Migratory Bird Treaty Act of 1918

(16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended by: Chapter 634; June 20, 1936; 49 Stat. 1556; P.L. 86-732; September 8, 1960; 74 Stat. 866; P.L. 90-578; October 17, 1968; 82 Stat. 1118; P.L. 91-135; December 5, 1969; 83 Stat. 282; P.L. 93-300; June 1, 1974; 88 Stat. 190; P.L. 95-616; November 8, 1978; 92 Stat. 3111; P.L. 99-645; November 10, 1986; 100 Stat. 3590 and P.L. 105-312; October 30, 1998; 112 Stat. 2956

The original 1918 statute implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia).

Specific provisions in the statute include:

- Establishment of a Federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, including in the terms of this Convention… for the protection of migratory birds… or any part, nest, or egg of any such bird." (16 U.S.C. 703)

This prohibition applies to birds included in the respective international conventions between the U.S. and Great Britain, the U.S. and Mexico, the U.S. and Japan, and the U.S. and Russia.

- Authority for the Secretary of the Interior to determine, periodically, when, consistent with the Conventions, "hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any… bird, or any part, nest or egg" could be undertaken and to adopt regulations for this purpose. These determinations are to be made based on "due regard to the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times of migratory flight." (16 U.S.C. 704)

- A decree that domestic interstate and international transportation of migratory birds which are taken in violation of this law is unlawful, as well as importation of any migratory birds which are taken in violation of Canadian laws. (16 U.S.C. 705)

- Authority of Interior officials to enforce the provisions of this law, including seizure of birds illegally taken which can be forfeited to the U.S. and disposed of as directed by the courts. ((16 U.S.C. 706)

- Establishment of fines for violation of this law, including misdemeanor charges. (16 U.S.C. 707)

- Authority for States to enact and implement laws or regulations to allow for greater protection of migratory birds, provided that such laws are consistent with the respective

Conventions and that open seasons do not extend beyond those established at the national level. (16 U.S.C. 708)

- A repeal of all laws inconsistent with the provisions of this Act. (16 U.S.C. 710)

- Authority for the continued breeding and sale of migratory game birds on farms and preservers for the purpose of increasing the food supply. (16 U.S.C. 711)

The 1936 statute implemented the Convention between the U.S. and Mexico for the Protection of Migratory Birds and Game Mammals. Migratory bird import and export restrictions between Mexico and the U.S. were also authorized, and in issuing any regulations to implement this section, the Secretary of Agriculture was required to consider U.S. laws forbidding importation of certain mammals injurious to agricultural and horticultural interests. Monies for the Secretary of Agriculture to implement these provisions were also authorized.

The 1960 statute (P.L. 86-732) amended the MBTA by altering earlier penalty provisions. The new provisions stipulated that violations of this Act would constitute a misdemeanor and conviction would result in a fine of not more than $500 or imprisonment of not more than six months. Activities aimed at selling migratory birds in violation of this law would be subject to fine of not more than $2000 and imprisonment could not exceed two years. Guilty offenses would constitute a felony. Equipment used for sale purchases was authorized to be seized and held, by the Secretary of Interior, pending prosecution, and, upon conviction, be treated as a penalty.

Section 10 of the 1969 amendments to the Lacey Act (P.L. 91-135) repealed the provisions of the MBTA prohibiting the shipment of wild game mammals or parts to and from the U.S. or Mexico unless permitted by the Secretary of the Interior. The definition of "wildlife" under these amendments does not include migratory birds, however, which are protected under the MBTA.

The 1974 statute (P.L. 93-300) amended the MBTA to include the provisions of the 1972 Convention between the U.S. and Japan for the Protection of Migratory Birds and Birds in Danger of Extinction. This law also amended the title of the MBTA to read: "An Act to give effect to the conventions between the U.S. and other nations for the protection of migratory birds, birds in danger of extinction, game mammals, and their environment."

Section 3(h) of the Fish and Wildlife Improvement Act of 1978 (P.L. 95-616) amended the MBTA to authorize forfeiture of the U.S. of birds and their parts illegally taken, for disposal by the Secretary of the Interior as he deems appropriate. These amendments also authorized the Secretary to issue regulations to permit Alaskan natives to take migratory birds for their subsistence needs during established seasons. The Secretary was required to consider the related migratory bird conventions with Great Britain, Mexico, Japan, and the Soviet Union in establishing these regulations and to establish seasons to provide for the preservation and maintenance of migratory bird stocks.

Public Law 95-616 also ratified a treaty with the Soviet Union specifying that both nations will take measures to protect identified ecosystems of special importance to migratory birds against

pollution, detrimental alterations, and other environmental degradations. (See entry for the Convention Between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environment; T.I.A.S. 9073; signed on November 19, 1976, and approved by the Senate on July 12, 1978; 92 Stat. 3110.)

Public Law 99-645, the 1986 Emergency Wetlands Resources Act, amended the Act to require that felony violations under the MBTA must be "knowingly" committed.

P.L. 105-312, Migratory Bird Treaty Reform Act of 1998, amended the law to make it unlawful to take migratory game birds by the aid of bait if the person knows or reasonably should know that the area is baited. This provision eliminates the "strict liability" standard that was used to enforce Federal baiting regulations and replaces it with a "know or should have known" standard. These amendments also make it unlawful to place or direct the placement of bait on or adjacent to an area for the purpose of taking or attempting to take migratory game birds, and makes these violations punishable under title 18 United States Code, (with fines up to $100,000 for individuals and $200,000 for organizations), imprisonment for not more than 1 year, or both. The new amendments require the Secretary of Interior to submit to the Senate Committee on Environment and Public Works and the House Committee on Resources a report analyzing the effect of these amendments and the practice of baiting on migratory bird conservation and law enforcement. The report to Congress is due no later than five years after enactment of the new law.

