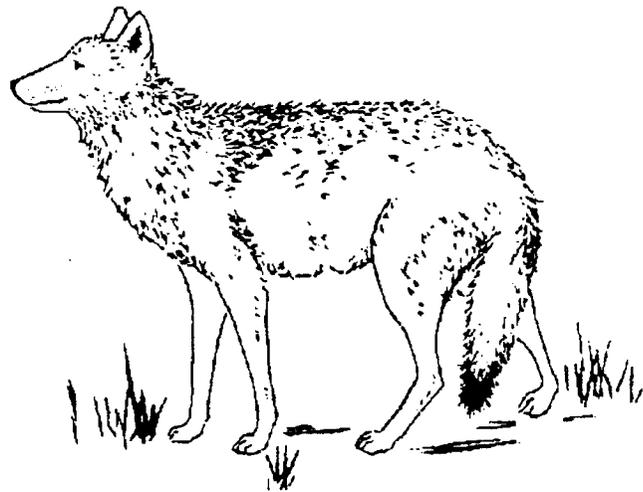
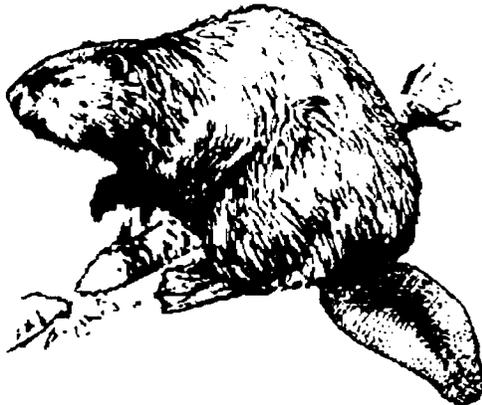
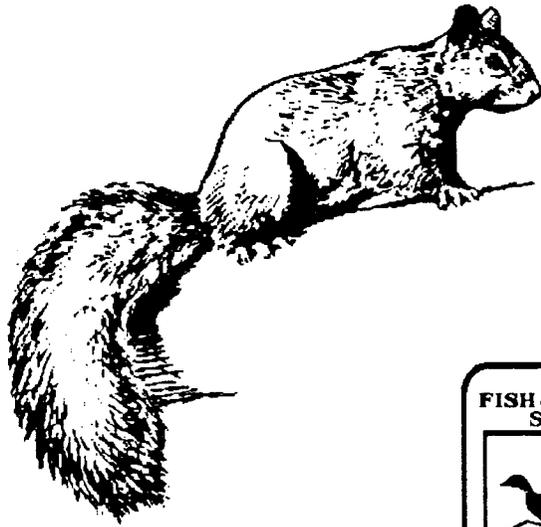


