

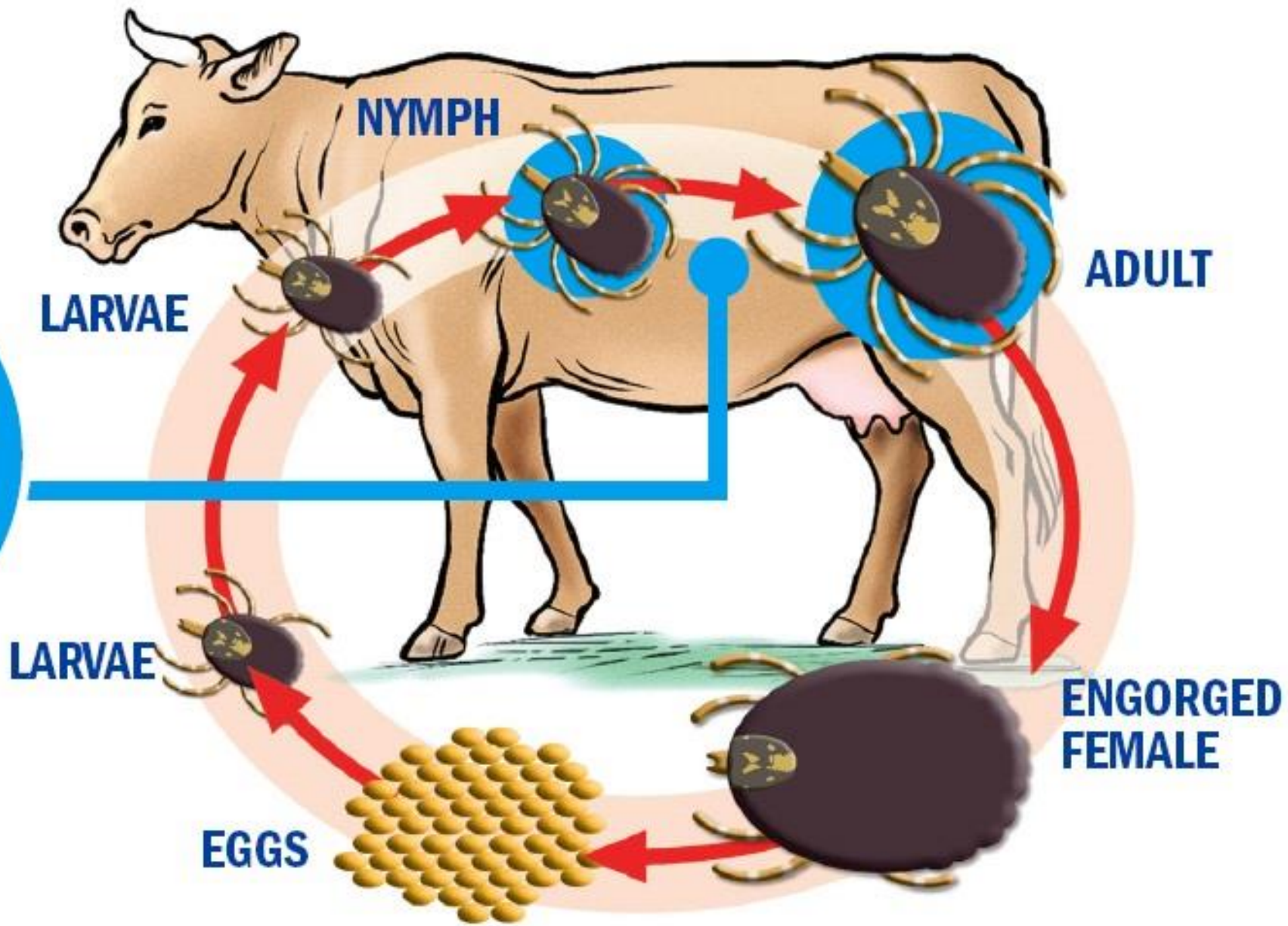
**HEARTWATER: A SIMPLE DISEASE WITH A
PECULIAR DISTRIBUTION
THAT HAS EXASPERATED FARMERS AND
SCIENTISTS FOR EONS**

