A Comparison of Soil Moisture Dynamics across selected Geologies, Vegetation and Climate Zones in the KNP

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SBEEH

8th Savanna Science Network Meeting: 7-12 March 2010

OUTLINE

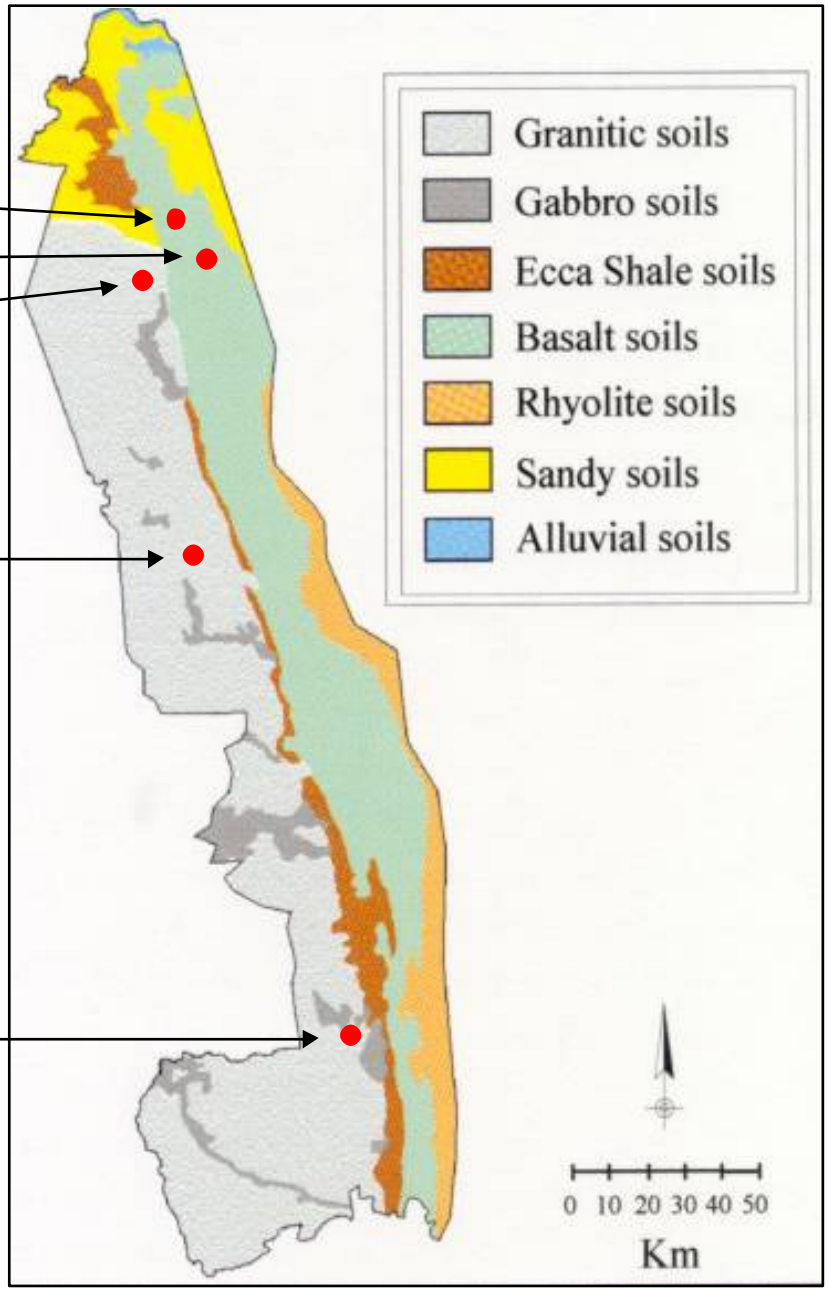
- Sites
- Methodology
- Soil Water Dynamics
- Toward Catchment Modelling

- **Sites**

Roan camp wetland - Basalt
Nwarihlangari – Basalt
Phugwane riparian – Granite
MAP 450mm

