

Biodiversity Information Exchange

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Chief Information Officer

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NatureServe

Outline

- Application uses of NatureServe data
- EN Phase 1 biodiversity data exchange
- Web service access outside the EN
- Cloud infrastructure enhancements
- EN Phase 2 opportunities
- Discussion



Scientific Knowledge

Network Capacity

Impact Decisions

Reduced Threat

Biodiversity Conservation



Our mission:

- Providing the scientific basis for effective conservation action

Our network:

- More than 80 biodiversity information centers throughout the U.S., Canada, and Latin America

The Questions We Address

- What species and habitats exist?
- Where are they found?
- How are they doing?
- Which are priorities for management or protection?
- What do they need to sustain them?



Heartleaf arnica (*Arnica cordifolia*) © Elinor Osborn

Client Application: U.S. Environmental Protection Agency NEPAAssist

Within 400 meters of a Wild and Scenic River?	No
Within an Area of Concern (Great Lakes)?	No
Within 400 meters of a Great Lakes shoreline?	No
Within Great Lakes basin?	No
Within 400 meters of an Environmentally Sensitive Shoreline?	No
Within an NNM Wetland?	
Within 400 meters of a Pipeline?	
Within 400 meters of an Oil Storage Facility?	
Within 400 meters of a Navigation Lock/Dam?	
Within 400 meters of a Non-navigational Dam?	
Within 400 meters of a Marina?	
Within a Wildlife Refuge?	
Within a National Forest?	
Within 400 meters of a National Forest?	
Within a State Forest?	
Within a Federally Managed Area?	
Within a State Managed Area?	
Within a Locally Managed Area?	
Within a Privately Managed Area?	
Within a Federal Special Designated Area?	
Within a State Special Designated Area?	
Within a Local Special Designated Area?	
Within a Private Special Designated Area?	
Within Other Environmentally Sensitive Areas?	
Within 400 meters of an Archaeological Site?	
Within 1609 meters (1 mile) of a Nuclear Power Plant?	
Within 1609 meters (1 mile) of an Electric Power Plant?	
Within 400 meters of an Animal Feedlot?	No
Within 400 meters of a Poultry or Hog Farm?	No
Within the boundaries of a Metropolitan Planning Organization?	Yes Chicago Area Transportation Study



1. EPA user can map the proposed project boundary (red area)

2. EPA user can choose from a list of datasets to find out what is nearby the project boundary.

3. If EPA user chooses "Endangered Species", NEPAAssist calls NatureServe's web service and user is informed if a species is nearby.



NatureServe SURVEYOR

Comprehensive Screening for At-Risk Species

[Getting Started](#) | [Pricing and Terms](#) | [About the Data](#) | [User Guide and Help](#) | [NatureServe](#)

Surveyor Demo

Basemap

Overview Map

Legend

Find address or place



Use Selected Area?

