



Habitat and Research Needs of Midwest Accipiters and Buteos

Sharp-shinned Hawk (*Accipiter striatus*)

Sharp-shinned hawks are at home in most forest situations, especially those that contain at least some conifers. When dealing with the size of a nest tree, in the accipiters, the size of the nest tree positively correlates with the size of the bird. Therefore, sharp-shinned hawks tend to nest in smaller trees, which means shorter trees, located in denser stands than those frequented by the Cooper's hawks.

During migration, sharpies are much more likely to fly over forests than fields or marshes, possibly because of the species' tendency to hunt over forests and forest edges.

On their winter range, sharp-shinned hawks are showing more and more affinity for farmhouses and suburban homes as the species appears to be adapting to finding easy food at birdfeeders. Females exhibit this trait more than males.

The shape of a nesting sharpie's territory is more intriguing than its size. Males tend to frequent an area extending from the nest site varied distances in a linear fashion, whereas females tend to frequent a smaller area that is more circular in shape from the nest location. A male's territory will average about 2 square kilometers with the female's area being slightly more than half that size.

During the winter months, both male and female sharpies have territories that average from 2 ½ to 3 square kilometers.

Sharp-shinned hawks tend to be secretive and since they nest in dense forests, they are difficult to study during the nesting season. This is presumably the reason that we have very little knowledge of the events that lead up to the actual raising of young. This might be an extension of the fact that the spring migration in sharpies has been studied very little compared to the fall migration.

We also need information on the following aspects of the sharp-shinned hawk:

- quantitative data on winter habitat requirements
- daily pattern of hunting and prey captures
- vocalizations
- degree of territoriality during the winter months
- immature stage
- nesting success, either annually or over a lifetime
- nesting success as it relates to the start of incubation
- nestling and fledgling behavior
- post-breeding dispersal
- forest patch size, and the age structure and species composition of the forest in which it nests

Perhaps most startling is the lack of accurate estimates of sharp-shinned hawk abundance at any spatial scale. Without this information we can do nothing to determine the population-level effects of various forest management practices.

A disturbing fact is that we have no "thorough, continent-wide, multi-site analysis of banding-return data, focusing on sex, age, regional differences, and both within- and across-year temporal differences in wintering areas." This is in spite of the fact that more than 39,000 individuals had been captured as of early 1998. Numbers are certainly much

higher now, yet no study such as the one mentioned above has been undertaken.

Finally, we know that these birds frequent areas of human habitation, but we don't know the effects of this habitat on winter distribution, abundance, and survival.

Cooper's Hawk (*Accipiter cooperii*)

The Cooper's hawk requires larger, older trees than does the sharp-shinned hawk, but Coops are not quite as particular about the species mix of those trees or where those trees are located. Cooper's hawks will inhabit deciduous, mixed, or coniferous forests as well as deciduous riparian habitat. Cooper's hawks seem equally at home around human disturbances and may even have an advantage in fragmented habitats, urban, and suburban areas.

In comparison to the habitat of sharp-shinned hawks, Cooper's hawks require less dense forests with trees at least 30 cm in diameter. In general, Cooper's hawks are most abundant in forests in the 30-70 year age class.

There is little data available on habitat use during the spring and fall migration and no data exists on habitat use during migration in the eastern US. Cooper's hawks are known to hunt around bird feeders in winter.

The size of the territory occupied by Cooper's hawks ranges from 400 to 1800 ha in some areas of the Midwest. Outside of the breeding season, Coops are solitary and any groups seen migrating together are probably nothing more than incidental occurrences.

Despite the fact that Cooper's hawks are fairly common and easily seen in most areas, there is surprisingly little known about the birds, especially in the areas of winter diet, winter ecology and behavior, and breeding biology in urban and suburban habitats.

Migration information is lacking as well. We do not have any quantitative data on habitat use during spring and fall migration or overwintering sites. We need information on food selection and storage outside the breeding season.

There is little knowledge on daily vocalization patterns or the daily time budget of this species outside of the breeding season. We also are lacking knowledge in the areas of pair bond formation, lifetime reproductive success, and the immature stage of these birds.

Northern Goshawk (*Accipiter gentilis*)

Very little is known about the Northern goshawk and that which we do know is based on European studies. But since we have them in our area only on rare occasions in the winter, our study needs to focus on that time of year. Unfortunately, even less is known about this species during the winter months and none of the information is from the eastern United States.

In terms of research needed, the wintering biology of the Northern goshawk is almost completely unknown and this data is needed to be able to manage the species. Probably the best things that Midwest birders can do for the Northern goshawk is look at any fall sightings of Northern goshawks that might indicate an irruptive season on the way. From that point on, any sightings should be fully documented, including the location, any and all behavior observed, both macro- and micro-habitat uses, and hunting attempts and captures observed.

