1. Introduction:

The Jamaican Caves Organisation (JCO) was asked by Christina Francis Lowe of the St Elizabeth Parish Council to participate in a site visit to the former show cave, Duanwarie 1, on April 27, 2016, to assess the potential for tourism by members of the local community of Breadnut Walk. Ronald S. Stewart attended as the JCO representative.

Duanwarie 1, commonly know as Ipswich Cave, is located on the east side of an abandoned Jamaica Railway Corporation (JRC) line northwest of Merrywood, St Elizabeth, at 18.20994 N, 77.84502 W, WGS84, and was used as a show cave by JRC with regular activity ending by 1992 when the corporation ceased operations. The author does not know when this activity began, but it was at least before 1956 according to Geological Survey Dept (GSD) records.

As part of the tourism operation, the entrance was gated, and concrete steps constructed uphill to a small platform on the side of the rail line. The gate is still in place, as are the steps and platform. Inside the cave, concrete paths and steps, and handrails, were constructed to create walkways, and electric lighting was installed. The concrete parts of the infrastructure remain in good condition, but the rest is either absent, or poor.

The cave itself consists of one chamber, 88 metres long according to the GSD survey of 1956, which is well-decorated with speleothems. However, a number of stalactites have experienced much breakage in their lower parts, presumably by souvenir hunters. It is commonly believed that there is a connection to Duanwarie 2, a smaller cave with an entrance in tunnel #7 to the north of the platform, but the GSD survey does not record this, and the JCO site visit on April 27, 2016, did not find any definite connection either. However, a slight airflow was detected in a constriction toward the end of Duanwarie 2, and it is possible that an opening may have been blocked by the great amount of naturally broken stone that forms a talus slope at the far end of the site. Removal of such might prove interesting. If there is a connection, it will probably be from the far, low end of Cave 2 to the upper section of Cave 1, due to the former site being tens of metres higher than the latter.

A third site, unlisted in the Jamaican Cave Register, was visited after Duanwarie 1 & 2, which the members of the community have named Wonder Hole. It is a large, circular, collapse feature about 60 metres across, at 18.20635 N, 77.84216 W, WGS84. Rocks thrown into the hole from the east side took 4.8 seconds to reach the first surface (timed by audio-video recordings), which indicates a depth of about 100 metres, but the sound of the impact suggested that they then bounced further down a rocky incline. We suspect that the first surface they contacted is a central mound of breakdown boulders, and the actual depth is appreciably greater than 100 metres. There is no known, complete descent of the pit, only a partial rope descent some decades ago. It may be similar to Dunn's Hole, in St Ann, which has a very large chamber extending from the side of the collapse at the bottom, but this for now is merely speculation. The JCO will return at the earliest opportunity to fully explore and survey the site.
According to the geological map series of Jamaica, and Versey (1957), all three sites are developed in white limestone formations from the Middle Eocene to Lower Miocene (circa 40 to 20 Ma). Maestrichtian (late Cretaceous, >65 Ma) non-calcareous sedimentary formations begin 1 kilometre to the northwest. However, Simon Mitchell (UWI) believes the local formation, specifically, Ipswich Limestone, to be yellow limestone from the Middle Eocene that predates the white limestone formations and the author accepts this as the most accurate description.

2. Observations:

The current gate at Duanwarie 1, although effective for excluding visitors when locked, may also be effective in limiting ingress and egress of bats. Bell-holes on the ceiling of the cave showed some staining from bats, but it was minimal and appeared to be historical, rather than recent. Also, very few bats were seen either roosting, or in flight inside the cave. The dampness may be a factor in the low numbers (there was constant, widespread dripping from stalactites throughout), but the author suspects that the long-term presence of a gate with an inappropriate design may also be a factor (see Photo: 1).

With regard to invertebrate taxa, it was minimal at the time of the visit, with no troglobytes seen, which was also the observation of Dr Stewart Peck who, in his 1975 paper, described the site as having "a poor fauna".

The ends of many of the stalactites have been intentionally removed in the past. In some sections, such as near the entrance, virtually every stalactite is broken (see Photo: 2).
3. Discussion:

3.1: According to criteria in the JCO Cave Use Guidelines 2010 (which served as the basis for the Government of Jamaica Cave Use Guidelines in 2011), attached as Appendix A, Duanwarie Caves 1 & 2, in their current state, are classed as Minor sites, in that they have fewer than 500 bats, no troglobytic invertebrates, no significant guano deposits, are not a component of the local hydrological system, and are not known to have archaeological significance. However, in the case of Duanwarie 1, the low numbers of bats currently roosting in the cave may be a consequence of the installation of the gate, with this having caused it to degrade from what would have formerly been classed as a Major site. As stated in section Caves.8. Gates:

(a) No person shall install, alter, or maintain a cave gate or other obstruction at a cave entrance or within a cave that alters the ability of cave life, water, and air to pass through the obstruction that is inconsistent with a minimal impact on the cave. This means that any gate or obstruction should neither appreciably increase nor decrease the ability of cave life, water, and air to pass through the obstruction prior to recent alteration of the area so gated by persons.

(b) Gates or obstructions which significantly alter the ability of cave life, water, and air to pass through the obstruction are considered to be major impacts and are subject to §Caves.4(a) of these Guidelines.

It is therefore recommended that the current gate be replaced with a type that will have less of an impact on the ability of bats to pass through it. The current design with vertical bars should be changed to a gate with horizontal bars modeled on examples given by Bat Conservation International (BCI) in the Agency Guide to Cave and Mine Gates 2009, attached as Appendix B. Locally available material, such as steel reinforcing bar, can be used to reduce costs.

3.2: The damage caused to many stalactites by previous tourist activity cannot be reversed, but future damage can be prevented by rigorous attention to proper protocol. It must be understood by all visitors, and more importantly by all local guides, who are responsible for enforcing this protocol, that formations such as stalactites, stalagmites, and flowstone should not be touched, let alone broken off as souvenirs. The main value of Duanwarie 1 is its physical beauty. Every incident of damage reduces this value.

3.3: With regard to lighting, there are two choices: wide-area permanent lights, and portable temporary lights. The former requires infrastructure, and greater cost, although it will illuminate the cave more effectively. However, it may have a negative impact on bats that roost in the cave. The latter is less expensive, requiring only bright, hand-held lights or headlamps and rechargeable batteries, with the numbers tailored to the number of visitors (that is, the lighting is scalable). It will illuminate less of the cave at any one time, but this does supply more of an element of mystery to a visit, which some visitors may enjoy, and has less of an impact on bats.

3.4: With regard to health and safety, it is assumed that all handrails will be restored, but helmets are still necessary for visitors and guides. These can be simple construction helmets that can be acquired at a minimal cost.

The author does not believe the cave to be a likely source of histoplasmosis infection. The high rainfall in the area and concurrent, constant dripping of water from the ceiling of the cave prevent any appreciable accumulation of guano.

3.5: There is an accumulation of trash in the cave that should be removed prior to visitation, and steps should be taken to prevent the reintroduction of trash to both the cave and approach from the rail line by way of placing several appropriate receptacles that are regularly emptied, with the contents disposed of in an environmentally responsible manner.
4. References:


5. Attachments:
