



BEeS

The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Seville
22-24/05/23



Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective



UNIÓN EUROPEA
Fondo Europeo de Desarrollo Regional
Una manera de hacer Europa



Luis Santamaría

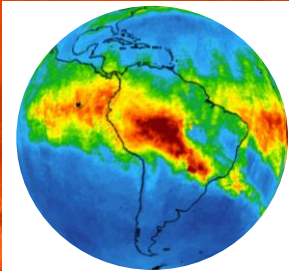
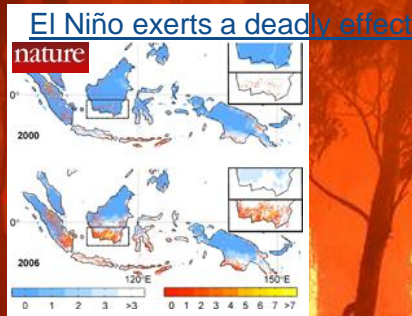
Toward the adaptive co-management of Andalusian ecosystems

*Linking historical information with innovative science-policy
processes at the Doñana National Park*





Anthropogenic impact on the natural world increases at an ever-faster rate, with undesirable – often unpredictable responses



NASA's AIRS Maps
Carbon Monoxide
from Brazil Fires



nature
climate change

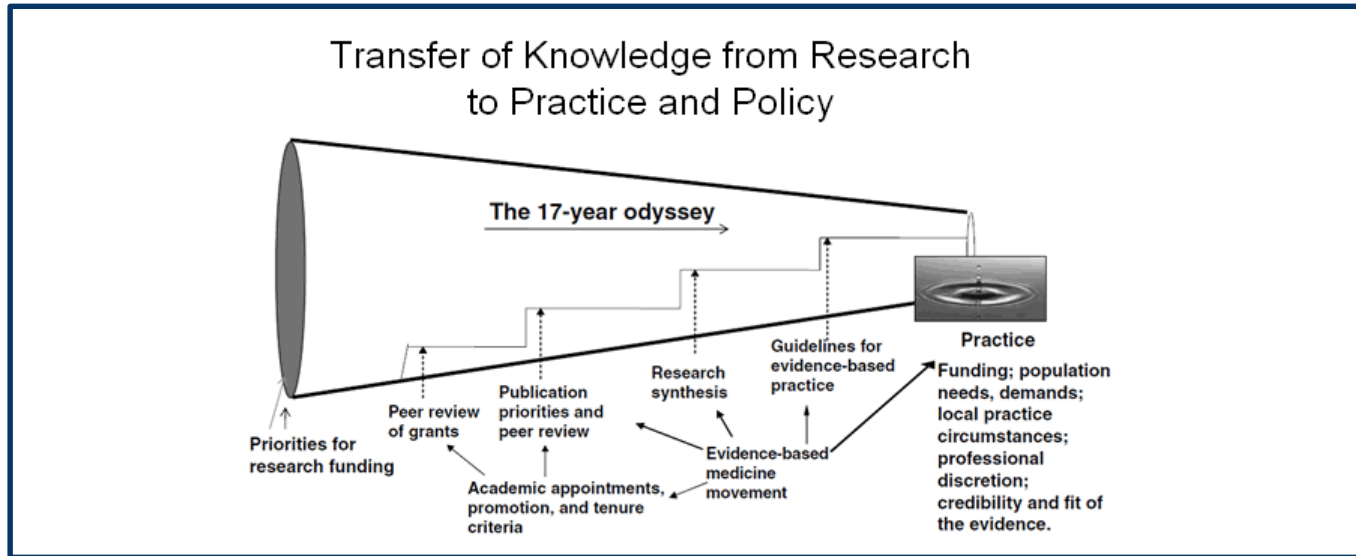
Correspondence | Published: 24 February 2020

Unprecedented burn area of Australian mega forest fires

[https://www.nature.com/article
s/41467-020-17361-3](https://www.nature.com/articles/s41467-020-17361-3)