P.L. 105-312 also amends the law to allow the fine for misdemeanor convictions under the Migratory Bird Treaty Act to be up to $15,000 rather than $5000.

The preceding text was taken directly from the on-line Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service

(http://laws.fws.gov/lawsdigest/migtrea.html) accessed on 8/16/01

Bald Eagle Protection Act of 1940

(16 U.S.C. 668-668d), 54 Stat. 250) as amended – Approved June 8, 1940, and amended by P.L. 86-70 (73 Stat. 143) June 25, 1959; P.L. 87-884 (76 Stat. 1346) October 24, 1962; P.L. 92-535 (86 Stat. 1064) October 23, 1972; and P.L. 95-616 (92 Stat. 3114) November 8, 1978.

This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to the arrest and conviction for violation of the Act.

The 1978 amendment authorized the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. (See also the Migratory Treaty Act and the Endangered Species Act.)

A 1994 Memorandum (59 F.R. 22953, April 29, 1994) from President William J. Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

The preceding text was taken directly from the on-line Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service

(http://laws.fws.gov/lawsdigest/baldegl.html) accessed on 8/16/01

Bald Eagle Nest Monitoring Etiquette

For many Bald Eagle enthusiasts there is little more exciting than watching their favorite birds become parents and raise young. Seeing our national symbol go through the process of nesting is a thrilling and satisfying experience. These once endangered birds have been successful enough at raising eaglets to be removed from the Endangered Species list. That being said, Bald Eagles remain protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. They are also, as a species, sensitive to human activity. Too much disturbance to nesting eagles can have a negative impact on nest success. The last thing any Bald Eagle lover would want is to unintentionally cause a nest to fail or to produce fewer young. Fortunately, there are precautions that you as a citizen scientist can take to limit the amount of stress you cause the birds that you are monitoring.

Disturbance is defined as any activity that changes an eagle's behavior. For example, if an eagle stops preening to study you then you have disturbed the eagle. Disturbances fall on a spectrum from minor (such as in the example above) to major (flushing from the nest). The impact of disturbance on nest success can also vary from minor to major, up to causing a nest to fail, and frequent disturbance can cause a cumulative effect, meaning that frequent minor disruptions can be as problematic as infrequent major disturbances. Most of the time an eagle's behavior will tell you that he/she is uncomfortable long before the point of flushing, and learning these behavioral cues will help you know when your behavior is causing stress to the birds. The first sign of agitation to watch for is a simple change in eagle behavior, such as the example above. If a bird does not stop what he is doing as you approach, he is probably not bothered by you. If he does stop what he is doing but resumes his activity after giving you a once over, you are also probably not bothering him and so are safe to continue observing. If, however, the bird does not resume his task or becomes more agitated you should back away until the eagle becomes comfortable again. An eagle that is alarmed by your presence will progress from simply watching you to sitting up in an alert posture and may begin vocalizing. As the bird's agitation increases it might start shifting in the nest/on its perch, raising its wings, leaning forward and preparing to fly and otherwise looking anxious until it finally flushes from the nest.

Just like people, eagles have different comfort levels when it comes to disruption. Some birds seem unfazed by hikers walking within 100 feet of a nest while others are bothered to the point of flushing by any human activity within 1000 meters. Anecdotal observation seems to indicate that the eagles that choose to nest in close proximity to humans or areas with lots of human use are generally more tolerant of human activity while those birds that choose remote territories are more sensitive to disturbance. Nest stage also seems to affect how eagles respond to human activity. For example, eagles seem to have their lowest threshold for disturbance during courtship, pair formation and nest building. If we make the birds acutely uncomfortable during that critical period they are much more likely to give up on their site than they would be if disturbed when the eaglets are a few weeks old. Given these variations in behavior, there are some general guidelines for reducing disturbance that you can adjust based on the habits of each nesting pair.

The United States Fish and Wildlife Service (USFWS) recommended that active nest sites not be approached beyond a distance of 330 feet. In addition, you should do your best to have some sort of

screen or blind between you and the nest, as research shows that eagles are more likely to be bothered by an activity when it happens in full view. Of course, you as an observer need a clear view of the nest to gather accurate data about what the eagles are doing, so you'll need to work out a balance between seeing the nest and staying out of sight. Sometimes a road will offer an ideal vantage point for viewing a nest. In general, if a pair knew about a human activity prior to moving in and still chose the site, they will be tolerant of that activity, and that certainly applies to road traffic. In addition, birds in general seem to be less bothered by people in a car than people outside of one, and so cars make excellent bird blinds. If there is a place along a road that provides both a safe place for you to park and a view of the nest, you probably have found a great observation point. If you prefer to use a spotting scope over binoculars to watch the nest, window mounts are a fairly inexpensive and practical way to use your scope from inside your car. In some situations you might be able to climb out of your car and stand with the car between you and the nest, which still creates a sight buffer between you and the birds while giving you more range of motion and perhaps an easier view of the nest. As before, however, be sure that you park in such a way as to provide no danger to yourself or any other motorists. If the nest is not visible from the road or is remote enough that no roads take you within viewing distance of the nest, you might want to consider scouting out a good place to view the nest prior to the nesting season, keeping the USFWS buffer distance of 330 feet in mind and taking into account how the landscape changes when the trees have leaves. Again, take your cues from the eagles and adjust your viewing spot accordingly.

