

Idaho Fish & Game News

March 2012



Volume 24, Number 3

On the Move: Wildlife Migrations in Idaho



Migrating game animals, such as these elk, often come into conflict with traffic, but many other animals also migrate every year. *IDFG photo*

Most people know what migration looks like – lines of Canada geese streaming across the fall sky or elk herds trailing down a mountainside looking for succulent spring grass, steelhead charging up the Clearwater River or a mass of Mormon crickets marching across a road.

These are all wildlife migrations. Animals migrate for many reasons – to find food, breed or raise young. Migration is a tool they use when a habitat no longer meets their needs.

Many mammals migrate between summer and winter ranges. During the winter, deep snow makes it hard for deer and elk to get food. They move down the mountains to lower elevations where the snow is not as deep, often to south-facing hillsides, where snow melts faster. When summer and spring arrive, deer and elk migrate back up the mountains.

Woodland caribou also migrate, but unlike most animals

they migrate up the mountains in winter where there are fewer predators, more food and the snow is deeper.

With hooves like snowshoes, caribou can reach lichen higher in the trees as the snow gets deeper. During the summer they move to lower elevations where they give birth to young in thick forests.

But big game are not the only animals that migrate. Ducks and geese from northern Canada and the Arctic, where they spend their summers, congregate in Idaho wetlands in the winter months. Every year, at various times, salmon and steelhead move up Idaho rivers to spawn.

Some insects and amphibians migrate as well.

Migrating animals may travel hundreds of miles or as little as 10 feet. The distance is not what defines migration; it's that the animals move between habitats during the year to survive.

Inside this issue

Page 2:

Navigating by Sun, Stars and Compass

Page 3:

Salmon and Steelhead Make an Arduous Journey

Animal Wanderings Include Some Amphibians, Insects and Bats

Who knew? Spotted frogs in southern Idaho migrate.

Spotted frogs have adapted to Idaho's dry desert by migrating between pools of



Spotted frog

IDFG photo

water from hibernating sites to breeding and feeding sites. They live around springs and streams. But some springs dry up by the end of summer, so the frogs

need to move. They don't go far, perhaps one-fourth to one-half mile between pools.

Many salamanders also migrate. They move between the areas where they lay their eggs and where they spend the rest of their time. In the spring, long-toed salamanders migrate to lakes and ponds. Once the eggs are safely in the water, the long toed-salamanders move back to drier land to live out the rest of the year.

Some insects migrate as well. In Idaho, four dragonflies migrate

– common green darners, wandering gliders, variegated meadowhawks and black saddlebags. The green darner is Idaho's longest at three inches. The green

darners we see in June emerged from ponds and lakes in the southern part of the United States. They fly to Idaho, lay eggs and die. The eggs hatch, and the young dragonflies will stay in their watery home for two to three years. In August, they fly south, where they lay more eggs that will hatch to continue the cycle.

Wandering gliders travel hundreds or even thousands of miles looking for seasonal ponds in which to lay their eggs. The young dragonflies eat a lot and grow quickly before their ponds dry up. This dragonfly is found all around the world. In Idaho, they are found along the Snake River Plain.

Even bats migrate. Most of Idaho's bats hibernate for the winter, but pallid bats and hoary bats fly south where the weather is warmer. When temperatures rise and insects start to appear in the north, they fly back to Idaho to spend the summer and to give birth to their young.



Navigating by Sun, Stars, Compass and Map, Animals Find Their Way

Migration is still mysterious, but scientists know that migratory animals understand exactly how to get where they are going.

While we have not uncovered all the secrets, we have some pretty good ideas about how animals find their way:

- Sun Compass – Some migrating animals use the movement of the sun across the sky to find their way. Because the sun changes position as the Earth rotates, animals need to be able to adjust

their travel direction so they don't just follow the sun. This is called "time compensation." Experiments with birds showed that this is what happens. Animals that migrate during the day are likely to use a sun compass.

- Star Compass – The star compass is like a nighttime version of the sun compass. So far, it has only been found in birds. Scientists discovered that young birds learn to find north by observing the pattern of stars around the North Star, including the Big Dipper, Little Dipper and other stars. As these constellations rotate around the North Star, they stay in the same position relative to each other, allowing birds to find north. Many songbirds and shorebirds migrate at night this way.

