Interim Core Map Documentation for White Bluffs Bladderpod

Version 1
Review Completed: January 2025
Core Map Developer: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs

Species Summary

The White Bluffs bladderpod (*Physaria douglasii ssp. tuplashensis*; Entity ID 4565) is a threatened terrestrial plant (dicot). This species occurs intermittently in a narrow, linear strip associated with highly alkaline, cemented calcium carbonate soil on the steep upper slopes and top exposures of the White Bluffs along the Columbia River in Washington state. The White Bluffs bladderpod may be pollinated by butterflies, flies, wasps, bumblebees, moths, beetles, and ants. The White Bluffs bladderpod has designated critical habitat. Additional information is provided in **Appendix 1**. This species is currently included in the Vulnerable Species Action Plan.

Description of Core Map

The core map for the White Bluffs bladderpod is based on the species range along the Columbia River in Washington State, which includes the critical habitat as well as areas outside of the critical habitat where a population has been introduced. The species range is highly refined (approximately 10,000 acres) and represents areas important for this species' conservation. There are only two known populations of this species, both located within the range. One natural population is inside the species range and critical habitat and the other introduced population is in the northern part of the range but outside of the critical habitat. The introduced population was included in the core map as it is necessary to the conservation and recovery of the species according to FWS recovery criteria. The range was chosen as the core map type over critical habitat because it contains this introduced population. **Figure 1** depicts the interim core map for the White Bluffs bladderpod.

Landcover categories within the core map area are included in **Table 1.** Landcover is predominantly shrub, and grassland/herbaceous, which are generally consistent with the habitat of this species.

The core map developed for the White Bluffs bladderpod is considered interim. This core map will be used to develop pesticide use limitation areas (PULAs) that include the White Bluffs bladderpod. This core map incorporates information developed by the U.S. Fish and Wildlife Service (FWS) and made available to the public; however, the core map has not been formally reviewed by FWS. This interim core map may be revised in the future to incorporate expert feedback from FWS. This interim core map has a "none" best professional judgment classification with respect to GIS and biological data interpretation because it consists of the species' range without additions or subtractions. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

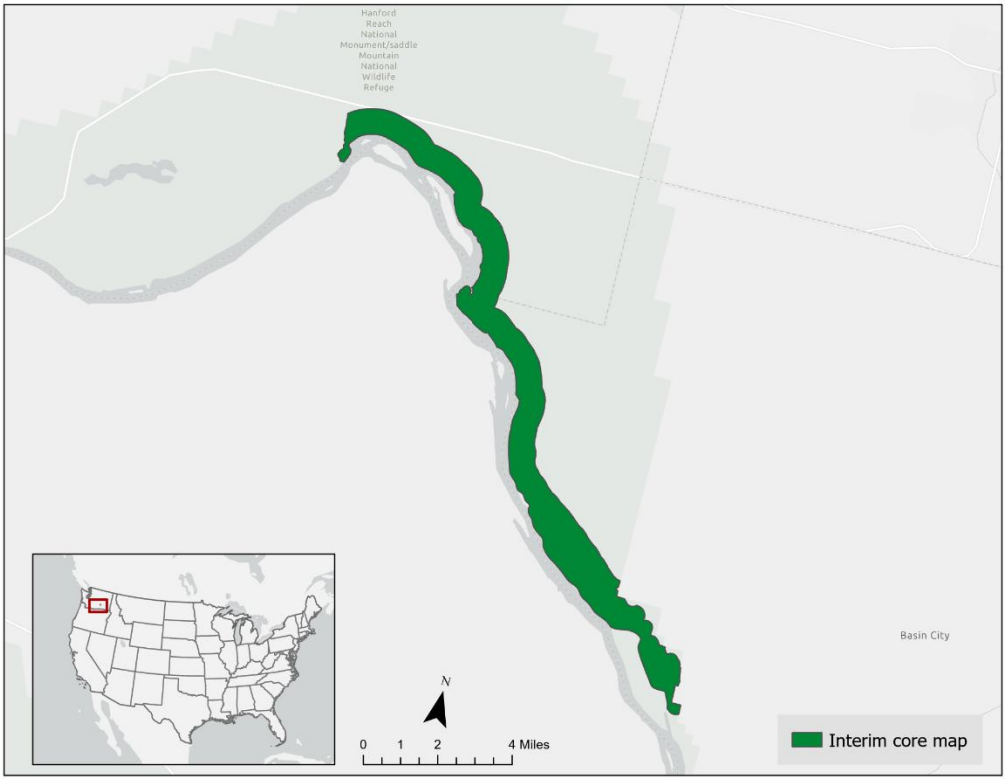

Figure 1. Interim core map for the White Bluffs bladderpod.