Letaba exlosures – Granite
MAP 450mm

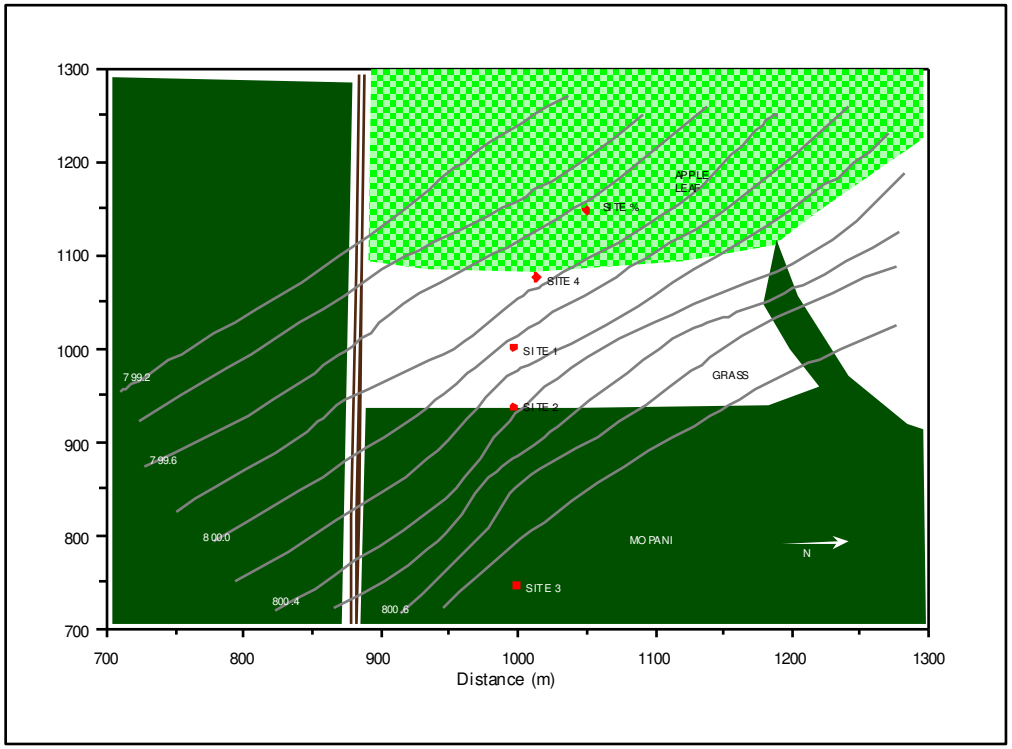
Sabie exlosures – Granite
MAP 520mm

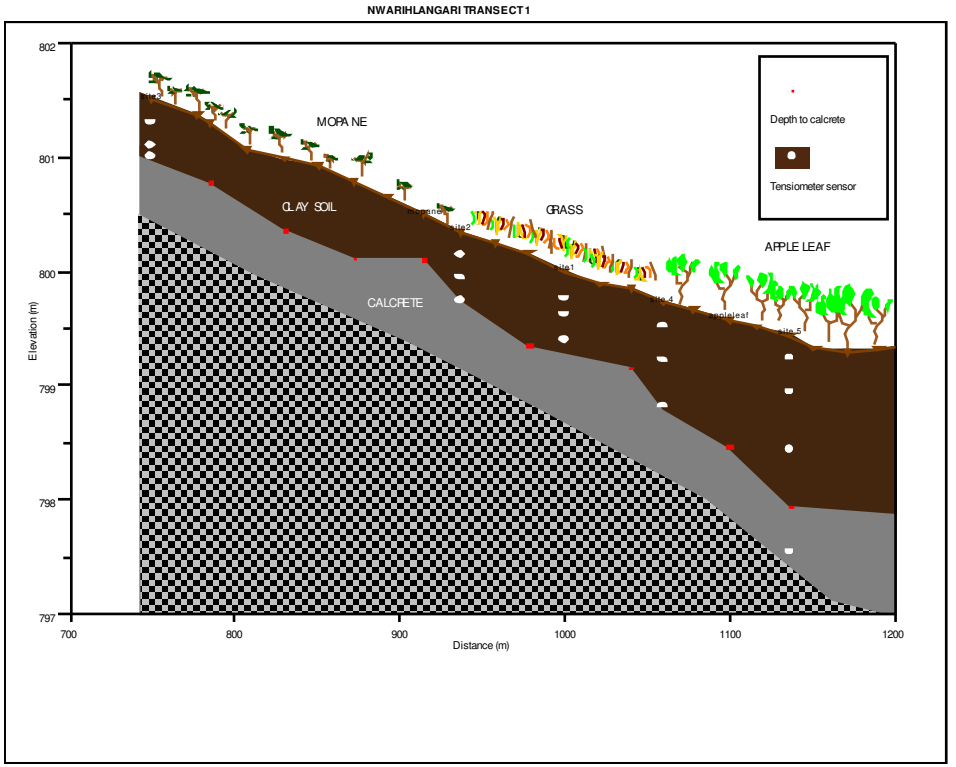


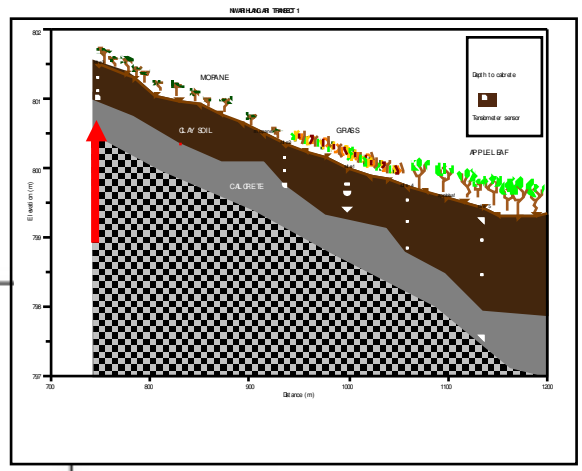
General soil map of the KNP based on parent materials (Kiker 1998)

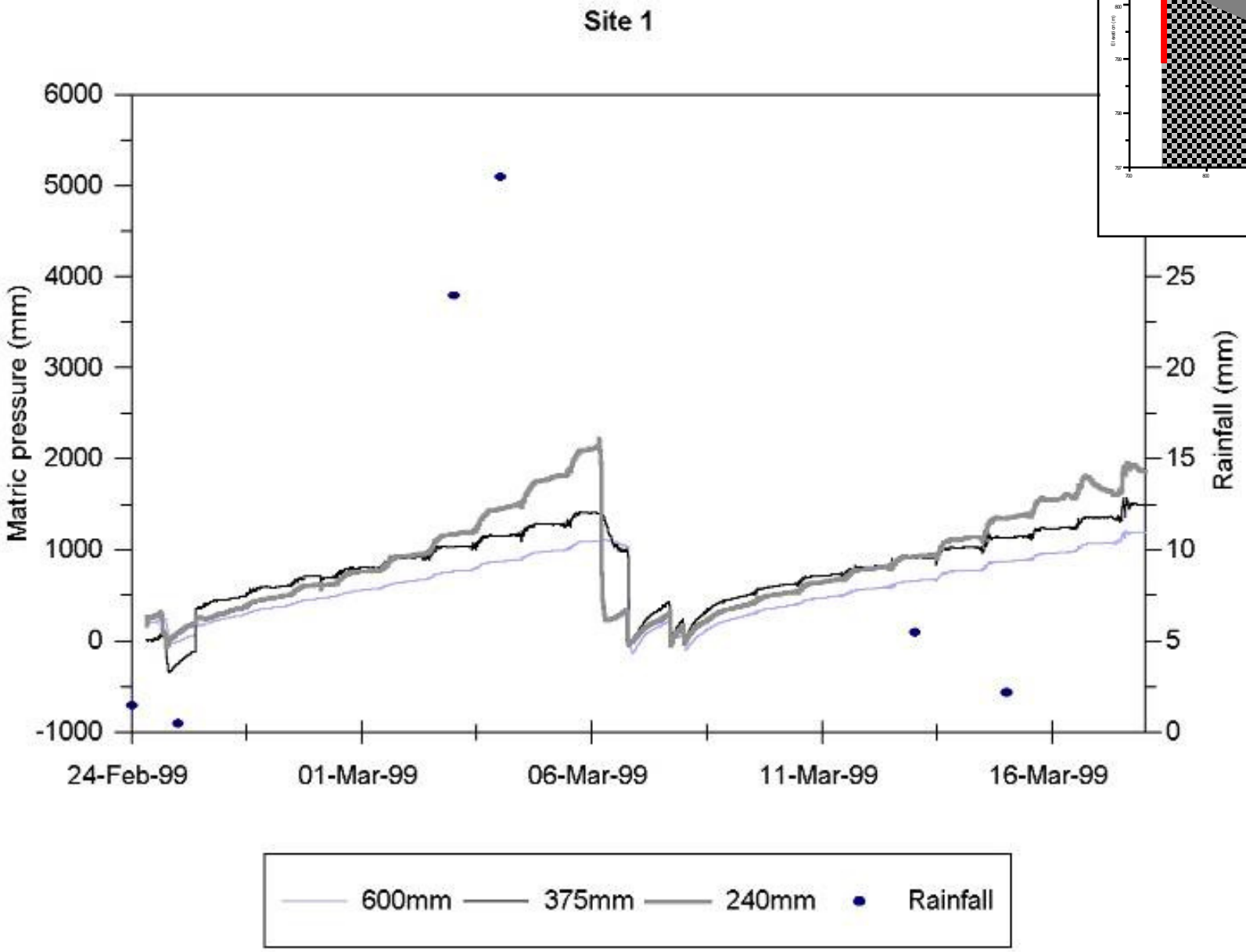
- **Methodology**

  - Select transect stations
  - Conduct geophysics and soil survey
  - Measure soil hydraulic and physical properties
  - Install automatic soil water sensors (& runoff plots)
  - Establish met data
  - Analyse responses
  - Define general behaviour and estimate fluxes

