



Cryptic Anthropogenic Thicket Patches

vegetation surviving in association with prehistoric habitation and presence sites

RHODES UNIVERSITY
Where leaders learn



Cryptic

- Having hidden meaning; mystifying
- Of an obscure nature
- Secret
- Tending to conceal or camouflage
- Synonyms = ambiguous, puzzling

R M Cowling & S Proches – "Patterns and evolution of plant diversity in the Cape Floristic Region"

An even earlier diversification is reflected in the thicket and forest flora of the Cape, ***seldom referred to****, yet comprising both ancient and speciose groups.*

The use of the term "Forest" often renders what is actually "Thicket" Invisible. There is a certain mystery and romance about "forest" which has captivated both scientists and public - there are many medicinal, food, and useful plants in thicket, far fewer in Forest! There is also the idea that fynbos being richly diverse in species is therefore rich in medicinal and food plants, this is simply not true.

Anthropogenic

- Caused or influenced by humans
- Created by people or a result of human activity

Review by D Pearsall of "Phytoarchaeology" by *R R. Brooks* & *D Johannes*
An observation made by Robert R. Brooks after looking at two archeological sites located thousands of kilometers apart - that vegetation growing on the sites differed dramatically from that of the surrounding terrain - led him and Dieter Johannes to begin investigating the relationship between vegetation and archeology.

G W Dimbleby – "Plants and Archaeology"

- *In recent years there has been a spate of books on archaeology - - - but hardly ever do they reveal any interest in the landscape in which man was living; still less do they reveal any awareness that man was inevitably modifying that landscape.*
- *He (man) had the power to modify his environment, and it would soon have been apparent to him that in doing so he could favour some of the wild species which were important to him as items of food.*
- *Geologically two million years is but yesterday, and the plants on the earth were very much the same as they are today; taxonomically, that is, not in distribution.*

Thicket

- Dense growth of small trees or bushes

Synonyms: Brush; Forest; Grove; Bush; Hedge; Woods; Bower; Copse; Coppice;

Encyclopedia Britannica
Thicket - a dense grove of small trees or shrubs that have grown from suckers or sprouts rather than from seed. A coppice usually results from human woodcutting activity and may be maintained by continually cutting new growth as it reaches usable size

Mucina & Rutherford – "Vegetation of South Africa, Lesotho and Swaziland"
The fynbos thickets have never been the subject of an exclusive enquiry. - - Due to the very limited extent of patches of fynbos thicket and virtually no floristic data - - this type was not mapped.

***Cowling & Holmes** – used the term 'Western Thicket' for this vegetation type.*

This type matches my 'anthropogenic thicket', much closer than any other veg type.

Imithi Amayeza Project – use of traditional plants by modern communities

Transkei

George Diabetes clinic

George Thembalethu Clinic

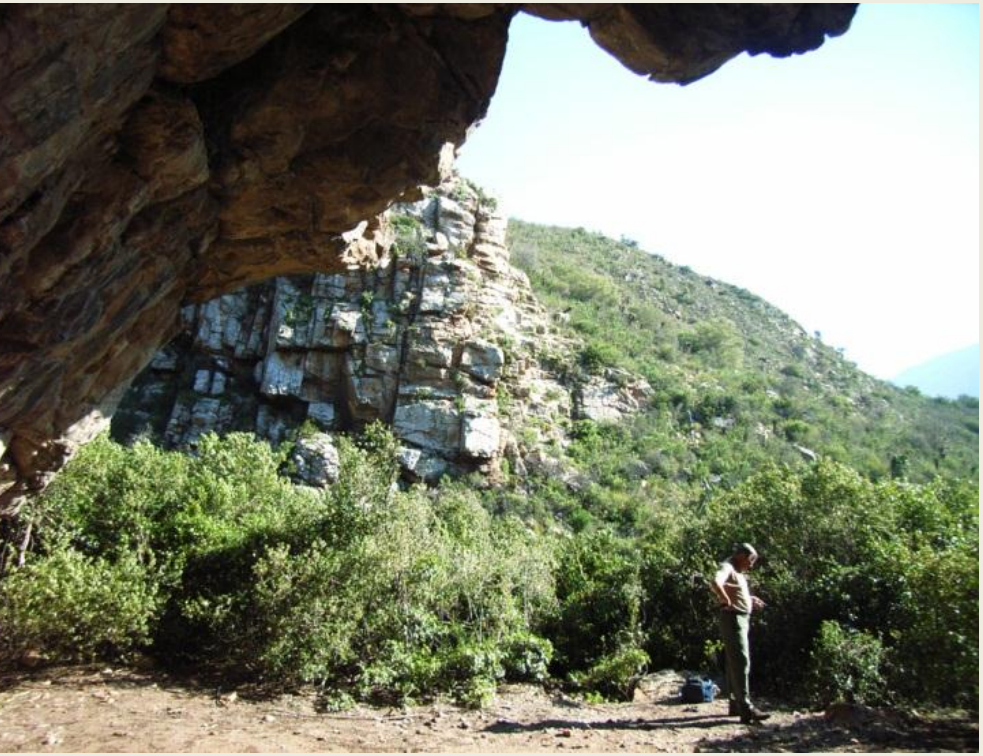
Touwsranten community Hoekwil

Protea and Erica hunting – spot the thicket & the overhang!

