

THE HORSE AS A KEYSTONE SPECIES

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**Climate, biodiversity,
community, and nature —
urgent challenges in a world
of limited land and complex
problems without simple
solutions.**

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THE VALUE OF THE HORSE

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Horses have been with us almost as long as society itself. Their functions might change over time, but our interdependence hasn't.



SO WHAT...

is a keystone species?

A species whose impact is
disproportionately large relative to its
abundance.” – Power et al., 1996



KEYSTONE STATUS VARIABLE AND CONTEXT DEPENDENT



Controlling potential dominants

Controlled, selective grazing: a win-win



Resource providers

Rethinking manure: no more bullsh*t



Ecosystem engineers

Back to simple: Reshaping landscapes



Mutualists

Developing mutually beneficial partnerships

CONTROLLING POTENTIAL DOMINANTS

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Selective grazers suppress dominants. This opens up space for diversity.”



GRAZED VS. UNGRAZED

Grazing associated with lower dominance and higher richness, evenness, and diversity (e.g. Baur et al., 2017)



IMPACT OF EQUINE GRAZING ON GRASLAND DIVERSITY

Year-round horse grazing can
restore and enrich dry
grasslands, with lasting
biodiversity gains
(Moinardeau et al., 2020)



Diversity occurs during
rest periods, over time
and across landscapes
(Köhler, 2023)



Unexpected benefits:
Sand paddocks with
vegetation often more
diverse than fields
(Weber et al., 2025)





WIN -WINS

**Seasonal -, stubble,
cover crops - and post -
harvest grazing**

In winter, horses can graze cover crops seeded to prevent erosion. They can also replace pigs in stubble grazing—offering lighter, less damaging disturbance.

RESOURCE PROVIDERS

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Manure is not waste.
It's a mobile nutrient hub.



MANURE VS FERTILIZERS

Fertilization practices play a key role in how soils function and how much life they support. (Kirkham et al., 2014; Gautam et al., 2021)

Synthetic fertilizers
boost short -term yield,
but can harm soil and
ecosystems long -term.



Horse manure improves
soil health, stability, and
biodiversity better than
synthetic fertilizer.



FUELING SOIL

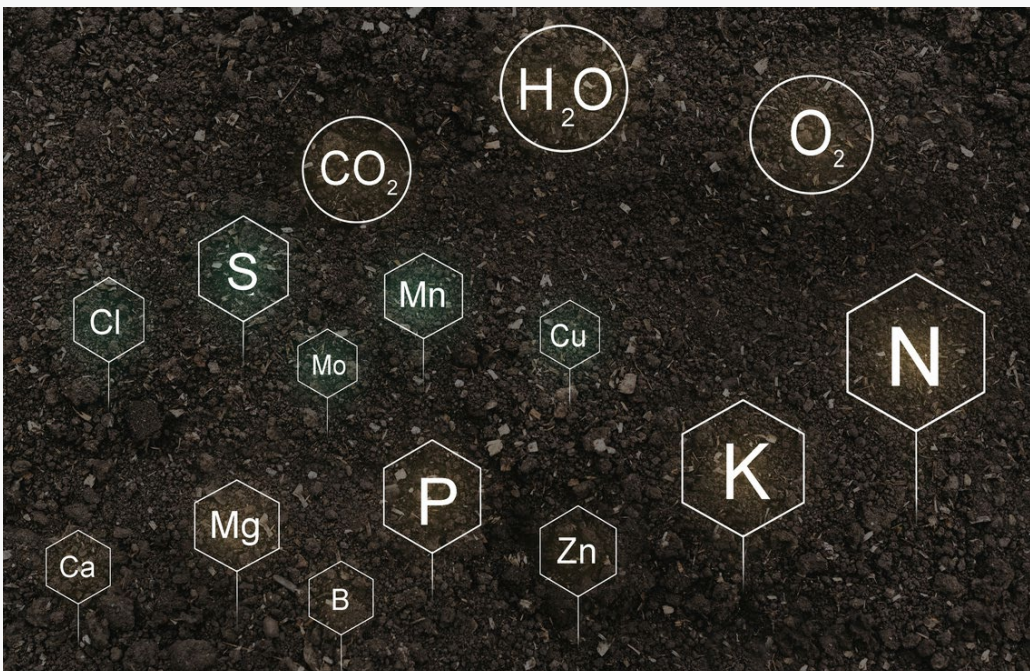
Horse manure fuels the soil: carbon for structure, phosphorus and potassium for growth, and organic matter for life (Chastain, 2022; Gautam et al., 2015)