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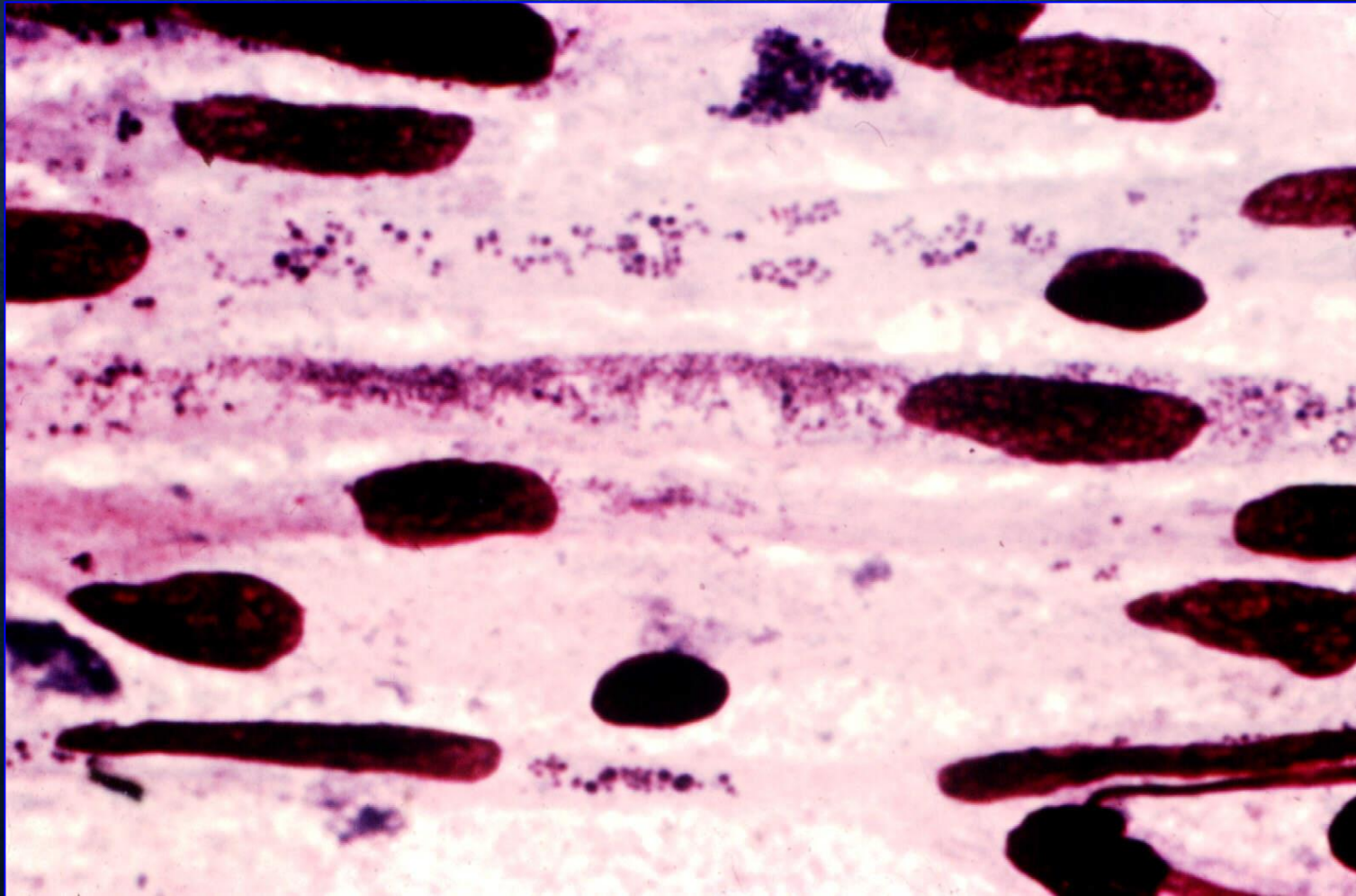


