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CROSSROADS
Cataloguing and Rating of Side-lined Species for the Restoration of Agriculturally Degraded Soils in Sub-Saharan Africa

ABERDEEN 2040

Designing Practical Tests of Ecosystem Function for adoption in Sub-Saharan Africa

The James Hutton Institute

ENGEES
L'école de l'eau et de l'environnement

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The Context

- Much of Sub-Saharan Africa rich in biodiversity.
- Ability to monitor biodiversity is limited.

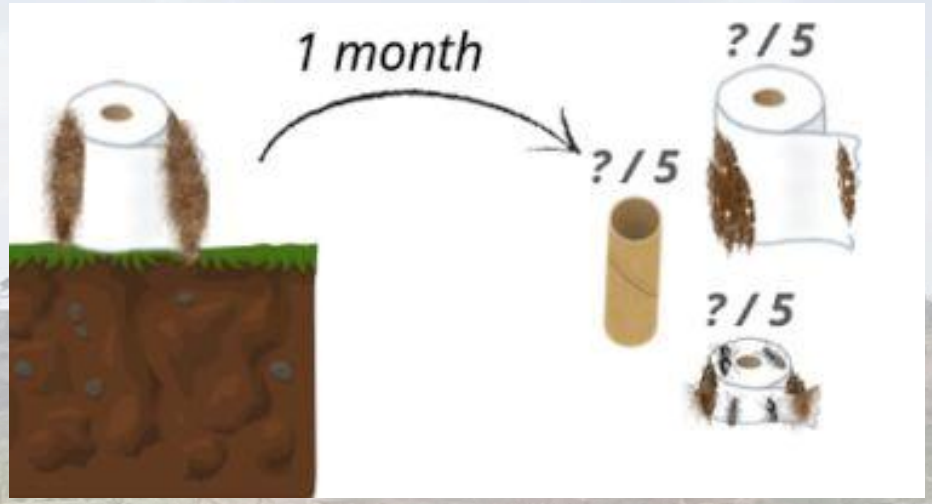
Aim to bridge this gap:

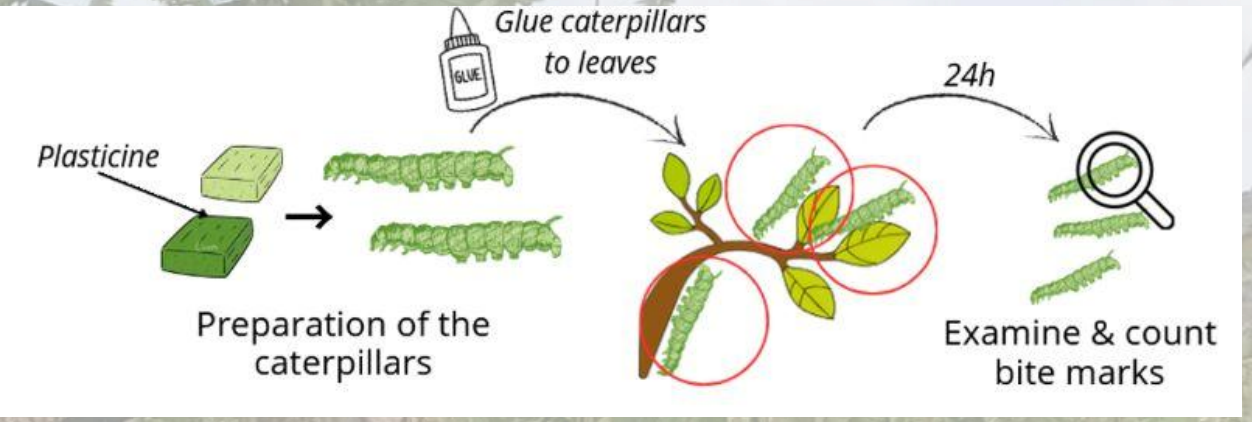
- Designing a toolkit consisting of simple, low costs tests linking biodiversity to ecosystem function.
- Usable for farmers in SSA!

