DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R3–ES–2015–0112; 4500030113]

RIN 1018–BB66

Endangered and Threatened Wildlife and Plants; Endangered Species Status for Rusty Patched Bumble Bee

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list the rusty patched bumble bee (*Bombus affinis*) as endangered or threatened under the Endangered Species Act, as amended (Act). After review of the best available scientific and commercial information, we find that listing the rusty patched bumble bee is warranted. Accordingly, we propose to list the rusty patched

bumble bee, a species that occurs in the eastern and midwestern United States and Ontario, Canada, as an endangered species under the Endangered Species Act (Act). If we finalize this rule as proposed, it would extend the Act's protections to this species. The effect of this regulation will be to add this species to the List of Endangered and Threatened Wildlife.

DATES: We will accept comments received or postmarked on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES** below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically*: Go to the Federal eRulemaking Portal: *http://www.regulations.gov*. In the Search box, enter FWS–R3–ES–2015–0112, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on "Comment Now!"

(2) *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R3–ES–2015–0112; U.S. Fish and Wildlife Service Headquarters, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments **only** by the methods described above. We will post all comments on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see *Public Comments* below for more information).

FOR FURTHER INFORMATION CONTACT: Peter Fasbender, Field Supervisor, U.S. Fish and Wildlife Service, Twin Cities Ecological Services Field Office, 4101 American Blvd. E., Bloomington, MN 55425, by telephone 952–252–0092, extension 210. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a proposed rule. Under the Act, if a species is determined to be an endangered or threatened species throughout all or a significant portion of its range, we are required to promptly publish a proposal in the **Federal Register** and make a determination on our proposal within 1 year. Critical habitat shall be designated, to the maximum extent prudent and determinable, for any species determined to be an endangered or threatened species under the Act. Listing a species as an endangered or threatened species and designations and revisions of critical habitat can only be completed by issuing a rule. This rulemaking will propose the listing of the rusty patched bumble bee (*Bombus affinis*) as an endangered species.

The basis for our action. Under the Act, we can determine that a species is an

endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence. While the exact cause of the species' decline is uncertain, the primary causes attributed to the decline include habitat loss and degradation, pathogens, pesticides, and small population dynamics.

We will seek peer review. We sought comments on the species status assessment (SSA) from independent specialists to ensure that our analysis was based on scientifically sound data, assumptions, and analyses. We will also invite these peer reviewers to comment on our listing proposal. Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal.

An SSA team prepared an SSA report for the rusty patched bumble bee. The SSA team was composed of U.S. Fish and Wildlife Service biologists, in consultation with other species experts. The SSA represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the rusty patched bumble bee. The SSA underwent independent peer review by 15 scientists with expertise in bumble bee biology, habitat management, and stressors (factors negatively affecting the species) to the species. The SSA and other materials relating to this proposal can be

found on the Midwest Region website at *http://www.fws.gov/midwest/Endangered/* and at *http://www.regulations.gov* under docket number FWS–R3–ES–2015–0112.

Information Requested

Public Comments

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and effective as possible. Therefore, we request comments or information from the public, other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) The rusty patched bumble bee's biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns (in particular, we are interested in the locations and dates of surveys targeting bumble bees within the historical range of the rusty patched bumble bee, including negative survey results);

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and existing conservation measures or regulations that may be addressing those threats.

(4) The reasons why any habitat should or should not be determined to be critical habitat for the rusty patched bumble bee as provided by section 4 of the Act, including physical or biological features within areas that are occupied or specific areas outside of the geographic area that are occupied that are essential for the conservation of the species.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments **only** by the methods described in **ADDRESSES**.

If you submit information via *http://www.regulations.gov*, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *http://www.regulations.gov*.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov*, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Twin Cities Ecological Service Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearing

Section 4(b)(5) of the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 et seq.), provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we sought the expert opinions of 25 appropriate

and independent specialists regarding the Species Status Assessment, which informed this proposed rule. The purpose of peer review is to ensure that our listing determination is based on scientifically sound data, assumptions, and analyses. The peer reviewers have expertise in bumble bee biology, habitat, and stressors (factors negatively affecting the species) to the species. We invite additional comment from the peer reviewers during this public comment period.

Previous Federal Action

We received a petition from The Xerces Society for Invertebrate Conservation (Xerces Society) to list the rusty patched bumble bee as an endangered species on February 5, 2013. On May 13, 2014, the Xerces Society filed a lawsuit against the Service for failure to complete a petition finding in accordance with statutory deadlines. Per a December 24, 2014, settlement agreement with the Xerces Society, we agreed to make a 90-day finding no later than September 30, 2015, and, if that finding were substantial, to complete a 12-month finding no later than September 30, 2016. On September 18, 2015, we published in the **Federal Register** a 90-day finding that the petition presented substantial information indicating that listing the species may be warranted (80 FR 56423). We then conducted a status review, and this proposed listing rule constitutes our 12-month petition finding for the species.

