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NEW ENGLAND INTERCOLLEGIATE
GEOLOGICAL CONFERENCE
108th Annual Meeting

Guidebook for Field Trips along the Maine Coast
from Maquoit Bay to Muscongus Bay

Edited by

Henry N. Berry IV and
David P. West, Jr.

Hosted by

The Maine Geological Survey and
The Middlebury College Geology Department

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The cover photograph is by Arthur M. Hussey II, to whom this guidebook is dedicated. Arthur Hussey was an accomplished photographer and his numerous photo collections highlighted many aspects of the natural beauty of southwestern Maine. The photo was taken by Arthur at a location about a kilometer south of Lookout Point along the western shore of Harpswell Neck. Arthur first began mapping in this area in 1962, and his 1965 NEIGC field trip visited exposures nearby. The view in the photo is towards the south and the exposures are east-dipping metamorphosed Ordovician volcanic rocks of the Cushing Formation. Arthur's hammer for scale.

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IMPACTS OF RISING SEA LEVEL ON PREHISTORIC HUMAN OCCUPATION OF THE CENTRAL MAINE COAST

By

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INTRODUCTION

Throughout the Holocene, rising sea level directly impacted humans occupying the coastal zone. This trip will examine archaeological sites ranging in age from about 8,500 years before present (yr BP) to 2,500 yr BP, whose locations depended upon a lower former sea level.

The surficial geology of the Brunswick-Topsham area records glacial and post-glacial processes. By around 26,000 yr BP, the Laurentide Ice Sheet had reached its maximum extent 300 to 400 kilometers to the southeast of the Maine coast. Subsequent glacial retreat and marine transgression occurred, depositing moraines and other till formations interbedded with glaciomarine sediments. Sea level in the field trip area reached a maximum elevation of nearly 300 feet above present sea level, attained between 14,000 and 13,500 yr BP. After this time, isostatic uplift exceeded sea level rise, and the shoreline began to rapidly retreat, resulting in numerous depositional features associated with marine regression, such as the Brunswick sand plain, the age of which is constrained to between 12,500 and 12,000 yr BP (Retelle and Weddle, 2001). During the time of deposition, the shoreline was still regressing and would reach its lowest point around 10,500 yr BP. Sea level rise then exceeded isostatic rebound, resulting in the most recent marine transgression. Human occupation of Maine began around this time, as sea levels continued to rise and shape the landscape. For further information on the glacial history of the area refer to field trip B5 in this guidebook (by Weddle and others) and Weddle and Retelle (2001).

The first humans in North America are known to archaeologists as Paleo-Indians. Maine had a large Paleo-Indian population. Unfortunately, we have yet to discover a major Paleo-Indian site in the field trip area, but we are eventually likely to, because the area is rich in Early-Holocene sand dunes. For reasons we do not yet understand, Paleo-Indian sites are strongly associated with these dune areas.

The prehistoric population of the Merrymeeting Bay region was heavily dependent upon marine and aquatic resources. The many archaeological sites found along the Bay were mostly fishing stations located at falls where anadromous fish, like salmon, river herring, and sturgeon, schooled up before ascending the falls. However, rising sea level submerged one falls after another, causing the focus of fishing to shift upriver. This means that the oldest sites tend to be located farthest downstream. Currently, the Androscoggin River in this area is tidal, with a low-grade, anastomosing channel. We will see how shifts in the channel over several thousand years have affected archaeological site locations.

The prehistoric importance of the Bay's marine resources is reflected in the symbolic presence there of two Red Paint cemeteries. These cemeteries were burial places for Maine's famed "Red Paint People," a remarkable and widely-known culture that traded all over eastern North America from the Great Lakes to Labrador, were the earliest people in the world to hunt swordfish, and buried their dead with elaborate offerings that included the earliest found in North America. During the field trip, the leaders will display artifacts from this and the other prehistoric cultures that are represented in the area's archaeological record. Examples of artifacts, including some from the sites to be visited in this trip, are shown in Figures 3-8, and in Figure 11.

