1 The Garamantes and the Origins of Saharan Trade
State of the Field and Future Agendas

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Introduction

The origins and early development of trade in the Sahara merit reappraisal today as a result of ground-breaking research in different parts of what I define as the Trans-Saharan zone.[1] There has of course been a long-running debate about the possibility of pre-Islamic trade in the Sahara,[2] but the hard evidence has been lacking and by the late twentieth century researchers had become increasingly dubious.[3] Mounting a challenge to the consensus view that there was little Trans-Saharan contact in pre-Islamic times and that the Sahara was primarily a barrier to movement at this time is difficult when the evidence is so obviously lacunous and there has been so little research focused on pre-Islamic sites. However, in the last decades work focused on one ancient Saharan people has raised questions about the wider world with which they interacted.

The Garamantes of the Libyan Sahara are by some way archaeologically the best-known indigenous people of the ancient Sahara as a result of a long programme of investigation in and around their capital at Garama (modern Jarma in the Wadi al-Ajal valley in Fazzan, south-west Libya).[4] The new evidence gathered contrasts markedly with the ancient literary tradition, which depicts them with the essential tropes of nomadic barbarians.[5] As a result of the archaeological investigation we can now demonstrate that from the early first millennium BC the Garamantes had a significant focus on sedentary oasis cultivation, with numerous permanent villages created along a series of three parallel linear depressions that define the landscape

[1] On what I mean by the Trans-Saharan zone, see below. Some of the ideas in this introductory chapter build on an earlier unpublished synthesis paper delivered in 2009 at the Oxford Roman Economy Project conference, but the material has been significantly expanded and amplified as part of the Trans-SAHARA project research and as a result of the enlightening discussion at the workshop held in April 2014.

[2] Bovill 1968; Law 1967; Salama 1981. [3] Austen 2010; Swanson 1975.

[4] Ayoub 1967; Daniels 1968; 1970; 1971; 1989; Mattingly 2003; 2007; 2010; 2013a; Pace *et al.* 1951.

[5] Daniels 1970, 12–17; Desanges 1962, 93–96; Mattingly 2003, 79–81.

of Fazzan. Their agriculture and other technological achievements, as well as their material culture, mark them out as an advanced society. During the late 1990s and early 2000s, the Italian Mission to the Akakus and Wadi Tanzzuft also carried out detailed studies of settlements, cemeteries and rock art contemporary with the Garamantes in that area (*c.*400 km south-west of Jarma). They too discovered evidence of early development of oasis farming and settlements, though with fewer signs that the sites were fully engaged with trading networks.[6] This area seems to have been under Garamantian control of some sort, but the contrasts in the material culture suggest that its occupants may in fact have seen themselves as distinct from the Garamantes.[7] What this suggests is that the Garamantes were not alone as a Saharan society that engaged with oasis agriculture and some commerce.

The results of all these projects have demonstrated the considerable quantity and variety of goods circulating in the Sahara, from the Proto-Urban Garamantian period (500–1 BC) through the Classic Garamantian period (AD 1–400) and beyond.[8] In addition to many imports into the Garamantian heartlands of material that was made in the Mediterranean zone, there is some material that must have been sourced either elsewhere in the Sahara or in the Sub-Saharan zone. Setting aside for the moment questions of scale, what these discoveries have indicated is that the Trans-Saharan zone was more connected than has been previously realised or widely admitted (see below). This work has thus led to a revival of interest in the debate about the possibility of pre-Islamic Saharan and Trans-Saharan trade.[9] A number of recent studies have been devoted explicitly to the Garamantian trade.[10] While some scholars still hold onto the idea of the Sahara as an impermeable barrier to movement prior to the (supposed) increased use of the camel in Islamic times,[11] studies of traditional Saharan route-ways have highlighted the significance from early historic times of inland routes in the desert.[12]

A word of explanation is necessary about what I mean by 'Trans-Sahara' in this volume (Figure 1.1). When I speak of the Trans-Saharan zone, this relates to the hypothetical reach of contacts and networks encompassing all

