

CHAPTER 4. TRANSPORT OF WILD BIRDS

A. Overview

Research protocols and objectives often call for the transport of birds from the point of capture to a holding facility or laboratory or to release areas removed from the capture site. Transport should not be undertaken lightly because even minor dislocations may disrupt territoriality, nesting and foraging behavior, or social grouping. Transportation also generates stress and may contribute to capture myopathy (see section on Capture and Marking). It is both an ethical obligation and a practical requirement that birds used for scientific purposes remain as close as possible to their original condition on release. Birds subjected to stressful conditions or suffering the effects of mishandling may seriously prejudice the value of the project. Similar considerations apply to the eggs of wild birds because lost eggs may reduce reproductive success. Most importantly, birds are a diverse group and procedures for one species may not be suitable for another even if they are of similar size and behavior.

Unfortunately, as the Institute for Laboratory Animal Research noted in 2006, “there is sparse scientific literature on the effects of transportation on most common research animals, but good practices for all research animals can be established by drawing some universal concepts from the available scientific literature and by understanding species-specific needs. Although precise engineering standards are often preferred by human assessors, the scientific literature supports few engineering standards. This report emphasizes *science-based performance standards*, which define an outcome (such as animal well-being or safety) and provide criteria for assessing that outcome without limiting the methods by which to achieve that outcome (ILAR 2006). Most of the references cited in that publication pertain to traditional laboratory animals, cats, dogs, and other mammals. The few papers about birds pertain to poultry. Nonetheless, this is a worthwhile overview of animal welfare concerns that arise in the context of transportation; the discussions on ambient temperature range and on regulations are particularly useful.

Seek guidance, and especially species-specific information regarding transportation techniques and signs of stress, from experienced personnel, such as zoo personnel, licensed wildlife rehabilitators, or other ornithologists, when possible.

B. Regulatory guidelines

The transportation of wild birds is subject to a variety of international, federal, and state or provincial regulations. Permits and health certificates may be required, particularly for international movement. For detailed information on these regulations see the [Ornithological Council's Permit Guide for Importing Live Birds](#). Container design and other requirements for international air transport are specified by the [International Air Transport Association's Live Animal Regulations](#). Although these regulations are intended for air transport, they are useful guidelines for all kinds of transport. Be sure to obtain the most recent edition before shipping birds. These standards have been adopted by the Convention on International Trade in Endangered Species and are recommended by the World Organization for Animal Health (formerly known as the "OIE"). At the moment, the U.S. Department of Agriculture Animal and Plant Health Inspection Service has no regulations specific to birds. The agency is planning to issue regulations some time in 2010. When that occurs, this section will be revised accordingly. Regulations issued by the U.S. Fish and Wildlife Service (50 CFR 14.101 et seq.) establish standards for the transport of live mammals and birds to the United States. These regulations are largely consistent with the Live Animal Regulations of the International Air Transport Association. Each country has its own regulations that may vary slightly from these international standards.

Some states require a state permit before some (or all) species of birds can be moved into or across the state, whether to be kept in captivity or released to the wild. Before moving live birds across state lines, check to be sure that there are no extant quarantine restrictions imposed by the U.S. Department of Agriculture or by the state to which the birds are to be moved. Quarantine restriction imposed by the U.S. Department of Agriculture are announced in the Federal Register and on the website of the Animal and Plant Health Inspection Service.

C. Considerations for all types of transportation

Containers

Generally: The key to successful transportation is a carefully designed and constructed container to minimize stress and prevent injury and escape. For trips of less than 30 minutes it may be safe to move small birds in simple containers such as bird bags (Redfern and Clark 2001) but large species and longer trips need appropriately designed and constructed

containers. A container must be clean and free of protrusions that might cause injury. It should offer easy access for care and removal of the animals in an emergency but must be designed to prevent escape.

Size: There should be enough headroom in any container that the bird can adopt a normal posture and carry out comfort and maintenance activities. Some small birds may be given enough room to fly up and down from perches but flight of larger birds is undesirable. If it is necessary to restrain the wings, the technique must not impair the bird's ability to breathe or regulate its body temperature.

Temperature and ventilation: Temperature and ventilation are likely to be the single most important issues in the design of shipping containers. Birds collapse quickly if they cannot keep their body temperature between narrow parameters and will suffer from stress if temperatures are above normal for extended periods. When transporting precocial chicks or altricial nestlings (see discussions on duration of travel and on food and water, below, with regard to altricial nestlings) provide a protected heat source. It must be of a design that cannot burn the birds, and there must be room for the birds to move away from it. Even where it is otherwise acceptable to put more than one bird into a container or compartment, crowding in the container will increase the risk from poor ventilation or excess heat.

Perches: Perches and other contents in carriers should be securely fastened to avoid bouncing and tipping over during transport. Non-slip perch coverings can help prevent injury and help the bird feel more secure.

Padding: Bird feet, beaks, and eyes (or other parts of the body not protected by plumage) are susceptible to damage and subsequent infection. Padding the floor and other internal surfaces of the container may reduce that hazard. Disposable diapers or other materials that trap moisture might provide protective padding and reduce fouling of plumage by fecal material. Anchored clean carpeting or astro-turf may be more appropriate for raptors and other species capable of shredding less robust materials.

Multiple birds: It may be safe to ship more than one bird per compartment if they will tolerate each other and not fight. Otherwise, provide separate containers or separate compartments when transporting more than one bird. Birds of some species will attack unfamiliar birds of the same species. As a general rule, birds of different species and raptors (except eyases) should be transported in different containers or compartments.

