

Organization and Operation of a Raptor Re-Nesting Program at an Avian Rehabilitation Center

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INTRODUCTION

Tri-State Bird Rescue & Research, Inc. (TSBRR), located in Newark, Delaware, has a caseload of approximately 2500 native birds a year. Of these, 7 to 10 percent are raptors. Of the raptors admitted annually, about eight percent, or 20 to 30 individuals, are young birds still dependent on parental care. The policy of TSBRR is to return these young birds to their parents whenever possible. For raptors, as for all wild birds, care received in captivity is a poor substitute for the attentions of natural parents in a natural environment, no matter how appropriate the rehabilitation techniques. In addition to critical access to appropriate models for filial, sexual, and environmental imprinting, young raptors raised in the wild learn numerous hunting and survival skills from opportunities offered by their natural parents (Fox 1995). With a first-year mortality rate of 60 percent or greater, it is incumbent upon rehabilitators to offer young raptors the very best chance for survival by allowing them an opportunity to be wild-raised birds (Fox 1995).

Methods for fostering raptors into the care of adults in the wild—either the birds' own parents or, in special cases, another pair of adults—are diverse and have been covered extensively in the rehabilitation literature (Gibson 1998; Miller 2001; Mueller 1994). The purpose of this paper is to describe a model used successfully by TSBRR in the spring and summer of 2005 to return young raptors to the care of their parents. The model involves the formation and operation of a specific group of volunteers who oversee this aspect of the center's operations.

Prior to 2005, young raptors were processed simi-

larly to most other young birds brought to the center. Chicks received an initial examination, were housed in an indoor ward, and appropriate care was initiated. Staff members interviewed the bird's presenter on admission to evaluate the potential for returning the bird to the area in which it was found. As soon as possible, the nest site was evaluated by a staff member or volunteer, and additional staff or volunteers were contacted to begin the re-nesting process. This chain of events, while functional, was highly dependent on personnel availability and experience, and often several days would elapse between admission and a re-nesting attempt.

FORMATION OF RE-NESTING GROUP

In an effort to streamline the process and to minimize the time the birds were away from their parents, a volunteer Raptor Re-Nesting Team was formed in the winter of 2004–2005. The team is led by the Re-Nesting Coordinator, a volunteer who works primarily out of her home. TSBRR volunteers were notified via the monthly volunteer newsletter that a re-nesting team was being formed, and interested volunteers were asked to contact the Coordinator. The Coordinator interviewed all interested volunteers and provided them with a description of the program. These initial contacts resulted in a group of approximately 15 people recruited with a minimal investment of time by center staff. The group included transporters, tree climbers of various abilities, and ground assistants. Professional tree climbers from local landscaping companies were also contacted to ask whether they were interested in volunteering their services. The local electric company was contacted as well and agreed to assist with accessing nests.

A training session for the team was offered by a former TSBRR staff member. She created a written handout outlining the center's re-nesting procedures and showed slides of past re-nesting events.

The duties and responsibilities of the members of the Re-Nesting Team include site evaluation, trans-

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port, accessing the nest or placing a substitute nest (see below for detailed description), and subsequent monitoring of the chick(s). An email distribution list and telephone list were assembled for the group to facilitate rapid communication. Official Re-Nesting T-shirts were designed to bolster the 'team spirit' of the group.

In addition to the Coordinator and the support volunteers, the Re-Nesting Team includes one staff member who is the team's key liaison at TSBRR. Having a single staff liaison helps to ensure that communication lines run smoothly and that all necessary people are informed of all activities.

PROCEDURE

Initial Contact and Assessment. All baby raptor-related phone calls are diverted from the center to the Re-Nesting Coordinator. This allows the bird's presenter to work primarily with one person, and it also allows the Coordinator to be sure that all the necessary information is gathered. First, the Coordinator attempts to determine whether the situation requires the center's involvement. Often, if there is a possibility that the bird is simply a healthy fledgling, an experienced member of the Re-Nesting Team is sent to the site to evaluate the bird and the situation before the finders are asked to bring the bird into the center. In this way, many healthy fledglings exhibiting normal behavior can avoid a trip to the center for evaluation and subsequent time-consuming replacement.

