

## Exhibit B

July 7, 2021

Jim Brown, Community Development Director  
Chelan County Department of Community Development  
411 Washington Street, Suite 201  
Wenatchee, WA 98801

Email: Jim.Brown@CO.CHELAN.WA.US

### Re: Wheeler Ridge, LLC Section 17 HMMP Comment Response

Dear Director Brown,

We hope this finds you well! Please find the following compilation of responses to Section 17 HMMP comments from various agencies and individuals. The response includes the following:

1. This cover letter
2. Spreadsheet summarizing responses to all commenting parties
3. Washington Conservation Science Institute Response to the WDFW comment letter dated 6/23/2021
4. Dr. Ken Raedeke Response to the WDFW comment letter dated 6/23/2021
5. Dr. John Lehmkuhl Response to the WDFW comment letter dated 6/23/2021
6. Lisa Palazzi Response to the WDFW comment letter dated 6/23/2021
7. Copy of CCC 11.78.060(15) Performance Standards for Compensatory Mitigation

In addition to the substantive responses prepared by the project team's scientists, we ask that you consider the following points:

- We strenuously object to WDFW's request that Wheeler Ridge provide additional mitigation, including any offsite mitigation and, in particular, that Wheeler Ridge acquire "lands subject to imminent development." WDFW speculates about unknown, unrelated future development and repeatedly states that current elk usage and potential impacts are "unknown." WDFW does not even address our proposed mitigation ratio of at least 1.4:1, so there is no scientific or mathematical basis to determine whether and how much additional mitigation area would be required. RCW 82.02.020 and state and federal constitutional case law require that mitigation have a "nexus" (direct connection) to an impact and that it be "proportional" to the impact. The law states that local governments have the burden to demonstrate that mitigation is "reasonably necessary as a direct result of the proposed development." *See* RCW 82.02.020; *Church of the Divine Earth v. City of Tacoma*, 194 Wn.2d 132, 138, 449 P.3d 269 (2019). "In fulfilling these requirements, the government must, to some degree, quantify its findings, and cannot rely on speculation regarding the impacts or mitigation of them." *Church of the Divine Earth*, 194 Wn.2d at 138 (underlining added). There is no analysis in the WDFW letter to demonstrate that any mitigation ratio other than the one proposed in the HMMP is "reasonably necessary as a direct result" of the project, so there is no basis to require any additional mitigation.
- The entire basis of WDFW's request for off-site mitigation is its **"opinion** that the indirect effect of the proposed orchard operations on the adjacent proposed conservation area will require off-site habitat acquisition of similar or higher quality habitat to replace lost habitat functions and values within the project effect radius." (Bold added.) However, we know from public records showing communications between WDFW and the County in February 2021 that neither the County nor WDFW have any definition of "effect radius" or any established methodology for evaluating impacts in an "effect radius." Nevertheless, the project's scientists have made a significant effort to examine such effects, and there is no scientific basis offered by WDFW to dispute their recommendations or conclusions in the HMMP.
- The mitigation ratios in the HMMP were established under SEPA in the project's MDNS condition 15.e. SEPA does not require the mitigation of "speculative" impacts, and per WAC 197-11-660(1)(c) and CCC 13.04.190(2)(C) "the mitigation measures included in such conditions are reasonable and capable of being accomplished." Requiring Wheeler Ridge to acquire some unknown amount of offsite "lands subject to imminent development" to mitigate speculative impacts is not "reasonable," because it would require finding a property, agreeing it's "subject to imminent development"—a standard-less standard—and negotiating a sale from some unknown and likely unwilling seller. This also makes WDFW's request not "capable of being accomplished."
- WDFW's requested condition to acquire off-site lands would effectively give veto power over the project to some unknown property owner, because the owner could simply refuse to sell for any or no reason at all. As such, WDFW's request for off-

site mitigation would lead to an unlawful delegation of the County's zoning / land use authority and violate Wheeler Ridge's constitutional due process rights. *See Washington ex rel. Seattle Title Trust Co. v. Roberge*, 278 U.S. 116, 118-19, 49 S. Ct. 50, 73 L. Ed. 210 (1928)(holding Seattle violated due process by conditioning land use approval on consent of private persons because "They are not bound by any official duty, but are free to withhold consent for selfish reasons or arbitrarily ..."); *Eubank v. City of Richmond*, 226 U.S. 137, 143-44, 33 S. Ct. 76, 57 L. Ed. 156 (1912).

- We also strenuously object to WDFW's unfounded request to shift the focus of the HMMP from mitigating and monitoring impacts to elk habitat to speculation of elk usage of the site. The "H" in "HMMP" is for "habitat," and CCC Chapter 11.78 gives the County authority to require mitigation of impacts to elk habitat, not elk usage. By code, all required analysis and mitigation is focused on habitat. WDFW's request that the HMMP's focus and performance metrics be shifted to elk usage has no basis in the code, the MDNS or best available science. WDFW's comments along these lines are not well-taken.
- WDFW (and other commenters) raised questions about mitigation performance standards, monitoring and costs. We believe we addressed these issues comprehensively in our proposed Declaration of Conservation Covenants, and no party provided any comments on that document. That said, recently the County amended CCC Chapter 11.78 and added "performance standards" that exactly address the comments / concerns raised by WDFW and other commenters. While our HMMP is vested to the prior code, in good faith we will comply with the performance standards in newly-adopted CCC 11.78.060(15). We will add them as an exhibit to the Declaration of Conservation Covenants and incorporate them by reference. We included a copy of these standards for your reference.

Finally, as you know, we have repeatedly requested meetings or video conferences with the County and WDFW's ungulate specialist Will Moore to discuss the HMMP and comments. We are frustrated, because our project scientists have met and conferred with Mr. Moore and other WDFW ungulate specialists on multiple occasions over the past two years to develop the HMMP using best available science, but WDFW's comments seem to ignore these meetings and best available science. Mr. Moore and other WDFW ungulate specialists have concurred with our project scientists, but it appears that others within WDFW without the requisite background have undertaken to provide comments.

We respect your position in your email of July 6, 2021 that no such call is warranted now because "We have the written comments in the record and wish to respond to written comments, rather than spoken comments that are not in the official record, and which can be interpreted or remembered differently between individual participants." That said, we reiterate our position that the our scientists and WDFW's ungulate specialists concur on the best available science in the HMMP as proposed, and we invite WDFW's ungulate specialists to hold an open, candid and transparent discussion with our scientists with the County present.

Please do not hesitate to contact us, if you have questions or need additional information.