Image from Samag News

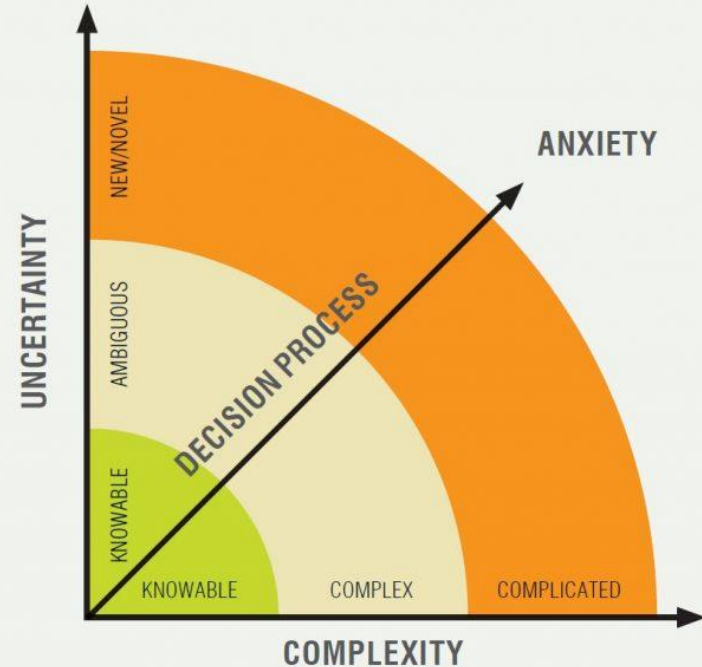
Addressing this challenge requires a radical change of the science-management-policy interface



Because:

1. Complexity, uncertainty and the lack of optimal, single solutions – a problem compounded by our own cognitive responses to these factors

As tasks become more complex and uncertainty increases, pressure will build, leading ultimately to stress and anxiety – which then leads to difficulty in making decisions.





2. The lack of direct stakeholder involvement in the decision making process

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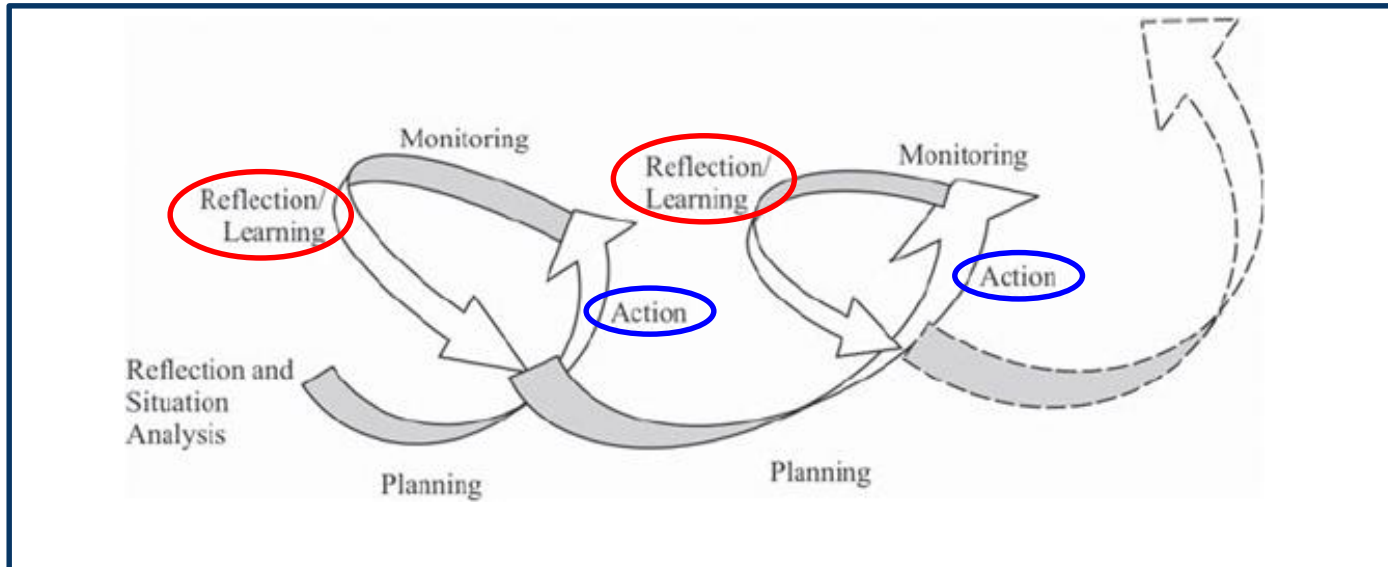
results in distrust & resentment

