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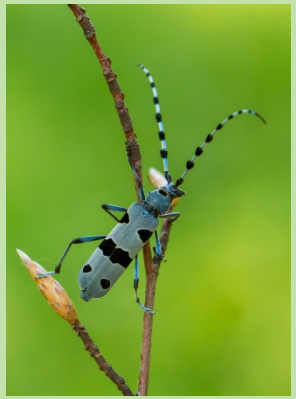
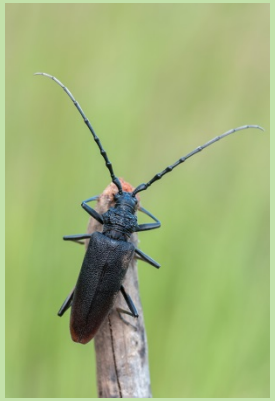
LIFE19NAT/RO/000023
Conservation of saproxylic beetles in the Carpathians

Marian Mirea

Context

Implementation area
ROSCI0208 Putna Vrancea (38060 ha, Romanian Eastern Carpathians)

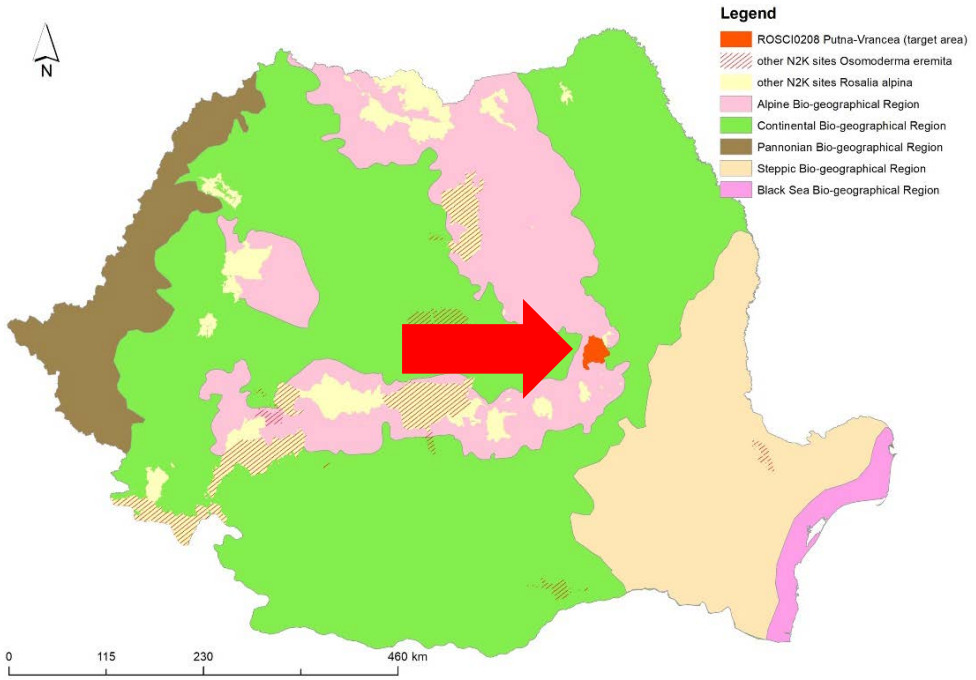
Coordinating beneficiary

- **Vrancea Environmental Protection Agency** (APM VN)

Associated beneficiaries

- **University of Bucharest, Center for Environmental Research and Impact Studies** (UNIBUC)
- **Putna-Vrancea Natural Park Administration** (PVNP)
- **Association for Biodiversity Conservation** (ACDB)

DURATION: Start: 01/09/2020 - End: 31/05/2025



Project aim
Halting and reversing the loss of priority and non-priority saproxylic beetles' populations in the Carpathians and transferring and replicating suitable actions in other Romanian Natura 2000 sites.

The project targets five saproxylic beetles' species, protected by EU Habitats Directive (*Rosalia alpina**, *Osmoderma eremita**, *Cerambyx cerdo*, *Morimus funereus* and *Lucanus cervus*).

