



2. The Center for Biological Diversity (“CBD”) and Save Our Springs Alliance (“SOS Alliance”) seek an order declaring that EPA has violated Sections 7(a)(2) and 7(a)(1) of the ESA by failing to undergo consultation with FWS concerning pesticide use and its effect on the Barton Springs salamander and by failing to use their authority to carry out programs to preserve this declining species.

3. CBD and SOS Alliance seek an order compelling EPA to begin and complete the consultation process as required by Section 7(a)(2) of the ESA and to utilize its authority to promote conservation programs for the benefit of the endangered Barton Springs salamander as required by Section 7(a)(1) of the ESA. CBD and SOS Alliance also seek an order enjoining EPA from allowing pesticide uses that result in pesticides entering the Barton Springs watershed until the consultation process has been completed and EPA has brought its pesticide registrations into compliance with Section 7(a)(2).

## **II. JURISDICTION, NOTICE AND VENUE**

4. This Court has jurisdiction pursuant to the ESA citizen suit provision, 16 U.S.C. § 1540(g), to enjoin violations of the ESA and its implementing regulations.

5. As required by the ESA, 16 U.S.C. § 1540(g)(2)(A), EPA was provided with 60 days’ notice of intent to sue by letter sent to EPA on September 22, 2003. This 60-day notice letter was received by EPA on September 29, 2003, and by Secretary Gale Norton on September 30, 2003.

6. EPA has not remedied the violations set out in the 60-day notice.

7. Venue is properly vested in this court pursuant to 28 U.S.C. § 1391(e), as the Defendants reside in the District of Columbia.

### III. PARTIES

8. Plaintiff CENTER FOR BIOLOGICAL DIVERSITY is a non-profit corporation with offices in Berkeley, Idyllwild, and San Diego, California; Sitka, Alaska; Portland, Oregon; Buxton, North Carolina; Pinos Altos, New Mexico; and Tucson and Phoenix, Arizona. CBD is actively involved in species and habitat protection issues throughout the continental United States, northern Mexico, Alaska, Hawaii, and outside of the United States. CBD has 9,000 members that live throughout these regions, including near Barton Springs. CBD and its members and staff include local residents with educational, moral, spiritual, scientific, and recreational interests in the Barton Springs salamander. CBD and its members and staff also enjoy the biological, recreational, and aesthetic values of the areas inhabited by the species. CBD and its members and staff have participated in efforts to protect and preserve the Barton Springs salamander. CBD is also involved in efforts to protect other amphibian species throughout the country. CBD brings this action on its own behalf and on behalf of its adversely affected members and staff.

9. Plaintiff SAVE OUR SPRINGS ALLIANCE, INC. is a non-profit, public interest corporation. The mission of the SOS Alliance includes the protection and enjoyment of Barton Springs, the Barton Springs Edwards Aquifer, the Barton Springs watershed and the Barton Springs ecosystem, including its resident fish, amphibian, wildlife, human, and plant populations. SOS Alliance represents its Board members and approximately 2,000 regular members. Some of these members live in the Barton Springs watershed. Some members enjoy swimming, walking, hiking and other outdoor activities in the Barton Springs watershed. Some members obtain aesthetic pleasure and

spiritual satisfaction from regularly observing and studying the flora and fauna of the Barton Springs ecosystem, including the federally listed “endangered” Barton Springs salamander and will continue to do so on a regular basis. Many SOS Alliance members regularly swim in Barton Springs and gain satisfaction and enjoyment in sharing the waters of Barton Springs with the salamander and other species that are sensitive to pollution and will continue to do so on a regular basis. These members are injured, and will continue to be injured, by the direct and indirect adverse impacts that the EPA-registered pesticides have on the salamander and the ecosystem upon which it depends for its existence. SOS Alliance’s interests are currently impaired and will continue to be impaired by uses of pesticides that harm the Barton Springs salamander.

10. Plaintiffs’ members use and enjoy the Barton Springs for recreational, scientific, educational, moral, spiritual, and aesthetic purposes. Plaintiffs’ members derive recreational, scientific, educational, moral, spiritual, and aesthetic benefits from the existence in the wild of the Barton Springs salamander listed through wildlife observation, study, photography, and spiritual benefit of sharing the springs with the salamander. The past, present, and future enjoyment of these benefits by plaintiffs’ members has been, is being, and will continue to be irreparably harmed by EPA’s disregard of its statutory duties. The above-described educational, moral, spiritual, scientific, recreational, and aesthetic interests of Plaintiff organizations, staff, and members have been adversely affected by the EPA’s failure to comply with the ESA and continual registration and authorization of pesticides harmful to the species. Unless the relief requested is granted, Plaintiffs’ interests will continue to be adversely affected and

injured by the failure to consult and the continual commitment of resources and take of the Barton Springs salamander.

11. Defendant ENVIRONMENTAL PROTECTION AGENCY (“EPA”) is the federal agency charged with registering pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”) and with ensuring that the pesticide uses it authorizes will not have unreasonable adverse effects on the environment, including on threatened and endangered species and their habitat. 7 U.S.C. §§ 136-136y. EPA also has duties to regulate and restrict pesticide uses under the Federal Food, Drug, and Cosmetic Act, as amended by the Food Quality Protection Act, 21 U.S.C. §§ 307-397. EPA is further charged with complying with the ESA with respect to its programs, authorities, and actions. 16 U.S.C. § 1536.

12. Defendant MICHAEL LEAVITT is the Administrator of EPA. He is sued in his official capacity as EPA Administrator.

#### **IV. LEGAL BACKGROUND**

##### **A. THE ENDANGERED SPECIES ACT**

13. When a species has been listed as threatened or endangered under the ESA, federal agencies have duties under the Act to assess and bring their programs and activities into compliance with the Act.

