

Planting an Idea at Klasies

Objective

To establish links between People, Plants and Place, from the distant past to the present, at Klasies River

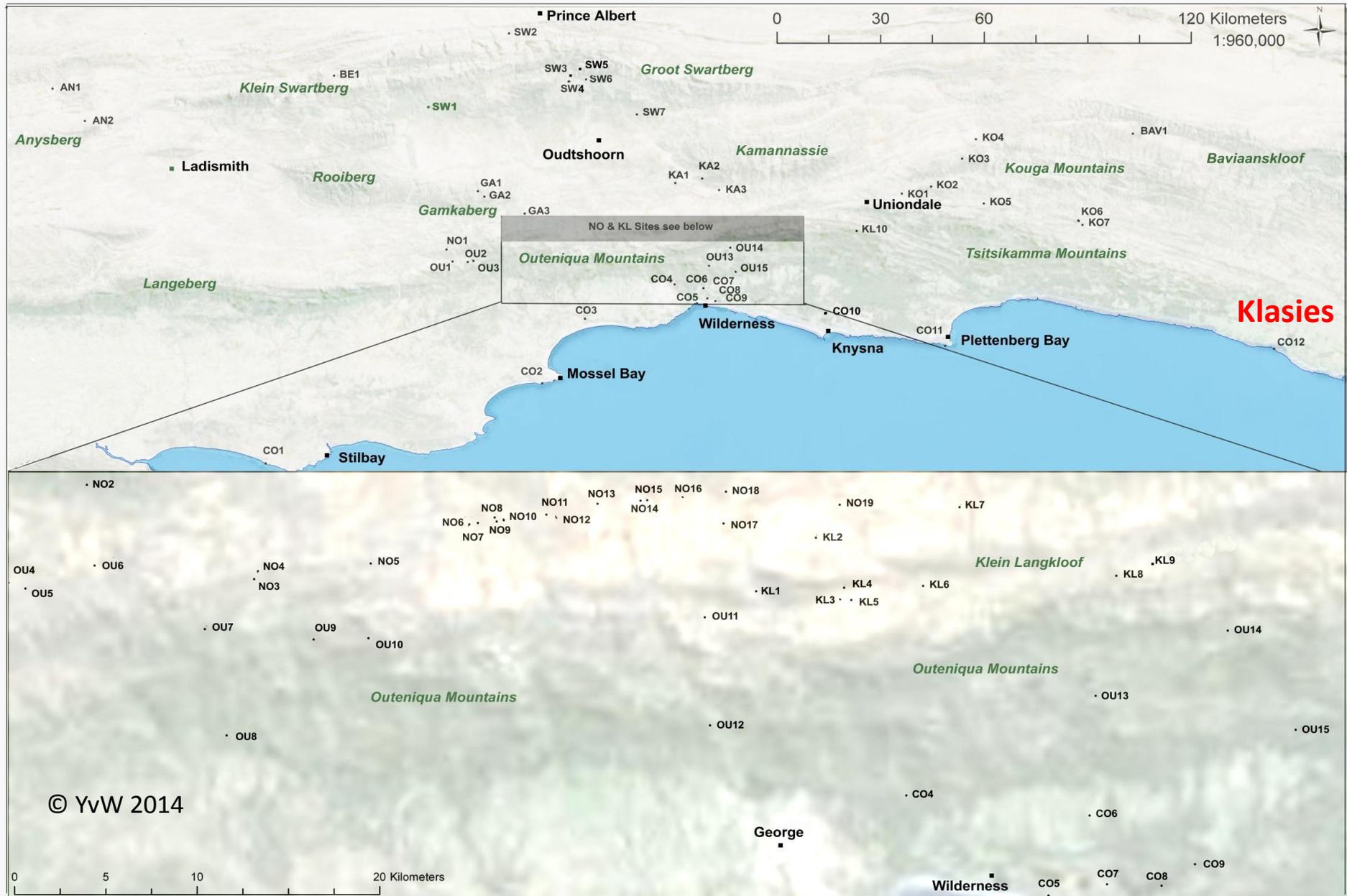
This is undertaken against the background of a larger study that investigates whether there is an anthropogenic influence resulting in the vegetation pattern found at so many archaeological sites in the southern Cape and Eastern Cape

Presentation by Yvette van Wijk (Rhodes University)
Co-authors – Renee Rust (Proactive Archaeologists),
Madelon Tusenius (Natura Viva), Sarah Wurz (Wits University)

Cynanchum ellipticum



Map of 80 archaeological sites where plants were collected in the southern Cape



Questions

- How long have the plants been present that are growing today in close association with archaeological sites?
- What processes were responsible for the pattern presented by these plant communities?
- Were these plants a source of food, medicine, or insecticide? Or used for bedding, fuel, mastic, cordage, decoration, or tools?
- Why and how have they persisted at the sites?



