

Brendan Cummings (CA Bar No. 193952)
Phone: (760) 366-2232
Email: bcummings@biologicaldiversity.org
CENTER FOR BIOLOGICAL DIVERSITY
P.O. Box 549
Joshua Tree, CA 92252
Facsimile: (760) 366-2669
Application for admission *Pro Hac Vice* pending

Christopher Winter (WSB No. 30890)
Phone: (503) 525-2725
Email: chris@crag.org
Ralph Bloemers (WSB No. 30216)
Phone: (503) 525-2727
Email: ralph@crag.org
CRAG LAW CENTER
917 SW Oak, Suite 417
Portland, Oregon 97205
Facsimile: (503) 296-5454

Attorneys for Plaintiffs

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON**

CENTER FOR BIOLOGICAL DIVERSITY,)

Plaintiff,)

v.)

MICHELLE PIRZADEH, EPA Region 10,)
Acting Regional Administrator; LISA)
JACKSON, Administrator, Environmental)
Protection Agency; and ENVIRONMENTAL)
PROTECTION AGENCY,)

Defendants.)

Case No.:

COMPLAINT FOR DECLARATORY AND
INJUNCTIVE RELIEF

Endangered Species Act, 16 U.S.C. § 1540(g)

I. INTRODUCTION

1) In this civil action for declaratory and injunctive relief, Plaintiff CENTER FOR BIOLOGICAL DIVERSITY challenges the failure of Defendants MICHELLE PIRZADEH, Region 10 Acting Administrator of the Environmental Protection Agency; LISA JACKSON, Administrator of the Environmental Protection Agency; and the ENVIRONMENTAL PROTECTION AGENCY (collectively the “EPA”) to comply with the federal Endangered Species Act, 16 U.S.C. §§ 1531-1544 (ESA), due to the adverse impacts to the polar bear (*Ursus maritimus*), a federally listed threatened species, resulting from EPA’s implementation and administration of the pesticide review program and the registration and re-registration of pesticides and pesticide formulations pursuant to that program.

2) While the polar bear is most directly imperiled by the loss of its sea-ice habitat due to climate change and the resulting global warming, the polar bear is also directly threatened by contaminants, including pesticides that are registered by the EPA. Pesticides are widely recognized as presenting one of the most significant direct, indirect, and cumulative threats to polar bears. Pesticides and pesticide derivatives approved for use in the United States by EPA are known to be transported long-distance via various atmospheric, oceanic and biotic pathways to the Arctic, where these chemicals, individually and collectively, bioaccumulate in polar bears, adversely affecting health, reproduction, and survival of these apex predators of the Arctic.

3) Pesticides and related contaminants are known to suppress immune function, disrupt endocrine systems, shrink reproductive organs, cause hermaphroditism, and increase cub mortality in polar bears. Human subsistence hunters in the Arctic, who share the top spot on the food web with the polar bear, also face increased risks from exposure to these contaminants.

4) Pesticides can only be lawfully used in the United States if they are registered for use by the EPA pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. §§136-136y.

5) The ESA requires all federal agencies, including the EPA, to “insure through consultation” with the Secretary of the Interior that their actions do not jeopardize the continued

1 existence of any listed species, and further requires agencies to carry out “programs for the
2 conservation” of listed species. 16 U.S.C. § 1536.

3 6) Notwithstanding this unambiguous statutory mandate, nor the explicit holding of
4 the Ninth Circuit that pesticide registrations trigger the consultation obligations of the ESA,
5 *Washington Toxics Coalition v. EPA*, 413 F.3d 1024 (9th Cir. 2005), the EPA has utterly failed
6 to complete, much less even begin, any consultation regarding the impacts on the polar bear of
7 pesticides the EPA registers for use in the United States. Nor has the agency carried out any
8 program for the conservation of this highly imperiled species.

9 7) Plaintiffs seek judicial relief declaring that the EPA failed to comply with its ESA
10 obligations with regard to the polar bear, an order requiring the agency to carry out its
11 obligations, and injunctive relief as may be necessary to protect the polar bear pending EPA’s
12 compliance with these legal duties. Judicial relief is necessary to afford the polar bear the
13 protections to which it is entitled by law and which it needs to survive and recover.

14 II. JURISDICTION AND VENUE

15 8) This court has jurisdiction over this action pursuant to 16 U.S.C. §§ 1540(c) &
16 (g) (action arising under the ESA and citizen suit provision), 28 U.S.C. § 1331 (federal question),
17 and 28 U.S.C. § 1346 (United States as defendant). The relief sought is authorized by 28 U.S.C.
18 § 2201 (declaratory judgment), 28 U.S.C. § 2202 (injunctive relief), and 16 U.S.C. § 1540(c) &
19 (g) (ESA).

20 9) To the extent required by the ESA, 16 U.S.C. § 1540(g)(2)(A), the Center for
21 Biological Diversity provided 60 days notice of its intent to sue by letter sent to the Defendants.
22 The Defendants have not remedied the violations set forth in the 60-day notice.

23 10) Venue is proper in the Western District of Washington pursuant to 28 U.S.C. §
24 1391(e) and 16 U.S.C. § 1540(g)(3)(A). Region 10 of the EPA, whose jurisdiction covers the
25 range of the polar bear in the United States, is located in this judicial district, this civil action is
26 brought against officers of the United States acting in their official capacity and under the color
27 of legal authority, no real property is involved in this action, Defendants reside in this judicial
28

1 district, and the legal violations complained of in this Complaint occurred within this judicial
2 district.

3 11) Plaintiff has no adequate remedy at law. The EPA's continuing failure to cure
4 violations of the ESA in its pesticide registration and re-registration program are resulting in
5 harm to the polar bear, to Plaintiff and Plaintiff's members, and to the public. No monetary
6 damages or other legal remedy can adequately compensate Plaintiff, its members, or the public,
7 for this harm.