In addition to or in place of a visit from the team member, the finder may often be willing to monitor the baby and to watch for the presence or attentions of a parent. On one occasion, a 'brancher' great horned owl (*Bubo virginianus*) was found sitting on a woman's porch. He flew a short distance when he saw the woman, and she stayed home from work to observe him. That evening, she was able to see an adult bird feed him, and she watched them fly away together.

Useful questions to ask in the initial interview with the presenter include: What does the chick look like? Is it downy or feathered? Are the eyes open? Is the chick active, still, or shivering? Do you know which tree the chick fell from? Do you see a nest? Do you see the parents or any other babies? Some callers have been able to take a digital photograph of the bird and its surroundings and email it to the Coordinator.

Often, it can be difficult to ascertain from the information provided whether the bird is injured or in need of assistance. In these cases, the finder is asked to transport the bird to the center.



Figure 1. Great horned owl brancher. Photo by Kim Steininger.

Admission and Examination. After the bird is transported to the center, the presenter is contacted by the Coordinator a second time for a discussion about the possibility of returning the chick to the area. This is done soon after the chick's admission, while the presenter is still 'excited' about helping the bird. Based on this interview, the Coordinator evaluates the situation to determine whether environmental factors would allow for a re-nesting attempt. Interview questions include:

- Does the Re-Nesting Team have permission to access the property over a period of several days?
- Have the parent birds been sighted?
- Is the location of the nest known, and if so, are other chicks in the nest?
- Is the nest intact? If so, how accessible is it?
- Are there nearby trees with sturdy, accessible branches?
- Will a ladder be available for the team's use?
- What is the immediate environment of the nest?
- Are dangers present, such as traffic or free-roaming cats?

An attempt is made to involve the presenter(s) to the greatest extent possible throughout the re-nesting process. Their involvement provides an opportunity for public education while also allowing individuals to

establish a personal connection with a wild animal. In addition, particularly if the nest is on the presenter's property, the presenter can be an asset to the team if he or she is willing to help monitor the nest after the bird is re-nested.

A situation is considered appropriate for a re-nesting attempt when the parent birds are present and the tree is in a relatively safe location or a nearby tree can be used. Sometimes the location can be checked ahead of time, and sometimes the Re-Nesting Coordinator can proceed based on information provided by the finder.

Once it is determined that the situation is appropriate for a re-nesting attempt, the young bird must be cleared for release by staff at TSBRR. The health evaluation includes a physical examination, radiographs (taken on-site), measurement of packed-cell volume and total plasma solids, and an ophthalmic examination. On physical examination, the bird must be bright, alert, and well hydrated, with a body weight, appetite, and activity level appropriate to its age.

All baby raptors are given rehydration fluids as necessary and are offered appropriate food before re-nesting is attempted. It is important to feed the bird at least one meal to ensure that they are able to process solid food. The chick is weighed immediately before re-nesting to establish a baseline weight, so that further weighings can help to establish whether the chick is being fed by the parents.

If a bird is injured, dehydrated, or not processing food, the bird is kept at the center as a patient until the health problems have resolved. While the bird is in the center, precautions are taken against human imprinting or habituation. It is possible to re-nest a raptor several days, or even a week to ten days, after the bird has been admitted, as long as other young are in the nest. If there are no other young in the nest, it is best to return the nestling as quickly as possible. However, it is possible to keep the parents attentive to the nest site by placing a foster nestling of the same species in the nest. When the first chick has regained its strength, it can be returned to the nest as well. In one case, a brancher great horned owl had to be kept at The Alabama Wildlife Rehabilitation Center (AWRC) for about 10 days. There were no other siblings, but the

adult birds were observed at the nest site. A younger nestling great horned owl was fostered into a nest basket at the nest site and it was readily adopted by the parents of the brancher. The brancher was easily reintroduced to the family at the end of the 10-day period. (Anne Miller, personal communication, AWRC, Pelham, AL). The parents continued to care for both chicks.