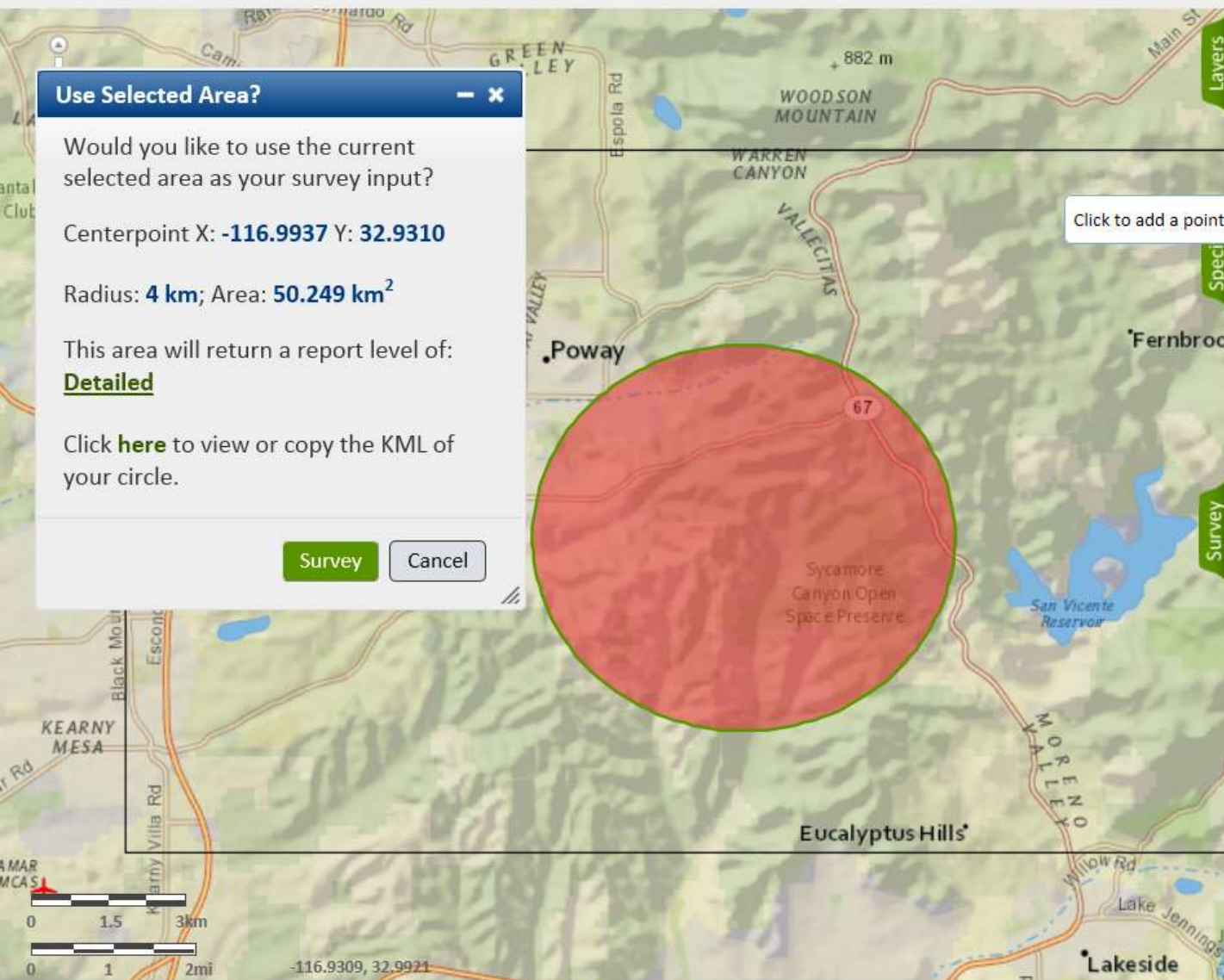
Would you like to use the current selected area as your survey input?

Centerpoint X: **-116.9937** Y: **32.9310**

Radius: **4 km**; Area: **50.249 km²**

This area will return a report level of:
Detailed

Click **here** to view or copy the KML of your circle.

[Survey](#)
[Cancel](#)


Layers

- ☒ Excluded Areas
- ☐ Watersheds
- ☐ Counties

[Add Layer](#)

Species

- ☒ Survey for All At-Risk Species
- [U.S. Endangered Species Act](#)
- [Canadian Species At Risk Act](#)

Survey

- [U.S. Counties](#)
- [U.S. Watersheds](#)
- [Current Map Extent](#)
- [Radius](#)

Enter a radius, click Start, and select a survey center point on the map.

Radius: [Kilometers](#)

[Stop Radius](#)

- [Draw Area of Interest](#)
- [Input File](#)

[Reset to Defaults](#)

Company ABC

Scientific Name	Common Name	M
▶ <i>Polioptila californica californica</i>	Coastal California Gnatcatcher	
▶ <i>Vireo bellii pusillus</i>	Least Bell's Vireo	
▼ <i>Acanthomintha ilicifolia</i>	San Diego Thornmint	F

Last Observed	Population Viability	ID
1996	A: Excellent Viability	10-483
2010	B: Good Viability	10-216


NatureServe
EXPLORER

An Online Encyclopedia of Life


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[Change Criteria](#)
[New Search](#)

<< Previous | Next >>
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Acanthomintha ilicifolia - (Gray) Gray
San Diego Thornmint
Related ITIS Name(s): *Acanthomintha ilicifolia* (Gray) Gray (TSN 32426)
Unique Identifier: ELEMENT_GLOBAL 2 151284
Element Code: PDLAM01010
Informal Taxonomy: Plants, Vascular - Flowering Plants - Mint Family



© Roxanne Bittman and CNPS

[Concept Reference](#)

[Conservation Status](#)

