Mazama Pocket Gopher Annual Working Group Meeting

December 12, 2017 | Olympia, WA

In Attendance:

Patrick Dunn, Sanders Freed, Elspeth Kim, Bill Kronland - *Center for Natural Lands Management (CNLM);* Catherine Conolly, *Environmental Consulting;* Jeff Foster, Kerri Wheeler, Todd Zuchowski - *Joint Base Lewis-McChord (JBLM);* Linda Krippner, *Krippner Consulting;* Marty Chaney, Dan Ufnar - *Natural Resources Conservation Service (NRCS)*; Amy Kocourek, *NRCS/USFWS*; Scott Sissons, *Pierce County*; Kathleen Berger, Christina Chaput, Andy Deffobis, Jeanne Kinney, Trevin Taylor -*Thurston County;* Kim Flotlin, Terry Frederick, Judy Lantor, Tom McDowell, Ryan McReynolds, Suzanne Nelson, Ginger Phalen, Curtis Tanner - *U.S. Fish and Wildlife Service (USFWS);* Emily Butler, Matt Curtis, Gail Olson, Derek Stinson, Michelle Tirhi - *Washington Department of Fish and Wildlife (WDFW);* Linda Saunders -*Wolf Haven International*

Federal Update - Kim Flotlin, USFWS

Service Areas

Service Areas for 3 of the 4 federally-listed MPG subspecies have recently been revised. The three subspecies represented on the revised map include the Olympia, Tenino, and Yelm subspecies of the Mazama pocket gopher, all of which occur in Thurston County. The previous service area map for Thurston County contained boundary lines that were not always based on on-the-ground features, which made it difficult for landowners/land managers to self-determine in which service area they fell.

USFWS and WDFW staff worked together to revise the Thurston County MPG service area boundaries and describe them in a narrative fashion. There are now five service areas (1 for OPG, 1 for TPG, and 3 for YPG). Similar to how service areas were previously determined, revised service area boundaries were delineated based on the natural pattern of suitable pocket gopher soils across the landscape, pocket gopher occupancy patterns, genetics, habitat connectivity, and permeable or impermeable barriers to movement. We also considered patterns of land use development and conversion (as presently understood), how resulting impacts are likely to present challenges to subspecies recovery, and how land use development and impacts are likely to generate mitigation debits and drive landscape-scale needs and opportunities for compensatory mitigation.

Note that an area that is already protected may not show up as a priority area, since it's already protected, but these are known and mapped by the Service. Issues considered in delineating each service area included: genetics, connectivity, and barriers to movement. Service areas are meant to preserve genetic diversity and health of each sub-species and population, and maintain spread of gophers across landscape to reduce risk of population loss. This is just for Thurston County. The process to assign RPA's and a service area in Pierce County will happen in the future if determined it is needed.

The narrative and the revised MPG service area map will ultimately be available online at https://www.fws.gov/wafwo/articles.cfm?id=149489588.

Recovery Planning

The USFWS recovery planning process includes 3 stages: Species Status Assessment, Recovery Planning, and Recovery Implementation Strategy. The Species Status Assessment (SSA) takes the place of the Background section of a traditional Recovery Plan, but is now a stand-alone document. We have made significant progress toward completion of the Species Status Assessment, which will be sent out for formal peer review upon its draft completion. We anticipate this will occur in mid-2018. Once peer review comments have been received and incorporated, the SSA will be posted to our website. The SSA is nimble and updateable, as new biological information is learned about the 4 subspecies.

In terms of recovery concepts, we have also made significant strides in drafting potential recovery metrics for the 4 listed subspecies. We are working closely with WDFW in this effort. The recovery plan portion of the process is much leaner than it was traditionally, as it contains just a summary of the background (SSA), the recovery strategy, objectives and measurable criteria, recovery actions, and a simplified implementation schedule, including costs. Notice of the availability of the draft Recovery Plan will be posted in the Federal Register, where it will be open for public comment. Once comments are received and incorporated, notice of completion and availability of the final Recovery Plan will be published in the Federal Register, and thus publicly available. We will focus on draft recovery plan development and posting upon completion of the SSA process.

The Recovery Implementation Strategy (RIS) takes the place of the Implementation Schedule in a traditional recovery plan, and is now a stand-alone document that is updateable. What we now call the MPG Action Plan will morph into the RIS, so you shouldn't be surprised at all by the content in the RIS. For this reason, we have in theory completed quite a bit of the RIS already. This updateable document will be posted to our website.

