Appendix I

Technical Report on Evaluation Criteria and Oak Woodland Categories

— PRELIMINARY DRAFT —

Technical Report on Evaluation Criteria and Oak Woodland Categories

for the El Dorado County Oak Woodland Management Plan

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I. Introduction

In its 2004 General Plan, El Dorado County (County) committed to preparing an Oak Woodland Management Plan (OWMP). The OWMP will serve as the initial component of, and satisfy the requirements of, the County's Integrated Natural Resources Management Plan (INRMP) as it relates to oak woodlands.

To provide focus for developing the OWMP, the Consultant Team proposed a process to identify oak woodland habitats within the County and to evaluate the natural resource values of the oak woodland habitats. Identifying and mapping the categories of oak woodland habitat in the County and assigning evaluation criteria will serve as the foundation for the OWMP.

II. Categories of Oak Woodland Habitat in El Dorado County

A. Purpose

Oak woodland "categories" are the types of oak woodland habitats that will be mapped, quantified, and evaluated in the OWMP. To prepare the OWMP, it is first necessary to identify the categories of oak woodland habitats that occur in the County, and to determine their acreage and distribution.

The County's Interim Interpretive Oak Woodland Guidelines define oak woodland as "a given unit of land, with one or more groupings of live trees, where the dominant species (i.e., plurality) of the live trees within the groupings are native oaks (genus quercus)." Under the California Fish and Game Code Section 1361, oak woodland is defined as "an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover."

Using the California Fish and Game Code definition of 10% cover, oak woodland habitats can be mapped and their distribution determined in the County. Determining the types and distribution of oak woodlands in the County is a requirement to obtain implementation funding through the California Oak Woodlands Conservation Program.

B. Approach

The approach to determine and map oak woodland categories will begin with existing data sources. With the identified six-month schedule to prepare the OWMP, no field surveys will be performed.

An initial set of categories will be developed. To the extent that data are available from additional sources, the initial categories of oak woodlands will be refined. The refined or final categories of oak woodlands will be used in analyses of natural resource values, including connectivity and fragmentation.

The distribution of the identified categories of oak woodlands then will be mapped. During the mapping process, the acreage of the oak woodland categories will be calculated.

C. Data sources

First, initial oak woodland habitat categories will be identified using the California Wildlife Habitat Relationship (WHR) Habitat Types in the California Department of Forestry and Fire Protection 2002 Fire and Resource Assessment Program (FRAP) mapping. Because this same data source was used in the Environmental Impact Report (EIR) for the County General Plan, use of it here will help ensure consistency with County-approved policies and allows for tiering of the OWMP CEQA documentation.

Second, additional existing data sources will be considered for defining categories of oak woodland habitats. One source is the 2002 Existing Vegetation (EVEG) mapping by the USDA Forest Service, Remote Sensing Lab. EVEG mapping contains most components of the 2002 FRAP mapping, uses the same Landsat TM imagery, and contains additional data that could be used to refine categories to better distinguish oak woodland characteristics.

The Holland vegetation classification system will also be considered as a source to further refine oak woodland categories. The availability of mapping using the Holland classification will need to be confirmed with the California Department of Fish and Game. The Upper Cosumnes River Conservation Plan, which includes land within El Dorado County, used the Holland system to classify oak woodland types.

To fulfill requirements of the Oak Woodland Conservation Program, historic distribution of oak woodlands in the County will also be considered using existing data sources. One potential source is the Wieslander Vegetation Type Mapping (VTM) collection (http://www.lib.berkeley.edu/BIOS/vtm for maps and http://vtm.berkeley.edu for plot data). This collection is based on vegetation data and vegetation type maps from the 1920's and 1930's. The availability and applicability of this data to the planning area has yet to be determined.

D. Defining categories

Oak woodland categories initially will be defined based on the WHR Habitat Types in the 2002 FRAP mapping. These oak woodland categories are identified in Table 5.12-1 of the EIR under woodland habitats. The five initial categories are Blue oak-foothill pine (BOP), Blue oak woodland (BOW), Montane hardwood (MHC), Montane hardwood-conifer (MHC), and Valley oak woodland (VOW).

