

SAFE HARBOR AGREEMENT
BETWEEN
LARAMIE RIVERS CONSERVATION DISTRICT
AND
U.S. FISH AND WILDLIFE SERVICE
FOR THE WYOMING TOAD

COPY

1. INTRODUCTION

This Safe Harbor Agreement (Agreement) is entered into between the Laramie Rivers Conservation District (Cooperator) and the U.S. Department of Interior, Fish and Wildlife Service (Service); hereinafter collectively called the "Parties." The objective of this Agreement is to re-establish the federally listed Wyoming toad (*Bufo baxteri*) into suitable habitat within Albany County, Wyoming, while assuring participating landowners that they will not be subject to additional restrictions under section 9 of the Endangered Species Act as amended 1973, (ESA). This Agreement will encourage landowners to initiate voluntary conservation activities on their property and assure them they will not be subjected to increased restrictions should their beneficial stewardship efforts result in increased endangered species populations. The establishment of additional Wyoming toad release sites will be compatible with stepdown objectives 1.22, 1.23, 1.231, 1.232, 1.233, 1.234, 1.2345, 2.0, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, and 5.5 of the Wyoming Toad Recovery Plan (U.S. Fish and Wildlife Service 1991).

The Cooperator will encourage Landowner participation in Safe Harbor Agreements. Landowners enrolling in this Agreement will receive a Certificate of Inclusion (Attachment 1) when they sign a Landowner Cooperative Management Agreement (LCMA, Attachment 2). The LCMA will include:

- a map of the property;
- the portion of the property to be enrolled and its acreage;
- the specific actions to be carried out on the property that will result in a net conservation benefit for the Wyoming toad;
- photos of the enrolled portion of the property;
- results of preliminary assessment(s) conducted by the Service to determine how suitable the property is for Wyoming toads;
- the responsibilities of the Parties.

Each LCMA will cover restoration, maintenance, creation or reintroduction activities in habitat that is expected to be unoccupied, so each LCMA will more than likely start with a baseline of 0 acres of habitat occupied by the Wyoming toad.

This Agreement follows the Service's Safe Harbor Agreement policy (64 FR 32717) and regulations (50 CFR section 17.22(a) and section 17.32(a)), both of which implement section 10(a)(1)(A) of the ESA.

2. COVERED SPECIES

This Agreement covers the federally listed Wyoming toad (*Bufo baxteri*), which is hereafter referred to as the "covered species" or "Toad."

3. DESCRIPTION OF ENROLLED PROPERTY

This Agreement covers suitable Toad habitat not owned by the Federal government (including isolated wetlands and other lacustrine wetlands) that lie within Albany County, Wyoming. Suitability of habitat will be evaluated using guidelines outlined in Attachment 3. The property of each landowner enrolled by the Permittees through a LCMA under this Agreement is considered the "enrolled property" as defined in the Service's Safe Harbor policy. The enrolled property will be more precisely indicated on maps in the individual landowner's LCMA. Current land use practices within Albany County include--crop cultivation and harvesting, livestock grazing, farm equipment operation, irrigation practices, legal use of pesticides and herbicides, recreation (hunting, fishing, and off-road travel), and gravel extraction. Currently, most potential Toad habitat is on private land.

If something other than a current land use practice is proposed on an enrolled property or on an participating neighbor's land (e.g., construction that requires authorization under § 404 of the Clean Water Act, major development activity that does not include construction of barns, other farm-related facilities, single family residences, etc.), the Service will work with the enrolled property owner or participating neighbor to obtain take authorization(s) as appropriate, under the ESA.

The Parties agree that the area to be enrolled will be measured using numbers of acres of occupied Toad habitat as determined by the Service and the Cooperator with the landowner present. Landowners have the option of enrolling upland or other types of habitat as they see fit. In that case, the entire enrolled portion will be mapped, not just the wetland. In either case, a LCMA cannot be executed until the enrolled portion of the property has been designated and mapped.

4. BASELINE DETERMINATION

The Parties agree that the baseline for the Agreement will be the number of acres of enrolled habitat occupied by the Toad. For all LMCA enrolled lands, the baseline is expected to be zero as the Toad is not expected to occur outside of the Mortenson Lake National Wildlife Refuge (see below).

BASELINE JUSTIFICATION

The Toad was once common in Albany County, Wyoming, most notably in the Laramie Basin. The Toad was first reported by George T. Baxter, a graduate student in the Department of Zoology and Physiology at the University of Wyoming, in his M.S. thesis (1946). Subsequently, as a member of the faculty, Dr. Baxter observed Toads and breeding sites for more than 30 years. Baxter reports that the Toad was common within the floodplains and wetlands associated with fresh water ponds and irrigated pastures of Albany County from the 1950s until the early 1970s. Prior to the 1970s, the known distribution of the Toad was restricted to within approximately 30 miles of Laramie, Wyoming. In 1980, the distribution of the Toad had decreased to an area approximately 10 to 20 miles west of Laramie, Wyoming, that extended approximately 20 miles to the north and south (Stromberg 1981; Vankirk 1980; U.S. Fish and Wildlife Service 1991). At this time only one population had been located (Vankirk 1980). The following year, that population had declined significantly; only two Toads were found. By 1983, the known distribution had decreased to a 30-square mile area with all observations coming from an area 10-15 miles south of Laramie. Thirty male Toads were located at a new site in 1984. However, no Toads were found when this area was surveyed in 1985 and 1986. In 1987, a small population confined to a 2-square mile area was discovered at Mortenson Lake. Intermittent surveys at Mortenson Lake and nearby habitats, by the Wyoming Game and Fish Department (McCleary 1989; Chamberlain 1990; Peterson 1991) provided evidence that this was the last remaining population of the Toad. After being discovered in 1987, the population at Mortenson Lake declined sharply. By 1994, many considered the Toad extinct in the wild (Spencer 1999). Beginning in 1995, captive bred Toads were reintroduced at Mortenson Lake to begin reestablishing the Toad in Albany County, Wyoming.

During 1994 and 1995 a large-scale effort to locate unknown populations of Toads was attempted without success. A total of 5,326 person hours were spent in the field searching a total of 82,120 acres of habitat over the 2-year period (Young 1995). No Toads were found.

Prior to participating in these surveys, searchers were extensively trained and were tested on their ability to identify Toads in the field visually and audibly by listening for mating calls. Searchers followed guidelines set forth by the Service and the Wyoming Toad Recovery Group. Two basic survey techniques were used to search for Toad populations--(1) sweep searching to locate calling males during breeding season, and (2) flush searching to locate tadpoles and all age groups of Toads (Young 1995).

Currently, the range of the Toad is extremely limited. Only reintroduced populations are known to exist. These occur at Mortenson Lake National Wildlife Refuge and possibly Hutton Lake National Wildlife Refuge. Approximately 5,600 Toads (in various life stages) have been released at Hutton Lake National Wildlife Refuge between 1995 and 2000. Due to drought conditions at the lake during recent years, no reintroduction attempts have been made since 2000. Although survey efforts have continued on the refuge, no Toads have been observed since the 2000 reintroduction. Over 33,000 Toads have been released at Mortenson Lake National

Wildlife Refuge between 1995 and 2002. Despite disease presence and prevalence and habitat suitability concerns, reintroduction efforts continue as this is the only site currently available to release captive progeny.

For all wetlands surveyed in 1994 and 1995 and in subsequent years, all wetlands contiguous with those surveyed wetlands, the baseline is zero. Baseline determination will be made on isolated wetlands that were not surveyed in 1994 or subsequently.

5. MANAGEMENT ACTIVITIES

The Cooperator agrees to develop LCMAs with landowners willing to--(1) maintain, enhance, or create the acres of Toad habitat enrolled in each LCMA; and/or (2) allow the Service to release captive Toads onto the enrolled acres; (3) allow Toads to occupy those enrolled acres for an agreed upon period of time; (4) allow the Service, Cooperator or other mutually agreed upon party access for population monitoring; and (5) encourage minimal take through voluntary modification of grazing, haying, and pesticide and herbicide use within the enrolled properties as appropriate. The management activities are explained in greater detail in the LCMA (Attachment 2).

The Service anticipates that implementation of these management activities will produce a net conservation benefit for the Toad by maintaining, enhancing and/or creating habitat; creating new Toad populations; expanding the current range of the Toad; and decreasing habitat fragmentation within the reestablishment range of the Toad during the term of the Agreement. Monitoring of introduced Toad populations will provide much needed population and biogeographic information.

