



# STRATEGIC PLAN | 2012–2016

*Providing the scientific basis for effective conservation action*

*NatureServe's mission is to provide the scientific basis for effective conservation action. To guide our work for the next five years, we have assessed the status of our network, the context in which we operate, and the driving forces that will shape how we achieve the greatest mission impact.*

## THE PLAN

This plan uses a results-chain framework drawn from the realm of conservation planning and identifies our target results and outcomes, key activities for achieving them, and metrics for tracking our implementation of the plan. This approach also led us to organize the results of the plan across four themes:

- The science that supports all our work
- The effectiveness of our network
- The proactive analysis and communication of large-scale biodiversity trends
- The client-focused services we provide

Our commitment to provide science-based information and expert advice infuses the entire plan and arises from the desire to sustain the benefits that human society gains from a diverse and resilient natural world—clean air and water, communities more secure against natural disasters, extensive genetic resources for food, fuel, and medicine, and cultural sustenance.

## THE VISION

NatureServe envisions a world where decision-makers recognize the value of biodiversity, fully understand the importance of science in its identification and protection, and invest in science as the basis for their decisions that affect biodiversity.

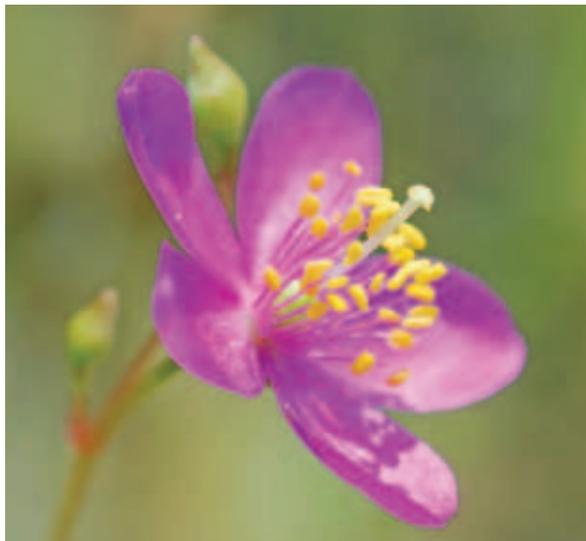
Informed by sound scientific understanding, those who make decisions that impact the natural world—governments, conservation organizations, corporations, landowners, and the scientific community—will draw upon the resources of the NatureServe network to focus conservation actions better and to manage our natural resources more carefully. As a result, the sustained health of this natural heritage will support prosperous human communities for the benefit of current and future generations.

### A NETWORK CONNECTING SCIENCE WITH CONSERVATION

More than 1,000 biologists, data managers, and other professionals constitute the NatureServe network. Their work supports science-based decision-making in the service of local, national, and global conservation needs. Representing (as of 2012) more than 80 public and private organizations, these dedicated staff collect and manage the Western Hemisphere's most comprehensive source of biodiversity data, which contains nearly 1 million mapped locations of at-risk species and ecosystems and provides extensive information on more than 66,400 species and almost 6,700 ecosystems.

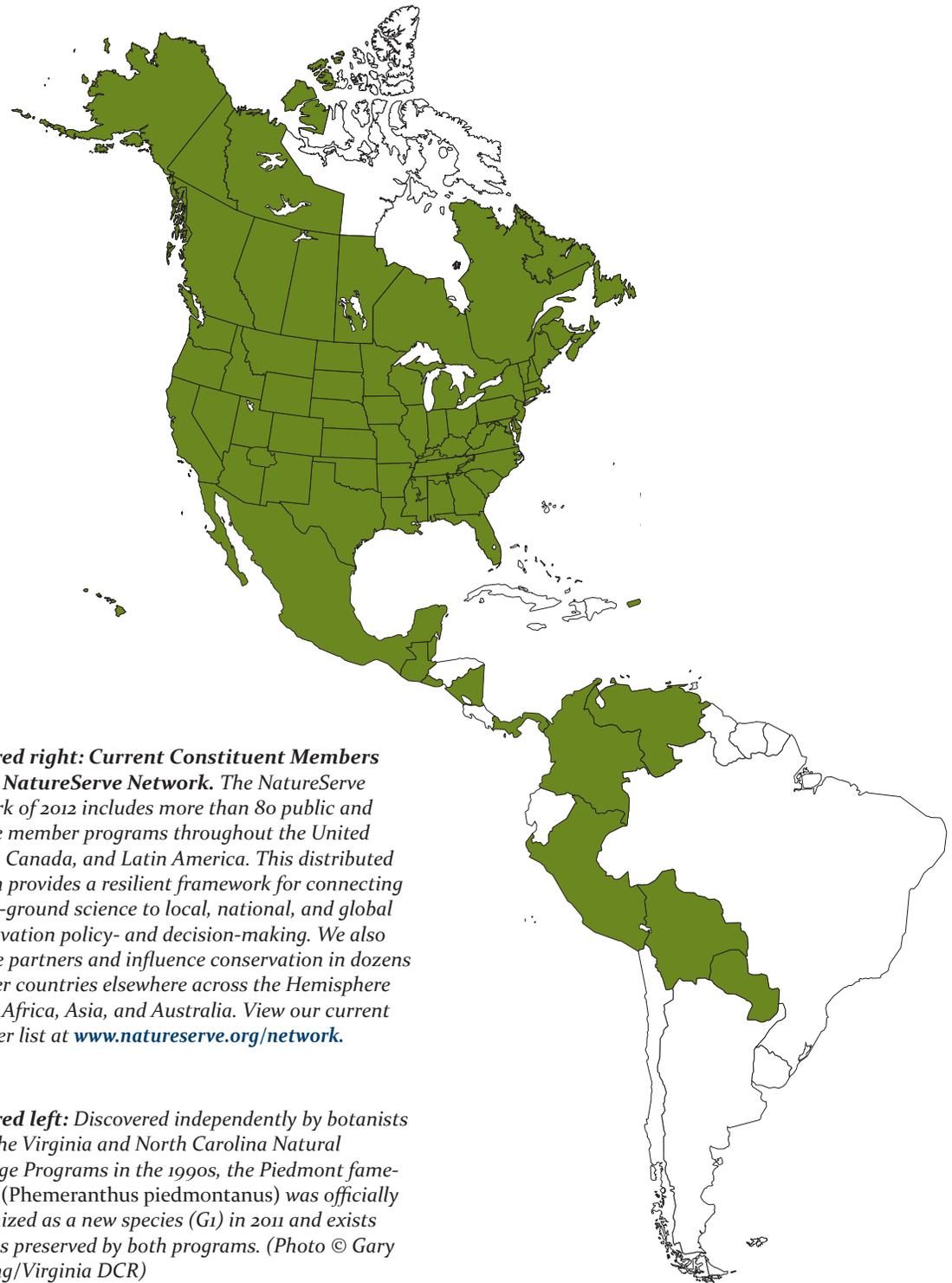
During its nearly 40-year history, the natural heritage network has relied on a combination of expertise and on-the-ground experience to amass credible, reliable knowledge on biodiversity. We disseminate this information to natural resource and land-use practitioners and decision-makers throughout the public and private sectors to help guide, enhance, and implement their management of lands and waters.

NatureServe's rigorous scientific methods for collecting and processing data have made our biodiversity information reliable and highly trusted. The value-added tools and services that we develop to transform this information into actionable knowledge have increased our standing as a respected partner for government agencies, other conservation organizations, scientific and academic institutions, and private corporations. Our history of gathering baseline scientific data also uniquely positions NatureServe to track and quantify changes to biodiversity in ways that, in a time of increasing ecological uncertainty, can help others understand the current and future status of the species and ecosystems that comprise our natural heritage.



***Pictured right: Current Constituent Members of the NatureServe Network.*** The NatureServe network of 2012 includes more than 80 public and private member programs throughout the United States, Canada, and Latin America. This distributed system provides a resilient framework for connecting on-the-ground science to local, national, and global conservation policy- and decision-making. We also engage partners and influence conservation in dozens of other countries elsewhere across the Hemisphere and in Africa, Asia, and Australia. View our current member list at [www.natureserve.org/network](http://www.natureserve.org/network).

