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CHAPTER 1

ISSUES AND CONTROVERSIES OF COWBIRD (*MOLOTHRUS* SPP.) MANAGEMENT

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ABSTRACT.—Brood-parasitic Brown-headed Cowbirds (*Molothrus ater*) have been implicated in the Federally-endangered status of five hosts as well as in declines of numerous other Nearctic–Neotropical passerines that breed in North America. Cowbird control is an integral management strategy in the recovery plans of all five hosts. Although there are a few exceptions, a line appears to be drawn between managers, whose main objective is to increase host population numbers, mainly through cowbird control, and academic researchers, who want empirical evidence that cowbirds cause declines and that cowbird control actually works. The objectives here are to (1) provide a brief summary of the status of cowbird hosts, (2) provide background on when and why cowbird management became controversial, (3) discuss the federal laws protecting cowbirds and inconsistencies in interpretation of laws, (4) discuss some concerns about widescale cowbird control, and (5) discuss some management issues regarding Bronzed Cowbirds (*M. aeneus*) and Shiny Cowbirds (*M. bonariensis*).

RESUMEN.—El tordo parásito de cría *Molothrus ater* ha sido implicado en la situación de “Federalmente en peligro” de cinco especies de hospedadores, así como de otros numerosos Paserines Neártico-Neotropicales que se reproducen en Norteamérica. El control de los tordos parásitos es una estrategia de manejo integral dentro del plan de recuperación de dichas cinco especies de hospedadores. Si bien existen algunas pocas excepciones, sería necesario trazar una vía de comunicación entre las personas a cargo del manejo en sí, cuyo objetivo principal es incrementar el tamaño poblacional de los hospedadores mediante el control de los tordos parásitos, y los investigadores académicos que buscan evidencias empíricas que demuestren que dicho control realmente funciona. Los objetivos aquí desarrollados son: (1) proveer de un breve compendio sobre la situación de los hospedadores de los tordos parásitos, (2) proveer de la información básica acerca de cuándo y por qué el manejo de los tordos puede transformarse en una medida controvertida, (3) discutir las leyes federales que protegen a los tordos y las inconsistencias en la interpretación de las mismas, (4) discutir algunos asuntos relativos al manejo a gran escala de los tordos parásitos, y (5) discutir brevemente algunas cuestiones de manejo referidas a otras dos especies de tordos parásitos: *M. aeneus* y *M. bonariensis*.

BROOD-PARASITIC BROWN-HEADED COWBIRDS (*Molothrus ater*) have been implicated in the declines of several Nearctic–Neotropical passerines that breed in North America. Farther south, Bronzed Cowbirds (*M. aeneus*) and Shiny Cowbirds (*M. bonariensis*) have also been implicated in the declines of several species. Whether or not cowbirds have caused passerine

declines has been debated for several decades without clear resolution (Morrison et al. 1999, Smith et al. 2000). Although there are a few exceptions, a line appears to be drawn between managers, whose main objectives is to increase host population numbers, mainly through cowbird control, and academic researchers, who want empirical evidence that cowbirds cause declines and that cowbird control actually works.

At times, the arguments are passionate, as was evident at two major national meetings on

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the ecology and management of cowbirds (see Morrison et al. 1999 and Smith et al. 2000) and at the cowbird symposium (Ecology and Evolution of Host-Parasite Interactions and Cowbird Management) at the American Ornithologists' Union Annual Meeting in Urbana, Illinois, in 2003. The arguments are not necessarily "bad" or a waste of energy, so long as they keep the dialogue going. The tension may serve as a checks-and-balances system, with both sides questioning, evaluating, and justifying their points of view.

Our objectives in the present chapter are to (1) provide a brief summary of the status of cowbird hosts, (2) provide background on when and why cowbird management became controversial, (3) discuss the federal laws protecting cowbirds and inconsistencies in interpretation of those laws, and (4) discuss some concerns about widescale cowbird control.