**U.S. Fish and Wildlife Service  
Biological Opinion  
March, 1993**



**Effects of 16 Vertebrate Control Agents  
On  
Threatened and Endangered Species**

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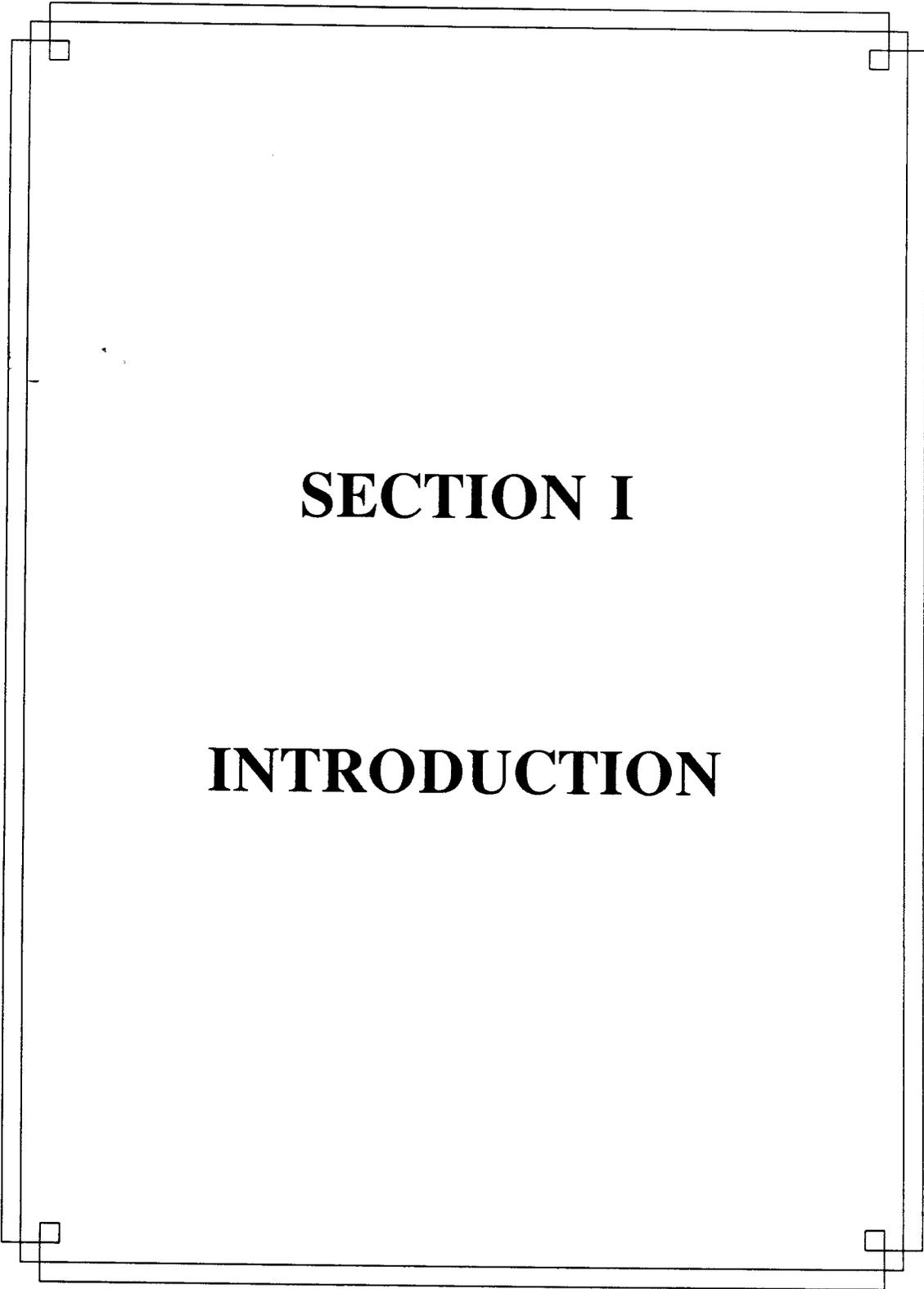
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VERTEBRATE CONTROL AGENTS  
 BIOLOGICAL OPINION SUMMARY  
 (Jeopardy & No Jeopardy Calls)

CHEMICAL	CLASS													
	AMPHIBIANS		BIRDS		INSECTS		MAMMALS		REPTILES		TOTAL			
	J	NJ	J	NJ	J	NJ	J	NJ	J	NJ	J	NJ		
Alum. & Mag. Phosphide	0	0	0	0	1	0	9	1	4	3	14	4		
Brodifacoum	0	0	2	1	0	0	10	6	0	1	12	8		
Bromadiolone	0	0	0	0	0	0	7	5	0	0	7	5		
Bromethalin	0	0	0	0	0	0	10	4	0	0	10	4		
Chlorophacinone	0	0	1	0	0	0	20	4	0	3	21	7		
Diphacinone	0	0	1	0	0	0	29	1	0	3	30	4		
Pival	0	0	1	0	0	0	24	2	0	1	25	3		
Pot. & Sodium Nitrate	0	0	0	0	0	0	9	1	4	3	13	4		
Sodium cyanide	0	0	1	2	0	0	5	2	0	0	6	4		
Sodium fluoroacetate	0	0	0	0	0	0	2	0	0	0	2	0		
Vitamin D3	0	0	0	0	0	0	10	4	0	0	10	4		
Warfarin	0	0	0	0	0	0	10	4	0	0	10	4		
Zinc phosphide	0	0	9	2	0	0	20	4	0	0	29	6		
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>165</b>	<b>38</b>	<b>8</b>	<b>14</b>	<b>189</b>	<b>57</b>		



# **SECTION I**

## **INTRODUCTION**

# INTRODUCTION

---

## RESPONSIBILITIES

Under the Endangered Species Act of 1973 (ESA), as amended, all federal agencies have responsibility to ensure that any action authorized, funded, or carried out by that agency is not likely to jeopardize the continued existence of any federally listed endangered or threatened species or result in the destruction or adverse modification of critical habitat. Furthermore, federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species.

The U. S. Environmental Protection Agency (EPA) is the federal agency authorized to regulate pesticide use through administration of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Under the ESA, the EPA must ensure that its activities in administering FIFRA are not likely to jeopardize the continued existence of any federally listed threatened or endangered species. The registration and reregistration of pesticides under Section 3 of FIFRA is considered an activity that may have possible impacts on threatened and endangered species, therefore it is subject to review by the U. S. Fish and Wildlife Service (Service).

