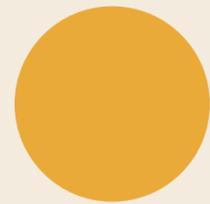


# ECOSYSTEMS

Presented by: Nell Miles

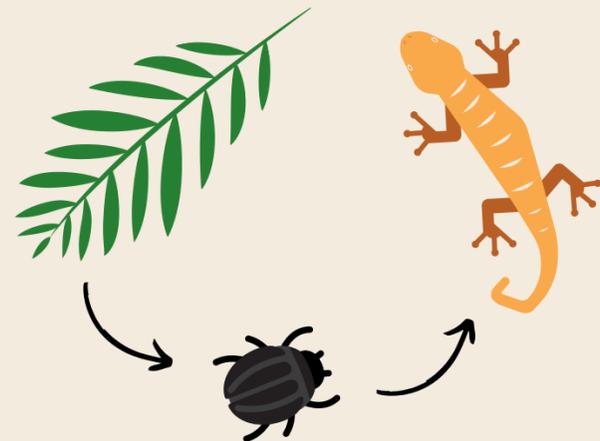


# PRESENTATION OUTLINE

1. What is an ecosystem?



2. How ecosystems are connected:  
food webs



3. All species  
have a place



4. Ecosystem  
services



# WHAT ARE ECOSYSTEMS?

- There are lots of animals and plants found around us.
- These different species interact with each other, and together they form a **community** (like the community you live in with your friends and family).
- All the animals and plants (ie. the community) within the habitat they live in form an **ecosystem**.
- This means an **ecosystem** is made up of living creatures and the habitat they live in.



# HOW ARE ECOSYSTEMS CONNECTED?

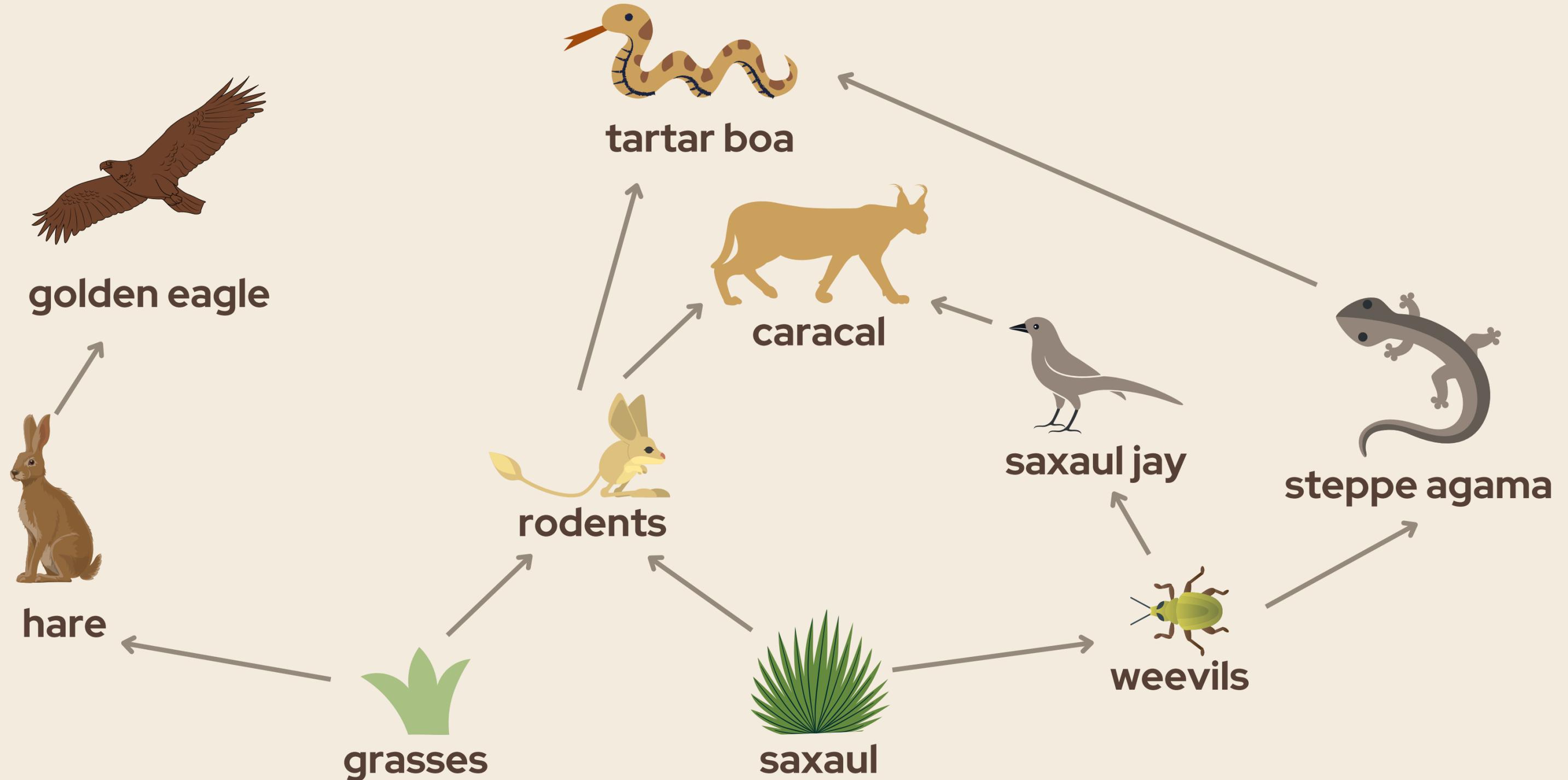
- Creatures rely on one another for food, shelter, nutrients, and other things.
- This means the parts of the ecosystem are connected and need each other to function.