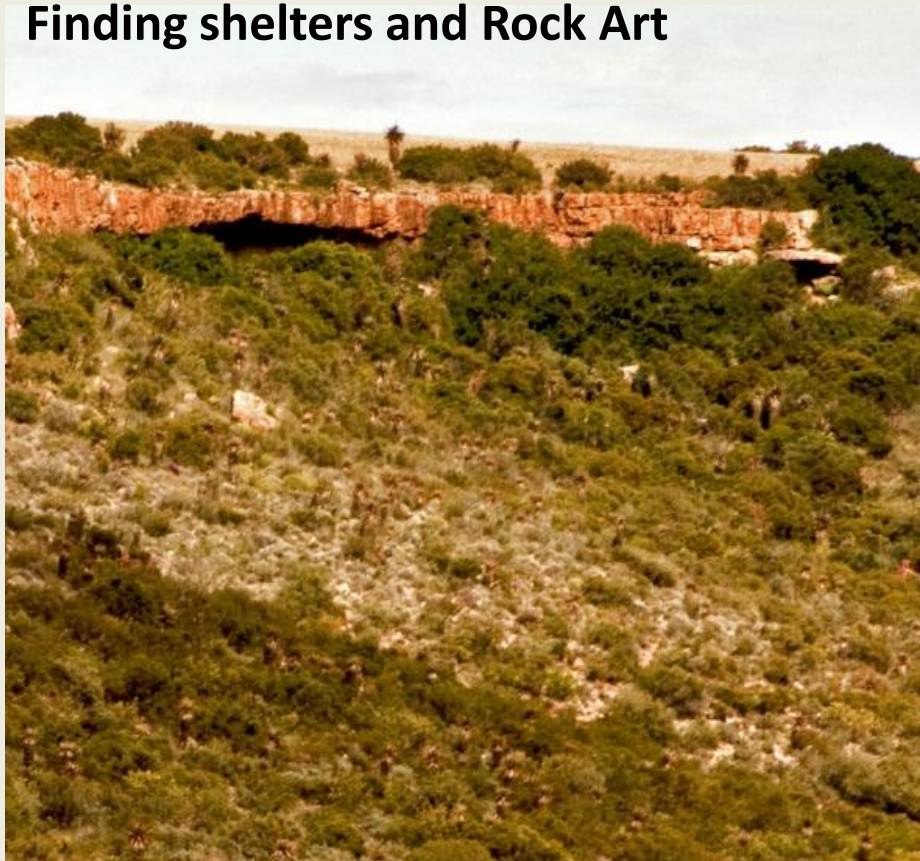
Zebra - Outeniquas

Doringrivier - Outeniquas

Besemfontein - Swartberg

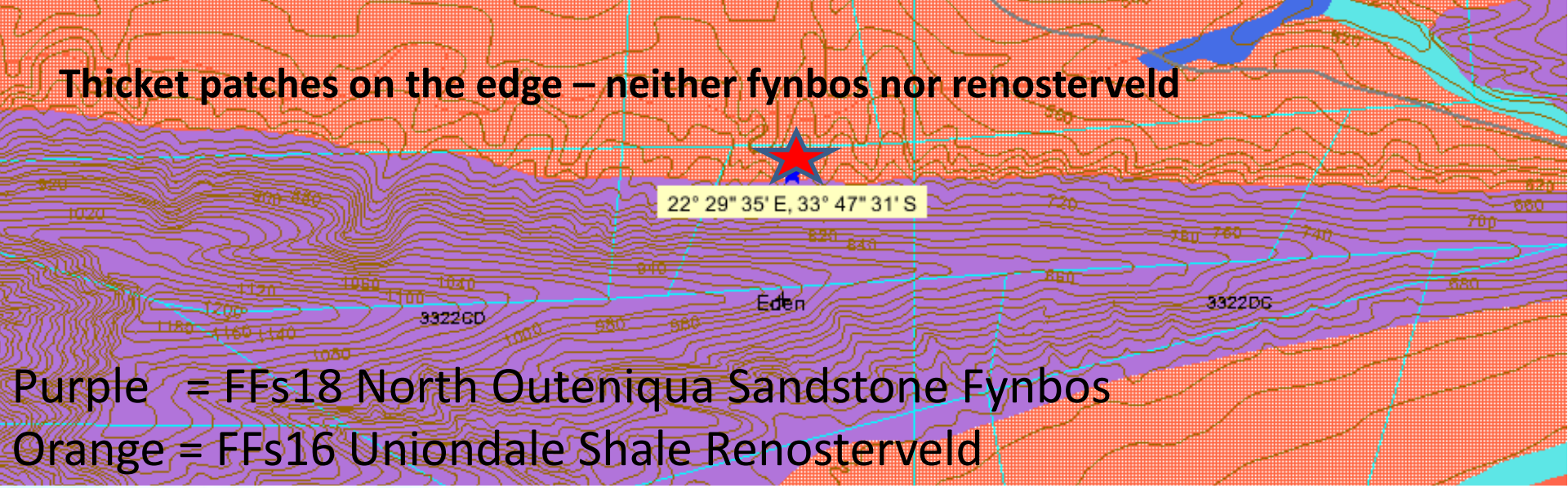


Finding shelters and Rock Art



Heimersrivier; Baviaanskloof; Langkloof; Zebra;

Thicket patches on the edge – neither fynbos nor renosterveld



Purple = FFs18 North Outeniqua Sandstone Fynbos

Orange = FFs16 Uniondale Shale Renosterveld

Yellow Lion site

Genera most frequently present in anthropogenic thicket patches

Anthropogenic Thicket Genera –
Diospyros (Royena); Osyris (Santalum); Lycium (Wolfberry); Olea; Ficus; Dioscorea; Euphorbia (Phyllanthus); Rhus (Searsia); Asparagus; Aloe; Buddleja; Grewia; Cussonia; Maytenus;

International Weeds – the earliest global travellers – HOW & WHEN?
Ricinus communis; Chenopodium spp; Urtica urens; Stellaria media; Phytolacca octandra; ?Achyranthes aspera; ?Solanum nigrum;

ALL are useful food and/or medicinal plants occurring in Africa, and used globally, along early man's migration routes and at present wherever the hunter-gatherer lifestyle persists (excepting in central and northern Western Europe)

Most common Families used by present-day hunter-gatherers Worldwide, as well as descendants of Khoisan in South Africa. Anacardiaceae; Ebenaceae; Solanaceae; Boraginaceae; Chenopodiaceae; Asteraceae; Euphorbiaceae; Lamiaceae;

Very few endemics – often problematic taxonomically ie. very large and variable Genera – yet still cryptic and seldom mentioned in vegetation surveys or studies – WHY?

Fruits & seeds

Leafy greens

Asparagus setaceus

Atriplex semibaccata

Carissa haematocarpa

Carissa bispinosa

Carpobrotus sp.

Rhamnus prinoides

Osyris compressa

Euclea undulata

Diospyros villosa

Olea europaea sbsp. africana

Solanum nigrum

Solanum retroflexum

Abutilon sonneriatum

Tetragonia decumbens

Achyranthes aspera

Chenopodium album

Exomis microphylla

Sisymbrium capense

Medicine & poison

Solanum tomentosum

Withania somnifera

Acokanthera oppositifolia

Roots & Tubers

Drimia sp.

Asparagus sp.

Asparagus sp.

