

SHARP-SHINNED HAWK MONITORING AT LAST MOUNTAIN REGIONAL PARK, SASKATCHEWAN

Ross D. Dickson

Last Mountain Bird Observatory, Box 154, Avonlea, SK, S0H 0C0



Figure 1. Sharp-shinned hawk.

Alan R. Smith

Thousands of small birds are counted, captured, and banded each year at Last Mountain Bird Observatory (LMBO), a migration monitoring station established in 1989 near Last Mountain Lake, Saskatchewan. A small number of sharp-shinned hawks (*Accipiter striatus*, hereafter sharp-shins; Fig. 1) are encountered sporadically during their autumn migration, more often seen near the mist nets than entangled within them. Sightings at LMBO reach a plateau during the last 3 weeks of September; however, records of migrants range from 3 August to 13 October in the surrounding Last Mountain Lake National Wildlife Area (LMLNWA). Little is known about sharp-

shin daily and seasonal abundance, the length of their stay, or their behaviour at LMBO.

To answer some of these questions, I conducted a hawk watch from 26 August through 4 October 2004 at the southeast corner of Last Mountain Regional Park to coincide with the daily 6-hour banding period (Fig. 2). LMBO banders provided additional data such as sharp-shin age, travel direction, and time of encounters near the nets (A. Smith, R. Waple, pers. comm.). Data sets were compared each day to identify birds that may have been seen at both locations.

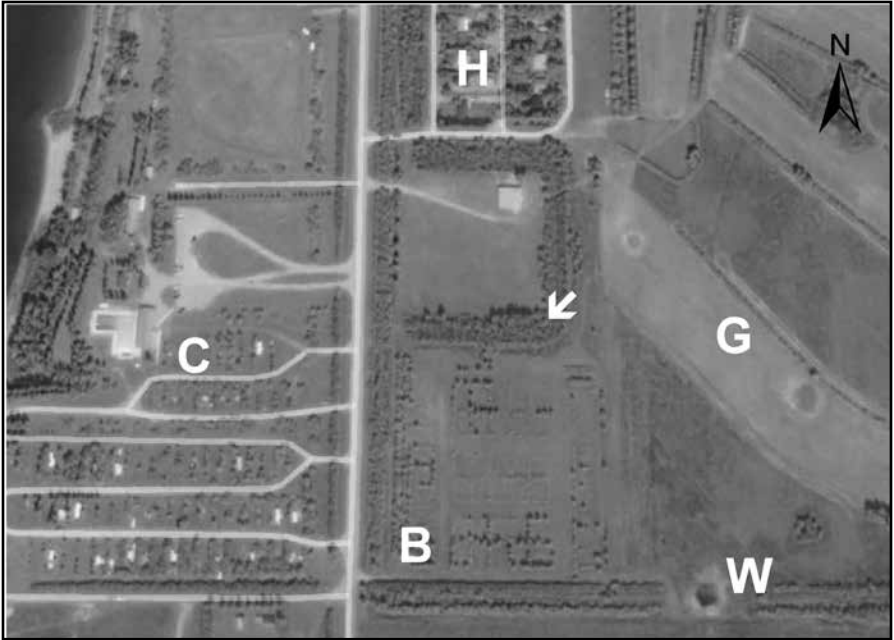


Figure 2. South end of Last Mountain Regional Park. B = Last Mountain Bird Observatory banding station, W = hawk watch site, C = main campground, G = golf course fairway, H = houses, white arrow = site of most hawk captures. Caragana hedgerows and their shadows show up as rough-edged lines near the banding station, hawk watch site, and in the campground. Last Mountain Lake is the dark area in the top left corner. Map credit: Lois Vanthuyne adapted an image from Google Earth©.

Results and Discussion

In total, 444 migrant raptors including turkey vultures (*Cathartes aura*) were recorded during 199 monitoring hours over 37 of 40 potential survey days at the hawk watch site. Stormy weather caused some survey gaps. Some individuals could not be identified to species because of distance or brevity of viewing time. Sharp-shins (n = 183) made up 41% of all birds, occurring on 28 days. Other migrant raptor species included osprey (*Pandion haliaeetus*), bald eagle (*Haliaeetus leucocephalus*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), northern goshawk (*A. gentilis*), broad-winged hawk (*Buteo platypterus*), Swainson's hawk (*B. swainsoni*), red-tailed hawk (*B. jamaicensis*), American

kestrel (*Falco sparverius*), and merlin (*F. columbarius*).

