

## **Introduction**

The protocol for this survey was developed through invaluable input from a number of sources. The contributions of Paul Sweet of the Illinois Winter Raptor Survey, Greg Grove of the Pennsylvania Winter Raptor Survey, and the AVTWRR (Addison Vermont Winter Raptor Research) team were especially integral to the development of this protocol. The WRS committee found numerous areas of similarity amongst the protocols. The goal of the committee was to arrive at a single protocol utilizing the best features of existing designs. It is hoped that the resulting synthesis will provide a vehicle which allows sound data analysis of each survey's contributions.

## **Winter Raptor Survey Directions**

For Safety's Sake, and to make recording easier, we strongly recommend that routes be run by at least two people.

### **Route Selection:**

Your route should be at least 30 and no greater than 100 miles. Where possible it should be away from main roads (this is primarily to allow for stopping, slow driving, etc.). We are leaving the choice of routes to our volunteers, in an attempt to utilize your knowledge of the local area. However, if you have the urge to explore a new area, by all means feel free! Once your route is selected, send a thorough description (starting point, the names of roads you'll be following, and ending point, habitat descriptions) to your coordinator. Routes should not overlap. The route should be run the same direction each time, so that the results will be directly comparable, and once selected, the same route should be run each year.

### **Habitat Descriptions:**

When you have selected your route, provide a brief habitat description. (Example: Mile 0 to Mile 3.7 : rural/open residential; Mile 3.8 to Mile 5.1 fallow fields with occasional lone hardwood trees; Mile 5.1 to 6.1 marsh/low shrubs; etc.). Also any changes *during* a season, such as the onset of a major construction project, should be noted in the "Notes" column or on an appended sheet.

Some suggested habitat descriptors follow:

- 1) Urban/close residential
- 2) Rural/open residential
- 3) Industrial
- 4) Agricultural
- 5) Pasture (currently being grazed)
  - a) animals present
  - b) animals not present
- 6) Hayfields
- 7) Fallow fields
- 8) Mowed grass
- 9) Shrublands

- 10) Deciduous Forest
- 11) Coniferous Forest
- 12) Natural Grasslands
- 13) Wetlands a)marsh b)bog c)other
- 14) Shoreline, open water

Use your best judgment – these are not intended to be exacting, but rather an opportunity to examine gross changes over time in those routes that are covered over multiple years.

### **Running the Route:**

Volunteers are encouraged to survey routes four times, once per month, with at least 3 weeks between repetitions, in late November, December, January, February, and early March. Note that early and late dates within that range should only apply to the more northerly locations. If only one running is possible it should be done in late January/early February. Routes should be run between mid-morning and mid-afternoon where possible. On days when inclement weather is sufficient to reduce visibility, the route should not be run.

When you reach the starting point of your route, record the date and time and note your odometer reading. If practical, **reset your trip odometer to 0**. Record the weather data at the beginning of your route. When you observe a hawk, note the odometer reading, the species, and where possible the age, sex, or morph (for all applicable species except Rough-legged Hawk, the bird is assumed to be light morph unless specifically noted). Record Unidentified Accipiter, Buteo, (i.e. UA, UB,...) etc. for birds that you cannot identify with certainty. At mid-day and again when you reach the ending point record the time, mileage and the weather data. Mileage and direction readings will be used to plot the locations of hawks on a map.

### **Filling out the Data Sheet**

\*Observers: Give names, and indicate for each “driver,” “spotter”, etc.

\*Wind Direction: Note the direction the wind is coming *from* – feel free to refer to the local news service, weather channel, etc.

\*Wind Velocity : Approximations are fine, otherwise as above. Indicate if you are using Beaufort scale (B) or a handheld device (I).

\*Temperature: Record the starting, mid-day, and ending temperatures. Bring a thermometer which records Celsius readings.

\*Sky Conditions: Estimate the % of the sky that is covered by clouds. Don't agonize over this – it's well understood that this will be a very imprecise measure.

\*Start and End times: These should be self-evident.

\*Mid-day: Generally this is assumed to mean 12 noon, but you may wish to record weather data at 1130 or 1300 if you are occupied with scoping, eating, etc.

\*Species: The species of raptor sighted use the HMANA two-letter codes (below)

\*Mile: This is the distance covered since the start of the route, when you locate a hawk, and would correspond to the reading on your odometer.

\*Direction and approximate distance from road: This indicates about where the hawk you are recording is located, i.e. N 100 meters

\*Time: Time that you sighted the bird.

\*Age: Adult or immature. If you aren't sure, put Unknown. If the bird is an immature Bald Eagle and you feel comfortable stating how many years old it is, fine. Otherwise just note immature. Note that American Kestrels cannot be reliably aged this time of year.

\*Sex: Male/Female, obviously. The following species can be reliably sexed: Northern Harrier, Rough-legged Hawk, American Kestrel, and Merlin.

\*Morph:

For those species that are polytypic, note the plumage type. This would include Red-tailed Hawk, Rough-legged Hawk, and possibly Merlin (*richardsoni* vs. *columbarius*) and Peregrine Falcon (*tundrius* vs. 'eastern').

\*Notes: Note obvious migration, if seen. Otherwise noting behaviors can be useful to future researchers, i.e. perched on fencepost; hover-hunting; interacting with crows, etc. Note any habitat changes where they vary from the initial habitat description. For example, if you recorded Mile 3.8 as fallow fields, and during your January survey you discover that it has been plowed, you should note that. Or perhaps you encounter excavations for a new shopping plaza in the shrublands you had noted at Mile 42. That's what the "Notes" column is for – making any notes that might be important for a future researcher to consider.

### **Rare Species:**

If you note a bird not on the list of expected species, take as many notes as possible. We urge anyone finding an unusual species for their particular region to report it to that region's Rare Bird Committee as well. For northern locations this also applies to Turkey Vultures from the latter half of December through the first half of February.

### **Data Management**

For each day that you run your route, the weather and time information on the data sheet provided should be fully filled out. Blank spaces here are definitely **not** encouraged. On the other hand, blank spaces in the hawk section are to be expected.

When the day is finished, send the data sheet or a copy to:

Regional HMANA Winter Survey Coordinator  
Address.....

**List of Raptor Species, and possible information to be gathered for each:**

BE Bald Eagle (*Haliaeetus leucocephalus*) Adult/Immature (year if possible)  
NH Northern Harrier (*Circus cyaneus*) Adult male/Adult female/Immature  
SS Sharp-shinned Hawk (*Accipiter striatus*) Adult/Immature  
CH Cooper's Hawk (*Accipiter cooperi*) Adult/Immature  
NG Northern Goshawk (*Accipiter gentilis*) Adult/Immature  
RS Red-shouldered Hawk (*Buteo lineatus*) Adult/Immature  
RT Red-tailed Hawk (*Buteo jamaicensis*) Adult/Immature and Light/Rufous/Dark morph  
RL Rough-legged Hawk (*Buteo lagopus*) Adult/Immature and Male/Female (where possible) and Light/Dark morph  
GE Golden Eagle (*Aquila chrysaetos*) Adult/Immature  
AK American Kestrel (*Falco sparverius*) Male/Female  
ML Merlin (*Falco columbarius*) Adult Male/Others  
PG Peregrine Falcon (*Falco peregrinus*) Adult/Immature