- Magnetic Compass – The Earth's magnetic poles turn the Earth into a big magnet. Invisible lines of magnetic force between the two poles make up the Earth's magnetic field. The magnetic

field is stronger at the poles and weaker at the magnetic equator. At some points, the magnetic field touches the earth at an angle called the dip angle. Birds and other animals, including sea turtles, can detect these magnetic lines of force. Scientists say that birds can also detect the dip angles. This would help them know how far to the north or south they have moved.

- Polarized Light – Polarized light from special kinds of light waves creates a pattern in the sky. The pattern stays the same as the sun moves across the sky. Even if the sky is cloudy, animals can still detect the polarized light pattern, which tells them the position of the sun. Insects, amphibians, fish and birds use polarized light to migrate.

- Landscape Maps – Some animals use landscape maps when they migrate. Mountain ranges, rivers, or coastlines are some examples of landscape clues that can be part of landscape maps.

Idaho Fish and Game News

Fish and Game Commission:

Chairman: Tony McDermott

Director: Virgil Moore

Published by Idaho Fish and Game

600 South Walnut

P.O. Box 25, Boise, ID 83707

(208) 334-3746

E-mail: idfinfo@idfg.idaho.gov

<http://fishandgame.idaho.gov>

Volume 24, Number 3



Salmon and Steelhead Make Arduous Journey Back to Idaho

Idaho is home to some of the champions of fish migration.

Three species of fish migrate the 900 miles from the Pacific Ocean up the Columbia, Snake and Salmon rivers, climbing 6,500 feet in elevation to reach the Sawtooth Valley in central Idaho's mountains.

Sockeye salmon and some runs of Chinook salmon and steelhead trout make the journey.

All three are anadromous, that is they are born in freshwater, migrate to the ocean, and return as adults to the fresh water stream where they were hatched to spawn and then die.

Construction of the Sunbeam Dam in 1913 blocked upstream fish passage. The dam was partially destroyed in 1934, reopening the upper Salmon River, but no one tried to restore the salmon runs. Yet the fish came back.

One of the favorite places for Chinook salmon anglers today is in the turbulent pool below the remains of the Sunbeam Dam.

Chinook return to their spawning habitat in the fall after one to three years at sea. The female builds a large redd (nest) that may be six feet in diameter and one to four feet deep.

They lay between 4,500 and 10,000 eggs. When spawning is completed, both male and female die. The eggs hatch in the spring, and the juvenile fish live the next year in fresh water, except for fall Chinook that live only a couple months in fresh water before leaving for the ocean.

Young fish in fresh water eat both aquatic and terrestrial insects. They

turn to a diet of fish once they reach salt water. Adults returning to spawn do not eat; they live off their fat reserves.



A Chinook salmon reaches the Sawtooth Hatchery at the end of its 900-mile migration.

Sockeye are trapped every year in Fishhook Creek on their way to Redfish Lake.

In the 1880s, observers reported lakes and streams in the Stanley Basin teeming with red fish. There was talk of building a cannery at Redfish Lake. Returns were estimated between 25,000 and 35,000 sockeye.

Sockeye salmon, unlike other species of Pacific salmon, feed extensively on zooplankton during both freshwater and saltwater life stages.

eggs and fish have been reintroduced to Sawtooth Valley waters – 1.4 million pre-smolts, 749,000 smolts, 3,542 adults, and 930,000 eyed eggs.

The upper reaches of the Salmon River have long been favored by steelhead anglers.

Steelhead are a type of rainbow trout that spawn in freshwater streams, migrate to the ocean to grow, and return to fresh water as adults. They are common to the Clearwater, Snake and Salmon rivers.

Idaho's steelhead are often classified into two groups, A-run and B-run, based on their size and ocean life history.

Idaho's A-run steelhead are usually found in the Snake and Salmon rivers. They return from the ocean June through August, after spending one year in the ocean. They typically weigh 4 to 6 pounds and are generally 23 to 26 inches long.

The B-run steelhead most often return to the Clearwater River, but some return to tributaries in the Salmon River. These fish usually spend two years in the ocean and start their migration to Idaho later in the summer or fall of the year, usually late August or September. Because of the additional time in the ocean, they return as bigger fish. Average B-run steelhead weigh 10 to 13 pounds and are 31 to 34 inches long.