14. Section 7(a)(2) of the ESA requires that “each federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an ‘agency action’) is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse

modification of habitat of such species which is determined by the [FWS]. . . to be critical.” 16 U.S.C. § 1536(a)(2).

15. The Act establishes an interagency consultation process to assist federal agencies in complying with their Section 7(a)(2) duty to guard against jeopardy to listed species or destruction or adverse modification of critical habitat. Under § 7(a)(2), federal agencies must consult with FWS to determine whether their actions will jeopardize listed species’ survival or adversely modify designated critical habitat and if so, to identify ways to modify the action to avoid that result. 50 C.F.R. § 402.14.

16. An agency must initiate consultation under Section 7 whenever it undertakes an action that “may affect” a listed species or critical habitat. 50 C.F.R. § 402.14(a). Conversely, an agency is relieved of the obligation to consult on its actions only where the action will have “no effect” on listed species or designated critical habitat. Effects determinations are based on the direct, indirect, and cumulative effects of the action when added to the environmental baseline and other interrelated and interdependent actions. 50 C.F.R. § 402.02 (definition of “effects of the action”).

17. Regulations implementing Section 7 broadly define the scope of agency actions subject to consultation to encompass “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies,” including the promulgation of regulations and the granting of licenses. 50 C.F.R. § 402.02 (definition of “action”).

18. Agencies must also consult on ongoing agency actions over which the federal agency retains, or is authorized to exercise, discretionary involvement or control. 50 C.F.R. § 402.16 (reinitiation of consultation). Agencies must consult on such ongoing

agency actions “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; if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or if a new species is listed . . . that may be affected by the identified action.” Id.

19. To initiate consultation, an agency must assess the impacts of the action on listed species and their habitat and provide all relevant information about such impacts to FWS. 50 C.F.R. § 402.14(c). If the action agency determines that an action “may affect,” but is “not likely to adversely affect” the listed species or its critical habitat and FWS concurs in writing in that determination, the agency does not have to undergo formal consultation. 50 C.F.R. § 402.13. However, if FWS does not concur, or if the action agency has determined that the action is “likely to adversely affect” the listed species, the agencies must conduct a formal consultation. Id. at §§ 402.02, 402.14(a).

20. The end product of formal consultation is a biological opinion in which FWS determines whether the action will jeopardize the survival and recovery of listed species or will adversely modify the species’ critical habitat. 16 U.S.C. § 1536(b). In order to make this determination, FWS must review all relevant information and provide a detailed evaluation of the action’s effects, including the cumulative effects of federal and nonfederal activities in the area, on the listed species. 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.14(g)-(h). FWS has a statutory duty to use the best available scientific information in an ESA consultation. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8). If FWS determines that the action is likely to jeopardize the species, the biological opinion must specify reasonable and prudent alternatives that will avoid jeopardy. 16 U.S.C. §

1536(b); 50 C.F.R. § 402.14(h)(3). FWS must also formulate discretionary conservation recommendations to reduce or minimize the action's impacts on listed species or critical habitat. 50 C.F.R. § 402.14(g)(6).

21. Not only does a § 7(a)(2) consultation assist the action agency in discharging its duty to avoid jeopardy, but the biological opinion also affects the agency's obligation to avoid the "take" of listed species. Under ESA Section 9, 16 U.S.C. § 1538(a)(1)(B), it is illegal for any person—whether a private or governmental entity—to "take" any endangered species of fish or wildlife listed under the ESA. "Take" is defined to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct. *Id.* at § 1532(19). FWS has defined "harm" to include "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." 50 C.F.R. § 222.102.

22. As part of a consultation, FWS determines whether to authorize the incidental take of listed species through the issuance of an incidental take statement. An incidental take statement may be issued only if the action can proceed without causing jeopardy. 16 U.S.C. § 1536(b)(4). An incidental take statement must: (1) specify the impact of the incidental take on the listed species; (2) specify reasonable and prudent measures NMFS considers necessary to minimize that impact; and (3) set forth mandatory terms and conditions. *Id.*

23. An incidental take statement insulates the federal agency from liability for a take of a threatened or endangered species, provided the agency complies with the statement's terms and conditions. This insulation extends further to any entity receiving a

federal permit, license, authorization, or funding subject to, and in compliance with, the statement. Thus, the Act provides that:

[A]ny taking that is in compliance with the terms and conditions specified in a written statement provided under subsection (b)(4)(iv) of this section shall not be considered to be a prohibited taking of the species concerned.

16 U.S.C. § 1536(o)(2).

24. Beyond Section 7 consultation duties, federal agencies must “utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species listed” under the Act. 16 U.S.C. § 1536(a)(1). As defined under ESA § 3, the term “conservation” means to use all necessary methods and procedures to bring an endangered or threatened species to the point at which the measures provided pursuant to the ESA are no longer necessary. 16 U.S.C. § 1532(3).

25. Action agencies, like EPA, must review the programs that they administer and consult with the Fish and Wildlife Service to ensure that they utilize their programs and authorities to conserve listed species.

#### **B. EPA’S DUTY UNDER FIFRA**

26. The Environmental Protection Agency is responsible for the oversight of pesticide sales and use in the United States. Specifically, the Federal Insecticide, Fungicide, and Rodenticide Act charges the EPA with registration, reviewing, and reregistering chemicals and chemical formulations for use as insecticides, fungicides, rodenticides, and pesticides (collectively “pesticides”) in the United States. 7 U.S.C §§ 136-136y. Under FIFRA, a pesticide generally may not be sold or used in the United States unless it has an EPA registration for that particular use. 7 U.S.C. § 136a(a). EPA

may register a pesticide if it makes the following determinations: (1) the labeling complies with FIFRA's requirements; (2) the composition claims are warranted; (3) the pesticide will perform its intended function; and (4) the pesticide will not cause unreasonable adverse effects on the environment. 7 U.S.C. § 136a(c)(5). The culmination of the registration process is EPA's approval of a label for the particular pesticide. FIFRA makes it unlawful to use a pesticide in a manner inconsistent with the label, Id. at § 136j(2)(G), or to make any claims that differ substantially from the label. Id. at § 136j(1)(B).