Conservation issues

Past forestry practices	Consequences of these practices	Impact on saproxylic species
• Selective logging • Forest high grading • Removal of ancient or decaying trees	• Reduced heterogeneity of forest structure and composition • Lack of veteran trees • Limited dead wood availability	• Lowering presence of saproxylic species • Disruption of complex life cycles • Decreased habitat suitability

European forests: Ecological restoration and natural regeneration

- Large-scale implementation of ecological restoration techniques, including reforestation with native tree species and habitat restoration for key species.
- Management and protection of old-growth forests and primeval forest areas.
- Adoption of Close-to-Nature Forest management principles that enhance biodiversity, improve ecological resilience, and integrate sustainable forestry practices.
- Promotion of cost-effective, natural regeneration as a fundamental approach to forest recovery.

🌳 Large-Scale Ecological Restoration

LIFE ROsalia implements extensive restoration techniques aimed at enhancing habitats for protected saproxylic beetle species such as *Rosalia alpina*, *Osmoderma eremita*, *Cerambyx cerdo*, *Morimus funereus*, and *Lucanus cervus*.

C1: Creation of Deadwood Habitats

625 veteran-like trees created through veteranisation

303 sun-exposed snags modified to enhance decaying habitats

C2: Provision of Deadwood for Saproxylic Beetles

171 custom-made wood mould boxes installed

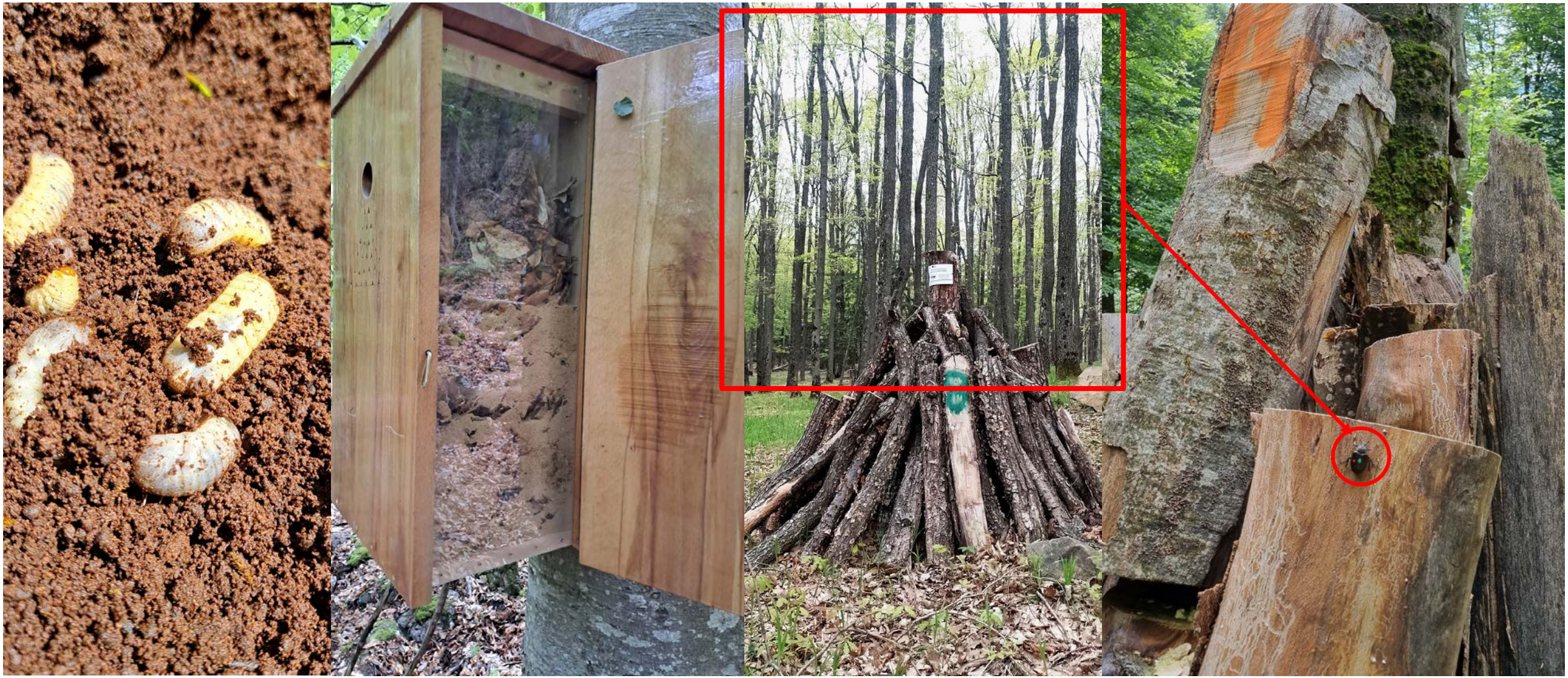
508 wood piles built to serve as colonizable microhabitats