Respectfully yours,



Ben Alworth

Wheeler Ridge, LLC

Enclosures:

1. Attachment 1 – Excel Spreadsheet comment matrix
2. Attachment 2 - Washington Conservation Science Institute Response
3. Attachment 3 – Ken Raedeke Response
4. Attachment 4 – John Lehmkuhl Response
5. Attachment 5 – Lisa Palazzi Response
6. Attachment 6 – CCC 11.78.060(15) Performance Standards

Wheeler Ridge Section 17 Habitat Management and Mitigation Plan Comment Response Matrix

7/7/2021

Date	Commenting Agency	Commenter	Description	Response
6/16/2021	CCNRD	Mike Kaputa	WCSI GIS Layer Map - Individual Covarriates Slope, Distance to Cover, Escape Cover, and Vegetation Types	The maps provided do not accurately show the orchard polygons and are missing the stream/wetland buffer and wildlife corridor between orchard polygons 2 and 3. A comprehensive description of why the individual covariate maps cannot be used in isolation and why such use would be inconsistent with best available science is noted on pages 19-20 of the HMMP. No inference should be made from these maps. The HMMP's comprehensive analysis is based on best available science.
6/16/2021	CCNRD	Mike Kaputa	Conservation Area Agreement prior to commencement of timber harvest or orchard development activities	The habitat mitigaiton area is already owned (i.e., has been "acquired") by Wheeler Ridge, and Wheeler Ridge is prepared to execute and record the proposed Declaration of Conservation Covenants upon approval of the HMMP. The execution and recording of the Declaration will satisfy this requirement in MDNS Condition 15.j.
6/16/2021	CCNRD	Mike Kaputa	Detailed, Site Specific Planting and Restoration Plan	A site-specific planting and restoration plan with a cost estimated to inform bonding identified in the Declaration of Conservation Covenants will be included in the associated permitting package. In accordance with best available science and best practices, precise decisions on what to plant and where must be accomplished in conjunction with restoration of stream and wetland hydrology. The restoration is not a static "snap shot" undertaking; it is a dynamic, ongoing and adaptive process that will require ongoing monitoring and maintenance per the Declaration of Conservation Covenants Please see response attachment 5 from Lisa Palazzi regarding a site specific planting plan. All costs associated with the restoration and management activities are to be borne by Wheeler Ridge, per the Declaration. It is not clear what, if any, costs the County anticipates that it will undertake.
6/16/2021	CCNRD	Mike Kaputa	Conservation Area Mapping Error - does not include two stream areas	The map is not in error as the proposed deer fence, located so as not to trap animals in the dead end stream areas, will exclude ungulates from reaching the noted stream areas. Because ungulates cannot enter this area, this referenced area is not included in the conservation area acreage, though it will be protected.
6/16/2021		Jerry Gutzwiler	No Comment - Request for comment period extension not granted	
6/16/2021	CDHD	Richmond Petty	Recommends further approval of the project, which will require permitting for an onsite septic system and a new water system.	Comment noted. Permitting is consistent with the SEPA Checklist.
6/16/2021	CCFM	Bob Plumb	No comment	
6/9/2021	Colville Tribes	Guy Moura	The proposed management of the lands in question would benefit noted plant resources	Comment noted
6/16/2021	WSP & RC	Chelsea Harris	Requests coordination with Wheeler Ridge on the continued stewardship of natural resources near Squilchuck State Park	We are hopeful the State Park will be an active member in the implementation of the HMMP and look forward to working with them on ongoing stewardship and educational opportunities as described in the Declaration of Conservation Covenants.
6/16/2021		Kevin Kane	WDFW was not a consulting party to the HMMP	WDFW has been a consulting party on the preparation of the HMMP since 2019. The project team, County and WDFW have held several meetings over the course of more than two years regarding the HMMP. Per CCC Chapter 11.78, WDFW has also provided extensive comments to the HMMP.
6/16/2021		Kevin Kane	The HMMP only protects habitat for elk	Per CCC Chapter 11.78, elk habitat is the priority species habitat that may be impacted by the project and therefore subject to mitigation. Elk habitat is also the primary concern for WDFW. Protecting habitat for elk also protects habitat for other wildlife and plant species. The significant habitat restoration, enhancement and protection decribed in the HMMP and Declaration of Conservation Covenants will improve all habitat quality in the conservation area.
6/16/2021		Kevin Kane	All priority species and habitats must be mitigated but the HMMP does not provide mitgation for any habitats or species other than the wetlands and replacement habitat for elk	The HMMP proposes restoration, enhancement and conservation of 360 acres of habitat, including weltands, streams, forest, uplands and meadows, in perpetuity. This will ensure the ecological health of a variety of animal and plany species. Per CCC Chapter 11.78, elk habitat is the priority species habitat that may be impacted by the project and therefore subject to mitigation. Elk habitat is also the primary concern for WDFW. Protecting habitat for elk also protects habitat for other wildlife and plant species. The significant habitat restoration, enhancement and protection decribed in the HMMP and Declaration of Conservation Covenants will improve all habitat quality in the conservation area.
6/23/2021	WDFW	Carmen Andonaegui	WDFW comment letter on 6/23/2021 per CCC 11.78.100	Please refer to the comprehensive response to WDFW's comments in the 7/6/21 cover letter and attached responses from WCSI, Ken Raedeke, John Lehmkuhl, and Lisa Palazzi.



## Washington Conservation Science Institute

PO Box 494, Cashmere, WA 98815

July 5, 2021

Jim Brown  
Director, Chelan County Community Development

Dear Mr. Brown,

We are providing the following responses to the HMMP comments raised by WDFW in its letter dated June 23, 2021. We appreciate that “WDFW does support the modeling approach used to determine existing elk habitat conditions” as the model is best available science.

If you have any further questions or concerns, please let us know.

Sincerely,



Andrea Lyons

Director, Terrestrial Ecology  
Washington Conservation Science Institute  
[andrea@waconservationscience.com](mailto:andrea@waconservationscience.com)  
(509) 630-0673

**PREPARED BY:**  
**WASHINGTON CONSERVATION SCIENCE INSTITUTE**

Andrea L. Lyons, MS; William L. Gaines, PhD;  
PO Box 494  
Cashmere, WA 98815

**1. Summer use model does not adequately address spring use.**

With regard to the first issue, we provide the following clarification concerning the forage component of the elk model. The forage component is based on information presented in *Lehmkuhl et al.* (2013). In that study, forage amount and forage utilization (primarily by elk) were assessed for a variety of forest and non-forest cover types. Forage was sampled throughout the growing season, including in the spring (May, June), in order to calculate the annual amount of available forage and the annual amount of forage that was consumed.

From *Lehmkuhl et al.* 2013: “We sampled plots at the beginning of the growing season in spring (May, June) and at the end of the growing season (August, September, October) during 2005 and 2006.”