8 12) Plaintiff and its members are adversely affected or aggrieved by federal agency
9 action and are entitled to judicial review of such action within the meaning of the ESA. EPA's
10 actions authorizing pesticide use that contaminates the Arctic and "may affect" the polar bear
11 violate the ESA as the EPA's actions do not further the conservation of the polar bear. In fact,
12 these actions do just the opposite by authorizing activities that adversely impact individual polar
13 bears, degrade and pollute polar bear habitat, and undermine the ability of the species to persist
14 in a warming climate. Plaintiff is therefore, injured because its use and enjoyment of polar bears
15 described below is threatened by harm to individual polar bears and the decline and likely
16 extinction of the species. These are actual, concrete injuries to Plaintiff, caused by EPA's failure
17 to comply with the ESA and its implementing regulations. The relief requested will redress these
18 injuries.

19 13) The federal government's sovereign immunity in this action is waived pursuant to
20 16 U.S.C. § 1540(g).

21 **III. PARTIES**

22 14) Plaintiff CENTER FOR BIOLOGICAL DIVERSITY ("the Center") is a non-
23 profit 501(c)(3) corporation incorporated in New Mexico with its primary offices in Tucson,
24 Arizona and San Francisco, California. The Center is actively involved in species and habitat
25 protection issues throughout the United States, including protection of Arctic wildlife in general
26 and the polar bear in particular. The Center has over 40,000 active members throughout the
27 United States and the world.

1 15) The Center and its members and staff include individuals with varying interests in
2 polar bears and their habitat ranging from scientific, professional, and educational to
3 recreational, aesthetic, moral, and spiritual interests. Further, the Center's members and staff
4 enjoy, on an on-going basis, the biological, scientific, research, educational, conservation,
5 recreational and aesthetic values of the Arctic region inhabited by this species. Plaintiff's staff
6 and members observe and study polar bears and their habitat, and derive professional, scientific,
7 educational, recreational, aesthetic, inspirational, and other benefits from these activities and
8 have an interest in preserving the possibility of such activities in the future. An integral aspect of
9 Plaintiff's members' use and enjoyment of polar bears is the expectation and knowledge that the
10 species is in its native habitat. For this reason, the Plaintiffs' use and enjoyment of polar bears is
11 entirely dependent on the continued existence of healthy, sustainable populations in the wild.
12 The Center and its members and staff have participated in efforts to protect and preserve the
13 habitat essential to the continued survival of the polar bear and to address threats to the continued
14 existence of the species, including the threats posed by pesticides and other contaminants.

15 16) Any activities, like approval of pesticides which are known or likely to
16 contaminate the Arctic, and which directly, indirectly or cumulatively injure, weaken or impair
17 individual polar bears, adversely affect polar bear populations, or destroy, degrade, or diminish
18 polar bear habitat, also by extension interfere with Plaintiff's use and enjoyment of the species
19 and its habitat. These activities directly and irreparably injure the interests of Plaintiff and its
20 members and staff.

21 17) Because FIFRA generally prohibits the use of pesticides absent registration by the
22 EPA, without proper authorization, use of these pesticides in the United States, and the
23 consequent contribution of these pesticides and their byproducts to the contamination of the
24 Arctic and the polar bear could not lawfully occur. Moreover, the failure of EPA to consider the
25 known, likely and/or potential impacts of these pesticides on the polar bear when authorizing the
26 use of pesticides means that conditions and restriction on the use of these pesticides, or the
27 complete prohibition of the use of these pesticides have not been implemented or required by the
28 agency. Therefore, the authorization of pesticide use that may affect polar bears absent the

1 required consultation allows the initiation and continuation of activities that harm polar bears,
2 their habitats, and by extension, the Center and its members' interests.

3 18) The Center has also suffered informational and procedural injuries from the
4 EPA's failure to comply with the ESA in authorizing pesticide use under FIFRA and in
5 implementing its pesticide program. These injuries are connected to the Center's substantive
6 conservation, recreational, scientific, and aesthetic interests. The Center's members and staff
7 rely on the EPA to comply with the requirements of the ESA to make informed decisions as
8 called for by this statute. The Center relies on the analyses resulting from ESA compliance to
9 achieve its organizational purposes, including monitoring the Arctic environment and the
10 management of wildlife; monitoring compliance with the law concerning the management of the
11 polar bear; educating members, staff, and the public concerning the management of the polar
12 bear; and advocating policies that protect polar bears and their habitat. The failure of the EPA to
13 comply with the ESA with regard to pesticide registration and the polar bear also harms the
14 organization interests of the Center, as the Center has been and would continue to be compelled
15 to direct organizational resources toward researching the impacts of pesticides on the polar bear
16 that it would not have to expend if the EPA complied with its statutory duties. As a
17 consequence, the Center must divert its organizational resources towards research and advocacy
18 regarding pesticides and polar bears and away from other efforts regarding imperiled species
19 conservation that it would otherwise engage in if its resources did not have to be allocated to
20 making sure the polar bear is protected.

21 19) The interests and organizational purposes of the Center and its members will be
22 directly and irreparably injured by the EPA's violation of law as described in this Complaint.
23 Unless this Court grants the requested relief and orders the EPA to comply with the ESA, harm
24 to the polar bear will continue to accrue, and the aesthetic, recreational, educational,
25 professional, scientific, spiritual, moral, and conservation interests of the Center and its members
26 and staff will continue to be adversely affected.

27 20) The above-described educational, moral, spiritual, scientific, recreational,
28 biological, organizational, informational, and aesthetic interests of the Center and its members

1 and staff have been adversely affected by the EPA's failure to comply with the ESA through its
2 continued registration, re-registration and authorization of pesticides known or likely to be
3 harmful to the polar bear and its fragile Arctic environment. Unless the relief requested is
4 granted, the Center's interests will continue to be adversely affected and injured by the failure to
5 consult and the continual commitment of resources and take of the polar bear. The Center brings
6 this action on its own behalf and on behalf of its adversely affected members and staff.

7 21) Defendant MICHELLE PIRZADEH is sued in her official capacity as Acting
8 Administrator for Region 10 of the EPA, which is the region that is home to those polar bears in
9 the United States. Defendant is the federal official within Region 10 with the ultimate authority
10 and responsibility for complying with the EPA's legal obligations, including compliance with the
11 ESA when registering pesticides pursuant to FIFRA.

12 22) Defendant LISA JACKSON is sued in her official capacity as the Administrator
13 of the EPA, and is the federal official with the ultimate authority and responsibility for ensuring
14 that EPA complies with its legal obligations, including compliance with the ESA when
15 registering pesticides pursuant to FIFRA.