6. OTHER RESPONSIBILITIES OF THE PARTIES

A. In addition to carrying out the management activities set forth in section 5, the Cooperator agrees to:

1. Notify the Service 15 calendar days in advance of any planned activity that a landowner and the Cooperator reasonably anticipates will result in "take" (i.e., death, injury, or other harm) of the covered species on the enrolled property, and provide the Service the opportunity to capture and/or relocate any potentially affected species, if appropriate.
2. Provide the Service a brief annual report, due no later than September 30 of each year summarizing progress in conducting SHA outreach and developing LCMAs containing the management activities selected from in the LCMA template (Attachment 2) and verifying compliance with implementing the LCMA.
3. Notify the Service of any transfer of ownership of the enrolled lands, so the Service and/or Cooperator can attempt to contact the new owner, explain the baseline

responsibilities applicable to the enrolled property, and seek to interest the new owner in signing the existing Agreement or a new Agreement to benefit the covered species. The Cooperator may elect to contact the new owner and report the new ownership and any changes in the LCMA to the Service in the annual report. Permittee shall provide the information described in 50 CFR § 13.25 (section of the regulation that addresses transfer of permit and scope of permit authorization) to the Service in the instance that the Laramie Rivers Conservation District Board Chair changes. The Service shall evaluate such information expediently so that the permit can continue to cover all activities described in it.

4. Prior to signature and approval of the LCMA, allow the Service 15 days to review the LCMA.

5. Provide Certificates of Inclusion that provide enrollment of no more than 80 percent of the wetlands in Albany County that are potential habitat for the Toad under LCMA's. The remaining 20 percent of the wetlands will not be enrolled through Certificates of Inclusion.

B. In consideration of the foregoing, the Service agrees to:

1. Upon execution of the Agreement and satisfaction of all other applicable legal requirements, issue an enhancement of survival permit to the Cooperator in accordance with ESA section 10(a)(1)(A), authorizing take of the covered species as a result of lawful activities on the enrolled properties in accordance with the terms of such permit. The term of the permit will be 15 years with the option of renewal.

2. Provide the Cooperator technical assistance, to the maximum extent practicable, when requested; and provide information on Federal funding programs.

3. Carry out the following activities with no expense to the Cooperator or landowners enrolling under the Certificates of Inclusion: map the area to be enrolled under this Agreement, record the baseline conditions, release captive bred Toads onto the enrolled property, monitor the introduced Toad population, and provide and/or assist in the application of biological larvicide.

4. On a case-by-case basis, determine if conservation measures agreed upon are in compliance with the National Historic Preservation Act (NHPA). The types and numbers of conservation measures with the enclosed LCMA's are sufficiently varied and not always required, making it nearly impossible to determine this up front. Most projects will encompass changes to grazing, haying, or irrigation activities to benefit the toad. These activities would not result in the Service being out of compliance with the NHPA. However, larger projects such as wetland creation that require federal funding for completion may need NHPA review. It is the Federal action agency's responsibility and

not that of the landowner or the Laramie Rivers Conservation District to determine whether or not the identified conservation measures need evaluation under the NHPA

7. AGREEMENT DURATION

This Agreement becomes effective upon issuance by the Service of the section 10(a)(1)(A) enhancement of survival permit described in part 6 hereof, and will be in effect for 15 years. This Agreement also will have a term of 15 years. The LCMAs will be in effect for a minimum of 10 years unless cancelled. The review and estimation of take on neighboring lands that fit within a 1-mile buffer of enrolled properties also has been evaluated.

The review and estimation of take on adjacent lands that fit within the 1-mile buffer of enrolled properties also has been evaluated. Based on research conducted on the Wyoming toad (Parker 2000) and its close relative the Canadian toad (Breckenridge and Tester 1961) the Service expects that the Wyoming toad will move much less than 1 mile (1,604 meters) when reintroduced into isolated lacustrine habitats. Parker (2000) documented the movements of Wyoming toads of up to .009 miles (151.80 meters) through the use of radio telemetry. Breckenridge and Tester (1961) documented that Canadian toads move a maximum of 0.20 miles (341.37 meters) using radio telemetry. However, if it is observed that toads begin moving more than 0.75 mile, the Service will consider this new information and reevaluate the take occurring on neighboring properties that extend beyond the 1-mile buffer and adjust the buffer as appropriate to correspond with the new movement information. The Safe Harbor Agreement and all associated documents would be amended in accordance with all applicable laws to reflect this change.

8. ASSURANCES TO COOPERATOR REGARDING TAKE OF COVERED SPECIES

Provided that such take is consistent with maintaining the baseline conditions identified in part 4 of this document, the section 10(a)(1)(A) permit referenced in part 6 shall authorize the Cooperator to take the covered species incidental to otherwise lawful activities in the following circumstances:

- (1) Implementing the management activities identified in part 5.
- (2) Carrying out any normal (e.g., agricultural, silvicultural, recreational, other) activity on enrolled property.
- (3) Making any lawful use of the enrolled property after the management activities identified in part 5 have been fully implemented.

9. NEIGHBORING LAND/PROPERTY

In general, the Cooperator or Service will make every effort to include the neighboring landowner through a LCMA and associated Certificate of Inclusion. Alternatively, a new and

separate agreement could, for instance, allow the Service to enter the adjacent property and remove any Toads for relocations elsewhere. Non-participating private landowners are not covered under the take permit associated with this Agreement. However, it is addressed under section 7 of the ESA in the Service's incidental take statement in the Biological Opinion. Thus, if a participating landowner's voluntary conservation actions result in listed species occupying neighboring properties within 1 mile of the enrolled property, incidental take in conjunction with neighboring landowner's current agriculture or other current land use practices has been assessed. If something other than a current land use practice is proposed on an enrolled property or on an participating neighbor's land (e.g., construction that requires authorization under § 404 of the Clean Water Act, major development activity that does not include construction of barns, other farm-related facilities, single family residences, etc.), the Service will work with the enrolled property owner or participating neighbor to obtain take authorization(s) as appropriate, under the ESA.

Furthermore, neighboring landowners will be sent a certified letter from the Laramie Rivers Conservation District informing them of the reintroduction attempt and the incidental take evaluation (Attachment 4). The letter will include a self-addressed stamped postcard to mail back to the Cooperator or Service indicating that the letter was received and the landowner is aware of the coverages so long as the land use practices remain the same. These practices will be tracked by the Cooperator and the Service by review of both yearly reports and implementation of agreed upon conservation measures.

10. MODIFICATIONS

A. Modification of the Agreement. Either party may propose amendments to this Agreement, as provided in 50 CFR 13.23, by providing written notice to, and obtaining a written concurrence of the other Party. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 30 calendar days of receipt of such notice. Proposed modifications will become effective upon written approval of both Parties and compliance with any applicable laws.

B. Termination of the Agreement. As provided for in part 12 of the Service's Safe Harbor Policy (64 FR 32717), the Cooperator may terminate the Agreement for circumstances beyond the Cooperator's control. In such circumstances, the Cooperator may return the enrolled property to baseline conditions even if the management activities identified in part 5 have not been fully implemented, provided that the Cooperator gives the Service the notification required by part 6.A.1 above prior to carrying out any activity likely to result in the taking of the covered species. If the Cooperator terminates the Agreement for any other reason, the permit referenced in part 6.B.1 above shall immediately cease to be in effect.

C. Permit Suspension or Revocation. The Service may suspend or revoke the permit referred to in part 6.B.1 above for cause in accordance with the laws and regulations in force at the time of such suspension or revocation. The Service also, as a last resort, may revoke the

permit if continuation of permitted activities would likely result in jeopardy to the covered species (50 CFR 13.28 (a)). In such circumstances, the Service will exercise all possible measures to avoid revoking the permit.

11. OTHER MEASURES

A. Remedies. Each party shall have all remedies otherwise available to enforce the terms of the Agreement and the permit, except that no party shall be liable in damages for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement or any other cause of action arising from this Agreement.

B. Dispute Resolution. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

C. Succession and Transfer. If a landowner enrolled through a LCMA and accompanying Certificate of Inclusion transfers his or her interest in the enrolled property to a non-Federal entity, the Service will regard the new owner as having the same rights and responsibilities with respect to the enrolled property as the former landowner, if the new property owner agrees and commits in writing to become a party to this Agreement through the existing LCMA and the permit referenced in part 6.A above in place of the former landowner, in accordance with 50 CFR 13.25.

D. Availability of Funds. Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidence in writing.

E. No Third-Party Beneficiaries. This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary unless that party is a participant through a LCMA and associated Certificate of Inclusion or an neighboring landowner as discussed in part 9 of this Agreement, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

F. Other Listed Species, Candidate Species, and Species of Concern. Although the Service regards it as unlikely, the possibility exists that other listed, proposed, or candidate species, or species of concern may occur in the future on the properties enrolled through LCMA's as a result of the management actions specified in part 5 above. If that occurs and the Cooperator or landowner(s) so requests, the Parties may agree to amend the Agreement and associated permit (in compliance with all applicable laws), LCMA's and Certificates of Inclusion to

cover additional species and to establish appropriate baseline or other conditions for such other species.

G. Liability. The Cooperator assumes no liability for injury to any employee or representatives of the Service, or other mutually agreed upon party in the course of any visit to the property under this paragraph, except in those circumstances in which injury is due to negligence of the Cooperator. The Service, or other mutually agreed upon party shall not be liable for any damage to the property of the Cooperator arising from any visit to Partner's property pursuant to this paragraph, except insofar as such damage is the result of the Cooperator's, Service's or other party's negligence.

