

NatureServe SPECIES AT RISK

Featured Species



Shasta Crayfish
Pacifastacus fortis
Critically imperiled (G1, S1) (California)
Photo by Koen G.H. Breedveld

The Shasta crayfish (*Pacifastacus fortis*) is an endangered species native to northeast California and is known only from tributaries of the Pit River in Shasta County. Due to declining habitat quality and the limited geographical range of this species, the Shasta crayfish has experienced a population decline of 50% over the past ten years. Threats include introduction of non-native species of fish and crayfish (specifically the Signal crayfish, *Pacifastacus leniusculus*) and loss of habitat due to human activities, such as the construction of a concrete diversion dam. Protection plans focus on preventing the invasion of non-native species into the 20 remaining native Shasta crayfish subpopulations.



Frosted Elf
Calliphrys irus
Imperiled (G2, S2) (Connecticut)
Photo by Tom Murray

A very sought-after species by butterfly enthusiasts, the frosted elfin (*Calliphrys irus*) has a large, fragmented range located in sandy areas in eastern North America. Throughout most of its range, the frosted elfin is confined to remnant habitat patches near developed areas, such as railroads, airports, and powerline right of ways. Most Northeastern populations are unprotected and seriously threatened, and the species is ranked as imperiled in all states where it remains.



Higgins Eye
Lampsilis higginsii
Critically imperiled (G1, S1) (Iowa)
Photo by Katie Steiger

The Higgins eye pearly mussel (*Lampsilis higginsii*) is a freshwater mussel found in larger rivers, usually in deep water with moderate currents. These mussels improve water quality and help to create microhabitats on river bottoms that provide food and cover for other aquatic life. This species depends on free-flowing clean water, and due to the creation of impounded river systems, its current distribution reflects only 50% of its historical range. Invasive zebra mussels introduced from the discharge of ballast water by ships pose the greatest threat to the Higgins eye pearly mussel. The U.S. Fish & Wildlife Service listed this species as Endangered under the Endangered Species Act in 1976.



Rusty-patched Bumble Bee
Bombus affinis
Imperiled (G2, S1) (Indiana)
Photo by Jill Uttrup, U.S. Fish and Wildlife Service

The rusty-patched bumble bee (*Bombus affinis*) was once a very widespread bumble bee found throughout eastern and central North America, but the species has disappeared from almost 90% of its historical range over the past 20 years. No single cause has been identified for the decline of this species, but there is evidence that the species had little resistance to the pathogen *Nosema bombi*, which spread in the early 1990s from bumble bees that were commercially reared for pollination services. Additional threats include habitat loss due to agriculture and development, pesticide use, and climate change.

About the Map

Invertebrates are the largest source of biodiversity on Earth, with 1.3 million known species and potentially millions of species yet undescribed. Representing over 90% of the animal kingdom, invertebrates include species as diverse as butterflies, lobsters, snails, earthworms, mites, and giant squid. The diversity of invertebrates found in North America reflects the immense variety of terrestrial, marine, and freshwater habitats available throughout the continent.

Invertebrates provide essential ecosystem services, including water purification, plant pollination, and nutrient cycling, and serve as economically valuable sources of food. However, threats such as water pollution, overexploitation, habitat destruction, invasive species, pesticide use, and climate change have led to biodiversity declines—an estimated 30% of documented invertebrate species are believed to be at risk of extinction. Despite these ongoing threats, invertebrates are underrepresented in assessments of conservation status compared to vertebrate species. This makes the decades-long efforts of the NatureServe Network to identify, monitor, and conserve native invertebrate species even more important. Both the Canadian and United States governments look to NatureServe data to inform studies about which invertebrates are most at risk, what threats they face, and how to protect them.

The map on the right illustrates invertebrate species chosen by experts from each network program. Each invertebrate is both globally at risk of extinction and particularly vulnerable to disappearing from the state or province where it appears on the map. Although they represent just a sliver of the many thousands of at-risk invertebrates across the continent, these species highlight the taxonomic and visual diversity of invertebrates in North America, as well as the comprehensive knowledge of the NatureServe Network about native biodiversity. Through on-the-ground inventory efforts, our Network's dedicated scientists work diligently to understand species' needs, describe the threats they face, and develop strategies for their recovery.