A sixth category, Valley-foothill riparian (VFR), is proposed to be included because it can be dominated by Valley oak. VFR has very limited acreage in the County and was identified as a sensitive habitat in the EIR. Its inclusion is consistent with General Plan Policy 7.4.2.8 directing an inventory of important habitats, including riparian habitats.

Other categories may be addressed in analyses because a category may have greater than 10 percent oak canopy cover or a category may have been converted from oak woodland and have the potential for restoration. For example, Sierran mixed conifer (SMC) extends as low as 2,500 feet in elevation and occurs within the planning area. Black oak is a component of SMC and may have greater than 10 percent canopy cover. Some

historical oak woodland types may have been converted to shrub types [Mixed chaparral (MCH) or Montane chaparral (MCP)] or grassland [Annual grassland (AGS)] through fire, harvest, or other disturbance. These types may present a potential for restoration when there is evidence that the type was converted (e.g., on a soil type and aspect that would typically support oak woodland).

E. Refining or subdividing categories

The initial oak woodland habitat categories described in Section II.D could potentially be refined into categories that would allow for finer distinction of oak woodland habitat types than found in WHR Habitat Types. For example, the area included in the WHR as BOW might be further refined into Blue oak woodland, Interior live oak woodland, or California buckeye as in the Holland classification, allowing for refinement of the broader category of BOW. The analysis would be a GIS process of overlaying WHR Habitat Type with other existing data and then evaluating whether useful refinement (relative to OWMP or INRMP requirements) is obtained. Additional data or mapping sources that provide vegetation information and that could be evaluated include:

- Holland vegetation classification if mapping is available
- CALVEG (Vegtype and Vegtype2 fields in FRAP)

CALVEG is presented in two fields, representing species with primary and secondary dominance. Each of the fields will be overlaid individually with WHR Type to determine whether sufficient data are attributed within a field and whether categories can be subdivided into finer, useful categories. The data, if any, providing the most useful refinement of categories will be selected for use in the OWMP.

Vegetation types used in oak woodland and other regional plans that apply to lands adjacent to the OWMP planning area will also be reviewed. Such plans include the Sierra Nevada Forest Plan Amendment (applicable to the Eldorado and Tahoe National Forests), the Upper Cosumnes River Conservation Plan, and the Placer County Native Tree Mitigation Policy. Other available habitat conservation plans that focus on lands adjacent to El Dorado County will be reviewed. Evaluating the criteria used to define vegetation types used in adjacent plans could help promote consistency of oak woodland management across administrative boundaries.

III. Quantify Categories

After the final categories of oak woodland habitats are defined, they will be mapped and acreages calculated. The calculations will facilitate a comparison of the relative abundance of oak woodland by category within the County. Based on abundance within the County and other considerations, each oak woodland category may be assigned a relative importance. The ranking process has not been established.

IV. Evaluation Criteria

A. Purpose

Evaluation criteria provide a means to determine which oak woodland habitats, regardless of oak woodland category, are more valuable than other habitats. Attributes that provide oak woodland value (e.g., providing critical ecosystems services) will be identified. At a landscape level, high value oak woodland habitats will be identified within the County.

Evaluation criteria will serve purposes on two scales. On the landscape scale, identification of high value oak woodlands could direct conservation efforts and, conversely, identification of impacted oak woodlands could direct restoration efforts. On a project scale, the evaluation criteria, or a subset thereof, could be used later in a Site Assessment Form to determine impacts on oak woodland habitat or the need for a Biological Resources Study.

B. Approach

The approach to selecting and refining evaluation criteria will begin with existing data sources as identified in the following section. Initially, a broad range of attributes (or potential evaluation criteria) will be considered. These initial criteria will be reviewed and then refined into a smaller subset.

After the evaluation criteria are determined, they will be prioritized as discussed in Section V. Any unit (as defined by the scale) of oak woodland can be assigned a priority based on a composite of the evaluation criteria for that unit. With this process in place, a map of prioritized oak woodland habitat or a series of maps can be created. Those oak woodland habitats with a high priority can be identified for conservation efforts. Oak woodland habitats with a low priority but potential for restoration also could be identified.

C. Data sources

Several data/mapping sources will be reviewed for evaluation criteria that can be used in mapping. Data sources include the 2002 FRAP mapping, the 2002 EVEG mapping, and data layers identified in Appendix A of the Mapping Memorandum dated October 12, 2006, which includes layers used in the EIR analyses. In addition, the California Natural Diversity Data Base (CNDDB) maps of special-status species and sensitive habitats will be reviewed.

A broad array of other sources also will be reviewed for potential evaluation criteria. Major sources include the County General Plan (e.g., Policy 7.4.2.8), General Plan supporting documentation (i.e., Draft and Final Environmental Impact Reports), and the 1998 Oak Woodland Assets and Guidelines for El Dorado County. Regional plans will be reviewed to identify other oak woodland or Integrated Natural Resource Management

Plan considerations that could affect the valuation of oak woodlands in the County. Specific important oak woodland references to be reviewed include:

- Saving, S.C. and G.B. Greenwood. 2002. The potential impacts of development on wildlands in El Dorado County, California. USDA Forest Service General Technical Report PSW-GTR-184.
- Giusti, G.A., D.D. McCreary, and R.B. Standiford. 2005. A planner's guide for oak woodlands, 2nd edition. University of California Agriculture and Natural Resources Publication 3491.
- Greenwood, G. and S. Savings. 1999. Case study: Current and future patterns of development in El Dorado County. Fire and Resource Assessment Program. California Department of Forestry and Fire Protection.
- 1998 Oak Woodland Assets and Guidelines for El Dorado County

D. Selecting evaluation criteria

A broad range of evaluation criteria will be considered. The following identifies an initial list of potential evaluation criteria (not intended to be an exhaustive list):

- Presence of important habitats as identified in General Plan Policy 7.4.2.8.
  - Habitats that support special-status species. Oak woodland habitats that support special-status species would have higher value. On the landscape level, this could be determined using CNDDB.
  - Aquatic environments including streams, rivers, and lakes. Oak woodland habitats supporting or adjacent to these aquatic environments (and including headwaters of creeks) would have higher value because these habitats are important to protecting watersheds and water quality as well as providing wildlife habitat.
  - Wetland and riparian habitat. Oak woodland habitats supporting or adjacent to wetland and riparian habitat would have higher value because these are sensitive habitats that provide ecosystem services such as filtering water as well as providing important wildlife habitat.
  - Important habitat for migratory deer herds. Oak woodland habitats and oak habitat connectivity that occur within these areas would have higher value.
  - Large expanses of native vegetation. Oak woodland habitats that occur in large, connected expanses or are adjacent to protected open space would have higher value. These areas provide higher quality wildlife habitat, provide connectivity, limit fragmentation, and maintain greater ecosystem values with fewer edge effects.
- Important Biological Corridor (IBC) overlay. Oak woodland habitats intersecting the IBC would have higher value because these areas provide critical wildlife value.
- Connectivity with open space, such as public lands or preserves. Oak woodland habitats adjacent to public lands such as lands within the Bureau of Land Management or the National Forest System or adjacent to ecological preserves would have higher value. These habitats limit fragmentation, maintain large

expanses of native vegetation, and maintain greater ecosystem values. These ecosystem values include but are not limited to wildlife habitats and corridors within and contiguous to the County.

- Connectivity with large areas of actively managed landscapes, such as grazing lands. Oak woodland habitats adjacent to actively managed landscapes have higher value because they buffer urban and agricultural areas if the actively managed landscapes are protected in perpetuity by conservation easements or by zoning.
- Percent canopy cover. WHR Density from the 2002 FRAP mapping and/or Hardwood Cover from the 2002 EVEG mapping could be evaluated. Percent canopy cover is more meaningful with some indication of size class distribution.
- Size of trees. WHR Size in the 2002 FRAP mapping and/or Overstory Tree Diameter from the 2002 EVEG mapping could be used to provide size class information to supplement percent canopy cover. Oak woodland habitats with medium to large size trees provide higher wildlife value. This criterion does not address regeneration issues.

Other evaluation criteria may be selected to address other General Plan considerations (e.g., fragmentation) and to avoid areas zoned for development or dedicated to other uses (e.g., agricultural districts, cities, communities, high density land uses, etc.).

E. Refining list of evaluation criteria

The initial set of evaluation criteria will be refined based on Consultant Team technical review and research of other regional plans and references. Evaluation criteria will be used only if adequate, substantiated data are available to support inclusion. Further refinement would follow review and feedback from the County Technical Advisory Committee (TAC). Documentation on criteria selected, eliminated, or changed would be reflected in the Public Draft Technical Report on Evaluation Criteria and Oak Woodland Categories. The list of evaluation criteria would be finalized after public and agency input. The final evaluation criteria would be used to prepare the OWMP.

V. Prioritize Evaluation Criteria

A. Assign priority to evaluation criteria

After the list of evaluation criteria is finalized, the range of values within each criterion will be identified. Priority rankings will be assigned to each criterion based on these values. Priority rankings have not been determined, but likely will use a presence/absence ranking in a binary system. The presence of an evaluation criterion would rank a "1" and its absence would rank a "0". Possible rankings for evaluation criteria are as follow:

- IBC
  - 1 – oak woodland habitat intersects IBC
  - 0 – oak woodland habitat does not intersect IBC
- Aquatic environments
  - 1 – oak woodland habitat contains aquatic environment (e.g., stream or pond)

    - 0 – oak woodland habitat does not contain aquatic environments
- Large expanses of oak woodland
    - 1 – contiguous oak woodland at least 100 acres (example acreage only; size still to be determined)
    - 0 – contiguous oak woodland less than 100 acres

The process for mapping land units and prioritizing them based on the final evaluation criteria will be developed in consultation among the consultant team biologists and GIS analyst, and with the County TAC and GIS TAC.

B. GIS process

Several steps will be required to determine which potential evaluation criteria may contribute to the process of developing the OWMP and provide useful map products. First, the GIS layers to provide the data input must be available for the planning/study area and readily obtainable. Second, close work between the consultant team biologists and the Consultant Team GIS analyst is required to determine how proposed approaches may work and whether the desired information can be extracted. Third, input from the County TAC and GIS TAC will help direct the process and provide useful feedback. Developing the process for applying evaluation criteria spatially and determining priorities for a land unit will be driven by GIS processes. The final products are discussed in Section VI.

VI. Prepare Oak Woodland Maps and Assign Importance

A. Prepare Oak Woodland Maps

The initial mapping product will be a map of the planning area showing the final categories of oak woodlands. This map will be similar to Figure CO-2, Major Plant Communities in El Dorado County, from the General Plan; however, it will be restricted to the planning area and the refined categories.

A set of intermediate oak woodland maps may be prepared to show the presence/absence of each of the selected evaluation criteria. For example, the IBC may be overlaid with the oak woodland WHR habitat types. Where the IBC and oak woodlands intersect would receive a value of 1 for presence of the IBC.

B. Assign Importance to Mapped Units

The final map product will display oak woodland categories and overall importance. The importance designation will be a composite of the presence/absence of the selected evaluation criteria and will be assigned to units on the landscape. Other considerations may be a part of the composite based on the results of the mapping. These considerations may include sensitive habitat (e.g., valley oak woodland) and opportunities for connecting large expanses of oak woodland.

The map products and importance designations will help to direct the preparation of the OWMP. They also will help to direct conservation efforts and potentially restoration

efforts. [Areas of potential restoration efforts possibly could be identified by overlaying WHR Habitat Types with USGS digital terrain models (i.e., aspect) and/or the Natural Resources Conservation Service (NRCS) soils mapping and then locating degraded lands.]