Section 7 of the ESA requires that federal agencies "consult" with the Service on their actions. The federal agency initially determines if their action(s) "may affect" any listed species. If the agency determines that the proposed action may affect listed species it will formally request Section 7 consultation. The Service reviews information provided by that agency regarding the proposed action and decides whether or not it concurs with the federal agency's "may affect" determination. If the Service does not concur with the federal agency's may affect determination consultation is terminated, otherwise the Service must prepare a biological opinion. In this opinion, the Service determines if the proposed action is likely to jeopardize the continued existence of the listed species in question or is not likely to jeopardize the continued existence of the species. If the Service determines that a proposed action is likely to jeopardize the continued existence of the species, it must provide to the federal agency any available reasonable and prudent alternatives that preclude jeopardy yet still allow the proposed action to continue. The Service must also provide to the federal agency an incidental take statement and reasonable and prudent measures to minimize such take. These terms will be further defined in subsequent sections of the introduction.

---

## PROPOSED ACTION

On April 15, 1991, EPA requested formal section 7 consultation with the Service on 31 registered chemicals that may affect threatened or endangered species. The consultation request addressed the effects of all registered uses of these chemicals on all domestically listed species (approximately 600). The 31 chemicals include 16 vertebrate control agents, 14 insecticides and one herbicide. The EPA selected these chemicals based on a thorough review of all listed species and their vulnerability to pesticides. An explanation of EPA's rationale for selecting these specific chemicals is presented in their February 26, 1991, consultation request.

Because of the size and complexity of this consultation, the Service found it necessary to divide the consultation into two parts. This portion of the consultation contains the biological opinions for the 16 vertebrate control agents. The Service has reviewed each of these pesticides for their impact to all federally listed threatened, endangered and proposed species. This consultation also considered all registered uses of the 16 vertebrate control agents. The second portion of the

consultation will provide biological opinions for the remaining 15 chemicals and will be submitted at a later date.

---

### **CONSULTATION HISTORY**

The Service has consulted with EPA on the registration of pesticides since 1977. Since that time, the Service has issued over 75 biological opinions. Some of these opinions were completed on a case-by-case basis while others were included in "cluster" opinions addressing all pesticides registered for specific uses. The most recent pesticide biological opinion, completed in July 1989, involved a reinitiation of consultation on 109 pesticides primarily for listed aquatic species. The results of this consultation supersede all previous biological opinions on these pesticides.

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### **PROPOSED SPECIES**

Due to the long timeframe attached to this consultation, many species proposed for federal listing at the beginning of the consultation will have subsequently been listed by the time this document is final. According to regulations set forth in 50 CFR Part 402.10, each Federal agency shall confer with the Service on any action which the Federal agency determines is likely to jeopardize the continued existence of any proposed species. The purpose of this requirement is to identify and resolve potential conflicts between an action and proposed species. These conferences are conducted on an informal basis with the Service providing the Federal agency with recommendations to minimize or avoid adverse effects of the action on proposed species. If the species is listed, the Federal agency must review its action to determine whether consultation is required. In certain instances, the Federal agency and the Service may conduct the conference in such a thorough manner that it would satisfy the consultation requirements of section 7(a)(2) if the proposed listing is subsequently completed.

In conducting this consultation, the Service treated proposed species as if they were already federally listed. All recommendations and alternatives satisfy the requirements of formal section 7 consultation. Until such time as the proposed species are officially listed, the Service requests that the EPA consider these recommendations as advisory in nature. When a proposed species covered in this opinion is officially listed the Service will inform the EPA and indicate that the reasonable and prudent measures or reasonable alternatives are to be implemented.

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### **EVALUATION METHODOLOGY**

On April 22, 1991 the Service convened a team of regional representatives to prepare this biological opinion. The team consisted of one biologist from each of the Service's regions. Each biologist was responsible for evaluating the impact of these chemicals on species within their jurisdiction. Team members used their broad knowledge of species biology and distribution along with the available toxicity information to evaluate the impacts of these chemicals on all listed species.

For the most part, the Service relied on information provided by EPA in the consultation request to make its determinations. However, in some cases, complete and consistent data were lacking from EPA's request. This lack of data was in part because some information was not readily available to EPA and partly because the Service did not always agree with EPA's no effect determinations and needed supporting data. As a result, in January 1992, the Service convened a team of environmental contaminant specialists to review the EPA data and gather additional information. In those cases where the Service obtained information contrary or additional to that

provided by EPA, we have provided citations. A list of literature citations accompanies this introductory section and can be referred to when reviewing chemical information.

