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**DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
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NEPA

**Reducing Double-crested Cormorant Damage
Through an
Integrated Wildlife Damage Management Program
In the State of Arkansas**

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed cormorant damage management program would occur in the State of Arkansas, including the take of birds under the Double-crested Cormorant Public Resource Depredation Order (PRDO) and Aquaculture Depredation Order (AQDO), an environmental assessment (EA) was prepared. The EA documents the need for double-crested cormorant damage management in Arkansas and assessed potential impacts of various alternatives for responding to damage problems. The EA analyzes the potential environmental and social effects for resolving cormorant damage related to the protection of resources, and health and safety on private and public lands throughout the state. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on public and private lands in Arkansas. Comments from the public involvement process were reviewed for substantive issues and alternatives which were considered in developing this decision. The EA is tiered to the Final Environmental Impact Statement (FEIS) on the management of double-crested cormorants (USFWS 2003) in which WS was a formal cooperating agency and subsequently adopted and issued a Record of Decision (ROD) for the FEIS to support WS' program decisions for its involvement in the management of DCCO damage. As such, many of the issues addressed in the EA have been analyzed in the FEIS.

WS is the Federal program authorized by law to reduce damage caused by wildlife (Act of 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c), and the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act of 2001, Public Law 106-387, October 28, 2000. Stat. 1549 (Sec 767). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an IWDM approach, commonly known as Integrated Pest Management (WS Directive 2.105) in which a combination of methods may be used or recommended to reduce damage. WS wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992, USDA 1997, WS Directive 2.201). Resource management agencies, organizations, associations, groups, and individuals have requested WS to conduct cormorant damage management (CDM) to protect resources and human health and safety in Arkansas. All WS wildlife damage management activities are in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973.

Consistency

The analyses in the EA demonstrate that Alternative 1: 1) best addresses the issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS the best opportunity to reduce damage while providing low impacts on non-target species, 4) reduces economic losses to aquaculture resources and other private property, and 5) allows WS to meet its obligations to government agencies or other entities.

Monitoring

The Arkansas WS program will monitor the impacts of its activities on cormorants and non-target species that could be affected by cormorant damage management activities. In addition, the EA will be reviewed each year to ensure that it is sufficient.

Public Involvement

The pre-decisional EA was prepared and released to the public for a 30-day comment period by a legal notice in the *Arkansas Democratic Gazette* on May 2, 3, 4, 5, and 6, 2004. A notice of availability of pre-decisional EA was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. A total of three comment letters were received by WS within the comment period. All comments were analyzed to identify substantial new issues, alternatives, or to redirect the program. Wildlife Services responses to specific comments are included in Appendix A. All letters and comments are maintained at the Wildlife Services State Office in Little Rock, AR.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on double-crested cormorants
- Effects on other wildlife species, including T&E species
- Effects on human health and safety
- Effects on aesthetic values
- Humaneness and animal welfare concerns of methods used

Affected Environment

The areas of the proposed action could include areas in and around public and private facilities and properties and at other sites where cormorants may roost, loaf, feed, nest or otherwise occur. Examples of areas where cormorant damage management activities could be conducted are, but are not necessarily limited to: commercial aquaculture facilities; fish hatcheries; lakes; ponds; rivers; swamps; marshes; bayous; communally-owned homeowner/property owner association properties; boat marinas; natural areas; wildlife refuges; wildlife management areas; and airports and surrounding areas. The proposed action may be conducted on properties held in private, local, state or federal ownership. WS may conduct winter roost control activities in any cormorant roost site in Arkansas, including the 48 roost sites currently identified throughout the state. Of these 48 roost sites, 35 are privately owned and 13 are publicly owned (see Appendix C of the EA). WS may also conduct control activities at breeding colonies located throughout the state including, the one known active breeding colony that currently exists at Millwood Lake in Southwestern Arkansas.

Alternatives That Were Fully Evaluated

The following five alternatives were developed to respond to the issues. Four additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the Alternatives on the issues is described in the EA; below is a summary of the Alternatives.