NatureServe Status

Global Status: G2
Global Status Last Reviewed: 22Feb2010
Global Status Last Changed: 22Feb2010
Rounded Global Status: G2 - Imperiled
Reasons: *Acanthomintha ilicifolia* is know from 32 extant occurrences in coastal San Diego County, California, and at least 9 occurrences in Baja California Norte, Mexico (Sierra Juarez and coastal). There are approximately 150,000-170,000 individuals in the U.S., but only 4 of the occurrences are major. The others are small, and all are isolated by surrounding extensive urban and agricultural development. Habitat loss and fragmentation are expected to continue with the development of southern California and northern Baja California. At least 40% of the historic known sites in the U.S. have been extirpated by residential and commercial development. Ongoing off-road vehicle use, trampling by cattle, erosion, and invasion by non-native plants are also threatening populations.
Nation: United States
National Status: N2

State Environmental Review Tools

DCR
Virginia Department of Conservation & Recreation

Home My Subscription Map About Us Contact

Switch Basemap Add Resource Submit Project

Layers Map Making Find/Results

▼ Natural Heritage Resources

- ☒ NH Screening Layer
 - Conservation Site
 - GLNHR
 - SCU

► Predictive Models

▼ Managed Conservation Lands

- ☒ Managed Conservation Lands

► Conservation Planning

► Karst Research

▼ Reference Layers

- ☒ 24K Grid
- ☒ National Wetlands Inventory
- ☒ Scenic Rivers
- ☒ Streams (NHD)
- ☒ Trails
- ☒ USGS Placenames
- ☒ VDOT Roads

► Boundaries

▼ Basemap

Basemap: Topographic

Submit Project

Home > Create content > **Create Review**

Project Number:

Project Title: *

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

PROJECT INFORMATION

TITLE: Furnace Hill

DESCRIPTION: Residential Development

EXISTING SITE CONDITIONS: Forested with stream

QUADRANGLES: Millboro, Goshen

COUNTIES: Rockbridge

Latitude/Longitude (DMS): 37°58'47.5692"N / 79°30'00.0000"W

Acreage: 109 acres

Comments:

February 24, 2013

REQUESTOR INFORMATION

Priority: N

Contact Name: Rene' Hypes

Company Name: Department of Conservation and Recreation

Address: 217 Governor St

City: Richmond State: VA Zip: 23225

Legend

- Conservation Site
- GLNHR
- SCU
- Buffered Project Area
- Project Area

Table

Conservation Site	Site Type	Brank	Acreage	Listed Species Presence
CALFPASTURE RIVER - MILL CREEK SCU	SCU	B2	27	FL
BRATTONS RUN - COLD SULPHUR SPRINGS BRANCH	Conservation Site	B3	18	NL
GRAHAMMS	Conservation Site	B3	142	NL
BRATTON MOUNTAIN	Conservation Site	B4	5677	NL
	GLNHR		0	NL

Scale: 1 : 72,000

Latitude: 38.0339 Longitude: -79.5721

Biodiversity Data Exchange

Version:
1.0 - Supported

Data Exchange Status:
Flowing

[Download full package ▶](#)

Data Exchange Description

Developed by the [Delaware Department of Natural Resources and Environmental Control](#), the [Washington Department of Ecology](#), and [NatureServe](#), the Biodiversity Data Exchange was the first natural resources flow added to the Exchange Network. It includes data such as taxonomic descriptions for species and geo-referenced locations for species occurrences. Access to these data will benefit Partners that play a role in conservation planning, environmental regulation, and decision-making.

Version Notes

Status: Supported

The Biodiversity Data Exchange schema diverges from the [Exchange Network Design Rules and Conventions](#). These non-compliances are documented in the [Schema Conformance Report](#). Use of this schema for the flow of biodiversity data is conditionally supported by the Exchange Network. Although flows of biodiversity data to NatureServe are supported, Partners should not reuse this schema for creation of Network data exchanges.

Implementation resources for the most current version follow.

Resources

- ▶ [Flow Configuration Document](#)
- ▶ [XML Schemas](#)
- ▶ [Data Exchange Template](#)
- ▶ [Sample XML Instance Documents](#)

Contact

Frank McLean
NatureServe
703.908.1836
[frank_mclean \[at\] natureserve.org](mailto:frank_mclean@natureserve.org)

Other versions

- ▶ [Biodiversity Data Exchange 0.9](#)

Profiles and Progress

Click the map to find contact information for Exchange Network Partners and to see Partners' progress toward implementing data exchanges on the Network.