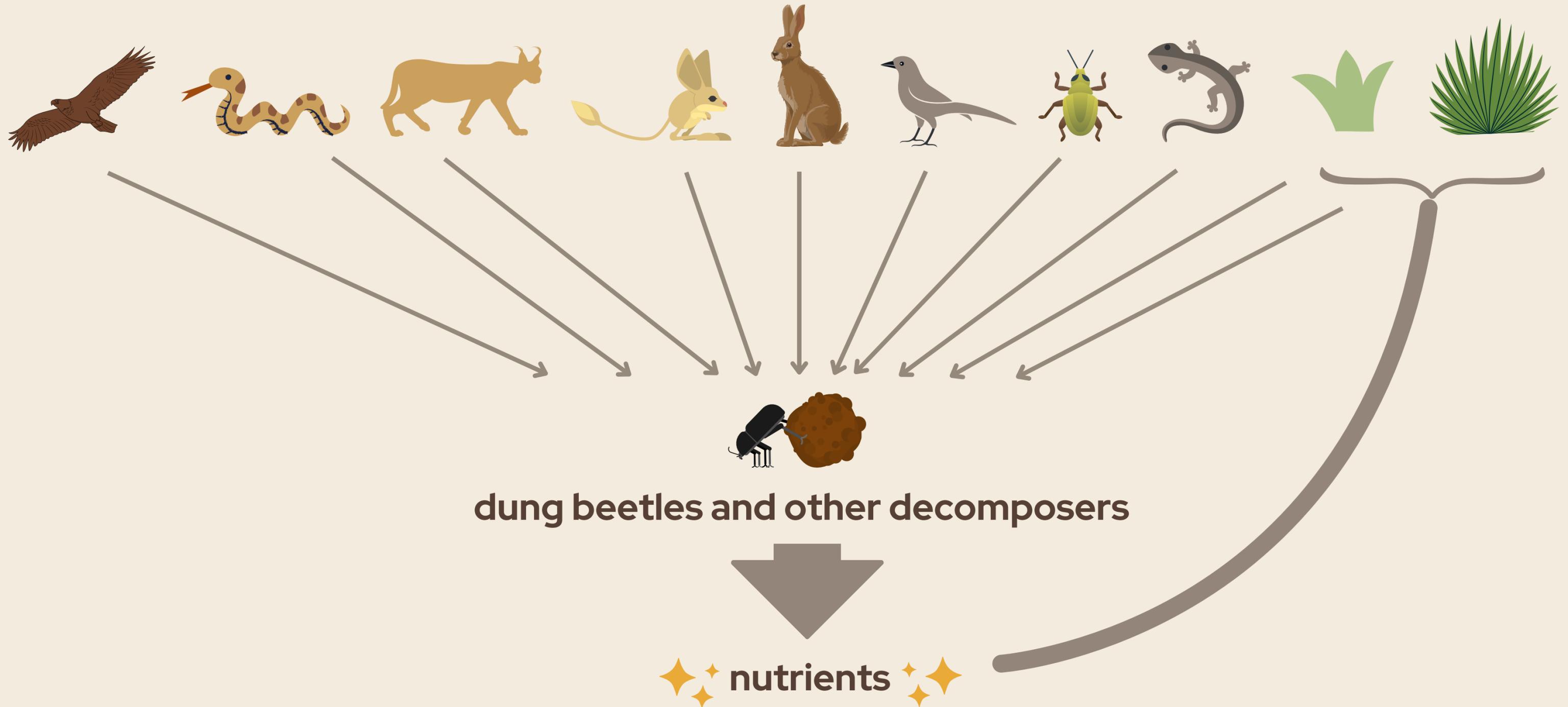
# HOW ARE ECOSYSTEMS CONNECTED?

