



United States Department of the Interior

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In Reply Refer To:
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Rusty Patched Bumble Bee Recovery Permits Memorandum

To: Assistant Regional Director, Ecological Services
Midwest Region (Region 3), Bloomington, Minnesota

Assistant Regional Director, Ecological Services
Southeast Region (Region 4), Atlanta, Georgia

Assistant Regional Director, Ecological Services
Northeast Region (Region 5), Hadley, Massachusetts

Assistant Regional Director, Ecological Services
Mountain-Prairie Region (Region 6), Lakewood, Colorado

From: Field Supervisor 
Minnesota/Wisconsin Ecological Services Field Office
Bloomington, Minnesota

Subject: Intra-Service Programmatic Section 7 Consultation
Section 10(a)(1)(A) Permitting Program
Endangered Rusty Patched Bumble Bee
U.S. Fish and Wildlife Service Regions 3, 4, 5 and 6

Date: June 7, 2017

This document is the U.S. Fish and Wildlife Service's (Service) biological opinion per Section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et. seq.) U.S. (ESA) regarding our review of issuance of Section 10(a)(1)(A) recovery permits to persons conducting surveys, research, and other recovery efforts for the endangered rusty patched bumble bee (*Bombus affinis*).

The action being considered is the take of the rusty patched bumble bee for scientific and conservation purposes. Take will occur through the issuance of Section 10(a)(1)(A) permits by the Regional Offices in Regions 3, 4, 5 and 6, as applicable. This activity will improve our scientific knowledge of the species and promote its conservation.

This biological opinion evaluates the impacts of authorizing take for purposes of enhancing the conservation of the rusty patched bumble bee and carrying out actions that will assist in recovery. These actions may result in adverse effects to the species, but the purpose of these actions is to facilitate their long-term recovery. For reasons discussed within, it is our biological opinion that the proposed actions carried out pursuant to Section 10(a)(1)(A) are not likely to jeopardize the continued existence of the rusty patched bumblebee. No critical habitat has been designated; therefore, none will be affected.

cc: FWS R3, Ecological Services, Carlita Payne
FWS R4, Ecological Services, Karen Marlowe
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BIOLOGICAL OPINION

Section 10(a)(1)(A) permits for the Rusty Patched Bumble Bee
June 2017

Species for Which Activity is Sought and Status: Endangered rusty patched bumble bee (*Bombus affinis*)

Proposed Action: The proposed action is issuance of Section 10(a)(1)(A) recovery permits to cover actions including capturing the species with aerial hand nets or vials, handling, temporarily holding (e.g. in nets, vials, baggies and/or coolers) and taking photographs of captured individuals; and capturing the species (using lethal methods) as an “accidental” species while conducting surveys for other bees and other insects within certain parts of the historic range of the rusty patched bumble bee. These actions are for the purpose of supporting recovery efforts by conducting presence/absence surveys; identifying new locations; evaluating potential impacts; monitoring populations and estimating population and relative abundances; documenting population health; and determining population viability. Approved methodologies for proposed activities are online at <https://www.fws.gov/midwest/endangered/insects/rpbb/guidance/> under “Survey Protocols.” These methodologies may be updated annually.

Location: Permits may be issued for activities in the following locations within Region 3 of the Service: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin; Region 4: Alabama, Georgia, Kentucky, North Carolina, South Carolina, and Tennessee; Region 5: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia; and Region 6: North Dakota and South Dakota.

Proximity and distribution of the permitted activities: The purpose of the permitted activities is to conduct surveys and other recovery activities for this species. Activities will occur within habitats occupied by the species as well as locations within the historic range where occupancy is uncertain.

Methodologies used in the permitted activities: Detailed information on approved survey and capturing protocols are located in “Survey Protocols for the Rusty Patched Bumble Bee (*Bombus affinis*), Version 1.2, U.S. Fish & Wildlife Service, June 6, 2017” (hereafter referred to as “Survey Protocol”). Any surveys conducted under the authority of Section 10(a)(1)(A) permits must adhere to these protocols.