Table 1. Percentage of Interim Core Map Represented by NLCD[1] Land Covers and Associated Example Pesticide Use Sites/Types.

Example pesticide use sites/types	NLCD Class/Value	% Area
Forestry	Deciduous Forest (41)	0
Forestry	Evergreen Forest (42)	0
Forestry	Mixed Forest (43)	0
Agriculture	Pasture/Hay (81)	0
Agriculture	Cultivated Crops (82)	2
Mosquito adulticide, residential	Open space, developed (21)	2
Mosquito adulticide, residential	Developed, Low intensity (22)	0
Mosquito adulticide, residential	Developed, Medium intensity (23)	0
Mosquito adulticide, residential	Developed, High intensity (24)	0
Invasive species control	Woody Wetlands (90)	0
Invasive species control	Emergent Herbaceous Wetlands (95)	0
Invasive species control	Open water (11)	1
Invasive species control	Grassland/herbaceous (71)	56
Invasive species control	Scrub/shrub (52)	39
Invasive species control	Barren land (rock/sand/clay; 31)	0
Total Acres	**Interim Core Map Acres**	**~10,000**

Evaluation of Known Location Information

There are four datasets with known location information for this species:

- Descriptions of locations provided by FWS
- Occurrence locations included in iNaturalist
- Occurrence locations included in the Global Biodiversity Information Facility (GBIF)
- Occurrence locations included in NatureServe

EPA evaluated these four sets of data to inform or support the core map. FWS provided the most refined descriptions of the occurrence information. All known locations of extant populations described in FWS documents are located within the range. iNaturalist includes 22 observations. GBIF's occurrence data included NatureServe data and included 17 points within the last 30 years, many of which were duplicates of iNaturalist data. Given the precision of the data, occurrences were consistent with the species range. **Appendix 1** includes more information on the available known location information.

[1] Dewitz, J., 2023, National Land Cover Database (NLCD) 2021 Products: U.S. Geological Survey data release, https://doi.org/10.5066/P9JZ7AO3

Approach Used to Create Core Map

The core map was developed using the "Process EPA Uses to Develop Core Maps for Draft Pesticide Use Limitation Areas for Species Listed by the U.S. Fish & Wildlife Service (FWS) and their Designated Critical Habitats[2]" (referred to as "the process"). This core map was developed by EPA using the four steps described in the process document:

1. Compile available information for a species
2. Identify core map type
3. Develop the core map for the species
4. Document the core map

For step 1, EPA compiled available information for the White Bluffs bladderpod from FWS, as well as observation information available from various publicly available sources (including iNaturalist, GBIF, and NatureServe). The information compiled for the White Bluffs bladderpod is included in **Appendix 1**. Influential information that impacted the development of the core map included:

- The species range is highly refined.
- There are 2 known populations identified in FWS documentation, both of which are within the species' range (not all known populations are in the critical habitat).
- Occurrence data from other sources are consistent with the species range.

For step 2, EPA used the compiled information to identify the core map type. Based on the narrow range that includes all populations identified by FWS, EPA selected the range to use as the species core map. For step 3, EPA used the ECOS species range for the White Bluffs bladderpod as the core map.

Discussion of Approaches and Data that were Considered but not Included in the Core Map

EPA did not explore approaches other than those described in this documentation.

[2] Dated 2024, available online at: https://www.epa.gov/endangered-species/process-epa-uses-develop-core-maps-draft-pesticide-use-limitation-areas

Appendix 1. Information Compiled for Species

1. **Recent FWS Documents**
   - 5-Year Status Review (2020) (https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3203.pdf)
   - Final rule on listing and designation of critical habitat (referred to below as "FR"; 2013 (https://www.govinfo.gov/content/pkg/FR-2013-12-20/pdf/2013-30164.pdf#page=1)
   - Recovery Plan for White Bluffs Bladderpod (2022) (https://ecos.fws.gov/docs/recovery_plan/WhiteBluffsBladderpod_Final_RP_20220825_Signed.pdf)
   - Species Biological Report (2022) (https://ecos.fws.gov/docs/recovery_plan/WhiteBluffsBladderpod_Final_SBR_July2022.pdf)

2. **Background information on Species**
   - **Status.** Federally listed as threatened in 2013

   - **Taxonomy**. FWS plant group 9: dicot flowering plants that require outcrossing with biotic pollination vectors.

