
7	Iowa	Lucas	0.177	0.614	0.258	0.371	0.472	0.797
7	Iowa	Lyon	0.131	0.670	0.364	0.403	0.740	8.290
7	Iowa	Madison	0.205	0.628	0.375	0.438	0.694	5.197
7	Iowa	Mahaska	0.170	0.578	0.337	0.472	0.630	5.154
7	Iowa	Marion	0.185	0.589	0.428	0.404	0.706	5.989
7	Iowa	Marshall	0.181	0.612	0.417	0.364	0.532	3.659
7	Iowa	Mills	0.230	0.660	0.401	0.382	0.649	4.104
7	Iowa	Mitchell	0.140	0.614	0.355	0.475	0.735	8.365
7	Iowa	Monona	0.157	0.622	0.305	0.422	0.583	3.919
7	Iowa	Monroe	0.222	0.573	0.284	0.373	0.629	2.185
7	Iowa	Montgomery	0.172	0.586	0.215	0.390	0.646	2.247
7	Iowa	Muscatine	0.243	0.579	0.365	0.490	0.546	3.412
7	Iowa	O'Brien	0.123	0.620	0.380	0.463	0.712	9.481
7	Iowa	Osceola	0.236	0.623	0.390	0.462	0.716	5.102
7	Iowa	Page	0.128	0.592	0.292	0.422	0.634	5.109
7	Iowa	Palo Alto	0.158	0.638	0.375	0.406	0.697	6.353
7	Iowa	Plymouth	0.114	0.624	0.467	0.323	0.722	9.482
7	Iowa	Pocahontas	0.313	0.643	0.302	0.479	0.690	3.138
7	Iowa	Polk	0.746	0.589	0.715	0.375	0.581	2.088
7	Iowa	Pottawattamie	0.246	0.603	0.530	0.359	0.540	3.896
7	Iowa	Poweshiek	0.177	0.589	0.436	0.391	0.702	6.181
7	Iowa	Ringgold	0.360	0.664	0.228	0.390	0.664	1.487
7	Iowa	Sac	0.262	0.655	0.335	0.393	0.697	3.366
7	Iowa	Scott	0.477	0.576	0.472	0.389	0.567	1.890
7	Iowa	Shelby	0.108	0.645	0.368	0.391	0.784	10.422
7	Iowa	Sioux	0.194	0.598	0.484	0.378	0.831	7.478
7	Iowa	Story	0.311	0.599	0.587	0.376	0.530	3.622

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Iowa	Tama	0.177	0.648	0.369	0.409	0.523	3.764
7	Iowa	Taylor	0.292	0.693	0.174	0.376	0.539	0.479
7	Iowa	Union	0.221	0.621	0.289	0.375	0.705	3.164
7	Iowa	Van Buren	0.172	0.652	0.340	0.442	0.461	3.192
7	Iowa	Wapello	0.265	0.558	0.347	0.374	0.498	1.432
7	Iowa	Warren	0.200	0.627	0.435	0.458	0.620	5.636
7	Iowa	Washington	0.131	0.629	0.420	0.464	0.740	10.273
7	Iowa	Wayne	0.261	0.666	0.256	0.386	0.522	1.234
7	Iowa	Webster	0.203	0.588	0.423	0.396	0.620	4.452
7	Iowa	Winnebago	0.145	0.616	0.331	0.442	0.767	7.524
7	Iowa	Winneshiek	0.093	0.627	0.403	0.410	0.776	13.257
7	Iowa	Woodbury	0.232	0.589	0.563	0.342	0.579	4.604
7	Iowa	Worth	0.157	0.654	0.339	0.471	0.573	5.356
7	Iowa	Wright	0.143	0.598	0.325	0.416	0.639	5.188
7	Kansas	Allen	0.126	0.552	0.355	0.425	0.614	5.935
7	Kansas	Anderson	0.125	0.575	0.298	0.425	0.802	7.884
7	Kansas	Atchison	0.106	0.572	0.328	0.412	0.584	5.740
7	Kansas	Barber	0.137	0.619	0.258	0.308	0.656	2.569
7	Kansas	Barton	0.334	0.556	0.425	0.347	0.684	2.654
7	Kansas	Bourbon	0.185	0.554	0.275	0.451	0.647	3.592
7	Kansas	Brown	0.130	0.684	0.338	0.502	0.742	9.804
7	Kansas	Butler	0.214	0.594	0.611	0.419	0.639	7.043
7	Kansas	Chase	0.226	0.623	0.273	0.406	0.506	1.513
7	Kansas	Chautauqua	0.155	0.597	0.150	0.335	0.685	1.055
7	Kansas	Cherokee	0.222	0.462	0.368	0.455	0.568	3.056
7	Kansas	Cheyenne	0.163	0.614	0.296	0.349	0.627	3.040
7	Kansas	Clark	0.200	0.661	0.306	0.319	0.555	1.761
7	Kansas	Clay	0.102	0.579	0.276	0.400	0.748	7.561
7	Kansas	Cloud	0.107	0.578	0.305	0.304	0.751	5.709

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Kansas	Coffey	0.134	0.652	0.405	0.363	0.777	8.568
7	Kansas	Comanche	0.137	0.637	0.245	0.397	0.541	2.391
7	Kansas	Cowley	0.182	0.574	0.427	0.333	0.500	2.801
7	Kansas	Crawford	0.174	0.519	0.468	0.441	0.554	5.391
7	Kansas	Decatur	0.141	0.584	0.222	0.377	0.704	3.432
7	Kansas	Dickinson	0.132	0.579	0.397	0.406	0.721	7.970
7	Kansas	Doniphan	0.103	0.666	0.332	0.438	0.610	8.051
7	Kansas	Douglas	0.254	0.578	0.514	0.443	0.545	4.350
7	Kansas	Edwards	0.211	0.639	0.152	0.369	0.633	0.925
7	Kansas	Elk	0.213	0.649	0.275	0.340	0.421	0.210
7	Kansas	Ellis	0.181	0.569	0.422	0.288	0.734	4.650
7	Kansas	Ellsworth	0.154	0.644	0.335	0.411	0.744	6.561
7	Kansas	Finney	0.154	0.556	0.429	0.290	0.632	4.253
7	Kansas	Ford	0.186	0.566	0.429	0.440	0.569	4.886
7	Kansas	Franklin	0.129	0.609	0.393	0.402	0.634	6.877
7	Kansas	Geary	0.197	0.590	0.365	0.407	0.470	2.462
7	Kansas	Gove	0.181	0.738	0.325	0.282	0.812	4.923
7	Kansas	Graham	0.245	0.632	0.196	0.389	0.704	2.012
7	Kansas	Grant	0.254	0.535	0.242	0.316	0.597	0.510
7	Kansas	Gray	0.203	0.672	0.382	0.297	0.680	3.714
7	Kansas	Greeley	0.139	0.630	0.213	0.299	0.418	-1.776
7	Kansas	Greenwood	0.141	0.597	0.233	0.336	0.639	2.113
7	Kansas	Hamilton	0.104	0.593	0.240	0.375	0.405	-0.463
7	Kansas	Harper	0.234	0.610	0.278	0.371	0.591	1.816
7	Kansas	Harvey	0.157	0.586	0.413	0.422	0.666	6.584
7	Kansas	Haskell	0.201	0.645	0.260	0.400	0.612	2.587
7	Kansas	Hodgeman	0.282	0.662	0.266	0.345	0.517	0.830
7	Kansas	Jackson	0.142	0.649	0.391	0.377	0.760	7.829
7	Kansas	Jefferson	0.131	0.626	0.440	0.441	0.670	9.158

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Kansas	Jewell	0.383	0.626	0.220	0.332	0.680	0.956
7	Kansas	Johnson	0.670	0.570	0.528	0.317	0.589	1.363
7	Kansas	Kearny	0.171	0.607	0.283	0.409	0.726	4.616
7	Kansas	Kingman	0.164	0.621	0.317	0.396	0.712	5.097
7	Kansas	Kiowa	0.293	0.705	0.330	0.320	0.748	2.875
7	Kansas	Labette	0.283	0.551	0.361	0.454	0.572	2.662
7	Kansas	Lane	0.187	0.657	0.237	0.341	0.563	1.240
7	Kansas	Leavenworth	0.269	0.579	0.437	0.387	0.575	3.063
7	Kansas	Lincoln	0.105	0.662	0.216	0.305	0.716	3.729
7	Kansas	Linn	0.194	0.604	0.425	0.504	0.660	6.542
7	Kansas	Logan	0.124	0.619	0.239	0.302	0.868	5.674
7	Kansas	Lyon	0.135	0.568	0.449	0.428	0.543	6.542
7	Kansas	Marion	0.126	0.628	0.333	0.447	0.731	8.318
7	Kansas	Marshall	0.082	0.628	0.330	0.342	0.819	11.629
7	Kansas	McPherson	0.162	0.609	0.488	0.402	0.771	8.729
7	Kansas	Meade	0.281	0.658	0.341	0.375	0.750	3.412
7	Kansas	Miami	0.120	0.590	0.493	0.406	0.733	11.203
7	Kansas	Mitchell	0.225	0.604	0.304	0.340	0.718	2.934
7	Kansas	Montgomery	0.177	0.553	0.419	0.438	0.526	4.413
7	Kansas	Morris	0.153	0.578	0.304	0.390	0.715	4.928
7	Kansas	Morton	0.172	0.604	0.249	0.398	0.434	0.579
7	Kansas	Nemaha	0.113	0.628	0.380	0.377	0.859	11.069
7	Kansas	Neosho	0.140	0.523	0.383	0.439	0.676	6.782
7	Kansas	Ness	0.188	0.626	0.230	0.420	0.558	1.947
7	Kansas	Norton	0.259	0.592	0.271	0.323	0.728	2.072
7	Kansas	Osage	0.134	0.652	0.410	0.400	0.580	6.460
7	Kansas	Osborne	0.216	0.640	0.215	0.346	0.688	1.929
7	Kansas	Ottawa	0.101	0.685	0.324	0.394	0.838	11.470
7	Kansas	Pawnee	0.161	0.571	0.244	0.354	0.690	2.764