***Pictured left:*** Discovered independently by botanists from the Virginia and North Carolina Natural Heritage Programs in the 1990s, the Piedmont fume-flower (*Phemeranthus piedmontanus*) was officially recognized as a new species (*G1*) in 2011 and exists on sites preserved by both programs. (Photo © Gary Fleming/Virginia DCR)



***Pictured below:** Members of the inaugural Leader to Leader class celebrate their achievements at Biodiversity Without Boundaries 2012 in Portland, Ore. (Photo Sam Sheline/NatureServe)*

## HARNESSING THE POWER OF THE NETWORK

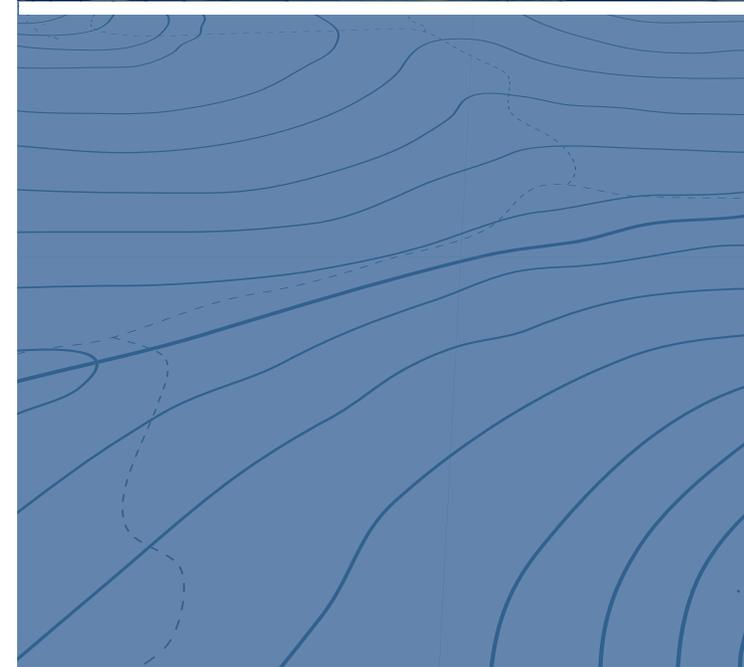
The public-private partnerships that form the NatureServe network are unique. While the central hub of the network is a private nonprofit organization, in 2011 slightly more than half of the network members were housed in state, provincial, and tribal wildlife or natural resource agencies; most of the remainder reside in academic institutions, while a few operate as independent nonprofits or federal-agency affiliates.

- 4 This network provides the best and most practical means of having sufficient on-the-ground presence to document the full range of biodiversity and track extinction risk to species and ecosystems. It also provides a well-designed model for delivering conservation information relevant not just to state, provincial, and national decision-making, but also to the local communities that have the most direct effect on land and water use.

The network we have built values and adheres to scientific standards for collecting and organizing biodiversity information. We share models and collaborate on approaches for developing data tools and products that contribute to conservation

analysis and planning from local to international scales. Areas of shared interest that benefit from network-centered learning include climate change assessment, field observation data for monitoring status and trends, spatial conservation analysis, conservation planning, information sharing, and publishing. To continue to leverage our expertise and learning, we are refining program standards to strengthen our collective effectiveness at optimizing biodiversity knowledge.

As we enter the next decade of NatureServe's development, some of our most important tasks will be to strengthen connections and leadership within the network, support members that face constraints that limit their engagement, and extend our impact through new members and partners. A strong core of programs committed to the network's shared mission and working on common issues forms a vital link for deepening collaboration under NatureServe's umbrella. By investing in overall network capacity, we can help each other weather difficult economic times and further enhance a highly effective community of practice.



# PLANNING CONTEXT

Within the next five years, NatureServe will structure its activities to address four key drivers that have potentially far-reaching impacts on society's ability to sustain biodiversity.

## LARGE-SCALE CHANGE

As the global population surpasses seven billion people, we find ourselves on the verge of unprecedented change—the Anthropocene Era. Two centuries of unprecedented industry and expansion have ushered in this “Age of Man,” along with sobering realizations about humankind's impact on the biosphere. From species extinction to climate change, land conversion to diminishing quality and supplies of freshwater, NatureServe can expect to operate within a world where rapid environmental change is the norm.

Our response to these challenges must be grounded in science and yet engage economic forces on behalf of biodiversity conservation. Over the next five years, NatureServe will harness its data and expertise to guide societal response to the following challenges:

- **Habitat loss and fragmentation.** NatureServe will continue to integrate land-use planning and conservation actions that proactively safeguard species and preserve ecosystem connectivity while reducing habitat loss and fragmentation.
- **Land conversion for infrastructure development.** Even during an economic downturn, we still see signs of continued sprawl of our cities and suburbs. The science of the natural heritage network can track species and ecosystems to help guide the development of our human settlements, transportation, and energy infrastructure (both extractive and renewable) toward areas of least impact.
- **Land conversion for agriculture.** The projected growth of the world's human population will increase global demand for food and fuel, as well as the land and water required to produce them—with the potential for additional habitat loss and conflicts with wildlife. Yet agro-ecosystems can provide critical pathways for biodiversity migration and adaptation, and both regulatory and market-based incentives are increasing agribusinesses'

interest in more sustainable practices. The NatureServe network can help to develop and evaluate new approaches to mitigate habitat fragmentation, maintain ecological connectivity, and integrate the needs of biodiversity within managed agricultural and silvicultural systems.

- **Climate change.** Ongoing research reaffirms the scientific consensus that carbon pollution is a grave threat to biodiversity through climate change, ocean acidification, habitat loss, and sea-level rise, among other impacts. Having observed and documented the elements of biodiversity in a changing landscape for nearly 40 years, the NatureServe network will remain focused on developing scientific methods and tools that guide adaptation and mitigation responses that include consideration of climate change impacts on not just species, but places on the landscape and ecosystem function as well.
- **Water quality and supply.** Nutrient pollution, deforestation, and climate-driven disruptions threaten to reduce the quality of aquatic ecosystems as well as the availability of freshwater for agriculture, industry, and

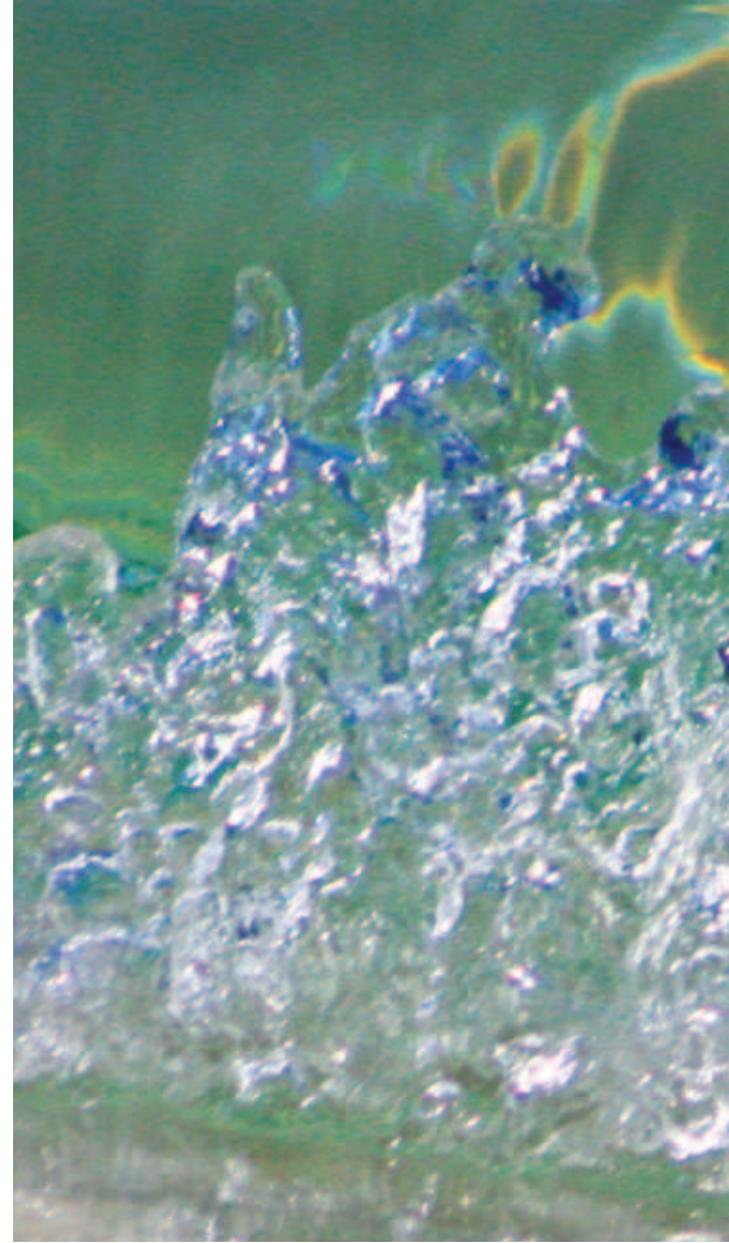
domestic use in human communities. The stress on freshwater resources may lead to uncomfortable trade-offs that aggravate problems such as diminishing aquatic ecosystem function. Having helped catalyze other groups' current efforts through its 1998 report, *Rivers of Life*, NatureServe will renew its commitment to freshwater conservation through a strategic assessment of the information needs, emerging trends, and looming threats to aquatic biodiversity and the ecological function of our watersheds.

- **Invasive species.** Non-native plants, animals, and pathogens pose a major threat to biodiversity. Our network will place a strategic emphasis on providing information to help prevent, control, and manage those invasive species whose impacts increase the likelihood of species extinction or degrade ecosystem function. We will also contribute to the science by describing differences in the invasiveness of species and identifying trends and behaviors related to climate adaptation in order to inform better management decisions.