In other words, this is not just a “late summer” model but represents average forage conditions and elk use of forage across the entire growing season, including spring. This represents the best available science regarding forage available for elk and the forage that they actually use while elk are present in the Stemilt and Squilchuck watersheds (e.g., we did not evaluate winter period as elk are not present), and this is why this information was used in the “elk model” and in the HMMP assessment of effects and mitigation.

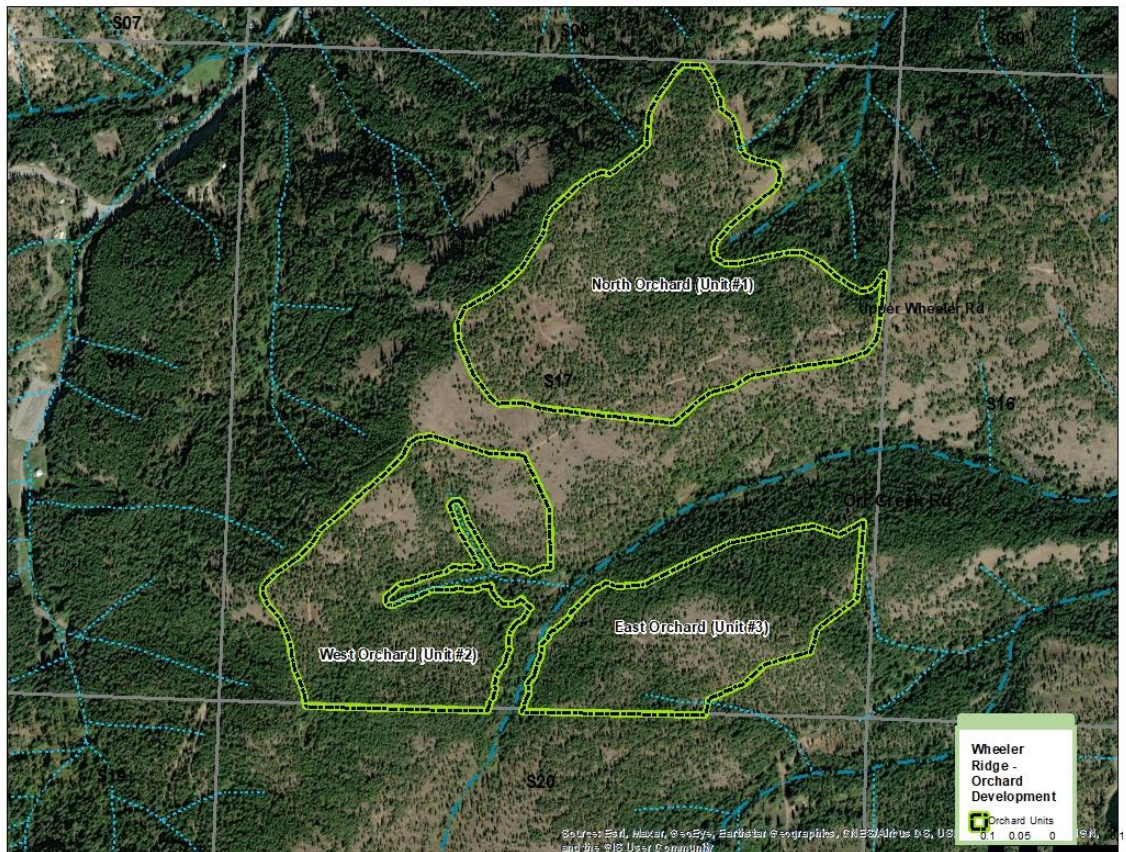
**2. Mixed Upland and Grassland.**

There appears to be some confusion in how WDFW interpreted the analysis. On page 8 of the HMMP, the project area is described under three general vegetation community categories of: Forested Vegetation, Mixed Upland & Grassland Vegetation and Riparian & Wetland Meadow Vegetation. The HMMP does not analyze impacts to elk or describe mitigation based on those categories. They were provided for context. Chelan County Code (CCC) Chapter 11.78 requires mitigation of priority species habitat (here, elk habitat) not general vegetation community types.

Further, WDFW incorrectly describes the orchards as Mixed Upland & Grassland Vegetation and the Conservation Area as riparian habitat. A quick look at the aerial imagery for Section 17 (Figure 1. below) shows that the orchards are a mix of Forest and Mixed Upland & Grassland, and the Conservation Area is a mix of all three categories. The WDFW statement that “the Mixed Upland and Grassland Vegetative Community is represented in the flat benches where orchard developments are proposed” is inaccurate and misleading as the project area is dominated by Forest (80%) and WDFW did not include any data or analysis.



Furthermore, WDFW supports the elk habitat model approach, and in meetings with WDFW there was never discussion regarding analysis based on vegetation communities. A vegetation community analysis would require a completely different approach that would ignore the relationships of the other model covariates and would not be based on the best available science. For example, higher quality forage next to a road would not be as valuable to elk as lower quality forage away from a road.



*Figure 1. Aerial imagery depicting general cover in the Wheeler Ridge Project area.*

### **3. “Excellent” high quality spring habitat.**

In our experience, having spent much of the past 15 months working in the Stemilt and Squilchuck watersheds, the way Section 17 is represented in the elk model is a reasonable estimate of the habitat quality and is based on the best available science. It is important to remember that forage is only one component that influences the quality of habitat for elk. Other factors, including the existing human use levels greatly influence elk habitat quality in the assessment area. The statement that the site has “excellent late spring and early summer elk habitat” is based on a single late-summer (August 19, 2020) site visit by WDFW and is not consistent with over 15 months of observations or best available science.

#### 4. Riparian values are not the same as Mixed Upland and Grassland.

Riparian values were assessed in the HMMP at a fine-scale. The values that these represent for elk, and a primary reason that their restoration was emphasized, is that riparian areas generally have 3-4 times the forage production and receive 2-3 times the amount of elk forage utilization when compared to other cover types (see *Lehmkuhl et al. 2013, Fig. 2 below*). Because of this, riparian restoration could be considered to provide more than a 1:1 mitigation (i.e., instead of ~5 acres of mitigation they could represent 15 to 20 acres of mitigation due to their significant forage value).