Kedrostis nana

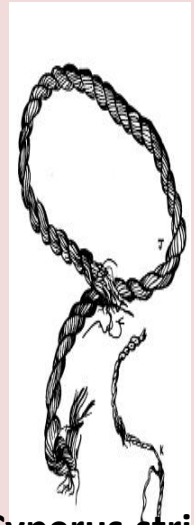
Chlorophytum comosum

Rhoicissus digitata

Rope & cordage

Acacia karoo

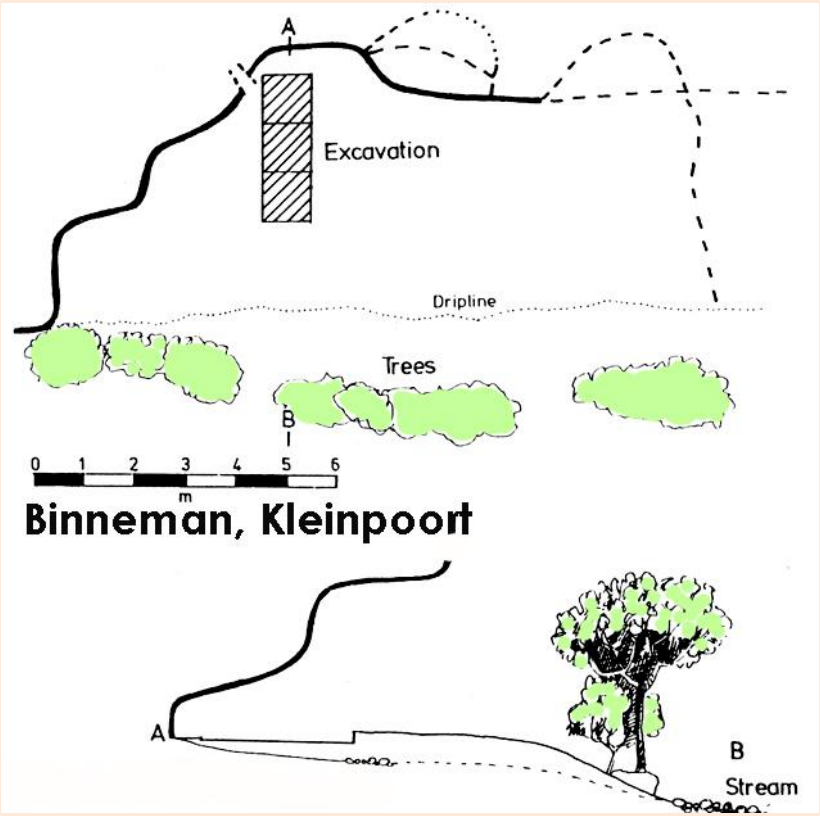
Fishing net

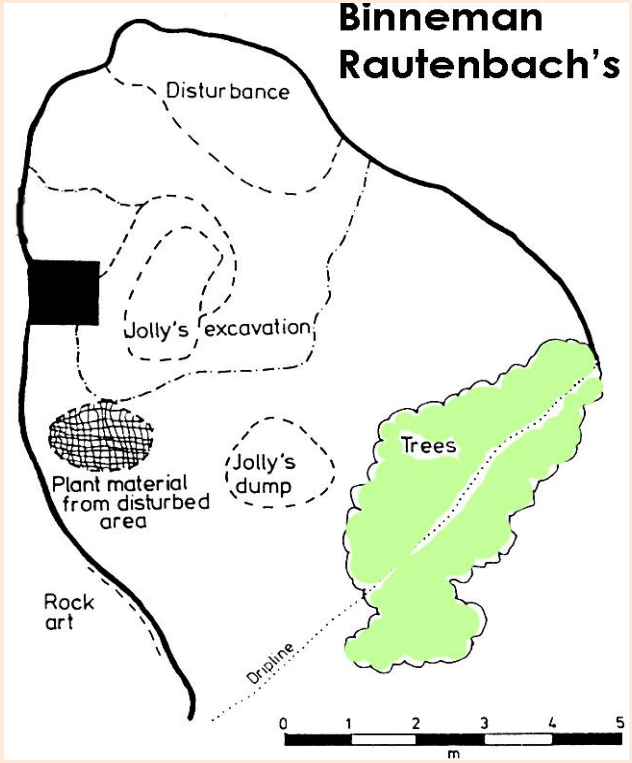


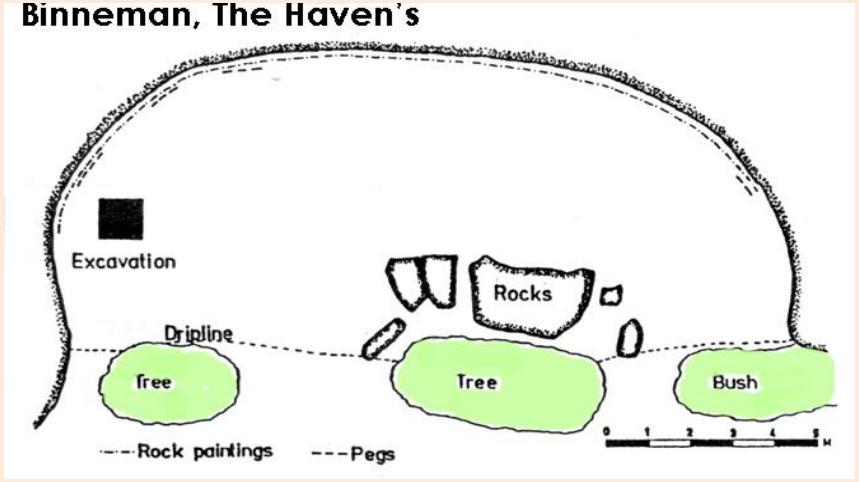
Cyperus string

Trapping net

The landscape and plants are integral to understanding sites and life-ways, but are largely ignored. Sites are described as if in a vacuum. Macrobotanicals are only recently being collected and studied. Exceptions show typical wall of vegetation And some even list plants found in strata of excavations.





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4
5
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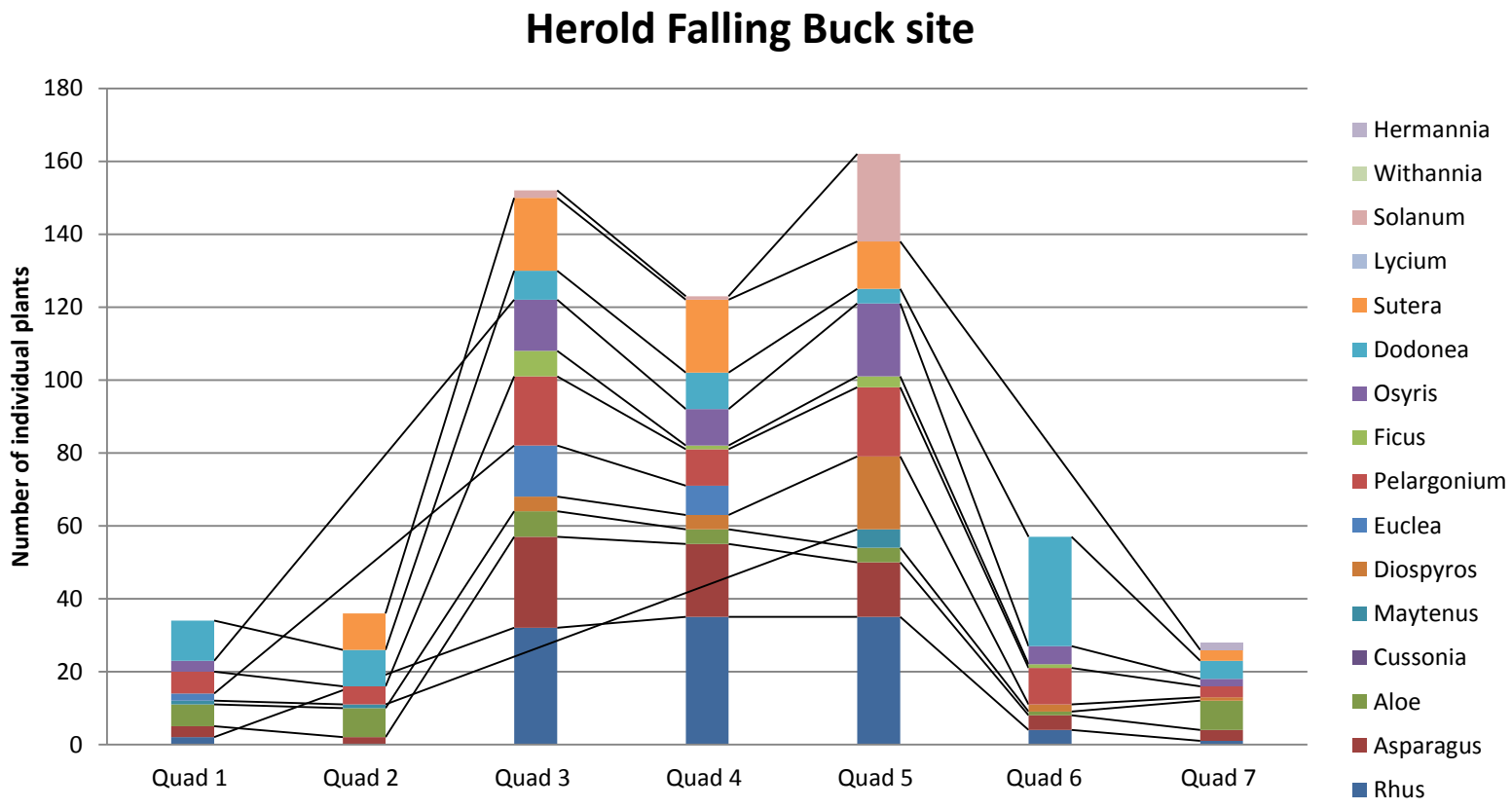
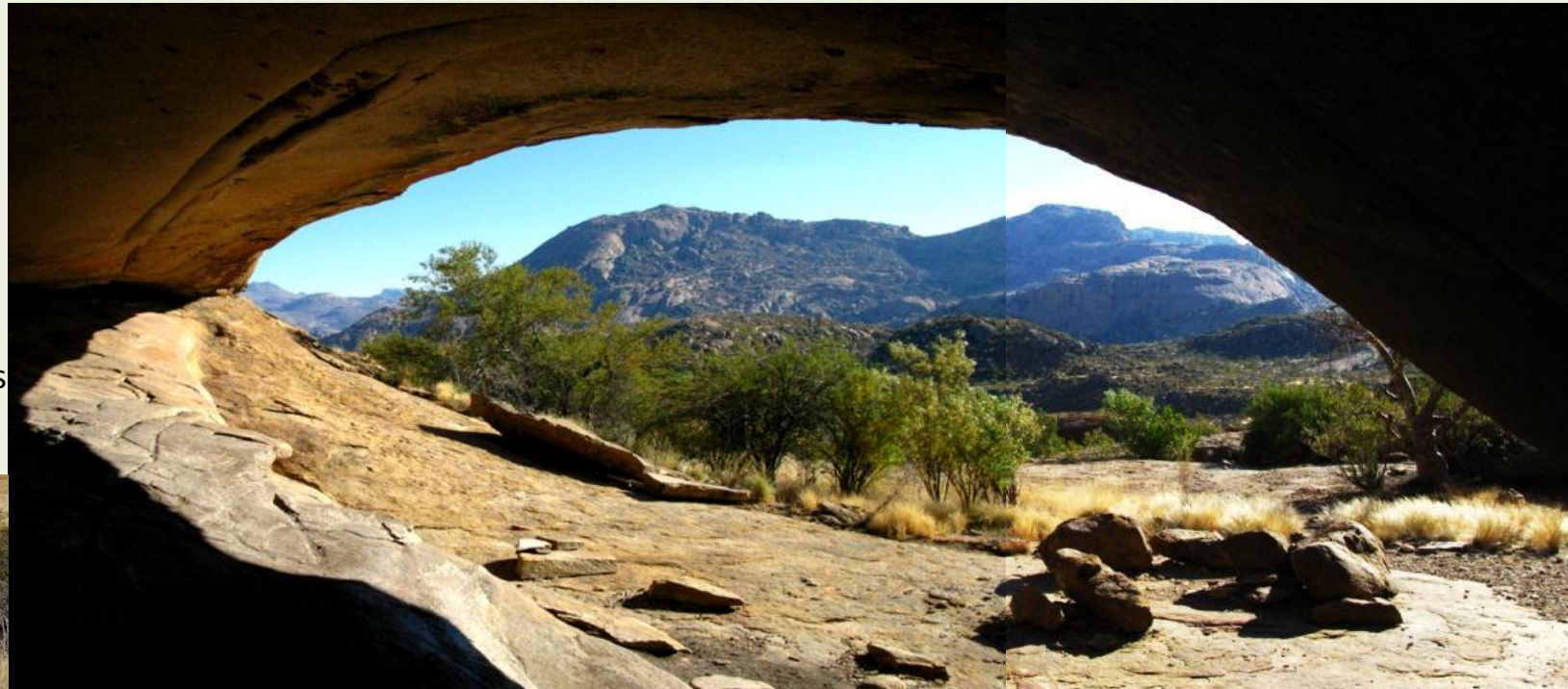
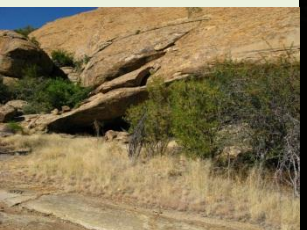
7

