

Improving agricultural water productivity through integrated termite management

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Key message

Primary RWM goals must include:

- Restoration, maintenance and optimally distributed biomass reserves (C) among agroecosystem components.
- Allocation of rainwater to enable production and maintenance of agroecosystem structure and function.
- ITM is one of numerous entry points.

CPWF research

- Confirms termite damage is symptomatic of land degradation in semi-arid rainfed agriculture.



Diga, Ethiopia



Nakasongola, Uganda

Selected characteristics of termites and land degradation

- Can provide valuable ecosystem services.
- Losses increase in response to over grazing and inappropriate cropping and forestry practices.
- Major loss to land, production lives & livelihoods.
- Affect semiarid grazing, cropping & agroforestry.
- About 20 of Africa's 1000 species problematic.
- Termite control measures costly and ineffective.
- Integrated termite management needed.

Previous CPWF research

- Indicates that damage to pasture can be reduced by “feeding” rather than killing termites.
- Night corralling proved effective in Uganda.



Before



After

Current NBDC-RIU research

- Preliminary results suggests applying stover mulch to growing maize also reduces termite damage



Without stover

Farmer's
trial

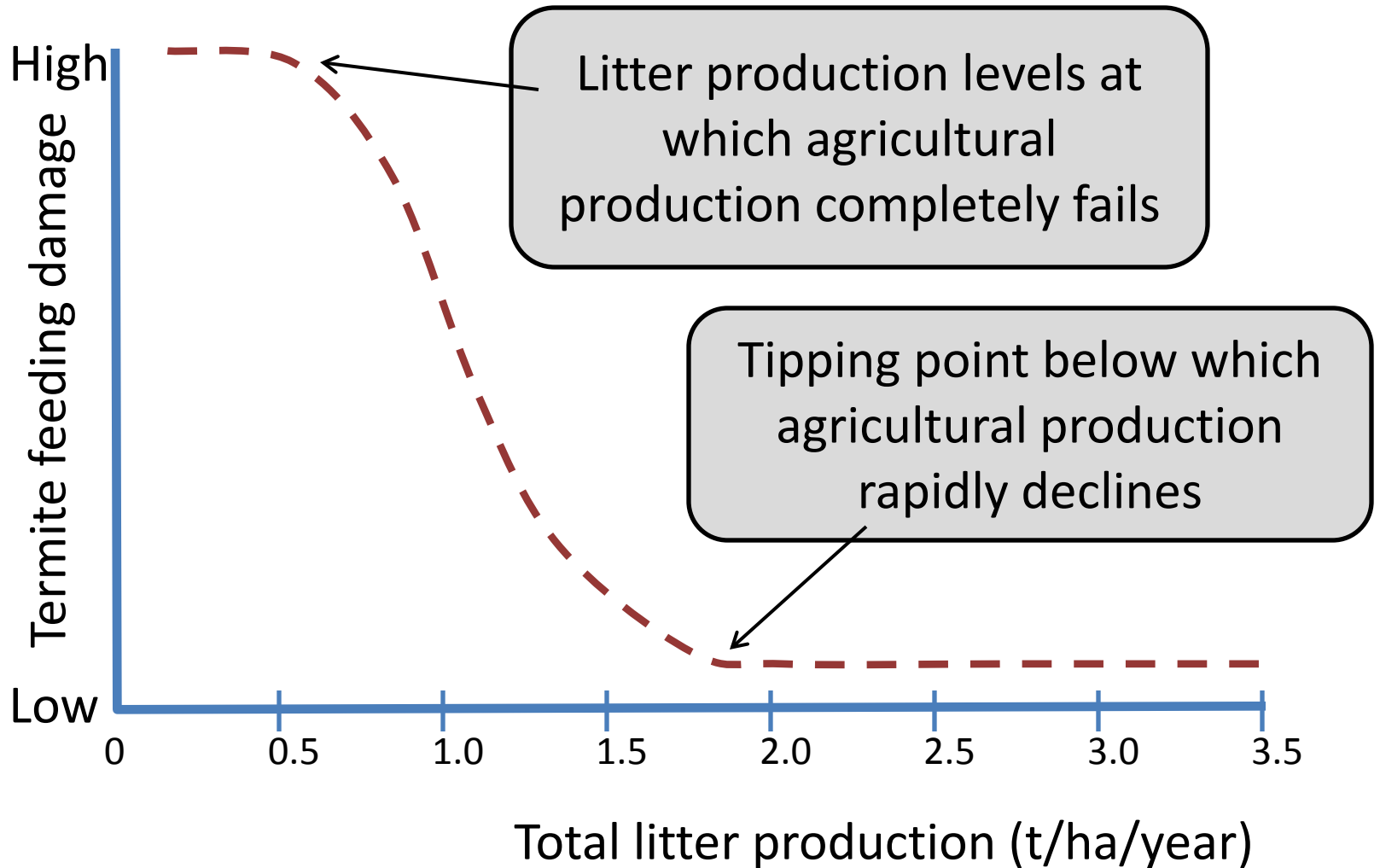


With stover

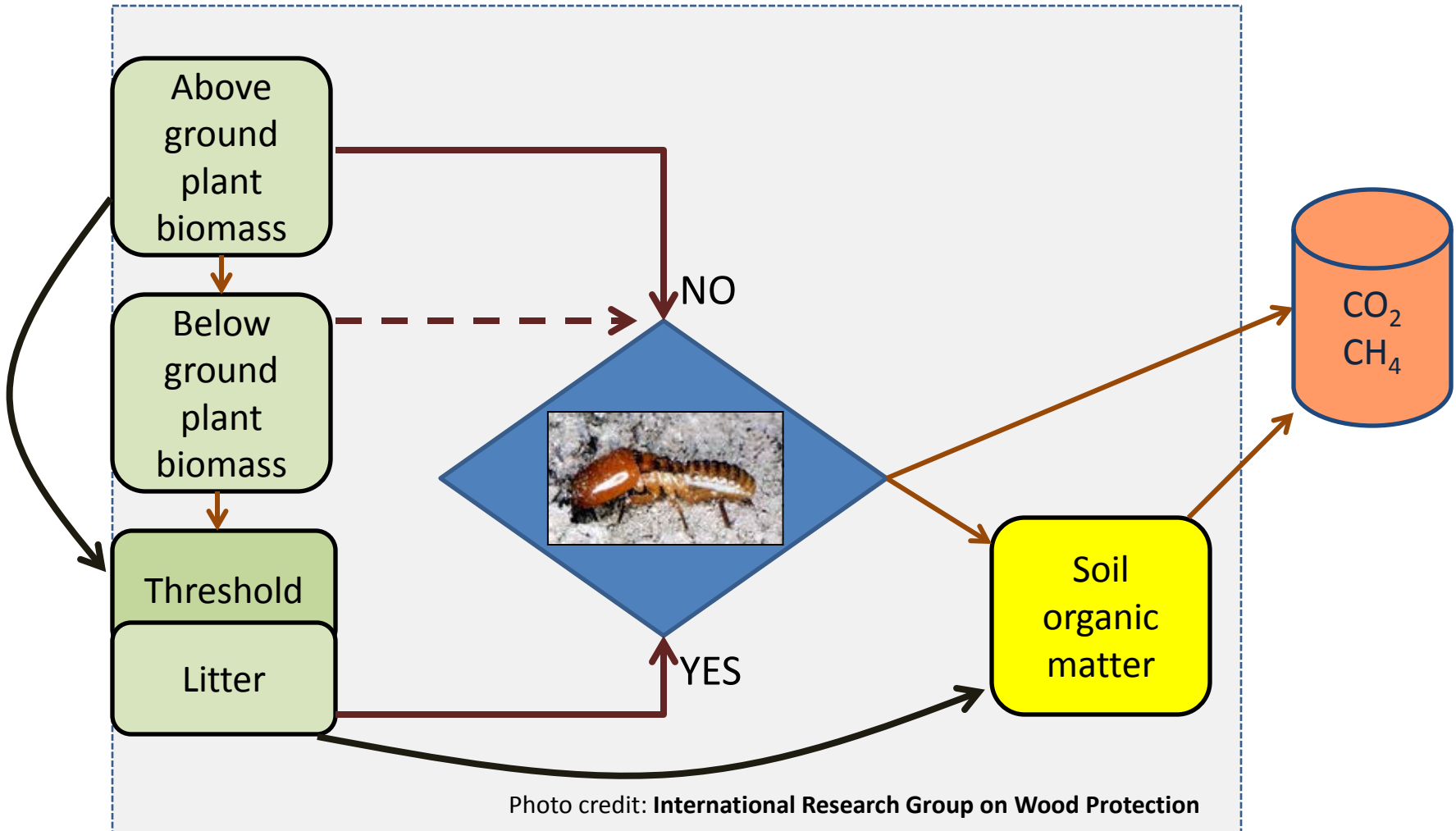
What does this mean for agro-ecosystem structure and functioning?

- Current agricultural practices cause long-term decline in plant biomass and soil organic matter.
- In “healthy” agro-ecosystems, termites feed on plant litter and populations are controlled by predators and disease.
- Termites shift to feed on live forage, crops and trees when preferred litter declines.

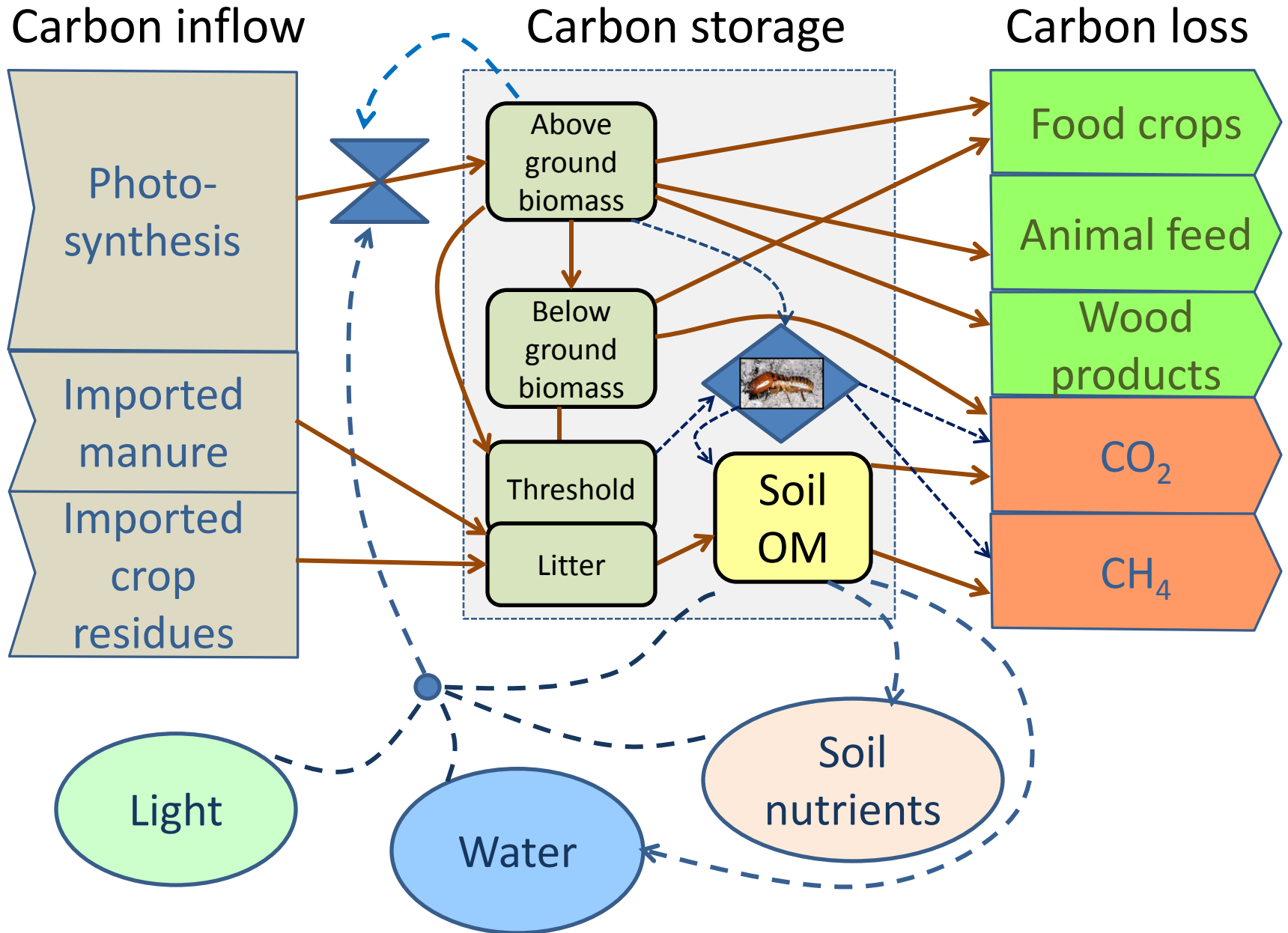
Hypothetical relationship between litter production and termite damage to crops and pasture



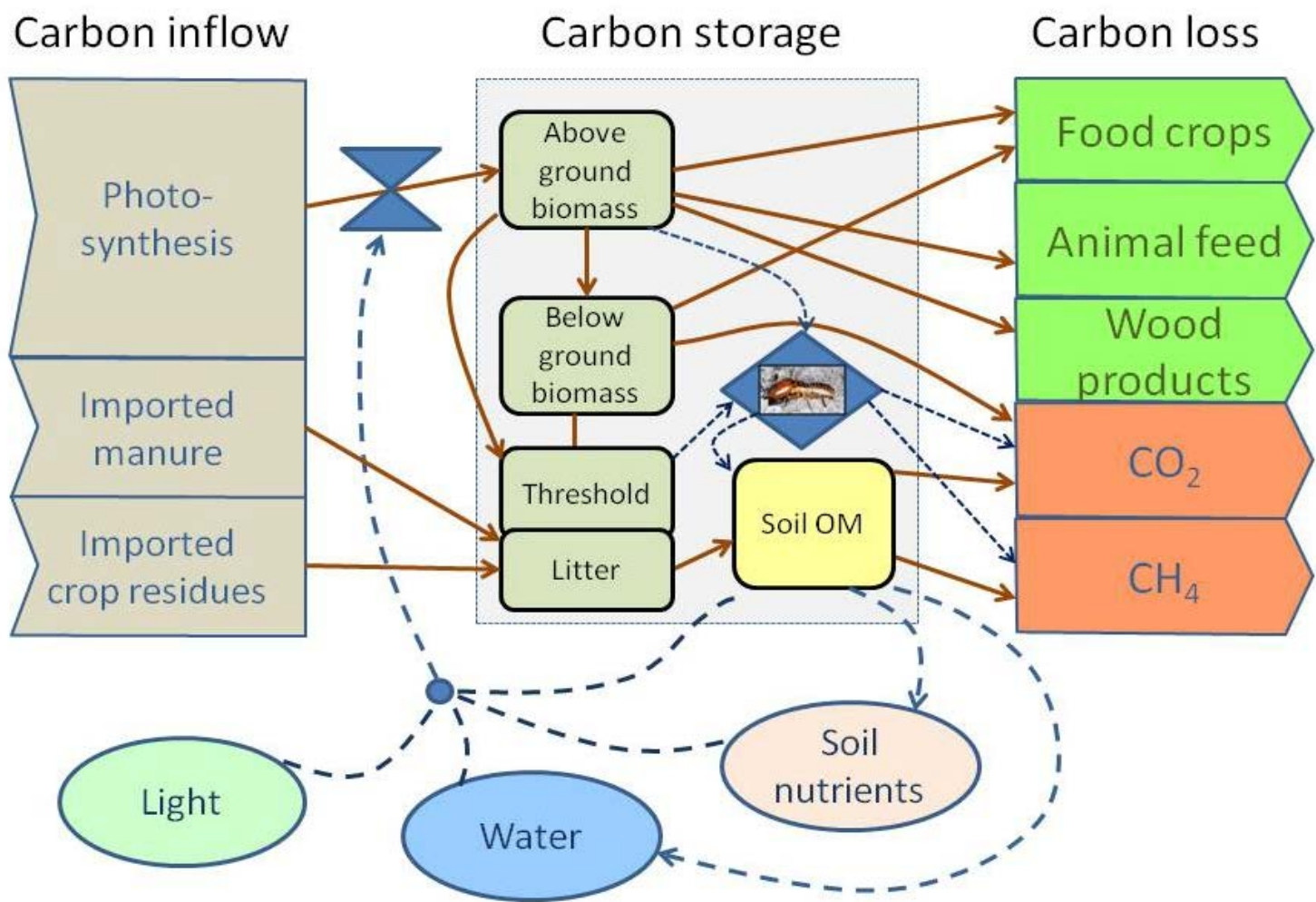
Role of Macrotermes feeding on carbon flow



Simplified extended Carbon flow model



Social capital
Human capital
Financial capital
Physical capital
Natural capital



Implications

- R&D goal needs to restore biomass reserves and maintain ecosystem services.
- RWM strategies must allocate water for biomass reserves.
- Increased vegetative cover essential.
- Integrate ITM with other RWM strategies.
- Research needed to refine ITM approach.

Thank you

