

Windows to *Wildlife*

Building Resilient Habitats

Idaho's new era of wildlife restoration

On the Idaho Birding Trail

Winter birding at Niagara Springs Wildlife Management Area

Bull Trout

Life in the Fast Stream



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Restored river edge and field boundary habitats at Georgetown Summit WMA. PHOTO: Maria Pacioretty/IDFG





Species of
Greatest
Conservation
Need

Bull Trout

Life in the Fast Stream

PHOTOS: Joel Sartore/National Geographic & Wade Fredenberg/USFWS

Idaho's Bull Trout: Masters of Adaptation and Resilience

by Brett Bowersox*, Native Fish Coordinator
Idaho Department of Fish and Game



Fast Facts

Habitat and Range:

- found in cold, clean, and complex aquatic habitats across the Pacific Northwest and western Canada

Physical Characteristics:

- migratory adults can get 24-36 inches long and weigh up to 20 pounds
- olive-green to brown bodies with pale yellow to orange spots and sometimes faint pink or orange spawning colors on sides
- white-edged fins

Behavior and Diet:

- opportunistic feeders: young bull trout eat aquatic insects while adults prey on a variety of items including other fish
- some are migratory and some are resident

Conservation Challenges:

- sensitive to habitat degradation, making them an indicator of ecosystem health

We often talk about the complexities of Idaho's anadromous salmon and steelhead which make their long journey all the way to the ocean and back, but another Idaho native, the Bull Trout, has some amazing tricks up its sleeve.

Idaho's Bull Trout are dispersed across much of the state, ranging from the Canadian border all the way south to drainages such as the Boise River, Little Lost, and even the Jarbidge River which originates in Nevada. Since Bull Trout are found in so many places, they are required to adapt to a wide variety of habitats and changing conditions. The result is a variety of strategies, known as life histories, being used by Bull Trout to maximize the use of the habitats available.

Why have diverse life histories?

The natural world is a pretty dynamic place, humans have certainly changed our environment quite a bit, but even before we really changed things up, natural events like floods, fires, ice, or landslides changed environments dramatically. In the face of a constantly changing environment you have to be able to move around. For terrestrial species like

deer or elk they can walk across the land and migrate to where conditions are better for survival. But fish, can't walk! So, they had to develop other ways to move around and spread the risk. This is where life history strategies come into play. Because of movement and migration associated with life history differences, if part of a fish population is negatively affected by an environmental event like a flood, another part of the population is probably in a pretty safe place during that time, so they can come back and help the population keep going.

Adfluvial: Lake Migrants

Adfluvial Bull Trout are born in a headwater stream, migrate and grow up in a lake, and then return to the headwater stream to spawn. Lakes provide a richer supply of food compared to the headwater streams, allowing these fish to grow larger. Often there are multiple ages of adults in the lake and juveniles in the stream at the same time. This life history is most prevalent in northern Idaho with our version of the Great Lakes such as Lake Pend Oreille, Priest Lake, and Lake Coeur d'Alene. It's no coincidence that Idaho's state record Bull Trout of 32 pounds came from Lake Pend Oreille.

Fluvial: River Travelers

Fluvial Bull Trout share a similar pattern to their adfluvial counterparts, but instead of lakes, they migrate to large rivers. Born in headwater streams, these fish venture downstream to grow in expansive river systems, returning upstream to spawn. Rivers offer better food availability and growth opportunities compared to the streams where they hatch. Their life history requires connectivity between headwater streams and the downstream large river systems. Once Bull Trout enter a large river system, they can sometimes travel hundreds of miles since Idaho has some really big connected river systems such as the Salmon and Clearwater rivers.

Resident: Homebodies of the Streams

Resident Bull Trout are the homebodies of their species. They are hatch, grow, and spawn all within the same headwater stream system, rarely venturing far. While they don't achieve the size of their migratory relatives (a spawning adult may only be 12 inches, instead of 12 pounds), these fish play a critical role in the population's survival. This strategy acts as a form of "bet hedging" - providing insurance for the species if migratory fish face challenges in a given year. In some cases, residents are the result of habitat connectivity issues that prevent migration or the loss of migratory behaviors over time. Because of the resilience of resident Bull Trout, populations persist as long as there is enough headwater habitat available.

A Blend of Life Histories

Bull Trout are so dynamic that these different life histories can mix and mingle in some populations. Resident fish may have fluvial offspring and vice versa. Which adds complexity, but also security to these areas. Lastly, here in Idaho we do not have anadromous Bull Trout that go all the way to the ocean like our salmon and steelhead. But rest assured, as a species, Bull Trout have that covered as well. Coastal Bull Trout populations can be anadromous and use the ocean for rearing to take advantage of yet another habitat type!

