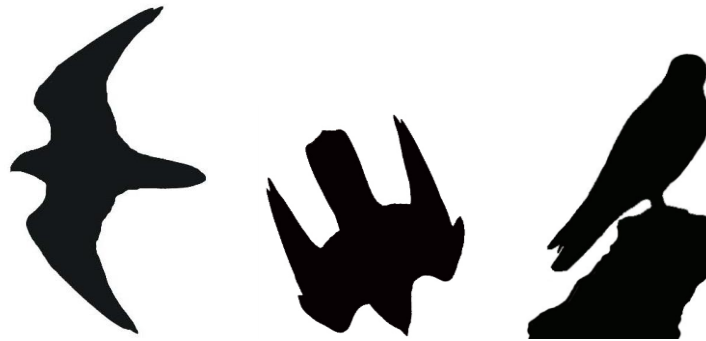


Wisconsin Wildlife *Fast Facts*

Compiled from various sources by Christian W. Cold, WDNR Ladysmith

Many birds have been described as high-performance flyers. Swallows are aerial acrobats. A tiny Asian swift holds the level-flight speed record. But swallows and swifts are dainty, little birds which lack the popular charisma of those who hunt quarry larger than tiny insects. When it comes to the combined attributes of speed, agility, endurance and power..... it is usually the falcon who reigns supreme.



The Falcons - *Masters of flight*



American kestrel *Falco sparverius*
(Latin - "sickle") (sparrow)

17 subspecies (3 in North America)

Synonyms:

Sparrow hawk, mouse hawk, windhover, killy-hawk, grasshopper hawk, grasshopper falcon, house hawk, rusty-crowned falcon.

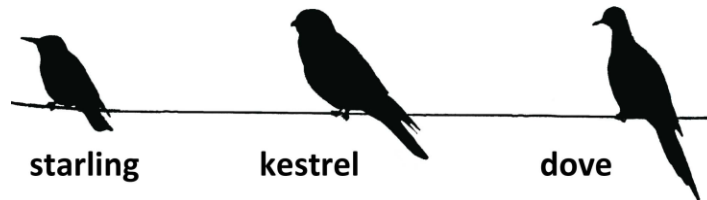
Description:

A conspicuous, robin-sized falcon of grassland, parkland, urban & agricultural settings. In flight, bird appears dainty, elegant and slim. Often hovers for extended periods. Male has brilliant color pattern with grayish-blue wings (dorsal), rusty tail with thick, black terminal band and thin, white tip. Breast is buff or rust with black spots.

Average 9" length, 22" wingspread and 4 oz. (94-126 grams).

Female dorsal & tail is rust - heavily banded in black. Breast is pale buff w/brown streaks.

Average 10" length, 23" wingspread and 5 oz. (115-160 grams).



Ecological Niche:

A small, quick, agile and proportionately-powerful avian predator of large insects, mice and small birds.

Habitat:

Grassland, shrubland, forest edge, wood lots, savannah, agricultural farmsteads, and open urban or suburban neighborhood settings.

Commonly seen perched on roadside power lines.

Breeding habitat is determined by availability of suitable nest sites (see nest sites).

Range:

Found throughout most of North and S. America (coast to coast.....boreal to sub-tropical).

Considered the most common desert falcon in the arid American southwest.

In WI, MI & MN a common summer resident statewide.

Winters in southern half of U.S.

Home range and movements:

Most birds in middle or southern latitudes are permanent residents.

Northern birds may migrate far to the south.

Juveniles appear to migrate further south than adults.

Peak migration time at Duluth (Hawk Ridge) is early Sept. (best) - early October.

Status:

Common and widespread in suitable habitat throughout the entire (continental) U.S.

Estimated U.S. breeding population of 2.4 million birds (2015).

Origin & prehistory:

What we know.....

Birds emerged from theropod dinosaurs during the Jurassic (~180 m.y.a.).

Modern (toothless) birds first appeared in the Cretaceous (~ 100 m.y.a.).

Cretaceous birds were likely direct competitors with pterodactyls and pterosaurs. Bird lineages were cut short in the late Cretaceous (~65 m.y.a. - Chicxulub impact event). Surviving lineages reestablished themselves and diversified. In the Paleocene (~60 m.y.a.) enormous, flightless raptors (phorusrhacids) were the largest land predators in South America. A great bird diversification occurred in North America by the Oligocene (~30 m.y.a.). Falcons first appear (as fossils) *tentatively* assigned to the late Miocene (~10 m.y.a.).