STATUS OF COWBIRD HOSTS

A majority of declining North American passerines are "biological hosts" of the Brown-headed Cowbird. Biological hosts are those that (1) are parasitized on a regular basis, (2) do not reject cowbird eggs, and (3) are known to successfully raise cowbirds (Ortega 1998). A simple analysis of BBS data shows that passerine population declines are probably coincidental with cowbird populations. Of 229 native passerine species in the BBS database (excluding Brown-headed Cowbirds and Bronzed Cowbirds), 145 (63.3%) are biological hosts. Of 67 species that have declined between 1966 and 2002, 73.1% are hosts; of 15 species that have declined only between 1980 and 2002, 53.3% are hosts; of 48 species that increased between 1966 and 2002, with no declines between 1980 and 2002, 52.1% are hosts; of 10 species that increased only between 1980 and 2002, 80% are hosts; and of 89 species without apparent trends, 61.8% are hosts ($P > 0.1$, $\chi^2 = 7.394$, $df = 4$).

Five passerines listed as federally endangered or threatened under the Endangered Species Act (ESA) are cowbird hosts: Southwestern Willow Flycatcher (*Empidonax traillii extimus*; U.S. Fish and Wildlife Service [USFWS] 2001), Least Bell's Vireo (*Vireo bellii pusillus*; Franzreb 1988, USFWS 1998), Black-capped Vireo (*V. atricapilla*; USFWS 1991), Kirtland's Warbler (*Dendroica kirtlandii*; USFWS 1976a),

and Golden-cheeked Warbler (*D. chrysoparia*; USFWS 1992). Black-capped Vireos, Kirtland's Warblers, and Golden-cheeked Warblers are not in the BBS database and are, therefore, excluded from the above analysis. In the BBS database, Least Bell's Vireos and Southwestern Willow Flycatchers are pooled with other populations of Bell's Vireos and Willow Flycatchers, respectively. Associated with their status under the ESA, each species has a small range and restricted habitat needs. Nevertheless, cowbirds have been implicated in the declines of all those federally endangered hosts (Mayfield 1973, 1977; Shake and Mattsson 1975; Goldwasser et al. 1980; Grzybowski et al. 1986, 1994; Franzreb 1987; Sedgwick and Knopf 1988; Harris 1991).

The goal of the ESA is to increase populations so that species no longer need protection under the ESA. Therefore, the ultimate goal of the ESA is to de-list species. In addition to the ecological benefits of recovery, for each species that is de-listed, funds become available for other species in greater need of protection. Each recovery plan identifies de-listing or down-listing goals. Theoretically, when those goals have been achieved, the USFWS considers down-listing the species or removing it from the list. Although the recovery plans for each of the five listed passerines differ with regard to specific recovery goals, all recovery plans identify cowbird control as one of the management tools that should be considered.

THE CONTROVERSY OVER COWBIRDS AND COWBIRD CONTROL

Cowbirds, particularly Brown-headed Cowbirds, have a long history of being disrespected and even loathed by humans, as is evident in early and contemporary secondary literature. They are accused of being wretched, immoral, pests, arch villains, lazy, social outcasts, and killers—among many other epithets (see Ortega 1998). Application of such moralistic terms to nonhuman organisms reflects, at least to some degree, an illogical expectation that other organisms should live by human standards of behavior.

Such emotional responses can be dangerous in the context of wildlife management. Disdain for certain animals, such as coyotes (*Canis latrans*) and wolves (*C. lupis*), has led to widescale slaughter and mismanagement,

ultimately leading to unbalanced predator:prey ratios in many habitats. When the general public is allowed or encouraged to cull disdained animals, enthusiasm can get out of hand; people often do not understand the animals' ecological role or the inappropriateness of expecting them to live by human cultural standards.

Adding fuel to the fire, Mayfield (1977) suggested that cowbirds were "agents of extermination" for endangered Kirtland's Warblers. A few years later, Brittingham and Temple (1983) assumed that cowbird numbers were increasing. Flaws in that assumption have been covered elsewhere (Ortega 1998); in fact, BBS data indicate that Brown-headed Cowbird numbers have significantly declined over the past several decades, including during the time when the Brittingham and Temple (1983) article was published and in the region in which their study was conducted. Nevertheless, Brittingham and Temple (1983) continue to be cited by authors who claim that cowbird numbers are increasing; for example, the article is cited in the Black-capped Vireo Recovery Plan in reference to cowbird population growth.