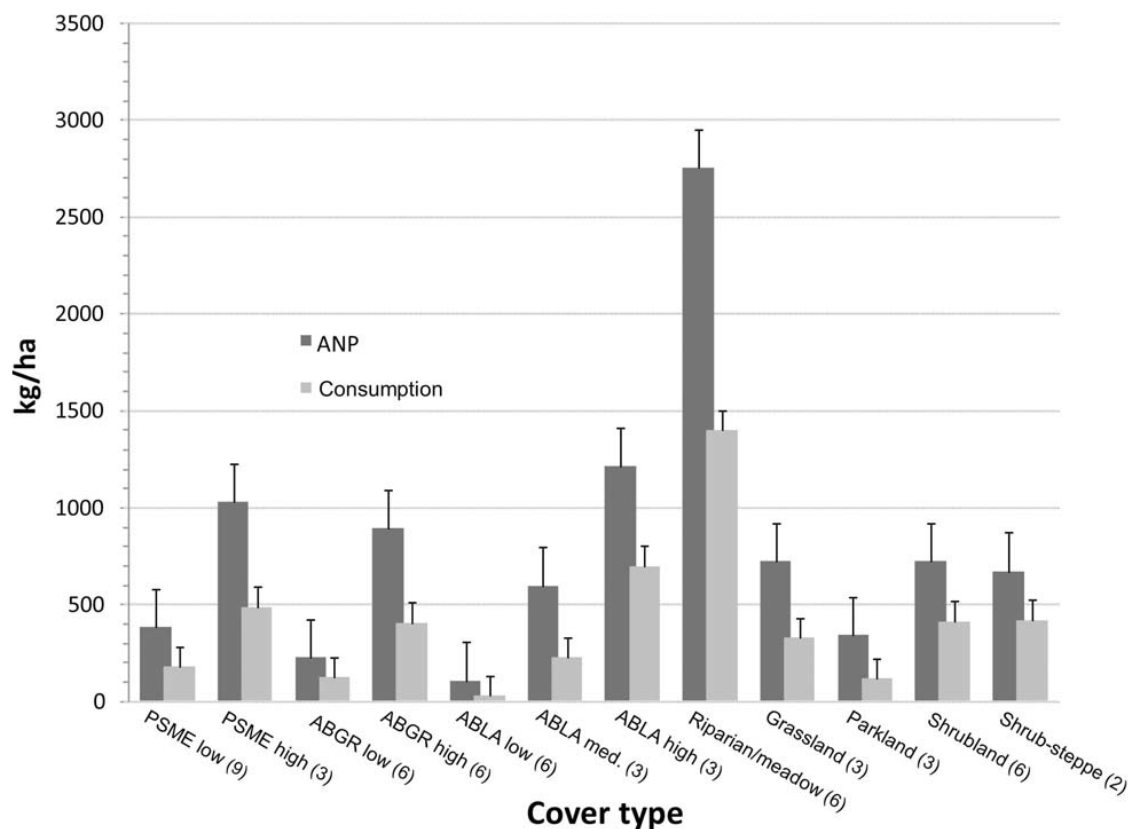


Figure 3. Mean and standard error of total above-ground net primary production (ANP) and utilization (all herbivores) in cover types in the Naches River basin in the southeastern Washington Cascade Range, 2005-2006. The numbers of sample locations follow cover type names in parentheses.

*Figure 2. Figure 3 from Lehmkuhl et al. 2013, displaying production in different cover types.*

## **5. Rumble et al. (2005) re when elk use open grasslands.**

In our reading of the *Rumble et al. (2005)* paper, we struggled to see how this particular study is relevant to the situation for elk described in the HMMP. The Rumble study was designed to assess and compare displacement of elk from roads during archery season compared to rifle season on a heavily roaded national forest in the Black Hills of South Dakota.

Instead of relying solely on this study, we used recent literature syntheses (*McCorquodale et al. 2013, Gaines et al. 2020*) in which 48 research studies (in *Gaines et al. 2020*) were reviewed to develop an understanding of the best available science of how human activities, including roads, influence elk habitat use, movements and demography. Primary conclusions from these syntheses are that roads can displace elk from key habitats at certain times of the year (thus why this was included in the elk model) and that road closures that reduce or eliminate human use can be effective as restoring elk habitat effectiveness (thus why road closures are a part of the proposed mitigation).

## **6. Landscape permeability and movement.**

The scientific basis for the assessment of elk movement and landscape permeability is summarized in *Gaines et al. (2020)* and includes reference to *Sawyer et al. (2009)*, *Sawyer and Kauffman (2011)*, *Sawyer et al. (2012)* and other studies of elk movement. In preparing the HMMP, we met with WDFW on January 21, 2021 and January 28, 2021, and attendees included respected WDFW ungulate specialists Scott McCorquodale (1/28/21 only), Will Moore (both meetings) and Pete Lopushinsky (1/21/21 only). In a meeting to review elk ecology and movement assessment that included WDFW ungulate specialists, the idea of applying movement models and stopover sites as described in *Sawyer et al. (2012)* was discussed and it was agreed that such a formal analysis was not necessary because elk are highly mobile and relatively tolerant of human use.

However, it is important to have an understanding of the *Sawyer et al. (2012)* approach. *Sawyer et al. (2012)* described components of successful ungulate migration that consists of the actual movement routes, sometimes referred to as “corridors,” and places along the route in which animals can obtain quality forage and security, referred to as “stopover sites.” For migrating ungulates, stopovers play a critical role in the altitudinal migrations as a place where they can maximize energy intake (*Sawyer and Kauffman 2011*). For example, *Sawyer and Kauffman (2011)* found that mule deer spent 95% of their migration time in stopovers, which had higher forage quality compared to migration corridors.

It is our understanding based on our field experience, discussion with WDFW ungulate biologists, and considering the best available science on ungulate movement ecology that elk movement in the Stemilt goes something like this:

The primary movement route for the Colockum Elk herd as they move to and from the winter range is along and south of Naneum Ridge, well away from



Section 17. A subherd of a few hundred elk enter the Stemilt watershed, most likely on the eastern edge of the watershed but above the extensive human development that occurs in the lower portion of the watershed. These elk then slowly move south and west and up in elevation as the snow recedes.

Our observations indicate that elk typically arrive in the Stemilt in late April to early May. Our observations suggest that an area about four miles south and a bit east of Section 17 provides good qualities that may function as a “stopover site.” This area includes quality forage due to more moist soil conditions, is relatively flat, is close to cover, and provides greater security from human disturbance. Our observations indicate that as summer progresses, the next logical “stopover site” is likely along Naneum Ridge south of Mission Peak. The intervening areas between stopover sites that elk most likely move through occur mostly on state, county, and a minor amount of federally managed lands in the upper Stemilt watershed.

The primary factors that influence elk movement on these publicly managed lands includes an extensive road network, past and current forest management, and recreation. Our observations suggest that only a small portion of the subherd use Section 17 and the areas in that vicinity.

#### **7. Compensation Ratio needs to be >1:1.**

The HMMP analysis is based on best available science and provides a 1.4:1 mitigation ratio, which exceeds the WDFW policy minimum. Additionally, when we consider that cumulative mitigation for onsite and indirect impacts, the total mitigation area would be about 513 acres: Conservation Area (294 ac), thinning/forage enhancement (64 ac), riparian restoration (~5ac) and seasonal road closures (~150ac), then the final ratio is 2:1 (513:257). If we consider that riparian restoration is more valuable and could provide an additional 15 acres, then the mitigation ratio exceeds 2:1 (see response #4 above).

