United States Department of the Interior

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March 20, 2007

Reply To: 8330.I0082(07)
File Name: APHIS Grasshopper suppression program 2007
TS Number: 07-917
TAILS: 13420-2007-I-0082
Doc Type: Final

Mr. Gary Brown
PPQ Officer
USDA, APHIS, PPQ
Airport Business Center
6135 N.E. 80th Avenue Suite A-5
Portland, Oregon 97218-4033

Subject: Concurrence on Effects Determination for Listed Species in Seventeen Counties of Eastern Oregon from USDA-Animal Plant Health Inspection Service (APHIS) Proposed Rangeland Grasshopper and Mormon Cricket Suppression Program

Dear Mr. Brown:

The U.S. Fish and Wildlife Service (Service) has reviewed your request for concurrence that the referenced action may affect but is not likely to adversely affect the federally threatened bald eagle (*Haliaeetus leucocephalus*); bull trout (*Salvelinus confluentus*); Lahonton cutthroat trout (*Oncorhynchus clarki henshawi*); Foskett speckled dace (*Rhinichthys osculus spp.*); Hutton tui chub (*Gila bicolor spp.*); Warner sucker (*Catostomus warnerensis*); Spalding's campion (*Silene spaldingii*); Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*); and the federally endangered Borax Lake chub (*Gila boraxobius*) and Malheur wire-lettuce (*Stephanomeria malheurensis*). Your request, with the attached biological assessment containing effects determinations for impacts to federally listed animals and plants, dated February 13, 2007, (USDA 2007) was received by us on February 20, 2007. The Service has reviewed your biological assessment requesting informal consultation. Our comments are provided in accordance with section 7 of the Endangered Species Act (87 stat. 884 as amended; 16 U.S.C. 1531 *et. seq.*).

APHIS has reached a no effect determination for the threatened Northern spotted owl (*Strix occidentalis caurina*), McFarlane's four o'clock (*Mirabilis mcfarlanei*), and Canada lynx (*Lynx canadensis*). The Service does not have any information indicating otherwise, therefore those species will not be considered further.

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Service Office Responsibility

The proposed action is a statewide program for grasshopper and Mormon cricket activities in the following counties of Oregon: Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Lake, Klamath, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, and Wheeler. All of these counties except Klamath County are within the area of responsibility of the Oregon State Fish and Wildlife Office in Portland. Klamath County is in the area of responsibility of the Klamath Falls Fish and Wildlife Office.

The Oregon Fish and Wildlife Office assigned the consultation duties for their portion of the consultation on this proposed action to the Bend Field Office, located in Bend, Oregon. As a result of this organization there will be two letters regarding consultation on this proposed action, one covering Klamath County, issued by the Klamath Falls Fish and Wildlife Office, and one covering the remaining seventeen counties identified previously, issued by the Bend Field Office.

Documents used in the consultation include: "2007 Biological Assessment for USDA APHIS Rangeland/Mormon Cricket Suppression Programs in Oregon" dated February 13, 2007; "2006 Biological Assessment for USDA APHIS Rangeland Grasshopper/Mormon Cricket Suppression Programs in Oregon" dated January 17, 2006; "Biological Assessment for Grasshopper Programs in Oregon, 2005" dated April 13, 2005; "Biological Assessment for 2004 Grasshopper Programs in Oregon" dated May 10, 2004; the "Biological Assessment for 2003 Grasshopper Programs in Oregon" dated May 6, 2003; "Site Specific Environmental Assessment Rangeland Grasshopper and Mormon Cricket Suppression Program, Oregon" dated April 16, 2005; "Site Specific Environmental Assessment Rangeland Grasshopper and Mormon Cricket Suppression Program, Oregon" dated March 8, 2004; "Site Specific Environmental Assessment Rangeland Grasshopper and Mormon Cricket Suppression Program, Oregon" dated April 4, 2003; the prospectus for pesticide application provided by APHIS; the "2002 Rangeland Grasshopper and Mormon Cricket Suppression Program Environmental Impact Statement" (EIS) dated October 15, 2002; and the biological opinion for APHIS's 1987 rangeland grasshopper cooperative management program.