C3: Habitat Enhancement via Shrub Removal

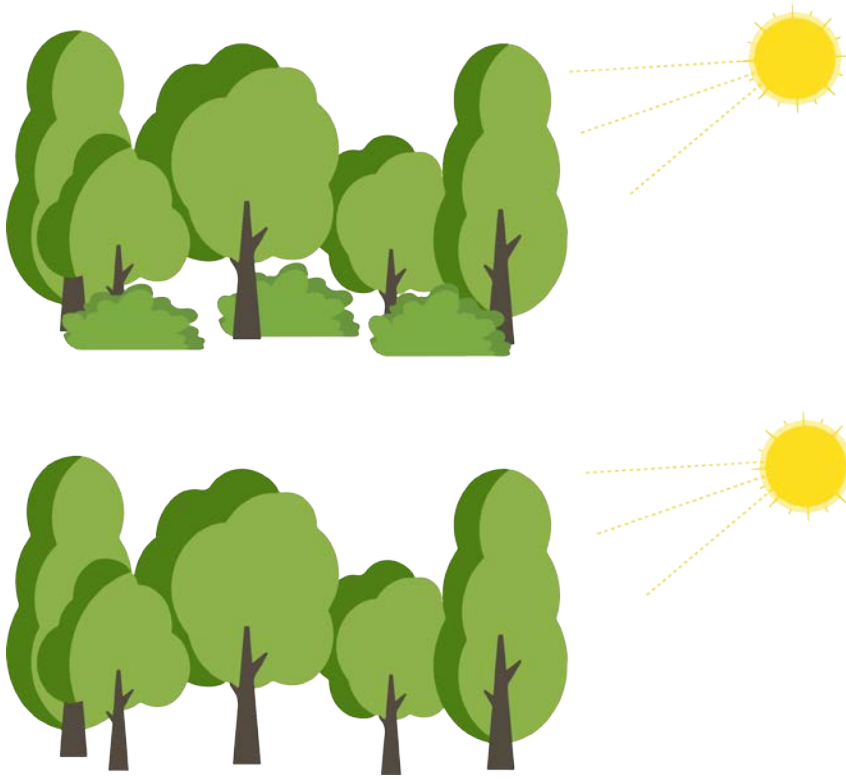
Selective removal of shrubs, particularly around veteran-like trees, to improve beetle habitat conditions

