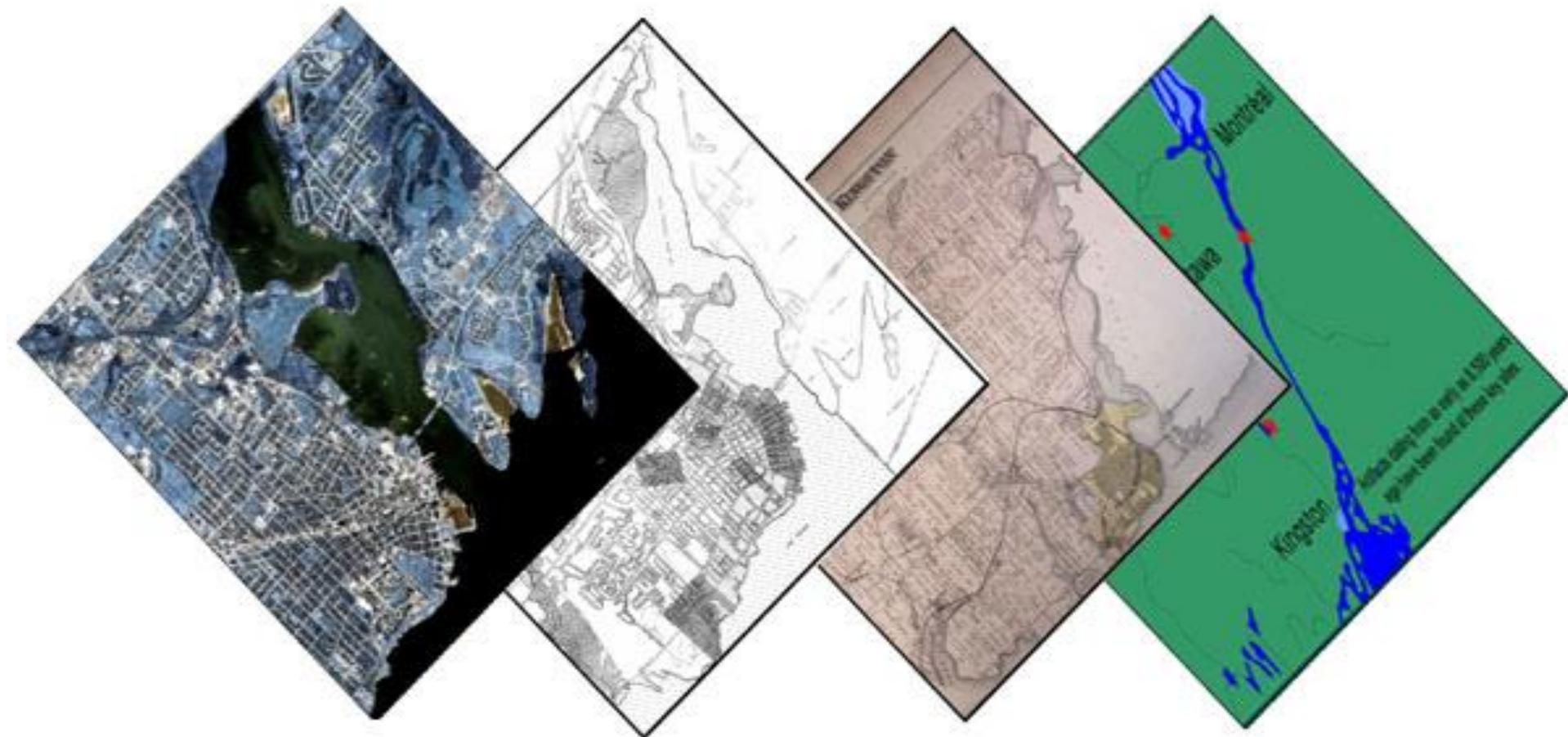




# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

**Lisa Merritt, MSc | Partner**  
**Rebecca Sciarra, MA | Partner**  
**Robert MacDonald, PhD | Partner**



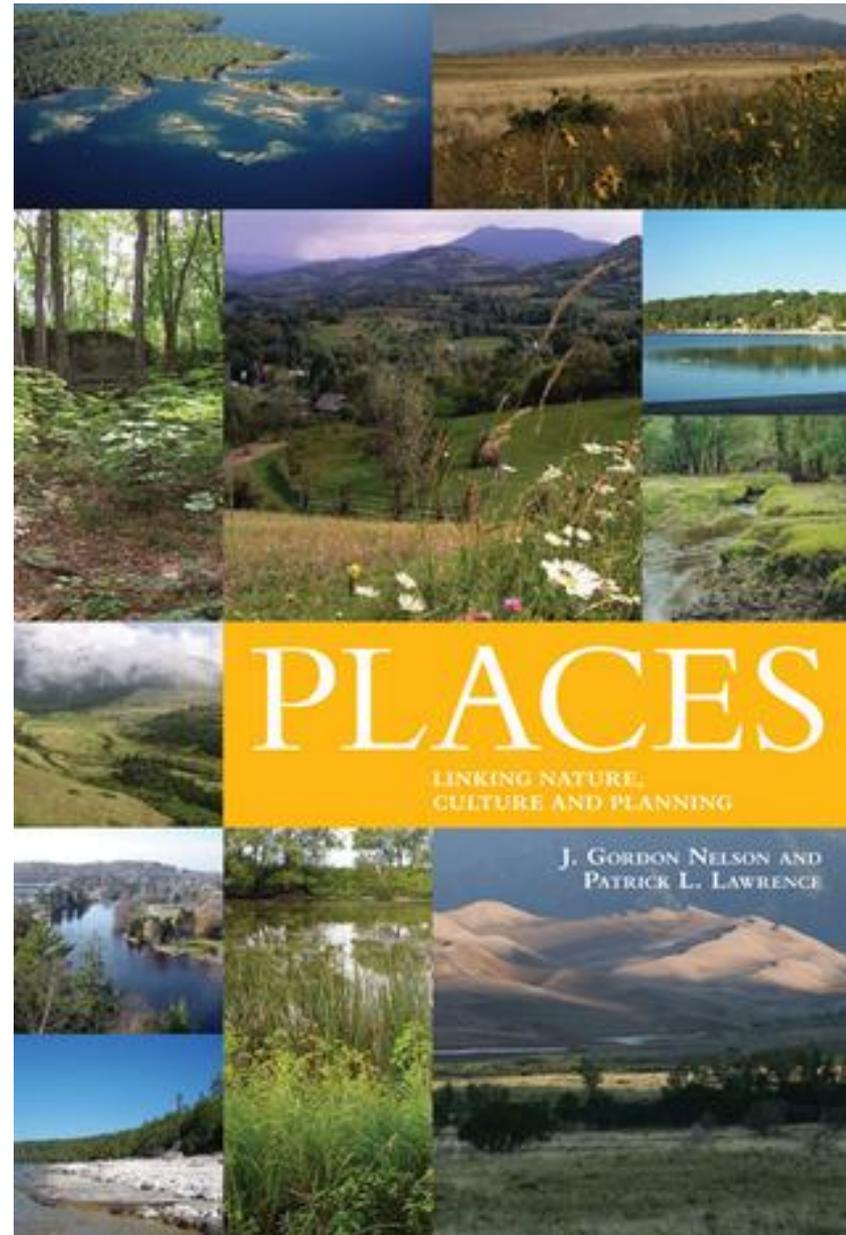


# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

## The “ABCs” of Planning

- Abiotic
- Biotic
- Cultural

after Nelson & Lawrence 2009





# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

## The “ABCs” of Heritage Assessment

- Archaeology
- Built Heritage
- Cultural Heritage Landscapes

## Ontario’s Statutory Framework

Ontario Heritage Act

Ontario Planning Act

**Ontario Environmental Assessment Act**

Ontario Aggregate Resources Act

Ontario Environmental Protection Act

Ontario Burial, Funeral and Cremation Services Act



# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

## **Archaeological resources:**

- Artifacts, archaeological sites, marine archaeological sites, as defined under the Ontario Heritage Act
- Identification and evaluation based on archaeological fieldwork undertaken by archaeologists licensed by MTCS