With prior planning, an understanding of eagle behavior and attention to those behavioral cues, you can have a successful and enjoyable nest monitoring experience. Things to keep in mind are:

- Sensitivity to disturbance varies amongst individuals and across regions. Learn about the eagles in your region and adjust these guidelines accordingly.
- As a rule nesting eagles will be more sensitive to disturbance early in the nesting process; during nest building and incubation; be especially careful to avoid disturbance during this time.
- Eagles seem to be most alarmed by disturbances they can see; provide a visual buffer between you and the birds. Cars make excellent blinds.
- Respect a distance buffer using 330 feet as a rough starting point. If the eagles in your region prefer a much larger physical distance from humans, learn what constitutes a comfortable distance for those birds. In all cases, use the birds' behavior as your guide and adjust your distance accordingly.
- Recognize the signs of agitation in Bald Eagles
- Enjoy yourself!

Bald Eagle Nesting Ecology and Phenology

While not every Bald Eagle pair in every region of the country nests in exactly the same habitat or with exactly the same timing (phenology), there are some general traits that are common to typical Bald Eagle territories and nest sites. Any animal, be it mammal, amphibian, reptile, insect or bird, has four basic needs: food, water, shelter and a place to raise young. Within those general needs each animal has specific requirements that vary widely by species and even sometimes by individual. Like many other animals, eagles establish and defend a territory around their nests.

This territory is typically circular or nearly so and is the space that each pair claims as their personal resource. Eagles will actively defend their territories from any perceived threat. While defense of the nest from direct predation is important, territory defense is more about food than it is about safety. Having a reliable and readily available food source is crucial to the success of a nest and the size and location of a territory is intimately tied to food resources available. Therefore, the pair will chase off other eagles, osprey, red-tailed hawks and other such competitors. An average territory is about 1 mile in diameter though in areas where food is harder to find territories may be larger and in areas where food is especially abundant, such as along the Upper Mississippi River, territories may be much smaller.

*Nest sites

Bald Eagles typically raise their young in giant stick nests placed near the top of tall (super canopy) trees near (within about a mile of) a water source. Therefore a typical Bald Eagle nesting landscape would be forested and include rivers or lakes that offer areas of shallow water suitable for foraging. In many cases Bald Eagles also need some degree of insulation and isolation from human activity, though sensitivity to disturbance seems to vary widely (see Nest Etiquette article). A good example of typical Bald Eagle habitat is the forested banks of the Upper Mississippi River; another is the forested peninsula between Lake Barkley and Kentucky Lake, called Land Between the Lakes National Recreation Area, in western Kentucky. These landscapes provide for all four basic needs though the water body (water to drink and fish to eat) and the forest (the trees provide shelter and a place to raise young as well as perches for hunting and resting). As a note, in areas where trees are few and far between eagles will nest on the ground or on the tops of cliffs!

Bald Eagles usually like to have a clear view in all directions around their nests and so tend to prefer nest sites that are on some sort of edge, be it water or forest opening, and that have a variety of tree heights. Nest trees tend to be the tallest in the surrounding area, called super-canopy trees. Nests tend to be very large and rather heavy, so the best nest trees are tall, strong healthy trees. Pairs that are building a new nest usually choose a living tree as the base for their nest though there are often some dead trees, called snags, nearby that serve as lookout posts. Eagles reuse their nests year after year, especially if the parents successfully raise young from that nest. The birds will keep adding to the nest every year, cleaning out debris from the previous year, making repairs, and expanding so that very old nests can become enormous, up to nine feet across and 12 feet high! Typical nests are much smaller, more like five or six feet across and three or four feet high, which is still a rather large nest! One well-

known nest in Ohio was used for 34 years! The foundation of a new nest is usually a significant branch, often a forked branch, four meters or more from the top of the tree. The nest itself needs to be higher than the surrounding vegetation to provide both easy access and a clear view of possible threats to the nest. The trees that are tall and strong enough to satisfy eagle nesting needs tend to be old and sometimes may be nearing the end of their life. Occasionally the nest tree dies but stays strong for a time and the eagles will continue to use their nest, despite the death of the nest tree, often until the tree/nest falls down. As a summary, tree shape, size and location are more important to an eagle looking to build a new nest than is the tree species, but some of the trees more likely to meet nesting needs are pines, spruces, firs, oaks, hickories and cottonwoods. In Iowa a large percentage of eagle nests are placed in cottonwood trees, as these trees tend to grow to an ideal size and shape and are associated with lowland areas near water sources.

Sometimes a territory includes multiple suitable nest sites and a pair may build more than one nest within a territory. While a territory can only have one ACTIVE nest at a time it can certainly have alternate, inactive nests. Research dating to the late 1980s found that the average number of nests per pair was greater than one (1.5) with up to five nests reported in some territories! Sometimes a pair will use one nest consistently year after year; sometimes they'll alternate, using one nest one year and the other the next. In other cases the eagles may use one nest for several years and then use the other for awhile before returning to the first nest. There does seem to be some link between nest success or failure and the desire to move house; if a nest is successful there is a better chance that the pair will nest there again the next year than if it fails. If the nest fails the pair may look to try a different location the next year, turning to an alternate nest within their territory. In some cases the pair may give up on the territory all together and move on to a different place, leaving the nest or nests within that territory vacant until another pair decide to move in. Sometimes a nest or territory can be inactive for 3 or more years before hosting nesting eagles again. Eagles are very opportunistic creatures and tend to take advantage of the resources available. Therefore, a useable nest probably will not stay vacant forever. This opportunistic behavior coupled with the creation of alternate nests means it is important not to forget about vacant nests, because you never know when they will become active again. Interestingly, inactive Bald Eagle nests sometimes host other bird species, such as Great-horned Owls or even Canada Geese!

