

A pig is seen from behind, standing in a salt marsh. The pig is dark-colored and is surrounded by tall, thin grasses. The background is a dense field of similar grasses, extending to the horizon. The overall scene is in a natural, outdoor setting.

Do Invasive Hogs Alter Species Relationships in Salt Marshes?

By Hallie Fischman

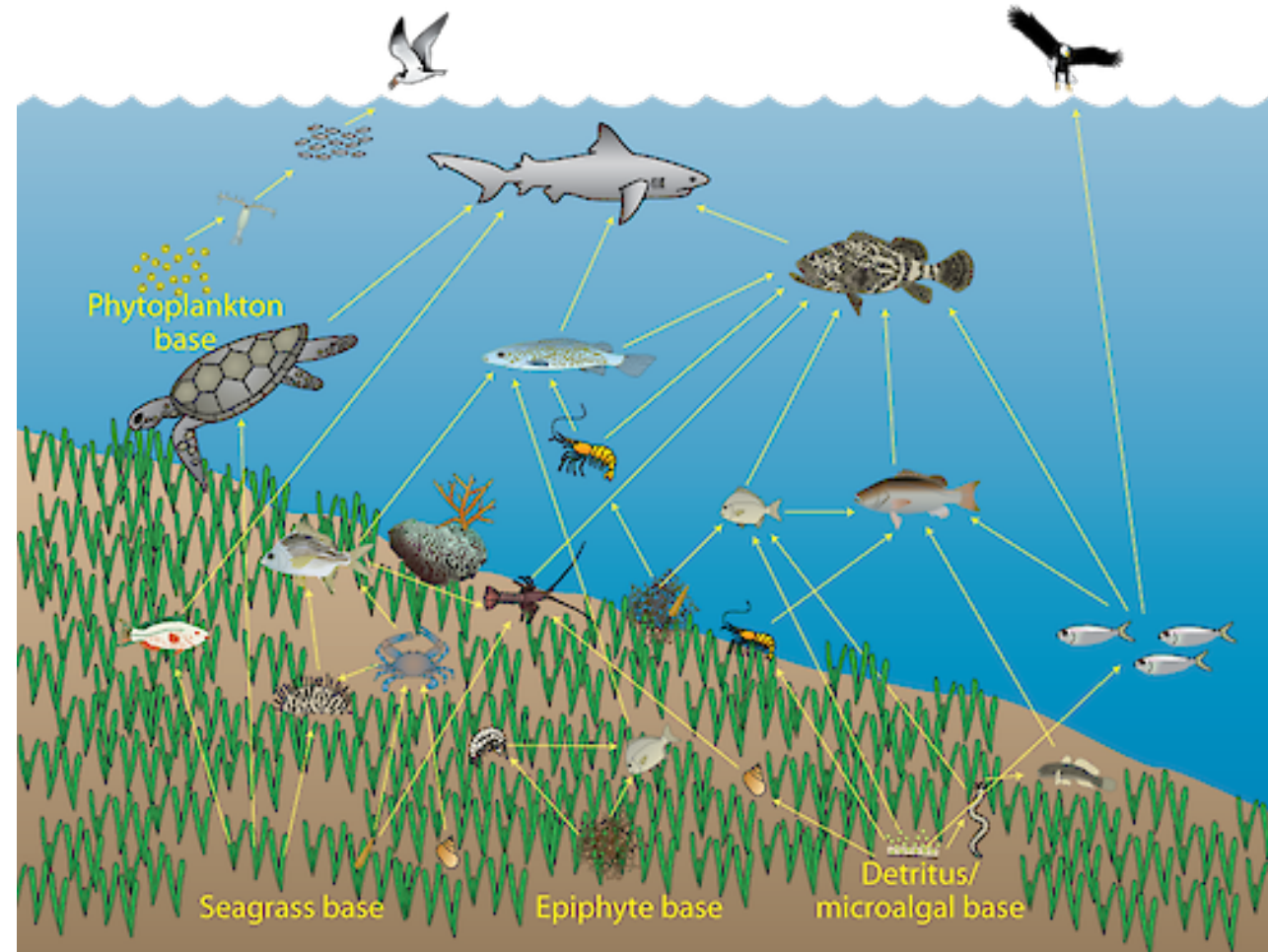
Hallie Fischman

- I am an Environmental Engineering Student at the University of Florida
- I'm originally from Boston, MA but I moved to Florida to pursue my PhD
- I study coastal ecosystems, including salt marshes, sand dunes, and oyster reefs, and the impacts of humans on those environments



