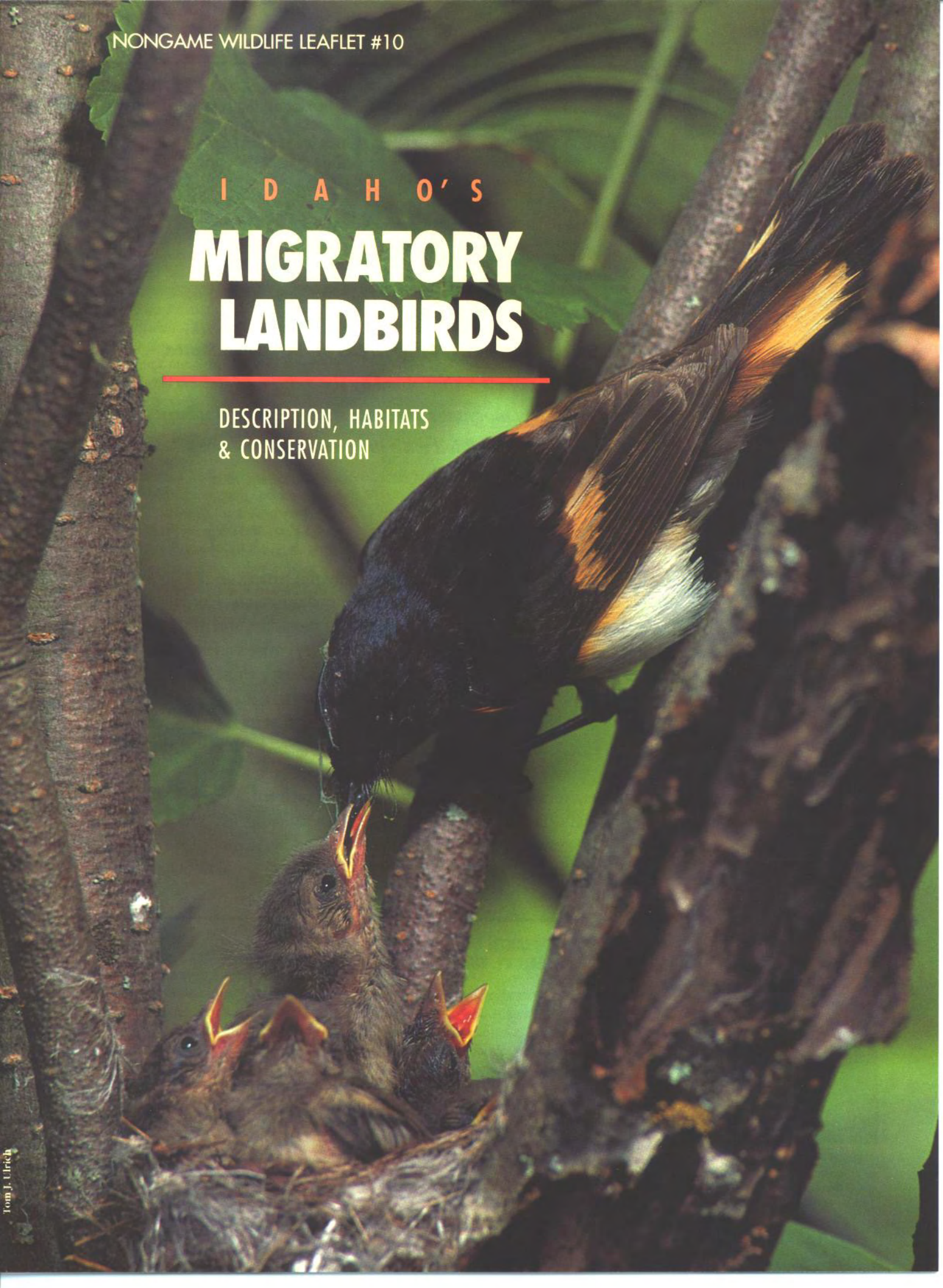
NONGAME WILDLIFE LEAFLET #10

# IDAHO'S MIGRATORY LANDBIRDS

## DESCRIPTION, HABITATS & CONSERVATION



Tom J. Ulrich

# IDAHO'S MIGRATORY LANDBIRDS

***" Over increasingly large areas of the United States, spring now comes unheralded by the return of the birds, and the early mornings are now strangely silent where once they were filled with the beauty of bird song."***

***— Silent Spring, 1962***

## INTRODUCTION

Rachel Carson wrote these words to rally the American public against the indiscriminate use of pesticides and other contaminants. Her landmark book eventually led to a nationwide ban on DDT, a persistent and insidious insecticide that made its way up the food chain to ultimately cause widespread losses of birds. Now biologists fear we may be facing a silent spring of a different, but equally threatening, kind. Evidence is mounting that songbirds in the United States are on the decline again, particularly those that migrate long distances. This time the main culprit appears to be loss of habitat — both at breeding and wintering areas.

In this leaflet you will learn more about this problem as you meet Idaho's migratory landbirds, get descriptive and ecological information about them, see population trends, learn how birds are counted and find out about some actions you can take to conserve these nomads of the Gem State's avian community.

Bob Mosely/IDFG

*Squaw Creek Island Research Natural Area on the South Fork of the Snake River: a healthy cottonwood riparian habitiat appealing to many neotropical migrants. (above: Black-chinned Hummingbird)*

Mark Collie

*Tropical habitat in the highlands of Tobago: wintering grounds for birds that breed in North America. (front cover: American Redstarts)*

### LONG-DISTANCE MIGRANTS: NEOTROPICAL MIGRATORY BIRDS

The seasonal migration of birds from North America to tropical zones is one of the greatest wonders of the natural world. Each autumn in the western hemisphere, almost half the bird species that breed in the United States and Canada migrate south to Mexico, the Caribbean Islands and Central and South America. There they spend six to nine months before returning north in spring to mate and rear young.

Of the landbirds, about 150 species are long-distance migrants, breeding mainly in the temperate zone of North America between the tropics and the polar cap, and wintering primarily in tropical America. Another 75 species, such as American Robins and Red-tailed Hawks, show individual variation: some birds migrate to the southern United States and beyond while others pass up a tropical vacation to stay on their nesting grounds. Both these groups of migrating birds are *"neotropical migrants."*

That name refers to birds that migrate to the "tropics:" the area between the Tropic of Cancer at 23.5° northern latitude and the Tropic of Capricorn at 23.5° southern latitude. *Neo*tropics, then, denotes those parts of the

*New* World that lie south of central Mexico and Cuba, and north of northern Argentina and southern Brazil.

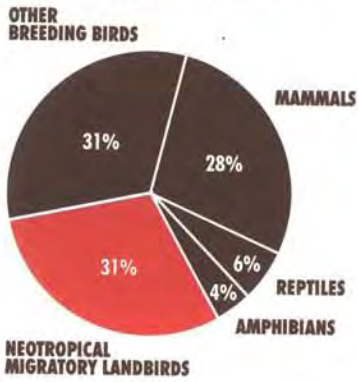
Although many aquatic birds migrate to the tropics, this leaflet focuses only on migratory landbirds.

The vibrant songs and rich colors of migratory songbirds are sure signs of spring. In Idaho, we know that season is here when we see the striking turquoise of a Lazuli Bunting or the brilliant red head of a Western Tanager, or hear the persistent song of the Yellow Warbler along a favorite stream. Of the 241 bird species that breed in Idaho, 119 are neotropical migratory landbirds (see chart, page 14). Seventy-eight of those are *obligate migrants*. That is, nearly all members of the species migrate to the tropics. The other 41 species are *facultative migrants*, or species in which only some individuals migrate long distances.

The chart on pages 14 and 15 is based on a variety of sources. Chief among them are a list of all North American migrant species compiled by the national research committee of the "Partners in Flight" program (see page 13) and "Idaho Bird Distribution," published in 1991. This list is dynamic, particularly for those species classified as facultative migrants. We don't know if members of those species spotted here in winter are year-round residents or birds that migrated south to Idaho from summer homes farther north. More information about them is needed from researchers, wildlife managers and amateur ornithologists.

Most of Idaho's neotropical migrants, particularly the obligates, belong to the order of birds known as passerines (also called perching birds or songbirds). It includes species like flycatchers, thrushes and warblers. Each order of birds is comprised of many families. Ten orders and 26 bird families are represented in the list of 119 species that migrate to and from Idaho. The family Emberizidae, comprised of warblers, tanagers, grosbeaks, buntings, sparrows, blackbirds and orioles, contains the greatest number of neotropical migrants. Most of them are obligate migrants, observed in Idaho only during the breeding season. In contrast, most of the raptors listed as long-distance migrants are facultative migrants, with individuals commonly seen by Idaho birders in winter.