**Pictured right:** After emerging from its nest along the Florida panhandle, this Kemp's ridley sea turtle (*Lepidochelys kempii*) hatchling rises into the surf for the first time. A native of the Gulf of Mexico, Kemp's ridley is critically imperiled (G1) and benefits from collaborative international protection between the United States and Mexico. (Photo Kirsten Dahlen 2008/Marine Photobank)

- **Marine conservation.** Ocean acidification, over-fishing, energy development, pollution, invasive species—the threats to the world's marine environments are widespread. As policy-makers begin to address these growing crises, NatureServe will seek to transfer the scientific knowledge and understanding we have developed for the terrestrial realm, collaborating widely to assess how best to leverage our network in support of marine conservation and data development. We may also lend valuable experience by contributing to emerging efforts around marine spatial planning, zoning, and protected areas.

These and other large-scale changes—along with the societal and civic responses they provoke—will affect the NatureServe network's capacity to improve biodiversity outcomes in both scope and extent. In response, we will demonstrate and celebrate the value of biological diversity to human health, sustainable resource use, open space, and ecosystem services, without diminishing biodiversity's importance as the most precious value that cannot be replaced once it is lost—and as the foundation upon which a thriving society depends.





## ONGOING RISKS TO SPECIES AND ECOSYSTEMS

Rather than engage in open-ended research, NatureServe keeps a sharp focus on developing the data and expertise to answer four questions fundamental to guiding conservation action:

1. What species and ecosystems exist?
2. Which species and ecosystems are of conservation concern, and how is their risk of extinction changing?
3. Where are these species and ecosystems located?
4. How can society respond effectively to conserve biodiversity through land and water protection, habitat management, and threat reduction for those species and ecosystems of concern?

During the next five years, the NatureServe network will focus on developing conservation information about terrestrial, freshwater, and coastal species. Extinction risk assessments and range maps will be developed and maintained for all non-marine vertebrates, vascular plants, and selected invertebrate groups. Efforts to map observations and occurrences will focus on more vulnerable species, including those with legal protection status. Network members may track other local priority taxa on a case-by-case basis and are encouraged to track observation data for invasive species that impact natural systems.

For ecological systems, the NatureServe network will develop “wall-to-wall” maps. Our reference classification standards are the NatureServe Terrestrial Ecological Systems Classification, and, in turn, the International Vegetation Classification and the Coastal Marine Ecological Classification System. Network members may crosswalk these to other classifications where local standards are well established. In addition, NatureServe has developed and will expand the use of landscape integrity assessments for terrestrial ecosystems in the Americas and beyond to improve our ability to identify and restore important ecosystem functions.

While biodiversity conservation requires action at multiple scales, safeguarding important sites through the use of protected areas and other effective mechanisms remains the cornerstone of conservation. NatureServe co-chairs the IUCN-convened process to establish global standards for the identification of sites of global significance for the conservation of species and ecosystems.

Our expertise in the systematic evaluation of ecological systems provides a foundation for understanding how healthy ecosystems supply economic, social, and practical values to human communities. We will partner with experts in conservation, social science, and economics to develop scientifically sound methods for measuring ecological integrity that can enhance the assessment and valuation of ecosystem services.

## THE IMPORTANCE OF SCIENCE

8 The political and cultural debates of the present age have substantial implications for NatureServe. In an era of growing skepticism of science and its value in shaping and informing policy, we must redouble our commitment to the foundational aspects of biodiversity science, and engage respectfully but unwaveringly with skeptics. Continuing to adhere to standards of transparency and openness—and communicating more clearly about our own scientific standards and methods—must form the foundation of NatureServe’s culture if we are to succeed in influencing society’s most pressing decisions that impact biodiversity.

NatureServe’s core competencies are in the development of high-quality, up-to-date knowledge about the status and distribution of species and natural ecosystems and the delivery of that knowledge to guide conservation action. NatureServe invests in the methods, data, tools, and staff skills that create a uniquely integrated suite of expertise that decision-makers can trust.

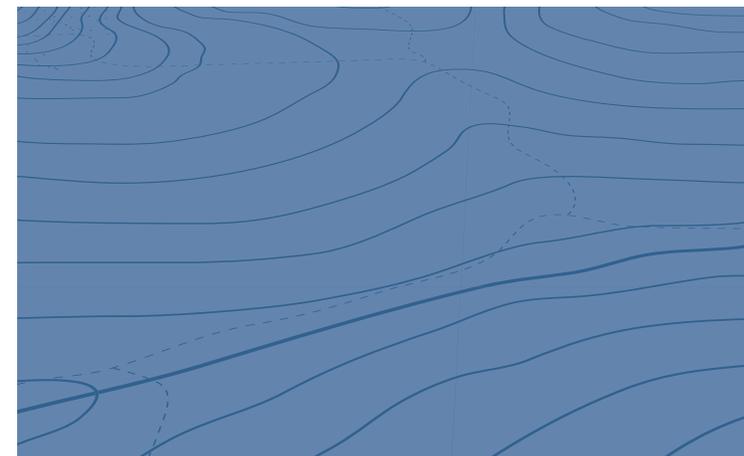
Network members rely on the natural heritage methodology to assess extinction risk and conservation status. These evaluations contribute to the IUCN Red List of Threatened Species—as well as the emerging Red List of Ecosystems—at the global scale.

Fieldwork by network members and their local partners is a critical component of maintaining the credibility and currency of our location data. Partnerships and citizen science that target the acquisition and improved accessibility of high-quality observation data represent additional means of increasing the quality of our element occurrence data.

Our documentation of threats will use the Conservation Measures Partnership classification system. Our assessments of the vulnerability of species and ecosystems to the impacts of climate change will build from the NatureServe Climate Change Vulnerability Index.

Other strategic opportunities may impact our capacity to respond effectively to conserve biodiversity. Current efforts to lead the development and delivery of regional biodiversity indicators through “dashboards” will increase NatureServe’s influence by helping to reduce biodiversity loss, inform regional- and global-scale investment policy, and integrate worldwide networks. Channeling burgeoning interest in citizen science will support our mission while reinstilling a sense of value in what sound science can contribute to both policy and society at large.

***Pictured below:** A Goldman Sachs Community TeamWorks citizen-science volunteer examines a hairy-necked tiger beetle (*Cicindela hirticollis hirticollis*) during a species inventory led by network staff from the New York Natural Heritage Program. The beetle is declining due to habitat alteration and recreation pressure on its sandy habitat. (Photo Sam Sheline/NatureServe)*



## POLICY UNCERTAINTY

The current setting for public policy is shifting and changeable. Such conditions make NatureServe's organizational responsiveness and flexibility essential to success. While we cannot fully predict or control policy changes that might emerge in this environment, we have sought to envision how we can best respond to potential changes. We examined two key areas of uncertainty that influence conservation resource allocation and decision-making: geographic scale of conservation activity and the relative influence of the public and private sectors. We then outlined scenarios under which we might shift our focus to disseminate information better to key practitioners and policy-makers alike.

The scale of decision-making relates to whether national and international institutions are driving the conservation policy agenda, or whether more local institutions exert the strongest influences. This is a key question for our network members. If decisions are made at a more centralized national or international level, NatureServe is more likely to have the best access to decision-makers, and the network's federated data and tools will be most applicable. In the absence of centralized policy control, more regional or localized bodies may emerge in which members can engage more effectively.

The question of whether the locus of policy influence resides in the public and private sectors will also shape our approaches. The presence of strong rulemaking and regulation within government agencies would foster deeper partnerships with the public sector. The predominance of more voluntary or market-based environmental and conservation policies encourage deeper collaboration with non-governmental organizations and broader engagement of the private sector under the umbrella of corporate responsibility or best management practices related to biodiversity.

These scenarios rest on the assumption that the decision-makers will control more resources for enabling NatureServe's work, and such shifts may determine what parts of the organization have the greatest access to them. There are scenarios under which a scarcity of resources at the national or federal level could create a need for member programs to consider supporting the network's convening organization; likewise, NatureServe may have an obligation to seek additional support—for example, by expanding corporate and foundation partnerships—that can help member programs when state and provincial resources are constrained.

Situations may vary from country to country, so the critical strategic opportunity becomes finding the most efficient way to deliver information to those people who can have an impact. We feel strongly that the network model provides the best means of fostering the organizational flexibility to thrive under a variety of scenarios from local to international scales and across both the public and private sectors.

*Pictured below: Hairy-necked tiger beetle (Cicindela hirticollis hirticollis). (Photo Sam Sheline/NatureServe)*



# CREATING NEW VALUE FROM CORE STRENGTHS

NatureServe exists to create knowledge about biodiversity and apply it to serve conservation and resource management. Over the next five years, we intend to leverage the core strengths provided by our comprehensive database on at-risk species and ecosystems and our network of local, national, and international biodiversity experts to increase our impact in emerging areas including:

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- ***Improving Scientific Understanding and Measurement of Landscape Integrity.*** New techniques will leverage NatureServe's expertise and data to help restore degraded ecosystems, promote habitat connectivity, improve mitigation outcomes, and provide a systematic foundation for valuing ecosystem services.
- ***Conserving Aquatic Biodiversity.*** NatureServe will engage with scientific leaders in both the freshwater and marine realms to understand the information needs and gaps while increasing our capacity and expertise to guide future decisions about conservation and resource use as human demands on these systems increase.