Consultation History

In 1987, the Service completed a National programmatic biological opinion for APHIS's 1987 Rangeland Grasshopper Cooperative Management Program. Amendments to this biological opinion were conducted through 1995 for the purposes of adding newly listed and proposed species. Protective measures described in the biological opinion included buffers to protect threatened and endangered species from pesticide application. These buffers have been the basis for subsequent consultations.

On June 12, 2000, APHIS requested consultation on a crop protection grasshopper control program for that year. The Service provided a letter of concurrence dated July 31, 2000.

On May 23, 2001, APHIS requested consultation on the Rangeland Grasshopper cooperative management program in Baker County for that year. The Service provided a letter of concurrence dated July 17, 2001.

In 2002, APHIS prepared the "Rangeland Grasshopper and Mormon Cricket Suppression Program Environmental Impact Statement - 2002. APHIS did not request National formal consultation or submit a biological assessment to the Service for their 2002 EIS. In order to implement their 2002 grasshopper/cricket program in Oregon for 2003, APHIS opted to do an Oregon-specific consultation instead of waiting for the completion of a National programmatic biological opinion.

On February 1, 2003, APHIS signed a memorandum of understanding (MOU) with the Department of the Interior (USDI), for the management of grasshoppers/Mormon crickets on lands subject to the jurisdiction of Bureau of Land Management (BLM). The objective of the MOU is to define and maintain the relationships and responsibilities between APHIS and BLM in managing, and when necessary, suppressing grasshoppers/Mormon crickets on BLM-managed lands.

On February 18, 2003, APHIS sent a letter to the Oregon State Supervisor of the Service requesting "an informal exchange of Section 7 consultation information..." The request letter included a biological assessment, with attachments. The documents were reviewed and a meeting was arranged to discuss the consultation.

On April 2, 2003, a meeting was held in the Service's State Office in Portland. Details of the action, time lines, adequacy of the biological assessment, historical context of grasshopper outbreaks, buffers for listed species, and documentation were all discussed.

On May 7, 2003, APHIS sent a letter requesting consultation on the grasshopper control program for 18 counties of eastern Oregon for the 2003 season. The Service provided two letters of concurrence dated July 31, 2003, and August 8, 2003.

On May 10, 2004, APHIS sent a letter requesting consultation on the grasshopper control program for 18 counties of eastern Oregon for the 2004 season. On June 3, 2004, APHIS and the Service discussed via conference call, the final project description and protective measures for listed species. The Service provided a letter of concurrence dated June 10, 2004.

On April 14, 2005, APHIS sent a letter requesting consultation on the grasshopper control program for 18 counties of eastern Oregon for the 2005 season. The associated environmental assessment was sent by APHIS on April 21, 2005. The Service provided a letter of concurrence dated May 18, 2005.

On January 17, 2006, APHIS sent a letter requesting consultation on the grasshopper control program for 18 counties of eastern Oregon for the 2006 season. The associated environmental assessment was posted on the internet by APHIS on March 27, 2006. Additional information was provided via email messages from Gary Brown on March 7, 2006, April 27, 2006, and May 9, 2006.

On February 13, 2007, APHIS sent a letter requesting consultation on the grasshopper control program for 18 counties of eastern Oregon for the 2007 season. The associated environmental assessment was posted on the internet by APHIS on February 13, 2007.

Description of the Proposed Action

The proposed suppression program area addressed in this letter includes rangeland in the seventeen counties in eastern Oregon, excluding those areas to be avoided to prevent effects to listed species, as described by APHIS. Proposed suppression activities in Klamath County will be addressed by the Klamath Fish and Wildlife Office in a separate letter.