High carbon -to -nitrogen ratio meaning no nitrogen overload

Provides valuable phosphorus and potassium

Organic matter and carbon improve soil structure and biodiversity

Ideal soil conditioner and long -term fertility booster



MANAGEMENT MATTERS

The quality of soil improvement from horse manure depends on how we manage it.



Bedding use

Important to consider the impact of bedding on dilution of nutrients (N, P, K, minerals).

Mucking out

Planning of mucking out cycle to meet situational demands

Manure handling

Composting stabilises nutrients and avoids N lock-up

Field application

Best applied for P & K needs, with added N if crops require it.

ECOSYSTEM ENGINEERS

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Horses thrive on a diverse
structure within their
environment



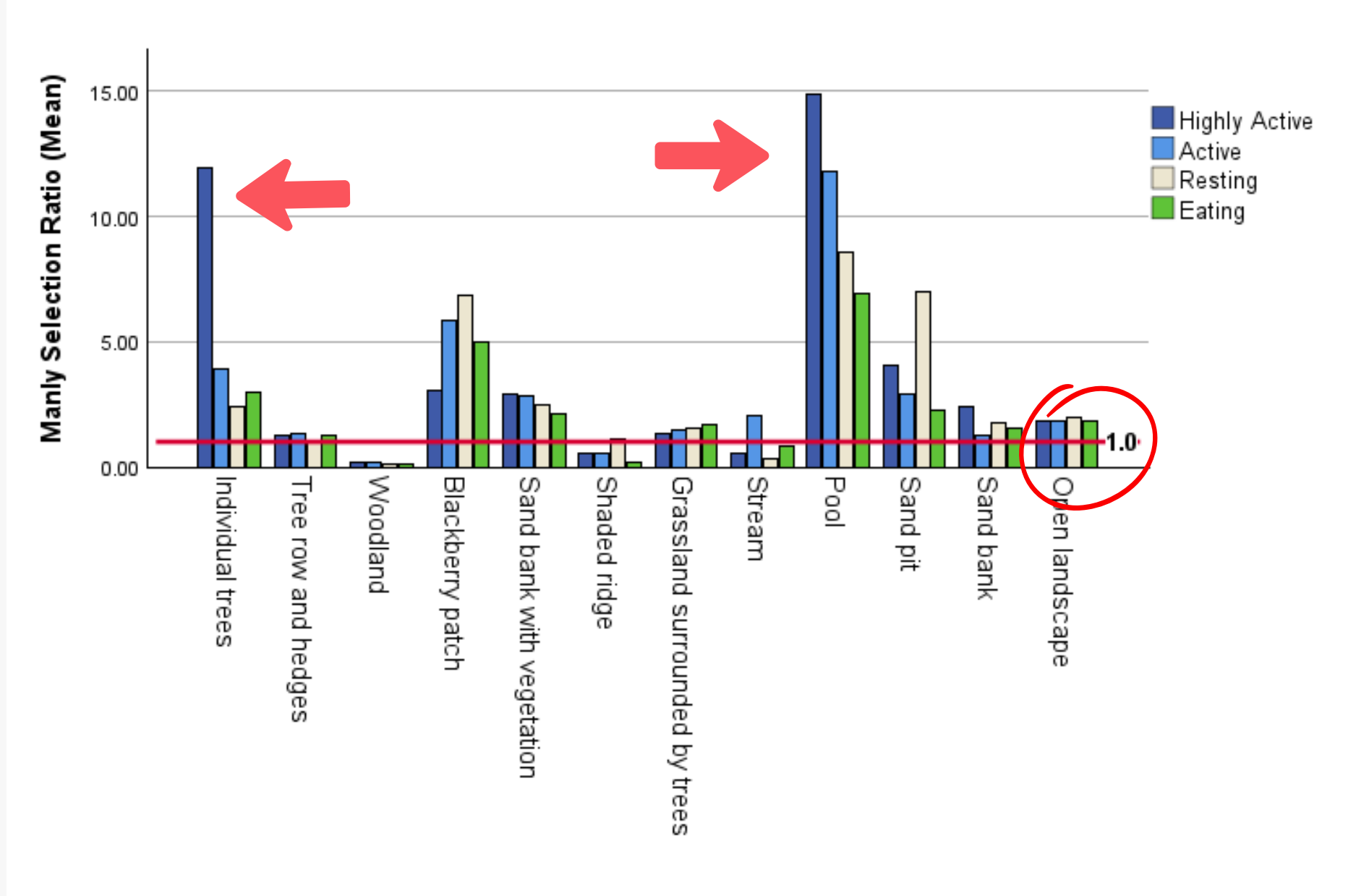


WHEN HORSES...

...are allowed to choose
where they want to
spend their time

Drawing on GPS-based study of young warmblood horses kept in a Swedish nature reserve (Wolframm et al., 2025)