Context

Micro-botanical remains reported in the South African context have often been used to infer climate change on the basis of vegetation change or vice versa. Seldom linked to human use.

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Hilary Deacon, in “Planting an Idea” (1993), stressed the need for archaeobotanical research. Macro-botanical remains as in bedding and in hearths have been connected with human use.

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Our research is looking specifically at close human/plant-use links at Klasies River.

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Both micro- and macro-botanical comparisons are being made.



Asparagus aethiopicus

Plant use – the bigger picture

- Hunter-gatherers lived at Klasies from about 125 000 bp with a few periods of apparent absence.
- They ate plants and possibly seaweed, as well as shellfish, marine mammals and land animals.
- Plants provide essential micronutrients not available elsewhere and essential to human diet and health – we cannot live without plants.
- Seeds, buds, shoots, leaves, bark, cambium, pods, roots, tubers, bulbs, gum, nectar, galls – are all utilised.

Sowing Seeds

- Extrapolating from on-going ethnobotanical research at Klasies and nearby areas - of the 150 plant species collected close to the Klasies River sites, hunter-gatherers would have found at least 95% useful in various ways.
- Seeds from plants eaten would have been excreted and dropped at or near the sites into fertile and enriched soil ideal for germination and growth.
- Feedback loop increased density and mutualism between people / plants / place = persistence.



Anthropogenic Enrichment of Soil

- Ash & charcoal plus bedding and food waste built up humus.
- Levels of Potassium, Calcium and Phosphorus increased in the soil, and salts accumulated.
- These chemicals have been shown to be long lasting in the soil – see Dark Earths of Amazonia (Balee 2010), West Africa (Fairhead & Leach in Williams & Texeira 2008), & S Africa (Blackmore et al 1990).
- High diversity of vegetation at Klasies with a total of 150 species collected within easy foraging range.
- Similarity of taxa at Klasies, Nelson Bay, Pinnacle Point and Blombos, as well as at inland sites.
- Possible connection between humans and vegetation at habitation sites points to anthropogenic processes resulting in the pattern seen today.

Method

- Modern plant specimens were collected at Klasies River by -
- Madelon Tusenius in 1984 & 1985.
- Yvette van Wijk and Renee Rust in 2013 & 2014.
- Madelon Tusenius' samples of modern plants were charcoaled and photographed with SEM. These will be re-examined.

Aim

- To collect representative modern specimens as an aid to identifying macro-and micro botanicals from Klasies River. In order to provide a reference for comparing past vegetation to present vegetation.

Panoramic view of Klasies main sites where most collecting took place



Aerial view of sites - Collecting areas numbered - Black YvW – White Tusenius



Klasies River plants in top 20 at 80 sites



Searsia glauca
(syn. *Rhus*)
Africa, Asia,

Middle East, Americas. Seed = Sumac (spice). Closely related to *Pistacia* nut.



Diospyros dichrophylla
Africa, Asia, MEast, Medit
N America, Australia.
Ancestral to Persimmon



Lycium ferocissimum

Africa, Mediterranean, Middle East, Asia, N America. = Goji Berry



Asparagus spp.
Africa, Medit,
MEast, Asia,
N America,



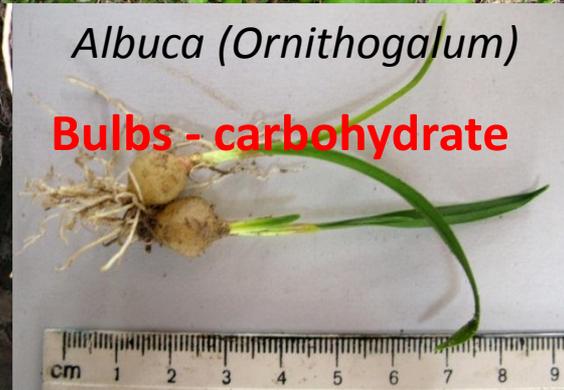
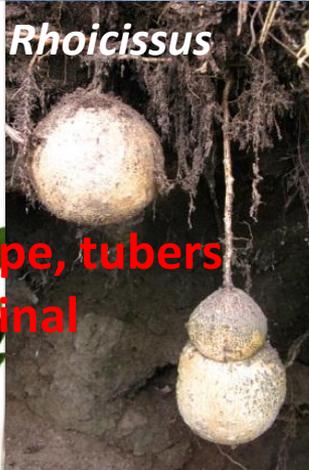
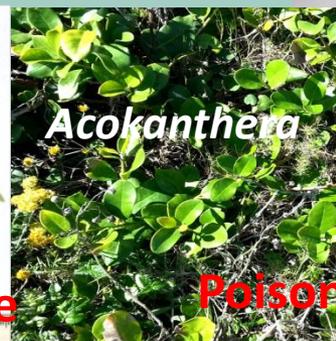
Ficus burtt-dayvii
= Figs - worldwide