**IDAHO'S BIOLOGICAL DIVERSITY (TERRESTRIAL)**




*Nearly half the birds that breed in Idaho are migratory landbirds; 62 percent of Idaho's terrestrial vertebrate species are birds.*

**EASTERN BIRDS**


**WESTERN BIRDS**


**BREEDING RANGE**
**WINTERING RANGE**

# IDAHO NEOTROPICAL MIGRANTS

## WHAT DO THEY LOOK LIKE?

Idaho's 119 species of migrating landbirds represent 10 orders and 26 families. Within each family, species are related to each other anatomically, even though they may not look or act alike. In this section are brief descriptions of families and subfamilies with photographs of one member of each. In parentheses is the number of species of neotropical migrants in that family that breed in Idaho.

The natural histories of some of these birds are described at greater length in these IDFG Nongame leaflets: #1 Idaho's Threatened and Endangered Species; #4 Idaho's Birds of Prey, Part 1 (Diurnal); #5 Idaho's Birds of Prey, Part 2 (Owls); and #6 Idaho's Species of Special Concern. When in print, they are free from the Idaho Department of Fish and Game, Box 25, Boise, ID 83707.

### NEW WORLD VULTURES

*Order* Falconiformes
*Family* Cathartidae

Tom J. Ulrich

#### Turkey Vulture

*Cathartes aura*

The Turkey Vulture is widespread from Canada to the southern tip of South America. About the size of an eagle, it has a moderately hooked bill and long, broad, rounded wings. The adult's head is bare and red. This unique plumage feature aids in hygiene, because vultures feed on carrion. (1 species)

### HAWKS

*Order* Falconiformes
*Family* Accipitridae

Vicki Saab

#### Ferruginous Hawk

*Buteo regalis*

These large flesh-eaters are equipped with heavy, sharp, hooked bills and strong, curved talons. Active during the day, most take live prey but some are scavengers. Both sexes usually have the same plumage but immature birds differ from adults and females outweigh males. Hawks' wings are long, broad and rounded, and most species have broad, banded tails. Several, such as the Red-tailed Hawk, are facultative migrants.

The Ferruginous Hawk, a state Species of Special Concern and candidate for federal Endangered Species listing, builds its nest of heavy sticks, cow dung, bones and rubbish, generally in a juniper tree, on a cliff ledge or on the ground. (8 species)

### CUCKOOS

*Order* Cuculiformes
*Family* Cuculidae

Ron Spomer

#### Yellow-billed Cuckoo

*Coccyzus americanus*

Both Black-billed and Yellow-billed Cuckoos are on the edge of their ranges in Idaho; few breeding records are documented. Their bills are usually compressed, slightly decurved; the tail is usually long and graduated; and plumage is mostly brown and gray. Both are state Species of Special Concern due to small populations and riparian habitat disturbances.

Yellow-billed Cuckoo populations in the western United States have suffered severe declines, particularly in California. These declines are thought to result from fragmentation of predominantly cottonwood riparian habitats. (2 species)

### OWLS

*Order* Strigiformes
*Family* Strigidae

William H. Mullins

#### Burrowing Owl

*Speotyto cunicularia*

Only two species of owls that breed in Idaho are regular winter visitors to the tropics: Burrowing and Flammulated. Two others are facultative migrants. Owls are large-headed, short-necked birds of prey, mostly nocturnal, that are best seen and heard at dusk. A flat, round or heart-shaped "facial disk" conceals large external ear flaps. Females look like males but larger; immatures resemble adults. Owl plumage is soft and camouflaged with brown and gray; these birds fly silently. The Flammulated Owl is a state Species of Special Concern due to restricted and declining habitat.

Burrowing Owls commonly nest in badger holes and ground-squirrel burrows throughout southern Idaho. (4 species)

### NIGHTJARS

*Order* Caprimulgiformes
*Family* Caprimulgidae

Ron Spomer

#### Common Nighthawk

*Chordeiles minor*

Nightjars are known for their camouflaged plumage and are best identifed by their distinctive calls. They are sometimes confused for owls but can be easily distinguished by their horizontal position when perched, as opposed to the vertical position of a perched owl. Their bills are short, depressed and slightly hooked. They have wide mouths, long and pointed wings, and usually streaked, mottled, or barred brown or gray plumage. Due to their swift flight after insects at twilight or later, they are also called nighthawks.

The common nighthawk flies in daylight and often makes its home on flat roofs. (2 species)

### SWIFTS

*Order* Apodiformes
*Family* Apodidae

Evelyn Bull

#### Vaux's Swift

*Chaetura vauxi*

Known for their cigar-shaped bodies, swifts are strong, fast fliers that spend most of the day feeding on insects in midair. They have wide mouths, forked tails, and long, flat, pointed wings.

One Idaho species, Vaux's Swift, is thought to inhabit primarily old-growth forests, where hollow trees (snags) provide suitable nest sites. (2 species)

## FALCONS
*Order* Falconiformes
*Family* Falconidae


Tom J. Ulrich

### Peregrine Falcon
*Falco peregrinus*

Falcons are distinguished from hawks by long, narrow, pointed wings bent back at the wrist, and by their hunting technique of diving on prey at speeds that can exceed 200 mph. Males and females wear the same plumage, but females are larger than males. Most falcons are facultative migrants.

The Peregrine Falcon is an Endangered Species because of serious population declines since the 1940s due to pesticides and other chemicals. After these toxics were banned and reintroduction programs started around the country, Peregrine populations began to recover. (4 species)

## PLOVERS
*Order* Charadriiformes
*Family* Charadriidae


Gary Williford

### Killdeer
*Charadrius vociferus*

Plovers are medium-to-small shorebirds, although not all members of this family are strictly associated with wetlands. Some species, such as the killdeer, are often found far from water. The neck and tail are short; the tail is held horizontal to the body. The wings are pointed and narrow; flight is direct and fast. Plovers take several rapid steps then stop suddenly, a behavior that easily identifies them. Male and female plumages are similar but often the male's colors are more vivid; juveniles resemble adults but their backs have a scaly appearance. (1 species)

## SANDPIPERS
*Order* Charadriiformes
*Family* Scolopacidae


Tom J. Ulrich

### Upland Sandpiper
*Bartramia longicauda*

Although most scolopacids are considered waterbirds, Long-billed Curlews and Upland Sandpipers are not strictly dependent on wetlands because they build nests and regularly feed in upland areas. The curlew is cinnamon brown above, buff below, with a very long, downcurved bill.

The Upland Sandpiper, though smaller than the curlew, is a large sandpiper with a long neck, tail and wings, and yellowish legs. Because only a few small, isolated populations occur in Idaho, the Upland Sandpiper is a state Species of Special Concern. These sandpipers are found in dry meadows and forest openings of western Idaho. (2 species)

## DOVES AND PIGEONS
*Order* Columbiformes
*Family* Columbidae


Tom J. Ulrich

### Mourning Dove
*Zenaida macroura*

Doves are small-headed and short-legged, with pointed wings and fanned or tapered tails. They are strong, swift fliers. All species coo and bob their heads when walking. Males generally sport brighter plumage than females; juveniles have pale-tipped feathers and lack the neck markings of adults. Pairs may nest two to four times a year. Of all the migratory landbirds, this is the only family in which some members are hunted for sport. (1 species)

## HUMMINGBIRDS
*Order* Apodiformes
*Family* Trochilidae


Tom J. Ulrich

### Calliope Hummingbird
*Stellula calliope*

These tiny feathered jewels are found only in the New World. Hummingbirds are often identified by twittery calls and chattering "chase notes" given when driving intruders away. They have needle-like bills that are straight or downcurved, perfectly shaped for delivering their long tongues to nectar found deep inside trumpet-shaped flowers. Both sexes have brilliant metallic plumage but less so in females.

The Calliope, smallest of hummingbirds, is seldom far away from high mountains. (4 species)

## KINGFISHERS
*Order* Coraciformes
*Family* Alcedinidae


Weldon Lee

### Belted Kingfisher
*Ceryle alcyon*

Kingfishers are most often observed perched over water and plunging headfirst to catch a fish. Only one species, found throughout most of North America, breeds in Idaho. Kingfishers are stocky and short-legged, with strong feet. The large head has a ragged crest and carries a large, straight, heavy bill. Kingfishers build nests by digging burrows in vertical banks near water. (1 species)

## WOODPECKERS
*Order* Piciformes
*Family* Picidae


Ron Spomer

### Red-naped Sapsucker
*Sphyrapicus nuchalis*

Only three of 11 breeding woodpeckers in Idaho exhibit migration to the tropics and two of them are sapsuckers. Sapsuckers drill evenly-spaced rows of holes in trees, then visit the "wells" for sap and the insects it attracts. Their bills are strong, usually straight and chisel-like. They also have strong claws, short legs and stiff tail feathers – all adaptations for climbing tree trunks.

