

90-DAY FINDING ON A PETITION TO LIST THE FOOTHILL YELLOW-LEGGED FROG UNDER THE ENDANGERED SPECIES ACT

Background

Section 4(b)(3)(A) of the Endangered Species Act (Act) requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted” (50 CFR 424.14(b)).

Petition History

On July 11, 2012, we received a petition dated July 11, 2012, from the Center for Biological Diversity requesting that 53 species of reptiles and amphibians, including the foothill yellow-legged frog, be listed under the Act as threatened or endangered and critical habitat be designated under the Act. The petition clearly identified itself as such and included the requisite identification information for the petitioner, required at 50 CFR 424.14(a). This finding addresses the petition.

Evaluation of Petition to List the Foothill Yellow-legged Frog as an Endangered or Threatened Species Under the Act

When citation lists are provided, the use of the “+” sign to string a series of citations together indicates that the information in these citations, when combined, provide substantial information.

Species and Range

Does the petition identify an entity that is eligible for listing (i.e., is the entity a species, subspecies, or DPS)?

Yes

No

If yes, list common name, Scientific name, and Range

Foothill yellow-legged frog (*Rana boylei*); Oregon and California

Information in the Petition

Factor A

1. Does the petitioner claim the entity warrants listing based on the present or threatened destruction, modification or curtailment of the species habitat or range (Factor A)?

Yes

No

a. If the answer to 1 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

If yes, indicate for which purpose(s) present or threatened destruction, modification or curtailment of the species habitat or range (e.g., logging, agriculture, overgrazing, etc.) is a threat and list the citations with page numbers for each purpose. If no, please indicate for which purpose(s) and explain.

Dams

- Ashton *et al.* 1998, pp. 12-13
- Lind *et al.* 1996, p. 64
- Kupferberg *et al.* 2011, pp. 147-149

Mining

- Ashton *et al.* 1998, pp. 14-15
- Olson and Davis 2009, p. 22

Roads and Urbanization:

- Olson and Davis 2009, pp 21-22

Recreation

- Olson and Davis 2009, p. 23

b. If the answer to 1 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant listing based on factor A, even though the petitioner does not make this claim?

Yes

No

If yes, indicate for which purpose(s) present or threatened destruction, modification or curtailment of the species habitat or range (e.g., logging, agriculture, overgrazing, etc.) is a threat and list the citations with page numbers for each purpose. If no, please explain.

c. Provide additional comments, if any.

Factor B

2. Does the petitioner claim the entity warrants listing based on overutilization for commercial, recreational, scientific, or educational purposes (Factor B)?

Yes

No

- a. If the answer to 2 is yes, overutilization for which purposes does the petitioner claim are a threat such that listing may be warranted (check all that apply): *N/A*

- Commercial
- Recreational
- Scientific
- Educational
- Other: Threat

- b. If the answer to 2 is yes: *N/A*

Do the sources cited in the petition provide substantial information to support the claim?

- Yes
- No

If yes, indicate for which purpose(s) overutilization is a threat and list the citations with page numbers for each purpose. If no, please indicate for which purpose(s) and explain.

- c. If the answer to 2 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant listing based on factor B, even though the petitioner does not make this claim?

- Yes
- No

If yes, indicate for which purpose(s) overutilization is a threat and list citations with page numbers for each purpose. If no, please explain.

None of the information submitted with the petition indicated overutilization as a threat to the foothill yellow-legged frog.

- d. Provide additional comments, if any.

Factor C

3. Does the petitioner claim the entity warrants listing based on disease or predation (Factor C)?

- Yes
- No

- a. If the answer to 3 is yes:

Which does the petitioner claim is a threat such that listing may be warranted (check all that apply)

- Disease
- Predation

- b. If the answer to 3 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

- Yes
 No

If yes, indicate which (disease, predation, or both) is a threat and list the citations with page numbers for each. If no, please indicate disease and/or predation and provide an explanation.