Alternative 1. Integrated CDM Program, including Winter Roost Control and PRDO (Proposed Action).

WS proposes to implement a double-crested cormorant damage management program in the State of Arkansas, including the implementation of the PRDO (50 CFR 21.48) and winter roost control as specified in the AQDO (50 CFR 21.47). An Integrated Wildlife Damage Management approach would be implemented to reduce cormorant damage and conflicts to aquaculture, property, natural resources, and human health and safety. Damage management would be conducted on public and private property in Arkansas when the resource owner (property owner) or manager requests WS assistance. An IWDM strategy would be recommended and used, encompassing the use of practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on humans, target and non-target species, and the environment. Under this action, WS could provide technical assistance and direct operational damage management, including non-lethal and lethal management methods by applying the WS Decision Model (Slate et al. 1992). When appropriate, physical exclusion, habitat modification, or harassment would be recommended and utilized to reduce damage. In other situations, birds would be humanely removed through use of shooting, egg addling/destruction, nest destruction, or euthanasia following live capture. In determining the damage management strategy, preference would be given to practical and effective non-lethal methods. However, non-lethal methods may not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of non-lethal and

lethal methods, or there could be instances where the application of lethal methods alone would be the most appropriate strategy. Wildlife damage management activities would be conducted in the State, when requested and funded, on private or public property, after an *Agreement for Control* or other comparable document has been completed. WS will acquire the necessary landowner permission prior to conducting cormorant damage management activities, including the appropriate landowner permission prior to conducting winter roost control. All management activities would comply with appropriate Federal, State, and Local laws, including applicable laws and regulations authorizing take of double-crested cormorants, and their nests and eggs.

Alternative 2. Non-lethal CDM Only By WS. Under this alternative, WS would be restricted to implementing or recommending only non-lethal methods in providing assistance with cormorant damage problems. Entities requesting CDM assistance for damage concerns would only be provided information on non-lethal methods such as harassment, non-lethal roost dispersal, resource management, exclusionary devices, or habitat alteration. However, it is possible that persons receiving WS' non-lethal technical and direct control assistance could still resort to lethal methods that were available to them. The Arkansas Game and Fish Commission (AGFC) and Indian Tribes would be able to implement the PRDO; the US Fish and Wildlife Service (USFWS) would continue to issue migratory bird permits to take DCCOs and their eggs; and aquaculture producers would continue to implement the AQDO. Information on lethal CDM methods would not be available from WS but would still be available through sources such as USDA Agricultural Extension Service offices, USFWS, AGFC, universities, or pest control organizations.

Alternative 3. Technical Assistance Only. This alternative would not allow for WS operational CDM in Arkansas. WS would only provide technical assistance and make recommendations when requested. Producers, property owners, agency personnel, or others could conduct CDM using any non-lethal or lethal method that is legally available to them. The AGFC and Indian Tribes would be able to implement the PRDO; the USFWS would continue to issue migratory bird permits to take DCCOs and their eggs; and aquaculture producers would continue to implement the AQDO. WS would not take part in winter roost control activities or implementation of the PRDO.

Alternative 4. No Federal WS CDM. This alternative would eliminate WS involvement in CDM in Arkansas. WS would not provide direct operational or technical assistance and requesters of WS services would have to conduct their own CDM without WS input. Information on CDM methods would still be available through other sources such as USDA Agricultural Extension Service offices, USFWS, AGFC, universities, or pest control organizations. The AGFC and Indian Tribes would be able to implement the PRDO; the USFWS would continue to issue migratory bird permits to take DCCOs and their eggs; and aquaculture producers would continue to implement the AQDO.