[6] Liverani 2006; Mori 2013. [7] Mattingly 2013c.
[8] See Mattingly 2003; 2007; 2010; 2013a; Mattingly *et al.* 2007; 2008; 2009; 2010a/b; 2011b.
[9] Dowler and Galvin 2011; Guédon 2012; Mitchell 2005.
[10] Gatto and Mori 2012; Liverani 2000a; 2006; Mattingly 2002; 2011b; 2013b; forthcoming; Schörle 2012; Wilson 2012.
[11] Desanges (1999) seems to retreat somewhat from views expressed earlier (Desanges 1978; 1980); Ennabli 2004, 23: 'Contrairement à la mer qui a été vaincue par la navigation, le sahara qui sépare l'Afrique du nord de la partie sud a été un obstacle infranchisable.'
[12] Förster and Riemer 2013; Guédon 2010; 2012; Rebuffat 2004; Thiry 1995.

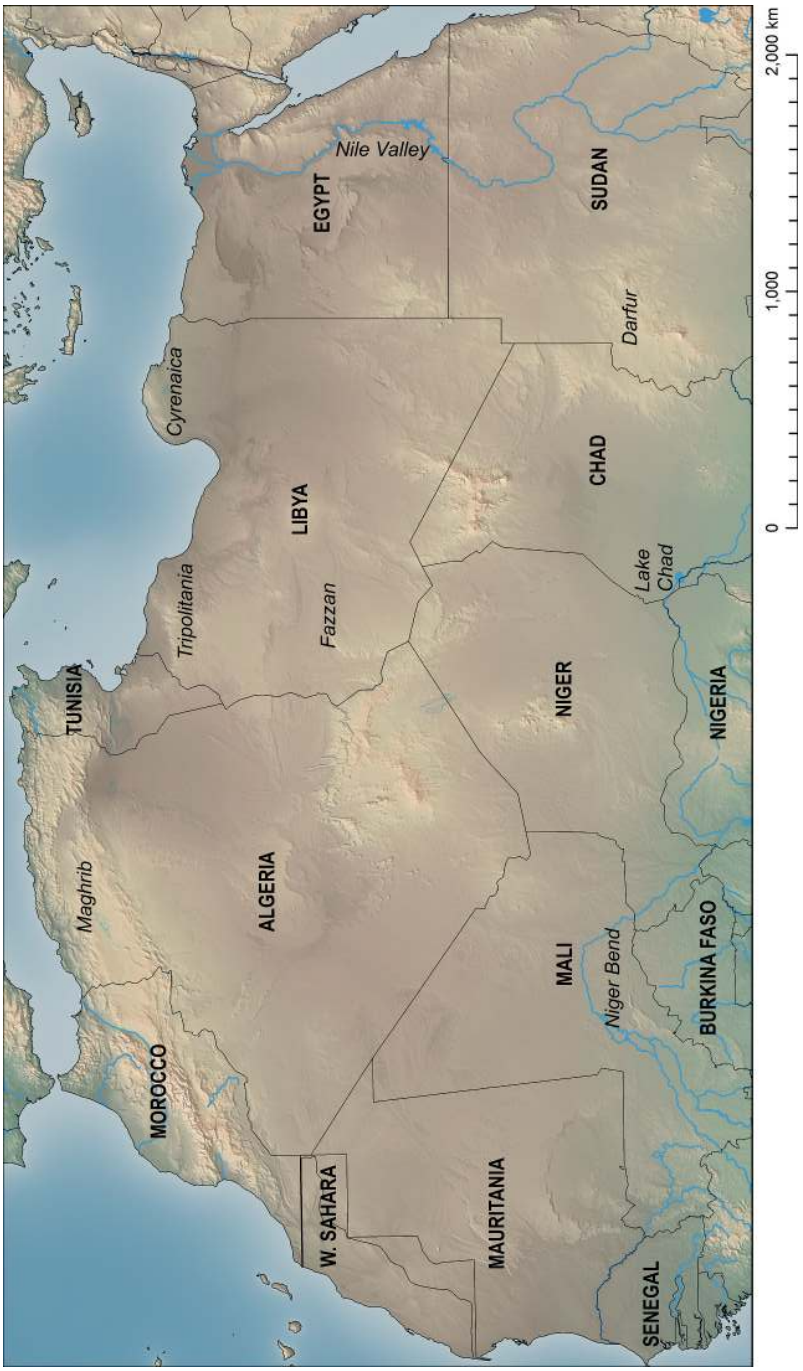

Figure 1.1 Map of the Trans-Saharan zone, showing names of modern countries and main regions.

parts of the Sahara, plus the Maghrib (broadly Morocco, Algeria and Tunisia), the Mediterranean parts of Libya (Tripolitania and Cyrenaica), the coastal region of Marmarica connecting Libya and Egypt, the Nile Valley down to Sudan and the Sub-Saharan regions and countries running from east to west (Darfur, Chad, Niger, Mali, Burkina Faso, Mauritania, Western Sahara, Senegal). More tenuously connected are further areas of the Horn of Africa, East Africa and the northern edge of the forest belt and the West African coastal countries. It is not my intention to imply that this vast zone was ever a coherent and fully networked unity – in the way it is possible to talk of the Mediterranean, say – but rather to present this as a geographical frame within which archaeologists and historians need to consider the potential for contact and trade to have taken place, linking peoples and cultures that were extremely distant from one another, albeit often via intermediaries.[13] That does not make these diverse peoples 'Trans-Saharans' in any meaningful sense, but I do feel that the real and latent connectivities of the Trans-Saharan zone in Antiquity should be an important starting point for future debate. Not all contributors to this volume share a common view of the idea of a Trans-Saharan zone; indeed, many of the chapters have a more regional focus. However, the key idea behind this volume was to bring together these regional specialists in a broader framework of debate, even if a consensus view on some issues remains elusive.

As will be readily apparent from what follows, tracking the movement of materials across the Trans-Saharan zone is extremely difficult, still more so demonstrating whether things travelled all the way intentionally, or more haphazardly as a sequence of smaller-scale trades and exchanges. At one level, most commerce in all periods has been 'Saharan' rather than 'Trans-Saharan',[14] but an essential issue in the current debate is to ask at what point in time the inter-regional contacts were sufficiently evolved to constitute a network that can be perceived as Trans-Saharan in overall reach and impact.

