
Taylor's Checkerspot Working Group Update Meeting

Thursday, March 25 | 1 pm - 4 pm

Attendees

Adam Stebbins, Benton County; Jennifer Heron, British Columbia Ministry of Environment; Sanders Freed, Center for Natural Lands Management; Sarah Hamman, Nate Johnson, Elspeth Kim, Adam Martin - Ecostudies Institute; Matt Blakeley-Smith, Greenbelt Land Trust; Andy Neill, Institute for Applied Ecology; John Richardson, Joint Base Lewis-McChord; Marty Chaney, Natural Resources Conservation Service; Ronda Naseth, Oregon Zoo; Susan Waters, Quamash EcoResearch; Dana Ross; Kelli Bush, Sustainability in Prisons Program; Tara Callaway, Nick George, Erin Gray, Dan Grosboll, Zachary Radmer, Karen Reagan, Richard Szlemp - US Fish and Wildlife Service; John Chatel, Karen Holtrop - US Forest Service; Regina Johnson, Graywolf Nattinger, Noelle Nordstrom, David Wilderman - Washington Dept. of Natural Resources; Gary Bell, Josh Cook, Wendy Connally, Mary Linders, Darric Lowery, Anita McMillan, Gail Olson, Ann Potter - Washington Dept. of Fish and Wildlife; Laura Six, Weyerhaeuser.

Regulatory Updates

Recovery Planning Status - Karen Reagan, US Fish and Wildlife Service

As discussed in prior meetings, the Recovery Plan is no longer a single, static, stand-alone document; it is now a recovery package: Species Biological Report (listed species) or Species Status Assessment (those not yet listed); Recovery Plan (vision and how recovery will be measured on the ground); and Recovery Implementation Strategy.

SBR/SSA: Species Needs (3Rs), Stressors, Historical Condition, Current Condition, Future Condition all inform Recovery Vision, Recovery Criteria, Recovery Strategy Recovery Actions > Recovery Implementation Strategy + Time and Cost.

The 30-day public comment period for the SBR/SSA is slated for 1/28/2022-2/27/2022 right now.

Recovery Planning and Implementation (2019) <https://www.fws.gov/endangered/esa-library/pdf/RPI.pdf>

See also: https://nctc.fws.gov/courses/csp/csp3910/resources/3R_references.pdf

Graysmarsh Safe Harbor Agreement, Zach Radmer, US Fish and Wildlife Service

Private lands site near Sequim with TC population: WDFW worked with Graysmarsh and in 2018 USFWS created a Safe Harbor Agreement to create habitat and monitor butterflies. Habitat monitoring occurs in odd years and butterfly monitoring in even years. There was no monitoring in 2020, so habitat monitoring will be monitored in years 1, 4 and 5. New onsite biologist will be working with USFWS biologists to monitor. Most recent peak count was around 53.

JBLM Conservation Pilot, Zach Radmer, US Fish and Wildlife Service

Operating under a 2017 programmatic Biological Opinion which will expire Jan 2022, so planning ahead with a MOU around more long-term and creative conservation planning with DOD: Conservation Policy Initiative.

Two installations have been selected for a conservation pilot – JBLM is one of those; Zach is the USFWS liaison, with the purpose of working with the base and conservation partners to define a conservation commitment (goal) for TC and other species.

Portland Office Updates, Rich Szlemp, US Fish and Wildlife Service

COVID-19 has impacted operations and field work, but completed a Safe Harbor Agreement on a new site and BPA powerline; Partners Program provided some funding for restoration and BPA will be doing restoration work. Total estimate: 250 TC on that site.

British Columbia Updates

Population Status and Conservation Strategies - Jenny Heron, BC Ministry of the Environment

Most recovery work occurs in extant population and active restoration areas – Hornby Island, Denman Island; plus, found new population in SE Vancouver Island at a cranberry farm. Extensive population among clear cuts. Helliwell population extirpated in the late 90's, but are reintroducing TCB at that site.

Denman Island and Helliwell provincial parks have been focal areas; clearcuts that express meadow characteristics have in these areas been TCB habitat until woody succession progresses. Negotiated a 10-hectare butterfly reserve in Denman where trees are not allowed to regenerate. Tree regrowth and scotch broom invasion are quick and difficult to manage. In the next 5 years: annual surveys, vegetation removal, wetland planning to manipulate water table and reduce shrub encroachment, then population augmentation restart.

