A preliminary archaeological assessment of the lower Orange River

J. Kinahan
Quaternary Research Services [1]
P. O. Box 22407, Windhoek

Background: A joint Namibian and South African initiative has been mounted to manage the lower Orange River, and this is to include a detailed environmental assessment as part of the river conservation and development plan. The specific area under review is the north bank of the lower Orange River, between the 17th and 20th meridians east, stretching from the confluence of the Fish River to the Namibian border, about 35 km downstream of Augrhabies Falls.

Due to the specialized nature of the field it has become the established practice to include archaeological surveys in the environmental assessment programme[2]. Archaeological remains are protected under the National Monuments Act (28 of 1969)[3], and are recognized under the Draft Environmental Management Act (1998) as a component of the physical environment[4]. Preliminary assessment, as presented here, is usually followed by detailed field survey at a level of intensity appropriate to the project in hand. Mitigation may entail full excavation of selected archaeological sites. In a multidisciplinary context, the archaeological study contributes to a variety of other components including land-use issues such as soil erosion, and vegetation dynamics. Archaeological assessment is a crucial part of both the environmental and cultural evaluation of large-scale planning and development.

[1] QRS Report 40, commissioned by C. ***I.*** Brown (NNF, Windhoek), and submitted 18th February, 2003.
[2] More than 40 archaeological assessments have been carried out since Namibian independence and these have documented more than 900 archaeological sites spanning 2 million years of prehistory.
[3] As amended until 1979 and remaining in force by virtue of Clause 140 of the Constitution of the Republic of Namibia. Section 12, paragraph 3 (a) applies.
[4] Draft Environmental Management Act (1998), Paragraph I(c), Definitions.

Present knowledge of the lower Orange River: Despite its importance as a perennial river system, the lower Orange River environment is not well studied. The flood regime of the river is artificially managed, with the result that the riverine environment is somewhat simplified. At the same time the lower Orange River valley is economically underdeveloped, reflecting its lack of mineral potential outside the well defined diamondiferous gravels, and its severely limited extent of irrigable soil.

Prior to the construction of the Vioolsdrif high-level bridge in 1956[5], most vehicle traffic to and from Namibia was routed via the main road through Nakop, or by way of several river crossings, or drifts, that had been in use since the late 1700' s. Among the most important crossing points were those at Goodhouse and Raman' s Drift, linking Namaqualand and the newly established mission settlement at Warmbad[6] and the Namibian interior. Later, more crossings came into use, such as at Sendelingsdrift near present-day Rosh Pinah, providing a link to the route from Liideritzbucht to the interior, via Aus. These crossings were associated with a number of small farming and trading settlements, and after the formal annexation of Namibia by Germany in 1884, military and police posts were added, and the number of connecting routes increased accordingly[7].

Of precolonial settlement in the lower Orange River, little is known beyond the basic archaeological sequence and some data on the landscape relations of the archaeological record in three small locations that have been intensively surveyed. The earliest point in the archaeological sequence is represented by an accumulation of Acheulean artefacts described from the Orange River mouth and dated by correlation with relic beach levels to 800 000 yearsBP[8]. Occasional

[5] Department of Transport, Windhoek, Bridge Engineer's master list: Bridge No 65 (TR ***1/1)*** completed 1956.
[6] See Dierks, K. 1992. ***Namibian Roads in History.*** Frankfurter Wirtschafts- und Sozialgeographische Schriften 60: 1-166.
[7] See ***Kriegskarte von Deutsch-Siidwesta.frika,*** Dietrich Reimer, Berlin 1904, Blatt Warmbad (Reprint by National Archives SW A/Namibia, 1987, ***Archeia*** 6
[8] Corvinus, G, 1983. ***The raised beaches of the west coast of South West A.fricalNamibia.*** A V A Forschungen 5: 1-108.

finds have been made at many points along the entire length of the lower Orange River[9], confirming that the last one million years of human prehistory are represented in the archaeological record of the river valley and its major tributaries. Several key archaeological stratigraphies have been described from this area[lO]. Early colonial farming, trading and mission settlements were widely scattered along the lower Orange, and some of these sites are of historical importance[ll]. A key historical archaeological site in this area is //Khauxa!nas[l2]

Survey data available from the mouth of the Boom River, the mouth of the Haib River, and the vicinity of Stolzenfels, south of Ariams Vlei, provide more detailed indications of the type of archaeological remains found in the lower Orange River valley. These data suggest patterns of distribution, density of occurrence, importance for conservation, and potential for research. It is possible to extrapolate rather tentatively from these three surveys to the lower Orange River valley as a whole, at least so far as to outline the most appropriate approach to a full assessment of the archaeological record, as well as the scale of fieldwork required, and the likely results of a comprehensive survey.