16 23) Defendant ENVIRONMENTAL PROTECTION AGENCY is the federal agency
17 charged with implementing FIFRA and complying with other statutory mandates related to the
18 registration of pesticides, including compliance with the ESA.

19 **IV. LEGAL FRAMEWORK**

20 **A. The Endangered Species Act**

21 24) The Endangered Species Act was enacted, in part, "to provide a means whereby
22 the ecosystems upon which endangered species and threatened species depend may be
23 conserved, [and] to provide a program for the conservation of such" species. 16 U.S.C. §
24 1531(b).

25 25) The ESA vests primary responsibility for administering and enforcing the statute
26 with the Secretaries of Commerce and Interior. The Secretaries of Commerce and Interior have
27 delegated this responsibility to the National Marine Fisheries Service (NMFS) and the U.S. Fish
28

1 and Wildlife Service (FWS), respectively. 50 C.F.R. §402.01(b). FWS has responsibility for the
2 polar bear.

3 26) Section 2(c) of the ESA establishes that it is “the policy of Congress that all
4 Federal departments and agencies shall seek to conserve endangered species and threatened
5 species and shall utilize their authorities in furtherance of the purposes of this [Act].” 16 U.S.C.
6 § 1531(c)(1).

7 27) The ESA defines “conservation” to mean “the use of all methods and procedures
8 which are necessary to bring any endangered species or threatened species to the point at which
9 the measures provided pursuant to this [Act] are no longer necessary.” 16 U.S.C. § 1532(3).

10 28) When a species has been listed as threatened or endangered under the ESA,
11 federal agencies have the obligation to assess and bring their programs and activities into
12 compliance with the ESA. These duties fall into two categories: (1) the duty to utilize agency
13 programs and authorities to conserve listed species; and (2) the duty to ensure that agency
14 actions will not jeopardize the survival and recovery of listed species, or destroy or adversely
15 modify critical habitat for such species. 16 U.S.C. §§ 1536(a)(1)-(2). The ESA prescribes the
16 process to be followed to ensure compliance with each set of duties.

17 29) Under Section 7(a)(1) of the ESA, federal agencies such as the EPA must “utilize
18 their authorities in furtherance of the purposes of [the ESA] by carrying out programs for the
19 conservation of endangered species and threatened species listed” under the statute. 16 U.S.C. §
20 1536(a)(1). Conservation is defined under Section 3 of the Act. 16 U.S.C. § 1532(3).

21 30) In order to fulfill the substantive purposes of the ESA, federal agencies are
22 required under Section 7(a)(2) to engage in consultation with FWS (and/or NMFS) to “insure
23 that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize
24 the continued existence of any endangered species or threatened species or result in the adverse
25 modification of habitat of such species . . . determined . . . to be critical” 16 U.S.C. §
26 1536(a)(2) (Section 7 consultation).

27 31) Section 7 consultation is required for “any action [that] may affect listed species
28 or critical habitat.” 50 C.F.R. § 402.14. Agency “action” is defined in the ESA’s implementing

1 regulations to include: “(b) the promulgation of regulations; (c) the granting of licenses,
2 contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or
3 indirectly causing modifications to the land, water, or air.” 50 C.F.R. § 402.02.

4 32) The Ninth Circuit has held that EPA’s registration of pesticides is “agency action”
5 for purposes of Section 7 of the ESA. *Wash. Toxics Coalition v. EPA*, 413 F.3d 1024, 1032 (9th
6 Cir. 2005).

7 33) At the completion of Section 7 consultations FWS will issue a biological opinion
8 that determines if the agency action is likely to jeopardize the species. If so, the opinion may
9 specify reasonable and prudent alternatives that will avoid jeopardy and allow the agency to
10 proceed with the action. 16 U.S.C. § 1536(b). FWS may also “suggest modifications” to the
11 action during the course of consultation to “avoid the likelihood of adverse effects” to the listed
12 species even when not necessary to avoid jeopardy. 50 C.F.R. § 402.13.

13 34) The acting agency, here EPA, has an independent obligation to ensure ESA listed
14 species are not jeopardized by the agency’s actions even after completing the Section 7
15 consultation process.

16 35) An agency’s duty to avoid jeopardy is continuing, and “where discretionary
17 Federal involvement or control over the action has been retained or is authorized by law,” the
18 agency must in certain circumstances reinitiate formal consultation:

19 (a) If the amount or extent of taking specified in the incidental take statement is
20 exceeded;

21 (b) If new information reveals effects of the action that may affect listed species
22 or critical habitat in a manner or to an extent not previously considered;

23 (c) If the identified action is subsequently modified in a manner that causes an
24 effect to the listed species or critical habitat that was not considered in the
25 biological opinion; or

26 (d) If a new species is listed or critical habitat designated that may be affected by
27 the identified action.

28 50 C.F.R. § 402.16.

1 36) Under FIFRA, EPA retains the authority to withdraw, modify or condition
2 pesticide registrations, giving it ongoing discretion to make any decision regarding the sale and
3 use of pesticides. *See* 7 U.S.C. § 136a(c)(7). As discussed in *Wash. Toxics Coalition v. EPA*,
4 413 F.3d 1024, 1033:

5 EPA retains ongoing discretion to register pesticides, alter pesticide registrations,
6 and cancel pesticide registrations. *See* 7 U.S.C. § 136a-d. Because EPA has
7 continuing authority over pesticide regulation, it has a continuing obligation to
8 follow the requirements of the ESA. We have respected such continuing
9 obligations in well-reasoned authority that binds us here.

10 **B. The Federal Insecticide, Fungicide, and Rodenticide Act**

11 37) The Federal Insecticide, Fungicide, and Rodenticide Act charges the EPA with
12 registering, reviewing, amending, and re-registering chemicals and chemical formulations for use
13 as insecticides, fungicides, and pesticides in the United States. 7 U.S.C. §§ 136-136y. Under
14 FIFRA, a pesticide generally may not be sold or used in the United States unless it has an EPA
15 registration for that particular use. 7 U.S.C. § 136a(a). EPA may register a pesticide if it makes
16 the following determinations: (1) the labeling complies with FIFRA's requirements; (2) the
17 composition claims are warranted; (3) the pesticide will perform its intended function; and (4)
18 the pesticide will not cause unreasonable adverse effects on the environment. 7 U.S.C. §
19 136a(c)(5). The culmination of the registration process is EPA's approval of a label for the
20 particular pesticide. FIFRA makes it unlawful to use a pesticide in a manner inconsistent with
21 the label, *id.* § 136j(2)(G), or to make any claims that differ substantially from the label. *Id.* §
22 136j(1)(B).