Soil Surveys - Dan Ufnar, NRCS

All official soil survey data is on https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

NRCS has updated their soil data. The project had three goals:

1. *Seamless Soils Data*. Data used to have different descriptions across counties so even if soil type was same it showed as different. Data is now consistent across county lines.
2. *Update Spatial Data.* River movement means old data didn't represent current river location and soil types based on movement of river. This has been updated.
3. *Update Soil Water Features Data.* Reflect occasional versus regular flooding, for example.

Soil components and map unit design were updated. Included lab data on soils to look for differences in texture, chemical, etc. The analysis found some of the soils in Thurston County have volcanic ash in them, which updated the outwash soil classifications (what was Spanaway is now Grandmound, Davis Creek, Hutulla). New soil Elma is where Chehalis soil is currently mapped.

Dan is interested in conducting a future project that looks at ash component in the outwash glacial soils. With the gopher overlap there's a high level of interest in the soils in this area – both classification and distribution. This would be an opportunity to look for answers to other questions gopher group has regarding soils. Folks with ideas should get in touch with Dan.

There are a variety of other studies around the country that NRCS has done to determine suitability ratings for species of concern. One done for pygmy rabbit and gopher tortoise can utilize soil analysis to determine suitability with map of suitability ratings (unsuitable to highly suitable). *This could be done for pocket gopher, but would need partner collaboration.* Additional options are utilizing non-invasive survey methods – electromagnetic induction and ground-penetrating radar. *Contact info:* Dan Ufnar, CPSS PWS; Soil Survey Office Leader; Daniel.ufnar@wa.usda.gov, 360-704-7755

MPG Site Evaluation Study - Gail Olson, WDFW

The goal of the Site Evaluation study was to develop an occupancy-based statistical model that could be used to estimate site suitability for pocket gophers. I applied two protocols for collecting data to determine whether a transect-based approach would perform as well as a plot-based approach used previously to develop habitat-based models for pocket gopher occupancy (Olson 2011). Based on these findings, this study asked if the model could be implemented to determine likely probability of occupancy. I also compared the results obtained from the plot-based methods between 2008 and 2015 surveys, first by applying the 2008 best model to 2015 data, and by developing a model from the 2015 data only. Among all comparisons of methods and years, only the PERSOIL covariate (percent soil) was consistently associated with occupancy probability. While some variables, such as BROOMCOV (broom cover) or BROOMHT (broom height), were found to be important factors in more than one analysis, the influence of those factors was not consistent. When the 2008 model was applied to 2015 plot data, 2015 occupancy probabilities were much lower than the 2008 estimates (Figure 1), although actual occupancy status changed very little between those years. Much of this difference could be attributed to differences in how these variables were measured, either by using a different sampling scheme or by inconsistent application of the same sampling methods at different times. In short, the results of this study were not consistent and reliable enough to develop a single statistical model that may be applied to new sites to estimate their occupancy probabilities with any confidence. However, this general approach could still be used if the model was developed from a larger pool of sites with more rigorous measurement of habitat covariates. Transect methods are easier to apply in field but more work is needed to use in occupancy modeling context. A final report on this project was completed for USFWS.

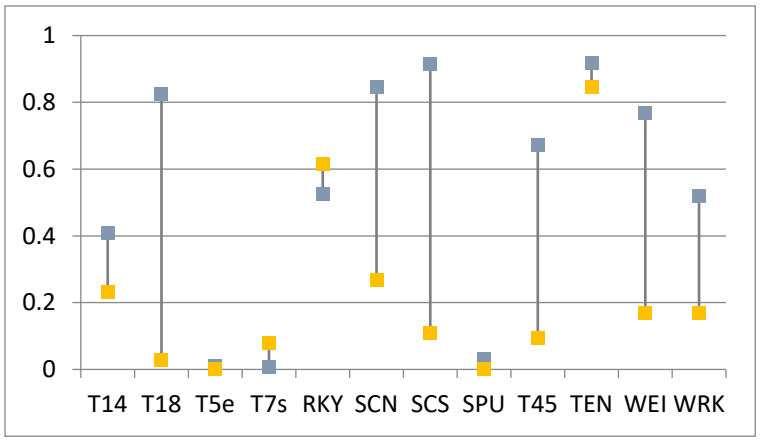

Figure 1. Comparison of site occupancy estimates from 2008 (blue squares) and 2015 (yellow squares) Mazama pocket gopher mound surveys (lines are only intended to facilitate comparisons). Occupancy probabilities were estimated from the best single-season fall occupancy model from 2008 analyses conducted by Olson (2011), using habitat covariates measured in 2008 and 2015 respectively.

Kerri Wheeler, JBLM

Surveys by JBLM covered 2,700 acres on-base and an estimated 700 acres of that is densely occupied by MPG. Want to work towards a more concise method of surveying. Unoccupied sites were mostly dense with scotch broom. Efforts this year were focused on attaining occupancy data to communicate with the Army regarding training locations.

