University of Victoria | Graduate Studies

Notice of the Final Oral Examination for the Degree of Master of Science

of

JULIA FISHER

BSc (University of Victoria, 2012)

"How Have First Nations' Past Sites of Habitation Influenced Present-Day Ecology on the Central Coast of British Columbia?"

School of Environmental Studies

Tuesday, December 15, 2015
9:30AM
David Turpin Building
Room A144

Supervisory Committee:
Dr. Brian Starzomski, School of Environmental Studies, University of Victoria (Supervisor)
Dr. Nancy Turner, School of Environmental Studies, UVic (Member)
Dr. Andrew Trant, School of Environmental Studies, UVic (Additional Member)
Dr. Morgan Hocking, School of Environmental Studies, (Additional Member)

External Examiner:
Dr. Christopher Darimont, Department of Geography, UVic

Chair of Oral Examination:
Dr. Aaron Devor, Department of Sociology, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

The combination of time and complex human-environment interactions within the Hakai Lúxvbálís Conservancy on the Central Coast of British Columbia has resulted in a landscape with many anthropogenically-generated modifications. This landscape is often thought of as pristine and untouched, when in fact it has a long history of human activity and occupation. Over thousands of years the complex relationship between humans and their environment has led to modifications that can be seen today, such as shell middens that can be found at sites with histories of long-term habitation. Globally, shell middens (and in general, sites of long-term habitation) have been found to be factors in shaping the ecology of these sites. This thesis seeks to investigate these relationships within the traditional territories of the Heiltsuk and Wuikinuxv Nations.

The overall goal of this project is to characterize these past sites of habitation and determine the factors that allow for the present-day ecology. I conducted an observational study to determine if species richness and overall plant communities on these past sites of habitation differed from sites without a history of intense occupation. To do this I selected ten past sites of habitation with known extensive shell middens and paired them with ten control sites with similar site conditions (but without the same site history or shell middens). I measured species abundances from within 540 1 m x 1 m quadrats. I also surveyed a select group of culturally significant plant species and culturally modified trees within belt transects at each site. Data regarding the water table level and soil and foliar samples was also collected. A variety of potential environmental factors, along with the site history were evaluated as explanatory variables. Principal component analyses were used to describe the gradients within the vegetation communities at three vegetation layers (ground, herb, shrub) to see if they respond differently to long-term site use. The past sites of habitation were found to be characterized by N-rich plant communities, which were significantly different from the plant communities on the control sites at the ground layer, herb layer, and with all layers combined, at both transect distances analysed, but the shrub layer was only significantly different when the entire transect was considered. The results suggest that plant community composition is most strongly influenced by a combination of factors including site type, canopy cover, slope, topography, and distance from shore, with the weight of their importance depending on what vegetation layer is considered. The habitation sites had a lower average species richness at all layers, compared to the control sites, and their plant communities were shown to change differently with distance from the marine shoreline. Habitation sites also differed by having higher soil nutrient content, lower water table levels, a higher count of culturally modified trees, and contained culturally important plant species that were absent on the control sites.

This research highlights the influence that humans have had on landscapes in this region and acknowledges the landscape legacies that persist today. The study provides a detailed inventory of the selected ancient sites of habitation and shows how the patterns within the plant communities at these sites differ from what is expected within the Coastal Western Hemlock zone. The research improves our understanding of the factors influencing vegetation patterns on the Central Coast of British Columbia with an examination of the complex intersection of historical practices and environmental changes.