Tracked Elements of Biodiversity

- Imperiled and vulnerable animals
- Imperiled and vulnerable plants
- Exemplary ecological communities



Piedmont Flameflower (G1)
Critically Imperiled
© Gary Fleming

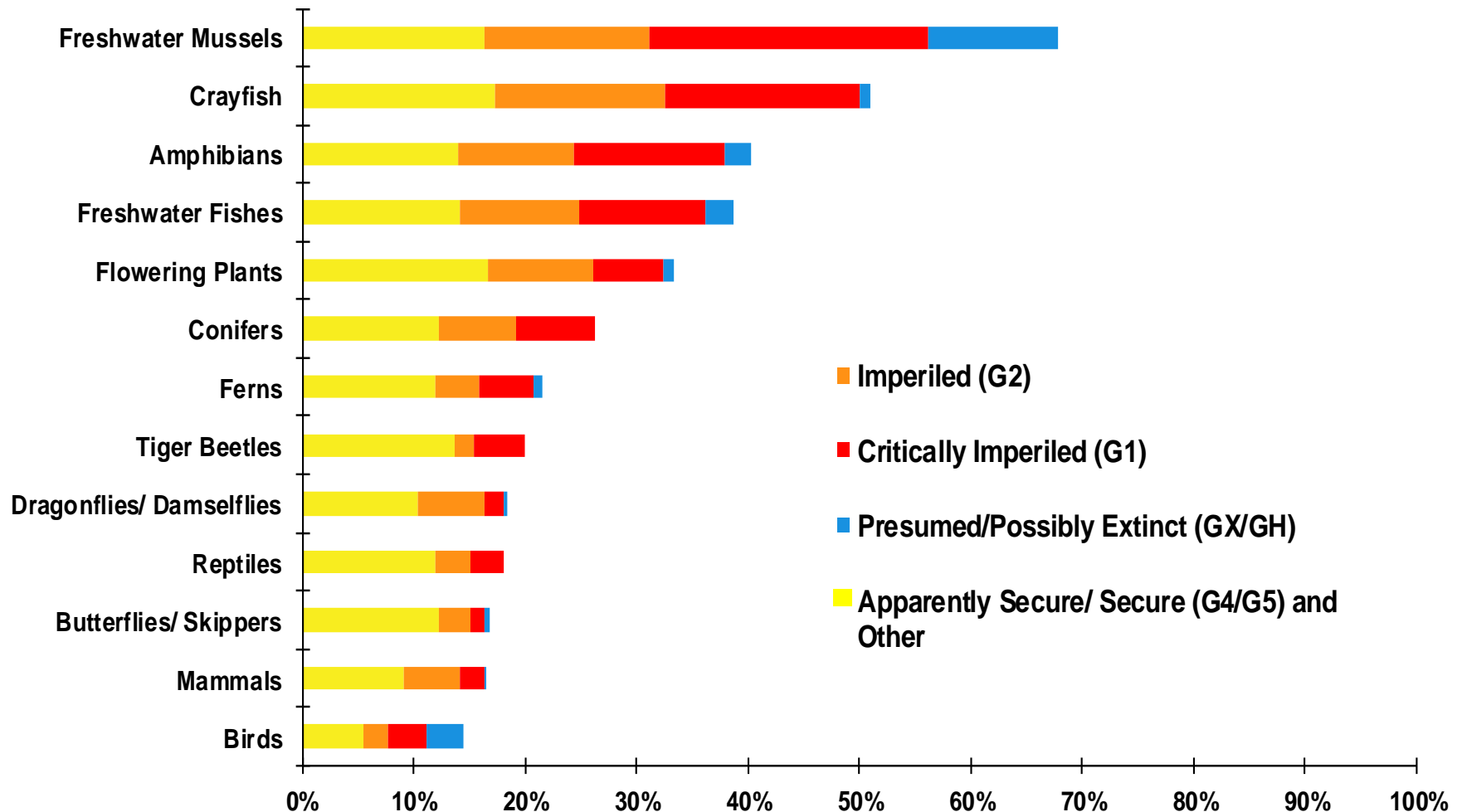


