Title: Wild Game Bird Capture, Mark, and Release Methods
SOP Number: 028

The following protocols will be used when capturing any species or subspecies of wild game birds in the order Galliformes (turkeys, pheasant, or quail). We provide specific protocols for wild turkey (*Meleagris gallopavo*), northern bobwhite (*Colinus virginianus*) and scaled quail (*Callipepla squamata*), and lesser prairie-chickens (*Tympanuchus pallidicinctus*) which should serve as guidelines for most other Galliformes though special additional considerations may be required for some Threatened and Endangered species. For any animal that is to be released to the wild, the prime consideration shall be that the procedure will have minimal effect on the animal's subsequent survival and reproductive potential. All protocols described here are current accepted practices established by The Ornithological Council (Fair et al. 2010) or recommended by the American Veterinary Medical Association Panel on Euthanasia (AVMA 2013).

1) Capture
    a. Capture with walk-in traps – Gallinaceous birds can be live-trapped at baited sites in box or cage traps (Baldwin 1947).
        i. Wild Turkeys – Turkeys will be passively captured in walk-in traps. Live traps used for capturing wild turkey are a funnel type trap (approx. 6' wide x 8' long x 4' tall) constructed with livestock fence panels placed around the bait-site (Davis 1994). The trap is set by establishing a funnel entrance after turkeys have become accustomed to feeding at the bait inside the trap. The trap allows bird's free access to bait, but the funnel design complicates egress so that turkeys cannot find their way out. Traps will be set in the crepuscular hours. During the day and at night traps will remain open, but not set. (Davis 1994). Birds can remain in closed traps (with food and water) for a maximum of 6 hours. Bird movements within the trap are not restrained. Turkey poults will be caught using hand capture techniques described below.
        ii. Northern Bobwhite and Scaled Quail – Quail will be passively captured in walk-in traps. They are wire mesh design (approx. 2' wide x 3' long x 10" tall) with a funnel entrance (Smith et al. 1981). Traps will be set in the crepuscular hours. During the day and at night traps will remain open, but not set. Captured birds can remain in traps (with food and water) for a maximum of 6 hours. Bird movements within the trap are not restrained. Quail chicks will be caught using hand capture techniques described below.
        iii. Lesser Prairie-Chickens – Passive capture in walk-in traps for lesser prairie-chickens function, and are operated, slightly differently than the descriptions for other species. The traps are placed on a lekking ground where males engage in displays to attract females. Multiple traps are deployed on an individual lek. The traps are a circular wall of wire mesh

and a soft fabric netting for the top. (approx. 3-4' diameter x 2' tall). The traps are not baited; rather they have short length chicken wire fences that direct the individual birds into the walk-in funnel traps (Haukos et al. 1989). Traps are monitored from a blind near the lek or vehicles from a distance. Once prairie-chickens are seen in traps they are removed. Trapping takes place from pre-dawn until approximately 3 hours post sunrise, and approximately 3-hour pre-sunset until dark. The funnel entrances to traps are closed when not in use. Birds can remain in closed traps for no more than 20 minutes. If two or more birds are captured simultaneously in the same walk-in trap the birds will be immediately removed. Bird movements within the trap are not restrained. Prairie-chicken poults will be caught using hand capture techniques described below.

iv. Walk-in traps for birds will be shaded or positioned to avoid full exposure to the sun (Friend et al. 1994).

b. Capture with net cannon, rocket nets, net gun, or drop-net - This technique is widely used for turkey and waterfowl (Dill and Thornsberry 1950). It is required that personnel using any of these devices powered by black powder obtain training and be certified to use the equipment and handle explosives. The USFWS provides this type of training and certification. Training should include safe storage transportation, and handling of explosives and proper methods for using the equipment. Equipment that uses compressed CO_2, or center-fired cartridges that are pre-loaded by the manufacturer, do not require certification.

i. Wild Turkeys and Lesser Prairie-Chickens – A large, light weight net is shot at approximately a 20-degree angle over birds baited to a trap site (turkeys) or at a lek (prairie-chickens). A blind is established (100-200' away with a line of vision parallel to the net) to accustom birds to its presence (Grubb 1988). For net cannons and rocket nets, the net is folded flat in a line adjacent to the line of bait with the trailing edges lapped under and staked securely. Firing is accomplished by electric charge, from battery held technician/observer in the blind when the desired number and/or composition of birds are in front of the net. Trained technicians then secure the birds and remove them from the netting for measurement, marking, biological sampling, and release as described below.