- ***Increasing the Efficiency of Systems for Monitoring Trends in Biodiversity.*** Our network of partners can support the creation of a hemisphere-wide system of field reference sites for monitoring ecosystems. We will engage citizen scientists to support more rapid and comprehensive gathering of observation data.
- ***Enhancing Knowledge Transfer Within Our Network.*** Guided by a thorough understanding of our network's current and potential capacity, we will take a more structured approach toward increasing the effectiveness of the NatureServe network. These concerted efforts will target further cultivation of in-network leadership potential, enhanced training approaches and techniques, and updated standards for technical proficiency and performance.
- ***Expanding Network Capacity.*** Within the Western Hemisphere, NatureServe will seek new partnerships that help fill gaps in the collective geographic coverage and scientific capacity of our current constituent members. This includes engaging tribes and First Nations where they have interest and an aligned institutional

authority. Elsewhere, we will establish strategic partnerships with like-minded institutions to provide technical and scientific assistance.

- ***Illuminating the Value of Biodiversity Across Policies and Disciplines.*** Working in partnership with other experts, we will produce biennial reports on various aspects of status and trends of biodiversity at multiple geographic levels to illuminate large-scale issues that cut across disciplines and policy approaches. We will lead the development and delivery of regional biodiversity indicators through "dashboards" to inform regional- and global-scale investment policy, and improve mechanisms for rapid delivery of biodiversity expertise to inform emergency response.

These emerging focal areas represent our continuing evolution as an organization and respond to input from partners, stakeholders, and clients. We believe that these new emphases will support our continued growth as a leader and provider of knowledge essential to the conservation and natural resource communities while expanding our influence beyond them.

*In 2010, the world's governments agreed on a global strategic plan for biodiversity conservation comprising 20 ten-year targets. But how will agencies, NGOs, and funders monitor progress?*

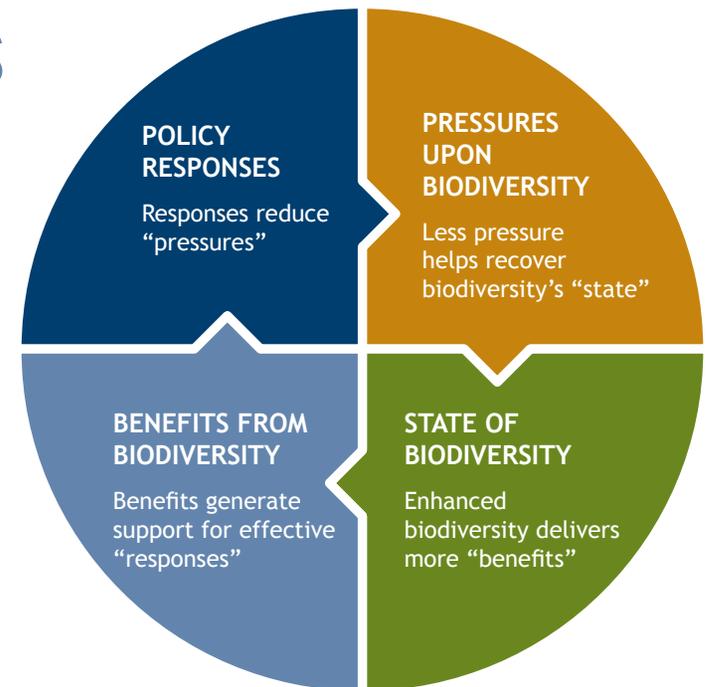
## ESTABLISHING DASHBOARD ASSESSMENTS

Each nation is responsible for updating their progress toward the Aichi Targets, but many nations need support to strengthen their capacity to measure the indicators that would reveal progress toward improvements in biodiversity.

Leading a team of prestigious international institutions, NatureServe is developing regional dashboards for the Tropical Andes, the African Great Lakes, and the Mekong Basin. By clearly documenting and visualizing data

on key biodiversity indicators, these tools will focus action, support policy and decision-making, and catalyze necessary investments in information infrastructure.

Sponsored by the John D. and Catherine T. MacArthur Foundation, the effort will develop four indicators and convene conservation stakeholders to assess national needs and capacity to implement monitoring and initiate processes for ensuring a sustainable long-term flow of data.



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**Tropical Andes**

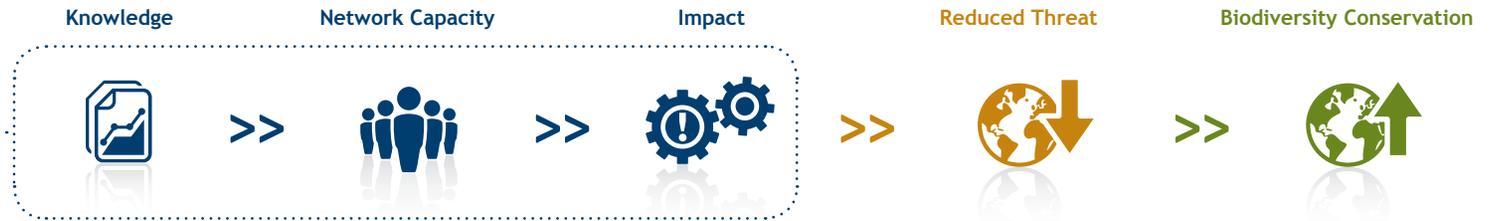


**African Great Lakes**



**Mekong Region**

**Pictured above:** Using a framework developed by the Biodiversity Indicators Partnership and UNEP-WCMC, the indicators will 1) report on countries, efforts to reduce pressures on biodiversity, 2) maintain and improve the state of biodiversity, 3) implement conservation actions to ameliorate biodiversity loss, and 4) harness the benefits that conservation provides to human well-being.



## GUIDING CONSERVATION IMPACT

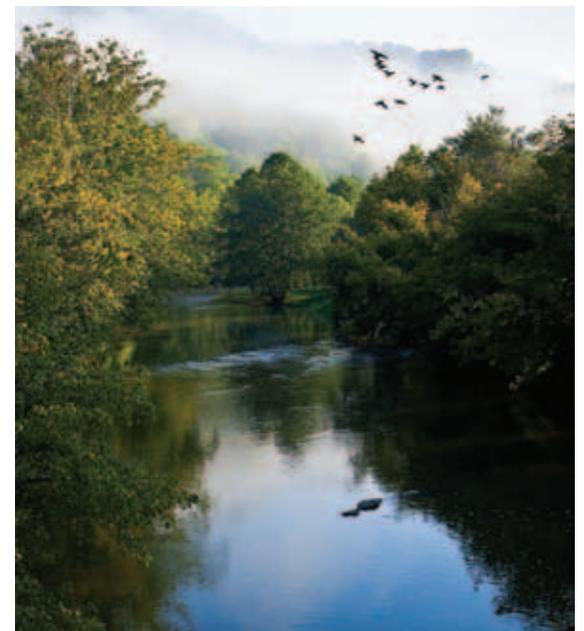
NatureServe is most effective when decision-makers use our knowledge and services to:

- Focus scarce resources on the highest-priority conservation activities
- Manage working lands on behalf of biodiversity
- Improve the environmental quality of infrastructure development
- Support other societal needs in ways that preserve biological diversity

We can further increase and direct our conservation impact by giving voice to our expertise through proactively developing analyses and including those that incorporate other non-biodiversity data. Implicit in our theory of change is the fundamental need to build capacity within the NatureServe network to develop and deliver such information.

Our pursuit of these outcomes will reduce threats to biodiversity, yielding positive results in the form of reduced extinction risk, fewer imperiled ecosystems, and more robust ecosystem function across landscapes.

***Pictured right:*** The Clinch River near Cleveland Barrens Natural Area Preserve, whose biological riches were identified and protected by the Virginia Natural Heritage Program. (Photo © Jack Looney)





# RESULTS FOR 2012–2016

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-  **RESULT 1** *Biodiversity conservation is guided by increasingly high-quality and up-to-date scientific knowledge*
-  **RESULT 2** *Network effectiveness for building biodiversity knowledge is enhanced*
-  **RESULT 3** *NatureServe analyses and syntheses inform key societal challenges*
-  **RESULT 4** *Clients use NatureServe data, tools, and expertise to address their specific needs*

# RESULT 1

## *Biodiversity conservation is guided by increasingly high-quality and up-to-date scientific knowledge*



Reaching across taxonomic groups, geographies, biotic realms, scientific and technological disciplines, and underlying methodologies, the actions supporting this result nourish the scientific foundation of our work (methods, data, and expertise). The need to increase investment in field surveys and inventories that will sustain the credibility of our data and improve detection of meaningful trends are of particular concern.