Andy Deffobis, Thurston County

Screen Team Update

While work on Thurston County's Habitat Conservation Plan (HCP) is ongoing, the County continues to screen parcels on/near gopher habitat areas individually. This screening is conducted in partnership with U.S. Fish and Wildlife Service. The goal is to keep up with requests and reduce the County and landowner's liability to ESA and reduce individual regulatory burden. This effort requires 2 FTE's at Thurston County, plus USFWS staff time support. Changes to the process this year: changed maximum number of site visits from 3 to 2 (spaced 30 dates apart). Changed number of teams from 2 to 3 (main team was 2 people – one from county one from USFWS). This reflected feedback from landowners who were overwhelmed by large groups showing up. Three-person teams handled sites with 20+ acres. Prioritized project reviews over non-project reviews (speculative). Also discontinued non-project review applications to help reduce need.

In the 2017 season (June-October), the "screen team" performed 584 visits on 315 sites. Mazama pocket gophers (MPG) were found on approximately 10-15% of these sites. MPG mounds were observed on the first visit on 79% of sites containing mounds. Of the sites that were occupied – around 60% were new 'known' sites (beyond 600 ft of known occupancy). Landowners with MPG on site received letters from Thurston County and USFWS regarding their options. Several landowners have chosen to work directly with USFWS to develop individual HCPs prior to issuance of County permits. The County works with USFWS and applicants directly to ensure that proposed development and mitigation can satisfy local, state, and federal law.

County HCP Update

Thurston County has been working toward a Habitat Conservation Plan for several prairie species and an associated riparian species federally listed as threatened and endangered for the past few years. In 2016, a complete draft plan was provided to USFWS and currently the County has been working through technical assistance comments from USFWS in order to finalize the draft HCP.

Starting in January 2017, staff began the process of educating new Board of County Commissioners about the HCP. Several meetings in January and February were held to accomplish this "on boarding" of new leadership, and multiple meetings have been held since this time to provide information regarding new directions this leadership has requested for the HCP. In May 2017, the county held a community focus group meeting on changes to the current draft concepts that will be included in the plan. Staff is currently working with the county consultants to make the changes requested by County leadership and work through the previous technical comments provided to the county from USFWS staff.

Curtis Tanner (for Kevin Connally)

Individual HCP

The pace and growth of development in Thurston County has increased in recent years and has been reflected in folks requesting individual HCP's. When someone is notified they have an occupied property, USFWS provides options – conservation, county HCP, and individual HCP. One of these individual HCP's was completed last year (McLean family). Currently partnering with multiple individual landowners and developers (ranging from single family homes to large subdivisions and Ports). There was an article in Olympian about the Tumwater HCP (known as the Bush Prairie HCP). Large regional plans and a strong conservation banking infrastructure are more likely to meet objectives than small individual plans (as regional plans allow for larger, more connected conservation sites rather than small, fragmented sites that are burdensome to manage and monitor).

As a refresher – section 7 provides a path for federal agencies to consult with FWS to allow incidental take and determine mitigation as appropriate. The path for non-federal partners to do this is through Section 10 and the HCP process. These are the two pathways to receive allowance for incidental take and determine appropriate offsets.

Todd Zuchowski, JBLM

Gopher Habitat Management on Base

There are 91,000 acres of land on JBLM: 14,000 of these are open grassland/prairie habitat, and of these 8,500 are occupied by MPG. There are over 25,000 active duty soldiers on JBLM with critical military training mission requirements. Documents that guide actions are the Endangered Species Management Component (ESMC), Programmatic Biological Opinion (BO), and the Integrated Natural Resources Management Plan (INRMP).

Methods of internal communication include 'range walks' (to outline and determine training activity locations in relation to sensitive areas); 'military training area co-use' (determine where activity can occur in an occupied area that isn't designated as priority area); and the Civilian Project Review Process (deconfliction, dig permit, range maintenance).

Habitat management has switched from a focus on acreage targets and instead managing for rare species with unit by unit burn plans. 2017 had 33 prescribed burns within Mazama pocket gopher management units toatlling 877 acres; 15,000 plugs of *Balsamorhiza* and *Fragaria* across Johnson Prairie; and invasive and noxious weed control. There was also wildfire on Johnson this year.

One specific habitat management project underway is the drone timber sale. Under a thickly forested area they determined through the USDA Soil Survey that there were gopher soils. Removed all the conifers, keeping some legacy trees. Currently working on getting stumps out. CNLM developed a 5-year management strategy to break this area into management units with restoration prescriptions.