Creation of Deadwood Habitats

Provision of Deadwood for Saproxylic Beetles



Habitat Enhancement via Shrub Removal



Management and Protection of Old-Growth Forests

Key Threats Identified

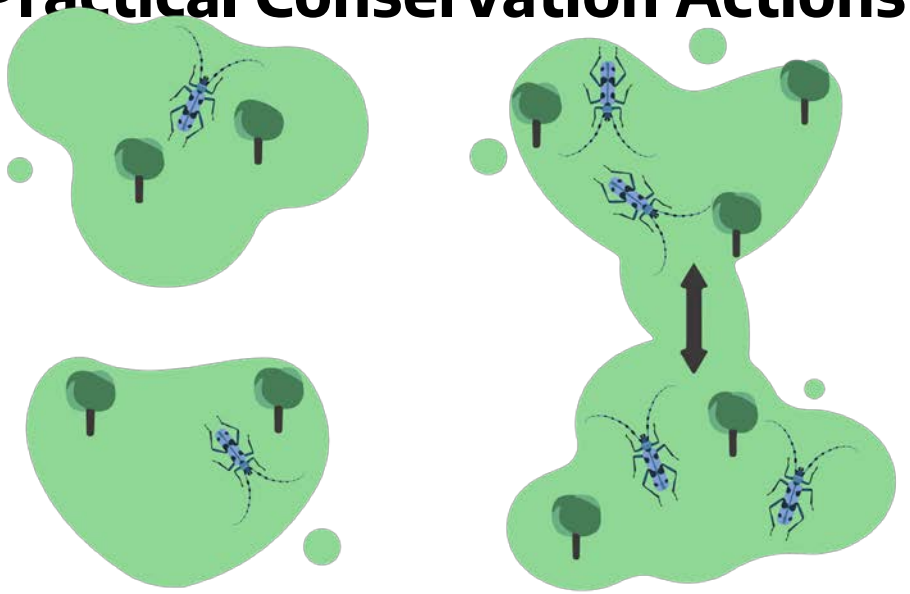
1. Habitat Loss & Simplified Forest Structure

Removal of veteran trees, dead wood, and selective logging degraded habitat quality

2. Misclassification of Protected Species as Pests

Leads to inappropriate management: insecticide use, habitat destruction

3. Lack of Awareness & Practical Conservation Actions



Main objectives for protection of Old-Growth Forests

Develop a Legally Binding National Action Plan
Restore and Connect Key Habitats for Saproxylic Species

Expected Impact

- Enhanced conservation of saproxylic beetles will directly contribute to the restoration and long-term protection of old-growth forests.
- Dead wood does not attract harmful pests, it sustains biodiversity. Saproxylic beetles are essential indicators of forest ecosystem health.
- Model transferable across all Natura 2000 sites in Romania.
- Align forest management with biodiversity conservation to protect species without compromising timber value.

