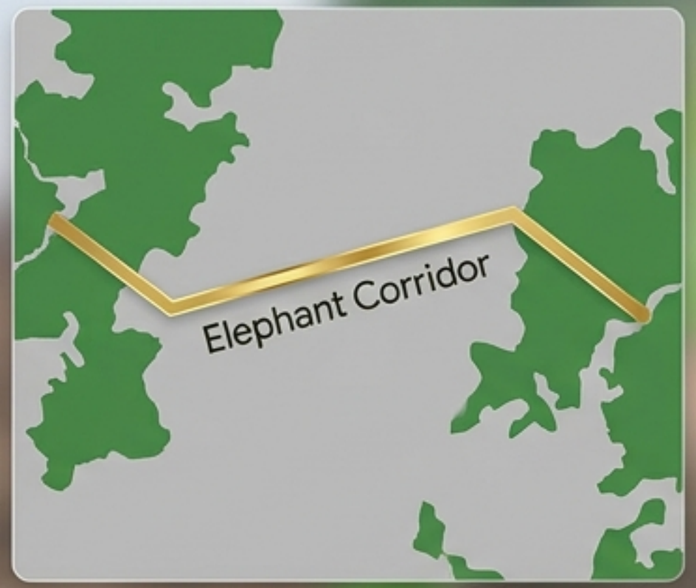


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The Conflict:
In states like Odisha, Jharkhand, and Assam, elephants are increasingly entering farms.

The Cause:
Changes in rainfall, temperature, and deforestation