Controversy over cowbird control intensified in the early 1990s, after the Least Bell's Vireo, Black-capped Vireo, and Golden-checked Warbler were listed as endangered, and further escalated after the Southwestern Willow Flycatcher was listed. The arguments between academic researchers and managers became so passionate that they deteriorated into shouting matches at the national cowbird meetings. Those arguments, well documented in the literature (Schram 1994, Smith 1994, Grzybowski and Pease 1999, Ortega 2000, Rothstein 2004), are still unresolved.

Is the researchers' criticism of cowbird control based on hysteria or facts? Perhaps both; but flawed assumptions and emotions regarding cowbirds should have no place in management programs. Additionally, it has long been suspected by some researchers that cowbird control is partially driven by monetary interests (Rothstein 2004), which also should play no role in cowbird control.

LAWS PROTECTING COWBIRDS

The Migratory Bird Treaty with Canada (Convention between the United States and Great Britain [for Canada]) for the Protection of Migratory Birds was adopted to protect birds that

migrate between the United States and Canada to ensure preservation of species that are either harmless or beneficial to humans. The treaty sets beginning and ending dates for migratory-bird hunting seasons, prohibits hunting insectivorous birds, but allows killing of birds with a permit when the birds are injurious to agriculture. Signed in Washington, D.C., on 16 August 1916, the treaty was ratified by the U.S. Senate on 1 September 1916 and by Great Britain on 20 October 1916. Implementing legislation for the United States was accomplished by enactment of the Migratory Bird Treaty Act (MBTA) in 1918 (16 USC 703-711; 40 Stat. 755). The MBTA prohibits the taking of migratory birds, stating (§703):

Unless and except as permitted...it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or eggs of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof, included in the terms of the conventions between the United States....

Other treaties were enacted with the United Mexican States for protection of migratory birds and game mammals on 7 February 1936; with the Government of Japan for protection of migratory birds and birds in danger of extinction, and protection of their environment, on 4 March 1972; and with the Union of Soviet Socialist Republics for the conservation of migratory birds and their environments on 19 November 1976.

The species protected by MBTA are listed in 50 CFR § 10.13 and include all cowbirds, as members of the Family Icteridae and as listed in the 1972 amendment to the Mexican convention. The USFWS has responsibility for administering MBTA and managing all migratory avian species protected by MBTA.

The MBTA prohibits intentional taking of migratory birds unless a specific permit has been issued. Permitting requirements are found in 50 CFR part 13 (General Permit Procedures) and 50 CFR part 21 (Migratory Bird Permit). Permits

issued for taking of Brown-headed Cowbirds include “scientific collecting” (§ 21.23), “special purpose” (§ 21.27), and “depredation” (§ 21.41). No permit is required to take birds under the specific depredation orders (§§21.42–21.47).

DEPREDATION ORDER

Depredation Order (DO) § 21.43 states:

A Federal permit shall not be required to control yellow-headed, red-winged, rusty, and Brewer’s blackbirds, cowbirds, all grackles, crows, and magpies, when found committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance....

Although Brown-headed Cowbirds are included in the DO, inconsistent interpretations exist among USFWS regions. For example, many actions currently used to control cowbirds under the DO in Region 2 (covering Arizona, New Mexico, Oklahoma, and Texas) may not be covered by the DO in other USFWS regions. The DO requires that individual birds being targeted must be “depredating or about to depredate...wildlife.”

Therefore, we believe that the DO should not cover adding cowbird eggs, removing cowbird nestlings, killing male or juvenile cowbirds (all of which are incapable of nest parasitism), killing cowbirds outside the breeding season, or trapping nontarget species. However, direct selective removal of adult female Brown-headed Cowbirds during the breeding season may be allowed under the DO because parasitism or removal of host eggs is considered to be “committing depredation on wildlife” as defined in § 21.43. Additionally, because the DO does not specifically refer to Brown-headed Cowbirds, only to “cowbirds,” Bronzed and Shiny Cowbirds could also be covered in the DO if they were documented as depredating on wildlife. It is inappropriate to use the DO to justify Brown-headed Cowbird trapping as mitigation for habitat loss and destruction.