Nature of the effect: Methods outlined in the Survey Protocol have been drafted and reviewed by bumble bee experts to minimize any chance of causing physical harm to rusty patched bumble bees. Mortality of individual bees as a result of handling during surveys, capturing with aerial nets or vials, or temporarily holding and taking photographs is unlikely (S. Droege, USGS, pers. comm. 2017, R. Jean, ESI, pers. Comm. 2017). However, accidental capture of rusty patched bumble bee using lethal methods targeted at other species (explained in “Proposed Action”, above) will result in mortality.

Disturbance frequency, intensity and severity: Disturbance associated with surveying and capture may occur multiple times if an individual is recaptured, although recapture of an individual is unlikely (E. Evans, University of MN, pers. Comm. 2017). In most cases, captured rusty patched bumble bees are to be released after photographs are taken and handling will be minimized to the maximum extent practicable, while still meeting research objectives. The intensity of the disturbance for individual rusty patched bumble bees will be relatively minimal and will follow standard practices. In the case of surveys (using lethal methods) directed at other species, capture of rusty patched bumble bees will result in mortality. For more details relating to the capture, handling, and holding of rusty patched bumble bees, please refer to the Survey Protocol.

Effects of the Proposed Action: The implementing regulations for Section 7 (50 CFR 402.02) define “effects of the action” as “the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, which will be added to the environmental baseline.”

Direct and Indirect Effects of the Proposed Action: “Indirect effects” are caused by the proposed action, and are later in time, but still are reasonably certain to occur (50 CFR 402.02). Indirect effects may occur outside of the immediate footprint of the project area, but would occur within the action area as defined. Direct effects are defined as “...the direct or immediate effects of the project on the species or its habitats.” (50 CFR 402.02)

The proposed actions are expected to contribute to the recovery of the species, but some adverse effects in the form of harassment and mortality will result during the capturing, handling, or holding of the rusty patched bumble bee. Mortality is unlikely to occur using non-lethal survey methods and will occur as a result of lethal survey methods. Negative effects of the lethal survey activities will be minimized by only permitting them in areas believed to be unoccupied by the rusty patched bumble bee and including a permit condition that directs the surveyor to stop using lethal techniques if they catch a rusty patched bumble bee, and by updating our bumble bee occupancy maps with the new location.

The proposed actions will result in purposeful take in the form of capture and incidental take in the form of accidental mortality of captured individuals. However, we expect these actions to have a net benefit to the recovery of the rusty patched bumble bee.

No indirect effects are anticipated. While the potential for complications resulting from stress of capture and handling are possible, this potential should be nullified by following the standard Survey Protocol.

Effects of Interrelated and interdependent actions: Actions interrelated or interdependent to the proposed action – the issuance of recovery permits – would not have effects on the rusty patched bumble bee.

Any Incidental Effects to Other Listed Species or Critical Habitats: No incidental effects to other listed species or critical habitats are anticipated from the Service's issuance of recovery permits for work on the rusty patched bumble bee.

Cumulative Effects: For purposes of consultation under the ESA, the effects of future state or private activities not involving federal activities that are reasonably certain to occur within the action area of an action subject to consultation. Based on the analyses presented in the species status assessment prepared for the rusty patched bumble bee (USFWS 2016), we assume that pathogens, pesticides, and habitat loss and degradation will continue to affect the species at their current rates into the future. These effects are due to a variety of factors, but a significant proportion is likely due to the effects of non-federal actions.

Conclusion: After reviewing the current status of the rusty patched bumble bee, and the effects anticipated from implementing the proposed recovery actions described above, it is the Service's biological opinion that issuance of Section 10(a)(1)(A) permits for these actions is not likely to jeopardize the continued existence of the species. The proposed actions are not likely to appreciably reduce the species' numbers, reproduction, or distribution. If the permitted activities result in the discovery of new populations or provide information that may be used to benefit one or more known populations, they are likely to affect the species beneficially.