Heartwater is transmitted by nymphs and adult ticks



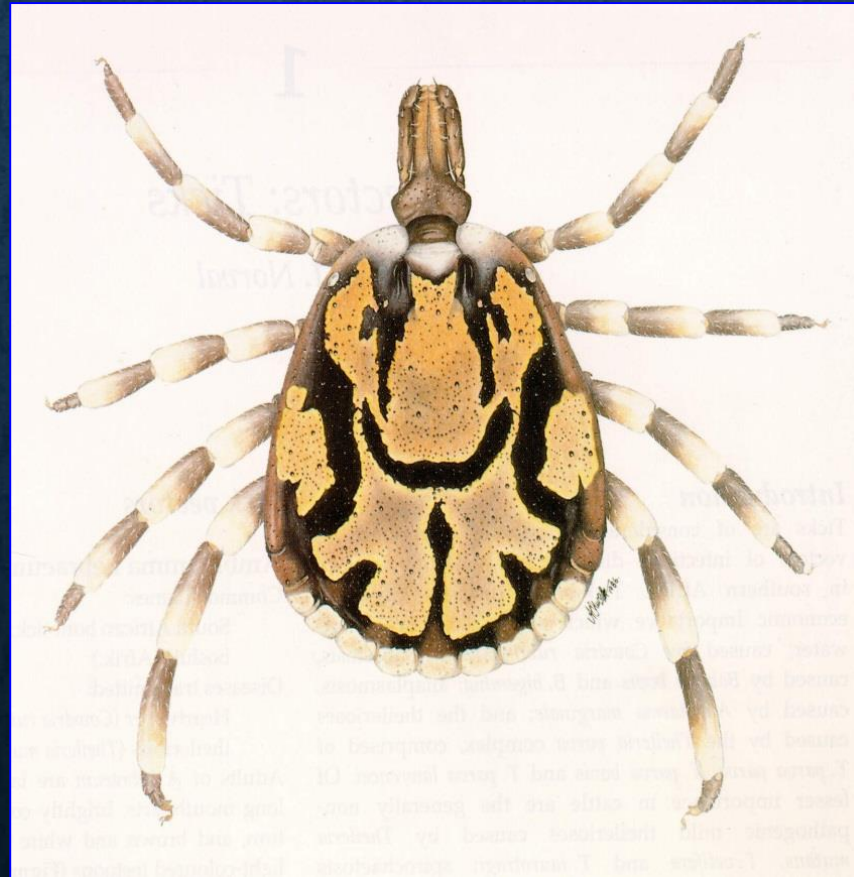
THE ORGANISM

- *Ehrlichia ruminantium*



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- Vector: *Amblyomma hebraeum*



THE ORGANISM

- *Ehrlichia ruminantium*
- Vector: *Amblyomma hebraeum*
- Strains – many.....

Ball3 ; Welgevonden; Kümm;