DEPREDATION PERMIT

The USFWS is authorized to issue depredation (DPRD) permits for removal of migratory

bird species, but the applicant must demonstrate that the problem species is threatening or causing immediate damage to real property. That is sometimes difficult to do for Brown-headed Cowbirds because few data show that the effect of parasitism is threatening host species or that trapping is effective (Ortega and Ortega 2001, Morrison and Averill-Murray 2002.). The DPRD permits states, “Permittees may not use blinds, pits, or other means of concealment, decoys, duck calls, or other devices to lure or entice birds within gun range.” Currently, DPRD permits are issued to cover the use of lures, such as individuals left in traps. Furthermore, the accidental trapping of “nontarget” species would be a technical violation of MBTA and could not be authorized by permit. For a DPRD permit, USFWS requires (1) evidence of biologically significant parasitism linked to depressed host-productivity rates, (2) an estimate of the number and species of nontargets that could be affected, and (3) methods to minimize mortality and other effects in nontarget populations. Generally, USFWS will issue cowbird DPRD permits only for the direct protection of endangered or threatened species, or species of special concern.

SCIENTIFIC COLLECTION PERMIT

Scientific collection (SCCL) permits are issued for the scientific study of birds and their populations. They are issued to individuals collecting birds on behalf of scientific institutions and agencies for education and scientific purposes. They are issued for removal of cowbirds only if a legitimate scientific question is being asked. In such cases, enough detail should accompany the permit request to allow evaluation of the sufficiency of methods. Requirements for an SCCL include (1) statement and documentation of the problem and objectives in a scientifically credible format, including valid scientific methods; (2) scientific personnel and institutions conducting the work; and (3) protection of all species potentially affected by the study.

SPECIAL PURPOSE–MISCELLANEOUS PERMIT

Special purpose–miscellaneous (SPMS) permits can also be issued when the applicant demonstrates a legitimate purpose not otherwise provided for by any standard permit. Such permits will not be issued for Brown-headed

Cowbird control and removal if the only purpose is removal of cowbirds to decrease parasitism rates on other species.

REGIONAL DIFFERENCES IN THE U.S. FISH AND WILDLIFE SERVICE'S INTERPRETATION OF LAWS PROTECTING COWBIRDS

The USFWS is organized into seven field regions, and all permits under MBTA are issued at the regional level. The language authorizing taking of birds under the MBTA does not provide explicit guidance on the appropriate legal instrument that USFWS should issue to individuals or organizations that wish to legally trap and remove cowbirds. Consequently, USFWS field regions have differed in their interpretation of regulations, with regions issuing permits under different authorities and with different standard conditions. Some USFWS regions have issued DPRD, SPMS, or SCCL permits for cowbird trapping, whereas other regions have allowed the action under the DO. The USFWS recognizes the need for inter-regional consistency on this topic and attempted to draft policy to standardize requirements for issuance of a permit for such purposes and to determine the appropriate standard conditions for permits involving cowbird trapping and removal. These efforts were put on hold by Region 2 with issuance of a letter from the Regional Director to Texas Parks and Wildlife Department (RZ/MB/SP-MB CL 1-25), stating that many actions used to control cowbirds are covered under the DO. However, the same actions are not covered under the DO in other regions. In the interim, some regional staff agreed on issuing such permits under DPRD, though regional policies and interpretations continue to differ.

CONCERNS ABOUT WIDESCALE CONTROL OF COWBIRDS

Cowbirds are easy to trap—particularly with decoy traps; they are gregarious and attracted to other cowbirds, as well as to food and water. Trapping cowbirds requires far less effort than enhancing or restoring habitat, particularly when land ownership is in fragmented private holdings. Although cowbird control is, at best, only a stop-gap approach, some managers in charge of recovering endangered species view

cowbird control as an in-perpetuity solution (G. Echrich pers. comm.), and widescale winter control of cowbirds was suggested by Laymon (1987), Schram (1994), and Grzybowski and Pease (1999). Grzybowski and Pease (1999) suggested a policy in which “exploiting large aggregations of cowbirds appears a relatively feasible and cost-effective mechanism of enhancing regional songbird reproductive performance.” Although such methods may appear inviting to managers responsible for controlling cowbirds, most academic researchers have rejected them for myriad reasons, including cowbirds not being a problem throughout their range, concerns about ethical issues, and concerns about disrupting the ecology and evolution of host–parasite relationships (Smith 1994, Ortega 2000, Rothstein 2004).

