

RAPTOR SURVEY HURON MOUNTAIN CLUB

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by

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and

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INTRODUCTION

Many birds of prey have been greatly reduced in both range and numbers by human interference. Studying an area where man's influence is limited and the ecological succession is similar to that found in the 1890's may provide an excellent comparison of raptor population densities and habitat preference before modern man's interference. Records of research efforts in the Huron Mountain Club indicate that no detailed raptor studies have occurred, thus the objectives of this project will be to (1) provide as accurate a tabulation as possible of the species currently found on the Club lands; (2) provide a list of the species which breeds within the Club holdings, and in what type of habitat they frequent; and (3) provide an estimate of species density.

Published sightings of raptor by previous Club members form the background for the current survey. Dodge (1961) reported on some species of birds of prey. This tabulation was updated by Rice (1973) to include the period 1971-73. Rice's list includes 15 species of the order Falconiformes (vultures, hawks, eagles, and falcons) and 9 of the order Strigiformes (owls). Of the 24 raptors listed, 15 would be expected to nest in the area. Present raptor numbers will vary somewhat from these earlier reports due to the continuing ecological succession that is occurring.

Literature Review

To provide a working background to a survey of this type you must first know what species to expect in an area and the vegetation al type required to induce nesting. In the following discussion we will present current available knowledge on the range and nesting habitat for the raptors reported as being found in the

Huron Mountain Club lands.

VULTURES

Turkey Vulture

The Turkey Vulture (Cathartes aura) is a common migrant and summer resident in the southern two-thirds of the State of Michigan; it occurs rarely north to Lake Superior. Northernmost breeding records are from Ogemaw and Missaukee Counties (Zimmerman and Van Tyne, 1959). Eggs of this species are found in late April and in May, nestlings in June (Wood 1951). Because of its large size there are limited numbers of places this bird can nest. Cliffs, caves, hollow stumps, or in the middle of dense shrubbery are the usual places a vulture nests. They make little attempt to build a nest and the eggs are usually laid on the bare ground or on the rotten chips of a hollow log (Tyler, 1937).

ACCIPITORES

Goshawk

The Goshawk, (Accipiter gentilis) is a local summer resident in the Upper Peninsula of Michigan, though its status is poorly known (Zimmerman and Van Tyne, 1959). New nests have been located by the end of March with young present by mid-May (Wood, 1951). The nest is usually against the main trunk of a deciduous tree some 20 to 60 feet from the ground (Plough, 1953). This species prefers hardwoods. Out of 62 records consulted, 11 nests were in conifers, 7 in white pines, 2 in firs, 1 in a spruce, and 1 in a hemlock. The 51 other nests were in hardwoods, 18 were in beeches, 14 in birches, 11 in poplars, 6 in maples, 1 in an oak, and 1 in a cottonwood. Nest heights ranged from 18 to 75 feet but most were between 30 and 40 feet up (Bent, 1937).

Cooper's Hawk

Cooper's Hawk, (Accipiter cooperii) is a summer resident, rather common in southern Michigan, much less so in the north (Zimmerman and Van Tyne, 1959). There are very few records of nesting Cooper's hawks in the Upper Peninsula (Wood, 1951). This species shows a preference for white-pine groves as nesting sites. Literature references to 48 nests revealed that 27 were in white pines, 16 in deciduous woods, 4 in mixed woods, and 1 in a pine on an open knoll among a few scattered oaks. Height of the nest from ground ranged from 20 to 60 feet, averaging 30-40 feet (Bent, 1937). The birds may nest year after year in the same tract of woods, but a new nest site is taken each year, even though the nest is often built on the top of the residue of a crow, squirrel, or woodrats nest. Brown and Amadon (1968) reported a pair using the same nest for four years.