#### **8. “Disagree” with insignificant impact to subherd.**

As described above, our observations indicate that only a relatively small number of elk from the Colockum Elk herd use the Stemilt watershed and that an even smaller number use Section 17 and the area around this section. The proposed mitigation will provide for elk movement, restore riparian habitats, and protect habitats and functions similar to those being developed at a ratio of >1:1 and will reduce the impacts to the small number of elk that would be affected. In addition, mitigation to reduce road impacts on adjacent lands would address a factor that has considerable influence on elk habitat quality in the Stemilt watershed: the extensive road network. Thus, based on the best available science, it is difficult to come to any conclusion other than that this project would have very limited impacts to the Stemilt elk subherd.

## **9. Future impacts of development on migration.**

The HMMP specifically addresses the concern over impacts to migration/movement (pgs. 29-30) and the project design includes corridors to allow for movement between the orchard polygons.

WDFW raises a “concern...that although one development might not prevent migration, as further development continues, the barriers may become more problematic for ungulates.” An analysis of unknown, unspecified future development is speculative and not required or supported by best available science, SEPA or the Chelan County code. Because the HMMP analysis indicates the project (even without mitigation) would not significantly impact the Colockum elk herd, we see no scientific basis to prevent implementation of the Wheeler Ridge project based on speculation about future development. If and when future development occurs, then the baseline would need to be updated to consider then-existing conditions / development and each new project would need to be analyzed consistent with best available science.

## **10. No baseline data and the need to define use levels.**

WDFW raises two issues here that need to be addressed: 1) defining elk use levels, and 2) the lack of information to develop a baseline for elk.

First, determining the number of elk that use an area is scientifically very challenging and essentially not possible at the scale of a section of land. There are many factors that affect elk use that would make this difficult including the time of year, time of day, whether or not a vehicle drove through to displace elk, are other animals present that might discourage elk use, etc. Generally, animal use is assessed using radio-telemetry with many animals across a relatively large area, evaluating many habitat types, and with several replicates of each habitat type. Thus, reliance of use levels is problematic at this scale. Instead, other factors that provide indices of use, such as habitat quality, habitat effectiveness (e.g., influence of roads), food availability, distance to cover, etc. are often used. This is the best available science approach for assessing elk use in the Stemilt watershed, and this approach has been adopted by the County and followed by WDFW’s ungulate specialists.

Second, fortunately, elk are one of the most extensively studied animals in North American and multiple research projects over many years and across many environmental conditions have shown the importance of terrain, human use of roads, forage availability, and cover are good predictors of elk use. The reliance on this extensive body of science allowed for the development of the elk habitat model that was then applied to create a baseline for elk in the Stemilt watershed, and was used in the HMMP. Again, this is the best available science approach for assessing elk use in the Stemilt watershed, and it is the approach used in the HMMP.

**11. Areas proposed for road closures are on state lands that are “already protected”.**

We understand the challenges associated with road management, but we reiterate that this is one of the most effective and proven management tools to improve elk habitat security and quality. Seasonal closures were proposed to decrease the management effort and improve conditions for elk when it matters the most. WDFW and the County could implement such closures with or without the project, if the desired outcome is to address potential impacts to elk. We are recommending such seasonal closures.

Because the influence of roads and human activity on roads has such a significant impact on elk, road closures are an effective tool shown in multiple research projects to increase the availability of forage and increase habitat value for elk (see response #5 above). Seasonal road closures would be considered enhancement activities (~150 acres) and therefore should be counted as mitigation as described by WDFW (see p.7 of letter).

**12. Monitoring threshold based on a use level.**

We understand WDFW’s concern about determining a use level; however, based on discussions with WDFW ungulate specialists, the information presented in response #10 above, and an extensive literature search, we contend that it is not possible to quantify a meaningful use level by elk that is scientifically credible and not arbitrary for a large, mobile species such as elk on a single section of land. Further, what is being mitigated in the HMMP per code and the MDNS are impacts to elk habitat (not the number of elk that use the site), and the impacted habitat is well-quantified and has a well-established baseline per best available science and field observations.

We are unclear as to the basis of WDFW’s request “that a more stringent monitoring plan and an adaptive management plan be required by Chelan County.” WDFW does not provide any guidance, suggestions, criteria or scientific basis for such monitoring. Instead, WDFW states it “disagrees that the information gained from the proposed monitoring would allow for a conclusion that the mitigation would be considered successful.” However, this statement is not supported; it is just a conclusion. The HMMP is based on best available science, and setting a “numeric threshold” based on elk usage as proposed by WDFW would be arbitrary and unsupported by such science. The science supports evaluating the habitat conservation area before and after restoration / mitigation is provided.

**13. “Restoration or enhancement activities would need to be completed at a ratio greater than 2:1.”**

We are not aware of a need for off-site mitigation as the project’s impacts are fully-mitigated through the proposed on-site restoration, enhancement and conservation of habitat. WDFW’s statement (p.7) that “Restoration or enhancement activities would need to be completed at a ratio greater than 2:1” is not supported by any evidence, data or analysis and is contrary to the HMMP. The proposed mitigation / conservation area described in the HMMP is based on best available science and

meets or exceeds the science-based ratios for mitigating the project's impacts on elk habitat.

**14. "Acquisition of lands subject to imminent development is recommended at a 2:1 ratio."**

We are unclear what WDWF means by "lands subject to imminent development" or why such lands are recommended for acquisition or at a ratio of 2:1. The proposed mitigation / conservation area in the HMMP meets or exceeds the science-based ratios for mitigating the project's impacts on elk habitat.

**Literature Cited**

Gaines, W.L., A.L. Lyons, and J.S. Begley. The effects of recreational activities on Rocky Mountain Elk: A literature review. Washington Conservation Science Institute, Leavenworth, WA. 25 p.

Lehmkuhl, J.F., A.L. Lyons, E. Bracken, J. Leingang, W.L. Gaines, E.K. Dodson, and P.H. Singleton. 2013. Forage composition, productivity, and utilization in the eastern Washington Cascade Range. *Northwest Science* 87(4): 267-291.

McCorquodale, S.M. 2013. A brief review of the scientific literature on elk, roads, and traffic. Washington Department of Fish and Wildlife, Olympia, Wa.

Rumble, M.A., L. Benkobi, and R.S. Gamo. 2005. Elk responses to humans in a densely roaded area. *Intermountain Journal of Sciences* 11(1-2): 10-24.

Sawyer, J., M.J. Kauffman, R.M. Nielson, and J.S. Horne. 2009. Identifying and prioritizing ungulate migration routes for landscape-level conservation. *Ecological Applications* 19: 2016-2025.

