



TAKING THE HISTORICAL MAPS OF GRAND LAKE MEADOWS ONLINE

June 16, 2016 | McGrath.H., Stefanakis, E.
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UNB

Grand Lake Meadows



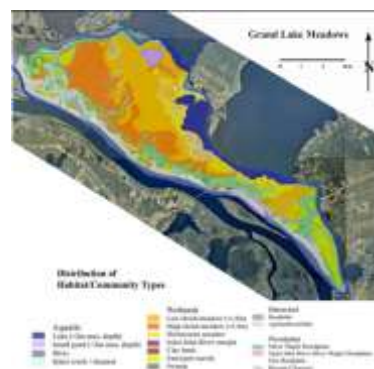
Grand Lake Meadows

- Largest freshwater marsh/wetland in the province
- 'Floodplain Wetland' classification
 - In any given year, ~85% of area is inundated by seasonal floodwaters
- Diverse ecology and its abundant wildlife
 - The presence of Grand Lake
 - Extensive floodplains
 - The persisting water levels over the growing season
- Earliest recorded settlers (in the 1600s) were the Wolastoqiyik and Mi'kmaq peoples
- Class II Protected Natural Area (1990)
 - Limits use to low-impact recreation activities and traditional food gathering
- GLM Project Management Committee
 - To raise awareness of cultural and historical significance of this area

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Previous research

- Catalog vascular plant species and characterize different habitats and plant communities (Nature NB)
- Fauna and Flora [Papoulias et al., 2006]
- Waterfowl and Tree species, [Zelazny, 2013]
- Extensive research regarding fish and bird species [Legere 2001]
- Archaeological study [Blair, 2004]
- ...



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Research Question

- Can previously unknown information about Grand Lake Meadows be uncovered through the analysis of historical maps?

Objectives:

- Review the historical map collections
 - Provincial Archives of New Brunswick
- Record the socio-economic and geomorphological changes of Grand Lake Meadows
 - (as documented by the historical map collections)
- Promote historical significance of Grand Lake Meadows
 - Web-based map mashup and educational content

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Archives

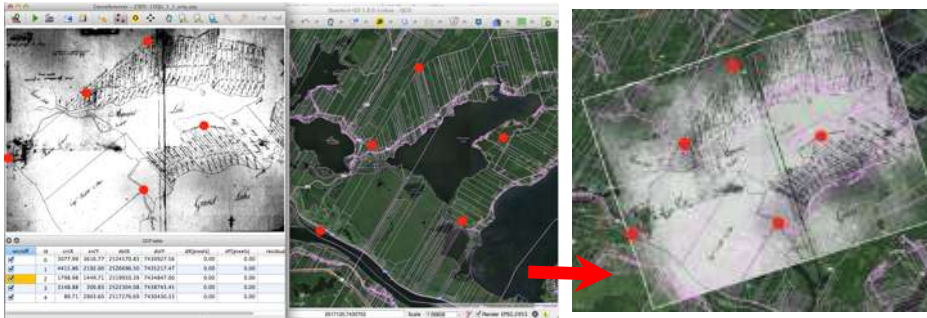
- Provincial Archives of New Brunswick (PANB)
 - “collects, preserves, and makes available” historical records for the province of New Brunswick
 - Predicted
 - Find historical maps dating back to 17th century
 - Classes:
 - Land Grant, Land grant survey plans, crown lands maps & plans, hydrographic, cadastral land grants, campsite petitions... town plot plans,
 - Actual
 - Nearer the end of the 18th century
 - (Earliest map in study area: 1785)
 - Majority of maps: [Land Grants](#)



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Georeference

- Images georeferenced in Quantum GIS



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Map Scan Coverage

http://gaia.gge.unb.ca/GLM/en/map/map_imagekey_en.php



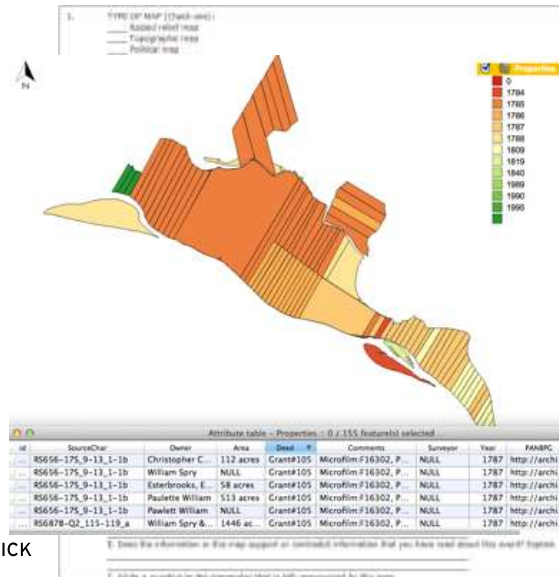
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ID Features of Interest