Sharp-shinned Hawk

The Sharp-shinned Hawk, (Accipiter striatus) is a rare summer resident in Michigan, though there are definite nest records from Cheboygan, Iron, Oscoda, Schoolcraft, and St. Clair Counties (Zimmerman and Van Tyne, 1959). These birds usually nest in conifers, but at times will nest in cottonwoods, poplars, or birch (Sprunt, 1955). Bent (1937) considers white pine, (Pinus strobus) to be the preferred nesting habitat for sharp-shinned hawks, as 17 of 18 nests he found were located in this species of tree. The single exception was found in an oak. Height from the ground to the nest ranged from 20 to 55 feet, they averaged 30 to 35 feet. The presence of many old nests in an area indicates these hawks prefer to return to the same site.

BUTEORed-tailed Hawk

The red-tailed hawk, (Buteo jamaicensis) was formerly abundant in Michigan, but now are considered uncommon in the northern part (Zimmerman and Van Tyne, 1959). This species has been recorded nesting at McMillan, Luce County, and Blaney, Schoolcraft County. Throughout the remaining Upper Peninsula it has been seen on occasion but without nesting records (Wood, 1951). In the Eastern United States it is usually found in open woodlands, and nests in mature stands of tall, widely spaced trees (Plough, 1953). According to Sprunt (1955) nests are either in hardwoods or pines at varying heights from 25 to 50 feet. The same nest is occasionally added to and used year after year or abandoned nests of other raptors are used.

Broad-winged Hawk

The broad-winged hawk, (Buteo platypterus) is a summer resident of Michigan, rare in the south, to uncommon in the north (Zimmerman and Van Tyne, 1959). This species may be more common than records indicate because it is a relatively inconspicuous bird. Broad-wings usually begin nesting around the last week of April or early May (Wood, 1951). Bent (1937) states that broad-wings do not show any particular preference for any certain species of tree to nest in. Most nests he found ranged from 25 to 36 feet above the ground, the lowest being 24 feet, the highest 40 feet. Plough (1953) describes the nest as "a small, loosely built structure placed in a main crotch or against the trunk of a tree 15 to 15 feet; made of sticks and twigs with a sparse lining of bark chips, lichens, etc."

EAGLES

Bald Eagle

The bald eagle, (Haliaeetus leucocephalus) is considered to be an uncommon summer resident of Michigan, now largely restricted as a breeding bird to the northern half of the State (Zimmerman and Van Tyne, 1959). An eagle's territory is several square miles in area, and a pair frequently may have more than one nest in that area. The nest is usually located in the main crotch of a large, living tree, it rarely nests in a dead one, cliff top ledges also are common nesting sites. Eagles use these nests over and over again and they may become enormous in size (one nest recorded was 20 feet deep and 10 feet across) (Plough, 1953).

HARRIER

Marsh Hawk

The marsh hawk, (Circus cyaneus) is a summer resident of Michigan. Upper Peninsula records indicate that this species is uncommon during the summer (Zimmerman and Van Tyne, 1959). This bird is essentially a bird of the open country, fields, prairies, and marshes. Craighead (1956) observed a pair of marsh hawks from dawn to dusk, hunting almost entirely within a 40-acre field. The nest of this species is located on the ground, usually near water, and is constructed of grass, sticks, and feathers. This hawk may make use of the same site year after year (Sprunt, 1955). Eggs of this species have been found as early as mid-April (Wood, 1951).

Osprey

The osprey, (Pandion haliaetus) is considered a rare summer resident of

Michigan and is restricted to the northern half of the state (Zimmerman and Van Tyne, 1959). Ospreys feed on fish, thus they build their nests very close to water. The nest, which is constructed of large sticks, and usually lined with grass, is often used year after year (Weltz, 1962). This species builds a rather bulky nest, usually in a dead tree but will build its nest on telephone poles and power lines or on rocky crags (Wallace and Mahan, 1963). It is sometimes a colonial nester with several pairs having nests within a confined area (Van Tyne and Berger, 1959).