*Foraging locations:

Most eagles feed primarily on fish and waterfowl, so easy access to a food source is key. Raising young eagles is hard work: the little guys need a lot of food! Placing a nest near a food source means the parents do not have to waste valuable time and energy flying to a food source and looking for food. It is important to note that while eagles are good hunters, they would much rather scavenge or steal a meal than hunt one themselves (again, that energy conservation thing) and if the opportunity for a "free" meal exists they'll take it. Because of this opportunistic behavior eagles are not bound to nest near a water source (though most do). For example, in recent years bald eagles have begun to nest near livestock operations, a long distance from any significant water source, where livestock waste provides a ready food supply.

*Perch Sites

Along with one or more appropriate nest sites, a bald eagle territory also needs several quality daytime perch sites. Perches are used for resting, for monitoring their territories for threats (predators, other eagles, etc) and for hunting. Several scientific studies on bald eagle perch use have determined favored perch trees are larger (DBH) and taller with longer trunks than non-perch trees. Perch trees also tend to be dead and dying and within 20 meters of shoreline, though the life status of the tree (dead, dying or alive) appears to be of less importance than tree height and proximity to water. Also of note is an apparent tendency to select coniferous trees for perching during times when deciduous trees are in leaf and a preference for deciduous perches before leaf out and after leaf drop.

*Phenology

The entire cycle, from egg laying to fledging, tends to take about 18 weeks (or 4.5 months) though it can vary a bit depending on how many eggs are laid and how many days pass until a clutch is complete. Eagles generally lay one egg per day and often wait a day before laying a second egg. Nests most commonly have 2 eggs but sometimes have three and it can take up to 6 days to complete a three-egg clutch. At the other end of the process, some eaglets take longer than others to leave the nest and fledging can happen anywhere from 8 to 14 weeks after hatching. Most young fledge between 11 and 12 weeks of age. A parent eagle's job doesn't end at fledging, however, and if the post-fledging care is included in the nesting cycle the length becomes closer to 5.5 or 6 months. Fledglings may continue to rely on their parents for food and other care for 4-6 weeks post fledging.

Nesting behavior in the upper Midwest can start as early as January with some light housekeeping around the nest: clearing out any unwanted debris, fixing any damaged areas of the nest and adding on to the nest. Some resident (non-migratory) pairs may stay in the vicinity of their territory all winter and can be seen poking around the nest year round. The early season work is usually sporadic and not terribly serious. More dedicated repairs start in February. This home improvement behavior serves two purposes: 1) it makes the nest ready to house the next generation of eagle young; 2) it strengthens the bond between mates and is part of the courtship process. A pair that successfully raised young the previous year usually stays together and tries again the next year (if it's not broken, why fix it). These birds don't have to spend time actively searching out and courting a mate though they may still engage in the elaborate courtship displays that "single" birds do.

Courtship displays can be pretty spectacular to watch. The most visually stunning of these displays is the cartwheel display, where the potential mates fly together to a great height, lock talons and tumble end-over-end together. Just when you think they are going to crash into the ground the pair will break apart and fly back up into the air. In the upper Midwest copulation usually occurs in March and is followed soon after by egg-laying, somewhere in mid to late March. Incubation begins after the first egg is laid, meaning that in a nest with more than one egg there will be an oldest sibling, a youngest sibling and occasionally a middle sibling. Both the male and the female incubate the eggs and both have brood patches, though the female tends to do the bulk of the incubating and has a much more developed