- For example, in steppe ecosystems:
  - Saxaul and Tamarix pollinated by insects.
  - Insects and other animals eat plants, like saiga, Severtzov's Jerboa, steppe tortoise and Tolai hare.
  - Reptiles like the steppe agama lizard eat insects (beetles, ants, spiders and centipedes).  
Birds like the saxaul jay also eat insects.
  - These birds, reptiles & small mammals use the plants for shelter or to build a nest.
  - They are eaten by golden eagles (tortoises and hares), caracals (small mammals and birds) and wolves (saigas and hares).
  - The dung of these animals, especially larger ones like the saiga and wolves, is broken down by decomposers like dung beetles.
  - The beetles release the nutrients in the animal dung, which makes the soil richer and helps plants to grow.

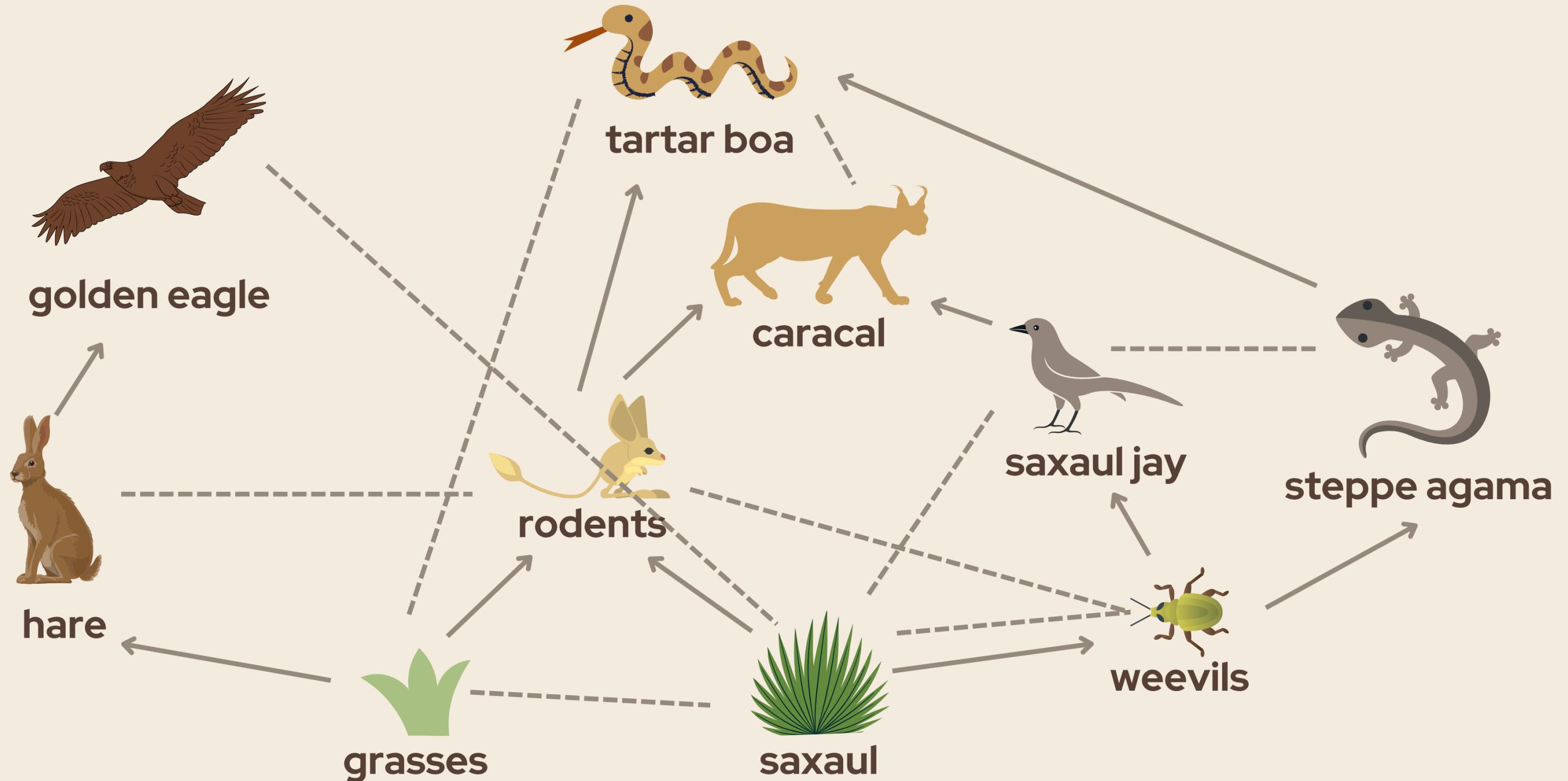