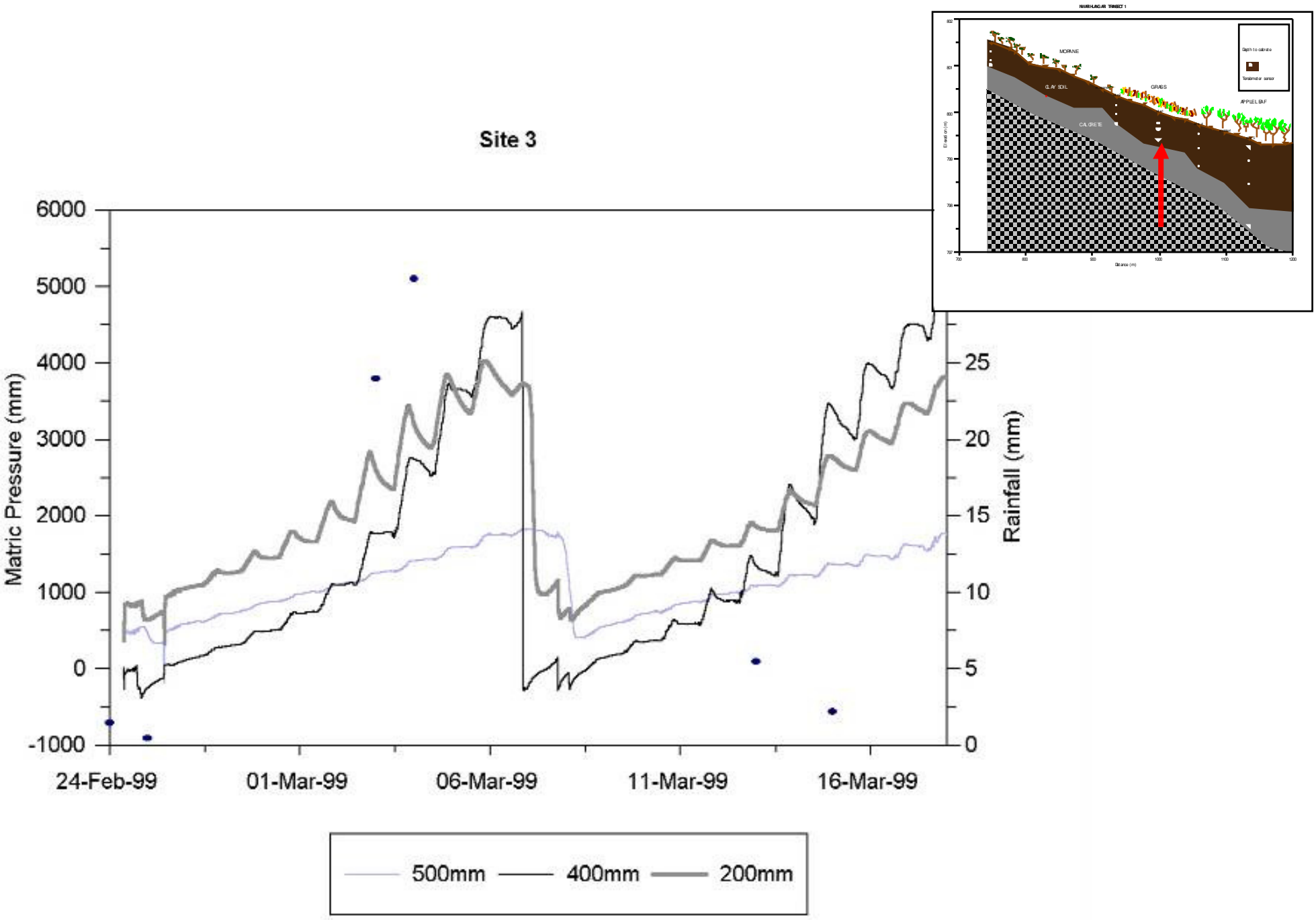




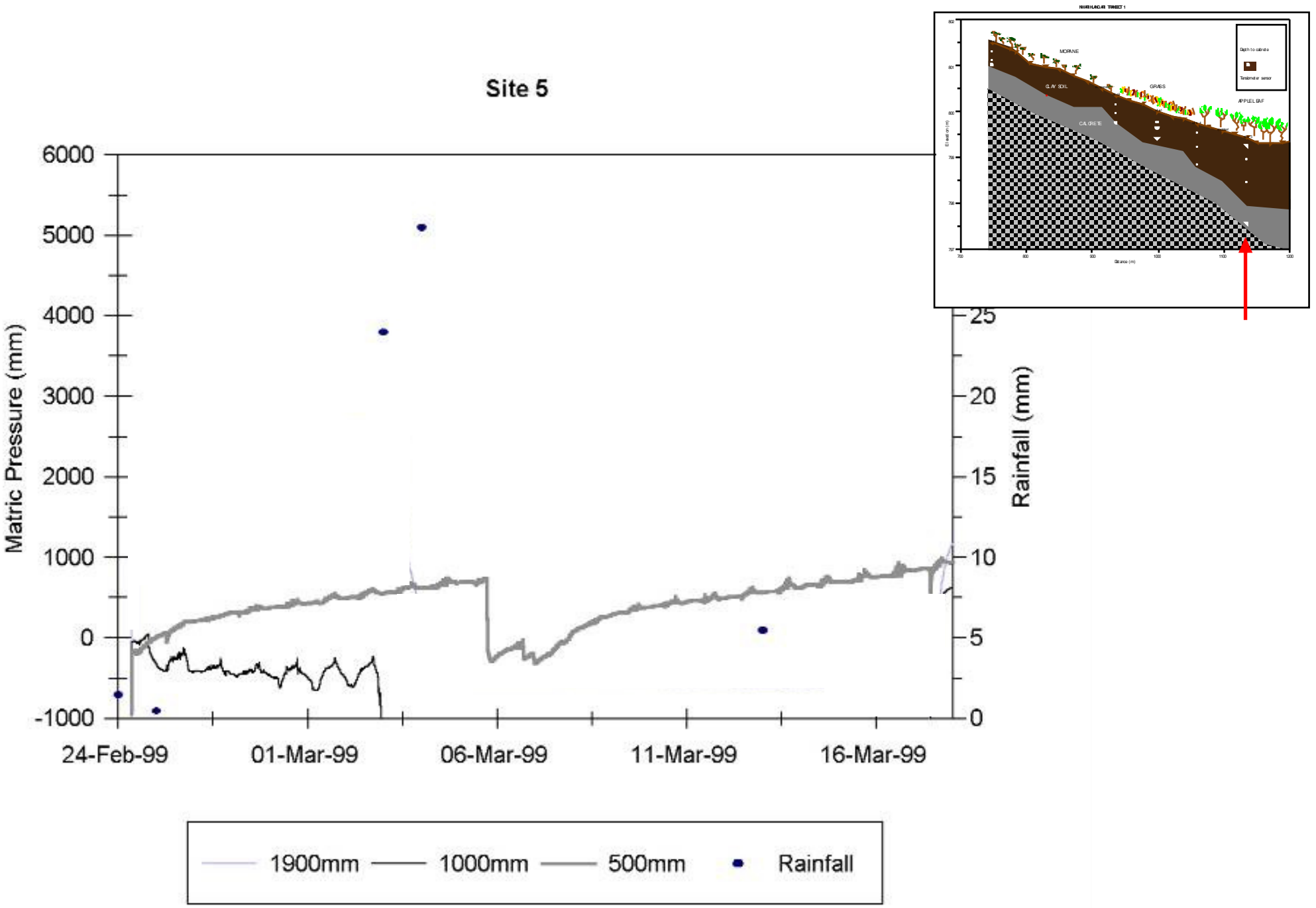




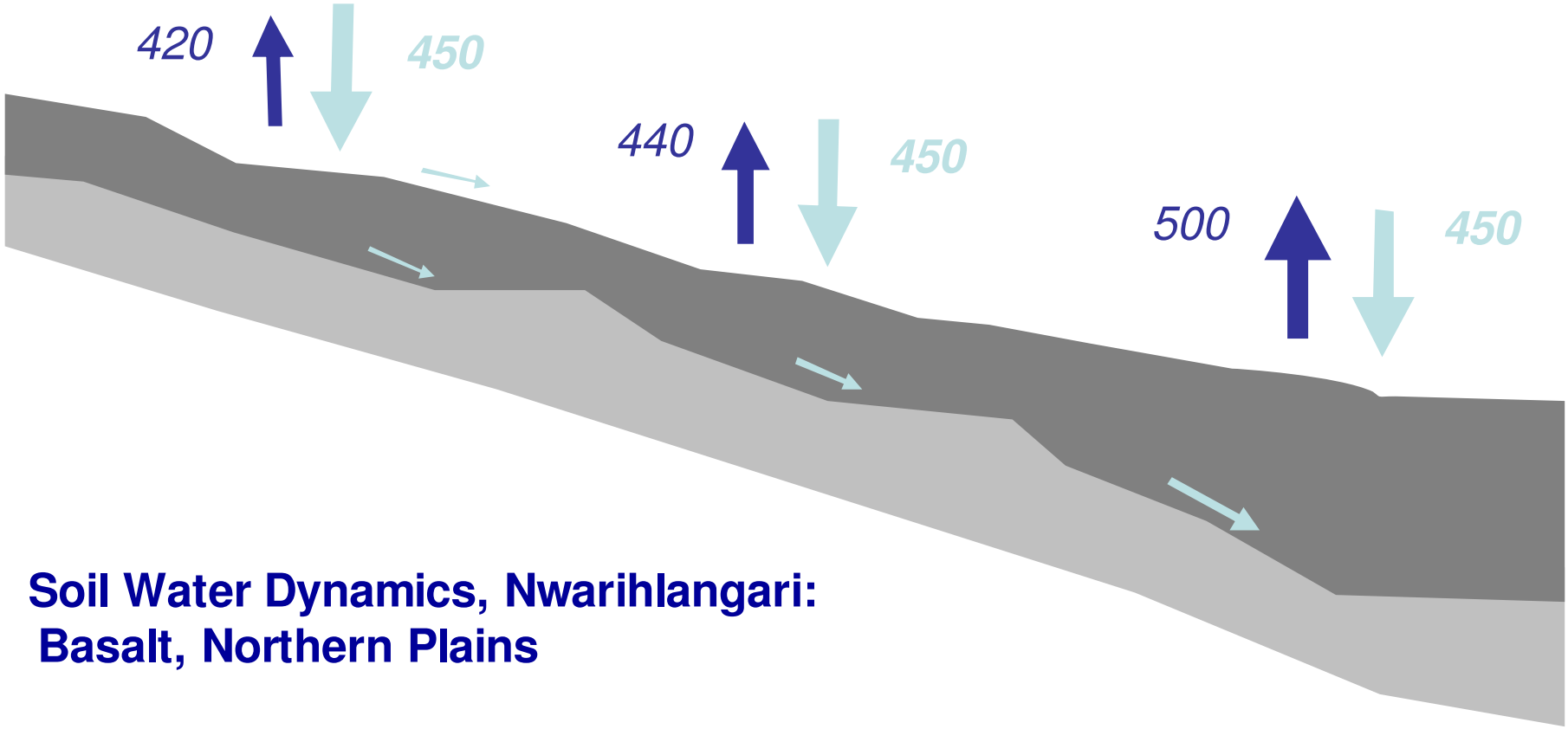
- **Soil Water Dynamics: Nwarihlangari Mopani**



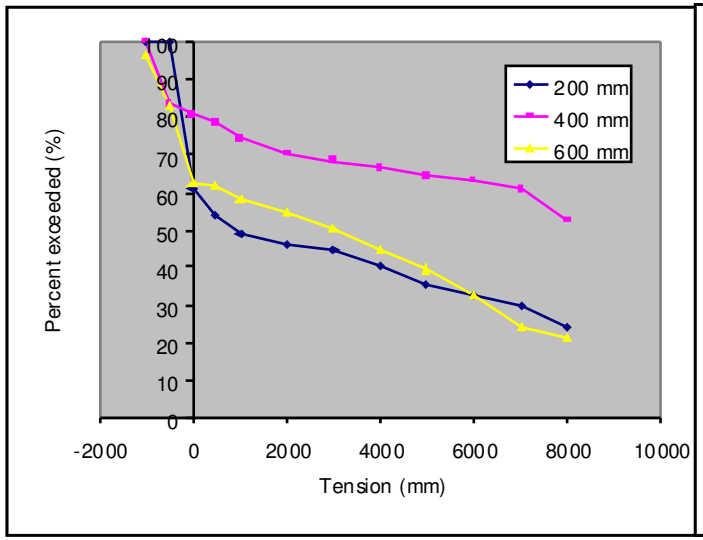
- **Soil Water Dynamics: Nwarihlangari Grass**

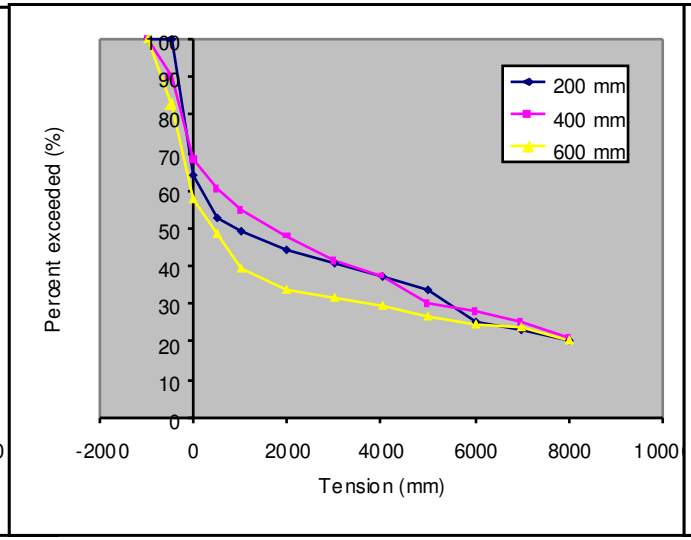


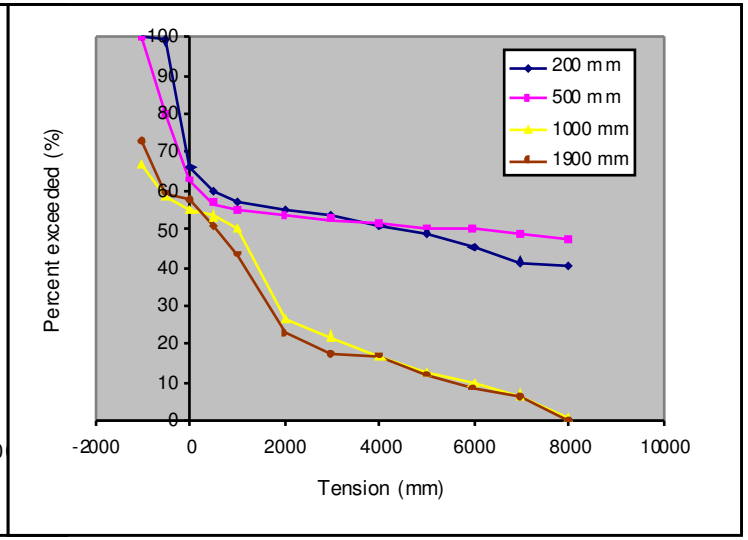
- **Soil Water Dynamics: Nwarihlangari Apple Leaf**



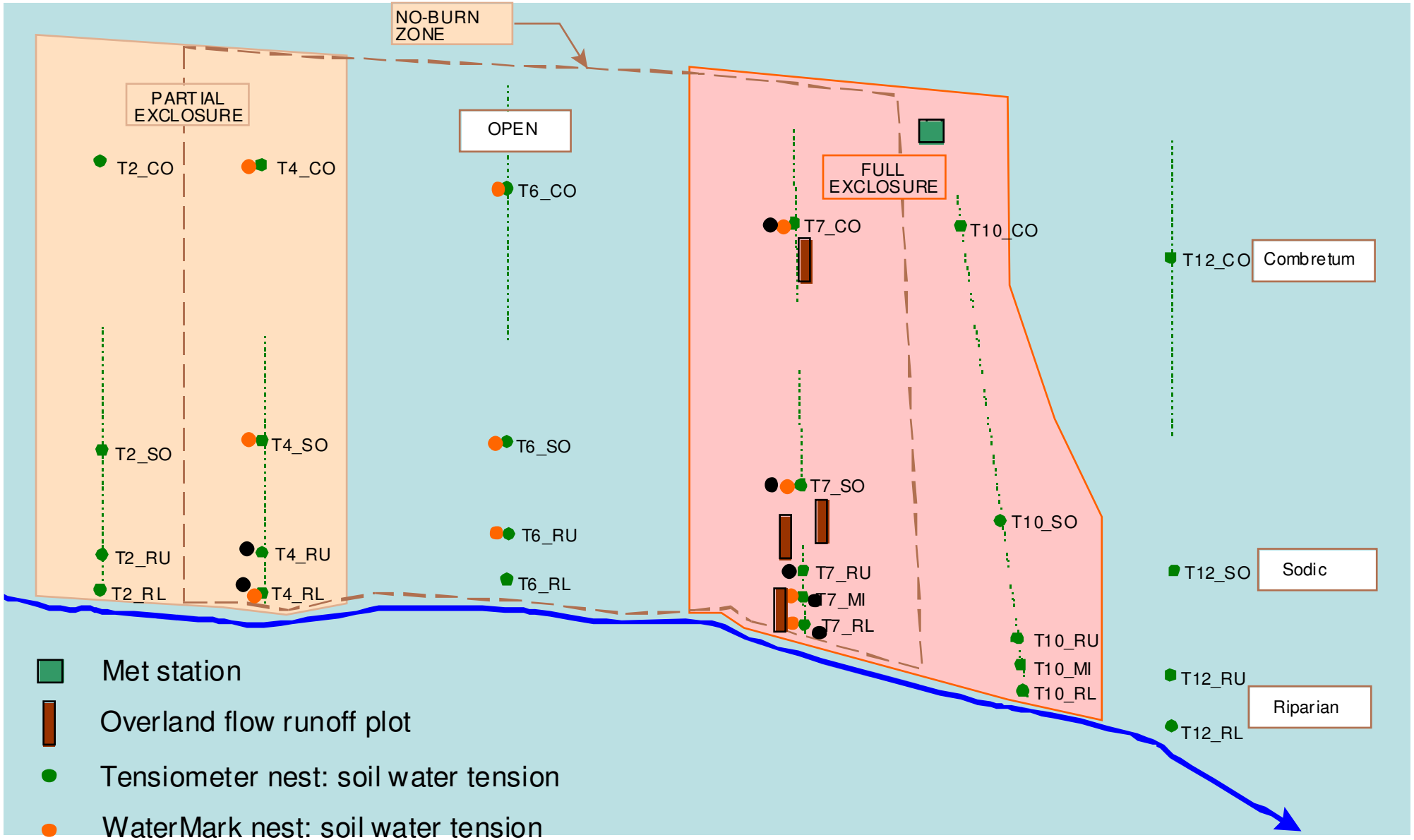
- **Soil Water Dynamics, Nwarihlangari: Basalt, Northern Plains**



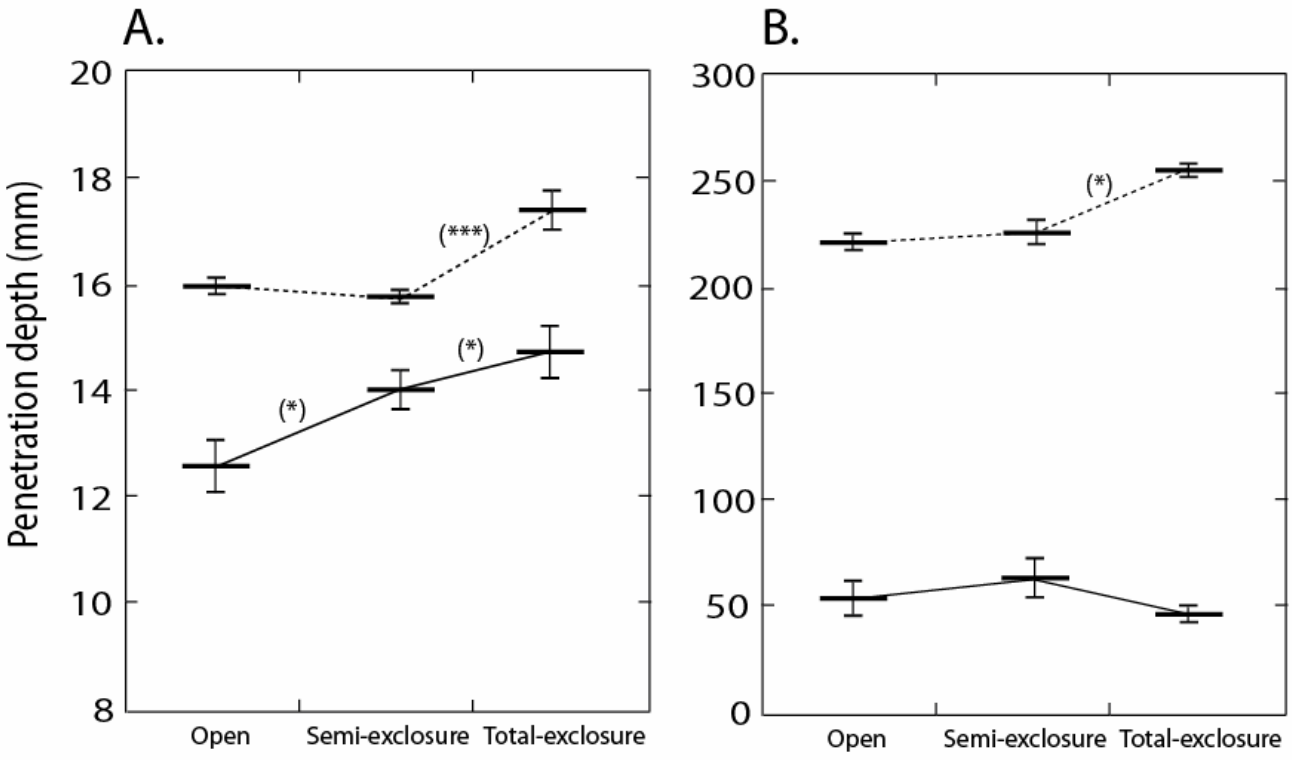




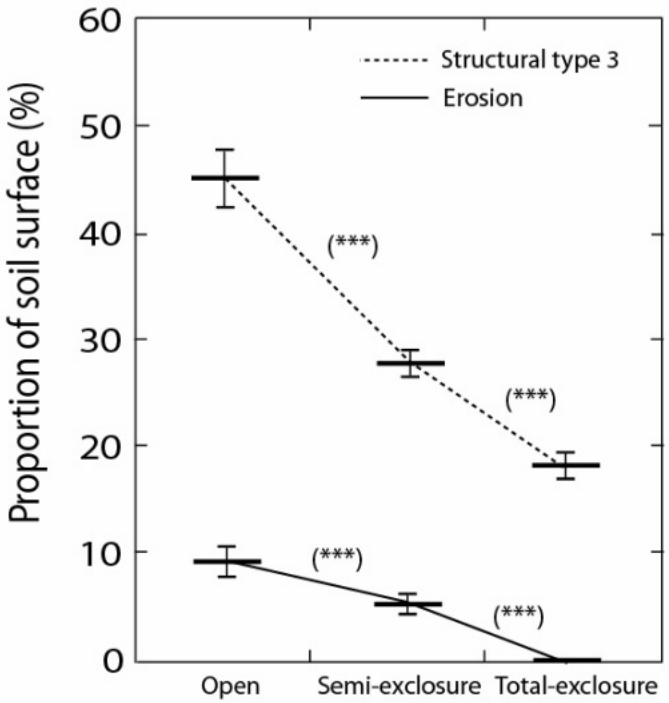
Mopani *Grass* *Apple Leaf*

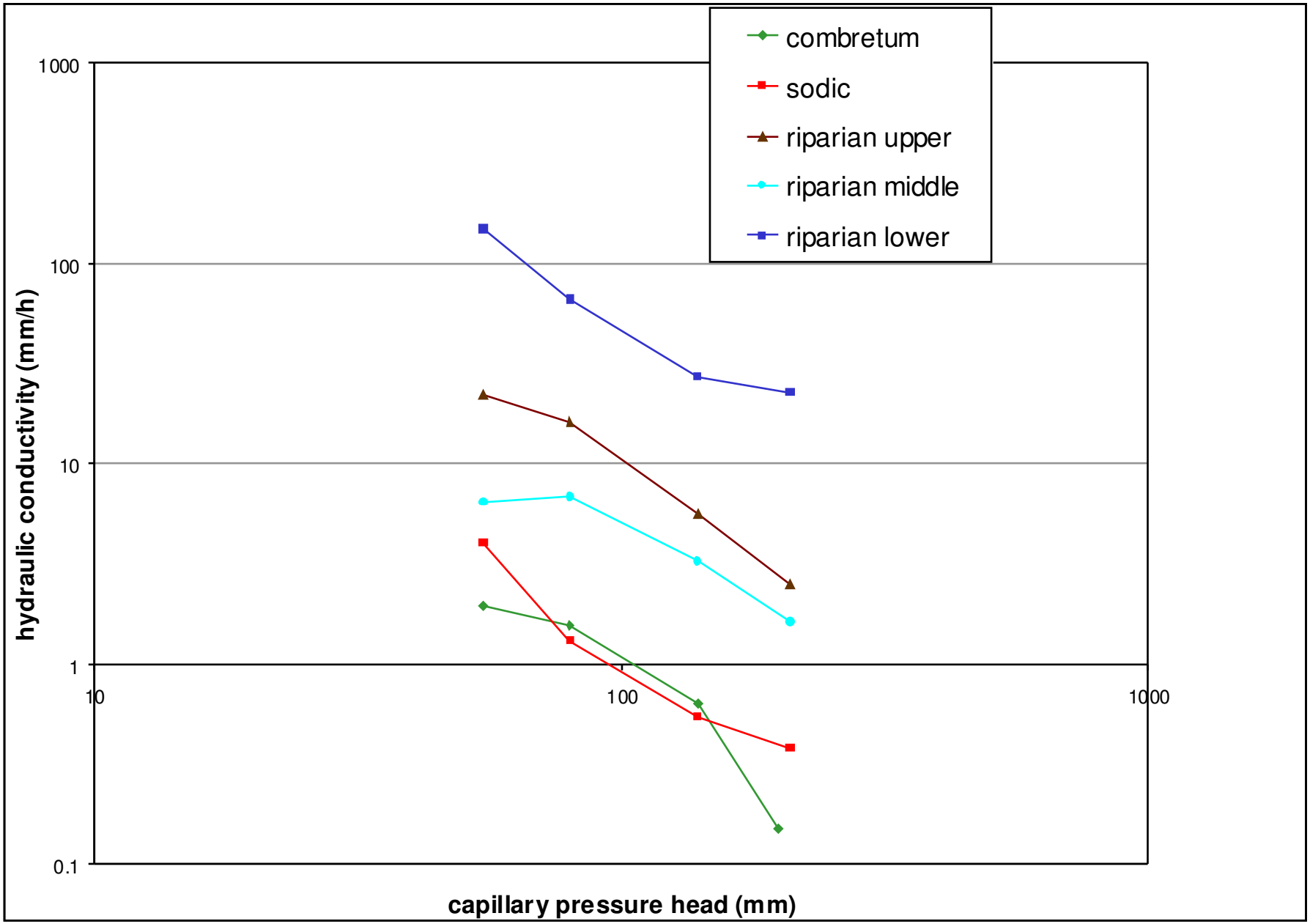


- Exclosure transects: Sabie

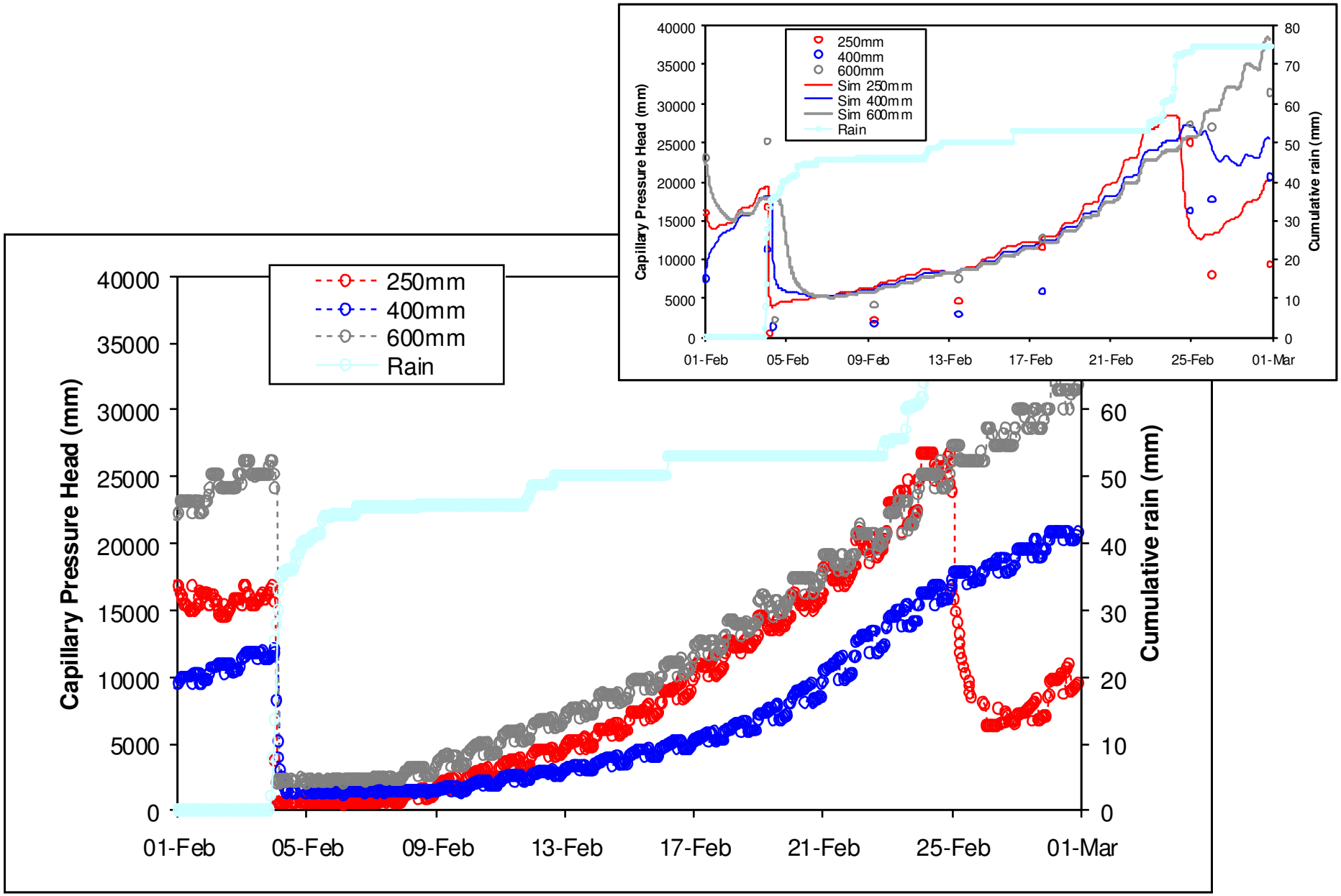


- Soil hydraulic and physical properties, Sabie exclosure

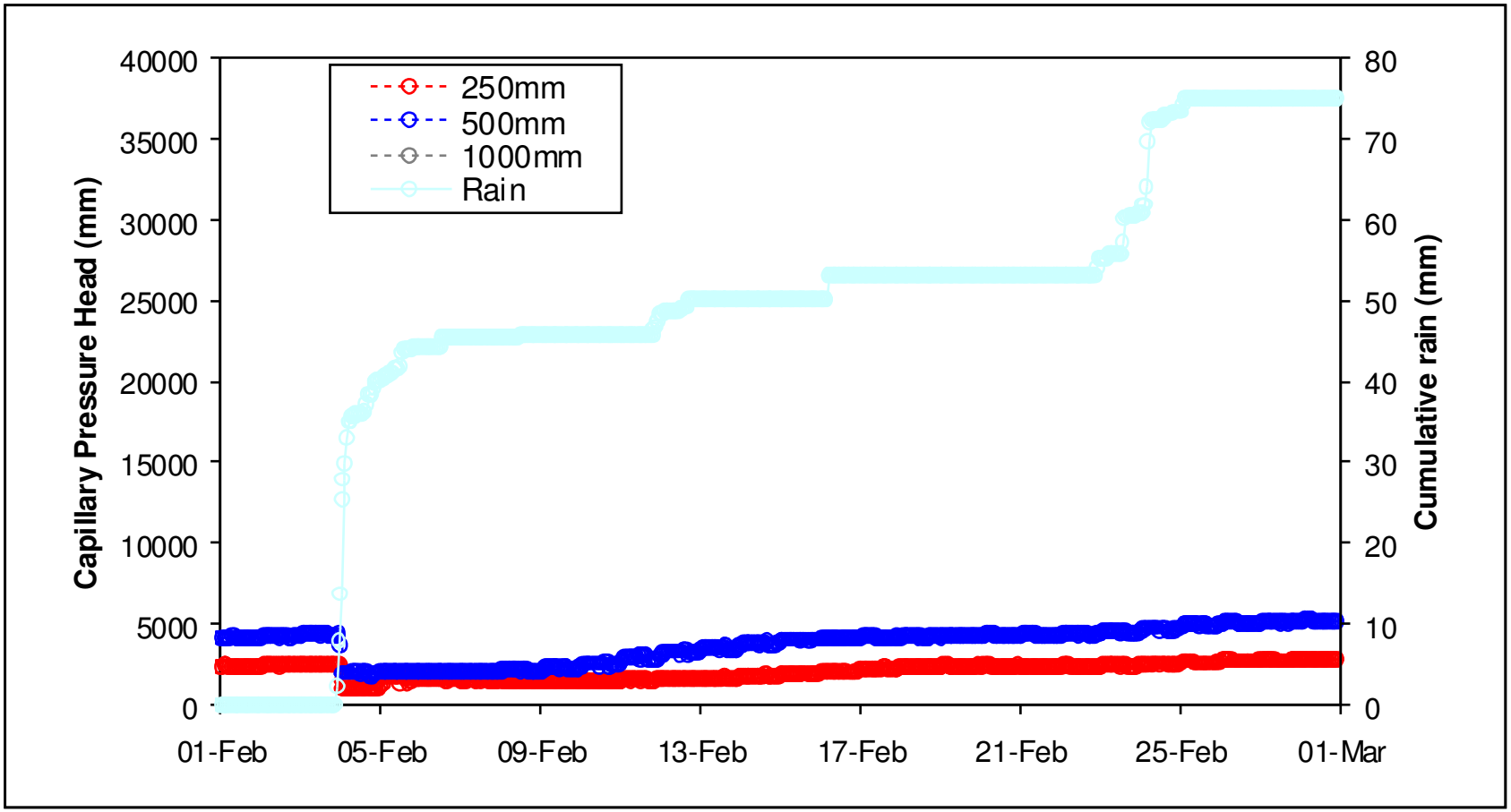




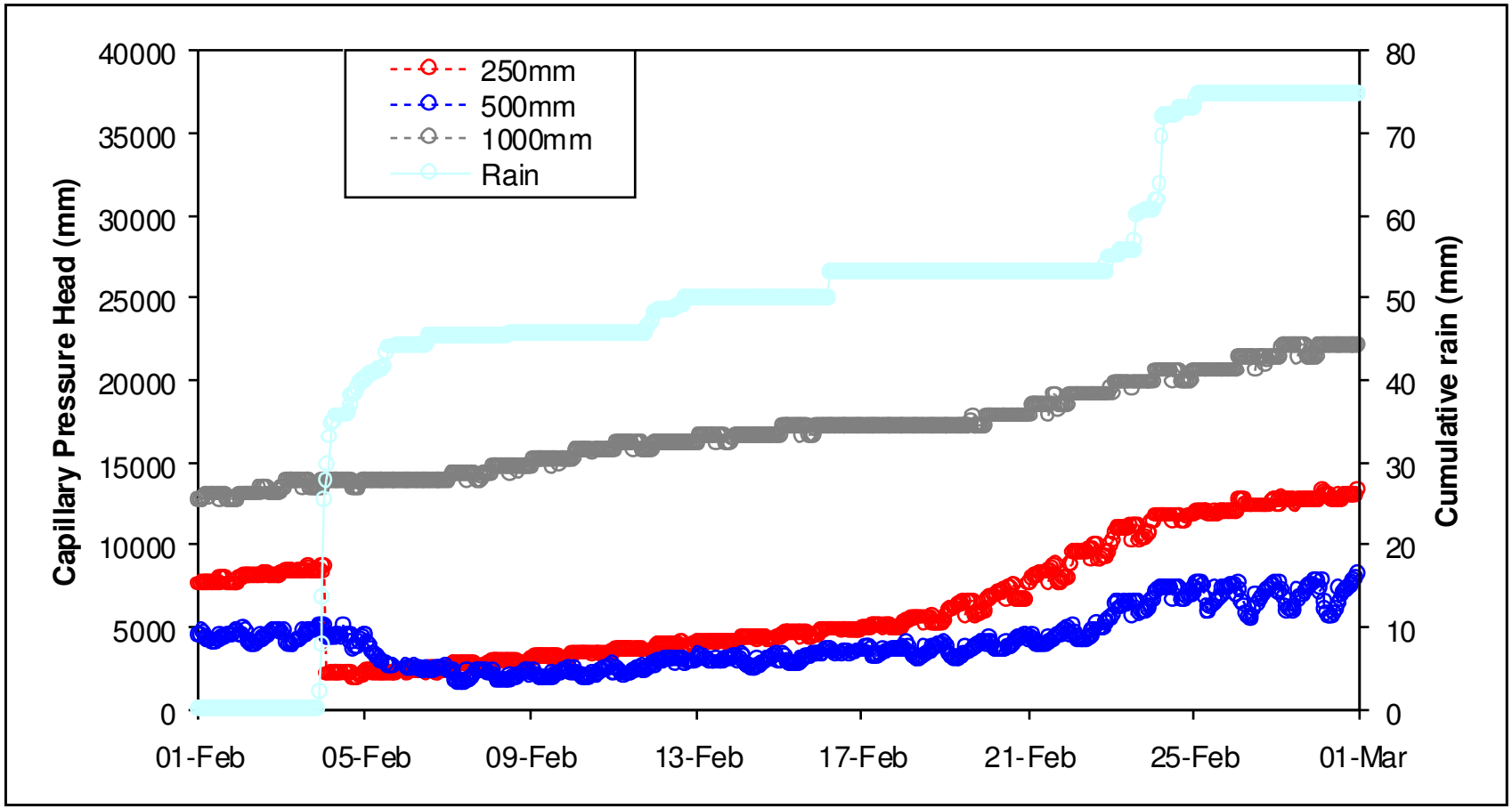
- Soil hydraulic and physical properties, Sabie