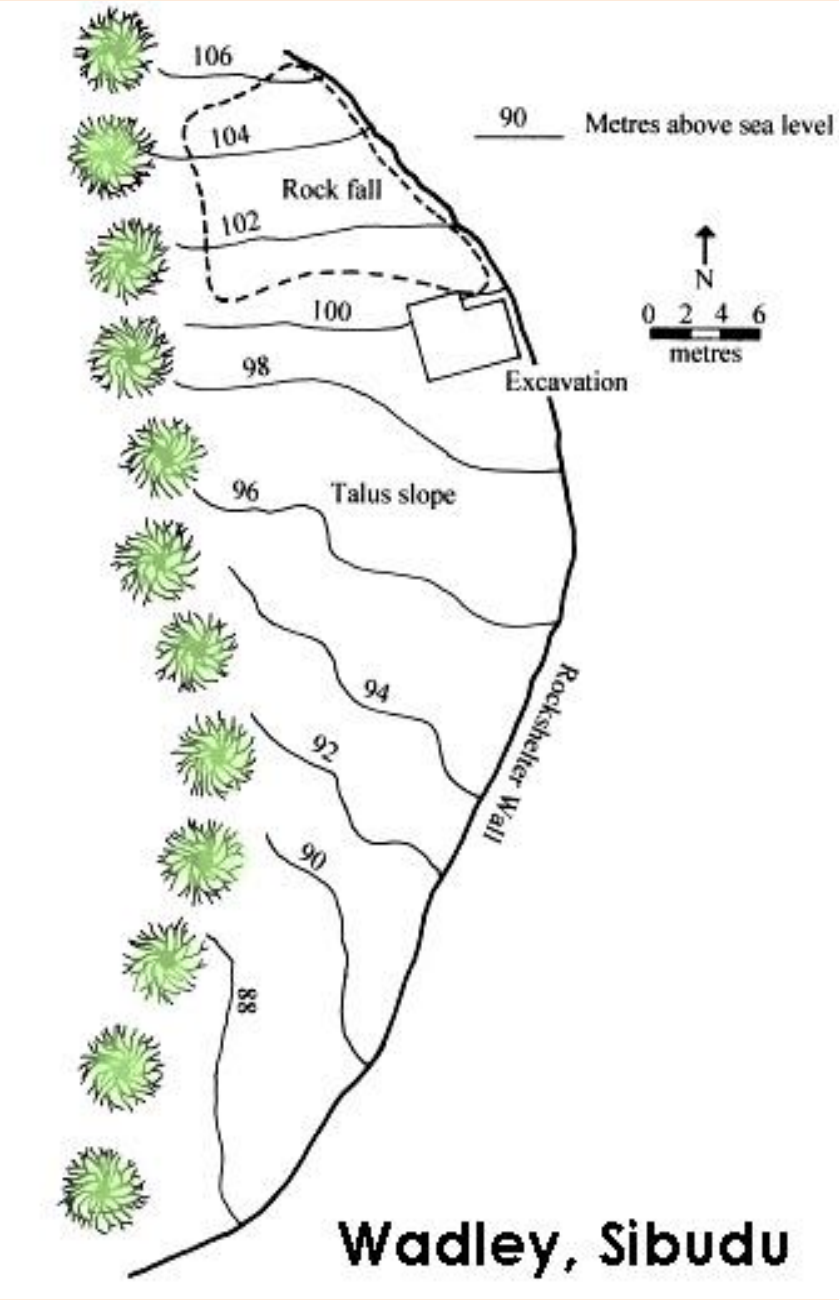

Herold Falling Buck site
Number of individual plants
180
160
140
120
100
80
60
40
20
0
Quad 1
Quad 2
Quad 3
Quad 4
Quad 5
Quad 6
Quad 7
Hermannia
Withannia
Solanum
Lycium
Sutera
Dodonea
Osyris
Ficus
Pelargonium
Euclea
Diospyros
Maytenus
Cussonia
Aloe
Asparagus
Rhus

Above:
Eastern Freestate

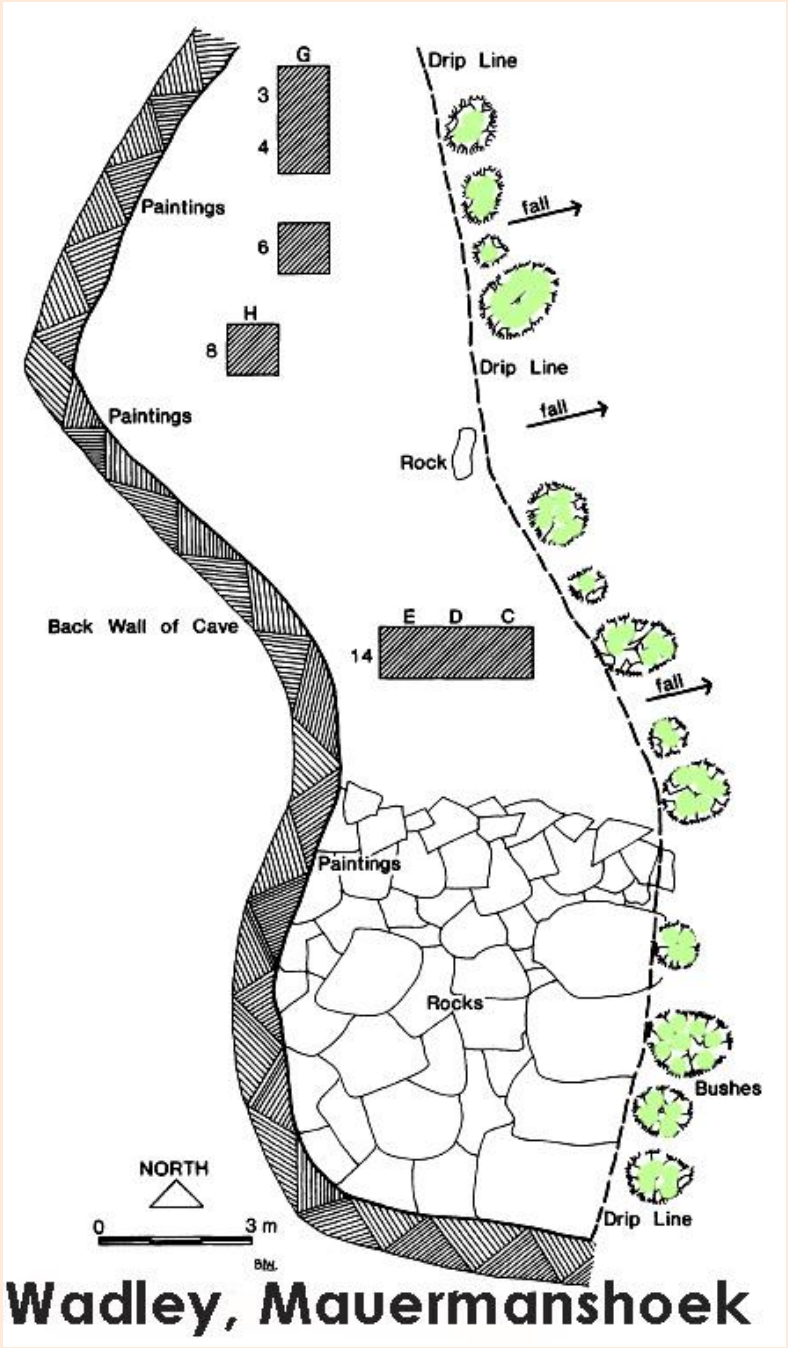


Right & below:
Erongo Mountains
Namibia





Wadley, Sibudu



Wadley, Mauermanshoek

Defining habitation and presence sites

It seemed at first that thicket communities found at habitation and presence sites would be easy to isolate. Promising sites can often be identified from afar by the dark, dense vegetation patches against a cliff or hillside.