Map Analysis

Digitize

- Property boundaries and ownership
- Wetland
- Buildings
- Settler origin



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Enrich Historical Map Findings

- Review previous research
- Discussion with local historians
- Data from PANB & Service New Brunswick (SNB)

Provincial Archives of New Brunswick

Search | Details and Education Tools | Research Tools | About PANB

RS686 :: Index to New Brunswick Land Grants, 1784 - 1997

Introduction | Help | Search Page

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Name	NILLER, Henry
Volume	1
Page	9
Grant number	46
Race	Saint John River
County	Queens
Date	1786-06-10
Accompanying plan	No
Acres	150
Microfilm	F16308
Comments	With 12 Others

Other names on this grant (12):

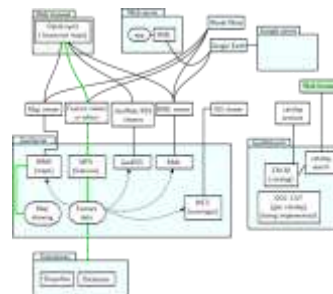
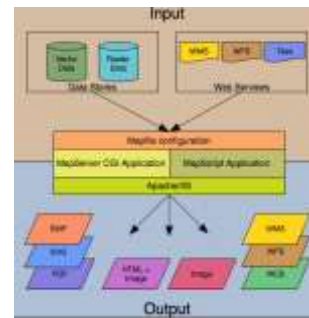
BRIGGS, Ebenezer 173 acres
 CHARNOCK, Nathaniel 150 acres
 CLUETT, John James 184 acres
 ESTY, Zebulon 117 acres
 HARRINGTON, Andrew 190 acres
 JOSEPH, Andrew 178 acres
 MCDERMOTT, James 117 acres
 SLOCUM, Ebenezer 184 acres
 TISDALE, Ephraim 150 acres

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Link to PANB Website

Map Mashups

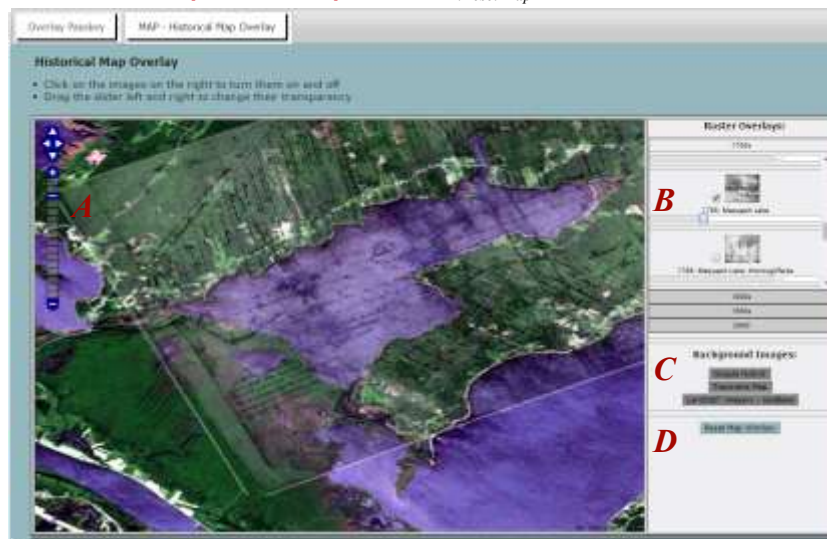
- MapServer
 - Web Map Service
 - OpenLayers
 - jQuery
-
- GGE 5403
 - (Web Mapping and Geospatial
 - Web Services)
 - GGE6408
 - (Geospatial Web)



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Historic Map Mashups

A: Open Layers map window, default pan and zoom tools
B: Toggle auxiliary data (images or digitized features via jQuery Accordion Panel)
C: Background map choice
D: reset Map



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Legend Components



```
<input type="checkbox" name="overlay" value="ckRS655343" id="msRS655343"
onClick="toggleControl(this);">

<br>1932: French Lake to Maquapit Lake, Land Ownership
<div class="slider" id="slidRS655343"></div>
```

Image, thumbnail, checkbox, and description of layer to legend

1
HTML

```
function toggleControl(element){
    if(element.value == "ckRS655343"){
        RS655343.setVisibility(element.checked)
    } };
```

