A pristine landscape? Archaeological and archaeobotanical research in the Skeleton Coast Park, northwestern Namibia


Abstract

Due to the Benguela Current, the entire Namibian coast is extremely arid with harsh weather conditions. This is especially true for its northern part, the Skeleton Coast. Since their first encounter with this landscape European travellers have perceived it as a hostile and deserted wilderness – a pristine landscape.

Archaeological investigations undertaken in neighbouring Kaokoland by the University of Cologne have concentrated on various ecological zones. However, the extreme arid environment of the Namib Desert has not been examined until recently. Our surveys have yielded an unexpected wealth of archaeological sites, which fall into two main categories: shell middens and stone circle sites. Both settlement patterns document the exploitation of marine food resources and attest to a strong connection between the hinterland and the coast. In contrast to rock shelter sites in the interior of northwestern Namibia which are suitable for diachronic charcoal analyses, surface sites in the northern Namib Desert were occupied for only short periods in the late Holocene. During this phase, climatic conditions in the coastal desert most probably resembled those presently prevailing. Anthracological analysis from these sites provides palaeoethnobotanical information on the use of the scarce woody vegetation for fuel. Results generally indicate that even in this hyperarid environment, availability and accessibility were of major importance for firewood choice. However, the anthracological proof of some woody species presently occurring only at some distance from the coastal sites, may indicate mobility of the former inhabitants, fluctuations of ephemeral rivers in the hinterland, or the collection of marine driftwood.

Keywords: Archaeology, archaeobotany, shell midden, stone circle, firewood, Holocene, Skeleton Coast, Namibia

1. Introduction

Within the interdisciplinary research centre ACACIA (SFB 389) at the Universities of Cologne and Bonn, the former Kaokoland, a landscape now forming part of the Kunene Region in northwestern Namibia, has been one regional focus of research. The question of economic change in arid environments during the Holocene interlinks the archaeological project in Namibia with projects in Egypt, Sudan, and Chad. Pastoralism is one of the main subsistence strategies in African arid and semiarid areas and therefore has been one of the central aspects of all archaeological projects under the umbrella of ACACIA. In Kaokoland, the question of the origin and spread of early domesticates is of special interest.

So far, excavations have been undertaken in a total of eight rock shelters, five of which have comprehensive stratigraphies allowing a first reconstruction of settlement
and environmental history of the region (Vogelsang et al. 2002). Charcoal analysis, conducted on material originating from five rock shelters, has enlarged the knowledge of the regional vegetation history since the Pleistocene/Holocene transition (Eichhorn & Jürgens 2003), although a continuous reconstruction is still not practical (Tab. 1).

Archaeological research in Kaokoland has been carried out in various ecological zones (Fig. 1). However, the westernmost part of the region, belonging to the northern Namib Desert in the narrow sense, has thus far remained unstudied. The main reasons for this are restricted access and the difficulties in obtaining permission for scientific work within the Skeleton Coast Park due to its status as a protected natural reserve with strictly limited touristic access (Jacobson et al. 1995: 92; Schoemann 2000: 131-145). Furthermore, rock shelters that might yield long-term sequences due to their continuous or repeated use are extremely scarce in the northern Namib landscape, which is flat except for dunes and rare inselbergs. The few rock shelters discovered on the interior edge of the desert contain only small amounts of sediment. Finally, the effort of archaeological investigation appeared hardly worthwhile, owing to the myth of the Skeleton Coast as being a pristine and hostile wilderness. Since Portuguese sailors first sailed along this coast, the region has been feared for its unfavourable weather conditions and dangerously strong currents. The numerous wrecks that are found on the shoreline are