Captive rearing started in 2013, managed by Greater Vancouver Zoo since spring 2016; funded by Wildlife Preservation Canada; very successful. In 2015, 2016, and 2017 releases occurred at predetermined sites where host plants were deemed abundant within the Butterfly Reserve, using Denman Island breeding stock source. No breeding success in 2018, so no progeny.

Hornby Island/Helliwell Provincial Park – maritime meadow ecosystem with conifer encroachment; restoration target (1981 aerial) increasing size of meadow habitat through tree removal (by hand, to accommodate public perception) and soil moisture management, abundance and distribution of native plants, deer are a problem for habitat persistence. Public survey results – overall positive, albeit some interesting opposition. 2016, 2017, 2018 and 2019 – restoration continued; thinning and professional arborist helped address public concerns; two years focused on thinning then third year carried out removal. Made for a less drastic change. Site prep: planting Rx, weeding, planting native plants with public engagement. Engaging locals was essential for successful stewardship. March 2020 first larval release! 74 adults in May 2020, but in 2021, no post-diapausal larvae detected. So, monitoring will inform next steps.

Scope creep, the unknowns of animal behavior, and limited staff capacity all affect the work success.

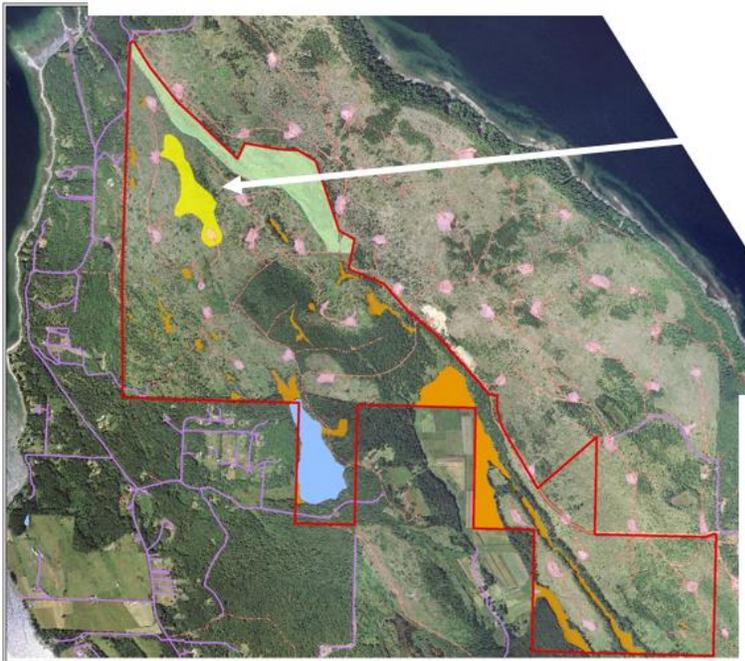
Karen Reagan asked about disease and parasites. Uncertain what pathogen caused death in captive colony. A wasp was detected in a wild-caught larva. Also asked about if they utilize a deer management strategy. Answer is no. The public love deer, private landowners do not often allow hunting on their lands, and firearm discharge restrictions apply near places where people live.

From Dave Wilderman he asked about the biggest communication improvements. Local newsletters to all mailboxes, walking around sites with locals (time intensive personal contact, public open houses), and shared information with local conservancies to share on *their* social media feed. He also asked about the two phased tree removal. Some of this was to prevent erosion and invasive species colonization, plus

public perception by making the tree reduction more gradual to avoid conflict. Seeding helped too so that there weren't as many big bare patches that can cause alarm among community members.

Darric Lowery asked about Denman Oyster River habitat type that has been logged, what was historic ecotype? Areas where TC occur are second growth and would have been old growth before that, likely used to be open and wet, ephemeral streams; might have been adjacent to bog habitats (cranberry bog). They are surveying other open habitats from some source may have better information next year after surveys.

Habitat Restoration: Denman Provincial Park 2015 - 2021



- Yearly
 - conifers & Scotch Broom cut & piles burned
 - Weeding larval release sites & planting native plants
 - adult & larval surveys over the entire park

Washington Updates

Population Status Overview – Notable Updates (view meeting materials for all results)

Clallam County (Ann Potter, WDFW) This region supports the highest number of TC than any region, 7 sites with diverse landownerships (Elwha farthest west); previous localized extinctions; all extant sites are naturally occurring (no translocation). In this region, greatest recovery need is staffing and expertise in habitat management (including Rx fire) specific for these sites, rare butterfly knowledge to support collaboration, develop funding and implementation strategies and actions. Due to COVID restrictions, WDFW monitoring missed the peak window so 2020 numbers are assumed to be low.