H. Notice and Reports. Any notices and reports, including monitoring and annual reports, required by this Agreement shall be delivered to the person listed below, as appropriate:

Cooperator
Laramie Rivers Conservation District
1050 N Third Street
Laramie, Wyoming 82070
(307) 721-0072

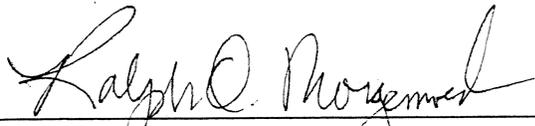
Field Supervisor
U.S. Fish and Wildlife Service
4000 Airport Parkway
Cheyenne, Wyoming 82001
(307) 772-2374

12. LITERATURE CITED

- Chamberlain, K.M. 1990. Wyoming Toad Field Surveys. Wyoming Game and Fish Department.
- McCleary, D.A. 1989. Wyoming Toad: 1989 Field Surveys. Unpublished. Wyoming Game and Fish Department. Fish Division Administrative Report, Contract 5089-30-8301.
- Parker, Joshua M. 2000. Habitat Use and Movement of the Wyoming Toad (*Bufo baxteri*): A Study of Wild Juvenile, Adult and Released Captive-Raised Toads. M.S., Department of Zoology and Physiology, University of Wyoming. Laramie, WY.
- Peterson, K.A. 1991. Wyoming Toad 1991 Field Surveys. Unpublished. Wyoming Game and Fish Department, Fish Division Administrative Report, contract 5091-30-8301.
- Spencer, B. 1999. The Wyoming Toad SSP. Endangered Species Bulletin 24 (3): pp. 18-19.
- Stromberg, M. 1981. Wyoming Toad (*Bufo hemiophrys baxteri*) Endangered. J. Colorado-Wyoming Acad. Sci. 13 (1): 47.
- Tester, John R. and Walter J. Breckenridge. 1961. Growth, Local Movements and Hibernation of the Manitoba Toad, *Bufo hemiophrys*. Ecology, Vol. 42, No.4.
- U.S. Fish and Wildlife Service. 1991. Wyoming Toad Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado. 28pp.
- Vankirk, E.A. 1980. Report on the Population of (*Bufo hemiophrys*) on the Laramie Plain, Albany County, Wyoming. Report to Wyoming Natural Heritage Program. The Nature Conservancy, Cheyenne. 6pp.
- Withers, D.I. 1992. The Wyoming toad (*Bufo hemiophrys baxteri*): an analysis of habitat use and life history. (Laramie, Wyoming: University of Wyoming Master's Thesis).
- Young, D.P. 1995. Wyoming Toad Searches, 1994-1995, Final Report. Western EcoSystems Technology, Inc., Cheyenne, Wyoming. 9pp.

13. SIGNATURES

By our signatures below, each Party agrees to abide by and uphold the provisions of this Agreement and any conditions of the Permit associated with this Agreement.



Deputy Regional Director, U.S. Fish and Wildlife Service

8/26/04

Date



Conservationist, Laramie Rivers Conservation District

Anthony R. Hoch

8-25-04

Date

**CERTIFICATE OF INCLUSION
in the Range-wide Wyoming Toad
Safe Harbor Agreement and Enhancement of Survival Permit**

This certifies that NAME, the landowner(s) of the property located at X, and any future owner(s) of the property subject to Service approval, are included within the scope of Enhancement of Survival Permit No. 078834 issued by the U.S. Fish and Wildlife Service (Service) on DATE and expiring on DATE to the District Conservationist, Laramie Rivers Conservation District under the authority of section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1539(a)(1)(B). That permit authorizes certain activities by participating landowners as part of a Safe Harbor Agreement and Landowner Cooperative Management Agreement to benefit the Wyoming toad (*Bufo baxteri*). Pursuant to that permit and this Certificate of Inclusion, the holder of this Certificate is authorized to engage in any otherwise lawful activity on the above described property that may result in the incidental taking of Wyoming toads, as appropriate, subject to the terms and conditions of the permit and the terms and conditions of the Safe Harbor Agreement and Landowner Cooperative Management Agreement (Attachment 2).

SAFE HARBOR
LANDOWNER COOPERATIVE MANAGEMENT AGREEMENT

1. INVOLVED PARTIES. This Landowner Cooperative Management Agreement (LCMA) between the participating landowner _____ (Partner) and the Laramie Rivers Conservation District (Cooperator) is intended to promote good land stewardship by encouraging and assisting the Partner in carrying out actions to improve, enhance, or maintain Wyoming toad (Toad) habitat and/or provide habitat for reintroduction attempts on land owned by the Partner(s), and is a prerequisite for obtaining a Certificate of Inclusion under the Cooperator's Safe Harbor Permit from the U.S. Fish and Wildlife Service (Service).

2. ENROLLED PROPERTY. The Partner owns property within Albany County, Wyoming. The Partner's property is {insert miles} from Laramie {or nearest city, etc.}. Furthermore, the property contains habitat that has been determined to be suitable or potential Toad habitat using the guidelines set forth in Attachment 3 of the Wyoming Toad Safe Harbor Agreement (SHA) and meets the eligibility requirements for enrollment as defined in the SHA between the Cooperator and the Service. The Cooperator will enroll {insert number of acres} of this property under the SHA, as shown on the attached map. The Partner will not be held responsible for any incidental take of Toad on the enrolled property for the duration of the SHA. Other species of wildlife also may occur on the property, but will not be covered for incidental take under the terms of the Cooperator's Safe Harbor permit.

Neighboring landowners will be encouraged and given the opportunity to enroll in a LCMA to provide assurances and take authority in the event of Toad migration onto their property. In addition, potential adverse affects arising from the Toad occupying neighboring properties within 1 mile of the enrolled property has been assessed in order to address incidental take in conjunction with current agriculture or other land use practices. Current land use practices within Albany County include crop cultivation and harvesting, livestock grazing, farm equipment operation, irrigation practices, legal use of pesticides and herbicides, recreation (hunting, fishing, and off-road travel), and gravel extraction. If something other than a current land use practice is proposed on an enrolled property or on an participating neighbor's land (e.g., construction that requires authorization under § 404 of the Clean Water Act, major development activity that does not include construction of barns, other farm-related facilities, single family residences, etc.), the Service will work with the enrolled property owner or participating neighbor to obtain take authorization(s) as appropriate, under the ESA.

3. ACCESS TO ENROLLED PROPERTY. If allowing reintroduction of Toads onto the property in addition to maintaining, restoring, or creating habitat, the Partner agrees to allow the Cooperator, Service, or other mutually agreed upon party reasonable access to his or her property for the purposes of--(a) assessing suitable Toad habitat occurring on the property, (b) the release of captive reared Toads onto property, (c) monitoring the population status of reintroduced Toads up to {insert number of days annually to monitor}, (d) assisting with implementation of agreed upon management activity or activities if necessary, and (e) evaluating how well such activities are benefiting the Toad using the enrolled portions of the property.

There will be no monitoring requirements on those portions of the Partner's property that are not enrolled.

The Cooperator and the Service will coordinate with each other and with the Partner so as to schedule and conduct visits to the property at times that avoid inconvenience to the Partner or disruption of the Partner's use of the property. The Cooperator will provide a minimum of 15 calendar days advance notice of its desire to enter the property for any of the above purposes, and the Partner shall not unreasonably withhold permission for such entry.

4. LIABILITY. The Partner assumes no liability for injury to any employee or representatives of the Cooperator, Service, or other mutually agreed upon party in the course of any visit to the property under this paragraph, except in those circumstances in which injury is due to negligence of the Partner. The Cooperator, Service, or other mutually agreed upon party shall not be liable for any damage to the property of the Partner arising from any visit to the property pursuant to this paragraph, except insofar as such damage is the result of the Cooperator's, Service's or other party's negligence.

5. BASELINE DETERMINATION AND HABITAT MANAGEMENT PLAN. Pursuant to this LCMA, the Partner agrees to carry out specific habitat management activities checked below, which will provide a net conservation benefit to the Toad.

Based upon the site survey conducted on the Partner's property on _____, the following has been determined:

A. Physical Description of Property.

Description should include (a) the acreage of the enrolled portion of the property with enrolled buffer zones (where applicable) clearly marked, (b) the current use, (c) photographs of enrolled property, (d) summary of water chemistry results, (e) statement that the property meets suitable habitat criteria, (f) other relevant information.

B. Map of Property. (Attached on separate sheet a map of the entire property with the enrolled portions clearly marked.)

C. Baseline Habitat Determination for Safe Harbor.

Number of acres to be enrolled _____ Acres

Baseline of habitat occupied by the Toad _____ Acres

D. Management Activities. The Partner agrees to conduct the following checked activities to provide a net conservation benefit to the Toad.

Conservation Management Activities. Check at least one of the following:

_____ 1). Toad Reintroductions. The Partner allows the Cooperator, Service or other mutually agreed upon party to release Wyoming toads of all age classes onto the property and allow access for population monitoring at least once a year.