Sawyer, H., and M.J. Kauffman. 2011. Stopover ecology of a migratory ungulate. *Journal of Animal Ecology* 80: 1078-1087.

Sawyer, H., M.J. Kauffman, A.D Middleton, T.A. Morrison, R.M. Nielson, and T.B. Wychoff. 2012. A framework for understanding semi-permeable barrier effects on migratory ungulates. *Journal of Applied Ecology*. doi: 10.1111/1365-2644.12013.

## **Review of WDFW 6/23/2021 Comments on Wheeler Ridge HMMP**

### **By Dr. Kenneth Raedeke**

### **Citation of Rumble 2005 et al.**

This publication is cited numerous times in the WDFW comments. However it may not be appropriate to the current analysis as it deals with elk response and habitat use during intensive hunting seasons. These hunting seasons are in the fall, and hence non-applicable to analysis of spring and summer range use by elk on the Section 17 site.

### **Summer versus spring elk habitat model analysis**

It is not clear that the use of a spring elk habitat model will give results that are much different than the use of the summer model for a number of reasons.

Three of the four model covariates don't change (cover, habitat security and terrain) with application of either the spring or summer model. Mitigations measures in place (road closures, riparian, stream and wetland restoration, invasive weed control, etc.) could be even better in a spring model, certainly when compared to the existing extremely degraded habitat.

There is no reason to expect any of the covariates, including the nutrition covariate, to change in a negative way with a spring model, and the nutrition covariate could well increase with mitigation measures implemented.

### **Riparian habitat value**

Again, the citation of the Rumble (2005) publication (WDFW page 3, line 13 – 14, and third paragraph) is not appropriate as it is not a complete analysis of multiple habitat types used by elk, but simply an analysis of two habitat types, open versus forested. There is no mention in the article about any riparian or other habitats types in the study.

Further, in several parts of the WDFW comments they discount of the value of riparian, wetland, and stream corridor habitat. In an arid environment, such as Section 17, these habitat types are likely the most productive and valuable habitat types (see Raedeke 1989 for a review). Restoration of these areas may provide some of the best mitigation for elk forage and calving areas (Thomas 1982 for a complete description of elk calving habitat).



## **Disturbance impacts**

Again, the Rumble (2005) publication (WDFW page 3, second last paragraph) deals only with elk avoidance of open habitat areas during the fall intensive hunting seasons, and has nothing to do with periods of the year when elk potentially migrate through or linger in Section 17 (i.e., spring and early winter).

Lyon and Ward (1982) noted that elk become conditioned to human activity if exposed for periods of time to predictable disturbance that does not harm them. The Rumble (2005) reference cited by WDFW does not apply to the post-development Section 17 state as it deals with a heavily roaded area during a study period with intense elk hunting pressure. With project development, active roads will be limited and elk hunting prohibited.

Numerous studies have shown that elk readily habituate to human disturbance, when like the activities of the orchard operation; there is no harm or danger to the elk (see Walter et al. 2010). In fact, “elk seem to habituate rapidly to sound-emitting frightening devices, rendering them ineffective in alleviating damage” (Henigman et al. 2005). The authors specifically reference noise devices, such as the bird deterrent canons proposed for this project.

One of my recent impact analyses considered the increase of an elk population in the former Weyerhaeuser Mill in North Bend now used as a training course for professional race car drivers. Elk stand and forage adjacent to the race track with racing cars, and periodically they need to be chased off the race track.

## **Impacts of development**

I agree with the statement in the HMMP, page 23, that “project implementation will have an insignificant impact on the sub-population of elk that use the area” (i.e., Section 17) for the following reasons:

First, the analysis in the HMMP clearly shows an increase in elk habitat functions and values in Section 17 with implementation of the mitigation plan. When I first assessed the possible impacts of development of Section 17 in the 1990s with John Musser (WDFW biologist), he rated the elk habitat value of the section as a “3” on the 1 to 10 scale with 10 the highest quality. At that time there was minimal off-road vehicle (ORV) use of the section, which has increased dramatically in the subsequent 25 plus years with the advent of numerous, inexpensive ORVs, and minimal control over their use. The section is now crisscrossed with ORV trails and appears to be heavily used by ORVs.

Second, as a population biologist based on the facts noted below, Section 17 does not provide a habitat feature that is limiting this elk population in any way:

- Elk Colockum population is limited by winter range (3:1 ratio summer to winter) and hunting (Musser, Status Report, and Colockum Elk Herd Plan)
- Periodic severe winter kills noted in Status Report 2019
- Elk population is currently below target population due to antlerless hunts
- Value of elk habitat in Section 17 is questionable due to road and heavy ORV use with 1,000 meter avoidance criteria noted by William Moore (WDFW)
- Section 17 is less than 0.4% of the Colockum calving area mapped by WDFW
- There is likely unoccupied elk summer and calving habitat

More importantly, based on Figure 9 of the HMMP, Section 17 is within or adjacent to an area designated by WDFW as an “Elk damage hunt area” with liberal hunting seasons designed to reduce the number of elk in the area.

Further, the PHS elk calving area mapped by WDFW is based on a GIS exercise simply characterizing areas above a certain elevation as “calving areas”, with no field data to confirm such designation. Elk use of the area has been documented, but use by elk for calving has not been documented. Thomas (1979) noted that not all areas mapped as having “calving area” characteristics (such as Section 17) are actually used by elk for calving, and it is not possible to determine how the alteration of such areas will affect elk populations. Skovlin et al. (2002) state that “there is little evidence of annual repeated use of calving areas.”

## **Planting plan**

The requested information for the planting plan seems to be premature. While a conceptual plan has been presented for development, a more detailed planting plan would be developed once the final design of the project has been approved.

## **References**

- Henigman, J., J. Tuner, and K. Swift. 2005. Roosevelt elk wildlife habitat decision aid. BC Journal of Environment and Management 6:51-53.
- Lyon, J. and A. Ward. 1982. Elk and land management. Pages 443-477 in J.W. Thomas and D. Towell. Eds. Elk of North America, ecology and management. Stackpole Books.
- Raedeke, K. (ed.) 1989. Riparian wildlife and forestry interactions. Contribution 59, Institute of Forest Resources, University of Washington, Seattle. 277 pp.

- Skovlin, j., P. Zager, and B. Johnson. 2002. Elk habitat selection and evaluation. Pages 531 – 555 In Toweill, D. and J. Thomas, J. (eds). The elk of North America. Ecology and Management. Smithsonian Institute Press. Wash. D.C.
- Thompson, M., and R. Henderson. 1998. Elk habituation as a credibility challenge for wildlife professionals. Wildlife Soc. Bull. 26:477-483.
- Walter, D., M. Lavelle, J. Fischer, and S. Hygnstrom. 2010. Management of damage by elk (*Cervus elapus*) in North America: a review. USDA National Wildlife Research Center, Staff Pub. 1346.