FALCONS

Peregrine Falcon

The peregrine falcon, (Falco peregrinus) is considered to be a rare transient in Michigan. It has bred in Marquette, Alger, Delta, Mackinaw, and Leelanau Counties (Zimmerman and Van Tyne, 1959). Snow (1972) states, "a basic component of a peregrine falcon's habitat is a cliff. However, peregrines are also known to occasionally nest on slopes and river cutbanks, mounds, an occasional sand dune, and flat bogs and plains. They may sometimes nest in hollows of old and very large trees." It has been known to nest on the ground where both cliffs and trees are lacking (Weltz, 1962). Nesting material if present, consists of fur, feathers, sticks, and chips of rotten wood (Sprunt, 1955).

Merlin

The merlin, (Falco columbarius) is a rare transient (Zimmerman and Van Tyne, 1959), though there are definite breeding records in Marquette and Luce Counties, 1955 and 1958 respectively. Cook (1893) gave the status of this bird as "Rare; throughout the state." The nesting site of this species is very variable. It may

nest on a ledge or cliff with little or no nesting material or it may construct a nest of twigs, grass, sticks, moss, lined with feathers and bark along the branches of a tree. It is known to nest in hollows of trees and will on occasion utilize old nests of other birds. Tree nests are usually located in conifers with the height of the nest ranging from 8 to 15 feet above the ground (Sprunt, 1955).

American Kestrel

The American kestrel, (Falco sparverius) is a summer resident in both peninsulas of Michigan, it is considered to be much less common than it was previously (Zimmerman and Van Tyne, 1959). It is thought to be more common in the Upper Peninsula than in the south. Nesting selection has been reported as early as March, though it is usually later, and young are usually born in late May and June (Wood, 1951). The kestrel utilizes either a natural cavity in a tree or a hole excavated by a woodpecker for its nest. On rare occasions it has been known to use the nest of another bird (Tyler, 1937). Nest elevations are usually from about 20 feet to the tops of tall trees. Very little nest material is utilized by the kestrel (Sprunt, 1955).

OWLS

Great-horned Owl

The great-horned owl, (Bubo virginianus) occurs throughout Michigan at all seasons of the year (Zimmerman and Van Tyne, 1959). The status of these owls in Michigan is not clearly known, though they are less common than they were previously (Wood, 1951). They are not particular about their nesting site, nesting in abandoned hawk or raven nests instead of building their own. They occasionally

nest on ledges or in a large natural cavity of a hollow tree (Walker, 1974). In most areas they are the earliest nester, the 2 or 3 white eggs being laid in February, even in New England (Plough, 1953).

Barred Owl

The barred owl, (Strix varia) is a permanent resident in both peninsulas of Michigan; formerly common, at least in the southern counties, but now uncommon to rare (Zimmerman and Van Tyne, 1959). Bent (1938) states these owls show a strong preference for dense white pine woods. Of 38 nests he found 18 were in old hawk nests, 15 were in hollow trees, and 5 were in old squirrel nests. Of these 38 nests, 21 were in white pines, 6 in deciduous woods, and the others were in mixed woods of oak, pine, and chestnuts. Sprunt (1955) records that nests may be used over and over again. He states that pairs have returned to the same nest or immediate vicinity for as long as 20 to 25 years. Eggs from this species are found from mid-March to early May (Wood, 1951).

Long-eared Owl

The long-eared owl, (Asio otus) is an uncommon local resident of Michigan; rare north of the Saginaw-Grand valleys. Positive breeding records are from the following Michigan counties: Monroe (once, 1889), Washtenaw (regular), Jackson, Kalamazoo, Barry, Livingston, Oakland, St. Clair, Lapeer (regular), Isabella, Missaukee (once), and Crawford (once). There is one unverified report of breeding in the Upper Peninsula in Dickinson County (1941) (Zimmerman and Van Tyne, 1959). The nest of the long-eared owl can be found in coniferous trees. It is a vacated crow, hawk, or squirrel nest. It also has on occasion been known to nest on the ground (Sprunt, 1955). Eggs of this species have been found from late March to late May (most common in early April), the young are present in the nest from late

April to late May (Wood, 1951).