Note: Phylogenetic classification of birds has long been a contentious issue with scientists. Molecular clocks of species continue to be unreliable in the absence of a robust fossil record (necessary for calibration) and falcons currently are among the rarest of all raptors to be found as fossils. (See peregrine origin for recent findings in genome research.)

Temperament, Behavior and Habits:

Nothing shy about the kestrel... it boldly hunts, perches and nests in the open. Constant head-bobbing (calibrating depth of field) and tail-pumping (adjust balance) when perched. A hovering kestrel is usually interested in something much larger than a grasshopper.

Voice:

A sharp, crisp "killy, killy, killy" (excited or upset).
A whine "kweee.....kweee" (feeding or copulation)
A chitter (courtship-feeding solicitation..... "Come hither...I have something for you!")

Diet:

Summer: Insects (esp. crickets, grasshoppers & large dragonflies), mice, shrews, small birds, bats, young snakes and small frogs.

Winter: Rodents, shrews and small birds (to starlings).

24 grams daily (winter) intake or 21% of body weight.

Individual kestrels often specialize on one particular type of prey.

Male kestrels appear to have a higher preference for hunting birds.

Adaptations, abilities and limitations:

A remarkably-adaptable little raptor - easily habituates to human landscapes.

For its comparative size, it has the most powerful foot of all falcons.

Two distinct black spots (ocelli) on back of nape serve as false eyes to deter potential attackers from rear or above.

A similar species in Britain (Common Kestrel *Falco tinnunculus*) has demonstrated an ability to detect *near ultraviolet light*. Rodent urine reflects UV light in open sunlight. Mice and voles constantly release drops of urine during their daily movements. Kestrels can quickly recognize active mouse runways from high above and concentrate their hunting in areas where prey is most abundant.

Reproduction and growth:

Both sexes can breed as yearlings.

Monogamous relationship.

Males arrive on breeding territory several days earlier than females.

4-5 eggs down in mid-May (WI). Incubation 27-31 days (by female).

Young fledge at 28-31 days.

Parents continue to feed young up to 2 weeks after fledging.

Later, juveniles may gather in small groups with young from other nests.

Nest sites:

Cavities in trees, buildings & cliffs.

* Heavy preference for flicker excavations.

Adapts quickly to nest boxes.

The late Frances Hamerstrom reported that over a 20 year period it nested only 3 times on Buena Vista Marsh (s. of Steven's Point). She erected 50 used mink ranch boxes which produced over 100 young kestrels in the following 3 years.

* Compiler has found that kestrel appears to prefer a nest box over a flicker cavity.

Life span:

Most (~70%) perish before one year. Few reach 4-6 years (even in captivity).

11 ½ year band-return record. 14 & 17 year records for captive birds.

Mortality Parasites & Disease:

Average 70% juvenile (hatch year) mortality.

Pathogenic fungi & bacteria:

- Bacterial enteritis (coliforms)
- Aspergillosis (fungal infection of respiratory tract)
- Mycoplasma
- Pneumonia
- Avian tuberculosis (bacteria)

Internal parasites:

- trichomoniasis ("*frounce*") a protozoan commonly found in pigeons.
- Capillariasis ("*threadworms*")
- Coccidiosis (protozoan)
- Tapeworms, gapeworms & roundworms

Note:

In late 2014 and early 2015 outbreaks of Highly Pathogenic Avian Influenza virus (HPAI - strain H5N2) were reported in Minnesota and Wisconsin. As raptors are susceptible to this pathogen, it is anticipated that HPAI will be a factor in future bird mortality events in the Great Lakes Region.

Falconry and Captive Management:

Legal quarry is primarily English sparrows, starlings and mice (*roll hay bales*).

Mourning doves are too fast. Quail and pigeons are too large.

Chipmunks and ground squirrels are much too large and dangerous.

Word of caution to apprentices:

Due to its small size & high metabolism, management of ideal “flying weight” is difficult. Precise daily measurements of weight and food intake are necessary.