   - **Habitat Description.** White Bluffs bladderpod occurs intermittently in a narrow, linear strip associated with highly alkaline, cemented calcium carbonate soil (Recovery Plan). Occurs in dry, sparsely vegetated upper and top exposures of the White Bluffs along the Columbia River in the State of Washington (Recovery Plan, 2022). Occurs in steep upper slopes and top exposures of the White Bluffs, "mainly occurring in a linear distribution along the blufftop" (Species Biological Report (SBR) 2022). "White Bluffs bladderpod occurs on and just above near-vertical exposures of weathered, cemented, alkaline, and calcium carbonate paleosol soil (Rollins et al. 1995, p. 206), as well as 11 on the upper slopes of loose substrate below these exposures. Plants have been described as occupying gravelly, silty soil that can be quite loose and unconsolidated with a slope of 0 to 80 percent (Beck and Caplow 1995, p. 2)" (SBR 2022). Soil "may be an obligate calciphile" (SBR 2022).

   - **Relevant Life History Information.** White Bluffs bladderpod is an herbaceous perennial plant. Pollinators include butterflies, flies, wasps, bumblebees, moths, beetles, and ants (SBR 2022). "The subspecies' autecology (the biological relationship between an individual organism or an individual species and its environment) and life history are not well understood" (Recovery Plan, 2022).

   - **Relevant Potential Pesticide Use Sites.** Agriculture: "Approximately 6 km (3.7 mi) or 35 percent of the population on the Monument occurs adjacent to agricultural fields. In some places, farming occurs up to the top of the White Bluffs" (SBR 2022).

   - **Relevant Recovery Criteria**
     - Occupancy is maintained within the designated critical habitat of White Bluffs bladderpod.
     - A second population is discovered or established more than 1.5 km (0.9 mi) from the main population in a conservation area on public or private land. This locality must be managed in a way that is compatible with White Bluffs bladderpod conservation.

- All populations are self-sustaining and have an average population size meeting or exceeding the MVP over 15 years.
- The native habitat within and adjacent to White Bluffs bladderpod populations can support the ecological processes necessary for the subspecies' long-term population viability.

3. Description of Species Range

- Species range map was last updated by FWS in 2016
- Range size is approximately 10,000 acres
- Range is based on White Bluffs land formation (cliffs)
- Range occurs entirely on Hanford Reach National Monument

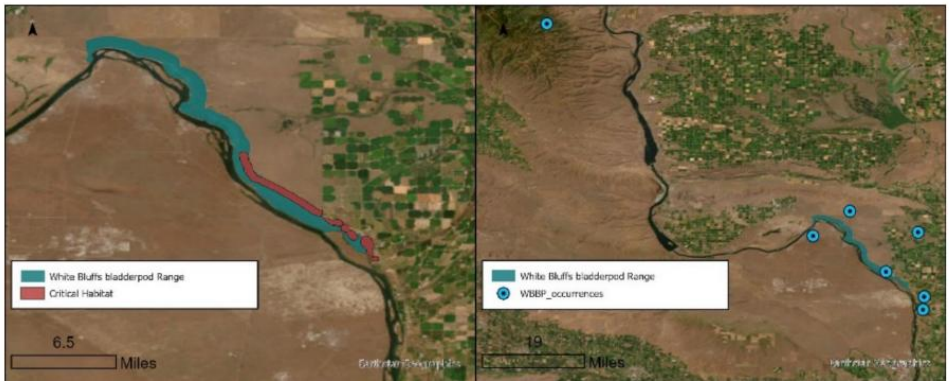

Figure A1-1. Maps of range (left map - green area) and designated critical habitat (left map - red area) of White Bluffs bladderpod. Right map includes occurrence data (blue points) from GBIF.

4. Critical Habitat

- Critical habitat was designated in 2013
- Critical habitat size: Approximately 2,000 acres; 100 acres of CH was occupied at time of designation
- All areas of critical habitat are owned by the federal government
- "The critical habitat is a 15-km (9.3-mi) narrow, linear band that follows the top of the White Bluffs where the caliche-like substrate occurs. The critical habitat designation included a buffered area of native shrub-steppe habitat approximately 300 m (980 ft) wide surrounding the population. The buffer distance was selected to provide the minimum area needed to sustain the pollinator community (Service 2013c, p. 24015). The 823 ha (2,033 ac) of critical habitat falls entirely within the Monument (Service 2013b, p. 77002)." (SBR 2022)
- "The Service considers insect pollinators essential to the conservation of White Bluffs bladderpod and critical habitat designation was based in part on the habitat needs of pollinators (Service 2013c, p. 24020)." (SBR 2022)
- Physical Biological Features:
  - Weathered alkaline paleosols and mixed soils overlying the Ringold Formation. These soils occur within and around the exposed caliche-like cap deposits associated with the White Bluffs of the Ringold Formation, which contain a high percentage of calcium carbonate. These features occur between 210 to 275 m (700 to 900 ft) in elevation.

- Sparsely vegetated habitat (less than 10 to 15 percent total cover), containing low amounts of non-native or invasive plant species (less than 1 percent cover).
- The presence of insect pollinator species.
- The presence of native shrub steppe habitat within the effective pollinator distance (300 m [approximately 980 ft]).
- The presence of stable bluff formations with minimal landslide occurrence.

Figure A1-2. Critical habitat in relation to Hanford Reach National Monument

5. Known Locations

- Recovery Plan (2022)
  - "The subspecies once existed south and east of the Monument on State and private lands but the status of these occurrences is unknown"
- FWS 5-year review (2020)
  - Includes survey data from subset of range (3.7 km long).
  - "From 2013 to 2015, a total of 893 seedlings (Newsome 2020b, p. 2) were planted outside of the designated critical habitat on the western end of the White Bluffs in Grant County where landslides are less likely to occur. This location is approximately 15-km to the northwest of the northern extent of designated critical habitat"
- FWS Species Biological Report (2022)
  - "White Bluffs bladderpod has been documented only on the White Bluffs along the Hanford Reach of the Columbia River in the State of Washington."
  - "In the 1990s, all observed White Bluffs bladderpod were in Franklin County in south central Washington State. Most plants were located on the Wahluke Wildlife Area within the Hanford Site (Caplow and Beck 1996, p. 41), a large Federal property owned by the U.S. Department of Energy (DOE). The remainder of the subspecies' range was on private and Washington State Department of Natural Resources (WDNR) lands to the south and east (Beck 1999, pp. 13-14; Service 2013a, p. 23988); an estimated 5 to 15

percent of the plants occurred on private lands in scattered segments totaling approximately 2.5 km (1.6 mi) long (Beck and Caplow 1995, pp. 4-9; Caplow and Beck 1996, p. 42; Arnett 2011, in lit.).

- "To protect the subspecies from catastrophic loss, plants were established at a potentially suitable, unoccupied area on the Monument that experiences fewer landslides than in the subspecies' main population. This area is approximately 15 km (9 mi) to the northwest of the northern extent of designated critical habitat and on the northern end of the White Bluffs in Grant County, 17 Washington"
  - "As of 2021, White Bluffs bladderpod plants still occurred there and had been successfully reproducing."
  - "The establishment of a self-sustaining population there could be essential to the persistence of the subspecies should there be a catastrophe where the main population occurs."
  - GIS analysis of the critical habitat and range indicates that the area where the plants were established falls within the range (Figure A1-3).

Figure A1-3. GIS analysis indicating that the location of established plants (15 km from the northwest edge of the critical habitat) is within the species ECOS range.

- **iNaturalist:** Link for research grade observations

    - Fourteen research grade observations are available on iNaturalist dated between May of 2019 and May 2024. All locations are likely within the species range when considering point accuracy; see map below.

- **GBIF:** Link for species occurrences
    - GBIF includes 13 observations or occurrences dated between 2011 and May 2024. Twelve of these occurrences are research grade observations from iNaturalist, and one without coordinates is from NatureServe. No additional areas are identified by these occurrences. See map below.

- **NatureServe Explorer Pro**[3]: Link for species occurrences.
    - Available public occurrence information from NatureServe Explorer Pro are found in the southeastern part of the range along the river, some of these occurrences are withing the Hanford Reach National Monument. No additional areas are identified by these occurrences.

[3] https://explorer.natureserve.org/pro/Welcome