# FOOD WEBS: HOW SCIENTISTS SHOW WHICH SPECIES EAT EACH OTHER IN AN ECOSYSTEM



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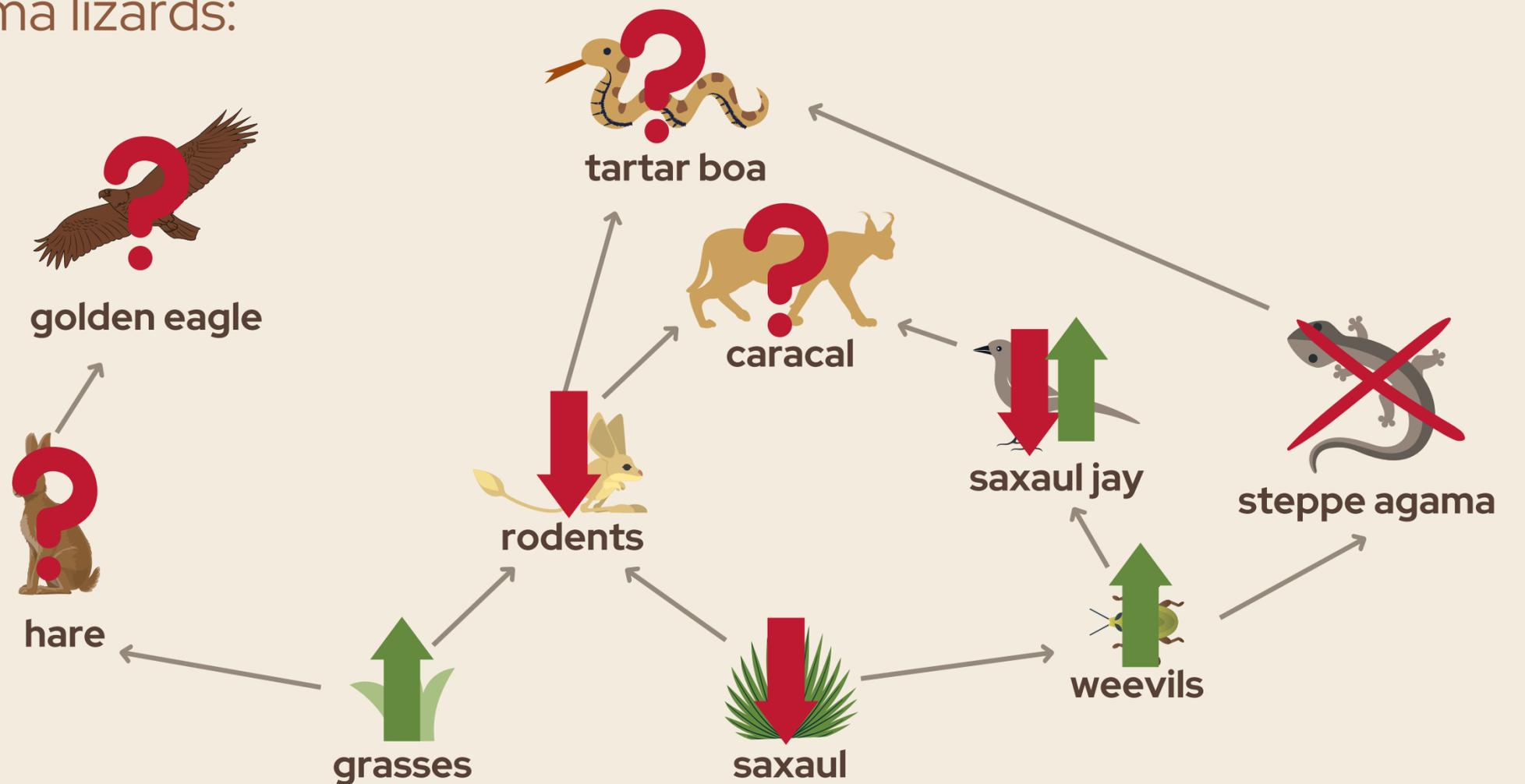
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# SPECIES IMPORTANCE

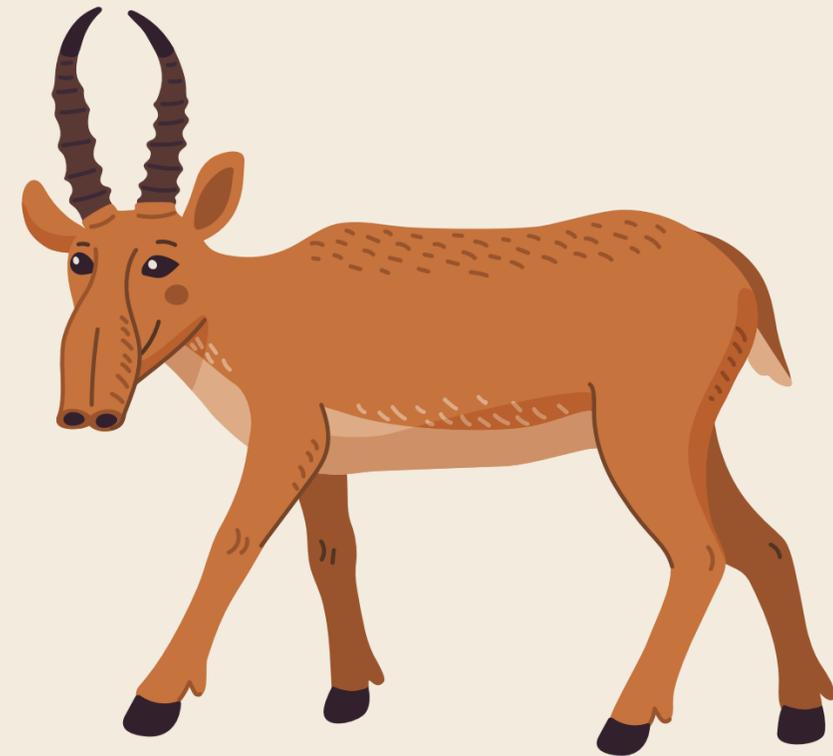
- Every species has an important role in the ecosystem. If you take one out, effects can be seen across the ecosystem.
- If we kill lots of steppe agama lizards:

- So we need to look after all creatures!