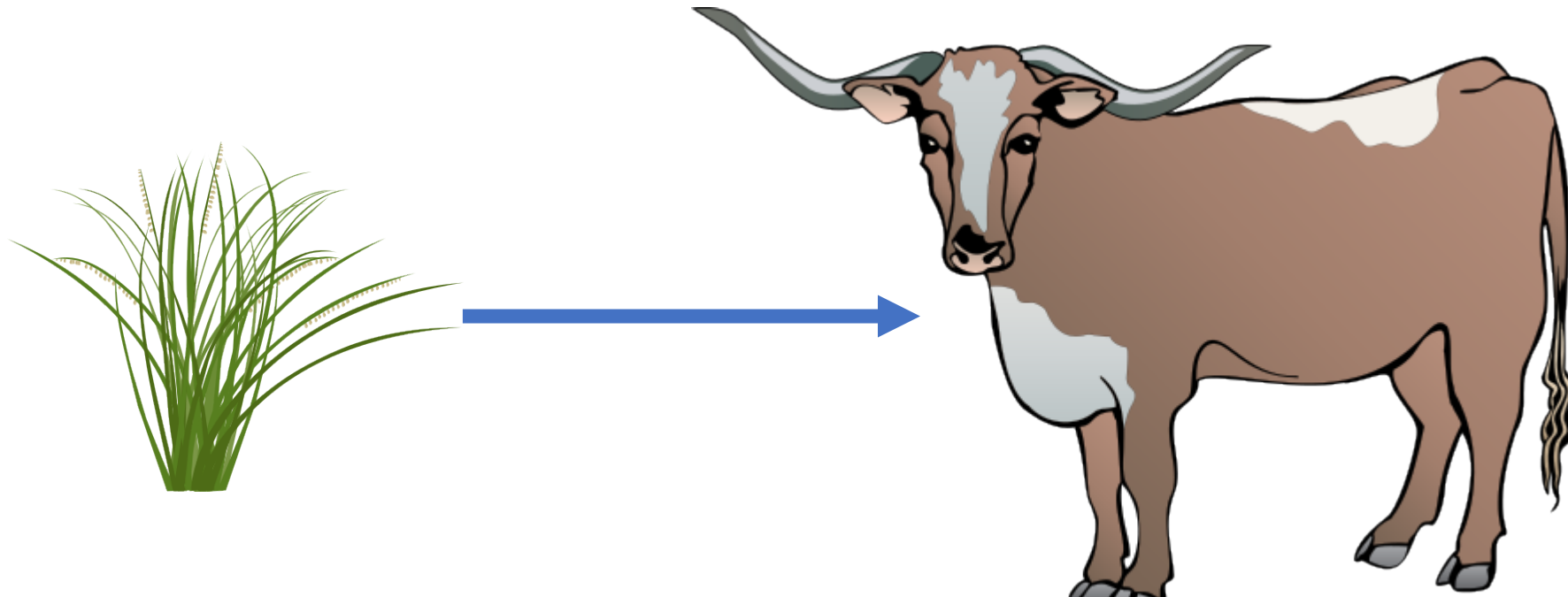
Relationships between organisms

- Organisms in an ecosystem are highly connected
- Can you name some relationships between different species or ways species are connected?
- We will discuss five important relationships