27. EPA must classify pesticides as general or restricted use pesticides, depending on the risk posed to the environment. Where necessary to guard against unreasonable adverse environmental effects, EPA must classify a pesticide as restricted use. 7 U.S.C. § 136a(d)(1)(C). Restricted use pesticides are subject to additional regulatory restrictions, particularly concerning application of the pesticide. Id. EPA must reclassify pesticides as restricted use pesticides where necessary to prevent unreasonable adverse effects on the environment. Id. at § 136a(d)(1)(C)(2).

28. After approving a pesticide registration, EPA retains discretionary involvement and control over that registration. EPA must periodically review pesticide registrations with a goal of reviewing each pesticide registration every 15 years. 7 U.S.C. § 136a(g)(1). EPA has the authority to compel registrants to submit data necessary for a reregistration review. Id. at 136a(g)(2). Registrants are required to submit to EPA any information about registered pesticides' unreasonable adverse effects on the environment. Id. at § 136a(d)(2). EPA considers such information in reviewing and, where necessary, modifying the pesticide registrations.

29. The EPA Administrator has the authority to cancel pesticide registrations whenever “a pesticide or its labeling or other material required to be submitted does not comply with the provisions of this Act or, when used in accordance with widespread and commonly recognized practice, generally causes unreasonable adverse effects on the environment.” 7 U.S.C. § 136d(b). The Administrator may immediately suspend a pesticide registration to prevent an imminent hazard. *Id.* §136d(c). An announcement by the Administrator of an intent to cancel a pesticide use often results in the registrant’s voluntary cancellation of, or agreement to further constraints upon that use.

30. In 1988, amendments to FIFRA established a comprehensive reregistration scheme, which EPA has been using since its enactment. 7 U.S.C. § 136a–1. The 1988 amendments required reregistration of all pesticide active ingredients initially registered before November 1, 1984. The 1988 amendments established a reregistration process consisting of five phases: Phase 1 required EPA to list all active ingredients; Phase 2 required registrants (pesticide producers) to notify EPA whether or not they intended to reregister their products, to identify and commit to providing necessary studies, and to pay a reregistration fee; Phase 3 required registrants to submit summaries and reformat acceptable studies, flag studies indicating adverse effects, re-commit to satisfying all applicable data requirements, and pay the final installment of the registration fee; Phase 4 required EPA to review all Phase 2 and Phase 3 submissions and required registrants to meet any unfulfilled data requirements; Phase 5 required EPA to review all the studies that have been submitted for a case, and decide whether or not pesticide products containing the active ingredient(s) are eligible for reregistration. EPA is still in the Phase 5 process of making reregistration decisions.

31. EPA's "reregistration decisions" require EPA to determine whether the pesticide causes unreasonable adverse effects to people or the environment when used according to product labeling. *Id.* at § 136a-1(g)(2)(C). The results of EPA's review are presented in a Reregistration Eligibility Decision ("RED") document.

32. The RED contains a human health assessment and an environmental assessment. The environmental assessment evaluates the likelihood that exposure to that pesticide may cause harmful ecological effects. The effects can be direct (e.g. fish die from a pesticide entering waterways, or birds do not reproduce normally after ingesting contaminated fish), or indirect (a bird become sick from ingesting a contaminated fish). The studies conducted in the environmental assessment include: defining the chemical properties of the pesticide; determining how the pesticide behaves in the environment; and its impact on plants and animals not targeted by the pesticide (nontarget organisms). To determine how the pesticide behaves in the environment, EPA measures the interaction of the pesticide with soils, air, sunlight, surface water, and ground water. Some of the basic questions that must be answered to determine the "environmental fate" of the pesticide include: how fast and by what means does the pesticide degrade; what are the breakdown chemicals; how much of the pesticide or its breakdown chemicals will travel from the application site; and where will the pesticide or its breakdown chemicals accumulate in the environment. Environmental fate analyses help to develop estimates of pesticide concentrations in the environment. EPA establishes the risk assessment by comparing possible exposures to a pesticide, based on the environmental fate analyses, with resulting harmful effects on plants and animals. The result will indicate the likelihood of hazard to plants and animals from use of the pesticide.

33. The types of measures included in REDs to reduce risks that are of concern include: voluntary cancellation of pesticide products or deletion of uses; declaring certain uses ineligible or not yet eligible (and then proceeding with follow-up action to cancel the uses or require additional supporting data); restricting use of products to certified applicators; limiting the amount or frequency use; improving use directions and precautions; adding more protective clothing and equipment requirements; requiring special packaging or engineering controls; requiring no-treatment buffer zones; employing ground water, surface water, or other environmental and ecological safeguards; and other measures.

34. In 1996, Congress further amended FIFRA with the Federal Food, Drug, and Cosmetic Act (“FFDCA”), 21 U.S.C. § 346a, as amended by the Food Quality Protection Act (“FQPA”), Pub.L. 104-170, which established new safety standards for pesticide residue in food. Under FQPA, EPA must further determine with “reasonable certainty that no harm” will come to infants, children or other sensitive individuals exposed to pesticides from food, water, and home and garden use. FQPA also requires EPA to consider the cumulative effects of pesticides with common mechanisms of toxicity when evaluating the safety of individual pesticides. EPA is satisfying FQPA’s requirements by reassessing all existing “tolerances” (maximum limits for pesticide residues in foods). EPA is using the reregistration program to accomplish the tolerance reassessments.