Brown-headed Cowbirds are neither a major problem throughout their range nor a serious threat to all their major hosts. Even in areas where Brown-headed Cowbirds are implicated in host declines, other causes have also been identified. In each case, habitat loss and changes in land use have been the primary reasons for the declines (Franzreb 1990; USFWS 1991, 1992; Probst and Weinrich 1993; Hatten and Paradzick 2003). Additionally, many hosts can raise their own offspring along with cowbirds (references in Ortega 1998). It is primarily hosts with incubation periods 4–5 days longer than the cowbird's that experience the most negative effects of parasitism (Ortega 1998). The number of host offspring successfully raised is often lower in parasitized nests; however, the assumption that parasitized nests are destined to failure is unequivocally incorrect.

In the southern United States and California, some cowbirds appear to be residents; most other individuals migrate between breeding and wintering grounds (Lowther 1993). However, the migration pattern of cowbirds is complex and not well understood. It is clear from Coon and Arnold's (1977) banding study that cowbirds from one wintering location spread throughout the country to breed, and cowbirds from one breeding location spread throughout the southern states to winter. Only a very small proportion of cowbirds captured in winter would breed in the same location. Therefore, “regional control” is a misnomer, in that such efforts target the entire range, not just a region (Ortega 2000). The practice is not

only ineffective, but also raises concerns about evolutionary implications.

To our knowledge, the evolutionary implications of widespread control are not addressed at the management level. Though speculative at this point, such implications should be considered for both hosts and cowbirds. Some host populations appear to have some incipient defense mechanisms. For example, many Warbling Vireos (*V. gilvov*) in the eastern United States and Canada reject cowbird eggs (Sealy 1996, Sealy et al. 2000). Relaxing selective pressure from cowbirds could affect hosts that have well-established anti-parasite defense mechanisms if cowbird eradication becomes long-term and widespread. Although widescale control does not target for phenotype or behavior (other than flocking behavior), trapping targets individuals that are unwary of traps. Eventually, a persistent trapping effort may result in trap-wary individuals that will be difficult to catch. Targeted and persistent trapping may also result in sex ratios that are not natural to the area, and the effects of changing sex ratios are unknown.

Researchers have also been concerned about the ethical implications of control programs. The primary concern is that if animal-rights activists become alarmed over massive destruction of cowbirds, they may be able to effect a change in policy and potentially jeopardize well-justified control programs. Animal-rights advocates historically have had a powerful voice and have been able to change activities and methods of scientists (Mayer et al. 1994, Webb and Jackson 1996). Ethical issues have already been raised by individuals in the general public. For example, a woman from outside of Comfort, Texas, whose name is withheld to protect her privacy, came forward during the breeding season of 2002. Referring to her neighbor, who participates in the program promoted by Texas Parks and Wildlife (see below), she wrote (to C.P.O.):

I am appalled by the concept of this cowbird trap and "support" of this program through groups such as the Texas Cattlemen's Assoc and Tx. Parks and Wildlife. This neighbor periodically slaughters the birds inside by beating them with a tennis racquet—so my first reaction is to direct PETA [People for the Ethical Treatment of Animals] and the Humane Society after him. However, I'd prefer to pursue administrative and regulatory channels first.

This individual, who works for an environmental group, has not yet approached the Humane Society or PETA, but she continues to be concerned about the future prospects for cowbirds in Texas.

CONCERN ABOUT COWBIRD CONTROL AT FORT HOOD, TEXAS

In the 1990s, at Fort Hood, Texas, which has critical habitat for Golden-cheeked Warblers and Black-capped Vireos, local ranchers and landowners became aware of some research on those endangered species. The ranchers, who leased grazing rights on Fort Hood, were unhappy with the resulting management recommendations when they were asked to remove several hundred head of cattle (Deike 2000). In an effort to diffuse the growing distrust and contention between the managers at Fort Hood and local ranchers, lessees, and landowners, a collaborative effort to trap cowbirds was undertaken by Texas Parks and Wildlife, the Texas Cattlemen's Association, The Nature Conservancy, and landowners. Texas Parks and Wildlife coordinates the collaborative effort and provides financial incentives for landowners who want to participate in the program (Texas Parks and Wildlife 2005).