Saw-whet Owl

The saw-whet owl, (Aegolius acadicus) is a rare summer resident of Michigan, north to Isle Royale. Nest records exist for the species from the following Michigan counties: Allegon, Oakland (1888 or 1889), Isabella (1892), Clinton, Luce, and Dickinson; probably has also bred in Emmet and Kent Counties and on Isle Royale where juveniles have been collected (Zimmerman and Van Tyne, 1959). Wood (1951) gives the status of this bird as "Rare resident; status in Michigan little known." This owl usually nests in hollows of trees or in old woodpecker holes. It will also nest in man-made bird boxes. Nests occur at various heights and no particular elevation seems to be preferred (Sprunt, 1955).

STUDY AREA

The Huron Mountains are located in the extreme northern part of Marquette County in the Upper Peninsula of Michigan (47° N Latitude; 88° W Longitude). They lie adjacent to Lake Superior and occupy an area of approximately 90 square miles between the Huron River and the Village of Big Bay. Accessibility is limited as few roads penetrate the area. Access is by privately maintained roads and one county road that terminates four miles northwest of Big Bay. Within the region are several large ownerships, including the Huron Mountain Club, a private organization that owns or leases approximately 20,000 acres (Figure 1) contain portions of virgin wilderness that have been left almost virtually undisturbed. The land varies from virgin hemlock-hardwood stands to clear cut areas. Within the ownership are five major lakes. Boardering these lakes are stands of red, white and Jack pines. Scattered throughout the remaining ownership are small openings.

Personal dwellings are limited to one small area of the Club, thus most of the area is accessible by foot only.

METHODS

To study the raptors located on the study area we decided to conduct a systematic survey. This was accomplished by dividing the land area into nine study units, four to be completed this year and five during the second year of the study. Survey points were picked to represent as much of the cover types as possible.

To do this, a cover type map was constructed using 1964 aerial photographs. The nine points were picked within the Club ownership to ensure our searching each type in proportion to the availability of that type within the ownership. Each point was located on some landmark, trail or road crossing, top of mountain, so that the exact point could be easily found on the ground. From this point 18 radii extended outward into the ownership. These radii are spaced at 20 degree intervals and extend for one mile in length. This allowed the observer to follow the prescribed compass bearing while searching for old and new nests. When nests were located the observer knew exactly where he was and could accurately plot the nest location on the map. As three people were used in surveying the lines an area of 2 chains or 132 feet in width was searched. When the one mile of line was completed a predetermined compass bearing was used to reach the starting point on the adjoining line to return along it to the point of beginning. Thus two lines were completed without the need of wasting time dead-heading back to the starting point.

As each nest was located, a report form was filled out providing information on exact location, species of nest tree, height of nest within the tree, total

height of tree, surrounding topography, etc. Where possible each nest was examined by climbing the tree. Then the construction of the nest was noted. This included size, shape, physical makeup, materials in nest, and an effort was made to determine the species of raptor last using the nest. If the tree could not be climbed then as much information as possible was obtained with the aid of binoculars.

In addition to the ground census, a vocalization survey was also used for obtaining data on owls in the area. A tape recording was made from records produced by Paul Kellogg of the Cornell Laboratory of Ornithology. This recording was then played in the field using a portable tape recorder. The tape had calls of 4 species of owls, the Great-horned, Long-eared, Barred, and Saw-whet. The survey was conducted from sunset to approximately 2 hours after sunset.

Mist nets were also used in an effort to determine the species of owls in the area. Nine 12-meter nets were used in various areas from dusk to dawn. Live chipmunks in a cage were used with some nets in an effort to increase the efficiency of the nets in capturing owls. Nets were placed in Jack pine stands and along borders of open grasslands.