Alternative 5. Integrated CDM Program, excluding Winter Roost Control and PRDO (No Action). This alternative would be similar to Alternative 1, with the exception that WS will not take part in winter roost control activities and implementation of the PRDO. The AGFC and Indian Tribes would be able to implement the PRDO; the USFWS would continue to issue migratory bird permits to take DCCOs and their eggs; and aquaculture producers would continue to implement the AQDO. An Integrated Wildlife Damage Management approach would be implemented to reduce cormorant damage and conflicts to aquaculture, property, natural resources, and human health and safety. Damage management would be conducted on public and private property in Arkansas when the resource owner (property owner) or manager requests WS assistance including the use of lethal and non-lethal methods. Under this action, WS could provide technical assistance and direct operational damage management, including non-lethal and lethal management methods by applying the WS Decision Model (Slate et al. 1992).

Alternative Considered but not Analyzed in Detail:

Lethal CDM Only By WS. Under this alternative, WS would not conduct any non-lethal control of cormorants for CDM purposes in the State, but would only conduct lethal CDM. This alternative was eliminated from further analysis because some cormorant damage problems can be resolved effectively through non-lethal means and at times lethal methods may not be available for use due to safety concerns or local ordinances prohibiting the use of some lethal methods, such as the discharge of firearms.

Compensation for Cormorant Damage Losses. The compensation alternative would require the establishment of a system to reimburse persons impacted by cormorant damage. This alternative was eliminated from further analysis because no Federal or State laws currently exist to authorize such action. Under such an alternative, WS would not provide any direct control or technical assistance. Aside from lack of legal authority, analysis of this alternative in the USDA FEIS indicated that the concept has many drawbacks (USDA 1997):

- It would require larger expenditures of money and labor to investigate and validate all damage claims, and to determine and administer appropriate compensation. A compensation program would likely cost several times as much as the current program.
- Compensation would most likely be below full market value. It is difficult to make timely responses to all requests to assess and confirm damage, and certain types of damage could not be conclusively verified.
- Compensation would give little incentive to resource owners to limit damage through improved cultural, husbandry, or other practices and management strategies.
- Not all resource owners would rely completely on a compensation program and unregulated lethal control would most likely continue as permitted by Federal and State law.
- Compensation would not be practical for reducing threats to human health and safety or damage to public resources.

Non-lethal Methods Implemented Before Lethal Methods. This alternative is similar to Alternative 1 except that WS personnel would be required to always recommend or use non-lethal methods prior to recommending or using lethal methods to reduce cormorant damage. Both technical assistance and direct damage management would be provided in the context of a modified IWDM approach. The Proposed Action recognizes non-lethal methods as an important dimension of IWDM, gives them first consideration in the formulation of each management strategy, and recommends or uses them when practical before recommending or using lethal methods. However, the important distinction between the Non-lethal Methods First Alternative and the Proposed Alternative is that the former alternative would require that all non-lethal methods be used before any lethal methods are recommended or used.

While the humaneness of the non-lethal management methods under this alternative would be comparable to the Proposed Program Alternative, the extra harassment caused by the required use of methods that may be ineffective could be considered less humane. As local bird populations increase, the number of areas negatively affected by birds would likely increase and greater numbers of birds would be expected to congregate at sites where non-lethal management efforts were not effective. This may ultimately result in a greater number of birds being killed to reduce damage than if lethal management were immediately implemented at problem locations (Manuwal 1989). Once lethal measures were implemented, cormorant damage would be expected to drop relative to the reduction in localized populations of birds causing damage.

Since in many situations this alternative would result in greater numbers of cormorants being killed to reduce damage, at a greater cost to the requester, and result in a delay of reducing damage in comparison to the Proposed Alternative, the Non-lethal Methods Implemented Before Lethal Methods Alternative is removed from further discussion in this document.

Eradication and Long Term Population Suppression. An eradication alternative would direct all WS program efforts toward total long term elimination of cormorant populations on private, State, Local and Federal government land wherever a cooperative program was initiated in the State. In Arkansas, eradication of native bird species is not a desired population management goal of State agencies or WS. Eradication as a general strategy for managing cormorant damage will not be considered in detail because:

- All State and Federal agencies with interest in, or jurisdiction over, wildlife oppose eradication of any native wildlife species.
- Eradication is not acceptable to most people.