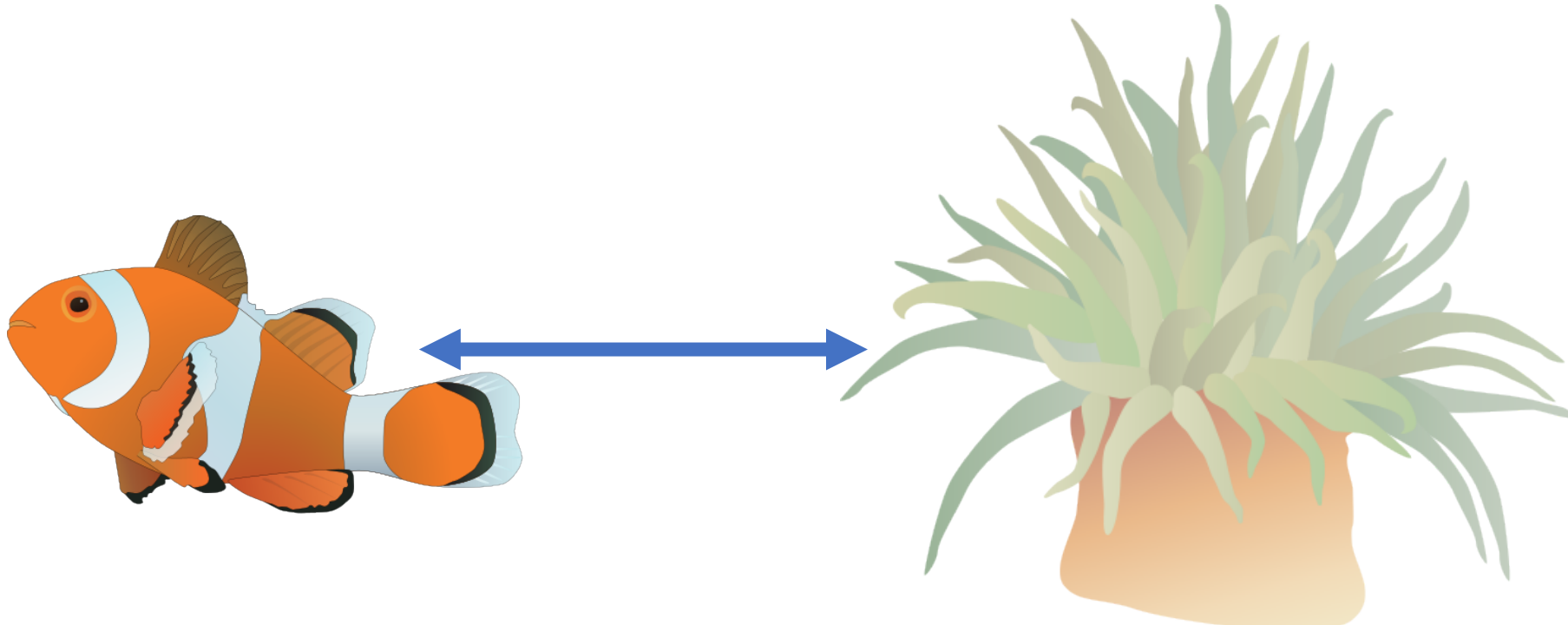
Relationships between organisms

1. Predation: killing and consuming of one living organism by another
 - Eating
 - Predation is shown on a food web as a flow of energy from one organism to another
 - The arrow points to the predator



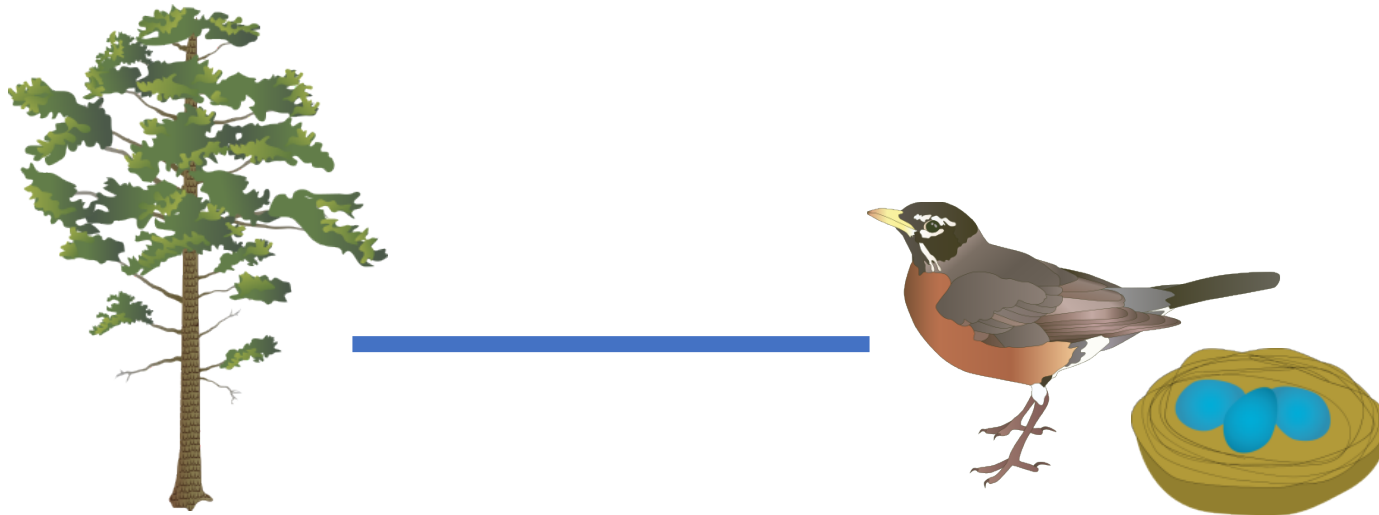
Relationships between organisms

1. Predation: killing and consuming of one living organism by another
2. Mutualism: beneficial association between two organisms
 - Both organisms must benefit from the relationship
 - We will show mutualisms with a double arrow