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### **1.1 *The taxonomy of at-risk species is kept current to ensure consistent treatment of species wherever they occur***

#### **Actions**

- 1.1.1 In partnership with national and global authorities, review and update taxonomic standards for plants
- 1.1.2 Establish partnerships with experts and data clearinghouses to access up-to-date, standard taxonomies
- 1.1.3 Employ technological tools to automate taxonomic updates where feasible

#### **Baseline**

Targeted taxa are updated to 2012 standards

#### **Metric**

All targeted taxonomic groups are within three years (one year for U.S. and Canadian non-marine vertebrates) of being current with the established standard

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### **1.2 *Knowledge of vulnerability and extinction risk for species and ecosystems has increased***

#### **Actions**

- 1.2.1 Implement a fundraising campaign to expand the scope and pace of conservation status assessments
- 1.2.2 Facilitate widespread implementation of the refined methodology for consistently assessing the conservation status of species and ecosystems
- 1.2.3 Refine and publish methods for, and apply, NatureServe's Climate Change Vulnerability Index for species and ecosystems

- 1.2.4 Support development of methods for the Red List of Ecosystems, and catalyze assessment efforts across the NatureServe network and beyond

#### **Baseline 1**

2012 status of species and ecosystem ranks

#### **Metric 1**

Achieve a long-term average of 2,000 annual conservation status reviews for threatened species and ecosystems

#### **Baseline 2**

Data on species status and location are current to within 12 to 18 months across the North American sections of the network

#### **Metric 2**

Data on the status and location of both species and ecosystems is available through NatureServe in near real-time for 80% of constituent member programs

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### **1.3 *Trends in distribution and condition for species and ecosystems across the Americas are better communicated***

**Actions**

- 1.3.1 Update and implement protocols for frequency, prioritization, and tracking of re-visiting occurrences of threatened species and ecosystems
- 1.3.2 Increase the number and scope of field inventories of threatened species and ecosystems and incorporate results into Biotics as field observations and element occurrences
- 1.3.3 Evaluate and, where appropriate, implement options for tapping citizen science to support more rapid and comprehensive gathering of observation data
- 1.3.4 Based on NatureServe methodology, collaborate with partners to implement an integrated, hemisphere-wide network of field reference sites for documenting baseline conditions and trends in ecological integrity of terrestrial, freshwater, and coastal marine ecosystems

**Baseline 1**

No current procedure for documenting inventory status for tracked species and ecosystems

**Metric 1**

Inventory status is documented with updated procedures for threatened species and terrestrial ecosystems across the U.S. and Canadian sections

**Baseline 2**

Approximately 40,000 terrestrial natural community occurrences across the United States and Canada have some form of baseline documentation suitable for gauging ecological integrity, forming a foundation for a reference site network

**Metric 2**

Reference sites are fully documented in 10,000 locations, spanning a representative cross-section of ecosystem types across the Americas

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**1.4 Unified terrestrial ecological classifications, mapping standards, and habitat characterizations are implemented across the Americas**

**Actions**

- 1.4.1 Implement a unified framework for terrestrial ecosystem classification and mapping across the Americas using the International Vegetation Classification

macrogroups and terrestrial ecological systems as reference classifications

- 1.4.2 Advance methods for characterizing and mapping species-habitat relationships within Biotics, and implement this for at-risk terrestrial vertebrate species
- 1.4.3 Use terrestrial ecological classifications, mapping standards, and methods for measuring ecosystem integrity to support regional, national, and international initiatives to value ecosystem services

**Baseline**

2012 terrestrial ecosystem distributions (circa 2005) mapped throughout the United States and South America

**Metric**

Terrestrial ecological systems maps are updated for the U.S. and South America with new maps completed for Mesoamerica. International Vegetation Classification Macrogroups are mapped across the boreal and arctic portions of the Americas

# RESULT 1

1.5 *NatureServe guides network-wide development of knowledge for strategic freshwater biodiversity conservation*

**Actions**

- 1.5.1 Refine and document NatureServe’s potential role in development of freshwater biodiversity data to support conservation of aquatic biodiversity, watershed-based planning, and ecosystem services
- 1.5.2 Identify gaps in NatureServe’s partnerships with institutions currently involved in collecting freshwater species and ecosystem data, and identify which current and potential member institutions are essential to this role
- 1.5.3 Update and implement a unified framework for freshwater ecosystem classification and mapping by building on the framework used by the Inter-American Biodiversity Information Network (IABIN) Ecosystems Thematic Network

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- 1.5.4 Secure funding to support the development and implementation of the freshwater strategy

**Baseline**

South America and large basins within the United States have draft maps, forming the basis for our unified classification framework

**Metric**

Complete implementation of classification and mapping within two major temperate basins and one major tropical basin

1.6 *NatureServe adds value to marine biodiversity conservation through a network-wide strategy that complements existing efforts*

**Actions**

- 1.6.1 Scope institutions currently involved in collecting marine biodiversity data and identify gaps among these; engage with this community to help identify NatureServe’s potential role

- 1.6.2 Establish partnerships with current and potential member institutions that are essential to this role

- 1.6.3 Secure funding to support the NatureServe network’s marine strategy

- 1.6.4 Test and establish mapping protocols for coastal marine ecosystems by building on the Coastal Marine Ecological Classification System (CMECS)

- 1.6.5 Develop conservation assessment methodologies for marine ecosystems, adapt NatureServe’s ecological integrity methodology for marine ecosystems, and implement for several key marine ecosystems (e.g., oyster beds, reefs, sea grass beds)

**Baseline**

NatureServe plays leadership roles in CMECS and the Ecosystem-Based Management Tools Network

## CASE STUDY

### NATURE'S MOST VULNERABLE: MONITORING AND PREDICTING CLIMATE CHANGE IMPACT ON BIODIVERSITY

The first climate-related tool we developed, the NatureServe Climate Change Vulnerability Index (CCVI), has earned widespread adoption since its release in 2009. Three updates later, this peer-reviewed tool has advanced thanks to user feedback and conceptual improvements. A searchable database of more than a thousand assessment results provides a basis for comparison across species' ranges. By enabling land managers and natural-resource professionals to quickly assess which species are most vulnerable, the CCVI helps them prioritize adaptation strategies and design actions that increase species' resilience to climate change.

Expanding on this work, NatureServe and network member Arizona Heritage Data Management System are now collaborating with the Department of the Interior's Desert Landscape Conservation Cooperatives and others to pilot a new approach for assessing the climate change vulnerability of ecosystems. The new Index will enable users to characterize relative vulnerabilities of ten ecological community types found within the Mojave and Sonoran deserts in the United States and Mexico.

To describe broader impacts on an area or place, NatureServe worked with the U.S. Fish and Wildlife Service's National Wildlife Refuge System to create and test a comprehensive approach for assessing refuge vulnerability and developing adaptation alternatives. By describing the susceptibility of a refuge's biological, infrastructure, recreational, and historic resources to the effects of climate change and other stressors like development and invasive species, this guidance helps managers predict future conditions on and around refuges, enabling them to make better-informed management decisions.

#### **Metric**

Establish and communicate a marine biodiversity information strategy by 2013; implement the strategy 2014–2016

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**1.7 A web-enabled, sustainable, and adaptable data-management system supports knowledge management and data integration**

#### **Actions**

- 1.7.1 Develop, test, and deploy the production release of Biotics 5 system across the network
- 1.7.2 Negotiate a Service Level Agreement and associated fee schedule that establishes system-availability and issue-resolution commitments that meet network needs and expectations
- 1.7.3 Release software updates that keep Biotics in step with methodology and technology advances

#### **Baseline**

53+ out of 82 constituent member programs use or interoperate with the Biotics 4 desktop system

#### **Metric**

100% of constituent member programs are using or interoperating with Biotics 5 (and future generations)

# RESULT 2

## *Network effectiveness for building biodiversity knowledge is enhanced*



NatureServe connects a large network of local expertise that works to address regional, national, and international conservation challenges. Our nearly four decades of networking create a great organizational advantage but requires continuous attention and improvement.

The dimensions of this result reach across geographic scope, institutional mix, member program capacity and responsibilities, technological and social aspects of networking, thematic scope, and organizational governance.

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### **2.1 Network constituent members meet and exceed standards of institutional and technological effectiveness**

#### **Actions**

- 2.1.1 Engage constituent members in tracking network health relative to our adopted standards for capacity, engagement, and conservation impact
- 2.1.2 Provide constituent members with support and guidance on how to improve relative to program standards, including training

- 2.1.3 Work with constituent members to engage local partners that can provide access to resources that support data development, influence policy, and enhance program impacts

#### **Baseline**

Each constituent member has a baseline status

#### **Metric**

More constituent member programs meet a higher proportion of the standard functions by end of 2016

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### **2.2 Intra-network connections are stronger and more effective**

#### **Actions**

- 2.2.1 Extend the network's collaboration tools—including shared centrally hosted platforms—to create common workspaces that increase the exchange of information and ideas

- 2.2.2 Identify centers of excellence in the network and facilitate the network's ability to share resources and capacity, for example, through streamlined NatureServe finance and administrative systems

- 2.2.3 Strengthen cohesion within the existing Latin American Section through more effective engagement with the section as a whole and increased interaction between the Latin American and other Sections

- 2.2.4 Establish an "innovation support model" for linking programs working on similar innovations; publicize innovative products and approaches developed by member programs

#### **Baseline**

Each constituent member has a baseline status for the strength of its network connections by the end of June 2012

#### **Metric**

Increase connections with less-active members so that all members have at least three strong connections

# CASE STUDY

## LEADER TO LEADER: ENHANCING NETWORK EFFECTIVENESS

Expanding on a long-standing commitment to cultivate emerging conservation leaders, NatureServe's Leader to Leader (L2L) program provides hands-on leadership training and practice. The inaugural 2010-2011 class included 18 NatureServe and network staff. Each year-long course aspires to create a self-renewing pool of next-generation leaders, to strengthen intra-network connections, and to form a peer-to-peer community of ambassadors capable of sharing skills and lessons with colleagues in their home institutions.