23 38) EPA must classify pesticides as general or restricted use pesticides, depending on
24 the risks they pose to the environment. Where necessary to guard against unreasonable adverse
25 environmental effects, EPA must classify or re-classify a pesticide as restricted use. 7 U.S.C. §
26 136a(d)(1)(C). Restricted use pesticides are subject to additional regulatory restrictions,
27 particularly concerning application of the pesticide. *Id.*

39) 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 re-registration review. *Id.* § 136a(g)(2). Even apart from these explicit data submission requirements, registrants must submit to EPA any information about registered pesticides' unreasonable adverse effects on the environment. *Id.* § 136d(a)(2). EPA takes this information into account in reviewing and, where necessary, modifying the pesticide registrations.

40) EPA is required to re-register pesticides that were on the market for years and often decades prior to enactment of the environmental registration requirements currently in place. 7 U.S.C. § 136a-1. EPA is required to eliminate or impose restrictions on harmful uses of the pesticides, including those uses that cause harm to threatened or endangered species, as part of the re-registration determination.

41) The EPA 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 EPA may immediately suspend a pesticide registration to prevent an imminent hazard. *Id.* § 136d(c). An announcement by the EPA 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.

V. FACTUAL BACKGROUND

A. The Polar Bear

42) On May 15, 2008, FWS listed the polar bear (*Ursus maritimus*) as a threatened species under the ESA. 73 Fed. Reg. 28213. While the listing rule for the polar bear was based primarily on the impacts of global warming on the species, FWS recognized that contaminants negatively impact the species, explaining that:

increased exposure to contaminants has the potential to operate in concert with other factors, such [as] nutritional stress from loss or degradation of the sea ice

1 habitat or decreased prey availability and accessibility, to lower recruitment and
2 survival rates that ultimately would have negative population level effects.

3 73 Fed. Reg. at 28292.

4 43) As FWS acknowledged in the listing rule for the polar bear, persistent organic
5 pollutants (POPs), many originating as pesticides in the United States, are transported by global
6 processes to the Arctic and ultimately into the tissues of polar bears, affecting the species' health,
7 reproduction and survival:

8 Contamination of the Arctic and sub-Arctic regions through long-range transport
9 of persistent organic pollutants has been recognized for over 30 years. These
10 compounds are transported via large rivers, air, and ocean currents from the
11 major industrial and agricultural centers located at more southerly latitudes. The
12 presence and persistence of these contaminants within the Arctic is dependent on
13 many factors, including transport routes, distance from source, and the quantity
14 and chemical composition of the releases. . . .

15 The Arctic ecosystem is particularly sensitive to environmental contamination
16 due to the slower rate of breakdown of persistent organic pollutants, including
17 organochlorine (OC) compounds, the relatively simple food chains, and the
18 presence of longlived organisms with low rates of reproduction and high lipid
19 levels. The persistence and tendency of OCs to reside and concentrate in fat
20 tissues of organisms increases the potential for bioaccumulation and
21 biomagnification at higher trophic levels. *Polar bears, because of their position*
22 *at the top of the Arctic marine food chain, have some of the highest*
23 *concentrations of OCs of any Arctic mammals.* Considering the potential for
24 increases in both local and long-range transport of contaminants to the Arctic,
25 with warmer climate and less sea ice, the influence these activities have on polar
26 bears is likely to increase.

27 73 Fed. Reg. at 28290-28291 (emphasis added; internal citations omitted).
28

1 44) As polar bears' diets change in response to sea ice loss, their vulnerability to
2 environmental contaminants increases.

3 **B. The Transport of Contaminants to the Arctic**

4 45) Pesticide contamination is pervasive in U.S. waterways, and the pesticides
5 introduced into these waterways provide a source of contamination to remote regions such as the
6 Arctic. Over one billion pounds of pesticides are used each year in the United States to control
7 weeds, insects, and other organisms.

8 46) Pesticide compounds have been detected throughout most of the year in water
9 from streams with agricultural, urban, or mixed-land-use watersheds.

10 47) Organochlorine pesticides (such as DDT) and the degraded forms and by-products
11 of these pesticides have been found in fish and bed-sediment samples from most streams in
12 agricultural, urban, and mixed-land-use watersheds. These pesticides have been found in more
13 than half the fish from streams with predominantly undeveloped watersheds. Most of the
14 organochlorine pesticides found in these areas have not been used in the United States for years,
15 but their continued presence demonstrates their ability to persist for long-periods in the
16 environment.

17 48) Streams and ground water in basins with significant agricultural or urban
18 development, or with a mix of these land uses, almost always contain mixtures of nutrients and
19 pesticides. Moreover, individual pesticides seldom occur alone; most streams contain two or
20 more pesticides.

21 49) There is a direct correlation between the amounts of pesticides used and the
22 frequency of pesticides found in surface waters. Extensive herbicide use in agricultural areas has
23 resulted in widespread occurrence of herbicides in agricultural streams and shallow ground
24 water.

25 50) The most heavily used agricultural herbicides, such as Atrazine, Metolachlor, and
26 Alachlor, are the most frequently detected pesticides found in random sampling. Concentrations
27 of insecticides are more commonly found in urban streams than in rural streams.

1 51) Once a pesticide is introduced into the environment, the pesticide moves around
2 and persists through a variety of processes that influence the harm the pesticide poses to “non-
3 target” plants and animals. The pervasive presence of pesticides in our waterways contaminates
4 the system, negatively effects non-target organisms at the local level, and also harms non-target
5 species in more remote regions like the Arctic.

6 52) The nation’s waterways provide the mechanisms for long-range transport of these
7 pesticides. The compounds in these waterways negatively impacts species in the fragile Arctic
8 ecosystem, including the polar bear.