Background

A thorough review of the taxonomy, life history, and ecology of the rusty patched bumble bee (*Bombus affinis*) is presented in the species status assessment report

(Szymanski *et al*. 2016, Chapter 2; available at *http://www.fws.gov/midwest/Endangered/* and at *http://www.regulations.gov* under Docket No. FWS–R3–ES–2015–0112). All bumble bees, including the rusty patched, belong to the genus *Bombus* (within the family Apidae) (Williams *et al.* 2008, p. 53).

The rusty patched bumble bee is a eusocial (highly social) organism forming colonies consisting of a single queen, female workers, and males. Colony sizes of *B. affinis* are considered large compared to other bumble bees, and healthy colonies may consist of up to 1,000 individual workers in a season (Macfarlane *et al.* 1994, pp. 3–4). Queens and workers differ slightly in size and coloration; queens are larger than workers (Plath 1922, p. 192, Mitchell 1962, p. 518). All rusty patched bumble bees have entirely black heads, but only workers and males have a rusty reddish patch centrally located on the abdomen.

The rusty patched bumble bee's annual cycle begins in early spring with colony initiation by solitary queens and progresses with the production of workers throughout the summer and ending with the production of reproductive individuals (males and potential queens) in mid- to late summer and early fall (Macfarlane *et al.* 1994, p. 4; Colla and Dumesh 2010, p. 45; Plath 1922, p. 192). The males and new queens disperse to mate and the original founding queen, males, and workers die. The new queens go into diapause (a form of hibernation) over winter. The following spring, the queen, or foundress, searches for suitable nest sites and collects nectar and pollen from flowers to support the production of her eggs, which are fertilized by sperm she has stored since mating the previous fall. She is solely responsible for establishing the colony. As the workers hatch and the colony grows, they assume the responsibility of food collection,

colony defense, and care of the young, while the foundress remains within the nest and continues to lay eggs. During later stages of colony development, in mid-July or August to September, the new queens and males hatch from eggs. At the end of the season the foundress dies and the new queens (gynes, or reproductive females) mate before hibernating.

The rusty patched bumble bee has been observed and collected in a variety of habitats, including prairies, woodlands, marshes, agricultural landscapes, and residential parks and gardens (Colla and Packer 2008, p. 1381; Colla and Dumesh 2010, p. 46; USFWS rusty patched bumble bee unpublished geodatabase 2016). The species requires areas that support sufficient food (nectar and pollen from diverse and abundant flowers), undisturbed nesting sites in proximity to floral resources, and overwintering sites for hibernating queens (Goulson *et al.* 2015, p. 2; Potts *et al.* 2010, p. 349). Rusty patched bumble bees live in temperate climates, and are not likely to survive prolonged periods of high temperatures (over 35 °Celsius (C) (95 °Fahrenheit (F)) (Goulson 2016, pers. comm.).

Bumble bees are generalist foragers, meaning they gather pollen and nectar from a wide variety of flowering plants (Xerces 2013, pp. 27–28). The rusty patched bumble bee is one of the first bumble bees to emerge early in the spring and the last to go into hibernation, so to meet its nutritional needs, the species requires a constant and diverse supply of blooming flowers.

Rusty patched bumble bee nests are typically in abandoned rodent nests or other similar cavities (Plath 1922, pp. 190–191; Macfarlane *et al.* 1994, p. 4). Little is known about the overwintering habitats of rusty patched bumble bee foundress queens, but other

species of *Bombus* typically form a chamber in soft soil, a few centimeters deep, and sometimes use compost or mole hills to overwinter (Goulson 2010, p. 11).

Prior to the mid- to late 1990s, the rusty patched bumble bee was widely distributed across areas of 31 States/Provinces: Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Ontario, Pennsylvania, Quebec, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin. Since 2000, the rusty patched bumble bee has been reported from 13 States/Provinces: Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, North Carolina/Tennessee (single record on the border between the States), Ontario, Ohio, Pennsylvania, Virginia, and Wisconsin (Figure 1).

Summary of Biological Status and Threats

The Act directs us to determine whether any species is an endangered species or a threatened species because of any factors affecting its continued existence. We completed a comprehensive assessment of the biological status of the rusty patched bumble bee, and prepared a report of the assessment, which provides a thorough account of the species' overall viability. We define viability as the ability of the species to persist over the long term and, conversely, to avoid extinction. In this section, we summarize the conclusions of that assessment, which can be accessed at Docket No. FWS–R3–ES–2015–0112 on *http://www.regulations.gov* and at *http://www.fws.gov/midwest/Endangered/*. The reader is directed to the Rusty Patched

Bumble Bee (*Bombus affinis)* Species Status Assessment (SSA report; Szymanski *et al.* 2016) for a detailed discussion of our evaluation of the biological status of the rusty patched bumble bee and the influences that may affect its continued existence.