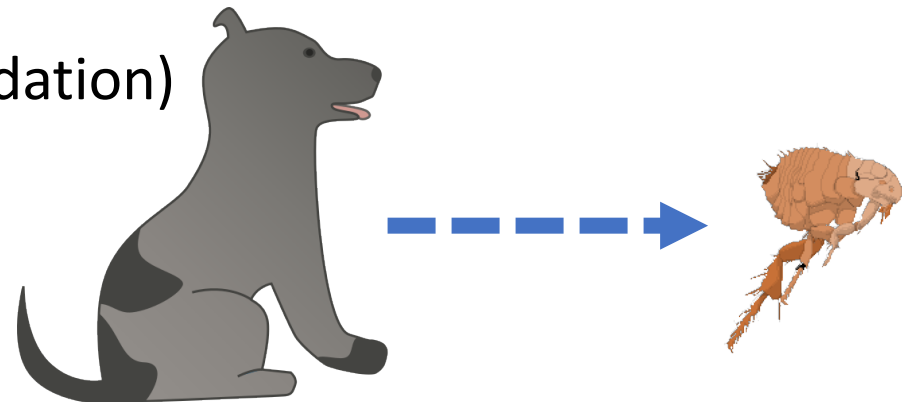
Relationships between organisms

1. Predation: killing and consuming of one living organism by another
2. Mutualism: beneficial association between two organisms
3. Commensalism: an association where one organism benefits without harming the other
 - “one sided”
 - We will show in our web using a line arrow



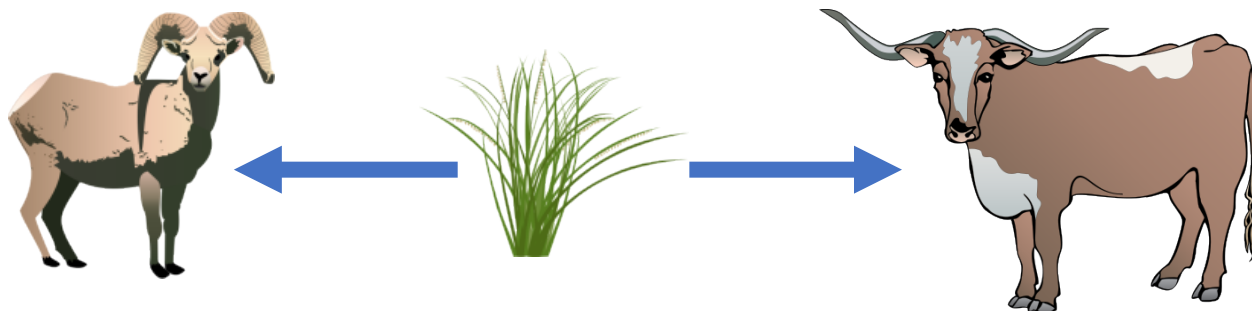
Relationships between organisms

1. Predation: killing and consuming of one living organism by another
2. Mutualism: beneficial association between two organisms
3. Commensalism: an association where one organism benefits without harming the other
4. Parasitism: an association where one organism lives in or on another and causes harm
 - Parasite lives on the host
 - Host is not immediately killed (unlike predation)
 - Shown with a dotted arrow in our web



Relationships between organisms

1. Predation: killing and consuming of one living organism by another
2. Mutualism: beneficial association between two organisms
3. Commensalism: an association where one organism benefits without harming the other
4. Parasitism: an association where one organism lives in or on another and causes harm
5. Competition: two or more organisms that utilize the same resource
 - This will be shown in our web as two organisms with the same prey



A black dog is lying down in a field of tall, dry grass. The dog is mostly obscured by the grass, with only its dark fur and some white markings on its chest and paws visible. The background is a dense field of similar grass, creating a textured, natural setting.