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Kansas	Phillips	0.226	0.655	0.302	0.337	0.787	3.700
7	Kansas	Pottawatomie	0.124	0.614	0.478	0.358	0.739	9.836
7	Kansas	Pratt	0.314	0.588	0.311	0.338	0.719	2.099
7	Kansas	Rawlins	0.129	0.636	0.211	0.273	0.672	1.460
7	Kansas	Reno	0.246	0.579	0.466	0.375	0.679	4.384
7	Kansas	Republic	0.182	0.633	0.290	0.327	0.705	3.265
7	Kansas	Rice	0.168	0.623	0.326	0.388	0.585	3.542
7	Kansas	Riley	0.225	0.572	0.437	0.417	0.508	3.381
7	Kansas	Rooks	0.232	0.646	0.283	0.346	0.705	2.742
7	Kansas	Rush	0.204	0.547	0.351	0.325	0.679	3.030
7	Kansas	Russell	0.136	0.593	0.272	0.337	0.564	1.864
7	Kansas	Saline	0.172	0.592	0.449	0.458	0.670	7.154
7	Kansas	Scott	0.144	0.521	0.269	0.332	0.761	3.819
7	Kansas	Sedgwick	0.795	0.565	0.714	0.372	0.559	1.865
7	Kansas	Seward	0.241	0.519	0.373	0.262	0.509	0.645
7	Kansas	Shawnee	0.358	0.548	0.447	0.382	0.610	2.451
7	Kansas	Sheridan	0.188	0.599	0.274	0.259	0.710	1.916
7	Kansas	Sherman	0.178	0.540	0.277	0.336	0.720	2.926
7	Kansas	Smith	0.257	0.620	0.221	0.337	0.689	1.520
7	Kansas	Stafford	0.205	0.643	0.227	0.279	0.604	0.592
7	Kansas	Stanton	0.097	0.621	0.253	0.358	0.500	1.600
7	Kansas	Stevens	0.106	0.531	0.268	0.267	0.498	-1.122
7	Kansas	Sumner	0.193	0.611	0.467	0.404	0.650	5.850
7	Kansas	Thomas	0.166	0.562	0.389	0.342	0.760	5.608
7	Kansas	Trego	0.289	0.596	0.257	0.367	0.791	2.550
7	Kansas	Wabaunsee	0.107	0.684	0.418	0.361	0.828	12.296
7	Kansas	Wallace	0.175	0.646	0.224	0.282	0.519	-0.262
7	Kansas	Washington	0.096	0.668	0.310	0.379	0.805	10.545
7	Kansas	Wichita	0.092	0.586	0.230	0.344	0.664	3.825

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Kansas	Wilson	0.135	0.591	0.283	0.414	0.735	5.972
7	Kansas	Woodson	0.214	0.592	0.135	0.358	0.581	-0.129
7	Kansas	Wyandotte	0.653	0.543	0.294	0.262	0.454	-0.211
7	Missouri	Adair	0.113	0.561	0.404	0.466	0.488	6.553
7	Missouri	Andrew	0.116	0.619	0.379	0.435	0.551	6.779
7	Missouri	Atchison	0.089	0.679	0.326	0.401	0.585	7.685
7	Missouri	Audrain	0.108	0.555	0.456	0.422	0.623	9.528
7	Missouri	Barry	0.208	0.428	0.466	0.366	0.489	2.558
7	Missouri	Barton	0.246	0.541	0.350	0.414	0.545	2.289
7	Missouri	Bates	0.161	0.596	0.407	0.483	0.478	5.011
7	Missouri	Benton	0.147	0.505	0.440	0.494	0.517	6.171
7	Missouri	Bollinger	0.179	0.513	0.327	0.336	0.467	0.715
7	Missouri	Boone	0.360	0.554	0.596	0.387	0.501	2.994
7	Missouri	Buchanan	0.199	0.554	0.362	0.426	0.530	3.054
7	Missouri	Butler	0.248	0.400	0.441	0.401	0.511	2.278
7	Missouri	Caldwell	0.081	0.686	0.333	0.428	0.554	8.815
7	Missouri	Callaway	0.137	0.538	0.574	0.351	0.552	7.415
7	Missouri	Camden	0.206	0.503	0.533	0.282	0.584	3.707
7	Missouri	Cape Girardeau	0.338	0.419	0.540	0.358	0.664	3.087
7	Missouri	Carroll	0.104	0.624	0.333	0.365	0.579	5.240
7	Missouri	Carter	0.379	0.426	0.329	0.489	0.367	0.595
7	Missouri	Cass	0.297	0.591	0.600	0.348	0.598	4.101
7	Missouri	Cedar	0.296	0.447	0.306	0.469	0.629	2.200
7	Missouri	Chariton	0.105	0.619	0.329	0.395	0.571	5.618
7	Missouri	Christian	0.339	0.474	0.483	0.381	0.609	2.633
7	Missouri	Clark	0.178	0.619	0.287	0.432	0.341	0.651
7	Missouri	Clay	0.752	0.566	0.490	0.355	0.543	1.078
7	Missouri	Clinton	0.104	0.614	0.387	0.412	0.649	8.960
7	Missouri	Cole	0.249	0.518	0.483	0.373	0.694	4.357

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Missouri	Cooper	0.107	0.620	0.395	0.403	0.583	7.539
7	Missouri	Crawford	0.136	0.505	0.395	0.409	0.589	5.323
7	Missouri	Dade	0.151	0.539	0.240	0.424	0.427	0.399
7	Missouri	Dallas	0.159	0.448	0.357	0.368	0.447	1.148
7	Missouri	Daviess	0.119	0.663	0.343	0.425	0.540	5.762
7	Missouri	DeKalb	0.108	0.655	0.381	0.458	0.496	7.120
7	Missouri	Dent	0.103	0.467	0.293	0.422	0.575	4.025
7	Missouri	Douglas	0.154	0.377	0.323	0.427	0.377	0.186
7	Missouri	Dunklin	0.177	0.470	0.382	0.423	0.423	2.028
7	Missouri	Franklin	0.388	0.532	0.601	0.354	0.590	2.990
7	Missouri	Gasconade	0.109	0.522	0.310	0.345	0.621	3.808
7	Missouri	Gentry	0.215	0.649	0.229	0.396	0.651	2.373
7	Missouri	Greene	0.674	0.437	0.541	0.285	0.518	0.887
7	Missouri	Grundy	0.111	0.600	0.297	0.382	0.663	5.704
7	Missouri	Harrison	0.102	0.656	0.305	0.377	0.574	5.145
7	Missouri	Henry	0.128	0.583	0.419	0.524	0.586	8.881
7	Missouri	Hickory	0.113	0.495	0.335	0.437	0.367	1.616
7	Missouri	Holt	0.100	0.700	0.292	0.416	0.688	8.507
7	Missouri	Howard	0.105	0.583	0.282	0.379	0.580	3.856
7	Missouri	Howell	0.161	0.426	0.432	0.403	0.611	4.763
7	Missouri	Iron	0.287	0.502	0.314	0.461	0.448	1.220
7	Missouri	Jackson	0.709	0.557	0.723	0.309	0.491	1.704
7	Missouri	Jasper	0.658	0.481	0.614	0.362	0.460	1.381
7	Missouri	Jefferson	0.590	0.540	0.609	0.333	0.564	1.848
7	Missouri	Johnson	0.148	0.584	0.572	0.385	0.524	7.313
7	Missouri	Knox	0.148	0.607	0.240	0.368	0.378	-0.715
7	Missouri	Laclede	0.170	0.488	0.410	0.333	0.474	1.950
7	Missouri	Lafayette	0.112	0.582	0.466	0.360	0.711	9.844
7	Missouri	Lawrence	0.259	0.470	0.406	0.380	0.591	2.497

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Missouri	Lewis	0.187	0.610	0.323	0.398	0.548	2.813
7	Missouri	Lincoln	0.240	0.588	0.535	0.388	0.539	4.282
7	Missouri	Linn	0.106	0.614	0.370	0.408	0.534	6.158
7	Missouri	Livingston	0.104	0.548	0.319	0.357	0.636	5.016
7	Missouri	Macon	0.112	0.616	0.466	0.450	0.666	11.365
7	Missouri	Madison	0.198	0.513	0.330	0.399	0.492	1.722
7	Missouri	Maries	0.134	0.481	0.357	0.317	0.467	0.958
7	Missouri	Marion	0.152	0.548	0.395	0.396	0.578	4.665
7	Missouri	McDonald	0.163	0.474	0.387	0.264	0.447	0.205
7	Missouri	Mercer	0.087	0.629	0.177	0.367	0.498	-0.227
7	Missouri	Miller	0.121	0.508	0.480	0.297	0.545	4.858
7	Missouri	Mississippi	0.329	0.462	0.310	0.384	0.347	-0.261
7	Missouri	Moniteau	0.109	0.572	0.366	0.372	0.658	6.919
7	Missouri	Monroe	0.123	0.606	0.325	0.448	0.622	6.467
7	Missouri	Montgomery	0.105	0.557	0.380	0.396	0.573	6.351
7	Missouri	Morgan	0.125	0.507	0.455	0.354	0.485	4.327
7	Missouri	New Madrid	0.325	0.512	0.418	0.362	0.393	0.890
7	Missouri	Newton	0.318	0.480	0.526	0.326	0.542	2.350
7	Missouri	Nodaway	0.099	0.599	0.509	0.429	0.601	12.014
7	Missouri	Oregon	0.178	0.442	0.271	0.465	0.451	1.092
7	Missouri	Osage	0.094	0.529	0.407	0.322	0.790	10.220
7	Missouri	Ozark	0.187	0.419	0.332	0.399	0.570	2.167
7	Missouri	Pemiscot	0.235	0.519	0.310	0.397	0.396	0.410
7	Missouri	Perry	0.191	0.437	0.333	0.338	0.752	3.308
7	Missouri	Pettis	0.160	0.551	0.444	0.418	0.530	5.011
7	Missouri	Phelps	0.136	0.474	0.502	0.364	0.510	5.221
7	Missouri	Pike	0.138	0.566	0.402	0.433	0.538	5.517
7	Missouri	Platte	0.384	0.591	0.495	0.357	0.523	2.121
7	Missouri	Polk	0.160	0.500	0.404	0.417	0.548	4.246

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Missouri	Pulaski	0.293	0.498	0.481	0.378	0.388	1.605
7	Missouri	Putnam	0.079	0.580	0.275	0.351	0.399	-0.509
7	Missouri	Ralls	0.127	0.591	0.388	0.418	0.608	6.668
7	Missouri	Randolph	0.112	0.564	0.414	0.375	0.640	7.567
7	Missouri	Ray	0.100	0.618	0.380	0.421	0.563	7.720
7	Missouri	Reynolds	0.150	0.422	0.323	0.453	0.574	3.497
7	Missouri	Ripley	0.141	0.402	0.263	0.467	0.385	0.059
7	Missouri	Saline	0.108	0.594	0.364	0.370	0.536	4.890
7	Missouri	Schuyler	0.071	0.652	0.282	0.353	0.391	0.583
7	Missouri	Scotland	0.164	0.606	0.211	0.400	0.357	-0.895
7	Missouri	Scott	0.274	0.505	0.431	0.347	0.557	2.192
7	Missouri	Shannon	0.152	0.424	0.339	0.486	0.317	0.958
7	Missouri	Shelby	0.080	0.635	0.348	0.412	0.581	8.971
7	Missouri	St. Charles	0.796	0.568	0.558	0.333	0.602	1.326
7	Missouri	St. Clair	0.126	0.550	0.296	0.533	0.471	4.523
7	Missouri	St. Francois	0.271	0.483	0.446	0.388	0.493	2.187
7	Missouri	St. Louis	0.597	0.509	0.254	0.010	0.374	-1.763
7	Missouri	St. Louis County	0.853	0.522	0.620	0.152	0.530	0.689
7	Missouri	Ste. Genevieve	0.120	0.472	0.397	0.350	0.632	5.275
7	Missouri	Stoddard	0.169	0.511	0.452	0.370	0.446	2.968
7	Missouri	Stone	0.179	0.424	0.477	0.431	0.587	5.081
7	Missouri	Sullivan	0.082	0.645	0.331	0.400	0.463	5.134
7	Missouri	Taney	0.298	0.390	0.569	0.468	0.413	2.909
7	Missouri	Texas	0.099	0.461	0.441	0.402	0.536	6.833
7	Missouri	Vernon	0.103	0.537	0.424	0.477	0.587	9.643
7	Missouri	Warren	0.179	0.555	0.460	0.355	0.491	3.454
7	Missouri	Washington	0.151	0.487	0.369	0.479	0.514	4.356
7	Missouri	Wayne	0.237	0.447	0.344	0.463	0.450	1.622
7	Missouri	Webster	0.151	0.504	0.498	0.283	0.574	4.340

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Missouri	Worth	0.107	0.646	0.248	0.398	0.417	0.967
7	Missouri	Wright	0.117	0.455	0.367	0.413	0.500	3.673
7	Nebraska	Adams	0.289	0.571	0.361	0.436	0.620	2.851
7	Nebraska	Antelope	0.079	0.662	0.283	0.308	0.753	8.240
7	Nebraska	Arthur	0.186	0.727	0.119	0.234	0.535	-1.774
7	Nebraska	Banner	0.153	0.684	0.171	0.224	0.236	-5.517
7	Nebraska	Blaine	0.353	0.678	0.153	0.312	0.477	-0.595
7	Nebraska	Boone	0.077	0.646	0.306	0.299	0.681	6.937
7	Nebraska	Box Butte	0.118	0.571	0.318	0.314	0.636	3.726
7	Nebraska	Boyd	0.407	0.686	0.191	0.270	0.586	0.021
7	Nebraska	Brown	0.272	0.566	0.196	0.323	0.818	1.805
7	Nebraska	Buffalo	0.282	0.601	0.510	0.344	0.736	4.432
7	Nebraska	Burt	0.082	0.666	0.252	0.376	0.659	6.738
7	Nebraska	Butler	0.124	0.646	0.355	0.435	0.723	8.739
7	Nebraska	Cass	0.130	0.674	0.498	0.342	0.588	7.694
7	Nebraska	Cedar	0.257	0.656	0.395	0.374	0.737	4.186
7	Nebraska	Chase	0.232	0.615	0.326	0.345	0.473	1.130
7	Nebraska	Cherry	0.264	0.595	0.367	0.339	0.627	2.427
7	Nebraska	Cheyenne	0.116	0.632	0.367	0.311	0.678	6.046
7	Nebraska	Clay	0.416	0.694	0.313	0.523	0.614	2.448
7	Nebraska	Colfax	0.087	0.620	0.313	0.380	0.467	3.515
7	Nebraska	Cuming	0.096	0.608	0.332	0.387	0.719	8.894
7	Nebraska	Custer	0.234	0.658	0.471	0.234	0.724	3.895
7	Nebraska	Dakota	0.137	0.608	0.352	0.416	0.446	3.260
7	Nebraska	Dawes	0.150	0.551	0.251	0.306	0.681	2.066
7	Nebraska	Dawson	0.218	0.593	0.395	0.255	0.641	2.448
7	Nebraska	Deuel	0.130	0.691	0.278	0.347	0.449	1.273
7	Nebraska	Dixon	0.124	0.726	0.336	0.359	0.531	4.407
7	Nebraska	Dodge	0.143	0.584	0.431	0.416	0.623	6.822

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Nebraska	Douglas	0.810	0.589	0.589	0.155	0.555	0.777
7	Nebraska	Dundy	0.121	0.607	0.275	0.307	0.502	0.672
7	Nebraska	Fillmore	0.388	0.659	0.322	0.433	0.800	2.972
7	Nebraska	Franklin	0.268	0.672	0.191	0.279	0.538	-0.287
7	Nebraska	Frontier	0.254	0.708	0.233	0.347	0.558	1.095
7	Nebraska	Furnas	0.319	0.644	0.394	0.353	0.640	2.568
7	Nebraska	Gage	0.264	0.605	0.392	0.303	0.689	2.842
7	Nebraska	Garden	0.294	0.610	0.234	0.285	0.521	-0.148
7	Nebraska	Garfield	0.196	0.586	0.234	0.266	0.531	-0.473
7	Nebraska	Gosper	0.311	0.646	0.280	0.333	0.642	1.516
7	Nebraska	Grant	0.235	0.695	0.154	0.283	0.533	-0.643
7	Nebraska	Greeley	0.329	0.676	0.257	0.281	0.601	0.701
7	Nebraska	Hall	0.295	0.576	0.439	0.325	0.691	3.054
7	Nebraska	Hamilton	0.246	0.659	0.379	0.503	0.747	5.592
7	Nebraska	Harlan	0.279	0.648	0.239	0.395	0.532	1.070
7	Nebraska	Hayes	0.196	0.652	0.121	0.279	0.284	-3.992
7	Nebraska	Hitchcock	0.185	0.643	0.241	0.282	0.400	-1.267
7	Nebraska	Holt	0.274	0.629	0.388	0.278	0.889	4.000
7	Nebraska	Hooker	0.242	0.618	0.214	0.319	0.415	-0.868
7	Nebraska	Howard	0.181	0.667	0.256	0.334	0.571	1.607
7	Nebraska	Jefferson	0.289	0.625	0.293	0.365	0.681	2.216
7	Nebraska	Johnson	0.116	0.656	0.298	0.312	0.673	4.683
7	Nebraska	Kearney	0.300	0.626	0.323	0.443	0.708	3.224
7	Nebraska	Keith	0.164	0.584	0.375	0.269	0.686	3.619
7	Nebraska	Keya Paha	0.288	0.673	0.179	0.294	0.372	-1.371
7	Nebraska	Kimball	0.219	0.595	0.136	0.304	0.509	-1.353
7	Nebraska	Knox	0.230	0.657	0.418	0.419	0.673	4.881
7	Nebraska	Lancaster	0.594	0.575	0.636	0.419	0.631	2.594
7	Nebraska	Lincoln	0.198	0.594	0.551	0.289	0.663	5.431