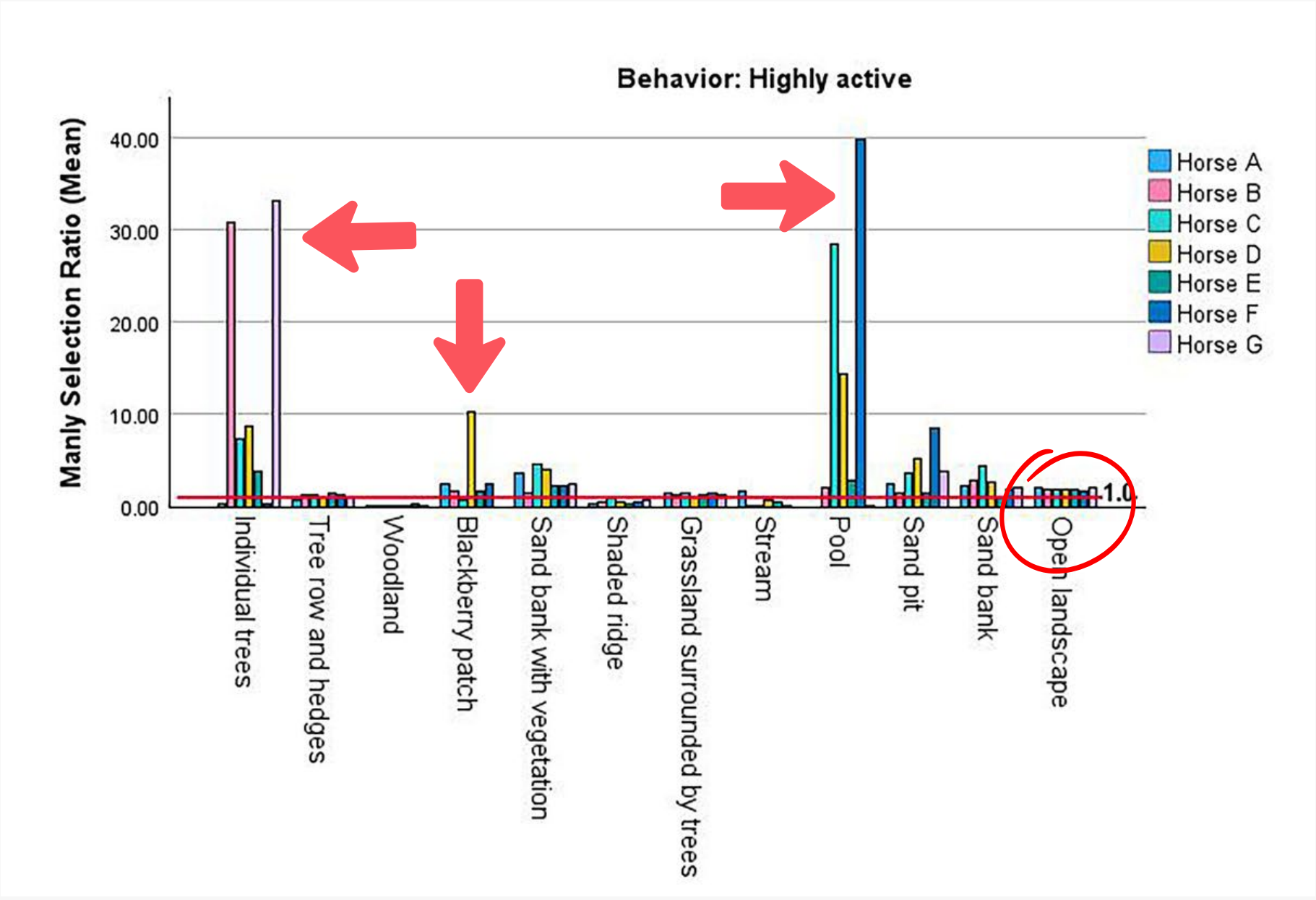