35. Interim REDs (“IREDs”) are issued for pesticides that are undergoing reregistration, require a reregistration eligibility decision, and also must be included in a cumulative assessment under FQPA because they are part of a group of pesticides that

share a common mechanism of toxicity. EPA is issuing IREDs for most organophosphate (“OP”) pesticides, as OPs share common mechanisms of toxicity. An IRED is issued for each individual pesticide in the cumulative group when EPA has completed the pesticide’s risk assessment and risk management decision. An IRED may include measures to reduce food, drinking water, residential, occupational, and/or ecological risks, to gain the benefit of these changes before the RED can be issued, following the Agency’s consideration of cumulative risks for the group.

36. EPA also issues Reports on FQPA Tolerance Reassessment Progress and Interim Risk Management Decisions, known as TREDs, for pesticides that require tolerance reassessment decisions under the FQPA but do not require a reregistration eligibility decisions at present because: the pesticide was first registered after November 1984; EPA completed a RED for the pesticide before the FQPA was enacted; or the pesticide is not registered for use in the United States but tolerances are established that allow crops treated with the pesticide to be imported from other countries. Like IREDs, some TREDs will not become final until EPA considers the cumulative risks of all the pesticides in the cumulative group.

37. EPA has chosen organophosphate pesticides, a group of closely-related pesticides that affect the functioning of the nervous system, as the first priority group of pesticides to be reviewed under FQPA. Consequently, OPs are issued IREDs until the cumulative risks of the OPs have been considered.

38. After EPA has issued a RED and declared a pesticide reregistration case eligible for reregistration, individual end-use products that contain pesticide active ingredients included in the case still must be reregistered. This concluding part of the

reregistration process is referred to as “product reregistration.” In issuing a completed RED document, EPA calls in any product-specific data and revised labeling needed to make final reregistration decisions for each of the individual pesticide products covered by the RED.

39.

## **V. PESTICIDES AND THE BARTON SPRINGS SALAMANDER**

### **A. Barton Springs**

40. Barton Springs is located in Zilker Park of Austin, within Hays and Travis County, Texas. 62 Fed.Reg. 23377 (1997). The Barton Springs segment covers approximately 155 square miles from southern Travis County to northern Hays County, Texas. The watersheds of the six creeks upstream of the recharge zone span about 264 square miles. This area, also referred to as the contributing zone, includes portions of Travis, Hays, and Blanco counties. The recharge and contributing zones (collectively the Barton Springs watershed) is approximately 354 square miles.

41. The pesticides atrazine, diazinon, prometon, simazine, metolachlor, and carbaryl are utilized in the Barton Springs watershed. These pesticides have all been detected in the waters of Barton Springs. . See Mahler, B.J. and P.C. Van Metre, Occurrence of Soluble Pesticides in Barton Springs, Austin, Texas, in Response to a Rain Event, USGS.

42. The Barton Springs salamander, *Eurycea sosorum*, a federally endangered species, is only found in Barton Springs. 62 Fed. Reg. 23377-92.

43. The Barton Springs salamander depends upon clean, flowing water from the springs. Barton Springs represents a mixture of all of the recharge waters in the

Barton Springs watershed. Consequently, Barton Springs water quality is influenced by the quality of water throughout the 354 square mile watershed. Thus, pollution can originate from anywhere within the watershed, especially pollutants that are mobile in water. Pollutants that bind to sediment also pose a threat to aquatic species.

44. Pesticides used in the Barton Springs watershed pose a threat to the Barton Springs salamander. Amphibians, including the salamander, are sensitive to contaminants, particularly pesticides. Additionally, the very restricted range of the salamander, along with the fact that it is fully aquatic, makes the species especially vulnerable to acute and or chronic contamination. Furthermore, the main source of food for the salamander, amphipods, are also especially sensitive to water pollution.

45. FWS recognized the threat of pesticides when it listed the salamander in 1997. See 62 Fed. Reg. 23377-92.

46. Beyond the threats of pesticides recognized by FWS in listing the salamander, FWS has alerted EPA to further concerns about the use of pesticides in the watershed. For example, in a letter written to EPA on June 27, 2002, regarding the Ecological Risk Assessment for the reregistration of atrazine, FWS alerted EPA that the risk range presented by EPA was not based on risks to amphibians and that such risks should be a critical element of the risk assessment. Letter from Everett Wilson, Chief, Division of Environmental Quality, Fish & Wildlife Service to Kimberley Nesci Lowe, Chemical Review Manager, EPA (June 27, 2002). FWS went on to note that, based on a USGC study, atrazine, along with other soluble pesticides (simazine, carbaryl, prometon, metolachlor, and diazinon) have been found in spring habitat of the Barton Spring

salamander. Id. (citing Mahler, B.J. and P.C. Van Metre, Occurrence of Soluble Pesticides in Barton Springs, Austin, Texas, in Response to a Rain Event, USGS). FWS concluded that due to EPA's inability to adequately assess the ecological risks posed by atrazine that EPA should enter into Section 7 consultation. Id.

### **B. Biological Effects of Pesticides on Amphibians**

47. Pesticides have serious adverse impacts on the growth and development of amphibians.

48. Carbamates, organophosphates, and triazines have all been shown to disrupt hormone systems. See Danzo, B.J., Environmental Xenobiotics May Disrupt Normal Endocrine Function by Interfering with the Binding of Physiological Ligands to Steroid Receptors and Binding Proteins, 1997; Sparling, D.W., et al., Pesticides and Amphibians Population Declines in California, USA, *Envtl. Tox. And Chem.*, Vol.20, No.7:1591-95, 2001; Klotz, DM, et al., 1997, Inhibition of 17 beta-estradiol and progesterone activity in human breast and endometrial cancer cells by carbamate insecticides. *Life Sci* 60(17):1467-75. Endocrine disruptors are synthetic chemicals that mimic natural hormones, disrupting natural processes by sending false messages, blocking real messages, preventing synthesis of the body's own hormones, and accelerating the breakdown and excretion of hormones. Endocrine disruption effects how an organism develops and functions. Reproductive disorders, immune system dysfunction, thyroid disorders, types of cancer, birth defects and neurological effects have all been linked to endocrine disruption.

