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Pleistocene Rodents from Southeast Georgia

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Introduction

The Pleistocene epoch (~2.6 mya—10 ka) is marked by cyclical glacial and interglacial stages. The Last Glacial Maximum (LGM) was the latest major glacial advance, occurring around 21,000 years ago during the Late Pleistocene (~125-10 ka). This coincides with the radiocarbon dates from Clark Quarry of 19,840-22,240 years ago (Patterson et al. 2012). The Late Pleistocene of Georgia contains 8 published sites, six of which contain rodent taxa (Table 2).

Clark Quarry, a Late Pleistocene fossil locality near Brunswick, GA (Figure 1) has produced a wealth of fossils of fish, amphibians, reptiles, birds, and other mammals. The mammalian fauna are dominated by the Columbian Mammoth (*Mammuthus columbi*) and Long-horned Bison (*Bison latifrons*). Here I discuss the rodent fossils recovered from Clark Quarry.

Materials and Methods

Clark Quarry sediment was collected and wet screen washed, then the concentrate was sorted under a dissection microscope to collect the smaller fossils. Identification of the fossils was accomplished by comparing the fossils to known material in the Georgia College Mammal (GCM) collection. Published descriptions and illustrations were also utilized.

Acknowledgments

Special thanks to Dr. Alfred Mead, my major professor, and to all the faculty and students that assisted in collecting and sorting Clark Quarry specimens.

Thanks to Dr. Samuel Mutiti, Dr. Dominic DeSantis, and Dr. David Patterson for participating in my graduate committee.

Additional thanks to Heidi Mead for assistance in preparing and taking pictures of the fossils.