An aerial flight was also made over the area in late March to search for large stick nests. A 4-man plane was flown at tree top height with little success due to the snow conditions present at that time

RESULTS

Approximately 500 man hours were spent in the field between 6 June - 20 July 1978 with four of the nine study plots completed. During this period 20 raptor nests were located (one active). Sightings or signs of 12 species of raptors

TABLE 1

SUMMER OCCURRENCE AND STATUS RECORDS OF RAPTORS

AT HURON MOUNTAIN CLUB

Species	Cristy 1925	Gregory 1929	Manville 1940-41	Dodge 1961	Rice 1970-71-72	Current 1978
Turkey Vulture * <u>Cathartes aura</u>	-	-	-	RSR	RSR	CSR
Goshawk * <u>Accipiter gentilis</u>	-	RSR	USR	USR	RSR	RSR
Cooper's Hawk * <u>Accipiter cooperii</u>	USR	USR	USR	USR	RSR	CSR
Sharp-shinned Hawk * <u>Accipiter straitus</u>	CSR	USR	USR	RSR	RSR	CSR
Red-tailed Hawk <u>Buteo jamaicensis</u>	CSR	USR	-	CSR	USR	RT
Broad-winged Hawk * <u>Buteo platypterus</u>	USR	USR	USR	USR	CSR	CSR
Bald Eagle * <u>Haliaeetus leucocephalus</u>	USR	USR	USR	CSR	RSR	CSR
Marsh Hawk <u>Circus cyaneus</u>	USR	USR	-	USR	RSR	RSR
Osprey * <u>Pandion haliaetus</u>	USR	USR	RSR	RSR	RSR	CSR
Peregrine Falcon <u>Falco peregrinus</u>	VRSR	VRSR	RSR	RSR	VRT	RT
Merlin ** <u>Falco columbarius</u>	-	USR	USR	CSR	RSR	RT
American Kestrel * <u>Falco sparverius</u>	USR	USR	USR	CSR	CSR	CSR

were recorded (Table 1).

A total of approximately 65 linear miles, covering 1,350 acres, were covered in detail. The aerial survey conducted revealed no new nests.

The owl vocalization census identified individuals of two species. One of these, the Saw-whet Owl, was previously unknown as a nester in this area.

No owls were captured in mist netting operations, however, feathers of an owl were recovered from one net after it had apparently tried to kill a captured bird.

DISCUSSIONS

An examination of Table 1 will show that a change has occurred in the species of raptors found within the Club holdings. This change has resulted from the normal process of plant succession. Within the total ecological community all parts are subjected to successional changes. As the plant succession occurs then change must also occur in the animal life inhabiting the community.

The turkey vulture is a new addition to the total ecosystem of the Upper Peninsula. This has resulted not from a change in any plant community, but in the total weather pattern change. This has resulted in a milder climate and allowed more southerly species to move northward. This is the sole reason for the expansion of the range of vultures to include the Upper Peninsula of Michigan. In time it will become a nesting species, if it already is not one.

The Accipiters, as a group, are adversely affected by most logging operations, thus there is a great concern for their survival if we do not maintain areas of suitable habitat for them. The U. S. Forest Service practices a policy to fully protect the nest areas of this group of hawks. The largest of the three, the goshawk requires large, old-growth, yellow birch for nesting. This tree species

is found in fair numbers within the Club holdings. They are, however, restricted to the approximately 7,000 acres of virgin, old-growth hemlock-hardwoods. This old-growth forest has been present on the lands of the Club since its founding in the late 1890's. It will be a lasting part of the plant community for years to come. Both the Cooper's and sharp-shinned hawks require younger forest. The Cooper's being associated with white pine, while the sharp-shinned is found in young hemlock. Both of these species need stands where disturbance occurs to set back the succession. As almost one-fourth of the Club lands are or have been subjected to cutting in the past, there should be plenty of suitable habitat for these species in the near future.