...

causing policy contestation, instead of collaboration

Management interventions are experiments with uncertain outcomes & should be designed to:

- avoid no-return responses,
- resolve current knowledge gaps
- adapt to the unexpected

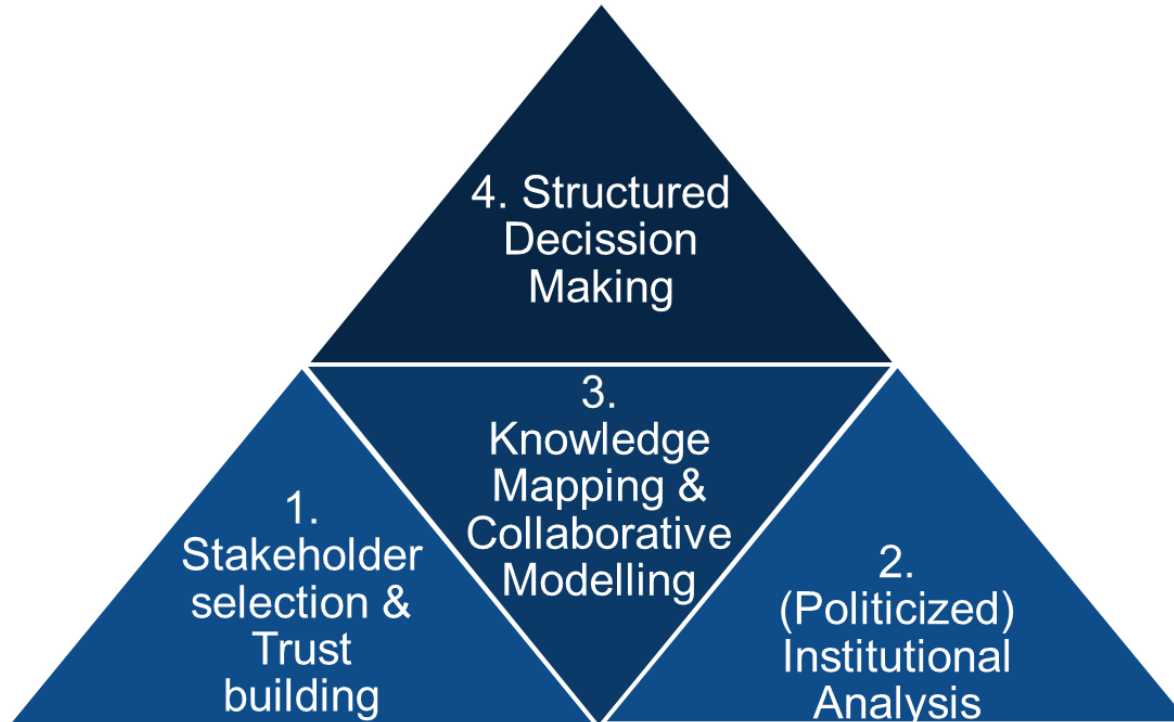


Adaptive Co-Management