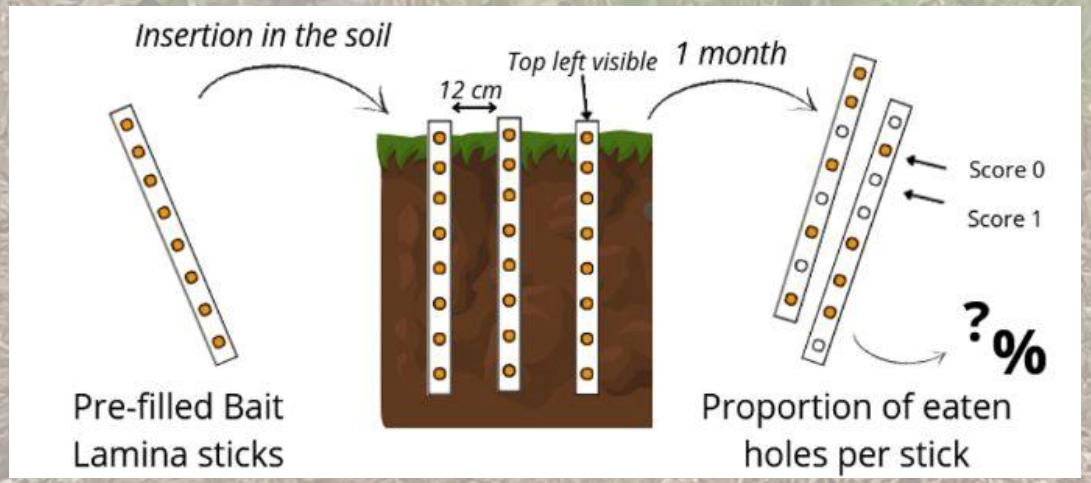
Toolkit Overview

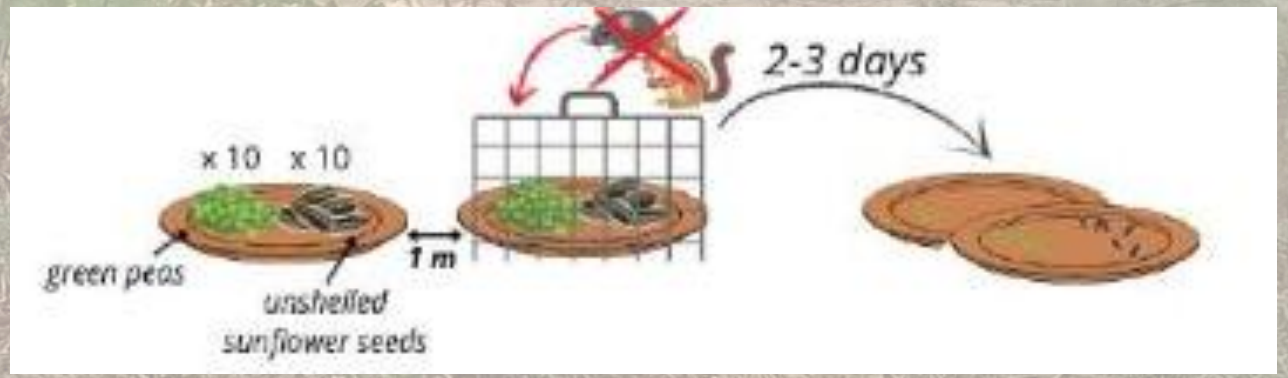
Ecosystem Function	Test(s) used
Soil Fauna Activity	Dung Removal
Decomposition and Nutrient Cycling	Toilet paper test, Bait lamina test
Pest Pressure	Plasticine Caterpillars
Seed predation	Seed removal test