APHIS plans to conduct grasshopper and Mormon cricket suppression actions to protect rangeland from economic infestations when requested and provided funding is available during 2007. The chemical control methods available include the use of ultra low volume (ULV) sprays of carbaryl, diflubenzuron, and malathion, and carbaryl bait applied at conventional rates. Also considered is the application of these same chemicals at reduced rates, where untreated swaths (refuges) are alternated with treated swaths. This method is known as reduced agent area treatments (RAATs).

Conventional rates of carbaryl (0.5 pounds active ingredient [lbs. a.i.]/acre) and malathion (0.62 lbs. a.i./acre) are the same as those in the 1987 APHIS Final Environmental Impact Statement. Conventional rates for diflubenzuron are 0.016 lbs. a.i./acre. The RAATs system uses approximately half the concentration of each chemical as conventional rate applications, and is applied to 33-50% of the total area (USDA [FEIS] 2003d, pg 18-22).

Programmatic analysis of the suppression program has been described and evaluated in APHIS's 2002 Rangeland Grasshopper and Mormon Cricket Suppression Program EIS developed to support grasshopper/cricket suppression programs that could occur in 17 Western States (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming). Grasshopper/cricket outbreaks can compete with livestock for rangeland forage and cause damage to crops and rangeland ecosystems. Rather than opting for a specific proposed action from the alternatives presented, the 2002 EIS analyzes in detail the environmental impacts associated with each programmatic action alternative related to grasshopper/cricket suppression based on new information and technologies. The 2002 EIS superseded the 1987 Rangeland Grasshopper Cooperative Management Program EIS.

New technologies addressed in the 2002 EIS include diflubenzuron, which is a new insecticide, and a new chemical control method (RAATs), in which the rate of insecticide is reduced from conventional levels, and treated swaths are alternated with swaths that are not directly treated. Diflubenzuron is an insect growth regulator that affects the formation and/or deposition of chitin in an insect's exoskeleton. When an insect larva or nymph is exposed to diflubenzuron, the exoskeleton is weakened and the larva/nymph is unable to successfully molt, which results in death. The RAAT strategy relies on the effects of an insecticide to suppress grasshoppers/crickets within treated swaths while conserving grasshopper/cricket predators and parasites in swaths not directly treated.

The alternatives presented in the 2002 EIS were: 1) no action; 2) insecticide applications at conventional rates and complete area coverage; and 3) RAATs. Each of these alternatives, their control methods, and their potential impacts were described and analyzed in detail in the 2002 EIS. For the purposes of this consultation we will only address effects discussed in the biological assessment presented by APHIS.

Grasshopper suppression programs are generally conducted: 1) after Plant Protection and Quarantine's (PPQ) surveys show a level of grasshopper density that could economically and environmentally endanger rangeland on public land; 2) after a request by the State or Federal land manager; and 3) if sufficient funding is acquired from Congress.

The insecticides carbaryl, malathion, or diflubenzuron, would be applied at conventional rates and complete area coverage. Carbaryl and malathion are insecticides that have traditionally been used by APHIS, whereas diflubenzuron is a relatively new insecticide. These three insecticides are all currently registered for use and labeled by the U.S. Environmental Protection Agency for rangeland grasshopper treatments. All applications of these insecticides within the infested area by APHIS personnel would be conducted in strict adherence to the label directions. These insecticides could be applied aerially or by ground using the following application rates:

16 fluid ounces (0.50 lbs. active ingredient) of carbaryl spray per acre;
10 pounds (0.50 lbs. active ingredient) of 5 percent carbaryl bait per acre;
8 fluid ounces (0.62 lbs. active ingredient) of malathion per acre; or
1.0 fluid ounce (0.016 lbs. active ingredient) of diflubenzuron per acre.

Using the RAAT strategy for treatment, carbaryl, malathion, or diflubenzuron would be considered under the following application rates:

8.0 fluid ounces (0.25 lbs. of active ingredient) of carbaryl spray per acre;
10.0 pounds (0.20 lbs. of active ingredient.) of 2 percent carbaryl bait per acre;
4.0 fluid ounces (0.31 lbs. of active ingredient) of malathion per acre; or
0.75 fluid ounce (0.012 lbs. of active ingredient) of diflubenzuron per acre.

The area not directly treated (the untreated swath) under the RAAT approach is not standardized. In the past, the area infested with grasshoppers/crickets that remains untreated has ranged from 20 to 67 percent. Rather than suppress grasshopper/cricket populations to the greatest extent possible, the goal of RAAT is to suppress grasshopper/cricket populations to a desired level.

The density of eight adult grasshoppers/crickets per square yard is used as the minimum population at which a control program is considered. In response to requests for treatment, APHIS would determine if an infestation of an economically critical level (eight or more grasshoppers/crickets per square yard) were present in the area of concern. Appropriate treatment would then be determined, taking into account site-specific environmental factors.

Project Design Features, Avoidance, and Mitigation Measures to Reduce Effects

APHIS has proposed several project design features to reduce the potential adverse effects of the action to listed species. These features are largely in the form of buffers around known listed species habitats and are described in the 1987 biological opinion (USDI 1987). Many of these buffers have been carried forward from earlier consultations and were determined by APHIS to result in impacts that were not likely to adversely affect listed species.

The proposed protective measures for species present in eastern Oregon are shown in Table 1 and are taken from a combination of the 1987 biological opinion (USDI 1987), the 2003, 2004,

and 2005 biological assessments (USDA 2003b, 2004b, and 2005b), April 14, 2003 email, phone conversation on June 3, 2004, and May 9, 2006, email, from Gary Brown, APHIS PPQ officer.

Table 1. Grasshopper and Mormon cricket suppression program protection measures and determinations for threatened and endangered species.

Species, Status, and Determination	**Protective Measures**
Canada Lynx (T) (*Lynx Canadensis*) no effect (NE)	Treatment will occur in rangeland habitats. Lynx typically occupy non-rangeland habitats. Known ranges and travel corridors in Oregon will not be treated.
Bald eagle (T) (*Haliaeetus leucocephalus*) Not likely to adversely affect (NLAA)	Maintain a 1-mile radius treatment-free zone around active bald eagle aeries with no flyovers of this area by aircraft. A 2.5 mile no-aerial application zone (liquid and bait) will be maintained upstream and downstream from nest sites found along streams as a forage area. This will include a 0.25 mile buffer along each side of the streams and lakes which are foraging areas of the bald eagle.
Northern spotted owl (T) (*Strix occidentalis caurin*) (NE)	Treatment will occur in rangeland habitats. Spotted Owls typically inhabit old growth forest. Known ranges in Oregon will not be treated.
Warner sucker (T) (*Catostomus warnerensis*) (NLAA)	The proposed action includes a protective, (no application of pesticides liquid and bait) buffer from the edge of the stream or water body containing standing or flowing water at the time of application, out to one half of one mile for aerial application of pesticides diflubenzuron, carbaryl, and malathion; and a protective buffer of five hundred feet for ground application. The protective buffers will be applied for habitats occupied by ESA listed fish species including Warner sucker, Hutton tui chub, Borax Lake chub, Lahontan cutthroat trout, Foskett speckled dace, and bull trout. Areas to be buffered are those areas adjacent to habitat occupied by the species or adjacent to aquatic habitat designated as critical habitat for the listed species.
Hutton tui chub (T) (*Gila bicolor* ssp.) (NLAA)	
Borax Lake chub (E) (*Gila boraxobius*) (NLAA)	
Lahontan cutthroat trout (T) (*Oncorhynchus clarki henshawi*) (NLAA)	
Foskett speckled dace (T) (*Rhinichthys osculus* ssp.) (NLAA)	
Bull trout (T) (*Salvelinus confluentus*) (NLAA)	
McFarlane's four o'clock (T) (*Mirabilis mcfarlanei*) (NE)	No control will occur in the Snake River Canyon habitat of this species. (FWS 06/01/87)
Spalding's campion (T) (*Silene spaldingii*) (NLAA)	Aerial applications of pesticides of liquid pesticides will not be used within 3 miles of