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Nebraska	Logan	0.318	0.786	0.194	0.190	0.551	-0.464
7	Nebraska	Loup	0.258	0.710	0.177	0.233	0.433	-1.529
7	Nebraska	Madison	0.114	0.589	0.382	0.361	0.763	8.720
7	Nebraska	McPherson	0.279	0.660	0.149	0.233	0.483	-1.519
7	Nebraska	Merrick	0.172	0.630	0.285	0.367	0.679	3.639
7	Nebraska	Morrill	0.115	0.635	0.370	0.243	0.502	1.785
7	Nebraska	Nance	0.152	0.636	0.293	0.328	0.595	2.568
7	Nebraska	Nemaha	0.081	0.612	0.226	0.357	0.569	2.557
7	Nebraska	Nuckolls	0.213	0.607	0.199	0.370	0.630	1.330
7	Nebraska	Otoe	0.255	0.631	0.391	0.384	0.795	4.614
7	Nebraska	Pawnee	0.058	0.639	0.266	0.331	0.567	4.747
7	Nebraska	Perkins	0.128	0.640	0.330	0.340	0.763	6.685
7	Nebraska	Phelps	0.155	0.610	0.262	0.432	0.725	5.135
7	Nebraska	Pierce	0.053	0.672	0.299	0.388	0.826	19.883
7	Nebraska	Platte	0.145	0.592	0.431	0.359	0.736	7.360
7	Nebraska	Polk	0.238	0.676	0.317	0.407	0.690	3.685
7	Nebraska	Red Willow	0.104	0.546	0.313	0.305	0.677	4.416
7	Nebraska	Richardson	0.074	0.590	0.310	0.408	0.719	11.161
7	Nebraska	Rock	0.183	0.676	0.242	0.308	0.520	0.539
7	Nebraska	Saline	0.272	0.608	0.346	0.392	0.598	2.465
7	Nebraska	Sarpy	0.509	0.619	0.353	0.363	0.595	1.218
7	Nebraska	Saunders	0.140	0.658	0.453	0.423	0.708	9.277
7	Nebraska	Scotts Bluff	0.392	0.601	0.470	0.309	0.716	2.602
7	Nebraska	Seward	0.160	0.645	0.417	0.408	0.772	7.970
7	Nebraska	Sheridan	0.319	0.615	0.279	0.247	0.595	0.417
7	Nebraska	Sherman	0.283	0.650	0.240	0.297	0.611	0.777
7	Nebraska	Sioux	0.139	0.626	0.185	0.335	0.334	-2.873
7	Nebraska	Stanton	0.192	0.648	0.370	0.352	0.651	4.061
7	Nebraska	Thayer	0.411	0.690	0.338	0.370	0.750	2.371

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
7	Nebraska	Thomas	0.293	0.712	0.216	0.349	0.559	0.833
7	Nebraska	Thurston	0.147	0.729	0.377	0.805	0.217	7.758
7	Nebraska	Valley	0.289	0.629	0.279	0.266	0.803	2.090
7	Nebraska	Washington	0.215	0.619	0.398	0.374	0.800	5.450
7	Nebraska	Wayne	0.175	0.598	0.329	0.403	0.590	3.575
7	Nebraska	Webster	0.286	0.673	0.207	0.302	0.498	-0.184
7	Nebraska	Wheeler	0.233	0.675	0.165	0.173	0.429	-2.643
7	Nebraska	York	0.227	0.618	0.353	0.436	0.854	5.774

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.162	0.557	0.398	0.396	0.617	6.086
8	Colorado	Adams	0.592	0.544	0.606	0.205	0.520	1.157
8	Colorado	Alamosa	0.121	0.536	0.389	0.347	0.601	5.036
8	Colorado	Arapahoe	0.591	0.540	0.436	0.179	0.508	0.235
8	Colorado	Archuleta	0.117	0.538	0.440	0.500	0.580	9.206
8	Colorado	Baca	0.128	0.606	0.188	0.357	0.472	-0.696
8	Colorado	Bent	0.203	0.533	0.164	0.363	0.402	-1.722
8	Colorado	Boulder	0.556	0.539	0.645	0.436	0.539	2.497
8	Colorado	Broomfield	0.702	0.550	0.227	0.246	0.524	-0.300
8	Colorado	Chaffee	0.091	0.499	0.472	0.504	0.744	15.955
8	Colorado	Cheyenne	0.106	0.639	0.294	0.265	0.497	0.482
8	Colorado	Clear Creek	0.202	0.567	0.499	0.438	0.619	5.911
8	Colorado	Conejos	0.082	0.575	0.339	0.385	0.410	2.807
8	Colorado	Costilla	0.122	0.504	0.328	0.224	0.206	-5.452
8	Colorado	Crowley	0.125	0.604	0.150	0.307	0.167	-7.285
8	Colorado	Custer	0.179	0.486	0.388	0.418	0.573	3.745
8	Colorado	Delta	0.121	0.509	0.542	0.517	0.562	10.965
8	Colorado	Denver	0.551	0.540	0.403	0.068	0.487	-0.474
8	Colorado	Dolores	0.097	0.503	0.222	0.577	0.438	3.845
8	Colorado	Douglas	0.467	0.566	0.565	0.411	0.588	2.649
8	Colorado	Eagle	0.124	0.548	0.627	0.543	0.650	14.752
8	Colorado	El Paso	0.490	0.533	0.875	0.318	0.500	3.325
8	Colorado	Elbert	0.132	0.621	0.579	0.269	0.657	8.441
8	Colorado	Fremont	0.155	0.518	0.498	0.418	0.527	5.879
8	Colorado	Garfield	0.131	0.545	0.707	0.454	0.688	14.497
8	Colorado	Gilpin	0.274	0.547	0.387	0.388	0.528	2.079
8	Colorado	Grand	0.139	0.560	0.612	0.419	0.779	12.624
8	Colorado	Gunnison	0.102	0.520	0.515	0.484	0.786	15.997

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
8	Colorado	Hinsdale	0.092	0.598	0.273	0.509	0.428	4.562
8	Colorado	Huerfano	0.168	0.517	0.352	0.351	0.455	1.252
8	Colorado	Jackson	0.148	0.556	0.257	0.375	0.369	-0.750
8	Colorado	Jefferson	0.553	0.535	0.647	0.379	0.625	2.568
8	Colorado	Kiowa	0.168	0.662	0.276	0.312	0.449	0.276
8	Colorado	Kit Carson	0.125	0.567	0.382	0.290	0.709	5.528
8	Colorado	La Plata	0.151	0.556	0.642	0.526	0.705	12.897
8	Colorado	Lake	0.101	0.485	0.179	0.535	0.585	4.230
8	Colorado	Larimer	0.380	0.537	0.856	0.388	0.591	5.092
8	Colorado	Las Animas	0.154	0.544	0.402	0.324	0.588	3.673
8	Colorado	Lincoln	0.133	0.616	0.416	0.391	0.485	4.811
8	Colorado	Logan	0.154	0.545	0.541	0.275	0.569	5.050
8	Colorado	Mesa	0.169	0.513	0.729	0.582	0.615	12.394
8	Colorado	Mineral	0.119	0.583	0.294	0.546	0.335	3.085
8	Colorado	Moffat	0.125	0.556	0.406	0.460	0.612	7.784
8	Colorado	Montezuma	0.134	0.499	0.488	0.506	0.550	8.366
8	Colorado	Montrose	0.163	0.508	0.605	0.524	0.636	10.204
8	Colorado	Morgan	0.234	0.536	0.474	0.230	0.541	1.824
8	Colorado	Otero	0.133	0.530	0.373	0.468	0.506	5.035
8	Colorado	Ouray	0.073	0.565	0.411	0.442	0.681	14.861
8	Colorado	Park	0.171	0.543	0.511	0.436	0.708	7.997
8	Colorado	Phillips	0.130	0.604	0.293	0.307	0.528	1.364
8	Colorado	Pitkin	0.076	0.513	0.498	0.485	0.604	16.108
8	Colorado	Prowers	0.229	0.542	0.308	0.306	0.582	1.130
8	Colorado	Pueblo	0.199	0.503	0.631	0.337	0.516	5.171
8	Colorado	Rio Blanco	0.127	0.525	0.323	0.495	0.530	5.060
8	Colorado	Rio Grande	0.313	0.549	0.404	0.353	0.542	1.787
8	Colorado	Routt	0.124	0.545	0.663	0.435	0.771	15.286
8	Colorado	Saguache	0.109	0.531	0.415	0.419	0.461	5.254

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8	Colorado	San Juan	0.079	0.594	0.296	0.647	0.387	9.349
8	Colorado	San Miguel	0.093	0.583	0.475	0.517	0.668	15.411
8	Colorado	Sedgwick	0.126	0.641	0.249	0.316	0.478	0.152
8	Colorado	Summit	0.126	0.557	0.561	0.453	0.764	13.243
8	Colorado	Teller	0.168	0.546	0.505	0.452	0.650	7.637
8	Colorado	Washington	0.264	0.615	0.334	0.313	0.545	1.309
8	Colorado	Weld	0.302	0.556	0.971	0.305	0.523	6.360
8	Colorado	Yuma	0.162	0.522	0.447	0.312	0.649	4.653
8	Montana	Beaverhead	0.083	0.557	0.412	0.450	0.798	16.037
8	Montana	Big Horn	0.213	0.542	0.351	0.583	0.439	3.621
8	Montana	Blaine	0.132	0.572	0.380	0.450	0.539	5.696
8	Montana	Broadwater	0.091	0.552	0.323	0.451	0.626	8.275
8	Montana	Carbon	0.135	0.571	0.482	0.448	0.831	11.762
8	Montana	Carter	0.128	0.606	0.247	0.337	0.488	0.390
8	Montana	Cascade	0.120	0.528	0.648	0.391	0.602	11.664
8	Montana	Chouteau	0.140	0.605	0.399	0.343	0.809	7.866
8	Montana	Custer	0.132	0.525	0.383	0.311	0.820	6.985
8	Montana	Daniels	0.056	0.575	0.292	0.443	0.790	17.873
8	Montana	Dawson	0.130	0.537	0.352	0.296	0.741	5.078
8	Montana	Deer Lodge	0.080	0.505	0.233	0.541	0.516	5.822
8	Montana	Fallon	0.083	0.564	0.311	0.274	0.729	6.005
8	Montana	Fergus	0.129	0.543	0.407	0.307	0.767	6.857
8	Montana	Flathead	0.114	0.536	0.827	0.545	0.697	21.584
8	Montana	Gallatin	0.354	0.542	0.657	0.469	0.776	5.571
8	Montana	Garfield	0.375	0.621	0.271	0.327	0.540	0.556
8	Montana	Glacier	0.113	0.484	0.335	0.494	0.420	3.684
8	Montana	Golden Valley	0.084	0.669	0.216	0.281	0.249	-6.829
8	Montana	Granite	0.060	0.540	0.321	0.476	0.560	11.108
8	Montana	Hill	0.114	0.522	0.330	0.288	0.683	3.961