Disease:

The petition contains information that chytrid fungus has been found in amphibian populations world-wide and has been associated with amphibian population declines (Davidson *et al.* 2007, p. 1771; Fellers *et al.* 2001, pp. 945, 950-952; Young *et al.* 2001, pp. 1213, 1217; Berger *et al.* 1998, pp. 9034-9036). The petitioner states that the chytrid fungus has been found in wild foothill yellow-legged frogs. However, none of the sources cited by the petitioner to support this claim were provided; therefore we were unable to verify this information.

The petitioner also implies a threat to this species from chytrid fungus based on results from laboratory experiments. The petitioner claims that in laboratory experiments, chytrid infection reduced growth of newly metamorphosed foothill yellow-legged frogs by one-half. Davidson *et al.* (2007, p. 1774) did find that exposure to chytrid fungus did result in dramatically reduced growth; however, the authors also concluded that the chytrid fungus has no effect on mortality and that post-metamorphic juveniles of this species may be well-protected against chytridiomycosis-induced mortality. Furthermore, results from an earlier laboratory study, found that the chytrid fungus could be transferred to this species, but also found that, in general, chytrid fungus did not lead to mortality (Davidson *et al.* 2003, pp. 604-605). These authors also concluded that chytrid fungus may be less lethal in ranids (Davidson *et al.* 2003, p. 605).

The petitioner indicates fungal infections have been found in egg masses of this species (Ashton *et al.* 1998, pp. 13-14), but there is no information indicating these fungal infections are negatively impacting the species. "Red leg," a bacterial disease, and iridoviruses are also mentioned as diseases found in a related frog species and frogs in general, respectively. But no information on these diseases occurring in foothill yellow-legged frogs was provided.

Although listed in the petition as being a threat to the foothill yellow-legged frog, none of the sources provided evidence of disease negatively impacting the species in the wild; therefore, we find that the petition does not present substantial information indicating the species warrants listing based on Factor C.

Predation:

See Factor E, Exotic Species

- c. If the answer to 3 is no: *N/A*
Do sources cited in the petition provide substantial information indicating the entity may warrant listing based on factor C, even though the petitioner does not make this claim?
- Yes
 No
- If yes, indicate which (disease, predation, both) is a threat and list citations with page numbers for each. If no, please explain.*
- d. Provide additional comments, if any.

Factor D

4. Does the petitioner claim the entity warrants listing based on the inadequacy of existing regulatory mechanisms (Factor D)?
- Yes
 No
- a. If the answer to 4 is yes:
Do the sources cited in the petition provide substantial information to support the claim?
- Yes
 No
- If yes, list the citations with page numbers. If no, please explain.*
- The petitioner's reasoning is due to a lack of federal or state protection for the foothill yellow-legged frog. However, a lack of protections is not the same as inadequacy of existing regulatory mechanisms. None of the sources provided by the petitioner indicates that any existing regulatory mechanisms are inadequate for their purpose.
- b. If the answer to 4 is no:
Do sources cited in the petition provide substantial information indicating the entity may warrant listing based on factor D, even though the petitioner does not make this claim?
- Yes
 No
- If yes, list citations with page numbers. If no, please explain.*
- c. Provide additional comments, if any.

Factor E

5. Does the petitioner claim the entity warrants listing based on other natural or manmade factors affecting its continued existence (Factor E)?

- Yes
 No

a. If the answer to 5 is yes:

Identify the other natural or manmade factors claimed by the petitioner to [be a threat such that listing may be warranted.

- Climate change
- Ultraviolet radiation
- Pollution
- Exotic species

b. If the answer to 5 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

- Yes
 No

If yes, indicate for which other natural or manmade factors are a threat and list the citations with page numbers for each factor. If no, please indicate for which factor(s) and explain.

Climate Change:

None of the references cited by the petitioner contained information indicating that effects of climate change are negatively impacting populations of this species.