Colpoon compressum
Nantegarra
= Sandalwood

Solanum spp. Tomato, Potato, Egg fruit,

Some more useful Plants from Klasies



Ethnobotanical research



Freddie Williams explaining the use of “Stink Patat” by modern Fingo/Khoisan at Klasies River.



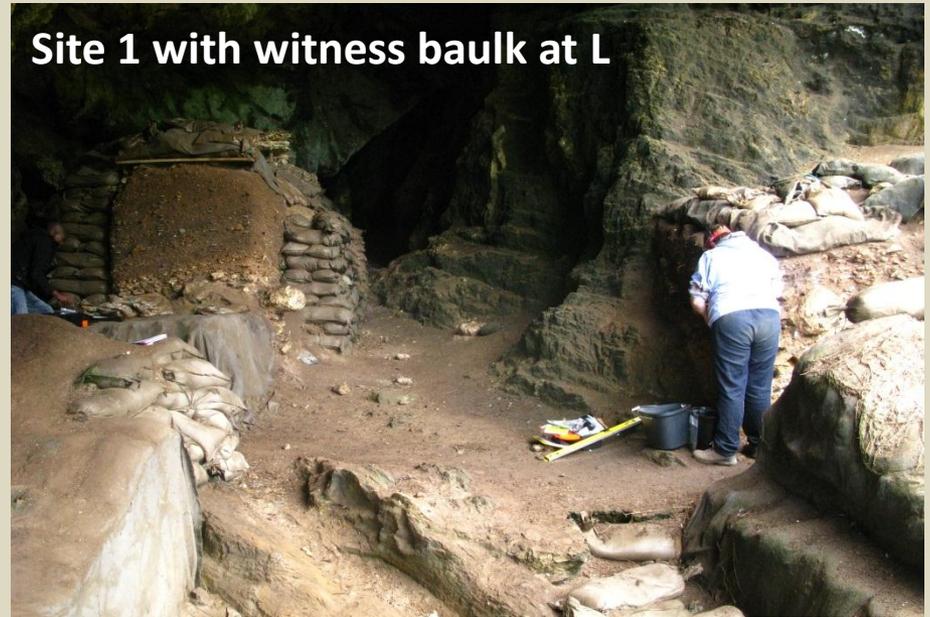
Irene Barnardo of Covie on R. provided valuable information



Yvette has held Workshops and walked in the veld with southern Cape indigenous communities for the past 20 years. There is a significant overlap in plants they use.

Research by Yvette and Renee is on-going to record plants used now and in the remembered past by local people in the Klasies River area. A complex history of dispossession, politics and agriculture makes it hard to access information from descendants of Pre-colonial people.

Collecting samples Nov/Dec 2013



Samples from labelled sediment layers were collected in November – December 2013 to provide the material from which seed, pollen, phytoliths and charcoal samples can be extracted.