_____ 2). Creation, Enhancement, or Maintenance of Toad Habitat. The Partner agrees to create, enhance, or maintain appropriately vegetated lacustrine areas to maximize benefit to Wyoming Toads on his/her property or allow the Cooperator to:

_____ create

_____ enhance

_____ maintain

appropriately vegetated lacustrine areas to maximize benefit to Wyoming Toads on his/her property.

Voluntary Conservation Measures

The Certificate of Inclusion associated with this agreement allows for and covers incidental take that occurs during the Partner’s day to day operations, changes in land use are not covered. The following suggested measures are encouraged as they benefit the Wyoming toad and assist in reducing the amount of take associated with the following actions. However, they are NOT REQUIRED to participate in this agreement. Check all that the Partner agrees to do.

Grazing

- _____ 1). A grazing regime mutually agreed upon by the Parties (Attach or discuss below) OR
- _____ 2). The enrolled property will be grazed in the early spring from April 15 through June 1 to create open spaces for breeding. OR
- _____ 3). The enrolled property will not be grazed during the Toad’s active season which is from June 1 to September 1 to protect egg masses and toadlets from trampling. OR
- _____ 4). The enrolled property will be grazed throughout the Toad’s active season but cattle will be excluded from breeding and metamorphic areas.

If using Option 1, fill in here:

Haying

- _____ 1). Haying regime mutually agreed upon by the parties (Attach or describe below). OR
- _____ 2). Harvest hay grown in saturated areas when those soils have dried reducing the likelihood of incidental take of Toad. OR
- _____ 3). The field will be hayed after the active period for the Toad has ended. This would generally be during September. OR

- _____ 4). Establish mutually agreed upon buffer zones around wet areas to further prevent incidental take.
- _____ 5). No haying on the enrolled portion of the property.

If using option 1, please fill in here: _____

Mosquito Control Measures

- _____ 1). Other mosquito control measures mutually agreed upon by the Parties (Attach or describe below)
- _____ 2). The Service will offer to purchase biological larvicide that has no known side effects for humans or Toads for use on and around the enrolled lands OR
- _____ 3). Set up appropriate buffer zones for Malathion use as described in the Service's 1994 Biological Opinion (Attachment A). Ground and hand application of non-ornamental Malathion should have a 0.25-mile buffer zone from the water's edge or from saturated soil within the site. A 0.50-mile buffer should be established for aerial application. For a complete list of pesticides addressed under this agreement and consulted on under the Services 1994 Biological Opinion please refer to Attachment B. OR
- _____ 4). No pesticide use in the enrolled area.

If using Option 1, fill in here: _____

Herbicide Use

- _____ 1). No herbicides will be used in the wetland or any waters draining into it. OR
- _____ 2). Only products formulated for wetland use will be used and they will be used following manufacturers guidelines.
- _____ 3). Set up appropriate buffer zones in accordance with the Service's 1994 Biological Opinion (Attachment A). For a complete list of pesticides addressed under this agreement and the Biological Opinion please refer to Attachment B.
- _____ 4). Other herbicide use mutually agreed upon by the Parties.

{If other management activities, research activities (as described in the Wyoming Toad Recovery Plan and its revisions), and/or take reducing activities are mutually agreed upon please note that here.}

E. Public Relations Participation. (Please check one)

_____ I/we do NOT want to be involved in any public outreach or media events regarding the recovery of the Wyoming toad. Furthermore, we do not wish to have our names or specific property location mentioned in any press releases.

_____ I/we DO want to participate in public outreach or media events regarding the recovery of the Wyoming toad. However, I will not be required to participate in such activities and will be asked for permission prior to the release of any information regarding my involvement in Wyoming toad recovery efforts.

6. TERMS AND CONDITIONS. This LCMA is subject to the following terms and conditions:

A. Duration. This LCMA will be valid for 10 years. The permit held by the Cooperator has a duration of 15 years. This difference in permit duration length is necessary to facilitate the potential of returning to baseline conditions within the permit period.

B. Restriction on Taking Property Back to Baseline. Toads may not be intentionally “taken” (intentionally harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect, or to attempt to engage in any such conduct) except for purposes of taking the property to baseline or upon agreement by the parties for conservation purposes, e.g., collecting for disease research.

C. Notification. The Partner agrees to notify the Cooperator, Laramie Rivers Conservation District with not less than 60 calendar days notice if at the end of this Agreement they wish to take the property back to baseline conditions. The Partner also agrees to allow the Cooperator, Service or other mutually agreed upon party access to the property to rescue Toads, if possible and appropriate, prior to taking the property back to baseline conditions.

D. Reporting Requirements. The Partner will report verbally or in writing on management activities agreed to in section 5.D of this agreement for the enrolled portion of the property to the Cooperator on an annual basis.

E. Early Termination. The Partner may terminate this LCMA at any time for circumstances beyond his or her control (illness, economic hardship, etc.), upon written notification to the Cooperator’s office. In such circumstances, the Partner may return the enrolled property to baseline conditions even if the management activities identified in part 5.D have not been fully implemented, provided that the Partner gives the Cooperator the notification required by part 6.C above prior to carrying out any activity likely to result in the taking of Toads. If the Cooperator terminates the Agreement for any other reason, the Certificate of Inclusion referenced in part 5 above shall immediately cease to be in effect.

F. Transfer of Property. The Partner will notify the Service and Cooperator not less than 60 calendar days prior to selling or transferring the enrolled property to another entity, in order to provide the Cooperator the opportunity to secure the successor’s agreement to

continue the identified management activities. This Agreement and the Certificate of Inclusion can be transferred to the Partner's successors-in-interest and assigns with Service approval. Successors-in-interest and assigns will incur the responsibilities and benefits of this Agreement until the date of the termination unless the Agreement is terminated as specified above.

G. Neighboring Landowners. Neighboring landowners will be encouraged and given the opportunity to enroll in separate LCMAs to provide assurances and take authority in the event of Toad migration. Non-participating private landowners are not covered under the take permit associated with this Agreement. However, as a part of this Agreement and through the Service's internal section 7 consultation process and biological opinion, the U.S. Fish and Wildlife Service has evaluated the effects of current land use activities on the toad for enrolled lands, as well as the potential for the toad to disperse to neighboring lands and be affected by current land use activities on those properties. Based on this evaluation, the Service has identified that toads might be taken through trampling of livestock or by being caught in hay harvesting equipment on both enrolled and neighboring lands within 1 mile of the enrolled property. Therefore, if Wyoming toads disperse onto neighboring lands those landowners will not be liable for any take that occurs incidentally through their current land use activities. In addition, these landowners are under no obligation to participate in the Safe Harbor Agreement nor are they obligated to provide habitat for any toads above the current baseline condition of zero. Furthermore, neighbors will be sent information and a certified letter from the LRCD notifying them of the reintroduction attempt and that ongoing activities on the property that could cause the take of Toads has been addressed. The letter will include a self-addressed stamped postcard to mail back to the Service indicating that the letter and information were received and the landowner is aware of their coverages so long as the land use practices remain the same.

H. Renewal of this Agreement. At the conclusion of this agreement, and at any time before the incidental take authority provided through the Certificate of Inclusion expires, all Partners will have the option to--(1) renew with the current baseline (zero), (2) renew with a mutually agreed upon baseline above zero (indicated by acres of occupied wetlands), or (3) return the property to the original baseline and not renew this agreement.

I. Assurances. Once signed by all parties, no additional land use restrictions or financial compensation will be required of the Partner regardless of the Toad's status on the property. For example, if the Toad begins to do poorly, neither the Cooperator nor the Service can ask for more of the Partner. However, the Partner reserves the flexibility to undertake proactive or adaptive management in such circumstances and can request that this agreement be amended to reflect such changes in management activities. In the event that the Toad prospers on enrolled lands there will be no additional restrictions placed on the Partner. Incidental take has been addressed for neighboring lands. These assurances are provided consistent with 50 CFR Part 17 (regulations for enhancement of survival permits).

J. Applicable Regulations. The 10(a)(1)(A) permit to be issued is subject the 50 CFR Part 13 regulations (regulations for issuance of permits).

Wyoming Toad Safe Harbor Agreement
AGREED TO BY:

Partner

Cooperator

Date

Date

Partner's Name
Address
Phone

Laramie Rivers Conservation District
1050 N. 3rd Street
Laramie Wyoming 82070
(307) 721-0072

GUIDELINES FOR SELECTING WYOMING TOAD RELEASE SITES

Due to the presence of chytrid fungus (*Batrachochytrium dendrobatidis*) and the possibility of catastrophic events occurring at Mortenson Lake, locating new release sites for the Wyoming toad is a priority. In addition, more sites must be identified in order to achieve recovery goals.

The following guidelines were developed using the most current information available. Information was gained by reviewing historic data, current site data, wild Canadian toad (*Bufo hemiophrys*) and captive Wyoming toad data. New information regarding habitat selection and use will be gained as Toads are reintroduced into new areas. This information will be used to refine these guidelines.