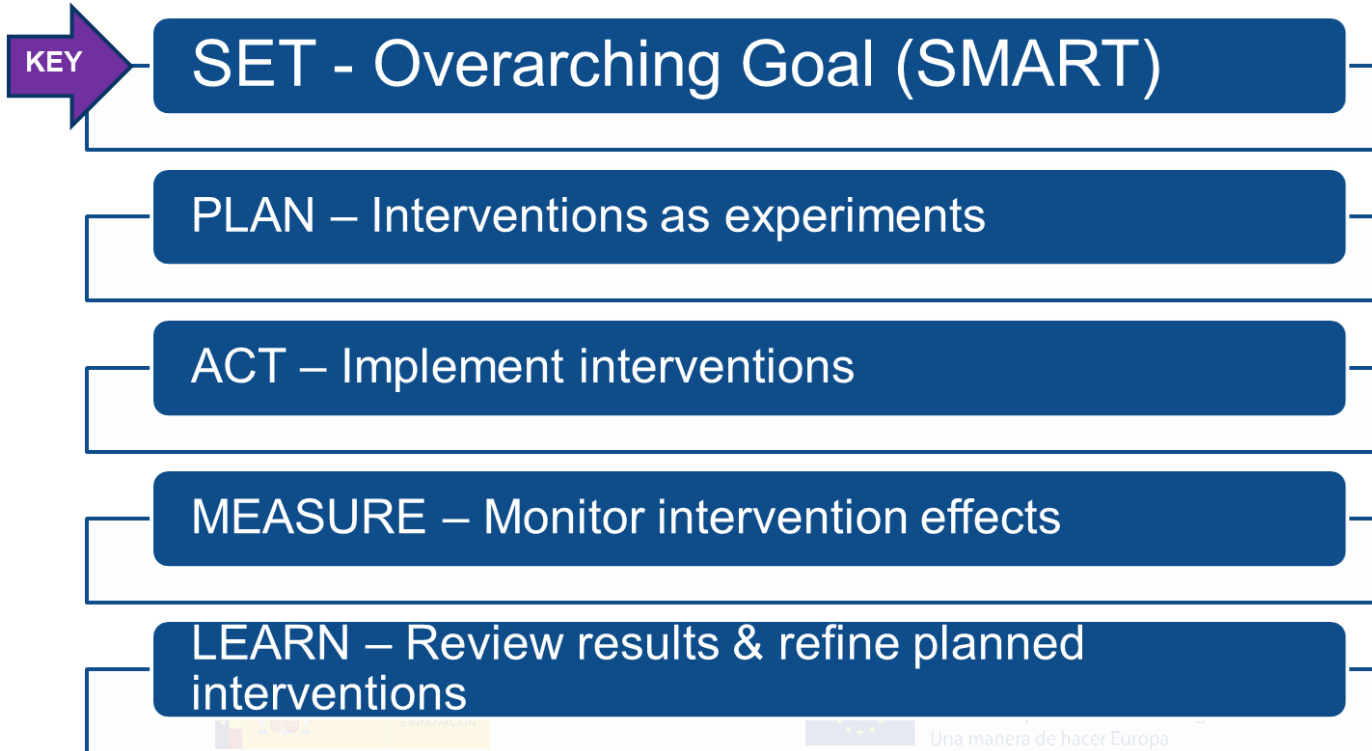
(Adaptive Governance, Collaborative Adaptive Management)



1. Co-design & co-management



2. Learning-by-doing

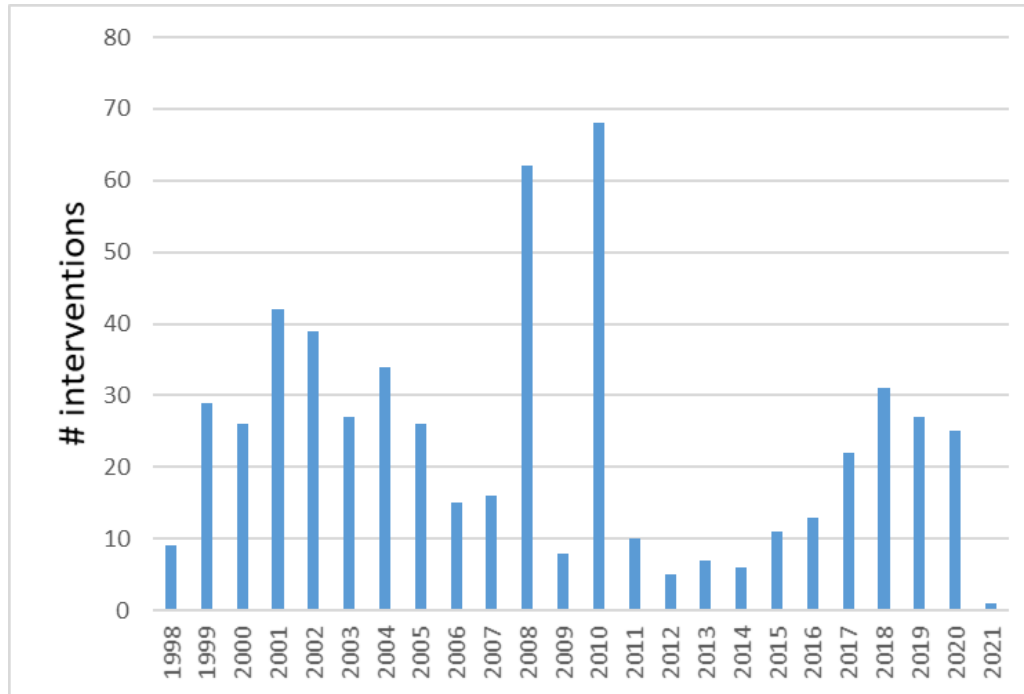


Using the AcoM framework, we are undertaking an
inventarization and benchmarking of
historical management interventions
at the Doñana National Park