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8	Montana	Jefferson	0.093	0.582	0.523	0.387	0.756	15.229
8	Montana	Judith Basin	0.129	0.656	0.240	0.388	0.565	2.786
8	Montana	Lake	0.116	0.550	0.481	0.515	0.590	10.841
8	Montana	Lewis and Clark	0.133	0.532	0.591	0.458	0.725	12.489
8	Montana	Liberty	0.073	0.545	0.271	0.299	0.503	-0.115
8	Montana	Lincoln	0.078	0.511	0.507	0.525	0.645	18.224
8	Montana	Madison	0.126	0.545	0.485	0.525	0.690	11.825
8	Montana	McCone	0.215	0.560	0.310	0.351	0.833	4.111
8	Montana	Meagher	0.101	0.595	0.289	0.432	0.390	1.903
8	Montana	Mineral	0.108	0.560	0.297	0.654	0.589	10.318
8	Montana	Missoula	0.114	0.536	0.616	0.442	0.642	13.437
8	Montana	Musselshell	0.136	0.531	0.224	0.299	0.586	0.119
8	Montana	Park	0.151	0.531	0.420	0.375	0.756	7.015
8	Montana	Petroleum	0.311	0.658	0.177	0.437	0.354	-0.322
8	Montana	Phillips	0.190	0.524	0.369	0.516	0.735	6.438
8	Montana	Pondera	0.098	0.610	0.319	0.409	0.576	6.063
8	Montana	Powder River	0.123	0.567	0.270	0.332	0.622	2.660
8	Montana	Powell	0.086	0.556	0.276	0.468	0.622	7.727
8	Montana	Prairie	0.206	0.541	0.206	0.363	0.510	-0.077
8	Montana	Ravalli	0.074	0.531	0.488	0.493	0.600	16.423
8	Montana	Richland	0.106	0.537	0.383	0.331	0.600	5.180
8	Montana	Roosevelt	0.153	0.565	0.455	0.595	0.514	8.194
8	Montana	Rosebud	0.163	0.562	0.500	0.308	0.558	4.588
8	Montana	Sanders	0.103	0.567	0.542	0.473	0.691	14.805
8	Montana	Sheridan	0.121	0.588	0.290	0.323	0.867	7.094
8	Montana	Silver Bow	0.079	0.493	0.348	0.401	0.682	9.441
8	Montana	Stillwater	0.154	0.606	0.419	0.337	0.634	5.162
8	Montana	Sweet Grass	0.125	0.620	0.315	0.330	0.723	5.505
8	Montana	Teton	0.106	0.629	0.386	0.432	0.865	13.429

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
8	Montana	Toole	0.048	0.526	0.299	0.263	0.773	10.149
8	Montana	Treasure	0.093	0.666	0.232	0.267	0.405	-2.839
8	Montana	Valley	0.266	0.552	0.450	0.407	0.912	5.799
8	Montana	Wheatland	0.109	0.528	0.268	0.308	0.574	1.148
8	Montana	Wibaux	0.168	0.567	0.197	0.296	0.573	-0.322
8	Montana	Yellowstone	0.254	0.534	0.696	0.294	0.635	5.361
8	North Dakota	Adams	0.183	0.574	0.311	0.248	0.743	2.577
8	North Dakota	Barnes	0.121	0.545	0.445	0.345	0.711	8.073
8	North Dakota	Benson	0.223	0.615	0.408	0.461	0.484	3.539
8	North Dakota	Billings	0.171	0.614	0.256	0.511	0.470	2.781
8	North Dakota	Bottineau	0.121	0.532	0.391	0.417	0.743	8.749
8	North Dakota	Bowman	0.107	0.506	0.327	0.291	0.990	9.677
8	North Dakota	Burke	0.108	0.601	0.307	0.262	0.637	2.920
8	North Dakota	Burleigh	0.361	0.506	0.530	0.300	0.727	2.998
8	North Dakota	Cass	0.268	0.545	0.707	0.400	0.623	6.095
8	North Dakota	Cavalier	0.122	0.551	0.363	0.442	0.867	10.702
8	North Dakota	Dickey	0.123	0.554	0.363	0.367	0.716	6.717
8	North Dakota	Divide	0.082	0.485	0.330	0.238	0.814	6.719
8	North Dakota	Dunn	0.139	0.610	0.304	0.358	0.771	5.879
8	North Dakota	Eddy	0.103	0.595	0.216	0.382	0.496	0.803
8	North Dakota	Emmons	0.117	0.591	0.348	0.282	0.843	7.421
8	North Dakota	Foster	0.154	0.572	0.303	0.413	0.674	4.665
8	North Dakota	Golden Valley	0.095	0.568	0.251	0.400	0.568	3.531
8	North Dakota	Grand Forks	0.210	0.548	0.525	0.379	0.581	4.859
8	North Dakota	Grant	0.184	0.622	0.276	0.277	0.496	0.084
8	North Dakota	Griggs	0.157	0.567	0.304	0.271	0.620	1.671
8	North Dakota	Hettinger	0.122	0.612	0.279	0.261	0.719	3.344
8	North Dakota	Kidder	0.197	0.616	0.301	0.265	0.641	1.659
8	North Dakota	LaMoure	0.116	0.624	0.405	0.333	0.655	6.948

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
8	North Dakota	Logan	0.163	0.610	0.308	0.250	0.695	2.522
8	North Dakota	McHenry	0.092	0.597	0.405	0.343	0.681	9.319
8	North Dakota	McIntosh	0.113	0.600	0.318	0.300	0.736	5.578
8	North Dakota	McKenzie	0.139	0.531	0.418	0.443	0.671	7.549
8	North Dakota	McLean	0.115	0.592	0.510	0.399	0.843	13.818
8	North Dakota	Mercer	0.125	0.550	0.487	0.314	0.676	7.611
8	North Dakota	Morton	0.270	0.551	0.585	0.252	0.757	4.497
8	North Dakota	Mountrail	0.138	0.573	0.412	0.376	0.575	5.235
8	North Dakota	Nelson	0.209	0.604	0.384	0.386	0.735	4.885
8	North Dakota	Oliver	0.107	0.589	0.279	0.279	0.490	-0.194
8	North Dakota	Pembina	0.110	0.602	0.483	0.445	0.900	16.005
8	North Dakota	Pierce	0.087	0.514	0.257	0.323	0.657	3.266
8	North Dakota	Ramsey	0.174	0.537	0.344	0.408	0.873	6.727
8	North Dakota	Ransom	0.168	0.581	0.335	0.324	0.767	4.618
8	North Dakota	Renville	0.170	0.620	0.266	0.321	0.609	1.839
8	North Dakota	Richland	0.139	0.594	0.469	0.360	0.689	7.808
8	North Dakota	Rolette	0.090	0.482	0.376	0.472	0.646	10.147
8	North Dakota	Sargent	0.303	0.650	0.330	0.336	0.729	2.596
8	North Dakota	Sheridan	0.105	0.628	0.225	0.359	0.371	-1.544
8	North Dakota	Sioux	0.261	0.650	0.276	0.567	0.065	-0.355
8	North Dakota	Slope	0.172	0.652	0.183	0.415	0.378	-0.565
8	North Dakota	Stark	0.100	0.529	0.510	0.289	0.742	10.516
8	North Dakota	Steele	0.305	0.586	0.296	0.345	0.381	-0.093
8	North Dakota	Stutsman	0.100	0.537	0.496	0.345	0.723	11.253
8	North Dakota	Towner	0.093	0.610	0.339	0.377	0.618	7.045
8	North Dakota	Traill	0.135	0.625	0.387	0.383	0.744	7.865
8	North Dakota	Walsh	0.102	0.585	0.416	0.383	0.709	10.050
8	North Dakota	Ward	0.093	0.537	0.631	0.373	0.656	15.330
8	North Dakota	Wells	0.092	0.559	0.345	0.371	0.727	8.845

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
8	North Dakota	Williams	0.098	0.510	0.520	0.313	0.665	9.914
8	South Dakota	Aurora	0.090	0.677	0.252	0.229	0.824	5.883
8	South Dakota	Beadle	0.145	0.535	0.360	0.248	0.753	4.040
8	South Dakota	Bennett	0.151	0.455	0.212	0.555	0.330	0.212
8	South Dakota	Bon Homme	0.097	0.586	0.341	0.358	0.776	9.286
8	South Dakota	Brookings	0.103	0.547	0.463	0.403	0.634	9.881
8	South Dakota	Brown	0.143	0.548	0.462	0.278	0.819	7.493
8	South Dakota	Brule	0.144	0.555	0.267	0.358	0.767	4.541
8	South Dakota	Buffalo	0.120	0.524	0.248	0.454	0.011	-5.625
8	South Dakota	Butte	0.160	0.520	0.270	0.330	0.625	1.737
8	South Dakota	Campbell	0.078	0.581	0.204	0.297	0.306	-6.970
8	South Dakota	Charles Mix	0.129	0.600	0.383	0.466	0.574	6.952
8	South Dakota	Clark	0.089	0.615	0.246	0.377	0.640	5.126
8	South Dakota	Clay	0.067	0.534	0.325	0.333	0.508	3.212
8	South Dakota	Codington	0.086	0.539	0.380	0.387	0.739	11.127
8	South Dakota	Corson	0.162	0.628	0.287	0.590	0.135	0.656
8	South Dakota	Custer	0.198	0.499	0.395	0.497	0.713	5.945
8	South Dakota	Davison	0.155	0.525	0.365	0.275	0.772	4.448
8	South Dakota	Day	0.079	0.566	0.333	0.456	0.886	16.546
8	South Dakota	Deuel	0.055	0.636	0.335	0.382	0.636	13.073
8	South Dakota	Dewey	0.178	0.539	0.311	0.569	0.326	2.289
8	South Dakota	Douglas	0.176	0.615	0.272	0.246	0.711	1.930
8	South Dakota	Edmunds	0.088	0.580	0.332	0.319	0.849	10.376
8	South Dakota	Fall River	0.199	0.512	0.270	0.419	0.648	2.700
8	South Dakota	Faulk	0.080	0.594	0.226	0.329	0.611	2.588
8	South Dakota	Grant	0.086	0.566	0.372	0.460	0.793	14.496
8	South Dakota	Gregory	0.151	0.598	0.258	0.322	0.588	1.528
8	South Dakota	Haakon	0.275	0.557	0.254	0.290	0.721	1.322
8	South Dakota	Hamlin	0.061	0.639	0.331	0.341	0.696	11.966