What are Invertebrates?

Invertebrates are animals that lack a backbone or bony internal skeleton. Any animal that is not a bird, mammal, amphibian, reptile, or fish is an invertebrate. NatureServe tracks conservation status data for over 44,000 invertebrate species, providing valuable information used by natural resource managers to guide their conservation efforts. Two ecological groups of invertebrates are of particular interest: pollinators and freshwater invertebrates.

Pollinators



North American ecosystems support a diversity of invertebrate pollinator species. Unfortunately, land use changes, intensive agriculture, pesticide use, and the spread of introduced species has degraded and destroyed habitats, introduced diseases, and poisoned native pollinators. As a result, an estimated 40% of the world's invertebrate pollinator species are at risk of extinction. Because pollinators support plant diversity, a decline in the number of pollinators also puts plant species at risk. NatureServe is rapidly expanding its status information to now include over 1,200 species of pollinating bees, moths, butterflies, skippers, beetles, and flies.

Freshwater Invertebrates



Invertebrates that inhabit freshwater ecosystems play key roles in aquatic food webs, acting as intermediate links in the transfer of nutrients from plants and algae to larger consumers, such as fish, birds, and mammals. Freshwater invertebrates also serve as bioindicators; because they are sensitive to changes in water chemistry and sedimentation, their presence is used as an indication of water quality. Despite their importance, freshwater invertebrates are threatened by mismanaged waterways, including dams, channeling, water diversion, and industrial and agricultural runoff. NatureServe collects and shares with the resource management community conservation status information for over 1,500 species of freshwater invertebrates.

Photo Credits

- Monarch Butterfly (*Danaus plexippus*) NatureServe Global Status: Apparently Secure (G4)
Photo by Tom Koerner, U.S. Fish and Wildlife Service
- Tri-colored Bumble Bee (*Bombus ternarius*) NatureServe Global Status: Secure (G5)
Photo by Joshua Mayer
- Higgins Eye (*Lampsilis higginsii*) NatureServe Global Status: Critically Imperiled (G1)
Photo by Gary J. Wege, U.S. Fish and Wildlife Service
- Lagnappe Crayfish (*Procambarus lagnappei*) NatureServe Global Status: Imperiled (G2)
Photo by Chris Lukhaup, U.S. Forest Service