Senegal; Gardel; Mbizi

– significance





OCCURRENCE

- **Heartwater areas (endemic)**
- **Unstable areas**
- **Non-heartwater areas**

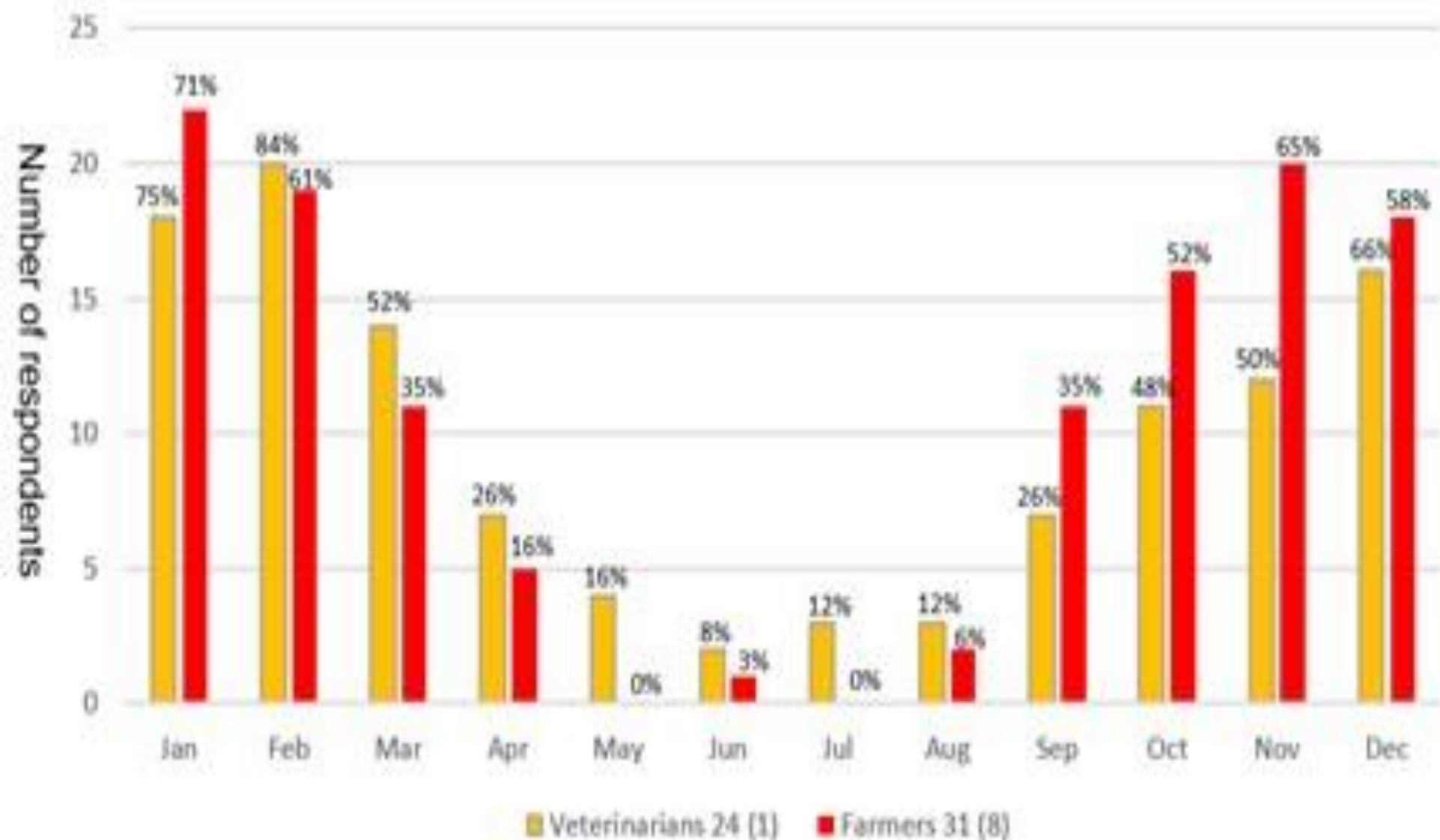
Recent survey of farmers and vets concluded:

- **heartwater is increasing in distribution & severity**

Factors involved:

- **climate**
- **vegetation**
- **wildlife and livestock movements**
- **role of static or declining vaccine usage**
- **increased reliance on intensive tick control**
- **widespread use of whole herd antibiotic blocking**

Which months of the year are the worst months for heartwater?