Red-naped sapsuckers often provide tree cavities for smaller nonexcavator species that require cavities for nesting. (3 species)

## FLYCATCHERS
*Order* Passeriformes
*Family* Tyrannidae


Tom J. Ulrich

### Western Wood-Pewee
*Contopus sordidulus*

Members of this family are well known for their migratory behavior and represent a large portion of Idaho's obligate neotropical migrants. Most flycatchers have relatively large heads and bristly "whiskers" near the base of the bill, which is straight, wide and slightly hooked. The tail is usually square and sometimes forked. As their family name suggests, nearly all species feed on insects in the air.

Of all migratory landbirds, Western Wood-Pewees take one of the longest journeys during their migration: they overwinter in Colombia and Venezuela south to Peru and Bolivia. (11 species)

## LARKS
*Order* Passeriformes
*Family* Alaudidae


Colleen Sweeney

### Horned Lark
*Eremophila alpestris*

Larks are ground-dwelling, sparrow-sized birds that live in open habitats with sparse, low vegetation. They nest and forage on the ground and are seldom seen in trees or shrubs. Their slender bills are adapted for eating insects and seeds. Plumage is similar but brighter in males than females; black horns on the head are less distinct or absent in juveniles. Horned larks have expanded their range eastward since 1800 as a result of their adoption to farm fields for breeding habitat. (1 species)

## SWALLOWS
*Order* Passeriformes
*Family* Hirundinidae


Weldon Lee

### Tree Swallow
*Tachycineta bicolor*

Often seen flying and foraging in large flocks, swallows are adept aerialists that dart to catch flying insects. They have slender bodies with long, pointed wings and are sometimes confused with swifts. However, the wrist angle is sharper and farther from the body in swallows. Their tails are notched or forked and plumage is often partly metallic.

Tree Swallows often compete with Starlings and House Sparrows (introduced from Europe) for nest cavities. (6 species)

## CREEPER
*Order* Passeriformes
*Family* Certhiidae


Colleen Sweeney

### Brown Creeper
*Certhia americana*

Only one species is found in North America. These little tree climbers are short-legged and brown-backed. They spiral up tree trunks searching for insects, digging insects and larvae from the bark with their curved bills. The stiff points on their long tail feathers function as props for movement up and around tree trunks.
(1 species)

## WRENS
*Order* Passeriformes
*Family* Troglodytidae


Tom J. Ulrich

### Rock Wren
*Salpinctes obsoletus*

Wrens are best known for their loud, persistent song and vigorous territorial defense. They are small, brownish chunky birds with tails that are often uptilted and usually barred. Their bills are slender and slightly downcurved. Their family name refers to their habit of building nests in rocky crevices or stone buildings.

Rock Wrens are noted for paving their nest entrance with small stones.
(3 species)

## SHRIKES
*Order* Passeriformes
*Family* Laniidae


Tom J. Ulrich

### Loggerhead Shrike
*Lanius ludovicianus*

Shrikes have an interesting habit of impaling prey, such as locusts, mice or lizards, on thorns or other pointed objects. (They used to be called "Butcher Birds.") Shrikes are recognized by their hooked bills, black masks and large white wing patches contrasting with dark wings. They like open country with high perches from which to spy their next meal. They are experiencing population declines on a regional, continental and global basis, the reasons for which are not well understood. (1 species)

## VIREOS
*Order* Passeriformes
*Family* Vireonidae


Tom J. Ulrich

### Warbling Vireo
*Vireo gilvus*

These small songbirds are persistent singers characterized by short and sturdy bills, slightly hooked at the tip. They use them to eat insects in treetops or brush. Some vireos have eye rings with a connected band to form "spectacles" – these, such as the Solitary Vireo, always have wing bars. Others, such as the Warbling and Red-eyed Vireos, have eyebrow stripes and no wing bars. Male and female plumages are similar.

Male Warbling Vireos incubate eggs, brood young and often sing from the nest. (3 species)

## WOOD-WARBLERS*
*Order* Passeriformes
*Family* Emberizidae
*Subfamily* Parulinae


Maslowski Photo

### Common Yellowthroat
*Geothlypis trichas*

Wood-Warblers are probably the most popular and well-known group of songbird migrants. Often decorated with bright yellow plumage, warblers are among the most brilliantly colored songbirds. Males are more striking and easily identified during the breeding season. Warblers are small, active, vociferous singers with slender, straight, pointed bills. Songs are diagnostic for most species.

Common Yellowthroats are one of the most numerous warblers in North America, even though they experience high rates of nest parasitism.
(13 species)

## TANAGERS*
*Order* Passeriformes
*Family* Emberizidae
*Subfamily* Thraupinae


Colleen Sweeney

### Western Tanager
*Piranga ludoviciana*

Only one representative of this subfamily occurs in Idaho: the Western Tanager. Tanagers are medium-sized songbirds with conical and stout bills usually as long as their head. Male tanagers possess plumage of blazing splendor, whereas females are usually olive-yellow. Western Tanagers are commonly seen in towns and lower elevations as they pass through during migration to the mountains, where they nest in coniferous and mixed coniferous-deciduous woodlands.
(1 species)

*This large family is comprised of five distinct groups (subfamilies) that are genetically related, though outward characteristics are extremely diverse.

## THRUSHES AND BLUEBIRDS

*Order* Passeriformes
*Family* Muscicapidae


Tom J. Ulrich

### Mountain Bluebird

*Sialia currucoides*

Muscicapids are a varied group of eloquent singers. Nine species of this family in Idaho are long-distance migrants, including several familiar species (American Robins and Mountain Bluebirds). Their bills are narrow and notched. Plumage is highly variable among species, but usually similar for both sexes.

Idaho's state bird, the Mountain Bluebird, often nests in woodpecker excavated cavities but will readily use man-made nest boxes, especially in areas where natural cavities are scarce. (9 species)

## THRASHERS

*Order* Passeriformes
*Family* Mimidae


Tom J. Ulrich

### Gray Catbird

*Dumetella carolinensis*

Known for their melodious singing, some thrashers mimic the songs of other species. All have long tails and drab plumage, which is similar for males and females.

One member of this family, the Gray Catbird, demonstrates a unique pattern in long-distance migration. Unlike most western migrants that fly south to western Mexico and the Pacific slope of Central America, catbirds cross the continent in a southeasterly direction. They overwinter with their eastern relatives in the southeastern United States and the eastern parts of Mexico and Central America. (3 species)

## PIPITS

*Order* Passeriformes
*Family* Motacillidae


Tom J. Ulrich

### American Pipit

*Anthus rubescens*

Pipits are sparrow-sized birds with slender bills, ground-dwellers that pump their tails up and down as they walk in open habitats in search of food. Their tails are dark with white outer feathers. They are the only Idaho neotropical migrant that nests exclusively in alpine habitat. Pipits make use of nature's "freezer," feeding on insects swept by warm air to high elevations where they die and are frozen in snowbanks. (1 species)

## WAXWINGS

*Order* Passeriformes
*Family* Bombycillidae


Tom J. Ulrich

### Cedar Waxwing

*Bombycilla cedrorum*

Waxwings are named for the red wax-like spots on the wings of adults, although in young birds they are indistinct or absent altogether. All have sleek crests, silky plumage, black masks and yellow-tipped tails. Where berries are ripe and abundant, waxwings congregate and feed in friendly flocks. Nestling waxwings are fed mostly fruit rather than insects, a feeding behavior unique among songbirds. (1 species)

## GROSBEAKS AND BUNTINGS*

*Order* Passeriformes
*Family* Emberizidae
*Subfamily* Cardinalinae


Tom J. Ulrich

### Lazuli Bunting

*Passerina amoena*

Many species in this group are bold and conspicuous, including all three species that breed in Idaho. Males are more brightly colored than females. Short, heavy, conical bills are typical of birds in this subfamily. Bills of this type are mostly adapted for seed eating, which makes this group and sparrows unique among most migrants, whose bills typically are adapted primarily for eating insects. Blue Grosbeaks are on the northern edge of their range in Idaho and only a few individuals breed here.