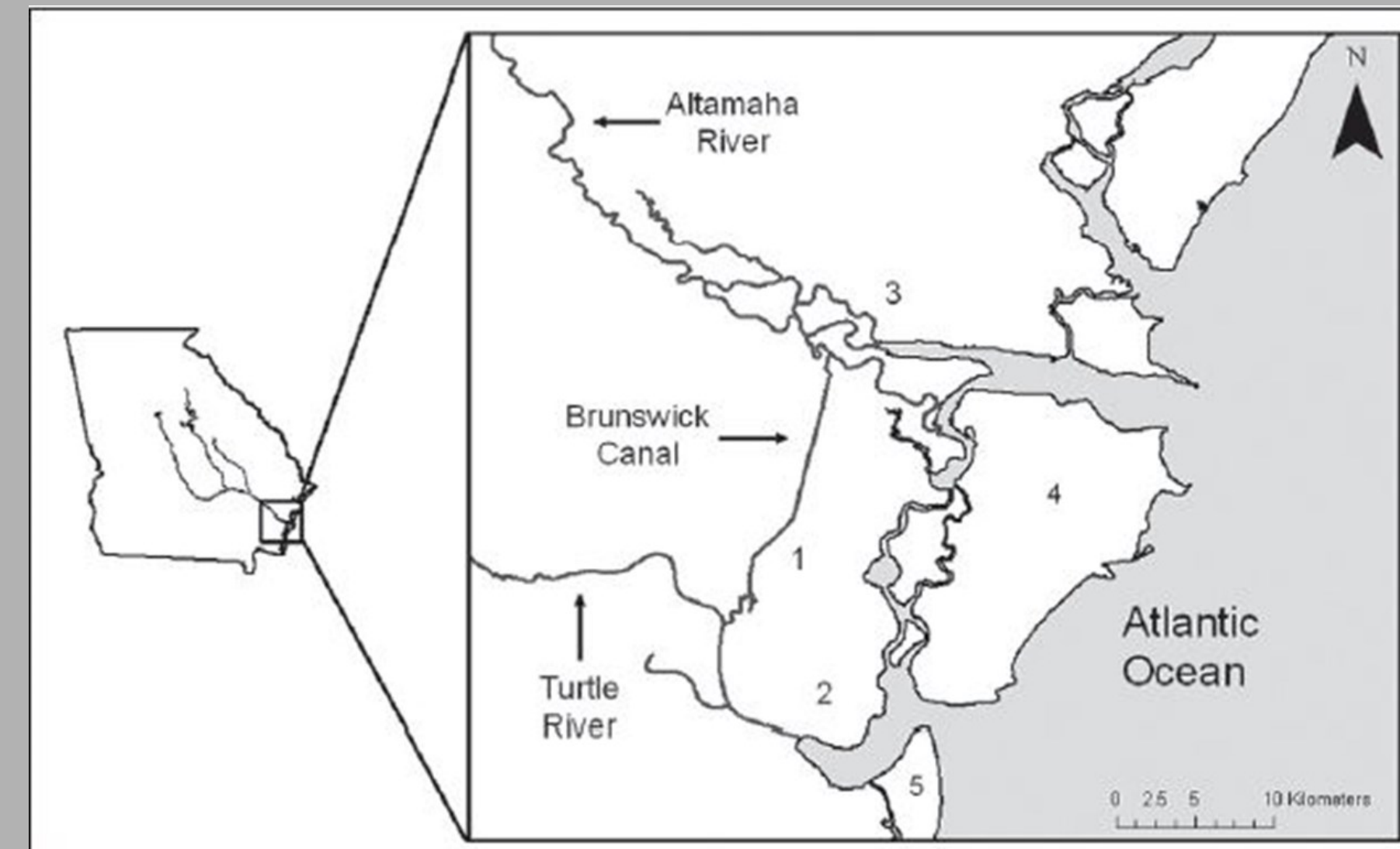


Figure 1. Map of the region surrounding the Clark Quarry fossil locality. 1) Altamaha and Turtle Rivers; 2) Brunswick; 3) Darien; 4) St. Simon's Island; and 5) Jekyll Island (Patterson et al. 2012).

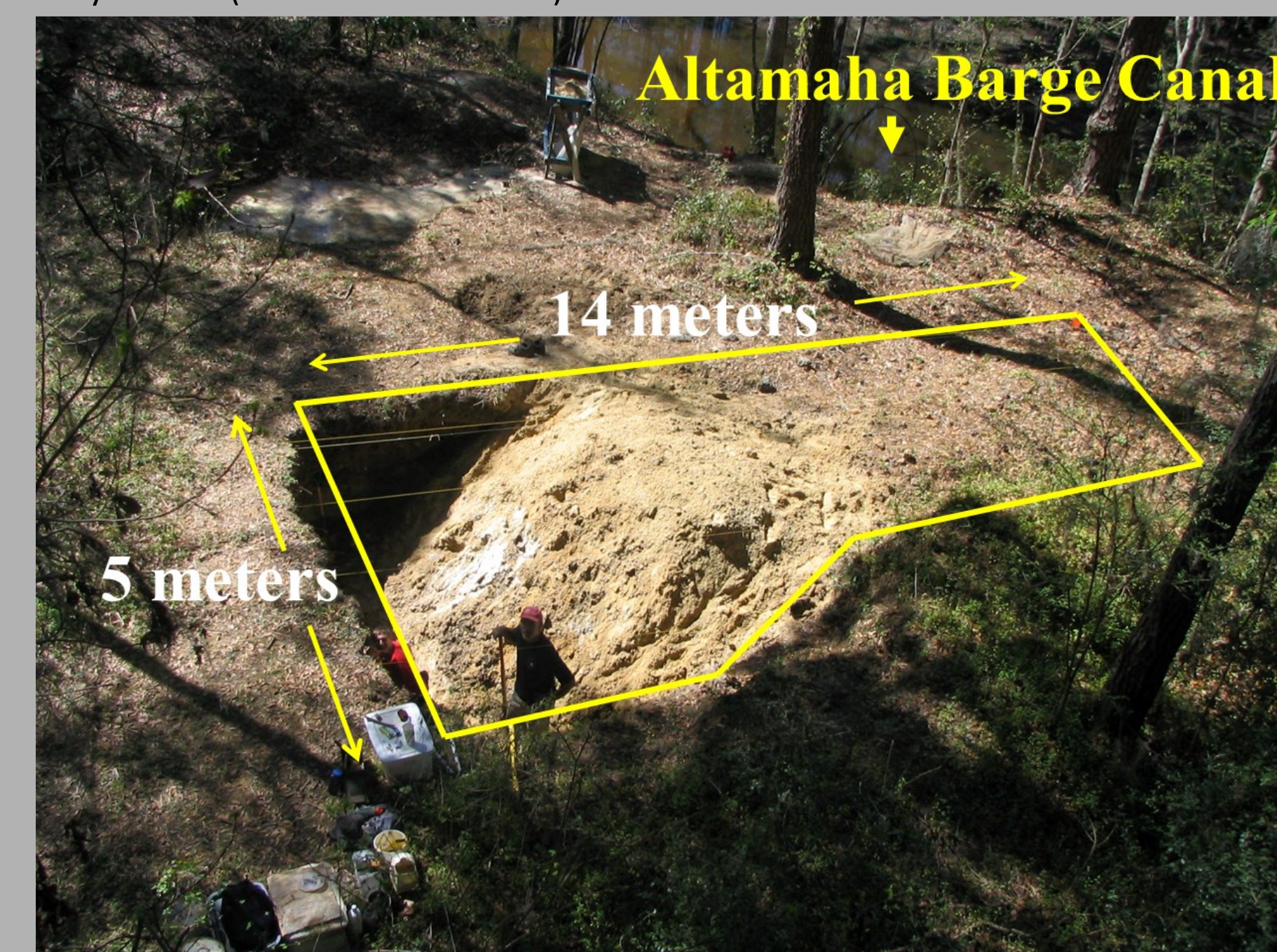


Figure 2. Aerial image of the dig site at Clark Quarry with measurements in place.

Table 1. Range and habitat descriptions of rodent species and modern counterparts found in Clark Quarry sediments. All range and habitat information from Hall (1981).

Taxa	Current Range	Habitat
<i>Marmota monax</i>	Across Canada and down the east coast of the United States ending in northern Georgia	Grasslands and forest edges
<i>Glaucomys volans</i>	Across the eastern United States coast	Low elevation hardwood forests
<i>Oryzomys palustris</i>	Southeastern United States and southern Mexico to Panama	Marshland
<i>Sigmodon hispidus</i>	Southeastern United States to New Mexico and south to Panama	Grasslands
<i>Neofiber alleni</i>	Florida and southernmost Georgia	Wetlands
<i>Synaptomys cooperi</i>	Northeastern United States to southern Canada	Wetlands
<i>Peromyscus</i> sp.	Southeastern United States	Grasslands and wetlands
<i>Reithrodontomys humulis</i>	Southeastern United States to Texas and north to West Virginia	Grasslands and wetlands
<i>Hydrochoerus hydrochaeris</i>	Panama into South America	Grasslands and floodplains

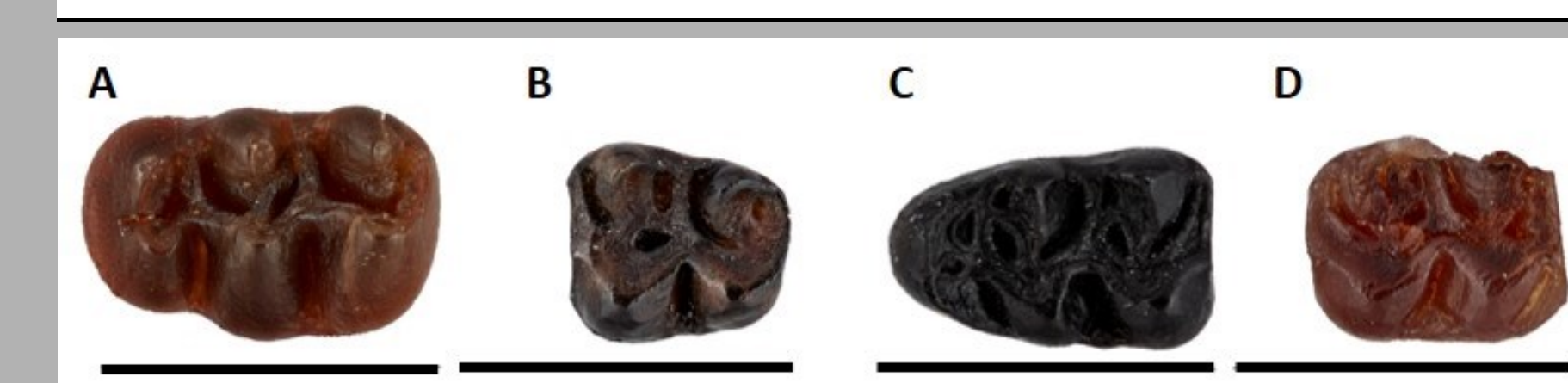


Figure 3. *Oryzomys palustris* cheek teeth. A) left M1; B) left M2; C) left m1; D) left m2. Anterior = left. Scale bar = 2 mm.



Figure 4. Florida Bog Lemming left dentary with i1 and m1-m3 (GCVF 17973). A) occlusal view; B) lateral view; C) medial view. Scale = 2 mm.

Table 2. Late Pleistocene rodents in Georgia. CQ = Clark Quarry; LQ = Ladds Quarry; LKC = Little Kettle Creek; WQ = Watkins Quarry; IHS = Isle of Hope Site; MS = Mayfair Site; FS = Fossilossa Site; PP = Porters Pit. Former species names in ().

Taxon	CQ	LQ	LKC	WQ	IHS	MS	FS	PP
<i>Glaucomys volans</i>	X				X			
<i>Sciurus carolinensis</i>						X		
<i>Tamias aristus</i>		X						
<i>Tamias striatus</i>		X						
<i>Marmota monax</i>	X	X						
<i>Castor canadensis</i>		X			X	X		
<i>Oryzomys palustris</i>	X				X			
<i>Sigmodon hispidus</i>	X	X			X			
<i>Neotoma floridana</i>		X			X			
<i>Peromyscus polionotus</i>					X			
<i>Peromyscus maniculatus</i>		X						
<i>Peromyscus leucopus</i>		X						
<i>Peromyscus</i> ?		X						
<i>Peromyscus</i> sp.	X							
<i>Reithrodontomys humulis</i>	X							
<i>Neofiber alleni</i>	X	X			X			
<i>Ondatra zibethicus</i>		X						
<i>Synaptomys australis</i>	X				X			
<i>Synaptomys cooperi</i>		X	X					
<i>Microtus pennsylvanicus</i>						X		
<i>Microtus (Pitymys) pinetorum</i>	X				X			
<i>Clethrionomys (Myodes) sp.</i>			X					
<i>Zapus hudsonius</i>		X						
<i>Nechoerus pinckneyi</i>				X				X
<i>Nechoerus aesopi</i>	X							

Results

The nine rodent species found at Clark Quarry, include the Groundhog (*Marmota monax*), the Southern Flying Squirrel (*Glaucomys volans*), the Marsh Rice Rat (*Oryzomys palustris*) (Figure 3), the Hispid Cotton Rat (*Sigmodon hispidus*), the Round-tailed Muskrat (*Neofiber alleni*), the Florida Bog Lemming (*Synaptomys australis*) (Figure 4), Deermice (*Peromyscus* sp.), the Eastern Harvest Mouse (*Reithrodontomys humulis*), and the Late Pleistocene Capybara (*Nechoerus aesopi*).

Discussion

Of the nine rodent species recovered from Clark Quarry, two are extinct, the Florida Bog Lemming and the Late Pleistocene Capybara. The Groundhog and the Round-tailed Muskrat are extralimital to Clark Quarry in modern distribution. This recovery of the Eastern Harvest Mouse is the first reported find of that taxon in the Late Pleistocene of Georgia. The rodent fauna of Clark Quarry suggest an open, grass dominated environment with vegetated aquatic habitat nearby interspersed with minimal tree cover (Table 1). This assessment agrees with other publications analyzing Clark Quarry fauna.

Literature Cited

Patterson, D.B., A.J. Mead, and R.A. Bahn. 2012. New skeletal remains of *Mammuthus columbi* from Glynn County, Georgia with notes on their historical and paleoecological significance. *Southeastern Naturalist* 11(2):163-172.

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