shrink their natural habitat and dry up waterholes.

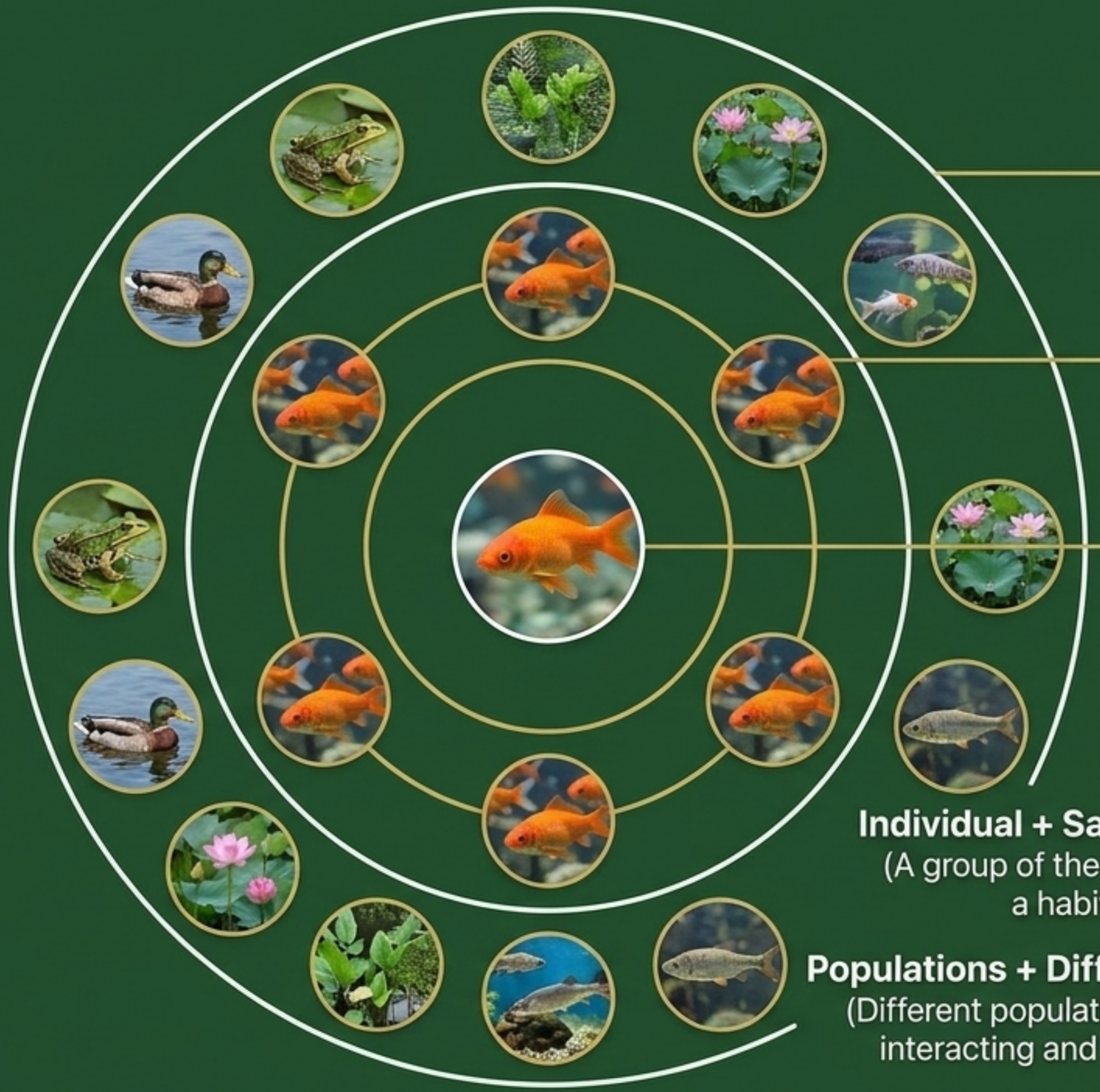
The Solution:
Wildlife ecologists identify and protect corridors to connect fragmented forests, proving that preserving the blueprint prevents human-wildlife conflict.

