APPENDIX 2
SECTION IV SPREADSHEET PREPARATION OBSERVATIONS

The observations and notes below are the result of examination of the Cumulative Impact Assessment sections (THP Section IV) of the eight most recent THPs found in the Campbell Creek Planning Watershed in Mendocino County.

There is no standardized method for conducting a cumulative impact analysis, as disclosed in some of the THPs evaluated (text from THP 1-15-107 MEN):

> "There is no single, widely accepted method of conducting a cumulative effects analysis for forestry projects that are conducted on private forestlands. Several important inquiries into the strengths and weaknesses of methods used by California regulatory agencies have been conducted over the past few decades: Little Hoover, Scientific Review Panel; etc. Attempts to improve the analysis methods used in California forestry are continuing to the day (THP Cumulative Effects Working Group."

The most recent THPs 2013-2015 described strategies (avoidance, minimization and mitigation) and practices (Best Management Practices; site specific practices, on-site and off-site practices) for avoiding adverse cumulative impacts. Also described was a method that included feedback processes throughout the project design with: "The end goal … to achieve the initial project objectives and not only prevent adverse cumulative environmental effects but achieve a positive cumulative environmental outcome." The 2013-2015 THPs concluded (from THP 1-15-107 MEN):

> In conclusion, cumulative effect analysis is an imperfect science. The analysis provided here is our best attempt to first meet the requirements of the California Forest Practice Rules, and secondly to provide the most scientifically defensible approach feasible for forestry projects being implemented on lands zoned for timber production in the State of California."

The level of information provided in each THP will depend on availability of information and level of perceived risk to a given resource (the lower the risk the less need for detailed information).

This landowner (Campbell/Hawthorne at the time the most recent THPs were prepared) chose to put some information commonly found in THP Section IV in other parts of the THP. For example, to avoid repetition, the harvest history for the assessment area was moved to the Erosion Control Plan which is found in THP Section V (supporting documentation). Due to the size of the assessment areas of the THPs examined (in all but one THP it was two or three planning watersheds) information regarding wildlife/plant species tended to be general in nature. However, in THPs 1-15-107 MEN, 1-15-094 MEN, 1-14-126 MEN and 1-13-031 MEN findings included: "… There are no known recent trends which have produced significant cumulative impacts upon biological resources within the assessment area." More detailed information may be in THP Sections III and V, but is generally specific to within harvest units. Reports of consultations with wildlife agencies, when available, are generally located in THP Section V.

As alluded to above, none of the THPs were prepared by Lyme Redwoods Timberlands, LLC, the current owner of over 80% of the Campbell Creek Planning Watershed. The most recent THPs were prepared by the previous owner of the property, Campbell/Hawthorne. The ownership change was in December 2015, three months before the most recent THP (THP 1-15-107 MEN) was approved. In the Campbell

Creek Planning Watershed there were no THPs submitted in 2016, 2017 or 2018. The most recent THPs in the Campbell Creek Planning Watershed were submitted in 2015.

As a review process, eleven spreadsheets were created, one summarizing the contents of the ten following spreadsheets, and one for each of the divisions found in the Cumulative Impacts Assessment sections from the most recent (2007-2015) eight THPs. The organization of THP Section IV is similar from THP to THP, following the direction provided by Technical Rule Addendum #2 of the Forest Practice Rules (code sections 14 CCR 912.9, 932.9 and 952.9). Changes and/or differences in the layout or content of THP Section IV are mentioned in the notes field on Spreadsheet 1 and in this summary document. References to changes, and the nature of information (qualitative, quantitative, spatial) are highlighted on Spreadsheet 1.

THP Section IV includes a map of the Watershed Assessment Area and the Biological Assessment Area (presented on a single map). A concern for this pilot project is that these assessment areas were not confined to the Campbell Creek Planning Watershed in seven of the eight THPs. Nothing in the Forest Practice Rules requires a THP or NTMP to be confined to a single Planning Watershed. For biological resources (See spreadsheet 7 in Appendix 3, the first column after the THP number), even where the Watershed Assessment Area is the Campbell Creek Planning Watershed the Biological Assessment Area is usually somewhat larger because of northern spotted owl considerations. Also, see the "notes" column on the right-hand side of spreadsheet 5 (Cumulative Watershed Resource Impacts Assessment) or 7 (Cumulative Biological Resource Impacts Assessment), seven of the eight THPs (2007-2015) had at least one harvest unit in a different Planning Watershed. This makes the assessment areas used in the THPs larger than the Campbell Creek Planning Watershed. For data mining purposes, extra scrutiny is required to make sure quantitative and qualitative information is specific to the Campbell Creek Planning Watershed. Some discussion is even more general, at the entire Ten Mile River drainage scale.

Identified during the data gathering process were changes to rules, regulations, policies and THP submitter preference that have changed the contents of Cumulative Impact Assessments (Section IV) of THPs in this Planning Watersheds since 2007:

- "Protection and Restoration of the beneficial functions of the Riparian Zone in Watersheds with Listed Anadromous Salmonids," code sections 14 CCR 916.9, 936.9 and 956.9 - How these rules changed THPs was described in THP 1-15-107 MEN: "With this proposed THP being in compliance with the 2009 'Anadromous Salmonid Protection' (ASP) rules, it is expected that canopy levels along Class I and II watercourse will continue to improve in the future throughout the WLPZ … Standard canopy retention requirements for all Class II watercourses became effective in 1983 and in 2010 the ASP rules incorporated mandatory 15-30 foot wide no-harvest cores adjacent to both sides of the watercourse for bank stability, wood recruitment, canopy retention for water temperature control and overall wider watercourse and lake protection zones (WLPZs)"
- AB 47 (Assembly Bill 47) requires the mapping of past THPs on land owned or controlled by the timberland owner within the watershed assessment area. The requirement was added to Technical Rule Addendum #2 in the Forest Practice Rules in 2005. Prior to 2005 maps of this type were not required. Caution should be exercised when using these maps, THPs/NTMPs on other ownerships are not required to be mapped.
- THPs prior to 2014 have a shorter discussion of Townsend's big-eared bats, if there is any discussion at all. At some point in 2014 or 2015 this species became a candidate for listing, requiring discussion in the cumulative impacts assessment. The gray wolf is a similar situation.

- Greenhouse Gas - 2011 was the first year that a change in the Forest Practice Act (not the Rules) included sequestration of carbon dioxide as a resource to be managed (code sections PRC 4512(c) and 4512.5). THPs must conform to the Forest Practice Act even if there is no specific rule spelling out how to treat the subject. Discussion of carbon sequestration and/or greenhouse gasses prior to 2011 is rare in THPs. The carbon calculation forms used in the THPs examined were developed by CAL FIRE specifically to be used for timber harvest documents.

In addition to the above changes, over time the organization of material in THP Section IV has evolved. The same information is present from year to year but not always in the same order, or in the same section of the THP. An example of this is the historic logging history, a detailed discussion was included in THP Section IV prior to 2013 but from 2013 forward the reader is referred to the Erosion Control Plan in THP Section V. Whole new subsections have been introduced, such as "Requirements under the Forest Practice Rules," "Analysis Methodology" and "Rate of Harvest," which are present only in the 2013-2015 THPs. Other situations that may raise concern for potential impacts occur only infrequently, appearing in very few THPs. An example is THP 1-07-036 MEN, which had an extra category added due to proposed use of helicopters for yarding not found in any of the other THPs. Maps may occasionally be found in different locations. In seven of the eight THPs the maps were at the end of the section, in one THP they were near beginning of the section.

Given the above, there is no simple way to "mine" information from THPs of varying ages without having to read the narratives. This will be very time consuming if a large number of THPs are to be examined.

Not captured in the spreadsheets in Appendix 3 is the list of references. These lists were located either directly before or directly after the maps at the end of THP Section IV. The references consulted in the preparation of THP Section IV don't provide data directly but provide insight into what resources are used in THP preparation. In addition to expected references to aerial photography, literature on fisheries, wildlife, sedimentation, greenhouse gas, etc. there can be such THP specific references as "Helicopter Noise Reduction."

Information that some other plan submitters routinely put in THP Section IV (the Cumulative Impact Analysis) appear to have been moved into special reports that are found elsewhere in the THP. The best example of this is the Aquatic Habitat Assessment report, which is found in THP Section V (Supporting Documentation). THP Section IV briefly paraphrases the Aquatic Habitat Assessment and references the reader to look there for additional information. Also, see Appendix 4 and 12 regarding the contents of the Aquatic Habitat Assessments. As mentioned previously, a detailed discussion of the historic logging history, was included in Section IV in the earlier THPs but from 2013 forward the THPs refer the reader to the Erosion Control Plan in THP Section V for this discussion.

In the Biological Resource Impacts Assessment section of the THPs the list of occurrences of special animals, plants and natural communities came from the most recently available (at time of THP preparation) California Natural Diversity Data Base (CNDDB) and the California Rare Plant Rank lists. Critical Question #4 asks what information is available in past THPs/NTMPs and other available data sources …. It would seem more timely to get the information about potential presence of listed and other special plants and animals from the CNDDB and California Rare Plant Rank list directly, instead of trying to "mine" it from harvest documents. It would be more timely since the most recent THP in the pilot project area is from three years ago (approved over two years ago) at the time of this writing.

Given that THPs have been reviewed with the level of information found in the existing Cumulative Impacts Assessment (THP Section IV, discussion that varies little between THPs in this Planning Watershed) there do not appear to be any significant gaps in the types or quality of information available for THP preparation for the primary landowner in this watershed. The most recent THPs include these findings: “Natural events that occurred in the last decade have also contributed to positive changes in watershed conditions. High flows in 2003 and 2005/2006 have transported deposits of stored sediment and exposed buried woody debris that is further adding complexity to the stream channel. …” and "... There are no known recent trends which have produced significant cumulative impacts upon biological resources within the assessment area." As well as: “In Summary, watershed conditions today are improving and over time continued improvement of stream conditions with the watershed is anticipated.” (text found in both 2015 THPs)

Of the 8 THPs reviewed (from the most recent 11 years) all but one (1-08-015 MEN) have harvest units in other planning watersheds and therefore the assessments are for a much larger area, including different major drainages, than that of the pilot project.

It is suggested that examination by wildlife agency subject matter experts of the list of resources used in the preparation of THP Section IV is worth consideration. Resources such as: California Native Plant Society (CNPS) database and http://www.krisweb.com/biblio/biblio_tenmile.htm. (Also see Appendix 5 for a list of resources taken from the most recent THP and the two older NTMPs.) Other documents or information sources that haven’t been considered could be found there and/or a bibliography could be developed to be included in the final product for this project.

Preparation of the workbook for THP Section IV of eight THPs (Appendix 3) took approximately 40 hours.