To assess rusty patched bumble bee viability, we used the three conservation biology principles of resiliency, representation, and redundancy (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental stochasticity (for example, wet or dry, warm or cold years); representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes); and redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, hurricanes). In general, the more redundant, representative, and resilient a species is, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

We evaluated the change in resiliency, representation, and redundancy from the past until the present, and projected the anticipated future states of these conditions. To forecast the biological condition into the future, we devised likely future scenarios by eliciting expert information on the primary stressors anticipated in the future to the rusty patched bumble bee: pathogens, pesticides, habitat loss and degradation, climate change, and small population dynamics. To assess resiliency, we evaluated the trend in rusty patched bumble bee occurrences (populations) over time and the trend in the species abundance relative to all *Bombus* spp. over time. To forecast anticipated future

abundance, we used a population model to project the number of populations expected to persist based on plausible future risk scenarios. To assess representation (as an indicator of adaptive capacity) of the rusty patched bumble bee, we evaluated the spatial extent of occurrences over time. At a coarse scale, we tallied the number of counties, States, and ecoregions occupied by the species. Ecoregions are areas defined by environmental conditions including climate, landforms, and soil characteristics. Bailey Ecoregions (Bailey 1983, Bailey *et al.* 1994) and the equivalent Canadian Ecoregions (Ecological Stratification Working Group, 1996) were used. At a finer scale, we calculated the extent of occurrence within each ecoregion (within the historically occupied range) over time. To assess redundancy, we calculated the risk of ecoregion-wide extirpations given the number of populations present historically, currently, and forecasted for 5 to 50 years into the future.

Our analyses indicate that the resiliency, representation, and redundancy of the rusty patched bumble bee have all declined since the late 1990s and are projected to continue to decline over the next several decades. Historically, the species was abundant and widespread, with hundreds of populations across an expansive range, and was the fourth-ranked *Bombus* species in our relative abundance analysis.

Since the late 1990s, rusty patched bumble bee abundance and distribution has declined significantly. The number of populations has declined by 91 percent (from 845 historically (historical = occurrences in the period 1900–1999) to 69 currently (current = occurrences in the period 2000–2015)), and the rusty patched bumble bee's relative abundance declined from 8 percent historically, to 1 percent currently. Many of the current populations, however, have not been reconfirmed since the early 2000s and may

no longer persist. For example, no rusty patched bumble bees were observed at any of the historical sites that were revisited in 2015. Also, many of the current populations (64 of 69 (93 percent)) are documented by 5 or fewer individuals; only 2 populations are documented by more than 10 individuals (healthy colonies consist of up to 1,000 individual workers, and a healthy population contains tens to hundreds of colonies (Macfarlane *et al.* 1994, pp. 3–4)).

Along with the loss of populations, a marked decrease in the spatial extent has occurred in recent times. As noted above, the rusty patched bumble bee was broadly distributed historically across the eastern United States, upper Midwest, and southern Quebec and Ontario, an area comprising 15 ecoregions, 31 States/Provinces, and 378 counties. Since 2000, the species' distribution has declined across its range, with current records from 6 ecoregions, 13 States/Provinces, and 41 counties (Figure 1). The spatial extent of the species' current range has been reduced to 8 percent of its historical extent. The loss of occurrences has increased the risk of ecoregion-wide extirpations due to catastrophic events (*i.e.*, severe drought and prolonged, high temperatures).