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	Pond Habitat	Forest Habitat
Biotic Components (Living)	Fish, frogs, insects, ducks, lotus, and algae	Trees, birds, deer, and rodents
Abiotic Components (Non-Living)	Water, dissolved oxygen, and sunlight	Soil, air currents, temperature, and sunlight

Takeaway: Every organism needs specific living conditions. A habitat is simply the place providing these essential biotic and abiotic conditions.

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Individual + Same Species = Population
(A group of the same type of organisms in a habitat at a given time)

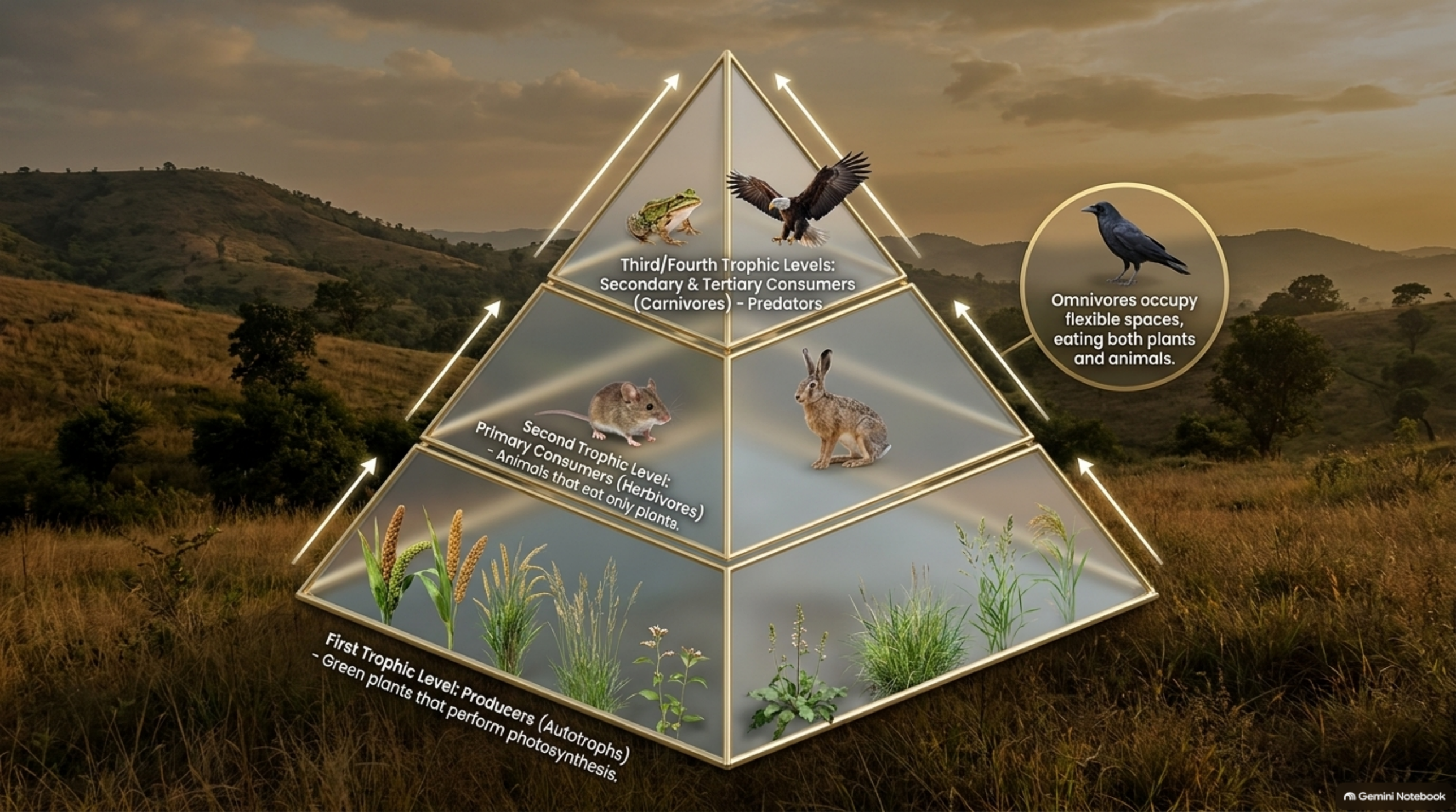
Populations + Different Species = Community
(Different populations sharing the same habitat, interacting and depending on one another)