The field trip stops are shown on Figure 1, superimposed on the surficial geologic map of the Brunswick quadrangle (Weddle, 2001). A topographic map of the Merrymeeting Bay area is shown in Figure 2 to give the current regional context.

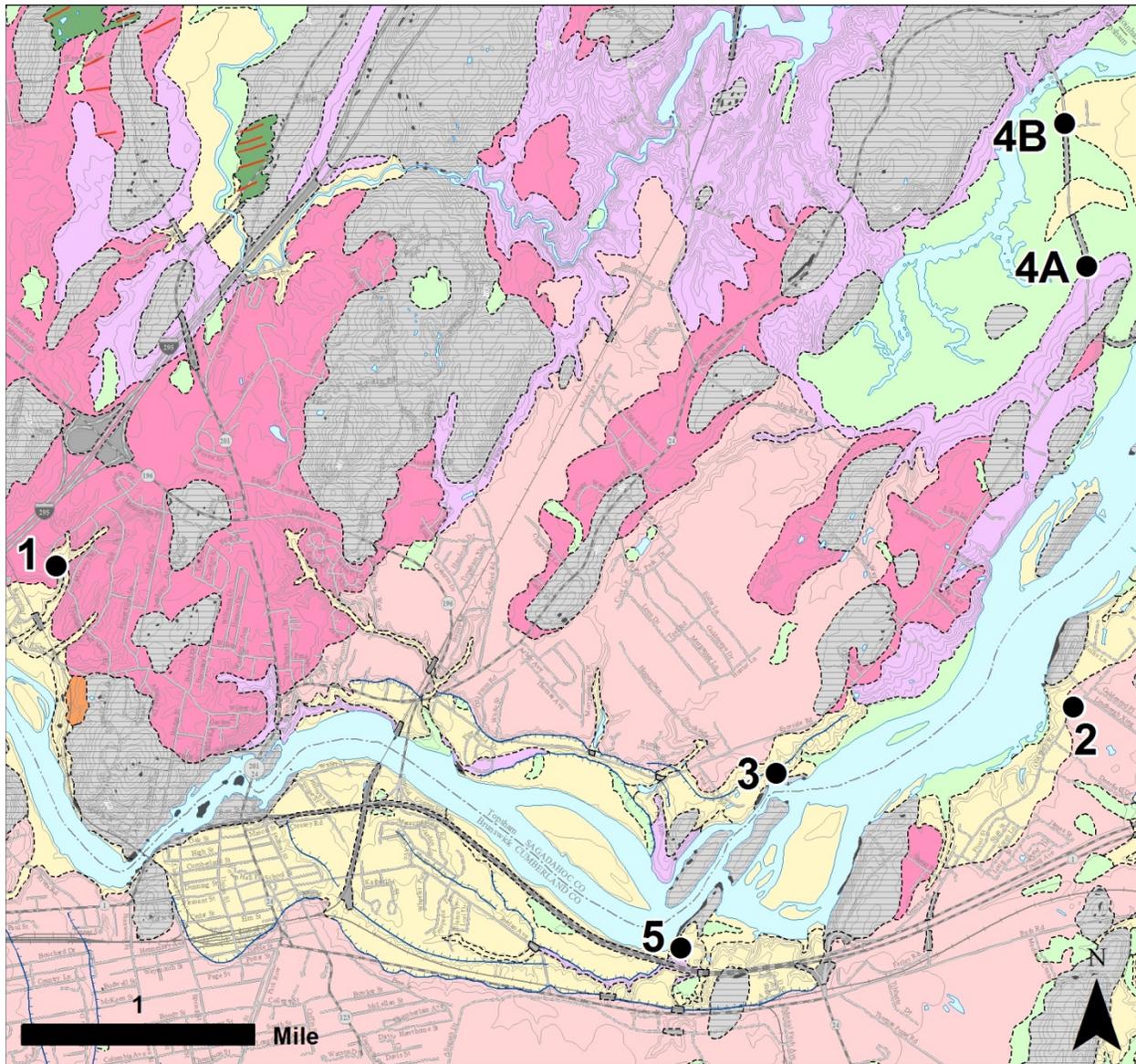


Figure 1. Location of stops on the surficial geologic map of the Brunswick quadrangle (after Weddle, 2001).