-> geodatabase of management interventions and
associated biodiversity data

1998-2020

>569 interventions belonging to >286 projects



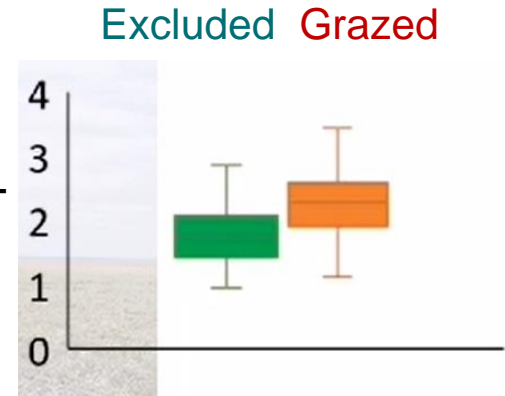
Most interventions lack key elements of AcoM:
stakeholder participation, clear overarching objectives,
SMART specific objectives, long-term monitoring, learning &
refinement iterations.

Using a selected set of interventions, we are filling these
gaps: identifying objectives & monitoring effects,
aiming at fostering an evaluation & learning cycle

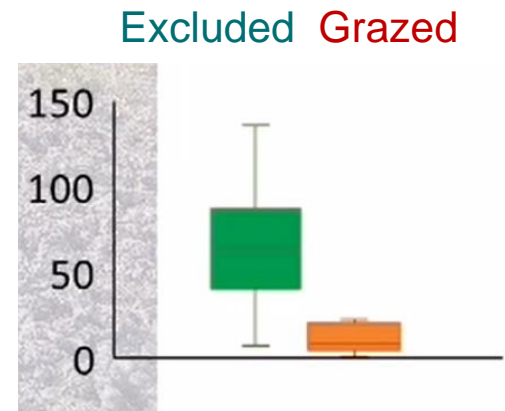
23 small exclosures for research on vegetation management