Steelhead grow larger still when they spend a third year in the ocean before returning to Idaho to spawn. They are usually more than 37 inches long and often weigh more than 20 pounds. The Idaho state record steelhead was just over 30 pounds and was caught in the Clearwater River in 1973.

Some fish that are not anadromous also migrate. Like anadromous fish, their migration is to find food and to spawn. Bull trout migrate an average round-trip of 85 miles. Cutthroat trout average 78 miles for their round-trip migration. They leave wintering areas in the spring and arrive in their spawning areas where they hang out for the summer. Come fall, they spawn and then head back to their wintering areas. Radio-tagging studies have shown that some of these fish return to the same pool where they started their journey.

Idaho Fish and Game Policy

Idaho wildlife management policy is set by seven volunteer commissioners. The Idaho Fish and Game Commission's policy decisions are based on research and recommendations by the professional staff of the Idaho Department of Fish and Game, and with input from the governor's office, the state Legislature, hunters, anglers and the public.

Returning fish counted at Lower Granite Dam in 2011:
Chinook 121,354
Sockeye 1,502
Steelhead 183,648

Redfish Lake sockeye salmon were listed as endangered in November 1991 – the first Idaho salmon species to be listed. They are part of a restoration program. Some are artificially spawned under controlled conditions, and some are released to spawn naturally.

More than 3.1 million sockeye salmon



Spectacle of Migration



Snow geese by the thousands stop over at the Fort Boise WMA along the Snake River on their way north in the spring.

Photo by Clair Kofoed

Birds by the thousands migrate from the Arctic coast of North America, and some spend the winter in the wetlands along Idaho rivers.

From breeding grounds on Wrangel Island, the coastal plain of the Arctic National Wildlife Refuge and other arctic regions snow geese migrate through southern Idaho in the fall and spring.

When we think about migration, we usually think of birds. All around the world, birds migrate. They are also pretty reliable migrants, which make them easier to study. Many of the things scientists have learned about migration, they have learned from birds.

Bird migration is usually tied to food. How far a bird migrates often depends on what it eats. If a bird can find the food it needs to survive in one area, it probably will not be a migratory bird. These birds are called residents. Black-capped chickadees and red-tailed hawks are resident birds found in Idaho.

Birds that depend on seasonal foods, such as insects or fruits, are often migratory. Idaho has a lot of insects in the summer. As summer fades, so do most insects. The summer birds migrate

to places where they can find the insects they need.

Bird migrations can be short trips or long journeys across continents. The mountain bluebird, Idaho's state bird, spends the winter in the southwestern United States. Swainson's hawks spend the summer in Idaho but migrate to South America for the winter.

Some birds spend the summer in the mountains. When fall arrives, these birds move into mountain valleys where they can find food. Come spring, they head back into the mountains.

Sometimes severe weather or a shortage of food can cause birds to show up in some strange places. Snowy owls live in the Arctic. But this winter, they are being seen in many northern states, including Idaho. These unusual migrations are called "irruptions."

Most of the waterfowl harvested in Idaho are produced in Canada. Southern Alberta is especially important for breeding waterfowl that come to Idaho during the hunting season.

Waterfowl managers learned from early waterfowl banding efforts that waterfowl follow distinct, traditional migration

corridors or flyways in their annual travels between breeding and wintering areas.

Migratory waterfowl use four major migratory routes – Pacific, Central, Mississippi and Atlantic flyways – in North America. Since 1948, waterfowl have been managed by four administrative flyways that are based on those migration paths.

Idaho is a member of the Pacific Flyway Council along with Alaska, Arizona, California, Nevada, Oregon, Utah, Washington, and those portions of Colorado, Montana, New Mexico and Wyoming west of the Continental Divide.

Bird banding is a universal technique for studying the movement, survival and behavior of birds.

Banders capture wild birds and mark them with a uniquely numbered leg band. They record the band number, date and location, the bird's age and gender, and send that information to the Bird Banding Laboratory. When bands are found and reported to the laboratory, they provide information about the movement, lifespan, survival and other parameters of individuals and populations.