In the rest of this chapter I shall first present a more detailed introduction to the debate about Trans-Saharan trade and where the Garamantes fit into this picture. The final part will then preview in more detail the specific contributions of the chapters in each of the following sections of the book.

[13] On the Mediterranean, see Abulafia 2011; Broodbank 2013; Harris 2005; Horden and Purcell 2000.

[14] See Scheele, Chapter 2, this volume.

The Issue of Climate Change

At the outset, it is necessary to situate the discussion of the evolution of Saharan trade within the wider debate about climate change and the hyper-arid desert character of the Sahara. There is now broad scientific consensus that after alternating phases of aridity and higher rainfall during the prehistoric era, the last major climatic change occurred about 5,000 years ago.[15] From that point onwards the Sahara has been in a consistent hyper-arid phase, with scorching summer temperatures and minimal and unpredictable rainfall. Although there have been some minor fluctuations in rainfall since then, these must be understood to have been of greater effect in the mountain enclaves like the Tassili n'Ajjer than in the depressions, where subsequent oases have been based.[16] Some slight variability above a hyper-arid rainfall norm does not change the fundamental equations of sedentary life in a desert, though it may provide some additional (but localised and not easily predictable) grazing possibilities for pastoral groups. Oasis cultivation was not dependent on rainfall, but rather was tied to the availability of springs or a high-water table that could be mechanically exploited for irrigation. The nature of the desert conditions, broadly similar to today, is amply demonstrated by studies of vegetation patterns in Late Pastoral (Neolithic) and Garamantian or Roman periods. In the Late Pastoral era, the vegetation can be seen to reflect a change from a savannah to a more steppic landscape as rainfall diminished towards 3000 BC.[17] Both in the Central Sahara and in the northern pre-desert borderlands, the Garamantian era and Roman period–cultivated plants (a Mediterranean/Nilotic 'agricultural package') stand in sharp contrast to many of the weeds and wild plants, which were predominantly drought-resistant desert species.[18] There is some evidence that overall models of Saharan climate and environment disguise much local variation. We need to recognise the importance of certain environmental niches and the overriding significance of localised patterns of desertification.[19]