Life history diversity make Bull Trout a challenging and fascinating species to study. In order to understand a Bull Trout population you often have to cover a lot of ground because they are found in a variety of habitats during different parts of their life. This diversity makes them a fantastic Idaho native fish to enjoy while afield in your outdoor adventures across much of the Gem State.



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Species of Greatest Conservation Need, like this American Pika, are on the decline. We're working hard to give them a fighting chance so they'll last for generations to come.



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Building Resilient Habitats



Idaho's New Era of Wildlife Restoration

PHOTO: Maria Pacioretty/IDFG

If You Plant It, They Will Come

by Maria Pacioretty*, Regional Wildlife Habitat Biologist
Idaho Department of Fish and Game



The Blackfoot River restoration project successfully reconnected the floodplain, ensuring offshoot ponds and flooded channels stay filled with water throughout the summer. This transformation has significantly enhanced breeding habitats for amphibians and created thriving spaces for waterbirds and waterfowl. The pond pictured above, once consistently dry, now flourishes thanks to the project.
PHOTO: Maria Pacioretty/IDFG

Often, when folks hear about habitat plantings, they tend to picture a single tree, planted beautifully in a row with other trees. Sometimes there is even a smiling person with dirty gloves next to the newly planted tree. While planting individual trees or plants is certainly an aspect of restoring habitat for wildlife, the reality of habitat restoration is much more complex and more than what people tend to visualize.

Over the past decade there has been a shift in how habitat work is approached across Idaho. There is a large team of biologists, partners, and volunteers working around the clock to develop and use new strategies in restoring habitat for many wildlife species. In particular, IDFG's Wildlife Management Areas (WMAs) are an ongoing canvas for this innovative habitat work. These wildlife areas are often home to dozens and dozens of native species, including some of Idaho's Species of Greatest Conservation Need (SGCNs), and multiple game species like deer and elk. From fields to wetlands to rivers and mountains, how can you scale the impact of wildlife projects up from less than a ¼ acre, to 1,000 acres...or more?



"With each footstep, a faint buzzing in the distance begins to sound louder and louder as I approach a colorful area of wildflowers. Soon, the air is a **symphony of buzzing and zinging**, as bees and other pollinating insects of all kinds friz about the matrix of plants in bloom around me. Moths, butterflies, hummingbirds, giant fuzzy bumble bees, and songbirds all zing about, feasting. In front of me is a towering wall of yellow clover. Suddenly there is a loud "SNORT," and five mule deer bucks leap up and run off. They have taken up residence inside this **wildlife habitat plot**, a bit unhappy I found their hiding spot today. This wildflower area is only a few acres of land; a few years ago it was a barren field, and now it is a **beacon for wildlife**."



Building the Grocery Store

It is often assumed on a project that biologists start with the wildlife it will benefit and then decide what to do. In reality, they actually have to go past the critters, past the plants themselves and look into the soil! Understanding current soil conditions and soil type is critical for the success of any habitat project. Learning how to heal our soil is the biggest boost for restoring habitat.

Many of our WMAs were former agricultural fields whose soils were depleted of nutrients and organic matter. Before they will produce healthy vegetation, these soils need treatment to improve their health. Think of your garden bed for example. To grow healthy vegetables each year, you have to add compost, maybe topsoil, even some fertilizer to keep your garden productive. If you don't add those components, it becomes harder and harder to grow what you want, and what grows isn't healthy or necessarily what you were after.

Invasive plants tend to move in and thrive on degraded soils, adding yet another management challenge for biologists. There is no 'one and done' in the world of habitat work! Often times it takes years before an area is truly healthy and resilient enough to support native plants and habitat again.

Habitat biologists use many techniques to restore native plants and soils. Cover cropping is one approach. Commonly used by farmers, some biologists are taking it to another level when it comes to wildlife benefits; instead of planting a one species cover crop, they are mixing up 15 or even 20 different plant species at a time, i.e. a big grocery store of plants! Seed mixes are tailored to a specific area, so different mixes are used across the state.

Seed mixes are also customized to benefit both specific wildlife species and wildlife in general. For example, monarch butterflies require milkweeds to be able to rear their larvae and survive. Bees, hummingbirds, wasps and other pollinators need blooming flower resources spring, summer, and fall. Upland birds, like sharp-tailed grouse and pheasant, songbirds, and waterbirds of all kinds need healthy insect populations to feed their chicks the protein and nutrients needed to grow.

With a greater diversity of plants comes a better feasting selection for mule deer, pronghorn, elk, and moose. With the right approach to preparing the soil and the right seed mix, biologists can create a landscape that benefits all, not just few.

