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ENPLAN

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SUBJECT: Evaluation of the California Energy Commission's Staff Assessment for the Fountain Wind Energy Project – Biological Resources

In response to your request, ENPLAN has completed a review of the Draft Environmental Impact Report (DEIR) prepared by the California Energy Commission (CEC) for the proposed Fountain Wind Project (State Clearinghouse Number 2023110139). The DEIR is included in the CEC's Staff Assessment for the project dated March 25, 2025 (TN #262350).

This evaluation focuses on the adequacy of the disclosed impacts on biological resources and environmental determinations subject to the California Environmental Quality Act (CEQA). As part of our review, we have evaluated the extent to which the DEIR addresses prior docketed comments submitted to the CEC by the County of Shasta in the following letters:

Shasta County Comment Letter	Relevant Topics
November 15, 2024 **TN #260101**	This comment letter included: Exhibit E: ENPLAN's November 4, 2024, Peer Review of the Aquatic Resources Survey Report and Associated Documentation (see **Attachment 1**) Exhibit F: ENPLAN's November 1, 2024, Peer Review of the Rare Plant Surveys and Natural Vegetation Community Mapping (see **Attachment 2**)
December 13, 2024 **TN #260646**	This comment letter referenced Exhibits E and F submitted with the County's November 15, 2024, comment letter and also included ENPLAN's November 27, 2024, Peer Review of the Migratory Bird Studies (see **Attachment 3**).

Our peer review is presented in four sections: Sections 1, 2, and 3 identify which of our prior comments have not been adequately addressed in the DEIR. Section 4 evaluates the Conditions of Certification (COCs) presented in the Biological Resources section of the DEIR.

SECTION 1. Aquatic Resources

In this section, we evaluate the extent to which our prior comments regarding the adequacy of the Aquatic Resources Survey Report were incorporated into the DEIR evaluation. Table 5.2-1 of the DEIR (Page 5.2-6, Biological Resources) provides a summary of biological surveys conducted at the project site. Based on the table, no updated surveys have been completed to address ENPLAN's November 4, 2024, Peer Review of the Aquatic Survey Resources Report and Associated Documentation (**Attachment 1**). Likewise, no updated reports are referenced in the DEIR.

The CEC's Evaluation of Impacts on Aquatic Resources Fails to Comply With CEQA

ENPLAN reviewed the Staff Assessment and related documents for the Fountain Wind Energy Project and although the DEIR recognizes some of the errors and data gaps that we previously identified, the CEC has not made a good-faith effort to rectify the previously identified deficiencies.

As described below, the CEC has failed to satisfy the requirements of CEQA in its review of potential impacts on aquatic resources because the DEIR is based on inadequate and incomplete data. We urge the CEC to address the inadequacies in the DEIR.

References for ENPLAN's Evaluation:

ENPLAN's November 4, 2024, Peer Review of the Aquatic Survey Resources Report and Associated Documentation was based on its review of the following primary documents:

> Stantec Consulting Services, Inc. December 23, 2019. Fountain Wind Energy Project Aquatic Resources Survey Report. (TN #248329-4 and #248307-2).
>
> FWP aquatic feature jurisdictionality fig 1. January 29, 2024. Project Components and Potential Impacts to Waters (TN #254345).

For the purposes of the peer review, we employed U.S. Army Corps of Engineers (USACE) regulations, guidance, and technical standards, including those listed below.

> Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 (on-line edition), U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
>
> Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0).
>
> Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. January 2016.
>
> Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10, 2016.

<u>The DEIR Fails to Disclose and Analyze Impacts on Riffle/Pool Complexes</u>

Based on our review of the DEIR, no impact evaluation has been completed, and no COCs are proposed to address the project's potential effects on riffle/pool complexes. The USACE 1987 Manual identifies six types of "special aquatic sites." Four of these are not expected to occur in the project study area (sanctuaries and refuges, mudflats, vegetated shallows, and coral reefs).

The other two types of "special aquatic sites" are wetlands and riffle/pool complexes. The DEIR (pages 5.2-39 and 40) acknowledges that wetlands are present in the project site and that *"Some of the perennial features in the project site support habitat conditions such as…deep pools, shallow pools with dense vegetative cover…and sections with short runs and riffles"*. However, no analysis of potential effects on riffle/pool complexes is included in the DEIR. In addition, the DEIR states that *"…other features may not have been included in the initial delineation completed by Stantec in 2019."* Accordingly, the DEIR fails to evaluate potential impacts on an entire category of "special aquatic sites" identified by the USACE.

The Aquatic Resources Survey Report and DEIR must be revised to evaluate and document the presence and extent of riffle/pool complexes. As documented in the February 10, 2016, Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Standard 5.d), the delineation map must:

"*Clearly show location and extent of all areas within the survey area potentially meeting the criteria for waters of the U.S., including special aquatic sites (e.g., wetlands, sanctuaries and refuges, mudflats, vegetated shallows, and **riffle and pool complexes**), and/or navigable waters. Each type of boundary (for example, ordinary high water mark, mean high water, wetlands or other special aquatic sites, and high tide line) must be clearly annotated and/or symbolized to ensure they are differentiable on the map."* [Emphasis added].

Once the location and extent of riffle/pool complexes has been identified and mapped, the anticipated impacts of the proposed project on this special aquatic type must be quantified and incorporated into the DEIR. The extent of impacts on riffle/pool complexes may affect applicability of various Nationwide Permits as well as mitigation requirements for the project.

The DEIR Fails to Adequately Disclose and Analyze Potential Impacts on Wetlands and Other Waters of the U.S./State

The DEIR (Pages 5.2-275 and 5.2-276, Biological Resources) references the Aquatic Resources Survey Report prepared by Stantec in 2019 (TN #248329-4) and states:

"…During a site visit conducted by staff it is not clear if the survey delineated the boundaries of CDFW jurisdictional habitats or used vegetated as a proxy for CDFW jurisdictional habitat. In addition, during the one-day reconnaissance level survey conducted by staff in November 2024, staff noted that a variety of vegetated and unvegetated swales, ditches and other features may not have been included in the initial delineation completed by Stantec in 2019. It is possible these features were assessed and dismissed however that information was not found in a review of the applicant's technical documents. It was noted that in the Stantec document the survey focused on classifying aquatic habitats following A Guide to Wildlife Habitats of California, an older and more general classification system (Mayer and Laudenslayer, 1988) (FWPA, TN #248329-4)."

After questioning the accuracy of the Stantec documentation, the DEIR presents Table 5.2-7 (Potential Jurisdictional Features Impacted by the Proposed Project) (Page 5.2-277, Biological Resources) and describes the table as providing a "concise breakdown" of the drainage type and expected jurisdiction; the type of impact anticipated is also documented. Because the DEIR is relying on what it acknowledges is incomplete and/or unsupported technical documentation, the conclusions reached in the DEIR are inadequate.

In addition, page 5.16-3 of the DEIR (Water Resources) references the Project Refinement Memo (TN #248330-2) prepared by Stantec on September 24, 2021. The Refinement Memo includes Table 2, which identifies acreages for permanent and temporary impacts on wetlands and other waters.

The Biological Resources section of the DEIR does not include an assessment of the Project Refinement Memo, and the acreages for impacts to wetlands and other waters identified in the Water Resources section differ from what is presented in Table 5.2-7 in the Biological Resources section (the conflicting data sets presented in the DEIR are further discussed below). These internal conflicts further underline the inadequacies of the DEIR and its conclusions.

The DEIR Fails to Adequately Disclose and Analyze Potential Impacts on Non-Wetland Riparian Habitats

As stated above, the DEIR recognizes that it is unclear if riparian habitat subject to CDFW jurisdiction has been mapped (e.g., page 5.2-275 of the DEIR). However, no steps have been taken to resolve this issue. Under Section 1600 of the California Fish and Game Code, California Department of Fish and Wildlife (CDFW) has permit authority over the bed, channel, and bank of any river, stream, or lake in the state. The "bank" is generally accepted as the land that confines the flow, along with the riparian vegetation that is supported by the waterbody. For streams, CDFW permit authority can in some cases encompass the

entire 100-year floodplain. Because riparian plant species may be deep-rooted, in many cases they extend upslope of the limits of federal jurisdiction. For this reason, CDFW permit authority may encompass a broader stream cross-section than that regulated by the USACE.

The Aquatic Resources Survey Report prepared for the project does not map any occurrences of riparian habitat upslope of USACE jurisdiction. However, ENPLAN's review of aerial imagery from the U.S. Fish and Wildlife Service's National Wetlands Inventory and other publicly available sources strongly suggests that the riparian corridor is much broader, in many locations, than the USACE jurisdictional lands. This is confirmed through certain data forms provided in the Report (e.g., Data Points 63 and 054-up) which document the presence of 60 percent riparian cover adjacent to a stream and riparian wetland, and identify this as non-wetland habitat. This riparian cover is subject to CDFW permit authority, information which is not disclosed or analyzed in the DEIR.

In addition to the Aquatic Resources Survey Report, riparian vegetation is addressed in the Fountain Wind Project Rare Plant Surveys and Natural Vegetation Community Mapping prepared by West, Inc., in 2018 and 2019. However, the 2019 Report provides only a general analysis and vaguely assumes that "any future modifications to habitat along streams (e.g., riparian areas) due to added road work will incorporate riparian protections consistent with other ongoing management activities (i.e., timber harvesting) in the region."

In short, none of the above-referenced technical studies address the extent of non-wetland riparian habitat present in the study area. The DEIR thus has no technical basis on which to evaluate of the loss of non-wetland riparian vegetation that may be subject to CDFW jurisdiction; there therefore the DEIR's analysis is inadequate.

The DEIR Does Not Adequately Quantify and Identify Appropriate Mitigation for Impacts on Aquatic Resources

The DEIR identifies BIO-31 (Lake and Streambed Equivalency Conditions) and explains that this condition includes measures that are consistent with Administrative, Avoidance and Minimization, Compensatory, Reporting, and Financial requirements that are included in a typical CDFW Lake and Streambed permit. The DEIR states that these conditions would address the construction and operation of the Project during the 35-year lifespan and that impacts to jurisdictional features and their associated resources are protected by the COCs required to protect biological resources and water quality.

These COCs include BIO-1 through BIO-30, FOREST-1 and FOREST-2, WATER1, WATER-2, WATER-5, AQ-SC3 and AQ-SC4, HAZ-1, HAZ-6, HAZ-7, and HAZ-8, NOISE-6, and WORKER SAFETY-1. These measures include requirements for preconstruction surveys, monitoring, habitat restoration, weed and invasive species control, storm water management, worker training, dust control, spill containment and reporting, verification of 401 and 404 permit requirements, and fire safety measures.

The DEIR concludes that with the implementation of these measures, impacts to jurisdictional waters would be reduced to less than significant (Page 5.2-127) and would meet CDFW regulatory requirements. Measure BIO-31 (Lake and Streambed Equivalency Conditions) includes the following:

1. *Verification of Permanent and Temporary Impacts. The project owner shall prepare and submit an updated Delineation of State and Federal Waters Report that clearly defines all jurisdictional features by jurisdiction (USACE Section 401* [sic]*, RWQCB Section 404* [sic]*, and CDFW jurisdictional waters) that are present in all temporary and permanent impact areas. The report shall define the methods used to delineate each water and provide maps and GIS data for each feature. The Report shall provide a table of the linear feet of impact and acreage for permanent and temporary impacts.*

This COC will not reduce impacts to jurisdictional waters to a less-than-significant level. Indeed, it is not possible to identify a level of significance with respect to jurisdictional waters without first accurately describing the extent of wetlands and other jurisdictional waters that would be affected by the project.

As detailed above, the DEIR acknowledges that the Aquatic Resources Survey Report prepared by Stantec in 2019 (TN #248329-4) is questionable. In addition, as also discussed above, data in the DEIR related to the amount of wetlands and other jurisdictional waters that would be impacted is inconsistent. The delineation needs to be updated before proceeding with the EIR in order to allow the reviewing public to determine the true extent of impacts on wetlands and other jurisdictional waters, including non-wetland riparian habitat. Additional field study is needed to map the full extent of wetlands, other special aquatic sites, other waters, and non-wetland riparian habitat and, subsequently, the impacts of the proposed project on these sensitive habitat types must be quantified and appropriate mitigation measures must be disclosed.

ADDITIONAL COMMENTS

The following additional errors were identified in ENPLAN's November 4, 2024, Peer Review of the 2019 Aquatic Survey Resources Report prepared by Stantec (**Attachment 1**). As stated above, based on Table 5.2-1 of the DEIR (Page 5.2-6, Biological Resources), no updated reports or surveys have been completed to address these errors.

- Section 1, paragraph 4: The survey area is described as including "a 200-foot buffer around proposed project facilities." The definition of "facilities" contradicts that used in Paragraph 1 of the same section.
- Section 2, paragraph 1: The location of Buckhorn station needs to be provided.
- Section 2, paragraph 1: "annual average high" should be "average annual high."
- Section 2, paragraph 1: A citation is needed for the growing-season period stated in the report. Given that the study area elevation ranges from 3,550 feet to 6,300 feet in elevation, a single growing-season reference is inadequate.
- Section 2.2, paragraph 4: This section describes vegetation communities including a lodgepole pine, fresh emergent wetland, and riverine. While not necessarily an error, this conflicts with the West reports, which do not describe these vegetation communities (or anything even similar) in the study area. Reconciliation of the vegetation descriptions in two technical studies is needed (starting with a cross-walk).
- Section 3.2: Field study date ranges should be consistent with those provided in Section 1, and the more detailed of the descriptions should be used.
- Section 3.2.2, Line 1: "non-wetland features" should be "non-wetland aquatic features."
- Section 3.2.2, paragraph 2: "average depth" is unclear. Is this average thalweg depth of average cross-sectional depth?
- Section 5.0, paragraph 2: Current regulations defining Waters of the US should be used. Waters of the State should also be defined and addressed.
- Data Point 3, Vegetation: 50 percent is not 35.
- Data Point 13, Vegetation: 20 percent is not 13.2, *Mentha* is not a dominant.
- Data Point 21, Other Waters: indicators and feature designations are not provided.
- Data Point 35: Summary of Findings is incorrectly marked.
- Data Point 36: Summary of Findings is incorrectly marked. Four species are incorrectly identified at dominants. Dominance test is incorrect, prevalence index must be calculated.
- Data Point 37: Summary of Findings is incorrectly marked.
- Data Point 38: Summary of Findings is incorrectly marked. For soils, F6 Dark Redox Surface is not applicable -- F6 must have value of 3 or less, chroma of 1 or less, and 2 percent or more concretions or value 3 or less, chroma 2 or less and 5 percent or more concentrations.
- Data Point 47: Summary of Findings is incorrectly marked.

- Data Point 51: Prevalence Index is incorrect, FAC cover is 5 percent.
- Data Point 54: Soil appears to be hydric per F3 Depleted Matrix.
- Data Point 56: Summary of Findings is incorrectly marked.
- Data Point 58: Summary of Findings is incorrectly marked. "Hydrophytic Vegetation Present?" is incorrectly marked. Soil Remarks incorrectly states that no indicators were observed. Hydrology field observations conflict with Remarks.
- Data Point 60: Must calculate Prevalence Index since soils and hydrology are positive. Vegetation summary box marking conflicts with Remarks and Summary of Findings.
- Data Point 62, Soils: Histic Epipedon does not apply. A histic epipedon must be underlain by a mineral soil with a chroma of 2 or less. Organic layer is usually 8 inches or greater in depth.
- Data Point 65: Summary of Findings is incorrectly marked. "Other Waters" evaluation is positive, but feature is identified as an upland. Hydric Soil is incorrectly marked.
- Data Point 66: Summary of Findings is incorrectly marked.
- Data Point 67: Soil is marked as naturally problematic, but this is not explained in Remarks.
- Data point 052 up: *Bromus carinatus* is not a dominant. Dominance test and Prevalence Index are incorrect.
- Data Point 053 up: Prevalence Index is incorrect.

Because these errors have not been addressed, the DEIR is relying on inaccurate data which fundamentally undermines its conclusions regarding the extent and significance of impacts.

SECTION 2. Rare Plant Surveys and Natural Vegetation Community Mapping

In this section, we evaluate the extent to which our prior comments regarding the adequacy of the Rare Plant Surveys and Natural Vegetation Community Mapping were incorporated into the DEIR evaluation. Table 5.2-1 of the DEIR (Page 5.2-6, Biological Resources) provides a summary of biological surveys conducted at the project site. Based on the table, no updated surveys have been completed to address ENPLAN's November 1, 2024, Peer Review of the Rare Plant Surveys and Natural Vegetation Community Mapping (**Attachment 2**). Likewise, no updated reports are referenced in the DEIR.

The CEC's Evaluation of Impacts on Rare Plants and Natural Vegetation Communities Fails to Comply With CEQA

ENPLAN reviewed the Staff Assessment and related documents for the Fountain Wind Energy Project and although the DEIR recognizes some of the errors and data gaps that we previously identified, the DEIR does not reflect an effort to address the previously identified deficiencies.

As described below, the CEC has failed to satisfy the requirements of CEQA (Public Resources Code §21000 *et seq.*) in its review of potential impacts on rare plants and natural vegetation communities because the DEIR is based on inadequate and incomplete data. We urge the CEC to address the inadequacies and recirculate the DEIR.

References for ENPLAN's Evaluation:

ENPLAN's November 1, 2024, Peer Review of the Rare Plant Surveys and Natural Vegetation Community Mapping was based on review of the following primary documents:

> Flaig, K., Q. Hays, and J. Thompson. 2018. Rare Plant Surveys and Natural Vegetation Community Mapping, Fountain Wind Project, Shasta County, California. Prepared for Pacific Wind Development LLC, Portland, OR. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. October 17, 2018. TN #248308-7

Flaig, K., A. Chatfield, and J. Thompson. 2019. Rare Plant Surveys and Natural Vegetation Community Mapping, Fountain Wind Project, Shasta County, California. Prepared for ConnectGen Operating LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. December 20, 2019. TN #248308-8

Thompson, J., K. Lawrence, and A. Chatfield. 2021. Rare Plant Surveys, Fountain Wind Project, Shasta County, California. Prepared for CG Fountain Wind LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. October 19, 2021. TN #248308-1

Thompson, J., Fields, J., and Flaig, K. 2023. 2023 Rare Plant Spot-Check Surveys, Fountain Wind Project, Shasta County, California. Prepared for CG Fountain Wind LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. September 28, 2023. TN #253167

West, Inc. January 10, 2019. Technical Memorandum from Andrea Chatfield and Kurt Flaig, WEST, Inc., to Kristen Goland, Pacific Wind Development LLC. RE: Request for Clarifications on 2018 Rare Plant Survey and Natural Vegetation Community Mapping Report for the Fountain Wind Project. TN #248308-9

West, Inc. June 9, 2023. Memorandum from Joel Thompson, WEST, Inc., to John Kuba, ConnectGen LLC. Subject: Rare Plant Spot Check Surveys for the Fountain Wind Project. TN #253167

Stantec Consulting Services, Inc. December 23, 2019. Fountain Wind Energy Project Aquatic Resources Survey Report. TN #248307-2

The DEIR is Based on Inadequate Survey Coverage for Rare Plants

The rare plant surveys conducted by WEST were completed over the course of four field seasons. The 2018 survey addressed the then-proposed development footprint; revisions to the study area were addressed in 2019 and 2021. The 2023 survey consisted of spot checks of work completed in prior years. It should be noted that, with the exception of the 2023 spot checks, the DEIR does not reflect that any attempt was made to re-survey areas that were previously addressed, i.e., with the exception of the spot checks, each portion of the study area was surveyed only during one field season.

The DEIR states on page 5.2-46 that approximately 800 acres of the project site were not covered during the special-status plant surveys. Accordingly, instead of conducting appropriate baseline surveys and providing full disclosure of project impacts, the DEIR simply recommends that adequate botanical surveys be conducted at a later date. By deferring this survey work, the DEIR fails to fully disclose the project's potential impacts on rare plants and, as a result, fails to support its recommended mitigation measures with substantial evidence that the measures will be effective at mitigating impacts to rare plants in areas of the project site that were never surveyed.

The DEIR is Based on Inadequate Botanical Field Surveys and Reports that Do Not Meet Accepted Standards

For the purposes of this review, we have used the *2018 CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (*Protocols*) as the standard against which the current study should be judged. The *Protocols* have been adopted by CDFW and are designed to help applicants "meet California Environmental Quality Act (CEQA) requirements for adequate disclosure of potential impacts to plants and sensitive natural communities." Further, the *Protocols* are referenced in the Methods sections of the WEST reports.

Page 5.2-6 of the DEIR states that the botanical surveys generally followed the *2018 CDFW Protocols*, which is incorrect. Page 5.2-140 of the DEIR notes that surveys did not "fully follow" the *Protocols,* which is a gross understatement, as documented below.

Although adequate maps and descriptions are included in the DEIR, no revisions to the technical studies have been made. As described below, the field surveys and technical reports completed by WEST fall far short of the standards contained in the *2018 Protocols*.

The four survey reports completed by WEST are very similar in format and content with respect to rare plants. Therefore, comments made with respect to one report may apply to all four reports.

- Per the *Protocols*, botanical survey reports must provide a description of the proposed project. No description is provided other than this is a "wind project." A comprehensive project description is provided in the DEIR, but this does not remedy the fact that the botanical surveyors (apparently) did not have a full understanding of the project and therefore could not adequately assess offsite, indirect, or cumulative impacts.

- Per the *Protocols*, botanical survey reports must provide a detailed map of the project area that identifies topographic and landscape features. The maps in the reports are nearly useless. No topographic map is provided. No landscape features are identified – no roads, streams, rivers, mountains, communities, etc. There is no information allowing one to know where in Shasta County the project is located. The scale of the maps is insufficient to allow the reader to understand the extent of the field survey.

  The study location is described in the report text only in very ambiguous terms ("central Shasta County"). Township/Range/Section and quadrangle sheet name(s) should be provided, or coordinates should be given. Distances to nearest communities or similar setting information should be provided.

- Per the *Protocols*, botanical survey reports must include a soils map. No soils map is provided, and the text description of soils is limited to one sentence.

- Per the *Protocols*, botanical survey reports must include a written description of the biological setting, including all natural communities; geological and hydrological characteristics; and land use or management history. While the reports do provide a very brief overview of some of the needed information, they are missing basic data such as the acreage of the study area, the elevation range of the study area, and a general description of topography (i.e., steep vs. gently rolling) and aspect of the study area (north-facing vs. south-facing). Given the influence of the Fountain Fire, the acreage and percentage of the study area that was burned should be provided; a map showing burn extent and burn intensity within the study area would also be highly informative.

- Per the *Protocols*, botanical surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. The WEST reports do not adequately identify the project area or the survey area. Locations of the survey corridors are depicted on a map at a scale that does not allow identification of the actual survey areas. Widths of the survey corridors are not provided. Spacing of survey transects within these corridors is not provided. The reports state that buffers were surveyed around all areas that may be subject to ground disturbance, but the width of the buffers is not provided and cannot be discerned on the map.

  Although somewhat better mapping is now provided in the DEIR, the botanical survey did not cover the entirety of the project site. The proposed COCs simply recommend that adequate botanical surveys be conducted at a later date. By deferring this survey work, the DEIR fails to fully disclose the project's potential impacts on rare plants and, as a result, fails to support its recommended mitigation measures with substantial evidence that the measures will be effective at mitigating impacts to rare plants, particularly in areas of the project site that were never surveyed.

- Even if the survey area was defined, because a thorough project description is not included in the survey reports, there is no way to determine if adequate buffers were surveyed as needed to address potential indirect impacts.

- Figure 1 of the 2023 report shows "current disturbance corridors" and "previous survey corridors." Close examination of this (low-quality) map shows a half-dozen current disturbance corridors

outside the previous survey coverage areas. These areas were not addressed in the 2023 spot checks, so they apparently remain without any botanical survey coverage. (As noted above, the DEIR confirms on page 5.2-46 that approximately 800 acres of the project site were not covered during the botanical surveys). Additional field surveys are warranted.

The *Protocols* provide a definition of special-status plant species. The WEST reports do not define this term, but (as evidenced in their records search results) use a narrower definition that excludes many special-status plants from consideration. As discussed on page 3 of the *Protocols*, special-status plants may include plants identified in the California Natural Diversity Data Base (CNDDB) as California Rare Plant Rank (CRPR) 3 and CRPR 4. As documented in the WEST reports and in the January 10, 2019, memorandum prepared by WEST, for the purpose of the Fountain Wind project, "target" species were limited to state and federally listed species and species with a CRPR of 1B or 2 (some CRPR 3 and 4 species were subsequently added to WEST's target list, but the additions were not comprehensive).

As noted in the *Protocols*, CRPR 3 and 4 plants may warrant consideration under CEQA Guidelines §15380 with respect to both direct impacts and cumulative impacts. Because most CRPR 3 and 4 species were intentionally excluded from the "targeted" rare plant survey, the public has no basis to determine if these species are present and if potential impacts to these species may be significant. Likewise, the public has no opportunity to evaluate cumulative impacts to these species or to request mitigation for the loss of such species.

Although the DEIR identifies special-status plant species as including all CRPR 1A, 1B, 2, 3, and 4 ranked species (e.g., p. 5.2-45), the fact that the field surveys made no attempt to identify all Rank 3 and 4 species is not mentioned. The DEIR is thus misleading and falsely inflating the scope of the botanical survey completed by WEST.

- As stated on page 4 of the *Protocols*, "Botanical field surveys should be floristic in nature, meaning that every plant taxon that occurs in the project area is identified to the taxonomic level necessary to determine rarity and listing status. "Focused surveys" that are limited to habitats known to support special-status plants or that are restricted to lists of likely potential special-status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine if they are special-status plants." [emphasis added]. This is reinforced on page 5 of the *Protocols*, which states: "Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list."

  The surveys completed by WEST were focused, not floristic. As discussed on page 2 of WEST's 2018 report, the study consisted of "focused surveys to determine presence or absence of target species…".

  The absence of floristic surveys means that the surveyors could easily have overlooked unexpected occurrences of special-status species, such as range extensions – and in our experience, range extensions are not uncommon. Likewise, the surveyors conducting a focused survey would have overlooked previously undescribed species (which could be considered rare as defined in the State CEQA Guidelines); while not as common as range extensions, new species continue to be found in Shasta County (see below), particularly in remote areas such as the Fountain Wind project vicinity. The focused surveys conducted by WEST fall short of the accepted standards presented in the *Protocols* and are not adequate to support compliance with CEQA.

  Page 5.2-140 of the DEIR acknowledges that floristic surveys were not conducted. However, this glaring deficiency is not remedied. The DEIR simply recommends that adequate botanical surveys be conducted at a later date, which does not meet CEQA disclosure requirements. Again, by deferring this survey work, the DEIR fails to fully disclose the project's potential impacts and, as a result, fails to support its recommended mitigation measures with substantial evidence that the measures will be effective at mitigating impacts on all special-status plant species.

- The 2018 records search identified 51 “target species” (with 36 listed as being possibly present). For the 2019 surveys, 69 species were targeted (with 47 listed as possibly present). Although 18 new “target species” were identified (11 listed as “Potentially Present”), the surveyors did not return to the 2018 study area to survey for these additional species. The reports state that the surveyors reviewed species descriptions, photographs, and habitat requirements of the target species prior to the surveys – but the 2018 review obviously did not extend to the full list of target species developed in 2019.

  Because a floristic study (as required in the *Protocols*) was not conducted, there is no basis to determine if these additional “target species” are actually present in the 2018 study area. Therefore, the 2018 survey was insufficient to meet even WEST’s stated (non-protocol) “target species” survey approach.

  Table 5.2-1 of the DEIR acknowledges that that the original list of “target” species was too limited. However, this deficiency is not remedied. The DEIR simply recommends that adequate botanical surveys be conducted at a later date, which as detailed repeatedly above, does not meet CEQA’s requirements.

- Page 6 of the *Protocols* states that known reference sites should be visited to allow the surveyors to determine if the special-status species are identifiable at the time of the survey, and to obtain a visual image of the special-status plants, associated habitat, and associated natural communities.

  Reference sites are not mentioned in the 2018, 2019, or 2021 WEST reports. The 2023 report states that given the number of special-status species that could be present, visitation of known reference populations was not feasible/practicable. This is not a valid excuse. Given that surveys were conducted in years with vastly different precipitation levels, at a minimum, some reference populations should have been checked. For example, during drought years, known populations of special-status wetland species should have been visited; in years with high snowfall, populations of late-blooming species such as Cascade grass-of-Parnassus should have been checked to determine their phenology.

- The discussion of rare plant survey methods utilized by WEST does not comply with the CDFW standards. Page 5 of the *Protocols* states: “Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology.”

- The WEST surveys were limited to specific project corridors and activity nodes and did not address the entire project area. As noted above, even the areas that were surveyed are not adequately described.

  Page 5.2-46 of the DEIR states that 800 acres of the project site were not surveyed. This represents nearly 30 percent of the 2,855-acre project site. Because the surveys should be covering 100-foot buffers around the proposed disturbance areas (per BIO-12, page 5.2-336), the acreage of unsurveyed lands is far underreported.

- As discussed above, the 2018 list of “targeted” rare plant species excluded a number of species later identified as potentially being present. The 2018 survey area was never fully resurveyed for the additional species (other than for some spot-checks in 2023). Therefore, the results of the 2018 survey must be discounted and the affected footprint and appropriate buffers need to be re-surveyed. The DEIR acknowledges the gap in survey coverage, but no attempt has been made to correct the deficiency other than to require that acceptable surveys be conducted at a later date.

- The 2018 WEST report states that the CNPS records search was focused on Shasta County. This is not further explained and appears to be a vast overstatement. Current CNPS records for

Shasta County identify 106 species with a CRPR of 1A, 1B, 2A, or 2B[1], yet the total number of "target plants" identified by WEST in 2019 is only 67. Either the report text needs to be revised to state the actual search parameters or a number of additional species need to be added to the "target species" list.

The DEIR does not provide information on how the "target" species were identified nor does it address the data gaps resulting from use of "targeted" surveys vs. floristic surveys. The DEIR simply recommends that adequate botanical surveys be conducted at a later date, which does not meet CEQA disclosure requirements.

- The validity of the records searches is questionable. The initial records search was completed in January 2017. It was thus over a year out-of-date when the initial field survey was conducted.

  The CNPS Inventory records search was updated by WEST in May 2019, prior to conducting the 2019 survey. However, as documented in the report references, the CNDDB records search was apparently not updated. The 2021 WEST report relies on the 2017 records search (as documented in the report references section), which was four years old at the time of the field work. The 2023 report states that the list of target species developed for the 2021 surveys served as the basis for the 2023 spot checks. Although the 2023 reference sections cites 2021 data, the same 2021 data is not cited in the 2021 report. We do not know if the surveyors relied on six-year-old data or two-year-old data. While the *Protocols* do not explicitly define how recent the records search must be, most botanists would update the records search prior to conducting field work each season; use of a six-year-old records search does not meet generally accepted professional standards.

  This deficiency is tangentially noted in Table 5.2-1 of the DEIR, but is not addressed. The DEIR simply recommends that adequate botanical surveys be conducted at a later date, which, again, does not meet CEQA's requirements.

- The records searches did not include review of U.S. Fish and Wildlife Service (USFWS) records of plant species that may potentially be affected by a project at the specified site location. The DEIR states that the Site Characterization Study included review of USFWS records, but a current USFWS list of species potentially affected by project implementation is not included in the technical studies or cited in the DEIR.

- Page 9 of the *Protocols* states that botanical survey reports must include the names and qualifications of the botanical field surveyors. Field surveyors are named in three of the four reports, but resumes are provided for only four of the five individuals who (apparently) participated in the field surveys.

- Page 9 of the *Protocols* requires that the dates of the botanical field surveys be provided, indicating the botanical field surveyors that surveyed each area on each survey date. Although a date range is provided for the survey periods, no additional information is given. Because the botanical survey dates are mixed with the weed mapping and habitat mapping, we do not even know on which days the botanical survey work was actually conducted.

- Page 9 of the *Protocols* requires that the total person-hours spent during the botanical survey be identified.

  No information on the extent of the survey effort is provided. The report should separately identify total-person hours spent on the rare plant survey, the natural community mapping, and the invasive plant species mapping as these are three distinctly different work areas. Survey hours exclude travel time, plant identification time, break time, and other hours not focused on the survey field-coverage effort.

[1] California Native Plant Society, Rare Plant Program. 2025. Rare Plant Inventory (online edition, v9.5.1). https://rareplants.cnps.org/Search/result?frm=T&crpr=1A:1B:2A:2B&ccl=SHA&elev=:m:o

Page 5.2-140 of the DEIR acknowledges that surveys did not "fully follow" the *Protocols*. However, the many glaring deficiencies are not remedied. The DEIR simply recommends that adequate botanical surveys be conducted at a later date, which does not meet CEQA disclosure requirements.

The DEIR's Evaluation of Sensitive Natural Communities is Inadequate

- As discussed on page 4 of the *Protocols*, CDFW's *List of California Terrestrial Natural Communities* provides the best available natural communities information and indicates which natural communities are considered sensitive. The list is routinely updated, most recently on February 27, 2025.

  The 2018 survey report states that vegetation was mapped in accordance with the 1986 Holland classification system or the 2008 [actually 2009] *A Manual of California Vegetation*. The 2019 report utilized the 2009 *A Manual of California Vegetation*. The classification system in the 2009 *Manual* is compatible with the CDFW *List of California Terrestrial Natural Communities;* the Holland system is not compatible with the others. Review of the 2018 report shows that it relies heavily, if not exclusively, on the Holland system. The 2018 report concludes that no sensitive natural communities are present. The 2019 report takes the natural community descriptions in the 2018 report and shoehorns them into the *Manual of California Vegetation*/CDFW *California Terrestrial Natural Communities* system – and now concludes that sensitive natural communities are present.

  Knowledge of California's natural communities has increased substantially over the past decades, particularly with respect to sensitive natural communities. Because outdated standards were used to document natural communities, there is a high potential that communities currently described as sensitive may have been overlooked. The CDFW *List of California Terrestrial Natural Communities* states the status of each described community. By utilizing old systems with different natural community nomenclature, there is no direct nomenclatural link to identify whether a community is sensitive or not. Some of the old nomenclature may be "cross-walked" to the new nomenclature, but that is not always the case. The use of old natural community descriptors severely limits the ability of the public when reviewing the DEIR to determine which sensitive plant communities are actually present in the study area.

- The 2018 and 2019 reports identify natural communities to the "Alliance" level, which is a relatively generic description. Each Alliance can contain multiple "Associations" that are more precisely defined natural communities. Although some Alliances can be designated as sensitive, sensitive natural communities are more typically described at the "Association" level. A non-sensitive Alliance may contain sensitive Associations. For example, the 2019 report identifies the presence of the *Pinus ponderosa* Forest Alliance and correctly states that the Alliance is not sensitive. However, 28 of the 45 currently described Associations falling under the *Pinus ponderosa* Forest Alliance are identified as sensitive. Because of the gross level of natural community classification/mapping used by WEST, in reviewing the DEIR, the public has no information as to whether sensitive natural communities (Associations) are actually present.

  The DEIR acknowledges that some five different systems of vegetation classification were used for the baseline descriptions and provides a relatively lengthy discussion of how mapping vegetation communities is difficult. Nonetheless, the DEIR persists in using old community nomenclature (e.g., Table 5.2-2 in the DEIR), which obfuscates identification of sensitive natural communities that may be present in the study area.

  Page 5.2-46 of the DEIR identifies five natural community types and states that none of these natural communities are present in the project site; however, the DEIR acknowledges that none of these vegetation types were mapped within the project area because a different naming convention was used, and these communities may occur as a component of the larger vegetation mapping effort. The DEIR addresses this uncertainty through the use of COCs that will require pre-disturbance mapping and the application of compensatory mitigation should sensitive natural communities be present. Again, by deferring this survey work the DEIR fails to fully disclose the

project's potential impacts and, as a result, fails to support its recommended mitigation measures with substantial evidence that the measures will be effective at mitigating impacts to sensitive natural communities. It is not possible to identify a level of significance without accurately describing the extent of sensitive natural communities that would be affected by the project.

The DEIR needs to be updated before approving the project to allow the reviewing public to determine the true extent of impacts on sensitive natural communities. Additional field study is needed to map the full extent of sensitive natural communities and, subsequently, the impacts of the proposed project on these sensitive natural communities must be quantified and appropriate COCs must be disclosed.

The DEIR's Analysis of Invasive Plant Species is Inadequate

- The Methods section of the 2018 WEST report states that mapping of invasive plant species was mainly restricted to existing road corridors; off-road areas were not mapped because they are unlikely to support invasive plants, and clear-cuts were not mapped because they are known to contain a high concentration of weedy species. However, the mapping does not identify these areas, so it is impossible to distinguish an area that was not surveyed from an area that was surveyed but does not support invasive plant species.

  The Methods section states that all weeds identified by CAL-IPC with a rating of "High," "Moderate," and "Limited" were mapped. However, the plant list includes several plants that meet this criterion but were not mapped, including *Hypochaeris* sp. (Limited or Moderate), *Plantago lanceolata* (Limited), *Bromus tectorum* (High), *Poa pratensis* (Limited), and *Elymus caput-medusae* (High; shown in the 2019 map but not the 2018 map even though it is on the 2018 list of plant species encountered).

  COC BIO-9 requires development of an Integrated Weed Management Plan (IWMP). Paragraph 2 of BIO-9 defines "weeds" as including designated noxious weeds, as well as any other non-native weeds or pest plants identified on the weed lists of the California Department of Food and Agriculture or the California Invasive Plant Council. However, Paragraph 3 calls for the IWMP to address weeds rated as High and Moderate by CAL-IPC; no mention is made of plants rated as Limited by CAL-IPC. This internal contradiction prohibits the public in reviewing the DEIR from understanding what weeds will actually be addressed and controlled under the IWMP. The DEIR needs to be updated accordingly.

- The WEST reports suggest that a considerable effort was devoted to identification and mapping of noxious weed occurrences, which is laudable. However, the Results section does not address the potential spread of weeds into or out of the project area. The need to actively manage invasive species is recognized in the report, but the significance of the impact is not evaluated and no mitigation measures are provided.

  COCs are provided in the DEIR to address the introduction of weeds into the project site, but no measures are provided to ensure that project activities themselves do not result in the spread of weeds into off-site areas.

The DEIR Relies on Inadequate/Inaccurate Evaluations of Rare Plants That Have a Potential to Occur in the Study Area

- *Castilleja lassenensis* is not included in the 2017 CNDDB records search but appears in the subsequent records searches. WEST states that the species is "Unlikely" to occur in the study area because it is restricted to the flanks of Lassen and granite substrates in the Sierras. We disagree with both the habitat description and the potential-for-occurrence assessment. With respect to habitat, the species does not occur on granitic substrates in the Sierra; it is restricted to volcanic substrates in the southern Cascade Range. *Castilleja lassenensis* was resurrected as a valid species in 2015 and little work has been conducted to document the range of the species.

Most of the work to date has been in Lassen Park; however, we are aware of a number of populations in the Caribou Wilderness and other locations that have not yet been formally documented (and it should be noted that all previously reported *C. lemmonii* populations in the southern Cascades may actually be *C. lassenensis*). Additionally, existing records show that *Castilleja lassenensis* has been reported from the Burney and Burney Mountain West quadrangles, and that the species may occur at elevations as low as 4,800 feet. The potential for occurrence should be revised in the WEST reports to "Possible."

Table 5.2-3 of the DEIR recognizes that *Castilleja lassenensis* occurs within five miles of the study area, and now rates its potential to occur as "Moderate." However, because this rare species was not on WEST's "target" list in 2018, an additional field survey is needed.

- *Trifolium siskiyouense* (CRPR 1B.1) is not included in the 2017 CNDDB records search but appears in the subsequent records searches. WEST states that this wet-montane-meadow inhabitant is "Unlikely" to occur in the study area because the nearest occurrence is on a "volcanic plateau approximately 30 miles south of Project." This is incorrect. *Trifolium siskiyouense* has been reported from "Montgomery Creek," which is about three miles west of the project footprint. The specific location is unknown, but could easily be within the study area. Other reported populations are to the north of the project, not to the south. The potential for occurrence should be revised in the WEST reports to "Possible."

  Table 5.2-3 of the DEIR recognizes that the species occurs within one mile of the study area, and now rates its potential to occur as "Moderate." However, because this rare species was not on WEST's "target" list in 2018, an additional field survey is needed.

- Broad-nerved hump moss (CRPR 2B.2), three-ranked hump-moss (CRPR 4.2), Pacific fuzzwort (CRPR 4.3), and slender silver-moss (CRPR 4.2) are included in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2024), and are identified by WEST as being "Possible" in the study area. None of the resumes provided in the WEST reports indicate that the surveyors have any experience in bryophyte identification, and no bryophytes are included in the list of observed species. Absent any information to the contrary, it appears that a bryophyte survey was not conducted. A survey of the entire project area by qualified bryophyte specialists is needed.

- The Siskiyou jellyskin lichen (*Scytinium siskiyouense*; CRPR 1B.1) is included in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2024). However, this rare species is not mentioned in any of the rare plant survey reports, and the WEST survey crews were not trained in its detection. A survey of the entire project area by qualified lichen specialists is needed.

- The reports identify a number of plants only to the genus level. However, at least 11 of these genera may include special-status species (CRPR 1-4). In Shasta County alone, Calflora identifies one rare *Allium*, two rare *Lomatiums*, four rare *Erigerons*, one rare *Solidago*, one rare *Cryptantha*, five rare *Carexes*, five rare *Silenes*, two rare *Phacelias*, nine rare *Eriogonums*, one rare *Castilleja*, and three rare *Penstemons.* Because the surveyors did not identify taxa in these genera to the species level, the public has no way of knowing if any of these 34 Shasta County rare plant species are present in the Fountain Wind survey area.

- A new species of onion (*Allium incomptum*) was discovered in Shasta County in 2015, with the description published in 2022. CDFW designated this species as CRPR 1B.3 in April 2023. The newly described rare onion occurs less than 15 miles from the Fountain Wind survey area. Because the surveyors did not update their records search prior to the 2023 surveys, they were apparently unaware of the potential for the onion to occur in the study area. WEST's 2018 list of plant species encountered includes *Allium parvum* (which has a similar appearance to *Allium incomptum*) and one unidentified species of onion. The 2019 report lists *Allium parvum* and at least two unknown species of onions. The 2021 and 2023 reports delete *Allium parvum* and list only two or more species of unknown onions. WEST apparently observed three or more species of onions in the study area and identified only one of them to species level.

Allium incomptum was added to the target list presented in the DEIR, but there is no acknowledgement that the surveyors did not look for the species or even know that it existed. The public in reviewing the DEIR has no way of knowing if the recently described rare onion, *Allium incomptum*, occurs in the study area.

- The WEST reports state that the range of survey dates included the blooming times of all "target" rare plant species, but this may not be correct. The 2018 survey was conducted between May 21 to May 29 and July 30 to August 3, the 2019 survey was conducted between May 29 to June 3 and July 30 to August 2, and the 2021 survey was conducted on May 24 and 25 and July 27 and 28. The 2023 survey was conducted on unspecified dates in June and August. Because no dates are provided for the 2023 surveys, the potential for surveys to actually allow for the identification of rare species cannot be assessed.

- Red Bluff dwarf rush is identified as blooming in March, April, and May; given drought conditions in some of the survey years, there is no basis to determine if it would have been identifiable during the stated survey periods. Had the surveyors checked reference populations as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.

- Silky cryptantha is identified as blooming in April and May; given drought conditions in some of the survey years, there is no basis to determine if the species would have been identifiable during the stated survey periods. Had the surveyors checked reference populations as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.

- Three-ranked hump moss is shown as being identifiable in July; very little field survey work occurred in July. There is no basis to determine if the species would have been identifiable during the stated survey periods. Had the surveyors checked reference populations as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.

- Rattlesnake fern is shown as being identifiable only in June; very little field survey work occurred in June. Additional documentation is needed to support a conclusion that the field survey would have detected rattlesnake fern if present in the study area. In our experience, the fern is detectable over a much broader date range, but this would need to be supported in the WEST reports.

- Cascade grass-of-Parnassus is identified as blooming in August and September. Survey coverage barely extended into August in 2018 and 2019 and terminated in July in 2021; given high snowfall in some of the survey years, there is no basis to determine if the species would have been identifiable during the stated survey periods. Had the surveyors checked reference populations as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.

  The DEIR acknowledges that reference populations were not checked to confirm phenological development at the time of the field surveys, but no action has been taken to remedy this deficiency other than to require that acceptable surveys be conducted at a later date, which, as discussed above, is impermissible deferment in violation of CEQA..

- The 2018 report concludes that no rare plant species were encountered. This is contradicted by the plant list included in the report, which lists *Carex comosa* as being observed. Also, the plant community descriptions in the 2018 report identify *Carex comosa* as a common species in the Wet Montane Meadow habitat. *Carex comosa* is a CRPR 1B.2 species, and its potential for occurrence was identified in the pre-field research as "Possible," with a known occurrence six miles to the north. *Carex comosa* is deleted from the subsequent plants lists and plant community descriptions; no explanation is given as to why. A thorough explanation of these contradictions and misstatements is necessary.

- The 2018 report lists another rare plant, *Calystegia atriplicifolia* ssp. *buttensis,* as being present. Upon questioning by an outside reviewer, WEST prepared a Technical Memorandum in 2019 removing the plant from the list of species observed, noting that it was just outside the project footprint and is a CRPR 4.2 species that is not one of their "focal species."

  However, as discussed above, CRPR 3 and 4 species should be considered in CEQA documents. Further, even if the plants were just outside the study area footprint, indirect and cumulative impacts to the species should be addressed in accordance with the *Protocols*. The DEIR erroneously states that *Calystegia atriplicifolia* ssp. *buttensis* was not observed during the botanical surveys.

- The *Protocols* state that CNDDB data forms should be submitted for observations of CRPR 3 and 4 plants. No data forms were submitted as part of the WEST study.

- We are perplexed as to why WEST reports the presence of *Convolvulus* sp. on all of their plants lists. There are only four *Convolvulus* species reported in California: two rarely encountered horticultural escapees, one rare native that occurs only south of the Bay Area, and the extremely common weedy *C. arvensis*. We expect that all of the WEST botanists would be very familiar with *C. arvensis*, so the most likely explanation is that *Convolvulus* is used in its out-of-date conscription that included what is now *Calystegia*. This raises the question as to whether the rare *Calystegia atriplicifolia* ssp. *buttensis* was observed throughout the project site but was not reported. A thorough explanation is necessary.

- Woolly meadowfoam (*Limnanthes floccosa* ssp*. floccosa*; CRPR 4.2) is known to occur within a 10-mile radius of the project site and is included in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2024). However, this species is not mentioned in any of the rare plant survey reports, its blooming period typically ends prior to the dates at which the WEST surveys began, and the species is very unlikely to have been detected by the WEST survey crews. Surveys in April or early May are warranted.

- The CNDDB and WEST reports identify the blooming period for *Limnanthes floccosa* ssp. *bellingeriana* (CRPR 1B.2) as extending from "April-June." We believe this is an overstatement. Based on review of California Consortium of Herbaria records, only one collection of this taxon has been made later than May 20 (by botanists Taylor and Clifton). This species is very unlikely to have been detected by the WEST survey crews. Surveys in mid-April or early May are warranted.

- The 2019, 2021, and 2023 WEST reports claim to contain a comprehensive list of all plant species encountered during the current and prior surveys. This is not true. The 2018 report lists 219 species. The 2019 report adds 13 new species and drops two of those previously listed (*Carex comosa* and *Erythranthe guttatus*). The 2021 report lists only 125 species (of which four are newly added). The 2023 report lists 133 species (four newly added). A comprehensive list of plants identified by WEST should contain about 239 species – and this is a significant under-reporting of the number of species actually present.

- The WEST reports (2019, 2021, and 2023) state that plant species were identified to the highest taxonomic level possible using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). This statement is incorrect. The WEST plant lists use numerous out-of-date names for plant species. This undermines confidence in the quality of the reports and also highlights the age of the reports – the bulk of the work was completed five to six years ago and was not substantially updated during the 2023 spot checks; the old nomenclature persists in the 2023 report.

- The "comprehensive" plant list prepared by WEST is far from complete. This may be because the WEST survey was "focused" and not floristic as is required under the *Protocols*. To help assess the adequacy of the WEST reports, we reviewed the plant list prepared for the project by

the wetland delineators (Stantec, 2019). Stantec identified 179 plant species in the study area; 95 of these species are not on the WEST list.

- The DEIR identifies special-status plant species as including all CRPR 1A, 1B, 2, 3, and 4 ranked species (e.g., p. 5.2-45). The Stantec plant list includes one rare plant species (*Sidalcea gigantea*, CRPR 4.3) that was not observed by WEST and is not on WEST's list of "target species." As discussed in the *Protocols* (and DEIR), plants of this status may warrant consideration under CEQA. Evaluation of indirect and cumulative impacts to the species should be addressed. Table 5.2-3 in the DEIR states that this species has a Low potential to be present. However, page 5.2-32 of the DEIR states that the species is indeed present but fails to mention its rarity status.

- The Stantec report identifies the presence of western blueberry (*Vaccinium uliginosum*). The WEST reports list the closely related Shasta huckleberry (*Vaccinium shastense*) as a "target" species that has a "Possible" presence in the study area. The WEST report does not identify the presence of any *Vaccinium* in the study area, which further undermines confidence in the WEST reports. The DEIR is based in part on the unreliable data provided by WEST.

- Three State-listed species are identified in the 2018 WEST report (Appendix A). However, the subsequent reports eliminate the column in the table identifying State status (the table name is changed to exclude State-listed species, but the Appendix cover sheets continue to indicate that State-listed species are identified). The basis for excluding State-listed species needs to be justified if the table is to remain in its most recent iteration.

  Table 5.2-3 in the DEIR includes four State-listed species but does not identify their State listing status.

- The WEST plant lists contain minor errors. Phacelia is spelled incorrectly (common name). *Veronica anagallis-aquatica* is a non-native species. *Rumex salicifolius* is a native species. No revisions to the technical studies have been made.

The DEIR Relies on Inadequate/Inaccurate Evaluation of Natural Vegetation Communities in the Project Area

- The 2019 WEST report identifies 1,036 acres of *Acer glabrum* Provisional Shrub Alliance within the evaluation area, of which 31 acres are within the development corridors. The Stantec report identifies 28.6 acres of a montane riparian community dominated by shrubs including vine maple, *Acer circinatum*. Rocky Mountain maple, *Acer glabrum*, is not identified as being present. We find it highly disconcerting that WEST reported *Acer glabrum* in 2018 and 2019, but the Stantec report does not identify any *Acer glabrum*. This concern is heightened by the fact that the 2021 and 2023 WEST reports list only *Acer circinatum*, not *Acer glabrum*. In 2023, WEST botanists re-visited 11 montane riparian habitats but did not identify *Acer glabrum* as being present – even though it was said to be the dominant species in 2019. We have to suspect that the WEST botanists mis-identified a dominant wetland plant in 2018 and 2019 and relied on this misidentification to describe a sensitive natural community.

- Although Rocky Mountain Maple is probably absent from the project site, page 5.2-31of the DEIR describes an entire natural community based on this (probable) erroneous identification.

- The 2018 vegetation community map is based on the Holland system. In 2019, the same map unit boundaries were used, but were renamed in accordance with CDFW standards. This created some problematic results.

    - The 2018 report distinguishes Mixed Montane Riparian Forest from Mixed Montane Riparian Scrub habitat, primarily based on a conifer forest overstory in the former. The 2019 report shoehorns these distinctly different habitats into a single shrub alliance: "*Acer glabrum* Provisional Shrubland Alliance". It is unclear how a tree-dominated habitat can now be considered as a shrubland.

- Lands described in 2018 as "Mixed Conifer Forest – Burned" are reclassified in 2019 as "Ponderosa Pine Forest Alliance." However, lands described in 2018 as "Mixed Conifer Forest – Unburned" were converted to "White fir – Douglas fir Forest Alliance" in 2019. A defensible explanation is needed to show how mixed conifer forest can be converted to both Ponderosa Pine Forest (dominated by a single species) and White Fir – Douglas Fir Forest. Is mixed conifer forest the pre-fire condition and ponderosa pine forest plantation the post-fire condition? This needs to be clarified.

- White fir is described as a minor component of the Mixed Conifer Forest – Unburned in 2018, but is a dominant species when reclassified as White Fir -- Douglas Fir Forest in 2019. We see no substantial evidence to support this significant change.

- *Carex utriculata* (=*C. rostrata*) was identified as one of 13 common species in the Wet Montane Meadow community in 2018, but is considered as the sole dominant species when the habitat was re-characterized as "Beaked Sedge Meadow" in 2019. Given the species identified in 2018, the habitat could readily have been re-characterized as "Bluejoint Reed Grass Meadow," "Beaked Sedge and Blister Sedge Meadow," or "*Carex utriculata* fen." The latter three communities are identified as Sensitive Natural Communities by CDFW, while the selected Beaked Sedge Meadow is not listed as a Sensitive Natural Community. A defensible explanation for this re-characterization is needed.

- The 2018 Wet Montane Meadow description states that several shallow "bogs" are included within the larger meadow community. California "bogs" are more accurately described as fens. Many fens are considered as Sensitive Natural Communities by CDFW or are pending addition to this list (e.g., star sedge fen, shore sedge fen, woodland sedge fen, short-beaked sedge fen, California pitcher plant fen, western false asphodel – California bog asphodel fen, *Carex vesicaria* fen, *Carex utriculata* fen, *Carex capitata* fen).

  All mention of "bogs" is removed in the 2019 WEST report, which is inappropriate. The fens need to be adequately described and documented so that it can be determined if they are a sensitive natural community.

- The vegetation community maps contain multiple minor errors. In 2018, ELCA is listed as a dominant weed, but the species code is omitted from the legend. The legend uses the codes "CYED" and "RUAC" but the map designations are "CYEC" and "RVAC." The 2019 map legend provides a code for *Holcus lanatus*, but the species is not shown on the map nor is it included in the WEST plant list (but is included in the Results and Discussion section). The 2019 legend lists "RUAC" twice and uses the code "ELCM" while both "ELCM" and "ELCA" are used on the map. Noxious weed mapping is not provided in the DEIR and needs to be addressed.

- As documented on pages 10 and 11 of the *Protocols*, botanical survey reports must include an assessment of potential project impacts on sensitive natural communities. Although the 2019 report identifies the presence of 31 acres of a sensitive natural community in the development footprint, no assessment of the loss of the sensitive natural community is provided, and the report provides no recommendations to avoid, minimize, or mitigate impacts to the sensitive natural community.

- Table 5.2-2, Table 5.2-6, and Table 5.2-7 of the DEIR list impacts to riparian vegetation by community type but do not provide a total acreage of impacts. Data in Table 5.2-2 show 7.5 acres of permanent impacts to Mixed Montane Riparian Forest, 7.3 acres of permanent impacts to Mixed Montane Riparian Scrub, 0.03 acres of permanent impacts to Montane Meadow, and 0.4 acres of permanent impacts to Wet Montane Meadow. The same acreages are also presented on page 5.2-276.

  Table 5.2-6 provides differing numbers (1.93 acres of permanent impacts to Mixed Montane Riparian Forest, 2.62 acres of permanent impacts to Mixed Montane Riparian Scrub, 0.03 acres

of permanent impacts to Montane Meadow, and 0.4 acres of permanent impacts to Wet Montane Meadow). Table 5.2-7 provides a third set of data and summarizes permanent impact to riparian wetlands (presumably riparian scrub plus riparian forest) as 0.842 acres, and permanent impacts to wet meadows at 0.225 acres. A fourth set of data is provided in the September 2021 Refinement Memo (TN #248330.2), which is referenced on Page 5.16-3 of the DEIR (Water Resources); Table 2 of this memo states that permanent riparian wetland impacts will total 0.794 acres and that permanent wet meadow impacts will total 0.354 acres. There is no way to reconcile this data; which, if any, of the multiple data sets is correct.

Mitigation proposed for the project includes preparing an updated delineation of all jurisdictional features (BIO-31). BIO-31.14 implies that temporary impacts to riparian vegetation will be mitigated, but no conditions requiring such mitigation are provided. If we assume that ~15 acres of riparian vegetation will be permanently lost/converted, BIO-31.14.a appears to require (but the language is unenforceably vague) that ~45 acres of in-kind (unclear) habitat be protected through acquisition or easement. However, there is no assurance that this acreage of mitigation can be obtained locally – and the measure does not provide any geographic limitations as to where the mitigation can occur. A mitigation measure that would allow protection of riparian forest lands in a different county (or state) must be disclosed so that the public can evaluate the efficacy of the mitigation.

- As stated above, the DEIR includes conflicting information regarding natural habitats that would be converted to a developed/industrial use. The permanent loss with respect to each habitat type present in the study area must be quantified and evaluated, and avoidance, minimization, and mitigation measures must be provided as appropriate where the Project will result in significant impacts due to the conversion of natural habitat.

- With respect to special-status plants, mitigation is provided in the DEIR, but is inadequate. The DEIR provides one standard for mitigation for the loss of state and federally listed plants, a lower standard for mitigation for CRPR 1 and 2 plants, and even a lower standard for CRPR 3 and 4 plants. However, CEQA Section 15380(d) requires that all plants meeting the criteria for state listing must be treated as if they were listed. The tiered mitigation approach designed by the CEC does not meet CEQA's requirements.

- Page 8 of the *Protocols* states that if a sensitive natural community is found in a project area, the surveyors shall document it with a Combined Vegetation Rapid Assessment and Relevé Field Form and submit the form to VegCAMP. However, no field forms are included in the 2019 report and there is no evidence that the required forms were submitted to VegCAMP.

- Although BIO-12 calls for floristic pre-construction surveys for special-status plants, the COCs do not appear to require any additional work to accurately identify and mitigate adverse effects on sensitive natural vegetation communities.

- Under "Results" for Natural and Sensitive Vegetation Communities, the 2018 and 2019 Rare Plant Surveys and Natural Community Mapping reports prepared by WEST state that "riparian communities" cross the development corridors in many areas and that they are "largely" at existing road crossings or in areas where future roads may be constructed.

  Generally speaking, riparian habitats are widely recognized as having high ecological values and are generally considered to be sensitive habitats. The 2018 and 2019 WEST botanical reports provide no indication as to the types of riparian communities present in the study area – is this term restricted to the purported *Acer glabrum* Provisional Shrub Alliance, a sensitive natural community, or does it include the purported *Carex utriculata* Herbaceous Alliance, a non-sensitive community? The DEIR notes that all riparian communities are considered sensitive but no changes have been made to the technical studies.

- The acreages of each community type in the study area need to be identified, particularly for sensitive communities and riparian communities. Likewise, the potential effects to these

communities must be evaluated and avoidance, minimization, and mitigation measures need to be provided, as discussed on pages 10 and 11 of the *Protocols*. The short discussion in the 2019 Rare Plant Surveys and Natural Community Mapping report prepared by WEST concludes that "It is assumed that any future modifications to habitat along streams (e.g., riparian areas) due to added road work will incorporate riparian protections consistent with other ongoing management activities (i.e., timber harvest) in the region." The evaluations and conclusions in the WEST reports fall far short of the botanical survey report standards as well as CEQA standards. We are aware that a separate aquatic resources delineation report was prepared, which identifies and maps certain riparian corridors. However, not all riparian habitats qualify as wetlands, so the DEIR cannot necessarily rely on the wetland delineation as the basis for evaluating riparian habitat impacts.

SECTION 3. AVIAN SPECIES

In this section, we evaluate the extent to which our prior comments regarding the adequacy of the avian use and risk assessment studies were incorporated into the DEIR evaluation.

Table 5.2-1 of the DEIR (Page 5.2-6, Biological Resources) provides a summary of biological surveys conducted at the project site. Based on the table, no updated surveys have been completed to address ENPLAN's November 27, 2024, Peer Review of the Migratory Bird Studies (**Attachment 3**). Likewise, no updated reports are referenced in the DEIR.
Although the DEIR recognizes some of the errors and data gaps we previously reported, the CEC has not made a good-faith effort to rectify these deficiencies. Accordingly, the DEIR is based on inadequate and incomplete data.

The CEC's Evaluation of Impacts on Avian Species Fails to Comply With CEQA

ENPLAN reviewed the Staff Assessment and related documents for the Fountain Wind Energy Project and although the DEIR recognizes some of the errors and data gaps we previously identified, the CEC has not made a good-faith effort to rectify the previously identified deficiencies.

As described below, the CEC has failed to satisfy the requirements of CEQA (Public Resources Code §21000 *et seq.*) in its review of potential impacts on avian species because the DEIR is based on inadequate and incomplete data. We urge the CEC to address the inadequacies and recirculate the DEIR.

References for ENPLAN's Evaluation:

ENPLAN's November 27, 2024, Peer Review of the Migratory Bird Studies was based on review of the following primary documents:

Nocturnal Migrant Risk Summary, Fountain Wind Project, Shasta County, CA. Technical memorandum prepared by Quentin Hays, Andrea Chatfield, and Joel Thompson, WEST, Inc., October 10, 2018. TN #248308-6

Year 1 Avian Use Study Report and Risk Assessment for the Fountain Wind Project. Prepared by Joel Thompson, Andrea Chatfield, and Quentin Hays, Western EcoSystems Technology, Inc. (WEST), November 5, 2018. TN #248309-5

Results of the Year 2 Avian Use Study at the Fountain Wind Project – Addendum to the Year 1 Avian Use Study Report and Risk Assessment. Prepared by Joel Thompson and Andrea Chatfield, Western EcoSystems Technology, Inc. (WEST), September 5, 2019. TN #248309-1

The DEIR Does Not Adequately Identify Potential Risks to Avian Species

- Page 25 of the 2018 *Year 1 Avian Use Study Report and Risk Assessment* discusses avian mortality at wind energy facilities in California and the Pacific Northwest. Data is presented for 29 facilities; however, no details on whether these are monopole turbines, lattice turbines, or other design are provided. Further, no information on height, blade-sweep, or other critical factors that would allow a meaningful comparison is provided.

Dozens of additional studies of turbine-related bird mortality have been published since the 2010 Kerlinger *et al*. study (the baseline avian collision fatality data source utilized in the WEST report), and over 50 new studies were available at the time the WEST report was prepared in 2018. These newer studies need to be incorporated into the baseline data used for the current project evaluations. Use of current data is extremely important. Even WEST (page 2 of the 2018 *Nocturnal Migrant Risk Summary*) notes that "modern" wind energy facilities have different bird-fatality characteristics than older facilities.

No new data is incorporated into the DEIR evaluation of bird mortality, nor is it recognized that "modern" wind energy facilities have different bird fatality characteristics than older facilities.

- The 2018 Year 1 WEST study states that given the project's proximity to the Hatchet Ridge Wind Farm and similar habitats and mountainous terrain, it is anticipated that overall direct impacts to avian species would be similar to those documented at Hatchet Ridge.

  The DEIR uses Hatchet Ridge Wind Farm bird fatality data prepared by Tetra Tech in May 2014[2] as a proxy for what could be expected at Fountain Wind; however, the DEIR ignores the vast differences between the two facilities, such as tower height, rotor-sweep area, and tower configurations.

  Page 5.2.255 of the DEIR acknowledges that the estimates for the Hatchet Ridge project may not be applicable to the Fountain Wind project because of the vast differences between the two facilities. The DEIR simply makes the unsupported assumption that mortality per turbine at Fountain Wind may be near the high end of the range of mortality rates observed at Hatchet Ridge. Although substantial data is available regarding avian mortality at wind farms with turbines similar to those proposed at Fountain Wind, no attempt is made to improve the accuracy of the mortality estimates.

- Page 5.2-254 of the DEIR states that the estimated annual fatality rate for all birds at the Hatchet Ridge Wind Farm was 3.5 bird fatalities/turbine/year or 154 bird fatalities/project/year (5,390 bird fatalities over a 35-year timeframe). Page 5.2-254 of the DEIR states that if the same mortality rates were applied to the Fountain Wind project, the mortality rate for all birds would be an average of 168 birds lost per year for 48 turbines, or 5,880 birds over the 35-year life of the project. This includes a range of 94-274 birds lost per year or 3,290 birds to 9,576 birds over the 35-year timeframe. This information is based on Table 7 of the 2014 Tetra Tech Report.

  However, Appendix 4 of the same 2014 Tetra Tech report shows that the estimated fatality rate was 3.74 bird fatalities/turbine/year or 227 bird fatalities/project/year (7,945 bird fatalities over a 35-year timeframe). If the numbers from Appendix 4 of the 2014 Tetra Tech report were used, the estimate could be as high as 10,465 bird fatalities over a 35-year timeframe. Because the DEIR is based on conflicting information and unsupported assumptions, there is no basis to accept its conclusions.

- BIO-28 requires preparation of an Avian and Bat Mortality Monitoring Plan and states that if the first five years of monitoring indicate that baseline fatality rates are exceeded, monitoring will be extended. However, because the DEIR references conflicting data in the 2014 Tetra Tech report, and no attempt is made to improve the accuracy of the mortality estimates, the baseline fatality rates are unknown. A more robust characterization of baseline data on which the DEIR relies is clearly needed. To substantiate the results of a comparative analysis, supporting data must be provided.

- BIO-28 identifies bat and bird mortality thresholds; however, the DEIR does not discuss how these thresholds were developed. Supporting data must be provided.

[2] Hatchet Ridge Wind Farm Post-Construction Mortality Monitoring Comprehensive Three Year Report. Tetra Tech, 2014. https://files.ceqanet.opr.ca.gov/123569-2/attachment/H2-Eu6OSVrxS6vksGOsZyIFiQl9Jp01RDACs1SsPhfrh2EmYIvj_PSzbM4VaYfATZwV8JIxamHchM66j0

- Pages 5.2-261, 5.2-264, 5.2-269, 5.2-271, and 5.2-273 of the DEIR state that BIO-30 would provide a plan for seasonal curtailment to reduce collision risks to birds and bats; however, BIO-30 (Page 5.2-380 of the DEIR) addresses only bats. In addition, the threshold curtailment steps included in BIO-30 address only bats. The measure needs to be rewritten to include protections for avian species.

- BIO-30 (Page 5.2-380 of the DEIR) requires curtailment "unless the project owner can demonstrate the infeasibility of such a proposal to the satisfaction of the CPM." Such provisions render BIO-30 ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, to be infeasible.

- As noted on Page 1 of the 2018 Year 1 report, "The primary objectives of the study were to: 1) assess the relative abundance and spatial and temporal distribution of birds throughout the Project area and 2) evaluate the potential for adverse impacts to avian species, particularly eagles, other diurnal raptors, and species of regulatory or management concern."

  Overall, the 2019 two-year study resulted in collection of a substantial body of data that meets Objective 1. However, as further noted below, the assessment of potential impacts (Objective 2) is woefully lacking. The reports must be rewritten to provide a clear and quantified evaluation of potential impacts; likewise, recommended mitigation strategies to avoid, minimize, and offset impacts must be provided.

- Page 11 of the 2018 Year 1 report (risk assessment methods) states that "The intent of the risk assessment is not to predict the number of fatalities, but rather to provide a contextual risk assessment based on the pre-construction avian use data collected at the Project to date." The most meaningful result that this risk assessment could produce would be in terms of predicted bird fatalities. Instead, the authors choose to focus on a "contextual assessment" that results in a failure to fully disclose the actual impacts of the project.

  As noted above, anticipated bird mortality rates presented in the DEIR are completely unsupported and essentially meaningless. The findings presented in the DEIR are not based on the best scientific data available.

- Although the 2018 Year 1 report summarizes reams of data for the project site as well as for wind power projects throughout the United States, most of this data is dismissed, and the report focuses on the Hatchet Ridge project results.

  Although no data for other wind energy projects in forested habitats may have been available at the time WEST's initial report was prepared, we expect that facilities have now been constructed in forested habitats and that additional pre-construction and post-construction data is now available. The DEIR needs to include a current review of wind energy projects and data for comparable facilities in forested habitats must be added to this evaluation.

  As noted above, anticipated bird mortality rates presented in the DEIR are based solely on Hatchet Ridge data, even though this data is not representative of the Fountain Wind project given the significant differences in turbine design. The findings presented in the DEIR are not based on the best scientific data available.

- The Discussion and Risk Assessment (page 24 of the Year 1 report) identifies Point 30 as being in ideal habitat for soaring birds. This important finding must be brought forward to the Conclusions section and in the DEIR, and recommendations to minimize potential impacts of the proposed turbines in the immediate vicinity must be made. Recommendations could include moving or eliminating the turbines, or establishing specific management/turbine use practices to minimize impacts.

  Instead of taking proactive measures to reduce bird mortality such as avoiding placing turbines in ideal habitat for soaring birds, the DEIR calls for seasonal curtailment of certain turbines during

periods of greater bird use. The alternative of relocating turbines away from high bird-use areas is not addressed in the Biological Resources section of the DEIR.

- Although Pages 5.2-261, 5.2-264, 5.2-269, 5.2-271, and 5.2-273 of the DEIR state that BIO-30 would provide a plan for seasonal curtailment to reduce collision risks to birds and bats, BIO-30 (Page 5.2-380 of the DEIR) addresses only bats. In addition, the threshold curtailment steps included in BIO-30 address only bats. The measure needs to be rewritten to include protections for avian species.

- BIO-30 (Page 5.2-380 of the DEIR) requires curtailment "unless the project owner can demonstrate the infeasibility of such a proposal to the satisfaction of the CPM." Such provisions render BIO-30 ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, to be infeasible.

- Page 33 of the 2018 Year 1 report provides a two-paragraph discussion of potential indirect effects of the project on birds. Loss of habitat, habitat fragmentation and behavioral avoidance are briefly mentioned as potential effects. However, no site-specific information on potential effects is provided. Instead of providing a good-faith evaluation of potential effects, the report simply concludes (with no supporting data) that the effects of the project will be similar to existing timber harvest operations.

    - The evaluation needs to be revised to quantify potential impacts to the greatest extent feasible. At a bare minimum, the acreage of habitat loss needs to be provided.

    - The evaluation needs to identify similarities and differences between permanent impacts of wind power development vs. the (more or less) temporary impacts of timber operations.

    - The report needs to provide an evaluation of anticipated habitat fragmentation and behavioral avoidance impacts to address potential effects on bird populations.

    - The potential loss of prey species due to habitat modification needs to be addressed as a potential indirect impact.

    - The effects of night-lighting on bird nesting and other bird behaviors need to be addressed as a potential indirect impact.

    - The report needs to provide a robust analysis of cumulative impacts, including the effects of nearby wind power projects as well as timber harvest operations.

  Although the DEIR provides at least some evaluation of the above topics, additional clarification is needed.

SECTION 4. Comments on Proposed Conditions of Certification (COCs)

This section focuses on the proposed COCs included in the Biological Resources section of the DEIR.

- BIO-2: This measure calls for the Designated Biologist to notify the Compliance Project Manager (CPM) if any unanticipated sensitive biological resources are encountered, including common species whose range is unexpected in the project area. However, there is no discussion of actions to be taken in the event that such species are found. A mitigation measure that does not clearly define future required actions, or describe future required actions in sufficient detail to show they are likely to be feasible and effective is inadequate.

- BIO-6 is unclear in that it calls for the project owner to provide CDFW and USFWS with a copy of all portions of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) relating to "any state and federal or state-listed species" for review and comment. Not only is the

language garbled to the extent that its meaning is indecipherable, but the whole of the BRMIMP must be provided to the agencies per the Verification section of the measure. The efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-7 is inadequate in that Condition 20 uses inappropriate and unenforceable modifiers such as "to the extent feasible," "preferably," and "preferred." The BIO-7 Verification section also contains a circular reference requiring "a written Construction Completion Report identifying how measures have been completed (see Condition of Certification BIO-7 verification)." Such provisions render Condition 20 ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, to be infeasible.

- The DEIR contains several mitigation measures that address loss of habitat. These include FOREST-1, FOREST-2, BIO-8, and BIO-31. FOREST-1 calls for establishment of a conservation easement or purchase of fee title for forest lands at a 1:1 ratio for those that are permanently lost due to project construction and operation. FOREST-2 calls for restoration of lands that are temporarily disturbed during construction. BIO-8 designates practices for management of fuel breaks and fuel management areas within the project site. BIO-31 provides for acquisition in fee or easement of riparian lands at a 3:1 ratio to replace those permanently lost due to project construction.

  These measures do not provide adequate mitigation. Even with these measures, the project will result in the permanent loss of 510 acres of forest land. Conservation of existing timberlands at a 1:1 ratio only minimally offsets the loss of timberland. If acquisition of easements or fee title is to be used for mitigation, we recommend a much higher ratio than 1:1 (e.g., 3:1) and that restoration activities be included to help offset the loss of habitat.

  Further, no mitigation is provided for the significant temporal loss of 548 acres of forest habitat. It may take decades for reforestation efforts to replace the values that are being lost due to project implementation. This temporal loss of habitat must be offset or be disclosed in the DEIR as significant and unavoidable. In addition, available mitigation to help reduce the impact of temporal loss of habitat must be provided. This could consist of conserving additional timber lands in perpetuity through a conservation easement of purchase of fee title.

  As discussed in the DEIR, the project will result in the permanent loss of riparian habitats and wet meadows. Both the state and federal governments have a no-net-loss policy for wetlands. Protection of existing riparian habitats through purchase of fee title or a conservation easement does not satisfy the no-net-loss requirements. Section 230.93 (General Compensatory Mitigation Requirements) of the State's Supplemental Dredge or Fill Guidelines[3] states that the permitting authority must require a mitigation ratio greater than 1:1 where necessary to account for the method of compensatory mitigation (e.g., preservation), the differences between the functions lost at the impact site and the functions expected to be produced/protected by the compensatory mitigation, the distance between the affected aquatic resource and the compensation site and/or other pertinent factors. The project must include additional mitigation calling for creation of riparian habitat and wet meadows at an appropriate ratio (e.g., 3:1) to offset the temporal loss and permanent loss of these sensitive habitats.

- BIO-8.A states that permanent impacts to sensitive or rare communities and riparian areas shall be off-set through compensatory mitigation (see FOREST-1 and FOREST-2 and BIO-31). As discussed above, the referenced measures do not provide sufficient mitigation. Even with these measures, there would still be a net loss of sensitive or rare communities and a net loss of riparian areas.

[3] State Water Resources Control Board, 2021. State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf.

- BIO-8.B erroneously states that FOREST-2 provides off-site mitigation; the measure should be corrected.

- For on-site restoration areas, BIO-8.C.5.a calls for riparian areas to be "on a trend" to meet baseline conditions five years after replanting. This is a meaningless criterion; specific success criteria must be established, or the mitigation measure is ineffective and cannot be a basis for a significance determination in the DEIR

- BIO-8.C.5.a states that after five years no more than 10 percent exotic species shall be present. This criterion is insufficiently defined. Does it relate to species richness or total cover by exotic species? The condition goes on to state that "Plants with a moderate of [sic] high threat rate shall not exceed 5 percent." The threat rate should also be clarified in the COC; presumably it refers to the Cal-IPC ratings. A mitigation measure that does not clearly define future required actions, or describe future required actions in sufficient detail to show they are likely to be feasible and effective is inadequate. Further the efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-8.C.5.b and .c also state that no more than 10 percent exotic species shall be present, but no time frame is prescribed. These mitigation clauses appear to be incomplete. They also fail to define the meaning of "10 percent exotic species." The latter concludes that "Plants with a moderate of [sic] high threat rate shall not exceed 5 percent;" the typographical error must be corrected. A mitigation measure that does not clearly define future required actions, or describe future required actions in sufficient detail to show they are likely to be feasible and effective is inadequate. Further the efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-8.C.7 states that after five years following restoration vegetation conditions "should approach" conditions in similar undisturbed habitats. A numerical success criterion must be used in place of the current ambiguous language. A mitigation measure that does not clearly define future required actions, or describe future required actions in sufficient detail to show they are likely to be feasible and effective is inadequate. Further the efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-8.C.8 calls for all work areas to be clearly delineated prior to restoration work. The measure is garbled with typographical errors and data errors (e.g., work areas have nothing to do with time of year seeds will be planted). This clause also discusses planting of oak species, which is not addressed elsewhere in the DEIR. A thorough revision of the mitigation clause is needed to make it meaningful and enforceable. The efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-8.C.9 requires use of locally collected seed and cuttings for restoration. This is contradicted by BIO-8.C.4.a, which allows use of non-local sources if approved by the CPM. The contradiction must be resolved or the DEIR cannot rely on these mitigation measures to supports its significance determinations

- BIO-8.C.10 requires that the seed mix include "native coastal scrub species native to the site and collected from the project region…." and requires that the seed mix for "coastal scrub areas" be developed in consultation with the CPM. Coastal scrub habitats occur along the California coast, usually within about 20 miles of the ocean[4]. The project site is not located in a coastal area, and there are no coastal scrub habitats in the project vicinity; this measure must be revised to be applicable to the proposed project or the DEIR cannot rely on these mitigation measures to supports its significance determinations .

[4] CDFW. Habitat Description – Coastal Scrub. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67374

- BIO-8.C.11 states that "An effort shall be made…" to cut weeds before they develop seeds. This ambiguous language must be replaced with enforceable language. The efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-9 defines "weeds" to include non-native plants identified on the weed lists of the California Department of Food and Agriculture or the California Invasive Plant Council [emphasis added]. The "or" must be changed to "and." Additionally, clarification is needed as to which weed lists are incorporated as part of this measure. Cal-IPC has numerous lists, including High, Moderate, Limited, Watch List, Pending Assessment, Assessed but not on Inventory; are all plants on all of these lists included in BIO-9. Similarly, the CDFA has established multiple lists, including A, B, C, D, Q, Section 4500, etc., as well as invasive seed ratings. Which of these lists are intended to be incorporated into BIO-9? The measure must be clarified so that it is clear and enforceable. The efficacy of a mitigation measure that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-9.8 calls for weed surveys to be conducted twice per year throughout the life of the project and for the weed map to be updated once per year and be made available to the CPM. BIO-9.2 requires that the CPM be notified within 30 days if any weed species not previously detected in Shasta County are observed during the preconstruction surveys. This notification requirement must be extended to include the construction and post-construction weed inventories as well.

- BIO-9.9.e calls for targeted application of herbicides "whenever possible." Specific conditions defining when broadcast application may be used instead of targeted application must be provided in the COC. Such provisions render this COC ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, not to be "possible."

- BIO-9.9.g states that pesticides "should" be used as directed by the manufacturer. This must be changed to "shall" as "should" is conditional and thus not enforceable.

- BIO-9.11 states that weed "seed heads and plants must be disposed of in accordance with guidelines from the Shasta County Agricultural Commissioner, if such guidelines are available." These guidelines, if available, must be identified in the DEIR. Further, the measure must be revised to address the disposition of weed materials if such guidelines are not available from the Shasta County Agricultural Commissioner. Otherwise, the efficacy of a mitigation measure such as this that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-11.4 calls for a biological monitor to conduct sweeps each day prior to work activities for sensitive plant resources. However, most sensitive plant resources are identifiable only during a short seasonal window. As such, surveys for these plants must be conducted during the appropriate seasonal period. A requirement for daily sweeps for sensitive plant resources will result in collection of meaningless data, or worse, may allow eradication of sensitive plant resources that are not identifiable at the time work is initiated in a particular area. The measure as currently written is ineffective and cannot be relied upon to reach a significance conclusion.

- The second paragraph of BIO-12 defines sensitive plant species as including all plants designated as CRPR 1A, 1B, 2, 3, and 4. It should be noted that the botanical studies on which the DEIR is based were "targeted" as opposed to "floristic" and did not include all CRPR 3 and 4 species. Although CRPR 3 and/or 4 species were encountered in the field, the botanists and DEIR preparers were apparently unaware of the status of these species. The populations were not identified or mapped, and potential impacts were not assessed. This underscores the fact that the botanical studies completed for the project were inadequate to support the disclosure requirement and conclusions of the DEIR.

- BIO-12.1 calls for preconstruction botanical surveys to be completed in accordance with current CDFW botanical survey protocols.

  This is not an appropriate approach to special-status plant protection and does not meet the public disclosure requirements of CEQA. Instead, adequate botanical studies meeting CDFW survey protocols should have been completed prior to preparation of the DEIR, and the locations of all sensitive plant populations should have been identified and mapped. If needed, the proposed disturbance areas could have been adjusted to avoid the plant populations. Because the botanical studies completed for the project did not meet CDFW protocols, project construction may result in the unnecessary loss of special-status plant populations that could have been avoided with completion of adequate studies prior to construction.

- BIO-12.1 states that "where feasible" special-status plants shall be protected by a 50-foot non-disturbance buffer, and that "if possible" other measures shall be put in place to avoid take of special-status plant species. What constitutes "feasible" and "possible" and who makes the decisions regarding feasibility and possibility are not defined. Such provisions render this measure ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, not to be "feasible" or "possible.

- BIO-12.2 defines a special-status plant population as consisting of habitat occupied by the special-status plant occurrence plus a surrounding 100-foot buffer to account for the seed bank (where seeds may be present in the soil but will not germinate until appropriate environmental conditions occur). Nonetheless, BIO-12.1 calls for only a 50-foot buffer around the occurrence (i.e., the above-ground seedlings, saplings, etc.). By definition, BIO-12.1 allows for an impact on seed bank portion of the special-status plant populations; the minimum buffer area described in BIO-12.1 must be increased to a minimum of 100 feet to avoid direct impacts to the seed bank and would need to be increased to 150 feet to avoid indirect or unanticipated impacts to the seed bank.

- BIO-12.2 presents an impermissible tiered mitigation approach, where mitigation for state and federally listed plants is more stringent than for CRPR 1 and 2 plant species. CRPR 3 and 4 species receive even less protection. This approach does not meet the standards of the State CEQA Guidelines, Section 15380(d), which states: *A species not included in any listing identified in subdivision (c) shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria in subdivision (b)*. CRPR 1 and 2 species are assumed to meet the criteria for listing, and some CRPR 3 and 4 species may meet the listing criteria. Therefore, the qualifying species must be treated as if they were listed. BIO-12.2 must be revised to treat CRPR 1, and 2 plants, and possibly CRPR 3 and 4 plants as if they are state or federally listed.

- BIO-12.3 allows the compensation lands to consist of habitat that is not occupied by the special-status plant being affected by project implementation. The rationale is that this acquisition may benefit nearby populations of the special-status species. While we agree that this approach has some benefits, it falls far short of mitigating for the permanent loss of a special-status plant population.

- BIO-12.8 and 12.9 imply that special-status plants in the construction footprint will be salvaged and replanted; if salvage is not possible, then special-status plants will be introduced through seeding or by propagating plants offsite for outplanting in an unidentified mitigation area. The mechanics of this effort are undefined and therefore unenforceable and ineffective for purposes of supporting a significance conclusion in the EIR.

- Further, FOREST-1 requires that a fee be paid to a land trust to compensate for the permanent loss of 510 acres of forest land. However, the project proponent may not have the ability or legal authority to plant salvaged individuals in these compensation lands. No timeline is provided as to when compensation land for special-status plants will be identified or secured; therefore, there is

no guarantee that the applicant will be able to plant salvaged plants on these lands. The measure must be substantially revised or it is unenforceable and ineffective for purposes of supporting a significance conclusion in the EIR.

- BIO-12, including the Verification paragraph, fails to provide a timeframe for acquisition of compensation lands intended to offset the loss of special-status plant populations. The efficacy of a mitigation measure such as this that is vague or incomplete is speculative and cannot be relied upon to reach a significance conclusion.

- BIO-13 calls for bumble bee surveys to be conducted "prior to site mobilization and during all ground disturbing activities if project activities are scheduled to begin or are ongoing during the colony active period (April 1 through August 31)". The surveys must be conducted in accordance with the most recent CDFW-approved methods; to establish presence/absence of the bees, current requirements call for completion of three surveys spaced no less than two weeks apart.

  The measure provides no framework for how surveys are to be completed "during ground disturbing activities." The surveys would not meet CDFW protocols if they are conducted while ground-disturbing activities are on-going. Further, BIO-13.4 calls for bumble bee survey results "to be submitted to the CPM and CDFW prior to the initiation of ground-disturbing activities;" this conflicts with the statement that surveys shall be conducted during ground-disturbing activities.

- BIO-13.4 calls for relocating bumble bee nests if the "nests cannot be avoided." Both Crotch's and western bumble bees are State Candidates for listing as Endangered. Candidate species are afforded the same protections as listed species. Therefore, an Incidental Take Permit is required if nests are to be relocated. Incidental Take Permits typically take months to obtain. BIO-13 must be revised to address the implications of obtaining an Incidental Take Permit for the bumble bees. The statement in BIO-13.4 that two nests can be lost without triggering the need for mitigation is incorrect and does not comply with California Endangered Species Act (CESA) requirements.

- BIO-14 is labeled as an Insect Mortality and Monitoring Plan; however, BIO-14.1 and 14.3 address special-status invertebrates. BIO-14 must be revised to provide clarity regarding its objectives.

- BIO-14.1 calls for sampling during periods of "peak insect migration." This term is undefined. Does it refer to the peak migration period for all insects regardless of species or to the peak migration period of certain special-status insects? Many insects do not migrate; how will they be addressed? The efficacy of a vague mitigation measure such as this cannot be relied upon by the DEIR to reach a significance conclusion.

- BIO-15 calls for "protection [of] all species of milkweed plants located in vegetation management zones and other disturbance areas to the maximum extent feasible." The focus on milkweed species is repeated later in the measure as well. As written, the measure would allow the proponents to protect just one individual of each species of milkweed present on the site. Patently this would not mitigate the significant impact. The mitigation measure must be revised to protect all individuals of milkweed present. Additionally, "maximum extent feasible" is an undefined term and must be removed from the measure. Such provisions render this measure ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, not to be "feasible."

- BIO-15 also states that "during vegetation management activities prior to any herbicide use, [the] Designated Biologist and/or Biological Monitor(s) shall survey the work area for milkweed plants." The effectiveness of this requirement is questionable; milkweeds are perennial herbs and are identifiable only at certain times of year. Any surveys must be conducted during the blooming period for the species.

- BIO-15 implies that broadcast spraying of herbicides will be allowed up to 25 feet from milkweed plants. No evidence is presented to demonstrate that a 25-foot buffer is adequate. Given the potential for herbicide drift and for elimination of nearby nectar plants, this buffer is likely too small to protect milkweeds and the monarch butterfly (Federally Proposed – Threatened).

- Milkweeds are known to occur in the project site, but the location and extent of the populations was not recorded during the biological surveys. Accordingly, the potential for adverse effects (direct, indirect, and cumulative) on the monarch butterfly are high. BIO-15 also allows for the removal of milkweeds (potentially including plants hosting monarch larvae). As such, this mitigation measure is ineffective at reducing this significant impact.

- The introductory paragraph for BIO-16 states that surveys for special-status invertebrates will be conducted "during the appropriate season." BIO-16.1 states that three preconstruction surveys for gastropods shall be completed within 15 days prior to the start of project activities. These two survey requirements may be incompatible depending on when project activities are scheduled to begin.

- BIO-16.2 requires that surveys for special-status aquatic invertebrates be conducted 72 hours prior to start of project activities. This conflicts with the statements in the introductory paragraph.

- The objective of BIO-17.1 is unclear. Are surveys to be conducted prior to the start of any project activities and prior to the start of each in-water construction activity? The measure must be revised to provide clarity. If a sensitive fish is observed, the follow-up activities in BIO-17.1 ("the Designated Biologist and/or Biological Monitor(s) shall remain onsite throughout the duration of activities…") appear to apply only to the surveys conducted immediately prior to in-water work. What actions will be taken if special-status fish are observed during the prior surveys? The mitigation measure is silent. Specific actions need to be required in BIO-17 or else it is ineffective. Overall, the efficacy of mitigation measures that are vague cannot be relied upon by the DEIR to reach a significance conclusion

- BIO-17.3 states "No work shall occur in ponded or flowing water. All flow shall be diverted around the work site to ensure vehicles and equipment work in dry conditions." This conflicts with BIO-31.8.h, which allows vehicles to be operated in flowing water. Revision of one or both measures is needed or else the measures may be rendered ineffective due to this conflict.

- BIO-17.8 allows for the take of up to three sensitive fish during relocation. However, the measure does not specify what level of take this applies to; is the take allowed on a daily basis, on an individual work site basis, on an annual basis, or does the provision apply to the entirety of the project construction period? Clarification of the measure is needed. The efficacy of a mitigation measure such as this that is vague cannot be relied upon by the DEIR to reach a significance conclusion.

- BIO-18 shares many of the same flaws as BIO-16. The introductory paragraph for BIO-18 states that surveys for special-status amphibians will be conducted "during the appropriate season." BIO-18.1 states that preconstruction surveys shall be completed within 72 hours prior to the start of project activities. These two survey requirements may be incompatible depending on when project activities are scheduled to begin.

- BIO-18 authorizes the Designated Biologist and Biological Monitor to relocate Cascades frogs that may be present in the work area. This frog is a State Candidate for listing as Endangered. As noted above, State Candidate species must be treated as if they were listed. Therefore, an Incidental Take Permit is required if Cascades frogs are to be relocated. Incidental Take Permits typically take months to obtain. BIO-18 must be revised to address the implications of obtaining an Incidental Take Permit for the Cascades frog. The statement in BIO-18 that authorizes relocation of Cascades frogs does not comply with CESA requirements.

- BIO-18 applies to special-status frogs and salamanders. However, the handling methods presented in the measure focus on frogs and may be detrimental to salamanders. Separate handling measures must be prescribed for these taxa; salamanders should normally be transported in a cool, moist environment, not in aerated water. Absent revision, the mitigation measure cannot be relied upon by the DEIR to support a significance conclusion.

- BIO-18.8 calls for preconstruction surveys for amphibians and subsequent relocation to be conducted several days in advance of project activities, "if feasible." Such provisions render this measure ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, not to be "feasible."

- BIO-18.10 and BIO-19.6 state that if any "native aquatic species" are found dead or injured, certain steps must be taken. This is excessively vague and could refer to species whose death is not associated with the project (e.g., dead mosquito larvae observed in a stream backwater during a fish survey). The efficacy of a mitigation measure such as this that is vague cannot be relied upon by the DEIR to reach a significance conclusion.

- BIO-19 shares many of the same flaws as BIO-16 and 18. The appropriate survey period is identified as being in the spring and summer months, yet the measure requires preconstruction surveys one week prior to any ground disturbance and within 24 hours of beginning work in suitable aquatic habitat. These survey requirements may be incompatible depending on when project activities are scheduled to begin.

- BIO-19.1 requires surveys of both upland habitats and aquatic habitats for turtles. Specific procedures are identified for the aquatic surveys, but no guidance is provided for the upland habitat surveys to ensure the identification of turtles or nest sites. A mitigation measure that does not clearly define future required actions or describe future required actions in sufficient detail to show they are likely to be feasible and effective is inadequate.

- BIO-19.5 authorizes the death of one turtle during relocation. The northwestern (western) pond turtle is proposed for federal listing as Threatened. Provisions must be incorporated into BIO-19 to address measures to be taken if the turtle is formally listed before or during project construction.

- BIO-20.2 calls for a 250-foot buffer to be established around all natal dens of special-status mammals that are detected. This is entirely too small of a buffer for species such as wolverine that are extremely sensitive to human activity. Revision of the measure is needed to identify appropriate buffers for each special-status mammal species that may be encountered. The need for larger buffers is reinforced by BIO-20.4, which calls for monitoring 300 feet outside the 250-foot buffer – potentially extending the buffer to 550 feet.

- BIO-22.1 calls for surveys to detect colonial roost sites for bats. Many bats, including some special-status bats, roost individually. Identification of potential roost sites for these bats must also be addressed in order for this mitigation measure to be effective at addressing potentially significant impacts.

- BIO-22.1 has grammatical errors and must be rewritten ("In addition, surveys shall be conducted no more than Surveys shall be conducted no more than 7 days prior …").

- BIO-22.1.a states "emergence surveys or evaluate the….; "or" must be changed to "to".

- BIO-22.3 requires consultation "in coordination with the and CDFW…" Is there a second entity that must be consulted in addition to CDFW?

- BIO-22.4 calls for the removal of potential roost sites outside the bat maternity season. Such removal should also occur outside the bat hibernation season if bats occurring in the area may overwinter locally.

- BIO-22.7 must be revised to state that "If bats *or evidence of bat usage* are found, the biologist will determine if it is a day or night roost, hibernacula, or maternity colony." Absent this revision the measure will be infective at addressing the significant impact.

- BIO-22.9, 22.10, and 22.11 state that the designated biologist may handle bats; only a qualified bat biologist approved by CDFW should have this authorization. The measure must be revised.

- BIO-23 contains contradictory requirements. It states that buffers for active nests of special-status raptors shall extend 500 feet. The measure also states that the buffers for burrowing owl nests shall be 165 to 330 feet (50 to 100 meters) – ignoring the fact that burrowing owls are a special-status raptor. Recommended buffers for burrowing owl nests are identified in the CDFW Staff Report on Burrowing Owl Mitigation dated March 7, 2012[5]. Buffers should be determined based on the time of year and the level of disturbance. For example, the recommended buffer for projects with a high level of disturbance could be as much as 1,640 feet (500 meters)

- BIO-23.2 appears to contradict BIO-23.3. The former states that nesting bird surveys need to be repeated throughout the nesting season. The latter states that follow-up nesting bird surveys are needed if construction is inactive for a period of three weeks or more during the nesting season. In addition to addressing the contradiction between the measures, BIO-23.2 must be amended to state the survey interval for surveys conducted throughout the nesting season.

- The second paragraph of BIO-23 states that avoidance buffers for active nests shall be 150 feet for common bird species and 500 feet for most raptors and special-status species. This contradicts with BIO-23.4, which states that specific buffer distances will be "described and approved" by the CPM. Despite either of these two statements, BIO-23.4 goes on to state that actual buffers will be identified in a Nesting Bird Management Plan to be prepared at a later date. Given the various conflicts, the reader has no idea as to what buffers will actually be implemented and has no opportunity to comment on the appropriateness of the buffer to be determined at a later date. Absent substantial revision, the mitigation measure cannot be relied upon by the DEIR to support a significance conclusion.

- BIO-23.6 requires that the Nesting Bird Management Plan include a preconstruction survey protocol "(surveys no longer than 3 days prior to starting work activity at any site)." This appears to conflict with the two-survey procedure described in BIO-23.2. Grammar should also be corrected; we anticipate that the surveys should be conducted no more than three days prior to start of work, not for no longer than three days.

- BIO-23.7 makes reference to SCE: this is presumably a cut-and-paste error that needs to be corrected.

- BIO-23.8 refers to "State of Federal Special Stats Species." Two typos need to be corrected.

- In BIO-23.10, reference is made to injured bats. Given that the measure is intended to address nesting birds, corrections are necessary.

- BIO-25 appears to be poorly designed and needlessly complex; revisions are warranted to provide more clarity. BIO-25.1 requires surveys for bald eagle nests within three miles of the project construction boundary. BIO-25.4 requires a one-mile line-of-sight disturbance buffer. BIO-25.5 requires the one-mile line-of-sight disturbance buffer only if the nest is within two miles of project construction activities. If the maximum mitigation is to provide a one-mile line-of-site buffer, there is no need to survey three miles beyond the project boundary. More importantly, the measure does not define what constitutes a one-mile line-of-sight disturbance buffer. Presumably, no work could be undertaken if the nest is visible up to one mile from the work area. What conditions apply if the nest is not visible a half-mile (or less) from the nest area? This is not

[5] CDFW, 2012. Staff Report on Burrowing Owl Mitigation.
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline=true

specified in the measure. The efficacy of a mitigation measure such as this that is vague and potentially incomplete cannot be relied upon by the DEIR to reach a significance conclusion

- BIO-27.1 states that "If evidence of Northern Goshawk breeding or courtship behavior is observed conduct Intensive Search Surveys should be used during the nestling and/or fledgling stages." This garbled measure must be rewritten to provide clarity. The efficacy of a mitigation measure such as this that is vague and potentially incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

- BIO-28.2 state that the design of the study "should" follow recommendations of the CEC guidelines or improved methodologies. This ambiguous wording must be replaced. The efficacy of a mitigation measure such as this that is vague and potentially incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

- The introduction to BIO-31 states that it includes "measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the State…" Based on the DEIR's analysis, we anticipate that the Project will result in indirect impacts such as increased inflow of sediments into jurisdictional waters following wildfires. There are no provisions in the 14-page BIO-31 mitigation measure that offset indirect impacts of the proposed project on jurisdictional waters and, as such, the DEIR violates CEQA as these significant indirect impacts have not been feasibly mitigated to a less-than-significant level or otherwise.

- BIO-31.2 states that WATER-5 requires the applicant to obtain a USACE Section 404 permit. This is incorrect; WATER-5 only requires that the aquatic resources delineation be verified by the USACE.

- BIO-31.2 requires that "Copies … must be presented to any CEC or CDFW upon demand." The wording needs to be revised to improve clarity.

- BIO-31.4 states that "Before the start of daily project activities, the designated biologist <u>should</u> survey the project area…" This must be revised as a "<u>shall</u>" statement.

- BIO-31.5 refers to dust abatement activities within rivers, lakes, and streams. It is unclear as to what these dust abatement activities would entail. The efficacy of a mitigation measure such as this that is vague and potential incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

- BIO-31.8.g calls for limiting activities in the riparian zone if certain weather conditions are forecasted. This measure is too narrow and must be extended to limit work within jurisdictional waters as well as within suitable buffer zones.

- BIO-31.8 outlines practices to protect drainages near the project disturbance area. The measure fails to specify that permits from multiple agencies may be required before the described practices are implemented. The measure must be re-written to recognize regulatory agency requirements.

- BIO-31.8.k authorizes seeding of disturbed soils with "sterile native species." The use of sterile native species seems contradictory to the overall goals of the restoration. Additional information must be provided to justify this measure, or the measure must be revised.

- BIO-31.8.q calls for drip pans to be placed under any stationary equipment located in or adjacent to lakes or streams. An effective and feasible mitigation measure would be to prohibit use of stationary equipment within lakes and streams. Additionally, designation of a specific setback distance between the stationary equipment and water body would also be appropriate.

- BIO-31.8.s calls for storage and staging areas to be located outside of stream channels and banks. This measure needs to be extended to keep storage and staging areas outside of

wetlands, ditches, and other water bodies as well. Additionally, maintenance of a setback between the staging/storage areas and the water bodies should be incorporated into the measure.

- BIO-31.9.e allows for wet concrete to enter streams and lakes under certain conditions. In keeping with CDFW standards, the measure should be revised to prohibit wet concrete from being in contact with and significantly impacting water bodies.

- BIO-31.11.c states that "Wherever possible, hand tools shall be used … to remove vegetation located near mature native trees…" The measure must be revised to replace the ambiguous language ("whenever possible" and "near") with well-defined and enforceable criteria. Such provisions render this measure ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, may not be "possible" or may be determined not to be "near."

- BIO-31.11.c states that "No equipment shall be used in areas with slopes greater that 2:1 unless authorized to construct a particular crossing." Additional information is needed to define "equipment" (does this refer to motorized equipment or hand tools?) and to specify who authorizes such use of equipment and under what conditions the authorization may be granted. The efficacy of a mitigation measure such as this that is vague and potential incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

- BIO-31.11.h states that plants may not be removed from Sudden Oak Death quarantine counties. Shasta County is not a quarantine county; this measure does not appear to be relevant to the proposed project.

- BIO-31.12.a states that "Integrated pest management solutions that emphasize non-chemical pest management shall be used over chemical pesticides to the extent feasible." The ambiguous language must be replaced with well-defined and enforceable criteria. Such provisions render this measure ineffective as there is no requirement to actually implement the mitigation measure if the measure is determined, by some unknown and unenforceable standard, not to be "feasible."

  BIO-31.14 is titled "Mitigation for Permanent and Temporary Impacts to Riparian Vegetation." Other than an unintelligible mention of FOREST-2 (suggesting that it includes acquisition of off-site compensation lands), no provisions for mitigating temporary impacts to riparian vegetation are provided. The efficacy of a mitigation measure such as this that is vague and potentially incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

- The focus of BIO-31.14 is very unclear. The title refers to "riparian vegetation" while the first paragraph refers to "riparian or sensitive vegetation or habitat," which would presumably include wet meadows and habitats for special-status species. The measure must be re-written for clarity. The efficacy of a mitigation measure such as this that is vague and potential incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

- FOREST-1 requires fee payment to a land trust for the permanent conversion of 510 acres of timberland. BIO-31 and other BIO measures allow for direct purchase of land and transfer of title to another party (e.g., BIO-31.14.b.ii requires that "The project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the CPM.). Although the methods of acquisition described in FOREST-1 and BIO-31 are mutually exclusive, the BIO measures repeatedly suggest that purchase and transfer of fee title will satisfy both the FOREST and BIO measures. The measures must be rewritten to avoid incompatibilities and misleading references.

- FOREST-1 requires that the mitigation fee to offset the loss of timberlands must be paid at least 120 days prior to the start of construction. BIO-14.a.iv implies that the compensation lands offsetting the loss of "riparian or sensitive vegetation or habitat" may be acquired more than 18 months after the start of construction. The apparent conflict between these two measures must

be resolved. We see no basis to authorize compensation for sensitive habitats to occur 22 months after the timberland compensation is required. Purchase of all compensation lands/easements should be completed prior to project construction.

- BIO-14.a.i states "The parcel or parcels comprising the [compensation] acreages shall include the same types of vegetation disturbed by the project. This compensation acreage may be included ("nested") within acreage acquired and managed Forest Habitat required under (Condition of Certification Forest 1 and Forest 2) only if…" certain conditions are met. The second sentence of this condition is unintelligible and must be rewritten. The efficacy of a mitigation measure such as this that is vague and potential incomplete cannot be relied upon by the DEIR to reach a significance conclusion.

Conclusion

Pursuant to Section 15151 of the CEQA Guidelines, an EIR should be prepared with sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes account of environmental consequences. An evaluation of environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Environmental analysis and determinations under CEQA must be based on substantial evidence. Section 15384 of the CEQA Guidelines defines substantial evidence as:

a. *Enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence.*

b. *Substantial evidence shall include facts, reasonable assumptions predicated on facts, and expert opinion supported by facts.*

As documented above, the evaluation of potential impacts on biological resources is based on inadequate, inaccurate, and/or contradictory information, some of which is acknowledged in CEC's March 25, 2025, Staff Assessment for the project (TN #262350). The technical studies need to be updated as documented above before approving the project to allow the reviewing public to determine the true extent of impacts on biological resources, and feasible mitigation measures (COCs) must be implemented to minimize potential effects of the project.

Pursuant to Section 15088.5 of the CEQA Guidelines, a lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review but before certification. The required revisions noted above would be considered substantial new information that necessitates recirculation of the DEIR.

Please contact me if you have any questions regarding our assessment.

Sincerely,

Donald Burk
Environmental Services Manager

Enclosures: Resume – Donald Burk

Attachment 1: *ENPLAN's Peer Review of the Aquatic Resources Survey Report and Associated Documentation, November 4, 2024*

Attachment 2: *ENPLAN's Peer Review of the Rare Plant Surveys and Natural Vegetation Community Mapping, November 1, 2024*

Attachment 3: *ENPLAN's Peer Review of the Migratory Bird Studies, November 27, 2024*

c: Sarah Owsowitz, Best Best & Krieger LLP
Ryan Baron, Best Best & Krieger LLP

DONALD M. BURK

Environmental Services Manager

Education

M.S. Botany
California State University, Chico

B.A. Chemistry and Biological Sciences
California State University, Chico

Professional Affiliations and Certifications

Society of Wetland Scientists
California Botanical Society
California Native Plant Society
Association of Environmental Professionals

Donald Burk has an in-depth background in a broad spectrum of environmental studies. His academic background includes graduate studies in environmental analysis methodology, biological sciences, and community planning. He has continued his professional development through completion of specialized courses in wetland delineation; wetland impacts and mitigations; vernal pool restoration and creation; noise assessments; Surface Mining and Reclamation Act regulations; erosion control practices; and hazardous materials evaluation and remediation. As environmental services manager with ENPLAN, Mr. Burk is instrumental in the preparation of environmental documents such as site assessment reports, environmental impact reports, biological studies, and noise evaluations. His responsibilities include project team management, key decision-making, coordination with applicable agencies, and final review of environmental documents. Having worked in the environmental consulting field since 1981, Mr. Burk has the skills and experience to manage studies to achieve reliable data and concise, effective documentation.

While attending CSU, Chico, Mr. Burk was recognized as “Outstanding Organic Chemist of the Year,” received an award of merit from the American Botanical Society, and delivered the valedictory address for the School of Natural Sciences. His Master’s thesis was granted the first annual “Outstanding Thesis Award” by CSU, Chico.

Representative Experience

- *CEQA/NEPA Compliance.* Prepared environmental impact reports, environmental impact statements, and other environmental compliance documentation for a multitude of projects, including 516- and 1,244-acre industrial parks; public facilities projects including several sewage treatment plants, a 90-foot-high earthen dam and 15-acre reservoir, a 6-mile-long, 8-lane roadway, other new road corridors, and water supply projects; shopping centers and highway commercial developments; a 10,000-seat church; a 475-acre recreation ranch; ski areas; a softball park; four new schools; a 1-million cubic yard reservoir dredging project; numerous residential developments and many other projects.
- *Environmental Site Assessments.* Managed preparation of Phase I, II and III site investigations for a number of commercial and industrial facilities. Investigations have addressed wood-products manufacturing facilities, a major clothing manufacturing operation, dry cleaners, a medical clinic, ranches, a regional transmission transformer site, automotive shops and service stations, abandoned sewage treatment ponds, office buildings, shopping centers, and other uses.
- *Biological Studies.* Managed preparation of technical field studies, including wildlife and botanical studies for a 1,016-acre site in Sacramento County; fisheries, aquatic macroinvertebrate, and riparian vegetation studies for a 38-mile reach of the North Fork Feather River; botanical surveys for 175-mile and 265-mile underground telephone cable corridors; botanical surveys for over 2,400 acres on Mount Shasta proposed for ski area development; biological surveys for a 200-acre park site; spotted owl surveys; vernal pool fairy/tadpole shrimp and valley elderberry longhorn beetle assessments; and numerous other projects.

- *Wetland Delineations.* Managed preparation of wetland delineations and/or U.S. Army Corps of Engineers permit applications for a 1,016-acre site east of Sacramento, a 200-acre site in north Redding, a 580-acre site in the City of Weed, a 100-acre site near the Redding Municipal Airport, a transmission corridor project in east Redding, a 78-acre industrial parcel in the City of Benicia, and many other parcels throughout northern California.
- *Noise Studies.* Prepared noise studies for a variety of projects, including new road corridors, industrial facilities, recreation facilities, residential developments, schools, and other facilities. Testified as an expert witness in a court case involving noise generated by electric- and diesel-powered water well pumps.
- *Reclamation Plans/Stream Restoration Projects.* Prepared mine reclamation plans and/or technical studies for aggregate mines, quarries, and gold mines and conducted associated monitoring. Managed preparation of a stream restoration project for a reach of the Susan River, which involved hydraulic analysis, preparation of an earth-work plan, supervision of all on-site construction activities, preparation of a revegetation/erosion control plan and supervision of its implementation, and preparation of a monitoring program. Developed a plan, and obtained all agency approvals, for creation of 10 acres of riparian forest habitat along the Sacramento River to mitigate losses on a nearby parcel.

Publications

Burk, D. 2024. Noteworthy collections: *Leucospora multifida* (Plantaginaceae). Madrono 71(4):143-144.

Burk, D. et al. (29 contributing authors). Technical Editors Gary Nakamura, UC Cooperative Extension Service and Julie Kierstead Nelson, USDA Forest Service, Shasta-Trinity National Forest. 2001. *Illustrated Field Guide to Selected Rare Plants of Northern California.* University of California, Agriculture and Natural Resources. Publication 3395.

Luper, J. and D. Burk. 2014. Noteworthy collections: *Froelichia gracilis* (Amaranthaceae). Madrono 61(4):413.

Attachment 1

Exhibit E to County's Comment Letter submitted to the CEC on November 15, 2023 (TN #260101):

ENPLAN's Peer Review of the Aquatic Resources Survey Report and Associated Documentation, November 4, 2024

ENPLAN

374-011
November 4, 2024

Bruce R. Grove Jr., Regional Principal
SHN Civil Engineering
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Adam Fieseler, Assistant Director
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Redding, CA 96001

SUBJECT: Fountain Wind Energy Project: Peer Review of the Aquatic Survey Resources Report and Associated Documentation

In response to your request, ENPLAN has completed a peer review of the aquatic resource delineation and associated documentation submitted to the California Energy Commission (CEC) in support of the Fountain Wind Energy Project. The project entails the construction and operation of up to 48 wind turbines. Associated development would include construction of underground and overhead collection lines, access roads, maintenance facilities, evaluation towers, batch plants, substations, and a relay microwave tower. The project area is generally located between the communities of Montgomery Creek and Burney, about 30 miles northeast of Redding, and immediately north and south of State Route 299.

This peer review was completed by Donald Burk. Don has a Master of Science degree in botany and nearly 30 years of experience conducting aquatic resource delineations. He is familiar with pertinent agency regulations regarding Waters of the State and United States.

Primary documents reviewed for this assessment are listed below:

> Stantec Consulting Services, Inc. December 23, 2019. Fountain Wind Energy Project Aquatic Resources Survey Report. (TN 248329-4 and 248307-2).
> *No figures were provided with this report. We assume that the data is consistent with the January 29, 2024, map cited below*.
>
> fwp aquatic feature jurisdictionality fig 1. January 29, 2024. Project Components and Potential Impacts to Waters (TN 254345).

For the purposes of this peer review, we have used various U.S. Army Corps of Engineers regulations, guidance, and technical standards as the standard against which the current study should be judged, including those listed below.

> Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 (on-line edition), U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0).

Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. January 2016.

Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10, 2016.

Overall, the study appears to be based on thorough, professional field studies, and the work is well-documented and clearly presented. However, we do find two major omissions in the study, one based on the work itself and the other based on the broader needs of the project. These significant flaws are discussed below, and a number of technical and minor errors are also noted.

Riffle/Pool Complexes

The 1987 Manual identifies six types of "special aquatic sites." Four of these are not expected to occur in the project study area (sanctuaries and refuges, mudflats, vegetated shallows, and coral reefs). The other two (wetlands and riffle/pool complexes) have a high potential to be present. The Fountain Wind Energy Project Aquatic Resources Survey Report addresses the presence of wetlands but is completely silent regarding riffle and pool complexes.

The 2021 Nationwide Permit Definitions provide the following information: "Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course [sic] substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools."

The development of riffle-pool-run complexes is part of a natural hydrologic process. Although not described in the Nationwide Permit Definitions, runs consist of deep, fast-moving water with a uniform flow. They are found below pools and extend to the next riffle section.

Page 4 of the subject report documents the presence of riverine habitat dominated by riffles and runs. The presence of steep terrain is documented on page 3. Pages 11 and 12 note that 109 perennial stream segments are present in the study area. These stream segments total 30,495 feet in length and vary from 2 to 90 feet in width. We fully expect that riffle and pool complexes are present, if not common, in the delineated streams; however, these special aquatic sites are not identified in the Fountain Wind Energy Project Aquatic Resources Survey Report.

The Aquatic Resources Survey Report must be revised to evaluate and document the presence and extent of riffle/pool complexes. As documented in the February 10, 2016, Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Standard 5.d), the delineation map must:

"*Clearly show location and extent of all areas within the survey area potentially meeting the criteria for waters of the U.S., including special aquatic sites (e.g., wetlands, sanctuaries and refuges, mudflats, vegetated shallows, and* ***riffle and pool complexes****), and/or navigable waters. Each type of boundary (for example, ordinary high water mark, mean high water, wetlands or other special aquatic sites, and high tide line) must be clearly annotated and/or symbolized to ensure they are differentiable on the map."* [Emphasis added].

Once the location and extent of riffle/pool complexes has been identified and mapped, the anticipated impacts of the proposed project on this special aquatic type must be quantified. The extent of impacts on riffle/pool complexes may affect applicability of various Nationwide Permits as well as mitigation requirements for the project.

Non-Wetland Riparian Habitats
Under Section 1600 of the California Fish and Game Code, California Department of Fish and Wildlife has permit authority over the bed, channel, and bank of any river, stream, or lake in the state. The "bank" is generally accepted as the land that confines the flow, along with the riparian vegetation that is supported by the waterbody. For streams, CDFW permit authority can in some cases encompass the entire 100-year floodplain.

Under USACE procedures, the limit of federal jurisdiction over streams is defined as the land encompassed in the ordinary high-water mark; where riparian vegetation is adjacent to the stream, the extent of federal jurisdiction is confined to areas meeting the three-parameter test. Because riparian plant species may be deep-rooted, in many cases they extend upslope of the limits of federal jurisdiction. For this reason, CDFW permit authority may encompass a broader stream cross-section than that regulated by the USACE.

CDFW encourages wetland professionals to map and quantify the extent of CDFW permit authority where it exceeds the extent of USACE jurisdiction. The Fountain Wind Energy Project Aquatic Resources Survey Report does not map any occurrences of riparian habitat upslope of USACE jurisdiction. However, review of aerial photographs strongly suggests that the riparian corridor is much broader than the USACE jurisdictional lands in many locations. This is confirmed through some of the data forms provided in the report, e.g., Data Point 63 (and probably 054-up) document the presence of 60% riparian cover adjacent to a stream and riparian wetland, and identifies this as non-wetland habitat – but it would clearly be subject to CDFW permit authority.

In addition to the Aquatic Resources Survey Report, riparian vegetation is addressed in the Fountain Wind Project Rare Plant Surveys and Natural Vegetation Community Mapping (West, Inc., 2018, 2019). However, the latter provides only a broad-brush approach and assumes that "any future modifications to habitat along streams (e.g., riparian areas) due to added road work will incorporate riparian protections consistent with other ongoing management activities (i.e., timber harvesting) in the region."

The approaches utilized for the two studies result in a significant data gap. There is no opportunity for the reviewing public to determine how much non-wetland riparian habitat is present in the study area and how much of this vital riparian habitat will be eliminated as a result of project implementation. Additional field study is needed to map the full extent of

riparian habitat and, subsequently, the impacts of the proposed project on this sensitive habitat type must be quantified, and appropriate mitigation measures must be disclosed.

Additional Errors

- Section 1, paragraph 4: The survey area is described as including "a 200-foot buffer around proposed project facilities." The definition of "facilities" contradicts that used in Paragraph 1 of the same section.
- Section 2, paragraph 1: The location of Buckhorn station needs to be provided.
- Section 2, paragraph 1: "annual average high" should be "average annual high."
- Section 2, paragraph 1: A citation is needed for the growing-season period stated in the report. Given that the study area elevation ranges from 3,550 feet to 6,300 feet in elevation, a single growing-season reference is inadequate.
- Section 2.2, paragraph 4: This section describes vegetation communities including a lodgepole pine, fresh emergent wetland, and riverine. While not necessarily an error, this conflicts with the West reports, which do not describe these vegetation communities (or anything even similar) in the study area. Reconciliation of the vegetation descriptions in two technical studies is needed (starting with a cross-walk).
- Section 3.2: Field study date ranges should be consistent with those provided in Section 1, and the more detailed of the descriptions should be used.
- Section 3.2.2, Line 1: "non-wetland features" should be "non-wetland aquatic features."
- Section 3.2.2, paragraph 2: "average depth" is unclear. Is this average thalweg depth of average cross-sectional depth?
- Section 5.0, paragraph 2: Current regulations defining Waters of the US should be used. Waters of the State should also be defined and addressed.
- Data Point 3, Vegetation: 50% is not 35.
- Data Point 13, Vegetation: 20% is not 13.2, *Mentha* is not a dominant.
- Data Point 21, Other Waters: indicators and feature designations are not provided.
- Data Point 35: Summary of Findings is incorrectly marked.
- Data Point 36: Summary of Findings is incorrectly marked. Four species are incorrectly identified at dominants. Dominance test is incorrect, prevalence index must be calculated.
- Data Point 37: Summary of Findings is incorrectly marked.
- Data Point 38: Summary of Findings is incorrectly marked. For soils, F6 Dark Redox Surface is not applicable -- F6 must have value of 3 or less, chroma of 1 or less, and 2% or more concretions or value 3 or less, chroma 2 or less and 5% or more concentrations.
- Data Point 47: Summary of Findings is incorrectly marked.
- Data Point 51: Prevalence Index is incorrect, FAC cover is 5%.
- Data Point 54: Soil appears to be hydric per F3 Depleted Matrix.
- Data Point 56: Summary of Findings is incorrectly marked.
- Data Point 58: Summary of Findings is incorrectly marked. "Hydrophytic Vegetation Present?" is incorrectly marked. Soil Remarks incorrectly states that no indicators were observed. Hydrology field observations conflict with Remarks.

- Data Point 60: Must calculate Prevalence Index since soils and hydrology are positive. Vegetation summary box marking conflicts with Remarks and Summary of Findings.
- Data Point 62, Soils: Histic Epipedon does not apply. A histic epipedon must be underlain by a mineral soil with a chroma of 2 or less. Organic layer is usually 8 inches or greater in depth.
- Data Point 65: Summary of Findings is incorrectly marked. "Other Waters" evaluation is positive, but feature is identified as an upland. Hydric Soil is incorrectly marked.
- Data Point 66: Summary of Findings is incorrectly marked.
- Data Point 67: Soil is marked as naturally problematic, but this is not explained in Remarks.
- Data point 052 up: *Bromus carinatus* is not a dominant. Dominance test and Prevalence Index are incorrect.
- Data Point 053 up: Prevalence Index is incorrect.

Please contact me if you have any questions regarding our results.

Sincerely,

Donald Burk
Environmental Services Manager

c: Ryan Baron, Best Best &Krieger

Attachment 2

Exhibit F to Shasta County's Comment Letter submitted to the CEC on November 15, 2023 (TN #260101):

ENPLAN's Peer Review of the Rare Plant Surveys and Natural Vegetation Community Mapping, November 1, 2024

ENPLAN

374-011
November 1, 2024

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SUBJECT: Fountain Wind Energy Project: Peer Review of the Rare Plant Surveys and Natural Vegetation Community Mapping

In response to your request, ENPLAN has completed a peer review of the botanical studies and associated documentation submitted to the California Energy Commission (CEC) in support of the Fountain Wind Energy Project. The project entails the construction and operation of up to 48 wind turbines. Associated development would include construction of underground and overhead collection lines, access roads, maintenance facilities, evaluation towers, batch plants, substations, and a relay microwave tower. The project area is generally located between the communities of Montgomery Creek and Burney, about 30 miles northeast of Redding, and immediately north and south of State Route 299.

This peer review was completed by Donald Burk. Don has a Master of Science degree in botany and over 40 years of botanical field experience in Shasta County. He is familiar with the rare plants and natural communities of the area, as well as with pertinent agency regulations regarding rare plants and natural communities.

Primary documents reviewed for this assessment are listed below:

> Flaig, K., Q. Hays, and J. Thompson. 2018. Rare Plant Surveys and Natural Vegetation Community Mapping, Fountain Wind Project, Shasta County, California. Prepared for Pacific Wind Development LLC, Portland, OR. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. October 17, 2018.
>
> Flaig, K., A. Chatfield, and J. Thompson. 2019. Rare Plant Surveys and Natural Vegetation Community Mapping, Fountain Wind Project, Shasta County, California. Prepared for ConnectGen Operating LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. December 20, 2019.
>
> Thompson, J., K. Lawrence, and A. Chatfield. 2021. Rare Plant Surveys, Fountain Wind Project, Shasta County, California. Prepared for CG Fountain Wind LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. October 19, 2021.

Thompson, J., Fields, J., and Flaig, K. 2023. 2023 Rare Plant Spot-Check Surveys, Fountain Wind Project, Shasta County, California. Prepared for CG Fountain Wind LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. September 28, 2023.

West, Inc. January 10, 2019. Technical Memorandum from Andrea Chatfield and Kurt Flaig, WEST, Inc., to Kristen Goland, Pacific Wind Development LLC. RE: Request for Clarifications on 2018 Rare Plant Survey and Natural Vegetation Community Mapping Report for the Fountain Wind Project.

West, Inc. June 9, 2023. Memorandum from Joel Thompson, WEST, Inc., to John Kuba, ConnectGen LLC. Subject: Rare Plant Spot Check Surveys for the Fountain Wind Project.

Stantec Consulting Services, Inc. December 23, 2019. Fountain Wind Energy Project Aquatic Resources Survey Report.

The rare plant surveys conducted by WEST were completed over the course of four field seasons. The 2018 survey addressed the then-proposed development footprint; revisions to the study area were addressed in 2019 and 2021. The 2023 survey consisted of spot checks of work completed in prior years. It should be noted that with the exception of the 2023 spot checks, no attempt was made to re-survey areas that were previously addressed, i.e., with the exception of the spot checks, each portion of the study area was surveyed only during one season.

The four survey reports are very similar in format and content with respect to rare plants. Therefore, comments made with respect to one report typically apply to all four reports. For the purposes of this peer review, we have used the *2018 CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (*Protocols*) as the standard against which the current study should be judged. The *Protocols* have been adopted by CDFW, and are designed to help applicants "meet California Environmental Quality Act (CEQA) requirements for adequate disclosure of potential impacts to plants and sensitive natural communities." Further, the *Protocols* are referenced in the Methods sections of the WEST reports. The field surveys and reports completed by WEST fall far short of the accepted standards, as documented below.

SURVEY AREA

- Per the *Protocols*, botanical survey reports must provide a description of the proposed project.
    - No description is provided other than this is a "wind project."

- Per the *Protocols*, botanical survey reports must provide a detailed map of the project area that identifies topographic and landscape features.
    - The maps in the reports are nearly useless. No topographic map is provided. No landscape features are identified – no roads, streams, rivers, mountains, communities, etc. There is no information allowing one to know where in

Shasta County the project is located. The scale of the maps is insufficient to allow the reader to understand the extent of the field survey.
    - The study location is described in the report text only in very ambiguous terms ("central Shasta County"). Township/Range/Section and quad sheet name(s) should be provided, or coordinates should be given. Distances to nearest communities or similar setting information should be provided.

- Per the *Protocols*, botanical survey reports must provide a vegetation map of the project area using *Survey of California Vegetation Classification and Mapping Standards* at a thematic and spatial scale that allows the display of all sensitive natural communities.
    - A vegetation map is provided, but the scale renders it nearly useless. Additional comments regarding the vegetation mapping are provided below.

- Per the *Protocols*, botanical survey reports must include a soils map.
    - No soils map is provided, and the text description of soils is limited to one sentence.

- Per the *Protocols*, botanical survey reports must include a written description of the biological setting, including all natural communities; geological and hydrological characteristics; and land use or management history.
    - While the reports do provide a very brief overview of some of the needed information, they are missing basic data such as the acreage of the study area, the elevation range of the study area, and a general description of topography (i.e., steep vs. gently rolling) and aspect of the study area (north-facing vs. south-facing). Given the influence of the Fountain Fire, the acreage and percentage of the study area that was burned should be provided; a map showing burn extent and burn intensity within the study area would also be highly informative.

- Per the *Protocols*, botanical surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project.
    - The WEST reports do not adequately identify the project area or the survey area. Locations of the survey corridors are depicted on a map at a scale that does not allow identification of the actual survey areas. Widths of the survey corridors are not provided. Spacing of survey transects within these corridors is not provided. The reports state that buffers were surveyed around all areas that may be subject to ground disturbance, but the width of the buffers is not provided and cannot be discerned on the map.

- Even if the survey area was defined as needed, because the proposed project is not described, there is no way to determine if adequate buffers were surveyed as needed to address potential indirect impacts.

- Figure 1 of the 2023 report shows "current disturbance corridors" and "previous survey corridors." Close examination of this (low-quality) map shows a half-dozen

current disturbance corridors outside the previous survey coverage areas. These areas were not addressed in the 2023 spot checks, so they apparently remain without any botanical survey coverage. Additional field survey is warranted.

METHODS – RARE PLANT SURVEYS

- The *Protocols* provide a definition of special-status plant species. The WEST reports do not define this term, but (as evidenced in their records search results) use a narrower definition that excludes many special-status plants from consideration. As discussed on page 3 of the *Protocols*, special status plants may include plants tracked by the California Natural Diversity Data Base (CNDDB) as California Rare Plant Rank (CRPR) 3 and CRPR 4. As documented in the WEST reports and in the January 10, 2019, memo prepared by WEST, for the purpose of the Fountain Wind project, "target" species were limited to state and federally listed species and species with a CRPR of 1B or 2B.
    - As noted in the *Protocols*, CRPR 3 and 4 plants may warrant consideration under CEQA Guidelines §15380 with respect to both direct impacts and cumulative impacts. Because CRPR 3 and 4 species were intentionally excluded from the "targeted" rare plant survey, the public has no basis to determine if these species are present and if potential impacts to these species may be significant. Likewise, the public has no opportunity to evaluate cumulative impacts to these species or to request mitigation for the loss of such species.

- As stated on page 4 of the *Protocols*, "Botanical field surveys should be floristic in nature, meaning that every plant taxon that occurs in the project area is identified to the taxonomic level necessary to determine rarity and listing status. "Focused surveys" that are limited to habitats known to support special status plants or that are restricted to lists of likely potential special status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine if they are special status plants." [emphasis added]. This is reinforced on page 5 of the *Protocols*, which states: "Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list."
    - The surveys completed by WEST were focused, not floristic. As discussed on page 2 of WEST's 2018 report, the study consisted of "focused surveys to determine presence or absence of target species…".
    - The absence of floristic surveys means that the surveyors could easily have overlooked unexpected occurrences of special status species, such as range extensions – and range extensions are not uncommon. Likewise, the surveyors would have overlooked previously undescribed species (which are very likely to be rare as defined in the State CEQA Guidelines); while not as common as range extensions, new species continue to be found in Shasta County (see below), particularly in remote areas such as the Fountain Wind project vicinity. The focused surveys conducted by WEST fall short of the accepted standards presented in the *Protocols* and are not adequate to support CEQA review.

- The 2018 records search identified 51 “target species” (with 36 listed as being possibly present). For the 2019 surveys, 69 species were targeted (with 47 listed as possibly present). Although 18 new “target species” were identified (11 listed as “Potentially Present”), the surveyors did not return to the 2018 study area to survey for these additional species. The reports state that the surveyors reviewed species descriptions, photographs, and habitat requirements of the target species prior to the surveys – the 2018 review obviously did not extend to the full list of target species developed in 2019.
    - Because a floristic study (as required in the *Protocols*) was not conducted, there is no basis to determine if these additional “target species” are actually present in the 2018 study area. The 2018 survey crew would not have been familiar with the future additions to the target species list, which increases the likelihood that they would have been overlooked. Therefore, the 2018 survey was insufficient to meet WEST’s stated (non-protocol) “target species” survey approach.

- Paragraph 1 of this section states that CNDDB provides “an inventory of …rare plant communities,…” This is misleading. The Natural Communities mapping program was halted in the mid-1990’s and no new occurrences have been added since then. Identification of rare plant communities in the CNDDB is far from complete.

- Paragraph 1 of this section states that the CNPS records search was focused on Shasta County.
    - This is not further explained and appears to be a vast overstatement. Current CNPS records for Shasta County identify 105 species with a CRPR of 1A, 1B, 2A, or 2B, yet the total number of “target plants” identified by WEST in 2019 is only 67. Either the report text needs to be revised to state the actual search parameters or a number of additional species need to be added to the “target species” list.

- The validity of the records searches is questionable. The initial records search was completed in January 2017. It was thus over a year out-of-date when the initial field survey was conducted. The CNPS Inventory was updated by WEST in May 2019, prior to conducting the 2019 survey. However, as documented in the report references, the CNDDB records search was apparently not updated. The 2021 WEST report relies on the 2017 records search (as documented in the report references section), which was four years old at the time of the field work. The 2023 report states that the list of target species developed for the 2021 surveys served as the basis for the 2023 spot checks. Although the 2023 reference sections cites 2021 data, the same 2021 data is not cited in the 2021 report. We do not know if the surveyors relied on six-year-old data or two-year-old data. While the *Protocols* do not explicitly define how recent the records search must be, most botanists would update the records search prior to conducting field work each season; use of a six-year-old records search does not meet professional standards.

- The records searches did not include review of U.S. Fish and Wildlife Service records of species that may potentially be affected by a project at the specified site location.

- The discussion of rare plant survey methods utilized by WEST does not comply with the CDFW standards.
    - Page 5 of the *Protocols* states: "Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology."
        - The WEST surveys were limited to specific project corridors and activity nodes and did not address the entire project area. As noted above, even the areas that were surveyed are not adequately described.

    - Page 6 of the *Protocols* states that known reference sites should be visited to allow the surveyors to determine if the special-status species are identifiable at the time of the survey, and to obtain a visual image of the special-status plants, associated habitat, and associated natural communities.
        - Reference sites are not mentioned in the 2018, 2019, or 2021 WEST reports. The 2023 report states that given the number of special-status species that could be present, visitation of known reference populations was not feasible/practicable. This is a lame excuse. Given that surveys were conducted in years with vastly different precipitation levels, at a minimum, some reference populations should have been checked. For example, during drought years, known populations of special-status wetland species should have been visited; in years with high snowfall, populations of late-blooming species such as Cascade grass-of-Parnassus should have been checked to determine their phenology.

    - Page 9 of the *Protocols* states that botanical survey reports must include the names and qualifications of the botanical field surveyors.
        - Field surveyors are named in three of the four reports, but resumes are provided for only four of the five individuals who (apparently) participated in the field surveys.

    - Page 9 of the *Protocols* requires that the dates of the botanical field surveys be provided, indicating the botanical field surveyors that surveyed each area on each survey date.
        - Although a date range is provided for the survey periods, no additional information is given. Because the botanical survey dates are mixed

with the weed mapping and habitat mapping, we don't even know on which days the botanical survey work was actually conducted.

- Page 9 of the *Protocols* requires that the total person-hours spent during the botanical survey be identified.
  - No information on the extent of the survey effort is provided. The report should separately identify total-person hours spent on the rare plant survey, the natural community mapping, and the invasive plant species mapping as these are three distinctly different work areas. Survey hours exclude travel time, plant identification time, break time, and other hours not focused on the survey field-coverage effort.

METHODS – NATURAL VEGETATION COMMUNITIES

- As discussed on page 4 of the *Protocols*, CDFW's *List of California Terrestrial Natural Communities* provides the best available natural communities information and indicates which natural communities are considered sensitive. The list is routinely updated, most recently on June 1, 2023.
  - The 2018 survey report states that vegetation was mapped in accordance with the 1986 Holland classification system or the 2008 [actually 2009] *A Manual of California Vegetation*. The 2019 report utilized the 2009 *A Manual of California Vegetation*. The classification system in the 2009 *Manual* is compatible with the CDFW *List of California Terrestrial Natural Communities;* the Holland system is not compatible with the others. Review of the 2018 report shows that it relies heavily, if not exclusively, on the Holland system. The 2018 report concludes that no sensitive natural communities are present. The 2019 report takes the natural community descriptions in the 2018 report and shoehorns them into the *Manual of California Vegetation*/CDFW *California Terrestrial Natural Communities* system – and now concludes that sensitive natural communities are present.
    - Knowledge of California's natural communities has increased substantially over the past decades, particularly with respect to sensitive natural communities. Because outdated standards were used to document natural communities, there is a high potential that communities currently described as sensitive may have been overlooked. The CDFW *List of California Terrestrial Natural Communities* states the status of each described community. By utilizing old systems with different natural community nomenclature, there is no direct nomenclatural link to identify whether a community is sensitive or not. Some of the old nomenclature may be "cross-walked" to the new nomenclature, but that is not always the case. The use of old natural community descriptors severely limits the ability of the public to determine if sensitive plant communities are actually present in the study area.
  - The 2018 and 2019 reports identify natural communities to the "Alliance" level, which is a relatively generic description. Each Alliance can contain

multiple "Associations" that are more precisely defined natural communities. Although some Alliances can be designated as sensitive, sensitive natural communities are more typically described at the "Association" level. A non-sensitive Alliance may contain sensitive Associations. For example, the 2019 report identifies the presence of the *Pinus ponderosa* Forest Alliance and correctly states that the Alliance is not sensitive. However, 28 of the 45 currently described Associations falling under the *Pinus ponderosa* Forest Alliance are identified as sensitive. Because of the gross level of natural community classification/mapping used by WEST, the public has no information as to whether sensitive natural communities (Associations) are actually present.

- The *Protocols* state that detailed mapping of sensitive natural communities should be provided (1:24,000 or larger, which is the same as 1" = 2,000'). The mapping in the reports is nowhere near this detailed; the 2018 map is near 1" = 9,600' and the 2019 mapped is even more zoomed out at 1" = 11,115'.

METHODS – INVASIVE PLANT SPECIES

- The Methods section of the WEST report states that mapping of invasive plant species was mainly restricted to existing road corridors; off-road areas were not mapped because they are unlikely to support invasive plants, and clear-cuts were not mapped because they are known to contain a high concentration of weedy species. However, the mapping does not identify these areas, so it is impossible to distinguish an area that was not surveyed from an area that was surveyed but does not support weeds.

- The methods section states that all weeds identified by CAL-IPC with a rating of "High," "Moderate," and "Limited" were mapped. However, the plant list includes several plants that meet these criteria but were not mapped, including *Hypochaeris* sp. (Limited or Moderate), *Plantago lanceolata* (Limited), *Bromus tectorum* (High), *Poa pratensis* (Limited), and *Elymus caput-medusae* (High; shown in the 2019 map but not the 2018 map even though it is on the 2018 list of plant species encountered).

RESULTS AND DISCUSSION – RARE PLANT SURVEYS

- As discussed above, the 2018 list of "targeted" rare plant species excluded a number of species later identified as potentially being present. The 2018 survey area was never fully resurveyed for the additional species (other than for some spot-checks in 2023). Therefore, the results of the 2018 survey must be discounted and the affected footprint and appropriate buffers need to be re-surveyed.

- *Castilleja lassenensis* is not included in the 2017 CNDDB records search but appears in the subsequent records searches. WEST states that the species is "Unlikely" to occur in the study area because it is restricted to the flanks of Lassen and granite substrates in the Sierras. We disagree with both the habitat description and the potential-for-occurrence assessment. With respect to habitat, the species does not occur on granitic substrates in the Sierra; it is restricted to volcanic

substrates in the southern Cascade Range. *Castilleja lassenensis* was resurrected as a valid species in 2015 and little work has been conducted to document the range of the species. Most of the work to date has been in Lassen Park; however, we are aware of a number of populations in the Caribou Wilderness and other locations that have not yet been formally documented (and it should be noted that all previously reported *C. lemmonii* populations in the southern Cascades may actually be *C. lassenensis*). Additionally, existing records show that *Castilleja lassenensis* has been reported from the Burney and Burney Mountain West quadrangles, and that the species may occur at elevations as low as 4,800 feet. The potential for occurrence should be revised to "Possible."

  - Because this rare species was not on the "target" list in 2018, additional field survey is needed.

- *Trifolium siskiyouense* (CRPR 1B.1) is not included in the 2017 CNDDB records search but appears in the subsequent records searches. WEST states that this wet-montane-meadow inhabitant is "Unlikely" to occur in the study area because the nearest occurrence is on "volcanic plateau approximately 30 miles south of Project." This is incorrect. *Trifolium siskiyouense* has been reported from "Montgomery Creek," which is about three miles west of the project footprint. The specific location is unknown, but could easily be within the study area. Other reported populations are to the north of the project, not to the south. The potential for occurrence should be revised to "Possible."
  - Because this rare species was not on the "target" list in 2018, additional field survey is needed.

- Broad-nerved hump moss (CRPR 2B.2), three-ranked hump-moss (CRPR 4.2), Pacific fuzzwort (CRPR 4.3), and slender silver-moss (CRPR 4.2) are included in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2024), and are identified by WEST as being "Possible" in the study area. None of the resumes provided in the WEST reports indicate that the surveyors have any experience in bryophyte identification, and no bryophytes are included in the list of observed species. Absent any information to the contrary, it appears that a bryophyte survey was not conducted. A survey of the entire project area by qualified bryophyte specialists is needed.

- The Siskiyou jellyskin lichen (*Scytinium siskiyouense*; CRPR 1B.1) is included in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2024). However, this rare species is not mentioned in any of the rare plant survey reports and the WEST survey crews were not trained in its detection. A survey of the entire project area by qualified lichen specialists is needed.

- The reports identify a number of plants only to the genus level. However, at least 11 of these genera may include special-status species (CRPR 1-4). In Shasta County alone, Calflora identifies one rare *Allium*, two rare *Lomatiums*, four rare *Erigerons*, one rare *Solidago*, one rare *Cryptantha*, five rare *Carexes*, five rare *Silenes*, two rare *Phacelias*, nine rare *Eriogonums*, one rare *Castilleja*, and three rare *Penstemons.* Because the surveyors did not identify taxa in these genera to the species level, the

public has no way of knowing if any of these 34 Shasta County rare plant species are present in the Fountain Wind survey area.

- A new species of onion (*Allium incomptum*) was discovered in Shasta County in 2015, with the description published in 2022. CDFW designated this species as CRPR 1B.3 in April 2023. The newly described rare onion occurs less than 15 miles from the Fountain Wind survey area. Because the surveyors did not update their records search prior to the 2023 surveys, they were apparently unaware of the potential for the onion to occur in the study area. WEST's 2018 list of plant species encountered includes *Allium parvum* (which has a similar appearance to *Allium incomptum*) and one unidentified species of onion. The 2019 report lists *Allium parvum* and at least two unknown species of onions. The 2021 and 2023 reports drop *Allium parvum* and list only two or more species of unknown onions.
    - WEST apparently observed three or more species of onions in the study area and identified only one of them to species level. The public has no way of knowing if the recently described rare onion, *Allium incomptum*, occurs in the study area.

- The WEST reports state that the range of survey dates included the blooming times of all "target" rare plant species, but this may not be correct. The 2018 survey was conducted between May 21 to May 29 and July 30 to August 3, the 2019 survey was conducted between May 29 to June 3 and July 30 to August 2, and the 2021 survey was conducted on May 24 and 25 and July 27 and 28. The 2023 survey was conducted on unspecified dates in June and August.
    - Red Bluff dwarf rush is identified as blooming in March, April, and May; given drought conditions in some of the survey years, there is no basis to determine if it would have been identifiable during the stated survey periods. Had the surveyors checked reference population as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.
    - Silky cryptantha is identified as blooming in April and May; given drought conditions in some of the survey years, there is no basis to determine if the species would have been identifiable during the stated survey periods. Had the surveyors checked reference population as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.
    - Three-ranked hump moss is shown as being identifiable in July; very little field survey work occurred in July. There is no basis to determine if the species would have been identifiable during the stated survey periods. Had the surveyors checked reference population as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.
    - Rattlesnake fern is shown as being identifiable only in June; very little field survey work occurred in June. Additional documentation is needed to support a conclusion that the field survey would have detected rattlesnake fern if present in the study area. We believe that the fern is detectable over a much

broader date range, but this would need to be supported in the WEST reports.
    - Cascade grass-of-Parnassus is identified as blooming in August and September. Survey coverage barely extended into August in 2018 and 2019 and terminated in July in 2021; given high snowfall in some of the survey years, there is no basis to determine if the species would have been identifiable during the stated survey periods. Had the surveyors checked reference population as recommended in the *Protocols*, the validity of the survey dates could have been assessed/defended.
    - Because no dates are provided for the 2023 surveys, the potential for surveys to allow identification of rare species cannot be assessed.

- The 2018 report concludes that no rare plant species were encountered. This is contradicted by the plant list included in the report, which lists *Carex comosa* as being observed. Also, the plant community descriptions in the 2018 report identify *Carex comosa* as a common species in the Wet Montane Meadow habitat. *Carex comosa* is a CRPR 1B.2 species, and its potential for occurrence was identified in the pre-field research as "Possible," with a known occurrence six miles to the north. *Carex comosa* is deleted from the subsequent plants lists and plant community descriptions; no explanation is given as to why. A thorough explanation is necessary.

- The 2018 report also lists another rare plant, *Calystegia atriplicifolia* ssp. *buttensis,* as being present. Upon questioning by an outside reviewer, WEST prepared a Technical Memorandum in 2019 removing the plant from the list of species observed, noting that it was just outside the project footprint and is a CRPR 4.2 species that is not one of their "focal species."
    - As discussed above, CRPR 3 and 4 species should be considered in CEQA documents. Further, even if the plants were just outside the study area footprint, indirect and cumulative impacts to the species should be addressed in accordance with the *Protocols*.
    - The *Protocols* state that CNDDB data forms should be submitted for observations of CRPR 3 and 4 plants. No data forms were submitted as part of the WEST study.

- We are perplexed as to why WEST reports the presence of *Convolvulus* sp. on all of their plants lists. There are only four *Convolvulus* species reported in California: two rarely encountered horticultural escapees, one rare native that occurs only south of the Bay Area, and the extremely common weedy *C. arvensis*. We expect that all of the WEST botanists would be very familiar with *C. arvensis*, so the most likely explanation is that *Convolvulus* is used in its out-of-date conscription that included what is now *Calystegia*. This raises the question as to whether the rare *Calystegia atriplicifolia* ssp. *buttensis* was observed throughout the project site but was not reported. A thorough explanation is necessary.

- Woolly meadowfoam (*Limnanthes floccosa* ssp*. floccosa*; CRPR 4.2) is known to occur within a 10-mile radius of the project site and is included in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2024). However, this species is not mentioned in any of the rare plant survey reports, its blooming period typically ends prior to the dates at which the WEST surveys began, and the species is very unlikely to have been detected by the WEST survey crews. Surveys in April or early May are warranted.

- The CNDDB and WEST reports identify the survey period for *Limnanthes flocossa* ssp. *bellingeriana* (CRPR 1B.2) as extending from "April-June." We believe this is an overstatement. Based on review of California Consortium of Herbaria records, only one collection of this taxon has been made later than May 20 (by legendary botanists Taylor and Clifton). This species is very unlikely to have been detected by the WEST survey crews. Surveys in mid-April or early May are warranted.

- The 2019, 2021, and 2023 WEST reports claim to contain a comprehensive list of all plant species encountered during the current and prior surveys. This is not true. The 2018 report lists 219 species. The 2019 report adds 13 new species and drops two of those previously listed (*Carex comosa* and *Erythranthe guttatus*). The 2021 report lists only 125 species (of which four are newly added). The 2023 report lists 133 species (four newly added). A comprehensive list of plants identified by WEST should contain about 239 species – and this is a significant under-reporting of the number of species actually present.

- The WEST reports (2019, 2021, and 2023) state that plant species were identified to the highest taxonomic level possible using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012).
    - This statement is incorrect. The WEST plant lists use numerous out-of-date names for plant species. This undermines one's confidence in the quality of the reports and also highlights the age of the reports – the bulk of the work was completed five to six years ago and was not substantially updated during the 2023 spot checks; the old nomenclature persists in the 2023 report.

- We find that the "comprehensive" plant list prepared by WEST is far from complete. This may be because the WEST survey was "focused" and not floristic as is required under the *Protocols*. To help assess the adequacy of the WEST reports, we reviewed the plant list prepared for the project by the wetland delineators (Stantec, 2019). Stantec identified 179 plant species in the study area; 95 of these species are not on the WEST list.
    - The Stantec team included botanists based in northern California and with expensive experience in northern California. The nomenclature in the Stantec report conforms to standards current at the date of the report. Based on surveyor qualifications and report presentation, the Stantec report is of higher quality than the WEST report, and the Stantec plant list appears to be more reliable than the WEST list.

  - The Stantec list was not intended to be comprehensive and focused on aquatic resources; the fact that Stantec identified 95 species not observed by WEST undermines one's confidence in the WEST reports.
  - The Stantec plant list includes one rare plant species (*Sidalcea gigantea*, CRPR 4.3) that was not observed by WEST and is not on WEST's list of "target species." As discussed in the *Protocols*, plants of this status may warrant consideration under CEQA. Evaluation of indirect and cumulative impacts to the species should be addressed.
  - The Stantec report identifies the presence of western blueberry (*Vaccinium uliginosum*). The WEST reports list the closely related Shasta huckleberry (*Vaccinium shastense*) as a "target" species that has a "Possible" presence in the study area. The WEST report does not identify the presence of any *Vaccinium* in the study area, which further undermines one's confidence in the WEST reports.
  - The 2019 WEST report identifies 1,036 acres of *Acer glabrum* Provisional Shrub Alliance within the evaluation area, of which 31 acres are within the development corridors. The Stantec report identifies 28.6 acres of a montane riparian community dominated by shrubs including vine maple, *Acer circinatum*. Rocky Mountain maple, *Acer glabrum*, is not identified as being present. We find it highly disconcerting that WEST reported *Acer glabrum* in 2018 and 2019, but the more reliable (in our opinion) Stantec report does not identify any *Acer glabrum*. This concern is heightened by the fact that the 2021 and 2023 WEST reports list only *Acer circinatum*, not *Acer glabrum*. In 2023, WEST botanists re-visited 11 montane riparian habitats but did not identify *Acer glabrum* as being present – even though it was said to be the dominant species in 2019. We have to suspect that the WEST botanists mis-identified a dominant wetland plant in 2018 and 2019 and relied on this misidentification to describe a sensitive natural community.

- The scale and quality of the project mapping is insufficient to allow one to determine if all disturbance areas and sufficient buffers were surveyed.

- Three State-listed species are identified in the 2018 WEST report (Appendix A). However, the subsequent reports eliminate the column in the table identifying State status (the table name is changed to exclude State-listed species, but the Appendix cover sheets continue to indicate that State-listed species are identified). The basis for excluding State-listed species needs to be justified if the table is to remain in its most recent iteration.

- The list of "target species" (Appendix A) incorrectly identifies Mingan moonwort as a CRPR 2B.2 species and northern clarkia as a CRPR 1B.3 species.

- The WEST plant lists contain minor errors. Phacelia is spelled incorrectly (common name). *Veronica anagallis-aquatica* is a non-native species. *Rumex salicifolius* is a native species.

RESULTS AND DISCUSSION – NATURAL VEGETATION COMMUNITIES

- The 2018 vegetation community map is based on the Holland system. In 2019, the same map unit boundaries were used, but were renamed in accordance with CDFW standards. This created some problematic results.
    - The 2018 report distinguishes Mixed Montane Riparian Forest from Mixed Montane Riparian Scrub habitat, primarily based on a conifer forest overstory in the former. The 2019 report shoehorns these distinctly different habitats into a single shrub alliance: "*Acer glabrum* Provisional Shrubland Alliance". It is unclear how a tree-dominated habitat can now be considered as a shrubland.
    - As discussed above, it is doubtful that an *Acer glabrum*-dominated riparian scrub community is actually present on the site.
    - Lands described in 2018 as "Mixed Conifer Forest – Burned" are reclassified in 2019 as "Ponderosa Pine Forest Alliance." However, lands described in 2018 as "Mixed Conifer Forest – Unburned" were converted to "White fir – Douglas fir Forest Alliance" in 2019. A defensible explanation is needed to show how mixed conifer forest can be converted to both Ponderosa Pine Forest (dominated by a single species) and White Fir – Douglas Fir Forest. Is mixed conifer forest the pre-fire condition and ponderosa pine forest plantation the post-fire condition?
    - White fir is described as a minor component of the Mixed Conifer Forest – Unburned in 2018, but is a dominant species when reclassified as White Fir -- Douglas Fir Forest in 2019. We see no defensible explanation for this significant change.
    - *Carex utriculata* (=*C. rostrata*) was identified as one of 13 common species in the Wet Montane Meadow community in 2018, but is considered as the sole dominant species when the habitat was re-characterized as "Beaked Sedge Meadow" in 2019. Given the species identified in 2018, the habitat could readily have been re-characterized as "Bluejoint Reed Grass Meadow," "Beaked Sedge and Blister Sedge Meadow," or "*Carex utriculata* fen." The latter three communities are identified as Sensitive Natural Communities by CDFW, while the selected Beaked Sedge Meadow is not listed as a Sensitive Natural Community. A defensible explanation for this re-characterization is needed.
    - The 2018 Wet Montane Meadow description states that several shallow "bogs" are included within the larger meadow community. California "bogs" are more accurately described as fens. Many fens are considered as Sensitive Natural Communities by CDFW or are pending addition to this list (e.g., star sedge fen, shore sedge fen, woodland sedge fen, short-beaked sedge fen, California pitcher plant fen, western false asphodel – California bog asphodel fen, *Carex vesicaria* fen, *Carex utriculata* fen, *Carex capitata* fen).
        - All mention of "bogs" is removed in the 2019 WEST report, which is inappropriate. The fens need to be adequately described and documented so that it can be determined if they are a sensitive natural community (which is highly likely the case).

- The vegetation community maps contain multiple minor errors. In 2018, ELCA is listed as a dominant weed, but the species code is omitted from the legend. The legend uses the codes "CYED" and "RUAC" but the map designations are "CYEC" and "RVAC." The 2019 map legend provides a code for *Holcus lanatus*, but the species is not shown on the map nor is it included in the WEST plant list (but is included in the Results and Discussion Section). The 2019 legend lists "RUAC" twice and uses the code "ELCM" while both "ELCM" and "ELCA" are used on the map.

- As documented on pages 10 and 11 of the *Protocols*, botanical survey reports must include an assessment of potential project impacts on sensitive natural communities.
    - Although the 2019 report identifies the presence of 31 acres of a sensitive natural community in the development footprint, no assessment of the loss of community is provided, and the report provides no recommendations to avoid, minimize, or mitigate impacts to the sensitive natural community.
    - Project implementation will result in the conversion of an undisclosed acreage of natural habitat to a developed/industrial use. The permanent loss with respect to each habitat type present in the study area must be quantified and evaluated, and avoidance, minimization, and mitigation measures must be provided as appropriate.

- Page 8 of the *Protocols* states that if a sensitive natural community is found in a project area, the surveyors shall document it with a Combined Vegetation Rapid Assessment and Releve Field Form and submit the form to VegCAMP.
    - No field forms are included in the 2019 report and there is no evidence that the required forms were submitted to VegCAMP.

- Under "Results" for Natural and Sensitive Vegetation Communities, the 2018/2019 reports state that "riparian communities" cross the development corridors in many areas and that they are "largely" at existing road crossings or in areas where future roads may be constructed.
    - Generally speaking, riparian habitats are widely recognized as having high ecological values and are generally considered to be sensitive habitats. The 2018/2019 botanical reports provide no indication as to the types of riparian communities present in the study area – is this term restricted to the purported *Acer glabrum* Provisional Shrub Alliance, a sensitive natural community, or does it include the purported *Carex utriculata* Herbaceous Alliance, a non-sensitive community?
    - The acreages of each community type in the study area need to be identified, particularly for sensitive communities and riparian communities. Likewise, the potential effects to these communities must be evaluated and avoidance, minimization, and mitigation measures need to be provided, as discussed on pages 10 and 11 of the *Protocols*. The short discussion in the 2019 WEST report concludes that "It is assumed that any future modifications to habitat

along streams (e.g., riparian areas) due to added road work will incorporate riparian protections consistent with other ongoing management activities (i.e., timber harvest) in the region." The evaluations and conclusions in the WEST reports fall far short of the botanical survey report standards as well as CEQA standards.

- We are aware that a separate aquatic resources delineation report was prepared, which identifies and maps certain riparian corridors. However, not all riparian habitats qualify as wetlands, so one cannot necessarily rely on the wetland delineation as the basis for evaluating riparian habitat impacts.

- Both the 2018 and 2019 WEST reports identify the presence of black oak woodland in several areas of the project site. The Oak Woodland Conservation Act (SB 1334) was adopted by the State legislature in 2004 and various requirements were incorporated into the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. Essentially, if a county determines that a project will result in a significant effect to oak woodlands, the county shall require one or more oak woodland mitigation alternatives to offset the significant effect associated with the conversion of oak woodlands.
    - Maps in the WEST reports are inadequate to allow the locations of the oak woodlands to be ascertained, and no information is presented regarding the significance of the oak woodlands or possible impacts to the oak woodlands. Additional study is needed to appropriately characterize the on-site oak woodlands, assess the extent and significance of potential impacts to the oak woodlands, and develop appropriate avoidance, minimization, and mitigation measures.

RESULTS AND DISCUSSION – INVASIVE PLANT SPECIES

- The WEST reports suggest that a considerable effort was devoted to identification and mapping of noxious weed occurrences, which is laudable. However, the Results section does not address the potential spread of weeds into or out of the project area. The need to actively manage invasive species is recognized in the report, but the significance of the impact is not evaluated and no mitigation measures are provided.
    - It is inappropriate to dismiss the effects of the project as "minimal….relative to the influence of ongoing commercial timber operations." The actual extent of impacts must be identified and addressed regardless of surrounding land uses.
    - The reports suggest that new roads and facility sites have a high potential to support noxious weeds, but do not quantify the acreage of relatively weed-free habitat that may be converted to weed-infested habitat.
    - The potential for new weed species to be imported to the area as a result of project construction and operation is not addressed.
    - The introduction and spread of invasive plant species has a high potential to adversely affect natural communities in the area, potentially including

sensitive natural communities. As discussed on pages 10 and 11 of the *Protocols,* recommended avoidance, minimization, and mitigation measures to help offset the impacts of the proposed project must be presented in the report.

Please contact me if you have any questions regarding our results.

Sincerely,

Donald Burk
Environmental Services Manager

c: Ryan Baron, Best Best &Krieger

Attachment 3

Included in Shasta County's Comment Letter submitted to the CEC on December 13, 2024 (TN #260646)

ENPLAN's Peer Review of the Migratory Bird Studies, November 27, 2024

ENPLAN

374-011
November 27, 2024

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SUBJECT: Fountain Wind Energy Project: Peer Review of the Migratory Bird Studies

In response to your request, ENPLAN has completed a peer review of the migratory bird studies submitted to the California Energy Commission (CEC) in support of the Fountain Wind Energy Project. The project entails the construction and operation of up to 48 wind turbines. Associated development would include construction of underground and overhead collection lines, access roads, maintenance facilities, evaluation towers, batch plants, substations, and a relay microwave tower. The project area is generally located between the communities of Montgomery Creek and Burney, about 30 miles northeast of Redding, and immediately north and south of State Route 299.

This peer review was completed by Tiana Honigman and Donald Burk. Tiana has a Bachelor of Science degree in Animal Biology from UC Davis. She has considerable experience in conducting avian surveys and is particularly well-acquainted with special-status bird species in Northern California. Don has a Master of Science degree in botany and over 40 years of experience in designing, conducting, and reporting on scientific studies. He has prepared and reviewed hundreds of biological studies and has particular expertise in the development of unbiased, accurate, and defensible scientific reports.

Primary documents reviewed for this assessment are listed below:

> *Nocturnal Migrant Risk Summary, Fountain Wind Project, Shasta County, CA*. Technical memorandum prepared by Quentin Hays, Andrea Chatfield, and Joel Thompson, WEST, Inc., October 10, 2018.
>
> *Year 1 Avian Use Study Report and Risk Assessment for the Fountain Wind Project.* Prepared by Joel Thompson, Andrea Chatfield, and Quentin Hays, Western EcoSystems Technology, Inc., November 5, 2018.
>
> *Results of the Year 2 Avian Use Study at the Fountain Wind Project – Addendum to the Year 1 Avian Use Study Report and Risk Assessment*. Prepared by Joel Thompson and Andrea Chatfield, Western EcoSystems Technology, Inc., September 5, 2019.

Nocturnal Migrant Risk Summary

- Page 1 states that data was collected from 30 wind energy facilities across the U.S. (obtained from Kerlinger *et al*., 2010), and reports on the fatality rates of nocturnal migrants at turbines ranging in height from 54 to 125 meters.
    - The reader is not advised as to how many of the 30 wind facilities have turbines in the 54- to125-meter range. Do all 30 of the facilities have turbines in the stated height range or only a handful? How many turbines are included in the actual data set used by WEST? Without knowing the sample size for the baseline data, we cannot address its adequacy.
    - Likewise, no data is provided other than the heights of the turbines used for comparison. We do not know if these are monopole turbines, lattice turbines, or other design, and no information on blade-sweep or other critical factors is provided. We are not provided any data on night-lighting, which can significantly affect nocturnal-migrant mortality rates.
    - The report omits discussion of a huge number of variables that may affect the reported mortality rates in the baseline study. For example, no mention is made of the efficacy of carcass counts. However, results of carcass counts can vary substantially based on search frequency, search intensity, and search methods (e.g., visual search vs. use of scent detection dogs). Although the WEST report is titled as a "Summary," the lack of qualifications and thorough descriptions greatly undermines the credibility of the report and its findings. A more robust characterization of baseline data on which the report relies is clearly needed.
    - To substantiate the results of a comparative analysis, supporting data must be provided in the WEST report.
- The current Fountain Wind project proposal calls for turbines with a maximum blade altitude of 208 meters. The WEST report addresses turbines in the 54- to125-meter range.
    - The WEST report needs to be substantially revised to address the currently proposed turbine height.
- Dozens of additional studies of turbine-related bird mortality have been published since the 2010 Kerlinger *et al*. study (the baseline avian collision fatality data source utilized in the WEST report), and over 50 new studies were available at the time the WEST report was prepared in 2018. These newer studies need to be incorporated into the baseline data used for the current project evaluations. Use of current data is extremely important. Even WEST (page 2) notes that "modern" wind energy facilities have different bird-fatality characteristics than older facilities.
- Page 2 states that "Nearly all multi-bird nocturnal avian migrant fatality events are detected at tall structures with non-flashing lights…" and cites Johnson *et al*. (2016) as one of several sources for this conclusion. We find no such conclusion in Johnson's paper; the single mention of lights in Johnson's paper is a reference to another author's study. This loose use of reference materials by WEST is unsettling (we did not check the validity of any other data cited by WEST).

- The report notes that the 2010 Kerlinger *et al*. study found nocturnal migrant fatality rates ranging from 1 to 7 birds per turbine per year. Hatchet Ridge data is then reviewed, and annual "small bird" fatality rates were found to range from 0.31 to 2.03 fatalities/MW/year, with large bird fatalities ranging from 0.47 to 0.52 fatalities/MW/year.
    - For clarity of information, a single metric should be used to report bird fatalities throughout the report; if needed, results in a second metric could be provided in parentheses.
- WEST repeatedly states that avian mortality at Hatchet Ridge (and therefore expected mortality at Fountain Wind) is "low" with no definition of the term. Although the conclusion may be correct, supporting data needs to be provided to substantiate the conclusion
    - Baseline information for Hatchet Ridge must be included in the current report, i.e., number of turbines, turbine capacity, conversion of fatalities/MW/year to fatalities/turbine/year. Similar information for the proposed project must also be provided. Without this data, the validity of WEST's conclusions cannot be determined.
    - Is nocturnal migrant fatality at Fountain Wind expected to be "low" compared to similar turbine projects or "low" compared to other events cited in the WEST report, such as "single-night, single-tower casualty events of hundreds to thousands of individuals"?
- With respect to nocturnal radar studies, WEST notes that the Fall 2007 radar study at Hatchet Ridge recorded an average passage rate of 290 ± 26 targets/kilometer/hour, an average altitude of targets of 468 ± 3 m above ground level (AGL), and that only 8% of targets flew below the proposed turbine height (i.e., 125 m AGL).
    - "Targets" need to be defined (are these "small" birds, "large" birds or all birds?).
    - The data need to be re-evaluated to address the turbine heights for the Fountain Wind project as currently proposed.
    - Other data cited in this discussion address <u>average</u> flight altitudes. To be more meaningful, the report needs to focus on the percentage of birds flying below the maximum turbine height.
- The report suffers from an ambiguous use of terms and data. While the report is titled "<u>Nocturnal Migrant</u> Risk Summary" [emphasis added], the first sentence of the report focuses on passerines. By the third sentence, the report returns to a focus on nocturnal migrants. Although most of the baseline data subsequently presented encompasses all nocturnal migrants, the concluding paragraph regarding fatality rates addresses "migrant passerines" and "passerines and other small birds" and only casually mentions "large bird" fatalities.
    - The report needs to be refined to provide more clarity on objectives and findings.

Avian Use Study Report and Risk Assessment (Year 1 Report and Year 2 Addendum)

- As noted on Page 1 of the Year 1 report, "The primary objectives of the study were to: 1) assess the relative abundance and spatial and temporal distribution of birds throughout

the Project area and 2) evaluate the potential for adverse impacts to avian species, particularly eagles, other diurnal raptors, and species of regulatory or management concern."

  - Overall, the two-year study resulted in collection of a substantial body of data that meets Objective 1. However, as further noted below, the assessment of potential impacts (Objective 2) is woefully lacking. The reports must be rewritten to provide a clear and quantified evaluation of potential impacts; likewise, recommended mitigation strategies to avoid, minimize, and offset impacts must be provided.

- Page 11 of the Year 1 report (risk assessment methods) states that "The intent of the risk assessment is not to predict the number of fatalities, but rather to provide a contextual risk assessment based on the pre-construction avian use data collected at the Project to date."

  - The most meaningful result that this risk assessment could produce would be in terms of predicted bird fatalities. Instead, the authors choose to focus on a "contextual assessment" that obfuscates the actual impacts of the project. We find this to be inappropriate.

- Although the report summarizes reams of data for the project site as well as for wind power projects throughout the United States, most of this data is dismissed, and the report focuses on the Hatchet Ridge project results.

  - Although no data for other wind energy projects in forested habitats may have been available at the time WEST's initial report was prepared, we expect that facilities have now been constructed in forested habitats and that additional pre-construction and post-construction data is now available. We strongly recommend that a current review of wind energy projects be conducted and that data for comparable facilities in forested habitats be added to this evaluation.

- The Discussion and Risk Assessment (page 24 of the Year 1 report) identifies Point 30 as being in ideal habitat for soaring birds. This important finding must be brought forward to the Conclusions section, and recommendations to minimize potential impacts of the proposed turbines in the immediate vicinity must be made. Recommendations could include moving or eliminating the turbines, or establishing specific management/turbine use practices to minimize impacts.

  - The Discussion and Risk Assessment should include a visual/spatial display of the site-specific bird use data collected for the project, particularly for bird use in the rotor-swept zone. This would allow identification of principal areas of bird use and areas of low bird use. The turbine siting analysis should then include this information as a key factor in determining where turbines can be constructed to meet project objectives and minimize bird fatalities.

- Page 24 of the Year 1 report addresses direct impacts to bird populations, which are identified as loss of habitat and fatalities resulting from collisions with turbines. However, no data is provided in the report on the anticipated extent of habitat loss.

  - The extent of habitat loss must be quantified, and appropriate mitigation measures must be provided. Particular attention should be given to habitat that could support special-status bird species.

  - Other direct impacts such as increased potential for fatalities due to collisions with overhead electrical lines must be identified and evaluated.

- Page 24 of the Year 1 report notes that the highest risk of direct mortality to birds during construction is the potential for destruction of nests during initial site clearing. However, instead of quantifying the extent of site clearing proposed or providing guidance for nest avoidance, the report makes the weak conclusion that loss of nests can be minimized by using existing roads and previously cleared lands.
  - The anticipated extent of clearing must be provided, by habitat type.
  - Mitigation measures must be provided to offset the loss of important habitats for avian use.
  - Recommendations to avoid loss of nesting birds must be provided. These could include scheduling vegetation clearing outside of the nesting season, or conducting pre-construction nesting surveys in advance of any construction during the nesting season, with recommendations of steps to be taken when nesting birds are encountered.
- Page 33 of the Year 1 report provides a two-paragraph discussion of potential indirect effects of the project on birds. Loss of habitat, habitat fragmentation and behavioral avoidance are briefly mentioned as potential effects. However, no site-specific information on potential effects is provided. Instead of providing a good-faith evaluation of potential effects, the report simply concludes (with no supporting data) that the effects of the project will be similar to existing timber harvest operations.
  - The evaluation needs to be revised to quantify potential impacts to the greatest extent feasible. At a bare minimum, the acreage of habitat loss needs to be provided.
  - The evaluation needs to identify similarities and differences between permanent impacts of wind power development vs. the (more or less) temporary impacts of timber operations.
  - The report needs to provide an evaluation of anticipated habitat fragmentation and behavioral avoidance impacts to address potential effects on bird populations.
  - The potential loss of prey species due to habitat modification needs to be addressed as a potential indirect impact.
  - The effects of night-lighting on bird nesting and other bird behaviors need to be addressed as a potential indirect impact.
  - The report needs to provide a robust analysis of cumulative impacts, including the effects of nearby wind power projects as well as timber harvest operations.
- The two reports seem designed to obfuscate information. One would expect that the “Conclusions” section would provide a concise, quantified description of avian use and anticipated mortality due to the proposed wind project. No such information is provided.
  - The Year 1 report provides a numerical range of fatality rates for birds at wind energy facilities in California and the Pacific Northwest, but then dismisses this data and concludes that “it is reasonable to expect that fatality rates and the

species composition of fatalities at the Project will be similar to that documented at Hatchet Ridge." Absolutely no quantifiable information is provided in the Conclusions section regarding Hatchet Ridge.

    - Post-construction monitoring at Hatchet Ridge shows that fatalities of two special-status bird species have been documented. Although similar fatalities must be expected at Fountain Wind, this essential finding is not reflected in the Year 1 report conclusions.

  - The Year 1 Conclusions paragraph states that "The results of pre-construction avian use surveys conducted at Hatchet Ridge were largely consistent with those documented at the Project during this study."

    - No pre-construction avian use data for Hatchet Ridge is provided in the current report; therefore, this conclusion is entirely unsupported.

  - The Year 2 Conclusions section consists of two sentences that merely affirm the (vague) findings of Year 1.

- The Year 1 report Introduction states that one of the primary purposes of the study is to "evaluate the potential for adverse impacts to avian species, particularly eagles, other diurnal raptors, and species of regulatory or management concern."

  - As noted above, no information is provided in the Conclusions with respect to this primary study objective.

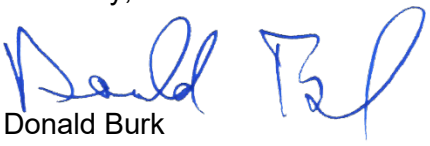
  - The Discussion section notes that the "risk of collision" for special-status species is "low to moderate." We disagree. If two fatalities of special-status species were observed at Hatchet Ridge in three years of post-construction monitoring and similar results are expected at Fountain Wind, the potential for fatalities of special-status species over the 40-year life of the Fountain Wind facility must be high or very high.

    - Instead of discussing expected fatalities to special-status species, the report quickly pivots to statements on nesting habitat and habitat fragmentation, with the paragraph concluding that "the Project will not cause displacement of sensitive small bird species beyond what has occurred and will continue to occur from ongoing timber harvest operation."

    - Measures to avoid, minimize, or offset the loss of special-status species must be provided.

Please contact me if you have any questions regarding our findings.

Sincerely,



Donald Burk
Environmental Services Manager

c: Ryan Baron, Best Best &Krieger