Malheur wire-lettuce (E) (*Stephanomeria malheurensis*) (NLAA)	these species occupied habitats. Within the 3 mile buffer, only carbaryl bran bait will be used. No ground bait application within 50 feet of known locations or critical habitat.
Howell's spectacular thelypody (T) (*Thelypodium howellii* ssp. *Spectabilis*) (NLAA)	

Monitoring

APHIS developed an Environmental Monitoring Plan (EMP) for the 2007 grasshopper suppression program. The document was prepared by the APHIS Environmental Monitoring Team and is briefly discussed in the February 13, 2007, Environmental Assessments for Rangeland Grasshopper and Mormon Cricket Suppression Program for Oregon (USDA 2007a). It revolves around three aspects: 1) efficacy of treatment; 2) human safety; and 3) the environment. Monitoring methods include collecting dye card, water and vegetation samples for assessment of product drift. Emphasis is on determining the fate of suppression products in the environment and determining the effectiveness of avoidance buffers for listed species and the environmental fate of suppression products. Monitoring of degradation of product, movement within soil, transport to or within water bodies, and vector transport from sprayed area to non-target areas should be considered. A copy of the report will be sent to the Service.

Effects to the Species

The potential environmental effects of application of carbaryl, diflubenzuron, and malathion are discussed in detail in the 2002 EIS (Environmental Consequences of Alternatives, pp. 29–71) (USDA 2003d), and in the 2007 Site-Specific Environmental Assessment for Rangeland Grasshopper and Mormon Cricket Suppression Program in Oregon (USDA 2007a).

The buffers are mandatory as part of the proposed action and are designed to avoid contamination of listed species habitat. APHIS believes the buffers reduce or eliminate the potential for direct exposure of the listed species and reduce the chance of indirect effects being substantial enough to adversely affect the listed species. The buffers were not derived by specific impact/distance data but are based on some field tests demonstrating the absence of detectable levels of chemical or levels below a threshold of concern, outside the buffers.

APHIS's determination is that the project design features reduce the potential effects of the action to the point that those effects are insignificant or the probability of any adverse effect is discountable and therefore the project may affect but is not likely to adversely affect the listed species.

Conclusion

The Service reviewed the project described in the Assessment in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act). Based on the Service's review of the biological assessment, and environmental assessment, we concur with APHIS's determination that grasshopper suppression actions proposed for 2007 in seventeen counties of eastern Oregon

(described previously) may affect, but are not likely to adversely affect the federally listed threatened bald eagle (*Haliaeetus leucocephalus*); bull trout (*Salvelinus confluentus*); Lahonton cutthroat trout (*Oncorhynchus clarki henshawi*); Foskett speckled dace (*Rhinichthys osculus spp.*); Hutton tui chub (*Gila bicolor spp.*); Warner sucker (*Catostomus warnerensis*); Spalding's campion (*Silene spaldingii*); Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*); and the federally endangered Borax Lake chub (*Gila boraxobius*) and Malheur wire-lettuce (*Stephanomeria malheurensis*).

Our concurrence with your "not likely to adversely affect" determination for threatened and endangered species is based on the aforementioned conservation measures that will be incorporated into the action. We also considered the following factors as described in the proposed action.

1. All applicable Federal, State, Tribal, and local environmental laws and regulations will be followed in conducting suppression activities.

2. Information displayed in the biological assessment and environmental assessment on effects from application of diflubenzuron, carbaryl, and malathion support the conclusion that adverse effects to listed species are avoided under the proposed action. Table 1 and Table 2 of the 2007 environmental assessment for grasshopper suppression activities conducted by APHIS summarize the effects of the application and protective measures to be used in application of the three pesticides proposed for use. APHIS has restricted insecticide applications such that indirect effects to proposed and listed species and their habitats will be insignificant and discountable.