The Lazuli Bunting interbreeds with its eastern counterpart, the Indigo Bunting (*Passerina cyanea*), in the Great Plains, where their ranges overlap. (3 species)

## SPARROWS AND TOWHEES*

*Order* Passeriformes
*Family* Emberizidae
*Subfamily* Emberizinae


Tom J. Ulrich

### Green-tailed Towhee

*Pipilo chlorurus*

These are small brown-bodied birds with streaked backs and short, conical bills. Most are ground foragers and nesters. The size and plumage of females resembles males. The plumage of immatures is generally much duller. Sparrows are often more easily distinguished from each other by their songs and chips than by plumage.

Green-tailed Towhees typically scratch for food in leaf litter. Their song often incorporates notes from other species breeding in the vicinity. (14 species)

## BLACKBIRDS AND ORIOLES*

*Order* Passeriformes
*Family* Emberizidae
*Subfamily* Icterinae


Tom J. Ulrich

### Northern Oriole

*Icterus galbula*

Medium-sized songbirds with strong, direct flight and heavy, pointed bills characterize this familiar group. Species vary in plumage from iridescent black to yellow to brilliant orange. Males have more vivid plumage than females. One member of this subfamily, the Brown-headed Cowbird, lays its eggs in other birds' nests, causing nest failures and reduced reproductive success for the host species.

Northern Orioles are often found nesting near areas with human habitation. Their nests are pendant shaped, made of woven plant fibers and are usually very conspicuous. (9 species)

## FINCHES

*Order* Passeriformes
*Family* Fringillidae


Tom J. Ulrich

### Cassin's Finch

*Carpodacus cassinii*

As a family, finches are mostly small seed eaters with conical bills and, often, notched tails. Idaho's four migrant members forage mostly on insects. Undulating flight is characteristic for species of this family. Their winter movements are erratic and flocks of winter finches at backyard feeders are unpredictable from year to year.

The Cassin's Finch is found at higher elevations than the closely related House Finch (*Carpodacus mexicanus*), which inhabits more arid habitats and urban areas. (4 species)

Tom J. Ulrich

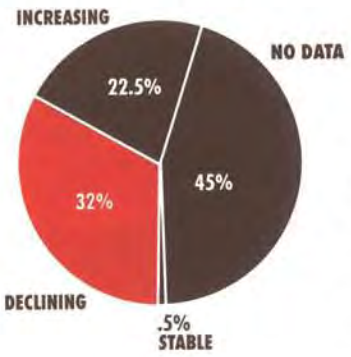
# DECLINING POPULATIONS:

## EASTERN EVIDENCE, TROPICAL CONCERNS AND A PAUCITY OF INFORMATION IN THE WEST

*The Loggerhead Shrike is one of seven Idaho species with significant declines in population trends. Its sagebrush habitat has been burned and invaded by cheatgrass, an introduced annual grass, for decades and its diet may be tainted by pesticides.*

The majority of neotropical migrants in North America breed in the vast, deciduous forests of the eastern United States and the great, boreal forests that extend across Canada to central Alaska. Neotropical migrants commonly account for 65 to 85 percent of the breeding birds in eastern forests. Numerous studies and long-term observations indicate that populations of these eastern migrants are declining. A few, such as Bachman's and Kirtland's Warblers, face imminent extinction.

**POPULATION TRENDS**




*Although no data are available for almost half of Idaho's 119 neotropical migrants, Breeding Birds Survey (1980-1989) data show that nearly a third may be declining. However, only a small proportion of these increases and declines are statistically significant.*

Wayne Melquist/IDFG

*Tropical wintering habitat, such as this Panamanian forest, is being pierced by roads , accompanying clearcuts, and farms for burgeoning human populations.*

Since historical times, large blocks of the eastern forest have been lost, fragmented into smaller patches, or replaced with younger forests that differ in plant species and structure. Fragmentation, along with deforestation of tropical wintering grounds, are the two factors most often cited to explain the observed declines in populations of neotropical migrants. Analyses of population trend data support these hypotheses. The Breeding Bird Survey (BBS), a continent-wide program that collects information annually on songbird populations, found that 75 percent of forest-dwelling neotropical migrants in the East declined in population from 1978 to 1987.

**PROBLEMS IN PARADISE?**

Educated guesses suggest that between two and five billion birds migrate to the neotropics each year. Migrants that breed mostly in the West spend the winter in northern and western Mexico, while eastern breeders tend to winter mainly in Mexico, the Caribbean and Central and South America (see page 3). Not all the tropics are used with equal intensity by wintering migrants. As one moves farther south from the United States, the abundance of neotropical migrants is reduced compared to resident bird species. For example, migrants may constitute 40 to 50 percent of bird numbers in various parts of Mexico, the Bahamas, and the Greater Antilles, but only 20 to 40 percent in Guatemala and Belize, and even lower percentages in northern South America. The majority of neotropical migrants winter in Mexico, Guatemala, Belize, Honduras, Bahamas, Dominican Republic, Haiti and Cuba. As a result of this disproportionate distribution of migrants on the wintering grounds, a large number of birds are channeled into a relatively small area each winter. Densities of neotropical migrants have been estimated to be five to eight times higher in tropical wintering habitat than in temperate breeding habitats, where far more total acreage is used.

Because neotropical migrants tend to winter in relatively higher numbers and a smaller area than where they breed, they are likely to be even more vulnerable to habitat disturbances in the tropics. In recent years, stories of the devastation of tropical forests and the potential extinctions of large numbers of plants and animals, including neotropical migrants, have been commonplace in our news. Most of us have witnessed television programs documenting the "slash and burn" of tropical forests and the resultant conversion to agriculture and ranching. As human population densities soar, tropical forests decline.

What do these losses mean for our migrating

birds? Areas with some of the highest rates of deforestation such as the Greater Antilles, Mexico and Central America also have the highest numbers of migrants. Unfortunately, information is scant on population trends of migrants on tropical wintering grounds. What we do know, however, is that migrants use a wide variety of wintering habitats, and some are therefore more susceptible to disturbance from forest clearing than others. Biologists estimate that about one-third of all neotropical migratory birds winter in forests or woodlands, although half of these species will also use non-forested areas. Far more diverse than temperate forests, tropical forests range from mature to second-growth and from broadleaf to deciduous and mixed coniferous vegetation.

Some neotropical migrants use a wide array of habitats on the wintering grounds, while others are very limited. For example, two of Idaho's summer residents — Wilson's and Nashville Warblers — use nearly every habitat available in western Mexico from sea-level marshes to high-elevation pine-fir forests. Other species, (such as the American Redstart, which breeds in forests and riparian habitat in central Idaho and the Panhandle), are restricted to lowland habitats on wintering grounds in western Mexico. Still other migrants, among them Yellow Warblers and Yellow-breasted Chats, appear to prefer second-growth forests and abandoned fields.

Many migrants winter and breed in structurally similar habitats, yet some also exhibit seasonal switches. Even different sexes and age classes of the same species may winter in different habitats. Perhaps the only firm conclusion we can draw from the information available at this time is a broad generalization: the responses of neotropical migrants to habitat disturbances in the tropics will vary according to the degree of specialization in winter habitiat use.

Craig Groves/IDFG

*When tropical forests are cleared, as in Belize, the environment is drastically altered and entire ecosystems are lost forever.*

POPULATION MONITORING

## HOW BIRDS ARE COUNTED

**Point Counts:** An observer stands in one spot for a specified period of time recording all birds seen or heard within a fixed or unlimited distance. U.S. Fish and Wildlife Service Breeding Bird Surveys (BBS) use this method. About 2,500 BBS routes nationally provide the most comprehensive information on migratory landbird population trends. Randomly distributed roadside routes have been established within each 1° block of latitude and longitude in the United States and southern Canada. Idaho has 51 BBS routes or about two per latilong block. Each consists of 50 three-minute stops set half a mile apart. The BBS is held one morning a year during breeding season. Because BBS results are not habitat-specific, it is difficult to determine what factors are responsible for reported increases or decreases.

Outside of the extensive population monitoring program implemented with the BBS, little consistency has existed in the application of point-count techniques. Duration, timing, and locations of counts have varied for habitat-specific, intensive surveys. Biologists are developing national standardized techniques for point counts that managers can use for appropriate monitoring systems.

**Transects:** Variable-distance line transects are the most common transect method. An observer walks along a randomly placed line of predetermined length noting all birds and recording the perpendicular distance from the transect line to each. From this information, a computer program (TRANSECT) determines the densities of individual species. Other transect methods are line transects without distance estimates, fixed-distance line transects, and strip transects that use the same fixed-distance boundary for all species.