## **Areas of archaeological potential:**

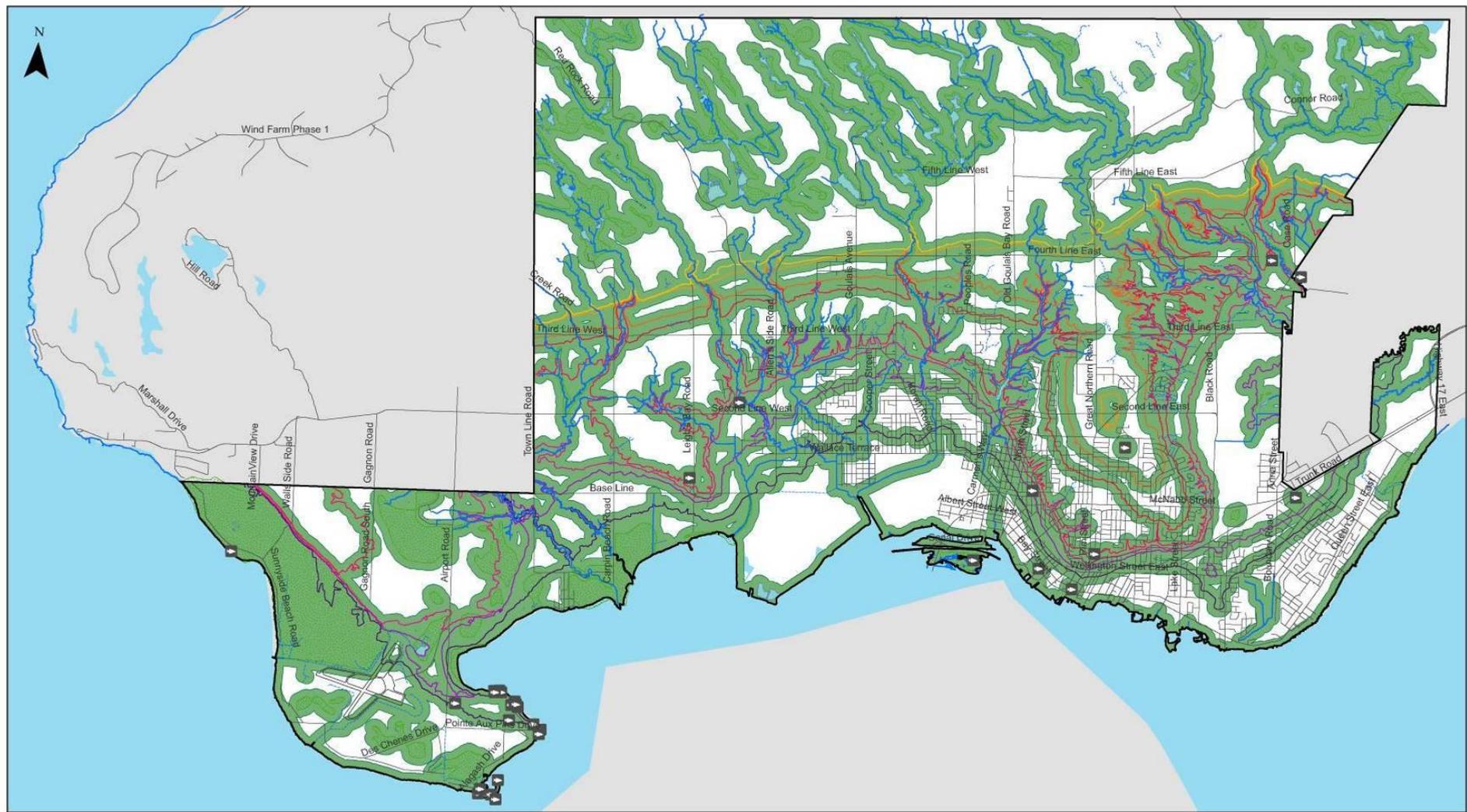
- Areas likely to contain archaeological resources
- Methods to identify archaeological potential established by MTCS
- Municipalities may implement archaeological management plans to achieve the same objectives
- Archaeological potential must be confirmed through fieldwork

Provincial Policy Statement (2014)



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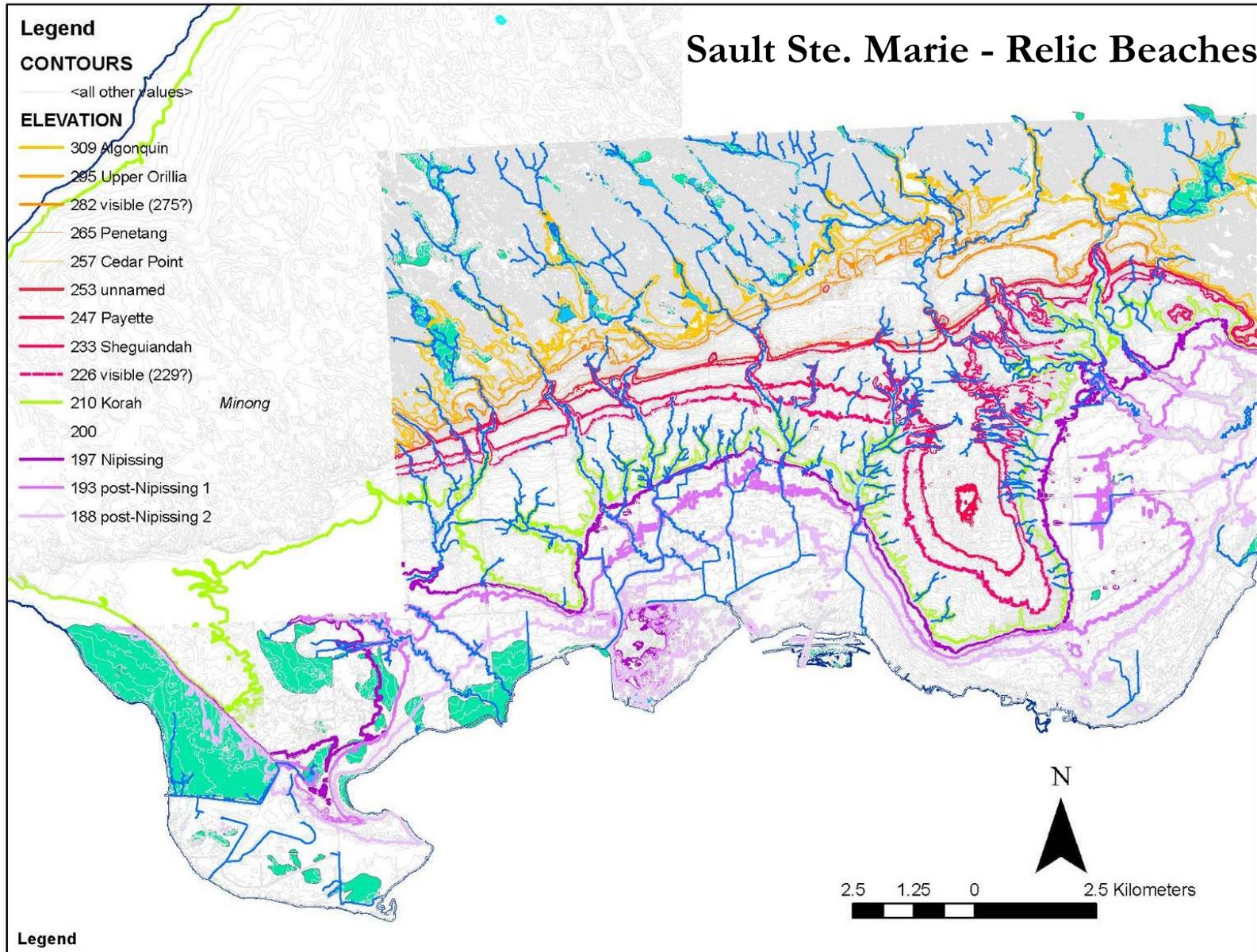
## Sault Ste. Marie – Archaeological Potential Model



LEGEND	
	Pre-contact Archaeological Site
	Pre-contact Potential
	Unnamed (253)
	Payette
	Sheguiandah
	Unnamed (229)
	Korah
	Nipissing
	Post-Nipissing 1
	Post-Nipissing 2



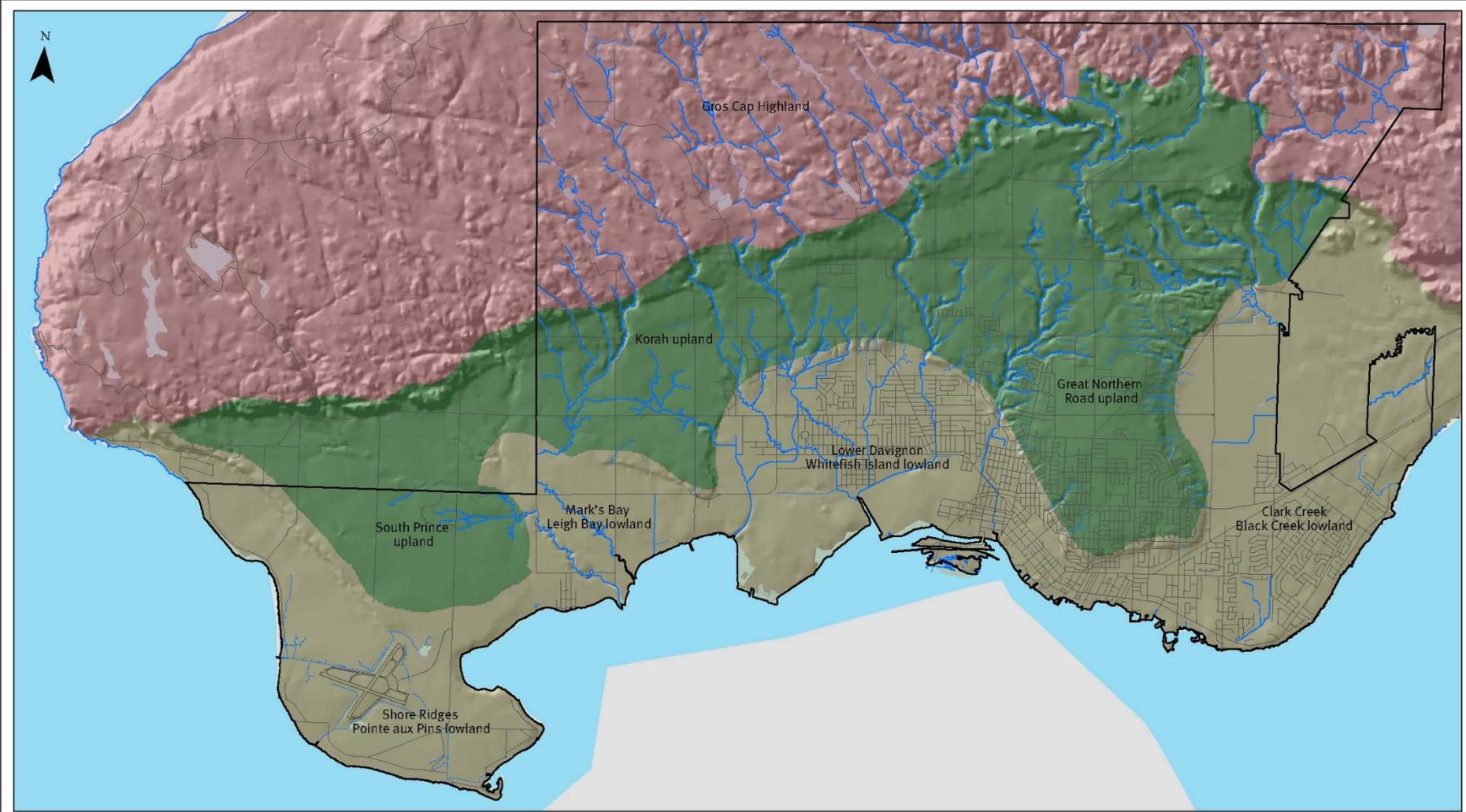
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## Sault Ste. Marie - Physiography