Clallam County (Karen Holtrop, USFS) – All four sites surveyed except for Graywolf in 2020; Bear Mountain highest count in 2019 with highest amount of habitat work, counts doing really well. Not doing much work at Graywolf and in 2019 the population count was just 3.

Survey Methods and Analysis (Gail Olson, WDFW) Distance sampling survey in 2018; previously along transects (steep, unsafe), so now point sampling via variable circular plot methods with route changes.

Considerable observer differences were evident in analysis, so future survey deployment will need to align with standardized protocol. Consistent survey timing and surveyor is a continuing challenge to analysis.

Olympic National Forest (Zach Radmer, USFWS) Some roads were decommissioned (near Gray Wolf); 270 spur will remain open, where TC occur. Right level of disturbance may be an issue to keep habitat open.

Susan Waters asked about Tenalquot surveys. Mary Linders noted that they surveyed and did their first release there, but numbers of adults (peak count < 15) were insufficient for abundance estimate so not mentioned in survey table.

Rich Szlemp asked about observer difference and effects on distance sampling. How do we address/normalize observer bias? Gail responded that the Clallam pattern of *when/where* observers did the surveys confounds the results (hard to separate observer difference from survey date or area surveyed), so it is observer difference. Weather conditions can also create difficult conditions.

Captive Rearing and Reintroduction

Captive Rearing (Washington) and Release					
Prediapause larvae release; Postdiapause larvae released; adults released.					
Facility	2016	2017	2018	2019	2020
Oregon Zoo	1003; 1210 ; 80	0; 1163 ; 66	2194; 424 ; 116	741; 2709 ; 214	0; 1204 ; 0
Mission Creek	0; 2477 ; 131	0; 2770 ; 79	3006; 2912 ; 211	2514; 3852 ; 194	0; 5934 ; 0

COVID has impacted (eliminated) Oregon Zoo captive rearing; ever-increasing reductions in funding to continue any captive rearing program. Kelli Bush says that the program at Mission Creek has really been impacted by COVID as well; released all post-diapaused larvae last year to hit pause to determine if they could safely restart. Value of program to incarcerated individuals and the program tasks are high value to the incarcerated population, diversifying environmental movement, impacting social justice and environmental education. Please share articles, conservation materials to Kelli to share with the program team. Two technicians who have been released from this program are finishing graduate and undergraduate work.

On the Ground

South Sound ON-Base (Nate Johnson, Ecostudies Institute) Working with many to craft habitat targets via Rx fire and CNLM seed; five years of rigorous habitat creation and monitoring, with opportunity for expansion in TA15. Using point intercept habitat monitoring for nectar species (pixel = 25 m² about 75 m apart) and seems to be good indicator of TC colonization.

South Sound OFF-Base

WA DNR (Dave Wilderman) Bald Hill NAP has received more focus and Mima Mounds NAP a bit less when it comes to TC. At Bald Hill, removing invasive grasses and oxeye daisy encroaching conifers and shrubs, and cutting back around *Castilleja* and other food plants. Small sites 10' x 10' treatments (about 10 – 20 per year) to prep for seeding with annuals and *Castilleja* and plug fescue. Consistent counts since 2013 after about 5 years of enhancement work. Established balsamroot where it wasn't previously found. Host

plants do best on deeper soils. Harsh *Castilleja* abundance increasing since 2007; Mary Linders going to do rapid habitat assessment at the site this coming year.

CNLM (Sanders Freed) Tenalquot, Wolf Haven, and Glacial Heritage treatments include burning, seeding, plugging.

WDFW South Sound Wildlife Areas (Darric Lowery) Scatter Creek, West Rocky Prairie Units; post 2017 wildlife fuel reduction and understory management, and forestry projects opening historic prairie (25 ac prairie, 25 ac oak release).

Olympic Peninsula

WDFW (Anita McMillan) Worked with WDNR to design timber sale for this fall adjacent to Eden Valley and Dan Kelly which could transition into TC habitat. Seeking guidance post-timber sale to understand conifer regrowth; will need to reseed/replant this winter. Goal is to remove encroaching conifer and restore edge on the balds that are historically present there, scotch broom is a big issue within TC habitat which occurs on VERY steep grades (cliffs!).