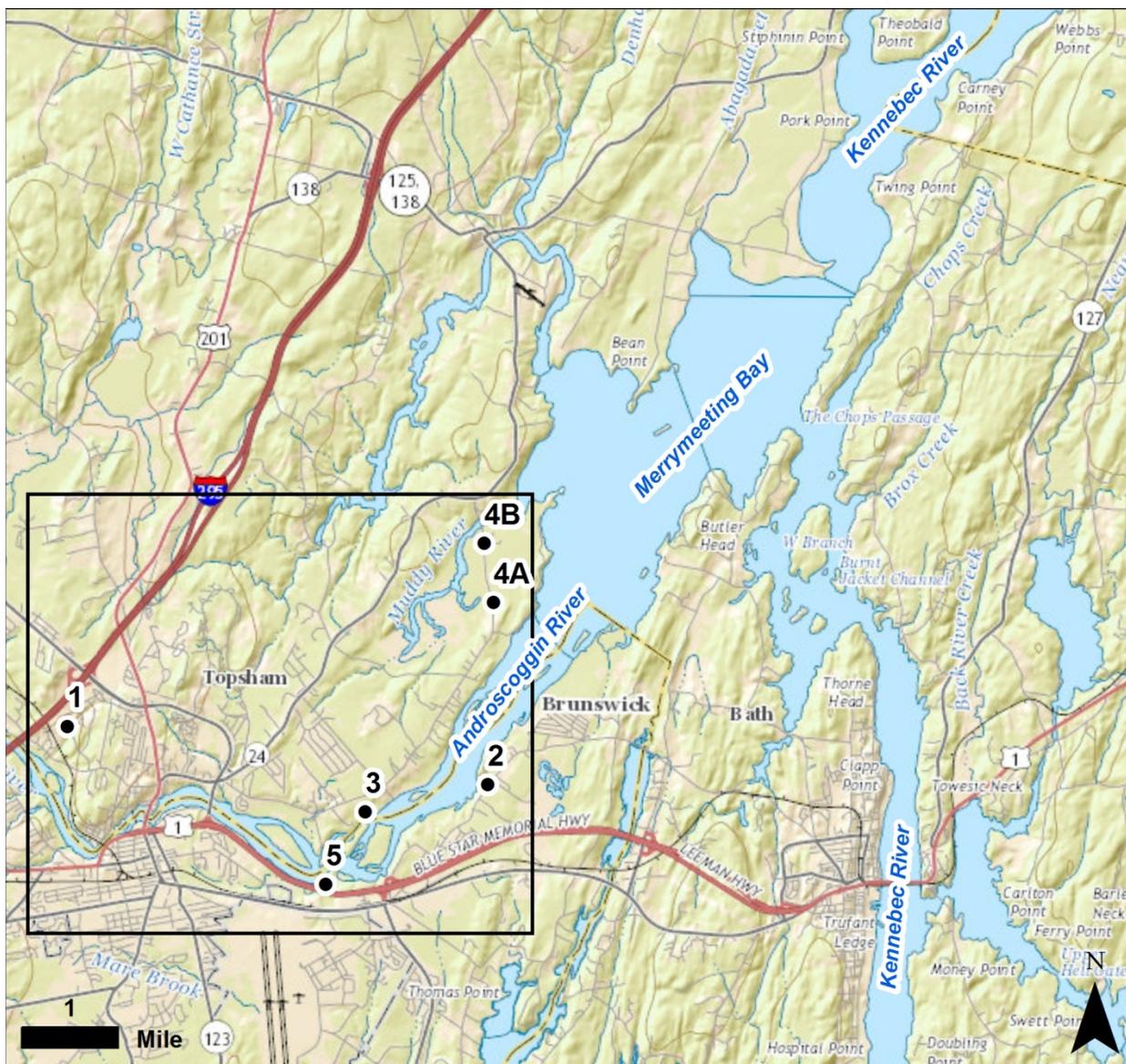


Figure 2. Merrymeeting Bay and surrounding region at the confluence of the Androskoggin and Kennebec rivers. Rectangle indicates outline of Figure 1. Stop locations are shown. (Basemap source:U.S. Geological Survey).