John Lehmkuhl  
Wildwoods Consulting  
3742-4 Squilchuck Rd.  
Wenatchee, WA 98801

---

Ben Alworth  
KMO  
Wenatchee WA

July 5, 2021

**RE: Comments on WDFW 6/63/21 letter re Section 17 HMMP #21-067**

I have reviewed the July 5, 2021 letter prepared by the Washington Conservation Science Institute (WCSI) with responses to comments raised by WDFW in its letter dated June 23, 2021, and I concur with WCSI's responses. I am personally familiar with the site, having ridden my horse there frequently over the past 20 years and having made multiple site visits in conjunction with the preparation of the HMMP. I provide the following additional responses to WDFW's comment letter.

The HMMP used the best available science to analyze the impacts and propose mitigation for the proposed project. The WDFW comment letter is based on a flawed understanding of the HMMP habitat analysis, which lead to their unsupported suggestion that an off-site 2:1 mitigation is necessary. In the absence of data from WDFW researchers and management staff, WDFW made an incorrect assumption that Section 17 is critical for local habitat and movements of a small herd of elk, which coincidentally is managed to reduce winter orchard damage, per the WDFW Colockum Herd Management Plan. The impacts of the project will not impact the overall viability of the larger Colockum elk herd nor the local resident sub-herd, which is well habituated to orchards and human presence (see below).

Below are specific comments on the WDFW letter referenced to their page numbers.

p. 2 The Mixed Upland and Grassland Vegetative Community as described in the HMMP is simply for general descriptive purpose and was never referenced as the primary elk forage vegetation type, as mentioned in WDFW's letter at the end of page 1 and repeated throughout the letter. This is a fundamental error in the WDFW arguments. There is no mention on p. 8 of the HMMP that this is the primary elk foraging habitat, as cited. That habitat type probably represents somewhere between 10-15% of the section, and forested areas are 80% of the section per the Schellhaas stewardship plan. Most of the section (80%) is open to closed canopy forest with some patches of dry meadow.

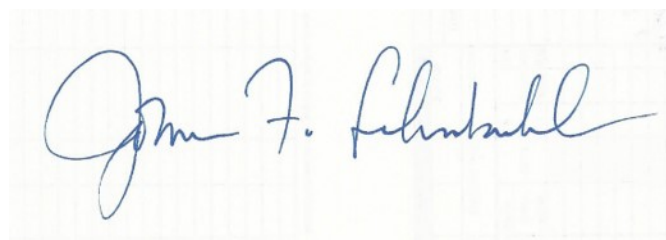
p. 2. WDFW recommends that functions and values be considered to evaluate current spring habitat benefit for elk while considering other covariates. That is exactly what the HMMP did with the modeling. Forage values (function) were modeled along with slope, distance to roads and other covariate values. The WDFW letter states that the elk model used is a summer habitat model, whereas Section 17 is spring habitat. Hence, they feel that the model underestimates the forage value of Section 17. This is a result of a misunderstanding the model, perhaps based on a need to clarify the nature of the forage data used in the HMMP modeling.

The HMMP elk model used forage data from Lehmkuhl et al. 2013, which described year-long productivity of forest and non-forest elk forage in the Naches area. Similar habitats occur in Section 17. The values in the paper are for the entire growing season, so the model includes spring forage values. Hence, the HMMP in fact did model spring forage value.

p. 3. WDW has misread table 4 in the HMMP by equating the Mixed Upland and Grasslands community types with the orchard area. Again, that community type is simply for general description, not analysis. The proposed orchards are about 260 acres or about 40% of the section; the Mixed Upland type represents less than 15% of the area. The table correctly represents the models functions and values. The primary misunderstanding by WDFW of the modeling of spring forage value is the source for their incorrect interpretation of table 4.

p. 3. WDFW wrongly discounts the value of riparian areas for forage. According to Lehmkuhl et al. (2013) riparian areas have more than 2x the forage production compared to the most productive low-elevation forest, and 5x that of dry forest. They also have excellent hiding cover for calving season. A mix of forage and hiding cover is a key ingredient of elk calving habitat.

p. 4. WDFW asks for more a careful landscape-scale assessment on elk movements. Such data are not available for Section 17 from any published or unpublished study. Moreover, Section 17 was not considered by the County, RMEF, or the Wenatchee Sportsmen as important for monitoring in the current WCSI camera study of the Stemilt Basin. It is debatable whether that study can identify movement corridors. The large Colockum elk study completed in 2013 by WDFW did not monitor elk that use Section 17. Section 17 elk appear to be a local small herd of maybe 100, more or less, animals that summer in the middle and upper Stemilt basin and winter north and east of Section 17. Their movements are pretty well known anecdotally, and are constrained by landscape features and land use (orchards, game fences, homes). There is no migration, similar to something caribou and other ungulates do over long distances. Rather the elk move gradually across the landscape with forage green up. Road disturbance is already high in the section. The mitigation for movement in the HMMP would allow for elk to move through Section 17.



John F. Lehmkuhl



## Response to WDFW HMMP Comment Letter dated 6/23/2021 Letter – Planting Plan Comment

---

In accordance with best available science and best practices, we have provided a conceptual mitigation planting plan that details much of the requested information. However, per best available science and best practices, it is not typical or appropriate to develop a detailed planting plan until we are ready to start work. As stated on page 47 of the current HMMP: “The plan developed in Phase 2 will be used to further guide planting specifics. Detailed transplanting and planting guidance in technical resources listed on the NRCS Wetland Restoration, Enhancement, Creation, & Construction webpage will be employed, such as the 2003 handbook by NRCS, Wetland Restoration, Enhancement, and Management (Technical Note No-190-15). ([https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/water/wetlands/restore/?cid=nrcs\\_143\\_010912](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/water/wetlands/restore/?cid=nrcs_143_010912)).”

The final restoration design will start with a detailed onsite survey map to determine existing grades and to develop a grading plan to create appropriate site-specific terrain that will support wetland conditions. The severely compacted areas will first need to be graded to break up compacted soils. Then soil conditions will be assessed to define areas that will require amendments – either imported soils or mulches.

