UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

June 16, 2008

MEMORANDUM

SUBJECT: Effects Determinations for Propargite Relative to the California Red-Legged Frog and Designated Critical Habitat

FROM: Christine Hartless, PhD, Wildlife Biologist 6-16-08
ERB I
Environmental Fate and Effects Division

TO: Arthur-Jean B. Williams, Associate Director
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Attached is the assessment of potential direct and indirect effects to the California red-legged frog (CRLF) and potential modification to designated critical habitat from uses of the insecticide, propargite. While the Endangered Species Act requires we assess uses of pesticides relative to any potentially affected listed species, this assessment focuses only on the CRLF, including designated critical habitat, addressing provisions of a settlement agreement entered into by the federal government to resolve claims made by plaintiffs against EPA in a court case (CBD v. EPA[1]).

The attached assessment was conducted consistent with the Agency's Overview Document[2]. Effects determinations for this assessment are as follows below.

Based on the best available information, the Agency makes a Likely to Adversely Affect determination for the CRLF from the use of propargite. Additionally, the Agency has determined that there is the potential for modification of CRLF designated critical habitat from the use of the chemical. These determinations are based on: 1) direct effects to the CRLF and 2) adverse effects expected to the prey base of the aquatic and terrestrial-phase CRLF for all the modeled uses. A summary of the risk conclusions and effects determinations for the CRLF and its critical habitat is presented in **Tables 1 and 2**. Use-specific determinations for direct and indirect effects to the CRLF are provided in the executive summary of the attached assessment in **Tables 1.3 and 1.4**. Further information on the results of the effects determination is included as part of the Risk Description in Section 5.2 of the attached assessment.

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[1] Settlement agreement of October 20, 2006: Center for Biological Diversity v. United States Environmental Protection Agency. Civ. No: 02-1580-JSW(JL)).

[2] Overview of the Ecological Risk Assessment: Process in the Office of Pesticide Programs, U.S. Environmental Protection Agency: Endangered and Threatened Species Effects Determinations: January 23, 2004.

Table 1. Effects Determination Summary for Direct and Indirect Effects of Propargite on the CRLF		
Assessment Endpoint	**Effects Determination[1]**	**Basis for Determination**
Aquatic-Phase CRLF (Eggs, Larvae, and Adults)		
Direct Effects: Survival, growth, and reproduction of CRLF individuals via direct effects on aquatic-phases	LAA	The LOC is exceeded for all uses except tree nut and tree fruit based on the modeled estimated environmental concentrations (EECs) and for all uses based on the monitored maximum concentrations. In addition, there are several other lines of evidence discussed in the risk description sec. 5.2.1.1
Indirect Effects: Survival, growth, and reproduction of CRLF individuals via effects to food supply (*i.e.,* freshwater invertebrates, non-vascular plants, fish, and frogs)	Freshwater invertebrates: NLAA	The effect on the CRLF is discountable as only a small percentage of the aquatic invertebrate prey will be acutely affected based on the results of the probit analysis.
	Non-vascular aquatic plants: NE	There are no LOC exceedances for risk to non-vascular aquatic plants for any of the modeled uses.
	Fish and frogs: LAA	The LOC is exceeded for all uses except jojoba based on the modeled EECs and for all uses based on the maximum concentration from available monitoring data
Indirect Effects: Survival, growth, and reproduction of CRLF individuals via indirect effects on habitat, cover, and/or primary productivity (*i.e.,* aquatic plant community)	Non-vascular aquatic plants: NE	There are no LOC exceedances for any of the modeled uses.
	Vascular aquatic plants: NE	There are no LOC exceedances for risk to vascular aquatic plants for any of the modeled uses.
Indirect Effects: Survival, growth, and reproduction of CRLF individuals via effects to riparian vegetation, required to maintain acceptable water quality and habitat in ponds and streams comprising the species' current range.	NE	There are no LOC exeedances for risk to terrestrial plants.
Terrestrial-Phase CRLF (Juveniles and adults)		
Direct Effects: Survival, growth, and reproduction of CRLF individuals via direct effects on terrestrial-phase adults and juveniles (based on most sensitive toxicity data for birds)	LAA	Based on the RQ calculations from both the T-REX and T-HERPS models, there are LOC exceedances for risk to the terrestrial-phase CRLF for all the modeled uses except jojoba, sorghum, and other ornamentals. Additionally since there are a multitude of use patterns of propargite that could potentially overlap the habitat of the CRLF, the terrestrial-phase CRLF may potentially be exposed to modeled propargite concentrations that will cause the Agency LOC to be exceeded.
Indirect Effects: Survival, growth, and reproduction of CRLF individuals via effects on prey (*i.e.,* terrestrial invertebrates, small terrestrial vertebrates, including mammals and terrestrial-phase amphibians)	Terrestrial invertebrates: LAA	Based on the RQ calculations, there are LOC exceedances for risk to terrestrial invertebrate insect prey of the terrestrial-phase CRLF for all the modeled uses. Additionally since there are a multitude of use patterns of propargite that may potentially overlap the habitat of the CRLF, the terrestrial invertebrate prey may potentially be exposed to modeled propargite concentrations that will cause the Agency LOC to be exceeded.

Table 1. Effects Determination Summary for Direct and Indirect Effects of Propargite on the CRLF		
Assessment Endpoint	**Effects Determination[1]**	**Basis for Determination**
	Mammals: LAA	Based on the RQ calculations, there are LOC exceedances for risk to mammalian prey of the terrestrial-phase CRLF for all the modeled uses. Additionally since there are a multitude of use patterns of propargite that may potentially overlap the habitat of the CRLF, the mammalian prey may potentially be exposed to modeled propargite concentrations that will cause the Agency LOC to be exceeded.
	Frogs: LAA	Based on the RQ calculations from both the T-REX and T-HERPS models, there are LOC exceedances for risk to frog prey of the terrestrial-phase CRLF for all the modeled uses. Additionally since there are a multitude of use patterns of propargite that may potentially overlap the habitat of the CRLF, frog prey of the terrestrial-phase CRLF may potentially be exposed to modeled propargite concentrations that will cause the Agency LOC to be exceeded.
Indirect Effects: Survival, growth, and reproduction of CRLF individuals via indirect effects on habitat (*i.e.*, riparian vegetation)	NE	There are no LOC exeedances for risk to terrestrial plants.
[1] NE = no effect; NLAA = may affect, but not likely to adversely affect; LAA = likely to adversely affect.		

Table 2 Effects Determination Summary for the Critical Habitat Impact Analysis		
Assessment Endpoint	**Effects Determination[1]**	**Basis for Determination**
Aquatic-Phase CRLF PCEs (Aquatic Breeding Habitat and Aquatic Non-Breeding Habitat)		
Alteration of channel/pond morphology or geometry and/or increase in sediment deposition within the stream channel or pond: aquatic habitat (including riparian vegetation) provides for shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult CRLFs.	NHM	There are no LOC exeedances for risk to terrestrial plants.
Alteration in water chemistry/quality including temperature, turbidity, and oxygen content necessary for normal growth and viability of juvenile and adult CRLFs and their food source.[3]	NHM	There are no LOC exceedances for risk to non-vascular or vascular aquatic plants for any of the modeled uses.
Alteration of other chemical characteristics necessary for normal growth and viability of CRLFs and their food source.	HM	There are LOC exceedances for all the modeled uses for all the prey of the aquatic-phase of the CRLF.
Reduction and/or modification of aquatic-based food sources for pre-metamorphs (*e.g.*, algae).	NHM	There are no LOC exceedances for risk to aquatic non-vascular plants (algae).
Terrestrial-Phase CRLF PCEs (Upland Habitat and Dispersal Habitat)		

[3] Physico-chemical water quality parameters such as salinity, pH, and hardness are not evaluated because these processes are not biologically mediated and, therefore, are not relevant to the endpoints included in this assessment.

Table 2 Effects Determination Summary for the Critical Habitat Impact Analysis		
Assessment Endpoint	**Effects Determination[1]**	**Basis for Determination**
Elimination and/or disturbance of upland habitat; ability of habitat to support food source of CRLFs: Upland areas within 200 ft of the edge of the riparian vegetation or dripline surrounding aquatic and riparian habitat that are comprised of grasslands, woodlands, and/or wetland/riparian plant species that provide the CRLF shelter, forage, and predator avoidance.	NHM	There are no LOC exeedances for risk to terrestrial plants.
Elimination and/or disturbance of dispersal habitat: Upland or riparian dispersal habitat within designated units and between occupied locations within 0.7 mi of each other that allow for movement between sites including both natural and altered sites which do not contain barriers to dispersal.	NHM	
Reduction and/or modification of food sources for terrestrial-phase juveniles and adults.	HM	There are LOC exceedances for all the modeled uses for all terrestrial-phase CRLF food items including mammals, frogs, and terrestrial insects.
Alteration of chemical characteristics necessary for normal growth and viability of juvenile and adult CRLFs and their food sources.	HM	There are LOC exceedances for all the modeled uses for all terrestrial-phase CRLF food items including mammals, frogs, and terrestrial insects.
[1] NHM = No habitat modification HM = habitat modification		

As required by the Alternative Consultation Agreement EPA entered into with the U.S. Fish and Wildlife Service and National Marine Fisheries Service (Services), I have been trained by the Services to make such determinations.

Please let me know if you have any questions regarding this assessment and effects determination for Propargite relative to the CRLF and its designated critical habitat.

cc: Don Brady
Debbie Edwards

Attachments