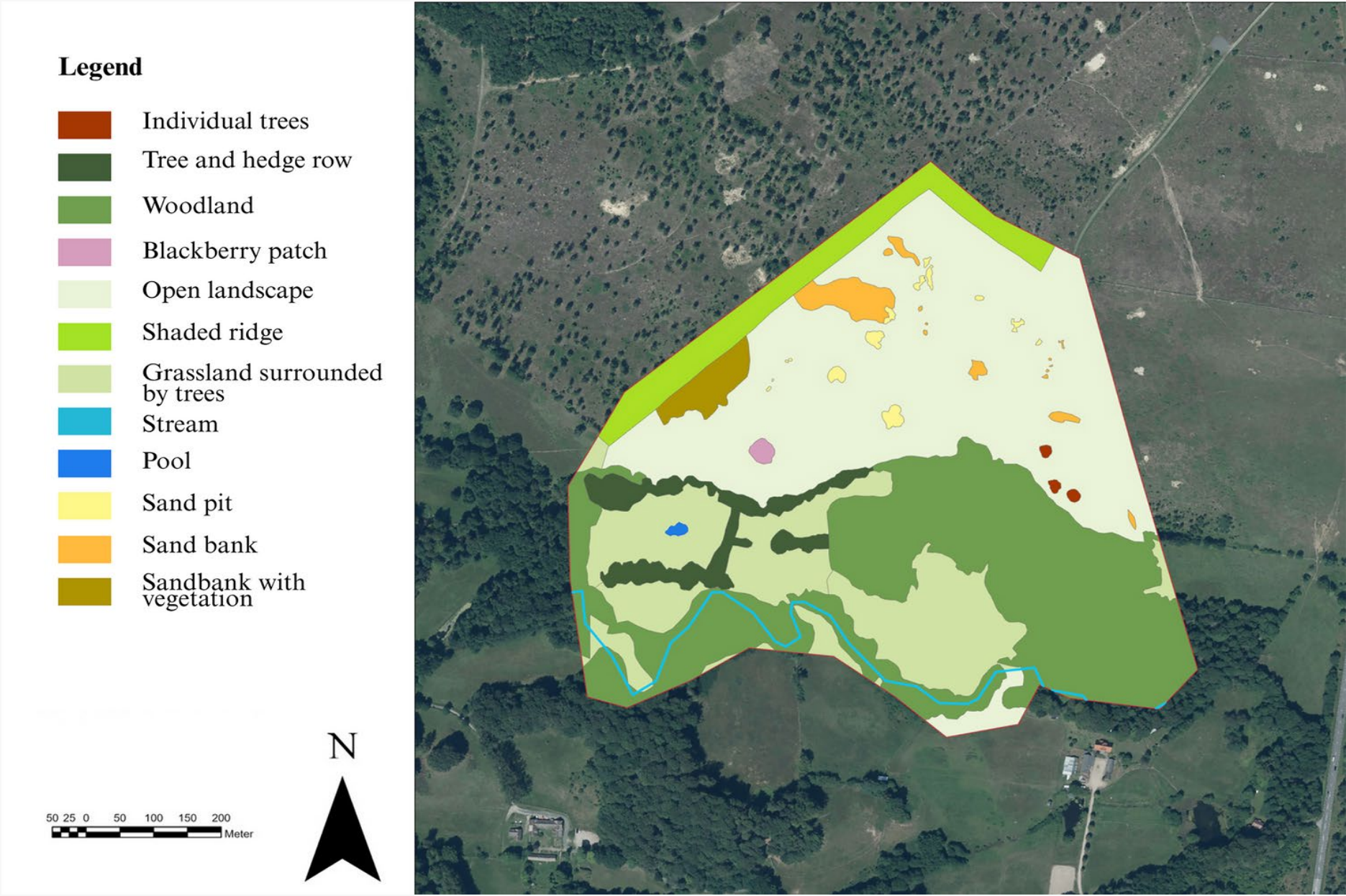
MANLY SELECTION RATIO:

>1 : PREFERENCE

= 1 : EXPECTED USE

<1 : LESS FREQUENTLY USED





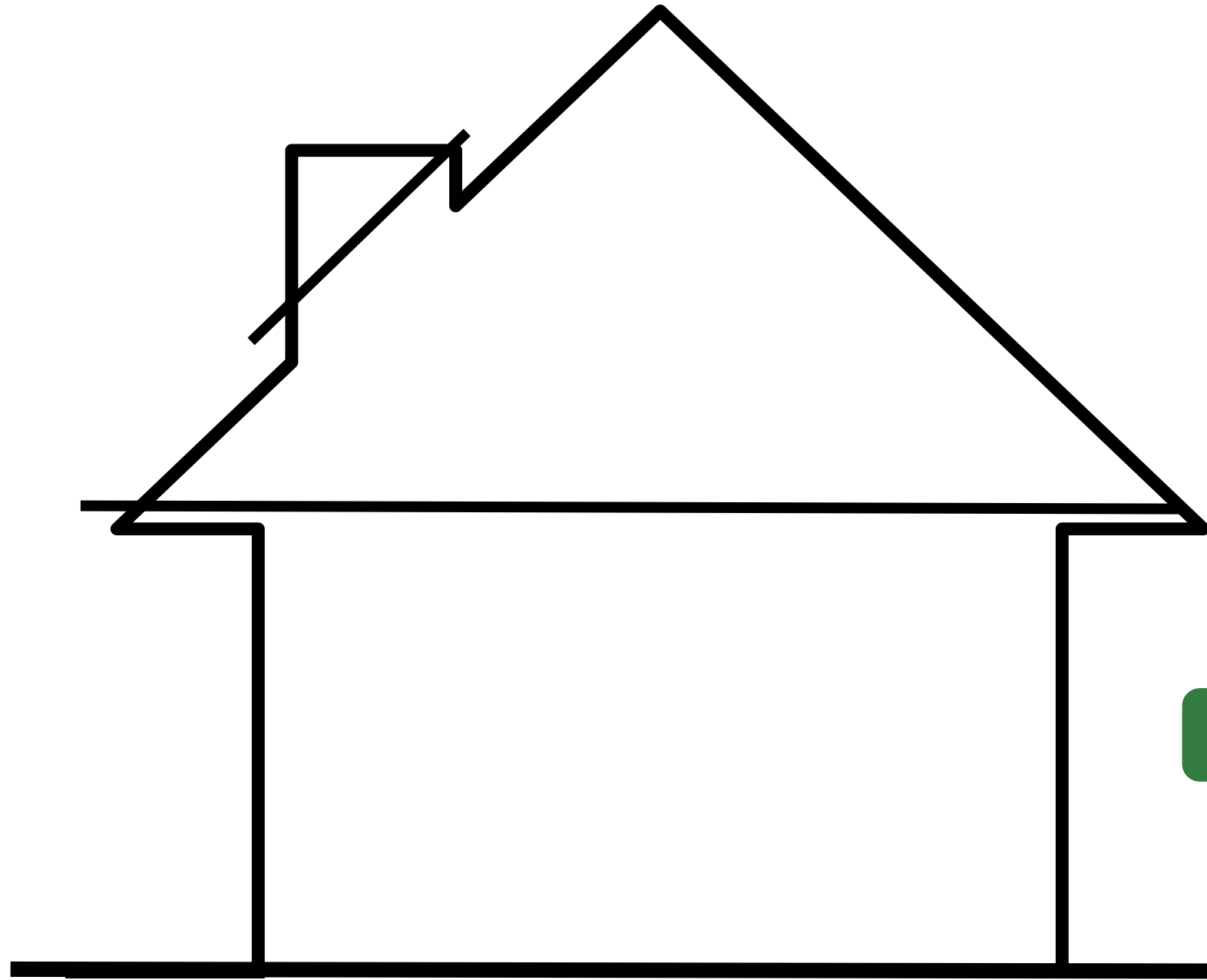
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