But – as more and more habitation sites were found, often in clusters, and not more than a couple of km from the next site – plus scattered (anthropogenic) thicket species & artefacts between them, it became clear that the southern Cape had been thoroughly 'known' over the thousands of years that hunter-gatherers had roamed and lived there.

Much reading, research and visits to other areas, showed that this was the case everywhere. Archaeological surveys from EIA's are extremely valuable here, documenting and illustrating data not captured anywhere else.

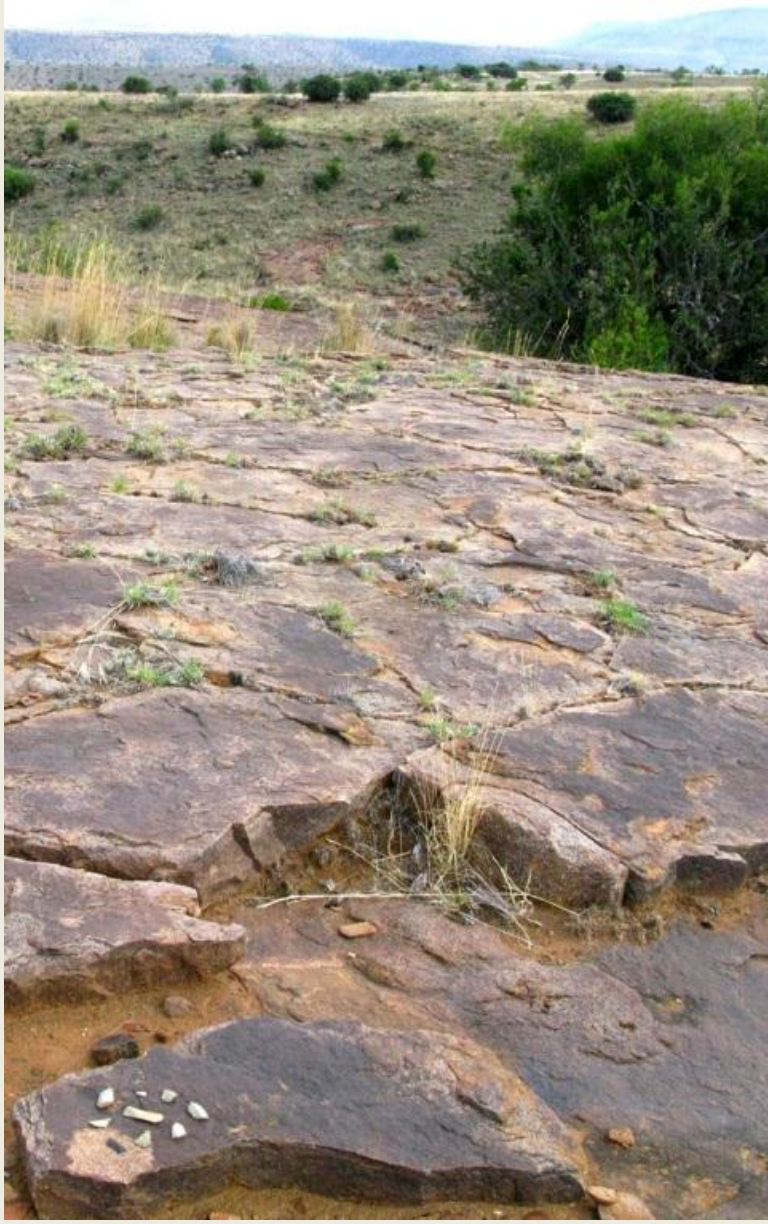
The landscape of Africa has been intimately inhabited by pre- and early-homo species for at least 2 million years. The Bushmen (San) gathered and hunted in Southern Africa for at least 10,000 years, probably much longer.

NB - The 'Coloureds' as defined under apartheid, largely retain their Khoisan genes as well as indigenous knowledge, plus ancient folklore and culture. NB - IMITHI Amayeza.

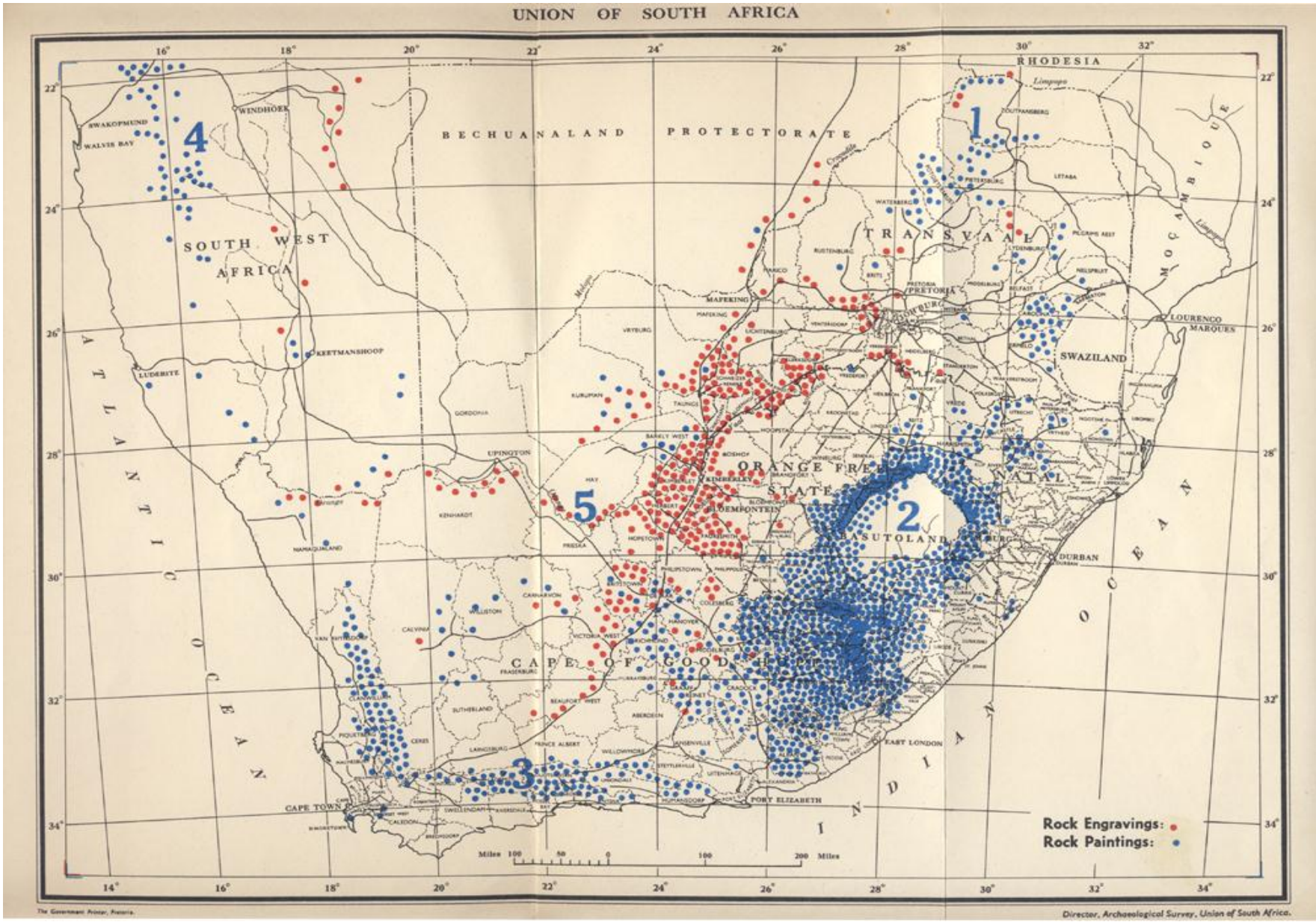
Heimersrivier Sites

Habitation =

Pottery, Paintings
Tools and cores
Sea shells
Ostrich eggshell
Honey ladders
Grinding stones
Bedding, ochre



Presence = Stone tools, flake & core scatters, paintings, pits, petroglyphs, burials, stone walls, pottery,



C van Riet Lowe, 'Archaeological Survey; The Distribution of Prehistoric Rock Engravings & Paintings in South Africa' (published 1958)

How humans “modified” the landscape they foraged over and inhabited over time

Chemical changes in the soil

Detritus; sanitation; ash; bedding; = more humus; nitrates; altered Ph; = thicket niches