**Mapping:** Spot or territory mapping is the most common mapping method for estimating bird densities. By seeing where birds are on a gridded plot during several visits to it in the breeding season, the number of territories can be determined and the density of birds estimated. The Cornell Laboratory of Ornithology uses this system in its continent-wide program, the "Breeding Bird Census." Its results are published annually in *Journal of Field Ornithology*. In 1991, Idaho's first BBC plot was established by BLM, USFS and National Audubon Society personnel in the Panhandle. When carefully designed and executed, mapping can accurately estimate density, but compared to transects or point counts, it requires larger plot sizes, more time and field work, and is very sensitive to observer variability.

Steve Bly

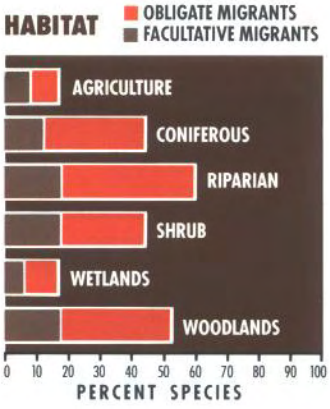
*Birdwatchers spy nesting raptors in the Snake River Birds of Prey Area.*

Colleen Sweeney

# WESTERN UNITED STATES:

## A DEARTH OF KNOWLEDGE

In contrast to data from the eastern United States, data on population trends of western neotropical migrants are either lacking or not adequately analyzed. We can, however, make some ecological generalizations about Idaho's migrants.




*These are general habitat associations of Idaho's neotropical migrants; most species use more than one type of habitat. See page 14 for habitat definitions.*
*(above: Western Tanager)*

First, most neotropical migrants can be found throughout Idaho. Only about a fourth are restricted to a particular region. Second, relatively more species can be found in streamside (riparian) and woodland habitats than in others (see Habitiat graph). Coniferous forest and shrubby vegetation also harbor many migrants; wetlands and agricultural lands contain relatively fewer species. Third, more species nest in the canopies of deciduous or coniferous trees than elsewhere (see Nests graph), but ground and shrubs are also important nesting locations. More than 80 percent of Idaho's migrants build or use open cup nests as opposed to nesting in cavities or burrows. Fifth, most Idaho migrants feed on insects (see Food Habit graph) either on foliage or on the ground (foliage insectivores), with smaller percentages feeding on flying insects (aerial insectivores), animal flesh (carnivore), nectar from plants (nectarivore), or a variety of foods (omnivore).

From Breeding Bird Surveys conducted from 1980 through 1989 and analyzed by the USFWS Office of Migratory Bird Management, we have data on population trends for 66 of Idaho's 119 migratory landbirds. The data include only those species recorded on 10 or more BBS routes in Idaho. The trends show seven species in statistically significant population declines: House Wren, Loggerhead Shrike, Rufous-sided Towhee, Brewer's Sparrow, Vesper Sparrow, White-crowned Sparrow and Dark-eyed Junco.

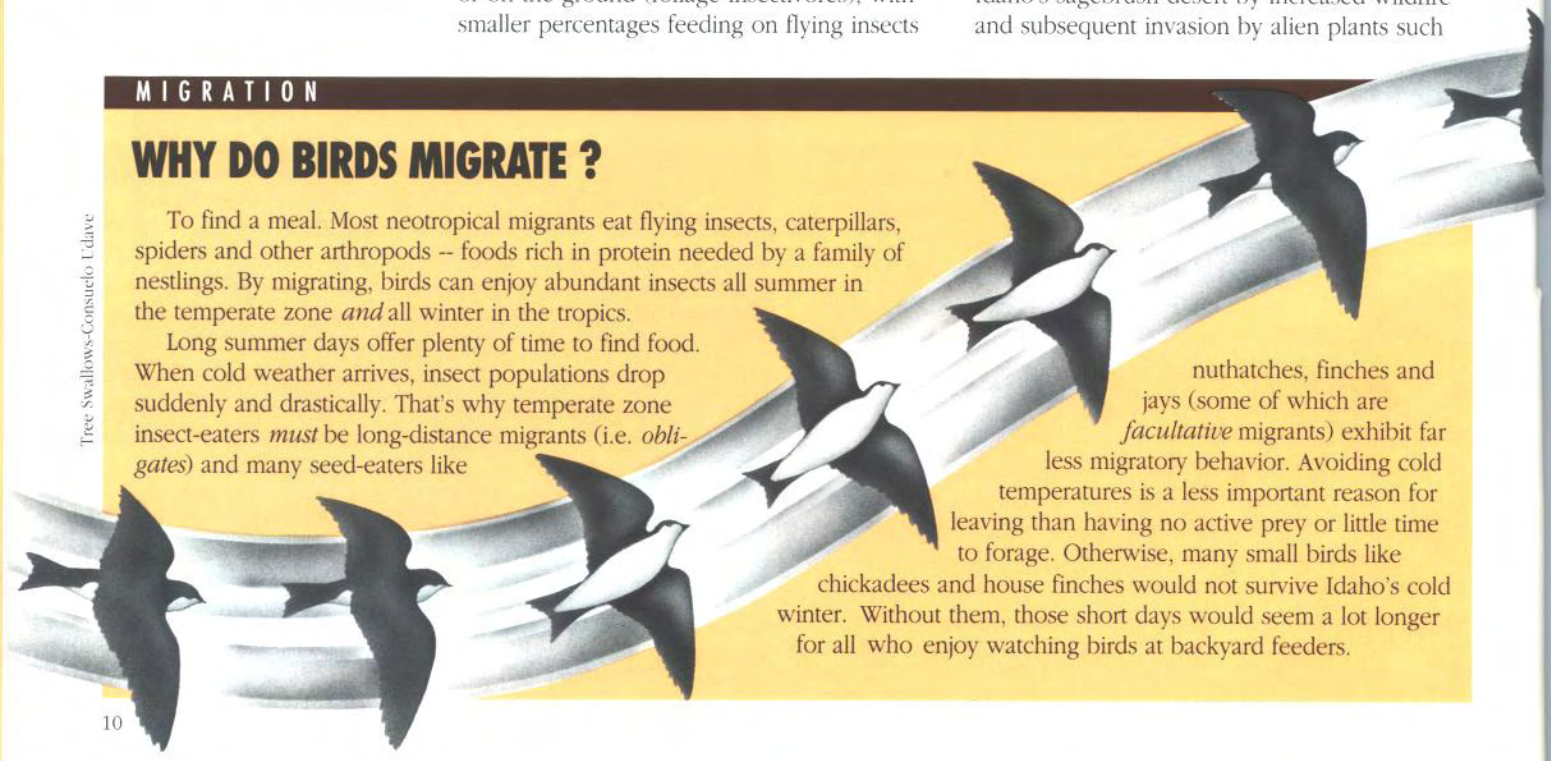
Three of these species — Loggerhead Shrike, Brewer's Sparrow and Vesper Sparrow — live in shrub-steppe habitats. Alterations of Idaho's sagebrush desert by increased wildfire and subsequent invasion by alien plants such

MIGRATION

## WHY DO BIRDS MIGRATE ?

To find a meal. Most neotropical migrants eat flying insects, caterpillars, spiders and other arthropods -- foods rich in protein needed by a family of nestlings. By migrating, birds can enjoy abundant insects all summer in the temperate zone *and* all winter in the tropics.

Long summer days offer plenty of time to find food. When cold weather arrives, insect populations drop suddenly and drastically. That's why temperate zone insect-eaters *must* be long-distance migrants (i.e. *obligates*) and many seed-eaters like nuthatches, finches and jays (some of which are *facultative* migrants) exhibit far less migratory behavior. Avoiding cold temperatures is a less important reason for leaving than having no active prey or little time to forage. Otherwise, many small birds like chickadees and house finches would not survive Idaho's cold winter. Without them, those short days would seem a lot longer for all who enjoy watching birds at backyard feeders.



Tree Swallows-Consuelo Udave

as cheatgrass may be contributing to their decline. The Brewer's Sparrow has declined regionally, too, as has the Loggerhead Shrike. Its numbers are down across the continent, possibly due to pesticides, because the shrike feeds on small birds, mice and lizards. BBS data show many western shrub-steppe dwellers in dramatic and consistent long-term population declines.

The House Wren and Towhee declines in Idaho are not carried over to the whole West; they appear to be localized. Although considered habitat generalists, both these species frequently nest in riparian habitats. Deterioration and loss of these habitats for reasons discussed below may be partly responsible.