9 53) Pesticide contamination in the Arctic is primarily due to sources outside the
10 Arctic, including the contiguous United States, and various pathways are able to transport these
11 pesticides over great distances.

12 54) These pathways are important because the present levels of pesticides are not
13 from local sources in the Arctic. These sources can only be explained by long-range transport
14 from lower latitudes.

15 55) The use of pesticides in the United States results in transport from the point of use
16 in the United States by atmospheric and aquatics pathways to the Arctic. These pesticides
17 accumulate in the Arctic in ice, snow, and ultimately the food web.

18 56) Four primary pathways appear to exist for the transport of contaminants to the
19 Arctic ecosystem: atmospheric transport; ocean currents; transpolar ice pack; and large Arctic
20 rivers. These mechanisms carry contaminants great distances to, from, and within the Arctic.

21 57) The relative importance of each pathway depends on the chemical and physical
22 properties of the substance and its emissions in the source region, which may vary over time.
23 The transport mechanisms are described below, and reported in much greater detail in the Arctic
24 Monitoring and Assessment Programme (AMAP) Reports of 2002 and 2004 and the AMAP
25 2009 report on Arctic Pollution.

26 58) Atmospheric transport is responsible for transport of many persistent
27 contaminants. In the global climate system, the Arctic cools the warmer air and water arriving
28 from lower latitudes, and as the cooling air releases rain and snow it deposits contaminants.

1 59) Strong south to north air flows exacerbate this transport of contaminants
2 increasing the amount of contaminants that spread in this manner. These mechanisms selectively
3 favor the accumulation of certain pesticides in the Arctic. These contaminants end up on the
4 ground, in melt water in rivers, and in the top layer of the ocean, where biological productivity is
5 highest and where most of the apex predators of the Arctic live and feed.

6 60) Ocean currents are a slow but important pathway, and the significance of ocean
7 pathways appears higher than once realized. Ocean waters are a major storage reservoir and
8 transport medium for water and soluble persistent organic pollutants. Long distance marine
9 transport of contaminants from previous mid-latitude releases results in accumulations in Arctic
10 sediments and those contaminants bio-accumulate in the food chain.

11 61) Sea ice can carry contaminants across the Arctic and release them in the
12 productive melting zone of the North Atlantic. Sea ice may be important in transporting POPs
13 and other contaminants from coastal sediments during the winter and from deposition from the
14 atmosphere, with subsequent redistribution during ice melt.

15 62) Arctic rivers are a significant pathway for contaminant transport to the Arctic,
16 often associated with extreme seasonal fluctuations due to freeze-up and melt water flushing
17 characteristics. Rivers carry contaminants and process them through sedimentation and re-
18 suspension of particles. Natural sedimentation processes play a critical role in depositing
19 pesticides in estuaries, deltas, and Arctic coastal shelves.

20 63) In addition to these known transport routes, and the processes and mechanisms
21 involved, there is substantial scientific evidence that organic contaminants are also transported
22 into the Arctic via pelagic organisms (crustaceans, fish, and marine mammals) and migratory
23 birds, animals that migrate in large groups throughout different climate zones into the Arctic.
24 These organisms can transfer the pollutants into higher-level organisms via the Arctic food web.

25 64) Legacy pesticides are still having a dramatic effect on the Arctic, and current use
26 pesticides are beginning to pose their own threat while potentially acting additively or
27 synergistically with the legacy pesticides to create even greater health effects. Many of the
28 pesticides that are believed to cause the currently identified effects on the health of Arctic

species are legacy pesticides that have been banned by the United States for many years or even decades. To this day, however, their effects persist. For example, certain organochlorine pesticides (*e.g.*, HCH) are no longer registered for production or use in agricultural activities, but these chemicals and their metabolites still persist from previous times of use and are believed to be impacting the immune system and reproductive capacity of various species. The health effects displayed by Arctic species are due in large part to exposure of the animals over an extended period of time, and the dangers of delayed effects are often ignored.

65) Current use pesticides that are presently registered by the EPA are found at detectable levels in the Arctic, and they are beginning to accumulate in the same manner that the banned, legacy pesticides have caused.

66) These current use pesticides are predicted to have many of the same health effects on endangered and threatened species as the banned legacy pesticides. Several of these current use pesticide contaminants are so persistent that they will likely remain in the environment for years or even decades.

67) These current use pesticides approved for use in combination with the banned pesticides and other contaminants, such as PCBs, that still persist in significant levels in the Arctic ecosystem are having negative effects on polar bears. Since these pollutants are persistent in the environment and resist degradation, the health effects of these contaminants will increase temporally due to both accumulation and continued exposure.

C. Pesticide Impacts on the Polar Bear

68) The polar bear is severely impacted by the introduction of pesticide contamination, and is exhibiting numerous health issues including immune, endocrine, and reproductive effects as a result of this exposure.

69) Polar bears are an apex predator in Arctic marine ecosystems and are exposed to high levels of pollutants that are biomagnified with each step higher in the food web. Because species comprising the Arctic marine ecosystem are highly dependent on fat for insulation, buoyancy and energy storage, pollutants are accumulated in higher and higher levels up the food chain.

1 70) Simple organisms have limited capacity to metabolize and excrete these
2 chemicals so they bioaccumulate in the predators of the food web. Polar bears are particularly
3 vulnerable to lipophilic contaminants because they eat a fat-rich diet. Ringed, bearded, and harp
4 seals comprise the main food of polar bears. The blubber layer in the seals is preferentially eaten
5 by the bears and so the intake of lipophilic pollutants in this blubber is a substantial component
6 of the bear's diet.

7 71) The pesticide pollutants that are found in the Arctic ecosystem are lipophilic, and
8 bond tightly to fat molecules. The pollutants of most concern to the polar bear in particular are
9 organophosphates and organochlorines that are, or were, used in industry or as pesticides.

10 72) Scientists have tested the levels of persistent organic pollutants, including
11 pesticides, in the adipose and blood plasma of polar bears.

12 73) The best available published studies document the effects of persistent organic
13 pollutants, including pesticides, on polar bears, including impacts to endocrine function and
14 homeostasis, immune function, cub and female survival, reproduction and development, and
15 enzyme function.