These are to provide biological and ecological guidance when selecting new reintroduction sites. However, it is understood that these guidelines may not apply in every situation (i.e., drought). Therefore, the final decision will be based on the discretion of the Wyoming Toad Recovery Coordinator often in conjunction with the Wyoming Toad Recovery Team and technical advisory group.

The first consideration for a release site is that it is in Albany County, Wyoming. This may include all wetlands or wet areas suitable for Toad habitation within the county. The following also should be considered when deciding if a potential site might be suitable for release of captive Wyoming toads.

Soil Moisture Values of 2.0 – 3.6

Measurement: Soil moisture will be visually estimated using the 1-2-3-4 (dry-moist-saturated-standing water) scale of soil moisture.

Varying Vegetative Cover and Type

Given sufficient moisture, vegetative cover affects habitat suitability more than other indicators (Withers 1992). Any release site that is to be considered for future release of Wyoming toads should have open areas; areas of intermediate vegetation cover and dense vegetation cover (Withers 1992, Parker 2000). Metamorphosing toadlets and young of the year toadlets utilize open areas during the day. Open and intermediate areas near the shoreline are critical for breeding habitat. Furthermore, Toads of all age classes tend to favor areas that are more open in the fall. It is hypothesized that this is a response to declining ambient air temperatures and decreased sunlight (Withers 1992). These open areas were bordered by dense vegetation (Withers 1992). Conversely, it appears as though adult Wyoming toads seek refuge during the night in areas of relatively dense (<50 percent) cover (Parker 2000).

Eleocharis palustris and *Scirpus americanus* are the two dominant plants at calling and breeding sites (Withers 1992). It is unknown whether these species are required for Wyoming toads. However, plants with similar morphology should be available at

potential release sites. *E. paulustris* is small in diameter averaging 1-2 mm and standing no more than 40 cm high. *S. americanus* has a triangular stalk and may reach a maximum diameter of 7 mm with a maximum height of 90 cm (Withers 1992). No eggs masses were produced in areas that contained *S. validus* (softstem bulrush) although it is available in breeding areas.

Based on observations and plant measurements, the presence of narrow stemmed plants (diameter less than 7 mm) in the littoral zone is necessary. Low stem densities allow freer movement of amplexing Toads. In addition, this will allow more light to shallow areas where embryos develop. The rate at which embryos develop is directly related to temperature (Withers 1992).

Measurement: Horizontal cover can be estimated using the same techniques employed by Withers (1992) and Parker (2000) to maintain consistency. This is achieved by dividing the area into evenly spaced sections. Each of these sections will be randomly sampled. Cover will be estimated by visually centering a modified 20 x 50 Daubenmire quadrant centered on a given point. The quadrant is divided into 10 x 10-cm squares. The quadrant will be set over the sample by extending collapsible legs so that it is 28 cm above the ground. Cover will be estimated and recorded as a percentage for each square. The measurements will be made during late June through August.

Vertical cover also can be visually estimated. With the quadrant in place, a modified 50-cm Robel pole (3.5 x 3.5 x 60 cm, in 10 cm graduations) will be set vertically in the center of the quadrant and viewed from a distance of 25 cm from the quadrant's edge. Vertical cover was estimated for each of the five graduations to 50 cm above the substrate from both the north and south sides of the pole.

Plant diameter can be measured by using either calipers or a flexible tape measure. Plant height will be measured by using a flexible tape measure.

Water Chemistry

By reviewing historic water chemistry values at successful Wyoming toad sites and captive breeding facilities along with general amphibian water chemistry information, the following parameters were developed. As more water chemistry research is conducted, the ranges could change. In addition, more parameters should be set once water chemistry/metal toxicology tests are conducted.

pH range: 6.64-8.63
Conductivity: 100-1700 umhos/cm
Copper: <.01-.01 mg/L
Mercury: <.001
Lead: <.02 mg/L
Arsenic: <.01 mg/L
Phosphate: Less than 10 ppm
Ammonia: <.04 ppm
Nitrite: <.06 ppm
Nitrate: not to exceed 10 ppm
Hardness: not to exceed 350 ppm
Calcium hardness: to be less than total hardness
Alkalinity: 15-50 ppm
Free Chlorine: not to exceed 0 ppm
Total Chlorine: not to exceed 0 ppm
Iron: not to exceed 2 ppm

Measurement: Complete water chemistry tests will be ran twice using the Colorado State University Lab or another reputable analytical lab. If new labs are used, a copy of that labs Quality Assurance/Quality Control procedures should be obtained. One sample will be collected during early spring (April – May). This should reflect optimum chemistry/quality results as most lakes and other bodies of water are full during this time. Another sample should be taken during late summer (August - September). This sample will reflect how drought affects the water chemistry/quality. When possible, more than one sample should be taken at each sampling event. For example, samples collected at one site may include associated wetlands, littoral areas, and deeper areas that are utilized by tadpoles.

Other Water Characteristics

To accommodate breeding and egg laying, any proposed release site should have shallow margins. The site should have varying water depths beyond this. During the evening, tadpoles of many species will select areas of warmer water.

Available Hibernacula

Until more specific information is obtained, we will assume that Wyoming toads are hibernating in rodent burrows or areas of soft raised dirt, lacking vegetation (mima mounds). Candidate sites should contain rodent burrows or diggings in close proximity (within 15m) of the littoral areas (Withers 1992). In addition, the candidate site should be interspersed with rodent burrows, as they appear to offer summer refuge for the Toad.

Use of BTI as Sole Pesticide

Malathion has been shown to cause immunosuppressive effects to the Woodhouse's toad (Taylor et. al 1999). In addition, Malathion and other pesticides may reduce the toad's prey base. BTI (*Bacillus thuringensis var. israelensis*) has been an effective larvicide at Mortenson Lake and elsewhere throughout the State of Wyoming with no known side affects to non-target species.

Measurement: With landowner permission, this could be a condition of the Safe Harbor Agreement. If need be, pesticide strips could be placed on the property prior to mosquito spraying.

Preference should be given to sites that meet other criteria and upon screening of resident amphibians appears to be free of chytrid. However, sites that meet all other criteria should not be overlooked due to the presence of the fungus.

The status of the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) should be evaluated at all sites and preference will be given to sites that appear (to the best of our knowledge) free of chytrid. However, there is not enough information available regarding the life cycle and spread of chytrid fungus to totally rule out sites due to the presence of chytrid. There may be unique factors at Mortenson Lake that are making the Toads at that site more susceptible to chytridiomycosis. Furthermore, it is impossible at this time to definitively state whether a site is free from chytrid fungus.

Measurement: Until testing exists, that will make it possible to test the soil and water at a site, screening resident amphibians can aid in detecting chytrid. Resident amphibians can be evaluated for chytrid by two possible methods--a Polymerase Chain Reaction (PCR) test or through standard histological methods. A PCR test is currently available through Pisces Molecular in Fort Collins, Colorado. The test costs \$20/sample and requires very little tissue. Resident amphibians can be sampled by either submitting a toe clip or skin scraping sample. The skin scrape sample is the preferred non-lethal method of collection. All samples collected should be preserved in 70 percent ethanol. Amphibians also can be collected and sent to Dr. Allan Pessier for histologic chytrid detection. It is important to note that chytrid screening can give us an idea of what is happening at a particular site but will not make it possible to declare sites "chytrid free." Animals with low-level infections are hard to detect and may be overlooked. However, these methods can be used to rule out sites based on heavy infection detection.

Little information exists regarding possible dormancy phases and the life cycle. Therefore, use of sentinel animals may not provide accurate information. Furthermore, the method has not been fully evaluated yet. As more information is obtained, this method may be utilized to assist in determining the chytrid status of potential release sites.

Literature Cited

Parker, J.M. 2000. Habitat Use and Movement of the Wyoming Toad (*Bufo baxteri*): A Study of Wild Juvenile, Adult and Released Captive-Raised Toads. M.S., Department of Zoology and Physiology, University of Wyoming, Laramie.

Withers, D.I. 1992. The Wyoming Toad (*Bufo hemiophrys baxteri*): An Analysis of Habitat Use and Life History. M.S., Department of Zoology and Physiology, University of Wyoming, Laramie.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Mountain-Prairie Region

IN REPLY REFER TO:

ES/EPA
6-RO-94-F-006
MAIL STOP 60120

MAILING ADDRESS:

Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:

134 Union Blvd.
Lakewood, Colorado 80228

MAY 16 1994

Mr. William P. Yellowtail
Regional Administrator, Region VIII
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado 80202-2466

Dear Mr. Yellowtail:

This is the Fish and Wildlife Service's (Service) biological opinion prepared in response to the Environmental Protection Agency's (Agency) January 3, 1994, request for reinitiation of formal consultation in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended, on that portion of a previous biological opinion dated June 14, 1989, evaluating numerous pesticides and their potential effects to the endangered Wyoming toad (Bufo hemiophrys).