The kestrel can be flown from the fist or in traditional falcon “wait-on and stoop” fashion. Its small and inconspicuous size makes it the perfect bird for hunting in backyards, parking and vacant lots.

“Car hawking” (cast from moving vehicle) is popular but proceed with caution (*and have a designated driver*). Some Game Authorities consider this hunting from a vehicle.

Nuisance and damage:

Due to its small size and preference for insects and rodents, the kestrel has rarely (if ever) been a serious factor in agricultural (poultry) or civilian complaints.

It was the first of our falcons to be universally recognized and protected as a beneficial raptor.

Conservation status:

Widespread distribution and common in most areas.

Stable to increasing in some areas.

Habituates easily to urban settings.

Frequently chooses to winter in urban environments in the north provided there is a reliable food source (starlings & sparrows) and warm night-roost sites.

A steady population decline is occurring in some parts of North America:

- Recent (rather serious) decline in New England and coastal California, possibly from West Nile virus & suspected depredation by an increasing Cooper’s hawk population.
- 82% population decline in southeastern U.S. since 1940’s, due to decreasing nest site availability (due to) clearing of agricultural areas of long-leaf pines.

Human dimensions:

Anyone who harbors ill-will towards birds of prey has only to gaze upon this elegant and delightful, little “hawk” to reexamine their prejudice.

Merlin *Falco columbarius* (sickle) (pigeon or dove)

9 subspecies worldwide - 3 in North America

Wisconsin/Minnesota subspecies: *Taiga merlin*



Synonyms: Pigeon hawk, little corporal, blue bullet hawk, blue jack, blue lightning.

Description:

A conspicuous, dark, pigeon-sized falcon of northern forests, taiga, and urban parklands.

More solidly-built and chunkier than the kestrel.

Male dorsal is slate-blue . Undersides streaked. Tail banded with white bars.

Average 10” length, 23” wingspread and 5 ½ oz.

Female dorsal is dark brown. Underside streaked. No white bands on tail.

Average 12” length, 26” wingspread and 7 ½ oz.

The merlin does not bob its tail (which the kestrel frequently does).

Ecological Niche:

A small, quick, agile and proportionately-powerful avian predator of small to medium-sized birds and large dragonflies.

Habitat:

Generally found in northern forested (esp. coniferous) lake country.

Any semi-open terrain w/trees for nest sites (prairie groves).

Lack of perch sites may limit occurrence in agricultural areas.

Winters in open areas such as grasslands and coastal marshes.

Range:

Circumboreal (Holarctic) falcon - found (nearly) worldwide.

Boreal forests from Alaska, east through Great Lakes, Canadian Maritimes and south to Canada/US border.

Regional status:

Uncommon and local summer resident in upper Great Lakes– restricted primarily to northern forested lake country and associated suburban areas.

Home range and movements:

Most birds migrate, northern birds may reach S. America.

Pacific Northwest birds permanent residents.

Some prairie birds have recently become permanent residents in cities of n. plains.

History:

As settlers controlled prairie fires and planted shelterbelts merlin habitat expanded and the birds increasingly settled in prairie areas.

Prior to the 1970's there were few nest records for Wisconsin.

Origin & prehistory:

(See kestrel above.)

Recorded as a Pleistocene fossil in California (2 locations).

Remains also found at prehistoric sites in Idaho and S. Dakota.

Temperament and Behavior:

Described as constantly active and full of energy and purposefulness.

Most productive hunting is initiated from a perch in a direct, high-speed attack (*much like a Cooper's hawk*).

Appears to “play” at times..... chasing birds only to break-off pursuit after contact.

The only North American falcon which pursues birds through trees.

Typical hunting strategy is to conduct low (2 meters off ground) searching (coursing) flights, suddenly surprising and flushing birds.

Voice:

Territorial birds utter a rapid, high-pitched “ki-ki-ki-ki-ki”.

Harsh, shrill chattering notes.

Diet:

Small to medium-sized birds (to jays and flickers).

House sparrows, starlings and Bohemian waxwings are important winter foods for urban merlins.

Often specializing on locally abundant prey: Horned larks on the plains.

English sparrows in urban areas.

Small sandpipers & plovers on the coasts.

A pigeon is probably the upper prey limit (merlin lacks the strength to break its neck). Sometimes rodents, bats, large dragonflies & grasshoppers.