Dakota Skipper (G2)
Imperiled
© Bryan E. Reynolds



Boreal-Laurentian Bog
© Don Faber-Langendoen

Conservation Status Assessments



Detailed Species Occurrences

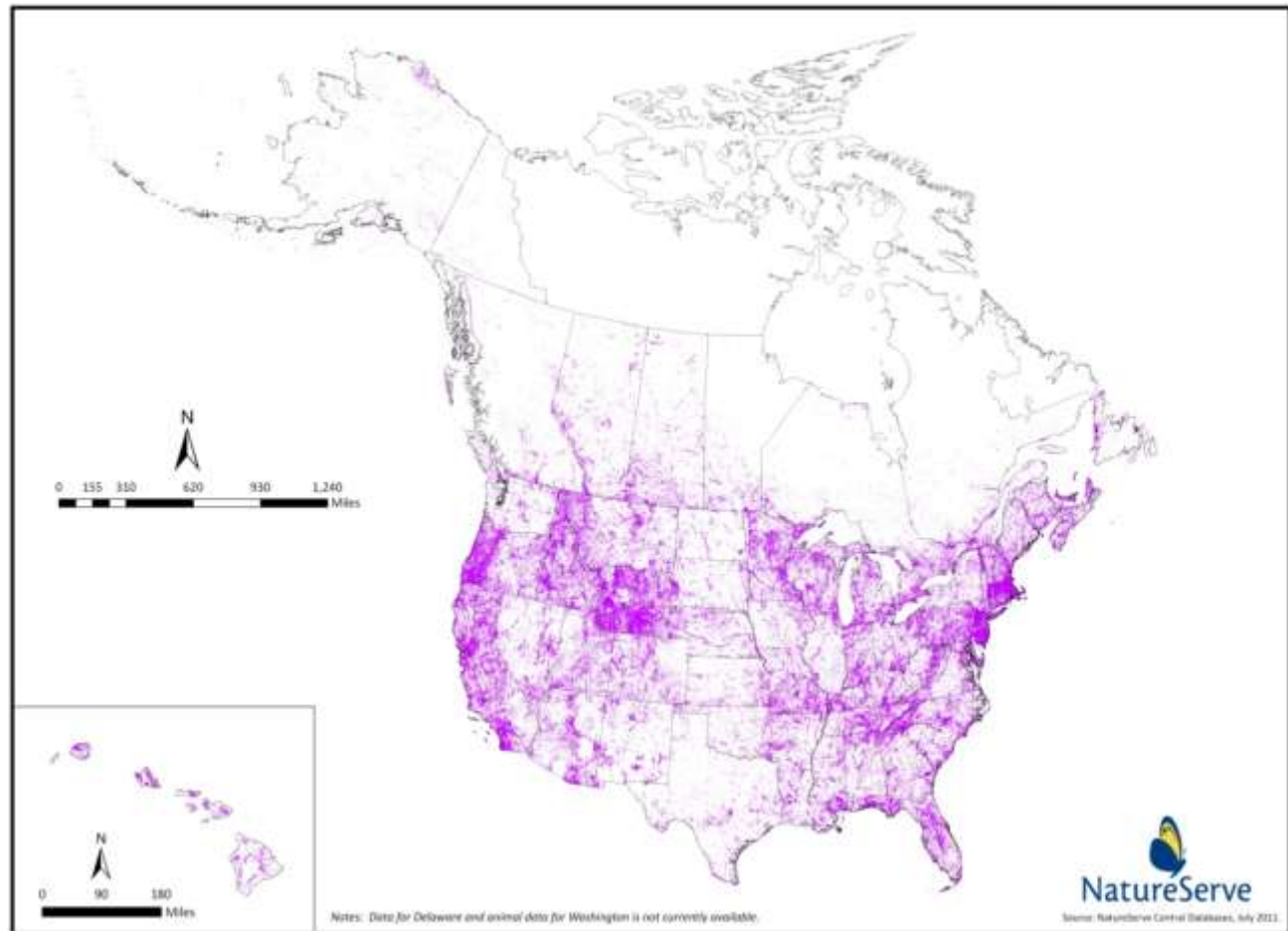
More than
900,000 mapped
locations of at-risk
species