Selected through competitive applications, the 2010-2011 class hailed from Colombia to Manitoba and points in between, reflecting the network's diversity of geography, skills, and career levels. The trainees participated in a combination of individually tailored leadership action plans and complementary group projects.

L2L has already delivered results as members of the first cohort have steadily increased their spheres of influence. Impressively, two of them have already earned promotion to lead their home programs. Armed with the knowledge and skills to lead effectively, all participants are leveraging the confidence provided by stronger personal connections and have formed a community of practice serving the entire network. With continued financial support from American Express, future L2L classes will join these rising stars in boosting NatureServe's ability to guide effective conservation action through increased biodiversity knowledge.

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### 2.3 *The NatureServe network is engaged in a broader set of partnerships with institutions responsible for collecting and disseminating biodiversity data*

#### Actions

- 2.3.1 Strategically recruit institutions—including tribes and First Nations—that extend geographic coverage and thematic expertise to increase capacity to influence conservation
- 2.3.2 Define levels of participation, types of organizations, and roles needed to cover our desired scientific and technological scope (e.g., specialists in bioinformatics or methods)
- 2.3.3 Work with current members to clarify a network structure that incorporates a formal role for national entities representing subnational constituent members
- 2.3.4 Engage with other international organizations that provide strategic networking opportunities with biodiversity experts who are not currently members of NatureServe

#### Baseline

2012 status of organizational expertise, network-wide

#### Metric

NatureServe partnerships and memberships embody the capacity to cover the full taxonomic and ecological scope laid out in this plan

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### 2.4 *Like-minded organizations outside the Western Hemisphere are engaged with NatureServe to share information and expertise*

- 2.4.1 Map institutional capacity globally and target those places that have identified a need that NatureServe can fill
- 2.4.2 Establish cooperative relationships with like-minded partners to build conservation capacity where NatureServe brings unique expertise and adds value

# RESULT 3

## *NatureServe analyses and syntheses inform key societal challenges*



This result focuses on establishing NatureServe as a thought leader in biodiversity conservation and producing proactive analyses and syntheses that bring our information to bear on cross-cutting societal challenges. Important dimensions of this result include organizational positioning, influencing as many people as possible, and fostering the organization's ability to get out ahead of broad conservation needs. An important subtext—the need to integrate our information with other types of data to inform decision-making—implies the development of new, strategic partnerships.

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### **3.1** *Visualizations and syntheses of NatureServe data illuminate large-scale challenges to biodiversity*

#### **Actions**

- 3.1.1 Publish baseline maps of Western Hemisphere biodiversity (threatened ecological systems, range maps for threatened species and all terrestrial ecological systems)

- 3.1.2 Implement a biennial reporting cycle on various aspects of status and trends of biodiversity at multiple geographic levels
- 3.1.3 Host the authoritative dashboard for international data on species and ecological communities of greatest conservation need
- 3.1.4 Lead the consolidation of global standards for the identification of key biodiversity areas that inform a global protected areas strategy

#### **Baseline 1**

Intermittent biodiversity status reports

#### **Metric 1**

Publish a biodiversity status report every two years

#### **Baseline 2**

Dashboard proof-of-concept for three global hotspots

#### **Metric 2**

Capacity for monitoring and reporting a “biodiversity dashboard” is developed and maintained in up to ten countries

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### **3.2** *NatureServe data are integrated with other key information to shape environmental, scientific, economic, and social policy questions and solutions*

#### **Actions**

- 3.2.1 Establish partnerships with academics, NGOs, socioeconomic experts, and other partners on key emerging topic areas of large-scale change to promote societal benefits of conserving biodiversity
- 3.2.2 Publish maps of projected change over time for species distribution due to land conversion, change in climate and water resources, movement of invasive species
- 3.2.3 Expand LandScope America thematically and geographically
- 3.2.4 Provide maps and tools identifying high-quality restoration areas to guide mitigation priorities

# CASE STUDY

## INFORMING KEY CHALLENGES: PLANT SPECIES OF GREATEST CONSERVATION CONCERN

Plants have often taken a back seat in biodiversity conservation. Take, for example, the 56 wildlife action plans developed by each U.S. state and territorial wildlife agency. Federal guidelines governing these plans—intended to protect species of greatest conservation need by reducing the extinction risks they face—specifically excluded plants from the definition of “wildlife.”

To help expand the coverage of the plans, NatureServe scientists—with support from the Doris Duke Charitable Foundation—reviewed all 56 to analyze whether and how they address conservation of plants, both rare and common. The resulting 2008 report, *Hidden in Plain Sight: The Role of Plants in State Wildlife Action Plans*, offered recommendations on effective conservation strategies that would benefit our nation’s plant species and change the notion of what constitutes “wildlife.”

Now, even as these recommendations help shape upcoming 2015 wildlife action plan revisions, NatureServe is leading a groundbreaking project that addresses concerns about both plant conservation and climate change adaptation. Working with network staff in five states, NatureServe assessed conservation status and climate-change vulnerability to identify and prioritize plants of greatest conservation need. In addition, integration of native plant mapping and state habitat types has provided a common language for natural heritage programs, wildlife agencies, and other partners to improve understanding—and conservation—of critical linkages for preventing the imperilment of additional plant species.

**Baseline**

Periodic, client-driven assessments

**Metric**

NatureServe co-authors or contributes four cross-cutting reports working with partners possessing different subject-area expertise

**3.3 NatureServe is recognized as a thought leader in the conservation of biodiversity**

**Actions**

- 3.3.1 Position and promote NatureServe’s products as components of an integrated tool kit that represents the full conservation information value chain
- 3.3.2 Improve the packaging of off-the-shelf products for use by specific target audiences among constituents, practitioners, decision-makers, and appropriators

- 3.3.3 Engage users of NatureServe products and services to build awareness of and contribute ideas for development of future products
- 3.3.4 Increase integration among all of NatureServe’s web resources to enrich user experience and knowledge
- 3.3.5 Train more member program staff and partners in natural heritage methodology

**Baseline**

2012 status of brand recognition with target market segments

**Metric**

Brand name recognition within target segments improves by 50% by 2016

# RESULT 4

## *Clients use NatureServe data, tools, and expertise to address their specific needs*



This result positions the NatureServe network as a valued partner, collaborator, and service provider for informing specific decisions or solving specialized problems. A fundamental principle throughout this result is the need for nimbleness and flexibility in pursuing opportunities and responding to partner needs. By applying NatureServe's expertise on specific biodiversity and management challenges, we will respond to partner needs, improve our own use of adaptive management, and position the NatureServe network as a valued partner, collaborator, and service provider.

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### **4.1** *Resource development is guided to sustain biodiversity through the use of NatureServe's data, tools, and expertise*

#### **Actions**

- 4.1.1 Engage directly with decision-makers in target sectors to help them integrate conservation values into their environmental review and planning processes to reduce adverse impacts on biodiversity
- 4.1.2 Provide easy-to-use, web-based tools and applications to bring NatureServe's information and expertise to decision-makers

- 4.1.3 Enhance consistency of network environmental review processes through standard tools, methods, and training
- 4.1.4 Expand delivery of expert services to develop and monitor public- and private-sector commitments for sustainability, risk assessment, and valuation of ecosystem services

#### **Baseline**

Current number of network-wide data requests and consultations per year

#### **Metric**

Increase volume of responses to data requests and consultations at a steady rate, year over year

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### **4.2** *Collaborative partnerships provide more multidisciplinary and results-oriented solutions to environmental challenges*

#### **Actions**

- 4.2.1 Expand Canadian partnerships in the federal agencies

- 4.2.2 Expand Latin American partnerships with national focal points for biodiversity data and expertise, environmental ministries, intra-governmental and non-governmental organizations, and development banks
- 4.2.3 Expand partnerships in the energy, extractive, utility, infrastructure, water management, and environmental consulting sectors
- 4.2.4 Develop more expertise and capacity in conservation planning at local, provincial, state, and departmental levels using NatureServe and other data
- 4.2.5 Insure use of NatureServe data and expertise to support of intergovernmental processes and conventions

#### **Baseline 1**

Current number of partners

#### **Metric 1**

Increase number of partners by 33%

#### **Baseline 2**

2012 status of customer satisfaction

#### **Metric 2**

Measure customer satisfaction and knowledge of product line through biennial surveys