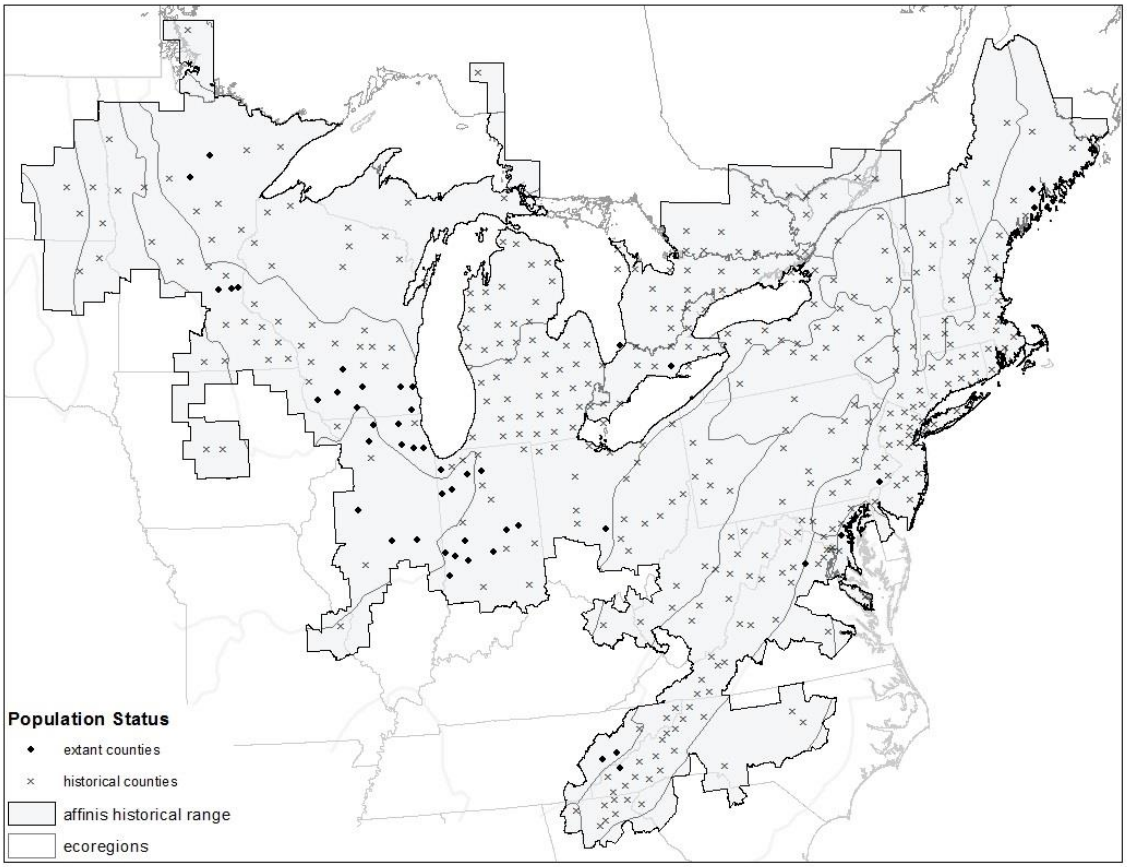

Figure 1. Rusty patched bumble bee range map showing the current distribution. Dots represent counties with a rusty patched bumble bee occurrence since 2000. The X*s* represent counties with historical occurrences only (*i.e.*, no occurrences since 2000). (See Szymanski *et al.* (2016, p. 12) for an explanation of current and historical time periods.)

Many of the existing populations continue to face the effects of past and ongoing stressors, including pathogens, pesticides, habitat loss and degradation, small population dynamics, and climate change. A brief summary of these primary stressors is presented below; for a full description of these stressors, refer to Chapter 5 of the SSA report.

Pathogens—The precipitous decline of several bumble bee species (including the rusty patched) from the mid-1990s to present was contemporaneous with the collapse in populations of commercially bred western bumble bees (*B. occidentalis*), raised primarily to pollinate greenhouse tomato and sweet pepper crops, beginning in the late 1980s (for

example, Szabo *et al.* 2012, pp. 232−233). This collapse was attributed to the microsporidium (fungus) *Nosema bombi*. Around the same time, several North American wild bumble bee species also began to decline rapidly (Szabo *et al*. 2012, p. 232). The temporal congruence and speed of these declines led to the suggestion that they were caused by transmission or "spillover" of *N. bombi* from the commercial colonies to wild populations through shared foraging resources. Patterns of losses observed, however, cannot be completely explained by exposure to *N. bombi*. Several experts have surmised that *N. bombi* may not be the culpable (or only culpable) pathogen in the precipitous decline of certain wild bumble bees in North America (for example, Goulson 2016, pers. comm.; Strange and Tripodi 2016, pers. comm.), and the evidence for chronic pathogen spillover from commercial bumble bees as a main cause of decline remains debatable (see various arguments in Colla *et al.* 2006, entire; Otterstatter and Thomson 2008, entire; Szabo *et al.* 2012, entire; Manley *et al.* 2015, entire).

In addition to fungi such as *N. bombi*, other viruses, bacteria, and parasites are being investigated for their effects on bumble bees in North America, such as deformed wing virus, acute bee paralysis, and parasites such as *Crithidia bombi* and *Apicystis bombi* (for example, Szabo *et al.* 2012, p. 237; Manley *et al.* 2015, p. 2; Tripodi 2016, pers. comm.; Goulson *et al.* 2015, p. 3). Little is known about these diseases in bumble bees, and no studies specific to the rusty patched bumble bee have been conducted. Refer to Szymanski *et al*. (2016, pp. 40–43) for a brief summary of those that have the greatest potential to affect the rusty patched bumble bee.

Pesticides—A variety of pesticides are widely used in agricultural, urban, and even natural environments, and native bumble bees are simultaneously exposed to

multiple pesticides, including insecticides, fungicides, and herbicides. The pesticides with greatest effects on bumble bees are insecticides and herbicides: Insecticides are specifically designed to directly kill insects, including bumble bees, and herbicides reduce available floral resources, thus indirectly affecting bumble bees. Although the overall toxicity of pesticides to rusty patched or other bumble bees is unknown, pesticides have been documented to have both lethal and sublethal effects (for example, reduced or no male production, reduced or no egg hatch, and reduced queen production and longevity) on bumble bees (for example, Gill *et al.* 2012, p. 107; Mommaerts *et al.* 2006, pp. 3–4; Fauser-Misslin *et al.* 2014, pp. 453–454).

Neonicotinoids are a class of insecticides used to target pests of agricultural crops, forests (for example, emerald ash borer), turf, gardens, and pets and have been strongly implicated as the cause of the decline of bees in general (European Food Safety Authority 2015, p. 4211; Pisa *et al.* 2015, p. 69; Goulson 2013, pp. 7−8), and specifically for rusty patched bumble bees, due to the contemporaneous introduction of neonicotinoid use and the precipitous decline of the species (Colla and Packer 2008, p. 10). The neonicotinoid imidacloprid became widely used in the United States starting in the early 1990s, and clothianidin and thiamethoxam entered the commercial market beginning in the early 2000s (Douglas and Tooker 2015, pp. 5091−5092). The use of neonicotinoids rapidly increased as seed-applied products were introduced in field crops, marking a shift toward large-scale, preemptive insecticide use. If current trends continue, Douglas and Tooker (2015, p. 5093) predict that neonicotinoid use will increase further, through application to more soybeans and other crop species.