49. Several studies have documented the impact of endocrine-disruptors, including atrazine, on amphibians. For example, interference with reproduction in red-spotted newts, *Notophthalmus viridescens* from exposure of endosulfan, a commonly-used pesticide and recognized endocrine disruptor, at extremely low levels was recently documented. Park, D, SC Hempleman, and CR Propper, 2001, Endosulfan exposure disrupts pheromonal systems in the red-spotted newt: A mechanism for subtle effects of environmental chemicals, *Envntal Health Perspectives* 109:669-673.

50. A USGS study found that atrazine exposure to larval tiger salamanders effected both growth and hormonal responses. Larson, D.L., et. al., Effects of the Herbicide Atrazine on *Abystoma tigrinum* Metamorphosis: Duration; Larval Growth, and Hormonal Responses, 1998, *Physiological Zoology* 71(6):671-79. Northern Prairie Wildlife Research Center, <<http://www.npwrc.usgs.gov/resource/1998/atrazine/atrazine.htm>>.

51. Another study recently found that amphibians are likely to be far more sensitive to pesticides in the real world than traditional laboratory tests used to establish regulatory standards would indicate. Reyle, R.A. and N. Mills, 2002, Predator-induced stress makes the pesticide carbaryl more deadly to gray treefrog tadpoles, *Hyla versicolor*, *Proceedings of the National Academy of Sciences*, Feb. 2001. The study found that low contamination levels of carbaryl cause significant mortality due to the length of exposure. Long-term exposure to low levels of carbaryl in combination with added biological stressors, such as the presence of predators, dramatically increased mortality. The study suggests that it is highly likely that the current regulatory science has dramatically underestimated the impacts of many pesticides.

52. Most recently, the herbicide atrazine was found to disrupt sexual development of frogs at concentrations 30 times lower than levels allowed by EPA. Hayes, T.B., et al., 2002, Hermaphroditic, demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses, Proc. Natl. Acad. Sci., April 16, 2002, Vol.99, Issue 8, 5476-5480; see also Hayes, T.B. et. al., Atrazine-induced Hermaphroditism at 0.1ppb in American Leopard Frogs: Laboratory and Field Evidence, Env'tl. Health Perspectives, Volume 111, Number 4, April 2003. This study exposed frogs to low levels of atrazine, levels which can often be found in the environment. Results showed that these low levels of atrazine demasculinized male frogs, preventing male characteristics from fully forming. Hayes noted that due to the pervasive nature of atrazine at levels that can disrupt sexual development, aquatic environments are at risk. EPA's newly drafted criteria for atrazine for the protection of aquatic life is 12 parts per billion (ppb). Hayes found hermaphroditism in frogs at exposure levels as low as 0.1 ppb, far below the level established by EPA as safe for aquatic organisms. The effective doses demonstrate the sensitivity of amphibians to the presence of pesticides in the environment. Hayes noted that amphibians are at great risk because the highest atrazine levels coincide with the breeding season for amphibians. Additionally, the low-dose endocrine-disrupting effects are of great concern because the described effects are all internal and may go unnoticed by researchers. Thus, "exposed populations could decline or go extinct without any recognition of the developmental effects on individuals."

53. Another study focusing on the reproductive system of frogs (the northern leopard frog, *Rana pipiens* and green frog, *Rana clamitans*) tested frogs from eight breeding sites, four of which were situated in apple orchards. Harris, M., et al., Apple

Orchard Insecticide and Fungicide Effects on Ranid Populations in Ontario, University of Guelph, Ontario, abstract found at <[www.pmac.net/ranid.htm](http://www.pmac.net/ranid.htm)>. Embryos and larvae were subjected to *in-situ* and ambient pond water (laboratory) assays and to toxicity tests of pesticides used in orchards. The *in-situ* embryos and larvae suffered high mortality at some of the orchard sites, while high hatching success was found in the reference sites, indicating that mortality in orchard ponds was probably due to stressful environmental conditions. Toxicity tests revealed that the pesticide diazinon (a commonly used pesticide) and the formulations Dithane DG, Gunthion 50WP, and Thiodan 50WP cause mortality, deformities, and/or growth inhibition in embryos and tadpoles. Residues of three of these compounds were detected at the *in-situ* sites.

54. Evaluating the synergistic effects of trematode infections and pesticide exposure on frogs, a study found that amphibian limb deformities were exacerbated by the stress of pesticide exposure. Kiesecker, J.M., Synergism between trematode infection and pesticide exposure: A link to amphibian limb deformities in nature, 2002, Proc. Natl. Acad. Sci. USA, 10.1073/pnas.152098899.

55. Skeletal malformations to tadpoles from exposure to pesticides was found in a 1994 study. Alvarez, R., et. al., Skeletal Malformations Induced by the Insecticides ZZ-Aphox and Folidol During Larval Development of *Rana perezi*, Arch. Environ. Contam. Toxicol. 28, 349-56 (1995).

56. Reduced testicular development to tadpoles was documented in a Canadian 2001 study. Tavera-Mendoza, L., et. al., Response of the Amphibian Tadpole (*Xenopus Laevis*) to Atrazine During Sexual Differentiation of the Testis, Environmental Toxicology and Chemistry, Vol 21, No. 3:527-31, 2002. This study found that exposure

of tadpoles to atrazine at 21 µg/L for 48 hours during gonadal differentiation resulted in decreased testicular volume among males. The effects are not transient and recovery can not occur.