**Invasive species can alter
food webs and organism
relationships**

Hogs in Florida

- Invasive hogs are wild pigs that are not native to Florida
- Scientists think they were first brought to Florida by European explorers in 1539 as livestock
- The livestock pigs quickly escaped, and current wild hogs are descendants of the original European pigs
- Guess how many wild hogs are now in Florida?
- Florida is estimated to have 500,000 wild hogs
 - That's more than the population of Miami!



Hogs in Florida

- Hogs can weigh up to 200lbs
- They have 4 sharp tusks that never stop growing
- Hogs are omnivores, eating both plant and animal materials
- One female hog can have up to 26 piglets a year!
- Adult hogs have no natural predators



Hogs in Florida



- Hogs are known as a nuisance species in Florida
- Like farmed pigs, wild hogs wallow in mud to cool off
- They also dig for roots and insects to eat

Hogs in Florida



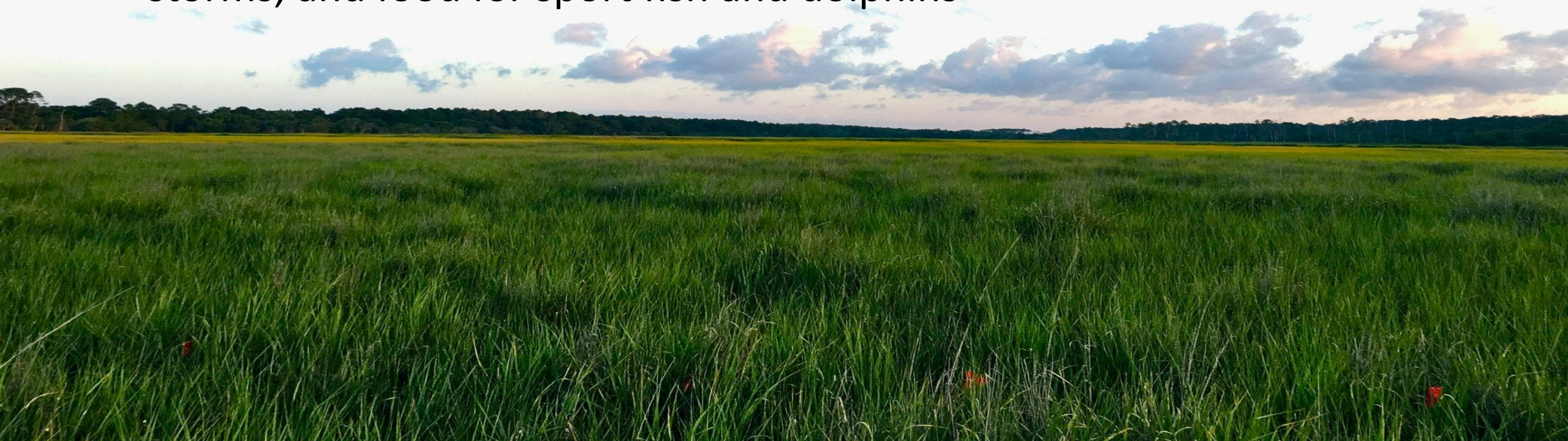
- They are a particular problem in forests, where they cause erosion and uproot small plants
- They also cause problems for farmers because they can eat crops and dig up seeds or young plants