3. APHIS will avoid applying pesticides in areas of known or potential Endangered Species Act listed species habitat to reduce direct and indirect effects consistent with Table 1 of this letter. Potential indirect effects described in the assessment include reductions in insect prey for local populations of birds, impacts to aquatic environments, and effects on plant productivity from reductions in non-target pollinator insect populations.

4. Pesticides will not be applied in areas known to have a high water table, or where sub surface leaching is likely. Carbaryl bait will not be applied within 500 feet of any flowing water which contains Endangered Species Act listed species at any time. Known migratory habitats would be treated as occupied habitat unless otherwise directed by the Service prior to treatment.

5. Aerial spray applications of malathion, carbaryl, or diflubenzuron will not occur within 0.5 miles of any flowing or standing water which contains Endangered Species Act listed species at any time. Ground application of malathion, carbaryl, or diflubenzuron will not occur within 500 feet of any flowing or standing water which contains Endangered Species Act listed species at any time. Known migratory habitats would be treated as occupied habitat unless otherwise directed by the Service prior to treatment. Aerial application of pesticides will not occur when winds exceed 10 miles per hour. To avoid drift and volatilization, aerial application of pesticides will not be conducted when it is raining or rain is imminent, when foliage is wet, when it is foggy, when temperature exceeds 80 degrees Fahrenheit, when there is air turbulence, or when a temperature inversion exists in the project area. Boundaries and buffers will be clearly marked.

Aircraft used in aerial application will be equipped with systems to prevent nozzle dribble when the spray mechanism is disabled and emergency shut off valves to minimize pesticide loss in the event of broken lines, or system malfunctions. For spray applications, all equipment and specifications related to nozzle types, spray pressure, and nozzle orientation will adhere to the 2006 prospectus (USDA 2006a).

6. All mixing and loading will be done in approved areas where spills cannot enter any body of water. All pesticide tanks will be leak proof and constructed of corrosion resistant materials. Aircraft used in aerial application will be equipped with APHIS-approved differentially corrected global positioning systems that guide pilots along desired flight paths with an accuracy of plus or minus three feet. Free flying will not be allowed.

7. APHIS will monitor insecticide applications and will document compliance with the assessment's protective measures. Emphasis should be on determining the effectiveness of avoidance buffers for listed species including indirect affects to prey animals and indirect transportation of insecticide products to non-target areas, including water bodies. This information will be provided to the Service.

8. APHIS will notify the Service before any application of pesticide to determine the location of any listed or proposed threatened or endangered listed species.

This concurrence is based on APHIS implementation of the avoidance/mitigation measures outlined above. To assist in future consultations we request that you provide our office a summary of your environmental monitoring activities conducted each year in which suppression activities are conducted. We would like to receive this summary prior to initiation of your next grasshopper/cricket suppression activity.

This informal consultation does not exempt APHIS from the prohibition of take under section 7(o)2 of the Act for any of the 13 federally listed species listed above. This informal consultation may be superseded by a future National programmatic consultation and covers only those activities carried out in 2007. APHIS should consult with the Service if the proposed action or habitat conditions are changed; a new species is listed or proposed; new information reveals effects of the agency action on listed/proposed species that were not addressed in this consultation; or if critical habitat is designated that may be affected by the actions. This concludes informal consultation on the proposed actions outlined in the 2007 APHIS Biological Assessment in accordance with the Act.

The proposed action requires further coordination to inform the Service of spray activities in areas of any listed or proposed threatened or endangered listed species. If you have any questions regarding this informal consultation, please contact me or Alan Mauer at (541) 383-7146.

Sincerely,

Nancy Gilbert

Nancy Gilbert
Field Supervisor

cc: Chip Dale, ODFW, Bend, Or.
Craig Ely, ODFW, LaGrande, Or.
Don Steffeck FWS, Portland Or.
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Laurie Sada, FWS, Reno, Nv.
Susan Burch, FWS, Boise, Id.
Trisha Roninger, FWS, Klamath Falls, Or.
Daniel Brown, FWS, Regional Office, Portland, Or.

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