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8	South Dakota	Hand	0.117	0.584	0.238	0.341	0.674	3.274
8	South Dakota	Hanson	0.089	0.677	0.291	0.344	0.462	2.306
8	South Dakota	Harding	0.212	0.616	0.234	0.345	0.519	0.498
8	South Dakota	Hughes	0.120	0.538	0.394	0.391	0.855	10.230
8	South Dakota	Hutchinson	0.156	0.581	0.355	0.314	0.756	5.034
8	South Dakota	Hyde	0.076	0.578	0.223	0.273	0.511	-2.035
8	South Dakota	Jackson	0.229	0.490	0.281	0.464	0.384	0.585
8	South Dakota	Jerauld	0.221	0.578	0.226	0.308	0.593	0.458
8	South Dakota	Jones	0.113	0.570	0.255	0.282	0.612	1.267
8	South Dakota	Kingsbury	0.144	0.615	0.334	0.381	0.840	7.588
8	South Dakota	Lake	0.089	0.539	0.315	0.427	0.701	9.002
8	South Dakota	Lawrence	0.256	0.512	0.431	0.498	0.639	4.461
8	South Dakota	Lincoln	0.252	0.563	0.491	0.366	0.691	4.485
8	South Dakota	Lyman	0.153	0.581	0.338	0.369	0.488	2.261
8	South Dakota	Marshall	0.159	0.578	0.302	0.468	0.549	3.824
8	South Dakota	McCook	0.158	0.643	0.356	0.334	0.830	6.607
8	South Dakota	McPherson	0.092	0.525	0.257	0.387	0.421	-0.108
8	South Dakota	Meade	0.212	0.531	0.443	0.323	0.732	4.462
8	South Dakota	Mellette	0.189	0.553	0.226	0.373	0.300	-1.812
8	South Dakota	Miner	0.077	0.574	0.249	0.250	0.528	-1.463
8	South Dakota	Minnehaha	0.324	0.554	0.597	0.289	0.647	3.474
8	South Dakota	Moody	0.076	0.602	0.269	0.474	0.618	9.201
8	South Dakota	Oglala Lakota	0.153	0.391	0.394	0.557	0.131	0.435
8	South Dakota	Pennington	0.264	0.497	0.649	0.410	0.649	5.715
8	South Dakota	Perkins	0.208	0.588	0.178	0.257	0.741	0.713
8	South Dakota	Potter	0.081	0.588	0.069	0.282	0.617	-3.983
8	South Dakota	Roberts	0.084	0.586	0.380	0.638	0.784	20.260
8	South Dakota	Sanborn	0.140	0.609	0.200	0.291	0.415	-2.341
8	South Dakota	Spink	0.086	0.601	0.339	0.320	0.754	8.991

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8	South Dakota	Stanley	0.137	0.529	0.303	0.355	0.691	4.133
8	South Dakota	Sully	0.094	0.587	0.216	0.337	0.654	2.923
8	South Dakota	Todd	0.142	0.482	0.336	0.613	0.173	1.585
8	South Dakota	Tripp	0.150	0.500	0.241	0.282	0.633	0.523
8	South Dakota	Turner	0.185	0.654	0.345	0.381	0.841	6.282
8	South Dakota	Union	0.110	0.602	0.427	0.392	0.634	8.575
8	South Dakota	Walworth	0.087	0.534	0.240	0.340	0.777	6.204
8	South Dakota	Yankton	0.133	0.523	0.319	0.368	0.771	5.963
8	South Dakota	Ziebach	0.231	0.644	0.261	0.508	0.134	-0.635
8	Utah	Beaver	0.135	0.534	0.552	0.507	0.590	10.459
8	Utah	Box Elder	0.167	0.569	0.599	0.319	0.635	7.172
8	Utah	Cache	0.267	0.554	0.541	0.494	0.638	5.482
8	Utah	Carbon	0.120	0.546	0.438	0.444	0.564	7.619
8	Utah	Daggett	0.128	0.572	0.311	0.610	0.404	5.428
8	Utah	Davis	0.711	0.517	0.424	0.445	0.655	1.444
8	Utah	Duchesne	0.075	0.584	0.423	0.449	0.589	12.889
8	Utah	Emery	0.125	0.581	0.540	0.495	0.663	12.365
8	Utah	Garfield	0.146	0.573	0.493	0.454	0.615	8.272
8	Utah	Grand	0.147	0.470	0.372	0.547	0.606	6.780
8	Utah	Iron	0.136	0.500	0.610	0.457	0.592	10.365
8	Utah	Juab	0.148	0.539	0.436	0.380	0.783	7.924
8	Utah	Kane	0.107	0.523	0.412	0.479	0.688	10.703
8	Utah	Millard	0.112	0.575	0.576	0.455	0.578	12.208
8	Utah	Morgan	0.155	0.546	0.462	0.371	0.701	6.897
8	Utah	Piute	0.103	0.627	0.252	0.605	0.399	5.514
8	Utah	Rich	0.110	0.458	0.393	0.427	0.604	6.762
8	Utah	Salt Lake	0.775	0.515	0.768	0.236	0.612	1.734
8	Utah	San Juan	0.127	0.524	0.481	0.492	0.617	9.625
8	Utah	Sanpete	0.137	0.542	0.446	0.460	0.681	8.715

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8	Utah	Sevier	0.134	0.553	0.463	0.496	0.683	10.084
8	Utah	Summit	0.156	0.543	0.570	0.429	0.606	8.408
8	Utah	Tooele	0.141	0.534	0.615	0.365	0.565	8.348
8	Utah	Uintah	0.117	0.518	0.518	0.546	0.601	12.161
8	Utah	Utah	0.462	0.485	0.706	0.446	0.591	3.520
8	Utah	Wasatch	0.147	0.519	0.513	0.539	0.637	9.909
8	Utah	Washington	0.266	0.486	0.612	0.585	0.619	6.658
8	Utah	Wayne	0.204	0.576	0.367	0.511	0.750	6.282
8	Utah	Weber	0.569	0.510	0.459	0.393	0.630	1.647
8	Wyoming	Albany	0.110	0.442	0.545	0.372	0.502	7.237
8	Wyoming	Big Horn	0.115	0.562	0.313	0.524	0.681	8.924
8	Wyoming	Campbell	0.227	0.530	0.683	0.397	0.634	6.938
8	Wyoming	Carbon	0.094	0.540	0.626	0.533	0.685	19.825
8	Wyoming	Converse	0.101	0.528	0.516	0.389	0.677	11.776
8	Wyoming	Crook	0.201	0.518	0.376	0.311	0.709	3.383
8	Wyoming	Fremont	0.132	0.540	0.589	0.464	0.602	10.801
8	Wyoming	Goshen	0.119	0.533	0.366	0.242	0.621	2.722
8	Wyoming	Hot Springs	0.189	0.533	0.218	0.476	0.622	2.674
8	Wyoming	Johnson	0.143	0.507	0.395	0.395	0.873	8.731
8	Wyoming	Laramie	0.171	0.512	0.566	0.268	0.599	4.999
8	Wyoming	Lincoln	0.155	0.543	0.573	0.549	0.755	12.283
8	Wyoming	Natrona	0.129	0.515	0.566	0.489	0.639	11.492
8	Wyoming	Niobrara	0.257	0.546	0.250	0.316	0.505	-0.081
8	Wyoming	Park	0.145	0.502	0.557	0.542	0.717	11.937
8	Wyoming	Platte	0.123	0.501	0.409	0.375	0.658	6.560
8	Wyoming	Sheridan	0.125	0.528	0.468	0.484	0.706	10.836
8	Wyoming	Sublette	0.153	0.510	0.499	0.590	0.705	10.926
8	Wyoming	Sweetwater	0.107	0.508	0.573	0.505	0.602	13.695
8	Wyoming	Teton	0.154	0.514	0.573	0.567	0.721	12.025

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8	Wyoming	Uinta	0.063	0.516	0.472	0.458	0.586	16.655
8	Wyoming	Washakie	0.099	0.537	0.260	0.520	0.725	9.463
8	Wyoming	Weston	0.168	0.499	0.268	0.378	0.610	2.041

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.235	0.358	0.620	0.470	0.480	6.078
9	Arizona	Apache	0.125	0.472	0.741	0.473	0.443	11.864
9	Arizona	Cochise	0.123	0.398	0.726	0.348	0.470	9.023
9	Arizona	Coconino	0.132	0.437	0.906	0.472	0.573	16.226
9	Arizona	Gila	0.112	0.395	0.528	0.463	0.495	8.156
9	Arizona	Graham	0.108	0.454	0.427	0.457	0.540	7.169
9	Arizona	Greenlee	0.130	0.420	0.378	0.590	0.481	6.348
9	Arizona	La Paz	0.187	0.390	0.547	0.346	0.363	2.207
9	Arizona	Maricopa	0.662	0.472	0.942	0.276	0.471	2.400
9	Arizona	Mohave	0.122	0.423	0.830	0.275	0.365	8.406
9	Arizona	Navajo	0.131	0.415	0.804	0.534	0.513	14.327
9	Arizona	Pima	0.225	0.457	0.895	0.465	0.454	8.369
9	Arizona	Pinal	0.249	0.450	0.873	0.343	0.389	5.562
9	Arizona	Santa Cruz	0.123	0.477	0.420	0.456	0.399	4.062
9	Arizona	Yavapai	0.131	0.434	0.896	0.286	0.504	11.566
9	Arizona	Yuma	0.179	0.451	0.731	0.368	0.415	6.248
9	California	Alameda	0.501	0.184	0.720	0.338	0.549	2.018
9	California	Alpine	0.318	0.456	0.370	0.633	0.276	1.702
9	California	Amador	0.191	0.336	0.427	0.360	0.489	1.673
9	California	Butte	0.211	0.328	0.721	0.414	0.397	4.956
9	California	Calaveras	0.131	0.322	0.494	0.433	0.553	6.045
9	California	Colusa	0.147	0.299	0.390	0.410	0.359	0.338
9	California	Contra Costa	0.651	0.226	0.734	0.371	0.525	1.728
9	California	Del Norte	0.191	0.202	0.407	0.586	0.374	2.423
9	California	El Dorado	0.209	0.352	0.623	0.444	0.538	5.551
9	California	Fresno	0.241	0.234	0.960	0.435	0.478	7.474
9	California	Glenn	0.149	0.428	0.367	0.471	0.379	2.075
9	California	Humboldt	0.148	0.291	0.805	0.580	0.511	12.626