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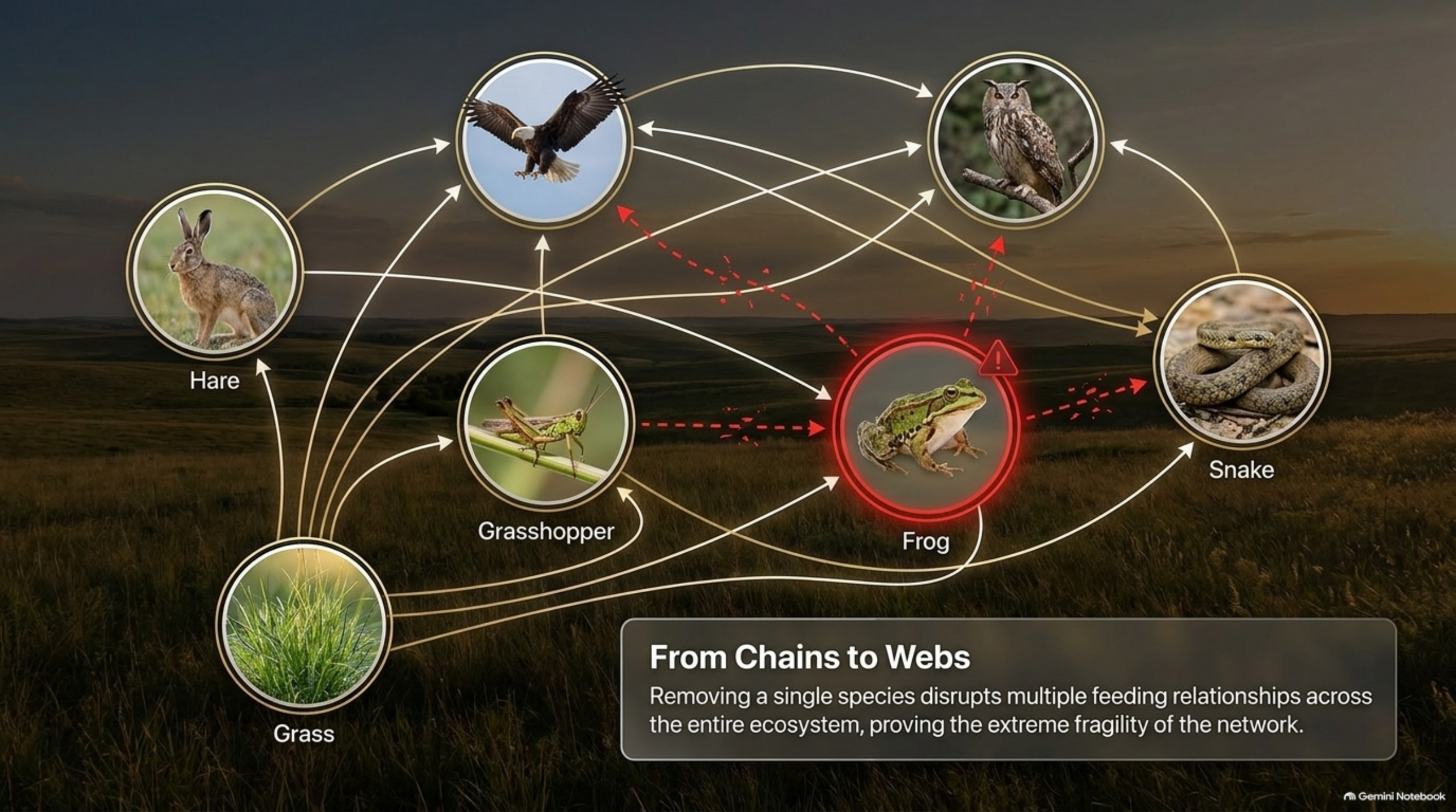


- **Ecosystem:** The complete interaction between a biotic community and its abiotic environment.
- **The Overlap:** Ecosystems are dynamic. A river (aquatic) and a forest (terrestrial) constantly interact, exchanging nutrients, water, and organisms.

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From Chains to Webs

Removing a single species disrupts multiple feeding relationships across the entire ecosystem, proving the extreme fragility of the network.

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The Recyclers (Saprotrophs):
Microorganisms, fungi, and specific insects that break down complex dead organic matter.

Core Insight: In nature, nothing is wasted. Everything is endlessly reused.

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The Rules of Coexistence



Mutualism (+/+)

Both organisms benefit. The bee gets nectar, and the flower gets pollinated.



Commensalism (+/0)