[15] See Barker *et al.* 1996, 291–302; Brooks *et al.* 2003, 37–74; Cremaschi 2001; Cremaschi and di Lernia 1998; Mattingly 2003, 327–46 for detailed discussions of climate change in the Sahara and fuller references.

[16] Cremaschi *et al.* 2006, for a dendrochronological study of doors from Ghat using wood sourced in the Tassili that seems to indicate a higher level of rainfall there.

[17] Mercuri 2008; cf also Mercuri *et al.* 1998, 107–24.

[18] For Fazzan, see Pelling 2013a, 478–86; Van der Veen and Westley 2010, 491–519; for the pre-desert region, see Van der Veen in Barker *et al.* 1996, 230–49.

[19] Barker and Gilbertson 2000; Cremaschi and Zerboni 2009; Kröpelin *et al.* 2008.

A separate, but highly significant, issue concerns the availability of groundwater for human communities. By and large the Saharan groundwater aquifers have been non-renewable since the end of the prehistoric pluvial phases. Lakes and springs have dried up over time, while wells have tended to get deeper and less regularly spaced along Saharan trails.[20] The story of the Sahara in the last 5,000 years has been generally one of people adapting to the challenges of exploiting a diminishing and increasingly elusive groundwater supply.[21] There has thus been a very close relation between the development of oases and trade. As will be explained in the next section, this has important implications for our understanding of the network of Saharan routes.

Along Desert Trails: A Saharan Network

The study of Saharan route-ways is more than a question of topography and hydrology. The Saharan climate and environment are implacable and unforgiving of novices or poorly prepared travellers. Navigating, without the benefit of GPS or even a good compass, in a landscape that is for long stretches almost featureless is challenging and literally a matter of life or death, since survival depends on the ability to relocate the few water points in the wastes. The trails are not well-developed 'roads' and in sand tracks are often covered over. Following routes and recognising landmarks are thus acts of memory and imagination, as much as intuitive progression along a natural corridor.[22] The mental maps of experienced desert guides have mostly far exceeded the capacity of physical maps available.[23] Shortage of water points and lack of grazing opportunities along them impose a further significant burden on travellers to carry water and fodder. While the environmental conditions of travel highlight the navigational skills of pastoral groups as key, the need for stockpiles of food and fodder and of well-developed water sources along the routes also highlights the symbiotic role of sedentary oasis communities.

[20] See Brooks *et al.* 2003, 71–74; Drake *et al.* 2004.
[21] Cremaschi and Zerboni 2009, with fuller discussion and bibliography.
[22] The significance of memory of ill-defined trackways cannot be underestimated and underlies much Saharan culture, in the same way that MacFarlane 2012 has shown the social significance of the 'old ways' in his classic study of Britain and beyond.
[23] I could cite numerous incidents from my own travels in the Sahara, where the navigational skills of Tuareg drivers lacking any technical aids have proved far superior at finding a lost route in extreme conditions.