Brits

Schoemansville

Jasmyn



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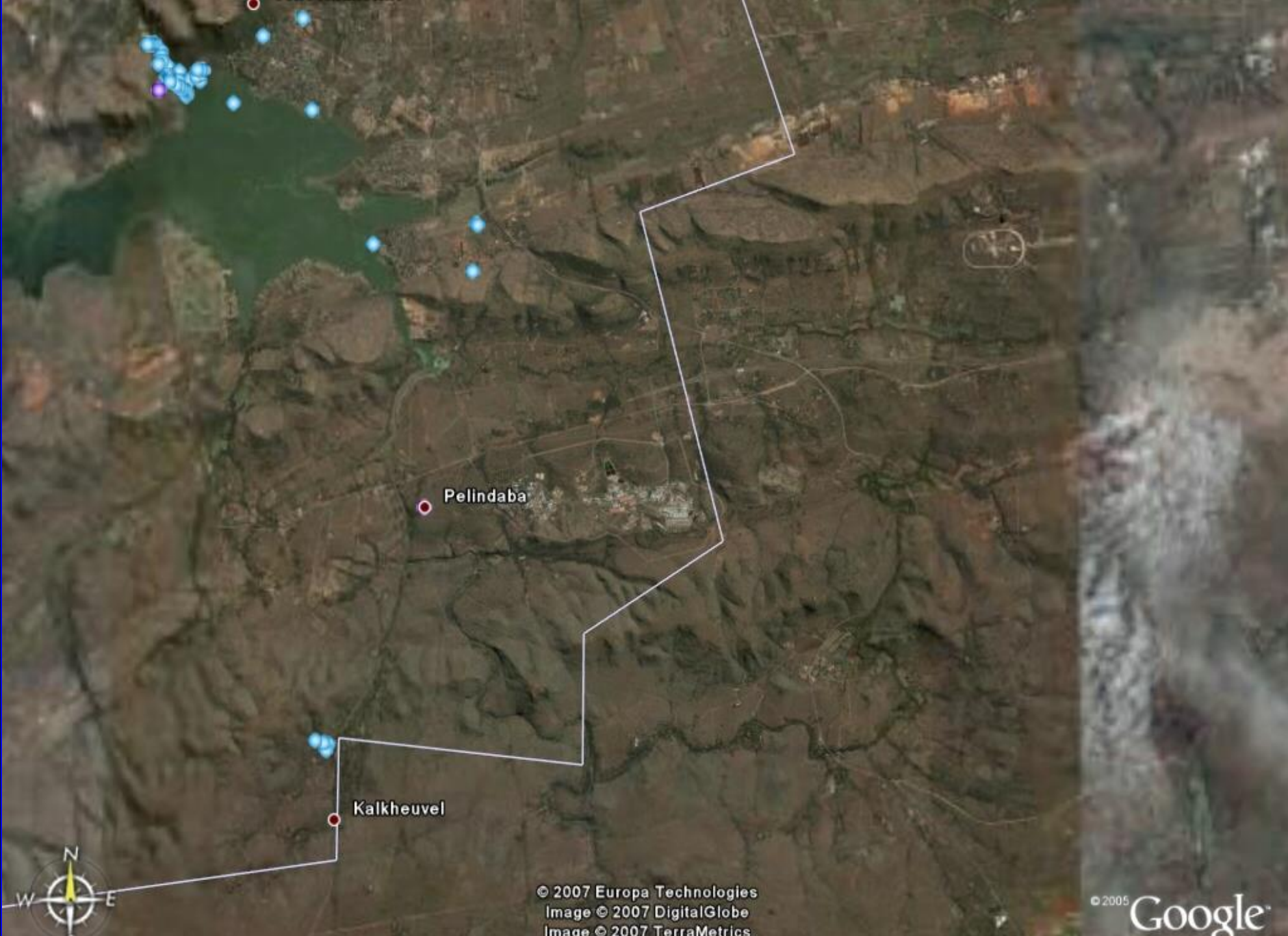