Adoption of Close-to-Nature Forest management

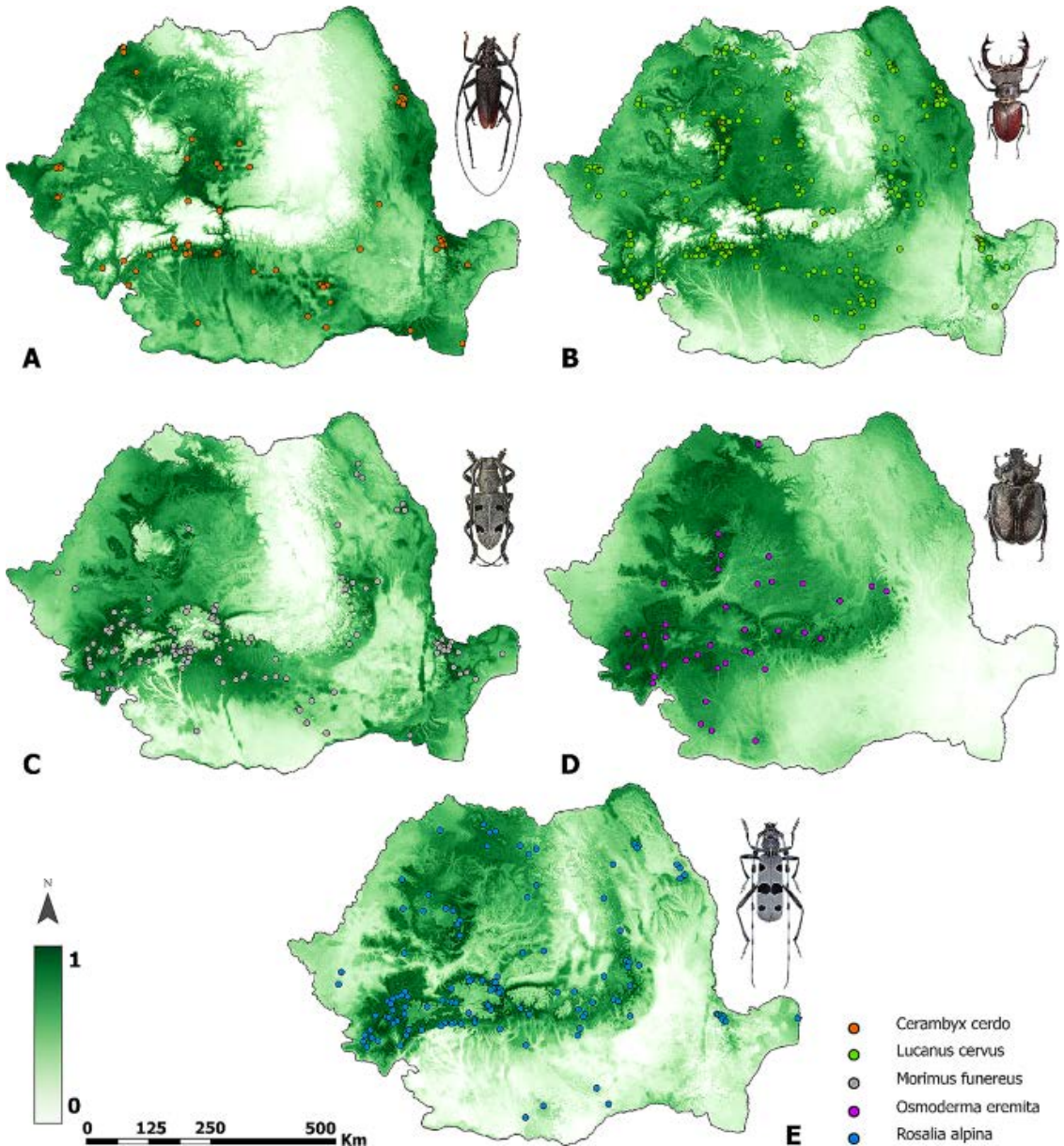
Over 80% of saproxylic beetle habitats may be lost due to climate change, with shifts to higher elevations.

The current Natura 2000 network (18% coverage) protects only ~30% of beetle distributions.

Expanding protected areas to 30% would retain ~85% of beetle distributions, mainly in the Carpathians.

The current network is insufficient for long-term conservation.