As outlined in the procedural regulations for interagency cooperation under section 7 of the Act (50 CFR 402.16), reinitiation of formal consultation is required and shall be requested by the Federal Agency or by the Service if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered. In light of the recent declines and the perilous status of the Wyoming toad, which the Agency and Service considers new information on the effects of the action, the Agency requested reinitiation of consultation. The Agency also has stated and the Service concurs that any registered home and garden uses, in accordance with pesticide labels, would not affect the Wyoming toad.

This biological opinion reexamines the continued application of the pesticides consulted on in the 1989 opinion in light of the recent declines of the Wyoming toad and supersedes the Wyoming toad portion of the 1989 opinion. In addition, it evaluates, as part of the proposed action, a Task Force Plan presented in Wyoming Governor Mike Sullivan's letter dated December 10, 1993, that was developed by the Wyoming Toad Task Force (Task Force) as an alternative to the one proposed by the Agency to minimize potential impacts to the Wyoming toad, while at the same time providing for reasonable and safe use of pesticides. This alternative includes several additional pesticides included in the Agency's December 1992 table of pesticide active ingredients (draft bulletins) not included in the 1989 biological opinion. The Task Force Plan included as enclosures (1) pesticide restrictions for the protection of the Wyoming toad, (2) draft protocol developed by the Service and the Wyoming Toad Recovery Group for searching for Wyoming toads, and (3) Wyoming toad/landowners' fact sheet.

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The Service has examined the action in accordance with the procedural regulations governing interagency cooperation under section 7 of the Act (50 CFR 402 and U.S.C. 1530 et seq.).

CONSULTATION HISTORY

In 1988, the Agency requested consultation on 108 pesticides on 164 listed species (primarily aquatic species), which resulted in the June 14, 1989, biological opinion. The pesticide uses in the vicinity of Wyoming toad habitat included control of mosquitoes and other insects on rangeland, alfalfa, and small grains (barley and oats). There is a high exposure potential to the Wyoming toad for any pesticides used in the above areas.

The Service's 1989 biological opinion indicated that 44 of the pesticides consulted on have the potential to impact the Wyoming toad through direct applications of pesticides, as well as through drift or runoff into the habitat. The Service determined that the use of 43 of the 44 pesticides evaluated was likely to jeopardize the continued existence of the Wyoming toad. This determination was based primarily on the species distribution, known use patterns, and hazard ratios of both fish and invertebrate species, as well as other factors such as persistence, bioaccumulation, and (in some cases) lack of sufficient information on one of the above factors. It was determined that one pesticide (acephate) may affect but not jeopardize the continued existence of the Wyoming toad.

In addition to the above-referenced 44 pesticides, it was determined that 15 other pesticides would not affect the Wyoming toad because there would not be any exposure to the toad. In other words, none of the known registered uses of those pesticides considered in the consultation are for uses that occur near Wyoming toad habitat.

PROPOSED ACTION

The proposed action is the continued registration of the 108 pesticides for which the Agency requested consultation in 1988. For purposes of this consultation pertaining to the Wyoming toad, the consultation includes the following 44 pesticides: acephate, aldicarb, atrazine, azinphos-methyl, benomyl, bifenox, captan, carbaryl, carbofuran, carbophenothion, chlorpyrifos, copper sulfate, diazinon, dimethoate, disulfoton, diuron, endosulfan, ethion, ethyl parathion, fenamiphos, fensulfothion, fenvalerate, fonofos, malathion, mancozeb, methidathion, methomyl, methyl parathion, mevinphos, naled, nitrapyrin, oxamyl, oxydemeton-methyl, pendimethalin, permethrin, phorate, propachlor, propargite, propazine, pyrethrin, terbufos, thiophanate-methyl, trichlorfon, and trifluralin.

Also included in the proposed action are the protection measures or actions of the Task Force. The Service has been working closely with the Task Force for over a year. The Task Force consists of a group of local residents in Albany County, Wyoming, and other State and Federal agency personnel that have worked to develop a Task Force Plan to protect and minimize impacts to the Wyoming toad resulting from the application of the pesticides consulted on in the 1989 opinion. This plan consists of the following major protection measures or actions:

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1. Protection from pesticides of known occupied habitat associated with the Lake George, Mortenson Lake, or any other Wyoming toad population(s) located.
2. Conduct searches in the future, in accordance with approved Service protocol, to facilitate the clearing of potential Wyoming toad habitat by the Service.
3. Refinement of the Wyoming toad habitat distribution map, implementation of a Geographical Information System to delineate potential habitat, and documentation of areas searched and areas declared cleared or occupied by the species.
4. Implementation of interim protective buffer zones developed by the Task Force for each specific pesticide (table 1 of the Task Force Plan) within potential Wyoming toad habitat until an area is declared cleared by the Service. Pesticide use would then be permitted in these areas in accordance with label restrictions. Buffer zones would be established in and around bodies of water and saturated soils (as defined by the Environmental Protection Agency Pesticide Notice 93-3) within potential toad habitat and would vary in size according to the toxicity of the pesticide on aquatic life and the mode of application.
5. Conduct/implement a public education program, including public meetings, to inform residents of the work and recommendations of the Task Force and measures to protect and recover the Wyoming toads.
6. Explore the effectiveness and cost of replacing malathion with biologically derived insecticides such as Bacillus thuringiensis (BTI).
7. Facilitate the Service and the Wyoming Toad Recovery Group efforts in the establishment of other toad populations (if an insufficient number of toad populations are not discovered) and the recovery of the Wyoming toad.

Because the Task Force addressed only the pesticides presented in the Agency's draft December 1992 table, it did not address five pesticides included in the 1989 biological opinion including acephate, bifenoxy, carbophenothion, fensulfothion, and propazine. The December 1992 table and the Task Force also addressed four pesticides that were not addressed in the 1989 biological opinion pertaining to the Wyoming toad. These pesticides included aluminum phosphide, enquik, fenthion, and fluridon. It is the intent of this opinion to include all of the above pesticides except for enquik. While there are a number of national registered uses of enquik that may occur in the State of Wyoming, there are no known uses of enquik within Albany County and based on the use information, it does not seem likely that enquik would ever be used legally within the county.

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Buffers provided in the 1989 biological opinion for bifenox, carbophenothion, fensulfothion, and propazine would remain in place because they were not addressed by the Task Force.

Prior to commencing with searches, training will be conducted for the searchers and will include but not be limited to: (1) a slide presentation of amphibians found within the historic range of the Wyoming toad, (2) training to identify the calls of the Wyoming toad and other amphibian species, (3) a slide presentation which describes suitable Wyoming toad habitat, (4) museum specimens of amphibians known to exist in the historic range of the Wyoming toad, (5) searchers will be tested for their ability to identify amphibians on sight and by their calls, and (6) precautionary measures to protect egg masses, tadpoles, and their habitat.

The draft protocol identifies two basic techniques that may be used to search for toad populations. These include: (1) the sweep searching procedure to locate calling male toads and breeding areas and (2) the flush searching procedure to locate tadpoles and all age groups of toads. While sweep searching for calling males is a very useful way to initially survey search a large area and locate breeding populations, it has limitations (e.g., weather conditions, timing, and possibly an insufficient number of males present to encourage calling); therefore, this procedure alone should not be used solely for "clearing" an area. Flush searches for young-of-the-year, juveniles, and adult toads would, in itself, constitute a "clearing" procedure, because it is more thorough and consistent.

STATUS OF SPECIES

The Wyoming toad was formerly common in Albany County, Wyoming, on the floodplain of the Big and Little Laramie Rivers and in irrigated regions in the Laramie Basin west of the city of Laramie. Habitats used by the Wyoming toad are primarily floodplain ponds, small ponds, and lakes produced by irrigation runoff, and small seepage lakes.

Adult toads appear at breeding sites in May after daytime temperatures reach 70 °F. Males appear first and attract females with their calls. Breeding takes place from mid-May to mid-June depending upon weather conditions. Eggs may hatch in less than 1 week depending on temperatures, and tadpoles are transformed into toadlets by 4 to 7 weeks following egg deposition. Larvae of the toad feed primarily on algae, while the adults are primarily insectivorous and opportunistic in their selection of food. Observations indicate that active foraging for food is not restricted to the night time.

During the mid-1970's, declines in both the toad's range and abundance were noted, and the species was classified as endangered in 1984 (Federal Register 49:1992-1994). Widespread spraying of insecticides to control mosquitoes, changes in agriculture practices, increased predation, disease, airborne pollutants, and climatic changes have been suggested as causes of the decline in numbers of the Wyoming toad. However, the actual cause of the decline is still unknown. This species was considered extinct (Lewis et al., 1985), until numbers of adults, juveniles, and larvae were located at Mortenson Lake, west of Laramie, in 1987. Despite continued

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searches of historical habitats, this population of Wyoming toads is still the only one currently known to occur naturally in the wild.