Adaptations, abilities and limitations:

40-50 kph in level flight.

When in pursuit of a bird (*power-flight*), the wingtips are held back....the upstroke is high...and the downstroke is fast and forceful, propelling the falcon forward quickly.

Reproduction and growth:

A few breed at 1 year. Most start at 2 years.

Male is the primary provider for the incubating and brooding female.

He may occasionally incubate for brief periods.

4-5 eggs are incubated for 30-32 days (mostly by female).

The young fledge in 30-34 days.

They are considered independent one month later.

Nest sites:

Typically an old crow or hawk nest in a conifer (*esp. big spruce*) species.

Sometimes in large tree cavity or cliff ledge. Rarely on the ground.

Site often near clearings around bogs or lakeshores.

May be near dwellings.

Lacking sites, the merlin may occasionally build its own nest.

Life span:

7-10 years reported.

Movements:

Pacific northwest and city birds become permanent residents.

Rural birds tend to migrate.

Winters primarily in Mexico and Central America (rarely to northern S. America).

Southward migration often begins shortly after the young can fly.

Mortality Parasites & Disease:

60-70% juvenile mortality reported.

Rate appears to be lower for resident, urban birds.

Captive Management and Falconry:

In medieval Europe it was considered a *ladies bird* and used in hunting skylarks.

A favorite falconry bird for *Catherine the Great* and *Mary Queen of Scots*.

Described in old British falconry manual as “*so inferior in external appearance and yet so vastly superior in courage and energy.*”

Easily manned and trained to the lure.

The merlin does not “wait on” (*hover in anticipation of a flush*) like a peregrine.

Rather... it is flown *off-the-fist* at birds flushed from the ground or bushes.

Often considered “impatient” and will not readily wait until game is flushed.

Inherent disposition to carry prey (*a bad habit in falconry application*).

Sometimes considered neurotic and prone to biting its-own legs.

Difficult to maintain at ideal flying weight and condition.

Falconers are advised to hunt in open areas as pursuit often takes falcon and quarry out of range of sight (*merlins are easily lost this way*).

Nuisance and damage:

Formerly described as destructive to birds.

Economic impact today (nuisance and damage) is universally accepted as negligible.

Conservation status:

Stable to increasing in suburban areas throughout the Great Plains, upper Great Lakes and New England.

Where to see them:

MN: Boundary Waters Canoe Area. Fall migrants pass through Duluth (Hawk Ridge).

Best fall migration time at Duluth (Hawk Ridge) is mid-September through mid-

October. Best viewing is early morning or late afternoon. 4:00 p.m. (“*merlin time*”).

WI: Chippewa Flowage, Turtle Flambeau Flowage. Migrant w. shore of L. Michigan.

Peregrine falcon *Falco peregrinus*
(*sickle*) (*wandering*)



19 subspecies worldwide (3 in North America).

Synonyms:

Duck hawk, big-footed falcon (worldwide use), wandering falcon, rock hawk, stone hawk, ledge hawk, blue-bullet hawk, black-cheeked hawk, mountain hawk.

Description:

A medium-large (crow-sized), stocky, sturdy falcon with long, narrow, pointed wings.

Adult plumage is variable but typically whitish undersides with fine black barring.

Dorsal is dark bluish.

Juvenile plumage dorsal is brown to reddish-sepia and pale cream to buff below - streaked vertically in brown.

Plumage follows *Gloger's Rule*: Pale tones in high latitudes & arid regions.

Dark, heavy pigments in humid climates.

Male: Average 15" length , 39" wingspread and 1 ¼ lbs. (500-800 g.)

Female: Average 17" length, 45" wingspread and 2 lbs. (750-1,200g.)

Legs are thick and muscular. Toes are long and powerful.

In flight displays steady, powerful, *fluid, rolling and whip-like* wingbeats.

Often soars on flat or slightly curved wings (looks like a retracted bow and arrow).

Ecological Niche:

A moderately large, quick, agile and powerful avian predator of birds.

Habitat:

The peregrine is considered an "*open-country*" bird at all seasons and locations.

Prefers non-forested areas for direct aerial pursuit of avian prey.

Occurs where special conditions make available a broad spectrum of birds.