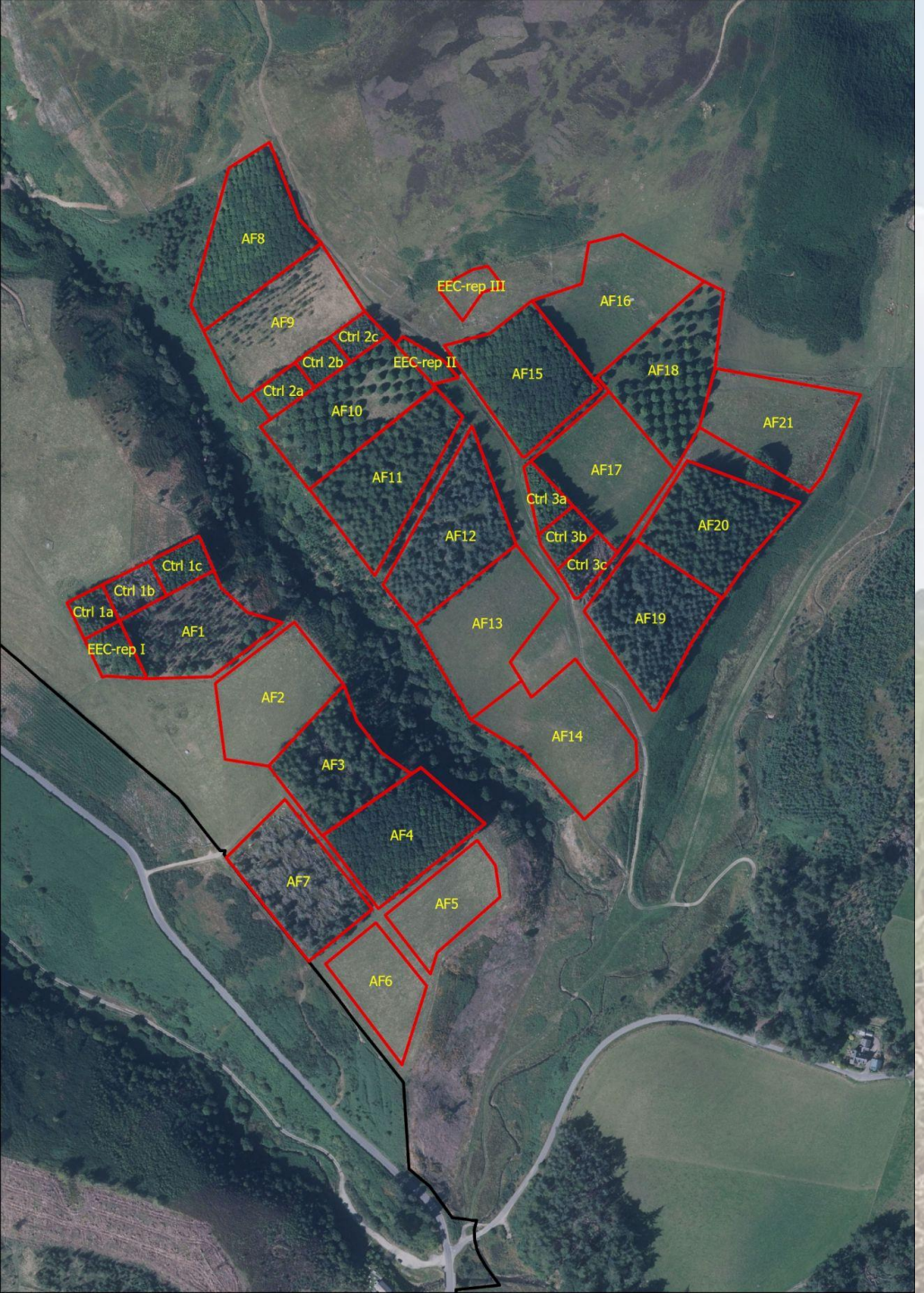
Simple, Scalable, Functional







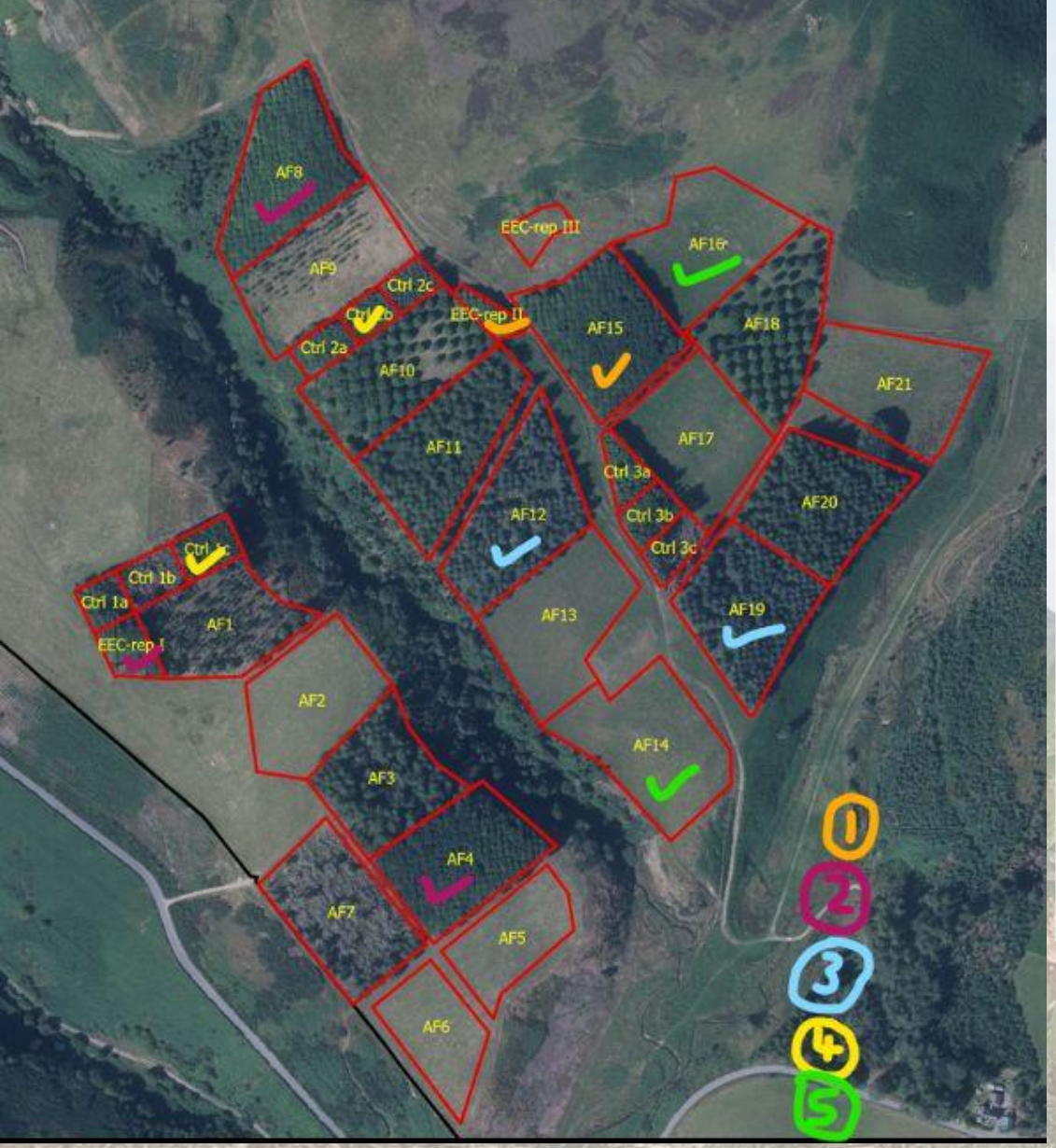




How can we test this?

- Currently trialling this at Glensaugh Research Farm, near Laurencekirk.
- James Hutton Institute Research site
- Agroforestry Plots:
  - Deciduous broadleaf v evergreen conifer,
  - Planting density,
  - Grazing effects
  - Tree planting (Scots Pine v sycamore v unplanted pasture)

Summary of treatments



Treatment	Tree type	Trees per ha	Status	Plots Used
1	Sycamore	400	Grazed	AF15, EEC-rep II
2	Sycamore	400	Ungrazed	AF4, EEC-rep I, AF8
3	Scots Pine	400	Grazed	AF12, AF19
4	Sycamore	2500	Ungrazed	Ctrl1c, Ctrl 2b
5	Unplanted pasture	n/a	Control	AF14, AF16

Setup

- 2 cages
  - 1 cage (hosted bait lamina sticks, 700g of dung and 2 caterpillars (1 on cage and 1 in ground)
  - 1 cage (hosted toilet roll supported by bamboo cane, 700g of dung and 2 caterpillars (1 on cage and 1 in ground)


RESULTS TO COME
SOON!

From Monitoring to Management

- Not just academic tests.
- Help provide farmers with better understanding of what is happening below their feet.
- Importance of biodiversity in supporting soil health, pest control and productivity.

Concluding thoughts

- Aim is to use these tests as a step towards broader strategic use in SSA.
  - Grounded in local realities
  - Participatory and scalable.
- Build approaches to wider biodiversity monitoring which is:
  - Inclusive
  - Functional
  - Farmer-led

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