The long-range recovery goal for downlisting the species from endangered to threatened is to establish or maintain at least 5 additional populations, in addition to the Mortenson Lake population, of 100 breeding individuals within their former range. In 1992, reintroduction efforts were initiated at Lake George on the Hutton Lake National Wildlife Refuge, southwest of Laramie. Several other potential sites have been evaluated, but further coordination and landowner approval is needed prior to any reintroduction. Potential sites are located within the floodplains of the Big and Little Laramie Rivers and several other lakes in the basin that have similar characteristics to Mortenson Lake. Due to the sensitivity of the pesticide situation and to maintain support of willing landowners, the Service prefers not to disclose these areas at this time.

In 1990, a captive population of Wyoming toads was initiated using young-of-year toads from Mortenson Lake, and toads of this age class have been added each year since then. The captive population is now housed in three locations: the Wyoming Game and Fish Department facility at Sybille, Wyoming; the Henry Doorly Zoo in Omaha, Nebraska; and the Cheyenne Mountain Zoo in Colorado Springs, Colorado. In 1992, captive toads from the Sybille captive population bred successfully in outdoor pens (managed breeding) at the Lake George reintroduction site. This technique has shown promise. Good survival of the 1992 age class in the wild was documented this past field season. In 1993, the technique was tried again, but no toads bred in the wild. However, toads were bred and reared successfully in captivity at Sybille.

The Wyoming toad population at Mortenson Lake has been monitored annually since 1987. Reproduction by this population has been declining each year, and no reproduction occurred in 1992 and 1993. In addition to the declining reproduction, mortality of adult toads has been high. The Service's National Ecology Research Center and the University of Wyoming began estimating population size in 1990 using photographic mark-and-recapture estimation. Mortality of adult toads was greater than 80 percent between 1990 and 1992. Mortality of young-of-year toads between 1991 and 1992 may have been less than mortality of adults. Much of the mortality of adults may be attributable to a combination of "red-leg" disease caused by a bacteria (Aeromonas hydrophilia) and a fungal infection by Basidiobolus ranarum that has been observed in numerous toads in recent years. These infections have been fatal to all toads collected for treatment at the Wyoming State Veterinary Laboratory. However, the infections may be brought about by stress-related, immune suppression. Factors responsible for the stress are unknown.

EFFECTS OF THE ACTION

Based on the review of the most recent Pesticide Facts Sheets and the ecological effects toxicity data information provided by the Agency for the pesticides being consulted on, the Service's findings indicate the same threats or concerns exist as documented in our original 1989 biological opinion. Little or no toxicity data information on amphibians has been provided by the Agency, either during the original consultation or the

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reinitiation of consultation. The "Effects of the Action" were previously based on the toxicity of the pesticides to aquatic organisms and/or the toxicity of the pesticides to the food source (e.g., insects) of the Wyoming toad. However, given the recent decline and the precarious status of the Wyoming toad, use of these pesticides has an even greater potential to adversely affect the remaining toads than was considered in the original 1989 biological opinion.

The use of additional pesticides included in the Agency's December 1992 table and by the Task Force (aluminum phosphide, fenthion, and fluridone) also could adversely impact the Wyoming toad and lead to its extinction. Aluminum phosphide reacts with moisture or water to release phosphine gas which is highly toxic to a wide range of living organisms. Thus, it could adversely impact the Wyoming toad making use of rodent burrows during hibernation. Both fenthion and fluridone are toxic to aquatic organisms and, thus, could adversely affect the Wyoming toad as well as impact the food sources of the Wyoming toad (insects).

In addition, from further evaluation of acephate, it appears that this pesticide also could have an adverse impact on the Wyoming toad. The primary exposure of the Wyoming toad to acephate could result from its use on rangeland and pastures in Albany County. Acephate metabolizes into methamidophos. The "best scientific and commercial" data available to the Agency indicates moderate toxicity to fish and very high toxicity to aquatic invertebrates. The Agency provided no toxicity information on amphibians. It would appear likely that acephate would adversely impact the toad at the larvae stage, and because the adults eat primarily invertebrates (insects), the broad based application of acephate would adversely affect the species.

Cooperation and support of the community and the landowners are absolutely essential to ensure the survival and recovery of the Wyoming toad. The Task Force recommendations will greatly aid in the protection of this species in the long run, provided the Wyoming toad is immediately protected (e.g., the upcoming 1994 spray season and beyond); the Task Force does not clearly address this issue. Although searches would commence this year, it is uncertain when the protective measures of the Task Force Plan would be implemented. Wyoming Governor Sullivan's transmittal letter to the Agency indicated "the local committee was working under the assumption that they would have one year from the date of implementation of the Agency's endangered species rules and regulations before label restrictions would be implemented."

In order to implement a workable protective program for the Wyoming toad this field season, the Agency and Service met on April 15, 1994, with Governor Sullivan and his respective staff and Agency personnel, Albany County Commissioner Lou Schilt (who chairs the Task Force), and Mayor Amber Travsky of the city of Laramie. The outcome of this meeting was the acceptance and adoption of an accelerated implementation of the Task Force recommendations. These recommendations include:

1. Acceleration of survey efforts focusing initially on areas of highest priority or potential for toads.

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2. The Task Force immediately reconvenes to develop a plan to protect the Wyoming toad that would include a mix of protection measures, including the use of alternative chemicals (e.g., BTI) in areas where the toad may be found.
3. The Agency provides technical assistance and support for implementation of the Task Force Plan, including monetary/resource support for expediting searches.
4. The Service closely coordinates with the leaders of the search effort and pledges rapid processing of search review and clearance.
5. The mosquito control spray program could continue for another year in areas that do not have documented Wyoming toad populations.

BIOLOGICAL OPINION

Based on the above and the previous 1989 biological opinion, it is the Service's biological opinion that the continued use of the 44 pesticides, including acephate, is likely to jeopardize the continued existence of the Wyoming toad. It also is the Service's biological opinion that the use of the additional pesticides included in the Agency's December 1992 table and used by the Task Force, including aluminum phosphide, fenthion, and fluridone, is likely to jeopardize the continued existence of the Wyoming toad.

REASONABLE AND PRUDENT ALTERNATIVES

Regulations implementing section 7 of the Act define reasonable and prudent alternatives as alternative actions, identified during formal consultation that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the Federal Agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) would, the Service believes, avoid the likelihood of jeopardizing the continued existence of listed species.

The following reasonable and prudent alternatives must be implemented by the Agency to preclude jeopardy to the Wyoming toad.

1. The pesticide protective buffer zones from the Task Force Plan, plus those listed in Reasonable and Prudent Alternative 2, shall be implemented prior to the 1994 spray season and will continue in force. The Agency shall ensure, under emergency suspension authority or other means (such as agreements with landowners), the protection of habitat known to be occupied by the Wyoming toad from pesticide application and resulting drift and runoff. This includes habitat associated with known populations at Lake George and Mortenson Lake. In 1994, an accelerated survey program in priority habitat, identified by the Service, will be conducted to search for areas occupied by the Wyoming toad. This should result in searches of, at a minimum, the high quality habitat areas prior to any possible use of malathion for mosquito control. During the 1994 spray season, the Agency will provide protection to the additional areas where the Wyoming toad is located.

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In areas where surveys are completed and in areas where surveys are permitted to occur (e.g., landowner permission) but have not been completed (primarily marginal habitat) during the accelerated survey program, mosquito control with biological controls or pesticides that rapidly breakdown could occur during the 1994 spray season within the interim buffer zones in accordance to the label. The use of mosquito control agents covered under this biological opinion after 1994 shall not be applied unless the area has been flush searched in accordance with the protocol for searching for Wyoming toads and verified to be cleared of toads by the Service. In good to high potential toad habitat, before an area can be officially cleared by the Service, searches during 2 consecutive years may be needed.

2. The following buffers shall be observed for acephate, bifenthrin, carbofenthiol, fenitrothion, and propazine: 100 yards for hand application, 1/4 mile for ground application, and 1/2 mile for aerial application. These buffers are from the water's edge or from saturated soils within the potential habitat area.
3. The Agency shall ensure that, working cooperatively with the Task Force, State of Wyoming, Service, and landowners, a compliance program is implemented in 1995 and beyond to ensure the continued protection from the adverse effects of pesticides on the Wyoming toad. Areas to be included in the compliance program include all known occupied habitat, planned potential reintroduction sites, and areas of good to high potential toad habitat that have not been searched a second time and/or cleared by the Service. This effort must incorporate the compliance elements initiated in 1994.

The accelerated Task Force program calls for flush searches to begin around the first of June instead of June 20 as stated in the protocol. The June 20 search commencement date was recommended in order to avoid possible disturbance to toad egg masses. The Service believes that, with the training (including the emphasis on preventing disturbance of eggs masses) provided by the Service and other Recovery Group members and close supervision by searchers team leaders, adequate protection to egg masses can be assured during this period. This would accelerate the search efforts, and, if other toad populations are found, it would greatly facilitate the recovery effort for the species.