16 74) In addition to the original pesticides, metabolites and degradation products of
17 these contaminants also pose a significant risk, and may in fact be even more toxic to the polar
18 bears than the initial pesticide.

19 75) Polar bears are at higher risk of infections due to the documented effects of
20 cumulative pesticide use. Bears with high concentrations of PCBs, organochlorine pesticides
21 (OCPs), or the interaction of PCBs and OCPs have decreased ability to produce antibodies to
22 vaccinations of influenza-, reo- and herpes viruses, tetanus toxoid, and *Mannheimia sp.*

23 76) In addition, high PCB concentrations are correlated with decreases in IgG (the
24 major immunoglobulin class in blood), indicating a possible suppression of antibody-mediated
25 immunity. Thus, polar bears with high concentrations of OCPs and PCBs may be more
26 susceptible to infections than polar bears with lower contaminant concentrations.

27 77) Endocrine disruptors are synthetic chemicals that mimic natural hormones,
28 disrupting natural processes by sending false messages, blocking real messages, preventing

1 synthesis of the body's own hormones, and accelerating the breakdown and excretion of
2 hormones. Endocrine disruption effects how an organism develops and functions. Reproductive
3 disorders, immune system dysfunction, thyroid disorders, types of cancer, birth defects and
4 neurological effects have all been linked to endocrine disruption. Endocrine disruption plays a
5 significant role during critical development of organisms.

6 78) Numerous current-use pesticides that are found in the Arctic are listed by the
7 Center for Bioenvironmental Research of Tulane and Xavier Universities as endocrine
8 disruptors, including endosulfan, dieldrin, methoxychlor, dicofol, alachlor, and atrazine.

9 79) In polar bears, organochlorines have been shown to impact thyroid hormones and
10 retinol (vitamin A). PCBs affect at least five thyroid hormone (TH) variables in female polar
11 bears and two TH variables in males, causing a higher incidence of TH imbalance in female
12 polar bears compared with males. Thyroid hormones control fetal brain development and
13 behavior, as well as growth, metabolism, and reproduction throughout the life of the animal. The
14 negative relationship between PCBs and thyroid hormones raises concern about the possible
15 effects of high level PCB exposure on the learning ability and behavior of polar bears.

16 80) Retinol concentrations have also been linked to PCB and HO-PCB
17 concentrations, where retinol concentrations were negatively correlated with persistent PCB
18 congener concentrations and positively correlated with HO-PCB concentration. Retinol is
19 thought to be important in the growth and development of epithelial tissues and the immune
20 system.

21 81) Organochlorines, including pesticides and PCBs, have also been linked to
22 decreasing cortisol levels in polar bears. Alterations of cortisol levels could threaten polar bears'
23 health by inhibiting key physiological processes including the regulation of energy metabolism,
24 maintenance of growth and development, and responses to stress.

25 82) High concentrations of PCBs, CHLs, DDTs, and dieldrin are significantly
26 correlated with reductions in bone mineral density in subadult bears of both sexes and adult
27 males, likely through their action as agonists and antagonists to naturally endogenous hormones.
28

83) Adult female polar bears with higher PCB concentrations from Svalbard, Norway exhibit higher progesterone concentrations. High levels of progesterone could inhibit secretion of follicle-stimulating hormone, thus preventing normal ovulation from occurring. Levels of the male hormone testosterone, which plays a vital role in sexual development, are low in bears with high PCB loads.

84) Organohalogen pollutants, including pesticides, appear to impact the size of East Greenland polar bear genitalia. There is a significant inverse relationship between OHCs, testes length and baculum length and weight for both subadults and adults.

85) For subadults, the chemicals: dichlorodiphenyl trichloroethanes, dieldrin, chlordanes, hexacyclohexanes, PCBs, and PBDEs show significant relationships, and for adults the chemicals: hexachlorobenzene [HCB] shows a significant relationship. In addition, baculum bone mineral densities decrease with increasing chlordanes, DDTs, and HCB in subadults and adults, respectively.

86) For females, there is a significant inverse relationship between ovary length and PCB and CHL, respectively, and between ovary weight and PBDE and uterine horn length and HCB. These pollutants may therefore pose a risk to polar bears because of reduced sperm and egg quality, quantity and uterus and penis size/robustness.

87) There was a high occurrence of female pseudohermaphroditism among polar bears in Svalbard between 1988-1997, which could have resulted from endocrine disruption from the high concentrations of PCBs found in this population. Another case of female pseudohermaphroditism was observed in East Greenland in 1999.

88) Polar bear cubs are born in an altricial, highly undeveloped state and weigh only about 1.5 pounds at the time of birth. Polar bears breed in February/March, and implantation of the fertilized embryo will take place around late August to early September, giving the fetus just 3 months of gestational development. During the hard winter months, the mother bears fast and nurse their young to a weight that allows the cubs to survive in the harsh Arctic conditions. Cubs are able to grow quickly and survive due in large part to the very fat-rich milk provided by the mother bear during the first year of a cub's life.

89) When animals are inactive for long periods, they lose weight, thereby concentrating the contaminant levels that remain in their bodies. Because female polar bears are fasting during gestation, their pollution loads on a per pound basis increase dramatically as they utilize their fat stores, causing excretion of the contaminants into their system. As the mother bear nurses her cubs, she is injecting them with a heavy dose of contaminants dissolved in the fats of her milk, and the undeveloped cubs are exposed to very high pollution loads from their mother. This contaminant excretion into the milk can profoundly affect cub mortality.

90) There is evidence for reduced cub survival in association with high organochlorine concentrations in their mothers. Adult female polar bears with cubs have significantly lower concentrations of PCBs, DDTs, CHLs, HCHs, ClBs than females that have lost their cubs by the following fall.

91) High intake of PCBs by cubs at a critical period in their development could be leading to higher mortality, most likely because the cubs are born less fit to survive in the harsh Arctic environment. There is a relative lack of older females with cubs-of-the-year (females \geq 16 years of age) in Svalbard compared to other populations, which supports a link between high PCB levels in Svalbard bears and reduced reproduction and cub survival. These contaminant-related population level effects could have resulted from reproductive impairment of females, lower survival rates of cubs, or increased mortality of reproductive females.