Add in collapsible and toggled layers: 1st argument = Name of the function. 2nd argument= If statement to define action. 3rd argument = Set default visibility of the element (set checkbox to empty)

2
HTML

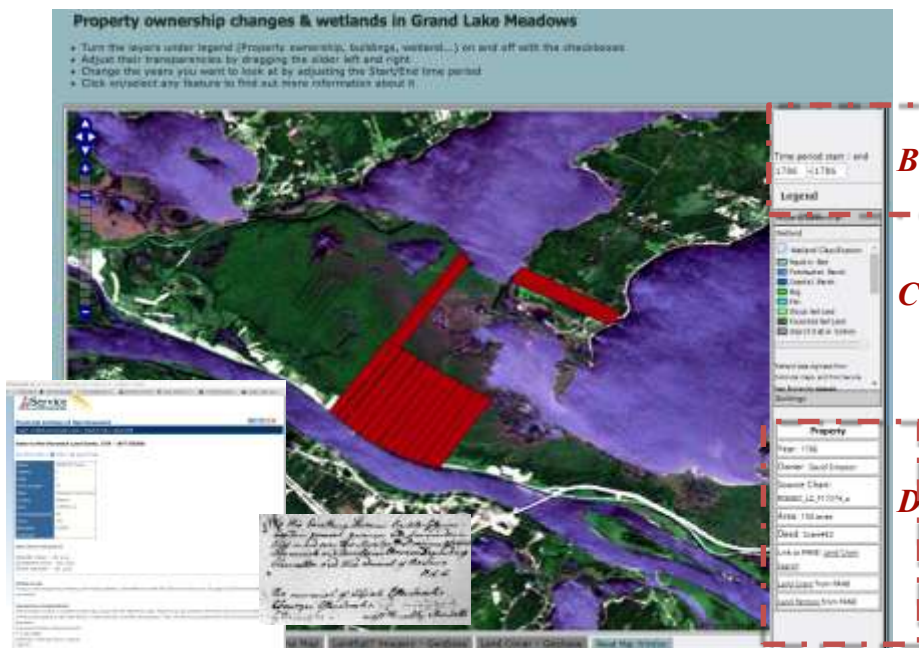
```
<script>
$(document).ready(function(){
    $( "#slidRS655343" ).slider({
        range: "min",animate: "fast",
        max: 100, value: 75,
```

```
    slide: function(event, ui) {
        RS655343.setOpacity(ui.value /
        100);    $( "#sliRS655343" ).val(
        ui.value ); } });
//end });
```

</script>
Slider transparency script

3
HTML

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WMS-T & Feature Information

```
function update_date() {
    var string = OpenLayers.Util.getElement('year1').value + "/" +
    OpenLayers.Util.getElement('year2').value;
    DigProperty.mergeNewParams({'time':string});
}
```

// Function added to the script of HTML file for updating feature data based on date

1
HTML

```
#-----layer definition
NAME "DigSettlers" METADATA
"wms_timeextent" "1700/2012"
"wms_timeitem" "Year"
"wms_timedefault" "1700"
"wms_enable_request" ""
END
```

//WMS-T Metadata items required (and optional)
for WMS-T support in MapServer Mapfile

2
Mapfile

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WMS-T & Feature Information

```
//get_feature_info select
map.events.register('click', map, function (e) {
    if (DigProperty.getVisibility()) {
        OpenLayers.Util.getElement('attr_data').innerHTML = "Retrieval of data...
Please wait...";
        var url = DigProperty.getFullRequestString({
            REQUEST: "GetFeatureInfo",
            EXCEPTIONS: "application/vnd.ogc.se_xml",
            BBOX: DigProperty.map.getExtent().toBBOX(),
            X: e.xy.x,
            Y: e.xy.y,
            INFO_FORMAT: "text/html",
            FONT: "c:/ms4w/fontlist/times.ttf",
            ENCODING: "utf-8",
            // FEATURE_COUNT: 1,
            QUERY_LAYERS: DigProperty.params.LAYERS,
            WIDTH: DigProperty.map.size.w,
            HEIGHT: DigProperty.map.size.h });
        OpenLayers.Util.getElement('requestp').innerHTML =url;
        // to see the URL
        OpenLayers.loadURL(url, '', this, setHTML); OpenLayers.Event.stop(e);}
        else { OpenLayers.Util.getElement('attr_data').innerHTML = "Data Layer is not
activated"; });
        // Get feature info based on map selection
```

