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**DRAFT**

**Project Applicant Survey Protocol for State listed Wintering Grassland Raptor Species**

This is a working draft document. Prior to undertaking any survey activities, please contact New York State Department of Environmental Conservation (NYSDEC) for the most updated protocol methods.

These protocols describe requirements for determining presence and site use by state-listed threatened/endangered grassland raptor species during the winter season as part of the NYSDEC permit review process for a project application. These protocols specifically target the New York state listed Short-eared Owl (Endangered) and Northern Harrier (Threatened). Information obtained from surveys will be considered in determining the possible need for additional comprehensive studies (e.g., using radio-telemetry and/or night-vision optics), regulatory review and, if necessary, avoidance, minimization, and/or mitigation strategies pursuant to 6 NYCRR Part 182.9.

**Survey Periods**

Surveys should be conducted during the winter season, here defined as November 15-March 31, the primary time period during which Short-eared Owl and Northern Harrier often occur at winter concentration areas. At a minimum, surveys will be conducted every other week between November 15 and March 31, for a total of nine survey periods during the course of the winter season. Additional surveys may be required in April should Short-eared Owls and/or Northern Harrier be present at the project site during the second March survey period. When that occurs, applicants should discuss the possible need for April and/or breeding season surveys with NYSDEC.

**Establishing Survey Points and Driving Routes**

The primary survey method for wintering Short-eared Owl and Northern Harrier should consist of a regimented series of visual scans and observations with binoculars from one or more stationary points or "stations" within a given project area. A spotting scope may also be necessary to aid in making positive species identifications for birds perched far from a survey station. The total number of stations will depend on the size of the project area, the amount of grassland habitat within the project area, and the visibility of that grassland habitat from selected survey station(s). Survey stations should be situated in or near grassland habitat at vantage points with clear visibility in all directions, or most directions if stations are from roadside locations or edges of grasslands. Actual observations should be made from within or next to a vehicle or blind if the station is within an open grassland habitat. When the station is at the edge of grassland habitat, the observer(s) should be backed up to a hedgerow or other background feature at the edge of a grassland habitat, or within or next to a vehicle. Stations should not be located further than 1,000 meters from one another (observations have shown that birds seen at distances greater than 1,000 meters are less likely to be correctly identified to species), and the total number of stations need to provide full coverage of the grassland habitat within the entire project site.

Driving routes, where an observer drives between a series of roadside stops and conducts observations of a short duration from multiple stationary, roadside locations may serve as an additional survey method for Northern Harrier. However, due to the short time period during which Short-eared Owls are active and visible before dark, driving surveys **cannot** be the sole survey method at a project site. Driving route(s) for a site should include all roads within the project site from which grassland habitat can be easily viewed. The number and distribution of roadside stops will be dictated by the length and distribution of roads in the project area, and what areas may be viewed from various roadside stops. Stops located approximately a half mile apart will typically allow for sufficient coverage.

**Timing of Surveys**

Because of the late afternoon/evening activity period of Short-Eared Owls, surveys for State-listed wintering grassland raptor species **must** be conducted during the 1 hour before sunset to ½ hour (or up to 1 hour) after sunset period described below. Daytime surveys and/or driving route surveys can be added as an additional survey method, but cannot replace the evening surveys.

Short-eared Owls are crepuscular and nocturnal hunters and while they may occasionally, and at some sites, be active in the late afternoon, winter surveys conducted throughout New York State from 2008-2013 indicate that at many sites, they often do not leave their daytime roost to begin hunting until sunset or later, and sometimes just 5 or 10 minutes before full dark. Northern Harriers are diurnal and crepuscular raptors and may be seen hunting throughout the day, but are most active in the morning and late afternoon right up until sunset, when they can be observed landing at their nighttime roost site. In order to observe both species, surveys **must** be conducted from one hour before sunset until it is too dark to observe flying birds (up to one hour after sunset). On many nights, especially those with clear, moonlit skies, and on days with complete snow cover, birds can frequently be seen well after the official time of sunset. Therefore, the entire length of the survey will typically be 1.5 hours, but on some nights could be as long as 2.5 hours, depending on conditions and bird activity.

### Conducting Surveys

These required surveys have two primary purposes: (1) documenting the presence (occupied habitat) or apparent absence of the target species, and (2) recording particular areas used by the target species, such as roost sites or foraging areas, within a project site. Both Short-eared Owls and Northern Harriers typically roost on the ground, though Short-eared owls may roost in conifers or thick hedgerows when snow becomes deeper than roughly 6 inches. At times, these two species may roost in close proximity to one another and Harriers may be observed dropping to the ground at their nighttime roost just before dark at the same time that Short-eared Owls are leaving their daytime roost to begin foraging for the evening. The period surrounding sunset is particularly critical for the identification of likely roost locations and determining the number of individuals using them.

