

2016-2017 DRAFT Taylor's Checkerspot Butterfly Action Plan

The purpose of this action plan is to identify the next-best conservation actions that can be conducted over the next 3-5 years to support TCB recovery.

Cat.	Ref.	Task [An asterisk (*) indicates a newly added task]	Rank	Status & Implementing Party
1. Protect Occupied and Other Key Sites	1.1	1. Pursue conservation easements, acquisitions, and management agreements.	8	
	1.1.a	a. Work w/BPA to develop and implement management agreements at Cardwell Hill.		Ongoing
	1.1.b	b. Pursue acquisition or conservation easement with willing sellers according to regional priorities. [e.g. South Puget Sound, Bald Hill (WA), Denman Island Private Land and Cardwell Hill properties (OR)].		Ongoing (South Sound, BC); Opportunistic in OR (Bald Hill).
	1.1.c	c. Finalize voluntary management plans on private land (e.g. Denman Island, Cardwell Hill).		Ongoing
	1.2	2. Minimize negative impacts to occupied sites.	6	
	1.2.a	a. Minimize incompatible recreation especially at Scatter Creek, Dan Kelly Ridge and Eden Valley (inc. ATV use), Denman Island Provincial Park.		In progress (WDFW, ONF, DNR)
	1.2.b	b. Minimize training impacts & reduce adverse impacts from wildfire, especially at R74/76, R51.		Ongoing (JBLM)
	1.2.c	c. Reduce vehicular impacts (including travel management planning at ONF)		Ongoing (ONF, JBLM, FWS, WDFW)
	1.2.d	d. Coordinate with BTK spray implementing parties to reduce impacts to Taylor's checkerspot.		In progress (BC), Ongoing (WA)
	1.3	3. Develop & update management/restoration plans to reduce conflicts and guide actions.		
	1.3.a	a. Identify existing management and restoration plans for each site and identify overlaps, conflicts, and gaps.		Ongoing (all regions)
	1.3.b	b. Conduct threat assessment at site level to prioritize threats (using tools such as IUCN).		In progress (FWS)
	2. Enhance and Increase Effective Habitat	2.1	1. Enhance habitat by controlling/removing invasive species and structural modifiers, and enhancing larval food and nectar plants as appropriate.	1
2.1.a		a. Improve production of larval and nectar plant materials throughout the range, esp. in Clallam Co., BC, and Benton Co.		In Progress
2.1.b		b. Reduce and resolve conflict at sites where both Castilleja species occur and coordinate future reintroduction of either species.	13	In Progress
2.1.c		c. Collect information on plantago fungal pathogen in order to identify and calculate the level of risk to Eet.		
2.1.d		d. Collect information on Noctua pronuba in order to identify and calculate the level of risk to Eet.*		
2.1.e		e. Expand restoration on deep soil sites and explore new restoration techniques.		
2.1.f		f. Research and develop best management practices for using and managing fire in relation to butterfly recovery.	16	Ongoing at JBLM
2.2		2. Improve connectivity between occupied areas and/or suitable habitat.	18	
2.3		3. Define habitat restoration targets through research.		
2.3.a		a. Evaluate quality of various host species in relation to butterfly performance in all life stages (e.g. phenology, chemical content, abundance, environmental, etc.).	11	In Progress for pre-diapause larvae (UW)
2.3.a.i		i. Carry out an experimental introduction of Eet on CALE in S. Sound in 2017.*	9	
2.3.b		b. Evaluate long and short distance dispersal in the context of landscape and local factors, including understanding criteria for effective corridors.	23	
2.3.c		c. Define butterfly habitat selection through research (e.g. oviposition & adult habitat, nectar and larval food plant density, phenology, soil type/structure, and spatial arrangement).		In progress. Ovipos. Complete in Clallam Co., AIA, OR.
2.3.c.i		i. Understand oviposition site selection and larval mortality in response to plant community characteristics and thermal context.	20	In progress (CNLM)
2.3.d		d. Determine the characteristics of occupied habitat, with respect to nectar plants, host plants, and vegetation structure. Build upon previous work.		Ongoing (UW, WDFW); coarse review completed (IAE?)
2.3.e		e. Identify pre and post diapause food plants, particularly in the Olympic Peninsula.		Ongoing (ONF)
2.4		4. Utilize existing knowledge to create white paper that documents both known habitat characteristics and known habitat management practices and identifies information gaps.		In progress (CNLM and partners)
2.5		5. Create and implement opportunities to evaluate effects of habitat management on Eet populations.		Ongoing (opportunistic)
2.6		6. Increase understanding of impact of external factors.		