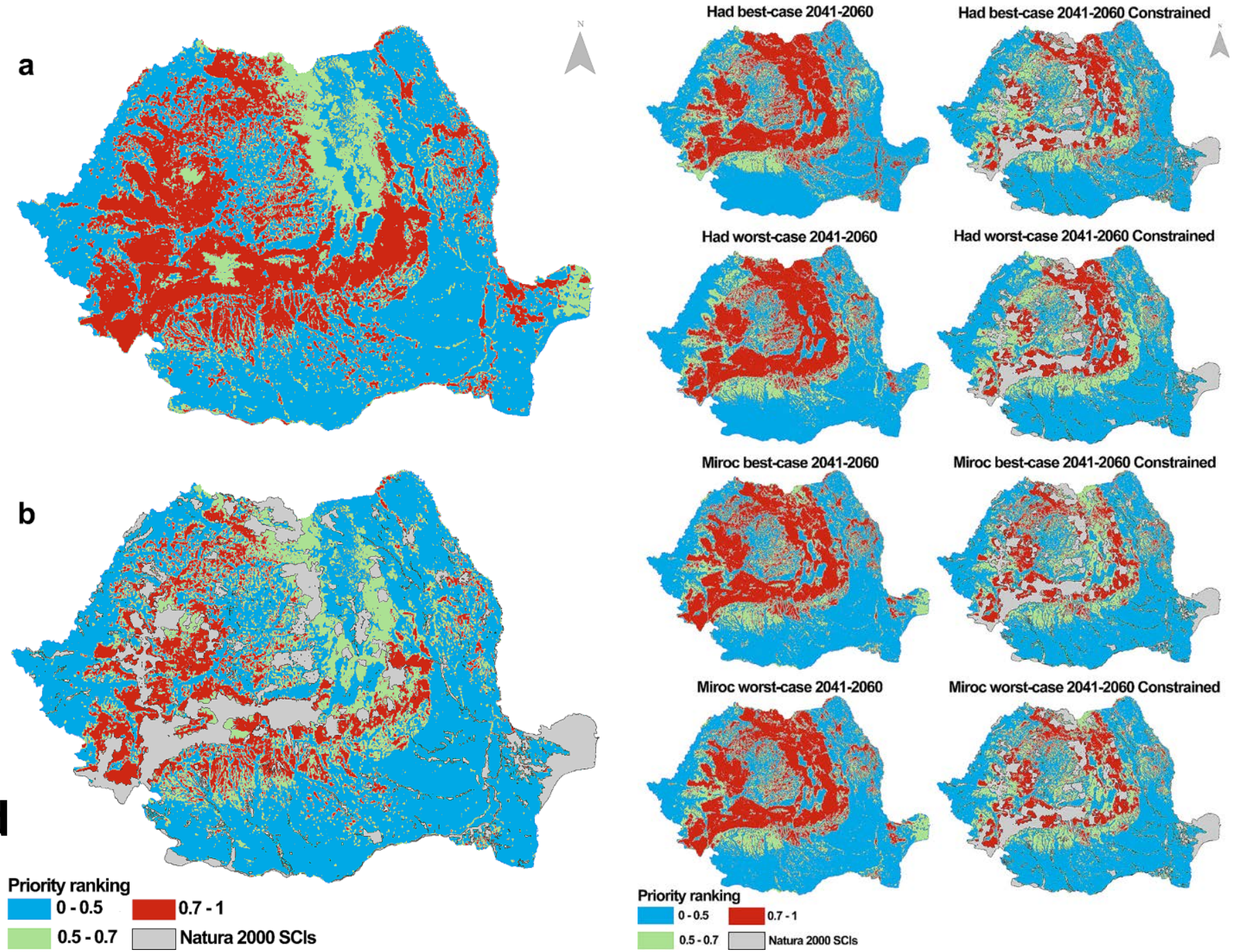
Expansion of Natura 2000 is needed to meet EU Biodiversity Strategy 2030 targets.



Current Shortfalls:

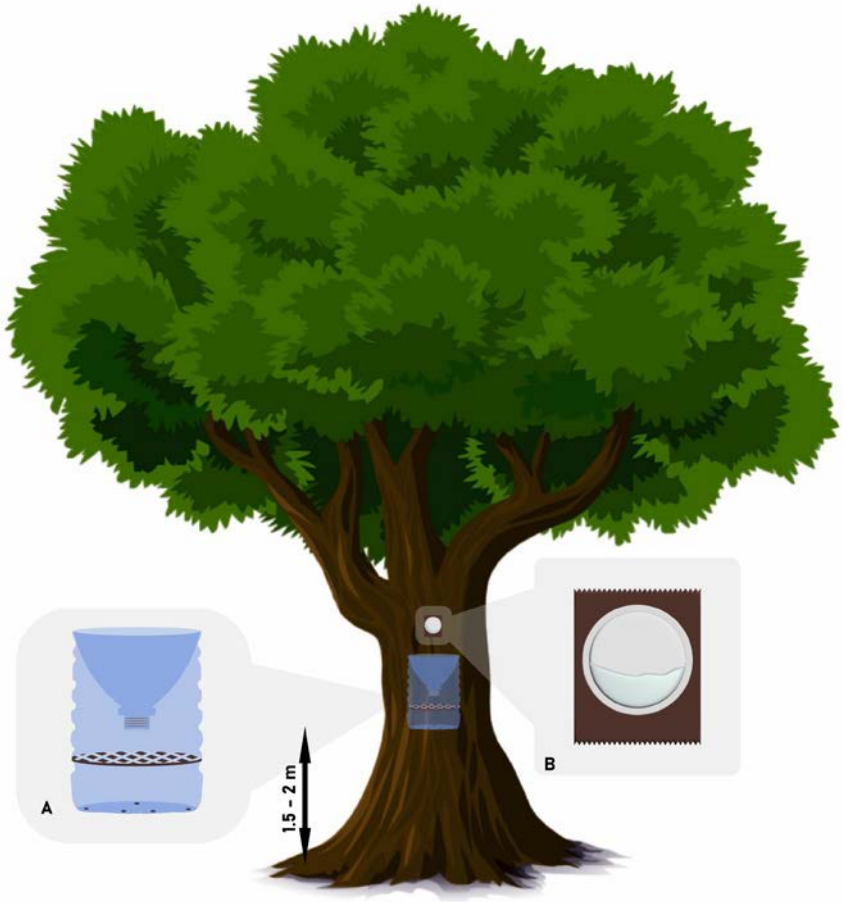
- **Natura 2000 sites inadequately cover the five target saproxylic beetle species**

- **Gap analysis shows major underrepresentation e.g., *Osmoderma eremita* found in only 16 sites, though it could occur in 180+**

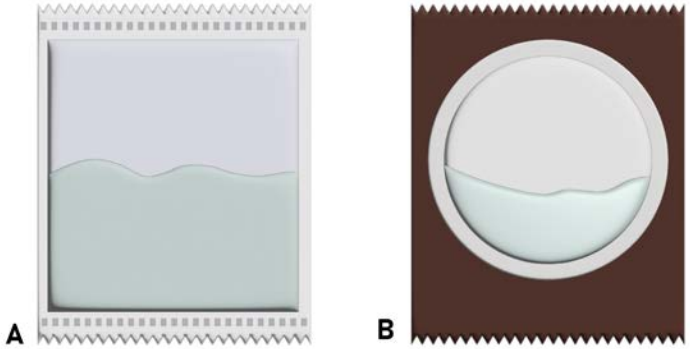


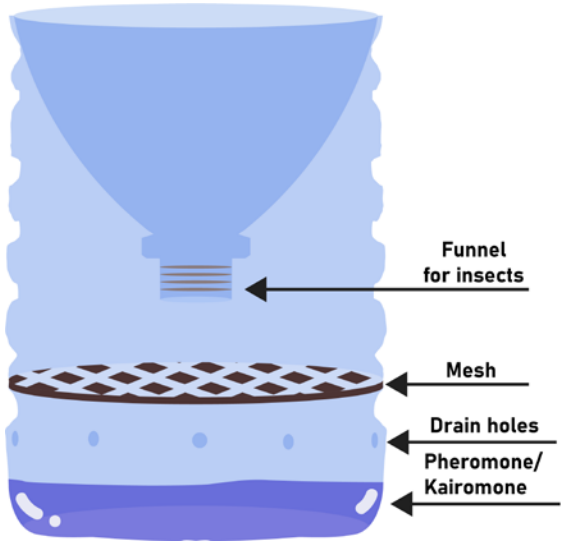
Promotion of cost-effective, natural regeneration as a fundamental approach to forest recovery.