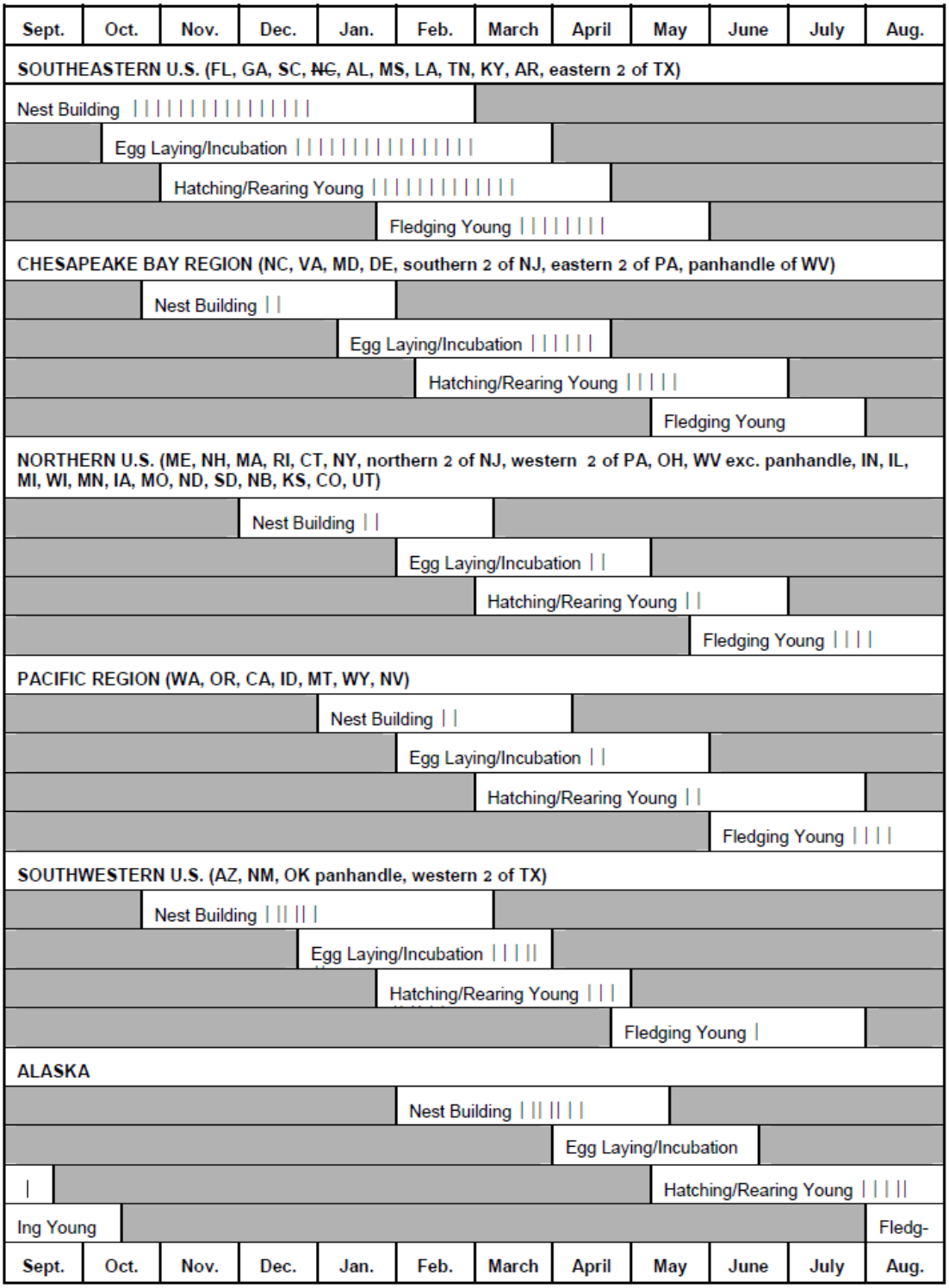
brood patch. The brood patch is an area of bare skin on the bird's breast that is formed when the bird removes its own feathers. By removing the feathers the parent bird allows his/her body heat to better reach the eggs and keep them at the proper temperature. Incubating eagles will sit on the nest almost continuously, so the continual presence of an adult on the nest is a good clue that the female has laid eggs. Incubation lasts 35 days with very little deviation. The eaglets hatch from the eggs without any help from the parents. Pipping, as the hatching process is called, can take an entire day. The oldest egg hatches first and its younger sibling follows 1-4 days later. At first it may be difficult to tell when a nest moves from eggs to babies, since the female spends a lot of time brooding the tiny eaglets and this behavior looks very much like incubation. If you can stay and observe the nest for a while, however, you should see the male deliver food to the nest. The female will then tear off small pieces and feed it to the eaglets. You may not be able to see the babies themselves but it will be obvious that the food is disappearing somewhere and that the female is not eating it herself. As the babies grow you should have opportunities to see them poking their heads above the nest rim, especially by about 5-6 weeks of age.

As the young birds grow and develop they literally stretch their wings, testing out their abilities by flapping across the nest and even up onto limbs immediately adjacent to the nest. These behaviors become more frequent and more adventuresome as the young approach fledging. Parents can also provide clues that fledging is approaching. Instead of bringing food directly to the nest the adults may fly above the nest with the prey and call to the eaglets, seemingly bribing the youngsters with food to venture out of the nest. The young will leave the nest about 11 weeks after they hatch. First flights are often rather awkward and up to half of fledging attempts are less than successful. The parents typically continue to feed these grounded birds and eventually they do fly again.

In other regions of the country the timing of the nesting cycle varies a little bit. For example, in Florida nest building/maintenance activities may start in late September or early October and incubation can begin in October. Interestingly, the Florida nesting season tends to be prolonged, meaning that while some birds do start incubating in October, others may wait until April. In Saskatchewan, almost all the nesting pairs lay their eggs in mid-April while in Mexico many pairs are already incubating in January.

Eagle Nesting Phenology in the United States. This table is reproduced from "The National Bald Eagle Management Guidelines", U.S. Fish and Wildlife Service, May 2007.

Chronology of typical reproductive activities of bald eagles in the United States.



Binocular and Spotting Scope Basics

A good pair of binoculars is a must for most for bird monitoring projects. Certainly, you can observe birds and other wildlife without the aid of binoculars, such as at a feeder, but with them you will see more detail. Binoculars don't have to cost you a lot of money, but should adequately magnify birds for identification. Many 7 x 35 or 8 x 42 power binoculars are affordable and good for bird watching. They should be easy to use and comfortable for you. You can buy binoculars through sporting goods stores, catalogs, and the Internet.

How to use binoculars

Binoculars are an extension of your eyes. First, use your naked eye to find the birds you are observing. Once you have detected movement and can see the wildlife, use binoculars to see details of a bird's "field marks." Everyone's eyes are different, so before you raise the binoculars, you must calibrate them for your eyes.