Schoemansville

Pelindaba
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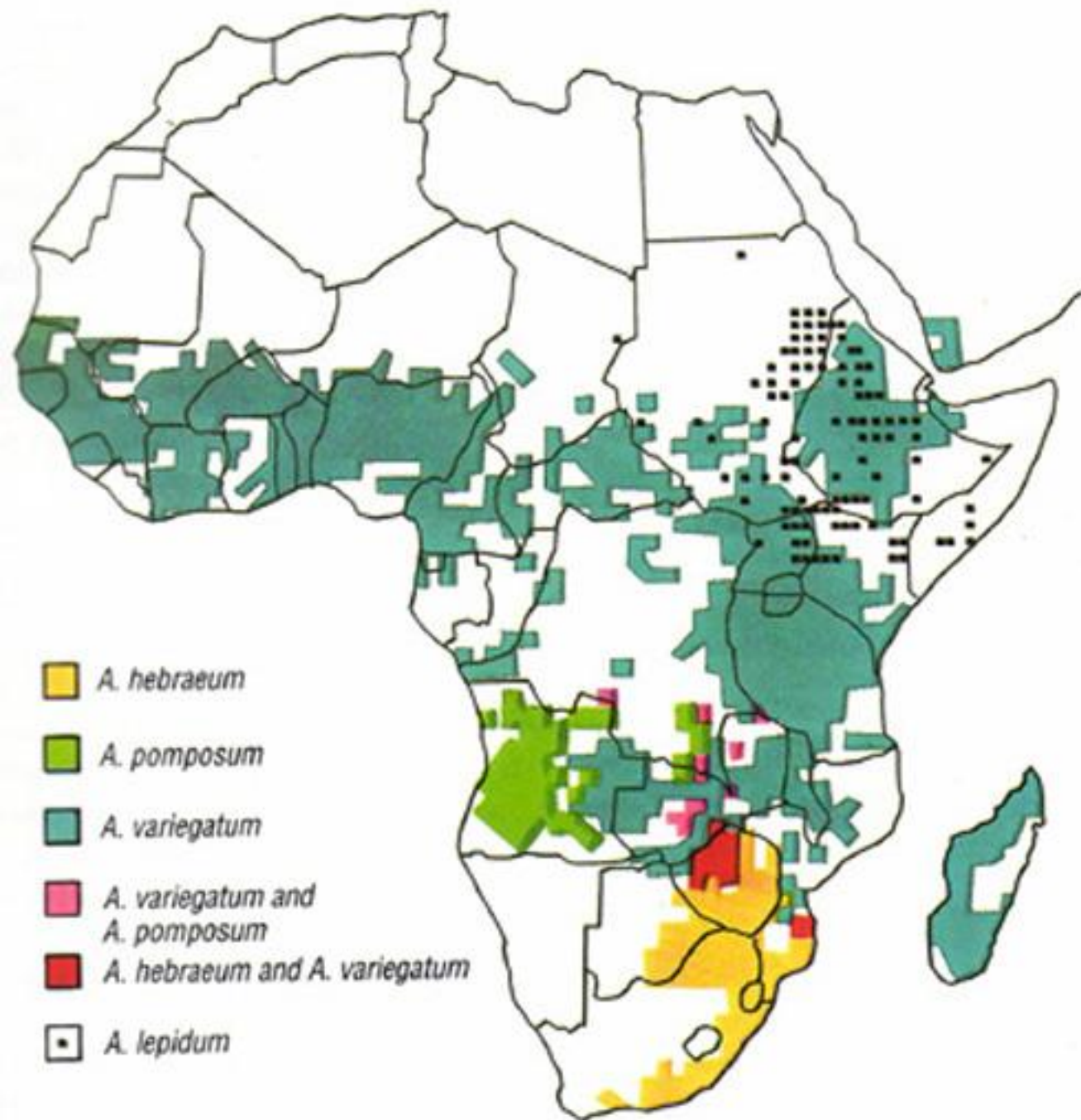
Pelindaba