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**Lake Erie**

**Mt. Albion West Site**

**Niagara Escarpment**

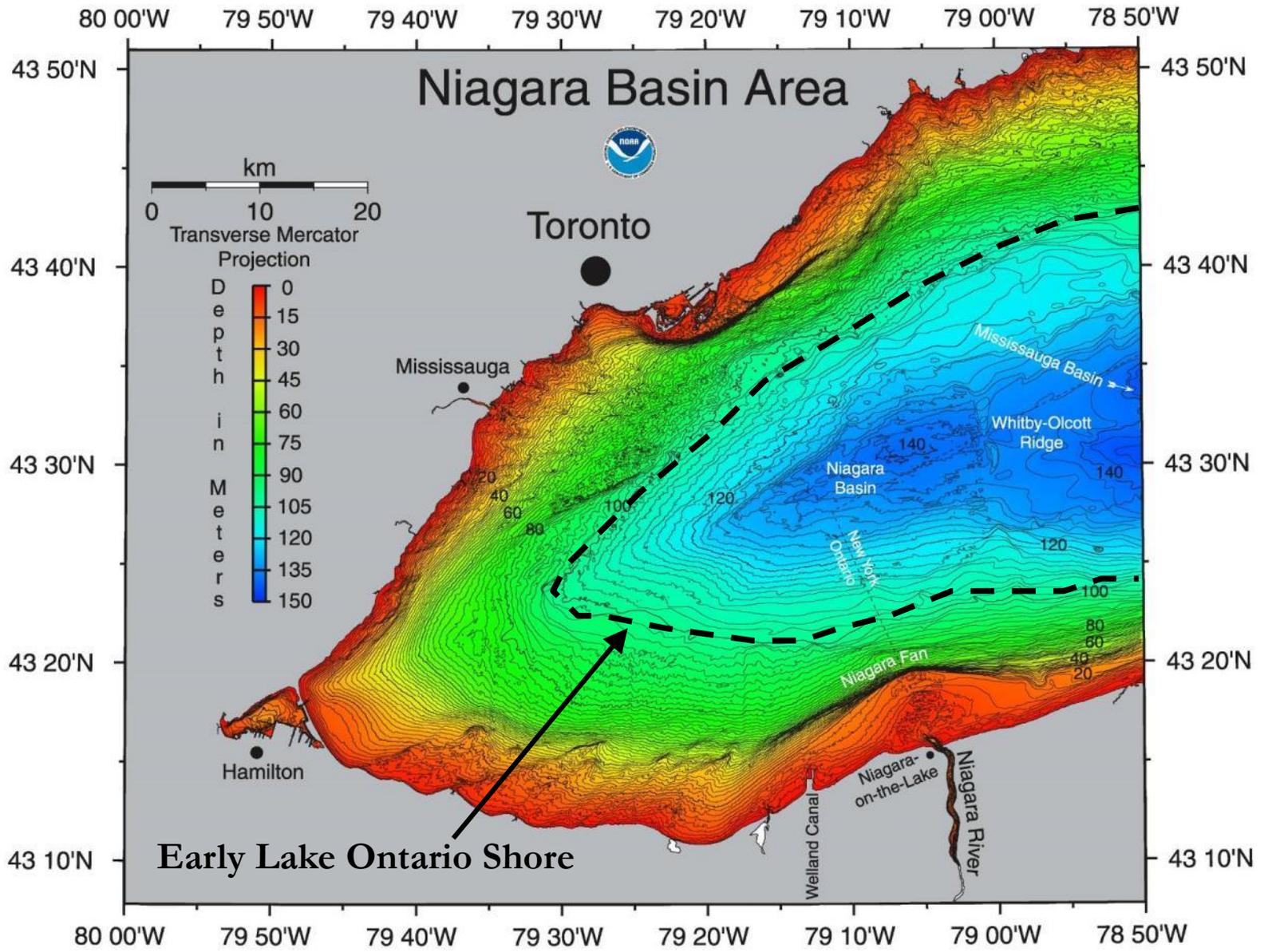
**Red Hill Creek  
Reentrant Valley**

**Lake Ontario**



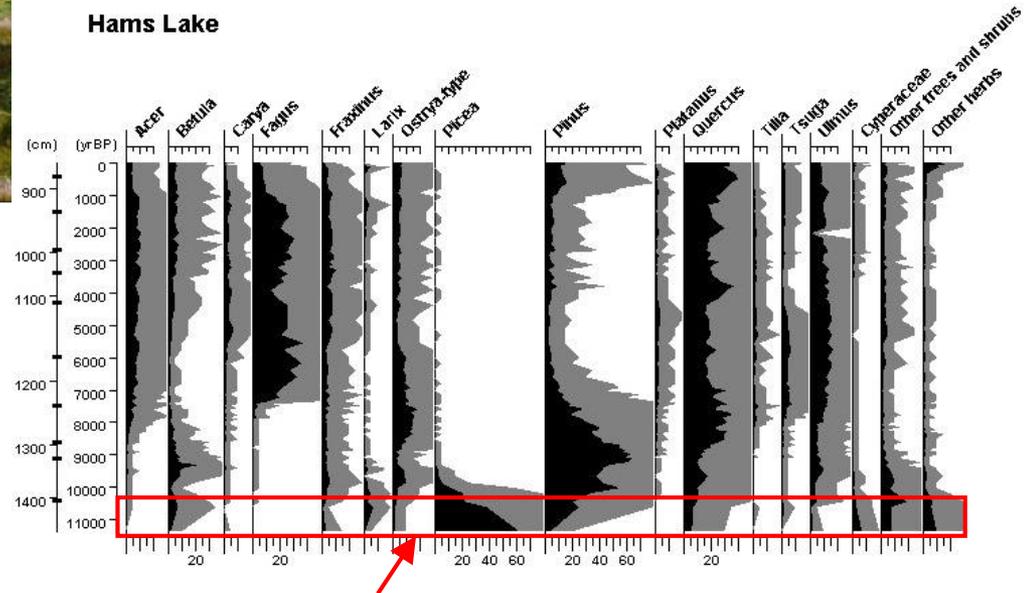
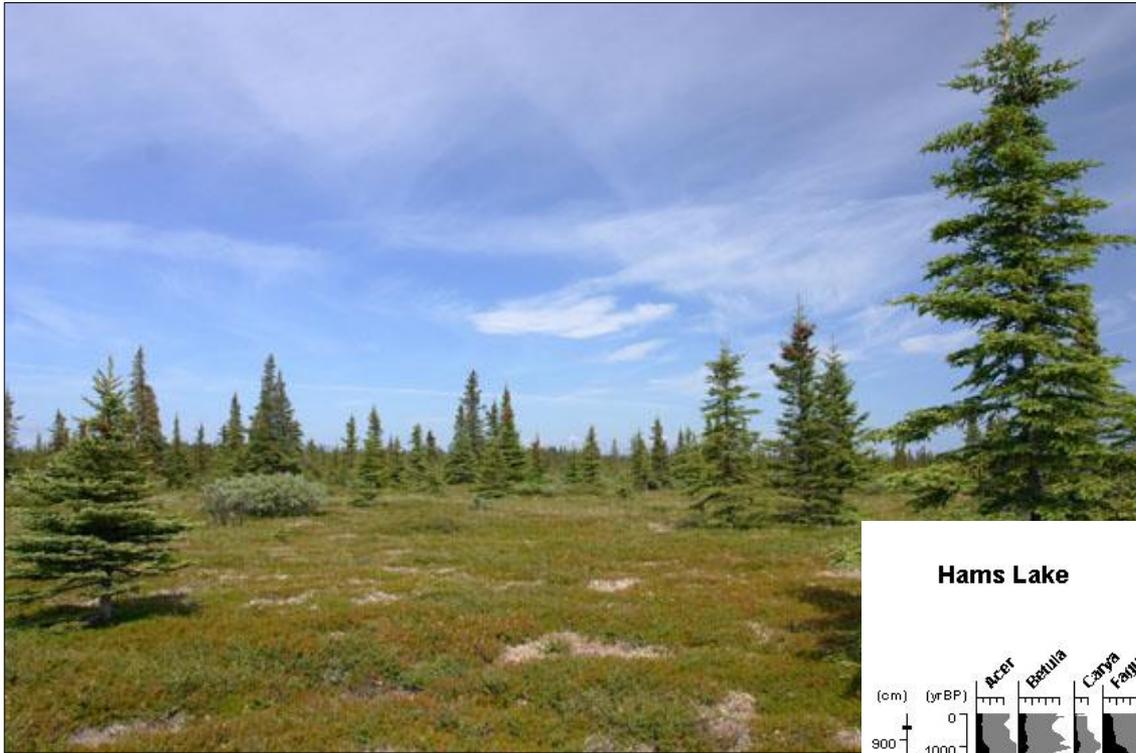


