Return to 1616

Construct a Food Web

GOVERNMENT OF WESTERN AUSTRALIA
Department of Biodiversity, Conservation and Attractions

RETURN TO 1616
DIRK HARTOG ISLAND NATIONAL PARK

Dirk Hartog Island Food Web

A food web is used to show how organisms interact with each other, and the flow of energy through an ecosystem. Research some examples of food chains and food webs (Eg. using a Google image search). Using the Wild Challenge card set, see if you can create your own food web for Dirk Hartog Island. Use arrows to show the flow of energy from one organism to another.

Use the following clues to help:

Discussion Questions:

1.Western Grasswren (Insectivore and Seed Eater) - How does the Western Grasswren's dual diet of invertebrates and seeds contribute to its survival? What role does it play in nutrient cycling? Can you think of specific invertebrates that the Western Grasswren might prey upon, and how this interaction affects both the grasswren and its prey?

2.Greater Stick-nest Rat (Herbivore) - How does the Greater Stick-nest Rat shape the island's vegetation by feeding on succulent and semi-succulent shrubs? What impact does this have on the ecosystem? What other animals might benefit from the habitat created by the stick-nest rat's nest-building behavior?

Western Grasswren (Insectivore and Seed Eater):

- Consumes a variety of invertebrates (termites, bugs, beetles, ants, centipedes, grasshoppers, caterpillars, spiders).
- Also feeds on seeds of grasses and various dicotyledons, as well as small berries.

Greater Stick-nest Rat (Herbivore):

- Feeds on leaves and shoots of succulent and semi-succulent shrubs.
- Plays a role in the ecosystem by shaping vegetation and creating habitat.

Banded Hare-wallaby (Browsing Herbivore):

- Broad and varied diet, including grasses, shrubs, and other dicotyledonous plants.
- Prefers species like *Acacia ligulata, A. ramulosa, A. sclerosperma, and A. tetragonophylla*.

Rufous Hare-wallaby (Flexible Herbivore):

- Consumes perennial grasses, grass seeds, and seeds of sedges.
- May also eat insects during dry periods.
- Adapts to available food sources.

Shark Bay Mouse (Vegetarian / Omnivore):

- Stomach and scat content includes plant materials (petals, flowers, leaf fragments) and invertebrate fragments (spiders).
- Plays a role in nutrient cycling.

Mulgara (Generalist Predator):

- Eats a wide range of prey items that fit in its mouth.
- Includes invertebrates and small vertebrate animals.
- Influences prey populations.

Dibbler (Generalist Omnivore):

- Consumes arthropods (75%) and plant matter (25%).
- Eats flowers, invertebrates, berries, and succulents.

Return to 1616

Construct a more complex Food Web

GOVERNMENT OF WESTERN AUSTRALIA
Department of Biodiversity, Conservation and Attractions

RETURN TO 1616
DIRK HARTOG ISLAND NATIONAL PARK

Dirk Hartog Island Food Web

A food web is used to show how organisms interact with each other, and the flow of energy throughout the system in an ecosystem. Using the Wild Challenge card set, see if you can create your own food web for Dirk Hartog Island. Use arrows to show the flow of energy from one organism to another.

Use the following clues to help!

Berries:

1. These juicy fruits are an essential food source for various animals on the island.
2. Consider which species might rely on berries for energy.

Bushes:

1. Bushes provide shelter, nesting sites, and food for both herbivores and insectivores.
2. Think about which animals interact with the bushy vegetation.

Flowers:

1. Flowers attract pollinators like bees, butterflies, and birds.
2. Explore the connections between flowering plants and their visitors.

Fungi:

1. Some mammals consume fungi and spread spores in their scats.
   - Decomposers play a crucial role in nutrient cycling.
1. Consider how fungi break down organic matter and impact other organisms.

Grasses:

1. Spinifex and other grasses are producers, forming the base of the food web.
2. Grasses are important food for many herbivores and omnivores.

Invertebrates:

1. Insects, spiders, and other invertebrates are abundant on the island.
2. Explore predator-prey relationships involving these small creatures.