92) Embryonic implantation is a complex developmental process that involves an intimate “crosstalk” between the embryo and uterus. Synchronized development of the embryo and differentiation of the uterus to the receptive state are both essential to the implantation process. Successful execution of the events of implantation involves participation of numerous endogenous factors, including hormone levels, fat stores of the mother, lipid mediators, and the like.

93) Certain species, such as the polar bear, exhibit delayed implantation, which is a mechanism to ensure that the mothers will have the ability to care for their young following birth. Polar bears coordinate birth with the winter season, and cubs are born and undergo their initial development phase while in the den with their mothers. Pregnant polar bears den for the

1 winter, and fast during the entire period of birth and initial feeding of the cubs. If a pregnant
2 polar bear does not put on enough weight in the prior season to sustain her through a denning
3 period, or if chemicals impact the hormonal balance necessary for appropriate implantation, the
4 embryo will be reabsorbed and the mother bear will not den, instead remaining active throughout
5 the winter.

6 94) Data suggests that species with delayed implantation are more vulnerable than
7 other species to the effects of pollution through endocrine disruption. Organochlorines and their
8 metabolites in particular have been shown to impair maturation, fertilization, and embryonic
9 development of oocytes following exposure to an environmentally relevant organochlorine
10 mixture. As polar bears have only one estrous cycle per year, prevention of ovulation and an
11 implantation cycle will result in no cubs for that year, and the cumulative effect of this may be
12 quite dramatic on subpopulations if the level of re-absorption of embryos rises in females.

13 **D. Current Use Pesticides “May Affect” the Polar Bear**

14 95) Numerous pesticides registered for use in the United States are known to likely
15 affect the polar bear. To Plaintiff’s knowledge, EPA has failed to consult on any pesticide as to
16 its effects on the polar bear.

17 96) Atrazine is a pesticide registered by the EPA for which the re-registration process
18 was completed in April 2006.

19 97) Atrazine, and its breakdown product desethylatrazine, have been found in the
20 current range of the polar bear. Atrazine has been detected in seawater, sea ice, and marine fog
21 in the Bering and Chukchi Seas and in subarctic and Arctic lakes and snow.

22 98) The re-registration and use of Atrazine in the United States may adversely affect
23 the polar bear.

24 99) The EPA has not consulted with FWS regarding the potential impact of the re-
25 registration of Atrazine on the polar bear.

26 100) Alachlor is a restricted use pesticide registered by the EPA, for which the interim
27 re-registration process was completed in December 1998.

1 101) Alachlor has been found in the current range of the polar bear. Alachlor has been
2 detected in seawater, sea ice, and marine fog in the Bering and Chukchi Seas and in subarctic
3 and Arctic lakes and snow.

4 102) The re-registration and use of Alachlor in the United States may adversely affect
5 the polar bear.

6 103) The EPA has not consulted with FWS regarding the potential impact of the re-
7 registration of Alachlor on the polar bear.

8 104) Chlorothalonil is a restricted use pesticide registered by the EPA, for which the
9 re-registration process was completed in September 1998.

10 105) Chlorothalonil has been found in the current range of the polar bear.
11 Chlorothalonil has been detected in seawater, sea ice, and marine fog in the Bering and Chukchi
12 Seas, and has been found in water and air in the eastern Canadian archipelago and in subarctic
13 and Arctic lakes in Canada.

14 106) The re-registration and use of Chlorothalonil in the United States may adversely
15 affect the polar bear.

16 107) The EPA has not consulted with FWS regarding the potential impact of the re-
17 registration of Chlorothalonil on the polar bear.

18 108) Chlorpyrifos is a pesticide registered by the EPA, for which the interim re-
19 registration process was completed in September 2001 as part of the organophosphate (OP)
20 cumulative assessment process.

21 109) Chlorpyrifos has been found in the current range of the polar bear. Chlorpyrifos
22 has been found in seawater, sea ice, and marine fog in the Bering and Chukchi Seas, in snow
23 samples on sea ice from the Chukchi and Beaufort Seas, in snow samples in Alaskan national
24 parks, in air samples in the eastern Canadian archipelago, in subarctic and Arctic lakes in
25 Canada, and in fish samples in Alaskan parks.

26 110) The re-registration and use of Chlorpyrifos in the United States may adversely
27 affect the polar bear.

1 111) The EPA has not consulted with FWS regarding the potential impact of the re-
2 registration of Chlorpyrifos on the polar bear.

3 112) DCPA (Dactal) is a pesticide registered by the EPA, for which the re-registration
4 process was completed in December 1995.

5 113) DCPA has been found in the current range of the polar bear. DCPA has been
6 found in snow from the Alaskan coast; in air, seawater and invertebrates from the Canadian
7 Arctic; in subarctic and Arctic lakes in Canada, in Russian river sediment, in fish and seals from
8 the Canadian Arctic, and in fish from Alaskan parks.

9 114) The re-registration and use of DCPA in the United States may adversely affect the
10 polar bear.

11 115) The EPA has not consulted with FWS regarding the potential impact of the re-
12 registration of DCPA on the polar bear.

13 116) Diazinon is a pesticide registered by the EPA, for which the interim re-
14 registration process was completed in July 2002 as part of the organophosphate (OP) cumulative
15 assessment process.

16 117) Diazinon has been found in the current range of the polar bear. Diazinon has been
17 detected in ice in Svalbard and in subarctic and Arctic lakes in Canada.

18 118) The re-registration and use of Diazinon in the United States may adversely affect
19 the polar bear.

20 119) The EPA has not consulted with FWS regarding the potential impact of the re-
21 registration of Diazinon on the polar bear.

22 120) Dicofol is a pesticide registered by the EPA is, for which the interim re-
23 registration process was completed in November 1998.

24 121) Dicofol has been found in the current range of the polar bear. Dicofol has been
25 detected in Arctic air samples.

26 122) The re-registration and use of Dicofol in the United States may adversely affect
27 the polar bear.

1 123) The EPA has not consulted with FWS regarding the potential impact of the re-
2 registration of Dicofol on the polar bear.

3 124) Disolfoton is a pesticide registered by the EPA, for which the interim re-
4 registration process was completed in March 2002 as part of the organophosphate (OP)
5 cumulative assessment process.