Most studies examining the effect of neonicotinoids on bees have been conducted using the European honey bee (*Apis mellifera*) (Lundin *et al.* 2015, p. 7). Bumble bees, however, may be more vulnerable to pesticide exposure for several reasons: (1) They are more susceptible to pesticides applied early in the year, because for one month the entire bumble bee population depends on the success of the queens to forage and establish new colonies; (2) bumble bees forage earlier in the morning and later in the evening than honey bees, thus are susceptible to pesticide applications that are done in the early morning or evening to avoid effects to honey bees; (3) most bumble bees have smaller colonies than honey bees, thus, a single bumble bee worker is more important to the survival of the colony (Thompson and Hunt 1999, p. 155); (4) bumble bees nest underground, thus, are also exposed to pesticide residues in the soil (Arena and Sgolastra 2014, p. 333); and (5) bumble bee larvae consume large amounts of unprocessed pollen (as opposed to honey), and, therefore, are much more exposed to pesticide residues in the pollen (Arena and Sgolastra 2014, p. 333).

Habitat loss and degradation—The rusty patched bumble bee historically occupied native grasslands of the Northeast and upper Midwest; however, much of this landscape has now been lost or is fragmented. Estimates of native grassland losses since European settlement of North America are as high as 99.9 percent (Samson and Knofp 1994, p. 418). Habitat loss is commonly cited as a long-term contributor to bee declines through the 20th century, and may continue to contribute to current declines, at least for some species (Goulson *et al.* 2015, p. 2; Goulson *et al.* 2008; Potts *et al.* 2010, p. 348; Brown and Paxton 2009, pp. 411−412). However, the rusty patched bumble bee may not be as severely affected by habitat loss compared to habitat specialists, such as native

prairie endemics, because it is not dependent on specific plant species, but can use a variety of floral resources. Still, loss or degradation of habitat has been shown to reduce both bee diversity and abundance (Potts *et al.* 2010, pp. 348−349). Large monocultures do not support the plant diversity needed to provide food resources throughout the rusty patched bumble bees' long foraging season, and small, isolated patches of habitat may not be sufficient to support healthy bee populations (Hatfield and LeBuhn 2007, pp. 154−156; Öckinger and Smith 2007, pp. 55−56).

Although habitat loss has established negative effects on bumble bees (Goulson *et al.* 2008; Williams and Osborne 2009, pp. 371−373), many feel it is unlikely to be a main driver of the recent, widespread North American bee declines (Szabo *et al.* 2012; p. 236; Colla and Packer 2008, p. 1388; Cameron *et al.* 2011b, p. 665). However, the past effects of habitat loss and degradation may continue to have impacts on bumble bees that are stressed by other factors. If there is less food available or if the bumble bees must expend more energy and time to find food, they are less healthy overall, and, thus, less resilient to other stressors (for example, nutritional stress may decrease the ability to survive parasite infection (Brown *et al.* 2000, pp. 425−426) or cope with pesticides (Goulson *et al.* 2015, p. 5)). Furthermore, bumble bees may be more vulnerable to extinction than other animals because their colonies have long cycles, where reproductive individuals are primarily produced near the end of those cycles. Thus, even slight changes in resource availability could have significant cumulative effects on colony development and productivity (Colla and Packer 2008, p. 1380).

Small population dynamics—The social organization of bees has a large effect on their population biology and genetics (Pamilo and Crozier 1997, entire; Chapman and

Bourke 2001, entire; Zayed 2009, entire). The rusty patched bumblebee is a eusocial bee species (cooperative brood care, overlapping generations within a colony of adults, and a division of labor into reproductive and non-reproductive groups), and a population is made up of colonies, rather than individuals. Consequently, the effective population size (number of individuals in a population who contribute offspring to the next generation) is much smaller than the census population size (number of individuals in a population). Genetic effects of small population sizes depend on the effective population size (rather than the actual size), and in the rusty patched bumble bee the effective population sizes are inherently small due to their eusocial structure, haplodiploidy reproduction, and the associated "diploid male vortex."

Like many insect species, the rusty patched bumble bee has haplodiploidy sex differentiation, in which haploid (having one set of chromosomes) males are produced from unfertilized eggs and diploid (containing two complete sets of chromosomes) females from fertilized eggs (Zayed 2009, p. 239). When females mate with related males, however (as is more likely to happen in small populations), half of the females' progeny will develop into diploid males instead of females. Having fewer females decreases the health of the colony, as males do not contribute food resources to the colony (Ellis *et al.* 2006, p. 4376). Additionally, diploid males are mostly unviable, or if viable and mate, produce unviable eggs or sterile daughters (Zayed 2009, p. 239 and references within), so those males that are produced are unable to contribute to next year's cohort. (See Szymanski *et al*. 2016, pp. 17−18 for a more detailed explanation of this life-history characteristic). This reproductive strategy (haplodiploidy) makes the rusty patched bumble bee particularly vulnerable to the effects of a small population size,

as the species can experience a phenomenon called a "diploid male vortex," where the proportion of nonviable males increases as abundance declines, thereby further reducing population size. Given this, due to the size of the current populations, some may no longer persist and others are likely already quasi-extirpated (the level at which a population will go extinct, although it is not yet at zero individuals) (Szymanski *et al.* 2016, p. 66).