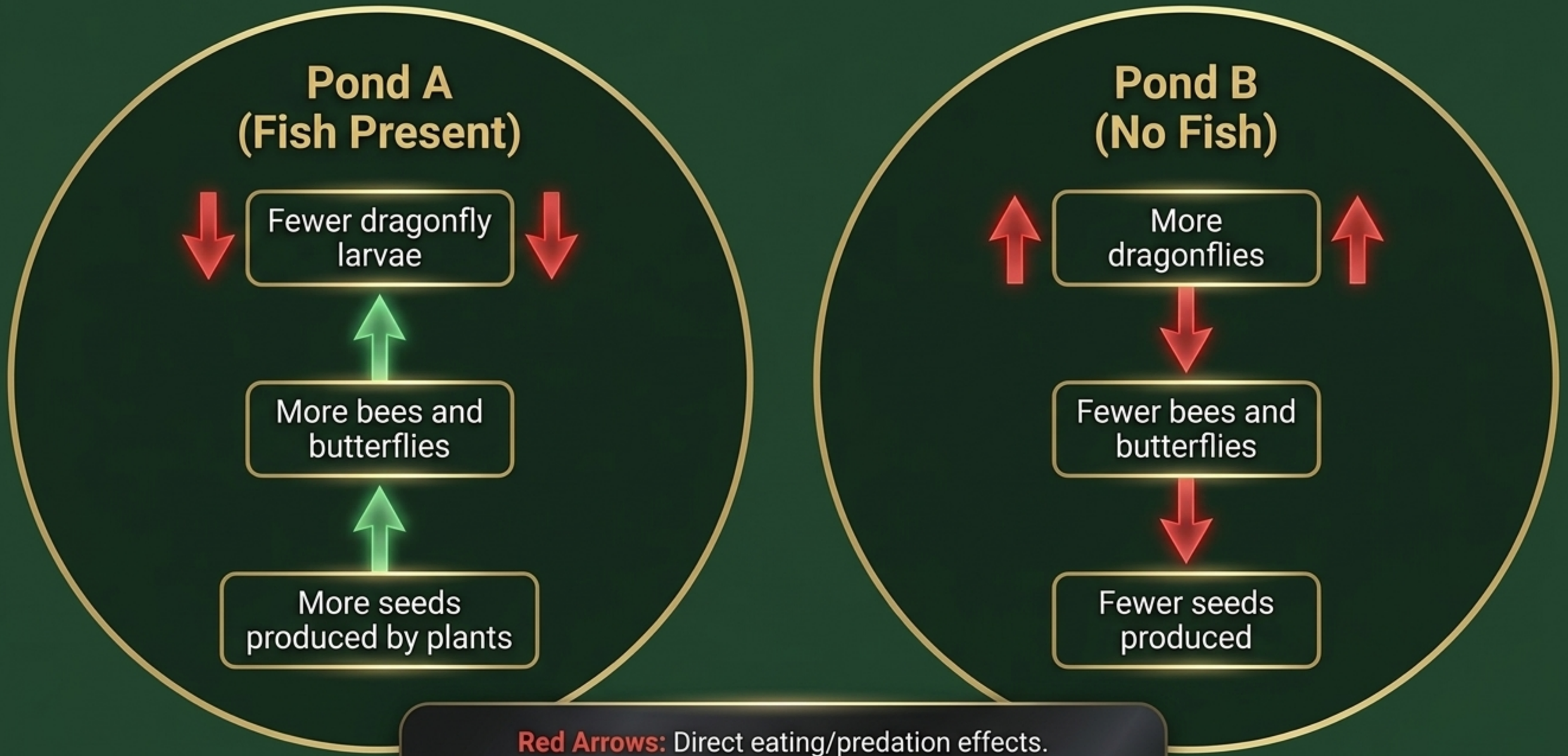
One benefits, one is unaffected. The orchid gets physical support, while the tree is unharmed.



Parasitism (+/-)

One benefits, one is harmed. The tick feeds on blood, causing the dog skin irritation.

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Red Arrows: Direct eating/predation effects.
Green Arrows: Indirect cascading effects (pollination).