6 125) Disolfoton has been found in the current range of the polar bear. Disolfoton has
7 been detected in subarctic and Arctic lakes and snow.

8 126) The re-registration and use of Disolfoton in the United States may adversely
9 affect the polar bear.

10 127) The EPA has not consulted with FWS regarding the potential impact of the re-
11 registration of Disolfoton on the polar bear.

12 128) Endosulfan is a pesticide registered by the EPA. Endosulfan is currently in the
13 process of being assessed under the re-registration process. A significant presence of Endosulfan
14 has been confirmed in the current range of the polar bear.

15 129) Endosulfan has been detected in seawater, sea ice, and marine fog in the Bering
16 and Chukchi Seas, in snow samples on sea ice from the Chukchi and Beaufort Seas, in snow
17 samples in Alaskan national parks, in air samples across the Arctic, in air and precipitation
18 samples in Canada, and in surface seawater across the Arctic with the highest-detected
19 endosulfan concentrations in the Bering and Chukchi Seas. Endosulfan has also been detected in
20 the tissues of polar bears in Alaska and Svalvard.

21 130) The re-registration and use of Endosulfan in the United States may adversely
22 affect the polar bear.

23 131) The EPA has not consulted with FWS regarding the potential impact of the
24 registration and/or re-registration of Endosulfan on the polar bear.

25 132) Fenitrothion is a pesticide registered by the EPA. The Interim Tolerance
26 Reassessment and Risk Management Decision was issued in October 2000 as part of the
27 organophosphate (OP) cumulative assessment process.

1 133) Fenitrothion has been found in the current range of the polar bear. Fenitrothion
2 has been detected at increasing concentrations in an ice cap in Svalbard and in subarctic and
3 Arctic lakes and snow.

4 134) The re-registration and use of Fenitrothion in the United States may adversely
5 affect the polar bear.

6 135) The EPA has not consulted with FWS regarding the potential impact of the
7 registration and/or re-registration of Fenitrothion on the polar bear.

8 136) Metolachlor is a pesticide registered by the EPA, for which the re-registration
9 process was completed in April 1995.

10 137) Metolachlor has been found in the current range of the polar bear. Metolachlor
11 has been detected in seawater, sea ice, and marine fog in the Bering and Chukchi Seas, at
12 increasing concentrations in an ice cap in Svalbard, and in subarctic and Arctic lakes and snow.

13 138) The re-registration and use of Metolachlor in the United States may adversely
14 affect the polar bear.

15 139) The EPA has not consulted with FWS regarding the potential impact of the re-
16 registration of Metolachlor on the polar bear.

17 140) Methyl-parathion is a pesticide registered by the EPA, for which the interim re-
18 registration process was completed in May 2003 as part of the organophosphate (OP) cumulative
19 assessment process.

20 141) Methyl-parathion has been found in the current range of the polar bear. Methyl-
21 parathion has been detected at increasing concentrations in an ice cap in Svalbard and in
22 subarctic and Arctic lakes and snow.

23 142) The re-registration and use of Methyl-parathion in the United States may
24 adversely affect the polar bear.

25 143) The EPA has not consulted with FWS regarding the potential impact of the re-
26 registration of Methyl-parathion on the polar bear.

1 carry out programs for the conservation of the polar bear. 16 U.S.C. §§ 1536(a)(1) & 1540(g).

2 155) The EPA is violating Section 7 of the ESA and its implementing regulations by
3 failing to ensure through consultation with the FWS that the registration and re-registration of
4 pesticides, including, *inter alia*, Atrazine, Alachlor, Chlorothalonil, Chlorpyrifos, DCPA,
5 Diazinon, Dicofol, Disolfoton, Endosulfan, Fenitrothion, Metolachlor, Methyl-parathion,
6 Terbufos, and Trifluralin does not jeopardize the continued existence of the polar bear or destroy
7 or adversely modify its critical habitat. 16 U.S.C. §§ 1536(a)(2) & 1540(g); 50 C.F.R. Part 402.

8 **VII. PRAYER FOR RELIEF**

9 For the reasons stated above, Plaintiff respectfully requests that the Court grant the
10 following relief:

11 1. Declare that the EPA is violating ESA § 7(a)(1) by failing to review its programs
12 and consult with FWS to determine how to utilize its authorities to conserve the threatened
13 polar bear;

14 2. Declare that the EPA is violating ESA § 7(a)(2) by failing to undergo
15 consultation concerning the effects of EPA pesticide registrations on the threatened polar bear
16 and its critical habitat;

17 3. Issue injunctive relief compelling the EPA to initiate and complete consultation
18 pursuant to ESA Section 7(a)(2) on the effects of pesticide registrations on threatened polar
19 bears and their critical habitat;

20 4. Issue injunctive relief compelling the EPA to review its programs and authorities
21 and to consult with the FWS to determine how best to utilize its programs and authorities to
22 promote the conservation of threatened polar bears in compliance with ESA Section 7(a)(1);

23 5. Issue injunctive relief as necessary and appropriate to protect polar bears pending
24 EPA's compliance with its obligations under Section 7 of the ESA;

25 6. Award Plaintiff their costs of litigation, including reasonable attorneys' fees
26 under the citizen suit provision of the ESA; and

27 7. Grant Plaintiff such other relief as the Court deems just and proper.
28

1 Dated: December 3, 2009

Respectfully submitted,

2 /s/ Brendan Cummings

Brendan Cummings (CA Bar No. 193952)

3 Phone: (760) 366-2232

4 Email: bcummings@biologicaldiversity.org

CENTER FOR BIOLOGICAL DIVERSITY

5 P.O. Box 549

Joshua Tree, CA 92252

6 Facsimile: (760) 366-2669

Application for admission *Pro Hac Vice* pending

7 /s/ Christopher Winter

8 Christopher Winter (WSB No. 30890)

9 Phone: (503) 525-2725

10 Email: chris@crag.org

Ralph Bloemers (WSB No. 30216)

11 Phone: (503) 525-2727

12 Email: ralph@crag.org

CRAG LAW CENTER

13 917 SW Oak, Suite 417

Portland, Oregon 97205

14 Facsimile: (503) 296-5454

15 Attorneys for Plaintiff