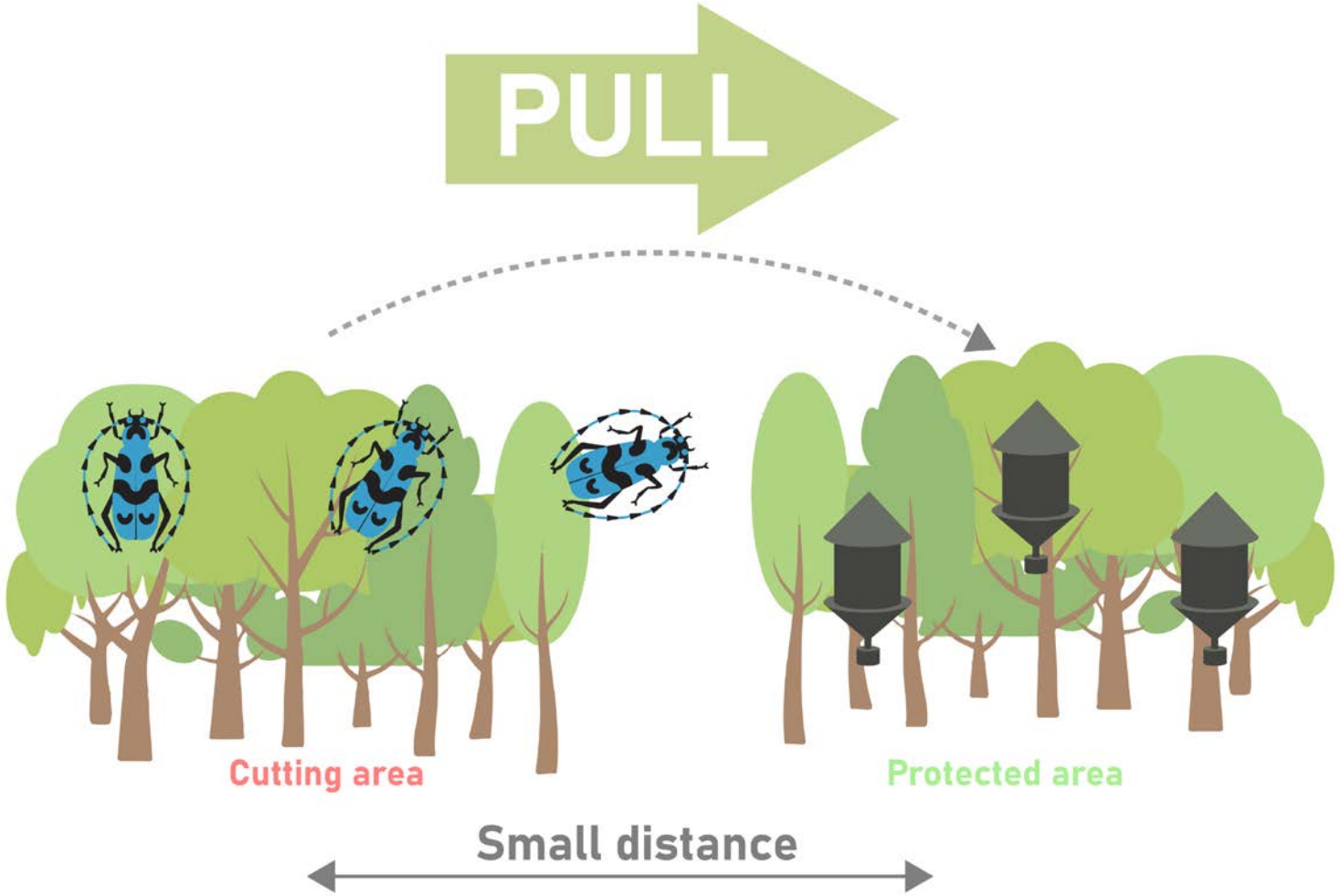
- Pheromone or kairomone traps are inexpensive, simple, and widely used tools for monitoring or moving insect species
- These methods help reduce high insect densities by disrupting mating cycles and attracting insects to other forest plots
- Compared to chemical pesticides, pheromones may offer a more cost effective and environmentally friendly solution.



- The "pull" strategy focuses on attracting insects to specific areas using species-specific pheromones or kairomones to concentrate their presence for monitoring or control purposes.







LIFE ROsalia serves as a model for integrating ecological restoration with sustainable forest management, contributing to the conservation of biodiversity and the resilience of European forest ecosystems.

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