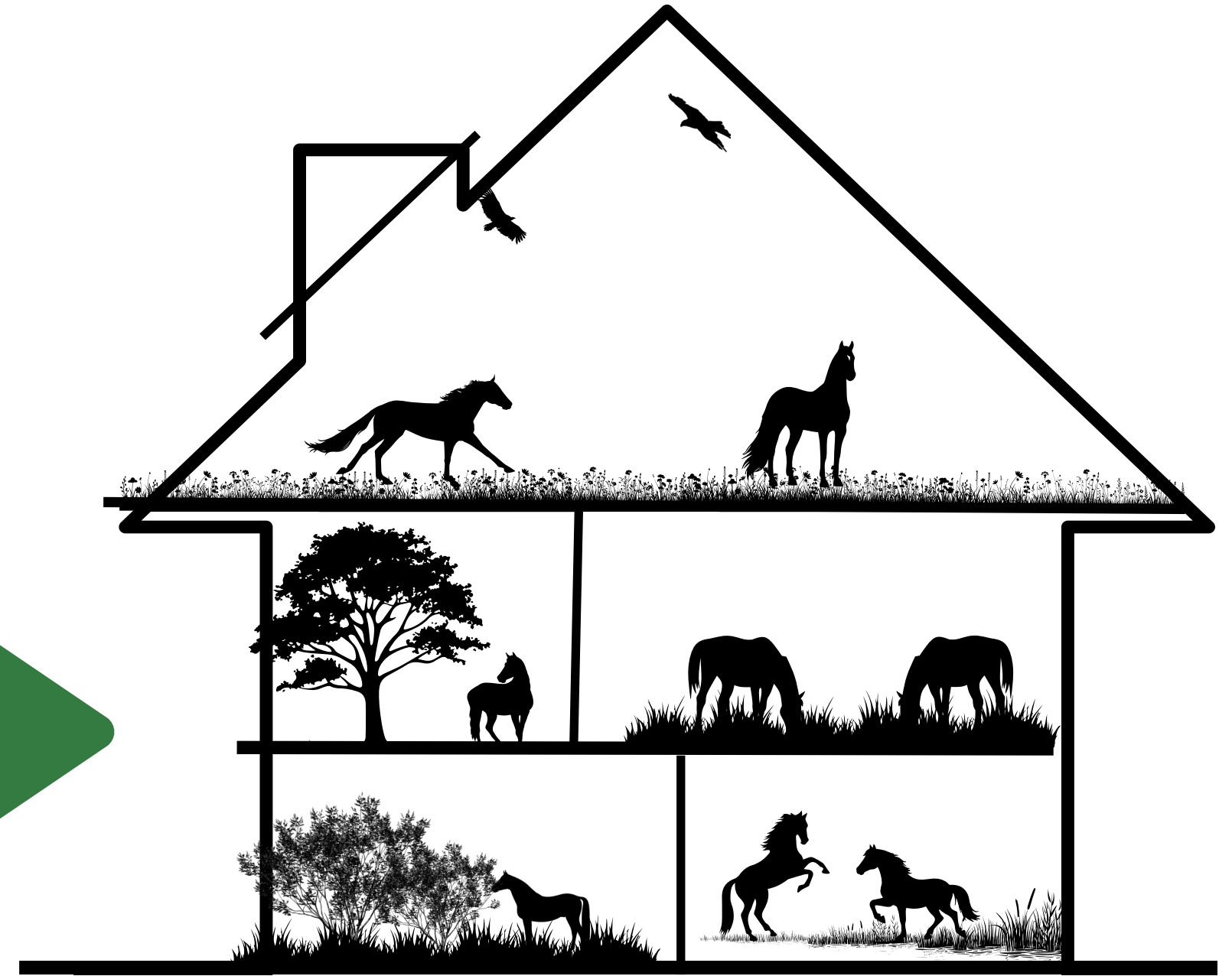
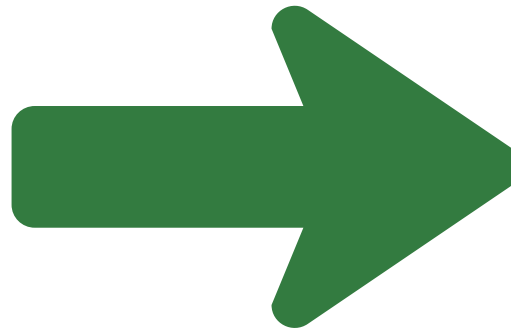
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**Horses need more than
open landscapes...**