57. In 2000, a USGS study documented that pesticides are instrumental in the decline of several amphibian species in California. Sparling, D.W., et. al., Pesticides and Amphibian Population Declines in California, USA, Environmental Toxicology and Chemistry, Vol. 20, No. 7: 1591-95, 2001. The study found that pesticides, including diazinon are reducing cholinesterase activity in tadpoles.

58. Numerous studies have documented significant impacts from pesticide exposure to amphibians. Many of these findings have gone through peer-review and been published in well respected environmental toxicology digests. EPA pesticide review teams should be well aware of these studies when assessing the environmental affects of registered pesticides on species, including endangered and threatened species, in the environmental risk assessment chapter of a pesticide's RED.

### **C. The Pesticides**

59. The pesticides atrazine, prometon, simazine, carbaryl, metolachlor, and diazinon are all currently registered by EPA for use.

#### 1. Atrazine

60. Atrazine, a triazine herbicide used to control broadleaf and grassy weeds, is the most commonly used herbicide in the United States. EPA released the atrazine revised environmental risk assessment April 22, 2002. In January of 2003 EPA reregistered the use of atrazine when it released the Atrazine IRED. EPA later revised the IRED in October of 2003.

61. Atrazine is used on corn (field and sweet), sorghum, sugarcane, wheat, guava, macadamia nuts, hay, pasture, summer fallow, forestry and woodlands, conifers, woody ornamentals, Christmas trees, sod, and lawns, turf, and golfcourses. Atrazine is also used on range grasses in Texas.

62. Approximately 76.4 million pounds active ingredient (“ai”) are applied annually for agricultural purposes. Atrazine is heavily used in Texas. According to Texas Environmental Profiles, 3,140,259 pounds of atrazine are used annually for agricultural purposes in Texas.

63. Pesticide usage in the urban environment on home gardens, residential yards, and business or government landscaping has increased in recent decades. As urban sprawl covers more land, including aquifer recharge zones, and analytical technology improves, state and federal monitoring programs are detecting more pesticides in urban areas. Texas does not have a pesticide use reporting system to track agricultural and non-agricultural uses, as some other states have implemented.

64. In areas of high use, EPA recognizes that there is widespread environmental exposure that (1) has resulted in direct acute effects on many terrestrial plants species, (2) may have caused direct effects on aquatic non-vascular plants, (3) may have caused reductions in populations of aquatic macrophytes, invertebrates, and fish, and (4) may have caused indirect effects on aquatic communities due to loss of species sensitive to atrazine and resulting in changes in structural and functional characteristics of the affected communities.

65. EPA also notes that Atrazine is a mobile persistent pesticide, and as such, is expected to be present in surface and groundwater. Atrazine also has substantial half-

lives in soils of 3-4 months and in aquatic environments 608 days for overall aquatic half-life, 578 days for water half-life, and 330 days for sediment half-life. Long-term field dissipation studies indicate that atrazine could persist over a year in colder conditions. Atrazine has also been observed to remain at elevated concentrations in reservoirs for longer periods of time than in flowing surface water. Atrazine also has low adsorption characteristics, indicating that it may undergo substantial washoff from foliage.

66. EPA also notes that volatility of atrazine as a route of field dissipation also raises concern about off-site transport. Atrazine has been widely detected in rainfall.

67. EPA acknowledges that endangered species levels of concern (“LOCs”) are exceeded for agricultural uses of atrazine. EPA notes that due to indirect effects of atrazine on vegetative effects, the registrant needs to consider risks to endangered and threatened species in the following categories: mammals, birds, insects, amphibians, aquatic invertebrates, and fish.

68. The Atrazine revised risk assessment, IRED and Revised IRED do not address the impacts of urban uses on endangered and threatened species.

69. Atrazine has already been found to jeopardize amphibians. In the 1980s, EPA consulted with the FWS concerning atrazine use. The 1983 sorghum cluster biological opinion and the 1984 rangeland/pastureland and forest cluster biological opinion reviewed impacts of atrazine on listed species. These uses were found to jeopardize over 70 plant species, several species of fish and one insect species. However, these opinions did not assess the impact of atrazine on amphibians. In 1989, EPA reinitiated consultation with FWS regarding pesticide use under the cluster approach adopted in the early 80s. For atrazine’s use on field crops, rangeland, and forests, the

1989 opinion, FWS found jeopardy for nine species of freshwater fish, two freshwater crustaceans, four amphibians (San Marcos salamander, Santa Cruz long-toed salamander, Houston toad, and Wyoming toad) and twelve plant species. FWS also issued reasonable and prudent measures (“RPMs”) for 43 non-jeopardized species. EPA notes that these opinions are based on old labels and application methods, less refined risk assessment procedures, and an older approach to consultation.

70. Although the Barton Springs salamander was listed under the ESA in 1997, EPA has not reinitiated consultation for atrazine uses since the 1989 biological opinion.

71. Thus, EPA has not consulted with FWS on the impacts of the registration of atrazine on the Barton Springs salamander.

## 2. Diazinon

72. Diazinon is an organophosphate insecticide, acaricide and nematocide registered for indoor, commercial property, lawn, animal treatments, rangeland, and multiple food/feed uses. Approximately 13 million pounds ai are used annually. Diazinon is heavily used for agricultural purposes in many states including Texas. Urban use is not recorded.

73. EPA reregistered the use of diazinon in July 2002 when it released the Diazinon IRED, Case No. 0238, in July of 2002.

74. EPA found that Diazinon is “very highly toxic” to freshwater fish and invertebrates. EPA recognizes that because of diazinon’s widespread use and documented presence in water bodies at concentrations of concern to aquatic life, there is a high level of certainty that aquatic organisms can be exposed to potentially toxic levels

of diazinon in surface water. Furthermore, EPA notes that since diazinon and its major degradate oxypyrimidine are mobile and persistent in the environment, and found at significant levels in surface waters; it is quite probable that they will be available in quantity and for times that will exceed acute and chronic toxicity endpoints. Endangered species LOCs are exceeded for aquatic life for all registered uses of diazinon. However, the diazinon IRED did not address impacts to amphibians.