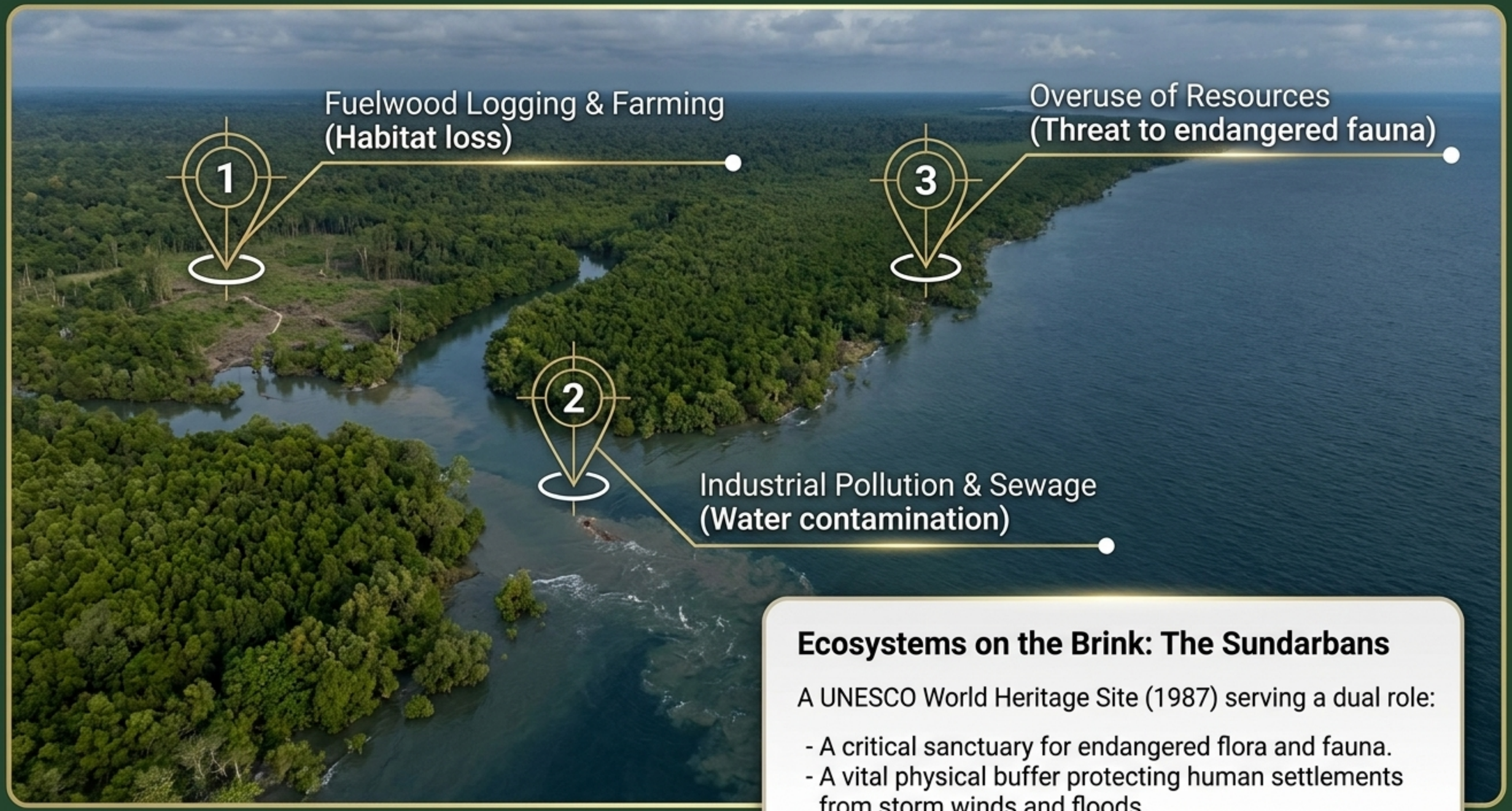
Takeaway: The presence of fish in the water directly dictates the reproductive success of plants on the land.

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The ecological damage was so severe that the Government of India had to legally ban the export.