Thirty-one of Idaho's neotropical migrants exhibited downward population trends that were not statistically significant (see pages 14 and 15 ). Nearly two-thirds of these species are associated with contiguous forest or riparian habitats. These data should be viewed as early-warning signals to pay more attention to these birds and their habitat needs.

Population trends of two species, Red-tailed Hawks and Long-billed Curlews, significantly increased, while 25 species had statistically non-significant increases. Both redtails and curlews frequent man-altered habitats. Red-tailed Hawks will nest and forage in farmlands, and curlews most often nest in areas dominated by exotic annual grasses. About half the species with non-significant increases, such as the American Kestrel, Barn Swallow and Brown-headed Cowbird, are often associated with agriculture. As more and more native vegetation is altered or converted, increases in species associated with the modified landscapes come as no surprise.

No population trend data are available for nearly half (53 of 119) the migrant landbirds in Idaho because these species have not been recorded on 10 or more BBS routes. Of these, almost half live in continous forest, such as Townsend's Warbler, or riparian woodlands, like the Fox Sparrow, which have few or no roads. About 50 percent are also uncommon species in Idaho: they are either low in numbers like Vaux's Swift, limited in distribution like the Yellow-billed Cuckoo, or very habitat-specific, like the Black-throated Gray Warbler. These findings point to the need for improved monitoring techniques that will detect population trends of rare species and those inhabiting roadless, forested and riparian habitats.

## Causes for Concern in the West

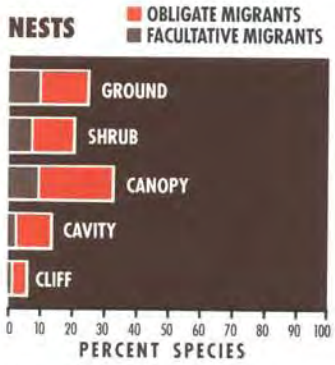
As anyone who has travelled around the United States quickly realizes, habitat differs greatly between East and West. Where the deciduous forest dominates the eastern landscape, much of the West consists of grasslands and shrub-steppe, habitats that support few neotropical migrants.

**Loss of riparian habitat** — In the Rocky Mountains, most migrants breed in deciduous woodlands and montane forests; most of the former are confined to canyon bottoms and riparian strips along desert streams. In Idaho, 60 percent of the migrant landbirds are associated with riparian habitats during the breeding season. These sites are under increasing pressure from livestock grazing, logging, water management and recreation. More than 90 percent of the original desert riparian habitat in the West has been eliminated by flood control and irrigation projects. Many western neotropical migrants may be particularly vulnerable to disturbance because riparian habitats are few and far between. This probably keeps the total populations of western migrants below those of their eastern counterparts.

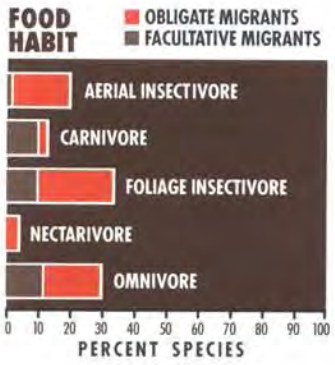
**Alteration of shrub habitats** — Although fewer migrants inhabit shrub-steppe and grassland habitats, species that depend on them have suffered habitat losses due to conversion and alteration of natural habitats by fire, livestock grazing and agriculture. The Bureau of Land Management reports nearly 2 million acres or about 20 percent of Idaho's shrub-steppe rangelands have burned in the last decade, then were invaded by exotic annual plants. Although some of these range fires occurred in already converted annual grasslands, the fact remains that much of Idaho's sagebrush country has been drastically altered from its natural state.

**Fragmentation** — Studies in eastern and mid-western states suggest two groups of neotropical migrants are being affected by forest fragmentation on the breeding grounds: "forest-interior" species or species that nest away from the forest edge, and "area-sensitive" species, birds whose densities are consistently higher per unit area in extensive forest tracts than in smaller ones. As large forests are fragmented into smaller patches, the proportion of edge to interior habitat increases. Nests along forest/agricultural edges and in small forest patches are subject to higher rates of predation by raccoons, skunks, feral cats, dogs, jays and other animals.

Brood parasitism, a process whereby one bird species (notably the Brown-headed Cowbird) deposits its eggs in the nests of other species, also contributes to increased nesting losses along edges. In pre-settlement times, cowbirds were thought to have been largely confined to open country because continuous forests did not offer habitat for ground feeding




*Although some species of migrants nest in more than one location, this chart notes only one preferred type per species.*




*Foliage insectivores include species that glean insects from foliage and from the ground.*

Maslowski Photo

*Bamboozled by a Brown-headed Cowbird, a Red-eyed Vireo feeds young cowbirds instead of its own. Brood parasitism harms many species as forests are fragmented.*

Maslowski Photo

*It's easier for predators to find and destroy eggs along forest edges than in better protected interior habitat.*

or social displays. As forests were cleared, cowbirds extended their range. Forest-dwelling migrants, especially vireos, warblers, tanagers, thrushes and flycatchers, have been very vulnerable to cowbird parasitism.

**Nest predation** — The primary cause of neotropical migrant mortality is nest predation. However, it varies due to nest and habitat types. Compared to open-nesting birds, cavity nesters often have larger clutches of eggs and less nest predation. Among the former, ground nesters long have been assumed to suffer greater nest predation than shrub- or canopy-nesters. Recent evidence suggests this may not hold true in all habitats. An extensive summary of the North American literature on nesting songbirds has found that shrub-nesting birds in forest habitats experience the highest nest predation. Birds nesting in shrub and grassland habitats showed higher mortality rates than those using forests or marshlands. Although attempts have been made to remove nest predators (and cowbirds), long-term solutions depend on identifying and managing for habitat that reduces these mortality agents.

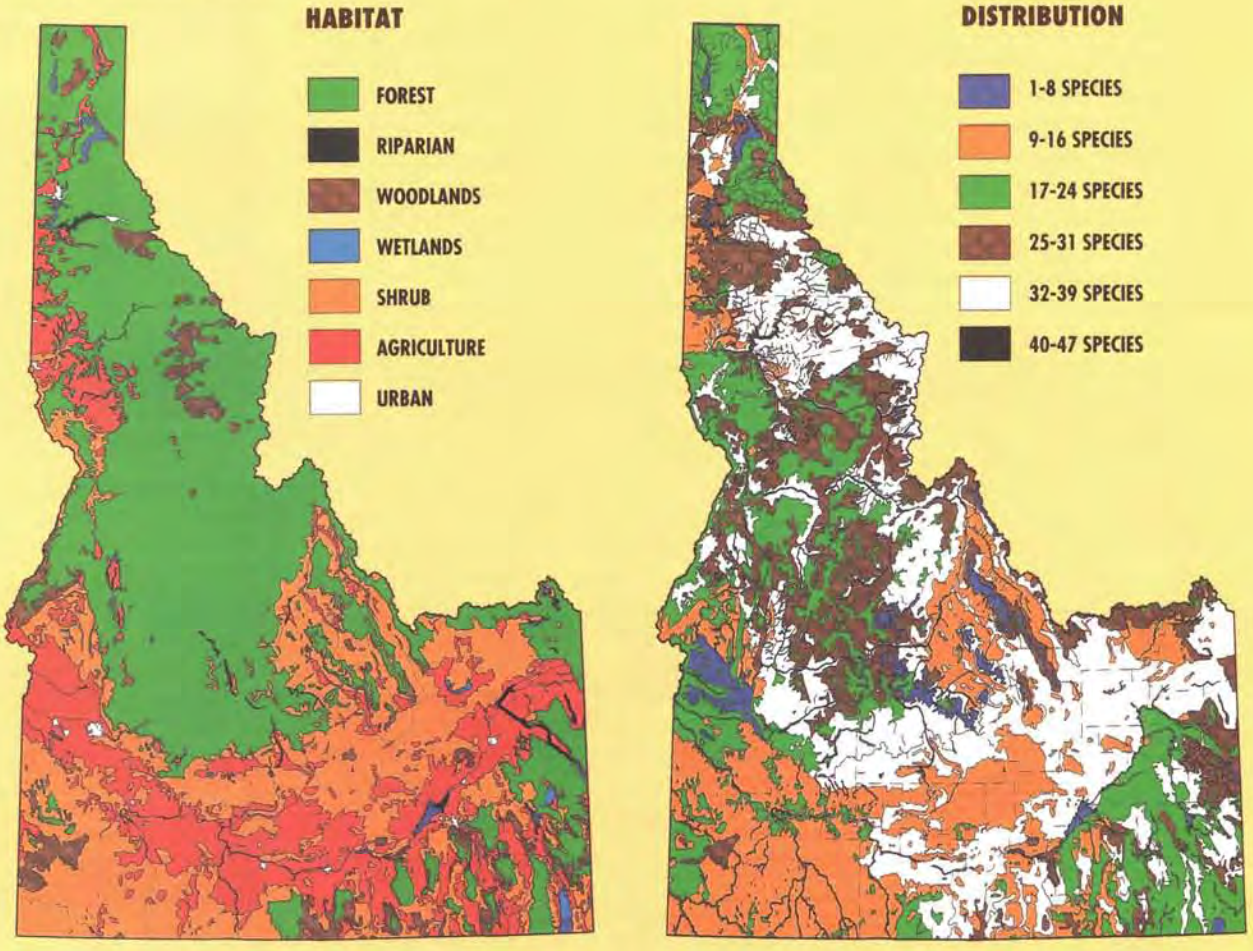
**Lack of information** — Factors that limit populations of eastern forest species may not apply to birds in western riparian areas. They may be better adapted to relatively large amounts of edge habitat and thus better able to avoid the deleterious effects of predation and parasitism. Although large amounts of coniferous forest habitat are being fragmented by timber harvest in the West, little is known about area-or edge-sensitive forest dwelling migrants and how losing their habitat is affecting them. Better understanding of migrant population responses and adaptations to western habitats is greatly needed.