75. Although there is no urban use assessment, EPA does note that there is high certainty that in all urban and suburban areas where diazinon is applied outdoors and where irrigation or rainfall cause runoff, there will be negative impacts on aquatic biota from the diazinon use.

76. FWS has previously determined that diazinon is likely to jeopardize multiple aquatic and terrestrial species, including salamanders. For example, the 1989 biological opinion lists a total of 88 listed species (84 aquatic species and 4 avian species) that FWS considers to be in jeopardy due to diazinon use, including the San Marcos salamander, Santa Cruz long-toed salamander, Texas blind salamander, Houston toad, Puerto Rican crested toad, and Wyoming toad. However, EPA acknowledges that many additional species, especially aquatic species, have been listed since the 1989 biological opinion and that jeopardy to these species has not been assessed for diazinon.

77. Although the Barton Springs salamander was listed under the ESA in 1997, EPA has not reinitiated consultation for diazinon uses since the 1989 biological opinion.

78. Thus, EPA has not consulted with FWS on the impacts of the registration of diazinon on the Barton Springs salamander.

### 3. Simazine

79. Simazine is a triazine used as a selective preemergence herbicide for control of most annual grasses and broadleaf weeds in corn, alfalfa, established Bermuda grass, cherries, peaches, citrus, berries, grapes, apples, pears, certain nuts, asparagus, certain ornamental and tree nursery stock, and in turf grass soil production. It is also used to inhibit the growth of most common forms of algae in aquariums, ornamental fish ponds and fountains. At higher rates of application, it is used for nonselective weed control in industrial areas.

80. Simazine is sufficiently persistent in soil and water and sufficiently mobile in both media that it may present a threat to ground water drinking supplies via leaching and percolation and to surface water supplies via precipitation runoff. 55 Fed. Reg. 30370.

81. Applying the criteria described in EPA's guidelines for the assessment of carcinogenic risk, EPA classifies simazine in Group C. This category is used for substances with limited or equivocal evidence of carcinogenicity in animals in the absence of human data. This classification is supported by the fact that two similar compounds, atrazine and propazine, also cause mammary tumors in the same tested animal species and are classified in Group C. 55 Fed. Reg. 30370.

82. Some of simazine's trade names include Aquazine, Cekusan, Cekusima, Framed, G-27692, Gesatop, Primatol, Princep, Simadex, Simanex, Tanzine and Totazina.

83. EPA has concern about the potential ecological impacts of ground and surface water contamination resulting from the use of products containing the triazines. Such contamination may have the potential to cause adverse effects to aquatic organisms.

84. The Registration Standard for simazine, issued in March 1984, expressed EPA's concern about simazine's potential for ground water contamination and classified it as a "Restricted Use Pesticide" based on this concern. In 1985, the EPA withdrew simazine's "Restricted Use" classification and imposed both ground water advisory and aquatic invertebrate toxicity statements on the label. See 59 Fed. Reg. 60414 (1994).

85. Simazine is currently in use but has not gone through the reregistration process. Consequently, there is no RED, IRED, or a preliminary risk assessment for this chemical. Simazine was first registered for use in 1957. 59 Fed. Reg. 60414.

86. Simazine was included in the 1989 biological opinion. However, that review of simazine only focused on impacts to plant species.

87. Although the Barton Springs salamander was listed under the ESA in 1997, EPA has not reinitiated consultation for simazine uses since the 1989 biological opinion.

88. Thus, EPA has not consulted with FWS on the impacts of the registration of simazine on the Barton Springs salamander.

#### 4. Prometon

89. Prometon is a nonselective triazine herbicide used for bare ground weed control around buildings, storage areas, fences, roadways, railroads, recreation areas, lumberyards, non-crop areas on farms, and rights-of-way. Prometon is also used to control annual and perennial broadleaf and grassy weeds on non-crop areas. Prometon may be applied as a spray or as granules.

90. Prometon's common product names are Pramitol 25E and Pramitol 5PS. Turf King also is a product name for prometon.

91. Prometon remains active in the soil and usually inhibits plant growth for a year or more. Prometon is more readily adsorbed to soils which have a high organic matter or clay content. Prometon remains unchanged in the soil for varying lengths of time depending on soil type, moisture and application rate. The half-life of prometon ranged from 139 to 2,227 days in field dissipation studies. Prometon can persist for extended periods under arid conditions. Soil microorganisms break down prometon. Soil microorganisms break down prometon to hydroxylated triazine metabolites, dealkylated triazine metabolites, and carbon dioxide.

92. Prometon dissolves easily in water. The potential for prometon to leach into groundwater is high. Prometon has been found in ground-water samples. Prometon residues resulting from agricultural practice have been identified in California groundwaters at concentrations ranging from 0.21 to 80 parts per billion. Prometon has been found in surface water samples.

93. Prometon is slightly to moderately toxic to fish.

94. Prometon is currently in use but has not gone through the reregistration process. Consequently, there is no RED, IRED, or a preliminary risk assessment for this chemical.

95. EPA has not consulted with FWS on the impacts of prometon on the Barton Springs salamander.

#### 5. Carbaryl

96. Carbaryl is carbamate insecticide used on a variety of crops and lawns and gardens. In 1998, approximately 3.9 million pounds ai were sold, with about half of this used in non-agricultural settings.