However, suppression of a local population of DCCOs may be considered and used as part of a cormorant damage management program. Suppression would direct WS program efforts toward managed reduction of certain problem populations or groups. In areas where damage can be attributed to localized populations of birds, WS can decide to implement local population suppression as a result of using the WS Decision Model. It is not realistic or practical to consider large-scale population suppression as the basis of the WS program. Typically, WS activities in the State would be conducted on a very small portion of the sites or areas inhabited or frequented by cormorants.

Finding of No Significant Impact

Many of the issues analyzed in the EA were also analyzed in the FEIS (USFWS 2003). The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Cormorant damage management as conducted by WS in Arkansas is not regional or national in scope. The impacts of cormorant management that are regional or national in scope have been addressed and analyzed in the FEIS.
2. The proposed action would pose minimal risk to public health and safety. Risks to the public from WS methods were determined to be low in a formal risk assessment (USDA 1997, Appendix P).
3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Built-in mitigation measures that are part of WS's standard operating procedures and adherence to laws and regulations will further ensure that WS activities do not harm the environment.
4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect. Public controversy over cormorant management has been acknowledged and addressed in the FEIS and the EA.
5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks. The issue of uncertainty about effects of cormorant management in general has also been addressed in the FEIS.
6. The proposed action would not establish a precedent for any future action with significant effects.
7. No significant cumulative effects were identified through this assessment. The EA discussed cumulative effects of WS on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State. The FEIS analyzed the potential for significant cumulative impacts on national and regional cormorant populations and other species from implementing cormorant damage management activities and has determined that such impacts would not be significant.
8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources. If an individual activity with the potential to affect historic resources is planned under the selected alternative, then site-specific consultation as required by Section 106 of the NHPA would be conducted as necessary.
9. WS has determined that the proposed program would have no effect on any Federal listed threatened or endangered species or critical habitat. This determination is based upon an intra-Service biological evaluation and informal Section 7 consultation completed by the USFWS on the FEIS. WS will abide by the conservation measures provided in 50 CFR 21.47 and 21.48 to avoid adverse impacts to the bald eagle

and interior least tern in Arkansas. In addition WS has determined that the proposed program will not adversely affect any Arkansas State listed Species of Special Concern.

10. The proposed action would be in compliance with all federal, state, and local laws.

Decision and Rationale

I have carefully reviewed the EA prepared for this proposal and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 - Integrated CDM Program, including Winter Roost Control and implementation of the PRDO (Proposed Action) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 1 is selected because (1) it offers the greatest chance at maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species populations; (2) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and, (3) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of these issues are considered. The comments identified from public involvement were considered, and where appropriate, changes were made to the EA. The revisions that were made to the EA did not substantially change the analysis. Therefore, it is my decision to implement the proposed action as described in the EA.

Copies of the EA are available upon request from the Arkansas Wildlife Services State Office, 600 West Capitol Avenue, Room 55, Little Rock, AR 72201.



Charles S. Brown, Regional Director
APHIS-WS Eastern Region

7/12/04

Date

Literature Cited:

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- The Wildlife Society. 1992. Conservation policies of The Wildlife Society: A stand on issues important to wildlife conservation. The Wildlife Society, Bethesda, Md. 24pp.
- USDA (U. S. Department of Agriculture), (APHIS) Animal and Plant Health Inspection Service, (ADC) Animal Damage Control Program. 1997 (revised). Final Environmental Impact Statement. USDA, APHIS, ADC Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD 20737.
- USFWS. 2003. Final Environmental Impact Statement: Double-crested Cormorant Management. U.S. Dept. of the Interior, USFWS, Div. of Migratory Bird Management, 4401 N. Fairfax Drive MS 634, Arlington, VA 22203.