Sanders Freed, CNLM

Gopher Habitat Management

CNLM manages three occupied gopher sites – Tenalquot Preserve, Deschutes Prairie Preserve, and Violet Prairie Preserve. The latter two are former ag sites that are being converted to prairie. All the sites have been seeded with fescue and forbs. CNLM also manages the prairie at Wolf Haven, which is occupied. Recent activities were primarily prescribed burning followed by plugging and seeding of native plans. Scotch broom management at Tenalquot and Wolf Haven has reduced cover greatly, and tall oat grass treatment has been successful at both sites as well.

Bill Kronland, CNLM

CNLM continues to conduct mound surveys on burned and unburned sites across JBLM in order to estimate occupancy. CNLM is conducting repeated visit surveys (return for a second survey 2-3 days after the first) along the whole Rainier Training Area (South, Upper, and Lower Weir and Johnson Prairie). Using a plot-based occupancy design, this project started in 2015 at three prairies, and have expanded to all five prairies in the RTA. Preliminary results through 2016 now available – analysis of 2017 data not yet available. Initial decline in occupancy after fire, improvements next spring, and by fall had nearly resumed to pre-burn levels of occupancy. Take home message is that although there may be a general trend of reduced occupancy from summer to fall, there's a lot of variables and activities on these prairies. Initial question – what role does fire have in occupancy trends?

Preliminary results – fire impact seems to be minimal in context of larger weather patterns. Burn intervals may be extended, particularly in dry-hot conditions. Other implications: gopher occupancy is plastic among seasons – may have implications on population trend estimates. Some areas of RTA seem to consistently express low occupancy – this has management implications. Future directions: vegetation data, fire effects data, other management impacts, and identify highly '0' and/or highly '1' areas (unoccupied vs occupied).

Gail Olson, WDFW

Fire Effects

This study is meant to address concerns about short-term effects of fires on gophers, and to determine if those short-term effects snowball into longer-term effects. To determine what effects burns may be having on pocket gophers, WDFW used radio-telemetry to track gophers at West Rocky Prairie before and after a prescribed fire. A prescribed burn at the West Rocky Unit of Scatter Creek WA was conducted on Sep. 21, 2016. Late season burn compared to what JBLM carries out. Measure short-term survival and behaviors (pre-and post-burn) using radio telemetry. Measure longer-term survival and behaviors using mark/recapture in the spring following the fall burn. Results: virtually no differences in post-fire survival (Table 1), no differences in post-fire movement (Table 2), no differences in over-winter survival (Table 3). However: the only observed predation events (n=2) occurred within the burn unit shortly after the fire. This created a new hypothesis: is reduction of cover a mechanism by which pocket gophers may be negatively affected by fires? Recommendation is to repeat the study design with a hotter burn; measure vegetation cover at the home range scale; and include cover measures as covariates in plot occupancy studies.

Table 1. *Numbers (and the proportion of total) by status of radio-collared Mazama pocket gophers, by treatment (burned) and control (unburned) unit, at the end of the Fall 2016 field season at West Rocky Wildlife Area.*

	Experimental Unit		
Status	Control	Treatment	Total
Alive	18 (0.78)	15 (0.68)	33 (0.73)
Dead	1 (0.04)	3 (0.14)	4 (0.09)
Unknown	4 (0.17)	4 (0.18)	8 (0.18)
Total	23	22	45

Table 2. *Daily movement statistics (means and standard deviations, units are in meters) for radio-collared Mazama pocket gophers before and after a prescribed burn, at West Rocky Wildlife Area in Fall 2016, within treatment (burned) and control (unburned) units. Differences are based on individual means and negative numbers indicate shorter distances moved post-burn.*

	Experimental Unit		
Timing	Control	Treatment	Overall
Pre-Burn	1.48 (0.46)	1.90 (1.02)	1.73 (0.86)
Post-Burn	1.28 (0.35)	1.31 (0.33)	1.32 (0.35)
Difference	-0.38 (1.44)	0.23 (1.31)	0.00 (1.33)

Table 3. *Numbers (and proportion of total) of MPG by recapture status within treatment (burned) and control (unburned) units at West Rocky Wildlife Area 2017, for a comparison of over-winter mortality. Totals are number of individuals known to be alive in November 2016. Target recaptures were marked residents recaptured in their previous known locations, non-target captures were new animals captured in target animal burrows, unknowns were animals in target animal burrows that were not recaptured, and missing were target burrow locations with no animals present.*

	Experimental Unit		
Recapture status	Control	Treatment	Total
Target recaptures	9 (0.39)	8 (0.40)	17 (0.39)
Non-target captures	9 (0.39)	8 (0.40)	17 (0.39)
Unknowns	2 (0.09)	3 (0.15)	5 (0.12)
Missing	3 (0.13)	1 (0.05)	4 (0.09)
Total	23	20	43