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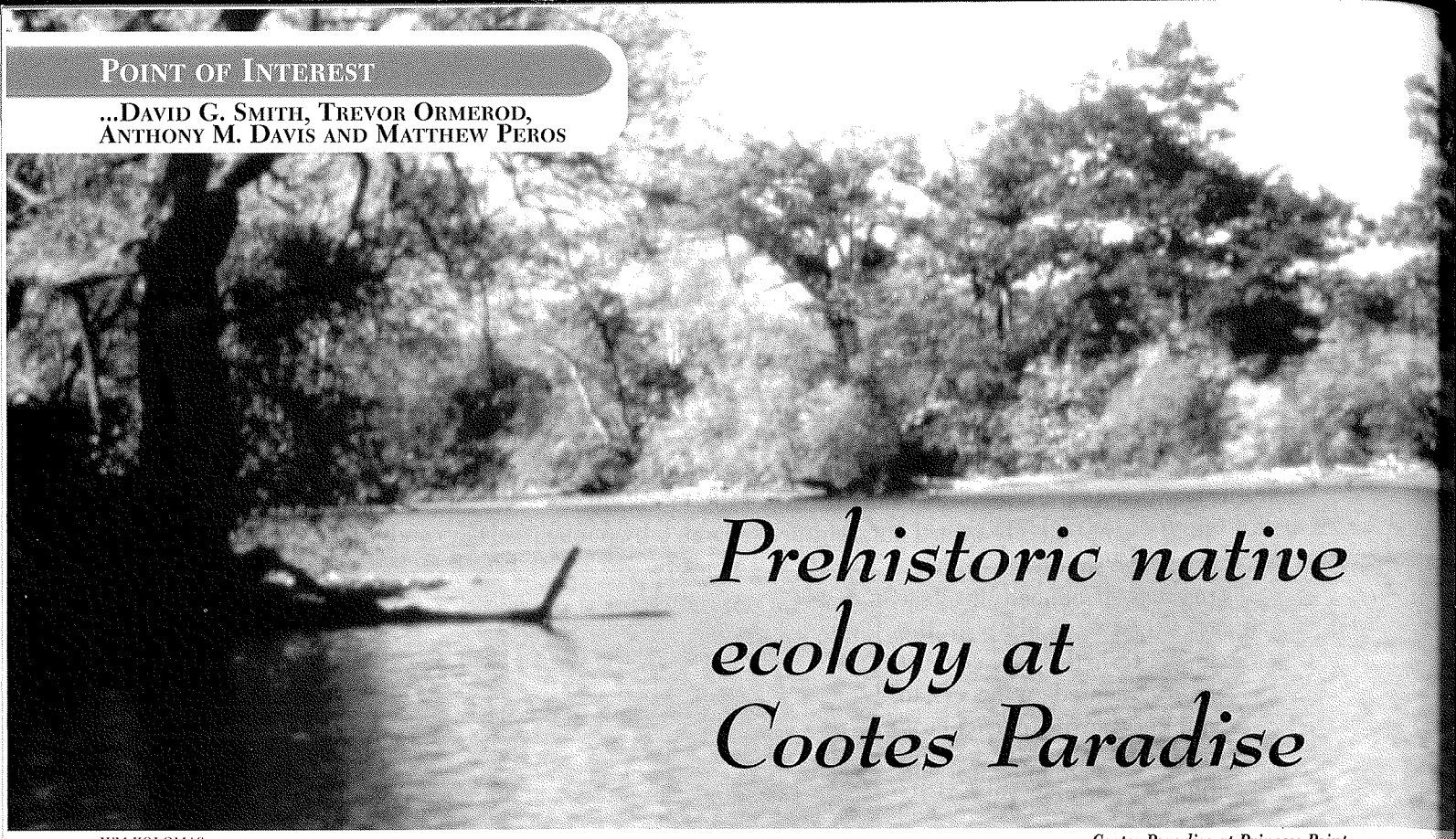

Prehistoric native ecology at Cootes Paradise

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Cootes Paradise at Princess Point.