Use of intentional Fire

Firebreaks near habitation; new grass for game; encourage geophytes; safety from predators; cooking food; = more grassland; less forest; = thicket niches;

Collection & distribution of plants

Food = leaves, fruit, seed, bark, roots; green wall protection; bedding; preservation of food; firewood and tinder; construction; jewelery/decoration; ritual; cordage; = accumulation and excretion of seed; selection; densifying of useful plants; = thicket niches;

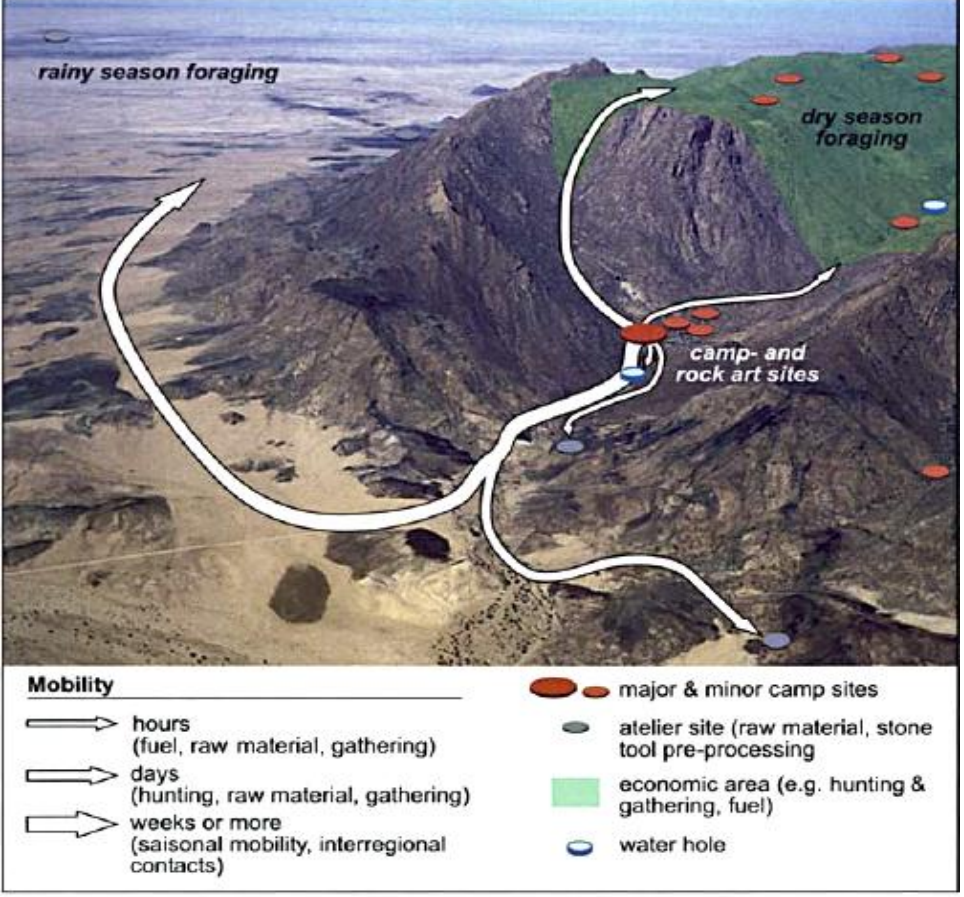


Figure 6.10. A section of the Later Stone Age Brandberg/Daureb landscape indicating resources and reconstructing the use patterns in a schematic representation. Note that the ecotope did not undergo a change comparable to that of the Sahara (Photo: courtesy of H. Mooser) (*See also Color Plates*)

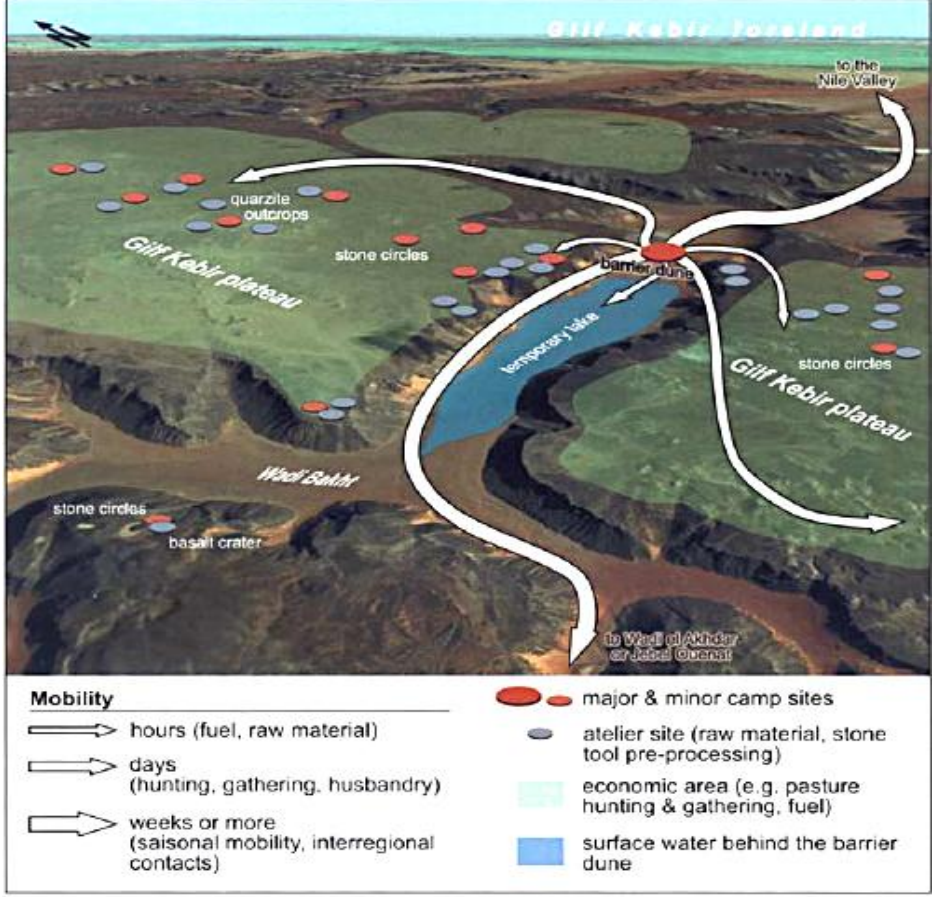


Figure 6.9. Reconstruction of the Wadi Bakht landscape focusing on resources and use patterns during the phase Gilf B (c. 6500–4500 bce) (*See also Color Plates*)

Tilman Lenssen-Erz & Jorg Linstadter – "Resources, Use Potential, Basic Needs; A Methodological framework for Landscape Archaeology

+

Lewis R Binford – " Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation **"**

Did hominids follow the plants they needed? Did plants follow the hominids who used them?

Ancient and modern Migration routes are surprisingly similar for plants and hominids

From Australopithicus to Homo sapiens, hominids have created enriched & protected ecological niches that favour anthropogenic thicket. Pollen research by Bonnefille shows that at 2 million yrs bp the plant communities growing at the earliest hominid Fossil sites in the East African Rift Valley included so many of the same genera as the sites I visit today, that it cannot be simply ascribed to chance or coincidence.

The Cape to Cairo floristic highway - Vincent R. Clark, Nigel Barker & Laco Mucina

Globally, the same genera can be found in ethnobotanical lists for almost every group of “indigenous people” following even a rudimentary gathering & hunting way of life (excepting Western Europe).

Genera is the terminal classification in “Traditional or Indigenous Taxonomies” – chemical properties and thus “uses” follow genera, seldom differ at species level.