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9	California	Imperial	0.155	0.482	0.894	0.438	0.379	10.853
9	California	Inyo	0.253	0.386	0.605	0.525	0.668	6.331
9	California	Kern	0.213	0.233	0.990	0.350	0.389	7.034
9	California	Kings	0.201	0.325	0.632	0.172	0.345	0.548
9	California	Lake	0.160	0.010	0.490	0.552	0.360	2.388
9	California	Lassen	0.117	0.462	0.630	0.535	0.529	12.797
9	California	Los Angeles	0.576	0.289	0.881	0.363	0.535	2.745
9	California	Madera	0.182	0.238	0.695	0.403	0.451	5.324
9	California	Marin	0.159	0.223	0.414	0.656	0.545	6.355
9	California	Mariposa	0.272	0.010	0.476	0.512	0.515	2.019
9	California	Mendocino	0.157	0.227	0.723	0.452	0.533	8.355
9	California	Merced	0.250	0.396	0.688	0.296	0.362	2.673
9	California	Modoc	0.139	0.357	0.435	0.498	0.434	4.240
9	California	Mono	0.089	0.363	0.586	0.553	0.644	17.455
9	California	Monterey	0.187	0.010	0.809	0.513	0.493	7.459
9	California	Napa	0.370	0.141	0.458	0.512	0.518	1.720
9	California	Nevada	0.198	0.305	0.596	0.525	0.536	6.247
9	California	Orange	0.763	0.389	0.736	0.312	0.570	1.623
9	California	Placer	0.424	0.393	0.711	0.418	0.575	3.410
9	California	Plumas	0.291	0.408	0.635	0.561	0.527	5.203
9	California	Riverside	0.453	0.411	0.934	0.500	0.488	4.609
9	California	Sacramento	0.626	0.372	0.763	0.370	0.590	2.351
9	California	San Benito	0.124	0.380	0.427	0.402	0.453	3.179
9	California	San Bernandino	0.215	0.432	0.985	0.479	0.480	10.118
9	California	San Diego	0.386	0.353	0.907	0.507	0.520	5.276
9	California	San Francisco	0.240	0.424	0.429	0.614	0.530	4.658
9	California	San Joaquin	0.564	0.390	0.724	0.304	0.447	1.673
9	California	San Luis Obispo	0.439	0.250	0.861	0.471	0.606	4.310
9	California	San Mateo	0.186	0.214	0.557	0.485	0.539	5.122

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9	California	Santa Barbara	0.224	0.331	0.830	0.645	0.559	9.926
9	California	Santa Clara	0.363	0.212	0.682	0.420	0.552	3.167
9	California	Santa Cruz	0.173	0.231	0.382	0.625	0.532	4.802
9	California	Shasta	0.134	0.227	0.799	0.429	0.462	9.821
9	California	Sierra	0.157	0.336	0.366	0.600	0.406	3.724
9	California	Siskiyou	0.398	0.208	0.740	0.440	0.541	3.335
9	California	Solano	0.455	0.241	0.607	0.383	0.522	1.816
9	California	Sonoma	0.251	0.183	0.783	0.497	0.564	6.375
9	California	Stanislaus	0.477	0.362	0.717	0.317	0.432	1.889
9	California	Sutter	0.192	0.429	0.470	0.303	0.437	1.480
9	California	Tehama	0.299	0.376	0.550	0.495	0.406	2.862
9	California	Trinity	0.271	0.354	0.428	0.600	0.405	2.827
9	California	Tulare	0.186	0.117	0.895	0.415	0.440	7.450
9	California	Tuolumne	0.171	0.212	0.570	0.438	0.476	4.342
9	California	Ventura	0.384	0.341	0.751	0.660	0.550	5.332
9	California	Yolo	0.317	0.316	0.564	0.429	0.514	2.791
9	California	Yuba	0.233	0.320	0.372	0.374	0.362	-0.252
9	Hawaii	Hawaii	0.107	0.601	0.740	0.508	0.626	19.202
9	Hawaii	Honolulu	0.147	0.643	0.698	0.631	0.639	15.686
9	Hawaii	Kalawao	0.068	0.257	0.260	0.383	0.308	-7.455
9	Hawaii	Kauai	0.074	0.616	0.559	0.383	0.733	20.214
9	Hawaii	Maui	0.063	0.644	0.595	0.492	0.640	26.984
9	Nevada	Carson	0.331	0.404	0.224	0.554	0.594	1.600
9	Nevada	Churchill	0.116	0.474	0.544	0.505	0.519	10.238
9	Nevada	Clark	0.316	0.436	0.901	0.569	0.458	6.755
9	Nevada	Douglas	0.175	0.452	0.490	0.522	0.567	6.606
9	Nevada	Elko	0.130	0.470	0.675	0.583	0.515	13.164
9	Nevada	Esmeralda	0.101	0.454	0.282	0.586	0.010	-3.306
9	Nevada	Eureka	0.109	0.395	0.407	0.544	0.269	3.170

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
9	Nevada	Humboldt	0.108	0.451	0.522	0.561	0.481	10.791
9	Nevada	Lander	0.119	0.416	0.245	0.554	0.397	1.765
9	Nevada	Lincoln	0.252	0.401	0.447	0.569	0.529	4.086
9	Nevada	Lyon	0.207	0.456	0.527	0.562	0.434	5.283
9	Nevada	Mineral	0.144	0.429	0.454	0.530	0.477	6.089
9	Nevada	Nye	0.129	0.379	0.657	0.598	0.427	11.173
9	Nevada	Pershing	0.154	0.467	0.389	0.524	0.321	2.738
9	Nevada	Storey	0.266	0.441	0.309	0.347	0.498	0.364
9	Nevada	Washoe	0.183	0.433	0.841	0.552	0.517	11.206
9	Nevada	White Pine	0.082	0.407	0.333	0.658	0.575	12.737

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
		National Average	0.229	0.588	0.393	0.414	0.516	4.213
		Regional Average	0.137	0.432	0.478	0.531	0.492	14.838
10	Alaska	Aleutians East	0.012	0.411	0.342	0.990	0.305	111.828
10	Alaska	Aleutians West	0.039	0.516	0.479	0.523	0.424	23.133
10	Alaska	Anchorage	0.078	0.634	0.693	0.443	0.557	21.363
10	Alaska	Bristol Bay	0.034	0.525	0.307	0.795	0.234	22.400
10	Alaska	Denali	0.116	0.490	0.413	0.377	0.309	1.080
10	Alaska	Dillingham	0.022	0.411	0.489	0.508	0.428	37.134
10	Alaska	Fairbanks North Star	0.050	0.590	0.665	0.455	0.579	32.653
10	Alaska	Haines	0.021	0.538	0.371	0.664	0.596	62.768
10	Alaska	Hoonah-Angoon	0.010	0.378	0.416	0.502	0.357	42.005
10	Alaska	Juneau City	0.013	0.602	0.561	0.686	0.731	167.953
10	Alaska	Kenai Peninsula	0.053	0.548	0.713	0.482	0.630	35.503
10	Alaska	Ketchikan Gateway	0.010	0.591	0.464	0.614	0.617	154.851
10	Alaska	Kodiak Island	0.010	0.576	0.557	0.928	0.474	227.188
10	Alaska	Lake and Peninsula	0.045	0.337	0.488	0.718	0.247	19.594
10	Alaska	North Slope	0.038	0.427	0.747	0.959	0.365	65.884
10	Alaska	Petersburg	0.026	0.533	0.318	0.538	0.604	33.766
10	Alaska	Prince of Wales-Hyde	0.018	0.398	0.573	0.487	0.443	56.732
10	Alaska	Sitka City	0.036	0.538	0.398	0.709	0.681	46.371
10	Alaska	Skagway	0.028	0.574	0.245	0.501	0.520	17.349
10	Alaska	Valdez-Cordova	0.126	0.470	0.689	0.475	0.603	13.185
10	Alaska	Wrangell	0.011	0.430	0.269	0.520	0.373	13.694
10	Alaska	Yakutat	0.044	0.476	0.256	0.924	0.449	29.465
10	Idaho	Ada	0.345	0.449	0.562	0.586	0.580	4.434
10	Idaho	Adams	0.093	0.435	0.376	0.627	0.573	11.862
10	Idaho	Bannock	0.190	0.435	0.519	0.587	0.615	7.744
10	Idaho	Bear Lake	0.102	0.121	0.284	0.480	0.632	2.939

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
10	Idaho	Benewah	0.062	0.490	0.326	0.612	0.476	12.795
10	Idaho	Bingham	0.146	0.433	0.492	0.507	0.626	8.334
10	Idaho	Blaine	0.101	0.440	0.550	0.563	0.683	16.084
10	Idaho	Boise	0.106	0.448	0.500	0.637	0.313	9.040
10	Idaho	Bonner	0.064	0.435	0.636	0.531	0.582	24.582
10	Idaho	Bonneville	0.282	0.457	0.574	0.465	0.647	4.970
10	Idaho	Boundary	0.072	0.425	0.443	0.576	0.666	18.549
10	Idaho	Butte	0.141	0.493	0.256	0.485	0.403	1.121
10	Idaho	Camas	0.084	0.520	0.213	0.532	0.171	-3.155
10	Idaho	Canyon	0.431	0.455	0.507	0.366	0.518	1.678
10	Idaho	Caribou	0.142	0.399	0.332	0.473	0.568	3.961
10	Idaho	Cassia	0.101	0.454	0.452	0.542	0.644	12.409
10	Idaho	Clark	0.313	0.538	0.243	0.503	0.254	-0.247
10	Idaho	Clearwater	0.144	0.461	0.417	0.637	0.609	9.254
10	Idaho	Custer	0.173	0.431	0.419	0.636	0.592	7.360
10	Idaho	Elmore	0.116	0.439	0.549	0.624	0.508	12.384
10	Idaho	Franklin	0.130	0.393	0.411	0.493	0.529	5.662
10	Idaho	Fremont	0.131	0.445	0.414	0.531	0.612	8.067
10	Idaho	Gem	0.106	0.410	0.344	0.526	0.514	5.919
10	Idaho	Gooding	0.102	0.384	0.424	0.542	0.566	9.441
10	Idaho	Idaho	0.108	0.447	0.531	0.496	0.666	12.834
10	Idaho	Jefferson	0.095	0.470	0.412	0.524	0.673	12.339
10	Idaho	Jerome	0.133	0.378	0.514	0.504	0.485	7.042
10	Idaho	Kootenai	0.151	0.453	0.725	0.538	0.573	12.155
10	Idaho	Latah	0.046	0.456	0.488	0.473	0.538	21.298
10	Idaho	Lemhi	0.117	0.429	0.347	0.439	0.694	6.824
10	Idaho	Lewis	0.177	0.625	0.285	0.710	0.458	5.824
10	Idaho	Lincoln	0.151	0.504	0.270	0.676	0.536	6.217

EPA REGION	State	County	Risk	Governance	Built Environment	Natural Environment	Society	CRSI
10	Idaho	Madison	0.157	0.443	0.430	0.469	0.542	5.125
10	Idaho	Minidoka	0.093	0.439	0.333	0.571	0.487	7.381
10	Idaho	Nez Perce	0.105	0.449	0.480	0.582	0.612	13.007
10	Idaho	Oneida	0.146	0.485	0.246	0.510	0.546	3.197
10	Idaho	Owyhee	0.106	0.449	0.367	0.559	0.430	6.101
10	Idaho	Payette	0.135	0.348	0.359	0.465	0.440	2.329
10	Idaho	Power	0.115	0.446	0.349	0.465	0.476	3.966
10	Idaho	Shoshone	0.085	0.493	0.261	0.449	0.490	2.978
10	Idaho	Teton	0.124	0.451	0.427	0.492	0.622	8.235
10	Idaho	Twin Falls	0.125	0.407	0.592	0.501	0.599	11.176
10	Idaho	Valley	0.088	0.424	0.506	0.602	0.812	20.892
10	Idaho	Washington	0.101	0.348	0.321	0.542	0.434	3.876
10	Oregon	Baker	0.089	0.456	0.475	0.580	0.554	13.833
10	Oregon	Benton	0.176	0.324	0.468	0.511	0.432	3.842
10	Oregon	Clackamas	0.189	0.332	0.698	0.554	0.562	8.782
10	Oregon	Clatsop	0.098	0.413	0.412	0.415	0.461	4.460
10	Oregon	Columbia	0.167	0.419	0.400	0.438	0.408	2.168
10	Oregon	Coos	0.124	0.282	0.509	0.433	0.411	4.133
10	Oregon	Crook	0.130	0.433	0.416	0.509	0.517	6.232
10	Oregon	Curry	0.253	0.255	0.353	0.550	0.489	2.007
10	Oregon	Deschutes	0.123	0.425	0.661	0.553	0.561	13.431
10	Oregon	Douglas	0.163	0.313	0.837	0.461	0.429	9.342
10	Oregon	Gilliam	0.066	0.507	0.287	0.461	0.370	2.000
10	Oregon	Grant	0.108	0.485	0.372	0.616	0.521	9.434
10	Oregon	Harney	0.100	0.444	0.373	0.584	0.489	8.365
10	Oregon	Hood River	0.147	0.337	0.392	0.601	0.552	6.432
10	Oregon	Jackson	0.159	0.286	0.727	0.526	0.428	8.522
10	Oregon	Jefferson	0.125	0.450	0.485	0.487	0.391	5.667

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10	Oregon	Josephine	0.142	0.171	0.477	0.518	0.399	3.504
10	Oregon	Klamath	0.121	0.292	0.703	0.435	0.435	8.984
10	Oregon	Lake	0.117	0.400	0.431	0.524	0.437	5.932
10	Oregon	Lane	0.180	0.357	0.871	0.440	0.485	9.519
10	Oregon	Lincoln	0.138	0.387	0.470	0.477	0.421	4.627
10	Oregon	Linn	0.167	0.340	0.646	0.510	0.486	7.622
10	Oregon	Malheur	0.098	0.444	0.506	0.625	0.450	12.387
10	Oregon	Marion	0.184	0.299	0.628	0.477	0.531	6.457
10	Oregon	Morrow	0.099	0.457	0.428	0.390	0.396	3.366
10	Oregon	Multnomah	0.419	0.286	0.559	0.514	0.476	2.321
10	Oregon	Polk	0.161	0.337	0.440	0.492	0.467	3.971
10	Oregon	Sherman	0.055	0.586	0.269	0.529	0.279	2.731
10	Oregon	Tillamook	0.155	0.383	0.487	0.515	0.500	5.972
10	Oregon	Umatilla	0.112	0.436	0.697	0.500	0.501	13.461
10	Oregon	Union	0.096	0.464	0.468	0.586	0.552	12.831
10	Oregon	Wallowa	0.120	0.472	0.322	0.659	0.698	11.009
10	Oregon	Wasco	0.078	0.438	0.496	0.548	0.465	13.085
10	Oregon	Washington	0.405	0.338	0.419	0.540	0.501	1.894
10	Oregon	Wheeler	0.081	0.584	0.210	0.519	0.232	-1.529
10	Oregon	Yamhill	0.207	0.295	0.561	0.522	0.445	4.586
10	Washington	Adams	0.080	0.459	0.422	0.375	0.329	1.908
10	Washington	Asotin	0.054	0.427	0.332	0.533	0.475	10.272
10	Washington	Benton	0.170	0.400	0.613	0.521	0.477	7.366
10	Washington	Chelan	0.128	0.427	0.590	0.530	0.550	10.841
10	Washington	Clallam	0.085	0.374	0.508	0.451	0.514	9.983
10	Washington	Clark	0.447	0.345	0.460	0.458	0.478	1.425
10	Washington	Columbia	0.165	0.433	0.235	0.524	0.510	2.106
10	Washington	Cowlitz	0.120	0.388	0.501	0.450	0.412	5.339

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10	Washington	Douglas	0.254	0.469	0.490	0.506	0.416	3.291
10	Washington	Ferry	0.122	0.452	0.338	0.626	0.351	4.760
10	Washington	Franklin	0.158	0.431	0.461	0.396	0.486	3.713
10	Washington	Garfield	0.101	0.460	0.226	0.466	0.397	-0.132
10	Washington	Grant	0.155	0.430	0.699	0.551	0.458	9.957
10	Washington	Grays Harbor	0.096	0.408	0.597	0.436	0.400	8.933
10	Washington	Island	0.192	0.574	0.374	0.432	0.456	2.758
10	Washington	Jefferson	0.152	0.337	0.468	0.479	0.518	5.154
10	Washington	King	0.527	0.441	0.864	0.501	0.521	3.793
10	Washington	Kitsap	0.266	0.409	0.499	0.335	0.443	1.616
10	Washington	Kittitas	0.200	0.432	0.575	0.498	0.499	5.863
10	Washington	Klickitat	0.119	0.406	0.558	0.497	0.503	9.280
10	Washington	Lewis	0.144	0.394	0.613	0.460	0.451	7.246
10	Washington	Lincoln	0.114	0.503	0.524	0.385	0.624	9.406
10	Washington	Mason	0.101	0.395	0.499	0.500	0.406	7.440
10	Washington	Okanogan	0.138	0.425	0.609	0.454	0.503	8.369
10	Washington	Pacific	0.092	0.350	0.448	0.382	0.387	2.636
10	Washington	Pend Orielle	0.081	0.445	0.447	0.603	0.430	11.957
10	Washington	Pierce	0.571	0.419	0.727	0.476	0.489	2.612
10	Washington	San Juan	0.095	0.535	0.432	0.694	0.638	17.356
10	Washington	Skagit	0.141	0.437	0.569	0.570	0.507	9.542
10	Washington	Skamania	0.124	0.400	0.391	0.593	0.406	5.619
10	Washington	Snohomish	0.263	0.452	0.722	0.641	0.541	7.658
10	Washington	Spokane	0.272	0.432	0.715	0.408	0.513	4.970
10	Washington	Stevens	0.108	0.465	0.581	0.466	0.500	10.563
10	Washington	Thurston	0.531	0.417	0.564	0.464	0.522	2.042
10	Washington	Wahkiakum	0.179	0.351	0.153	0.396	0.202	-4.844
10	Washington	Walla Walla	0.103	0.419	0.543	0.369	0.432	6.018
10	Washington	Whatcom	0.188	0.429	0.694	0.557	0.533	9.015

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10	Washington	Whitman	0.086	0.464	0.703	0.391	0.402	12.613
10	Washington	Yakima	0.174	0.411	0.705	0.538	0.438	8.452

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