ii. Lesser Prairie-Chickens –A large net (e.g., 40 x 40 ft or 60 x 60 ft) is dropped from ~15 - 30ft directly overhead of birds. A site is identified on the lek of capture and the net poles and other associated materials (magnets, batteries) are deployed prior to capture. The morning or evening of capture, the net is raised, and a blind is established (100-200' away) with a line of vision parallel to the net to accustom birds to its presence (Grubb 1988). The net is held up with magnets and the observers in the blind have a remote to drop the net (via detachment of the magnets) when birds are within the range of capture (as denoted by flagging). Trained technicians then secure the birds and remove them from the netting for measurement, marking, biological sampling, and release as described below

c. Pressure, explosive charge, and manually operated drop nets can be used for threatened and endangered species of gallinaceous birds where rocket nets are too risky (Bush 2008, Schemnitz et al 2012). Nets are established any place birds congregate (e.g., lekking grounds). Darker nets tend to have a higher success rate. Nets are put out and open, but not set to trigger, and, if bait is used, baited to acclimate the birds to it presence. Nets are set to trigger the second day. Observers must be present in a blind to restrain the birds while the nets are removed.

d. Hand Capture –Gallinaceous birds are fast short-distance fliers, but tire quickly. Chasing and repeatedly flushing them until they run instead of flying can facilitate their capture on the ground with a long-handled net (Wilbur 1967). Nets are generally > 1.5 m diameter with handles that are 3-4 m long (Schemnitz et al 2012). Additionally, a spot-light can be used at night to freeze birds on roosts prior to netting them (Labisky 1969). Individuals or coveys can be located using radio transmitters, trained bird dogs, or other appropriate methods

2) Handling
   a. Safe handling procedures, as described in the AOC Guidelines to the use of Wild Birds in Research (Fair et al. 2010), will be used for all capture, handling, blood collection, and marking procedures.
      i. Wild Turkeys- Individual turkeys will be removed from the traps or nets by hand and secured by holding both legs together behind the bird and holding the wings closed to prevent flight attempts. Turkeys will be placed in boxes (approx 2’ wide, 3.5’ long, and 3’ tall) with ventilation holes to reduce potential struggling until all captured birds can be processed. Turkeys will be restrained long enough (less than 1 hour in boxes) to age and sex individuals and take standard physiological measurements (see below) and mark of appropriate.
      ii. Northern Bobwhite and Scaled Quail – Quail will be removed from walk-in traps or handheld nets and secured by holding both legs together and holding the wings closed to prevent flight attempts. If appropriate, a frame to reduce struggling can be used (see DeMaso and Peoples 1993). Quail will be restrained long enough (less than 1 hour in cotton bags) to age and sex individuals and take standard physiological measurements (see below) and mark if appropriate.
      iii. Lesser Prairie-Chickens – Prairie-chickens will be removed from walk-in traps, drop/rocket nets, or handheld nets and secured by holding both legs together and the wings closed to prevent flight attempts. Individuals can be placed into a padded and ventilated holding box (approximately 1’ high x 1’ wide x 2’ long) if multiple birds are captured and being processed. Prairie-chickens will be restrained long enough (less than 1 hour in boxes) to age and sex individuals and take standard physiological measurements (see below) and mark of appropriate.

3) Standard Measures include mass, wing chord, tarsus length, plus spur and beard length of turkeys (Dimmick and Pelton 1994) and pinnae length for prairie-chickens (Copelin 1963).
4) Blood and tissue sampling will follow Dein (1984). Samples (approx. 2 ml) will be obtained from either the jugular or brachial vein using sterile appropriately sized needle (e.g., 20-gauge). For northern bobwhite quail, blood (up to 0.25 ml) may be drawn by picking the ulnar vein and using heparinized capillary tubes.
5) Marking, Radio transmitters, and GPS tags:
    a. Banding: Butt end aluminum or colored anodized aluminum leg bands can be used to mark individual birds for identification upon recapture (field observation or in-hand) (Nietfeld et al. 1994). Bands are selected for appropriate size and weight for the bird species to be marked. Juvenile turkey will not be fitted with leg bands. Since these marks are intended to remain throughout the life of the bird, they must fit snugly enough to stay on juveniles but be loose enough to allow free movement up and down the leg of an adult. Bands are applied with pliers, with care taken not to damage the bird's legs by bending, twisting or pulling them during the banding process.
    b. Radio transmitters and GPS tags: Transmitter and GPS types, and attachment methods are widely varied but fitting the transmitter to the animal is crucial. The primary objectives are to attach transmitters and GPS units so they do not affect the movements, behavior, or survival of the animal and will not fall off or be lost during the data collection period. Adhesives can be used to attach small transmitters to juveniles older than 24 days for relatively short periods. Most species require restraint while being radio-tagged. Transmitters and tags will be less than 5% of the animal's weight.

6) Euthanasia
    a. Birds < 3 kg such as quail and smaller turkey, can be effectively euthanized using cervical dislocation followed by decapitation or exsanguination (AVMA 2013). Larger birds should be anesthetized first using anesthesia such as isoflurane or CO_2 and then followed by cervical dislocation and decapitation. Birds in field situations where anesthesia is unavailable can be euthanized by gunshot to the head; however, Texas Tech policy does not allow firearms in Texas Tech vehicles.

7) Literature

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