We reached this conclusion based on the following factors:

1. The Survey Protocols to be used by those operating under a recovery permit were developed in coordination with the Service's lead recovery biologist for the species to ensure work is consistent with the species' recovery program, and to also ensure actions would benefit the rusty patched bumble bee and not reduce the viability of the affected populations.
2. Capturing, handling, and holding rusty patched bumble bees will cause temporary stress to individuals and may cause incidental take in the form of accidental mortality of captured individuals (using non-lethal survey methods). Methods in the approved Survey Protocol for areas that are likely inhabited by the species or have even a low likelihood of occupancy are unlikely to result in the mortality of any individuals and are unlikely to appreciably reduce growth and reproductive output compared to individuals not affected by permitted recovery actions.
3. Surveys will take place at the time of the year when worker females are the most likely caste to be netted. It is highly unlikely that founder queens, new gynes (queens), or reproductive males will be flying from early June to mid-August. Temporary holding is not thought to appreciably reduce the amount of that the individual worker bee is collecting or bringing back to the founder queen (*e.g.*, pollen). Colony sizes of *B. affinis* are considered large compared to other bumble bees, and healthy colonies may consist of up to 1000 individual workers in a season (Macfarlane *et al.* 1994, pp. 3-4). In any given survey day, it is anticipated that surveyors would only encounter

and net a small subset of the total number of individuals that comprise a colony (E. Evans, University of MN, pers. Comm. 2017).

4. Surveys using lethal methods are restricted to areas outside the current range of rusty patched bumble bees. Any mortality associated with this method will only affect new populations that were not anticipated or used in any current population estimates. In addition, the discovery of new populations will provide information that will likely benefit the species.

No critical habitat has been designated; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations under Section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death of listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(a)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Service so that they become binding conditions, as appropriate, of any authorization issued for the exemption of Section 7(a)(2) to apply. The Service has a continuing duty to regulate the activity covered by the Incidental Take Statements (ITS). If the Service (1) fails to require permittees to adhere to the terms and conditions of the ITS through enforceable terms that are added to the permit, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(a)(2) may lapse. To monitor the impact of incidental take, the permittee must report the progress of the action and its impact on the species to the Service as specified in the ITS [50 CFR §402.14(1)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIPATED

Take will occur to all individuals in the form of "capture." Incidental take may occur to some individuals in the form of accidental mortality during capture. We anticipate the level of accidental deaths to be low. In addition, we will include a permit condition for the permittee to stop activities if mortality happens and confer with the Service prior to resuming activities.

Although mortality is unlikely while using non-lethal methods to survey for rusty patched bumble bee, we remain conservative in our estimate and anticipate no more than 5 accidental mortalities per year. For individuals using lethal survey methods we anticipate no more than 10 mortalities per year. In total, we anticipate no more than 15 individual mortalities per year.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to jeopardize the continued existence of the rusty patched bumble bee.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize impacts of incidental take of the rusty patched bumble bee:

1. The Service will ensure Federal recovery permit holders have the experience necessary to properly survey, capture, handle, and identify rusty patched bumble bees. Ensuring qualified researchers will minimize the likelihood of mortality to bees due to negligence or lack of adequate skill.
2. The Service will minimize stress and risk of mortality while meeting research objectives needed to advance the recovery of the rusty patched bumble bee by reviewing survey protocols and revising them annually, as needed.
3. The Service will ensure the number of rusty patched bumble bees accidentally killed by Federal recovery permit holders does not exceed the number evaluated in this Biological Opinion. In addition, any rusty patched bumble bees found dead or killed will be salvaged to retain scientific information that may be obtained from the specimen.

TERMS AND CONDITIONS

In order to be exempt from the prohibition of Section 9 of the Act, the Service must comply with the following terms and conditions, which implement the RPMs described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. Terms and Conditions to implement RPM 1:

To ensure Federal recovery permit holders have the experience and qualifications necessary the Service will review applicant qualifications.

2. Terms and Conditions to implement RPM 2:

The Region 3 lead recovery biologist will update the Survey Protocol on the website annually by February 28th of each year, as needed.