# SPECIES IMPORTANCE EXAMPLE: THE SAIGA

- Saiga feed on grasses and shrubs in the steppe. If seeds stick to them, they disperse the seeds over large distances.
- When digging around for food, they disturb the top of the soil and make it easier for seeds to penetrate the ground and find a place to germinate.
  - When they trample over ground, they can push seeds into the soil and help this further.
- Decomposers release nutrients from the saiga droppings which are taken up by plants to help them grow.
- They are important prey species for carnivores like wolves.



# WHAT DO ECOSYSTEMS DO FOR US?

- Species aren't just important for the other plants and animals that rely on them – ecosystems also provide important benefits for humans called ecosystem services.
- For example, plants:

**Compact soil to  
reduce dust storms**

**Make land better  
for crops**

**Provide wood for  
fuel**

**Clean the water  
and air**

**Provides medicine  
& alcohol**

**Provide livestock  
food**

**Stores carbon from  
the air**



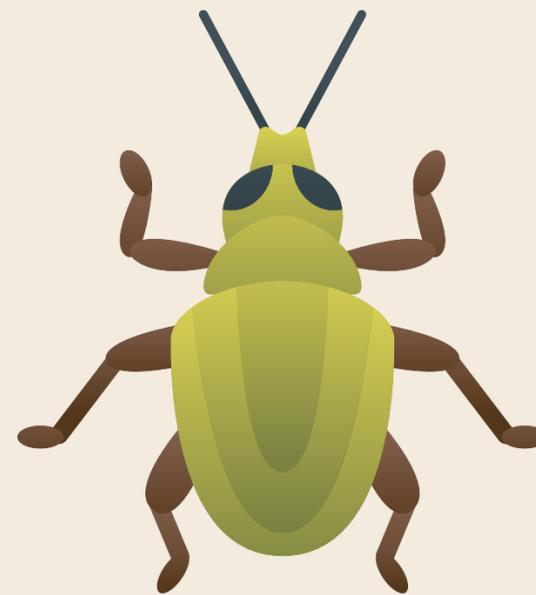
# WHAT DO ECOSYSTEMS DO FOR US?

- Species aren't just important for the other plants and animals that rely on them – ecosystems also provide important benefits for humans called ecosystem services.
- Insects:

**Pollinate  
crop/food plants**

**Some insects decompose  
dead animal and plants, and  
droppings to improve the soil**

**Compact soil to  
reduce dust storms**



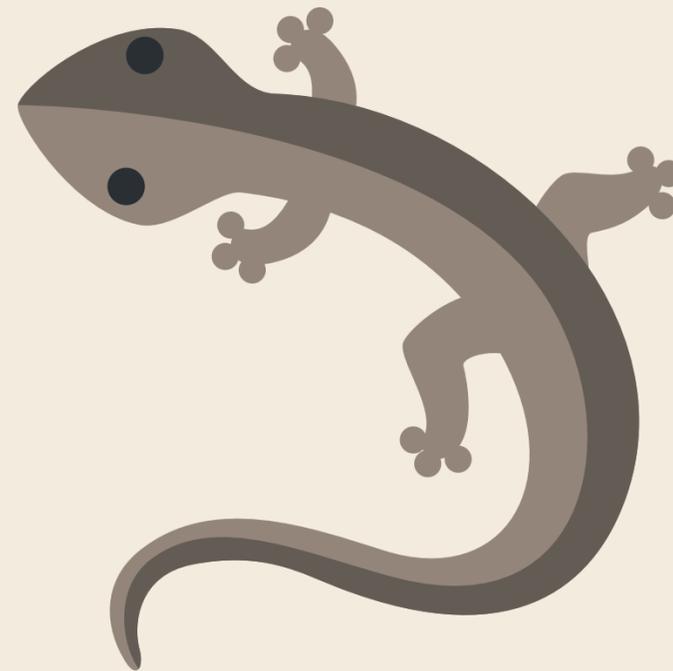
**Compete with pest  
insects that can  
damage crops**