CNLM (Sanders Freed) At Dan Kelly tree and shrub removal last fall (3 ridges and slope tree removal and reseeded). Detecting lots of “bugs” and mountain bikers are a documented issue. *Vulpia* treatment needed prior to new reseeded; fast growing and outcompetes any native seeding.

Oregon Updates

Population Status Overview

Dana Ross (independent lepidopterist) – two sites

- Fitton Green since 2003: recently estimated adults 250 (260 in 2019); restoration may improve numbers this year. Needs continued work on Powerline Area; Big Meadow and Little Meadows are ZERO.
- Beazell Memorial Forest – restoration work has helped a lot in small unique areas, 916 adults last year; some sites need attention to return to suitable habitat condition.

Captive Rearing and Reintroduction, Rich Szlemp

Coffee Creek Correctional Facility (rearing) was evacuated due to wildfire, butterflies went to Madras facility and back fairly successfully. Released 1100 at 2 sites last year, relatively close to each other, and although they didn't monitor much due to COVID, they had detections. Variability with second diapause (about 20% - 60%) in captivity which complicates reintroduction. South end of Fitton Green and Bald Hill release sites. Trying to put limited number of released TC into various places to help determine what TC prefer and guide future releases. This year, 75% at Bald Hill, 25% (and second diapauses) at Fitton Green to see how they fare.

Question from Ann Potter: Are you considering pupae releases? Rich would like to steer toward the reintroduction of pupae releases instead of larvae; Rich's assumption as that in new or low abundance locations, pupal release could reduce parasites and predation as they're exposed for a shorter period than larvae. Assuming dispersal will still be within dispersal distances (few km) for larvae.

On the Ground

Matt Blakely-Smith, Greenbelt Land Trust – Bald Hill Farm is permanently protected property with 600 ac, mostly forested, historical photos show it to be mostly savanna and working toward savanna and prairie connections in restoration. Working on a “Butterfly Way” between Lupine Meadows, North through Bald Hill Farm, then West to Fitton Green.

Andy Neill, IAE – Doing work at the two occupied sites, Cardwell Hill (aka Powerline Site), privately owned with Safe Harbor Agreement and Beazell Memorial Forest. USFWS Recovery Grant to restore and reconnect two meadows at Cardwell Hills building on the landowners intended thinning project, with weed treatment and reseeding. Conifers and non-native grasses are confining and diminishing habitat quality. Seed mixes broadcast included plantago, takes a couple of years to reach maturity for TC use. At Beazell, a Benton County site, also had a Recovery Grant. In 2019, Benton County did prescribed fire across 7 acres on two occupied meadows and the funds were used for reseeding. Herbicide treatment on non-native grasses as well. Little under 6,000 plants in the burned areas in 2019, did more seeding/planting last year. North and middle meadows in Beazell had volunteers do planting. Benton County has invested in South Meadow tree removal; working on stump removal, herbicide, pre-seeding, and seeding for nectar to prep for reintroduction in the next couple of years. Introduced paintbrush has been used in the past. Nectar is one of the main things missing in this meadow – hoping it will be a good reintroduction site in a few years. At middle and north meadow, there is introduced golden paintbrush. In 2017 when there was a big spike in TC at these meadows, they used the CALE, otherwise they mostly use plantago.