The fully evolved network of Saharan trails was extremely complex and extensive. Different routes were of pre-eminent importance in various eras, making overall generalisations about the shape of this network difficult and potentially contentious. All the connecting lines on maps in this volume are to a greater or lesser extent hypothetical representations of a complex and changing pattern of desert trails. However, ancient Saharan trails were ultimately reliant on the existence of regular watering and feeding points along them, so unsurprisingly the underlying infrastructure comprised wells and oases that were developed wherever water was accessible. As will be argued at various points in this volume, there are good reasons to suppose an initial spread of oasis cultivation from east to west within the Sahara, though outside the Western Egyptian Desert and the Central Saharan heartlands of the Garamantes there are few data at present to chart the chronology of this process.[24] The question is of high importance since it involved far more than the opening up of trade along desert routes; movement in this environment was dependent on an adequate supply of pack animals (donkeys, horses/mules and camels) and supply depended on the spread of irrigation technology and an agricultural package to the incipient oases. While the location of the main Saharan centres changed over time, in many of these oasis clusters we can also trace a succession of pre-eminent sites. The eclipse of a prominent site did not necessarily herald the decline of the entire oasis and its network of contacts.[25] The principal oasis clusters of the Sahara, once established, have tended to have long-lived roles in Saharan trade. Likewise the locations of the main wells between oases have determined the favoured lines of travel between Sahara, Sahel, Mediterranean and Nile.[26]

Water was key to the establishment and maintenance of trails. Early colonial maps of the Sahara were often annotated with information about the depth at which water could be found and its quality. The hydrology of the Sahara is extremely complex, but a recurrent feature is for water to be found along particular division lines between major landforms, such as sand seas and mountains (the Wadi al-Ajal is a classic example of a linear depression sandwiched between sand sea and a steep escarpment; similarly the Tuwat oases run down the eastern edge of the Erg Iguidi). Rather as in mining of metals, once the existence of the seam is recognised, this will tend to be recurrently followed over time. The line of some routes was also

[24] Liverani 2006, 445–56; Mattingly 2003, 346–42.
[25] As is very evident in the story of Fazzan, after the decline of Jarma, see Mattingly 2013a, 525–44.
[26] Some key works on the overall Saharan networks include, Austen 2010; Bovill 1968; Devisse 1988; Förster and Riemer 2013; Lydon 2009, 49–99; Salama 1981; Thiry 1995; Wilson 2012.

dictated by the existence of natural resources that were quarried to provide key items for exchange, such as salt (as at Taghaza, Tawdenni and Bilma).

The desert terrain of the Sahara is highly varied, but some of its landforms are particularly challenging for traversing, notably the great sand seas and mountain ranges (Figure 1.2). Some routes have accordingly been channelled not only by water availability, but by the key mountain crossings (as in the Moroccan Atlas), or by the existence of corridors of good going in regions of difficult terrain (sand seas or boulder strewn plateaux). The harshest terrain, like the sand seas and the mountain massifs, was more commonly skirted than crossed. For good reasons then, routes have not always followed the most direct line. The size and composition of a caravan (camels or equids) could be significantly affected by the extent of waterless stages or shortage of grazing resources on particular routes. The existence within the Sahara of areas of cultivation or episodically higher vegetation levels has been another vital area of knowledge for those seeking to make long-range journeys across the desert spaces (Figure 1.3).

It is thus hazardous and inexact to depict Saharan trails on maps as though they were established as major highways. The historical geography of Saharan trails is in fact very complicated, with numerous variants on routes followed (contemporaneously as well as over time), depending on the shifting geopolitical realities as well as the natural limitations of travel across a hyper-arid zone. The map produced here (Figure 1.4) must thus be viewed as a palimpsest and an approximation, designed to locate the principal routes and sites discussed in this chapter. A great deal of local complexity has been removed for reasons of simplicity, but, as will emerge from the chapters in this book, the underlying network can be viewed as representing the latent potentiality of Sarahan connectness.