Effects of climate change—Global climate change is broadly accepted as one of the most significant risks to biodiversity worldwide, however, specific impacts of climate change on pollinators are not well understood. The changes in climate likely to have the greatest effects on bumble bees include: increased drought, increased flooding, increased storm events, increased temperature and precipitations, early snow melt, late frost, and increased variability in temperatures and precipitation. These climate changes may lead to decreased resource availability (due to mismatches in temporal and spatial co-occurrences, such as availability of floral resources early in the flight period), decreased availability of nesting habitat (due to changes in rodent populations or increased flooding or storms), increased stress from overheating (due to higher temperatures), and increased pressures from pathogens and nonnative species, (Goulson *et al.* 2015, p. 4; Goulson 2016, pers. comm.; Kerr *et al.* 2015, pp. 178−179; Potts *et al.* 2010, p. 351; Cameron *et al.* 2011a, pp. 35−37; Williams and Osborne 2009, p. 371).

Synergistic effects—It is likely that several of the above summarized risk factors are acting synergistically or additively on the species, and the combination of multiple stressors is likely more harmful than a single stressor acting alone. Although the ultimate source of the decline is debated, and despite that the relative role and synergistic effects

of the primary stressors are unknown, the acute and widespread decline of rusty patched bumble bees is undisputable.

Beneficial factors—We are aware of only a few specific measures for bumble bee conservation at any of the current rusty patched bumble bee locations in the United States. In Canada, the species was listed as endangered on Schedule 1 of the Species at Risk Act in 2012, and a recovery strategy has been proposed (Environment and Climate Change Canada 2016, entire). However, we are aware of only nine current occurrences (three populations) in Canada. The rusty patched bumble bee is listed as State endangered in Vermont and Special Concern in Connecticut, Michigan, and Wisconsin. Of those four States, Wisconsin is the only State with current records (18 populations). A few organizations have or may soon start monitoring programs, such as Bumble Bee Watch (www.bumble beewatch.org), a collaborative citizen science effort to track North American bumble bees, and the Xerces Society. Also, the International Union of Concerned Scientists Conservation Breeding Specialist Group has developed general conservation guidelines for bumble bees (Hatfield *et al.* 2014b, pp.11−16; Cameron *et al*. 2011a, entire). There is an increased awareness on pollinators, in general, and thus efforts to conserve pollinators may have a fortuitous effect on the rusty patched bumble bee. For example, planting appropriate flowers may contribute to pollinator conservation; however, there is a need to develop regionally appropriate, bumble bee-specific recommendations based on evidence of use (Goulson 2015, p. 6).

In summary, the magnitude of population losses and range contraction to date have greatly reduced the rusty patched bumble bee's ability to adapt to changing environmental conditions and to guard against further losses of adaptive diversity and

potential extinction due to catastrophic events. In reality, the few populations persisting and the limited distribution of these populations have substantially reduced the ability of the rusty patched bumble bee to withstand environmental variation, catastrophic events, and changes in physical and biological conditions. Coupled with the increased risk of extirpation due to the interaction of reduced population size and its haplodiploidy reproductive strategy, the rusty patched bumble bee may lack the resiliency required to sustain populations into the future, even without further exposure to stressors.

12-Month Petition Finding on the Rusty Patched Bumble Bee

As required by the Act, we considered the five factors in assessing whether the rusty patched bumblebee is an endangered species, as cited in the petition, throughout all of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the bumble bee. We reviewed the petition, information available in our files, and other available published and unpublished information, and we consulted with recognized bumble bee experts and other Federal and State agencies. We identify the threats to the rusty patched bumble bee to be attributable to habitat loss and degradation (Factor A), impacts of pathogens (Factor C), impacts of pesticides (Factor E), the effects of small population size (Factor E), and effects of climate change (Factor E). On the basis of the best scientific and commercial information available, we find that the petitioned action to list the rusty patched bumble bee as an endangered species is warranted. A determination on the status of the species as an endangered or threatened species is presented below in the proposed listing determination.

Determination

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the rusty patched bumble bee. Habitat loss and degradation from residential and commercial development and agricultural conversion occurred rangewide and resulted in fragmentation and isolation of the species from formerly contiguous native habitat. Habitat loss and degradation has resulted in the loss of the diverse floral resources needed throughout the rusty patched bumble bee's long feeding season, as well as loss of appropriate nesting and overwintering sites. Although much of the habitat conversion occurred in the past, the dramatic reduction and fragmentation of habitat has persistent and ongoing effects on the viability of populations; furthermore, conversion of native habitats to agriculture (*i.e.*, monocultures) or other uses is still occurring today (Factor A).