Seeds:

1. Seeds from various plants contribute to the diet of seed-eating animals.
2. Investigate which species rely on seeds for survival.

Small Vertebrate Animals:

1. These include small mammals, reptiles, frogs and birds.
   - Some are insectivores and others are omnivores or herbivores.
1. Think about who preys on these vertebrates and how they fit into the web.

Succulent Shrubs:

1. Succulent shrubs store water and provide sustenance for herbivores.
2. Consider which animals feed on succulent leaves and stems.

Gould's Goanna:

1. A large monitor lizard that hunts smaller animals.
2. Explore its role as a predator in the ecosystem.

Brush-tailed Mulgara:

1. A nocturnal predator that feeds on small invertebrates (like insects) and occasionally small vertebrates.
2. Connects to other species as both predator and prey.

Banded Hare-wallaby:

1. A browsing herbivore that consumes grasses, shrubs, and other dicotyledonous plants.
2. Provides energy to predators in the ecosystem.

Boodie (Burrowing Bettong):

1. A herbivorous marsupial that feeds on grasses, seeds, and plant material.
2. Interacts with other herbivores and influences vegetation dynamics.

Chuditch (Western Quoll):

1. A carnivorous marsupial that preys on small mammals, birds, and insects.
2. Plays a role in controlling prey populations.

Desert Mouse:

1. An omnivorous species that consumes insects, seeds and other plant matter.
2. Consider where it sits in the food web.
   - How would you describe its trophic level?

Dibbler:

1. An omnivore that primarily eats arthropods (insects, spiders) and also consumes plant matter.
2. Links to various parts of the food web.

Shark Bay Bandicoot:

1. A small marsupial that forages for insects, seeds and other plant material.
2. Influences vegetation structure and nutrient cycling.

Heath Mouse:

1. A herbivore that feeds on grasses and other vegetation.
2. Forms part of the primary consumer level.

Western Grasswren:

1. An insectivorous bird that gleans food from litter and sand.
2. Consumes invertebrates (like ants, beetles, spiders) and seeds.

Greater Stick-nest Rat:

1. Herbivorous, feeding on leaves and shoots of succulent and semi-succulent shrubs.
2. Shapes vegetation and provides habitat.

Woylie (Brush-tailed Bettong):

1. A nocturnal herbivore that eats grasses, seeds, and plant material.
2. Connects to other herbivores and influences plant communities.

Shark Bay Mouse:

1. A vegetarian omnivore that includes plant materials (petals, leaves) and invertebrate fragments (spiders) in its diet.
2. Plays a role in nutrient cycling.

Rufous Hare-wallaby:

1. A flexible herbivore that consumes perennial grasses, grass seeds, and seeds of sedges.
2. Adapts to available food sources.

Discussion Questions:

Let's explore some thought-provoking questions related to the fascinating species on Dirk Hartog Island:

1. Berries - Which animals might rely on berries for energy? How do these animals contribute to the overall ecosystem? How does the availability of berries impact the population dynamics of certain species?

2. Bushes - Consider the interactions between herbivores and insectivores with the bushy vegetation. How do these interactions affect the ecosystem? How do bushes provide essential resources (shelter, nesting sites, and food) for different animals?

Return to 1616

Food Web Clues - Existing Species

GOVERNMENT OF WESTERN AUSTRALIA
Department of Biodiversity, Conservation and Attractions

RETURN TO 1616
DIRK HARTOG ISLAND NATIONAL PARK

Dirk Hartog Island Food Web

A food web is used to show how organisms interact with each other, and the flow of energy throughout the system in an ecosystem. Using the Wild Challenge card set, see if you can create your own food web for Dirk Hartog Island using the animals that were already on the island. Use arrows to show the flow of energy from one organism to another. Use the following clues to help:

Sandhill Frog:

1. A burrowing amphibian that lives in sand hills.
2. Consider its role in the ecosystem and interactions with other species.

Loggerhead Turtle:

1. An endangered species that nests on the island's beaches.
2. Explore its position in the marine food web.

Golden Ghost Crab:

1. A scavenger that feeds on detritus and small organisms.
2. Connects to both terrestrial and marine ecosystems.

Gwardar (Western Brown Snake):

1. A venomous snake that preys on small mammals and reptiles.
2. Investigate its impact on prey populations.

Dirk Hartog Island Black and White Fairy-Wren:

1. A small bird that forages for insects and seeds.
2. Consider its interactions with other birds and insects.

Knob-Tailed Gecko:

1. A nocturnal reptile that hunts insects.
2. Connects to the invertebrate population.

Dugong:

1. One of the world's only marine mammal herbivores.
2. Feeds on seagrass meadows in Shark Bay.

Barn Owl:

1. A nocturnal predator that hunts small mammals and birds.
2. Investigate its interaction with rodent populations.

Humpback Whale:

1. Migrates along the coast of Western Australia.
2. Consider its interactions with krill and other marine organisms.

Eastern Osprey:

1. A fish-eating bird of prey.
2. Connects to the marine food chain.

Manta Ray:

1. A filter-feeding ray that consumes plankton.
2. Investigate its role in nutrient cycling.

Feral Cat:

1. An introduced predator that impacts native wildlife.
2. Explore its interactions with small mammals and birds.

Western Bearded Dragon:

1. A lizard that feeds on insects and vegetation.
2. Connects to the terrestrial food web.

Western Spiny-Tailed Skink:

1. Another lizard species that plays a role in insect control.
2. Investigate its diet and habitat.

Whale Shark:

1. The largest fish in the world, feeding on plankton.
2. Consider its impact on the marine ecosystem.

Tiger Shark:

1. A top predator in the ocean.
2. Investigate its interactions with other marine species.

Indo-Pacific Bottlenose Dolphin:

1. A social marine mammal that hunts fish and squid.
2. Connects to the marine food chain.

Discussion Questions:

1. Why were feral cats removed from Dirk Hartog Island National Park as part of the Return to 1616 Ecological Restoration Project? How does this change your food web?
2. How might the presence of loggerhead turtles nesting on the island's beaches impact the terrestrial ecosystem?
3. The dugong is a herbivorous marine mammal that feeds on seagrass meadows. How does its diet influence the health of seagrass ecosystems, and what other species might benefit or be affected by its presence?

Feel free to explore these questions further during your food web discussions!

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Food Web Clues - Translocated Species

GOVERNMENT OF WESTERN AUSTRALIA
Department of Biodiversity, Conservation and Attractions

RETURN TO 1616
DIRK HARTOG ISLAND NATIONAL PARK

Dirk Hartog Island Food Web

A food web is used to show how organisms interact with each other, and the flow of energy throughout the system in an ecosystem. Using the Wild Challenge card set, see if you can create your own food web for Dirk Hartog Island. Use arrows to show the flow of energy from one organism to another. Use the following clues to help:

Brush-tailed Mulgara:

1. A nocturnal predator that feeds on small invertebrates (like insects) and occasionally small vertebrates.
2. Connects to other species as both predator and prey.

Chuditch (Western Quoll):

1. A carnivorous marsupial that preys on small mammals, birds, and insects.
2. Plays a role in controlling prey populations.

Shark Bay Bandicoot:

1. A small marsupial that forages for insects, seeds, and plant material.
2. Influences vegetation structure and nutrient cycling.

Greater Stick-nest Rat:

1. Herbivorous, feeding on leaves and shoots of succulent and semi-succulent shrubs.
2. Shapes vegetation and provides habitat.

Banded Hare-wallaby:

1. A browsing herbivore that consumes grasses, shrubs, and other dicotyledonous plants.
2. Provides energy to predators in the ecosystem.

Desert Mouse:

1. An omnivorous species that consumes seeds, insects, and plant matter.
2. Connects to both plant-based and animal-based food sources.

Heath Mouse:

1. A herbivore that feeds on grasses and other vegetation.
2. Forms part of the primary consumer level.

Woylie (Brush-tailed Bettong):

1. A nocturnal herbivore that eats grasses, seeds, and plant material.
2. Connects to other herbivores and influences plant communities.