<table>
<thead>
<tr>
<th>Pleistocene/ Holocene transition</th>
<th>Early Holocene</th>
<th>Mid- to Late Holocene</th>
<th>Late Holocene</th>
</tr>
</thead>
<tbody>
<tr>
<td>age of charcoal deposits</td>
<td>around 12,000 BP 12,000 calBC</td>
<td>around 8000 BP 7000 calBC</td>
<td>around 5300 BP 4100 calBC</td>
</tr>
<tr>
<td>vegetation type</td>
<td>probably contracted woody vegetation in depressions and dry river beds</td>
<td>dry savanna or shrubland</td>
<td>savanna, little human influence</td>
</tr>
<tr>
<td>characteristic species</td>
<td>Acacia spp. Capparaceae</td>
<td>Colophospermum mopane Terminalia prunioides</td>
<td>Colophospermum mopane Terminalia prunioides Combretum apiculatum Spirostachys africana Lonchocarpus nelsii</td>
</tr>
<tr>
<td>climatic interpretation</td>
<td>cooler and more arid than today</td>
<td>more arid than today</td>
<td>generally similar to today</td>
</tr>
</tbody>
</table>

Tab. 1 Palaeoecological interpretation of charcoal analytical results from rock shelters in eastern and central Kaokoland (characteristic species composition is valid for site Omungunda N 99/1).
Fig. 1 Vegetation map of Kaokoland (from Viljoen 1980, modified). Excavated sites are indicated and the oval marks the Skeleton Coast Park sites.

1. Acanthosicyos horridus-Zygodendron stapfii-Herrmannia gariepina-desert vegetation, Northern Namib
2. Ephemeral Stipagrostis hirtigluma-grassland, quartz plains
3. Commiphora spp.-shrub savanna, western escarpment mountains
4. Stipagrostis uninodis-Stipagrostis giessii-valley grassland
5. Acacia reficiens-Acacia kirkii-vegetation, Otjiha plains
6. Dry Colophospermum mopane-savanna, central escarpment valleys
7. Commiphora multiflora-C. virgata-Euphorbia guericiana-vegetation, escarpment
8. Colophospermum mopane-Terminalia prunioides-dwarf shrub savanna, Hoarusib flood plains
9. Colophospermum mopane-Acacia tortilis-vegetation, valleys of Sesfontein and Warmquelle
10. Commiphora spp.-Acacia spp.-vegetation, higher rainfall escarpment part
11. Stipagrostis giessii-S. hirtigluma spp. hirtigluma-grassland, Bees' plains
12. Colophospermum mopane-Terminalia prunioides-Combretum apiculatum-vegetation, northern catchments
13. Colophospermum mopane-Terminalia prunioides-savanna, central catchments
14. Terminalia sericea-Lonchocarpus nelsii-Sesamum thomannus guericchii-vegetation, eastern sandveld

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evidence of the tragic end of many voyages and the dreadful fate of many a sailor. Even if they did not drown in the cold waters but made it to the shore, it was the slow death of thirst that awaited them in an apparently endless and deserted sea of sand.

2. Environmental setting

The coastal plain is commonly divided into two parts: the flat and gravelly pro-Namib plain on the eastern edge of the Namib Desert supports predominantly ephemeral grasslands, whereas the northern Namib with its rare inselbergs, gravel plains, dunes and pans is either virtually bare of vegetation or partially covered by a dwarf shrub vegetation. Precipitation is almost zero and only a narrow coastal belt of the Namib Desert regularly receives fog, reducing evapotranspiration and providing a small amount of additional moisture for plant growth (Nagel 1959; Olivier 1995; Hachfeld & Jürgens 2000). The occurrence of coastal fog is a result of the air-cooling effect of the Benguela Current and cold upwelling zones in combination with mainly western and south-western winds. The cool coastal waters also result in lower mean temperatures in the western part of the desert and in a lower daily and yearly temperature amplitude in comparison with inland areas (Sander & Becker 2002). Frost is virtually absent from the coastal area.

The large, westward flowing ephemeral rivers that dissect the Namib Desert have often been characterised as linear oases (Seely et al. 1981; Seely 1987: 10; Loutit 1991; Jacobson et al. 1995: 39; Barnard 1998: 48, 62; Schoemann 2000: 49). Fed by rainfall which occurs mainly in the eastern higher rainfall catchment areas, they support dense riparian forests in their upper and middle reaches. In the lower reaches, where the subterranean water level is lower and overground flow is rare, only occurring after heavy rainfalls in the hinterland, the riverine vegetation becomes increasingly sparse. Within the research area, the Hoanib, Hoarusib, and Khumib Rivers regularly, or at least occasionally, reach the Atlantic Ocean, whereas smaller rivers such as the Ondodongjeno and Nadas are blocked by dunes and end in salty pans (Jacobsen & Moss 1987; Loutit 1991; Jacobson et al. 1995: 121–145; Schoemann 2000: 49–63; Brunotte et al. 2002). However, after exceptional rainfall events, e.g. during the rainy season of 1995, new river channels can open up and break through as far as the coast.