The species' range has been reduced by 92 percent, and its current distribution is limited to just one to a few populations in each of 12 States and Ontario. Ninety-three percent of the 69 current populations are documented by 5 or fewer individuals, and only 2 populations are documented by more than 10 individuals. Drought frequency and increased duration of high temperatures are likely to increase due to climate change, further restricting floral resources, reducing foraging times, and fragmenting or eliminating populations (Factor E). Fungi such as *N. bombi*, parasites such as *Crithidia bombi* and *Apicystis bombi*, deformed wing virus, acute bee paralysis, and bacteria are all suspected causes of decline for the rusty patched bumble bee (Factor C).

Pesticide use, including the use of many insecticides that have known lethal and sublethal effects to bumble bees, is occurring at increasing levels rangewide (Factor E). Similarly, herbicide use occurs rangewide and can reduce available floral resources (Factor A). Additionally, the rusty patched bumble bee is not able to naturally recolonize unoccupied areas that are not connected by suitable dispersal habitat (Factors A and E).

The rusty patched bumble bee's reproductive strategy makes it particularly vulnerable to the effects of small population size, and the species can experience a "diploid male vortex," where the number of nonviable males increases as abundance declines, thereby further reducing population size (Factor E). There is virtually no redundancy of populations within each occupied ecoregion, further increasing the risk of loss of representation of existing genetic lineages and, ultimately, extinction.

These threats have already resulted in the extirpation of the rusty patched bumble bee throughout an estimated 92 percent of its range, and these threats are likely to continue or increase in severity. Although the relative contribution of pesticides,

pathogens, loss of floral resources, and other threats to the species' past and continued decline is not known, the prevailing data indicate that threats are acting synergistically and additively and that the combination of multiple threats is likely more harmful than a single threat acting alone. These threats are occurring rangewide, are expected to continue or increase in the future, and are significant because they further reduce the already limited distribution and decrease the resiliency of the rusty patched bumble bee within those limited areas.

Existing regulatory mechanisms vary across the species' range, and although the rusty patched bumble bee is listed as State endangered in Vermont (which prohibits taking, possessing, or transporting), as special concern (no legal protection) in Connecticut, Michigan, and Wisconsin, and is protected under Canada's Species At Risk Act, these mechanisms do not currently ameliorate threats to the rusty patched bumble bee.

The Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range" and a threatened species as any species "that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future." We find that the rusty patched bumble bee is presently in danger of extinction throughout its entire range. Relative to its historical (pre-2000s) condition, the abundance of rusty patched bumble bees has declined precipitously over a short period of time. Only nine percent of the locations where it was historically found are currently occupied, and the abundance of the species relative to other *Bombus* species has declined from eight percent to one percent. The current spatial extent of occurrence is eight percent of its historical extent.

Further adding to the species' imperilment, its reproductive strategy (haplodiploidy) renders bumble bees particularly sensitive to loss of genetic diversity, which is further exacerbated by decreasing population size (for example, diploid male vortex). The small number of persisting colonies continues to be affected by high-severity stressors, including pathogens, pesticides, habitat loss and degradation, effects of climate change, and small population dynamics throughout all of the species' range. These stressors are acting synergistically and additively on the species, and the combination of multiple stressors is more harmful than a single stressor acting alone. Due to the above factors, the species does not have the adaptive capacity in its current state to withstand physical and biological changes in the environment presently or into the future, and optimistic modeling suggests that all but one of the ecoregions are predicted to be extirpated within 5 years (Szymanski *et al.* 2016, Table 7.3).

In conclusion, the species' overall range has been considerably reduced and the remaining populations are under threat from a variety of factors acting in combination to significantly reduce the overall viability of the species. The risk of extinction is currently high because there are a small number of remaining populations, most of which are extremely small in size (all but 2 have 10 or fewer individuals), in a severely reduced range. Therefore, on the basis of the best available scientific and commercial information, we propose listing the rusty patched bumble bee as an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act. We find that a threatened species status is not appropriate for the rusty patched bumble bee because (1) given its current condition, the species lacks the ability to withstand physical and biological changes in the environment presently and into the future; (2) based on the prediction that all but one

ecoregion will be extinct within 5 years, the species presently has a high probability of extinction based on its current status; and (3) even were the current stressors to be reduced or eliminated, the species is at high risk of extinction based on small population size effects alone.

Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. Because we have determined that the rusty patched bumble bee is endangered throughout all of its range, no portion of its range can be "significant" for purposes of the definitions of "endangered species" and "threatened species." See the Final Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species" (79 FR 37577; July 1, 2014).

Critical Habitat

Section 4(a)(3) of the Act, as amended, and implementing regulations in title 50 of the Code of Federal Regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be an endangered or threatened species. Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as: An area that may generally be delineated around species' occurrences, as determined by the Secretary (*i.e.*, range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (for example, migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals).