More than 70,000
species accounts

Consistent
methods support
national rollup

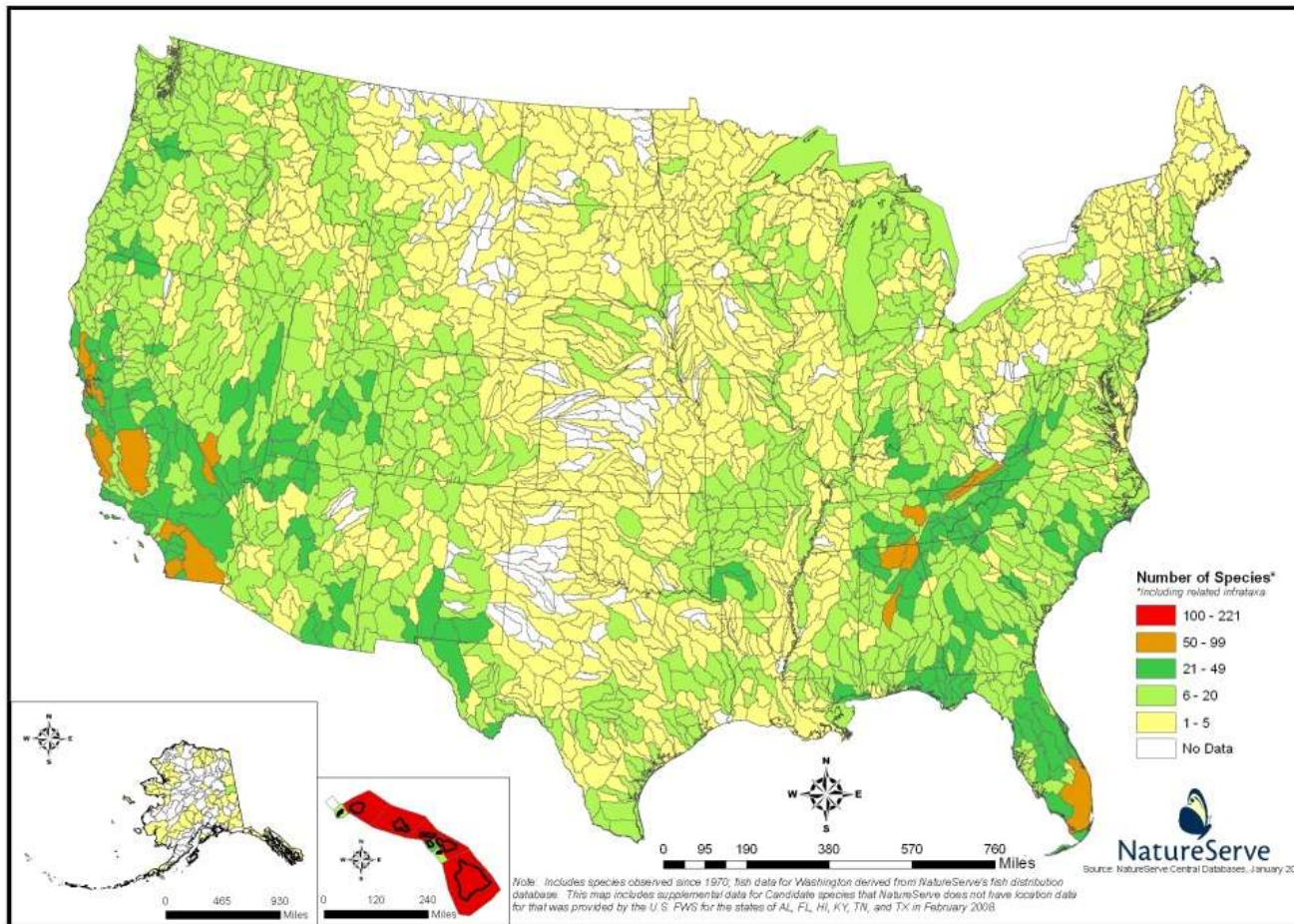
More than 6
million data
queries each year

Element Occurrence Point Data For All Tracked Species



National Rollup: Biodiversity Hotspots

Number of U.S. ESA Listed, Proposed, U.S. FWS Candidate, and NatureServe Imperiled (G1-G2) Species by 8-Digit Watershed



NatureServe Explorer

- Data on 70,000+ plants, animals, and ecological communities of U.S. and Canada
- Searchable database available free to the public
- A tool for conservationists, students and teachers, scientific researchers, landowners and land managers

The image displays the NatureServe Explorer website interface. The top section features the logo and a navigation bar with links: Search, About Us, About the Data, Local Programs, and Help. A welcome message states: "Welcome to NatureServe Explorer, an authoritative source for information on the plants, animals, and ecological communities of the United States and Canada. This conservation resource includes more than 55,000 species and ecosystems, with particularly in-depth coverage for rare and endangered species." Below this, there is a search prompt: "Search the database for [species](#) or [ecological communities](#)." and a note: "NatureServe Explorer is a product of [NatureServe](#) and its natural heritage member."