It is the Service's opinion that the implementation of the Task Force Plan, with the above modifications (reasonable and prudent alternatives) by the 1994 spray season, would preclude jeopardy. The Service believes that this is a reasonable approach and should not impose a significant burden on area pesticide users. Of the 44 pesticides being consulted on, the use of 42 is presently restricted by current labeling in and around water and saturated soils. Thus, because the current labels already restrict the use of these 42 pesticides in and around water, the Task Force recommended buffer zones should not significantly restrict their intended use. These pesticides could be used in accordance with label restrictions once an area has been cleared by the Service.

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With regard to the other two pesticides, copper sulfate and malathion, only the use of malathion would be significantly affected by the Task Force Plan. However, the Service believes it is possible to search most areas (e.g., high priority areas) where malathion may be used in the Laramie Plains area prior to the 1994 spray season. Priority for searches should depend on the quality of the habitat and if previous surveys have been conducted. With close coordination among the consultant doing the searches, the mosquito control districts, the Service, and the information obtained from past searches conducted by the Wyoming Toad Recovery Group and planned surveys funded through the Agency's Endangered Species Cooperation Agreement, the Service believes that it is possible to ensure, with a reasonable degree of certainty, that toad populations and their recovery would not be adversely affected by the application of malathion this spray season.

There may be a need to conduct some backup searches next year in marginal habitat not surveyed, as well as good to high potential toad habitat, before an area can be designated cleared by the Service. The potential also exists to use BTI or other biologically derived insecticides to control mosquitoes in areas that cannot be searched.

Because this biological opinion has found jeopardy, the Agency is required to notify the Service of its final decision on the implementation of the reasonable and prudent alternatives. Please notify the Field Supervisor of the Wyoming Ecological Services Field Office of the actions that the Agency takes to implement the reasonable and prudent alternatives.

Should the Agency fail to implement all or any part of the reasonable and prudent alternatives, please be apprised of the potential application of section 9 of the Act which prohibits knowingly taking listed species which includes harm, harass, capture, or collection. Courts have interpreted that: "A finding of 'harm' does not require death to individual members of the species; nor does it require a finding that habitat degradation is presently driving the species further toward extinction. Habitat destruction that prevents the recovery of the species by affecting essential behavioral patterns causes actual injury to the species and effects a taking under section 9 of the Endangered Species Act" (Palila v. Hawaii Department of Land and Natural Resources).

INCIDENTAL TAKE

Section 9 of the Endangered Species Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species with a special exemption. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the Agency action is not considered taking within the bounds of the Act provided that such taking is in compliance with the incidental take statement.

For the pesticides consulted on under the 1989 opinion, as well as aluminum phosphide, fenthion, and fluridon, if all of the actions outlined in the reasonable and prudent alternatives listed above are implemented and enforced, the Service does not anticipate that the use of these pesticides will result

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in any incidental take of the species. Accordingly, no incidental take is authorized. Should any incidental take occur where no incidental take is anticipated, the Agency must reinitiate consultation with the Service and provide the circumstances surrounding the take.

In order to be exempt from the prohibitions of section 9 of the Act, the Agency must comply with the requirement to implement the actions outlined under the reasonable and prudent alternatives.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal Agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or development information (50 CFR 402.14(j)).

The Service proposes the following conservation recommendations:

1. The Service highly recommends that the Agency work with the Task Force, Wyoming Toad Recovery Group, State of Wyoming, and Service in the replacement of malathion with a biological control alternative such as BTI in the future by local mosquito control districts, not only from the standpoint of their safety to amphibians and the environment, but in their efficiency in controlling mosquitoes by targeting larva stages.
2. The Agency should continue to assist the Task Force, Wyoming Toad Recovery Group, State of Wyoming, and Service in the implementation of a public education program to inform residents of the work and recommendations of the Task Force and measures to protect and recover the Wyoming toads.
3. Because the Wyoming toad may be very close to extinction, the Agency also should immediately begin the process of looking at all other pesticides not included in this opinion that are registered for uses that could be used in Albany County, Wyoming. If the Agency determines that any of these additional pesticides may affect the Wyoming toad, either directly or through their food source, the Agency should strongly consider interim protective measures or an emergency suspension through the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, and/or any other authorities until such time that formal consultation has been completed and a biological opinion issued.

CONCLUSION

This concludes consultation on the request to reinitiate formal consultation on that portion of a previous biological opinion dated June 14, 1989, evaluating pesticides and potential effects to the endangered Wyoming toad. Reinitiation of formal consultation is required if the amount or extent of

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incidental take is exceeded, if new information reveals effects of the action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion, if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or if a new species is listed or critical habitat designated that may be affected by the action.

The reasonable and prudent alternatives discuss the possible need to consider emergency suspension authority or other interim protective measures or means for immediate protection of the Wyoming toad. The Agency has requested that the Service provide a list of possible pesticides in the consultation that may require emergency suspension or other measures to protect the Wyoming toad. These measures should be applied to all of the pesticides considered in the biological opinion for which there is any possibility of use in or adjacent to Wyoming toad habitat. These pesticides include acephate, aluminum phosphide, atrazine, azinphos-methyl, benomyl, bifenox, captan, carbaryl, carbofuran, carbophenothion, chlorpyrifos, copper sulfate, diazinon, dimethoate, disulfoton, diuron, endosulfan, ethion, ethyl parathion, fenamiphos, fensulfothion, fenthion, fenvalerate, fluridon, fonofos, malathion, mancozeb, methidathion, methomyl, methyl parathion, mevinphos, naled, nitrapyrin, permethrin, phorate, propazine, pyrethrin, thiophanate-methyl, trichlorfon, and trifluralin. It is the Service's understanding from the Agency that aldicarb, oxamyl, oxydemeton-methyl, pendimethalin, propachlor, propargite, and terbufos are not, at the present time, registered for any uses that could occur in Albany County, Wyoming. This being the case, interim protective measures or emergency suspensions would not be needed to be considered for these 7 pesticides.

Your cooperation and assistance in meeting our joint responsibilities under the Endangered Species Act are appreciated. If you have any questions, please contact the Service's Wyoming Field Office at (307) 772-2374.

Sincerely,



Acting Deputy Regional Director

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REFERENCES

Lewis, D.L., G.T. Baxter, K.M. Johnson, and M.D. Stone. 1985. Possible extinction of the Wyoming toad, Bufo hemiophrys baxteri. J. Herpetology 19(1):166-168.

PESTICIDES ADDRESSED UNDER THIS AGREEMENT

The following pesticides are addressed under this Landowner Cooperative Management Agreement as long as label instructions are followed, buffers listed in Attachment A (FWS Biological Opinion on Pesticide use) are used, and they are used in accordance with all applicable laws and regulations. The pesticides are listed in alphabetical order by common chemical name.

Acephate	Dinoseb
Aldicarb	Diphenamid
Aluminum phosphide	Diquat dibromide
Aminocarb	Disulfoton (Disyston)
Aminopyridine (Avitrol)	Diuron
Amitrole	Endosulfan
Ammonium sulfamate	Endrin
Atrazine	EPN
Azinphos-methyl (Guthion)	EPTC
Benomyl	Ethion
Bensulide	Ethoprop
Bifenox	Ethyl parathion (Parathion)
Bifenthrin	Fenamiphos (Nemacur)
Bufencarb	Fenitrothion
Cacodylic acid (Dimethylarnic acid)	Fenoprop (Silvex)
Camphechlor (Toxaphene)	Fensulfothion (Dasanit)
Captan	Fenthion
Carbaryl	Fenvalerate (Pydrin)
Carbofuran	Fluchloralin
Carbophenothion	Flucythrinate
Chlorothalonil	Fonofos
Chlorpyrifos	Fosamine-ammonium
Cloethocarb	Gas cartridges
Clopyralid	Glyphosate
Copper sulfate, basic	Hexazinone
Cuprous oxide	Isofenphos (Oftanol)
Cypermethrin	Magnesium phosphide
2-4 D acid/ salts and esters	Malathion
Dalapon	Mancozeb
Dazomet (Mylone)	MCPA-thioethyl
Demeton	Methidathion
Diazinon	Methomyl
Dicamba/ Dimethylamine dicamba	Methoprene
Dichlobenil	Methoxychlor
Dichlorprop (2,4-UP)	Methyl parathion
Dichlorvos (DDVP)	Mevinphos (Phosdrin)
Dicofol (Kelthane)	Naled
Dicrotophos	Nitrapyrin
Diflubenzuron (Dimilin)	Oxamyl
Dimethoate	Oxydemeton-methyl (Metasystox-R)

Oxyfluorfen	Simazine
Paraquat dichloride	Sodium cyanide
Pendimethalin	SSS-tributyl phosphorothithioate (DEF)
Permethrin	Strychnine
Phorate	Sulprofos (Bolestar)
Phosmet	2,4,5-T
Phosphamidon	Tebuthiuron
Picloram/ Potassium picloram/ Triethylene picloram	Temophos
Profenofos (Curacron)	Terbufos
Profluralin	Terbutryn
Propachlor	Thiodicarb
Propargite	Thiophanate-methyl
Propazine	Trichlorfon
Pryethrin (Pyrethrum I)	Trifluralin
	Zinc phosphide