Behavioral considerations: Containers should protect the birds from external auditory and visual stimuli as much as possible. Cover openings in the container with fine, non-fraying wire mesh (such as hardware cloth) to limit visibility in and out without compromising ventilation. Avoid galvanized products because these contain zinc, which is toxic to birds if ingested. Even poultry suffer from the effects of transport in spite of the fact that they have been raised in an industrial environment and are relatively familiar with handling by people (Cashman et al. 1989).

Food and water

It is probably not necessary to provide either food or water to birds for trips that last less than an hour, but for longer trips both may be essential. For some species, a wet sponge may provide water or pieces of apple, cucumber, or other fruit may serve as a convenient source of both food and water. The birds may need to be exposed to these items prior to the trip to accept them as sources of food and water. It may be necessary to design and build suitable dispensers that the birds recognize as a source of food or water or interrupt the journey so that fresh supplies can be provided. As altricial nestlings will almost certainly need to be hand-fed, which precludes transport by methods that do not allow frequent access to the container.

Timing and duration

Transport birds from the site of capture to the research facility as quickly as possible, subject to the need to wait until all birds have been captured. It may also be advisable to evaluate the condition of the bird prior to transport. Bocetti (1994) developed techniques for confining and transporting small insectivorous passerines that entailed evaluating the bird prior to transport. Birds that were lethargic, crouched, or fluffed after 20 min of captivity were released. Birds that did not eat or drink during the first hour of captivity, as determined by the color and texture of the feces, were also released. These precautions resulted in the survival of all birds over a 612 km car trip.

If birds are to be shipped to a distant site, it may be advisable to transport birds to a holding facility to provide a period of acclimation to captivity prior to shipping. Recently captured birds may experience difficulty in adjusting to conditions of captivity. They may fail to eat or may injure themselves thrashing and flapping in the cage or transport container. Investigators will have to

rely on good judgment and the experience of those who have handled the taxa in question. Frequent and careful observation of birds during the adjustment period is necessary to ensure acclimation.

It may benefit diurnal birds to transport them at night when they are less active and when both ambient temperatures and their own body temperatures are likely to be low.

The trip should be planned well in advance to minimize the number of transfers and delays and to ensure that a person competent to provide appropriate care is available to meet the shipment upon its arrival. Shipment dates should avoid holidays, and arrivals and departures should occur during normal working hours. Multiday shipping may require a qualified person to accompany the shipment to resolve unexpected problems in ways that protect the welfare of the birds (CCAC 2003, Hawkins 2001). To avoid delays, all permits, health certificates, and other documents should be obtained and completed before shipping. There must be a contingency plan to assure the birds' safety and comfort should unforeseen delays arise.

D. Specific modes of transportation

Air transport

Commercial airlines may ship wild birds. Generally, airlines adhere to the International Air Transport Regulations, even for domestic travel, but each airline has its own rules about carrying live animals, and typically the rules for birds differs from the rules for cats and dogs. Therefore, in addition to consulting the latest edition of the International Air Transport Association's Live Animal Regulations, consult the airline on which you plan to travel on or have ship the birds. Some allow live animals on board in limited numbers and under limited conditions, subject to advance reservations. At the time of boarding, however, they may refuse to allow the animals on board. Many carriers no longer accept live animals as "accompanying baggage" and require shipment through a designated third-party specialist shipper such as the [International Animal Exchange](#), which handles many zoo animals, or [Global Animal Transport](#). Such a specialist shipper will be familiar with the International Air Transport Association's Live Animal Regulations. Airlines that accept birds as accompanying baggage have restrictions based on ground temperatures and other considerations.

Ground transport

Birds moved by ground transport should not be exposed to direct sunlight or subjected to external visual stimuli. Long trips should be broken up by uninterrupted rest periods during which the birds may feed and drink. Redig et al (2007) and Arent (2005) describe techniques and considerations for transport of raptors

E. Health and safety during and after transport

Stress and physiological considerations

Birds may continue to struggle or attempt to flee long after initial capture. This may cause cramp, also known as “capture myopathy” or “exertional rhabdomyosis” (see Capture and Marking section). This and other less obvious physiological responses to stress, such as impairment of the immune system, may be exacerbated by transport (Kannan et al. 1997). An understanding of the species’ behavioral signs of stress is also a helpful in assessing the transport method and journey. Birds that have received general anesthesia should be fully recovered prior to transport (CCAC 2003).

Disease

Wild birds are exposed to a variety of diseases, parasites, and epizootic organisms. Transported birds might carry undesirable strains of microorganisms into new habitats or be a source of *Salmonella* contamination (Proctor and Malone 1965). In addition, the stress of transportation is likely to make birds more susceptible to disease and infection (Elrom 2000). It is extremely important that shipping containers be sterilized before and after use and that sick birds be isolated from the remainder of the shipment as soon as possible.

Quarantine

A quarantine and observation period before research begins, or before birds already in captivity are exposed to the new birds, or before release can help to rule out many health concerns. Public health or agricultural authorities may require quarantine and medical testing. The

duration of the quarantine should be as required by law or if not specified, then quarantine should reflect the incubation period of known diseases (usually 15 to 60 days). If birds were imported into the United States, they will be subject to 30-day quarantine by the U.S. Department of Agriculture in its facilities at the importer's expense. Arranging for this limited space is a complicated procedure involving careful timing. Consult the [Ornithological Council's Guide to Importing Live Birds into the United States](#) for details. Most countries have similar procedures.

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