2.6.a		a. Evaluate impact of predators.	19	Planned (CNLM)
2.6.b		b. Evaluate the impact of vehicle traffic on Eet and habitat.		
2.6.c	c. Evaluate the impact of fungicide, herbicide and other pesticides.			
2.6.d	d. Improve our understanding of the influence of weather, climate, and microclimate on population dynamics and reintroductions, including the use of weather stations.	14		
2.7	7. Establish and implement standardized habitat assessments (by region) to evaluate habitat suitability.	21	Ongoing	
2.7.a	a. Assess status of occupied and key sites.			
3. Captive Rearing & Reintroduction	3.1	1. Continue to implement captive rearing and reintroduction programs, including monitoring source and release sites in South Sound.	2	Ongoing (WDFW, OZ, SSP)
	3.1.a	a. Evaluate genetic diversity and transfer between source and reintroduction sites following establishment.	7	
	3.1.b	b. Develop a reintroduction plan for South Puget Sound, including criteria for defining a source population.*	24	Planned (WDFW)
	3.2	2. Where appropriate, initiate or expand efforts to increase the number and size of populations through captive rearing, translocation, and reintroduction (by region).	12	
	3.2.a	a. Identify and prioritize potential future release sites in coordination with recovery planning efforts and entities (esp. in OR).	10	
	3.2.b	b. Develop new facilities or additional capacity for captive rearing, as needed (e.g. Benton Co., Denman, Island Co./San Juan Co.).		Ongoing (BC), Planned (OZ, FWS)
3.3	3. Document decision making and state of knowledge for population increase efforts.			
4. Survey / Monitor	4.1	1. Develop suitable survey and monitoring protocols to determine occupancy, trends, distribution, and abundance.	3	
	4.1.a	a. Develop methodologies for calculating an estimate of population size.		Ongoing (WDFW)
	4.1.b	b. Test the use of drones to detect Eet.*		
	4.2	2. Annually monitor all known populations.	4	Ongoing
4.3	3. Prioritize and survey suitable habitat to identify additional populations and/or expansion (e.g. North Olympic Peninsula, AIA).	15		
5. Coordination & Education	5.1	1. Determine and implement best approach for increasing numbers of populations within each region (e.g. habitat enhancement, habitat manipulations, translocation, captive rearing and reintroduction).	5	Planned (FWS)
	5.1.a	a. Develop population increase strategy (by region).		In progress (OR)
	5.2	2. Complete a Species Status Assessment and develop a Recovery Plan in the US.		In Progress (FWS)
	5.3	3. Review data from genetic and meta-population studies to direct population management.		
	5.3.a	a. Determine the appropriate taxonomy for populations identified as E. e. taylori using genetic analyses.		
	5.3.b	b. Determine the degree of genetic structuring within and between populations of E. e. taylori.		
	5.4	4. Address challenges resulting from ESA listing on ability to monitor populations and conduct recovery actions and cooperatively develop solutions (e.g. monitoring & project survey requirements, recovery planning, conservation measures).		
	5.4.a	a. Develop partnerships with additional Federal Agencies that contribute to recovery of TCB, reduce burdens and complications associated with managing for listed species where appropriate, and carry out the ESA Section 7(a)(1) responsibilities of those Federal Agencies (e.g., develop programmatic biological opinions for Federal programs that affect TCB).		
	5.4.b	b. Develop partnerships and voluntary agreements with State and private entities that contribute to recovery of TCB, reduce burdens and complications associated with managing for listed species, and provide assurances for landowners (e.g., pursue ESA Section 10(a)(1)(A) and 10(a)(1)(B) agreements and permits for researchers, land managers, and willing landowners.)		
	5.5	5. Share information between entities, establish partnerships, and maintain a working group.	22	Ongoing
	5.5.a	a. Utilize synergistic restoration efforts (e.g. funding, communications, messaging, political/public support) with complementary species-at-risk to support a larger distribution of healthy functioning ecosystem (e.g. SWG project, CALE, Sentinel Landscape).		
5.6	6. Identify opportunities to conduct public outreach and education, including opportunities to share information about listing and conservation to landowners that may have occupied or potential habitat.		Ongoing (SPS Partners)	
5.7	7. Convene biannually to discuss and prioritize information needs.*			
5.7.a	a. Convene a workshop to learn more about and evaluate demographic models.*	17		