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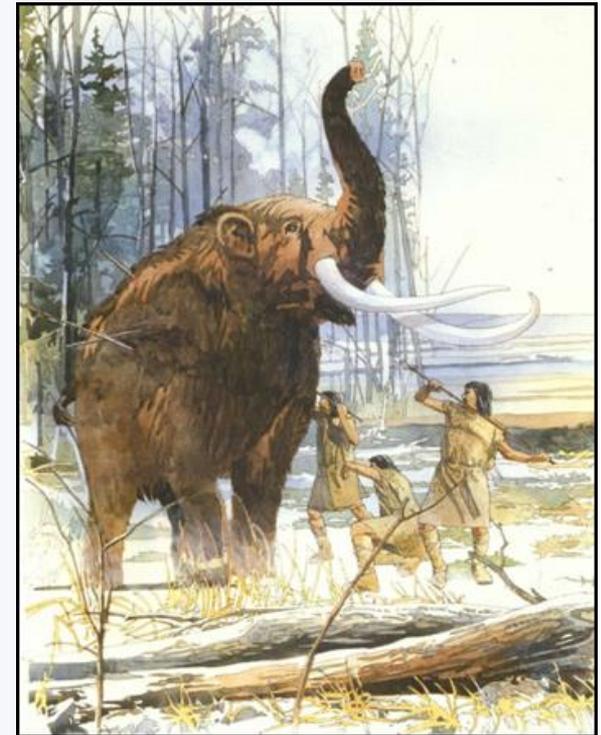
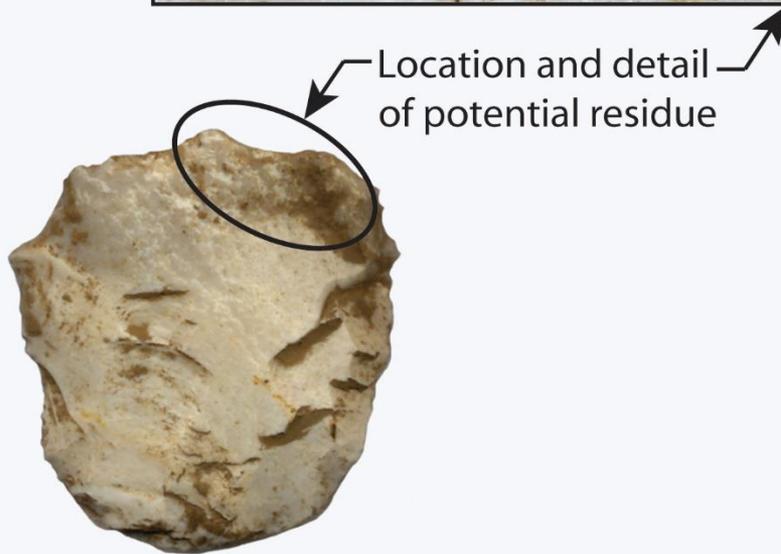
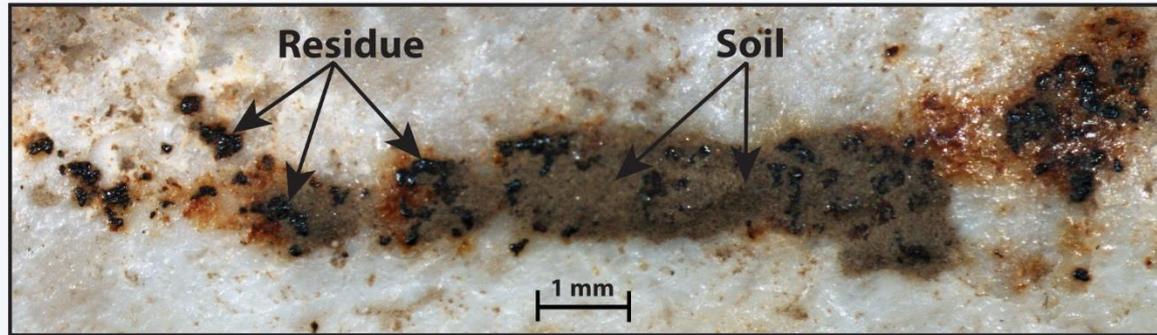
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**Early Paleo-Indian Period**



# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment





# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

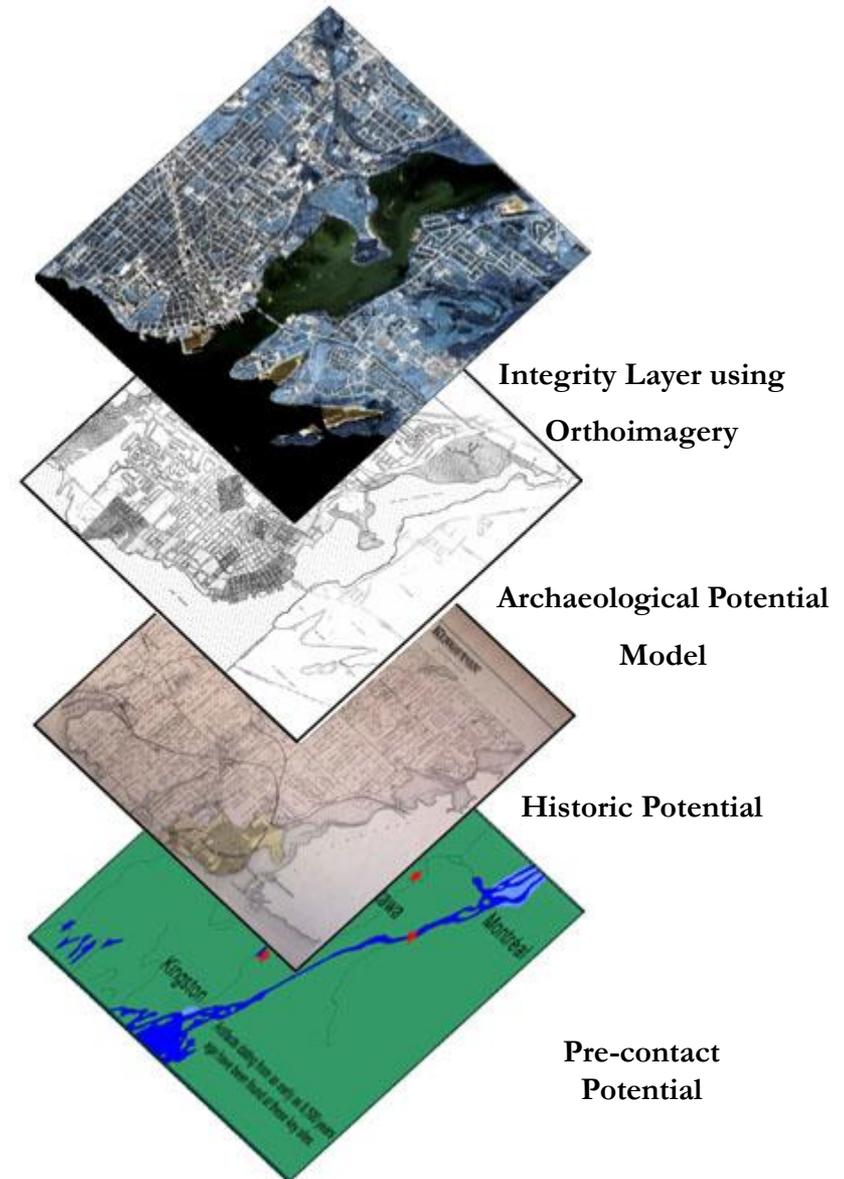




# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

## Archaeological Management Plan

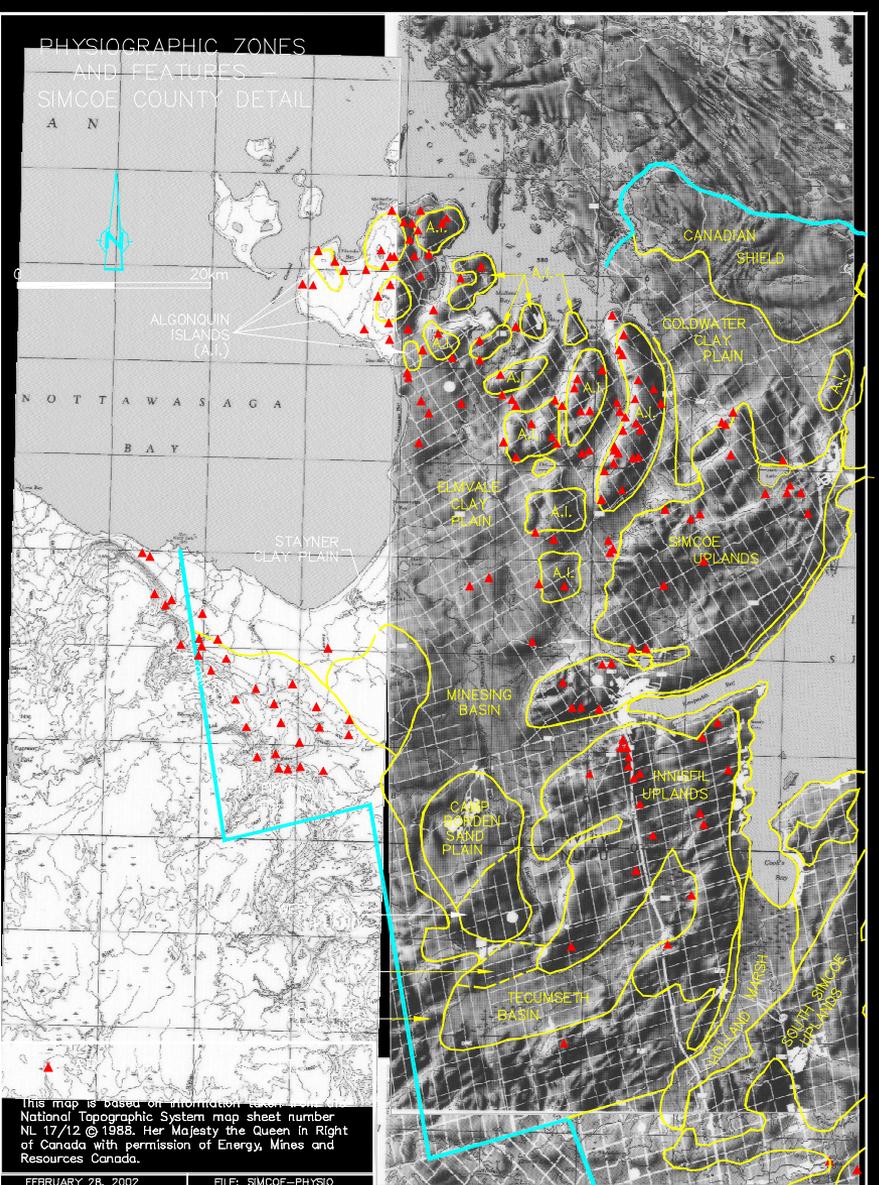
- a **tool** for land-use planners to facilitate the appropriate inclusion of archaeological resources in the planning process
- Step 1: prepare an **inventory** of known archaeological resources within the study area
- Step 2: **model** the potential for the discovery of additional unknown archaeological sites in various rural and urban contexts using GIS-based analysis of geo-physical, bio-physical, archaeological, historical, and ortho-imagery data
- Step 3: provide **planning recommendations** for a comprehensive approach to archaeological site conservation and management including protection for known archaeological sites





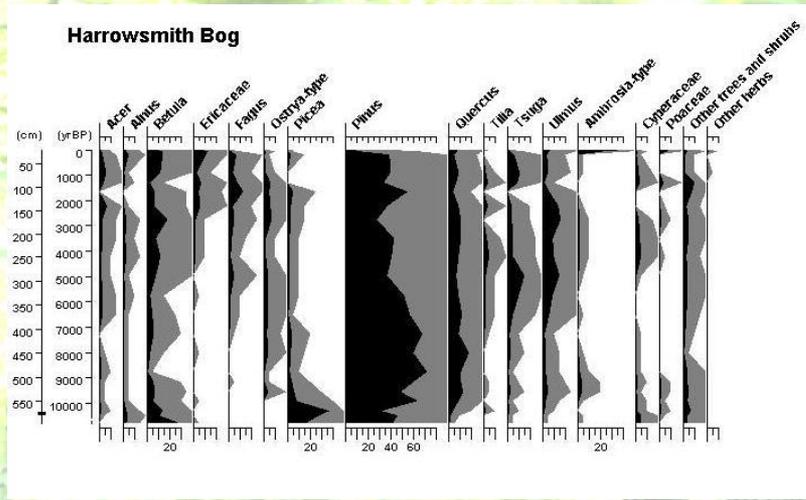
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## Huron-Wendat Adaptation to the Climate of the Little Ice Age: Settlement Locations and Farming Techniques





# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment



—ECOCLIMATE (TEMPERATURE)—									
Hotter			Normal				Colder		
—SOIL MOISTURE—									
	Drier	Fresh	Wetter	Drier	Fresh	Wetter	Drier	Fresh	Wetter
climax species	r, w, b Oak	h Maple	<i>r, si Maple</i>	w Pine	<b>h Maple</b>	e Hemlock	r, w Pine	w Spruce	<i>ba Fir</i>
	h, r Maple	Beech	w, r Ash	<b>h, r Maple</b>	Beech	y Birch		<i>ba Fir</i>	w Spruce
		w, r Oak		r Oak	<b>e Hemlock</b>	b Ash		w Pine	<i>e Larch</i>
		bn Hickory		w Ash	w Pine	w Elm		<i>e Hemlock</i>	ew Cedar
pioneer species		Butternut			<b>Basswood</b>	ew Cedar			
					w Ash				
	r, w Pine	b Cherry		r Pine	w Birch	w Spruce			
	w Birch	ro Elm		t, l Aspen	r Oak	ba Fir			
	t, l Aspen				<b>b Cherry</b>				

**Bold = High proportion of site region**

Normal = Moderate Proportion of site region

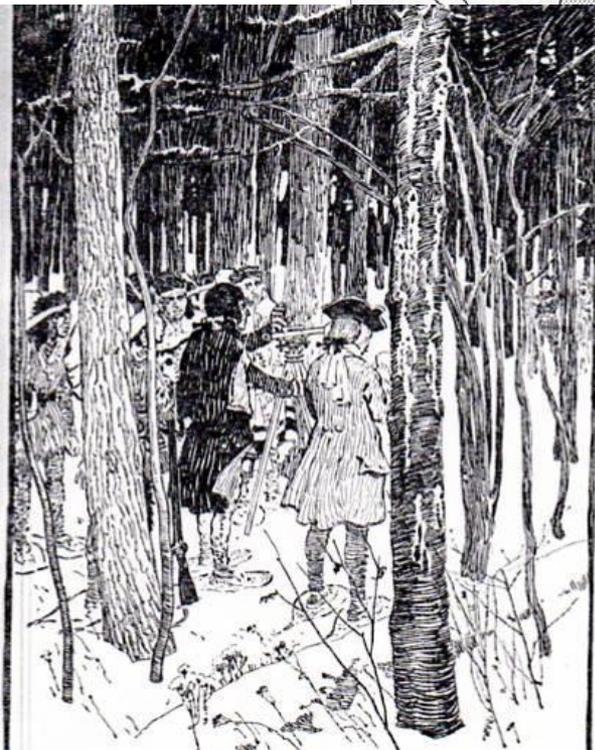
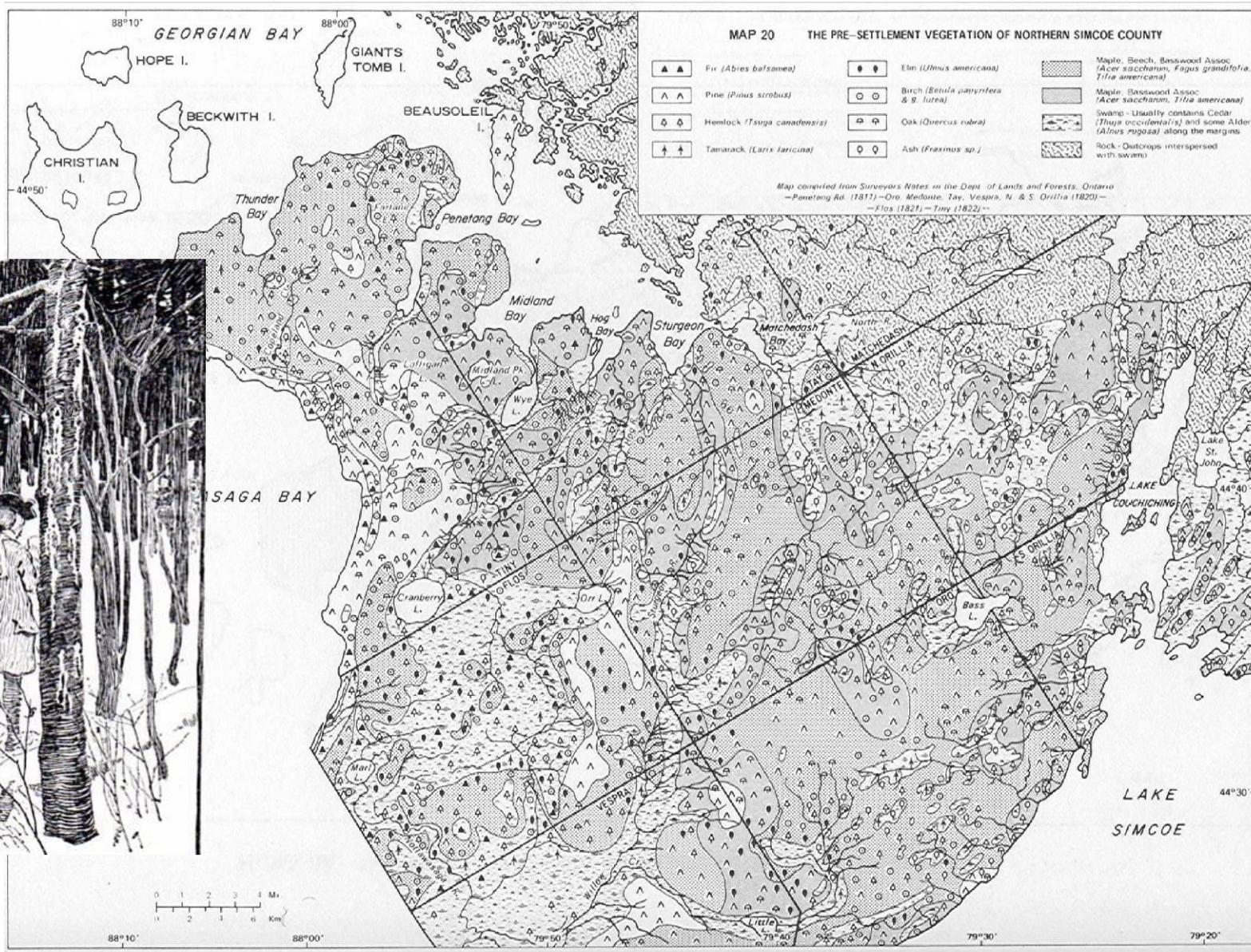
*Italics = Low Proportion of site region*