Texas Parks and Wildlife assures the public that trapping and killing of Brown-headed Cowbirds by citizens is covered under the DO. The agency's website states: "Brown-headed Cowbirds are included among this small group of eight non-protected bird species that may be...killed at any time and their nests or eggs may be destroyed" (Texas Parks and Wildlife 2005). However, as noted above, we believe it is inappropriate to interpret the DO as covering actions against males, juveniles, and eggs, though it may cover selective removal of females during the breeding season. If any non-target protected species are captured and held, even for as little as an hour during the breeding season, the capture could result in loss of the nestlings. Death of nontarget protected species, nearly unavoidable in cowbird trapping operations, is a technical violation of MBTA, and no permit is available under MBTA to cover such takes. Also, cowbird control programs implemented by citizens could have an unknown effect on nontarget species, and their activities could harm the species targeted for protection (Terpening 1999).

It is unfortunate that the local ranching community that would eventually be affected was not included in finding solutions based on the endangered species research. Research and management recommendations should involve any community that could be affected. Nevertheless, to entice ranchers and other landowners into cowbird trapping, an activity that is every bit as contentious and potentially controversial as grazing, is not the best answer.

OTHER COWBIRDS

BRONZED COWBIRDS

Bronzed Cowbirds are generalist brood parasites that occur from northern Colombia into southern Texas, southern New Mexico, and southwestern and western Arizona (Lowther 1995). In winter, they are locally abundant around grain elevators in southern Texas (Lowther 1995), are generally rare and local in Arizona (mostly in feedlots), and are very rare to irregular in southern New Mexico (the first winter record in New Mexico was in 1995; B. Howe pers. comm.). Bronzed Cowbirds expanded their range following the first records in Arizona in 1909, with a noticeable spread northward in Texas after 1951 (Lowther 1995). That expansion was probably accelerated by an increase in agricultural production (Lowther 1995).

Limited trend information is available from the BBS. In 2002, 545 Bronzed Cowbirds were recorded on 70 routes (Sauer et al. 2003), an increase from 1977, when 213 were counted on 22 routes (Lowther 1995). No significant trends were detected for the survey period (1966–2002) except in Arizona (-7.5 , $P = 0.04$, $n = 15$) and the Western BBS region, which includes Arizona (Sauer et al. 2003).

The two subspecies that occur in the United States have different trends. *Molothrus aeneus aeneus* is common and possibly increasing in south Texas. It has not yet been recorded with certainty in New Mexico (S. O. Williams III pers. comm. to B. Howe). The BBS trend for Texas is nonsignificantly positive (1.3% year⁻¹, $P = 0.42$, $n = 49$, 1966–2002), though recently the trend has been significantly negative (-3.2% year⁻¹, $P = 0.07$, $n = 48$, 1980–2002; Sauer et al. 2003). Bronzed Cowbirds have been suspected as a factor in the decline of Hooded Orioles

(*Icterus cucullatus*) along the lower Rio Grande (Pleasants and Albano 2001).

Molothrus aeneus loyei in Arizona and southern New Mexico is less common and more riparian-oriented than *M. a. aeneus*, especially in middle-elevation mountain canyons in Arizona. It is decreasing in Arizona (Sauer et al. 2003), but it has increased in New Mexico where it was first recorded in the southwest corner in 1947 and had spread across the southern third of the state as a summer resident by the mid-1990s (S. O. Williams III pers. comm. to B. Howe).

Eighty-two species are parasitized by Bronzed Cowbirds, with 32 species recorded as rearing Bronzed Cowbird young (Lowther 1995). Bronzed Cowbirds appear to prefer *Icterus* orioles, including Hooded, Audubon's (*I. graduacauda*), Streak-backed (*I. pustulatus*), and Altamira (*I. gularis*) orioles, as hosts (Friedmann 1963). The endangered Golden-cheeked Warbler has been documented as a host species (Friedmann and Kiff 1985); however, more recently, there are no records of parasitism of Golden-cheeked Warblers (G. Echrich pers. comm.). No threatened or endangered species are regular hosts of Bronzed Cowbirds, and they are not actively being managed. However, they are often killed in Brown-headed Cowbird control programs.