Sharp-shins are common annual visitors to the south end of Last Mountain Regional Park but they are undercounted at LMBO. Warning calls by swallow or warbler flocks may be the only indication that this secretive accipiter is in the area. The number of hawk sightings appears to vary inversely with banding activity; that is, a busy bander has little time to watch for hawks and therefore would undercount them.

Sharp-shins were observed by banders on 16 days at LMBO during autumn of 2004. The long-term (1991–2010) median is 14 days. It is assumed that banders

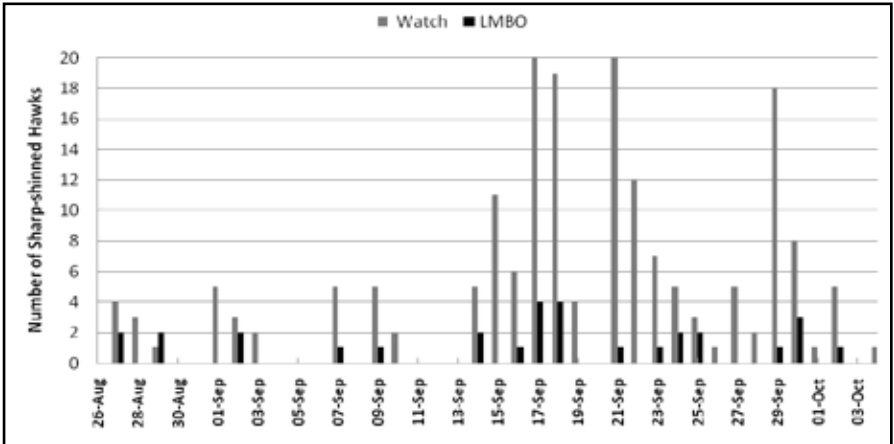


Figure 3. Comparison of daily totals of sharp-shinned hawk sightings at Last Mountain Bird Observatory (LMBO) and at the raptor watch site during 2004.

spend similar amounts of time patrolling the mist net network each year. The hawk watch recorded more sharp-shins and on more days ($n = 28$) due in part to greater time committed to the task (Fig. 3). The location of the hawk watch allowed monitoring of most hawks in flight that reached the south east end of the park. Dense vegetation favoured by sharp-shins and their prey is clustered on the east side of the park. Sharp-shins are uncommon at any time in the open spaces of the main campground and playing fields close to the lakeshore.

Sightings of sharp-shins show little correlation to the daily abundance of potential prey. Their migration overlaps with the seasonal migration peaks of yellow-rumped warbler (*Dendroica coronata*) and dark-eyed junco (*Junco hyemalis*) through LMBO. These abundant boreal passerines, important prey species for sharp-shins during the breeding season, were less plentiful than usual during fall 2004 migration. LMBO data indicate that yellow-rump and junco seasonal totals overall were at 59% and 84%, respectively, of the long-term median, yet sharp-shin encounters were

at typical levels. Anecdotally, sharp-shins are frequently reported on days with few passerines at the park. It is possible that on those days with scarce potential prey an accipiter must keep moving, exposing itself to human eyes instead of relying on an ambush hunting method.

Daily peaks of predator and prey may not coincide due to different migration strategies. Overnight storms force passerines to seek shelter at the park. Cloudy skies at sunset prevent them from using celestial navigation, so some species stay longer. In contrast, accipiters are daytime migrants that can save energy by moving with northerly winds following a cold front. A sharp-shin leaves its summer or natal territory by necessity when its food supply dwindles. It does not cache prey.

The timing of the hawk watch (6 hours, morning to mid-day) documents only some of the raptors because they may migrate at any time of day. Accipiters begin hunting at first light before sunrise. Some successful hunters had obvious bulging crops as they flew past the hawk watch site in early morning. Others were

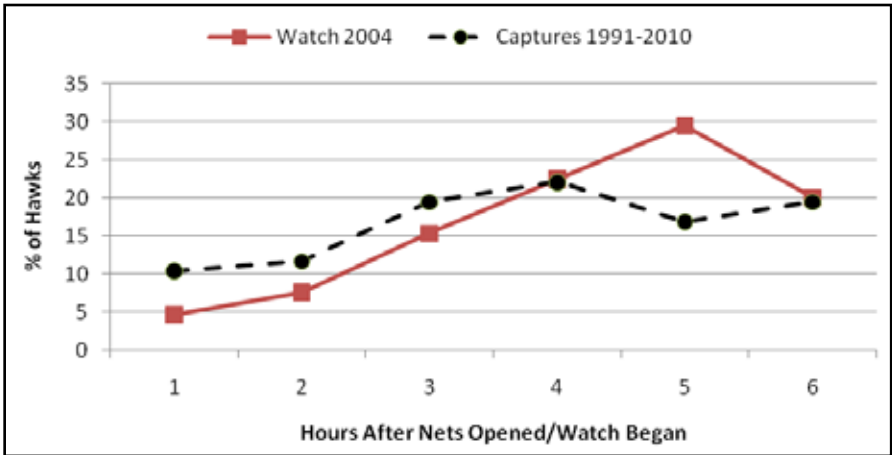


Figure 4. Frequency distribution of sharp-shinned hawk encounters during the 2004 hawk watch and from long-term capture data ($n = 77$). Time periods are presented as hours after opening the nets because LMBO changes its opening time from 07:00 to 08:00 h CST in late September.

observed still hunting after sunset as they crossed LMLNWA pastures north of the park. Sharp-shin encounters as shown by data from the 2004 hawk watch site or LMBO historical capture records rise through the morning and level off near noon (Fig. 4). I saw a similar pattern at the Windy Point, Alberta, hawk watch site where daily totals exceeded 100 sharp-shins during migration peaks.

This hawk watch counted all visible raptors that passed by at any altitude. LMBO mist nets, with mesh intended for passerine capture, passively sample an unknown proportion of birds including sharp-shins that fly near the ground. Most captured sharp-shins are males; the much larger females can usually climb out. Mist nets at LMBO are 2.4 m tall and 13 m long, with 30-mm nylon mesh. Two nets shaded by dense *Caragana* rows account for most captures (arrow in Fig. 2).

LMBO long-term capture data support the theory that, in general, immature accipiters migrate south in advance of

adults. The peak of captures for young birds is in early September. Although the database is small, adult captures rise in late September while those of immature hawks decline. An adult male may migrate later in autumn because it is an experienced hunter that is better able to find scarce food than an immature. It may also remain on the breeding grounds later because it defends a territory. More immatures are captured overall, in part, because in most years they outnumber adults.

The route of arrival at the park by accipiters varies. Some sharp-shins darted low through narrow channels between bulrush beds in the LMLNWA marshes while others used powered flight at 5 to 15 m to cross pastures and hayfields. Once at the park, sharp-shins hunted for avian prey using two techniques – by ambush or by patrol.

After watching a potential prey bird, a hawk would leave its perch abruptly, using shaded cover in its rapid approach. If the target is a warbler already in a

mist net, this “perch and pounce” attack means that some hawks crash into the nets. Most are able to escape from the net within seconds and the warbler is unharmed. Usually one crash is enough. Only one sharp-shin has been recaptured on consecutive days in the park.

A trolling technique similar to that of northern harrier was observed at the park. A sharp-shin would fly slowly along *Caragana* rows bordering the golf course fairways where a naïve bird might stray from cover. No captures were observed.

Sharp-shins also visited bird-feeding stations at the nearby cottages. Prey included voles or mice attracted by spilled seeds. Feather piles from warblers or sparrows are found usually in early morning at LMBO, and this predation is usually attributed to sharp-shins. Larger species such as robins are at greater risk from Cooper’s hawk.

Most sharp-shins that reached the hawk watch site beside the park boundary were flying at or below hedgerow height. A few maintained that altitude as they continued across the adjoining pasture while looking downward into the grass. Most hawks at the boundary fence, however, climbed in a tight spiral for up to 30 seconds, and resumed the flap-flap-flap-and-glide flight pattern that identifies the accipiter

group. Sharp-shins that climbed above tree height did not return to the park. Their flight plan was southeast, except when deflected by strong northeasterly winds. Many individuals appear to travel through the LMBO area in less than 2 minutes.

In conclusion, migrant sharp-shins are more common at the regional park than previous anecdotal evidence suggested. The park attracts small boreal bird species that are typical prey items for sharp-shins. It is important as a feeding area for migrant sharp-shinned hawks but not for other raptors, such as Cooper’s hawk. The total number of raptors seen in 2004 is small compared to established hawk watch sites because the park lacks geographical features that might attract most migrant raptors. Foothill ridges in southwestern Alberta or the Pembina valley in Manitoba, respectively, create wind waves or uplifts used by migrant hawks to save energy.

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We cannot command nature except by obeying her.
- Francis Bacon