Restoration in action at the WMA: A reseeded riverbank teeming with native plants (left) and newly treated aspen habitat flourishing with forbs and aspen suckers (right). PHOTO: Maria Pacioretty/IDFG



These cover crop-grocery stores also provide stepping stones for laying out permanent habitat grocery stores. With re-invigorated soils, we can now add in more native species that are missing-grasses, forbs, shrubs and trees. Similar to the cover cropping approach, tailoring the native seed mix to each project area is no different. Sometimes biologists even do a hybrid approach and add native seed in with cover crop seed, providing needed cover on the landscape for wildlife while slower growing natives take root.

An Ecosystem Approach

Biologists are often faced with habitat challenges at a scale beyond rehabilitating an old field or two. These landscape level projects take a lot of planning and partnerships to complete and often take years or even decades to bear fruit. A truly successful habitat restoration project looks beyond just the project, it zooms out to take into consideration the system as a whole. Biologists look at what is missing in the larger system, that with a bit of help from us to address, then can take over and continue to heal and restore on its own. This concept is known as *resiliency*.

A few examples of this approach can be found throughout the state, such as the large-scale river restoration project at the Blackfoot River WMA in Eastern Idaho, or the Bees to Bears project in North Idaho (see *Windows to Wildlife* winter 2019 issue). In the case of the Blackfoot River Project, biologists and partners have worked for over a decade to build a restoration plan to address the degraded river and its floodplains and the surrounding mountain habitats, which have lost most of the aspen trees. Aspen forests are crucial for wildlife; SGCNs and game species alike depend on these forests for survival. What good would restoring pieces of the river system be if it couldn't connect back to functioning mountain sage steppe and forest landscapes?

By looking at what was missing across the landscape, biologists developed a project that addressed the missing components and began building this ecosystem back to a resilient landscape for fish and wildlife. Six miles of main stem river have been restored, over a hundred acres of aspen treated with selective logging to remove conifer trees, thousands of willows have been planted, and hundreds of native cottonwoods have been planted. The tributaries to the Blackfoot River are the main spawning grounds for Yellowstone cutthroat trout and are

currently under active restoration with private landowners and partners. These large-scale projects can withstand the test of time; 100 years from now what might it look like for wildlife and people within this area?

A Vision for the Future

It is so fulfilling to visit a habitat project and witness the many wildlife species utilizing it, including some that were unable to inhabit it in the past. You might see a monarch butterfly flit around wildflowers in search of nectar or a milkweed to lay eggs, while a mother grouse hides her chicks in a thick wildflower forest abuzz with bees and other insects. Look for White-faced Ibis and Sandhill Cranes foraging in the newly connected wetlands and restored fields, while listening to the distinguishing calls of chorus frogs in the background. Moments like these provide hope when we are out there on the ground, digging the holes, planting the seed, knowing that if we plant it, using the right approach and planning, the wildlife will come.



IDFG Biologist Jason Beck stands amidst his "sunflower forest" wildlife plot at Georgetown Summit WMA in 2023. Incredibly productive, this plot often concealed an entire herd of elk during the summer. The project is part of ongoing efforts to restore historic sections of land near the Bear River. PHOTO: Maria Pacioretty/IDFG

The best part of **wildlife viewing.**



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Idaho Birding Trail



IDAHO BIRDING TRAIL

Site SW#13

Fort Boise

Wildlife Management Area

Fort Boise Wildlife Management Area (WMA) is uniquely situated at the confluence of the Boise and Snake rivers, near Parma, Idaho. This strategic location supports a rich network of wetlands, riparian zones, and open water, making it a vital habitat for numerous wildlife species and an essential stopover site for birds migrating along the Pacific Flyway. Its diverse ecosystems attract both avid birdwatchers and conservation enthusiasts, especially during the spring and fall migrations.

In early spring, starting in late February and continuing into March, the WMA becomes a spectacle of migratory activity, particularly for Snow Geese and Greater White-fronted Geese. Flocks numbering up to 60,000 Snow Geese and 40,000 Greater White-fronted Geese descend upon the wetlands, creating an amazing display of movement and sound.



Greater White-fronted Goose

WILDLIFE VIEWING

A wildlife viewing blind provides visitors with a unique opportunity to get up close to a variety of wildlife species that use the habitat at Fort Boise WMA.

Nesting Cinnamon and Blue-winged Teal are common during the spring and summer. Look for Swainson's Hawks, Tree Swallows, and Great Blue Herons.



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Great Blue Heron/*Ardea herodias*.
Photo: Danielle Cooper/Macaulay Library



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Windows to Wildlife

WILDLIFE DIVERSITY PROGRAM

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