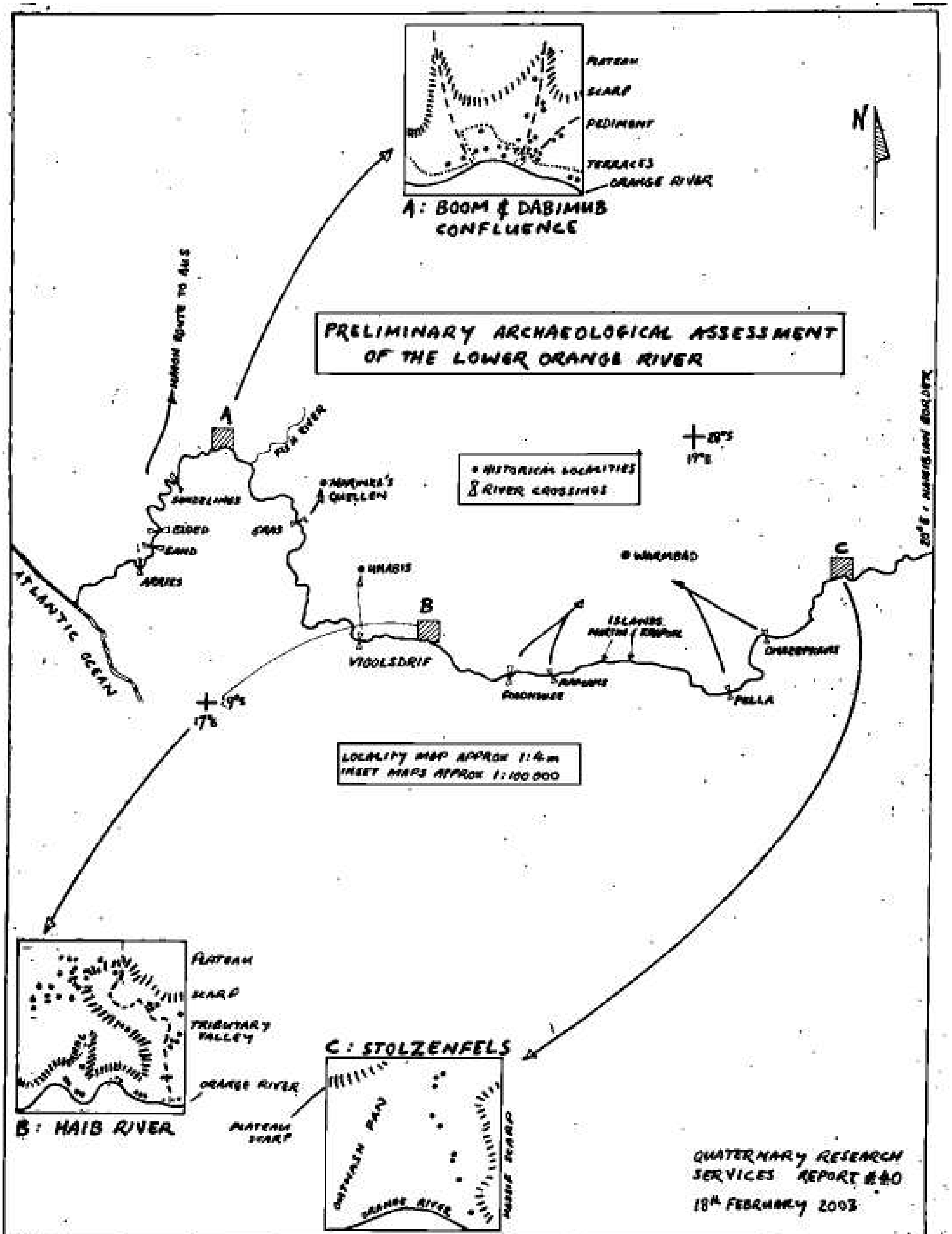
The accompanying sketch map indicates the position and general characteristics of the three surveyed localities in the lower Orange River valley. The archaeology of these three localities is discussed in more detail below. The map also shows the position of the main historical river crossings and some of the key historical sites.

[9] See Kinahan, ***I.*** 2000. A first approximation of archaeological site distributions in Namibia. QRS Report 15., and Kinal1an, ***I.*** & Deelie, C. 1990. A gazetteer of archaeological site localities in Namibia. ***Cimbebasia*** 12: 15-22.