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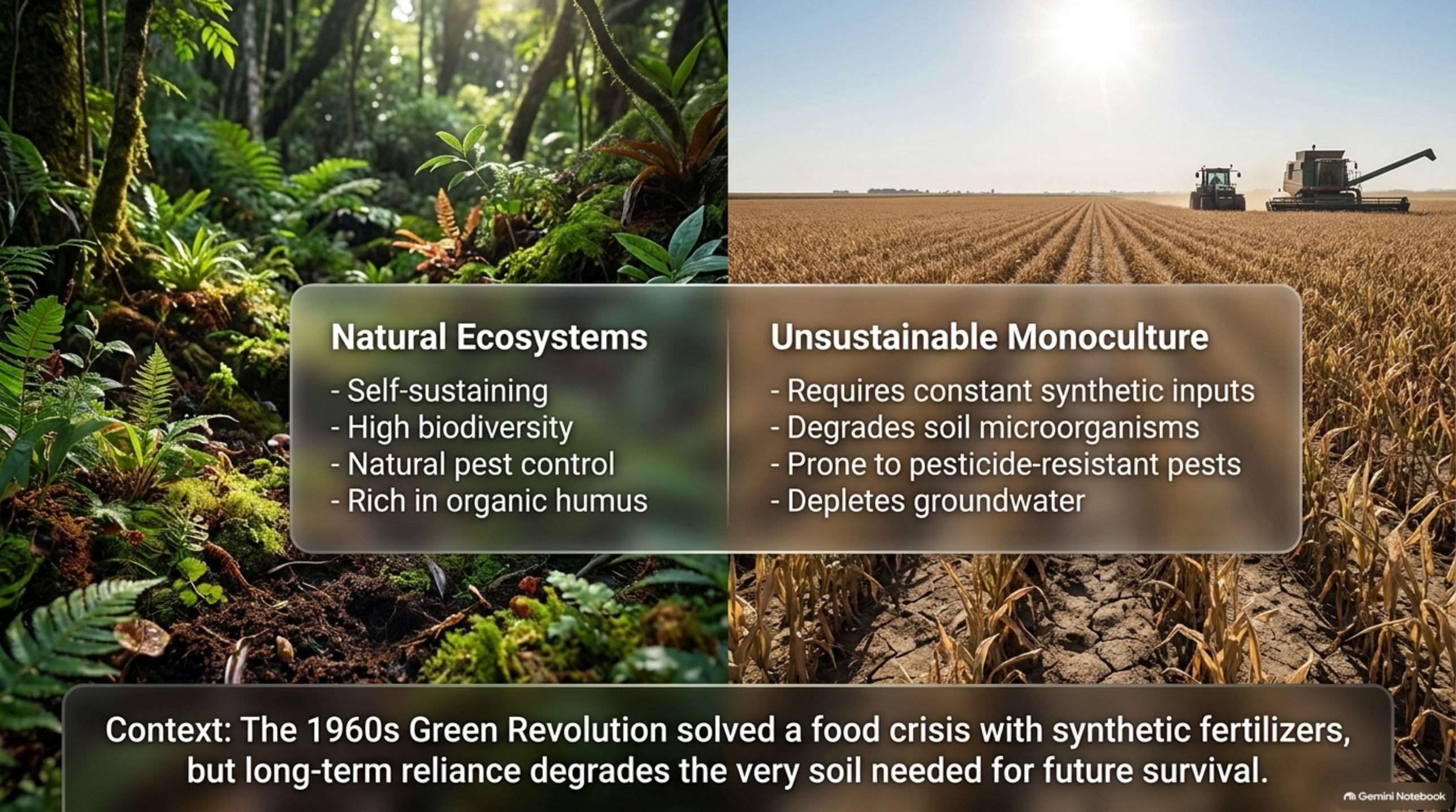


Ecosystems on the Brink: The Sundarbans

A UNESCO World Heritage Site (1987) serving a dual role:

- A critical sanctuary for endangered flora and fauna.
- A vital physical buffer protecting human settlements from storm winds and floods.

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Natural Ecosystems

- Self-sustaining
- High biodiversity
- Natural pest control
- Rich in organic humus

Unsustainable Monoculture

- Requires constant synthetic inputs
- Degrades soil microorganisms
- Prone to pesticide-resistant pests
- Depletes groundwater

Context: The 1960s Green Revolution solved a food crisis with synthetic fertilizers, but long-term reliance degrades the very soil needed for future survival.

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Protectors of the Blueprint
Protected areas save entire habitats for future generations.
The Final Thread
We are not outside of nature; we are one node in the web. By choosing sustainable practices and protecting biodiversity, we keep the invisible threads unbroken.
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