**Other factors** — In addition to habitat fragmentation and tropical deforestation, several other factors may be affecting neotropical migrants. Foremost are pesticides of all kinds: fungicides, herbicides, insecticides. Although their use has been curtailed to some extent in the United States, many, including DDT, are still widely applied in the tropics. Natural catastrophes such as the current drought in the West may cause temporary local declines in some populations. Finally, neotropical migrants may be experiencing disturbances in their migration corridors or important stopovers, but how they respond is largely unknown.

## BIOGEOGRAPHY

These maps, generated by a powerful computer technology called a geographical information system or GIS, show habitats and distributions for neotropical migrants in Idaho. The distribution map was created by overlaying individual distribution maps of 78 obligate neotropical migrants. The resulting map shows where different numbers of species' distributions overlap. Both maps are products of a larger project called "gap analysis" (see Idaho Wildlife, Winter '92) that is using GIS technology to determine which species and habitats in the state are not in a protected area or preserve.

The maps show that agricultural land and shrub steppe occur primarily in the southern third of the state while the northern two thirds are mostly forest habitat. Comparing the maps reveals that in general, forested lands contain more species of neotropical migrants than agricultural or shrub steppe habitats. Less obvious and hard to depict on maps at this scale is the fact that streamside habitats, particularly in the southern Idaho desert, contain a disproportionately larger number of migratory landbirds than the upland habitats around them.



# CONSERVATION
## OF IDAHO'S NEOTROPICAL MIGRANTS

Conserving neotropical migrants is complicated by data-interpretation problems and conflicting evidence of population losses. Although convincing evidence exists that forest-dwelling long-distance migrants have declined, information also suggests some declines are not widespread and birds of open habitats may be having more problems than forest birds. Given these uncertainties, most biologists would agree it is better to err on the conservative side and implement conservation efforts now instead of waiting until the situation worsens.

Declines in animal populations may manifest themselves in several ways, which makes them hard to detect. For example, a decline may be caused by a species narrowing its range, using fewer habitats in its range, declining in abundance in all or a few habitats, failing to reproduce successfully, or any combination of the above. As a result, a major obstacle facing biologists is determining where the declines are occurring and what is causing them. The answers to these questions are likely to be quite different for the multitude of neotropical migrants whose natural histories are also quite variable.

**Data needed** — Probably the single greatest need for conservation of western neotropical migrants, particularly in the Rocky Mountains, is long-term data on population trends in different habitats under different management regimes. As ornithologist John Terborgh points out in *Where Have All the Birds Gone?*, one of the great shortcomings in studying migrants in the eastern United States is the lack of a scientific control — that is, there is no virgin forest left east of the Rockies so it has been hard to ascertain what forest fragmentation and other disturbances have done to migratory birds.

In the West, we have a great opportunity to begin long-term programs to monitor bird populations in undisturbed habitats such as the designated Wilderness in central Idaho. Such controls are invaluable in assessing the effects of various land management activities.

To help conservation efforts, the National Fish and Wildlife Foundation launched a major national initiative in 1990 called the Neotropical Migratory Bird Conservation Program. This interagency effort by the USFWS, U.S. Forest Service, Bureau of Land Management, National Park Service, U.S. Agency for International Development, Environmental Protection Agency and Department of the Navy adopted the motto "Partners in Flight." State natural resource agencies and a host of non-governmental organizations such as the National Audubon Society and The Nature Conservancy also are participating.

The initiative's primary goal is to determine species and habitats of greatest concern and develop a plan for long-term ecosystem protection. The program has five major components: monitoring, management, research, education and outreach, and international partnerships. The participants agree that the program must coordinate federal, state and local government activities as well as those of international groups and agencies, conservation organizations and private companies. To be effective, cooperative efforts in each of the five component areas need to be implemented simultaneously in both breeding and wintering habitats. National committees and regional working groups have been established to do this. Agency biologists in Idaho are participating in the program's Western Working Group.

You too, can be involved in Partners in Flight: Help count birds in the BBS and Breeding Bird Census. Work with agencies to change land management, especially to conserve large tracts of land. Support national and international groups acting on behalf of biodiversity conservation.

Despite the concerns for neotropical migrants voiced in this leaflet, there is some comfort in the fact that most species still number in the millions. Yet, at one time, so did the bison and the passenger pigeon. The former was nearly extirpated from the West and the latter is now extinct. The warning signs are flashing; the time for conservation is now.

Unfortunately, most neotropical migrants have poor name recognition with the general public. When was the last time you saw a Veery or Northern Waterthrush at your backyard feeder? No flagship species like the grizzly bear or bald eagle carries the banner for neotropical migrants. There's only the sobering thought that a spring without the return of singing birds just wouldn't seem like spring at all.

**Neotropical Migratory Bird Conservation Program**

Tracy Trent/IDFG

*Public land management practices directly affect much of the migratory bird habitat in Idaho. (above) Yellowstone Park, left, is protected but clearcuts have fragmented many acres of habitat on the Targhee National Forest, right. (below) A fence protects riparian vegetation, center top, from trampling by livestock along a stream in Idaho's Owyhee Mountains.*

BLM

# IDAHO'S MIGRATORY LANDBIRDS

(119 Species)

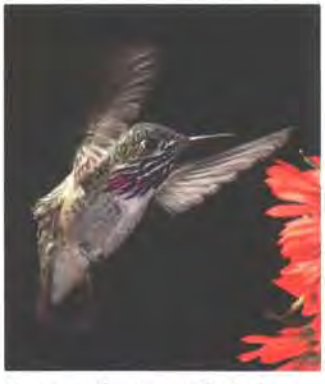
This chart summarizes where Idaho's neotropical migrant landbirds live and nest, what they eat and whether their population trends are rising or falling. Obligate migrants are indicated by the letter "A" and facultative by the letter "B". The "Dist" (distribution) column shows where to find each species (S: statewide, E: southeast; W: southwest; C: central; P: Panhandle). "Pop. Trend" tells if populations are decreasing or increasing insignificantly (– or +) or significantly (* or ∧). No data (N.D.) or no change in trend (O) are also noted. Breeding season habitats are CO (coniferous and mixed coniferous/deciduous); RI (riparian); SS (sagebrush, grassland, alpine); WO (woodland, aspen, mountain mahagony, juniper, mountain shrubs such as chokecherry and ninebark); WE (open water wetlands and marshlands); AG (agricultural fields). Nest types are C (cavity); O (open); B (burrow); P (parasite). Food preferences, grouped as foraging guilds, are AI (aerial insectivore); CA (carnivore); FI (foliage insectivore); NE (nectarivore); OM (omnivore).