APPENDIX A

RESPONSE TO PUBLIC COMMENTS RECEIVED ON PRE-DECISIONAL ENVIRONMENTAL ASSESSMENT

Issue 1: *The need to protect sport fisheries and other public resources on a broad scale (regional level) has not been substantiated, is based upon perceived conflicts, is not justified or warranted, and is not supported by science. Cormorant damage to public resources may occur on a localized level, but is having minimal impacts on resources at a broader regional level.*

Program Response 1: As described in Sections 1.2.2 and 1.2.3 of the EA, WS recognizes that cormorant damage to public resources is not a wide spread or common occurrence and occurs on a localized level. When determining if DCCOs are impacting a resource, including sport fisheries and other public resources, WS will use the best information that is available at that time to make this decision. This could include the use of published literature, results of on-going or completed research activities, consultation with the agency or agencies charged with responsibility of overseeing or managing a specific resource, consultation with person(s) with expertise in managing a particular resource, or any other information that will assist WS in making an informed decision.

WS has the legislative authority and responsibility to respond to such requests for assistance, the Arkansas WS office will respond to these types of requests for assistance and will take the appropriate course of actions based upon the site specific information collected at the time of the request. Upon receiving a request for assistance, WS will use the WS Decision Model described in Section 3.2.4 of the EA when determining the necessary course of action.

Admittedly, part of the impetus for doing cormorant control is based upon human perception and desire beyond what science can clearly document. Conversely, part of the opposition to conducting such control is also based upon human perception and desires beyond what science can justify.

Issue 2: *The EA did not to included relevant information from Cuthbert et al (2002) as it relates to the potential impacts that DCCOs may have on waterbirds.*

Program Response 2: Information from this citation has been added to Section 1.2.3 of the EA.

Issue 3: *What means or methods will WS use to determine whether cormorants are impacting a specific resource and that the course of action taken will reduce impacts to acceptable levels? How does WS plan to monitor the effectiveness of control actions on affected resources?*

Program Response 3: As described in Section 3.2.4 of the EA, WS uses a decision model which involves evaluating each request for assistance, taking action and evaluating and monitoring results of the actions taken. This decision model will be used when WS receives a request for assistance. Furthermore, when using the authority provided to WS through the PRDO, WS is required on an annual basis, to provide the USFWS with a description of the impacts or anticipated impacts to public resources by DCCOs and a statement of the management objectives for the area in question; a description of the evidence supporting the conclusion that DCCOs are causing or will cause impacts to a public resource; and a discussion of other limiting factors affecting the resource (50 CFR 21.48(d)(10)).

When appropriate, WS will assist in research projects evaluating the impacts of DCCO management actions. Information obtained from these studies will be used to evaluate program activities and may be used in planning subsequent DCCO management actions.

Issue 4: *The EA provides no convincing justification for the implementation of winter roost control activities. Coordinated non-lethal roost dispersal activities have been effective at reducing damage to aquaculture facilities.*

Program Response 4: It is true that non-lethal roost dispersal activities can reduce cormorant damage to aquaculture facilities in many circumstances. However as discussed in Glahn (2000), shooting at roosts sites might

enable farmers to reduce the number of birds on their farms significantly. Part of the logic behind this is that studies in the Mississippi Delta have shown that, while DCCOs move widely in general they tend to exhibit high roost fidelity. This implies that shooting birds at roosts (where turnover is lower) is likely to be more effective at alleviating damages than shooting birds just at ponds (where turnover is higher).

Issue 5: *WS assistance provided to aquaculture producers should focus on making aquaculture facilities less attractive to cormorants and on "good" husbandry practices. Cormorant predation at aquaculture facilities can be prevented or reduced through exclusion methods or design of facilities.*

Program Response 5: As described in Section 3.2.5 of the EA, WS considers such non-lethal approaches as part of the proposed program and WS will make such recommendations to persons requesting assistance when determined practical and effective for the given situation.

