

**U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Deroceras hesperium*

COMMON NAME: Evening fieldslug

LEAD REGION: Interior Region 9 (Columbia-Pacific Northwest)

LEAD REGION CONTACT

Suzanne Worker
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DATE INFORMATION CURRENT AS OF: March 18, 2022

STATUS/ACTION

Species petitioned for listing for which we have determined is not a listable entity

Listed species petitioned for uplisting for which we have made a warranted-but-precluded finding for uplisting (this is part of the annual resubmitted petition finding)

Candidate that received funding for a proposed listing determination; assessment not updated

New candidate

Continuing candidate

Listing priority number change

Former LPN: ____

New LPN: ____

N/A Candidate removal: Former LPN: ____

A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

- U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.
- F – Range is no longer a U.S. territory.
- I – Insufficient information exists on taxonomy, or biological vulnerability and threats, to support listing.
- M – Taxon mistakenly included in past notice of review.
- N – Taxon does not meet the Act’s definition of “species.”
- X – Taxon believed to be extinct.

Date when the species first became a Candidate (as currently defined):

Petition Information:

Non-petitioned

Petitioned; Date petition received: March 17, 2008

90-day substantial finding FR publication date: October 5, 2011

12-month warranted but precluded finding FR publication date: N/A

PREVIOUS FEDERAL ACTIONS

On March 17, 2008, the U.S. Fish and Wildlife Service (Service) received a petition from the Center for Biological Diversity (CBD), Conservation Northwest, the Environmental Protection Information Center, the Klamath-Siskiyou Wildlands Center, and Oregon Wild, requesting that the Service list 32 species and subspecies of mollusks in the Pacific Northwest, including the evening fieldslug, as threatened or endangered under the Endangered Species Act (Act). The petition also requested that the Service designate critical habitat concurrent with listing. In an April 13, 2009 email, CBD requested that the petition be amended to include only 29 species and subspecies, due to taxonomic revisions. The request was treated as an amendment to the original petition. In a 90-day finding published on October 5, 2011, the Service found that the petition presented substantial scientific or commercial information indicating that 26 of the 29 petitioned species or subspecies, including evening fieldslug, may be warranted for listing (76 FR 61826).

ANIMAL/PLANT GROUP AND FAMILY

Mollusca, Agriolimacidae (formerly Limacidae)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE

The petitioned entity, the evening fieldslug (*Deroceras hesperium*), was documented in Oregon, Washington, and British Columbia (Burke et al. 1999, p. 57). It was thought to be distributed in three general areas: northwestern Oregon, the northern Olympic Peninsula, and the northeastern coast of Vancouver Island (Burke et al. 1999, p. 57).

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE

The evening fieldslug currently occurs in Oregon (Clackamas, Clatsop, Multnomah, Columbia, Douglas, Jackson, Klamath, Lake, and Linn counties), Washington (Clallam County), and British Columbia (in the Comox Valley of eastern Vancouver Island).

LAND OWNERSHIP

The extent to which the evening fieldslug occupies various land ownerships is not well understood. It has been documented on Federal lands, including those administered by the U.S. Forest Service and National Park Service. There are also records on Tribal and private lands.

BIOLOGICAL INFORMATION

Species Description

The evening fieldslug (*Deroceras hesperium*), was described as a small slug with a brown mantle with small scattered light spots and light buff dorsal coloration (Pilsbry 1948, p. 534; Roth et al. 2013, p. 455). It was considered to be morphologically distinct from the meadow fieldslug (*Deroceras laeve*), based on variation in penile shape and, to a lesser degree, coloration (Pilsbry 1944, p. 16; Pilsbry 1948, p. 534; Roth et al. 2013, p. 455). Since the 90-day finding was published in 2011, the evening fieldslug has been determined to be synonymous with the meadow fieldslug (Roth et al. 2013, p. 459), as described in the Taxonomy section below.

Taxonomy

KINGDOM Animalia

PHYLUM Mollusca

CLASS Gastropoda

ORDER Stylommatophora

FAMILY Agriolimacidae (formerly Limacidae)

GENUS *Deroceras*

The evening fieldslug was first described as *D. hesperium* by H.A. Pilsbry (1944, p. 16). The evening fieldslug was thought to have more restricted range and be less common than the similar and widespread meadow fieldslug. The two species were distinguished from each other by external coloration, size, and reproductive features that were widely considered difficult to distinguish.

The challenge of differentiating these morphological features, coupled with the species' overlapping ranges, made accurate field identification of evening fieldslugs difficult. In 2013, an examination of the two species' phylogeny and morphology was initiated to clarify their taxonomic status (Roth et al. 2013, entire). The study incorporated both genetic and morphological evidence and concluded that *D. hesperium* and *D. laeve* are a single variable species, and that *D. hesperium* should be considered a junior synonym of *D. laeve*, a widespread species (Roth et al. 2013, p. 459). (In taxonomic nomenclature, synonyms are names that refer to a single taxon, e.g. genus, species or subspecies. According to convention, when two names are synonymous, the valid name of the taxon is the oldest available name, or the senior synonym; more recent names are designated as junior synonyms (ICZN 2020). In this case, *D. hesperium* is the junior synonym, and therefore an invalid name).

