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CAPTURING AMERICAN CROWS USING ALPHA-CHLORALOSE

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Abstract.—American Crows (*Corvus brachyrhynchos*) are difficult to capture using conventional traps or nets. A technique was developed that used a sedative administered in baits. This technique was effective while causing no apparent harm to the birds. Baits were prepared by mixing the contents of fresh chicken eggs with the sedative alpha-chloralose. Fifteen crows were captured by placing treated eggs at established bait stations. Sedated birds were allowed to recover overnight before being returned to their capture sites. Long-term studies of these birds following their release indicate that they behaved normally. It is concluded that this technique can be safely used to capture crows, especially in winter, in open areas (e.g., agricultural fields) where the effects of the sedative can be fully observed.

CAPTURA DE INDIVIDUOS DE *CORVUS BRACHYRHYNCHOS* UTILIZANDO ALPHA-CHLORALOSA

Sinopsis.—El cuervo americano (*Corvus brachyrhynchos*) es difícil de capturar utilizando métodos convencionales como trampas o redes. Desarrollamos una técnica de captura, en donde utilizamos un sedante administrado con una carnada. La técnica resultó efectiva y no le causa daño aparente a las aves. La carnada fue preparada mezclando huevos frescos de pollos con el sedante alpha-chloralosa. Se capturaron 15 aves colocando huevos con el sedante en estaciones predeterminadas. A las aves capturadas se les permitió recobrarse a través de la noche, para luego ser liberadas en los lugares de captura. Estudios a largo alcance de estas aves, indicaron que estas se comportaron posteriormente de forma normal. Se concluye que la técnica descrita, puede ser utilizada para capturar cuervos, particularmente en el invierno, en areas abiertas (ej. campos agrícolas) para que pueda observarse con claridad los efectos del sedante.

American Crows (*Corvus brachyrhynchos*) are difficult to capture because they are wary of humans and generally avoid nets and traps. They can be attracted to baits, however (Kilham 1989). We modified previously used techniques to sedate and capture crows, which we radiotagged and followed through the life of the transmitters (up to 4 mo).

We studied winter roost use, group associations and patterns of diurnal movements of crows that used the agricultural fields at Rutgers University in New Brunswick, New Jersey (Stouffer and Caccamise 1992). We individually marked and radiotagged birds to allow us to find roosts and feeding sites when birds left the farm. Four groups of 2–6 crows occupied exclusive territories at the farm (see also Chamberlain-Auger et al. 1990, Kilham 1989), although non-territorial birds occasionally stopped briefly to forage in the fields.

We attempted to catch crows beginning in November 1989. Capture protocol and conditions for short-term captivity conformed to USFWS

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regulations and AOU recommendations (Oring et al. 1988). In order to capture birds we first provided baits of fresh chicken eggs on a territory for several days while we became familiar with the resident group's typical movement patterns and the most predictable feeding times. Baits placed in territories by 0800 hours were most likely to be taken; those added after 1100 hours were sometimes not consumed until the following day. Our subsequent results have shown that crows return from distant roosts within about 1 h after sunrise. They then feed and loaf on their territories through most of the morning (Stouffer and Caccamise 1992, unpubl. data). The hours just after sunrise are probably most favorable to capture crows because groups often forage together during this period; later in the day birds forage less and groups break up as individuals fly to distant feeding areas (Stouffer and Caccamise 1992, unpubl. data).

Alpha-chloralose has been used to poison nuisance birds (Dolbeer et al. 1989, Ridpath et al. 1961) and to capture birds for research (Williams and Philips 1973). In low doses the drug temporarily impairs cortical function without affecting the lower brain (Goodman and Gilman 1975: 126). To prepare the alpha-chloralose solution we first removed the contents from 4–6 eggs (one egg for each crow in the group to be captured), leaving the shells intact except for a small hole. We combined the egg contents and added 0.035 g alpha-chloralose/egg. When the alpha-chloralose was dissolved we poured the mixture back into the eggs. We placed the eggs in the field as we had done previously with untreated baits. Usually the birds took turns feeding (see also Kilham 1989:33), but by providing one egg per group member and spacing the eggs 2–3 m apart we usually lured each bird to feed. Crows sometimes carried the eggs for 2–10 m before beginning to feed.