Red-shouldered Hawk (*Buteo lineatus*)

Different populations of red-shouldered hawks appear to prefer different types of

habitat. The habitat utilized by eastern populations varies from bottomland hardwood, riparian, and flooded deciduous swamps, to upland mixed forests. In all cases, however, the trees in the area are generally mature to old-growth canopy trees. Density of the understory varies greatly.

During migration, red-shouldered hawks tend to spend more time in more fragmented areas and smaller patches of forest than during the breeding season.

Winter habitat requirements include lowland areas near water and much more open areas than during other times of the year where almost all of them will hunt voles. They have also been known to take birds from feeding stations.

The space requirements for breeding red-shouldered hawks are highly variable, ranging from about 100 to more than 300 ha in eastern populations. Females require less area than males, but during the winter, the ranges of both sexes expands and may average as much as four square kilometers.

Perch sites for wintering red-shouldered hawks are much lower (only about 6 meters high) than that of either red-tailed or rough-legged hawks.

Considering the vastness of the red-shouldered hawks' range on the eastern half of the continent, little is known about it on the breeding grounds and virtually nothing is known about the immature stage of the bird. Several areas of research are suggested:

1. The impacts of forest fragmentation need to be quantified.
2. More precise data on optimal habitat for reproductive success is needed.
3. Marked populations are needed to study such things as the function of vocalizations, longevity, and lifetime reproductive effort and success.
4. Details are lacking on the migratory behavior and habitat needs of this species as well as their habitat preferences during the winter.

Broad-winged Hawk (*Buteo platypterus*)

Broad-winged hawks require moderately humid deciduous forests mixed with conifers for nesting habitat. Small open areas and water within these habitats provide for their foraging requirements. In general, broad-winged hawks stay away from human dwellings, but some individuals seem completely indifferent.

Almost nothing is known about the migration and wintering habitat requirements.

The size of the nesting territory has received little attention but it is known that males have larger territories than females during the period of time from nest completion to the fledging of young. Anecdotal reports regarding habitat during migration and winter months tend to show that these birds are solitary and territorial with each bird maintaining its own single hunting area. The size of that area is unknown.

Because so little is known about the winter ecology of this species, research is urgently needed in this area. However, these birds are only in the Midwest during the breeding season. That does not mean there is nothing to discover in this species. Research is needed in the following areas:

- size of home range and nest site fidelity
- size of forest patches needed for reproductive success
- lifetime reproductive success and longevity

One area that needs immediate attention is the design of survey methods. Many woodland raptors are thought to be declining in numbers, but the difficulty that these forest denizens present in surveying their populations creates the need for specialized

survey methods in order to get accurate population estimates.

Red-tailed Hawk (*Buteo jamaicensis*)

Red-tailed hawks are the most studied of the buteos in the continental United States. They prefer open areas for hunting, encircled by tall trees for perching while hunting. Their habitat preferences do not seem to change much from summer to winter, but it has been noted that males will utilize wet areas (marshes, swamps, etc.) more than females will during the winter months.

Size of the home territory varies widely with the season. Males need territories from about 100 ha in the summer to almost 400 ha in the fall. Females' territories are somewhat smaller ranging from 85 ha in the spring to almost double that in the winter.

Since red-tailed hawks are so well-studied, no further research is needed at this point. However, population numbers will always need to be tracked so any declining trends can be recognized in an efficient manner.

Rough-legged Hawk (*Buteo lagopus*)

Rough-legged hawks appear in the Midwest during migration and during the winter months. While migrating, these birds tend to stay away from forested areas and areas with dense human populations. The numbers of these birds seen flying in valleys during migration times suggests an affinity for lower elevations.

During the winter months, open country is home for these hawks. Their preferences lean strongly toward short-grass habitats, including pastures, wet meadows, plowed fields and roadsides. They avoid old corn fields, forests and lakes. Utility poles in these areas offer good roost sites for rough-legged hawks, but there have been scattered reports of communal roosting in large trees that border these open areas.

Collection of banded birds suggests that males tend to migrate three percent (about 3 degrees of latitude) farther south than females. The sexes tend to exhibit the same migratory patterns no matter what the age of the individual.

Numerous reports indicate extensive overlapping of territories on the wintering grounds. Limited data exists on the size of these ranges but what is available tells us that the territory size is highly variable, from 6 to more than 70 square kilometers. Interestingly, the higher density of utility poles, the smaller the winter territory. As the number of utility poles decreases, the winter territory size increases.

The wintering biology of the rough-legged hawk deserves more attention. Virtually nothing is known about inter- and intraspecific territoriality during the winter months. We also need to know more about fidelity to wintering sites and whether or not fluctuations in prey availability have any effect on this fidelity. We also need to know more about the relationship between age, sex, and wintering locations in order to properly manage habitat on the wintering grounds for this species.

For more information on these or any of more than 700 species of birds in the continental US, subscribe to the Birds of North America – Online, presented by the Cornell Lab of Ornithology and the American Ornithologists Union. (<http://bna.birds.cornell.edu/BNA/>)