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### **FORMAT OF THE OPINION**

This biological opinion is organized into three sections. Section I contains the introduction and an explanation of terms and methodology. Section II contains chemical information, and the actual biological opinions for each of the 16 vertebrate control agents. Section III provides biological information on each "may affect" species considered in this portion of the consultation.

Section II is the main portion of this biological opinion. This section is subdivided into an additional 13 sub-sections corresponding to the 16 vertebrate control agents (some sections contain more than one chemical). The reference table included with each chemical provides a quick review of the Service's calls, recommendations and justifications for each "may affect" species. Further justification including reasonable and prudent alternatives, incidental take statements, reasonable and prudent measures and conservation recommendations is found by locating a particular species in the rationale section. The rationale section provides the necessary information to support the Service's biological opinion for each species. Additional species information can be found in Section III.

Section III contains biological information for each species considered in this portion of the consultation. The table that begins Section III includes all federally listed threatened, endangered and proposed species listed prior to July 1, 1991. Any species listed or proposed after that date is not considered in this opinion. Following the table are profiles for each of the "may affect" species. These profiles contain biological information including species status and trends, cumulative effects and the potential for that species to be exposed to pesticides.

Cumulative effects are those effects of future non-federal (State, local government, private, or any other non-federal entity) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the action area. The Service must consider cumulative effects when conducting Section 7 consultations. Cumulative effects are addressed for each species in Section III - Species Profiles.

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### **REASONABLE AND PRUDENT ALTERNATIVES**

Regulations implementing Section 7 define reasonable and prudent alternatives as alternative actions identified during formal consultation that can be implemented in a manner consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Service believes would avoid the likelihood of jeopardizing the continued existence of listed species or avoid the destruction or adverse modification of critical habitat.

The Service has provided reasonable and prudent alternatives for every chemical that is likely to jeopardize the continued existence of a threatened or endangered species. These alternatives represent the Service's best professional judgement of the measures necessary to provide the appropriate level of protection to the species given the data currently available.

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### **INCIDENTAL TAKE**

Section 9 of the Act prohibits any taking (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct) of listed species without a permit.

Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be a prohibited taking provided that such taking is in compliance with the terms and conditions specified in the incidental take statement included in a biological opinion. If the specified level of incidental take is exceeded formal consultation must be reinitiated immediately.

In many situations the use of a particular chemical may result in the take of some listed species but not necessarily result in jeopardy to that species. In those instances, the Service must determine the anticipated level of take and provide reasonable and prudent measures for minimizing that take.

Usually, the likelihood of discovering an individual death attributable to pesticides is very small. In those situations where the Service anticipates that the discovery of a carcass of a particular species is likely, we have established a specific level of take which might occur as a result of the action (ie: number of individuals). In most instances however, the Service does not expect to discover a precise number of dead or sublethally affected species attributable to pesticides. Because of the small size, unique habitat and secretive nature of many listed species it is highly unlikely that the Service will ever discover individual deaths. Therefore, it is difficult to establish an anticipated level of take. In those situations where the Service believes take may occur but is not able to assign a specific number to that take, an "unquantifiable" level of take has been assigned. This indicates that the Service believes that take is unavoidable but unquantifiable.

In order to insure protection for species assigned a level of unquantifiable take, the Service must have a mechanism to reinitiate consultation. Since it is so unlikely that take resulting from pesticide use will ever be discovered, if even one dead specimen is discovered whose death is attributable to the legal use of pesticides, then use of that pesticide must cease in all occupied habitat of the species and consultation on that chemical for that species must be reinitiated. Take above the authorized level of one, if occurring in a single event (ie. fish kill), is not a violation of section 9 of the Act as long as the terms and conditions as specified in the reasonable and prudent measures are followed.

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#### **REASONABLE AND PRUDENT MEASURES/TERMS AND CONDITIONS**

Specific reasonable and prudent measures that the Service considers necessary and appropriate to minimize incidental take and the terms and conditions to implement such measures are provided for those species receiving an incidental take statement. Reasonable and prudent measures are provided to minimize impacts to the individuals or habitat affected by the action. Such measures are designed to decrease the level of take to the maximum extent possible. Measures are determined to be reasonable and prudent when they are consistent with the basic design, location, scope, duration and timing of the action. These measures represent the Service's best professional judgement of the actions necessary to provide the appropriate level of protection to the species given the data currently available.

