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The Quaternary Bone Caves at Wallingford, Jamaica

D A MCFARLANE and R E GLEDHILL

Abstract : A group of caves associated with the sink of the One Eye River in St. Elizabeth Parish, Jamaica, have been the subject of numerous important palaeontological investigations beginning 1919. Unfortunately, considerable confusion has arisen in the literature through inadequate documentation of different sites. The caves of the immediate area are described and located, and their palaeontological significance is summarised in the light of recent taxonomic review and relevant geochronological evidence.

The caves at Wallingford, St. Elizabeth Parish, have been the focus of palaeontological investigations in Jamaica since they were first discovered by H. E. Anthony in 1919 (Anthony, 1920). Subsequent work has been intermittent and until very recently, hampered by inadequate documentation of the stratigraphy, the sites and their locations. Nevertheless, the palaeontological record from the caves remains of critical value to the interpretation of Caribbean vertebrate history, and a recent re-evaluation of some of the material (MacPhee, 1984) has established the Wallingford record as amongst the oldest known from the Caribbean.

The first attempt at a consistent cataloguing of the Wallingford caves was that of Fincham (1977) as a small part of a comprehensive catalogue of Jamaica's caves. Unfortunately, Fincham's register located only one of the fossiliferous caves in the area and did not address the confusion of sites established in the palaeontological literature. MacPhee (1984) pointed out that prior to his own work, not a single fossiliferous cave site had been adequately described from Jamaica with respect to map location and physical description. MacPhee's work has cleared up much historical confusion resulting from these inadequate site descriptions, but his summary emphasises only Wallingford Roadside Cave and does not provide surveys or detailed descriptions of the other caves in the immediate area. The purposes of this review are to locate precisely and to describe the known caves of the immediate area and to summarise their palaeontological and geomorphological significance.

Wallingford Roadside Cave

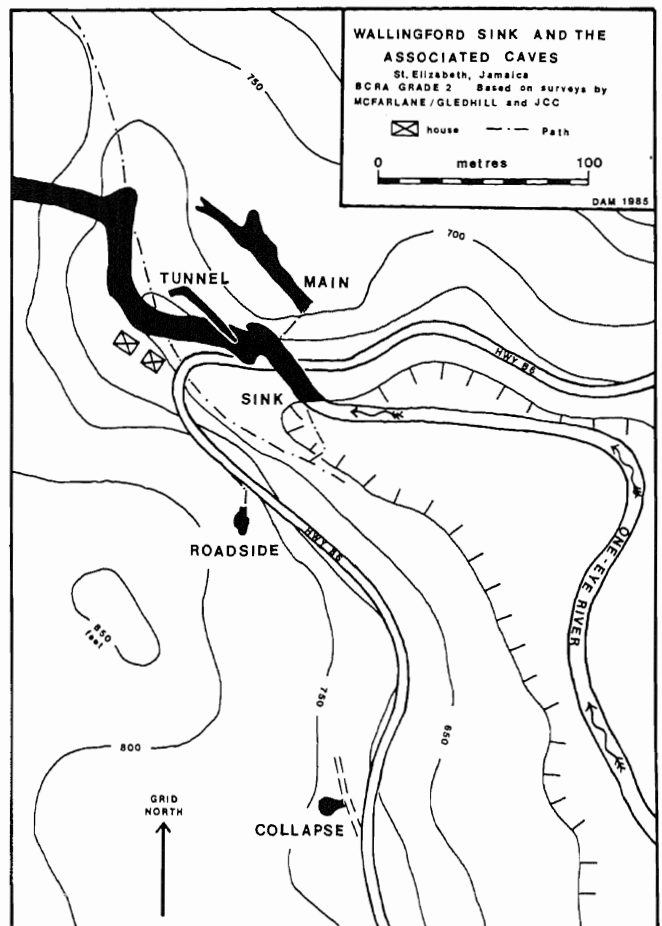
Grid Reference; 3275 4664. Altitude; 234 m. Length; 11 metres.

Located 6 m above the road (Highway B6), 61 m southwest (bearing 217°) of the sink of the One Eye River.

The entrance to Roadside Cave is a rift-like opening with a steeply sloping floor of earth and flowstone. Immediately within, the cave opens out into a small chamber and then closes in to a substantial earth and flowstone choke. The floor of the chamber consists of a hard-packed, brown earth which is at least one metre deep at the back of the cave. This earth has been the source of fossil or subfossil representatives of the extinct Rice Rat *Oryzomys*, the extinct bat *Tonatia*, and a variety of other mammalian and reptilian taxa. The rear wall of the cave has a heterogeneous, calcite-indurated 'breccia' accreted to it, although the bulk of the original deposit has now been removed by successive generations of palaeontologists. Frequently referred to in the literature simply as a "cave breccia", the material is a clay-rich earth intimately cemented with calcite and interspersed with thin calcite layers and vugs. Examples of this material are housed in the collections of the Florida State Museum and the American Museum of Natural History in New York.

Also known as: Wallingford Cave; Balaclava Cave; "J1" (Anthony, 1920, field notes in the American Museum of Natural History); Wallingford I (Patten, 1966 c.f. MacPhee, 1984).

The palaeontology has been reviewed by MacPhee (1983, 1984). This site is the type locality for the Heptaxodontid rodent genus *Clidomys* and its two recognised species *C. osborni* Anthony 1920 (includes the synonymised taxa *Speoxenus cundalli* Anthony 1920 and *Alterodon major* Anthony 1920) and *C. parvus* Anthony 1920 (includes the synonymised taxon *Spirodontomys jamaicensis* Anthony 1920). The cave is also the type locality for the phyllostomatid bat *Tonatia saurophila* Koopman and Williams 1951. Other fossil remains include; (Mammalia) *Geocapromys brownii*, *Oryzomys palustris*, *Natalus major*, *Phyllonycteris aphylla*, *Eptesicus* sp.. (Reptilia) *Celestus* sp., *Crocodylus* sp., *Pseuemys floridana* *Alisophis* sp., *Tropidophis* sp., and *Anolis* sp.



Wallingford Main Cave

Grid Reference; 3278 4671. Altitude; 240 m. Length; 77 metres.

Located 17 m above the road (Highway B6), 45 m due north of the sink of the One Eye River.

Main Cave is large, dry, strike-oriented passage with a boulder floor. Remnants of cave fill are present, but the cave was formerly mined for guano (Peck, 1975) with the resultant loss of palaeontological materials. At its furthest reaches the cave closes down to two bifurcating crawls which rapidly become choked with flowstone deposits.

The structure and location of Main Cave clearly indicates its role as a former sink of the One Eye River, long since abandoned. MacPhee (1984) has proposed a Sangamon (125,000 yr BP) age for secondary bone-bearing conglomerates in Wallingford Roadside and Main Caves based on taphonomic considerations, implying a minimum downcutting rate of 28 cms/Kyr. Additionally, Gascoyne (1981) has presented uranium series speleothem dates from the abandoned Oxford Cave and active Coffee River Cave at the upstream resurgence of the One Eye River. Although Gascoyne has only calculated downcutting rates within these caves, their altitudinal separation can be used to derive a downcutting rate between the caves of 27 cms/Kyr, neglecting the complexities introduced by the migration of the subterranean drainage channel. This compares very favourably with the rate of 28 cms/Kyr derived from MacPhee's estimate and suggests that an Interglacial age for active development at Main Cave is highly probable.

Also known as: Wallingford Cave (Fincham, 1977); Balaclava Cave; "J2" (Anthony, 1920, field notes in the American Museum of Natural History); Wallingford II (Patten, 1966 c.f. MacPhee, 1984).

The palaeontology was originally similar to Roadside Cave but much less rich. Both Anthony and Patten seem to have collected Clidomys fragments here, but the location and extent of the breccia is unclear. At Roadside Cave the fossiliferous breccia is intimately associated with the earth choke at the back of the cave, but at Main Cave the choke is of much purer white flowstone alone. Breccia was noted by the present authors in 1985. The nature and extent of the original cave fill was most unfortunately not described or documented adequately by any of the earlier workers and it is now impossible to determine what may have been lost.

Wallingford Sink

Grid Reference; 3278 4667. Altitude; 205 m. Length; 413 metres.

The sink of the One Eye River, located 65 m east-southeast and 21 m below the centre of the hairpin bend in the road (Highway B6) at Wallingford.

The sink is a large, strike-orientated river passage which carries the entire flow of the One Eye River. A number of gour pools and swims (in wet weather) lead to a sump and thereafter by an unexplored route to a resurgence in Mexico Cave approximately 1500 metres to the east. The cave is subject to periodic, severe flooding which may submerge the entrance by 10 metres or more.

Also known as: Wallingford Cave; "Gulf" (local parlance).

No palaeontological remains have been reported. However, Peck (1975) reported observing indurated breccias in Wallingford Sink, which led him to confuse this cave with Roadside Cave. This observation has never been followed up.

Wallingford Tunnel Cave

Grid Reference; 3272 4671. Altitude; 228 m. Length; approx. 40 m.

Located 88 m northwest of the sink of the One Eye River, on the north side of the foot track and opposite a small house.

The small overgrown entrance descends steeply to the northeast and then swings southeast as a low, heavily decorated crawl eventually

becoming choked with flowstone.

It has no other names, but was referred to by Peck (1975) as an un-named site near Wallingford (Main) Cave.

No palaeontological material has been reported.

Collapse Cave

Grid Reference; 3279 4655. Altitude; 250 m. Length approx. 12 metres.

Located 205 m due south of the sink of the One Eye River, on the west side of, and 22 m up a dirt road ascending from Highway B6.

A small entrance opens onto a walking-sized passage with a steeply descending boulder floor. At the bottom, a chamber is almost completely filled by a large, flat-topped slab apparently fallen from the roof. Rifts and crawls around the periphery of the slab give access to portions of a mud and gravel floor.

No prior reference to this cave has been found.

No palaeontological record is known. Remains of a feral house cat were observed by the authors in 1985. The sediments have not been systematically examined, but appear to be of more recent origin than those in Roadside Cave.

Wallingford Sinkhole Number 1

Grid Reference; 332? 467? (unconfirmed). Altitude; Unknown. Length; Unknown.

Located to the west of the track approximately 450 m north of Wallingford Tunnel Cave. Reported by Fincham (1977) but not seen by the present authors in 1985, and not known (?) by locals.

A shaft some 10 m in diameter and 20 m deep. Apparently choked, but not undescended.

Wallingford Sinkhole Number 2

Grid Reference; 327? 467? (unconfirmed). Altitude; Unknown. Length; 15 metres.

Exact location unclear. Described as "a few metres north of road, opposite house" (Fincham, 1977). Not seen by present authors in 1985, and not known to locals.

Apparently a 7 m pitch to a descending passage choked by a rock.

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