The bottom section shows a detailed species profile for the Gray Wolf (*Canis lupus*). The profile includes a distribution map of the United States and Canada, color-coded by conservation status. The map shows the species is present in the northern United States and southern Canada, with a higher concentration in the northern states and provinces. The profile also includes a table with the following information:


Genus	Class	Order	Family
Canis	Mammalia	Carnivora	Canidae

Additional text in the profile describes the species' range and conservation status, mentioning that it is a "Least Concern" species and that it is found in the northern United States and southern Canada. The profile also includes a link to "Jump to Species" and a "Data Search" button.

NatureServe Web Services (REST)

- Get comprehensive species details from NatureServe Explorer
- Report on the known presence of at-risk species in a mapped area of interest

Service	Overview
NatureServe Explorer Species Service	<p>NatureServe Explorer provides data on over 70,000 of the plant and animal species of the United States and Canada. The NatureServe Explorer Species Service provides comprehensive, direct access to this information in easy to manipulate XML format, ideal for further analysis. Species images are also included. And it is all free!</p> <p>Find everything you'll need to get started here.</p>
NatureServe Surveyor	<p>Screen your area of interest for the known presence of threatened, endangered, and other at-risk species. Also available as a web application with an easy-to-use interface. Available by subscription.</p> <p>Find what you need to get started here.</p>



BIOTICSS

Logged in as **nature** • [Log out](#)

Subnational Element Tracking - Animal

Global Scientific Name: **Circus cyaneus**

Subnational Scientific Name: **Circus cyaneus**

Classification Code: **VBACO**

Classification Status: **Standard**

Nation: **United States**

Subnation: **New York**

Global Rank: **G5**

National Rank: **N5B,N3N**

Subnational Rank: **S3B,S3N**

Related Record Menu

- Identifiers/Concepts
- Common Names
- Synonyms
- Element References
- Heritage Status
- Subnational Status
- Other Status
- Invasiveness
- Documentation
- EST Taxon Rank Changes
- Element Subnational EXT
- Record Maintenance

Identifiers/Concepts

Subnational Scientific Name

Subnational Scientific Name: **Circus cyaneus**

Author Name: **(Linnaeus, 1766)**

Primary Element Reference: **-No Selection-**

Classification Comments:

View: Element Global

Common Names

Subnational Common Name: **Northern Harrier**

Language: **Please select a value**

Accepted by Ecology: ☐

Other Subnational Common Name

	Other Sub Common Name	Language
1	<input type="checkbox"/> Marsh Hawk	English

Synonyms

	Scientific Name	Author Name
1	<input type="checkbox"/>	


Map Resources

Map Resources


- ☒ **Element Occurrences**
 - ☐ All Occurrences
 - ☐ All Elements
 - ☒ **Map Elements**
 - ☐ Animal Occurrences
 - ☐ Coastal/Marine Community - Other Classification
 - ☐ Freshwater Community - Other Classification
 - ☐ Invertebrate Animal
 - ☐ Nonvascular Plant
 - ☐ Subterranean Community - Other Classification
 - ☐ Terrestrial Community - Other Classification
 - ☐ Vascular Plant
 - ☐ Vertebrate Animal
 - ☐ Sensitive Features
 - ☐ Managed Areas
 - ☐ Watersheds
 - ☐ Counties

Basemap: Topographic


Switch Basemap



Images



Terrain with Labels



[Help Documentation](#) •
 [Contact Support](#) •
 [www.natureserve.org](#)
 BioticSS 5.0 MS-3 / New York (Shared) • NatureServe • Arlington, VA 22202

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EN Phase 2 Opportunities

- Web enabled state databases
- Standardized web and map services
- Open Node or Virtual Node?
- EN Browser multi and single-state applications:
 - Conservation planning
 - Sustainable development
 - Environmental impact assessment

DISCUSSION

For More Information

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<http://www.exchangenetwork.net/data-exchange/biodiversity-data-exchange/>