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TECHNICAL MEMORANDUM

DATE: January 24, 2019

TO: Kristen Goland, Pacific Wind Development LLC

FROM: Andrea Chatfield and Joel Thompson, WEST, Inc.

RE: Request for clarifications on 2017 and 2018 Raptor Nest Survey Reports for the Fountain Wind Project

On behalf of Pacific Wind Development LLC, Western EcoSystems Technology, Inc. (WEST) prepared 2017 and 2018 Raptor Nest Survey Reports (Reports) for the proposed Fountain Wind Energy Project (Project). The Reports, both dated September 19, 2018, were submitted to Shasta County and subsequently reviewed by ESA. Based on their review, ESA requested, in a memorandum dated January 17, 2019, that clarifications or additional data be provided in regard to the Reports. Each of ESA's specific requests is listed below followed by WEST's response.

- 1. The 2017 report described the helicopter survey methods as "intuitive controlled survey method that focused on identifying and searching specific habitat features within the Survey Areas that held the highest potential to support the target species". In general, this approach is appropriate. However, the report does not describe in greater detail where the survey was conducted within the survey area or the proportion of the survey area that was actually covered by the survey. Information in the reports is limited to the locations of occupied nests. Presumably, there are large areas within the 10-mile survey area that do not contain 'high potential habitat features' and therefore were not surveyed according to the helicopter protocol described. The extent of survey coverage is important in assessing overall habitat conditions in the survey area (see below). Please be more specific about which areas within the survey area were determined to contain "high potential habitat features" and therefore were surveyed pursuant to the described protocol.*

Flight tracks for the 2017 aerial survey are provided in Figure 1. During the survey, the 10-mile buffer survey area was visually subdivided into sections delineated by prominent landscape

features (e.g., powerline corridor, major drainages and ridgelines, roads). All portions of the 10-mile survey area were covered with each section flown via meandering transects. Using an intuitive controlled survey methodology, areas within each subdivided section identified as having potentially suitable substrates (e.g., cliffs, large/dominate trees, powerlines) to support stick nests of large raptors (e.g., eagles, large buteos, osprey) were more thoroughly surveyed, while areas without suitable substrates for such species were not further investigated.

2. *Similarly, the reports do not provide details on the location or extent of either suitable or unsuitable habitat or landscapes within the survey area. This is important information that should be incorporated into the EIR environmental setting and impact assessment. Over half (the entire area south of State Route 299) of the 10-mile radius survey area has no nesting raptor occurrences. Neither report provides information on habitat suitability within this part of the survey area or how the habitat suitability conditions present influence the distribution of nesting eagles and other raptors. Presumably, if there are no bald or golden eagle nests within this area, suitable habitat is insufficient to support them. However, in the absence of at least a general assessment of habitat conditions, this conclusion cannot be sufficiently supported in the EIR. Please provide a habitat condition suitability assessment.*

For the larger 10-mile buffer survey area, the focus of the survey effort was bald and golden eagle nests, which is the survey radius recommended in the Eagle Conservation Plan Guidance (USFWS 2013). While suitable nesting habitat for golden eagles (i.e., cliffs and large trees that are either isolated or on the edge of small stands of timber and proximal to large open areas) is limited within the survey area, nesting habitat for bald eagles is present throughout the survey area. The most suitable habitat for bald eagles is located along the Pit River, as evidenced by the large number of historical nests documented along the river corridor (see Figure 2). Additionally, several small lakes and reservoirs are present, primarily in the northern half of the survey area which provide bald eagle foraging habitat proximal to nesting habitat. Due to the lack of rivers, lakes, and reservoirs in the area south of State Route 299, the potential for bald eagle nests to occur in this area is lower; however, due to the presence of large trees, as well as several larger creeks, this area was also covered during the aerial survey, with greater attention paid to large/dominate trees on the landscape and areas surrounding a small lake in the southeast portion of the survey area. Within the Project area itself, nesting habitat for both bald and golden eagles is generally absent.

Surveys for non-eagle raptor species were conducted within the Project boundary and surrounding 2-mile buffer, consistent with recommendations in the California Wind Energy Guidelines (California Energy Commission and California Department of Fish and Wildlife 2007) and the USFWS Wind Energy Guidelines (USFWS 2012). Abundant nesting habitat for forest-nesting raptor species is present throughout this area. Those raptor species most likely to be found nesting within the Project's mixed conifer forest, based on habitat alone, are: Cooper's hawk, sharp-shinned hawk, northern goshawk, California spotted owl, flammulated owl, northern pygmy owl, and northern saw-whet owl. The Fountain Fire, which burned much of the central half of the Project Area in 1992, has limited the amount of nesting habitat for some forest-nesting species, but habitat may be suitable for species preferring more open forest and scrub habitats (i.e., early seral) for nesting (e.g., American kestrel, red-tailed hawk, great horned owl,

and western screech-owl). Additionally, individual large trees still standing within the fire boundary (e.g., along State Route 299) provide nesting opportunities for osprey. Less conspicuous raptor nests (e.g., red-tailed hawk, owls, and accipiters) located within/below dense forest canopy are difficult to see from the air in mixed-conifer forest habitats and no tree nests of such species were documented during the surveys. However, given the difficulty of finding such nests in dense mixed-conifer forests such as those in the project area, some nests of such species may have gone undetected during aerial surveys.

3. *Although none were found during the survey, it would be helpful if the occurrence maps provided the location of historic golden eagle nest locations provided to them by the CDFW – and inactive historic bald eagle locations within the survey area. The 2017-2018 surveys provide information limited to the current nesting distribution. Including historic locations would be useful in presenting a more thorough characterization of the eagle nesting population in the area and would inform trend reporting as part of the cumulative effects analysis. Please include historic locations on the occurrence maps included in the 2018 report.*

The location of historic bald and golden eagle nests, as provided by the California Natural Diversity Database (CNDDDB) and CDFW, are provided in Figure 2. Two historic golden eagle nests and 17 historic bald eagle nests have been documented within the 10-mile buffer survey area (Figure 2). Based on information provided by the CDFW, the northern historic golden eagle nest was observed during an aerial survey in 1979; no other information was provided. The historic golden eagle nest in the west of the survey area was observed in a conifer during a ground-based survey in May 1985, at which time it was determined to be occupied and active. Both of these historic golden eagle nest locations, and the immediately surrounding area, were searched extensively during the March and May, 2017 aerial surveys; however, no nest structures were identified suggesting these nests are no longer present. Of the 17 historic bald eagle nests identified by CDFW/CNDDDB, 11 were located by WEST during the 2017 aerial survey with nine of those found to be occupied and active.

4. *The legend on Figure 1 is missing information on land ownership. The light green and white areas, some or all of which is presumably private land, should be labeled in the legend. Confirmation of this would be useful in assessing land ownership within the 10-mile survey area relative to the current nesting distribution and how this influences land management practices and potential suitability for nesting eagles. Please provide the requested land ownership information.*

The requested land ownership information is provided in Figure 3 below. WEST was not able to locate publicly available data for individual private landowners within the 10-mile buffer survey area; however, the vast majority of land is owned by private timber companies with smaller areas possibly owned by utility companies and private individuals. In publicly available datasets reviewed, these areas were labeled as “undetermined” and are included in the private/undermined category in Figure 3.

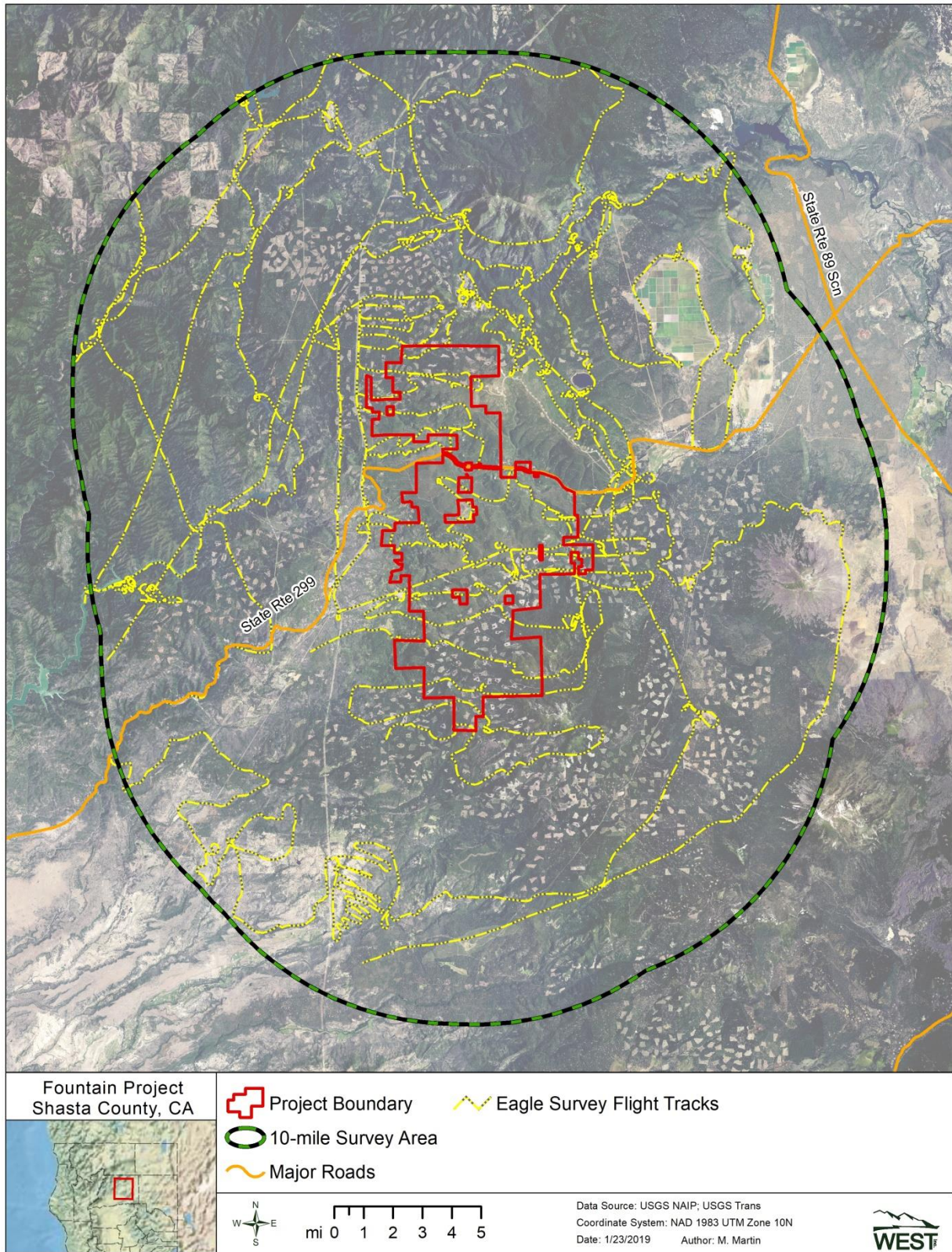


Figure 1. Flight tracks for the March 20, 2017 aerial raptor nest survey at the Fountain Wind Project.

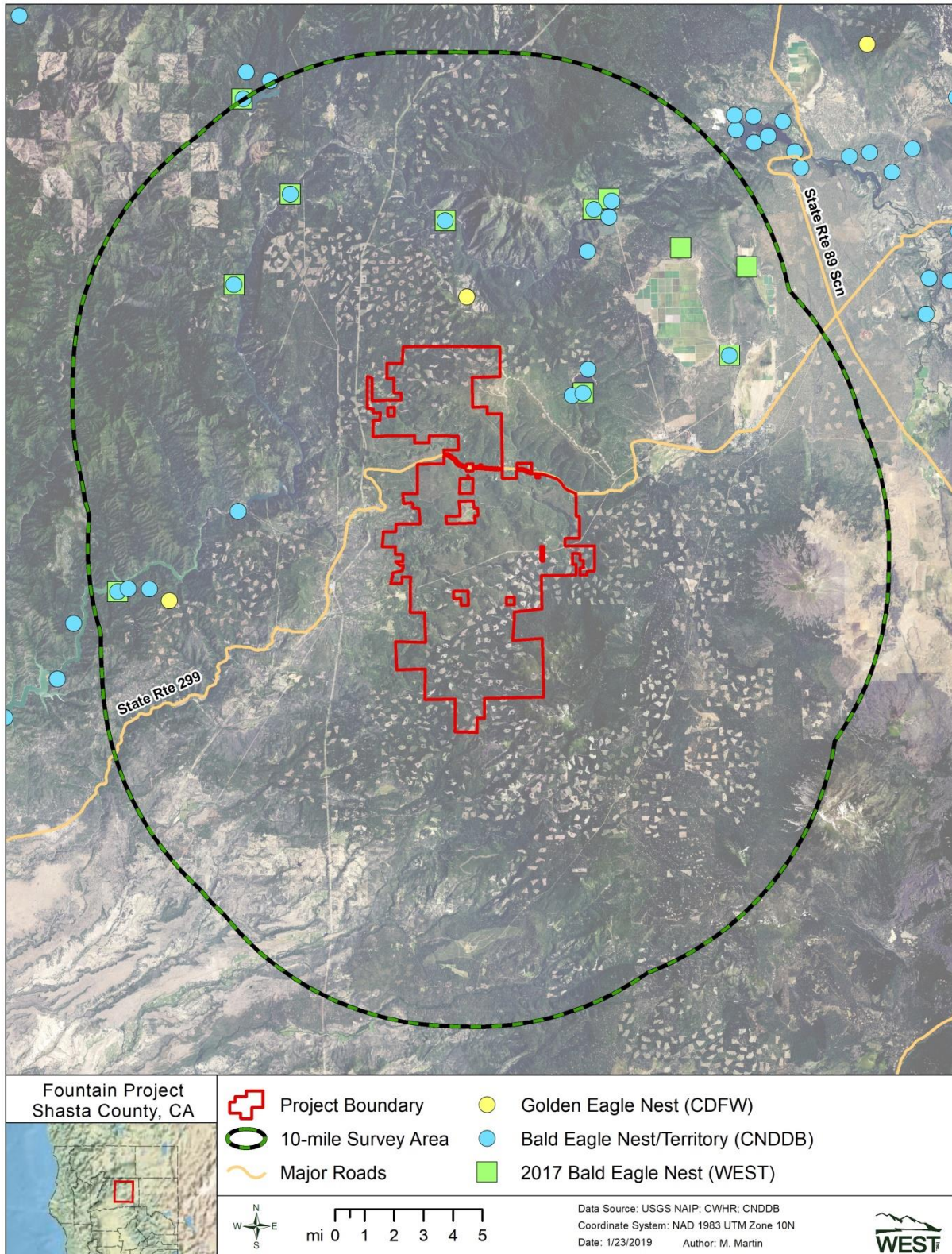


Figure 2. Location of historical bald and golden eagle nests within 10 miles of the Fountain Wind Project. Data provided by the California Natural Diversity Database (CNDDDB; 2017) and the California Department of Fish and Wildlife (CDFW; C. Battistone, pers. comm.).

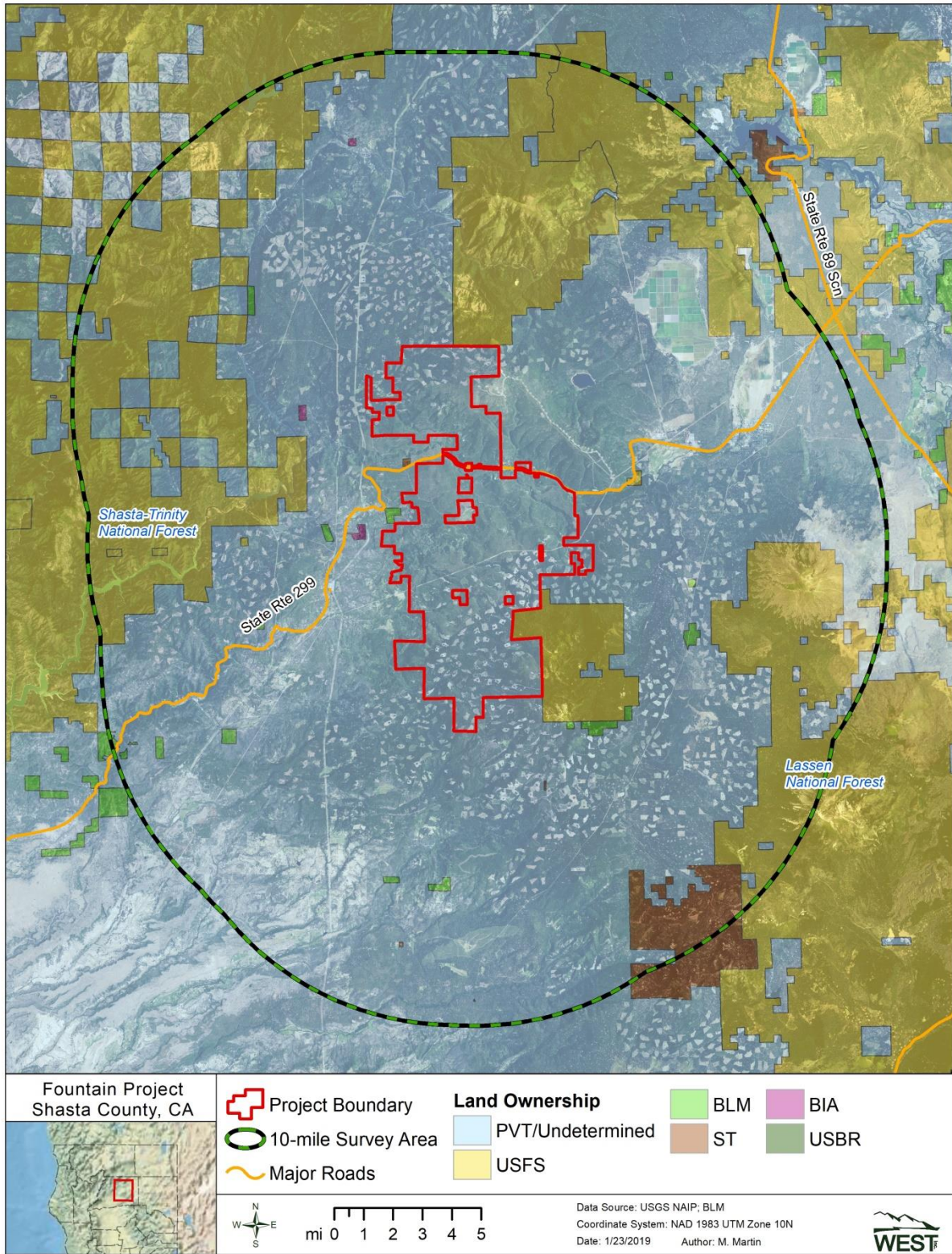


Figure 3. Land ownership within the Fountain Wind Project and surrounding area (PVT = Private, USFS = US Forest Service, BLM = Bureau of Land Management, ST = State, BIA = Bureau of Indian Affairs, USBR = US Bureau of Reclamation).