Coastlines, barrier islands, cliffs and ridges which "funnel" migrants.

Range:

Nearly worldwide except for polar regions.

Home range and movements:

Territory is determined by food availability.

Males often travel south only-so-far as they can locate a food supply.

Migrants travel along barrier islands, coastlines, lake edges, mountain ranges.

Best time at Duluth (Hawk Ridge) is September-early October. (record high late Sept.).

Status:

2024 global estimate of 340,000 birds.

North American estimate of 3000 breeding pairs.

MN: Delisted from state endangered to state-threatened (1996). Currently over 50

active sites (north shore L. Superior, Mississippi R. bluffs & bridges, skyscraper

balconies, power plant stacks, and rooftops in St. Paul, Minneapolis and Rochester.

WI: Listed as State endangered in 1975.

History:

Mid-1940's: U.S. population (appeared) stable.

1930's & 40's: Eastern U.S. population estimate of 500 breeding pairs.

1000 breeding pairs in western U.S. and Mexico.

Late 1940's: Introduction of pesticide DDT initiates a sudden population decline.

Reproductive failure (egg shell thinning) due to impaired calcium metabolism.

DDE (a breakdown product of DDT) also implicated in the decline.

1957: Eyries (nest sites) along Wisconsin River are abandoned.

1958: Eyries along Niagara Escarpment (Door Co.) are abandoned.

1964: Eyries along Mississippi River bluffs (14) are abandoned.

Species is considered extirpated east of the Mississippi River.

1970: Listed as federally endangered.

1971: DDT banned in Wisconsin.

1972: U.S. partially bans (restricts use) of DDT.

Mid-1970's: Decline abates with ban and restrictions of pesticide.

1975: Peregrine listed as Wisconsin endangered.

1987: Wisconsin peregrine recovery program begins with release of 14 captive-bred young in Milwaukee, then Madison, La Crosse, Racine, & Pleasant Prairie.

1999: Removed from Federal endangered species list.

2006: 27 WI territorial pairs have fledged 435 young to date.

A strong nationwide recovery continues.

2014: Minnesota reports season productivity of 120 chicks from 45 sites.

Wisconsin reports 97 chicks from 31 sites.

2024: MN reports 53 occupied sites.

WI reports 42 successful sites producing 109 young.

Origin & prehistory:

Recent genetic research (genome sequencing) has revealed that the peregrine and saker (an Asian falcon) diverged from a common stem-stock ancestor approx. 2.1 million years ago. Under strong and rapid selective pressures (climate change) the ancestor rapidly diversified (adaptive radiation) into forms equipped to live in different environments. The saker developed into a more desert-tolerant form.

The peregrine emerged from a genetic bottleneck ~ 100,000 years ago and again ~ 20,000 years ago (*probably due to contracted range and habitat loss due to expansion of continental ice sheets*).

Temperament and Behavior:

Migrant birds hunt actively in early morning and late afternoon.

Favored hunting tactic is "searching flight" high over an open water crossing.

Sometimes makes a "*flat-rush*" at a group of birds it has spotted on the ground.

A penchant to bathe daily (*probably to rid itself of external parasites from prey*).

11

Communication and Vocalizations:

Typically silent when alone, but highly vocal at the nest site.

Harsh, rasping staccato "*cacking*".

Also chitter or chattering scream and treble-whine (food-begging).

Diet:

Over 250 species of birds reported.

Favors shorebirds, waterfowl and pigeons

Daily food intake: 104 grams (cold weather) or ~12% of body weight.

Adaptations, abilities and limitations:

70 mph limit in level "*power-flight*". 250 mph recorded for a dive ("*stoop*").

A stoop sounds like "*tearing silk*".

At the climax of a stoop, the legs are held forward and against the breast, the three front toes are held up and the hind toe (hallux - which is anchored with heavy tendons and tipped with a massive talon) delivers a solid, slashing blow (punch) to the prey.

Special cone-shaped bones in center of nostrils control air-flow intake at high speeds. This reduces pressure on the lungs during stoops. (*Same design is employed in modern jet engines to prevent air pressure overloads*).

A transparent eyelid (nictitating membrane) shields the eyes and enables continuous sight at high speeds.

Dark patches below the eyes reduce reflective glare.