3. Archaeological results

Survey and excavation during two archaeological reconnaissance trips in 2002 and 2003 were restricted by the nature conversation regulations and our limited time. Nevertheless, the work resulted in an unexpected wealth of archaeological sites in the coastal
desert of the Skeleton Coast Park. In only two weeks, 45 open air sites were investigated, five of which were tested by small-scale excavations. Besides a single rock shelter and a few stone artefact surface scatters – some with Middle Stone Age tools and technology – all sites fall into two main categories: shell midden and stone circle sites.

3.1. Shell midden

Large shell middens appear to be a regular feature in the vicinity of the mouths of all larger river beds. With the exception of some stone artefacts, potsherds, ostrich eggshell beads and bones, the middens are entirely composed of shells collected from the beach. The sizes vary considerably from small, flat patches to prominent mounds of several metres dimension (Fig. 2). Archaeological investigations were conducted at sites N 2002/2, N 2002/3 and N 2003/2, all belonging to an area (N 2003/1) encompassing several shell concentrations in the vicinity of the Khumbi mouth. A small test excavation in one of the concentrations yielded no stratified distribution of finds, these being restricted to the surface and the upper 5 cm of the loose surface sands. In some areas the archaeological horizon is covered by small sand dunes that have accumulated around the scarce vegetation after the settlement period.

All investigated shell concentrations were associated with fireplaces. Thus, there was sufficient sample material for radiocarbon dating. Three dates were obtained (Tab. 2). However, all measurements fall in the region of a calibration curve plateau. Therefore, they can only be said to date events from within the period of AD 1680 to 1940. The archaeological material mainly consists of only a few uncharacteristic quartz or basalt flakes and hammerstones made of beach pebbles. The hammerstones show intensive use wear, such

![Fig. 2 A shell midden site in the Skeleton Coast Park.](image-url)
as picking marks and splintered edges. The stone tool inventory points to intensive pounding activities, presumably in connection with the cracking of sea shells. The pottery is undecorated and the only diagnostic sherd is a lug of a Khoi pot, indicating an age of at least 100 to 200 years (Fig. 3.3). Although the radiocarbon dates, at least in this area, indicate an exploitation of marine resources during colonial times, not a single artefact of European origin was found. This is in stark contrast to the evidence from coastal sites in more southerly regions of the Namib Desert (e.g. !Khuiiseb delta – J.A.H. Kinahan 2000) and might reflect the remote location of the region up to historical times.

3.2. Stone circles

Stone circle sites are a widespread site category on the Skeleton Coast (Fig. 4). However, only a few are associated with cultural remains on the surface and are obvious settlement sites with hut-circles. In contrast, most sites feature groupings of half circles, sometimes preserved up to a height of 50 cm, with absolutely no surface finds. This pattern, in combination with linear spatial arrangements which may take the form of multiple staggered lines, suggests an interpretation of some of these sites as hunting shelters. This function is also probable for N 2000/5, the largest site of this type, with a total of 35 stone circle features. The excavation of one of these circles did not yield a single artefact inside the structure or in its surroundings. All that was found are the scapula of a seal and a hearth. A single radiocarbon measurement produced a clearly pre-colonial date of 1520 ± 80 calAD (KN-5565).

Fireplaces were found in all tested stone circles. However, this does not contradict the interpretation as hunting stands and is not unequivocal proof of a habitational use of the structures. Small fireplaces are also a regular feature of Hai//om hunting shelters in the Etosha National Park (R. Vogelsang, personal observation 2004). The blaze was not extinguished until game approached.
Fig. 3  1.2 Chopping tools made out of large beach pebbles (N 2002/7), 3 lug of a Khoi pot (N 2002/2), 4 decorated vessel (N 2002/7). Scale 1:3.