ROAD LOG

Assemble at 9:00 a.m. at the southeast corner of Dick's Sporting Goods parking lot, nearest the road in front of Petco, 131 Topsham Fair Mall Road, Topsham, Maine (421100 E, 4864903 N). *Note: all geographic coordinates in this field trip guide are in WGS84 UTM Zone 19N datum.*

Mileage

0.0 Walk across Topsham Fair Mall Road at the cross walk to Stop 1.

STOP 1. DUNES NEAR THE TOPSHAM FAIR MALL IN TOPSHAM (421106 E, 4865016 m N).

This is typical terrain for Paleo-Indian sites, although no evidence of their presence at this particular location has been recovered. Eolian deposits like these sand dunes and others mapped to the south accumulated after

formation of the Brunswick sand plain, when the climate was warming but vegetation had not yet stabilized the landscape (Weddle, 2002).

- 0.0 Return to vehicles.
- 0.0 Turn right on Topsham Fair Mall Road, heading southeast.
- 0.5 Turn left onto Winter St.
- 1.3 Turn right onto Route 201 South (Main Street).
- 1.6 Cross Androscoggin River. At end of bridge, stay in left lane.
- 1.8 Cross Route 1 overpass and turn left toward Route 1 North (onto Mason Street).
- 1.9 Stay in right lane, continue straight. Continue straight (now Cressey Rd.) onto Route 1 North.
- 4.5 Take the exit for Route 24 (Cook's Corner, Brunswick Executive Airport, Orr's-Bailey Isls.). Merge left, preparing for left turn.
- 4.6 Stoplight at Cook's Corner. Turn left onto Bath Road.
- 5.1 Turn left onto Old Bath Road.
- 6.5 Turn left into farm yard and park.

STOP 2. SIMPSON-STEWART FARM, OLD BATH ROAD, BRUNSWICK (428154 E, 4864037 N).

This site complex lies adjacent to a submerged falls or rapids with an associated plunge pool. On a knoll located close to the road, archaeologists recently discovered an 8,500-9,000-year-old cemetery. Closer to the river were seasonal encampments during that and later periods up to about 6,000 years ago.



Figure 3. Artifacts from Maine Paleo-Indian sites. One site of this period is known in Brunswick, located near Stop 2. Unfortunately, access is severely restricted.

- 6.5 Turn right onto Old Bath Road and retrace the route to join Route 1 South as follows.

- 7.8 Turn right onto Bath Road. Stay in right lane.
- 8.2 Turn right onto Gurnet Road and get into left lane.
- 8.7 Merge onto Route 1 South.
- 10.5 Take exit for Route 196 West (toward I-295 North, Topsham/Lewiston).
- 10.8 Continue onto Route 196 West.
- 11.3 Turn right at stoplight onto Bypass Drive (to Route 24).
- 11.4 Stop sign. Turn right at T-intersection onto Route 24 South (Middlesex Rd).
- 11.5 Turn left (before overpass) onto Foreside Road.
- 13.0 Turn right onto dirt road.

STOP 3. HUNTER FARM, FORESIDE ROAD, TOPSHAM (426096 E, 4863578 N).

On the Hunter Farm are located three closely-related prehistoric sites that were extensively excavated by the Maine State Museum over twenty years. The sites are situated on levees in such a way that succeeding floods deposited silt covering one occupation layer after another, creating a stratified archaeological site, something of a rarity in northern New England.

The feature that attracted prehistoric humans to this location was a ledge that extended across the river channel, creating a schooling place for anadromous fish. The end points of this ledge are easily seen today on both sides of the main river channel (Figure 10).

The Hunter Farm site complex was occupied beginning around 3,000 years ago, just as the region’s prehistoric population was recovering from very low levels. We will discuss this re-emergence while at the site. This is also the time when pottery-making first appears in the Northeast, which marks the beginning of what archaeologists call the Ceramic Period. You will see examples of this pottery at the site.

Across the channel from the site complex is an island on which the Maine State Museum recently discovered and excavated a Red Paint cemetery. You will have a chance to examine artifacts recovered during these excavations.



Figure 4. Plummets and figurines from various Red Paint cemeteries. The zoomorphic plummet in the upper left was found at the Ormsby cemetery, Stop 5.



Figure 5. Bayonets of ground slate from various Red Paint cemeteries. Specimen at the right is from the cemetery on an island that lies just to the south of the Hunter Farm sites.

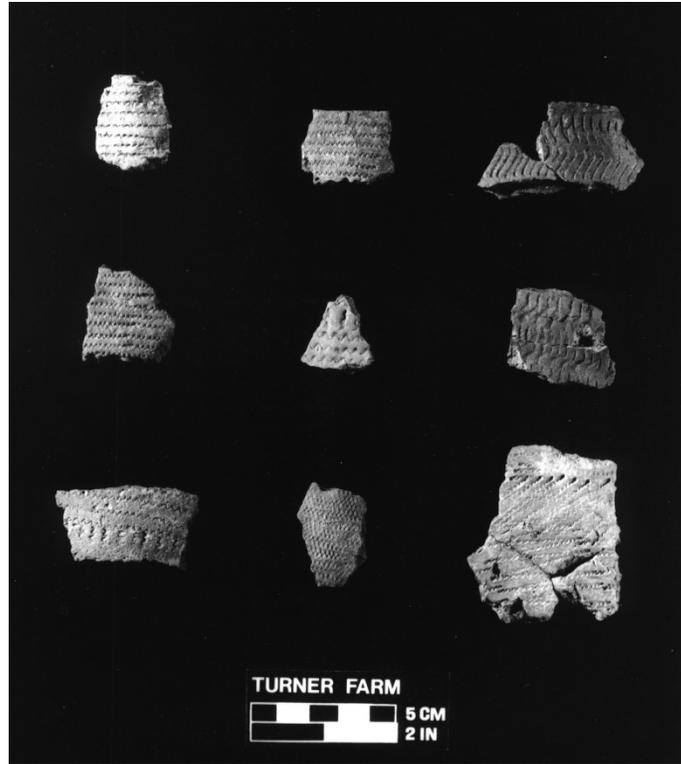


Figure 6. Pottery sherds from the Hunter Farm sites, Stop 3.



Figure 7. Late prehistoric arrowheads, some of which came from the Hunter Farm sites, Stop 3. These examples are made of materials exotic to Maine, indicating wide-spread exchange of raw materials during late prehistory throughout the Northeast.

- 13.0 Turn right (east) on Foreside Road.
 15.6 Park on the side of the road.

STOP 4A. FOSSIL RIVER CHANNEL, FORESIDE ROAD, TOPSHAM (428250 E, 4867093 N).

This stop involves two locations. The first is a fossil river channel that is crossed by the Foreside Road (Figure 9). The channel connects Muddy River and the main channel of the Androscoggin. Radiocarbon dating has demonstrated that it was active as recently as 3,500 years ago. Sediment infilling and channel abandonment were complete by $2,860 \pm 40$ BP (Adkins, 2000). This explains the highly anomalous archaeological site we will visit at the second stop, Stop 4B.

- 15.6 Continue along Foreside Road.
 16.3 Park on the side of the road.

STOP 4B. CAREY'S GARDEN SITE (428094 E, 4868085 N).

The 3,600-year-old Carey's Garden site was excavated by the Maine State Museum in the 1980s. It is highly unusual in several respects. First, it faces northward, while over 95 percent of Maine archaeological sites face south to east. Second, most Maine archaeological sites lie on active channels suitable for the passage of anadromous fish, while the Muddy River today is a sluggish deadwater. Examining its channel reveals that this was not so in the past, for the channel is wide, now filled in with sediment. However, connecting the dots between the fossil channel and the mouth of the Muddy River today suggests that the Muddy was an active channel of the Androscoggin when the site was occupied. Under these conditions, it would have been an ideal fishing station.

The third unusual aspect of the Carey's Garden site is that it was intensively, if seasonally, occupied by only one group, which archaeologists refer to as the Susquehanna Tradition. This was a group of immigrants from the southern Appalachian region that moved northward to take over the region formerly occupied by the Red Paint People, who suddenly and mysteriously disappeared around 3,700 years ago. The Carey's Garden site has all the earmarks of a frontier settlement.

The Susquehanna tradition persisted in Southern New England for nearly a millennium. In Maine, however, while it arrived early in the group's northward movements, it also disappeared after only a brief stay of around two centuries, which were followed by a pretty major hiatus in human occupation of the region.



Figure 8. Projectile points or (more probably) knife blades of the Susquehanna tradition. Specimen at center bottom is from Carey's Garden, stop 4B.

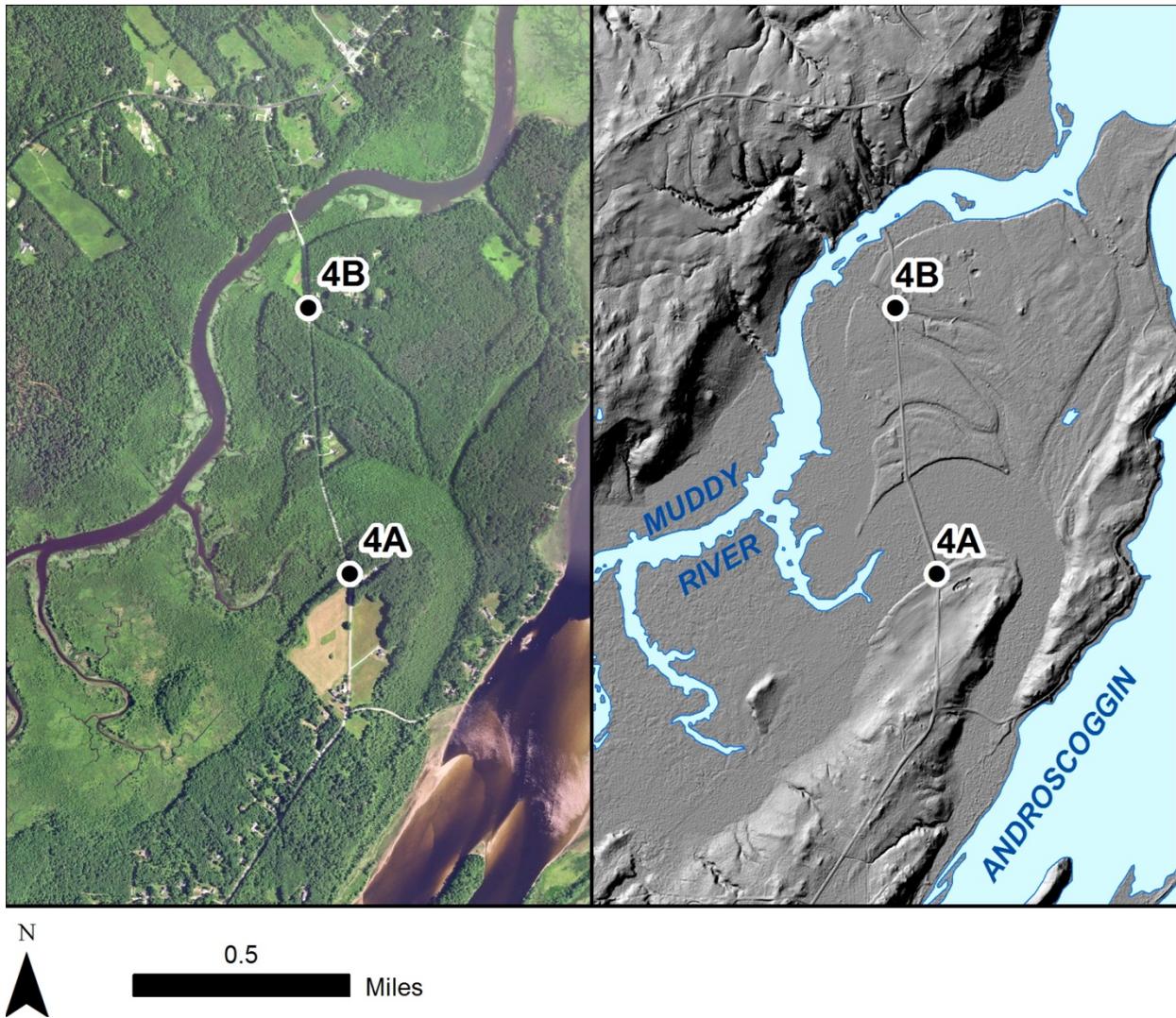


Figure 9. Aerial imagery (left) and "bare earth" hillshade image from two-meter LiDAR (right) showing the fossil river channel that once connected the main channel of the Androscoggin with the Muddy River. Stops 4A and 4B are shown. (Imagery sources: ArcGIS Online and Maine Office of GIS).

- 16.3 Continue along Foreside Road heading north.
- 16.7 Turn left onto Route 24 South (Middlesex Rd).
- 21.7 Turn left onto Route 201 South (Main St). Continue straight on Route 201 into Brunswick (Maine St).
- 22.6 Park on the left along Brunswick Commons for **LUNCH** at the gazebo.

- 22.6 Continue south along Maine St.
- 22.7 Turn left onto Route 24 South (Bath Rd).
- 25.1 Approaching Cook's Corner, use the left 2 lanes to turn left onto Gurnet Rd.
- 25.6 Stay in the left lane and enter Route 1 South.
- 26.3 Turn right onto Ormsby Way.
- 26.4 Park at the Ormsby Site.

STOP 5. ORMSBY SITE COMPLEX (425435 E, 4862364 N).

The Ormsby site complex is comprised of two adjacent sites, one on a low terrace next to the Androscoggin River and the other on a high adjacent terrace (Figure 10). On the low terrace is a village site of the Red Paint People, radiocarbon dated to 4,000 B.P. Also found here is evidence of later occupation by people of the Ceramic period.

On the high terrace are traces of an early infant cremation dating to around 9,000 years ago. The major feature of the terrace, however, is another Red Paint cemetery dating to around 3,800 years ago, just a bit later than the one on the island off the Hunter Farm. This cemetery demonstrates the Red Paint People's inclination to locate their mortuary sites on prominent landforms.

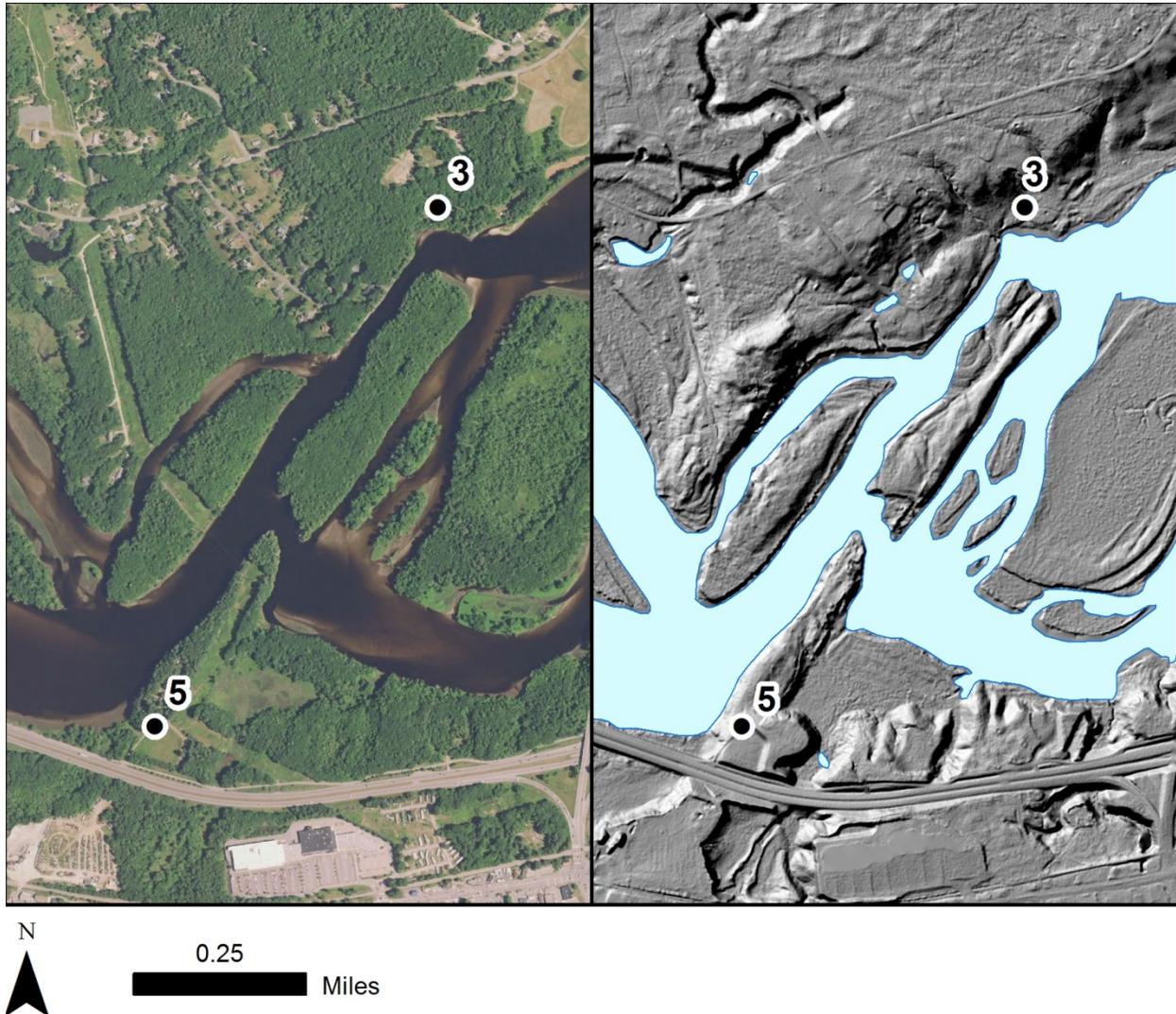


Figure 10. Aerial imagery (left) and hillshade image from two-meter LiDAR (right) showing the prominent northeast-trending island in the Androscoggin between stops 3 and 5. The northeast trend is controlled by the bedrock structure. The surficial geologic map (Figure 1) shows that bedrock is only thinly covered by unconsolidated glacial sediment and bedrock outcrops are present on both sides of the river and on the island. (Imagery sources: ArcGIS Online and Maine Office of GIS).



Figure 11. Projectile points from two periods. On the left are points dating around 8,500 years B.P. Specimen on lower right is from the Ormsby site. On the right are ceremonial projectile points made of materials from Lake Champlain, Vermont, and Lake George, New York. This style was imported exclusively for ceremonial use. They are found only in Red Paint cemeteries. Specimen on the lower right is from the Ormsby cemetery.

RETURN TO TOPSHAM MALL PARKING AREA

- 26.4 Return along Ormsby Way the way we came.
- 26.5 Turn right, merging onto Route 1 South.
- 27.7 Continue straight. (Do not take this exit.)
- 28.4 Exit right, toward Routes 201 and 24 North, toward Topsham.
- 28.6 Stoplight at end of ramp. Turn right onto Route 24 North (Main St).
- 28.8 Cross Androscoggin River. Note northeast trend of bedrock structure.
- 29.1 Turn left onto Winter Street.
- 29.9 Turn right onto Topsham Fair Mall Road.
- 30.4 Turn left into parking lot where we began the trip to retrieve cars.

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