Issue 6: *Cormorant impacts to the aquaculture industry in Arkansas are not supported by credible scientific evidence.*

Program Response 6: WS disagrees with this conclusion. As presented in Section 1.2.1 of the EA, substantial evidence supports the need to protect aquaculture resources from DCCO damage in Arkansas.

Issue 7: *WS should focus cormorant management on non-lethal control and use lethal control only as a last resort.*

Program Response 7: This alternative is analyzed in detail in the EA (Alternative 2) and also under Section 3.3.3 (Non-lethal Methods Implemented Before Lethal Methods) of the EA. WS recognizes the importance of non-lethal methods as part of an integrated approach to managing cormorant damage. As described in the proposed action, WS will continue to consider and use non-lethal methods when appropriate.

Issue 8: *The EA does not analyze the impacts of the program on fish populations or angling in Arkansas.*

Program Response 8: The management of fish populations is outside the scope of this EA. The intent of the proposed program is not to manage fish populations, but is to manage cormorant damage to specific resources, including fisheries. When a DCCO damage management program is implemented, it is predicted that recreational fishing opportunities will improve in those situations where DCCOs are negatively impacting a fisheries resource. The level of potential increase will be dependent upon not only the reduction of DCCO predation on the resource, but also on environmental and human-induced factors that affect aquatic ecosystems and fish populations as well.

Issue 9: *WS implementation of control efforts could have adverse effects on communal nesting bird species, and threatened and endangered species (non-target species).*

Program Response 9: These potential effects were analyzed in the DCCO FEIS (Sections 4.2.3 and 4.2.5). As that analysis concluded, and as further described in Section 4.1.2 of the EA, WS impacts on non-target species are predicted to be minimal and should not affect the overall populations of any non-target species. WS personnel are trained and experienced to select the most appropriate method for taking target animals and excluding non-targets. Methods used by WS would be highly selective with very little risk to non-target species. Non-target migratory bird species and other non-target wildlife species are usually not affected by WS' CDM methods, except for the occasional scaring from harassment devices and when WS conducts breeding DCCO management in mixed-species waterbird colonies. Mitigation measures to eliminate or reduce impacts to non-target species, including nesting colonial waterbird species, are listed in Section 3.4 of the EA. Furthermore, as described in Section 4.1.2 of the EA, WS has determined that cormorant damage management activities in Arkansas will not adversely impact any Federal or State listed T&E species.

Issue 10: *WS should coordinate management activities with other states to avoid adverse impacts to cormorant populations and other wildlife species that may be affected by management actions.*

Program Response 10: WS agrees that a coordinated approach should be taken to manage DCCO damage in a socially acceptable and biologically controlled manner. As described in the WS Record of Decision (ROD) for the FEIS (68 Federal Register 68020), WS supports a management strategy that includes national, regional, and local DCCO population goals and objectives. This type of coordinated approach to managing DCCO damage would be developed jointly and in cooperation with affected state and federal agencies. Furthermore, as specified in 50 CFR 21.47 and 21.48, on an annual basis WS will report all take of cormorants and eggs to the USFWS to assure that the cumulative impacts of cormorant damage management actions in Arkansas are not adversely affecting the long-term sustainability of DCCOs in Arkansas, the region or nationwide. As described in Section 1.6.2 of the EA, WS will on an annual basis review this EA to ensure the analysis provided (including impacts to DCCO populations and other wildlife species) in the EA is sufficient.

Issue 11: *The Public Resource Depredation Order and Aquaculture Depredation Order may adversely impact DCCO populations since neither order puts any restrictions or limits on the number of cormorants that WS may kill.*