How to Calibrate Binoculars

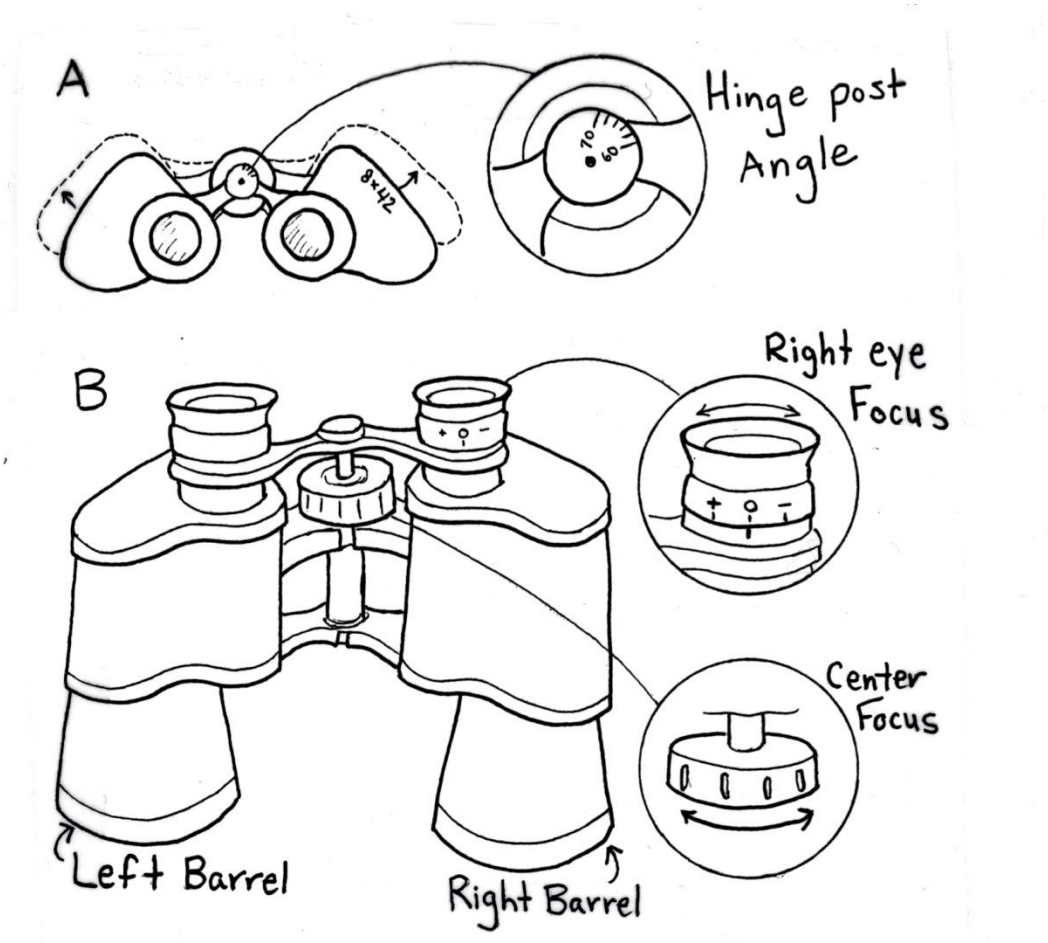
1. Binoculars hinge at the center between the two large "barrels," allowing the eyepieces to fit the width of your eyes (Illustration A). Pivot the hinged barrels so you see a single circle-shaped image, rather than a double-image when looking through them. If the barrels are as close together as they go and you still see two images, you may need to find another pair. The distance between the eyepieces is called the "interpupillary distance." It is too large if you see two images. The number on the hinge post (angle) will always be the same for your eyes, no matter which binocular you use (A).

2. Each of your eyes has slightly different vision, so your binoculars must be calibrated to accommodate them (Illustration B). Calibrating binoculars brings both eyepieces into sharp focus. Most binoculars have a focusing wheel in the center. It adjusts the focus of both eyepieces (what you see with both eyes) at the same time. Most binoculars also have a separate "diopter" adjustment, which allows you to focus (turn) one eyepiece independently, to accommodate the differences in your eyes (B). Depending on the binoculars, this adjustment can be on the left or right eyepiece (usually the right). Marks similar to the following symbols (+ … O … -) are on the eyepiece. Note: the remainder of these instructions assumes you are using binoculars with a right-eye diopter adjustment. For binoculars with a left-eye adjustment, reverse the side of the binoculars indicated.

3. Turn the center focusing wheel to the right as far as it will go (if it is an external focus binocular, like illustration) (B). Turn the adjustable eyepiece (diopter adjustment) counterclockwise, moving it as far out from the body as possible (B). Both eyepieces should now be out of focus. Stand about 30 feet from a sign (street signs work well) with clear lettering. Cover the end of the right binocular barrel with your hand (B). With both eyes open, turn the center focusing wheel until the lettering comes into sharp focus. Turn the center focus wheel past sharpest focus and back again to ensure you have the sharpest image.

4. Next, cover the left barrel, keeping both eyes open, and turn the right eyepiece clockwise to bring the lettering into focus (B). Again, turn the eyepiece beyond the point of sharp focus and back to find the sharpest image. Remember to keep the center focus wheel in the exact position you left it in step 3. Uncover the left barrel. Your binoculars should be in perfect focus and calibrated to you eyes. Remember the position that the right eyepiece is set. This will not have to be changed unless your vision changes. You may want to place masking tape around the eyepiece so it can't be turned. From now on, you will only need to use the center focus wheel to adjust both eyepieces.

Note: This exercise will greatly enhance the experience of watching wildlife, and taking the time to teach students this method is passing on an important skill. However, it may be preferable to keep the right eyepiece in the center (not adjusted) for younger students. Most young people have little or no need to adjust the eyepieces independently. This will reduce confusion for younger students, but the decision is up to you.



Binocular Basics

Information taken from Classroom BirdWatch, Teacher's Guide, FeederWatch Module, Copyright, 2001, Cornell Lab of Ornithology; adapted from "*How to Calibrate Binoculars For Your Eyes*" by Steve W. Kress, National Audubon Society biologist. Binocular drawings by Jason O'Brien, 2002, Iowa NatureMapping.

Spotting Scopes for Birding and Bird Monitoring

While binoculars are usually the most useful tool for general bird observation, spotting scopes are invaluable for long distance viewing, such as identifying shorebirds or monitoring an eagle nest. Here are some basic tips on selecting a scope to fit your needs.