**...but choose landscape
variation (in line with
individual preferences)**

CYCLE OF STRUCTURE

Welfare is not enhanced simply by access to large open fields. Horses thrive on an environment with varied and numerous landscape features, which enhance species variety. (Wolframm et al., 2024; 2025).



MANAGED

KEYSTONE SPECIES

The impact of horses on their environment are determined by how they are managed.



MUTUALISTS

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You can't regenerate the land if you disconnect the people.



WELFARE BY LANDSCAPE DESIGN

True mutualism is measured in
wellbeing for all species involved.
(Kortering et al., 2025)





THE MEANING OF THE PLACE

**Equine yards =
rural anchors**

The horse is not a tool. It's a partner. Equine businesses support rural identity, inclusion, and community cohesion. In socio-ecological terms, they act as mutualists. (Wolframm et al., 2025)

HOW HORSES CONTRIBUTE

The horse as a keystone species is not just a metaphor. It's a real opportunity to align ecological impact, rural livelihoods, and animal welfare.

Ecology



Economy



Society



SO, CAN THE HORSE BE A KEYSTONE SPECIES?

Yes - as long as we provide them with the opportunities to act as such.

AND

We create an environment where horses (and horse owners) are integrated into the local structure.





THIS IS WHERE YOU COME IN...

It's all about developing solutions that are multifaceted, and go beyond the traditional understanding of what constitutes the rural sector.

THANK YOU

FOR LISTENING

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