The most completely investigated settlement site is N 2002/7 which had been partly damaged by a track running directly through it. During a first visit in 2002 an almost complete pot was recovered. First radiocarbon dating on soot from these sherds yielded an unexpected age of 840 ± 50 calAD (KIA-18993). This is surprisingly old since such good preservation conditions for pottery were not expected in this environment. During the following year, a high number of large ostrich eggshell beads, bones, stone flakes
and some pottery were found after cleaning the loose surface sands of the old living-floor. Most stone artefacts are unstandardised quartz flakes. The characteristic tool types are choppers and chopping tools made out of large beach pebbles (Fig. 3, 1.2). However, it is not altogether certain whether the flake scars on some of these pebbles are intentional retouch or use wear. Only small undecorated potsherds were found, with the exception of the nearly complete pot. The form of this vessel can only be reconstructed in its upper part. It displays an S-shaped profile with an outward projecting rim and a diameter of 171 mm. The decoration, a herringbone pattern bordered by a single line of stab marks, resembles sherds from Ceramic Later Stone Age inventories from rock shelters in Kaokoland (see Fig. 3, 4).

Fig. 4 A stone circle site in the Skeleton Coast.

Fig. 5 Stone circle with remains of whale bones which were used in the construction of the hut.
Three stone circles were severely eroded, but one still showed the remains of whale bones which had been used in the construction of a hut (Fig. 5). Three further radiocarbon measurements on charcoal confirm the early date of the first result (see Tab. 2) and attest to a long tradition of whalebone huts, which were still known in the colonial period (Schultze 1907; Kinahan & Kinahan 1984; Jacobson & Noli 1987). The picture of a ‘bushman’ family in front of their whalebone hut near the lower Orange River in 1779 (Gordon 1779) gives an idea of the assumed original state of whalebone-stone circle sites during their occupation (Fig. 6).

Radiocarbon dating is still in progress, but at least two dates from another stone circle site (N 2003/3, see Tab. 2) indicate the existence of this site category up to historical times and the contemporaneity with neighbouring shell middens.

4. Anthracological results

Anthracological analysis was conducted on material from four of the sites. Due to their relatively recent age, charcoal analysis from these sites cannot provide information on long-term climate and vegetation history of the region. Instead, the palaeoethnobotanical information may primarily be used to reconstruct the exploitation of rare firewood resources in a hyperarid environment and possibly provide us with some clues as to

![Image](https://example.com/image.png)

*Fig. 6* A ‘bushman’ family living in the lower Orange River valley in 1779 (from Smith et al. 2000, p. 16, picture 3.5; original source: Gordon Atlas, Rijksprentenkabinet, Rijksmuseum, Amsterdam). Note the fireplace, the high number of ostrich eggshell water containers, shell accumulations in the foreground, whale vertebrae and whale bones used as seats.
seasonal movements of the former inhabitants between inland areas and the coast. The probability of such movements in southern Africa has been vividly discussed in the archaeological literature (e.g. Parkington & Poggenpoel 1971; Wendt 1972; Sandelowsky 1977; 1983; Carr et al. 1978; Wadley 1979; 1984; Avery 1984; Richter 1984; 1991: 239–247; Sealy & Van der Merwe 1986; Plug 1998; Smith et al. 2000: 10–25). A comparable

Fig. 7  Skeleton Coast. Anthracological diagram, site N 2002/5.

Fig. 8  Skeleton Coast. Anthracological diagram, site N 2002/7.
<table>
<thead>
<tr>
<th>Vegetation subunit</th>
<th>Site characteristics</th>
<th>Typical plant species</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salsola</em> spp.-<em>Zygophyllum</em> spp.-</td>
<td>dry river beds allow the establishment of typical plant species; subsequently small</td>
<td><em>Salsola arborea</em></td>
</tr>
<tr>
<td>association</td>
<td>dunes build up around the plants</td>
<td><em>Salsola nollothensis</em></td>
</tr>
<tr>
<td><em>Hermannia gariepina-Ectadium</em></td>
<td>gravel plains; small sand hummocks build up around the plants</td>
<td><em>Zygophyllum clavatum</em></td>
</tr>
<tr>
<td><em>rotundifolium</em>-association</td>
<td></td>
<td><em>Zygophyllum stapfii</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Ectadium rotundifolium</em></td>
</tr>
<tr>
<td><em>Acanthosicyos horridus-Cladoraphis</em></td>
<td>dune fields</td>
<td><em>Acanthosicyos horridus</em></td>
</tr>
<tr>
<td><em>cyperoides</em>-association</td>
<td></td>
<td><em>Cladoraphis cyperoides</em></td>
</tr>
<tr>
<td><em>Centropodia glauca-Crotalaria</em></td>
<td>small granitic inselbergs</td>
<td><em>Merremia multisecta</em></td>
</tr>
<tr>
<td><em>leubnitziana</em>-association</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tab. 3** Vegetation of the northern Namib: the four subunits of the "*Acanthosicyos horridus-Zygophyllum stapfii-Hermannia gariepina*-desert vegetation unit" (after Viljoen 1980, modified).