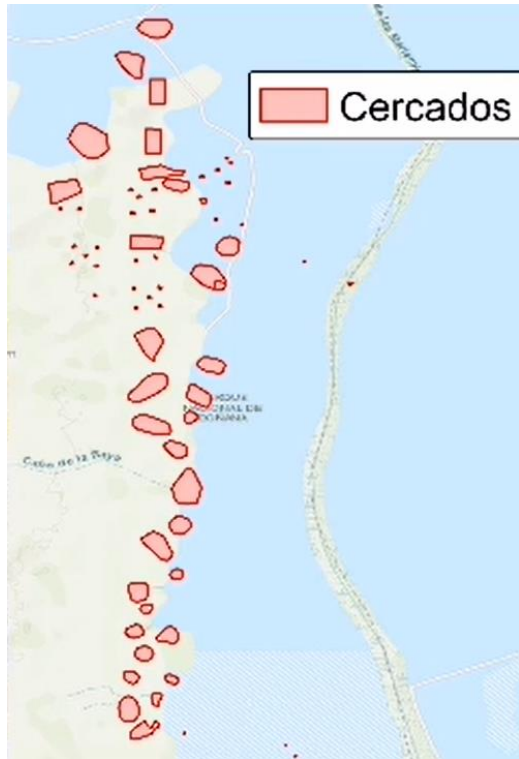
Soil compaction

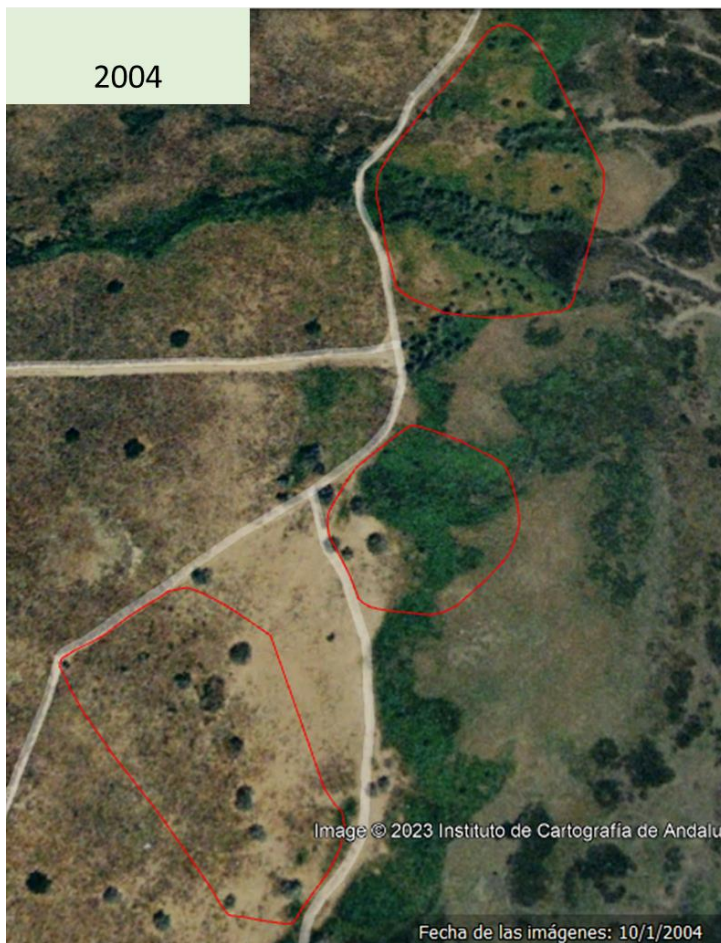


Plant biomass

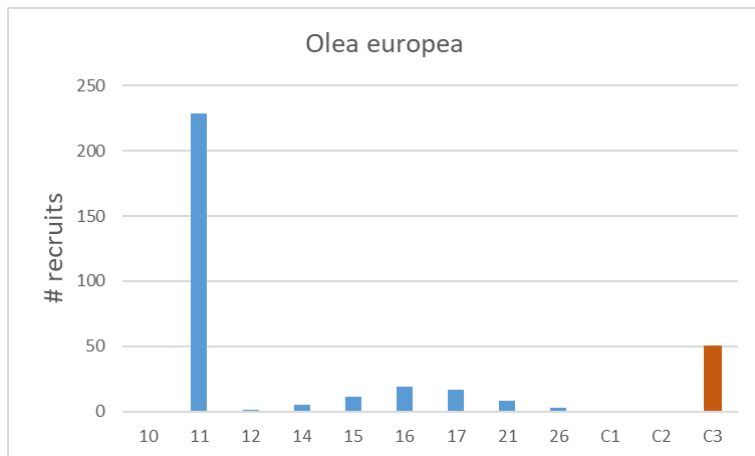
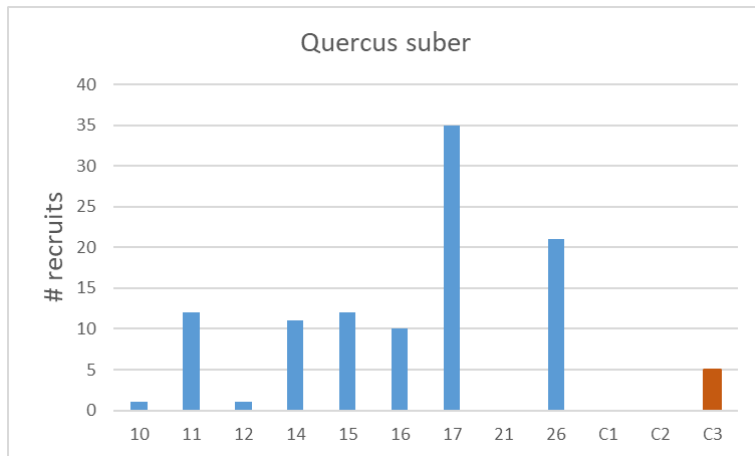


86 exclosures
for vegetation management
and rabbit release









Online tools for information management may support decision making & dynamize the science-policy interface

Defining required information inputs will require the identification of action & monitoring objectives, fostering future evaluation & learning cycles



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Thank you! | www.lifewatch.eu/bees-2023