The archaeological evidence for the formation of oases within the Sahara has been neglected in past discussions.[27] Arguably the oldest Saharan oasis routes were those that linked Egypt with Nubia, Egypt with the Western Desert Oases and Nubia with Darfur (especially the so-called '40-day route').[28] The extension of the route leading west from Siwa, via al-Jaghbub, Awjila, to Fazzan, the Wadi Tanzzuft and plausibly onwards to the Niger far to the south-west appears to date to the late second/early first millennium BC.[29] A more southerly east to west route, starting at Dakhla or Kharga in the Western Desert, ran towards Kufra and then on towards Tibesti and Fazzan. Although this route appears to have been always

[27] This will be reviewed in much fuller detail in a later volume in this series.
[28] Förster and Riemer 2013. [29] Liverani 2006, 448–50.

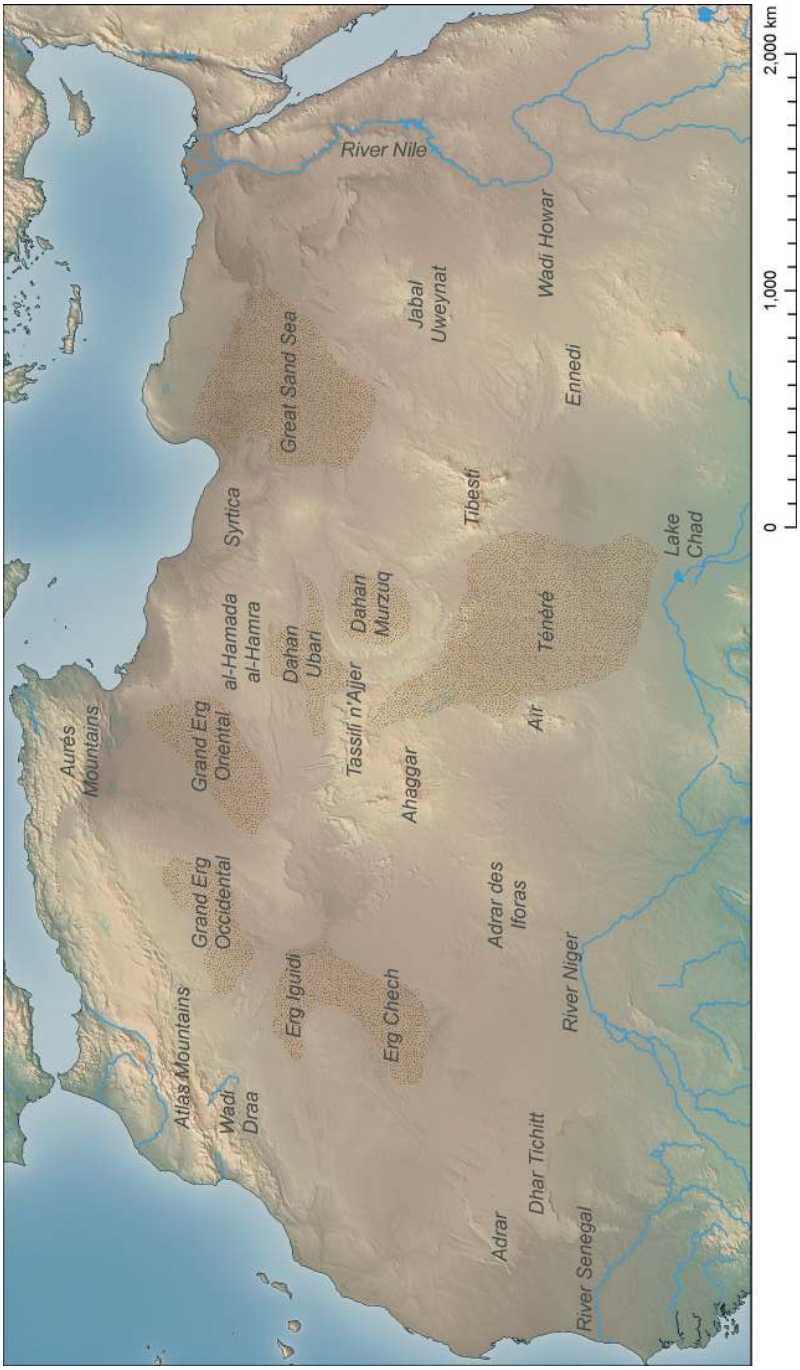

Figure 1.2 Map of the major landforms (massifs and sand seas) in the Sahara.