Quezel – Plant migrations

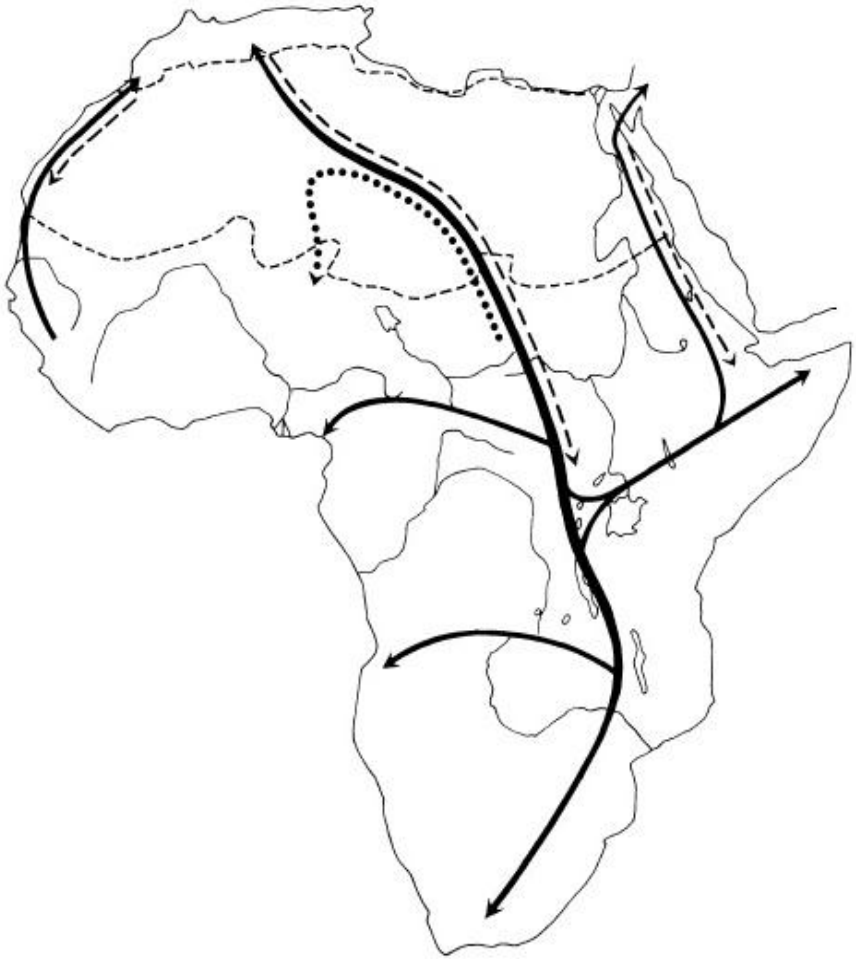


FIGURE 11. Migration routes in Africa (Pliocene and Pleistocene). Heavy dark arrow: tropical elements; dotted arrow: Southern Saharan orophilic elements; dashed arrow: Mediterranean elements.

Barham & Mitchell – "The First Africans"

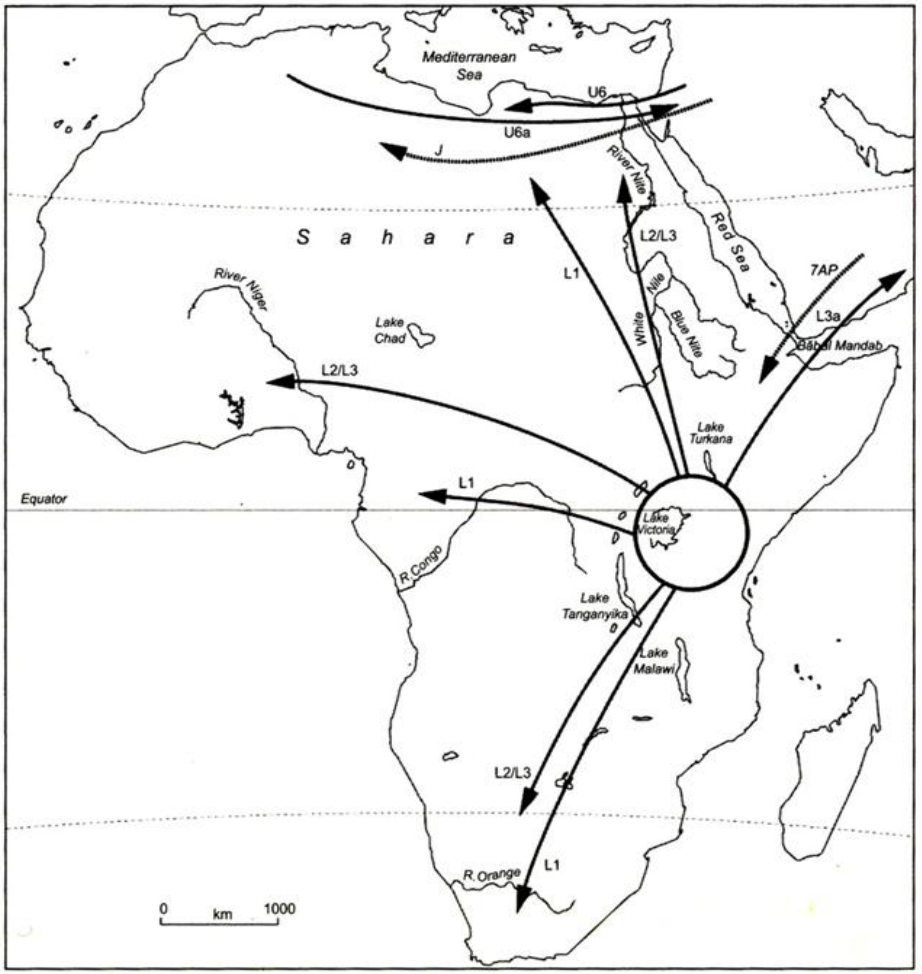
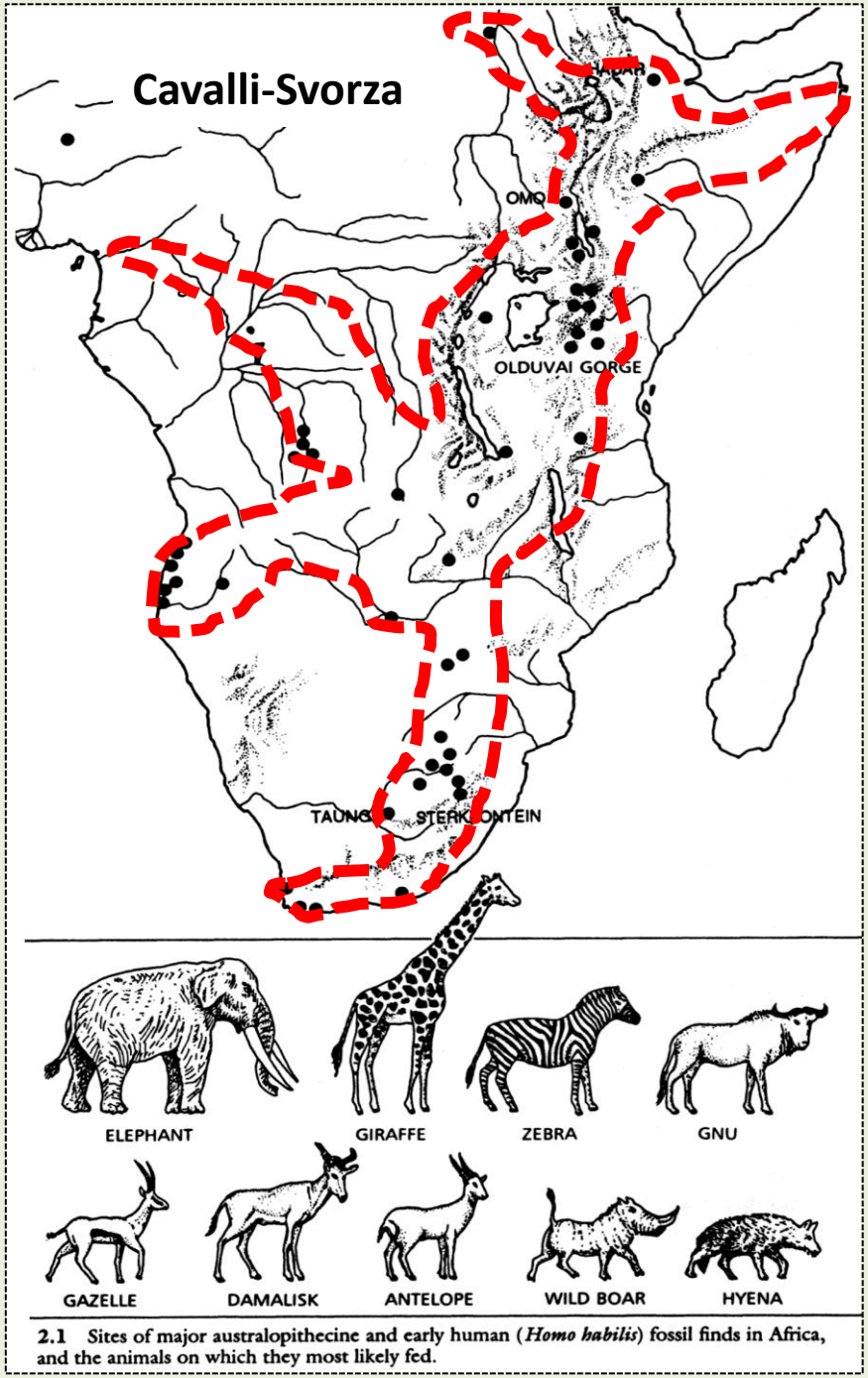


Figure 7.9. Africa, illustrating the genetic evidence for movements in and out of the continent during MIS 4 and 3 (after Watson *et al.* 1997; Maca-Meyer *et al.* 2003; Forster 2004; S. Oppenheimer 2004). Mitochondrial lineages are indicated in normal typeface; Y-chromosome lineages, in italics. For estimated dates and further information, please see the references and main text. Directions of movement indicated were not contemporary and are only schematically indicated here.