Visit NatureServe.org to learn more

AK: Beringian Fritillary
Boletia nizatshana
G3, S1

YT: Klugane Tiger Moth
Arctia brachytera
G3, S3

NT: Active Bumble Bee
Bombus neoboreus
G3, S3

NU: Johansen's Sulphur
Colias johanseni
G2, S2

AB: Slender Clearwing
Hemaris gracilis
G3, S2

MB: Poweshiek Skipperling
Oarisma poweshiek
G1, S1

BC: Okanagan Robber Fly
Efferia okanagana
G1, S1

SK: Elusive Clubtail
Stylurus notatus
G3, S2

ON: Lake Huron Locust
Trimerotropis huroniana
G2, S2

OC: Maritime Ringlet
Coenonympha nipsisquit
G1, S1

PE: Salt Marsh Copper
Tharsalea dissipatus
G3, S3

WA: Winged Floater
Anadonta nuttalliana
G2, S1

MT: Carinate Mountainsnail
Oreohelix eivradi
G2, S1

ND: Dakota Skipper
Hesperia dacotae
G2, S2

MN: Headwater Chilostigman Caddisfly
Chilostigma itascae
G2, S2

VT: Cobblestone Tiger Beetle
Cicindela marginipennis
G2, S1

NB: Skillet Clubtail
Gomphurus ventricosus
G3, S1

NS: Sable Island Sweat Bee
Lossiognossus sabuleus
G1, S1

DR: Columbia Clubtail
Gomphurus lynnae
G2, S2

ID: Idaho Point-headed Grasshopper
Acrolophus pulchellus
G2, S2

WY: Pygmy Mountainsnail
Oreohelix pygmaea
G2, S1

SD: American Burying Beetle
Nicrophorus americanus
G3, S1

IA: Higgins Eye
Lampsilis higginsii
G1, S1

MI: Michigan Bog Grasshopper
Agallidia arcaea
G2, S2

WI: Winged Mapleleaf
Quadria fragosa
G1, S1

IN: Rusty-patched Bumble Bee
Bombus affinis
G2, S1

NY: Northern Barrens Tiger Beetle
Cicindela patruela
G3, S1

NH: Karner Blue
Plebejus samuelis
G1, S1

MA: Yellow Lampmussel
Lampsilis cariosa
G3, S1

NV: Ash Meadows Naucorid
Ambrysus amargosus
G1, S1

UT: A Mayfly
Ametetus edmundsi
G2, S1

CO: Colorado Dune Tiger Beetle
Cicindela theutina
G1, S1

NE: American Burying Beetle
Nicrophorus americanus
G3, S3

IL: Regal Fritillary
Argynnis idalia
G3, S2

OH: Fanshell
Cyprogenia stegaria
G1, S1

PA: Broad-lined Erastria
Erastria coloraria
G3, S1

NJ: Ghost Tiger Beetle
Ellipsiptera lepida
G3, S1

CT: Frosted Elf
Calliphrys irus
G2, S2

RI: Hessel's Hairstreak
Calliphrys hesseli
G3, S2

CA: Shasta Crayfish
Pacifastacus fortis
G1, S1

NM: Mojave Giant Tiger Beetle
Amblycheila schwarzi
G3, S3

KS: Ozark Emerald
Somatochlora ozarkensis
G3, S1

MO: Caney Mountain Cave Crayfish
Paxonius stygocaney
G1, S1

IL: Regal Fritillary
Argynnis idalia
G3, S2

OH: Fanshell
Cyprogenia stegaria
G1, S1

WV: Synchronous Firefly
Photinus carolinus
G3, S2

VA: Lee County Cave Isopod
Liracis usdagalun
G1, S1

DE: Bethany Beach Firefly
Photuris bethaniensis
G1, S1

MD: Pearly-banded Bee
Nomia maneei
G3, S2

HI: A Pomace Fly
Drasophila ochrabasis
G1, S1

AZ: Atascosa Gem Grasshopper
Aztaccris gloriosus
G1, S1

NM: Yagabond Holospira
Holospira montava
G2, S2

OK: Ouachita Spiketail
Cordulegaster talaria
G1, S1

AR: Magazine Mountain Shagreen
Infusarius magazineus
G1, S1

MS: Onthophagus Tortoise
Commensal Scarab Beetle
Onthophagus polyphemus
G2, S1

NC: Yellow Lance
Elliptio lanceolata
G2, S2

DC: Appalachian Springsnail
Fontagnes bottimeri
G2, S2

TX: Blanchard's Sphinx Moth
Adhemarius blanchardorum
G1, S1

LA: Little Dubiraphian Riffle Beetle
Dubiraphia parva
G2, S1

MS: Onthophagus Tortoise
Commensal Scarab Beetle
Onthophagus polyphemus
G2, S1

GA: Altamaha Spiny mussel
Elliptio spinosa
G1, S1

SC: Newberry Burrowing Crayfish
Distocambarus youngineri
G1, S1

AL: Twisted Dwarf Crayfish
Cambarellus rotatus
G1, S1

FL: Santa Rosa Wolf Spider
Aretosa sanctaerosae
G3, S2

NatureServe Conservation Status Ranks

Global Status	State/Provincial Status
GX: Presumed Extinct	SX: Presumed Extirpated
GH: Possibly Extinct	SH: Possibly Extirpated
G1: Critically Imperiled	S1: Critically Imperiled
G2: Imperiled	S2: Imperiled
G3: Vulnerable	S3: Vulnerable
G4: Apparently Secure	S4: Apparently Secure
G5: Secure	S5: Secure



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