Program Response 11: As discussed in Section 4.1.1 of the EA, the USFWS determined in the DCCO FEIS that cormorant populations are unlikely to be adversely affected by implementation of these two depredation orders. According to the DCCO FEIS (USFWS 2003), under the PRDO, the implementation of a state-wide program to reduce cormorant impacts to public resources could result in the lethal take of up to an additional 4,140 cormorants on an annual basis in Arkansas. WS predicts that the Arkansas WS program would lethally take no more than approximately 75% (3,105) of this statewide total on an annual basis, with the AGFC lethally removing 25% (1,035) of this total estimate on an annual basis. According to the DCCO FEIS (USFWS 2003), Arkansas WS winter roost control activities to protect commercial aquaculture could result in a lethal take equal to 25% of the number of DCCOs killed under the AQDO by aquaculture producers on an annual basis. For example, using the average annual reported take of 10,930 cormorants by aquaculture producers the past four years, Arkansas WS lethal take in winter roost sites would be estimated at approximately 2,732 birds per year. The FEIS predicts that the implementation of the PRDO and AQDO in Arkansas will have no significant impact to regional or continental DCCO populations (USFWS 2003).

As specified in 50 CFR 21.47 and 21.48, on an annual basis WS will report all take of cormorants and eggs to the USFWS to assure that the cumulative impacts of cormorant damage management actions in Arkansas are not adversely affecting the long-term sustainability of DCCOs in Arkansas, the region or nationwide. Furthermore, as described in Section 1.6.2 of the EA, WS will on an annual basis review this EA to ensure the analysis provided (including impacts to DCCO populations) in the EA is sufficient.

Issue 12: *WS implementation of the Public Resource Depredation Order and Aquaculture Depredation Order violates the Migratory Bird Treaty Act (MBTA).*

Program Response 12: As outlined in Section 1.7 of the EA and the USFWS Final Rule and ROD (68 Federal Register 58022), WS actions are conducted in accordance with applicable Federal, State, and Local environmental laws and regulations, including the MBTA. The MBTA authorizes the Secretary of Interior, subject to the provisions of, and in order to carry out the purposes of, the applicable conventions, to determine when, if at all, and by what means it is compatible with the terms of the conventions to allow the killing of migratory birds. DCCOs are covered under the terms of the Convention for the Protection of Migratory Birds and Game Mammals with Mexico. The DCCO is a nongame, noninsectivorous bird for which the applicable treaty does not impose specific prohibitions or requirements other than the overall purpose of protection so as not to be exterminated and to permit rational utilization for sport, food, commerce, and industry. In the FEIS for this action, the USFWS considered all of the statutory factors as well as compatibility with the provisions of the convention with Mexico. The Russian convention (Convention between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environment, concluded November 19, 1976) provides an authority to cover DCCOs even though not listed in the Appendix. To the extent the USFWS choose to apply the convention, it contains an exception from the prohibitions that may be made for the protection against injury to persons or property.

Issue 13: *The EA does not analyze an alternative that would require, in each damage situation, that all feasible non-lethal methods be exhausted before using lethal control.*

Program Response 13: This alternative is similar to the proposed action described in Section 3.1.1 of the EA. As described in the proposed action, when determining the damage management strategy, preference would be given to practical and effective non-lethal methods. However, non-lethal methods may not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of non-lethal and lethal methods, or could include instances where application of lethal methods alone would be the most appropriate strategy.

Issue 14: *The list of non-lethal methods available to WS in Arkansas does not include anthraquinone.*

Program Response 14: Anthraquinone, a naturally occurring chemical found in many plant species and in some invertebrates as a natural predator defense mechanism, has shown effectiveness in protecting rice seed from red-winged blackbirds and boat-tailed grackles (Avery et al. 1997). It has also shown effectiveness as a foraging repellent against Canada goose grazing on turf and as a seed repellent against brown-headed cowbirds (Dolbeer et al. 1998). Anthraquinone has not been proven effective for use on DCCOs. If and when this chemical is proven effective and safe to use for DCCO damage management in Arkansas, this EA and its analysis would be supplemented pursuant to NEPA at that time.

Issue 15: *Wildlife Services should play an active role in educating landowners, resources owners, and the public on the laws and regulations that protect and allow the lawful take of migratory bird species.*

Program Response 15: As described in Sections 1.7 and 3.2 of the EA, WS provides such information, in cooperation with the USFWS, as part of the CDM program in Arkansas.