**Some insects dig in the soil,  
making it easier for seeds to  
get in and grow**

# WHAT DO ECOSYSTEMS DO FOR US?

- Species aren't just important for the other plants and animals that rely on them – ecosystems also provide important benefits for humans called ecosystem services.
- Reptiles:

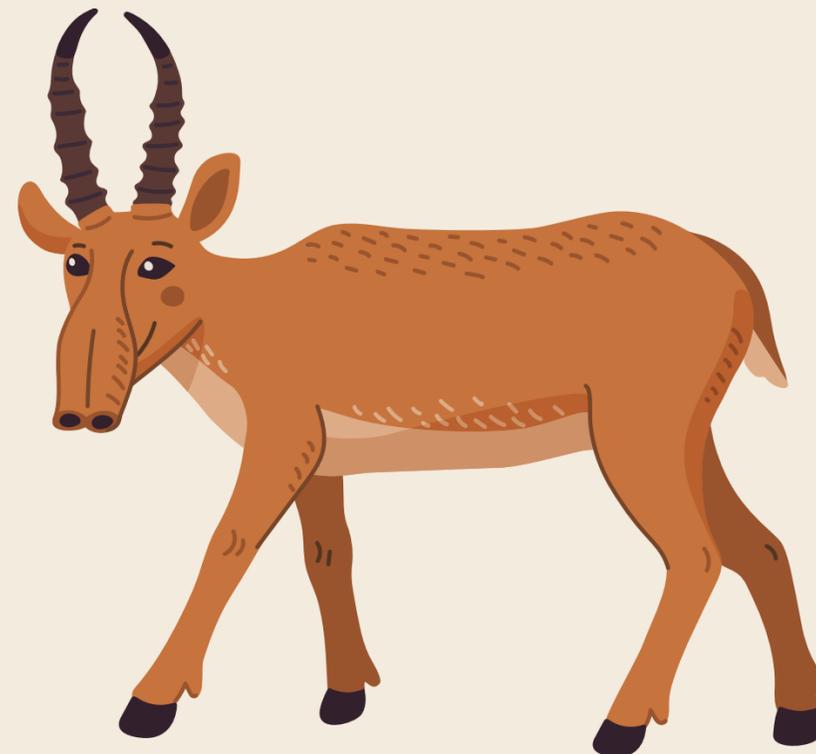
**Some lizards and snakes eat pest insects that could damage crops.**



# WHAT DO ECOSYSTEMS DO FOR US?

- Species aren't just important for the other plants and animals that rely on them – ecosystems also provide important benefits for humans called ecosystem services.
- Large mammals:

**Help the soil to  
prevent dust  
storms and help  
food plants grow**



# HOW DO WE PROTECT ECOSYSTEMS?

- For the ecosystem to provide these services for us, it needs to be healthy – if we damage the ecosystem by allowing populations to decline, the services provided by the ecosystem will be reduced.
- There are many ways we can look after ecosystems:
  - **Don't overexploit** – sustainably use plants and animals, do not hunt protected species, and legally hunt in a responsible manner.
  - **Do not clear habitat**, especially where lots of creatures live.
  - **Establish protected areas** for species to grow in numbers and have a safe place to exist away from humans.



# SUMMARY

- **Ecosystems** are made of all the animals and plants in an area, and their habitat.
- All species are **connected** to each other in some way.
- **Food webs** show which species eat what in an ecosystem.
- Different species play lots of important roles in the ecosystem, and provide benefits to people called **ecosystem services**.
- To keep these benefits and improve them for future generations, we must **look after nature**.

THANK YOU!

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