[lO] Wendt, W .E. 1972. Preliminary report on an archaeological research programme in South West Africa. ***Cimbebasia*** B 2 (I): 1-61; Sievers, K.R. 1984. Test excavations at Rosh Pinah Shelter, southern Namibia. In Kinahan, ***I.*** ed. ***Recent archaeological research between the Orange and the Kavango Rivers in southwestern Africa.*** Cimbebasia (B) 4 (3): 29-40; Kinahan, ***I.*** and Kinahan, ***I.*** in press. Excavation of a late Holocene cave deposit in the southern Namib Desert, Namibia. ***Cimbebasia*** 18 (2002/3).

[11] The include a number of graves protected under the War Graves Act No II of 1986. All graves are protected under the Burial Place Ordinanace No 27 of 1966.

[12] Kinahan, ***I.*** 1996. The archaeology of social rank among eighteenth centUIy nomadic pastoralists in southern Namibia. ***African Archaeological Review*** 13 (4): 225-245.


PLATEAU
SCARP
PEDIMENT
TERRACES
ORANGE RIVER
A: BOOM & DABIMUB CONFLUENCE
N
PRELIMINARY ARCHAEOLOGICAL ASSESSMENT OF THE LOWER ORANGE RIVER
A
FISH RIVER
HISTORICAL LOCALITIES
RIVER CROSSINGS
VIOOLSDRIF
WARMBAD
B
C
ISLANDS
PELLA
LOCALITY MAP APPROX 1:4m
INSET MAPS APPROX 1:100 000
ATLANTIC OCEAN
PLATEAU
SCARP
TRIBUTARY VALLEY
ORANGE RIVER
B: HAIB RIVER
C: STOLZENFELS
PLATEAU SCARP
PAN
ORANGE RIVER
QUATERNARY RESEARCH SERVICES REPORT #40
18th FEBRUARY 2003

Boom River[13]: The confluence of the Boom and Dabimub Rivers with the Orange River at approximately 17° 05' E, presents a complex terrain ofrelic gravel terraces, recent overbank flood deposits, spring tufas, tributary streams and other features. A total of 35 archaeological sites were located in a surveyed area of 25km^2. The predominant sites were those of nomadic pastoral encampments dating to within the last 2 000 years. These were found in a variety of contexts, but tended to occur on level ground and close to shelter afforded by outcropping rock. Holocene stone artefact scatters were found primarily on the gravel terraces, as did those of Pleistocene age.

Archaeologically, the least significant component of the Boom River confluence area was the youngest terrace, or present bank of the Orange River. The reason for this is probably twofold: the present bank is very recent in archaeological terms, and periodic flooding of the Orange River has probably removed or buried most archaeological remains within a vertical range of 10m above present low water. A number of graves found on the youngest terrace of the Orange River were assumed to be very recent in age.

The most significant component of the archaeological landscape in this area is that of isolated rock outcrops, with outwash fans of tributary streams having comparable importance. The Boom River confluence area indicated that while all elements of the mid-Pleistocene to recent archaeological sequence are present, there were no large concentrations of archaeological sites and no single sites of outstanding significance. On the other hand, the survey showed a consistent association of archaeological sites with particular components of the terrain. This suggests that small area surveys might have a strong predictive potential.

Haib River[14]: The lower reaches of the Haib River pass through a deep ravine which issues onto a narrow belt of low dunes marking the edges of the Orange River valley at approximately 17° 55'E. The field survey covered a total of 30 km^2 and located 48 archaeological sites. The largest component of the survey area consisted of a high

[13] Kinahan, ***I.*** 2001. ***An archaeological survey of the Orange River valley in Mining Blocks*** 3 & 4. Commissioned by Inter-Consult Namibia (Pty) Ltd. for Ealing Development (Pty) Ltd. QRS Report 24.
[14] Kinahan, ***I.*** 1997. ***Haib coppermine project environmental impact study: archaeological survey.*** Report compiled for Parkman Namibia (Pty) Ltd. QRS Report 10.

plateau some distance from the Orange River. Significant concentrations of both Holocene and Pleistocene stone artefact scatters were found in this component. The Haib and Orange River components of the survey area were smaller but showed a comparable range of archaeological sites, indicating that the Orange River valley and the plateau were important throughout the archaeological sequence. However, the predominant sites in the Haib and Orange River valley areas were the remains of nomadic pastoral encampments and historical or colonial sites.

As in the case of the Boom River confluence, the Haib River survey did not indicate any large concentrations of archaeological sites, or any single sites of outstanding significance. Of particular interest in the Haib River survey was the presence of several sites relating to early colonial settlement and to German military activity during the campaigns against the guerrilla leader Jakob Marenga in 1904-1907[15]. These sites included three military graves located on the bank of the Orange River, but well above the maximum flood level. The historical archaeological sites are of interest because they relate to specific recorded events in the wider region. At the same time they allow local verification of these events by relating them to specific places in the landscape.