Crows became noticeably affected 10–30 min after eating. In most cases they flew a short distance from the eggs, where they soon had difficulty walking or perching. We were able to follow birds after they flew because we centered our feeding stations in areas with good visibility, such as harvested fields and pastures. The effect of the drug varied considerably among birds, presumably due in part to variation in the amount consumed. Within 40–60 min the drug reached its maximal effect, and within 2–4 h birds began to recover. We held birds overnight, and all appeared normal upon release. At no time did birds show any signs of distress or discomfort.

Fourteen of the 15 birds we captured were unconscious or without motor skills. One bird was capable of limited ambulation. Four other birds that had difficulty perching and walking were able to fly away and elude capture 1 h after ingestion. As these birds appeared to recover so quickly from the low dose they received, we do not think that ingestion of a small amount of alpha-chloralose was dangerous to crows that could not be captured. Further, we noticed no decreases in group size due to the disappearance of unmarked birds in the days after successful or unsuccessful capture attempts.

We used an amount of alpha-chloralose per egg that was about nine times the dose reported to reduce wing and motor skills in 50% of a sample

of crows, and 1.7 times the LD_{50} (Schafer and Cunningham 1972). Despite this seemingly high dose, we used the minimum that proved effective. The dosages reported by Schafer and Cunningham were based on birds that were force-fed, but crows eating baits of raw egg spilled much of the mixture. We were most successful on days with subfreezing temperatures, perhaps because crows tended to eat more of the treated egg. When the ground is frozen the crows' ability to probe for food may be reduced while their energy needs are greater than on warmer days.

We captured crows between November 1989 and February 1990 using this technique. All were over one year old (AHY/ASY: Pyle et al. 1987). Although we do not know the age structure of our population, our results suggest that this capture method may be biased toward older birds, possibly because they are the first to feed. Because we radiotagged and/or color marked each bird, we know that 12 of the birds returned to their groups and had no apparent long-term effects. Two birds died within 2 d of release. Both were found partially eaten, but we were unable to determine if they were taken by predators or found dead by scavengers. A third crow was never seen after release. Although we do not know the fate of this bird, it had damaged primaries and secondaries and may have left its group to forage exclusively at landfills, an activity pattern that requires less flying (see Stouffer and Caccamise 1992).

In humans, chloral derivatives frequently produce hangover-like symptoms following recovery from the anesthetic effect (Goodman and Gilman 1975:128). In birds, these symptoms may put apparently recovered individuals at risk. There is no clear indication to us, however, that alpha-chloralose influenced mortality of crows, because all birds appeared completely recovered and flew normally upon release. We were unable to judge the specific effect of alpha-chloralose because the crows we captured were also radiotagged and handled extensively. Regardless of capture technique, handling and attaching transmitters is certainly a short-term trauma to birds; healthy radiotagged European Starlings (*Sturnus vulgaris*) and Common Grackles (*Quiscalus quiscula*) captured in walk-in traps showed highest mortality within 2 d of release, although survivors behaved normally (Caccamise, pers. obs.).

We suggest several precautions for those interested in this technique. (1) Sedatives probably will not be effective except in the late fall and winter when bait acceptance is high. At other times of year crows may not reliably take baits. (2) We suggest beginning with a low dose, and increasing it until the least effective dose is found. Our dose reflects the amount of egg the birds consumed, which might vary under different conditions. (3) We do not recommend this technique in habitats without good visibility. Crows often fly away from the bait station before they become impaired. For this reason it is also important to know the group's territorial boundaries and typical perches. (4) It may be helpful to hold birds in an undisturbed aviary for 2 d before they are released. Crows eat and remain calm in captivity, so a longer recovery period may insure that they have recovered from any subtle short-term impairment. It is

possible that even a short absence from the group may have deleterious social consequences, however. Finally, researchers should adhere to federal regulations and AOU guidelines for the capture and short-term captivity of wild birds.

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