97. EPA released the carbaryl IRED, List A, Case 0080, in June 2003.
98. The carbaryl IRED assessed impacts of carbaryl use on amphibians because of literature data on potential impacts of carbaryl on amphibians. Data suggests that carbaryl ranges from slightly to moderately toxic to amphibians on an acute exposure basis. Indirect effects on impairing predator avoidance are a concern. Carbaryl has been shown to have the potential to adversely affect amphibians on a chronic exposure basis. Tadpoles exposed to carbaryl have exhibited developmental deformities.
99. Aquatic endangered species LOCs were exceeded for all the crops modeled for all use rates, except for sugar beets.
100. Carbaryl was included in the 1989 biological opinion. The 1989 biological opinion lists a total of 85 listed species (84 aquatic species and 1 avian species) that FWS considers to be in jeopardy due to carbaryl use, including the San Marcos salamander, Santa Cruz long-toed salamander, Texas blind salamander, Houston toad, Puerto Rican crested toad, and Wyoming toad. However, EPA acknowledges that many additional species, especially aquatic species, have been listed since the 1989 biological opinion and that jeopardy to these species has not been assessed for diazinon. EPA is currently in consultation with NMFS regarding the impact of carbaryl on listed salmonid species.
101. Aside from the salmonid consultation currently underway, the result of a lawsuit, EPA has not reinitiated consultation for carbaryl since the 1989 biological opinion. No previous FWS consultations for pesticide registrations of carbaryl addressed effects on the Barton Springs salamander.

6. Metolachlor

102. Metolachlor is a persistent and mobile broad spectrum herbicide used for general weed control in many agricultural food and feed crops, and on lawns, turf, ornamental plants, trees, shrubs, vines, rights of way, fencerows, hedgerows, and in forestry practices.

103. EPA released the Metolachlor RED, List A, Case No. 0001, in April 1995. The Metolachlor TRED was released in June 2002.

104. In the RED, EPA recognized concern about degradation of water quality in use areas.

105. The RED also found that endangered species LOCs were exceeded for freshwater fish. However, the RED did not assess LOCs for amphibians.

106. Metolachlor was not included in the 1989 biological opinion.

107. EPA has not initiated consultation for metolachlor. Thus, EPA has not consulted with FWS on the impacts of the registration of metolachlor on the Barton Springs salamander.

**VI. CLAIMS FOR RELIEF**

**FIRST CLAIM FOR RELIEF**

**Violation Of The Endangered Species Act**

**[16 U.S.C. § 1536(a)(2)]**

**(The EPA's Failure To Consult On Pesticide Registrations That May Affect the Barton Springs Salamander)**

108. Each and every allegation set forth above in this Complaint is incorporated herein by reference.

109. EPA retains discretionary involvement and control over pesticide registrations. It exercises that involvement and control through registration and re-

registration reviews and determinations, through the call-in of new data, through reclassification of pesticides and their formulations as restricted use pesticides, through cancellation notices, and through suspension actions. Both new and existing pesticide registrations, as well as other authorizations of pesticide use, constitute “agency actions” subject to § 7(a)(2)’s consultation duty. 16 U.S.C. § 1536(a)(2).

110. EPA is violating Section 7(a)(2) of the ESA and its implementing regulations by failing to consult with FWS and failing to ensure through consultation that the registration and reregistration of atrazine, diazinon, metolachlor, prometon, simazine, and carbaryl do not jeopardize the continued existence of the Barton Springs salamander. 16 U.S.C. § 1536(a)(2), 1540(g); 50 C.F.R. Part 402. This constitutes a violation of the ESA within the meaning of 16 U.S.C. § 1540(g).

## **SECOND CLAIM FOR RELIEF**

### **Violation Of The Endangered Species Act**

#### **[16 U.S.C. § 1536(a)(1)]**

#### **(The EPA’s Failure To Utilize Their Programs And Authorities To Conserve Barton Springs Salamanders)**

111. Each and every allegation set forth above in this Complaint is incorporated herein by reference.

112. The EPA is violating Section 7(a)(1) of the ESA by failing to, in consultation with and with the assistance of the FWS, utilize its authorities in furtherance of the ESA, and by failing to carry out programs for the conservation of the Barton Springs salamander. 16 U.S.C. § 1536(a)(1), 1540(g). This constitutes a violation of the ESA within the meaning of 16 U.S.C. § 1540(g).

## **VII. PRAYER FOR RELIEF**

WHEREFORE, Plaintiffs respectfully request that the Court enter judgment providing the following relief:

1. Declare that EPA is violating ESA § 7(a)(2) by failing to undergo consultation concerning effects of EPA pesticide registrations on the endangered Barton Springs salamander;
2. Declare that EPA is violating ESA § 7(a)(1) by failing to review its programs and consult with FWS to determine how to utilize its authorities to conserve the Barton Springs salamander;
3. Order EPA to begin consultation pursuant to ESA § 7(a)(2) on the effects of pesticide registrations on the Barton Springs salamander within 30 days of the signing of an order;
4. Order EPA to review its programs and authorities and to consult with the FWS to determine how best to utilize its programs and authorities to promote the conservation of the Barton Springs salamander in compliance with ESA § 7(a)(1);
5. Enjoin EPA from authorizing uses of pesticides that allow pesticides to enter the Barton Springs watershed until the consultation process has been completed and EPA has brought its pesticide registrations into compliance with the ESA § 7(a)(2).
6. Award Plaintiffs' costs, including reasonable attorney's fees and expert witness fees; and
7. Grant plaintiffs such additional and further relief as the Court may deem just and appropriate.

///

DATED: \_\_\_\_\_, 2004

Respectfully submitted,

---

Robert Ukeiley (MD14062)  
ATTORNEY AT LAW  
507 Center Street  
Berea, KY 40403  
Telephone: 859-986-5402  
Facsimile: 859-986-1299  
[rukeiley@igc.org](mailto:rukeiley@igc.org)

Counsel for Plaintiffs