Introduction

Archeological and palynological research at Cootes Paradise at Royal Botanical Gardens, Hamilton, Ontario was conducted between 1995 and 1997 by the University of Toronto. The purpose of the project was to investigate the prehistoric habitation of Cootes Paradise by people of the Princess Point Complex, a native culture dating to between AD 500 and 1000 (Smith and Crawford, 1997). Princess Point societies appear to have been among the first to introduce agriculture to southern Ontario and were also likely the ancestors of later Iroquoian societies in the region. Research into this culture can contribute to both a better understanding of the economic and social shift from foraging to agriculture, with world-wide implications, and the ancestry of the Iroquoian nations first contacted by European explorers to Canada in the late sixteenth and early seventeenth centuries AD.

To date, our field research concentrates on two areas of south-central Ontario that are particularly rich in Princess Point sites: the Lower Grand River Valley and Cootes Paradise (Figure 1). At Cootes Paradise, archaeological survey and excavations were started in 1995 through a field course for undergraduate students from Erindale College, and palynological research was initiated through the recovery of pollen cores from the cattail marsh and near-shore lake sediments. This paper summarizes this research.

Background

The Princess Point Complex is transitional between the Middle Woodland period (500 BC to AD 500) and the Late Woodland period (AD 900 to 1650), and was the time during which native societies in southern Ontario underwent a transition from a hunting-gathering-fishing way of life to settled agriculture. The primary crop introduced during Princess Point times was corn, but sunflower has also been discovered in small quantities. Both of these crops had their origins to the south, corn originally in central Mexico and sunflower probably in the American Midwest. Princess Point is also characterized by a distinctive form of pottery, decorated with impressions made by a stick wrapped with cord. Cord-wrapped stick pottery is found throughout north-eastern North America between AD 500 and 900, showing that Princess Point communities had widespread contact with other contemporaneous cultures in north-eastern North America, although they developed their own particular styles. In addition, toward the end of Princess Point, small village habitations, as opposed to the seasonally occupied campsites of earlier periods, appear for the first time. These villages are the precursors of the much larger and more complex Iroquoian settlements of the Late Woodland.

Princess Point sites are located throughout south-central Ontario from Long Point and Kitchener-Waterloo on the west, to the Niagara Peninsula and the western end of

Lake Ontario on the east (Figure 1). A distinctive characteristic of most of these sites is their location on major bodies of water, whether these are riverbanks, lake shores or wetlands. There are concentrations of sites at Long Point (lake shore), Cootes Paradise (wetland) and in the Lower Grand River Valley (riverine). Princess Point sites vary from large habitations situated at the edges of rivers and wetlands to smaller ones located both at the water's edge and further inland. The Princess Point sites at Cootes Paradise are examples of large and small habitations associated with the marsh.

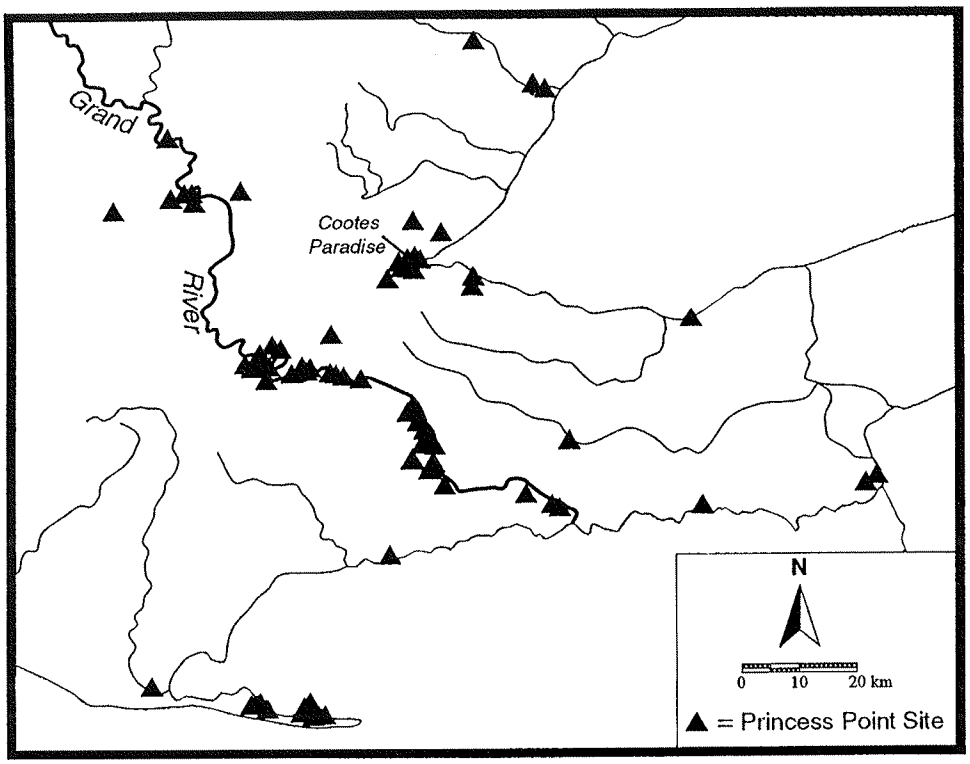

Figure 1: South-central Ontario showing location of Princess Point Sites & Cootes Paradise.

Cootes Paradise is a wetland located at the extreme western end of Lake Ontario. Today it is an extensive shallow lake surrounded by steep, wooded slopes cut by short, dry ravines. Its western end is treed swampland. Two prominent peninsulas, Princess and Sassafras Points, form the south-eastern shoreline. Recent limnological research (Coakley and Karrow, 1994; Duthie et al., 1996) suggests that the nature of this wetland may have been affected by changing water levels in Lake Ontario. At the time of Princess Point occupation (AD 500 to 900), the lake level may have been as much as two metres lower than it is today. The impact of this on water levels in Cootes Paradise remains to be determined. In the mid nineteenth century, Cootes Paradise was apparently a marshland with shallow water and cattails. The dredging of a canal resulted in modification of the embayment itself, especially at the western end of the marsh, and the introduction of carp to the marshland caused drastic reduction in the natural cattail cover. Cootes Paradise and its immediate environs are now part of Royal Botanical Gardens.

Archaeology

Our archaeological research to date had focused on two sites. The Bull's Point site is a small camp located on the north shore of Cootes Paradise at the base of a ravine. The site is not rich in artifacts, but the excavations did recover pottery fragments, chipped stone tools, plant remains and evidence of architecture. The plant remains include a number of wild species, but corn has also been identified. A corn kernel was submitted for radiocarbon dating and returned a date of 960±60 bp (TO-6341) which calibrates to AD 980 (1040) 1220. The corn is significant because it shows that cultivation was a component of Princess Point economy by this time period. Bull's Point probably served as a temporary base for a family group from a larger, more permanent habitation somewhere else at

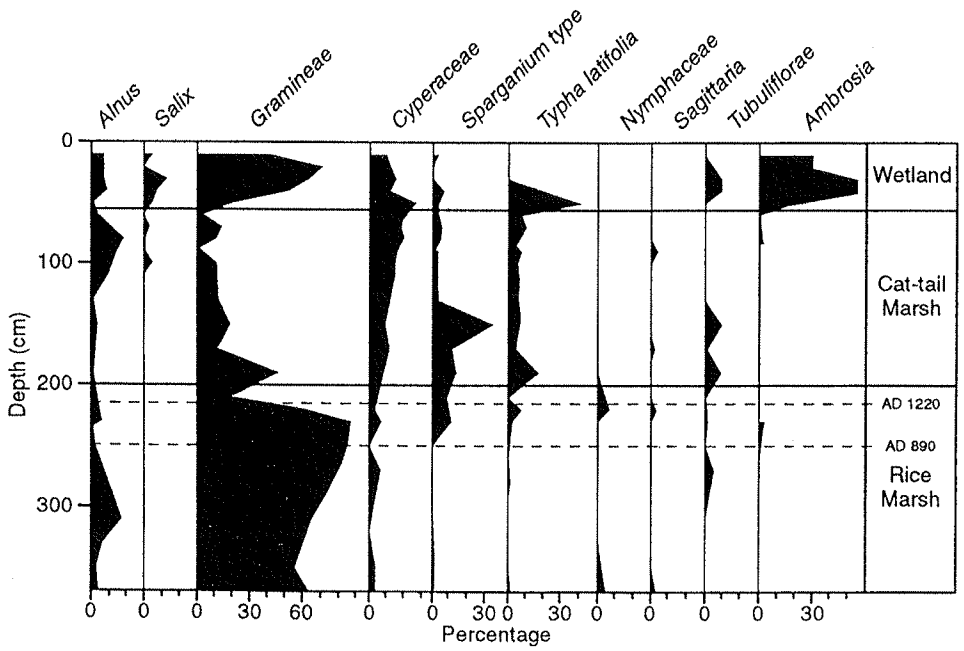

Figure 2: Partial percentage pollen diagram, Cootes Paradise.

Cootes Paradise (such as at Sassafras Point) while they were collecting seasonal food items during the fall.

The Sassafras Point site is located on the southern shore of Cootes Paradise in a level area at the northern tip of the point. The site is about 2,000 square metres in size, making it much larger than Bull's Point. The 1997 excavations produced chipped stone artifacts, botanical remains and bone, as well as pottery from two different time periods. A small number of prehistoric pit features was also located during our work and may have been used for storage during the period of occupation. These pits, along with the size of the site, suggest that Sassafras Point was possibly occupied on a semi-sedentary basis and may have served as a base camp. However, future research is needed to confirm this.

Palynology

Preliminary pollen analysis was initiated at Cootes Paradise in November of 1995, when a short core (125 cm) was collected from a cattail marsh south-west of Bull's Point. Nearly a metre of cattail peat overlies lacustrine sediments. The top 40 cm, a mix of peat and organic mud, is the result of the damage caused by carp. A radiocarbon date from the base of the core is considerably younger than anticipated, spanning only the last 400 years. Although this core turned out not to be directly relevant to the time period we are concerned with , the accumulation of well over a metre of sediment in 400 years reflects the large annual productivity of cattail marshes.

A second core was taken in 1996 from sediments under shallow water about 60 m from the south-east side of Bull's Point, in order to provide a longer sedimentary record. Correlation with date regional pollen zones indicates that the 4 m core spans the last 3,000 years. The pollen diagram of wetland and peripheral plants (Figure 2) shows a dramatic change at and around a depth of 200 cm marked by a rapid drop in Gramineae pollen and a corresponding rise in other pollen types such as *Typha* (cattail). This is interpreted as documenting a change from a wild rice dominated marsh to a cattail marsh. Two radiocarbon dates were submitted from the core, one at a depth of 208 to 220 cm and another from 245 to 253 cm, which bracket the sudden decline in wild rice pollen (see dashed lines in Figure 2). The dates returned are 840±70 bp (Beta-106245) and 1170±70 bp (Beta-106246), which calibrate to AD 1030 (1220) 1290 and AD 650 (890) 1010 respectively. Thus the change from a wild rice to cattail marsh occurred over a period of about 200 years from roughly AD 1000 to 1200.

Discussion

The Princess Point occupation of Cootes Paradise is coincidental with the sedimentary record between 270 cm and 230 cm and is associated with the maximum in wild rice. A pollen diagram for upland species (not illustrated here) shows that a small rise in birch and a decrease in pine also occurred at this time. The changes in the aquatic system and the indication of disturbance in the surrounding upland suggests at least local environmental change.

What is the relationship between Princess Point people and the decline in the wild rice marsh? There are two perspectives on this problem. One is that Princess Point people were initially attracted to Cootes Paradise by the wild rice and to other wetland resources, and that a decline of wild rice because of changing climactic condition forced them to rely more heavily on cultivated maize. The other perspective is anthropogenic and suggests that not only were Princess Point people attracted to Cootes Paradise because of the extensive stand of wild rice, but they were actively involved in its decline through over exploitation or, perhaps, through deterioration of water quality caused by increasing sedimentation.

In reviewing our second perspective we must also consider the fact that the presence of wild rice in Cootes Paradise does not necessarily mean that it was eaten. Although McAndrews (1984) has argued that wild rice was an important prehistoric food resource, charred remains are uncommon on archaeological sites due to problems in preservation. Rajnovich (1984) has also argued that although Middle and Late Woodland sites in northern Ontario often cluster around wild rice stands, they cannot be directly linked as a food source of prehistoric occupants.

A regimen of extensive flotation and macrofossil analysis is necessary to confirm whether wild rice was used as a food source in Cootes Paradise. If indeed it was, there is some possibility that it may have supported the local population in the early stages of the transition to maize horticulture. One factor which may be of significance is that the period of occupation for these archaeological sites was contemporaneous with a time of low water levels. This means that portions of some of the sites discussed here may be submerged, providing excellent preservation for botanical remains.

Further archaeological and palynological research is planned to document the ecology of Cootes Paradise at the time of the Princess Point habitation. We anticipate collecting pollen cores from the centre of Cootes Paradise, and the near-shore environments of Sassafras and Princess points. This will provide a longer record that will document vegetation responses to natural and anthropogenic factors, and the environmental history of the basin.

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