

March 29, 2004

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Dear Melissa:

This letter summarizes my responses to peer review on the draft copy of the report entitled, "Cultural Spatial Analysis of the Central Coast, North Coast, and Haida Gwaii/Queen Charlotte Islands" (CSA Report). I have included responses to comments by Jennifer Carpenter and Dr. Lertzman. Dr. Lertzman was the only reviewer directly solicited by the CIT as part of the CIT peer review process, and he correctly suggested that other reviews would be appropriate. Ms. Carpenter submitted her comments as part of the broader agreement between the Heiltsuk and the CIT regarding the CSA report. Responses to Dr. Lertzman's comments will be followed by responses to Ms. Carpenter's.

The review draft of the CSA Report was written as a preliminary, technical document summarizing the results of using GIS to analyze available and recorded cultural features for First Nation communities and Other Communities. Peer reviewers were not provided with sufficient information about the origin of data contained in the report. Hence, a brief description of how information was assembled is warranted.

Early in the study, the CIT decided to separate the collection of information on First Nation cultural features from the collection of information on Other Community features. The CIT assigned a clear division of labor. Robert Prescott-Allen took responsibility for the delivery of First Nation data in a GIS format that would be compatible with Other Community data. I was assigned responsibility for collecting Other Community data and preparing GIS files to represent it. I was also assigned responsibility for supervising the GIS analysis of these separate data sets, with the objective of producing comparable maps. With the exception of First Nation features identified at Bella Coola (explained in the CSA Report), I was completely uninvolved in collecting information on cultural features from First Nation communities, and was not informed about the methods used to collect or summarize this information. I was informed, however, that some communities had elected not to participate in data sharing. This placed me in an unenviable position of analyzing and reporting First Nation data about which I knew very little.

Together with the GIS analysts at Coastal Resource Mapping (CRM), I decided that the only scientifically valid way to treat First Nation data was to summarize it at the simplest

level by reporting counts of cultural features falling within third order watersheds. Resulting measures of total feature density are just that—a completely transparent count of cultural features. We (CRM and I) summarized the information shared by First Nation communities by assigning reported features to watersheds, summing the number of features in each watershed, and calculating “total feature densities.” We were provided with no information about the extent to which these inventories of cultural features might be incomplete.

My revision of the review draft has responded to Dr. Lertzman’s comments as follows:

1. The methodology used in the CSA analysis is noted as a distinct advance beyond assessments of social and cultural values found in previous ecosystem-based planning efforts in British Columbia and the Pacific Northwest (United States). Citations noting these other planning efforts are contained in the CSA Report.
2. In response to Dr. Lertzman’s concerns, the CSA Report clearly states that information on First Nation cultural features was incomplete. This concern is reflected in the list of key findings, along with a statement that First Nation information may be so incomplete as to make it unreliable for purposes of ecosystem-based management planning. Since GIS analysis did not clip (limit) the spatial location of First Nation cultural features at the boundaries of First Nation traditional territories, and some communities may have identified features in locations outside their traditional territories, there was no convenient way of designating areas for which information was missing.
3. My prescribed role involved analyzing First Nation cultural features provided in GIS files using the same techniques as we were using for the Other Community information. As an analyst, I focused on the data with which I was provided, supervised GIS analysis, and prepared tabular summarizes and maps to represent the results. The seriousness of possible inadequacies in the data was not presented to me until I received review comments from Dr. Lertzman and Ms. Carpenter.
4. Summarizes of data presented in the report have not been altered in response to peer review, since we were presented with no missing information about cultural features. As a result, I was careful to refer throughout the revised report to “known and recorded” cultural features. This qualifier should be read as a statement of data limitations, especially for the First Nation results. All we had to go with was what had been recorded by First Nation communities and provided to us on GIS files.
5. I have responded to the statement that the Central and North Coasts of British Columbia are “archeologically and culturally rich landscapes” by noting this in the text. Moreover, I have stated that First Nation peoples lived on this landscape for thousands of years, and that virtually every place has a history of human use or value.

6. Contrary to Dr. Lertzman's claim, our inability to find a classification scheme for First Nation features had no effect on the total feature density counts. Density measures were derived by simply counting the number of polygons or points represented in a watershed, irrespective of the classes into which they might fall.
7. The use of GIS-based methodology prevented us from taking into account the variability found among communities, especially First Nation communities. I completely agree with Dr. Lertzman's comments on the value of methodologies that account for situated knowledge, and would highly recommend those methods for studies with different objectives. However, use of those methods, while responding to cultural richness, would not have permitted us to fulfill our contracts with CIT to produce spatial data to compare with economic and ecological information.
8. Dr. Lertzman has departed from professional decorum by questioning the "credibility of principle findings in the CSA report," and stating that First Nation features are "spurious." These charges reflect a misreading of the report and, in the absence of supporting evidence, could be interpreted as a rhetorical attempt to discredit the report. He is correct on only one count: the report was based on incomplete information and, consequently, the results may not equitably represent First Nation features. The CSA report acknowledges this.
9. The statement in the report regarding the distribution of knowledge about places in Other Communities has been re-written to explain that knowledge of places is not kept in the collective memory of the community as it generally is in First Nation communities.
10. I agree with Dr. Lertzman that a richer, qualitative presentation of data would be helpful. However, as I have stated in the CSA Report, the size of the region and its cultural diversity would make such rich information exceedingly expensive to collect and difficult to summarize. Our purpose was not to represent cultural richness, but the spatial intensity and extensiveness of features. The costs of equitably collecting and representing this information would have prevented us from fulfilling the terms of our contracts with the CIT. There are many ways to "give voice" to local people, and we were charged with spatially representing the number and extent of cultural features.
11. During the GIS analysis, we established the rule that a watershed would be classified as falling in protected area if 50 percent or more of its area overlapped the protected area. A serious over-estimate of overlap would have occurred if we had used less than 50 percent, and, yet, we undoubtedly underestimated the extent of overlap in other places. We feel we are on solid ground by stating this rule, and allowing the reader to think through the implications of changing it. The reader should understand that we estimated the area of overlap in hectares, and made a judgment that we would split the bias down the middle by choosing 50 percent.

12. Reference to the “official” Nuxalk community has been changed to authority of Heredity Chiefs or Band.

My responses to Ms. Carpenter’s comments follow, and are somewhat less extensive, since they often amplify the responses to Dr. Lertzman:

1. The report has been revised to state that the results reflect only “known and reported” features. I agree with Ms. Carpenter that there are many unidentified and unreported places that are valuable and meaningful to the Heiltsuk (as well as other First Nation peoples). Regardless, as stated above, all we had to work with was the information that was made available to us.
2. Given the language in the B.C. Heritage and Conservation Act, I have included a statement that anticipated or predicted sites must be acknowledged along with known cultural sites. Given the nature of our analysis, and incomplete data, there was no way we could spatially represent anticipated sites.
3. The revised report contains a statement on how “pristine” was defined as “undisturbed by humans” by the people we interviewed in Other Communities. Moreover, I have cited an article to acknowledge that what some people refer to as pristine land has been valued and used by First Nation people for millennia.
4. I was not provided with any information on how the Heiltsuk collected information on cultural features, so did not refer to this in the report. As stated above, my role was to analyze data provided by First Nation communities in the form of GIS files.
5. The complexities of how cultural features are used by the Heiltsuk or other peoples are very important to understanding how to implement ecosystem-based management, and Ms. Carpenter is correct in pointing this out. However, like the qualitative information recommended by Dr. Lertzman, such information is expensive to collect and summarize, and was beyond the scope of our study.
6. The importance of CMTs is noted and included as one of the cultural features to be considered in developing a complete inventory.
7. The definition of a third order watershed is included in the CSA Report.
8. Ms. Carpenter raises an important point in noting that no information was collected on food gathering or harvesting sites at distances from the community. These places should be identified in any future inventories, and are necessary to make First Nation information compatible with Other Community information.
9. The Heiltsuk baseline study of harvesting and other cultural sites could prove very useful in future inventories, and would go a long way toward helping to make equitable comparisons between communities. It was not known to us, and, as a result, was not included in our analysis.

10. The snowball sampling approach was used for Other Communities. I was not informed about the sampling methods used by First Nation Communities when they developed their databases.
11. The feature density counts are explained in the CSA Report. These counts were made by adding up every polygon or point falling within a third order watershed on a GIS map. If a polygon fell in two or more watersheds, it was counted in each watershed into which any part of it fell.
12. Threat and condition measures were not made for features in First Nation communities, since existing data on known and recorded cultural features were shared by the First Nation communities that chose to participate. These measures were included in the protocol for Other Communities.

Thank your for the opportunity to try a new methodology for analyzing cultural information in ecosystem-based management planning. Despite data limitations, I have demonstrated a sound methodology for more equitable interpretation of cultural, economic, and ecological information. It constitutes a distinct advance over more global assessments used in the past, and, with due recognition of incomplete data, can be used reliably in current planning efforts.

Sincerely,

Robert G. Lee, Ph.D.