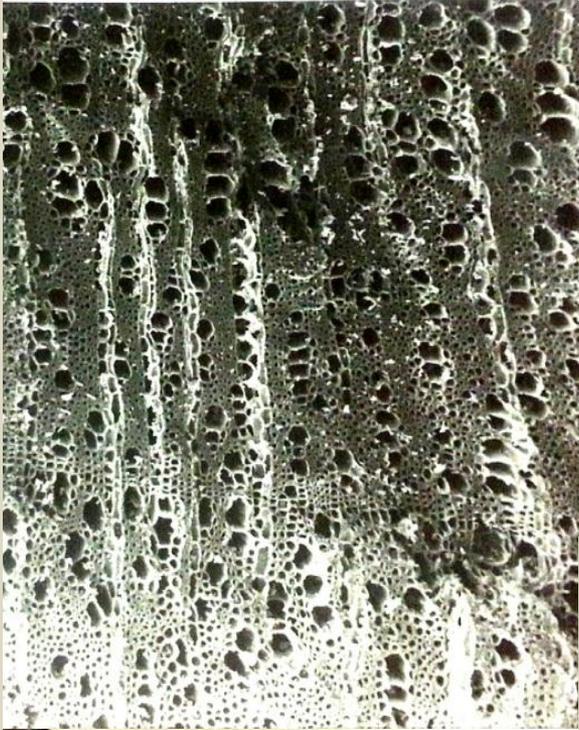
Results to Date

- 2013 & 2014 collections show very little change in species present compared to 1984/5 = 30 years.
- Modern vegetation = thicket, forest, coastal scrub and littoral (minimal fynbos).
- Varying ecological niches = varied plant habit, high diversity.
- Charcoal from sediments (Tusenius 1984/5 unpublished) – MSA samples soft, small, difficult to ID - but some LSA charcoal identified, include 6 (all in top 20/80) species growing at Klasies River at present. **All** these species were collected in 1985 and 2013 – So, have important elements of the vegetation remained essentially the same for (conservatively) 50 000 years?
- Seed from 90 000 ka was found in a trial sampling of sediment in Dec 2013 (in process of being identified).



SEM photos and gold covered stubs

Tarchonanthus littoralis



Sideroxylon inerme



SEM photos were taken of charred reference material & archaeological charcoal collected by Madelon Tusenius in 1984/5.

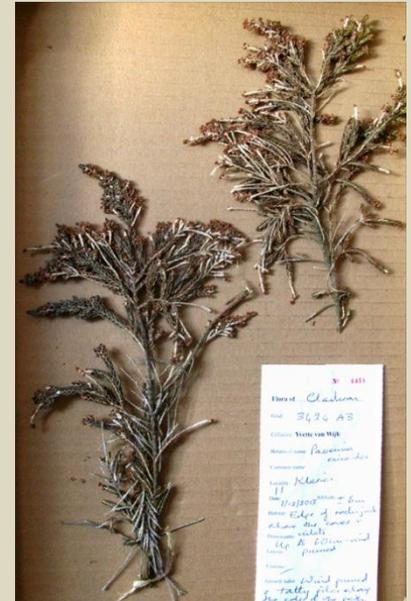
MSA charcoal samples were too wet and crumbly for unambiguous identification, but some LSA samples were identifiable and correspond well with the plants growing at the site at present.

Some Problems

- Dating; taphonomy; changing sea-levels; changing climate; diagenesis.
- Moisture in deposits leads to deterioration of charcoal and other macro-botanical samples (South facing shade, sea spray)
- Re-processing of organic remains by bacteria, fungi, moulds - earthworms, insects and small mammals burrowing & digging – composting & humification.
- Inevitable deterioration of samples during collection; sieving; washing; bagging; sorting. **Non-recognition of botanical samples.**
- Changes in Botanical taxonomy render families, genera and species **invisible** to non-botanical researchers.
- **Invisibility** of soft bodied food and medicinal plants that leave no trace in deposits – cooked, ground, battered, fermented, masticated and digested by humans.

Ongoing research

- Collection of modern plant samples at different seasons of the year to provide comprehensive reference material.
- Ethnobotanical research in the local Klasies area.
- Charcoal – Marion Bamford & colleagues
- Palaeobotany and combustion – Silje Bentsen (Post Doc).
- Pollen – Frank Neuman (Universitat Münster)
- Seeds – sieving, washing and sorting to retrieve as much identifiable prehistoric seed (usually carbonised) – subsequent identification where possible (are specialists available?).



Conclusions

- There remains much to be learnt from the Klasies River excavations.
- New information + more data will paint a broader picture of life-ways and plant use over time.
- Inter-disciplinary research is essential.
- Need for a South African / African database for macro- and micro-botanical identification. Centralised - open source - fully searchable.
- Southern African research set within a wider African and global context, crossing boundaries, and finally overcoming past political isolation.

End Note

We are getting nearer to answering the question

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Are there closer synergistic and mutualistic links between important places, plants, and people, than has hitherto been appreciated or recognised?



Thanks and Credits



Presenting the newest “New Palaeo Diet” to an eagerly waiting world!

Thanks & Credits

To

- The van der Merwe family for permission to work within the Klasies River Reserve, and Kobus Burger for help and support.
- Sarah Wurz, head of the “Klasies team” and members of that team, for inviting and welcoming me to Klasies.
- IZIKO for access to stored Klasies River botanical material.
- Rhodes University for allowing me to undertake an *ad eundem gradum* PhD - which has opened up so many fascinating areas of research and introduced me to so many amazing people.

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