3. Terms and Conditions to implement RPM 3:

A. The lead recovery biologist for the rusty patched bumble bee will ensure research objectives for the recovery of the species is being met by ensuring all permittees file an annual report with the Service by January 31 detailing activities under the Section 10(a)(1)(A) permit during the previous calendar year. The annual reports shall include:

- a. A description of locations (date, time, geographic locations (state, county, and geographic coordinates using latitude and longitude in decimal degrees) of areas surveyed, even if no rusty patched bumble bees were encountered. While not required, we also appreciate receiving a description of locations surveyed where no *Bombus* of any species were found;
- b. The date, time, geographic locations (state, county, and geographic coordinates using latitude and longitude in decimal degrees) of any rusty patched bumble bees encountered. While not required, we appreciate receiving information for other *Bombus* species captured, as this information could help indicate suitable habitat for rusty patched bumble bee;
- c. A description of the habitat conditions where the surveys took place (e.g., floral diversity and abundance, management practices and potential stressors);
- d. A description of field procedures, data collection methods, and survey effort;
- e. Photographs of the identifying characteristics for each individual federally-listed species. Photographs of other *Bombus* species observed are encouraged;
- f. A complete description of injuries or mortalities to listed species while in a surveyor's possession, the dates of occurrence, any circumstances surrounding the incidents, and a description of any steps taken to reduce the likelihood that such injuries and/or mortalities will occur in the future;
- g. Any other data a surveyor may have collected for individual rusty patched bumble bees, such as evidence of damage or injury, mortalities, locations where salvaged specimens are being kept;
- h. Copies of any separate reports and/or publications resulting from work conducted under the authority of a recovery permit; and
- i. Copies of all site specific authorization letters.

B. The Region 3 Recovery Permits Coordinator will require Federal recovery permit holders to contact the Service within 48 hours in the event that their activities result in the mortality of a rusty patched bumble bee. Following the mortality of more than one rusty patched bumble bee, permittees may not resume activities authorized by their recovery permit without written permission of the U.S. Fish and Wildlife Service Regional Office in Bloomington, Minnesota.

- C. The Service will monitor the mortality of rusty patched bumble bees (as events are reported) in conjunction with the issuance of Section 10(a)(1)(A) permits and will track Section 10(a)(1)(A) permit accidental take with the Service's Permits Issuance Tracking System (SPITS) and compare this amount to the level of accidental take evaluated in this Biological Opinion.
- D. The Service will ensure the number of accidental mortalities does not exceed the number evaluated in this BO by conferring with permittees who report bumble bee mortalities and comparing total mortality levels reported to date for the year with the level of accidental take evaluated in the BO before approving re-initiation of activities by surveyors reporting mortalities. To ensure that incidental take levels are not exceeded, the Service may deny the permittee's request to resume activities, or consider modifying survey protocols and amend all permits that have been issued, or revoke permits if necessary.
- E. To retain scientific information that may be obtained from dead specimens, the Region 3 Recovery Permits Coordinator will require Federal recovery permit holders to salvage any rusty patched bumble bees that are found dead or killed accidentally. Permit holders will preserve and ship the specimen(s) according to the procedures outlined in the Survey Protocol.

The reasonable and prudent measures, with their implementing terms and conditions, and the associated Survey Protocol are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, or with substantive updates to the Survey Protocol, the levels of incidental take described in this biological opinion/conference opinion are exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Service must immediately provide an explanation of the causes of the taking and review the need for possible modification of the reasonable and prudent measures.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We have not identified actions the Service could take, on a programmatic basis, to address Section 7(a)(1) that are not already a part of its normally mandated mission. The Service will, however, evaluate individual permit proposals to identify opportunities to facilitate recovery of affected species.

REINITIATION-CLOSING

This concludes formal consultation on the action outlined in the opening paragraph. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if –

1. The amount or extent of the incidental take levels described in this biological opinion is exceeded;
2. New information reveals effects of the Service's action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;
3. The Service's action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or
4. A new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

If you have any questions, please contact Tamara Smith at 952-252-0092, extension 219.

Literature Cited

- Macfarlane, R.P., K.D. Patten, L.A. Royce, B.K.W. Wyatt, and D.F. Mayer. 1994. Management potential of sixteen North American bumble bee species. *Melandria*. 50:1-12.
- U.S. Fish and Wildlife Service (USFWS). 2016. Rusty Patched Bumble Bee (*Bombus affinis*) Species Status Assessment. 94 pp.