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#### **POSSIBLY EXTINCT SPECIES**

There are several species still listed in the U.S. that have not been seen for many years. Those species, although not yet officially declared extinct, are nevertheless treated as extinct species. It is the Service's position that species such as those listed below could not be affected by pesticides since they are not expected to occur in areas of pesticide applications and are therefore not included in this consultation. However, if the Service receives documented evidence of any

occurrence of these species, the Service believes this constitutes new information and requests reinitiation of consultation for those species on all chemicals.

Bridled white eye	Caribbean monk seal
Culebra Island giant anole	Eastern cougar
Guam broadbill	Ivory-billed woodpecker
Little Mariana fruit bat	Mariana mallard
Scioto madtom	Palos Verde blue butterfly

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### **MONITORING AND ENFORCEMENT PROGRAM**

The Service has determined, that for certain listed species considered in this opinion, an unquantifiable level of incidental take may occur even if the recommended reasonable and prudent alternatives to preclude jeopardy are followed. Examples of such species include many of the listed mussels, fish and selected small mammals. To minimize take in the above-mentioned scenarios, the Service is requiring, as a reasonable and prudent measure that EPA adopt a monitoring/enforcement program.

The Service believes that the likelihood of incidental take will be minimized if the EPA fully implements a monitoring/enforcement program. A monitoring program will alert both the Service and EPA to possible deficiencies in the reasonable and prudent alternatives and allow the Service to request reinitiation of consultation to modify those deficiencies before further take occurs. The location, nature and extent of this monitoring program should evolve through discussions between EPA and the Service.

The Service recommends that the monitoring program include but not be limited to the following actions. Selected field applications of certain chemicals should be monitored to determine: 1) compliance with label instructions, 2) compliance with recommended reasonable and prudent alternatives and reasonable and prudent measures, and 3) effectiveness of recommended buffer zones for both ground and aerial applications. In monitoring the effectiveness of recommended buffer zones, the Service suggests that field surveys (which should include the monitoring of water quality and the persistence and concentration of applied chemicals and their metabolites) be established as part of an efficient and regulated enforcement program. If, in the course of conducting their monitoring program, EPA determines that buffer zones recommended by the Service are insufficient to prevent incidental take, the Service requests that the Agency reinitiate consultation.

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### **REPORTING REQUIREMENTS**

If, in the course of conducting the required monitoring program, EPA (or individuals acting on behalf of EPA) discovers any moribund or dead listed species, the Service must be notified. This notification should occur within 3 working days and include the location of discovery, and suspected cause of death or illness. Service personnel will instruct the caller as to the proper actions necessary to prepare the dead or injured specimen for pesticide analysis. If the Service suspects that a species has been taken in violation of label restrictions, such situations will be reported to the Service's Division of Law Enforcement and instructions for proper handling of such specimens will be given at that time. The following is a list of contacts for each Region.

- Region 1 - CA, HI, ID, NV, OR, WA  
Chief, Endangered Species  
U.S. Fish and Wildlife Service  
911 N.E. 11th Ave.  
Portland, OR 97232-4181 (503) 231-6241
- Region 2 - AZ, NM, OK, TX  
Chief, Endangered Species  
U.S. Fish and Wildlife Service  
P.O. Box 1306  
500 Gold Ave. S.W.  
Albuquerque, NM 87103 (505) 766-9372
- Region 3 - IA, IL, IN, MI, MN, MO, OH, WI  
Division of Endangered Species - Room 648  
U.S. Fish and Wildlife Service  
1 Federal Drive - Fort Snelling  
Twin Cities, MN 55111-4056 (612) 725-3276
- Region 4 - AL, AR, FL, GA, KY, LA, MS, NC, PR, SC, TN, VI  
Chief, Endangered Species  
U.S. Fish and Wildlife Service  
75 Spring Street, SW Room 1276  
Atlanta, GA 30303 (404) 331-3580
- Region 5 - CT, DC, DE, MA, ME, NH, NJ, NY, PA, RI, VA, VT, WV  
Chief, Endangered Species  
U.S. Fish and Wildlife Service  
300 Westgate Center Drive  
Hadley, MA 01035-9589 (617) 965-5100
- Region 6 - CO, KS, MT, ND, NE, SD, UT, WY  
Chief, Endangered Species  
U.S. Fish and Wildlife Service  
Denver Federal Center  
134 Union Street  
Denver, CO 80225 (303) 236-8166
- Region 7 - AK  
Chief, Endangered Species  
U.S. Fish and Wildlife Service  
1011 E. Tudor Road  
Anchorage, AK 99503 (907) 786-3431

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