Conservation, as defined under section 3 of the Act, means to use, and the use of, all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Critical habitat designation does not allow the government or public to access private

lands, nor does it require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the Federal agency would be required to consult under section 7(a)(2) of the Act, but even if consultation leads to a finding that the action would likely cause destruction or adverse modification of critical habitat, the resulting obligation of the Federal action agency and the landowner is not to restore or recover the species, but rather to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) that are essential to the conservation of the species and (2) that may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features, we focus on the specific features that support the life-history needs of the species, including but not limited to, water characteristics, soil type, geological features, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology,

such as patch size, distribution distances, and connectivity. Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed if we determine that such areas are essential for the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. For example, they require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when any of the following situations exist: (i) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (ii) such designation of critical habitat would not be beneficial to the species. The regulations also provide that, in determining whether a designation of critical habitat would not be beneficial to the species, the factors the Services may consider include but are not limited to: Whether the present or threatened destruction, modification, or curtailment of a species' habitat or range is not a

threat to the species, or whether any areas meet the definition of "critical habitat" (50 CFR 424.12(a)(1)(ii)).

We do not know of any imminent threat of take attributed to collection or vandalism for the rusty patched bumble bee. The available information does not indicate that identification and mapping of critical habitat is likely to initiate any threat of collection or vandalism for the bee. Therefore, in the absence of finding that the designation of critical habitat would increase threats to the species, if there are benefits to the species from a critical habitat designation, a finding that designation is prudent is warranted.

The potential benefits of designation may include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus where it would not otherwise occur because, for example, it is unoccupied; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the protected species. Because designation of critical habitat will not likely increase the degree of threat to the species and may provide some measure of benefit, designation of critical habitat may be prudent for the rusty patched bumble bee.

Our regulations (50 CFR 424.12(a)(2)) further state that critical habitat is not determinable when one or both of the following situations exists: (1) Information sufficient to perform required analysis of the impacts of the designation is lacking; or (2) the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

Delineation of critical habitat requires, within the geographical area occupied by the species, identification of the physical or biological features essential to the species' conservation. Information regarding the rusty patched bumble bee life functions is complex, and complete data are lacking for most of them. We require additional time to analyze the best available scientific data in order to identify specific areas appropriate for critical habitat designation and to prepare and process a proposed rule. Accordingly, we find designation of critical habitat for these species in accordance with section 4(3)(A) of the Act to be "not determinable" at this time.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened

species. The recovery planning process involves the identification of actions that are necessary to address the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a draft and final recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for downlisting or delisting, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. When completed, the draft recovery plan and the final recovery plan will be available on our website (*http://www.fws.gov/endangered*), or from our Twin Cities Ecological Service Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (for example, restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands. If this species is listed, funding for recovery actions will be available from a variety of sources, including

Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin would be eligible for Federal funds to implement management actions that promote the protection or recovery of the rusty patched bumble bee. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants*.

Although the rusty patched bumble bee is only proposed for listing under the Act at this time, please let us know if you are interested in participating in conservation efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species and with respect to its critical habitat, if any is proposed or designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to

ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph include management and any other landscape-altering activities on Federal lands, for example, lands administered by the National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) endangered wildlife within the United States or on the high seas. In addition, it is unlawful to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22. With regard to endangered wildlife, a permit may be issued

for the following purposes: for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. There are also certain statutory exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing.

Based on the best available information, the following activities may potentially result in a violation of section 9 of the Act; this list is not comprehensive:

(1) Unauthorized handling or collecting of the species;

(2) The unauthorized release of biological control agents that attack any life stage of the rusty patched bumble bee, including the unauthorized use of herbicides, pesticides, or other chemicals in habitats in which the rusty patched bumble bee is known to occur;

(3) Unauthorized release of nonnative species or native species that carry pathogens, diseases, or fungi that are known or suspected to adversely affect rusty patched bumble bee where the species is known to occur;

(4) Unauthorized modification, removal, or destruction of the habitat (including vegetation and soils) in which the rusty patched bumble bee is known to occur; and

(5) Unauthorized discharge of chemicals or fill material into any wetlands in which the rusty patched bumble bee is known to occur.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Twin Cities Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Required Determinations

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), need not be prepared in connection with listing a species as an endangered or threatened species under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of references cited in this rulemaking is available on the Internet at *http://www.regulations.gov* and upon request from the Twin Cities Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Twin Cities Ecological Services Field Office and the Region 3 Regional Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245; unless otherwise noted.

2. In § 17.11(h) add an entry for "Bumble bee, rusty patched" to the List of Endangered and Threatened Wildlife in alphabetical order under INSECTS to read as follows:

§ 17.11 Endangered and threatened wildlife.

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(h) * * *

Common name	Scientific name	Where Listed	Status	Listing Citations and Applicable Rules
* * * * * * *				
INSECTS				
* * * * * * *				
Bumble bee, rusty patched	*Bombus affinis*	Wherever found	E	[**Federal Register** citation when published as a final rule]
* * * * * * *				

Dated: September 12, 2016.

Stephen Guertin

Acting Director, U.S. Fish and Wildlife Service.

Billing Code 4333–15

[FR Doc. 2016-22799 Filed: 9/21/2016 8:45 am; Publication Date: 9/22/2016]