The peregrine is more sensitive to heat and cold extremes than the prairie falcon and gyrfalcon.

As in all falcons, the upper mandible has tooth-like edge for dispatching prey (bite & twist motion severs the spinal cord).



Reproduction and growth:

Breeding behavior begins at 2 years.

Lifelong monogamous relationship (usually).

Female does most of the incubation. Male does not incubate at night.

Average of 2-3 eggs are laid in mid-late April (WI).

Incubation 32-34 days. Young fledge at 35-42 days.

12

Nest sites:

“Aerie” is usually a scraped depression on a cliff.

Sometimes a shallow tree cavity (broken top of large snag).

Aerie typically has commanding view of surroundings.

Approx. 70% of Midwest sites (today) are on tall bridges, buildings & smokestacks in urban areas.

In Britain there are records of continuous eyrie use for 700 years.

Movements:

Short distance and/or Neotropical migrant.

Tundra birds are long-distance migrants.

Winters in east-coastal & southern U.S., Mexico, Central & South America.

Arrives in WI late February to early June.

Departs WI mid-August to early December.

Life span:

12 ¼ year band return.

Mortality Parasites & Disease: (See kestrel for falcon pathogens and parasites.)

Average of 60% juvenile mortality.

Predation of nestlings by great-horned owls is significant (especially at cliff sites).

High susceptibility to aspergillus fungus (aspergilosis).

Captive Management and Falconry:

Once the preferred bird for the *entitled aristocracy* of Europe.

The average American falconer enters the peregrine on pheasants, Hungarian partridge, prairie grouse and waterfowlespecially mallards, widgeon, teal and (occasionally) coot.

Beginners are advised to obtain a parent-raised *tiercel* (male) if hunting small ducks, Hungarian partridge (huns) and quail or a parent-raised *falcon* (female) if intent is to hunt larger ducks, pheasants and prairie grouse.

“A grounded cock pheasant that is full of fight may be a bit more than a peregrine can manage.”

Imprinted birds are not recommended for beginners.

Nuisance and damage:

Once universally described as destructive to birds.

Today only an occasional predator of free-flighted domestic pigeons at lofts.

Conservation outlook:

Although found on six continents, it remains an uncommon bird in most areas.
Has been reintroduced in many temperate areas of North America.
Most major cities in the Eastern U.S. have nesting pairs today.
Approx. 70% of breeding peregrines in the Midwest are now urban or semi-urban birds who nest on man-made structures. *Because of this, there might be (or will be soon) more nesting pairs than in pre-settlement times!*

Human dimensions:

History has taught us that birds that eat birds (or fish) exclusively are the first to suffer the clinical effects of toxic substance bio-accumulation. Like the osprey and the brown pelican, the peregrine warned us of the perils of DDT and other persistent pesticides.

Where to see them:

- MN: Nests along north shore of Lake Superior, L. Mississippi River bluffs, Twin Cities & Rochester. Fall migrant at Duluth (Hawk Ridge).
- WI: Nests in Milwaukee, Racine, Sheboygan, Manitowoc & Green Bay. Fall migrant along w. shore of L. Michigan and Superior.

Footnote: A rare winter resident in our area.....

Gyr Falcon *Falco rusticolus*

This large (size of a red-tailed hawk), heavily-built falcon is rarely seen in our area. It is an arctic bird which occasionally appears in the northern tier of the lower 48 states as a winter resident. Many "gyrs" may winter in the arctic on the open ice fringe where sea ducks concentrate.

Plumage tones range from white to gray to almost black. Sometimes mistaken as a large peregrine, it lacks the bold crisp markings. It has also been described as a giant merlin (and *vice-versa*) in general appearance.

Individuals interested in seeing this rare bird are advised to visit the west shore of Lake Superior (Superior/Duluth area) from late October to mid-March. A bird or two sometimes winters on Wisconsin's Buena Vista grasslands in southwestern Portage County.

Would you like to know more?

North American Falconers Association <http://www.n-a-f-a.com/>

Wisconsin Falconers Association <http://www.wisconsinfalconers.org/>

The Raptor Center - U of MN <http://www.raptor.cvm.umn.edu/>

Raptor Education Group, Inc. <http://www.raptoreducationgroup.org/>
Raptor Research Foundation <http://www.raptorresearchfoundation.org/>