In addition to the health of the bird, the bird's stage of development must be assessed before planning the re-nesting attempt. There are three general approaches to re-nesting raptor chicks, and the age of the chick should be used to determine the appropriate approach. A bird may be returned to the original nest, placed in a substitute nest, or returned to a tree in the nest area. TSBRR follows the guidelines outlined in *Reuniting Downed Juvenile Raptors with their Parents* by Anne Miller (2001), which is an excellent source for details of re-nesting techniques and decision-making. The authors recommend referencing this article for details regarding how to determine which re-nesting technique should be used, as this topic is too broad to be covered here in detail. Briefly, the developmental stages and appropriate re-nesting techniques are as follows:

Young nestling (downy, non-thermoregulating)—Must be placed in original nest or in substitute nest with siblings. Requires parental brooding, which may not occur if nest-mates are divided between two nests.

Older nestling (downy, adult feathers beginning to grow)—May be placed either in original nest or



Figure 2. Great horned owl chick in nest basket. Photo by Kim Steinger.

substitute nest without siblings. Does not require parental brooding.

Brancher (standing, active)—May be placed in branches of tree near nest site if parents are present (Figure 1).

Fledgling (starting to take short flights)—May be placed in branches of tree near nest site if parents are present. May be difficult to re-catch, so should not be 'released' until it is certain that parents are attentive.

When determining whether the original nest can be used, both the accessibility and the structural integrity of the nest must be considered. Often, in the authors' experience, the nest either cannot be found or has been damaged or destroyed. It may be necessary for a climber to ascend to the nest to determine if structural instability may have contributed to the chick's falling from the nest. This assessment should be done *before* the chick is returned to the site for re-nesting. Substitute nests have been used with good results, as long as any chick separated from its siblings is old enough not to require brooding by the parents.

If the chick is old enough, it is fitted with a federal band prior to release.

SUPPLIES

Necessary supplies include a soft-sided bag such as a duffle bag or backpack, several meters of rope, a ladder and/or tree-climbing equipment, and a substitute nest if necessary. For substitute nests, TSBRR generally uses wicker baskets for open-cup nesters and wooden nest boxes for cavity nesters. Because the open-cup nesting species received most often at TSBRR tend to be larger raptors, such as great horned owls or red-tailed hawks (*Buteo jamaicensis*), a wicker laundry basket is often used. These baskets are available at most stores that sell housewares. The basket is lined with enough dry pine needles that the chick is able to defecate over the edge (Figure 2), and it is secured to the trunk of a tree using heavy-duty bungee cords. Another alternative is to create a 'nest' by firmly wedging sticks or branches in the basket and then adding pine needles. This allows the chick to develop strength in its legs and feet by perching on and grabbing the



Figure 3. Nest basket affixed to trunk and stout branch. Photo by Kim Steininger.

branches as it grows. The basket should be placed out of direct sunlight and close to branches where the parent bird(s) can perch and where the chick can climb out when ready (Figure 3).

Nest boxes for cavity-nesters should be of an appropriate size for the species with appropriate entrance hole diameters. Nest box designs and parameters can be found at < <http://www.birds.cornell.edu/birdhouse> >. Ideally, the nest box should have a hinged door so that the chick(s) are easily accessible for monitoring. Nesting material, such as pine needles or twigs, is placed in the box (Figure 4).

RE-NESTING EVENT

Participating members of the Re-Nesting Team are assembled and briefed by the Coordinator, who is also available by phone during the re-nesting event in case a problem should arise. With input from the clinic staff, the team has already determined whether the bird will be returned to the original nest, placed into a substitute nest, or returned to a branch of the nest tree or a nearby tree. The bird is transported to the site at the time of day when the parents will be most active—morning for diurnal birds, and just before dusk for owls.

The climber takes the rope with him/her and ascends to the nest or climbs to the appropriate height for the substitute nest to be placed in the chosen tree. If a substitute nest is used, it should be placed

as close to the original nest as possible, at a height corresponding to the typical height of the nest of the species involved if possible. For details on nest location of native raptor species, see *Life Histories of North American Birds of Prey* by Arthur Bent (1961) or the Cornell Lab of Ornithology website. It is not necessary to place the substitute nest in the same tree as the original nest; as long it is close enough for the parents to see the chick or hear it begging, they will feed it in its new location.