mobility pattern in Kaokoland, probably using dry beds of ephemeral rivers as linear oases which provided food and subterranean water, is corroborated by the similarity of archaeological finds at coastal and interior sites.

As indicated by the anthracological results for site N 2002/5 (Fig. 7), people maintained their fire solely with the coastal desert dwarf shrub vegetation, typical of the smaller river washes (Tab. 3), using the woody base of leaf-succulent, perennial *Zygophyllum* species. Grass (Poaceae) was also used, probably for lighting fires (Eichhorn 2002: 319). There is no indication that the inhabitants moved far from the site, nor indeed needed to do so, in order to cover their firewood requirements.

Charcoal analyses from N 2002/7 are shown in Figure 8. Similar to N 2002/5, people mainly used the woody parts of *Zygophyllum* species as fuel. Chenopodiaceae, typical of

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localities with a high salinity, i.e. pans, brackish waterholes or dry river beds (Giess 1968), are also present in the charcoal samples (*Salsola* sp.). Amaranthaceae may be represented by several species: *Calicorema capitata*, a dwarf shrub typical of ephemeral grassland communities of the pro-Namib plain, penetrates into the desert in small river washes. Another suffrutescent Amaranthaceae, *Arthraeuia leubnitziae*, occurs sporadically near the coast, mainly in the central Namib, but at least as far north as Cape Frio (Giess 1968). *Marcelliopsis denudata* occurs on northern Namib granitic inselbergs (Tab. 3). All these taxa were potentially available in the vicinity of the settlement.

This is most probably not true of the mopane tree *Colophospermum mopane*, a savanna species which reaches the fringes of the Namib Desert in dry river beds. Only three charcoal pieces of this species were determined from site N 2002/7. Due to its high quality, the wood is highly favoured as fuel (Malan & Owen-Smith 1974; National Academy of Sciences 1980; Prior & Cutler 1992; Van Wyk & Gericke 2000: 283, 286; Eichhorn 2002: 316–330; Eichhorn & Jürgens 2003). At present, it also has a religious significance in that it is the only wood used to maintain the holy fires of the Ovahimba people in the Kunene Region (Malan & Owen-Smith 1974). The wood from certain species with a particular cultural significance may be a reason for importing it over several kilometres, either from dry river beds, inselbergs or inland savannas (cf. Archer 1990; Shackleton & Prins 1992). However, it cannot entirely be ruled out that single mopane individuals were available at favourable sites in closer proximity (see Giess 1998: 32).

The charcoal spectra from site complex N 2003/1 (specifically site N 2002/2, surface 1 as well as site N 2003/2 with the surfaces 1 and 4) near the mouth of the Khumib River, give quite different results with a higher diversity of identified taxa (Fig. 9). As with the sites discussed above, *Zygophyllum* species were most extensively used for firewood. Also present in this assemblage is charcoal of Chenopodiaceae (*Salsola* sp. und *Salsola v. Atriplex*) and of *Tamarix usneoides*, a species which is common in Namibia at sites with high salinity, e.g. in the lower reaches and near the mouths of ephemeral rivers. Most other taxa are riverside trees and shrubs, mainly typical of the middle and upper reaches further away from the coast. These depend on more regular flooding and a higher subterranean water table. There are several possible reasons for their occurrence in the charcoal spectra:

1. During strong floods of ephemeral rivers, wood of gallery forest species may be transported over great distances. Even the transport of entire cast-up trees has been reported from western Namibia (Vogel & Rust 1987; Jacobson et al. 1995: 39–47, 118–120). Thus, the collecting of driftwood in dry river beds is an easy means to supplement the scarce fuel resources of the coastal desert.
Fig. 9 Skeleton Coast. Anthracological diagram, site complex N 2003/1 (sites N 2003/2-1, N 2003/2-4, N 2002/2-1).
2. The vegetation of dry river beds is an important food source for roaming animals in the Kunene Region, especially during the dry season and during dry years when grass cover is low or absent (Malan & Owen-Smith 1974; Viljoen 1980; 1982; Loutit 1991; Jacobson et al. 1995: 48–51). When hunting game or collecting ostrich eggs, people probably followed them upstream, collecting fuel as they went.

3. Firewood or wood for construction was collected in the interior during seasonal inland–coast movements and imported from a larger distance.

The latter assumption is the most improbable one, on the one hand, because the transport of wood over great distances requires a lot of time and energy, and on the other hand, because typical, highly-favoured inland species such as *Terminalia prunioides* are not represented in the assemblage. Ethnobotanical interviews in Kaokoland have shown that even at the margin of the Namib Desert where natural plant cover is low, as well as in densely populated areas where woody resources have become sparse due to over-exploitation, people will not move further than 4–5 km to collect firewood (Eichhorn 2002: 320–328).

However, the presence of the ana-tree *Faidherbia albida* in the charcoal assemblage needs consideration. In Namibia, this tree occurs in many of the larger ephemeral river systems, provided mean annual temperature is high enough and relatively strong flooding supports seed dispersal and the rare establishment of the drought-sensitive seedlings (Giess 1971; 1998; Jacobson et al. 1995: 39–42). But, according to Viljoen (1980: 186, 198), this species is absent from the Khumib River’s gallery forest. In lists of common riparian species of the Khumib, neither Schoemann (2000: 54) nor Jacobson et al. (1995: 123) mention *Faidherbia albida*. Investigations in the Kuiseb river bed in central Namibia have demonstrated that phytoecological standard methods may fail to register all woody species in an ephemeral river system (Seely et al. 1981). Therefore, the possibility that rare individuals of *Faidherbia albida* occur in the Khumib but were not recorded cannot be ruled out entirely.

Other possible explanations for *Faidherbia albida* charcoal at the Khumib sites are based on ephemeral river ecology. Changes in the composition of riparian forests of an ephemeral river system may reflect climatic fluctuations in the hinterland. The flooding and subterranean water table of rivers crossing the Namib depend on precipitation rates and events much further east or northeast, in the region of their headwaters. The dependence on the availability of over- and underground water is clearly demonstrated by the fact that large stands of *Faidherbia albida* in the Huab River in central Namibia have become extinct due to farm dams being built further upstream in the river catchment (Barnard 1998: 68). The demise of old *Faidherbia albida* trees in the lower Kuiseb River in the 1980s was correlated with a downward trend in flow amplitude (Ward & Breen 1983).
On the other hand, rare events of extreme flooding which have uprooted and killed whole tree populations, finally depositing them downstream or even in the sea, have been reported on repeated occasions. Floods in 1982 removed mature *Faidherbia albida* trees near Purros in the Hoarusib river bed (Loutit 1991). It is possible that the Khumib River once supported a population of *Faidherbia albida* trees which is now extinct due to undetermined reasons.

If this species is and was, in fact, absent from the river system, the collecting of driftwood in – or mobility along – the Khumib is not suitable to explain the composition of the charcoal samples. Movements of people to other river systems supporting stands of *Faidherbia albida*, such as the Hoarusib or Hoanib further south, are one possible explanation. Although not extremely favoured as fuel by present inhabitants of Kaokoland, *Faidherbia albida* plays a role in one of the traditional methods of kindling fire by using flintstone. The spark is caught in a small container, filled with ground charcoal of selected trees, one of them being *Faidherbia albida* (Eichhorn 2002: 319).