Stolzenfels[16]: An extensive Quaternary outwash fan is located on the western flank of a heavily weathered massif of intrusive mafic rock in the vicinity of Stolzenfels in the Orange River valley at 19° 40' E. A linear survey covering 28km of the outwash fan in the direction of Blydeverwacht located a total of nine archaeological sites. Five of the sites were early to mid-Pleistocene stone artefact occurrences in the main body of the outwash fan and on the coarse gravel footslopes of the adjacent massif. These probably represent material dispersed by sheet erosion from further up slope.

The remaining four sites included a suspected burial cairn and two groups of stone features representing nomadic pastoral encampments consisting of circular arrangements of anchor stones for portable mat houses. These more recent sites were

[15] See ***Die Kampfe der deutschen Truppen in Sadwestafrika, aufGrund emt/ichen Materia/s bearbietet von der Kriegsgeschicht/ichen Abtei/ung I des Groj3en Genera/stabes*** (Vol 2) Berlin 1907.
[16] Kinahan, J. 1999. ***An archae%gica/ survey of the Aries to Auas power/ine route.*** Report commissioned by Walmsley Environmental Consultants (Pty) Ltd. for the Namibia Power Corporation. QRS Report 14.

also located on the outwash fan, one having been partly destroyed by gully erosion. The Stolzenfels sites showed that landscape features such as outwash fans could be associated with a broad range of archaeological sites, although this may reflect local erosion cycles rather than patterns of human settlement.

Based on present knowledge, the archaeological characteristics of the lower Orange River can be summarized as follows:

- The full (mid-) Pleistocene to Holocene and recent historical sequence is represented
- Archaeological site distributions can be predicted on the basis of landscape associations
- Major tributary stream confluences are important archaeological localities, especially in the vicinity of springs and seepages
- The present banks of the Orange River are relatively unimportant localities
- River crossings and access routes are historically important localities
- Recent grave sites tend to be located on the banks of the Orange River

Recommended survey design: A full assessment of the archaeology of the lower Orange River (northern bank) should be based on an analysis of landscape components, targeting components of known archaeological importance. The assessment of more recent historical settlement in the lower Orange River should be based on an analysis of historical documents (travellers reports, land deeds and maps) that identify particular sites. A field survey of the area should be based on an initial 25% sampling, followed by purposive (targeted) sampling of high probability areas.

Site documentation should follow a pre-designed format based on assessment of critical characters, including location co-ordinates, landscape setting, extent, integrity, and field estimate of age and affinities. Location data should be logged by GPS and geo-referenced aerial photography at a scale of no less than 1: 25 000. Analysis of initial sampling should explicitly aim to increase the resolution of the purposive (targeted) sampling to as to define as precisely as possible the archaeological sensitivity of the landscape components.

At the conclusion of the two-stage field survey, highly significant sites requiring mitigation can be identified. These sites will require testing and more detailed documentation prior to full mitigation. Such testing will allow precise estimates for budgeting of mitigation work.

A rapid field assessment of the lower Orange River would take approximately 30 field days, using a team of three fieldworkers and one professional archaeologist. Alternatively, the area could be covered by two archaeologists in the same amount of time. Fieldwork logistic requirements would include vehicle costs for approximately 3 000 km. Basic analysis and report preparation would require approximately 15 office/laboratory days.

Expected findings: It is expected that an archaeological assessment of the lower Orange River will provide more detailed knowledge of an interesting but poorly known area. It is not anticipated that the survey would yield major archaeological finds that might represent a "fatal flaw" in any proposed development. On the contrary, an archaeological assessment of this area is likely to record a large number of small sites indicating intermittent settlement of the Orange River valley throughout the archaeological record. The most important findings expected from the area would include:

- In situ Pleistocene stone artefacts in spring tufas and overbank flood deposits.
- Well defined associations between later Pleistocene (Middle Stone Age) sites and resource concentrations.
- Well defined patterns of nomadic pastoralist stockpost location on the Orange River and its major tributaries.
- An improved knowledge of rock engraving site distribution in this area
- Detailed knowledge of the archaeological and historical use of river crossings as trade routes.
- The location of recent (historical) and archaeological graves that may have to be moved in the event of dam construction.

Key issues: The most important considerations at this stage are that archaeological assessment should be explicitly included in the full environmental assessment. The archaeological assessment should also be scheduled to allow maximum time for input to the decision-making process, and maximum time to complete mitigation work before development commences. Two remaining issues of concern are that the archaeological assessment should be integrated with the multi-

disciplinary research effort, and that the basic procedures of archaeological assessment on the Namibian and South African sides (north and south banks) should be harmonized.