The Buteos are birds that like soaring in wide circles in search of prey, often times making use of open situations. The Red-tailed Hawk, though once common in the U. P. is becoming rare due to the inavailability of open land. This species needs grasslands to hunt over for it is primarily a rodent consumer.

On the other hand, the Broad-winged hawk is actually increasing in numbers because of its preference to nest in second-growth timber. It is a woodland species and does not need the large open areas associated with the Red-tailed hawk. Since the Club lands contain much second-growth the populations of this buteo should be reasonably high if prey populations are sufficient.

Bald Eagles have been seen on Club property and have nested here since the early days of the Club. The abundance of inland lakes for hunting and tall trees for nesting, makes the Club land an exceptional spot for nesting eagles. Eagles' hunting ranges cover a very large area, thus breeding pairs in the area would never exceed 2 or 3 pairs. Eagles are adversely affected by human disturbance at their nestings sites, thus the low population density of humans in

the Club is a beneficial factor. However, it only takes a few disturbances during the nesting to discourage the pair from returning the next year.

The Cranberry Marsh covers nearly 80 acres of Section 27 within the Club land. This is the largest open swampy area and provides an excellent habitat for marsh hawks. There are a few other scattered smaller open area that may provide sufficient habitat for this species.

The abundance of inland lakes, bogs, and nearby Lake Superior make the Club a good habitat for ospreys. This species like dead trees over open water for nesting purposes and these seem to be lacking in the area.

The falcons, as a group, need open areas to catch their prey. The largest of this group, the peregrine, nests on open ledges of tall cliffs. The Merlin also utilizes bare ledges for nesting but also will nest in conifers. There are a number of spruce-tamarack forests existing in swampy areas on Club land that would provide suitable nesting habitat for this species. The American Kestrel nests in hollow trees near clearings as their diet includes mainly mice, insects, and small birds.

There are several places on Club ground where habitat is suitable for this species and its populations should remain constant in the near future. The most promising are being the dead Elms near Ires Lake. As woodpeckers construct their nest holes in these trees, more and more holes will be available for Kestrels.

Owls are unique in that they, unlike most hawks, almost never build their own nest, but rely on previously built nests, hollow trees, or ledges on which to place their eggs. The Great-horned Owl was once a common permanent resident of the Club, but now has diminished in numbers, perhaps as a result of the early predator control program carried out by the Club.

The Barred Owl prefers dense hardwood stands and is commonly heard in various places of the Club at night. This species should remain stable in the near future in the fact that the hardwoods areas are not changing very rapidly.

The Long-eared Owl is another species that has recently moved northward due to the temperature changes. It has never been recorded nesting in the U. P. but probably will in the near future. This species nests in pines which are found around most of the inland lakes. Saw-whet Owls nest in hollow trees and prefer Jack pine. About 500 acres of Jack pine is located between Pine Lake and Lake Superior and this will provide excellent habitat in time. These trees at the present time are too small in diameter and few have died so that woodpeckers have not been attracted to them to provide the needed nest holes for the Owls.

Our survey this summer did not find many active nests of raptors. We did find evidence of past nesting in that some 20 old raptor nests were located. The reason for this decline is not known. We do know from interviews with various people within the Club property that most feel the number of raptors are down this year. We will have to wait for the national reports on migration and nesting to come out to determine if this is a general trend or purely a local one.

As we complete our survey next year we hope to be in a position to make some sound recommendation which can be carried out by the Club to ensure that raptors make up a normal percentage of the total bird population on the Club holdings.

We would like to thank all the members and staff of the Huron Mountain Club who have provided us with information on nest locations and sightings of raptors. I know that additional information is available from some of your

members on nest location of certain raptor species and I would hope that they would provide us with this data. It is definitely needed if we are to have a true picture of the potential of the Club for national raptor programs, such as the Peregrine falcon reintroduction attempts.

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