2.1 Sites of major australopithecine and early human (*Homo habilis*) fossil finds in Africa, and the animals on which they most likely fed.

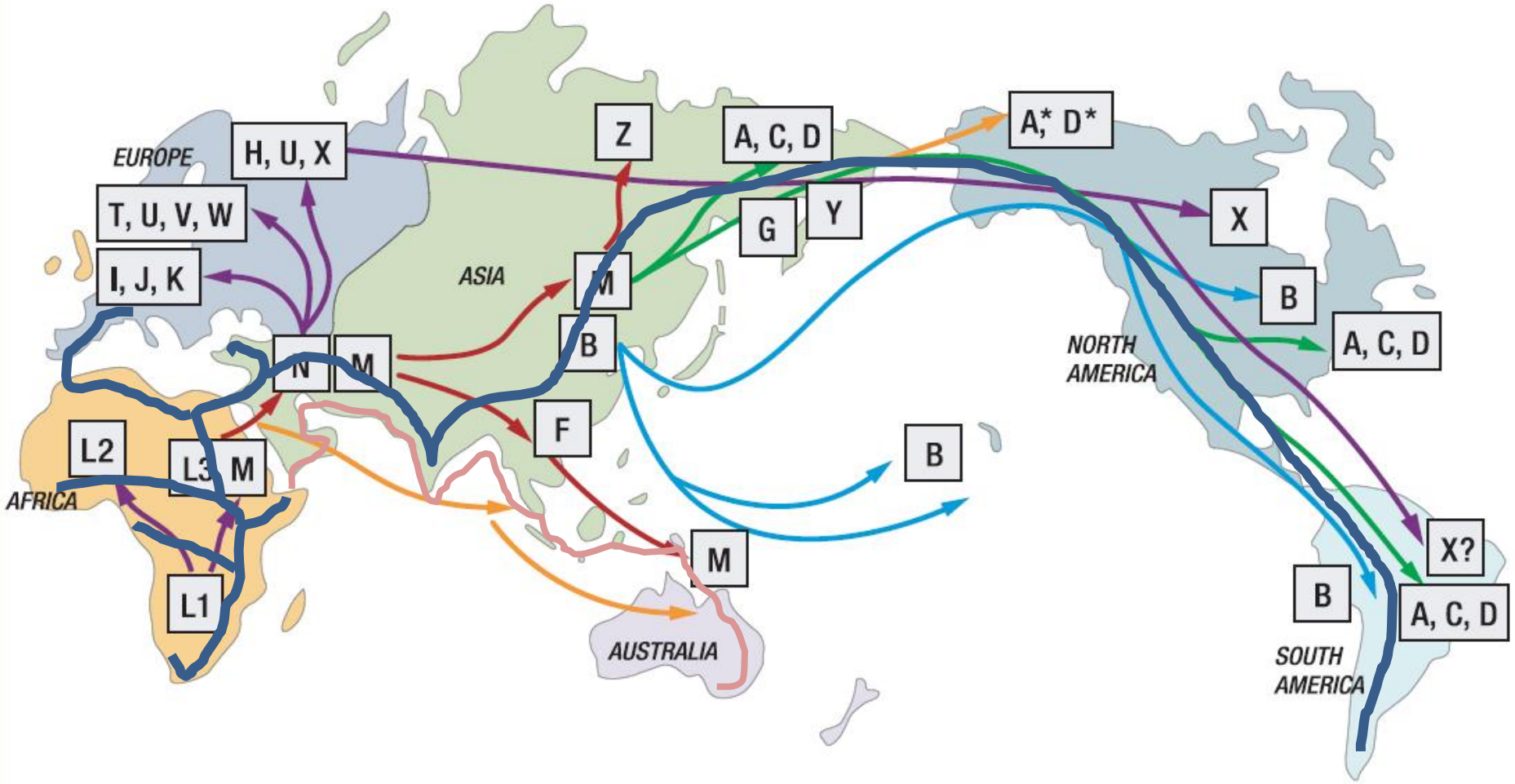
Peter C. Mancall – "Observing More Things and More Curiously"

Once Europeans developed a passion for travel it could not be contained.

BUT they were not alone. Indians travelled frequently to Britain; Arabs travelled across Christendom; Native Americans went in large numbers eastward across the Atlantic Ocean.

The Moghul Babur left Tajikistan and moved westward, founded the Mughal Empire, and left a remarkable account known as The Baburnama - a sharp rebuke to anyone who continues to believe that only Europeans had an age of discovery.

Early humans travelled far further and more extensively than Western European history books ever lead us to believe!



EXPANSION TIMES *(years ago)*	
Africa	120,000 - 150,000
Out of Africa	55,000 - 75,000
Asia	40,000 - 70,000
Australia/PNG	40,000 - 60,000
Europe	35,000 - 50,000
Americas	15,000 - 35,000
Na-Dene/Esk/Aleuts	8,000 - 10,000

FamilyTreeDNA

mtDNA Migrations Map

Climate, Geology, Solar energy, natural forces largely determine what plants grow where.

BUT - We overlook niche construction, migration routes and resource use by early and later hominids and their effect on plant and animal distribution.

- **Niche construction is inherent in all animals, they manipulate landscape.**
- **Animals, especially humans, transport things / plants – either intentionally or accidentally (= manuports).**
- **Hominids ancient and modern were/are always dependent on plants for survival.**
- **Immigrants took/take familiar useful plants to grow where they temporarily or permanently settle.**
- **Travellers gather & carry fruit, seed, grain and roots, as food on the journey or to plant later. Domestication started long before 10,000 bp.**
- **We hunt/farm/eat animals - but animals are dependent on plants.**
- **Plants, culture, & knowledge often travel independently or osmotically.**

Last thoughts

D E. Moerman & G F. Estabrook - The botanist effect: counties with maximal species richness tend to be home to universities and botanists *- - botanical activity occurs disproportionately in the vicinity of universities or Institutions where trained botanists are employed. Thus plant species richness is, at least to some degree, a function of the location of botanists.*

C O Sauer 1941 - Introduction to "Phytogeography" - *the archaeologist must rely on workers in other disciplines - geologist, palaeontologist, ecologist, palaeobotanist, soil chemist, geographer, to mention but a few. It is fully apparent that unless there is teamwork with other disciplines, we cannot hope to extract a fraction of the evidence that in many instances our sites could yield.* (+ Palaeoethnobotanist etc. etc.)

For centuries, we have debated what it is that sets humankind apart from animals. Is it the ability to make tools? To walk upright? To reason? To laugh? To create art? To perpetuate evil? All of these are true, some more than others, but the one characteristic that sets man clearly apart is his obsession with his origins.

The West and the Rest!

This was, when you come to think of it, the original affluent society. By common understanding an affluent society is one in which all the people's wants are easily satisfied ….but wants are easily 'satisfied' either by producing much or desiring little, and there are, accordingly, two possible roads to affluence.

Sahlins rooted the Zen concept of 'want not, lack not' in the mobility of hunter-gatherers - most groups carry with them all their material possessions, which must thus be kept to a minimum - In a word, 'mobility and property are in contradiction'

Peter Rowley-Conwy "Time, change and the archaeology of hunter-gatherers: how original is the Original Affluent Society?" - referring to the phrase used in "Man the Hunter" by Lee and DeVore 1968, and by Marshall Sahlins to describe hunter-gatherers.

Nancy Makepeace Tanner "On becoming human"

..... Ideas of economic, political, and cultural "progress" and "development" (often joined with biological racism), in which the white men of western Europe imagined themselves at the apex of "progressive social evolution", arose after the West's "discovery" of the rest of the world and were still current in Darwin's era. ***....***