1
HTML

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WMS-T & Feature Information

```
function setHTML(response) {
    OpenLayers.Util.getElement('attr_data').innerHTML =
response.responseText;
}
// Get attribute data from .html file
```

2
HTML

```
DATA
'C:\ms4w\Apache\htdocs\glm\Web_HistoricalMaps\shapes\DigSett
lers.shp'
TEMPLATE
"C:\ms4w\Apache\htdocs\glm\Web_HistoricalMaps\shapes\Settler
s.html"
// Link to template file in MapServer Mapfile
```

3
Mapfile

Time: [Year]
Settler: [Settler]
Source Chart: [SourceChart]
Comment: [Comment]
Source: [Source]

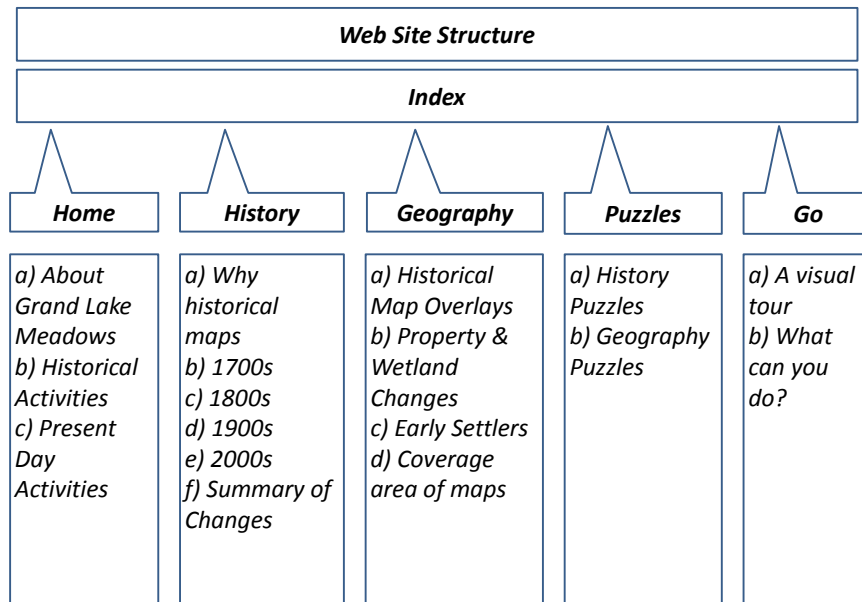
4
HTML Doc

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OpenLayers & KML



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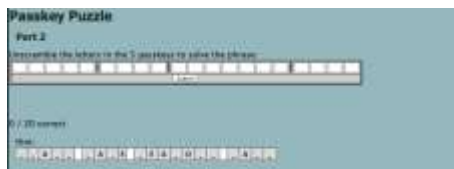
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Educational Content

- Puzzles and Quizzes
 - Hypertext Preprocessor (PHP), Scalable Vector Graphics (SVG) & jQuery
- Teachers only section
 - Exercises based on Historical Thinking Project

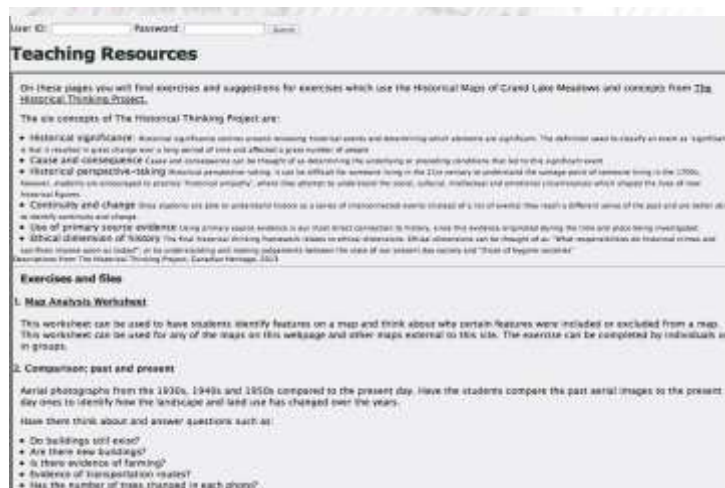
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Puzzles



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Teachers Resources



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Conclusions



- To review the historical map collections held at the Provincial Archives and the University of New Brunswick



- Record the socio-economic and geomorphological changes of Grand Lake Meadows
 - (as documented by the historical collections)



- Promote historical significance of Grand Lake Meadows through development and deployment of a web based map mash-up and educational program

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