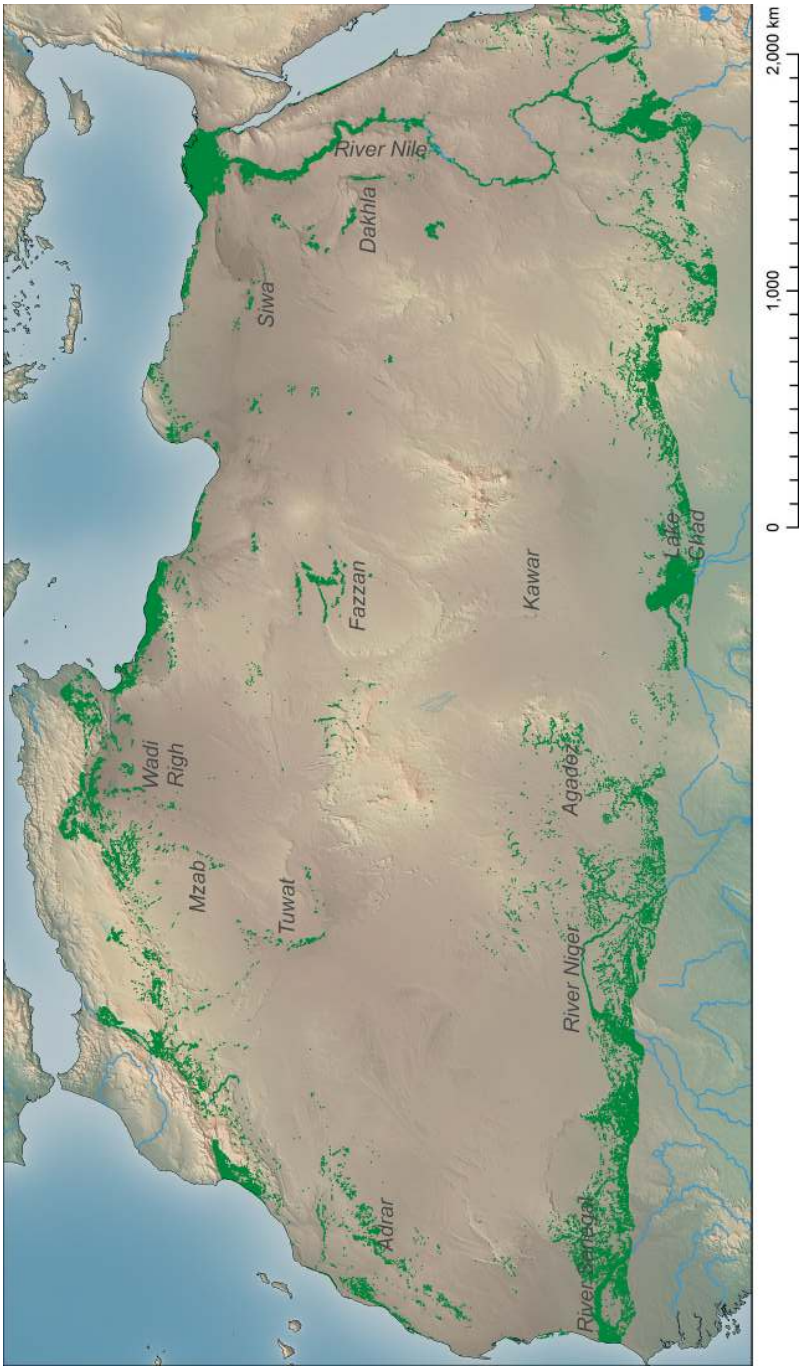

Figure 1.3 Map of the principal oasis groups and areas of modern vegetation (as identified from a MODIS NDVI) in hyper-arid and arid areas of the Sahara.