Rufous Hare-wallaby:

1. A flexible herbivore that consumes perennial grasses, grass seeds, and seeds of sedges.
2. Adapts to available food sources.

Boodie (Burrowing Bettong):

1. A herbivorous marsupial that feeds on grasses, seeds, and plant material.
2. Interacts with other herbivores and influences vegetation dynamics.

Dibbler:

1. An omnivore that primarily eats arthropods (insects, spiders) and also consumes plant matter.
2. Links to various parts of the food web.

Western Grasswren:

1. An insectivorous bird that gleans food from litter and sand.
2. Consumes invertebrates (like ants, beetles, spiders) and seeds.

Shark Bay Mouse:

1. A vegetarian omnivore that includes plant materials (petals, leaves) and invertebrate fragments (spiders) in its diet.
2. Plays a role in nutrient cycling.

Discussion Questions:

Disease Impact:

1. What might happen if a species in this food web gets a disease? How would it affect other organisms?
2. Consider the cascading effects on energy flow and population dynamics.

Chuditch Translocation:

1. Why is the Chuditch (Western Quoll) the last animal to be translocated to Dirk Hartog Island National Park as part of the Return to 1616 Ecological Restoration Project?
2. Explore factors related to habitat suitability, ecological niches, and conservation priorities.

Return to 1616

Food Web Clues - Supplementary Cards

Government of Western Australia
Department of Biodiversity, Conservation and Attractions

Return to 1616
Dirk Hartog Island National Park

Dirk Hartog Island Food Web

A food web is used to show how organisms interact with each other, and the flow of energy throughout the system in an ecosystem. Using the original Wild Challenge card set to construct a food web for Dirk Hartog Island and then try adding the supplementary cards. Use arrows to show the flow of energy from one organism to another.

Use the following clues for the supplementary cards!

Berries:

1. These juicy fruits are an essential food source for various animals on the island.
2. Consider which species might rely on berries for energy.

Fungi:

1. Decomposers play a crucial role in nutrient cycling.
2. Consider how fungi break down organic matter and impact other organisms.

Seeds:

1. Seeds from various plants contribute to the diet of seed-eating animals.
2. Investigate which species rely on seeds for survival.

Bushes:

1. Bushes provide shelter, nesting sites, and food for both herbivores and insectivores.
2. Think about which animals interact with the bushy vegetation.

Grasses:

1. Grasses serve as primary producers, forming the base of the food web.
2. Connect herbivores (like kangaroos or wallabies) to grass consumption.

Small Vertebrate Animals:

1. These include small mammals, reptiles, and birds.
2. Think about who preys on these vertebrates and how they fit into the web.

Gould's Goanna:

1. A large monitor lizard that hunts smaller animals.
2. Explore its role as a predator in the ecosystem.

Flowers:

1. Blooming flowers attract pollinators like bees, butterflies, and birds.
2. Explore the connections between flowering plants and their visitors.

Invertebrates:

1. Insects, spiders, and other invertebrates are abundant on the island.
2. Explore predator-prey relationships involving these small creatures.

Succulent Shrubs:

1. Succulents store water and provide sustenance for herbivores.
2. Consider which animals feed on succulent leaves and stems.

Discussion Questions:

1. How do berries, flowers, and grasses interact with invertebrates? Consider pollination, seed dispersal, and herbivory.
2. What role do fungi play in the ecosystem? Think about decomposition, nutrient cycling, and symbiotic relationships.
3. How are small vertebrate animals connected to succulent shrubs and gould's goanna? Explore predator-prey dynamics and habitat dependencies.

Return to 1616

Example Food Web

GOVERNMENT OF WESTERN AUSTRALIA
Department of Biodiversity, Conservation and Attractions

RETURN TO 1616
DIRK HARTOG ISLAND NATIONAL PARK

Many food chains make up a food web. Conduct some research to learn more about food webs and how they represent energy flow. Can you use the *Return to 1616* playing cards to create a food web such as the example below? Can you create some different examples? Share and discuss your food webs with others. As an extension, you may like to find a way to represent other aspects such as now many individual plants and invertebrates are required to support a herbivore or carnivore.Cards can be printed from here.