Abbreviations: b=black, ba=balsam, bn=bitternut, e=eastern, ew=eastern white, h=hard, l=largetooth, r=red, ro=rock, si=silver, t=trembling, w=white, y=yellow

(based on Burger 1993)

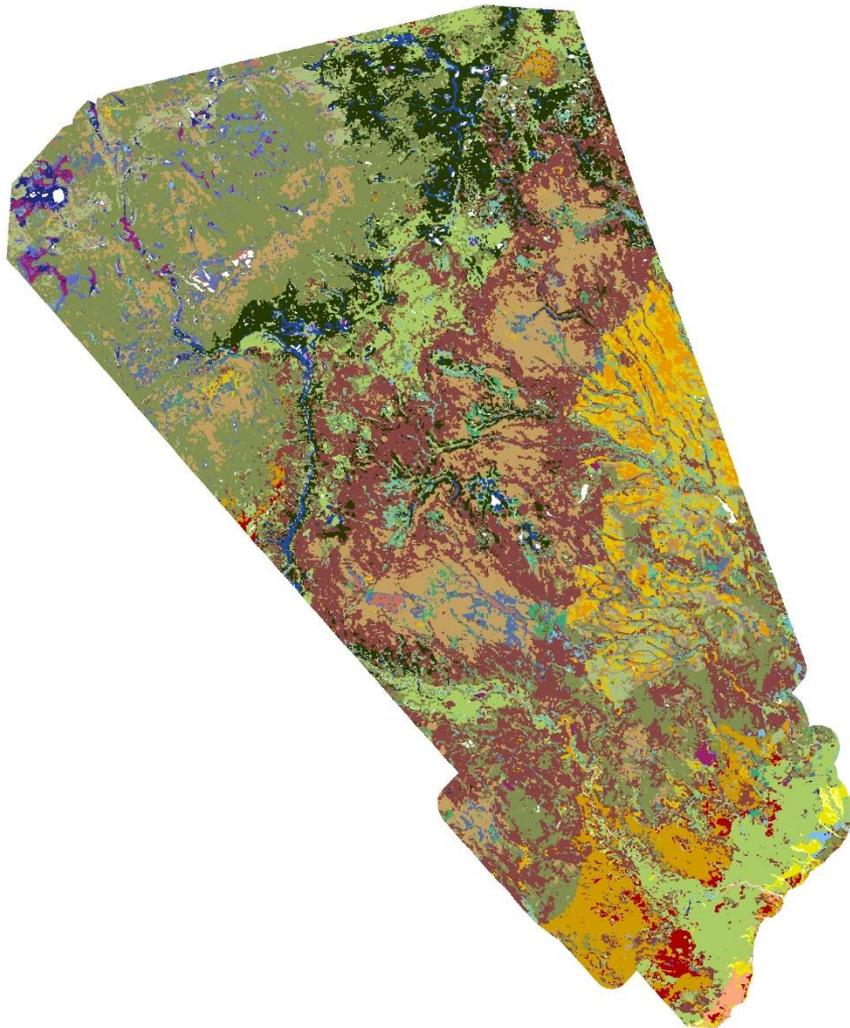


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# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment



## Vegetation Types

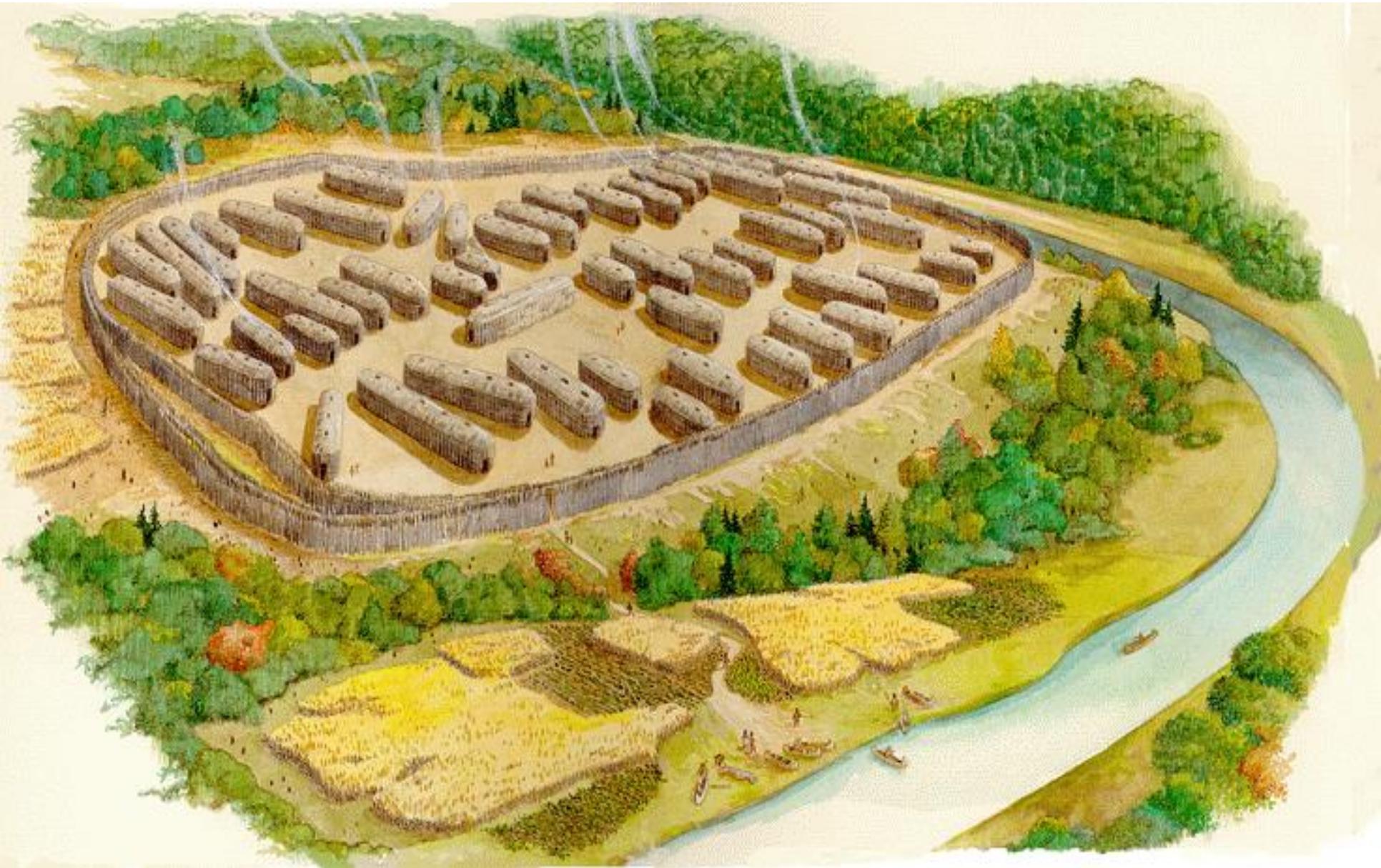
### Class 1

- Grassland
- Grassland-Oak-Pines
- Lowlands-wetlands
- Lowlands-wetlands beech-maple
- Lowlands-wetlands beech-maple-hemlock-elm
- Lowlands-wetlands hemlock-beech-maple
- Lowlands-wetlands hemlock-cedar
- Lowlands-wetlands maple-basswood-beech
- Upland (lowland) cedar
- Upland ash-elm-(oak)
- Upland basswood-beech
- Upland beech-maple
- Upland beech-maple-hemlock-elm
- Upland birch-beech-basswood-pine
- Upland cedar-hemlock-beech-maple
- Upland chestnut-maple-pine
- Upland elm-beech-basswood
- Upland hemlock-beech-maple
- Upland maple-basswood-beech
- Upland maple-beech-pine-(hickory)
- Upland maple-elm-basswood-(beech)
- Upland maple-hickory-pine
- Upland maple-pine-ash
- Upland oak
- Upland pine-oak
- Upland red pine-pine-oak
- Wetland ash-elm-(oak)
- Wetland beech-maple-hemlock-elm
- Wetland cedar-hemlock-beech-maple
- Wetland elm-(beech)-basswood
- Wetland maple-basswood-beech
- Wetland maple-elm-basswood-(beech)

