The Land Between
Waterfowl GeoDatabase Creation

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APST062: GIS Cooperative Project

Sir Sandford Fleming College

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1. Abstract

Researchers have been trying to find the significant importance to protect the natural habitats within the Land Between (TLB) region. The TLB project consists of several researchers with multiple disciplines including geology, ecology, human geography, and history. They have been researching to understand the TLB region with the full of detail information.

The Fleming College GIS cooperative project was involved in the TLB project by assisting the biologists. Our mission was to identify the existing and potential waterfowl habitats within the TLB region and to make a connection with the waterfowl activity information to those identified waterfowl habitats and to provide a spatial database as a tool to help accomplish research.

The original datasets, both air photos and spreadsheets, were obtained from the Ducks Unlimited Canada office in Barrie. The selected study areas were Anglesea, Anson, Grimsthorpe, Havelock, Hindon, Longford, Mud Turtle Lake, Patterson, and Sherborne. Each of those names corresponds to the Beaver Pond Management program (BPM). The BPM was a program at Ducks Unlimited Canada to monitor the waterfowl activities in the central Ontario. One or more waterfowl nest box was set up in every pond across Ontario in order to protect existing the waterfowl habitats and to restore the wetland ecosystem across Ontario. The landowners and/or the volunteers at Ducks Unlimited Canada survey the nest box once or twice a year to see whether or not there was any nesting material, egg shells of waterfowl and record any findings to send to the Ducks Unlimited Canada.

Each of the air photos was geoferenced. Each of the BPM ponds was digitized from the georeferenced air photos and was assigned a BPM ID to link with the non-spatial datasets. The provided spread sheets were combined as one database. All the records were standardized and normalized to perform efficient query from the geodatabase. Some of the queries were stored for the future use to help those scientists to identify their research interests. In addition to the requirement for the GIS cooperative project, a customized tool was added to assist the query process smoothly. From the digitized BPM ponds, several statistical tests were performed to observe the trends of the BPM pond distribution in terms of the size and the shoreline length. It was found that the larger the pond size, the longer the shoreline length will be. In order to see the spatial trends in the digitized BPM ponds, the mean value of the area and the shoreline length was calculated for each image boundary. It was found that the pond size tends to be smaller when there is more Canadian Shield surface is presence. Also, the BPM pond size gradually increases from the southern area to the northern are in the study site. Lastly, a presentation poster was produced to introduce our project to public at the Open House and the presentation, to be held after the graduation.

In conclusion, all the proposed deliverables were completed. Our deliverables, especially the geodatabase, will be used for an ecological study in the TLB region. We believe that our geodatabase will assist the ecological studies and wish the best luck on their future studies.

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Table of Contents

2. List of Tables

3. List of Figures