SHINY COWBIRDS

Shiny Cowbirds, originally from South America, Trinidad, and Tobago, are generalist brood parasites that successfully colonized the West Indies during the 1900s (Cruz et al. 1985, 1989, 2000; Lowther and Post 1999). Shiny Cowbirds arrived in the United States through Florida (Lowther and Post 1999, Cruz et al. 2000) and are provided full protection under the MBTA as members of the family Icteridae.

The spread of Shiny Cowbirds through the West Indies has been well documented (Cruz et al. 1985, 2000; Lowther and Post 1999). In the United States, Shiny Cowbirds have increased from 1 bird reported in 1985 to 109 in 1990 (Lowther and Post 1999). Shiny Cowbirds were first sighted on the Florida Keys in 1985, and by the 1990s, they were reported in other Florida localities and as far north as the Carolinas and Maine and as far west as Texas and Oklahoma (Cruz et al. 1998).

Throughout the Shiny Cowbird's range, 232 species are recorded as its hosts, with 74 species

recorded as rearing cowbird young (Lowther and Post 1999). Like Brown-headed Cowbirds, Shiny Cowbirds have been implicated in the declines of some of their hosts. On Puerto Rico, Shiny Cowbirds parasitize the endangered Yellow-shouldered Blackbird (*Agelaius xanthomus*; USFWS 1976b) and numerous other species, including other icterids, vireos, and warblers (Cruz et al. 1989, Woodworth 1997, Nakamura and Cruz 2000). On Martinique, Shiny Cowbirds have been implicated in the population decline of Martinique Orioles (*I. bonana*). Greater Antillean Orioles (*I. dominicensis*) are heavily parasitized on Puerto Rico and Hispaniola, and they have also been recorded as a Shiny Cowbird host in Cuba (J. W. Wiley pers. comm).

There is no documentation of parasitism by Shiny Cowbirds in Florida, though four species—Black-whiskered Vireo (*V. altiloquus*), Prairie Warbler (*D. discolor*), Northern Cardinal (*Cardinalis cardinalis*), and Red-winged Blackbird (*A. phoeniceus*)—are known to have been hosts to unidentified cowbirds within the south Florida range of the Shiny Cowbird (Cruz et al. 1998, Lowther and Post 1999).

Relatively little is known about the current status of the Shiny Cowbird and its hosts in South America. According to the Red Data Book (Collar et al. 1992), out of 138 South American species that are potential Shiny Cowbird hosts, Shiny Cowbirds have been implicated in the endangered status of Saffron-cowled Blackbirds (*Xanthopsar flavus*) and Forbe's Blackbirds (*Curaeus forbesi*). Loss of wetlands and conversion of pastures to plantations are more important in the endangered status of Saffron-cowled Blackbirds than Shiny Cowbird parasitism (Fraga et al. 1998). It must be noted that nests were known for only 26 of the 138 species (Collar et al. 1992); therefore, lack of knowledge regarding basic breeding biology of most of those species precludes knowledge about the possible effect of Shiny Cowbird parasitism.

CONCLUSION

Cowbird control is an easy alternative to the difficult problem of implementing strategies that address habitat loss and land-use changes, but cowbird control does not contribute to the objective of self-sustaining host populations. It is a year-to-year stop-gap measure that

ideally should not be viewed as a long-term solution because it is counterproductive to sound conservation strategies in the goals of the ESA. Cowbird control should never be based on unscientific, anthropomorphic disrespect for their cunning and successful reproductive strategy. Cowbird control programs that are questionably legal, especially those that involve the general public, such as the program in the Fort Hood area, have little social value and place private citizens in jeopardy of violations of federal law.

Instead, the real issues that are preventing self-sustaining populations of threatened and endangered birds must be addressed; in every case of endangered cowbird hosts, the primary issue is habitat loss. Furthermore, responsible management, based on sound scientific evidence that can tease apart effects of cowbird control and habitat or land-use changes, is the only way to meet the goals of the ESA. Responsible management must also include education and making the best of all opportunities to enhance, restore, and protect critical habitat. Such opportunities include purchase of conservation easements and incentives for landowners to donate them, which is a win-win alternative—the target birds (as well as other wildlife) gain habitat, and landowners often benefit financially, particularly in states that allow purchase of tax credits by a second party. Funds saved from expensive cowbird control programs can be used for such alternative management strategies, which would contribute to the success of self-sustaining populations of target birds and other wildlife.

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