Kalkheuvel

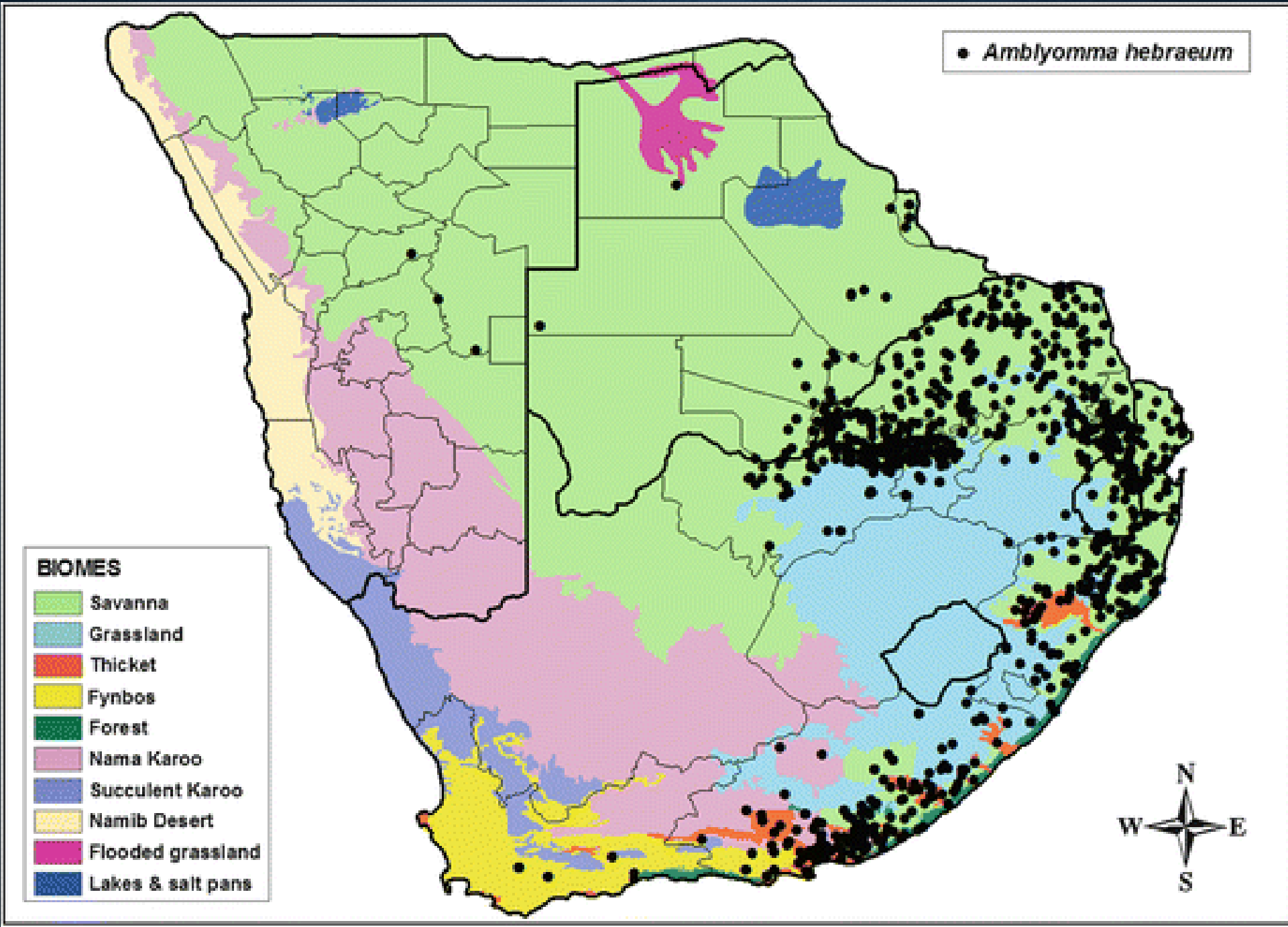


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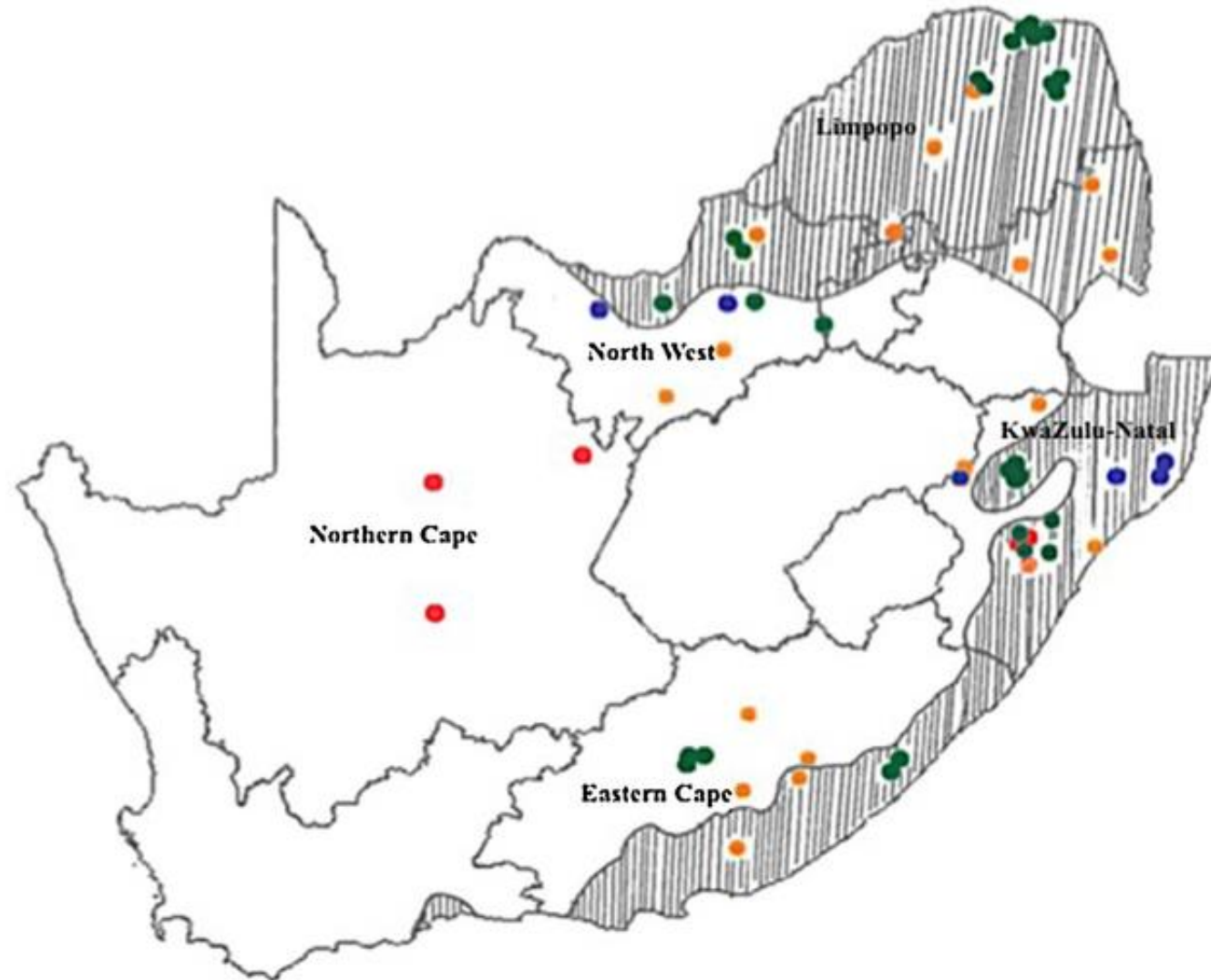
- A. hebraeum*
- A. pomposum*
- A. variegatum*
- A. variegatum and A. pomposum*
- A. hebraeum and A. variegatum*
- *A. lepidum*





Legend

-  Provincial boundaries
-  Heartwater outbreaks
-  Smallholder farms
-  Commercial farms
-  Research stations
-  Heartwater endemic areas



SUSCEPTIBILITY / RESISTANCE

- **Cattle: *Bos indicus* vs European breeds**
- **Sheep more susceptible; breeds**
- **Goats most susceptible; breeds**
- **Game – eland, blesbok, springbok, black wildebeest develop disease**
- **Other reservoirs – helmeted guinea fowl?, leopard tortoise?, scrub hare**

SUSCEPTIBILITY / RESISTANCE

- **Nonspecific resistance**
- **Genetic resistance (recessive sex linked gene in Creole goats)**

HEARTWATER “VACCINE”

How is the present “vaccine” produced?

FREQUENTLY ASKED QUESTION:

- **Can vaccinating sheep on a farm cause a localised “outbreak” of heartwater in sheep and cattle close by?**
- **Yes!**
 - **heartwater free or heartwater unstable area**
 - **suitable climate, vector and reservoirs present**

VACCINATION

- Presently Ball-3 blood “vaccine”
- The Mbizi strain inactivated vaccine is being developed by OBP
 - infection but reduce mortalities
 - confers protection for more than a year
 - several field strains can be included
- Live attenuated vaccines
 - thermolabile
 - poor protection against heterologous strains

TREATMENT OF HARTWATER:

- **Drug of choice**
 - **tetracyclines**
- **Supportive treatment**
 - **diuretics?**
- **Controversial treatment**
 - **partial exanguination**









Dr Jean du Plessis was one of the pioneers of the heartwater “vaccine”