The petitioner claims that climate change is a contributing factor in the decline of this species. However, one source cited by the petitioner was not provided, therefore, we were unable to validate this claim. The other source cited by the petitioner to support this claim, states that global climate change is a potential threat to be considered for this species, but there is no evidence suggesting it is a major issue in Oregon (Olson and Davis 2009, p. 23). Furthermore, a multispecies analysis by Davidson *et al.* (2002, pp. 1597-1598), which included the foothill yellow-legged frog, was not able to implicate climate change as a primary cause of amphibian declines in California. The study found that, declines in this species were negatively associated with latitude and precipitation, consistent with the climate-change hypothesis, but the predicted increase in declines with higher elevation was not met.

The petitioner also references Kupferberg *et al.* (2009) as support for the claim that climate change could present a threat to the foothill yellow-legged frog. Kupferberg *et al.* (2009, pp. 531-532) present data that link periods of unusually warm summer water temperatures in 2006 and 2008, outbreaks of a parasitic copepod, and malformations in tadpoles and young of the year foothill yellow-

legged frog. However, these authors state that almost 75 percent of the infested foothill yellow-legged frogs in 2006 did not exhibit abnormalities and there was no association with abnormalities in 2008 (Kupferberg *et al.* 2009, p. 534). Furthermore, the authors state that the overall limb abnormality prevalence is within an overall baseline and, thus, may not represent any deviation from normal genetic or developmental errors and injury (Kupferberg *et al.* 2009, p. 534).

Ultraviolet Radiation:

None of the references cited by the petitioner contained information indicating that effects of UV radiation are negatively impacting populations of this species.

The petitioner claims that ultraviolet (UV) radiation appears to be a contributing factor in the decline of this species. However, one source cited by the petitioner was not provided, therefore, we were unable to validate this claim. The other source cited by the petitioner to support this claim, states that UV radiation is a potential threat to be considered for this species, but there is no evidence suggesting this is a major issue in Oregon (Olson and Davis 2009, p. 23).

The petitioner provided references that indicate some amphibian species are affected by UV radiation, while others remain unaffected (Anzalone *et al.* 1998, 649-650; Blaustein *et al.* 1998, pp. 800-804; Blaustein *et al.* 1996, pp. 1400-1401). None of these references address effects to the foothill yellow-legged frog. A multispecies analysis by Davidson *et al.* (2002, pp. 1597-1598), which included the foothill yellow-legged frog, found that the foothill yellow-legged frog had the predicted north-to-south gradient of increasing declines consistent with the UV hypothesis, but had greater declines at lower elevations, opposite of that predicted by the UV-B hypothesis. Additionally, Blaustein *et al.* (1998, p. 799) indicate that UV radiation may play a role in the population decline of amphibians that lay eggs in open shallow water subjected to solar radiation. According to the petition, foothill yellow-legged frogs inhabit partially shaded, rocky perennial streams and rivers at low to moderate elevations, indicating that this species may not be a species vulnerable to UV radiation.

Pollution:

- Sparling and Feller 2007, p. 537
- Sparling and Feller 2009, p. 1700
- Davidson 2004, p. 1897

Exotic Species:

- Moyle 1973, p. 21
- Kupferberg 1996, p. 1748
- Ashton *et al.* 1998, p. 10
- Paoletti 2009, unpaginated
- Paoletti *et al.* 2011, p. 166

c. If the answer to 5 is no: *N/A*

Do sources cited in the petition provide substantial information indicating the entity may warrant listing based on factor E, even though the petitioner does not make this claim?

Yes

No

If yes, identify the other natural or manmade factor(s) and list citations with page numbers for each. If no, please explain.

d. Provide additional comments, if any.

Petition Finding

Based on our review of the petition and sources cited in the petition, we find that the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted for the foothill yellow-legged frog (*Rana boylei*) based on factors A and E.

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