Size/power: Spotting scopes come in three sizes and a range of powers, with zoom lenses the most popular. Compact and mid-sized scopes fall in the 12-45 power range, while full-sized are in the 20-60 power range. For beginning or average birders, compact or mid-sized scopes are suggested, because they are lighter weight, easier to use and less costly. However, optical quality is *sometimes* not as good in the smaller scopes, to some degree reflected by price. If you can afford it, *any* scope you consider will be excellent if it has "ED" or "HD" lenses, which reduce blurriness or chromatic aberration (colors) around the edge of your viewing field. Most birders seldom use the 60x end of even their large, expensive scopes, because of the narrow range of vision at this high end of the magnification range and the effects of heat waves, viewing through precipitation, or the shaky picture resulting from even a slight wind. Scopes are also measured by the size of their *objective lens* (the lens at the opposite end from the eyepiece). This is a measurement of lens diameter in millimeters (50mm, 60mm, 80mm, etc.) and the larger this number the brighter your view through the scope. Thus, an 80mm objective lens is brighter than a 72mm (on the same power scope), a 60 mm is brighter than a 50mm, etc.

Eye Relief and Retractable Eyepieces: All scopes and binoculars are given an "eye relief" rating, and the higher this number, the easier it is to see through the optics. Anyone with glasses should consider a scope with the highest eye relief number (usually above 15 or 16) possible, to offer the widest field of view. Retractable eye cups are most often extended by people who do *not* wear glasses, to keep their eye at an optimal distance from the lens.

Lens Hood or Shade: A retractable lens hood on the objective (far end) lens of a scope helps reduce lens glare on sunny days. It should be retracted in low-light conditions.

Tripods and Window Mounts: Because scope viewing is always at higher magnification than binoculars, a solid base is essential. Purchase a strong, heavy tripod to reduce scope vibrations when viewing. A good tripod will cost $100+. A window mount is much less expensive ($25-$45) and is a great tool when viewing birds from your car (cars make *great* blinds for bird observation).

Examples of Scopes and Price Ranges: The following selections do not constitute endorsements of these brands. However, the models in this list often receive high ratings by optics reviewers and birding magazines. All prices are *approximate* "street" prices collected in 2010.

Compact:

- Minox MD 16x-30x (50mm), ~$350
- Bushnell Legend Ultra HD 12x-35x (50mm), ~$300
- Burris Compact 12x-24x (50mm), $150

Mid-sized:

- Bushnell Legend Ultra HD 15x-45x (60mm), ~$350
- Leupold Sequoia 15x-45x (60mm), ~$300

- Burris Landmark 15x-45x (60mm), ~$200

Full-sized:

- Swarovski ATM HD 20x-60x (80mm), ~$3,000
- Vortex Razor HD 20x-60x (80mm), ~$1,600
- Vortex Skyline ED 20x-60x (80mm), ~$800
- Nikon ProStaff 20x-60x (82mm), ~$700

3 days.

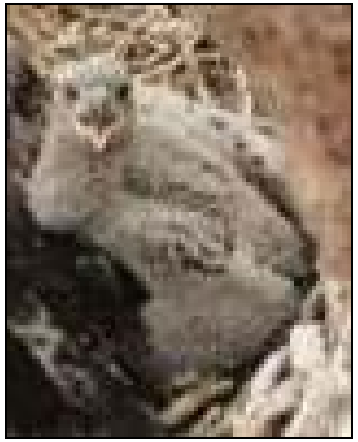
10 days.

2 weeks. Off-white first down.

3 weeks. Medium-gray second down. Head with off-white down contrasting with darker body, creating a "mohawk" appearance.

4-5 weeks. Early contour growth. Medium-gray down with emerging dark brown feathers that cover 5-50% of the body.

Note: There may be noticeable variability in feather growth among nestlings. Within broods this is related to asynchronous hatching of young, nutrition, and sibling competition. The main point is that at this stage feathering comprises a minority of body cover, whereas down makes up the majority.



5-6 weeks. Late contour growth. Medium-gray down with emerging dark brown feathers that cover 51-95% of the body.

6+ weeks. Covered with dark brown feathers.

Iowa's Bald Eagle Territory Monitoring
SURVEY INSTRUCTIONS

Step by Step Instructions

The overall goal of eagle nest monitoring is to collect three important pieces of information:

1) **Is the Bald Eagle territory active/occupied?**
2) **How many young, if any, are produced?**
3) **How many fledglings, if any, are produced?**

In order to gather the needed information the territory monitor will be required to make a **minimum of 3 visits** to the nest with binoculars and/or a scope, and **spend 30 minutes or more** watching the nest at each visit. The following the steps should be followed:

1) *Locate the nest*
   - Monitors should scout for the nest each year prior to the nesting season and note the best viewing locations.
   - Any changes to the nest site location, including the nest's absence, should be recorded and reported to the nest monitoring program coordinators.
   - If you are unable to find a nest, conduct a thorough search of the area within a 1-2 mile radius of the original nest site.
2) *Visit 1: Is the Bald Eagle Territory active/occupied?*
   - Monitors should visit the nest site during the first month of the nesting season during daylight hours when visibility is good (no fog or rain).
   - Spend at least 30 minutes observing the nest for any eagle activity on or within 50 yards of the nest site.
   - If no activity is noted, a further visit may be needed during this initial time period and monitors should plan on making visit 2 as directed in order to confirm that the territory is inactive.
3) *Visit 2: How Many Young are produced?*
   - The purpose of this visit is to count the number of young in the nest. A spotting scope will be an especially useful tool for this task.
   - Tips for seeing and counting young:
     - Be patient and make multiple visits.
     - Try different vantage points for viewing.
     - Schedule visits to coincide when the young are 5-7 weeks of age, as they will be bigger and more active and therefore easier to see.
4) *Visit 3: How Many Fledglings are produced?*
   - Monitors should visit the nest during the final part of the nesting season and record the number of chicks preparing to fledge.
   - What counts as a fledgling? The eaglet has fully developed feathers, is adult sized and may be doing wing exercises or exploring the edges or outside of the nest. If they've already made some initial flights they may be perched in the vicinity (within 50 yards) of the nest.
5) *Submit Data Sheets*
   - By **August 1**: VWMP; Iowa DNR Boone Wildlife Research Station; 1436 255th St.; Boone, IA 50036; vwmp@dnr.iowa.gov

