APPENDIX A: RESOURCES

Practical Information for Land Trusts

Land Trust Alliance, Climate Toolkit. A special section of the LTA website offers extensive resources for land trusts to learn how climate change may affect their work, including a self-assessment and case studies describing how colleagues are responding to this challenge. http://climatechange.lta.org/

Strategic Conservation Planning, by Ole Amundsen III. This book provides conservation professionals with the process and tools to identify, prioritize, pursue and protect the land that will most effectively and efficiently achieve their organization’s mission. Available for purchase at the LTA website. https://iweb.lta.org/Purchase/ProductDetail.aspx?Product_code=CURR_STRATEGIC

The Nature Conservancy, Conservation Gateway/Climate Change. This web portal provides data, results and reports from TNC’s efforts to map the locations of climate-resilient sites in the Northeast, Southeast, and Pacific Northwest. There are also links to articles, web tools and other resources. http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportdata/climate/Pages/default.aspx

North Atlantic Landscape Conservation Cooperative, Conservation Planning Atlas. An online map portal hosted by Data Basin provides access to hundreds of datasets on climate and biodiversity. The site enables the user to create maps and evaluate project sites or landscapes for any location in the Northeast. http://nalcc.databasin.org/

Web Tools

Coastal Resilience Mapping Portal. This global network of science and conservation practitioners’s website features an interactive tool designed to help communities understand their vulnerability from coastal hazards such as sea level rise and storms, reduce their risk, and assess nature-based solutions. http://www.coastalresilience.org

**NatureServe, Climate Change Vulnerability Index.** This downloadable software program ranks the vulnerability to climate change of individual plant and animal species and some communities throughout North and South America, based on expert opinion. [http://www.natureserve.org/conservation-tools/climate-change-vulnerability-index](http://www.natureserve.org/conservation-tools/climate-change-vulnerability-index)

**Resilient Land Mapping Tool.** Users can zoom in anywhere on a map of the eastern United States and Canada to see scores for resilience, connectedness and landscape diversity, and then overlay them on satellite images, landform models or topographic maps. The tool also allows users to import datasets or draw tracts of land and calculate their scores. [http://maps.tnc.org/resilientland/](http://maps.tnc.org/resilientland/)

**Communications and Outreach Techniques**


“Let’s Talk Climate: Messages to Motivate Americans,” by EcoAmerica. This report and accompanying webinar deliver the results from message research on climate change designed to engage Americans on solutions across political and demographic groups. [http://climateforhealth.org/talk-climate](http://climateforhealth.org/talk-climate)

**Yale Project on Climate Change Communication.** The project conducts research on public climate knowledge, risk perceptions, decision-making and behavior; designs and tests new strategies to engage the public in climate science and solutions; and empowers educators and communicators with the knowledge and tools to more effectively engage their audiences. The site offers opinion maps, research reports, peer-reviewed articles and webinars. [http://environment.yale.edu/climate-communication/](http://environment.yale.edu/climate-communication/)
Funding Sources

The Open Space Institute, Resilient Landscapes Initiative. This conservation organization offers $12 million in grants for protection of resilient land in select areas in the eastern United States. http://www.osiny.org/site/PageServer?pagename=Issues_Habitat

The Open Space Institute has also provided planning grants to support integration of climate change considerations into strategic conservation plans. These projects, summarized in the link below, offer ideas for how land trusts can get started. http://www.osiny.org/site/DocServer/Catalyst_GranteesToDate_All.pdf?docID=14401

Wildlife Conservation Society, Climate Adaptation Fund. This conservation organization has funded grants for testing or applying creative approaches to climate adaptation. Findings are summarized at http://www.wcsnorthamerica.org/Climate-Adaptation-Fund.aspx.

Climate Science and Environmental Stewardship

National Wildlife Federation, Climate-Smart Conservation. This section of the National Wildlife Federation’s website contains resources for designing and carrying out natural resources management planning in the face of a rapidly changing climate, including the report “Climate-Smart Conservation: Putting Adaptation Principles into Practice.”


U.S. Climate Resilience Toolkit. This extensive website, compiled by the federal Office of Science and Technology Policy and the Council on Environmental Quality, offers a wide range of resources, workbooks and climate-related case studies. One feature is a “Climate Explorer” that allows users to visualize climate data in maps and graphs. https://toolkit.climate.gov/

U.S. Geological Survey, National Climate Change and Wildlife Center. This site collects all the projects and tools generated by the nation’s regional climate science centers, providing updates on recent projects organized by region. https://nccwsc.usgs.gov/
Articles


APPENDIX B: GLOSSARY

adaptation the capacity of natural or human systems to reduce harm or take advantage of benefits in a new or changing environment. See mitigation.

barrier a natural or human-made impediment to species movement, such as a water body, road, building or other development

base map a map depicting background reference information about a location (such as landforms roads, and political boundaries) onto which other information is placed

biological diversity the variety and variability among living organisms and the ecological settings in which they occur. Synonym: biodiversity.

calcareous made of or referring to limestone geology

climate change alteration in global or regional climate patterns. The change apparent since the mid- to late 20th century is attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

coastal resilience the capacity of a coastal ecosystem to respond to increased disturbance caused by climate change

connectedness the quality of being free of human and natural barriers that prevent species movement within and through local areas; the continuity of the local landscape that allows species to access resources and supports natural processes. Connectedness is a local characteristic. See connectivity.

connectivity connectedness through a region; the pathways between two or more forest cores. Connectivity is a regional characteristic. See connectedness.

conserving nature’s stage the strategy of permanently protecting physical features, such as geology and landform types, that both engender and support biological diversity. Research shows that if protected lands capture the full diversity of such physical characteristics in a connected network, those lands will continue to protect representative environments and host the broadest range of plants and animals even as the climate changes.

co-occurrence modeling a GIS-based method for ranking areas on a landscape according to their value. The value is based on how many important conservation features “co-occur,” or overlap, in each area.

Data Basin a free, science-driven mapping tool created by the Conservation Biology Institute that provides data, maps and galleries of environmental information
dataset a collection of related information stored, retrieved and manipulated as a unit (common usage). In Data Basin, dataset refers to the spatial visualization of a specific collection of data.

ecological resilience the ability of plants, animals and natural processes to persist in the face of change; specifically, the capacity of land for renewal during and after disturbances exacerbated by changes in climate

ecoregion a unit of land and water containing a geographically distinct assemblage of species, natural communities and environmental conditions

elevation gradient the steepness (low, middle or high) of the slope of a landform

elevation range the span or scale of heights to which landforms rise in a given area

fish region a unit of land and its lake, stream and river systems with distinct characteristics influenced by its geology, history and latitude

freshwater resilience the capacity of a river, stream, lake or pond system to recover after a disturbance such that it remains functional and biodiverse

gallery a collection of information organized around a topic in Data Basin

GAP status the type of restrictions that indicate how protected land is managed for conservation purposes, as assessed by the U.S. Geological Survey Gap Analysis Program (GAP)

geodiversity the range of geology and elevation gradients that foster habitat and species diversity across a broad network of conserved lands

geophysical setting a distinct combination of geology and elevation. Collectively, settings constitute geodiversity.

habitat block an area with contiguous forest (or other natural cover) free from barriers, such as paved roads or other development

hydrologic flow the typical frequency, duration and seasonality of precipitation that flows into a stream

biological condition the fitness of a site to support biological diversity today and into the future due to the availability and quality of its natural resources

landform a specific geologic feature on the surface of the earth, ranging from large-scale areas such as plains, plateaus and mountains to relatively minor features such as hills and small valleys
**landform diversity** the variety of geologic features in an area. Landform diversity creates a variety of environments, or microhabitats, that allow species to find suitable temperature and moisture levels locally.

**landscape conservation collaborative (LCC)** a self-directed partnership involving federal agencies, states, tribes, nongovernmental organizations, universities and other entities that collaboratively define science needs and jointly address broad-scale conservation issues in a defined geographic area.

**latitudinal range** the span or scale of latitudes at which species are found in a given area.

**lateral connectivity** the relationship between a stream and its floodplain.

**linear connectivity** the relationship between different parts of a stream or lake. Linear connectivity allows organisms to access different parts of a hydrologic system.

**map** in Data Basin, a user-created visualization compiled from one or more datasets, several of which can be overlaid to create a single image.

**microclimate** the climate of a distinct area whose temperature and moisture levels differ from those of the surrounding area. Microclimates are created by landform diversity.

**mitigation** in the context of climate change, efforts to reduce or prevent emissions of greenhouse gases by reducing sources of these gases (e.g., the burning of fossil fuels) or enhancing the “sinks” that accumulate and store these gases (e.g., oceans, forests and soil). See adaptation.

**North Atlantic LCC Conservation Planning Atlas** a science-based mapping platform that allows conservation managers and LCC members to view, retrieve and analyze spatial information for specific conservation goals.

**network** in land protection, a series of interconnected protected lands that functionally support the survival of plants and animals and their movements from place to place.

**regional conservation partnership (RCP)** a multistakeholder collaborative involving land trusts, conservation organizations, public agencies and landowners who work collectively across geographic and political boundaries to protect land across a broad region. New England and eastern New York State have nearly 40 RCPs.
resilience the ability of a living system to adjust to an environmental disturbance by moderating potential damages, taking advantage of opportunities, or coping with consequences; the capacity to adapt. See resistance, vulnerability.

resistance the ability of a living system to recover from an environmental disturbance. Because of its inherent traits, a resistant area can avoid any significant harm from disturbances. Resistance is on the opposite end of the continuum from vulnerability. See resilience, vulnerability.

stratification a comparison of the traits of one habitat or geology with those of the same type elsewhere (e.g., comparing one hemlock forest with other hemlock forests, or one granite geology with other granite geologies)

underrepresentation the lack of protected areas in a particular geophysical setting in proportion to the distribution of such settings across a landscape

vulnerability the inability of a living system to adjust to an environmental disturbance. Vulnerable places are likely to be severely affected by disturbances and to require intervention to protect them from gradual or sudden changes. See resilience, resistance.
APPENDIX C: ADVISORY COMMITTEE

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