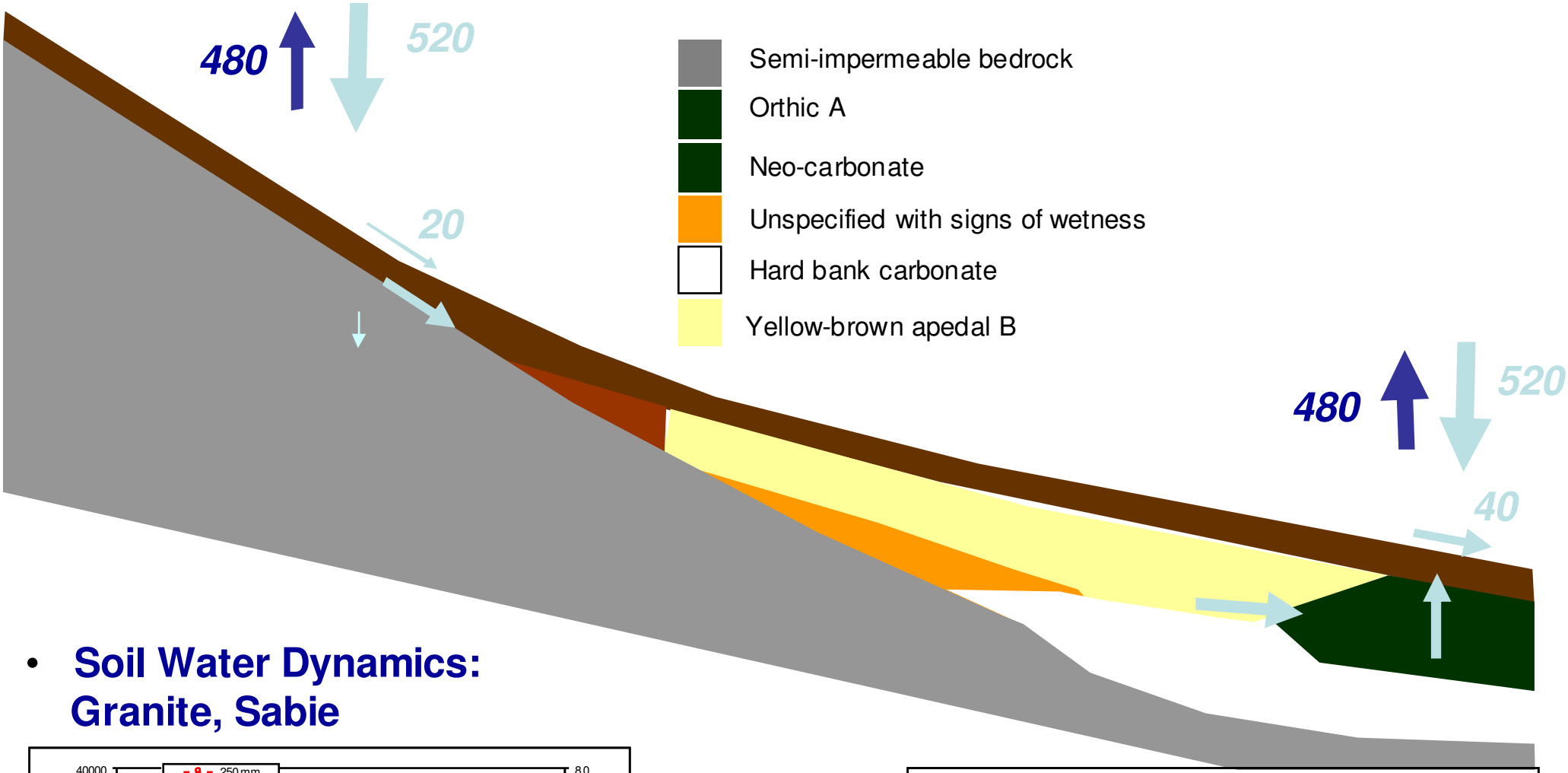
- Soil Water Responses: Sabie Combretum



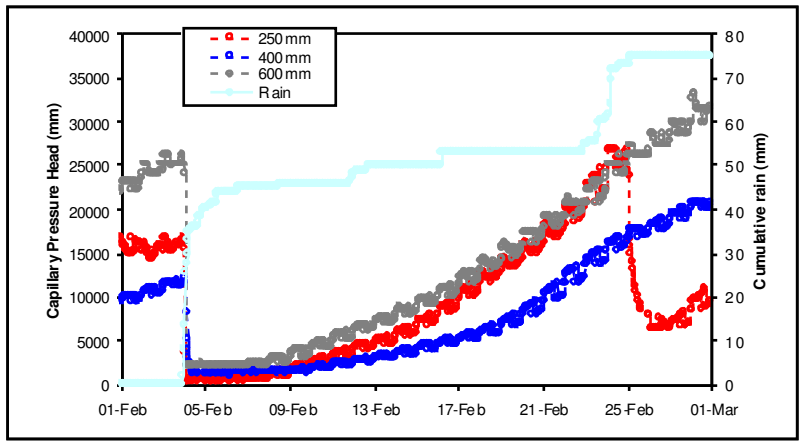
- Soil Water Responses: Sabie Sodic



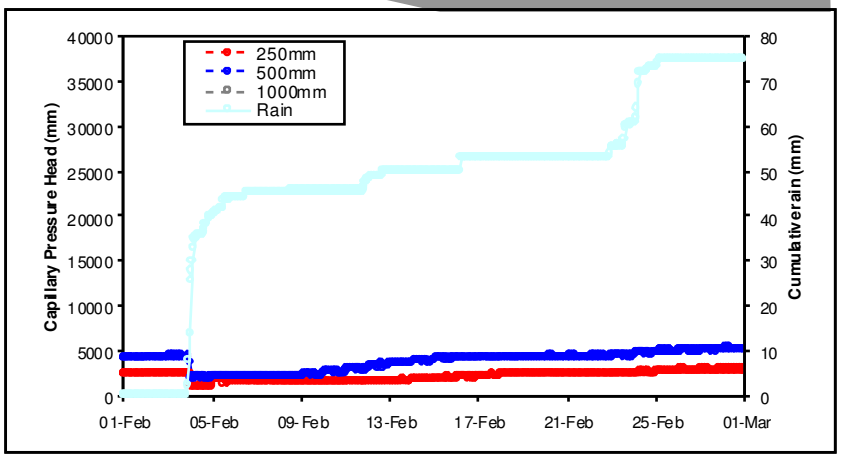
- Soil Water Responses: Sabie Riparian



- **Soil Water Dynamics: Granite, Sabie**

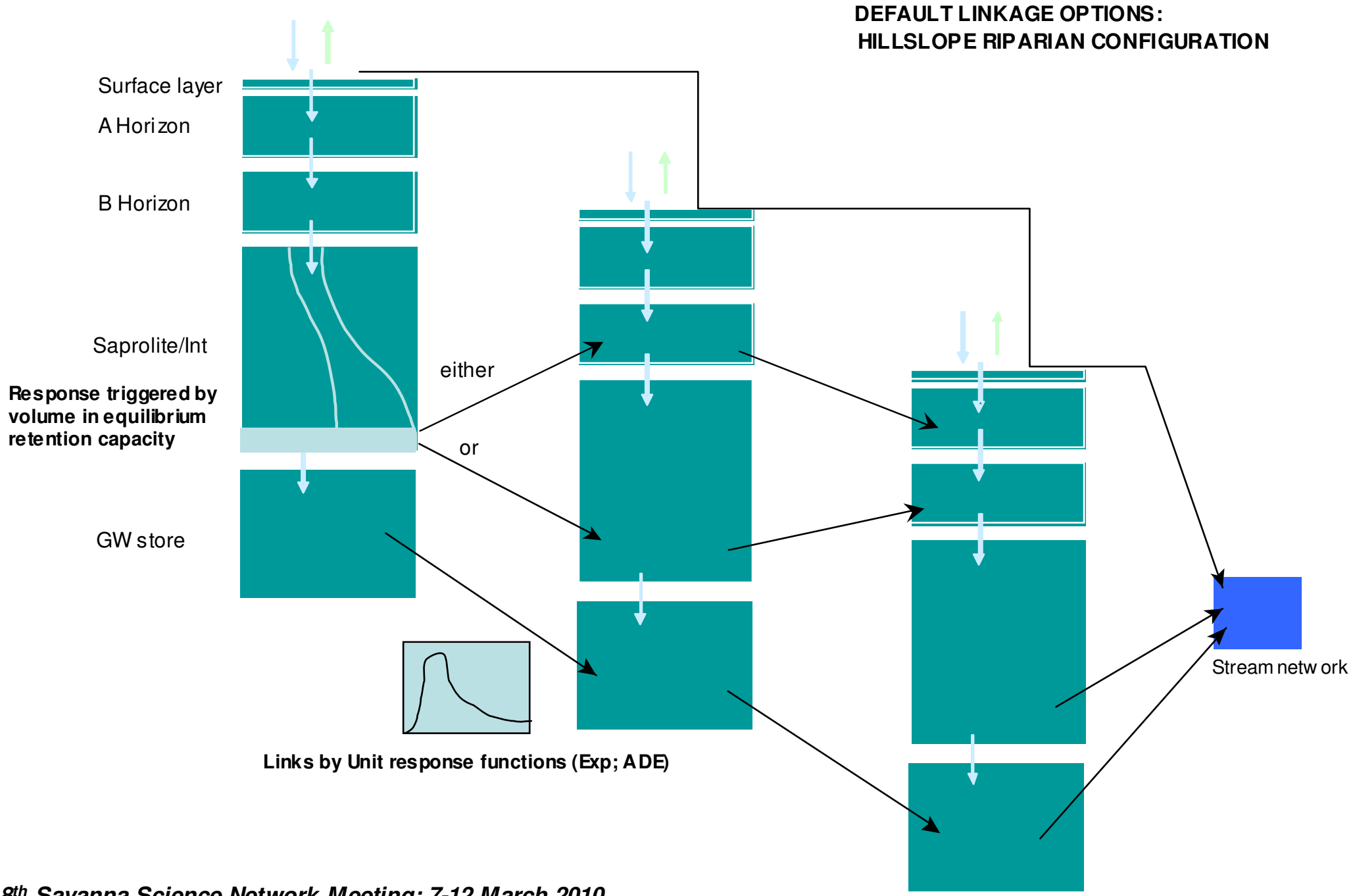


Combretum



Sodic

- **Toward Catchment Modelling**



- **CONCLUSIONS**

- Surveyed and monitored transects yield vadose zone sources, pathways controls and fluxes,

- Hillslope element model structure is informed from transect soil water dynamics. The model shows promise for catchment scale application where typical hillslope responses can be defined and variances in response included in the parameterisation.

THANK YOU

Thank you to Jacques, Angela, Theresa, Abri, Glynn, Hannes, Wienus, Walter and Million for assistance in data collection and for support from:

SANParks

National Science Foundation (USA)

National Research Foundation (SA)

SAEON