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**4.3 All components of the NatureServe network have capacity to respond quickly to emerging issues of concern**

**Actions**

- 4.3.1 Establish an action team tasked with evaluating emerging needs, determining NatureServe’s official response, and communicating our position
- 4.3.2 Develop a plan and procedures to more rapidly deploy NatureServe network data and expertise in rapidly emerging thematic areas (e.g., ecosystem services, watershed management, invasive species, mitigation, and restoration) and disaster response
- 4.3.3 Modify data structures, systems, web resources, staff, and member program resources to increase rapid-response capacity

**Baseline**

Custom responses to information requests involve significant human and system resources

**Metric**

NatureServe information delivery systems support more self-service for clients with routine data request needs

## CASE STUDY

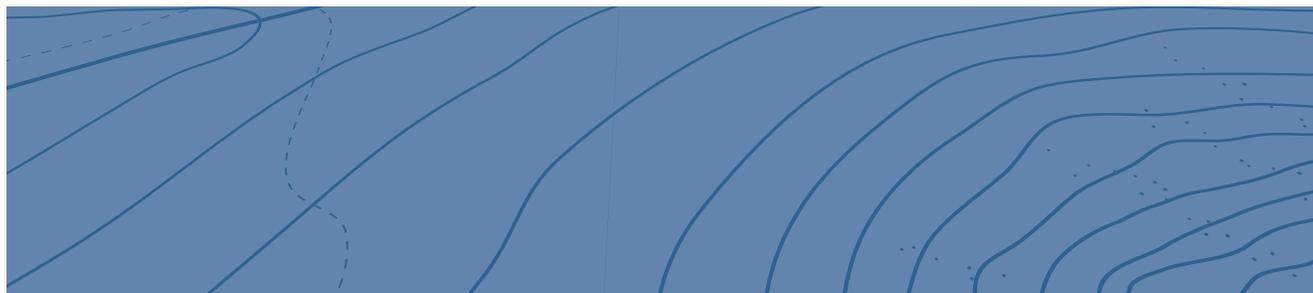
### BIODIVERSITY ACROSS DISCIPLINES: OPTIMIZING OUTCOMES THROUGH COLLABORATION

NatureServe’s partners and clients span numerous sectors, and rely on the vital scientific inputs we provide to solve the business challenges they face. Novel engagements in two sectors highlight the value NatureServe brings to practitioners and decision-makers for whom biodiversity is just one cross-cutting concern.

In 2006, seven federal agencies adopted recommendations for a collaborative, multi-stakeholder approach to infrastructure development that integrates landscape-scale environmental considerations early in decision-making processes. The U.S. Transportation Research Board soon funded Oregon State University and NatureServe to develop technical guidance for this approach. A team including NatureServe network members from Michigan, Oregon, Virginia, Florida, and Colorado crafted an explicit but flexible, science-based framework to improve avoidance of impacts, direct mitigation toward high-priority restoration areas, and integrate results into transportation planning, project delivery, and land-use planning.

NatureServe has also started mobilizing our science to support investment planning and monitoring by two influential conservation funders. Working with the National Fish and Wildlife Foundation (NFWF) in 2011, we analyzed the gaps, opportunities, and costs for conserving threatened species, ecosystems, and marine biodiversity in the United States and Latin America—analyses expected to inform NFWF’s ongoing refinements to its programmatic and investment strategies.

And since 2009, our partnership with the John D. and Catherine T. MacArthur Foundation has expanded to encompass a range of technical advisory roles. We are leading, for example, a global effort to establish dashboards of biodiversity indicators measuring progress toward the Convention on Biological Diversity’s 2020 targets in the three geographies where the Foundation steers its conservation investments. Each of these pioneering collaborations highlights the potential for NatureServe to enhance the scientific basis of our partners’ strategies and approaches, leading toward more effective adaptive management.



# REDUCING THREATS TO SPECIES AND ECOSYSTEMS

Each year, dozens of species move closer to extinction and unique ecological systems remain under threat. While research has indicated that current conservation efforts have reduced declines in biodiversity by at least 20%, it also shows that these efforts remain insufficient to offset the main drivers of biodiversity loss. Much more work is needed to ensure a biodiversity-rich future.

NatureServe contributes to the conservation of biodiversity by providing data and expertise to partners, clients, and collaborators who apply this knowledge to enhance their conservation and resource management plans as well as on-the-ground actions. Our work reduces threats to species and ecosystems in three ways.

## 1. PRIORITY PLACES ARE SAFEGUARDED

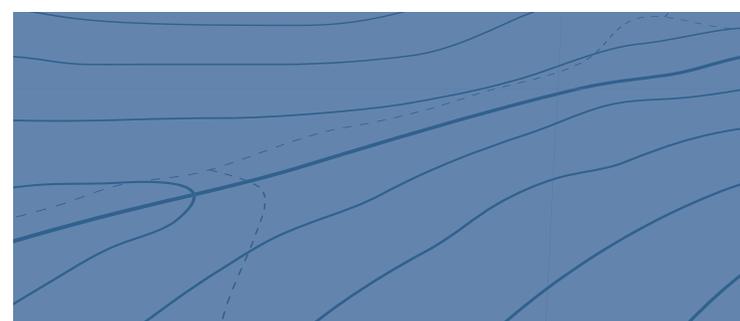
By illuminating where the most unique and vulnerable species and ecosystems are found, NatureServe will guide scarce conservation resources to the most important areas. Our expertise in evaluating the condition of these resources will further improve conservation outcomes by advising resource managers and planners on how to maintain or improve the viability of plants, animals, and ecosystems under their care.

## 2. WORKING LANDS AND CONSERVATION LANDS ARE MANAGED FOR BIODIVERSITY

NatureServe will help landowners and land managers sustain and restore biodiversity on working landscapes by providing tools, data, and expertise that improve the quality and rigor of certification standards related to biodiversity and increase the ability to quantify positive results from good stewardship practices.

## 3. RESOURCE DEVELOPMENT IS GUIDED IN WAYS THAT SUSTAIN BIODIVERSITY

A tremendous amount of resources flow into efforts to reduce or mitigate for the impacts of land development and conversion. NatureServe's tools, data, and expertise will be deployed effectively to sectors that develop land, water, and natural resources to improve the quality and long-term benefit of these activities to biodiversity. In particular, our rigorous methods for measuring ecological integrity will greatly improve the ability to predict which places should be avoided, set quantitative targets for mitigation, and discover the best places for mitigation.





## ACHIEVING CONSERVATION RESULTS

Because the impact of our work requires the effective use of our products by other organizations, we must expand our strategic partnerships and client relationships that encourage broader use of our information, tools, and expertise. Our success will depend on increasing the influence of the NatureServe network among the private- and public-sector practitioners, decision-makers, and appropriators interested in landscape and watershed conservation; natural resources and wildlife management; forestry; energy, transportation, infrastructure, and land-use planning; and environmental consulting.

**Pictured left:** *The work of the Arkansas Natural Heritage Commission (ANHC)—like that of many NatureServe network members—covers a full spectrum of biodiversity conservation, from discovery to planning to protection. ANHC and partners are establishing a corridor of protected areas along the Saline River in south and central Arkansas, a rich mosaic of rare natural communities like the pine flatwoods of Warren Prairie Natural Area. In 2010, Warren Prairie became the first site west of the Mississippi River to reintroduce a population of red-cockaded woodpeckers (*Picoides borealis*). The recovery of this federally endangered (G3) species, once common in southern Arkansas, hinges on protection and restoration of large-scale open pine habitat. (Photo Arkansas Natural Heritage Commission)*

**Pictured right:** *Ecologist Erin Lunsford Jones conducts field work at Natchez Trace Parkway. (Photo © Carl Nordman)*

By providing the scientific basis for actions that conserve the rare and imperiled species and threatened ecosystems of the Western Hemisphere—and indeed, the world—we will extend what eminent biologist and 2011 NatureServe Conservation Award winner Dr. E.O. Wilson calls “the vital, the necessary, and the increasingly impressive enterprise that is NatureServe.”

