

What are termites?

Training material compiled by Dr Constanze Grohmann
for the BIOTA Southern Africa para-ecologist training course in 2008



What are termites?

- Insect Order: “Isoptera”
- They are NOT Ants!!! (The term “white ant” is from a scientific point of view wrong)
- Closely related to cockroaches
- Number of species in Namibia: 41
- Number of species in the world: 2700



Two common species



Hodotermes mossambicus

- “Harvester termite”

Macrotermes michaelseni

- Cultivate a fungus



Life cycle

Major soldier

Minor soldier

Secondary reproductive

Minor worker

Major worker

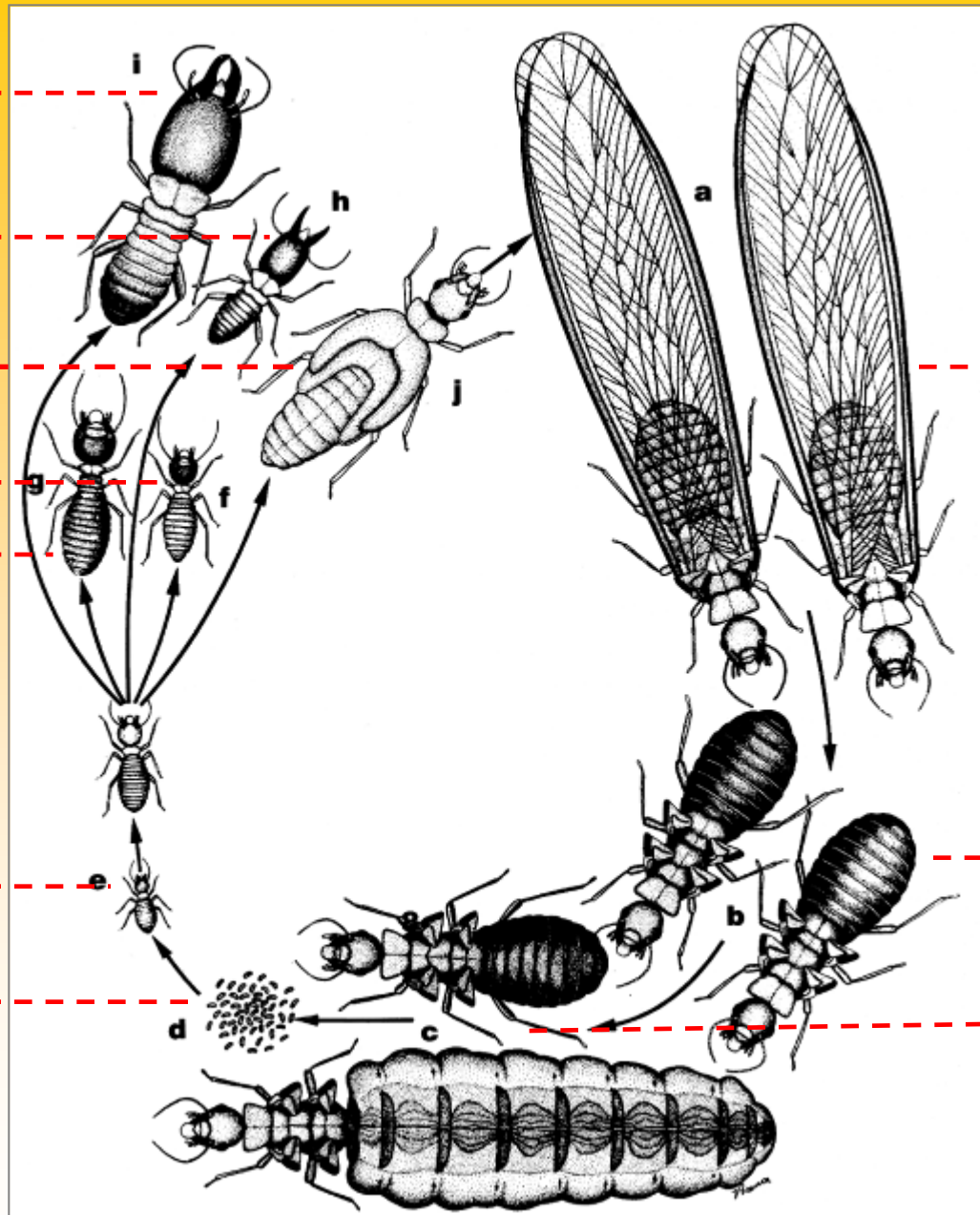
Larvae

Eggs

Alates

De-alates

King & Queen



Nutrition

- Termites eat anything that contains cellulose: e.g. wood, leaves, bark, humus, soil, herbivore dung
- “Lower” termites: possess intestinal protozoa that assist in the breakdown of cellulose
- “Higher” termites: produce enzymes to break down cellulose
- Macrotermitinae (where Macrotermes and few other genus belong to): cultivate fungus gardens, which aid in the digestion of cellulose



Macrotermitidae: Role of the fungus

- Worker eat dead grass and wood
- They do not digest this material but give it to their fungus gardens
- The fungus digests the cellulose
- The termites eat the fungus - - - -
- Workers feed the larvae, soldiers and the queen with the fungus





















Some facts

- Termites mounds appear some years after the founding of a colony, so that there are many young colonies being in a invisible subterranean stage
- If a Macrotermes colony dies, often other termite species will inhabit the abandoned termite mound
- A termite colony of Macrotermes-species consists of about 1 million termites
- The biomass of termites can exceed the biomass of ungulates (hoofed animals) in savannas

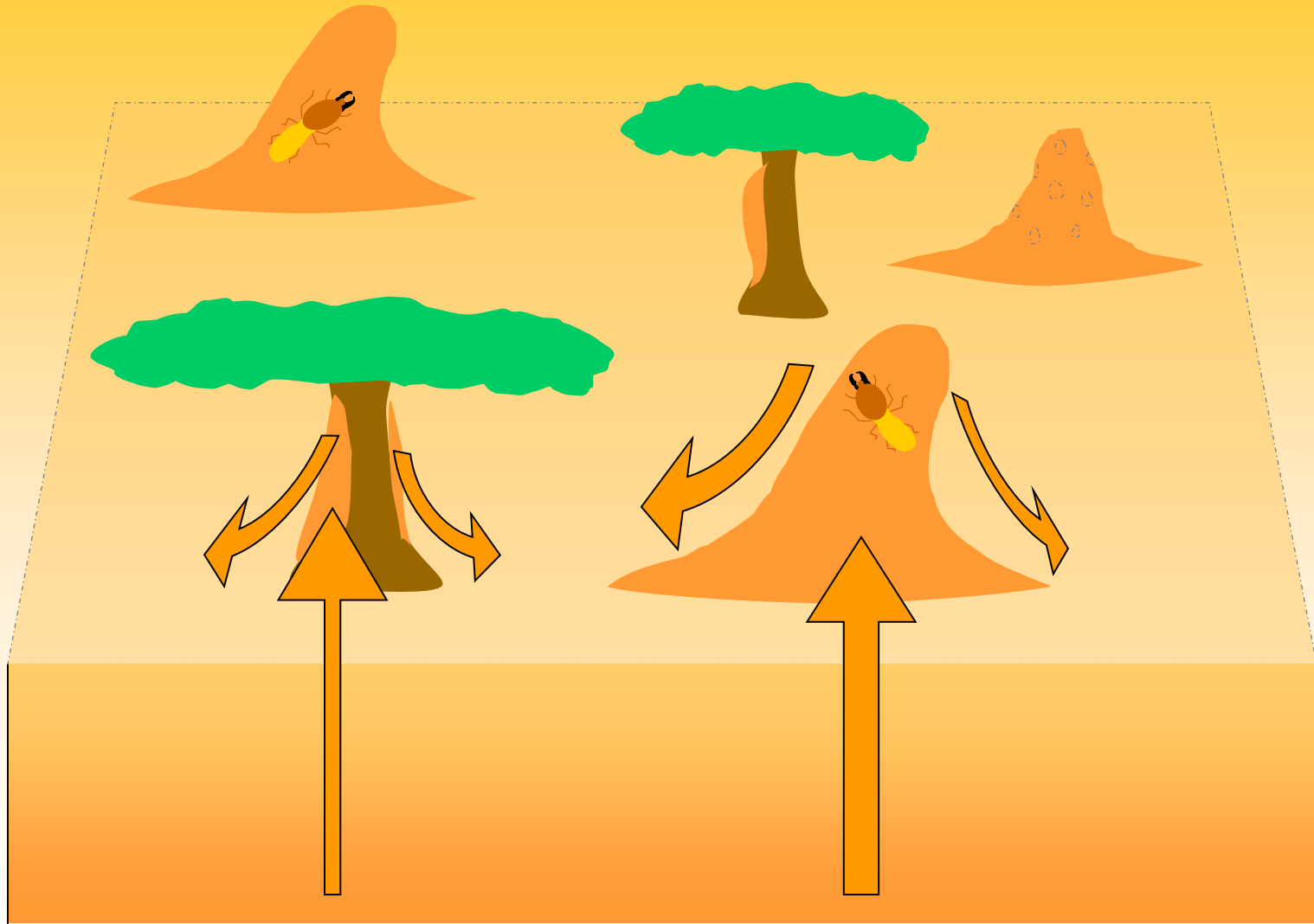


Role of termites for ecosystems

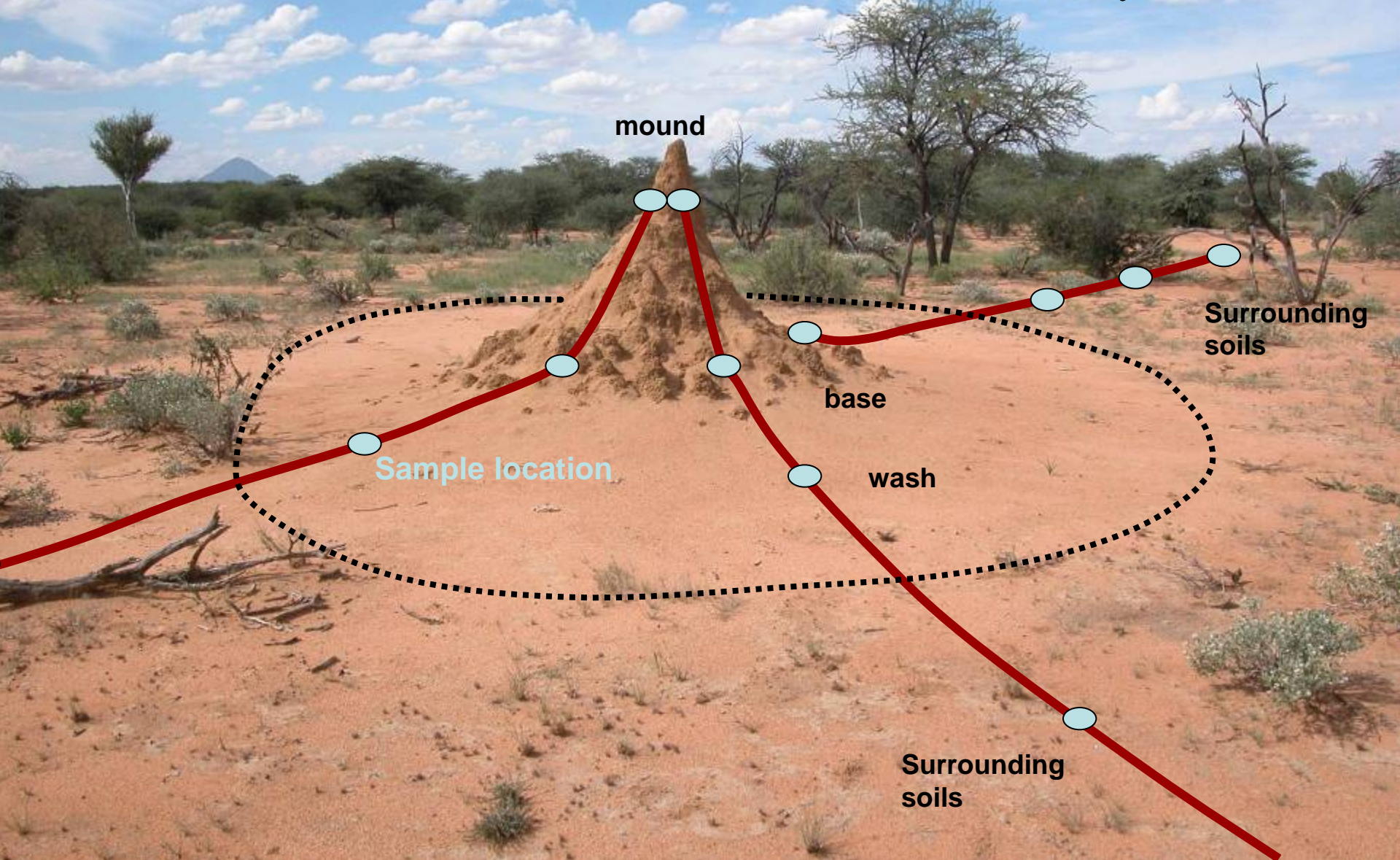
- Important food for many mammals, birds, other insects and humans
- Termites are main decomposer in arid areas => they make nutrients which are stored in dead plant material available for the system
- They make ~0.76m tunnels per m² in the soil. Through these tunnels and their openings to the soil surface, rainwater can run deeper in the soil and the moisture can be stored longer in the soil
- They enhance soil turnover and bring nutrient enriched soil material from deeper soil layers up to the soil surface



Termites enhance soil turnover



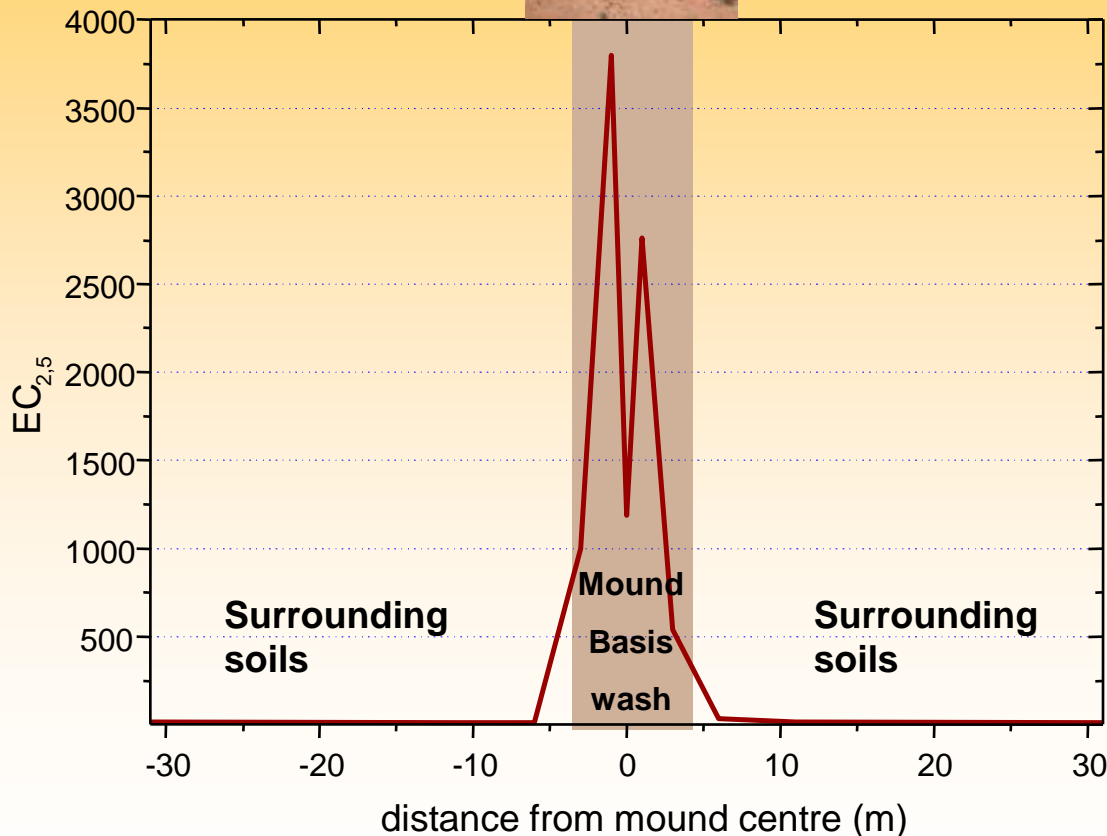
Soil turnover: test via soil samples



Soil turnover: results



mound with signs of trampling and possibly licking by game



highly increased
electrical conductivity
in mound, base and
wash

-> mounds are a
source of salts &
nutrients