| NAME | DIST. | POP. TREND | HABITAT ASSOCIATION | NEST LOCATION | NEST TYPE | FOOD HABIT |
|---|---|---|---|---|---|---|
| **Cathartidae:** | | | | | | |
| Turkey Vulture (A) *Cathartbes aura* | S | N.D. | SS,CO,WO AG | Cliff, Snag, Cave | C | CA |
| **Accipitridae:** | | | | | | |
| Osprey (A) *Pandion haliaetus* | S | – | WE,RI,CO | Snag, Decid/ Conif Tree | O | CA |
| Northern Harrier (B) *Circus cyaneus* | S | + | WE,RI,SS, WO | Ground | O | CA |
| Sharp-shinned Hawk (B) *Accipiter striatus* | S | N.D. | CO,WO,RI | Conif/Decid Tree | O | CA |
| Cooper's Hawk (B) *Accipiter cooperii* | S | N.D. | RI,WO,CO | Decid/Conif Tree | O | CA |
| Northern Goshawk (B) *Accipiter gentilis* | S | N.D. | CO,WO,RI | Conif/Decid Tree | O | CA |
| Swainson's Hawk (A) *Buteo swainsoni* | S | + | SS,RI,AG | Decid Tree, Cliff | O | CA |
| Red-tailed Hawk (B) *Buteo jamaicensis* | S | ∧ | AG,RI,SS CO,WO | Decid Tree, Cliff | O | CA |
| Ferruginous Hawk (B) *Buteo regalis* | S | – | SS,WO | Ground, Tree, Cliff | O | CA |
| **Falconidae:** | | | | | | |
| American Kestrel (B) *Falco sparverius* | S | + | SS,RI,AG | Snag, Cliff, Bldg. | C | CA |
| Prairie Falcon (B) *Falco mexicanus* | S | N.D. | SS,WO | Cliff | C | CA |
| Merlin (B) *Falco columbarius* | S | N.D. | WO,SS | Tree, Cliff | C,O | CA |
| Peregrine Falcon (A) *Falco peregrinus* | S | N.D. | WE,SS,CO | Cliff | C | CA |
| **Charadriidae:** | | | | | | |
| Killdeer (B) *Charadrius vociferus* | S | – | WE,AG,RI | Ground | O | FI |
| **Scolopacidae:** | | | | | | |
| Long-billed Curlew (A) *Numenius americanus* | S | ∧ | SS | Ground | O | FI |
| Upland Sandpiper (A) *Bartramia longicauda* | C | N.D. | WE,SS | Ground | O | FI |
| **Columbidae:** | | | | | | |
| Mourning Dove (B) *Zenaida macroura* | S | – | AG,SS,WO | Shrub, Tree, Ground | O | FI |
| **Cuculidae:** | | | | | | |
| Black-billed Cuckoo (A) *Coccyzus erythropthalmus* | E,W | N.D. | RI,WO | Decid Tree, Shrub | O | FI |
| Yellow-billed Cuckoo (A) *Coccyzus americanus* | E,W | N.D. | RI | Decid Tree, Shrub | O | FI |
| **Strigidae:** | | | | | | |
| Flammulated Owl (A) *Otus flammeolus* | S | N.D. | CO | Snag | C | AI |
| Burrowing Owl (A) *Speotyto cunicularia* | E,W | + | SS,AG | Ground | B | OM |
| Long-eared Owl (B) *Asio otus* | S | N.D. | RI,WO,CO | Tree | O | CA |
| Short-eared Owl (B) *Asio flammeus* | S | + | SS | Ground | O | CA |
| **Caprimulgidae:** | | | | | | |
| Common Nighthawk (A) *Chordeiles minor* | S | + | SS | Ground | O | AI |
| Common Poorwill (A) *Phataenoptilus nuttallii* | E,W | N.D. | SS,WO | Ground | O | AI |
| **Apodidae:** | | | | | | |
| Vaux's Swift (A) *Chaetura vauxi* | C,P | N.D. | CO | Snag | C | AI |
| White-throated Swift (A) *Aeronautes saxatalis* | S | N.D. | SS,WE,RI | Cliff | C | AI |
| **Trochilidae:** | | | | | | |
| Black-chinned Hummingbird (A) *Archilochus alexandri* | S | N.D. | RI,WO | Decid Tree | O | NE |
| Calliope Hummingbird (A) *Stellula calliope* | S | N.D. | RI,CO,WO | Decid/Conif Tree, Shrub | O | NE |
| Broad-tailed Hummingbird (A) *Selaspborus platycercus* | S | N.D. | WO,RI | Decid/Conif Tree | O | NE |
| Rufous Hummingbird (A) *Selaspborus rufus* | C,P | N.D. | CO | Conif/Decid Tree, Vine | O | NE |
| **Alcedinidae:** | | | | | | |
| Belted Kingfisher (B) *Ceryle alcyon* | S | – | RI,WE | Bank, Snag | B,C | CA |
| **Picidae:** | | | | | | |
| Lewis' Woodpecker (A) *Melanerpes lewis* | S | N.D. | RI,WO,CO | Decid/Conif Tree/Snag | C | OM |
| Red-naped Sapsucker (A) *Sphyrapicus nuchalis* | S | N.D. | WO,RI,CO | Decid Tree | C | OM |
| Williamson's Sapsucker (A) *Sphyrapicus thyroideus* | S | N.D. | CO | Conif/Decid Tree | C | OM |
| **Tyrannidae:** | | | | | | |
| Olive-sided Flycatcher (A) *Contopus borealis* | S | – | CO | Conif Tree | O | AI |
| Western Wood-Pewee (A) *Contopus sordidulus* | S | – | RI,CO,WO | Conif Tree | O | AI |
| Willow Flycatcher (A) *Empidonax traillii* | S | + | RI | Shrub, Decid Tree | O | AI |
| Hammond's Flycatcher (A) *Empidonax hammondii* | S | – | CO,WO | Conif/Decid Tree | O | AI |
| Dusky Flycatcher (A) *Empidonax oberholseri* | S | – | RI,WO,CO | Shrub, Decid Tree | O | AI |
| Gray Flycatcher (A) *Empidonax wrightii* | E,W | N.D. | WO,SS | Shrub, Decid Tree | O | AI |
| Cordilleran Flycatcher (A) *Empidonax occidentalis* | S | N.D. | CO,WO | Decid/Conif Tree, Ground, Cliff | O,C | AI |
| Say's Phoebe (A) *Sayornis saya* | S | N.D. | SS,AG | Cliff, Bldg. | O | AI |
| Ash-throated Flycatcher (A) *Myiarchus cinerascens* | E,W | N.D. | SS,WO,RI | Decid Tree, Snag | C | AI |
| Western Kingbird (A) *Tyrannus verticalis* | S | + | SS,AG,RI | Decid Tree, Shrub | O | OM |
| Eastern Kingbird (A) *Tyrannus tyrannus* | S | – | RI,AG | Decid Tree, Shrub | O | AI |
| **Alaudidae:** | | | | | | |
| Horned Lark (B) *Eremophila alpestris* | S | – | SS,AG | Ground | O | FI |
| **Hirundinidae:** | | | | | | |
| Tree Swallow (A) *Tachycineta bicolor* | S | – | RI,WE,WO | Snag, Decid Tree | C | AI |
| Violet-green Swallow (A) *Tachycineta thalassina* | S | + | WO,CO,RI | Snag, Cliff, Tree | C | AI |
| Northern Rough-winged Swallow (A) *Stelgidopteryx serripennis* | S | + | SS,WE,RI, AG | Bank, Cliff, Culvert | B | AI |
| Bank Swallow (A) *Riparia riparia* | S | + | RI,SS,WE, AG | Bank | B | AI |
| Cliff Swallow (A) *Hirundo pyrrhonota* | S | + | RI,SS,WE, AG | Cliff, Bridge, Bldg. | C | AI |
| Barn Swallow (A) *Hirundo rustica* | S | – | AG,WE,RI | Bridge, Bldg., Cliff | O | AI |
| **Certhiidae:** | | | | | | |
| Brown Creeper (B) *Certhia americana* | S | N.D. | CO | Conif/Decid Tree | C | FI |

Tom J. Ulrich

Masloski Photo

Gary Will/IDFG



Ron Spomer

*Neotropical migrants find all sorts of meals (top to bottom): Western Bluebird holding a grasshopper; Swainson's thrush munching berries; Kestrel clutching a vole; and Calliope Hummingbird about to sip from Indian paintbrush.*

## RECOMMENDED FURTHER READING


Ehrlich, P. R., D. S. Dobkin, and D. Wheye. 1988. The birder's handbook: a field guide to the natural history of North American birds. Simon and Schuster, New York. 785 p. (An essential desk reference for ecological information on all North American birds.)

Finch, D. M. 1991. Population ecology, habitat requirements, and conservation of neotropical migratory birds. U.S. Forest Service General Technical Report RM-205. (An excellent, up-to-date overview.)

Hagan, J. M. and D. W. Johnston (editors). 1992. Ecology and conservation of neotropical migrant landbirds. Smithsonian Institution Press, Washington, D. C.

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