Please consider the following additional explanations and responses to the list of information requested (WDFW comment in *italics* and responses in **bold**):

*Planting Plan. Finally, to ensure successful revegetation, WDFW recommends a HMMP planting plan provide much more detailed information. At a minimum, a complete Planting Plan should include the following elements:*

- 1) *Plant procurement – describe type of facility from which plants must be obtained, plant quality and life stage, plant handling before and after planting to assure success.*
  - **Native plants and native grass/forb seed mix will be obtained from local native plant nurseries, such as Derby Canyon Natives near Peshastin for most of the shrub and tree sources and from BFI native seeds in Moses Lake for the native grass/ forb seed mixes.**
  - **Plant and seed mix quality will be verified at purchase by the wetland scientist responsible for managing the mitigation project and will be verified again in the field at delivery just prior to planting. The plant nursery will be required to guarantee that all plants are alive will survive at least one year.**
  - **Any first growing season mortality plants will be replaced by the nursery by the same plant species or a more appropriate species, as determined at the time.**
  - **Life stage or plant age will be determined in consultation with the native plant nursery owner once we are in final stages of mitigation site planning, designed to select plant ages and sizes most likely to survive and thrive in relation to wetland versus upland buffer conditions.**
  - **The detailed planting plan always includes instructions on correct plant handling and site preparation.**
- 2) *Site preparation – before planting: fertilizing, mulching, and watering schedules.*
  - **The detailed planting plan always includes instructions on correct plant handling, irrigation requirements, site soil amendments and related site preparation.**
- 3) *Plant species list – list plant species and numbers of each species.*
  - **The conceptual plant species list and plant count is already provided on pages 48 and 49 in the current report and is based on plants that are already growing in the surrounding area. The final plant list and plant count will be developed in consultation with the native plant nursery, in relation to survival**

**potential and availability. If needed, the plants will be contract grown to ensure that the desired species mix and plant sizes are available.**

*4) Planting map – a figure detailing the locations of plants with species name, spacing, and irrigation placement.*

- **The detailed planting plan for a restoration project always provides planting zones with a list of species that should be randomly planted in each zone. We typically provide a detailed zone planting plan after final grading plans have been designed and carried out and wetland versus upland areas location and terrain characteristics have been determined, not at this conceptual stage of mitigation planning.**

*5) Plant installation techniques – plant installation techniques for individual plants as well as for grass seeding, level of browse protection that will be required for plants, including maintenance of browse protection.*

- **The detailed planting plan always includes instructions on correct plant handling, installation, browse protection needs and site-specific maintenance needs.**

*6) Noxious weed control plan – type and frequency of weed control and application, protocols.*

- **The detailed plan for noxious weed control is developed after doing the site-specific assessment for grading and planting work during implementation. Presence, prevalence and location of specific weeds is mapped in detail around the target planting area, and a detailed site-specific management and maintenance plan is developed at that time. We have confirmed that these weeds will be controlled in the conceptual plan.**

*7) Maintenance and monitoring plan – minimum success rate, watering requirements, replacement requirements, time to success.*

- **The current report describes general, typical Performance Standards, including minimum required survival rates, native plant cover requirement over time, reporting standards, maintenance requirements, etc. on pages 50 and 51.**

In sum, our proposed planting plan conforms to best available science, best practices and addresses all comments provided by WDWF.

**Lisa Palazzi, CPSS, SPWS**

**SCJ Alliance**

*Certified Professional Soil Scientist*

*Certified Senior Professional Wetland Scientist*

*o. 360.352.1465, ext. 137*

## CCC 11.78.060 Habitat management and mitigation plan.

\* \* \* \*

(15) Performance Standards. The following performance standards shall apply to compensatory mitigation projects:

(A) Mitigation planting survival will be ninety percent for the first year and eighty percent for the following years. The survival standard can be met by replanting dead plants to achieve the required survival rate.

(B) Mitigation construction shall be completed prior to granting of final occupancy, or the completion of final approval of any development activity for which mitigation measures have been required. Bonding according to the provisions of Section [11.77.050](#)(1) for the cost of uncompleted activities is an acceptable alternative to completion where a contract to complete the work is in force.

(C) The monitoring period is determined by the administrator consistent with this section. Mitigation monitoring shall be required for a period necessary to establish that performance standards have been met. For mitigation containing exclusively herbaceous vegetation, where applicable, a minimum monitoring period of three years shall be prescribed or until performance criteria are met. For mitigation containing scrub-shrub vegetation, three to five years or until performance criteria are met. Monitoring shall be required for a minimum of five years, and potentially more years, when any of the following conditions apply:

(i) The project does not meet the performance standards identified in the mitigation plan.

(ii) The project does not provide adequate replacement for the functions and values of the impacted critical area.

(iii) The project results in unanticipated changes to hydrology of the impacted and/or mitigated critical area.

(iv) The project involves establishment of mixed scrub-shrub and forested plant communities, which require longer time for establishment.

(D) Where necessary, a permanent means of irrigation shall be installed for the mitigation plantings. The design shall meet the specific needs of riparian vegetation.

(E) Monitoring reports must include verification that the planting areas have less than twenty percent total nonnative, exotic, or invasive plant cover.

(F) Plants, wildlife, or fish species not indigenous to the region shall not be introduced into a habitat conservation area unless authorized by a state or federal permit or approval.

(G) Exotic and invasive species may include any species on the state noxious weed list, or considered a noxious or problem weed by the Natural Conservation Services Department or local conservation districts.

(H) The monitoring period is determined by the administrator consistent with this section. Mitigation monitoring shall be required for a period necessary to establish that performance standards have been met. The length of time involved in monitoring and monitoring reports may be increased by the administrator for a development project on a case-by-case basis when longer monitoring time is necessary to establish or reestablish functions and values of the mitigation site.

(I) Monitoring reports shall be submitted to the administrator at site completion (as-built) and annually for up to three years following construction and every two years thereafter pursuant to the approved monitoring period. Monitoring reports shall be submitted by a qualified professional biologist. The biologist must verify that the conditions of approval and provisions in the fish and wildlife management and mitigation plan have been satisfied.

(J) For mitigation containing exclusively herbaceous vegetation a minimum monitoring period of one year may be prescribed or until performance criteria are met. For mitigation containing scrub-shrub vegetation, three to five years or until performance criteria are met. Monitoring shall be required for a minimum of five years, and potentially more years, when any of the following conditions apply:

(i) The project does not meet the performance standards identified in the mitigation plan.

(ii) The project does not provide adequate replacement for the functions and values of the impacted critical area.

(iii) The project results in unanticipated changes to hydrology of the impacted and/or mitigated critical area.

(iv) The project involves establishment of mixed scrub-shrub and forested plant communities, which require longer time for establishment.

(K) If the mitigation plan is not installed per the timeline defined in this section or monitoring reports indicate that mitigation is not achieving its goals in accordance with this section, the administrator may, based on the recommendations of a qualified professional, increase the required monitoring to annually for up to ten years after mitigation is installed.

Mitigation sites shall be maintained to ensure that the mitigation and management plan objectives are successful. Maintenance shall include corrective actions to rectify problems, including rigorous, as-needed elimination of undesirable plants, protection of shrubs and small trees from competition by grasses and herbaceous plants, and repair and replacement of any dead plants. (Res. 2021-54 (Att. A), 5/4/21).