Once at the nest or correct height, the climber then lowers both ends of the rope back to the ground crew, keeping the rope draped across a strong limb, which acts as a pulley. One end of the rope is tied to the basket or nest box, and the people on the ground are then able to raise the bag up to the climber using the pulley mechanism of the rope and tree limb. The nest is secured in place by bungee cords or nails, and the end of the rope is again lowered to the ground. The bird is placed in a soft-sided bag, the rope is tied to the handle of the bag, and the bird is raised in the same manner. It is important that the route be relatively unobstructed so that the bag does not become entangled on its way up. The bird is placed in the nest, basket, or box by the climber, and a food item is left in the nest for the parent birds to feed the chick (Figures 5 and 6).

The area is then vacated and the return of the adults is awaited from a distance. Binoculars or a spotting scope are helpful. If the parents are not immediately seen, pre-recorded birdcalls are played on a portable compact disc (CD) player in an effort to draw them to the area. CDs such as any of the *Peterson Field Guides*[®] series (Houghton Mifflin Co., New York, NY) are available with raptor calls. The vocalizations of a young bird may also be recorded in-house and replayed. For detailed instructions on the use of taped calls to attract parents, see *Reuniting Downed Juvenile Raptors with their Parents* by Anne Miller (2001). Before leaving nestlings alone for the night, nighttime low temperatures should be considered. If the parents are not seen the first day or night, a follow-up visit is carried out the next day.

Occasionally, despite the most careful planning, unexpected situations occur. On one occasion, a barred owl

(*Strix varia*) chick was being replaced in the original nest cavity when a raccoon was discovered in the cavity, having apparently eaten the other chicks.

FOLLOW UP

After the chicks are left in the nest, unless a parent was observed, it is necessary to revisit the site to determine whether the babies have received care. The property owner is asked to watch for the presence of parents entering or leaving the nest area or the presence of the chick on the ground. If a parent bird has not been seen, the ground is checked for the presence of fresh pellets, mutes, or prey items (these are more often found in the case of open-cup nesters than cavity nesters). It may be necessary to evaluate the chick directly to obtain a weight or to assess hydration. The chicks may be lowered to the ground and weighed using the bag and pulley method as described above.



Figure 4. Eastern screech owl (*Megascops asio*) nest box. Photo by Kim Steininger.



Figure 5. Great horned owl chick in bag. Photo by Kim Steininger.

If the chick(s) have lost weight, they are hand-fed in the nest. If they continue to lose weight after a period of one to three days (depending on the species) or if they appear dehydrated or unhealthy, it is likely that the parents are not adequately caring for them, and they are returned to the center. From February to May of 2005, the Re-Nesting Team successfully returned 11 chicks to their parents, while only three birds were returned to the center after re-nesting attempts failed.

CONCLUSIONS

Returning healthy young raptors to their wild parents can be a rewarding part of avian rehabilitation for both the rehabilitator and the bird. While some effort is necessary, the time, effort, and materials required are much less than those required to raise a young raptor, and offer a much greater benefit to the chick. The skills and knowledge required to re-nest raptors can also be used for the fostering of truly orphaned raptors. While the basic protocol of re-nesting raptor chicks at Tri-State Bird Rescue & Research, Inc., has not changed in the past few years, the organization of an official Re-Nesting Team has greatly enhanced the speed and success of the operation, while decreasing the time investment of the center's rehabilitation staff. In addition, the creation of a team of specialists dedicated to raptor re-nesting allows individuals to gain expertise in this area, contributing to the on-going success of the program. In the future,

TSBRR hopes to expand this model to the creation of other 'specialized' teams whose members can become experts in different aspects of the rehabilitation process.

Editor's Note: A CD and handbook with vocalizations of common raptors of the Eastern US have been created for the purposes of re-nesting. The CD, along with case histories of re-nesting events, can be found at the Alabama Wildlife Rehabilitation Center website, < <http://www.awrc.org> >.

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Figure 6. Great horned owl chick being put in basket. Photo by Kim Steininger.