Surveys should not be conducted during inclement weather, including precipitation, fog, or moderate to strong winds (i.e. wind greater than 12 mph, or Beaufort Scale 3). Multiple observers at different stations and/or multiple evenings will be needed to sufficiently cover most project sites for a given stationary survey period because the survey time constraints dictate that an observer can only cover one station per evening. Repeated trips on additional evenings may be necessary to adequately confirm species presence or suspected absence and to adequately document foraging and roost areas. For example, Short-eared Owls may fly considerable distances from roost sites to foraging areas. Appropriately stationing observers on subsequent nights farther out along these flight paths may be necessary to identify important foraging areas.

Observers conducting stationary surveys should scan the available grassland habitat throughout the course of the survey period. Particular attention should be paid to birds perching on fence posts, on utility poles, on hay bales, coursing low over the ground, or perched on the ground. Observers should also listen for the bark-like call of the Short-eared Owl and rapid series of *kek* calls of the Northern Harrier.

While one observer is sufficient for conducting stationary surveys at a given station, two observers are recommended if driving routes are conducted. As noted above, survey stops will typically be spaced approximately a half mile apart. Roadside surveys for other established bird monitoring programs vary from 3-5 minutes per survey stop and this should be considered a minimum time for the purposes of these winter grassland raptor surveys, though there would be no restriction regarding a longer observation time period. The length of the driving route and the number of points to be included would dictate whether stops last longer than 3-5 minutes. At each stop, the observer(s) should get out of the vehicle and scan the surrounding suitable open-country habitat in all directions for the 3-minute (or longer) observation period. For each raptor seen, record the time that each raptor is first observed and mark its location on a map. Behavior or activity notes must also be recorded. If a raptor is observed while driving between stops, the observation location and data should be recorded upon reaching the next stationary point.

Observations of other species during the stationary and driving surveys, as well as incidentally while on the project area, should also be recorded on data sheets. Other species of interest include all state-listed endangered, threatened, and special concern species, all raptors (owls, hawks, falcons, eagles, osprey), shrikes, and arctic-breeding songbirds such as snow buntings, larkspurs, and pipits.

### **Recording Data**

Data recorded for each survey must include: date; observer name(s); survey location (i.e. stationary survey locations and driving route stops, if any); start and end time of observation period; weather information (including temperature, wind speed, wind direction, snow depth, and cloud cover); number and identification of each species observed; individual behavior; and the location of target species relative to observer. Record Northern Harriers as male or female/juvenile. Observations of all raptors should also be documented, and birds identified to species, where possible. When species identification is uncertain, record "unidentified raptor", although "unidentified buteo" or "unidentified accipiter" would be preferable where possible. Location coordinates for all Short-eared Owls and Northern Harriers must be provided or locations indicated on an aerial photograph or map of the survey area. Where raptors fly into or out of an area of visibility, indicate direction of flight on the maps. Foraging and roost areas should be clearly shown on the maps.

Specific behaviors to be noted for Short-Eared Owl and Northern Harrier include foraging (defined as flying low over vegetation, over in a back and forth pattern, and dropping to or toward the ground in an attempt to capture prey, at least once during the observation period), perching (as on elevated perches such as fence posts, utility poles, hay bales, on the ground, etc.), fly-through (i.e., straight-line flight such as when relocating between roosting and foraging areas), and roosting. Flight height and direction should be recorded for all raptors observed at proposed wind energy projects.

Any likely roost areas should also be noted on aerial photographs, maps, and data sheets. Roost areas would be suspected in cases where one or more Short-eared owls are observed arising from the ground or conifers in the evening and then begin flying and foraging activities, or where one or more Northern Harriers are active in an area near dusk and are then observed dropping to the ground, but not coming back up as it gets dark. Late winter surveys (late March and April) should specifically document any breeding behavior observed.

### **Reporting Requirements**

A detailed, site specific work plan, including stationary survey locations and driving route stops, if they are to be used, should be developed and submitted to NYSDEC for review and written approval prior to the start of field work. A final report should be submitted to NYSDEC at the conclusion of each year of surveys. Final reports should include data sheets; maps (ideally recent aerial photographs); summaries of all observations of Short-eared Owls, Northern Harriers, and any other state-listed species; and a conclusion whether more comprehensive studies may be necessary to assess the potential for the project to negatively affect endangered or threatened winter raptor species.