Return Surveys To: VWMP | Iowa DNR Boone Wildlife Research Station | 1436 255th St.
Boone, IA 50036 | VWMP@dnr.iowa.gov

Other Helpful Information

Etiquette!! Especially in the early part of the nesting season, eagles are VERY sensitive to any kind of disturbance. It is important during this early part of the nesting season that you keep your distance (no closer than 600 feet) and try to be as inconspicuous as possible. Once the young are a little older the parents are less likely to abandon the nest, and you can get a little closer (no closer than 330 feet), while still being respectful and trying to keep disturbance to a minimum.

Territory Refers to one bald eagle pair's breeding territory. This territory may have more than one nest (serves as an alternate nest or replaces destroyed nests) but will never have more than 1 breeding pair of eagles. The territory is what is being monitored, meaning that even if a nest is destroyed and a new nest is built in a different location, monitoring of that newly built nest continues. *How can you tell if two nests are in the same territory?* Excluding certain special situations, any two nests that are within 1 mile of one another and which have not both been recorded as active within the same breeding season are considered to be within the same territory. Any two nests that fall outside of either of these criteria will be considered separate territories unless evidence to the contrary is observed.

Nesting Timeline The nesting timeline for each pair of eagles will be slightly different and it is for this reason that it may be useful to make some unofficial trips to the territory in order to determine when the various nesting stages begin. This will help you time your official visits within the survey periods so that you have the greatest likelihood of seeing young and counting fledglings etc…

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nest Repair and Building												
Egg Laying and Incubation												
Hatching and Tending Young												
Fledging												

* The darker shading represents the most usual time for the associated nesting activities.

Inactive Territories If the territory is inactive one year, and you have done a thorough search within 1 mile of the nest site and have seen no eagle activity, do not assume the territory will remain inactive in future years. Territory monitors should continue to visit the territory for 2 more years after the initial year of inactivity as often a territory will be re- occupied. Information on territory inactivity is just as important as information on an occupied territory!!

Return Surveys To: VWMP | Iowa DNR Boone Wildlife Research Station | 1436 255th St.
Boone, IA 50036 | VWMP@dnr.iowa.gov

Bald Eagle Territory Monitoring Data Sheet

Territory ID: _____ **Observer:** _____

Survey Period 1 — Survey Goal: Is the territory active?

Date:			Start Time:		Minutes Spent Observing Nest:			
% Cloud Cover:			Raining?:	☐ Y	☐ N	Foggy?:	☐ Y	☐ N
Wind (MPH)	Calm	☐ 1-3	☐ 4-7	☐ 8-12	☐ 9-24	Survey not recommended at wind speeds > 13 MPH		
Activity at Nest?	☐ Y	☐ N	Number of Adults Seen?			☐ 0	☐ 1	☐ 2

Describe activity (check all that apply):

- ☐ Courtship
- ☐ Flying in vicinity of nest
- ☐ Perch/roost near nest
- ☐ Repairing/building nest
- ☐ Incubation
- ☐ Feeding young
- ☐ Other:

Comments:

Survey Period 2 — Survey Goal: Number of young in the nest?

Date:			Start Time:		Minutes Spent Observing Nest:			
% Cloud Cover:			Raining?:	☐ Y	☐ N	Foggy?:	☐ Y	☐ N
Wind (MPH)	Calm	☐ 1-3	☐ 4-7	☐ 8-12	☐ 9-24	Survey not recommended at wind speeds > 13 MPH		
Activity at Nest?	☐ Y	☐ N	Number of Adults Seen?			☐ 0	☐ 1	☐ 2

Describe activity (check all that apply):

- ☐ Flying in vicinity of nest
- ☐ Perch/roost near nest
- ☐ Feeding young
- ☐ Other:

Comments:

Number of Young Seen? (check ONLY ONE):

- ☐ Unknown if young are present
- ☐ Adult behavior suggests presence of young but none seen
- ☐ Young seen (indicate number below)
  - ☐ 0 ☐ 1 ☐ 2 ☐ 3

Are you certain that the number of young seen are all the young present? ☐ Y ☐ N

Did you see any fledglings? ☐ Y ☐ N

If yes, how many? ☐ 1 ☐ 2 ☐ 3

Comments:

Please Return To:

Survey Period 3						Survey Goal: Number of Fledglings Produced?		
Date:			Start Time:		Minutes Spent Observing Nest:			
% Cloud Cover:			Raining?:	☐ Y	☐ N	Foggy?:	☐ Y	☐ N
Wind (MPH)	Calm	☐ 1-3	☐ 4-7	☐ 8-12	☐ 9-24	Survey not recommended at wind speeds > 13 MPH		
Activity at Nest?	☐ Y	☐ N	Number of Adults Seen?			☐ 0	☐ 1	☐ 2

Describe activity (check all that apply):

☐ Flying in vicinity of nest ☐ Feeding young

☐ Perch/roost near nest ☐ Other:

Comments:

Number of Fledglings Seen? (check ONLY ONE):

☐ Unknown if fledglings are present

☐ No fledglings produced by this nest-unsuccessful nest

☐ Fledglings seen (check number seen below)

☐ 0 ☐ 1 ☐ 2 ☐ 3

Are you certain that the number of fledglings seen are all the fledglings present? ☐ Y ☐ N

Comments:

Overall comments about Territory:

Please Return To: