



# Chapter 9

## Archaeological and other heritage resources

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*Republic of Botswana*



## Chapter details

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## Abbreviations

AIA	Archaeological Impact Assessments
DNMM	Department of National Museum and Monuments
EIA	Early Iron Age
ESA	Early Stone Age
LK	Leopard's Kopje
LSA	Late Stone Age
LTMP	Lekhubu Tourism Management Plan
MFMP	Makgadikgadi Framework Management Plan
MIMP	Makgadikgadi Integrated Management Plan
MSA	Middle Stone Age
OSL	Optically Stimulated Luminescence
SA	Stone Age
UNESCO	United Nations Educational, Scientific and Cultural Organisation

## **1. Introduction**

### **1.1 Objectives**

The Makgadikgadi Framework Management Plan (MFMP), leading to an Integrated Management Plan (MIMP) for the Makgadikgadi wetlands area, has as overall aim to improve people's livelihoods through wise use of the wetland's resources. This section of the MFMP deals with the archaeological resources and other monuments.

### **1.2 Methodology**

The data base for this section is a list of the known archaeological sites and other monuments, which are registered with the Department of National Museum and Monuments (DNMM). This is based on the Sites Register at the DNMM, which consists of a form for each site, 1:50,000 maps on which the sites are indicated and a computer file with basic information. For purposes of this MFMP no site visits were made to verify and re-evaluate information, nor were the associated collections, which are stored at the DNMM, inspected. As information in the Sites Register was quite incomplete, details were added from the literature (refs. attached), and site forms were updated as much as possible; there remain many blanks in the list, unfortunately. Nonetheless, the important sites are sufficiently known and can be evaluated for importance to research and to the nation's heritage, site sensitivity, and development potential.

In order to understand the nature of the sites, problems with heritage conservation and potential for tourism, it is necessary first to provide some background as to the legal protection of the sites and a summary of the prehistory of the area. The various categories and assessments in the list are then explained. Discussion of important heritage management zones includes those sites which are especially sensitive and require preservation, as well as those which have potential for development and use for education and tourism. The National Museum already has some sites under management and one management plan exists; in addition, the DNMM has plans for development of certain sites, although these are more at the 'wish-list' stage. These will also be briefly discussed.

### **1.3 Legislative framework**

The Monuments and Relics Act (2001), which is implemented, monitored and enforced by the National Museum, protects all archaeological sites and artifacts (man-made objects or 'relics') dating to before 1902, whether or not they are known and registered with the National Museum, as well as any historic structures and objects since 1902 that have been proclaimed a historic monument, historic landscape or recent artifact, as well as natural features that have been proclaimed a natural monument.

"Monument" includes any ancient monument; any recent historic monument; any area of land which is of archaeological or historical interest; any area of land with distinctive scenery or a distinctive geological formations; any area of land containing rare or distinctive flora; any cave, rock shelter, grove of trees, tree, old structure or other object, whether natural or man-made, of aesthetic, archaeological, historical or scientific value other than a relic; and any waterfall.

"Ancient monument" is any building, ruin, remaining portion of a building or ruin, ancient working, stone circle, grave, cave, rock shelter, midden, shell mound and archaeological site dating to before 1 June 1902.

"Relic" includes any fossil, meteorite, rock painting or engraving, any artifact found on an ancient monument, anything of aesthetic, archaeological, anthropological, historical or scientific value dating to before 1902, and any treasure trove.

"National monument" is a monument, recent artifact or relic, considered of special value to the cultural or natural heritage of Botswana and declared such by notice in the Government Gazette. Note that land on which a national monument is situated shall not be used for purposes other than the protection and preservation of the national monument without ministerial approval, nor shall any development take place within 1 km of any national monument without ministerial approval, which shall only be granted if such development is compatible with the preservation of the national monument and is in the nation's interest.

"Protected heritage area" is an area or region of national value or an area containing one or more national monuments, monuments or sites, which has been declared a protected heritage area by notice in the Government Gazette.

Protection is, therefore, comprehensive and Section 18(1) states: "*A person shall not, without the written permission of the Minister, given after consultation with the Commissioner:*

- *Make any alterations to, or destroy or damage; or*
- *Remove or allow to be removed from its original site ...*
- *Any national monument, monument, relic or recent artefacts, or any part thereof."*

To aid the DNMM in its task to identify and protect such monuments and relics, the Act (Section 19(2)) requires pre-development impact assessments for any major development, which will physically disturb the earth's surface, including roads, dams, pipelines, mines, and also lodges and campsites. To this end the DNMM has issued "Pre-Development archaeological impact assessment - guidelines for planners and developers" and "-guidelines for archaeological/architectural history consultants".

The Monuments and Relics Act also makes provision for the appointment of site custodians, acquisition of monuments for the State, for control of access to national monuments, control of archaeological excavations and research, damage to signs, and for the establishment of a Monuments and Relics Fund, although the latter does not yet exist.

Other relevant guidelines provided by the DNMM is the "Monuments Policy and Terms of Reference - Guidelines for Joint Venture Partnerships", in which the DNMM explains that it is supportive in principle of communities, private companies, tour operators, landowners and trusts establishing projects at or near sites, monuments and areas of cultural, historical and natural significance, provided the services and activities complement those of the DNMM.

## **2. Literature review**

### **2.1 Overview of research into the prehistory of the Makgadikgadi area**

The geomorphological history of Palaeo-lake Makgadikgadi, now the Makgadikgadi Pans, has been a focus of study by both geomorphologists and archaeologists since the 1940s.

Wayland, who was the Director of the Geological Survey from 1943-1952, collected over 6000 stone tools as 'zone fossils' to date geological strata and geomorphological features and recognized substantial

climatic oscillations in the past, especially 'pluvials'. He did much to dispel the notion that the Kalahari was a marginal environment into which the Bushmen had been pushed by Bantu farmers.

His collection, from 159 sites, was analyzed by Cran Cooke (1970) in his preliminary survey of the Stone Age of Botswana. This included an Acheulian site at Lake Xau, Middle Stone Age sites on the Nata and Boteti Rivers, Lake Xau, Letlhakane and at Bushman Pits, and Late Stone Age near Gweta.

Ebert and Hitchcock followed up on this in the late 1970s by more specifically targeting strandlines of ancient Lake Makgadikgadi, especially on the east and south shores, using stone tool assemblages from 38 sites to attempt to establish a chronology of the Palaeo-lake and an initial understanding of the prehistoric climatic conditions required to maintain certain lake levels.

Work, initially by Netterberg in the late 1960s and taken up by John Cooke, Shaw and Thomas in the 1980s obtained C14 dates from calcretes directly associated with ancient strand lines, which in turn clarified the archaeological sequence. This culminated in Thomas & Shaw's (1991) comprehensive book *The Kalahari Environment*, bringing together years of research by geomorphologists, palaeoclimatologists and archaeologists and presenting a fascinating history of environmental changes from vast inland lakes and major perennial rivers, to the pans, dry fossil river beds and semi-desert of today. Included in this work is a chapter on "The Kalahari in the archaeological record", and there is an appendix with 98 radiocarbon dates from archaeological sites. These are, however, from the wider Kalahari, not only the Makgadikgadi Pans area.

The changing landscape of rivers, lakes and pans has, of course, had a profound effect on the distribution of human populations in the landscape and their adaptation to the environments at the time.

The study of human adaptation to the Makgadikgadi continues currently with a large research project under David Thomas and Sallie Burrough of Oxford University, entitled "Palaeolithic mega-lakes and early human occupation of the Kalahari" (Thomas and Burrough, 2009; A. Campbell and Sallie Burrough, pers. comm.). The team includes archaeologist Larry Robbins. Jim Ebert and Bob Hitchcock will be studying 100 sites in the Makgadikgadi, starting 2010, but it is not clear whether this is part of the Oxford project or a separate project.

The problem with previous surveys was that most took place before GPS was available to determine the exact locations of sites, and hence, with a few exceptions, the sites have not been registered with the DNMM. Another problem was the absence of dateable materials on open sites, and comparative dating could only give an approximate time period by comparing artifact types with the known chronology from cave sites in Zimbabwe. This current project will hopefully be able to be more detailed, through the dating of sediments by optically stimulated luminescence (OSL) and with the use of a DGPS.

Initial research has focused on the northern Ntwetwe Pan and has established a very rich scatter, mostly of Middle Stone Age tools, on the pan floor, possibly from seasonal hunting following migrating herds. Important to note is also the presence of fossil bones in the north Ntwetwe area (A. Campbell, pers. comm.). Modern humans are believed to have evolved in southern Africa c. 250,000 years ago and their tool kit also changed around that time to what we call Middle Stone Age. The Ntwetwe area may have played a role in this important period in human history.

OSL dates of barchan dunes in this area have also established a surprisingly recent (c. 2000 BP) period of extremely dry conditions. It is hoped that the OSL chronology of geomorphological features can establish a more detailed climatological sequence, especially over the last millennia, which can be used

to understand human occupation of the wider region, especially the introduction of livestock and the arrival of early farmers, and the rise and fall of chiefdoms and states.

In the 1980s surveys were also carried out by Campbell and Denbow especially, both for research such as along the mouth of the Boteti River, but importantly also the first Archaeological Impact Assessments (AIA). Denbow (1984) for BP Soda Ash in the area of Sowa Spit, as well as the lower Semowane and Moseitse Rivers, discovered Late Stone Age (LSA) sites along the East Sowa shore and inland along the rivers, an important cluster of LSA sites with Bambata pottery at the previous mouth of the Semowane River, and a Zimbabwe Tradition elite site, known as Toranju, and a game trap, called Tshwane near the Moseitse River.

Bambata is the first pottery found in Botswana, c. 0-400 AD; it is found in small quantities on LSA sites and is associated with the first domestic stock. This period is important for studying contact between hunter-gatherers and farmers and changes in adaptation to the Makgadikgadi environment as a consequence. The origins of Bambata are hotly debated and the lifestyle of these early "herders" as yet little understood, hence such sites are very important for research.

Bambata sites were also found by Campbell (1987) during his AIA survey of the Boteti River between Sukwane and Moremaoto for a proposed dam at Sukwane. He also discovered a number of Khoe sites in this area, as well as lower down the Boteti River.

Khoe-speakers were ancestors of the Badeti, still found living along that river. They were the first true pastoralists in southern Africa, related to the Nama in Namibia and Khoikhoi/Hottentot in South Africa. Linguistically it is believed that they had their homeland in northern Botswana, possibly along the Boteti, and migrated from there to the west and south. Archaeological evidence is still too limited to determine if this is correct. Their characteristic pointed-based pottery with pierced lugs identify sites along the Boteti as Khoe, but none have yet been dated satisfactorily nor are any properly excavated. It is expected that Khoe sites will date between 750 and 1800 AD (Reid et al. 1998). These sites are also very important for research. The relationship between Bambata sites and early Khoe is also not understood.

Other AIAs have been undertaken along the Nata-Maun road and powerline, the road and powerline to Sowa, the road from Rakops to Motopi and for the mines at Orapa, Damtshaa and Letlhakane and associated infrastructure (see Refs.)

In 1994-5 Mike Main conducted a systematic archaeological survey along the Mosu escarpment, which forms the south side of Sowa Pan, as part of a series of outward-bound style management courses. The 51 sites which he and his teams recorded show an important occupation of this area during the Zhizo to Leopard's Kopje periods, dates available are between 900 and 1400, especially 900-1000 AD, a period which is generally believed to have been wetter than today. These cultures are found also in northeast Botswana and western Zimbabwe. The Leopard's Kopje probably developed out of Zhizo in northeast Botswana, western Zimbabwe and the Sowa Pan area, and the sites on the Mosu Escarpment, having pottery of both cultures found together between 900 and 1000 AD, are likely transitional sites. This is a very controversial conclusion, as other archaeologists insist that these are two separate peoples, with the Leopard's Kopje people arriving c. 1000 AD as new immigrants. These people possessed large cattle herds and their settlements are generally on hills or promontories sticking out of the escarpment, and have some walling associated with them. The main site, Kayishe, has received some excavation by Reid of the University of Botswana (Reid & Segobye 2000b), and Denbow is expected to conduct further excavations there in 2010. A related site is Thitaba on the east edge of Ntwetwe Pan, between Ntwetwe and Sowa Pan. This site is surrounded by a wall and has a very large midden. Seventeen kilometers southeast of Thitaba, on a scenic peninsula sticking out into Sowa Pan is the well-known Lekhubu Ruin. This is a walled enclosure with unusual loopholes and drains through the wall, as well as a large number

of stone features. The function, cultural affiliation and date of these remain a mystery. It is likely, however, that these too are of the Leopard's Kopje period, as only pottery from that time period has been found on Lekhubu and Thitaba.

There are two other walled enclosures, but with coursed walling in the Zimbabwe Tradition style: Khama Ruin on the Mosu escarpment on the SW corner of Sowa Pan and Tlapana Ruin on the SE corner of Sowa Pan. These are likely of the early Zimbabwe period, 13th-14th century and represent a connection between the Leopard's Kopje culture area and the Zimbabwe State. Excavations at Toranju Ruin on the east side of Sowa Pan by Denbow have shown that this site was occupied during the 13th to early 15th century. These three Zimbabwe Tradition elite sites are, therefore, likely contemporary. Such sites have been shown elsewhere to be residences of chiefs.

The importance of the Leopard's Kopje and Zimbabwe periods lies in the exploitation of Makgadikgadi resources, which were likely grazing for large herds of cattle, hunting of abundant game for meat and hides, and harvesting and trade of salt. Large copper deposits to the east were also mined during this time (Van Waarden in progress).

The government has recognized the importance of these sites and has declared Kayishe, Thitaba, Lekhubu and Khama Ruin National Monuments, whereas Toranju Ruin is fenced and signposted.

There seems not to be a significant presence of people around the Makgadikgadi during the 16th-18th centuries, at least judging by the known sites. In the 19th century the Ngwato, a Tswana tribe, retreated to Mosu during the invasions of the Matebele, while many Kalanga fled from the northeast to the Boteti, where they found Badeti, the Khoe group mentioned previously. Around Sowa Pan and the Nata, Semowane and Moseitse Rivers lived Sua-Khwe, also Khoe-speakers, who were especially adapted to life along the rivers and are known as "River Bushmen". With them were Kalanga farmers, descendants of the citizens of the state Butua, which was the dominant power in northeast Botswana and western Zimbabwe from 1425-1830 and the successor to the Zimbabwe state. These peoples were found around the Makgadikgadi and its associated rivers by explorers such as Livingstone, Baines, Green and Chapman and described in their diaries. Sua-Khwe have also been the subject of ethno-archaeological research and used as comparison with prehistoric riverine hunter-gatherers of LSA and Bambata sites and feature in the debates around hunter-gatherer and farmer contact through time and the evolution from a hunter-gatherer existence to farming in general.

Although a fair amount of research has, therefore, been undertaken and is being undertaken in the Makgadikgadi Pans area, the areal extent of the surveys is but a small percentage of this vast area and many more sites remain to be discovered. That said, it is likely that most of the important sites are known, because of the near complete surveys of the Mosu escarpment and the Boteti River. None of the sites has been sufficiently studied, however.

Table 1 gives an overview of the cultural periods of the region.

**Table 1: Cultural periods of the Makgadikgadi area**

Period	Dates	Human populations	Key archaeological areas/sites
ESA - Early Stone Age: Acheulian period	1 million-250,000 years ago	Homo erectus	Ngcaezini, upper Boteti
MSA - Middle Stone Age	250,000-20,000 ya	Modern humans	Ntwetwe Pan, upper Boteti, 945m strandline, lake Xau
LSA - Late Stone Age	20,000-0 BC	Ancestors of Khoisan-speakers	Boteti, 910m strandline
Bambata	0-400 AD	contact with early farmers	Lower Boteti, mouth of Semowane River
EIA - Early Iron Age	400-800 AD	early Bantu-speaking farmers	Boteti
Zhizo	800-1000 AD	mixed farmers	Mosu escarpment,
LK - Leopard's Kopje	1000-1400 AD	predominantly pastoralists	Kayishe, Thitaba, Lekhubu?
Zimbabwe period	1250-1425 AD	1st Shona state	Khama, Tlapana, Toranju Ruins
Butua period	1425-1830 AD	Kalanga state	?
Difaqane/Matebele period	1830-1902	Kalanga, Ngwato; early explorers	Mosu area; Boteti; historic trees
Modern	1902		

## 2.2. The list of registered sites

It must be born in mind, therefore, that the appended list is the list of registered sites, but that more sites were found, which were never registered and for which no GPS locations were recorded, but only vague directions or locations known, and also that only a small, although significant, portion of the vast Makgadikgadi pans area has been surveyed for archaeological sites.

It must also be noted that in publications exact locations of sites are generally not given, as there is a danger of vandalism if these became public knowledge, and the National Sites Register of the DNMM is not available to the public. The list presented here, with its detailed locations and descriptions, must be treated as strictly confidential.

### Site numbers

The basis of the National Sites Register are the series of 1:50,000 maps covering a quarter degree longitude each, which are produced by the Department of Surveys and Mapping. These are labelled by latitude and longitude, for example map sheet 2126-A3. Sites are registered in numerical order per sheet, but the sheet number is abbreviated, such that 2126-A3 becomes area 16-A3. Site 04-A1-4 is, therefore, the 4th site registered in the area of map sheet 2024-A1. Figure 1 shows the MFMP area in green border and the 65 map areas involved. The list of registered sites is given by site number in numerical order and lists 247 archaeological sites and other monuments.

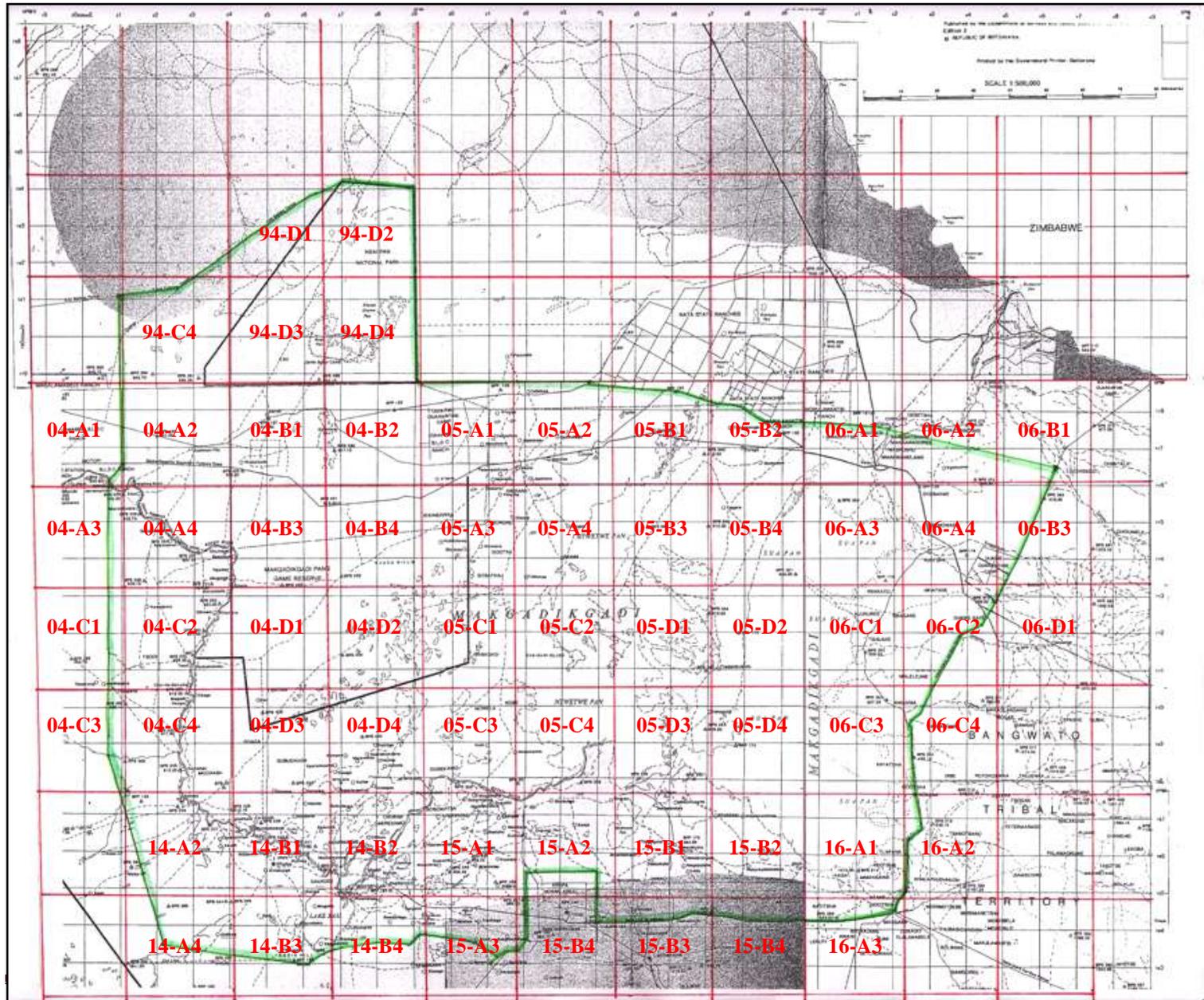


Figure 1: Area covered by the MFMP (boundary in green) and the 1:50,000 map areas indicated in red. UTM grid in 10 km intervals in black with coordinates in margins.

(Map based on 1:500,000 map sheets).

**Site name**

Site names are generally given by DNMM staff relative to nearby features. Although well-known or important sites are referred to in the literature by their name, it is the site number which identifies a site.

**Location**

The 1:50,000 maps have a 1 km UTM grid overlain, which is metric and much easier to use than latitude-longitude. The area is in UTM Zone 35 and the datum is the "Cape" datum in South Africa. The full UTM eastings and northings are recorded in the list, rather than the short version given in the Sites Record, for easier use in GPS instruments and GIS data base. Only the center point of a site is given, although sites may be very large, even over 1 km in size.

**Descriptions**

Size of the site, topography or landscape context, period of occupation, type of site and short description are filled in for as much as was known in the Sites Record (after updating from the literature). A blank means that no information is available.

Unfortunately the majority of site forms have insufficient information on them, often merely the site number, an assigned name, a single set of coordinates and the types of collections brought in, but often no description, not even size of the site. Topographical information could be obtained from the location on the map. This incompleteness of the records is shocking. It seems to be that site forms are filled in only when a collection has been brought in for accessioning, without referring to any reports or site descriptions which may have been submitted. Sites reported in AIA reports or research reports, but for which no surface collections were made, are generally not entered into the Sites Register, as these reports are not passed on routinely to the Sites Records staff and few archaeologists fill in forms themselves. The importance of complete and updated records for research, particularly with the availability of GIS, and for site management seems not to have been recognized. This needs to change.

Period categories given are of necessity broad, as more detailed identification is rarely possible on the basis of information on the site forms. The associated collections were not inspected during the preparation of this list. Categories used are SA = unspecified Stone Age, ESA, MSA, LSA, ceramic LSA where some undiagnostic pottery was found on a predominantly LSA site; Bambata where such pottery was identified although on a predominantly LSA site; Khoe herder sites with lugged pottery; IA = unspecified Iron Age being essentially Bantu-speaking farmer sites with characteristic pottery and on which features such as *dhaka* (clay) houses, middens, livestock kraals, stone features are often present; EIA where such pottery (in the absence of Bambata pieces) predominates the assemblage although flaked stone tools are often present as well on IA sites; Zimbabwe = the Zimbabwe state period and includes pre-Great Zimbabwe walled ruins; Zhizo-LK these are combined where pot decorations of both periods are present; Ngwato/Tswana; historic. There are still many question marks.

**Status**

This list has mainly archaeological sites, which are automatically 'ancient monuments', but some are palaeontological in nature, such as the preserved animal tracks at Xanikaga, which are monuments by virtue of their scientific value. Trees and groves of trees can be declared monuments or national monuments, either because they represent rare or distinctive flora, or they have historic value. The list includes four such botanical monuments. A spring is also declared as of scientific or historical value to the community.

Fossils are protected under the category 'relic'. More fossils are known (A. Campbell, pers. comm.), but have not been included in the list as only vague directions to locations are known. These may be of interest to tourists, but should only be accessible under controlled circumstances, as theft and

vandalism are concerns. These fossils can be relocated and assessed possibly under a subsequent phase of the Management Plan.

## 2.2 National Monuments.

Of the 170 currently declared National Monuments, nine are in the Makgadikgadi area (Table 2).

Of these, especially Ngcaezini Pan is a very important, sensitive deposit and has been declared a National Monument to afford it extra protection. This is a very rare deposit of Acheulian handaxes and fossilized bone, from 1 million to 200,000 years old. Robbins and Campbell (1993:16) noted that "it may be the only site like this known between the site at Isimila in Southern Tanzania and a few sites in South Africa." The presence of bones with the tools allows for study of hunting/scavenging behaviour, butchering methods, diet and reconstruction of the environment. The site is, however, difficult to study, as these "relics" are encased in a hard calcrete crust.

Thitaba and other parts of the Lekhubu complex, as well as Kayishe, have soft occupation layers that require special protection on these important sites, whereas Xanikaga, as mentioned, is a rare preserved set of tracks of animals that lived in the Makgadikgadi area during Plio-Pleistocene times, and this site is also declared a National Monument for extra protection.

Green's Baobab was declared a National Monument twice by mistake: in 1938 as "Baobab Tree (Kutse Pan)" and in 2006 as "Green's Baobab". The 2006 should have been for the nearby Chapman's Baobab.

**Table 2: National Monuments in the Makgadikgadi area**

Site no.	Name	Period + type	Especially sensitive	Development potential
04-B2-1	Baines' Baobabs	Historic grove of trees		Already in guide books; in Nxai Pan NP
05-A3-3	Green's Baobab	Historic tree and landmark		Already in guidebooks
05-D3-1	Thitaba	LK walled site 900-1000 AD	yes	In Lekhubu Management area; only public after extensive research
05-D4-1	Lekhubu	LK-Zimbabwe walled site complex	parts	Already a tourist attraction. In Lekhubu Management area; requires excavation
05-A2-2	Ngcaezini Pan	ESA+fossil deposits, MSA, LSA	yes	Requires extensive research. Only then should controlled access be granted
15-A1-2	Xanikaga	Animal prints of Plio-Pleistocene?	yes	Yes, but controlled access
15-B2-6	Khama Ruin	Zimbabwe elite site 1250-1400?		Yes, but requires more excavation.
16-A1-2	Kayishe	Zhizo-LK with wall	yes	Only after more extensive research
16-A1-39	Unikai water spring	spring		Possibly stop on historic trail; mainly of importance to the community

### *National parks, sanctuaries and management areas*

Also indicated in the status column are sites located in the national parks:

Site 04-B2-1 Baines' Baobabs are in the Nxai Pan National Park by the Kudiakam Pan. Around this pan are many stone age sites, which are registered as 04-B2-3 to -9. No survey has been carried out at Nxai Pan itself.

Area 04-C4 has some sites in the Makgadikgadi National Park. There are many sites known along the Boteti River in that area, but most are on the west bank and not in the park.

Site 06-A3-1 is located in the Nata Bird Sanctuary, but an attempt by Walker to relocate this site failed and he suggested that a total surface collection may have been made, leaving no artifacts at surface.

It should be noted that location in a National Park or Bird Sanctuary does not necessarily mean better protection as, apart from Baines' Baobabs, the National Park staff is probably not aware of these sites, nor are they aware of the Monuments and Relics Act. Most of the areas within these parks have not been surveyed for archaeological sites.

The Lekhubu Management Plan area includes sites in areas 05-D3 and -D4, especially Lekhubu Ruin itself, which has a sign, and Thitaba. These are managed by the Gaing-O Community Trust. Protection in this managed area is also not assured, as the Management Plan deals insufficiently with these sites (see discussion below).

Sites which are fenced and/or have a sign and hence have received some protection/management:

- 06-C1-1 Toranju Ruin - fenced with sign
- 06-C1-7 Tshwane game trap - fenced with sign
- 06-C1-11 Marula grove at Sowa Town golf course has a sign
- 15-A1-2 Xanikaga animal tracks is fenced and it has been proposed to be managed by Gaing-O Community Trust.
- 15-B2-6 Khama Ruin is surrounded by a fence to keep cattle out.

The first and second sites above were probably fenced and signs put up by Botash on the recommendations in Denbow's 1984 AIA.

### **3. Results**

#### **3.1 Assessment**

The assessment is based on the importance and sensitivity of sites. These are discussed below.

##### **3.1.1 Importance**

Assessment of the importance of a site is based on uniqueness, state of preservation, research potential and tourism potential, or specific importance for the history or cultural heritage of the nation or the local community. For many sites there was insufficient information on the site record form to make an assessment, and proper assessment of important sites can only be made after site visits.

The DNMM uses a grading system for site importance from 1 = national or international importance (including all the National Monuments), 2 = very important, 3 = important, 4 = not very important, to 5 = not important. This is mostly used to determine mitigation requirements in cases where sites are proposed to be destroyed by some development.

These are subjective categories and can change as the prehistory becomes better known, research interests change and more sites are discovered. In line with the assessment of other resource categories in the MFMP, high importance would be importance levels 1 and 2, medium importance = level 3, low importance = levels 4 and 5.

Importance assessment in the list is an assessment of individual sites. A group of sites may be more important than its constituent sites on their own, as they may gain in tourism potential as stops of interest on a historic trail, or gain in research importance as containing complementary or contrasting information, or are steps in the chronology of changing adaptations and changing cultures.

### 3.1.2 Sensitivity

Sensitivity or vulnerability (Table 3; Fig. 2)) also is a subjective assessment and graded 1-2 as very sensitive, 3 medium sensitivity, 4-5 not very sensitive. Important here are sites graded as very sensitive, as these are not suitable for visits by the public, either because of soft deposits which will be destroyed by people walking over them, or because of important objects which may be stolen or vandalized, or because they hold very important information which is yet to be studied and the public needs to be kept away. It is important that such sites receive extra protection and, if possible, not become public knowledge.

These sites or portions of these sites are currently not suitable for public visits, as they will be degraded and artifacts removed before the sites are properly studied. However, once researched, they may have considerable tourism potential. For this reason some sites listed in Table 3 are also listed in Table 5 - with potential for development.

For example, Thitaba and portions of Lekhubu, which fall under the Lekhubu Management Plan and are already open to the public. Some, such as Ngcaezini Pan are difficult to excavate with current techniques and may just need to be preserved for posterity for now.

**Table 3: Very sensitive sites in the Makgadikgadi area**

No. on Fig. 2	Site no.	Site name	Reason for sensitive rating
1	05-A2-2	Ngcaezini Pan	Important, rare association of Acheulian handaxes and fossil bone, 1 million-200,000 years ago, associated with Homo erectus. National Monument. Not yet researched
2	05-C4-1	Boteti River Mouth	Rich Khoe settlement. Not yet researched. Applies also to other sites in the area and a rich Khoe site upstream, yet to be precisely located.
3	05-D4-1 05-D4-2 05-D4-3	Lekhubu Ruin, cairns and occupation deposits	Deposits expected to shed light on the mysterious walled enclosure, which is a National Monument. Fear that these are being picked over by tourist already. Not yet excavated.
4	05-D3-1	Thitaba, near Lekhubu	National Monument with soft occupation deposits and likely important counterpart to Lekhubu. Westernmost LK site, probably exploited pan resources. Not yet excavated.
5	06-A4-2 06-A4-4 06-A4-6 06-A4-9 06-A4-10 06-A4-11	Semowane sites	Bambata sites with soft deposits at the old mouth of the Semowane River (910 m contour). Important for research on disputed Bambata pottery presence on LSA sites. No excavation yet.
6	14-B1-2	Hippo Tooth	Contact site LSA hunter-gatherers and Early Iron Age farmers in

			the Toromoja area. Some excavation, but no site report. Not sure how much of the deposits remains.
7	15-A1-2	Xanikaga	Preserved animal tracks of the Plio-Pleistocene period. Should not be walked on. The site is a National Monument and fenced.
8	15-B2-6	Khama Ruin	A National Monument and the most westerly of the Zimbabwe Tradition elite sites. Some excavation has been carried out by A. Reid, but no site report and the deposits remain vulnerable.
9	16-A1-2	Kayishe	Major centre of the Zhizo-Leopard's Kopje occupation of the Mosu Escarpment. National Monument with soft occupation deposits up to 1.4 m thick. Some excavations have taken place, but the site is as yet insufficiently understood.
10	16-A2-1 16-A2-2	Tlapana Ruin	Degraded Zimbabwe Tradition elite site with midden deposits. Not yet studied.
11	05-C1 and -C2 areas	North Ntwetwe Pan	Portion of Ntwetwe Pan south of Gweta and east of Makgadikgadi National Park has an extensive and in places good density of especially MSA artifacts, which for all intents and purposes are in site. Fossil bone has also been reported. Under study with dating of geomorphological features.

### 3.2 Current use of archaeological sites and other monuments for tourism

Certain monuments or archaeological sites are already visited by tourists because they are mentioned in guide books, in particular *The Shell tourist travel guide* by Veronica Roodt and the *African Adventurer's Guide to Botswana* by Mike Main. Sites include Baines' Baobabs, Green and Chapman Baobabs, (Le)khubu Island, but also lesser known sites, especially in Main's guide, such as Toranju Ruin, Tswaane Game trap, Tlapane Ruin, (Mma)khama Ruin, the Mosu Escarpment in general, Gabasadi Island.

Baines' Baobabs is in the Nxai Pan National Park and hence falls under the management and control of the park.

#### 3.2.1 Lekhubu

The Lekhubu or Kubu Island sites are being managed by the Gaing-O Community Trust based in Mmatshumo since 1999, in an agreement with the DNMM, which is represented on the Board of Trustees. This community trust runs a camp site and gives guided tours of the island. It is not possible here to review the success or otherwise of this management arrangement, nor to review the Lekhubu Environmental Management Plan by Jeremy Burgess nor the Lekhubu Tourism Management Plan by Janis Lorentz. It is not clear whether the DNMM has accepted the latter plan and how far its implementation has progressed. Comments will be restricted to its implications for the archaeological sites.

The Lekhubu Tourism Management Plan (LTMP) deals mainly with tourist facilities, such as camp sites, but there is little mention of the archaeology itself, although its scenic and spiritual qualities are highlighted. Correctly it states it's brief thus: "The DNMM requires the site to be developed, managed and conserved for posterity in accordance with an acceptable development and Management Plan. The opportunity is to delegate the responsibility and authority for the site and surrounding areas to a registered, local community body what would also assume custody of Lekhubu." To assist the DNMM with such a custodial agreement the document *Monuments Policy & Terms of Reference. Guidelines for Joint Venture Partnerships* is available, although this is not mentioned in the LTMP. At the time of preparation of this report, no information was available on the actual agreement signed between the

DNMM and the Gaing-O Community Trust. The LTMP mentions the high archaeological, aesthetic, cultural and ritual significance and, therefore, it's very high tourism value and high preservation needs, and proposes that there must be no facilities on the island itself and that visits should be with a guide.

Insufficient details are given of the archaeological sites and no mention is made of the Thitaba site, which lies within the LTMP area, but a proposal is made for a large camping site at Thitaba over 3 km length of the ridge by the Ntwetwe Pan shore to accommodate up to 90 people/night. The Thitaba site is also located on this ridge, but fortunately the proposed camping site is about 1.5 km from the site. Although Thitaba was known since 1991, and described in publications in 1991 and 1994, it was not registered until 1996 and was only put on the sites map during this review, 2010, which may account for its absence from the LTMP. Campbell (1991) mentions that more sites are present along this same ridge. In 2001 the revised Monuments and Relics Act made AIAs requirements for developments. It is important, therefore, that AIAs be carried out for any ground-disturbing development within the LTMP area, as most of the area has not been surveyed for archaeological sites. In 2006 both Lekhubu and Thitaba were declared National Monuments and the restriction of any developments on these sites and within 1 km around these needs to be observed. New interpretation of the available data suggest that both sites are of the Leopard's Kopje cultural period and hence the occupation deposits at Thitaba and at the north and east sides of Kubu Island (sites 05-D4-2 and -3) are likely contemporary with the walled enclosures and contain important information that may solve the mystery of these sites. These deposits are, therefore, both important and vulnerable, as neither site has yet been excavated.

It is important, therefore, that management plans involving archaeological sites or monuments:

- Are fully inform about the significance of the site or monument
- Include plans for the preservation and controlled use of the sites themselves (and not just on management of camping facilities)
- Are updated when new information becomes available and new regulations are put in place.

Maybe the LTMP has been updated, but the information was not made available for this archaeological review.

### 3.2.2 Green's and Chapman's baobabs and SA sites in north Ntwetwe and Ngcaezini Pans

A local tourist operator (Unchartered Africa) operates Jack's Camp, Camp Kalahari and Planet Baobab camp in the Gweta-Ntwetwe Pan area. The company provides from these camps eco- and -cultural tourism safaris and day trips, with the emphasis on fun, educational, cultural and scenic experiences for its clients. Guided trips include quad bike trips with nights on the pans, visits to a cattle post, to Green's Baobab and Chapman's Baobab, and to Stone Age sites in the north Ntwetwe Pan and to Ngcaezini Pan.

The visit to the Stone Age site in the north Ntwetwe Pan involves tourists searching the site and collecting tools, bringing these together and the guide then explains their significance. After that the artifacts are scattered again over the site for the next group of visitors. In the process the spatial distribution of artifacts, which had very likely been in situ, has been totally destroyed and artifacts no doubt removed as souvenirs. A fun and educational experience for the tourists, but the site has been destroyed for research. This activity has been carried out now for many years. It is against the law, even under the 1970 Monuments and Relics Act to remove any relics and artifacts, even if they are thrown back, unless permission to do so has been obtained.

The Ngcaezini Pan visits from the Planet Baobab camp east of Gweta are advertised on their website as follows:

*One of Gweta's best kept secrets, Nxai Xini is a shallow rock basin filled with water year round, providing local elephants and other creatures with this much needed desert resource. If one takes a*

*closer look at the fossil plates under your feet, it becomes apparent that Nxai Xini's water has been attracting both animals and people for thousands of years. The rock is studded with fossilised horns and bones of the extinct mega-fauna that roamed the area in wetter times. Stone tools are also embedded in the rock, the remains of earlier human visitations. Stone hunting blinds (hides) indicate the presence of Bushmen hunters here only decades ago. The hunters would hunker down behind their low walls hoping for the arrival of elephants and kudu in the evening. Why don't you do the same? ([www.unchartedafrica.com](http://www.unchartedafrica.com))*

Sounds like an interesting, educational and fun example of how even Stone Age sites can be used for tourism. However, the site was declared a National Monument in 2006 to afford it extra protection and to avoid people walking over the fossils and stone tools and possibly leaving with a souvenir. This is likely to lead to vandalism and ultimate destruction of the site. Until the site is properly studied by a qualified palaeontology-archaeology team, the site should not be open to the public. Only after that should guided visits be allowed, but strictly controlled.

Choice artifacts have been collected from many sites in the Makgadikgadi by the owner of Uncharted Africa over the years and made into an impressive museum display at Jack's Camp. This now may be acknowledged as a Museum by the DNMM, although no written agreement seems to be in place, nor an agreement re the use of the Ntwetwe Stone Age site. When questioned, the National Museum staff seemed not aware of trips from Planet Baobab to Ngcaezini Pan. In this regard, someone at Gweta is also applying for a lodge or camp at Ngcaezini Pan (A. Campbell, pers. comm. 2010), possibly the owner of the nearby cattle post, but the staff at the DNMM seems not aware of this either.

This highlights some of the problems associated with commercial use of the archaeological resource. If archaeological sites are to be opened to the public and used for tourism, this is best done as eco-tourism or cultural/heritage-tourism. However, this needs to be done within the confines of the law, in particular the Monuments and Relics Act, so that the sites are not disturbed and artifacts not removed, monuments not vandalized, or else they lose their research and heritage value and such commercial use of sites will not be sustainable.

### 3.3 Development plans by the DNMM

First and foremost archaeological sites contain the nation's heritage and hold information vital to the reconstruction of its past. The DNMM's responsibility for this heritage involves a number of tasks and priorities:

- Preservation. The DNMM's first task is to preserve these sites.
- Stabilization. Preservation may require the stabilization of deposits and features. This becomes even more crucial if a site is to be opened to the public.
- Salvage. If sites are under consideration for destruction by development, or under threat of damage from visiting public, and if such a site is open to mitigation and does not have to be preserved at all cost, the information stored in those sites first needs to be retrieved for study and safe-keeping
- Information. The DNMM also has a task to disseminate information to the public about the past, the nation's heritage and the nature of the sites and to educate about the preservation of this heritage.
- Public viewing. It also has the task to allow the public to view these sites and to experience the past.
- Community use. Some archaeological sites are considered ancestral places by local communities or, if not occupied by their own ancestors, places that belonged to the original "owners of the land". Such sites are important to the local communities as spiritual places where ancestral spirits may be consulted through ritual. This also needs to be recognized and acknowledged.

The DNMM's policy is to allow such use of monuments, provided the monuments are not affected.

Thus far the DNMM has an agreement with the Gaing-O Community Trust for management of the Lekhubu area, as discussed. The Toranju Ruin, Tshwane Game trap and Khama Ruins are fenced and the first two have a sign informing the public that these are protected sites. Xanikaga, the Marula Grove at the Sowa Town golf course, Unikai Spring and Green's Baobab were fenced and had a sign put up more than ten years ago, but these have not been properly maintained (Gabadirwe, letter 30/3/2010 NM6/6/24I(9)). Baines' Baobabs also has a sign. A sign generally only states that a site is protected, but gives little explanation of the site. This seems to be the extent of site management. In addition, as listed above, 9 sites have been declared National Monuments for extra recognition and protection, but very few people are aware of this.

The President requested the DNMM to come up with a list of 100 for development sites throughout the country, which are to be sign-posted and where necessary fenced and a custodian employed. This is meant to be a systematic start to the opening up and development of archaeological/heritage sites and other monuments as public monuments, for education and tourism purposes. A preliminary list, predominantly of National Monuments, exists and the DNMM staff is currently involved in site visits to assess their appropriateness for this purpose. This includes 11 sites/areas in the Makgadikgadi area (Table 4). The Sites Register was up-dated as part of the MFMP archaeological resources' review, and this report may assist in this assessment exercise.

**Table 4: Sites/areas on the preliminary list of "100 sites for development"**

Site no.	Site name	National Monument
Map area 15-B2, 16-A1, 16-A2, 16-A3	Mosu Escarpment	Includes the next 3 NMs:
16-A1-2	Kayishe	NM
15-B2-6	Khama Ruin	NM
16-A1-39	Unikai spring	NM
05-D3-1	Thitaba	NM
05-D4-1	Lekhubu	NM
15-A1-2	Xanikaga	NM
05-A2-2	Ngcaezini Pan	NM
05-A3-2	Chapman's Baobab	
05-A3-3	Green's Baobab	NM
04-B2-1	Baines' Baobabs	NM

### 3.3.1 World Heritage Proposal

There is a "National Tentative List", also currently under review, for sites and areas under consideration for application to UNESCO for declaration as World Heritage sites. This includes the "Makgadikgadi Cultural Landscape". Contrary to expectations that this would be the rich archaeological landscape of the Mosu Escarpment on the south side of Sowa Pan, the three-paragraph description only refers to Lekhubu Island and Thitaba. According to the DNMM, "although the Makgadikgadi is proposed as a cultural landscape, it is currently considered to be listed as a natural landscape since the cultural aspect is perceived to be not of outstanding universal value" (Mohutsiwa Gabadirwe e-mail 18/2/2010).

If seen in the wider context of the changing geomorphology of the palaeo-lake and human adaptation to this changing landscape, including the extensive MSA artefact scatter in Ntwetwe Pan and the dense occupation by Zhizo-Leopard's Kopje communities around the Sowa Pan, part of the development from a chiefdom to an early state, the overall strength of a World Heritage proposal will increase dramatically. The proposal, as is, is still in very early stages.

### 3.4 Proposed development potential

A number of sites have potential for development as public sites, both for educational visits for the Botswana public and for tourism, with potential to generate income for local communities. For a site or monument to be suitable as public monument, it needs to:

- Be visually recognizable and interesting. A site with buried occupation strata and nothing on the surface, no matter how important to research, is not of interest, but a site with a large wall in a scenic location is.
- Have a story to tell. Whether revealing the past through archaeology, or a myth, even if of questionable truth, such as the Khama Ruin being the birthplace of Khama the Great, or the cairns at Lekhubu representing initiation ceremonies, or the painter-explorer Thomas Baines having painted the baobab grove at Kudiakam Pan. Often the story of a site needs to first be obtained through excavation.
- Be accessible. Either near a main road or along a 4 x 4 trail or along a hiking trail.
- Be manageable. This provides for a custodian can be appointed or tour guides, so as to avoid damage or vandalism, so that the preservation of the monument is not compromised.
- Have commercial potential. This should be preferably for the local community, so that management of the monument can be paid for by income generated through tourism, and the standard of living of the community raised by the tourist activities.

Table 5 lists sites and areas assessed as suitable for development for tourism and these are also shown on Figure 2. As mentioned, this assessment is based on information from the Sites Register and the literature. A more detailed proposal would require assessments on site. Special consideration is given to groups of attractions rather than single sites. Most of these sites require archaeological excavations before they can be opened up to the public. This will require appropriate expertise, time and a commitment of funding. Local communities can be involved at this stage already.

The MFMP is only an initial study where data from all sectors is brought together. The subsequent Makgadikgadi Integrated Management Plan (MIMP) will also look at combinations of possibilities, such as archaeological sites, ecological attractions and the presence of local communities. There may be archaeological sites, which on their own have little tourist potential, but in combination with an ecological attraction may add some interest. Similarly, suitable archaeological sites may lose their suitability as public sites if they are in ecologically vulnerable areas. Alternatively, areas suitable for eco-tourism may have vulnerable archaeological sites which will require mitigation before an area is opened up for development. Ecological attractions may contain archaeological sites which have not yet been discovered. Surveys in such areas may add archaeological sites of interest at a later stage.

The public, for which such sites should be opened up, is in the first place the local community and Batswana, school groups and local tourists. This is the nation's heritage and it must be owned by its citizens - by ownership is meant that these sites must be known, seen and their importance explained, so that these can foster pride in the nation's heritage. It will also ensure that the sites are cherished and protected. Only in the second place should these sites be used for tourism by visitors from outside the country and for commercial purposes. Ultimately these must go hand in hand, as foreign tourists can help to fund the upkeep of these monuments and the uplifting of the local communities.



**Table 5: Sites and other monuments and heritage areas suitable for development into public sites**

Site number/area	Site Name	Status	Interest
<b>A. Mosu Escarpment (South side of Sowa Pan):</b>			
15-B2-6	Khama Ruin	National Monument, 100 sites list	Small Zimbabwe Ruin having interesting walling and the most beautiful view of Sowa Pan.
16-A1-2	Kayishe	National Monument, 100 sites list	Apart from big wall and view maybe insufficiently visually interesting on its own. Requires quite a climb
16-A1-39	Unikai spring	National Monument, 100 sites list	Point of interest as example of the springs at the foot of the escarpment and explanation of why these are there. Can be used to explain the presence of human settlements with their livestock and current livestock rearing practices
16-A2-1	Tlapanana		Small Zimbabwe Ruin with large middens, in interesting location
16-A1-19 to 16-A3-1, 16-A3-5, 16-A3-7	Majane River sites		Many stone features: walls, ellipses, platforms/cairns, cattle kraals around the Majane River where it cuts through the escarpment.
Other possible sites with interesting stone features: 16-A1-14, -15, -17, -18, -20?, -25, -32, -34. Potential: The escarpment is very scenic as it affords beautiful views over the Sowa Pan over a distance of over 40 km. Considerable height of the escarpment, rivers and streams that cut across this and promontories sticking out from the edge and hills in front of the escarpment, as well as springs at the bottom create a scenic landscape with geomorphological interest and challenges of access. The plain in front of the escarpment is dotted with baobabs and Sesamothamnus and is also very scenic and the view of the escarpment from the pan edge is spectacular. The archaeology is visually interesting because of the stone walls and other stone features and presents an interesting story, although as yet insufficiently researched. Very suitable for a hiking trail with overnighing locations in tented camps, or a 4 x 4 trail with points of interest and picnic spots. The village of Mosu is easily accessible from the Francistown-Orapa road and suitable as center for accommodation from which day trips can be made, even to Lekhubu. The escarpment environment is the best location for a Pan Museum/Heritage Centre re. geomorphology of the ancient lakes, the escarpment and the archaeological heritage, with best location near Khama Ruin and managed from Mosu. The eastern portion of the escarpment can be accessed and managed from Mokubilo/Modimotsebe and can include Mokobela Pan and Mea Pan as locations of ecological interest, although just outside the MFMP boundary.			
<b>B. Lekhubu Management Area (between Sowa and Ntwetwe Pan)</b>			
05-D4-1	Lekhubu Ruin	National Monument, 100 sites list	Interesting, mysterious walled enclosure and stone cairns which may be associated with initiation. Sacred location.
05-D4-2, -3	Part of Lekhubu site		Associated settlement
05-D4-5, -6	Hare Island		South of Lekhubu; probably related archaeological sites
05-D3-1	Thitaba	National Monument, 100 sites list	Interesting, mysterious walled settlement with large midden deposits.
Other sites reported on the ridge by Thitaba, but smaller. Potential: Lekhubu Island itself is a scenic ridge with big boulders and baobabs and juts out into the Sowa Pan, while Hare Island lies to the south in Sowa Pan and Thitaba is scenically located on a ridge on the E edge of Ntwetwe Pan, 17 km NE of Lekhubu. The scenic locations are augmented by the visually interesting and mysterious walled enclosures and cairns. (Mysterious meaning not yet understood or dated and open to much speculation). Already a managed tourist location under the Gaing-O Community Trust. Camp site up and running and more planned.			

Site number/area	Site Name	Status	Interest
<b>C. Historic trees</b>			
04-B2-1 04-B2-2	Baines' Baobabs	National Monument, 100 sites list	At Kudiakam Pan in Nxai Pan National Park. Botanically beautiful grove of trees with historic interest. Stone Age locality as example of early human use of the pan.
05-A3-3 05-A3-1	Green's Baobab Gutsha Pan	National Monument, 100 sites list	Historic tree near Ntwetwe Pan south of Gweta  Stone Age location and hunting blinds
05-A3-2	Chapman's Baobabs	100 sites list	Landmark on the north edge of Ntwetwe Pan south of Gweta, and beautiful specimen of baobabs, with historic interest.
<p>Already tourist attractions in scenic locations, Baines' Baobabs as a focus in itself, the other two trees as points of interest en route, with picnic potentials. Green's and Chapman's Baobabs already part of the local daytrips from upmarket camps: Jack's Camp and Camp Kalahari and part of the very scenic northern Ntwetwe Pan. The archaeology of north Ntwetwe Pan still too vulnerable, but eventually may be included with a display at Chapman's Baobabs, for example. Monument sign already at Baines' Baobabs, but not yet at the other trees. Require no further management.</p>			

Site number/area	Site Name	Status	Interest
<b>D. East Sowa</b>			
06-C1-1	Toranju Ruin		Early Zimbabwe Tradition elite site with walled enclosure. Visually interesting.
06-C1-7	Tshwane game trap		Large U-shaped game trap - only known preserved example. Interesting if explained.
<p>Combined with visits to the Botash plant, flamingos, maybe the marula grove at Sowa, a cattle post and Sowa Pan, these are quite interesting sites. Can be managed through local custodian from cattlepost. Accommodation available at Sowa.</p>			

Site number/area	Site Name	Status	Interest
<b>E. Mopipi area</b>			
15-A1-2	Xanikaga	National Monument, 100 sites list	Of palaeontological interest
<p>Suitable for display explaining the changing lake/pan landscape and the animals which roamed here during the Plio-Pleistocene. Suitable for point of interest on the road from Orapa to Rakops. Other sites or scenic routes around the Orapa pans, the Boteti River and Lake Xau may be added in future, but none are currently suitable, either too vulnerable or not visually interesting. Can be managed by Gaing-O Community Trust or from Mopipi.</p>			

Areas identified as suitable for development for archaeology/heritage tourism include the Mosu Escarpment, the Lekhubu Management Area, historic trees, East Sowa and the Mopipi area. It is important to note that these may contain sites which are also assessed as sensitive, because they contain important information, which has not yet been studied. Once excavated these sites have considerable potential for development as public sites. Apart from Ngcaezini Pan, all the sites on the "100 sites for development" list are included in the areas proposed as having development potential. Ngcaezini Pan and other areas with interesting sites, such as various sections of the Boteti River, may have tourist potential in future, but are currently too vulnerable and not suitable for development. These sites would require major excavation programmes, followed by closely controlled access only, if they are to be used in tourism.

## 4. Conclusion and recommendations

Figure 2 shows the sensitive areas/sites in red. These must be avoided for development for now. The sites/areas suitable for development, after sufficient research at the sites has taken place, are shown in purple.

Limited tourist access can be made available during archaeological excavations, as these may be interesting to see, but access needs to be closely controlled. Local communities can take part in such excavations as paid excavation assistants; this tends to create an interest and understanding of the sites and is valuable training for subsequent guides.

Excavations need to be carried out, bearing in mind the preservation of site features that can be used in site displays and the stabilization requirements for the site. Artifacts, photographs and site plans, information which is excavated, can subsequently be used in explanatory displays, where suitable. Such excavations require expertise, time and funds and are major research projects. Apart from the fieldwork, such projects also require substantial labwork and time to produce reports. This is often best done in several phases of fieldwork, first some tests, followed by preliminary lab results and dates, later more substantial excavations.

Development of archaeological sites for public viewing is not done overnight. This requires careful planning and involves excavation, stabilization, management strategies involving custodians, guides training, displays, dissemination of information through pamphlets, etc. These are not the subject of the MFMP, but must be born in mind in further planning.

The Makgadikgadi Pans area is extremely interesting for its geomorphological history and associated climate changes and the archaeology adds the human populations in this changing landscape. The archaeological sites chart the cultural evolution of mankind from early hominid hunters/scavengers to the first modern humans, hunters possibly following migrating herds, the first introduction of livestock and pottery into southern Africa, arrival of Bantu farming communities, specialized riverine adaptations by Khoe groups, to chiefdoms of pastoralists living around the Sowa Pan especially in defensive locations on the escarpment edge in strategically- walled settlements, to the elite sites of the earliest Zimbabwe state, and refugee communities during the turbulent 19th century, in part documented in the diaries of early European explorers.

Most of this vast area has not yet been explored. This report is only based on the registered sites. No doubt many more sites exist and many of those may have tourist potential, or may be vulnerable and need special protection.

It is important that any development plans take heed of the requirements of the Monuments and Relics Act and that all major ground disturbing developments are preceded by the required Archaeological Impact Assessments, including the construction of lodges, camps, roads, pipelines, powerlines, etc. Furthermore, the special protection afforded to National Monuments stipulates no development at the National Monument nor in an area within 1 km of such a National Monument without permission.

Once the archaeological resource potential is understood within the context of other categories of development potential through this FMP, and 'hotspots' or foci for development are chosen, more detailed assessment of the development potential of the archaeological sites/heritage areas involved may require on site assessments and possibly further surveys before an IMP or subsequent proposals can be produced.

## 5. References

### Publications

Government of Botswana

- 1938 Natural and historical monuments, relics and antiques. Bechuanaland Protectorate Government Notices, Resident Commissioner's Notice 4.8, 22 July: pp. 2587-2588.
- 2001 Monuments and Relics Act. Act No. 12 of 2001. Government Gazette XXXIX (54), 24 August, 2001, Supplement A.145-160.
- 2006 Declaration of National Monuments Order, 2006, S.I. no. 58 of 2006. Government Gazette vol. XLIV, 65:C410-421, 1 Sept. 2006.

Bond, Geoffrey & Roger Summers

- 1954 A Late Stillbay hunting-camp site on the Nata River, Bechuanaland Protectorate. South-African Archaeological Bulletin IX (35):89-95.

Campbell, Alec C.

- 1991 The riddle of the stone walls. Botswana Notes and Records 23:243-249.

Chapman, James

- 1852-1862 Travels in the interior of South Africa. 3 vols.

Cohen, Geoff

- 1974 Stone Age artefacts from Orapa diamond mine, Central Botswana. Botswana Notes and Records 6:1-4.

Cooke, Cranmer K.

- 1967 A preliminary report on the Stone Age of the Nata River, Botswana. Arnoldia 2 (40):1-10.
- 1979 The Stone Age in Botswana; a preliminary survey. Arnoldia 8(27):1-32.

Cooke, Cran K. & Mary L. Paterson

- 1960 Stone Age sites: Lake Dow area Bechuanaland. South African Archaeological Bulletin XV(59):119-122.

Denbow, James R

- 1979 Botswana. Nyame Akuma 15:1-2.
- 1984 Prehistoric herders and foragers of the Kalahari: the evidence for 1500 years of interaction. In Schrire, C., ed. Past and present in hunter-gatherer studies. Academic Press, Orlando, pp.175-193.
- 1985 Activities of the Archaeology Department 1985. The Zebra's Voice 12(4):24-27.
- 1986 A new look at the later prehistory of the Kalahari. Journal of African History 27:3-28.
- 1994 Stolen places: the discourse of identity and the construction of history in the Kalahari. In Ross, Robert, Rainer Vossen & Edwin Wilmsen, eds. Language, history and identity. Rudiger Koppe Press, Cologne.
- 2002 Stolen places: archaeology and the politics of identity in the later prehistory of the Kalahari. In Falola, T & C. Jennings, Africanizing knowledge: African studies across the disciplines, Transaction Publishers Rutgers, Summerset, p.345-374.

Denbow, James R. & Alec C. Campbell

- 1980 National Museum of Botswana, archaeological research programme. Nyame Akuma 17:2-9.
- 1986 The early stages of food production in Southern Africa and some potential linguistic correlations. In Rottland, F & R. Vossen, eds. Proceedings of the international symposium on African hunters and gatherers, Sankt Augustin, 1985, Cologne. Also in series: Sprache und Geschichte in Afrika 7(1):83-103.

Denbow, James R. & Edwin N. Wilmsen

1986 Advent and course of pastoralism in the Kalahari. Science 234:1509-1515.

Ebert, James I

1979 An ethnoarchaeological approach to reassessing the meaning of variability in stone tool assemblages. In Kramer, Carol ed. Ethnoarchaeology: implications of ethnography for archaeology. Columbia University Press, New York. pp.69-74.

1979 The significance of archaeological sites located near or in association with ancient strandlines of Lake Makgadikgadi, Botswana. Nyame Akuma 15:2-9.

Ebert, James I., Melinda C. Ebert & Robert K. Hitchcock

1977 Regional archaeological, ethnological and ecological research in Botswana. Archaeologia Zambiana 19:6-7.

Ebert, James & Robert K. Hitchcock

1978 Ancient Lake Makgadikgadi, Botswana: mapping, measurement and paleoclimatic significance. Paleoecology of Africa 10:47-56.

Gabadirwe, Mohutsiwa

2001 Monuments influence life? The Zebra's Voice 28(2):6-8.

Helgren, David M.

1984 Historical geomorphology and geoarchaeology in the southwestern Makgadikgadi Basin, Botswana. Annals of the Association of American Geographers 74:298-307.

Hitchcock, Robert K.

1978 Recent archaeological and ethnoarchaeological research in Botswana. Nyame Akuma 12:4-6.

1982 Patterns of sedentism among the Basarwa of eastern Botswana. In Leacock, Eleanor Burke. & Richard Lee, eds., Politics and history in band societies. Cambridge University Press, Cambridge. pp.223-268.

Huffman, Thomas N.

1996 Archaeological evidence for climatic change during the last 2000 years in Southern Africa. Quaternary International 33:55-60.

1996 Snakes and crocodiles; power and symbolism in ancient Zimbabwe. Witwatersrand University Press, Johannesburg.

Main, Michael

1987 Kalahari. Life's variety in dune and delta. Southern Book, Johannesburg.

2001 African adventurer's guide to Botswana. Struik, Cape Town.

Matshetshe, Kabelo

2001 Salt production and the salt trade in the Makgadikgadi Pans. Pula: Botswana Journal of African studies 15(1):75-90.

Mathibidi, Nonfo

2001 Community based heritage resource management. A case study of Lekhubu (Gaing-O) Island. The Zebra's Voice 28(2)

McFarlane, M.J. and Phillip Segadika

2003 Archaeological evidence for the reassessment of the ages of the Makgadikgadi Palaeolakes. Botswana Notes and Records

Mosesane, Nonofu

1993 Tree preservation/conservation trip in the Central District. The Zebra's Voice 20(1/2):13.

National Museum, Monuments and Art Gallery

1999 Lekhubu; Island in a desert lake. Pamphlet (A4, 3 folds). Produced by the Archaeology Division.

n.d. Pre-development Archaeological Impact Assessment. Guidelines for Archaeological/Architectural History Consultants.

n.d. Pre-development Archaeological Impact Assessment. Guidelines for Planners and Developers.

n.d. Monuments Policy & Terms of Reference. Guidelines for Joint Venture Partnerships.

Netterberg, Frank

1969 Ages of calcretes in Southern Africa. South African Archaeological Bulletin XXIV, pt. III + IV (nos. 95 +96), devoted to Quaternary Studies in South Africa. Pp.88-92.

Peter, Bafentse

2001 Vitrified dung in archaeological contexts: an experimental study on the process of its formation in the Mosu and Bobirwa areas. Pula: Botswana Journal of African Studies 15(1):125-143.

Ramatokwane, Leonard

1984 Archaeological reconnaissance in the Sowa Pan. The Zebra's Voice 11(4):24-25.

Reid, Andrew

2005 Interaction, marginalization and the archaeology of the Kalahari. In Stahl, Ann, ed., African Archaeology, Blackwell, Oxford: pp.353-377.

Reid, D. Andrew M., Karim Sadr & Nick Hanson-James

1998 Herding traditions in Botswana. In Lane, Paul, Andrew Reid & Alinah Segobye, eds. Ditswa mmung. The archaeology of Botswana. Pula Press and the Botswana Society, Gaborone.

Reid, Andrew and Alinah Segobye

2000a An ivory cache from Botswana. Antiquity 74: 326-331.

2000b Politics, society and trade on the eastern margins of the Kalahari. In Leslie, Mary and Tim Maggs, eds., African naissance: the Limpopo valley 1000 years ago. The South African Archaeological Society, Goodwin Series 8:58-68.

Robbins, Lawrence H.

1985 A trip to Kudiakam Pan. The Zebra's Voice 12(3):17-18.

1987 Stone Age archaeology in the northern Kalahari, Botswana: Savuti and Kudiakam Pan. Current Anthropology 28(4):567-569.

1988 The Middle Stone Age of Kudiakam Pan. Botswana Notes and Records 20:41-50.

Robbins, L.H. & A. Campbell

1993 Further archaeological research at Tsodilo Hills: new discoveries made. Zebra's Voice 20(4) [incl. Ngxaishini and Boteti Mouth sites]

Robbins, Larry H. & Mike L. Murphy

1989 The Early and Middle Stone Ages of Botswana. In Lane, Paul, Andrew Reid & Alinah Segobye, eds. Ditswa Mmung. The archaeology of Botswana. Pula Press and the Botswana Society, Gaborone. Pp.50-64.

Roodt, Veronica

2004 The Shell tourist travel guide of Botswana, Shell Oil Botswana.

Sadr, Karim

1998 The first herders at the Cape of Good Hope. African Archaeological Review 15(2):101-132.

Thomas, D.S.G. & Paul A. Shaw

1991 The Kalahari environment. Cambridge University Press, Cambridge.

Tlou, Thomas & Alec C. Campbell

1997 History of Botswana. Macmillan, Gaborone.

Van Waarden, C.

1991 Stone Age people at Makalamabedi Drift. Botswana Notes and Records 23:251-271,274-276, plus errata.

1998 The Late Iron Age of Botswana. In Lane, Paul, Andrew Reid & Alinah Segobye, eds. Ditswa mmung. The archaeology of Botswana. Pula Press and the Botswana Society, Gaborone. Pp.115-160.

1999 The prehistory and archaeology of Botswana; an annotated bibliography. The Botswana Society, Gaborone.

Walker, Nick

1991 Game traps: their importance in Southern Africa. Botswana Notes and Records 23:235-242.

1993 Historic trees in Botswana. The Zebra's Voice 20(1/2):10-11.

1998 Botswana's Late Stone Age. In Lane, Paul, Andrew Reid & Alinah Segobye, eds. Ditswa mmung. The archaeology of Botswana. Pula Press and the Botswana Society, Gaborone. Chapter 3.

1998 A first step to restoration of ruins. Zebra's Voice 25(3/4):13-4.

Wayland, E.J.

1950 From an archaeological notebook. South African Archaeological Bulletin 5(17):4-14. Summarized in Nature July 1950, vol.166 (4213):4-14.

1954 Outlines of prehistory and Stone Age climatology in the Bechuanaland Protectorate. Académie Royale des Sciences Coloniales, Mémoires 25(4):3-47.

Weedman, Kathryn

1990 New light on the Iron Age in eastern Botswana. The Zebra's Voice 17(2):5-6.

Westphal, Ernst O.J.

1963 The linguistic prehistory of Southern Africa: Bush, Kwadi, Hottentot and Bantu linguistic relationships. Africa 33:237-265.

Wilson, M.

1989 The problem of the origins of the Khoikhoi. The digging stick (Newsletter of the South African Archaeological Society) 6(1):2-4.

## Unpublished

## Theses and dissertations

Hitchcock, Robert K.

1982 The ethnoarchaeology of sedentism: mobility strategies and site structure among foraging and food producing populations in the eastern Kalahari Desert, Botswana. Ph.D. dissertation, University of New Mexico, Albuquerque.

Matshetshe, Kabelo

1998 Salt production and salt trade in the Makgadikgadi Pans. B.A. research essay, Department of History, University of Botswana, Gaborone.

Peter, Bafentse

1999 Vitrified dung archaeological contexts: an experimental study on the process of its formation in the Mosu and Bobirwa areas. B.A. Thesis, Department of History, University of Botswana.

Samuel, Joshua

1999 Archaeological survey of the Mosu area: settlement pattern in the Makgadikgadi from 800-1900 A.D. B.A. Thesis, Department of History, University of Botswana.

### Research reports

Botswana National Archives

1952 Stone Age collection: Geological Survey Secretariat Archival Series S.525/3. [Re. Wayland collection].

Cooke, Cranmer K. & Roger Summers

1963 Prehistoric sites in Bechuanaland Protectorate. Botswana National Archives S.312/5.

Ebert, James I., Melinda C. Ebert & Robert K. Hitchcock

1976 Anthropological, archaeological and ecological investigations in the Central District of Botswana, II: January – June 1976. Report to the Ministry of Local Government and Lands, Government of Botswana.

Grey, D.R.C.

1976 The prospecting of the Mopipi area, north central Botswana and associated Pleistocene studies. 2 vols. Anglo-American Corp. Vol. 1 text, vol. 2 maps.

Hitchcock, Robert K.

1978 Kalahari cattle posts: a regional study of hunter-gatherers, pastoralists, and agriculturalists in the western sandveld region, Central District, Botswana. Government Printer, Gaborone.

Hitchcock, Robert K., James I. Ebert & Melinda C. Ebert

1976 Preliminary anthropological, archaeological and ecological investigations in the Central District of Botswana: September – December 1975. Report submitted to the Ministry of Local Government and Lands.

1976 Anthropological, archaeological and ecological investigations in the Central District of Botswana, no. III: July-November 1976. Report to the Ministry of Local Government and Lands, Gaborone.

1976? The archaeology of the Central District of Botswana: a preliminary report. University of New Mexico Kalahari project, Man/otai.

Main, Mike

1996 Newly located archaeological sites in South Sowa Pan: a summary. Summary of 12 reports from 1994 and 1995 for Training Matters. Copy at the National Museum.

Reid, A. and A. Segobye

1997 The archaeology of Sowa Pan and its environs: a progress report. Unpublished.

Thomas, D. & S. Burrough

2009 Palaeolithic mega-lakes and early human occupation of the Kalahari, CYSC/a/17/2II(44). Preliminary Project Report, August 2009.

Walker, Nick

1999 Human responses to environmental change at Makgadikgadi: the last hunter-gatherers and their interaction with farmers.

2000 Human responses to environmental change: the last hunter-gatherers at Makgadikgadi: progress report. More sites were located and seven LSA sites were test-excavated.

2001 Human responses to environmental change at Makgadikgadi: the last hunter-gatherers.

### Management Plans

Burgess, J.

? Lekhubu Environmental Management Plan. By Rangelands and Ecological Consulting Services for the Gaing-O Community Trust and USAID.

Lorentz, J.

1995? Lekhubu Tourism Management Plan. By Campfire Ventures (Pty) Ltd. for the Gaing-O Community Trust and USAID.

### Unpublished CRM reports

Campbell, Alec C.

1987 Archaeological review Sukwane reservoir area. Commissioned by Snowy Mountains Engineering Co., Southern Okavango integrated water development project for the Department of Water Affairs.

1989 Archaeological impact assessment. Initial survey. Sowa Pan branch railway line. Interim report on first 64 km. Commissioned by Botswana Railways.

1989 Archaeological impact assessment. Second survey. Sowa Pan branch railway line. Interim report on 64 km – 113 km. Commissioned by Botswana Railways.

1990 Archaeological impact assessment. Third survey. Sowa Pan branch railway line. Interim report on 113 km - Ch.46. Commissioned by Botswana Railways.

1990 Archaeological impact assessment. Final report. Sowa Pan branch railway line. Commissioned by Botswana Railways.

Campbell, Alec C. & Jeff Ramsay

1994 Rakops-Motopi road: archaeological implications. Commissioned by Knight Piesold Botswana for the Department of Roads.

Denbow, James R.

1984 Preliminary report on an archaeological reconnaissance of the B.P. Soda Ash Lease, Makgadikgadi Pans, Botswana. Commissioned by British Petroleum, Gaborone and the Botswana Government.

1985 Report on archaeological investigations at Sowa Pan. Commissioned by British Petroleum, Gaborone and the Botswana Government.

Lane, Paul

1995 Archaeological impact assessment – Proposed Xhumaga-Motopi road. Commissioned by Newton MacDonald and Associates (Pty) Ltd.

Makgolo, Makgolo

1991 Archaeological impact assessment report. Maun-Gweta road project. Commissioned by Arup Botswana.

Reid, Andrew & Karim Sadr

1995 Archaeological impact assessment. Rakops-Motopi road (Section one), Central District. Commissioned by Civil and Planning Partnership, Botswana.

Segadika, Phillip

2000 An archaeological report of lithic artefacts from the 'Gweta' Quarry. Commissioned by Water Surveys and Terracore.

Sekgarametse-Modikwa, Princess

2000 Archaeological Impact Assessment report of the proposed lodge development in Nxai Pan National Park-Kgama Kgama Pan. Commissioned by Loci Environmental.

Shaw, Paul A.

1990 Mitigation of archaeological sites on the Maun-Nata road; geomorphology report. For Marope Research. Commissioned by Arup Botswana for the Roads Department.

Van Waarden, C.

1987 Archaeological impact assessment. Phase I – Survey. New alignment of the Nata-Maun road. Commissioned by Joint Venture Consultants: Ove Arup and Partners International and Stewart Scott and Partners for the Department of Roads.

1987 Archaeological impact assessment. Phase I – Survey. Nata-Maun road: gravel pits between Nata and Gweta, access routes and crossings over the Botletle river. Commissioned by Joint Venture Consultants: Ove Arup and Partners International and Stewart Scott and Partners for the Department of Roads.

1988 Archaeological impact assessment. Phase I – Survey. Nata-Maun road: gravel pits between Gweta and Maun, new route into Maun and crossing over the Thamalekane river. Commissioned by Joint Venture Consultants: Ove Arup and Partners International and Stewart Scott and Partners for the Department of Roads.

1988 Makalamabedi drift; 03-B4-1; Mitigation report. Commissioned by Joint Venture Consultants – Ove Arup and Partners International and Stewart Scott and Partners for the Department of Roads.

1989 Archaeological impact assessment. 132 kV powerline from Francistown to Sua Pan. Commissioned by the Botswana Power Corp.

1990 Archaeological impact assessment. Francistown-Sua railway line; additional reserve for fill 20-70 m RHS, Shashe to Moseitse rivers. Commissioned by Kampsax International A/S for Botswana Railways.

1990 Archaeological impact assessment. Nata-Maun-Shorobe road. Quarry sites at Gweta and Maun. Commissioned by Daewoo Corp.

1990 Archaeological impact assessment. New alignment of the Nata-Maun road. Gweta-Nata section. Commissioned by Arup Botswana for the Department of Roads.

1990 Mitigation of archaeological sites on the Nata-Maun road. Preliminary report. Commissioned by Arup Botswana.

1992 Archaeological impact assessment. Orapa Diamond Mines. Commissioned by De Beers Consolidated Mines Ltd.

1993 Archaeological impact assessment. Francistown-Maun 132 kV trans-mission line. B.P.C. project 1105. Commissioned by the Botswana Power Corp.

- 1999 Heritage management areas. Zoning proposal for Central District. Commissioned by C.C.I. (Pty) Ltd. for the Central District Council and the Department of Lands.
- 2002 Botswana Ash. Archaeological Impact Assessment. Update. Commissioned by Ecosurv Environmental Consultants for Botswana Ash (Pty) Ltd.
- 2003 Orapa new residential area. Archaeological Impact Assessment. Commissioned by Loci Environmental (Pty) Ltd. for Newton Mc Donald and Associates (Pty) Ltd. and the Debswana Diamond Co. (Pty) Ltd.
- 2003 Nata-Sepako Road. Borrow Pits. Archaeological Impact Assessment. Commissioned by the Central District Council, Tutume Sub-District.
- 2003 Mopipi Dam rehabilitation. Archaeological scoping report. Commissioned by Mantswe Natural Resources Consultants.
- 2003 Orapa new residential area west of Temong. Archaeological Impact Assessment. Commissioned by Debswana Diamond Co. (Pty) Ltd.
- 2004 Damtshaa access road. Archaeological Impact Assessment. Commissioned by Mantswe Natural resources Consultants for Debswana.
- 2004 Boteti area borehole drilling project. Archaeological Impact Assessment. Commissioned by Ecosurv Environmental Consultants for Water Surveys Botswana (Pty) Ltd.
- 2005 Orapa township water loss management for water and stormwater. Preliminary Archaeology Study. Commissioned by Loci Environmental.

Walker, Nick

- 2001 Sewerage treatment site for Gweta hospital. Commissioned by Loci Environmental (Pty) Ltd.
- 2002 Report on archaeology of Damtshaa Mine. Commissioned by Debswana through A. Segobye.
- 2002 Archaeological impact study of the proposed Rakops-Mopipi road. Commissioned by Bangladesh Consultants Ltd. for the Roads Department.
- 2006 Archaeological Impact Assessment of the proposed extension of Sowa Township. Commissioned by Group Consult.