Pre-clearance Forest Communities of Peel Region



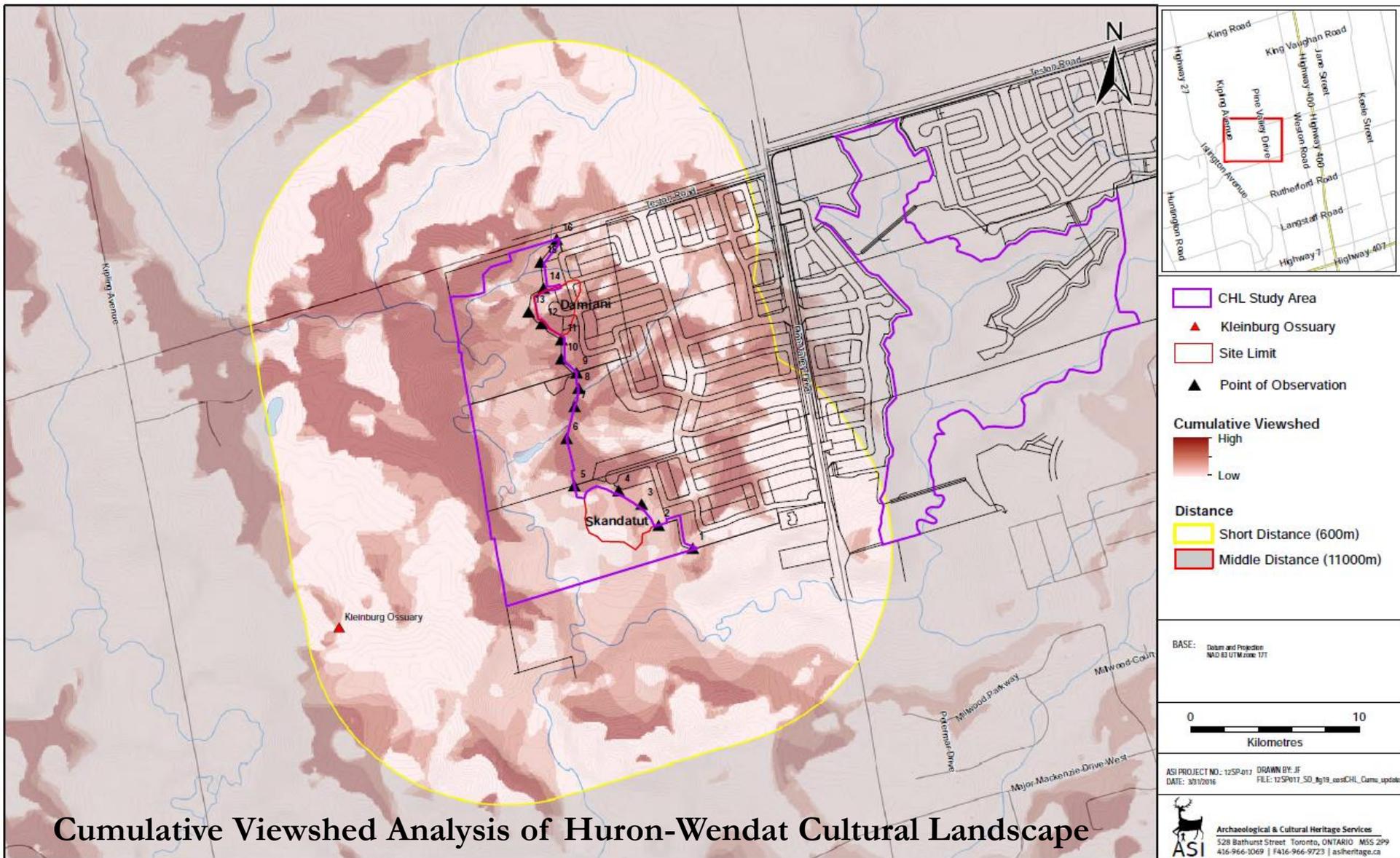
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# Exploring Time: Considering Heritage as the Fourth Dimension of Environmental Assessment

## East Humber River Cultural Heritage Evaluation and Impact Assessment



- CHL Study Area
- Kleinburg Ossuary
- Site Limit
- Point of Observation
- Cumulative Viewshed
  - High
  - Low
- Distance
  - Short Distance (600m)
  - Middle Distance (11000m)

BASE: Datum and Projection  
NAD 83 UTM zone 17T

0 10  
Kilometres

ASI PROJECT NO.: 12SP-017 DRAWN BY: JF  
DATE: 30/12/2016 FILE: 12SP017\_SD\_0418\_sssrCHL\_Cumu\_update



### Cumulative Viewshed Analysis of Huron-Wendat Cultural Landscape

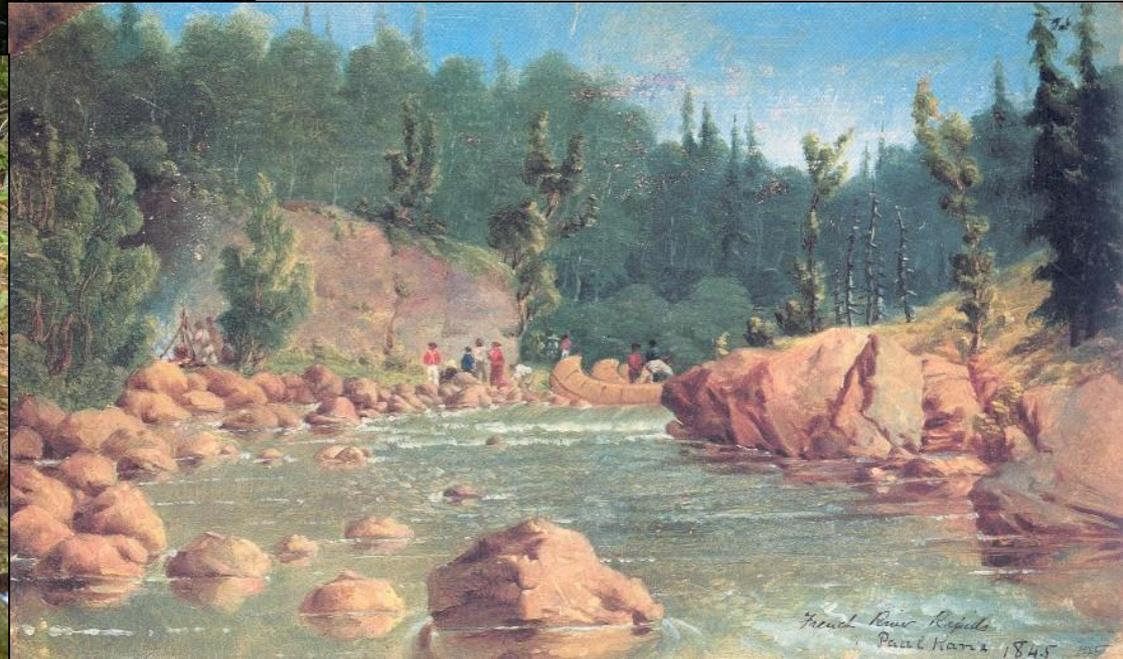


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## French River Rapids Site Quetico Provincial Park

View looking up river from  
Kane's sketch position (left),  
painting (below)





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## Traditional Knowledge (TK) Workshops





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## Saugeen Ojibway Nation Environment Office

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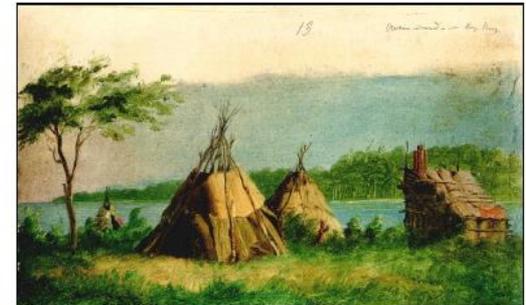


### Our Mission Statement:

To Provide the infrastructure and expertise for environmental matters that affect the interests of the Saugeen Ojibway Nations and, in doing so, assist the Chiefs and Councils of the Saugeen Ojibway Nations to assert First Nation jurisdiction over the environment of the traditional territories.

Conducting Archaeology within the Traditional Territory of the Saugeen Ojibway Nation:

Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists



Environment Office  
Saugeen Ojibway Nation  
RR 5  
Warton, Ontario N0H 2T0  
(519) 534-5507

June 2011

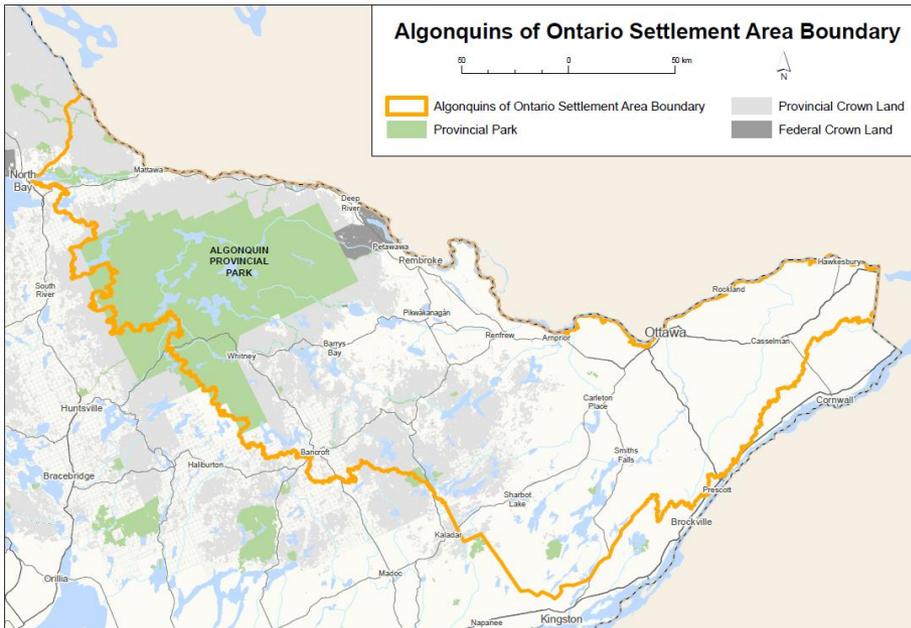


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## Algonquins of Ontario



RENEWED HOPE:  
*A Journey of Survival, Rebuilding and Self Sufficiency*



ALGONQUIN PRESENCE

COMMUNITY

RESOURCES

CURRENT OPPORTUNITIES

CONTACT US

SEARCH



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- [▶ THE ALGONQUIN PRESENCE](#)
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- [▶ UPCOMING EVENTS](#)
- [▶ EMPLOYMENT OPPORTUNITIES](#)

## Algonquin Heritage and Culture

*Algonquin heritage resources represent the physical and spiritual manifestation of ancestral ways of life, traditional values and knowledge of the Algonquins of Ontario (AOO).*

Archaeological artifacts attest to the history of the land and the AOO who have lived on it for centuries. It is critically important that these resources be protected to preserve AOO history and traditions, while promoting awareness and education about the Algonquin people for future generations.



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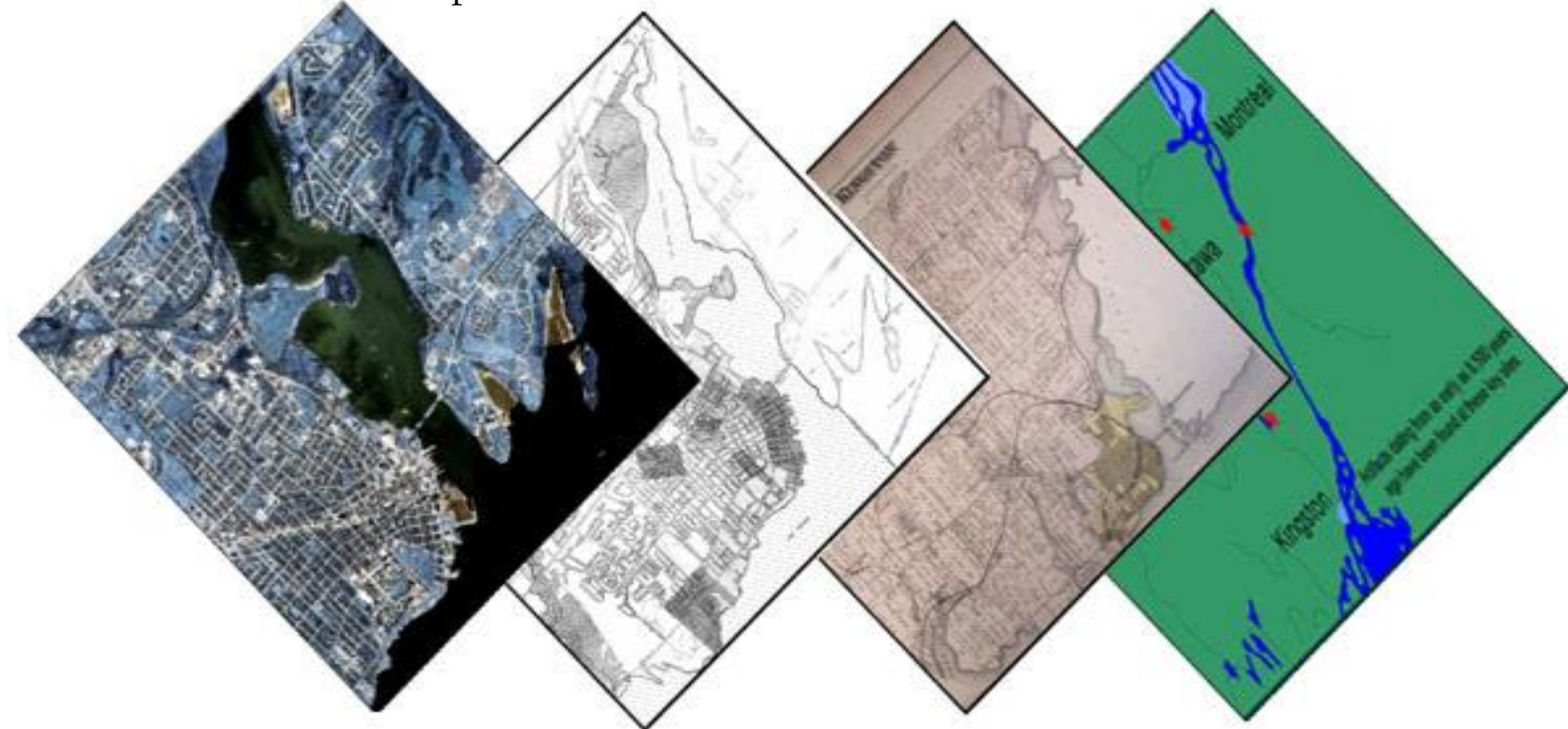
## “ABCs” of Heritage Assessment

- Archaeology
- Built Heritage
- Cultural Heritage Landscapes

## “ABCs” of Planning

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after Nelson & Lawrence 2009





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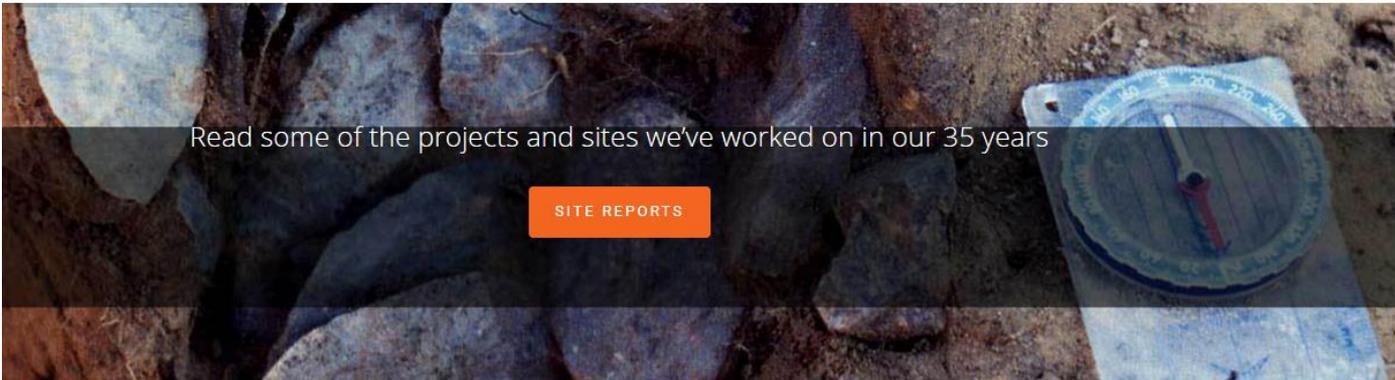
## Questions or Comments?

[lmerritt@asiheritage.ca](mailto:lmerritt@asiheritage.ca)

416-966-1069 ext. 233



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[SITE REPORTS](#)

To best preserve our cultural heritage legacy  
in any planning and development context

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ASI is a Canadian-owned company that was founded in 1980 in response to increasing public awareness of the importance of the province's heritage. With offices in Toronto and Burlington, we are the largest archaeological and cultural heritage consulting firm in Ontario.