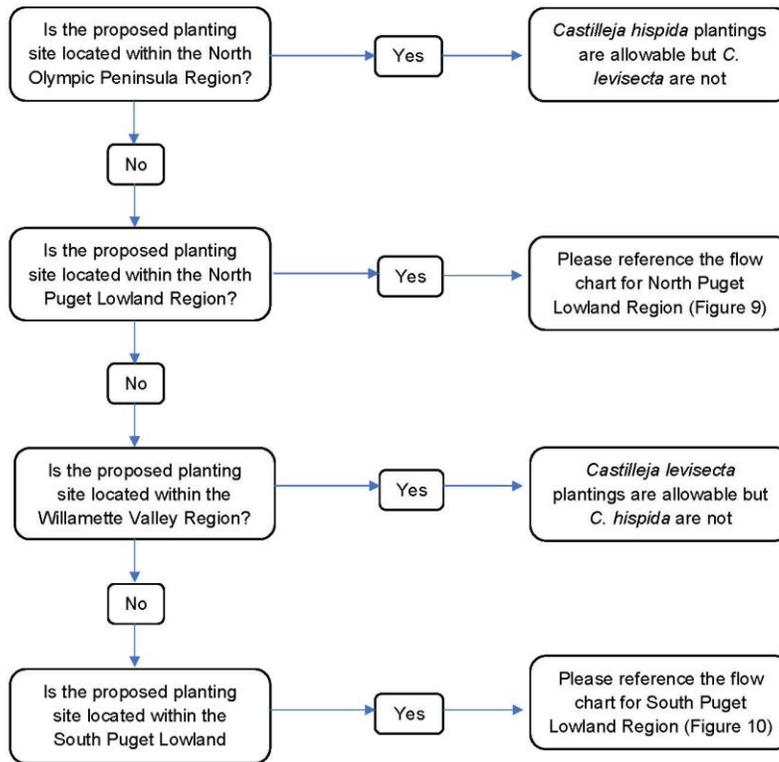
Research and Other Projects

Detection Dog Project, Karen Holtrop, US Forest Service Project on Olympic National Forest. Used frass from Mission Creek for training at the Rogue Detection Teams facility. Went out late for a detection test to avoid most potential impact on bugs; found frass and a few larvae. Decided to try earlier in the season for larvae detection at Dungeness. USFWS, WDFW and USFS met, determined seeking for earlier season pre-diapause larval nests would minimize impacts. Unoccupied suitable habitat searching, did not find; only found larvae at or near known sites. Dogs can cover quite a lot of ground and are faster; phenology shifts each year and dogs could be helpful in short season. July opportunity to see the detection dog in action.

Castilleja MOU (FWS, WDNr, WDFW) Erin Gray, USFWS. There is new guidance to minimize *Castilleja levisecta* (listed plant) hybridization with *C. hispida* (TC host plant). Hybridization currently confined to South Puget Sound; three sites have been lost (West Rocky Prairie, Tenalquot, Scatter Creek) to *C. levisecta* recovery due to hybridization. Essentially, we want to recover both *C. levisecta* and TCB, and reduce conflict in those recovery actions. Sites in South Sound have been assigned to one or the other we will have to prioritize one over the other until we learn more. Comments are due this summer, MOU will be finalized by end of 2021.

Marty Chaney asks if paintbrush is pollinated by wind. As far as we know, bumblebees are primary pollinators, so that influences distance in the MOU; Susan Waters notes that golden paintbrush is not wind pollinated, and are systematically visited by solitary bee, sweat bees and bumblebees; harsh paintbrush is pollinated narrowly by a long-tongued bumblebee. Dave Wilderman said hummingbirds also visit *C. hispida* (not sure if play a role in pollination).

Figure 8. Decision Flow Chart for Planting *Castilleja* Species:
 Guide to Regions (please refer to planting priority maps, Figures 1 and 2)

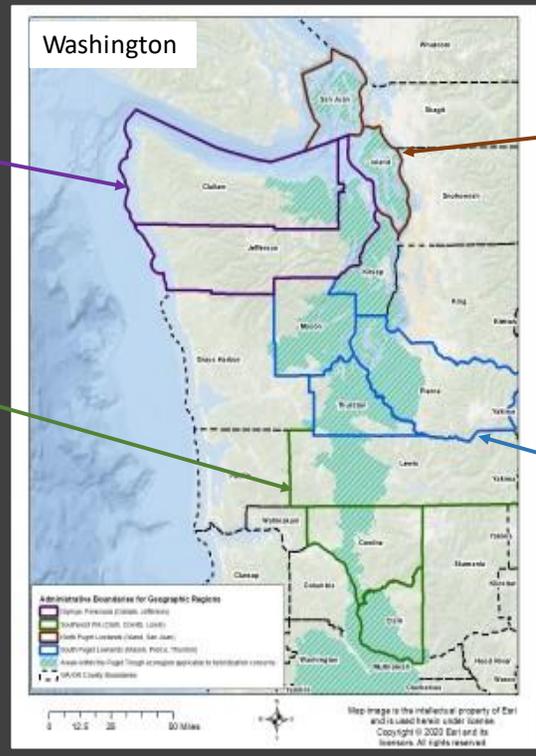


Geographic Regions

North Olympic Peninsula:
TCB priority

Southwest Washington:
No priority assigned

Willamette Valley Oregon (not pictured):
CALE priority



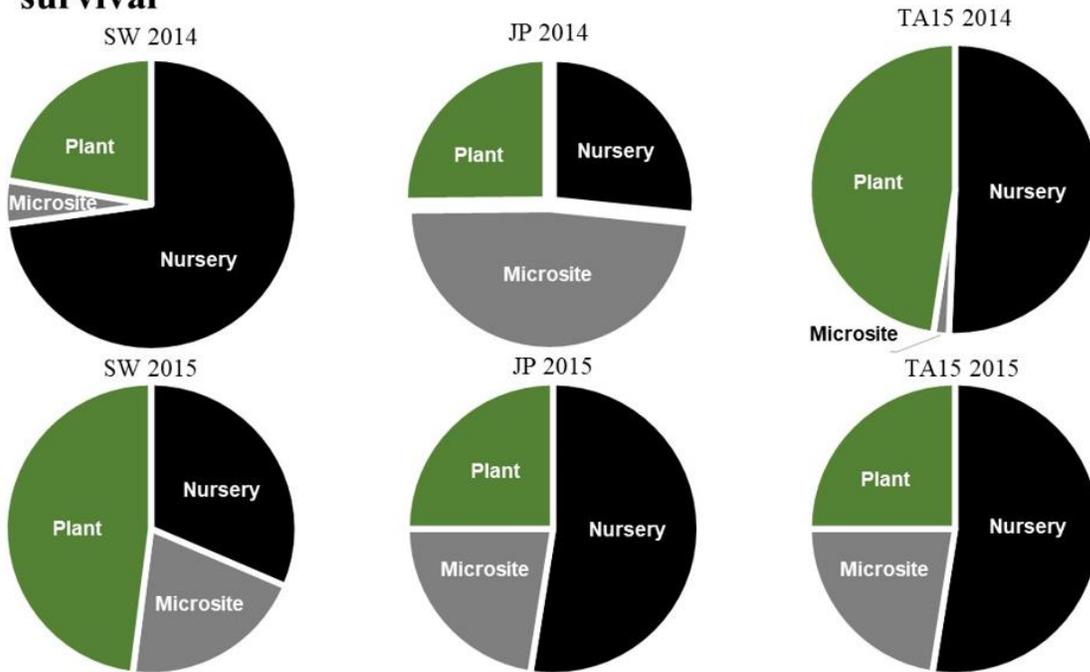
North Puget Lowlands:
CALE priority

South Puget Lowlands: Both
CALE & TCB
priority.
Assigned by site and site cluster



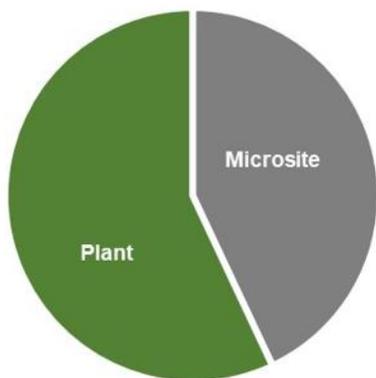
Puget Balsamroot and Harsh Paintbrush Research Adam Martin, Ecostudies Institute. 2014 to 2020 study on balsam root and harsh paintbrush site survival: plug quality with happy roots drives survivorship patterns. See materials more info.

Nursery Lot and Tray have significant impact on balsamroot survival

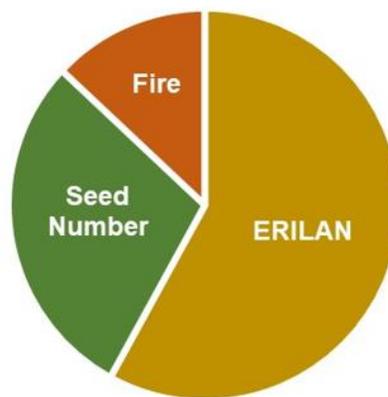


Harsh paintbrush survival strongly impacted by nursery lot, recruitment by host species

Paintbrush Survival



Paintbrush Recruitment



Weather and Climate Data Collection Adam Stebbins, Benton Co Natural Areas and Parks NR Coordinator. Beazell Memorial Forest since 2019. The microclimate in “leftover” habitats may affect TC and other priority species and knowing more about that will influence where we could more effectively spend our restoration dollars. ZENTRA Cloud: 15 min timestamped data, full cellular link. Example below.