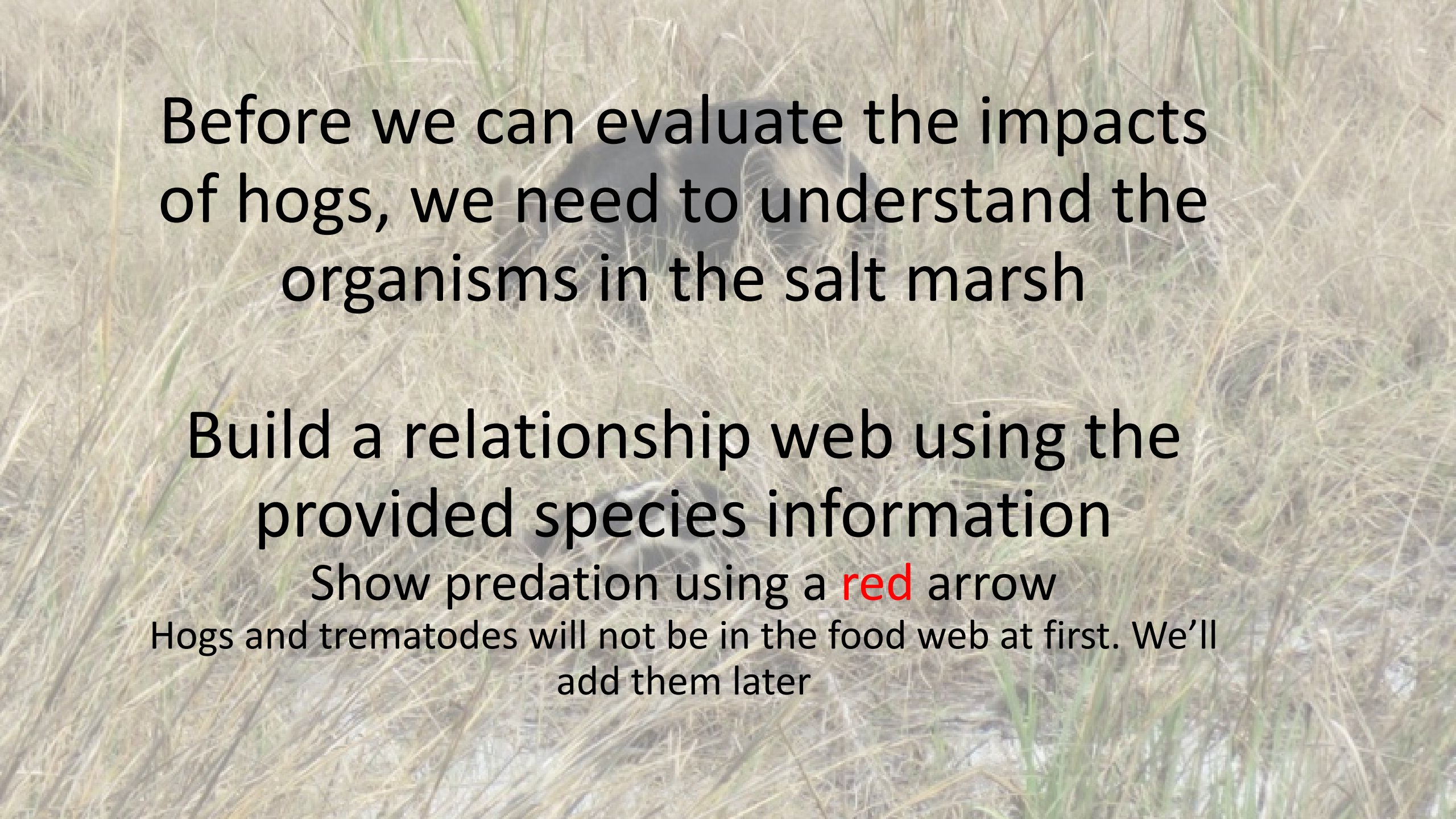
Hogs can also be in Florida salt marshes



Salt Marshes

- Wetland ecosystems like mangroves and swamps
- Low wave energy ecosystems in North Florida, Atlantic and Gulf Coastlines
- Provide important habitat for fish and crabs, coastal protection from storms, and food for sport fish and dolphins



A pig is seen foraging in a salt marsh, surrounded by tall, dry grasses. The pig is dark-colored and is positioned in the center of the frame, slightly to the left. The background is a dense field of tall, dry grasses, some of which are green at the base. The overall scene is a natural, outdoor setting.

Before we can evaluate the impacts of hogs, we need to understand the organisms in the salt marsh

Build a relationship web using the provided species information

Show predation using a **red** arrow

Hogs and trematodes will not be in the food web at first. We'll add them later

Hogs in salt marshes

An aerial photograph of a salt marsh. A winding waterway, likely a tidal creek, flows through the landscape. The marsh is covered in dense, green vegetation, possibly cordgrass, which is interspersed with patches of bare, light-colored soil or sand. The water in the creek is a pale, milky color, suggesting sediment. The overall scene is bathed in a warm, golden light, likely from a low sun, creating long shadows and highlighting the textures of the marsh.

- Hogs can reduce the coastal protection benefits by wallowing and causing erosion
- They consume mussels, which may be an important species in the food web
- *Add hog predation of mussels to your web*

Your task

- Scientists need help evaluating the impacts of hogs on the salt marsh relationship web
- They hypothesize that, because hogs only eat one marsh species, they will impact *less than half* of the species in the relationship web
- Using the information in your relationship web and worksheet, determine if this hypothesis is correct or if you can disprove it



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