The conclusion that *D. hesperium* and *D. laeve* are synonymous has been supported by the scientific community, The Xerces Society for Invertebrate Conservation (The Xerces Society), and by State and Federal agencies (e.g. ORBIC 2013, p. 38; Stinson 2014, pers. comm.; Foltz Jordan 2014; NatureServe Explorer 2.0 2020; MolluscaBase 2021; Hayes 2021, pers. comm.; Whelan 2021, pers. comm.). Given the consensus that *D. hesperium* is a synonym of *D. laeve*

and not a unique species or subspecies, the Service no longer considers evening fieldslug to be a listable entity under the Act.

Habitat/Life History

Not applicable

Historical Range/Distribution

Not applicable

Current Range/Distribution

Not applicable

Population Estimates/Status

Not applicable

SUMMARY OF BIOLOGICAL INFORMATION

Subsequent to the Service's 90-day finding, molecular and morphological evidence showed that the evening fieldslug is synonymous with meadow fieldslug (Roth et al. 2013, entire). Therefore, evening fieldslug is no longer a listable entity as defined in the Act.

DISTINCT POPULATION SEGMENT (DPS)

Not applicable

SIGNIFICANT PORTION OF THE RANGE (SPR)

Not applicable

THREATS

An assessment of threats is not applicable because the taxon is no longer a listable entity as defined in the Act.

FINDING

A genetic and morphological study (Roth et al. 2013, entire) revealed that the evening fieldslug (*D. hesperium*) is synonymous with the meadow fieldslug (*D. laeve*). This conclusion is accepted by the relevant scientific community, The Xerces Society, and Federal and State agencies. Given that *D. hesperium* is no longer considered a unique species, it is not a listable entity as defined in the Act. Therefore, it is not warranted for listing under the Act.

RECOMMENDED CONSERVATION MEASURES

Recommended conservation measures are not applicable because the taxon *D. hesperium* no longer qualifies as a listable entity as defined in the Act (i.e., the evening fieldslug is not a unique species but is synonymous with the Holarctic meadow fieldslug).

COORDINATION WITH STATES


Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: Oregon, Washington

Indicate which State(s) did not provide any information or comments: N/A

REFERENCES

- Burke, T.E., J.S. Applegarth, and T.R. Weasma. 1999. Management Recommendations for Survey and Manage Terrestrial Mollusks Version 2.0. USDA Forest Service. 305 pp.
- Foltz Jordan, S. 2014. Current taxonomic status of *Deroceras hesperium* Pilsbry, 1944 Evening Fieldslug. Prepared by The Xerces Society for USDA Forest Service Region 6 and USDI Bureau of Land Management, Oregon and Washington. 4 pp.
- Hayes, K. 2021. Email correspondence to Systematics Committee of The American Malacological Society: Subject “Request for Review of *Deroceras hesperium* taxonomic status. 28 December 2020.
- [ICZN] International Commission on Zoological Nomenclature. 2020. The International Code of Zoological Nomenclature, Fourth Edition. <https://www.iczn.org/the-code/the-international-code-of-zoological-nomenclature/> (Accessed 24 November 2021).
- MolluscaBase. 2021. TaxaSearch for *Deroceras hesperium* Pilsbry, 1944. <https://www.molluscabase.org/aphia.php?p=taxdetails&id=1356038> (Accessed 28 January 2021).
- NatureServe Explorer 2.0. 2020. Conservation status description for *Deroceras hesperium*. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.109351/Deroceras_hesperium (Accessed 20 November 2020).
- [ORBIC] Oregon Biodiversity and Information Center. 2013. Rare, threatened, and endangered species of Oregon. Institute for Natural Resources, Portland State University, Portland, Oregon. 111 pp.
- Pilsbry, H.A. 1944. West American field slugs (*Deroceras*). *The Nautilus*, 58, 15-16.
- Pilsbry, H.A. 1948. Land Mollusca of North America (north of Mexico). *Academy of Natural Sciences of Philadelphia Monograph*, 3, 2(2), i–xlvi, 521–1113.
- Roth, B., R. Jadin, and R. Guralnick. 2013. The taxonomic status of *Deroceras hesperium* Pilsbry, 1944 (Gastropoda: Pulmonata: Agriolimacidae), a species of conservation concern in Oregon, USA. *Zootaxa* 3691(4): 453–460.
- Stinson, D. 2014. Species of Greatest Conservation Need Rationale Matrix draft: Invertebrates. Unpubl. Olympia, WA. MS Excel Workbook “WA InvertsStinson4April2014.xlsx.
- Whelan, N. 2021. Email correspondence to the USFWS Conservation Genetic Community of Practice: Subject “Request for Review of *Deroceras hesperium* taxonomic status. 1 February 2021.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: Acting
Hugh Morrison  Digitally signed by HUGH MORRISON
Date: 2022.04.07 08:10:58 -07'00'

Regional Director, Fish and Wildlife Service

Date

Concur: _____

Director, Fish and Wildlife Service

Date

Do not concur: _____

Director, Fish and Wildlife Service

Date

Director's Remarks:

Date of annual review:

Conducted by: