

# MEMORANDUM OF UNDERSTANDING

Cooperating Agencies:

**U.S. Fish and Wildlife Service**

**Washington Department of  
Natural Resources, Natural  
Heritage Program & Natural Areas  
Program**

**Washington Department of Fish  
and Wildlife**



*Golden paintbrush and Taylor's checkerspot butterfly. Photo by the  
Institute for Applied Ecology*

## **Strategy for Securing Golden Paintbrush (*Castilleja levisecta*) Populations at Risk of Hybridization December 2020**

This MEMORANDUM OF UNDERSTANDING (MOU) is hereby made and entered into by and between the U.S. Department of the Interior, U.S. Fish and Wildlife Service, hereinafter referred to as “Service”; the Washington Department of Natural Resources, Natural Heritage Program and Natural Areas Program, hereinafter referred to as “WDNR”; and the Washington Department of Fish and Wildlife, hereinafter referred to as “WDFW.” The Service, WDNR, and WDFW are hereinafter referred to collectively as “the parties” or “cooperators.”

## **INTRODUCTION**

The status of golden paintbrush, currently listed as a Threatened species under the Endangered Species Act of 1973, as amended, (16 U.S.C. 1530 *et seq.*; “Act”), has substantially improved since it was placed on the Federal List of Endangered and Threatened Plants in 1997. Much of the credit for the progress toward recovery goes to the management efforts of State agencies and other conservation partners to address the primary threats to the plant’s grassland/prairie habitat. This habitat requires periodic disturbance to minimize encroachment by woody and invasive plants and to maintain the open, sunny prairie conditions needed by the species. The conservation goals for golden paintbrush abundance and distribution have been largely met or even exceeded, leading to discussion of the potential removal of this species from the Federal List of Endangered and Threatened Plants. However, assurance is needed that the potential threat from hybridization with harsh paintbrush (*C. hispida*), a host plant used by Taylor’s checkerspot butterfly (*Euphydryas editha taylori*) and often used in recovery efforts, will continue to be adequately managed to prevent additional contamination or potential loss of golden paintbrush populations throughout its range regardless of its legal protection under the Act. Maintaining existing populations of pure golden paintbrush is key to ensuring its long-term conservation.

## **STATEMENT OF PURPOSE**

The purpose of this MOU is to manage the long-term threat to golden paintbrush from hybridization with harsh paintbrush, and therefore, provide for the long-term conservation of

golden paintbrush. This MOU also provides greater certainty and clarity for current and future conservation site selection and management for both the threatened golden paintbrush and the endangered Taylor's checkerspot butterfly when harsh paintbrush is utilized as a host plant. The management certainty provided by this MOU and associated strategy is anticipated to continue after these two species are deemed recovered and the protections of the Endangered Species Act of 1973 (Act), as amended, are removed. This MOU formalizes the commitment of the cooperating management agencies (cooperators) to address the ongoing hybridization threat to golden paintbrush populations, to the best of their abilities, irrespective of any change in the species' status under the Act. The commitment is described in detail in the document (attached) entitled Strategy and Guidance for Minimizing Hybridization Risk of *Castilleja levisecta* (CALE) with *Castilleja hispida* (CAHI) While Advancing Conservation of CALE and Taylor's Checkerspot Butterfly (TCB), subsequently referred to as "strategy and guidance" or "strategy and guidelines." This MOU constitutes a long-term commitment to guide conservation of both golden paintbrush and Taylor's checkerspot butterfly under the context of the hybridization threat. Any such commitments by the cooperators are strictly subject to the availability of appropriated funds.

## **BACKGROUND**

Golden paintbrush is a short-lived perennial herb in the broomrape family (Orobanchaceae) endemic to prairie and grassland habitats in British Columbia's SE Vancouver Island and nearby islands, western Washington's San Juan Islands and Puget Trough, and western Oregon's Willamette Valley. Like all *Castilleja* species, it is hemiparasitic with roots of paintbrushes capable of forming parasitic connections to roots of other plants. Both golden paintbrush and harsh paintbrush are pollinator-dependent. Information on the basic biology and ecology of golden paintbrush is summarized in a recent species biological report completed by the Service (Service 2019, entire).

At the time of listing, 10 populations were known, with an estimate of less than 20,000 plants total. The primary threats to golden paintbrush were habitat loss due to land use conversion for development or agriculture, the invasion of prairie habitats by various woody and nonnative

plant species, and low potential for expansion and refugia due to constriction of habitat (from surrounding development or land use); recreational picking (including associated trampling); and herbivory (on plants and seeds). Additional threats not known or considered at the time of listing include hybridization from cross pollination with harsh paintbrush and climate change.

In 2007, the Service completed a 5-year review for golden paintbrush (Service 2007). Our 2007 5-year review recommended, “the evaluation of the potential for genetic contamination of golden paintbrush populations by hybridization with other species of *Castilleja*” (Service 2007, p. 15). After initial evaluation, the potential risk of hybridization was considered relatively low and manageable (Kaye and Blakeley-Smith 2008, p. 13). However, after further evaluation and additional observations in the field, hybridization with harsh paintbrush has now been identified as a significant potential threat to golden paintbrush populations where the two species occur together or in close proximity (Clark 2015, entire; Sandlin 2018, entire). Three former golden paintbrush recovery sites have now been discounted by the Service for the purposes of recovery due to the level of hybridization at these sites (Service 2019, p. 15). At least one other site (Glacial Heritage Preserve) is currently vulnerable to the effects of hybridization, but management efforts to date (removal of plants that appear to be hybrids and creating a zone of separation between harsh paintbrush and golden paintbrush areas at the site) have seemingly preserved this golden paintbrush population. Currently, hybridization appears to be confined to those areas located in the south Puget Sound prairie region of Washington where both species of *Castilleja* were used at some of the same habitat restoration sites. The only known incident of hybridization outside of this region was at Steigerwald Lake National Wildlife Refuge in southwest Washington, where a seed mix that included harsh paintbrush was unknowingly used.

To contain the current level of hybridization and prevent the possibility of hybridization to other areas, a hybridization strategy and associated guidelines were developed to maintain current, and help direct future, conservation efforts for golden paintbrush and Taylor’s checkerspot butterfly to help ensure the long-term conservation of both species.

These guidelines represent cautionary approaches, not requirements, for managing the hybridization threat to golden paintbrush. The strategy and guidelines were developed as a “living document” (i.e. a routinely updated tool informed by best available scientific and commercial information) and are intended to allow a certain level of management flexibility and adaptability. The strategy and resultant guidelines are expected to be adjusted over time, especially as additional information becomes available regarding hybridization. These guidelines are a strong initial attempt at reducing the risk of hybridization.

To make progress toward the recovery of golden paintbrush and Taylor’s checkerspot butterfly, a coalition of Federal and State government agencies, non-governmental organizations, and private individuals have worked to implement both species-specific conservation actions as well as general prairie habitat conservation actions. Given this broad level of effort, having this strategy and associated guidelines greatly improves the chances that efforts taken on behalf of these two species by all partner entities will be implemented in a manner consistent with containing and preventing further hybridization. This commitment of signatory parties and clear communication with conservation partners are expected to adequately manage the threat of hybridization across the range of golden paintbrush.

## **RESPONSIBILITIES AND PROCEDURES**

The parties to this MOU agree that it is to their mutual interest and benefit to 1) sufficiently address the threat of hybridization between golden paintbrush and harsh paintbrush, to support the long-term persistence of golden paintbrush beyond the point at which such species is deemed recovered, removed from the Federal List of Endangered and Threatened Plants, and withdrawn from the protections provided by the Act; and 2) create and maintain certainty for the long-term conservation management of both Taylor’s checkerspot butterfly and golden paintbrush.

The parties to this MOU agree that the following process will be used to make well-informed collaborative decisions on the use of golden paintbrush and harsh paintbrush (e.g., propagation

and outplanting), the mitigation of the associated risk of hybridization between the two, and the remaining uncertainties within the hybridization strategy. This process will also be used when making decisions regarding updating the hybridization strategy document. Parties will:

- 1) clearly identify the decision that is needed and the timeline in which the decision must be made;
- 2) gather the best available information in a timely manner;
- 3) identify the range of potential alternatives;
- 4) have viable alternatives peer reviewed or reviewed by species, habitat, or issue experts, as appropriate;
- 5) weigh the evidence;
- 6) have their designated decision-makers reach consensus on an alternative that is scientifically sound and best achieves the conservation objectives of the signatory parties;
- 7) document the rationale for the long-term decisional record (including conservation objectives to be used to measure success);
- 8) agree to take the necessary action(s) to implement the chosen alternative; and
- 9) review the decision over time to confirm that it achieves the original objectives identified by the parties (see 6 and 7), and revisit the decision if it is failing to meet those objectives.

Note, the parties may mutually agree to make some decisions in a less formal way (i.e., subset of the process above) should the decision timeline make it impossible to follow this more structured approach or if it is mutually determined that the more structured approach is not warranted.

The mission of the Service is working with others to conserve, protect, manage, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The Washington Fish and Wildlife Office, Oregon Fish and Wildlife Office, and Region 9 (Legacy Region 1) Ecological Services program work to coordinate the recovery of golden paintbrush and other prairie-dependent species listed as threatened or endangered under the Act. Work

by these offices occurs primarily through the Endangered Species program. The Partners for Fish and Wildlife program provides technical and financial assistance to private landowners to restore, protect, and manage private lands for the benefit of Federal Trust Species. National Wildlife Refuges, but those particularly within the Willamette Valley, work to restore substantial areas of native prairie habitat, and to augment and introduce resilient populations of golden paintbrush and other threatened and endangered prairie-dependent species.

The WDNR programs involved in the implementation of the hybridization strategy are the Natural Heritage Program and Natural Areas Program. The Natural Heritage Program provides scientific expertise and information for effective conservation of Washington's rich natural heritage. The Natural Heritage Program catalogs the plants, animals, and ecosystems of Washington, prioritizes their conservation needs, and identifies the best site for conserving them. This information helps guide conservation funding in the state and provides the framework for the statewide system of natural areas. The Natural Areas Program protects outstanding examples of the state's extraordinary diversity. These lands represent the finest natural, undisturbed ecosystems in state ownership, often protecting rare or vulnerable plant and animal species. The program manages two types of conservation lands, Natural Resources Conservation Areas and Natural Area Preserves.

The mission of the WDFW is dedicated to preserving, protecting, and perpetuating the state's fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities. WDFW oversees the classification of species as state-endangered, threatened, or sensitive, and guides recovery efforts for many at-risk animal populations. WDFW manages conservation efforts for dozens of threatened and endangered species in Washington, including the Taylor's checkerspot butterfly and other prairie-dependent wildlife species. Their Priority Habitats and Species (PHS) Program is the agency's primary means of transferring fish and wildlife information from WDFW's resource experts to local governments, landowners, and others who use it to protect habitat.

During the over two decades since golden paintbrush was listed as threatened, cooperators have made significant investment in the recovery of this species. Failure to adequately manage

the hybridization threat could result in further incidences of hybridization and consequently significant reduction in the distribution of golden paintbrush across parts of its range, loss of that significant investment in the recovery of this species, and could reverse the recovery of this species if it once again meets the criteria of an endangered or threatened species. In addition, failure to manage hybridization could also have impacts to Taylor's checkerspot butterfly recovery efforts. This MOU provides written assurances that the signatory parties are committed to implementing the hybridization strategy and guidelines, regardless of the species' legal protection under the Act, in accordance with the following provisions.

In consideration of the above premises, the parties agree as follows:

**THE U.S. FISH AND WILDLIFE SERVICE SHALL:**

- A. Update and implement the hybridization strategy and guidelines, and guide management of prairie habitats with the goal of recovering both golden paintbrush and Taylor's checkerspot butterfly.
- B. Work with the other parties to identify highest priority tasks and develop a timeline for completion of priority tasks (Appendix B).
- C. Work with the cooperators to ensure our coalition of prairie restoration partners understand and follow the hybridization strategy and guidelines.
- D. Continue to advocate for restoring habitat for, and introduction of, ESA-listed, prairie-dependent species on federal lands as appropriate.
- E. Continue to advocate for restoring habitat for ESA-listed, prairie-dependent species on mitigation lands as appropriate.
- F. Continue to support and advocate for restoring habitat for ESA-listed, prairie-dependent species on private lands subject to new or existing voluntary conservation agreements as appropriate.
- G. Develop a post-delisting monitoring plan to evaluate the status of golden paintbrush after delisting. This effort will be led by the Washington Fish and Wildlife Office; the plan shall be developed in partnership with state agency plant leads in Washington and Oregon, and will additionally be subject to public comment prior to finalization.



- H. Coordinate with all other parties on any emerging issues related to hybridization and the conservation and management of habitat supporting golden paintbrush and Taylor's checkerspot butterfly.

**THE WASHINGTON DEPARTMENT OF NATURAL RESOURCES, NATURAL HERITAGE PROGRAM AND NATURAL AREAS PROGRAM SHALL:**

- A. Update and implement the hybridization strategy and guidelines, and guide management of prairie habitats with the goal of recovering both golden paintbrush and Taylor's checkerspot butterfly.
- B. Work with the other parties to identify highest priority tasks and develop a timeline for completion of priority tasks (Appendix B).
- C. Work with the cooperators to ensure our coalition of prairie restoration partners understand and follow the hybridization strategy and guidelines.
- D. Participate in the implementation of a post-delisting monitoring plan, developed in cooperation with the Service, to evaluate the status of golden paintbrush after delisting.
- E. Coordinate with all other parties on any emerging issues related to hybridization and the conservation and management of habitat supporting golden paintbrush and Taylor's checkerspot butterfly.

**THE WASHINGTON DEPARTMENT OF FISH AND WILDLIFE SHALL:**

- A. Update and implement the hybridization strategy and guidelines, and guide management of prairie habitats with the goal of recovering both golden paintbrush and Taylor's checkerspot butterfly.
- B. Work with the other parties to identify highest priority tasks and develop a timeline for completion of priority tasks (Appendix B).
- C. Work with the cooperators to ensure our coalition of prairie restoration partners understand and follow the hybridization strategy and guidelines.
- D. Coordinate with all other parties on any emerging issues related to hybridization and the conservation and management of habitat supporting golden paintbrush and Taylor's checkerspot butterfly.

**IT IS MUTUALLY UNDERSTOOD AND AGREED BY AND BETWEEN THE PARTIES THAT:**

- A. POST-DELISTING MONITORING. If during the life of this MOU golden paintbrush is found to be recovered and is removed from the Federal List of Threatened and Endangered Plants (50 CFR §17.12), the parties agree to continue to update and implement the hybridization strategy and guidance.
- B. COMMUNICATION AND COORDINATION. The parties agree to continue annual communication and coordination of golden paintbrush and Taylor's checkerspot conservation and habitat restoration and management efforts through existing species working groups and/or alternative working group limited to the three cooperators. The parties may schedule more frequent, regular meetings if necessary to complete priority tasks or to ensure adequate coordination related to the hybridization strategy, but at a minimum will meet on an annual basis.
- C. METHODS. The cooperators agree to update and implement the hybridization strategy and guidelines that are informed by the best available science in order to achieve the desired conservation conditions as described in the golden paintbrush Recovery Plan and future Taylor's checkerspot butterfly Recovery Plan and in this MOU to the extent practicable. The MOU does not prescribe specific management decisions or techniques for any particular site.
- D. COMMENCEMENT/EXECUTION. This MOU is executed as of the date of the final signatory and expires 10 years from that date or at the conclusion of the post-delisting monitoring period for Taylor's checkerspot butterfly, whichever comes first, at which time it will be subject to review, renewal or expiration. The MOU may be updated, based on the outcome of management efforts and new information gained on the ecology or status of golden paintbrush and/or Taylor's checkerspot butterfly.
- E. NON-LIABILITY. The Service, WDNR, and WDFW do not assume liability for any third party claims for damages arising out of this instrument.
- F. NOTICES. Any communications affecting operations covered by this MOU given by the Service, WDNR, and WDFW are sufficient only if in writing and delivered in person,

mailed, or transmitted electronically by email or fax, to the agency contacts as designated in this MOU.

- G. PARTICIPATION IN SIMILAR ACTIVITIES. This MOU in no way restricts the Service, WDNR, and WDFW from participating in similar activities with other public or private agencies, organizations, and individuals.
- H. NONBINDING AGREEMENT. This MOU creates no right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity. No Federal Advisory Committee is hereby formed or intended. The parties shall manage their respective resources and activities in a separate, coordinated, and mutually beneficial manner to meet the purposes of this MOU. Nothing in this MOU authorizes any of the parties to obligate or transfer anything of value. Specific, prospective projects or activities that involve transfer of funds, services, property, and/or anything of value to a party requires the execution of separate instruments and are contingent upon numerous factors, including as applicable, but not limited to, availability of appropriated funds or resources and administrative or legal requirements. Nothing in this MOU is intended to alter, limit, or expand the agencies' statutory and regulatory authority.
- I. TERMINATION. Any of the cooperators, in writing, may terminate this MOU in whole, or in part, at any time before the date of expiration.
- J. MODIFICATIONS. Modifications within the scope of this MOU must be made by mutual consent of the cooperators, by issuance of a written modification signed and dated by all properly authorized signatory officials prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change.
- K. ADMINISTRATIVE CONTACTS. The Administrative Contact for each party shall be identified and maintained on Appendix A to this MOU.

## **COOPERATOR AUTHORITIES**

The Service enters into this MOU by the authority provided through the Endangered Species Act of 1973, as amended in 1988 [16 U.S.C. 1536]. Section 7(a)(1) of the Endangered Species

Act directs Federal agencies, in consultation with and with the assistance of the Secretary of Interior or Commerce, as appropriate, to utilize their authorities to further the purposes of the Endangered Species Act by carrying out conservation programs for listed species.

The WDNR enters into this Agreement through the authority provided by the delegation of authority from the Commissioner of Public Lands. This delegation provides authority for Division Managers to “act on behalf of the Department on any matter, contract, commitment or activity within their functional areas unless specifically reserved to the Commissioner, Department Supervisor, Deputy Supervisors, or Directors”.

The WDFW enters into this Agreement through the authority provided in Title 77 RCW which stipulates that wildlife, fish, and shellfish are the property of the state and that WDFW shall preserve, protect, perpetuate, manage and conserve the wildlife in a manner that does not impair the resource.

**APPROVAL**

**IN WITNESS THEREOF, the parties hereto have executed this Memorandum of Understanding as of the last written date below.**

**U.S. Fish and Wildlife Service**

**BRADLEY THOMPSON** Digitally signed by BRADLEY THOMPSON  
Date: 2020.12.16 14:55:11 -08'00'

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Brad Thompson

Date

State Supervisor, Washington Fish and Wildlife Office

**Washington Department of Natural Resources**

DocuSigned by:  
*Brock Milliern*  
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1/19/2021

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Brock Milliern

Date

Conservation, Recreation, and Transactions Division Manager

**Washington Department of Fish and Wildlife**

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Eric Gardner

Date

Wildlife Program Director

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# APPENDIX A

## ADMINISTRATIVE CONTACTS

<b>U.S. Fish and Wildlife Service</b>	
<b>Office / Program</b>	<b>Contact</b>
Washington Fish and Wildlife Office / Ecological Services	Tom McDowell Listing and Recovery Division Manager U.S. Fish and Wildlife Service 510 Desmond Drive SE, Suite 102 Lacey, Washington 98503 <a href="mailto:tom_mcdowell@fws.gov">tom_mcdowell@fws.gov</a> (360) 753-6048
Washington Fish and Wildlife Office / Ecological Services	Jeff Chan U.S. Fish and Wildlife Service 510 Desmond Drive SE, Suite 102 Lacey, Washington 98503 <a href="mailto:jeffrey_chan@fws.gov">jeffrey_chan@fws.gov</a> (360) 753-9542

<b>Washington Department of Natural Resources, Natural Heritage Program</b>	
<b>Office / Program</b>	<b>Contact</b>
Natural Heritage Program (Administrative contact)	Joe Rocchio, Program Manager Washington State Department of Natural Resources Washington Natural Heritage Program PO Box 47014 Olympia, WA 98504-7014 <a href="mailto:joe.rocchio@dnr.wa.gov">joe.rocchio@dnr.wa.gov</a> (360) 902-1041
Natural Heritage Program (Technical contact)	Walter Fertig, Rare Plant Botanist Washington State Department of Natural Resources Washington Natural Heritage Program PO Box 47014 Olympia, WA 98504-7014 <a href="mailto:walter.fertig@dnr.wa.gov">walter.fertig@dnr.wa.gov</a> (360) 902-1710
<b>Washington Department of Natural Resources, Natural Areas Program</b>	
<b>Office / Program</b>	<b>Contact</b>
Natural Areas Program (Administrative contact)	Curt Pavola, Program Manager Washington State Department of Natural Resources Washington Natural Heritage Program PO Box 47014 Olympia, WA 98504-7014 <a href="mailto:curt.pavola@dnr.wa.gov">curt.pavola@dnr.wa.gov</a>

	(360) 902-1032
Natural Areas Program (Technical contact)	David Wilderman, Natural Areas Program Ecologist Washington State Department of Natural Resources Washington Natural Heritage Program PO Box 47014 Olympia, WA 98504-7014 <a href="mailto:david.wilderman@dnr.wa.gov">david.wilderman@dnr.wa.gov</a> (360) 902-1556

<b>Washington Department of Fish and Wildlife</b>	
<b>Office / Program</b>	<b>Contact</b>
Wildlife Diversity Division (Administrative contact)	Hannah Anderson Washington Department of Fish and Wildlife PO Box 43200 Olympia, WA 98504-3200 <a href="mailto:h.anderson@dfw.wa.gov">h.anderson@dfw.wa.gov</a> (360) 902-8403
Wildlife Diversity Division / Endangered Species Recovery Section (Technical contact)	Mary Linders Washington Department of Fish and Wildlife PO Box 43200 Olympia, WA 98504-3200 <a href="mailto:Mary.linders@dfw.wa.gov">Mary.linders@dfw.wa.gov</a> 360-902-8135

# APPENDIX B.

## **KEY PRIORITY TASKS FOR MOU PARTNERS**

- 1) Develop and coordinate an outreach and communication strategy to engage our external partners in the hybridization strategy.
- 2) Develop and formalize a method to track/map CALE and CAHI use in Washington, including an intake form for planting proposals.
- 3) Identify research needs to address key uncertainties in the hybridization strategy, prioritize these needs, and pursue efforts to fund and/or implement.
- 4) Develop a distribution map of CAHI within Washington relevant to the Priority Regions for TCB and CALE.
- 5) Develop an annual meeting schedule to ensure regular coordination.