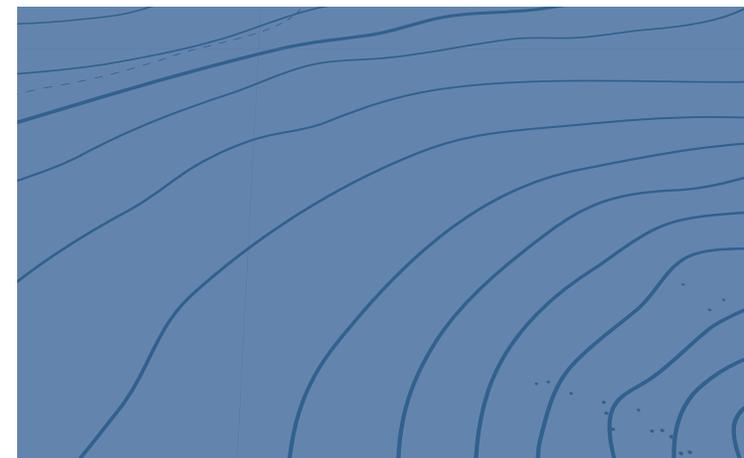


***Pictured below:** NatureServe network member Pronatura Veracruz enhances public understanding of species and ecosystem science by focusing attention on an annual phenomenon known as the “River of Raptors”—the world’s largest hawk migration. (Photo © Jesús Eduardo Martínez Leyva)*

## A NATURAL HERITAGE OF ACCOMPLISHMENT

Over the course of the past five years, the NatureServe network has leveraged its unique strengths and improved our capacity to inform the conservation and management of biological resources. Notable achievements include:

- Providing data and expertise to millions of users by fulfilling 30 million individual information requests over five years—a rate of 6 million queries each year, or one request every five seconds
- Documenting more than 300,000 new locations for at-risk species, publishing updated information via NatureServe Explorer while raising the total number of mapped locations to nearly 1 million
- Producing the first standardized maps of ecosystems in the Americas
- Providing data-system services that make biodiversity conservation more efficient for federal agencies and local communities in the United States, Canada, and Central and South America
- Putting critical information in the hands of resource managers and decision-makers with tools like NatureServe Vista® and NatureServe Surveyor
- Developing sound methodologies for ecological assessments, including the likely impacts of climate change on species, ecosystems, and places like wildlife refuges and parks
- Working with local partners from Paraguay to Alaska to engage stakeholders and train practitioners in place-based conservation planning
- Advancing the protection of biodiversity hotspots from rapid infrastructure development in support of sustainable and functioning ecosystems
- Organizing biodiversity information to answer key management questions related to recreation, energy, and forestry development
- Establishing our annual Biodiversity Without Boundaries conference as a marquee event for our network members, natural resource practitioners, and scientific colleagues
- Collaborating on the publication of a standard Coastal Marine Ecosystem Classification System for describing coastal and offshore marine habitats
- Creating LandScope America in collaboration with the National Geographic Society to guide U.S. practitioners, policy-makers, and citizens towards shared conservation priorities and strategic partnerships



# THE NATURESERVE NETWORK

(as of January 1, 2012)

## CANADIAN SECTION

**Alberta** Conservation Information Management Centre  
Alberta Tourism, Parks & Recreation

**Atlantic Canada** Conservation Data Centre  
Mount Allison University

**British Columbia** Conservation Data Centre  
British Columbia Ministry of Environment

**Manitoba** Conservation Data Centre  
Manitoba Conservation Wildlife & Ecosystem Protection Branch

NatureServe **Canada**

**Northwest Territories** Conservation Data Centre  
Department of Environment and Natural Resources

**Ontario** Natural Heritage Information Centre  
Ontario Ministry of Natural Resources

Centre de Données sur le Patrimoine Naturel du **Québec**  
Ministère des Ressources naturelles et de la Faune | Ministère du Développement durable, de l'Environnement et des Parcs

**Saskatchewan** Conservation Data Centre  
Saskatchewan Environment

**Yukon** Conservation Data Centre  
Environment Yukon

## UNITED STATES SECTION

**Alabama** Natural Heritage Program  
Auburn University Environmental Institute

**Alaska** Natural Heritage Program  
University of Alaska – Anchorage

**Arizona** Heritage Data Management System  
Arizona Game & Fish Dept.

**Arkansas** Heritage Program  
Arkansas Natural Heritage Commission

**California** Natural Diversity Database  
California Dept. of Fish & Game

**Colorado** Natural Heritage Program  
Colorado State University

**Connecticut** Natural Diversity Database  
Connecticut Dept. of Environmental Protection

**D.C.** Fisheries & Wildlife  
D.C. Dept. of Health

**Delaware** Natural Heritage Program  
Dept. of Natural Resources & Environmental Control

**Florida** Natural Areas Inventory  
Florida State University

**Georgia** Nongame Conservation Section  
Georgia Dept. of Natural Resources

**Hawai'i** Biodiversity and Mapping Program  
University of Hawai'i

**Idaho** Natural Heritage Program  
Idaho Dept. of Fish & Game

**Illinois** Natural Heritage Database Program  
Illinois Dept. of Natural Resources

**Indiana** Natural Heritage Data Center  
Indiana Dept. of Natural Resources

**Iowa** Natural Areas Inventory  
Iowa Dept. of Natural Resources

**Kansas** Natural Heritage Inventory  
University of Kansas

**Kentucky** Natural Heritage Program  
Kentucky State Nature Preserves Commission

**Louisiana** Natural Heritage Program  
Louisiana Dept. of Wildlife & Fisheries

**Maine** Natural Areas Program  
Maine Dept. of Conservation

**Maryland** Natural Heritage Program  
Maryland Dept. of Natural Resources

**Massachusetts** Natural Heritage & Endangered Species Program  
Massachusetts Division of Fisheries & Wildlife

**Michigan** Natural Features Inventory  
Michigan State University Extension

**Minnesota** Natural Heritage & Nongame Research  
Minnesota Dept. of Natural Resources

**Mississippi** Natural Heritage Program  
Mississippi Museum of Natural Science

**Missouri** Natural Heritage Program  
Missouri Dept. of Conservation

**Montana** Natural Heritage Program  
Montana State Library

**Navajo** Natural Heritage Program  
Navajo Nation Dept. of Fish & Wildlife

**Nebraska** Natural Heritage Program  
Nebraska Game & Parks Commission

**Nevada** Natural Heritage Program  
Nevada Dept. of Conservation & Natural Resources

**New Hampshire** Natural Heritage Bureau  
New Hampshire Dept. of Resources & Economic Development

**New Jersey** Natural Heritage Program  
New Jersey Office of Natural Lands Management

**Natural Heritage** New Mexico  
University of New Mexico

**New York** Natural Heritage Program  
New York State Dept. of Environmental Conservation

**North Carolina** Natural Heritage Program  
North Carolina Dept. of Environment & Natural Resources

**North Dakota** Natural Heritage Inventory  
North Dakota Parks & Recreation Dept.

**Ohio** Natural Heritage Database  
Ohio Dept. of Natural Resources

**Oklahoma** Natural Heritage Inventory  
University of Oklahoma

## THE NATURESERVE NETWORK CONTINUED

**Oregon** Biodiversity Information Center (ORBIC)  
Portland State University

**Pennsylvania** Natural Heritage Program  
Pennsylvania Dept. of Conservation & Natural Resources | Western Pennsylvania Conservancy

**Rhode Island** Natural History Survey

**South Carolina** Heritage Trust  
South Carolina Dept. of Natural Resources

**South Dakota** Natural Heritage Program  
South Dakota Dept. of Game, Fish & Parks

**Tennessee** Natural Heritage Inventory Program  
Division of Natural Areas, Dept. of Environment & Conservation

**Texas** Natural History Survey  
The Nature Conservancy of Texas

**Texas** Wildlife Diversity Branch  
Texas Parks & Wildlife Dept.

TVA Natural Heritage Project  
**Tennessee Valley Authority**

**Utah** Natural Heritage Program  
Utah Division of Wildlife Resources

**Vermont** Nongame & Natural Heritage Program  
Vermont Fish & Wildlife Dept.

**Virginia** Division of Natural Heritage  
Virginia Dept. of Conservation & Recreation

**Washington** Natural Heritage Program  
Washington Dept. of Natural Resources

**West Virginia** Natural Heritage Program  
West Virginia Division of Natural Resources

**Wisconsin** Natural Heritage Program  
Wisconsin Dept. of Natural Resources

**Wyoming** Natural Diversity Database  
University of Wyoming

### LATIN AMERICAN SECTION

Biodiversity and Environmental Resource  
Data System for **Belize** (BERDS)  
Belize Tropical Forest Studies

Centro de Investigación y Preservación  
de la Amazonia (CIPA)  
Universidad Amazónica de Pando, **Bolivia**

Centro de Datos para la Conservación  
de **Colombia**  
Corporación Autónoma Regional del Valle  
del Cauca

SalvaNATURA Fundación Ecológica,  
**El Salvador**

Centro de Datos para la Conservación  
de **Guatemala**  
Universidad de San Carlos

Pronatura **México** A.C.  
Pronatura Noreste A.C.  
Pronatura Noroeste A.C.  
Pronatura Sur A.C.  
Pronatura Veracruz A.C.  
Pronatura Península de Yucatán A.C.  
Centro de Datos para la Conservación  
de Sonora (CEDES)

Sistema Nacional de Información Ambiental  
de **Nicaragua** (SINIA)  
Ministerio del Ambiente y los Recursos  
Naturales

Centro de Datos para la Conservación  
de **Panamá**  
Asociación Nacional para la Conservación  
de la Naturaleza (ANCON)

Centro de Datos para la Conservación  
de **Paraguay**  
Secretaría del Ambiente

Centro de Datos para la Conservación de **Perú**  
Universidad Nacional Agraria La Molina

Programa de Patrimonio Natural  
**Puerto Rico** Departamento de Recursos  
Naturales y Ambientales

Centro Internacional de Ecología  
Tropical (CIET)  
Instituto **Venezolano** de Investigaciones  
Científicas (IVIC)

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