Finally, although plenty of driftwood was probably available in the dry river close to the site, the accidental collecting of driftwood on the Atlantic beach has to be considered as an additional ‘allochthonous’ source of firewood. Marine driftwood can be transported over large distances and may thus explain the archaeobotanical proof of woody species far from their present distribution areas (Dickson 1992; Alix 1998; Vermeeren 1999). Off the northwest Namibian coast, surface flow of the Atlantic is directed northwards (Wedepohl et al. 2000; Lydie Dupont, pers. comm. 2003). Driftwood discharged into the sea by an ephemeral river further south may have been washed ashore near site complex N 2003/1.

5. Conclusion

Shell middens and stone circle sites are the two main categories of archaeological sites from the Holocene period. Whereas some of the stone circles are clearly hut circles associated with settlement debris, such as bones, pottery, ostrich eggshell beads, and stone flakes, the majority of stone circles lack any surface artefacts at all. This fact, their topographical situation (e.g. intersecting a valley with an important deer pass or in the surroundings of a pan), and their spatial arrangement suggest an alternative interpretation as hunting shelters.

With the exception of early dates between c. 780 and c. 940 calAD for the stone circle site N 2002/7, all other sites are dated to the colonial period. The relatively recent dates are in accordance with the date ranges of other coastal sites in Namibia (Vogel & Visser 1981). At least some of the shell middens and stone circle sites seem to be contemporaneous. The relationship between these different settlement patterns remains to be clarified. They might be the expression of different activities. Whereas the shell midden
sites document the exploitation of one specific food resource, the archaeozoological spectrum of the stone circle sites is very heterogeneous and includes numerous bones of fish, seabirds, whales and seals, but also antelopes, such as oryx and springbok (Joris Peters, pers. comm. 2006).

Whilst food was relatively abundant, drinking water was, and still is, the limiting factor of survival in this arid landscape. Accordingly, settlements are found concentrated at the edges of small depressions, so-called pans, and in areas surrounding dry river beds, the mouths of which form deeply incised canyons flowing into the Atlantic Ocean. Even weeks after the end of the rainy season in the inland plateau, water can still be found in deeps or stored underground in the sandy sediments. The dry river beds were most probably the routes taken to pass through the desert on the way from inland areas to the coast (Noli & Avery 1987). In accordance with evidence from other parts of the southern African coast, the archaeological material confirms a strong connection between the hinterland and the coastal ecosystem. The Skeleton Coast was part of the Kaokoland settlement area and was most probably only seasonally visited for the exploitation of marine food resources. In stark contrast to coastal sites from other parts of Namibia is the lack of evidence of any European contacts.

The anthracological analyses confirmed that availability and accessibility are of major importance in the choice of woody species as fuel (cf. Heizer 1963; Prior & Tuohy 1987; Smart & Hoffmann 1988; February 1992; Neumann 1999; Van Wyk & Gericke 2000: 283; Eichhorn 2002: 316–330; Zapata Peña et al. 2003), even in the hyperarid environment of the coastal Namib where trees are rare. This is indicated by the dominance of *Zygophyllum* charcoal in all investigated Skeleton Coast sites. In addition to the utilisation of the desert dwarf shrub vegetation, driftwood was most probably collected in ephemeral river beds when available. This is consistent with studies from other regions bare of trees where driftwood use for fuel or other purposes is in evidence (e.g. Heizer 1963; Alix 1998; Adams & Hedberg 2002).

However, the presence of charcoal from several species growing at some distance from their present distribution area might also point to the mobility of people, to ecological fluctuations in the hinterland of ephemeral rivers, or to the use of marine driftwood. Anthracological analysis does not allow us to decide in favour of one or the other of these possibilities. The mere presence of stone circle sites in the hyperarid Skeleton Coast Park has led Hüser et al. (1998) and Blümel et al. (2000) to the assumption that during their occupation climatic conditions in the coastal desert must have been more favourable than at present. However, neither the presence of charcoal from *Colophospermum mopane* at site N 2002/7 nor *Faidherbia albida* and other riparian species at site complex N 2003/1 should be interpreted as indicators of climatic fluctuations in the northern Namib Desert proper: the dominance of *Zygophyllum* sp. charcoal clearly indicates that the ‘zonal’ woody vegetation in the vicinity of all three sites was similar to that presently prevailing.
6. Acknowledgements

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Alix, Claire

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