



New England Ecocolumn

EcoColumns are small scale models used to learn ecosystem concepts in classrooms. Adaptation and energy source information is available for these 10 species to help your students learn about energy flow in ecosystems.

Learn how to build and use EcoColumns in your classroom here:

http://learner.org/courses/essential/life/bottl_ebio/ecocol/build.html

Find this card deck and more at:
education.eol.org/species_cards

Title Image Credit: Dan CC-BY-NC-SA

Project Description

Common Name

Scientific Name

Taxon Group

Food Web Roles

DECO	Decomposer: Energy from dead material
AUTO	Autotroph: Energy from sun, water, CO ₂
HERB	Herbivore: Energy from plants
OMNI	Omnivore: Energy from plants, animals
CARN	Carnivore: Energy from animals
APEX	Apex Predator: Top predator
DETR	Detritivore: Energy from dead vegetation
SANG	Sanguinivore: Energy from blood
MULT	Multiple: Energy from multiple sources

Habitat (where species is found)
+ (indicates species is also found in other habitats)

Species Conservation Status

IUCN Redlist™

International Union for
Conservation of Nature

NE	Not Evaluated
VU	Vulnerable
LC	Least Concern
DD	Data Deficient
NT	Near Threatened
EN	Endangered

NE Not Evaluated

VU Vulnerable

LC Least Concern

DD Data Deficient

NT Near Threatened

EN Endangered

EX Extinct

Duckweed

eol
Vascular Plant



Experimental Habitats



Foodweb
Role

Growth Form
Habitat
Leaf Shape
Leaf Color
Life Cycle

Forb/herb
Aquatic
Elliptical
Green
Perennial

NE
IUCN
Redlist™

Adaptations + Energy Sources

Growth: Spread rapidly via moving water and animals
Reproduction: Mostly asexual budding
Energy: Sun, carbon dioxide and water

Image: Jan Ševčík

Dwarf Pond Snail

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Gastropods



Experimental Habitats



Foodweb
Role

Body Size
Habitat
Lifespan
Number of Eggs
Activity

5-9 x 2-4.5 mm
Freshwater
Up to 1 yr
12-20 eggs
Host to flatworms

NE
IUCN
Redlist™

Adaptations + Energy Sources

Physical: Lungs allow amphibious nature
Behavioral: Able to survive extended periods without water
Energy: Algae and parts of plants

Image: Jan Ševčík

Earthworm

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Annelids



Experimental Habitats



Foodweb
Role

Body Length
Development
Lifespan
Number of Eggs
Activity

35 cm (max)
4 stages; no molt
6 yrs (avg)
1-20 / cocoon
Nocturnal

NE
IUCN
Redlist™

Adaptations + Energy Sources

Physical: Bristles on each body segment help grip soil
Behavioral: Move to surface when feel vibrations in soil
Energy: Decaying vegetation, feces, carrion

Image: test CC-BY-NC-SA



Fanwort

Cabomba caroliniana

eol
Flowering Plants



AUTO

Experimental Habitats		Foodweb Role
Height	Stems 1-2 m	
Growth Form	Submerged aquatic	NE
Life Cycle	Perennial	
Flower Color	White	IUCN Redlist™
Reproduction	Rhizomes	

Adaptations + Energy Sources
 Growth: Tightly-spaced leaves allow dense growth
 Reproduction: Seeds and segments develop in new areas
 Energy: Sun, carbon dioxide and water

Image: Kenneth Bader CC-BY-NC

Flavoparmelia Lichen

Flavoparmelia caperata

eol
Lichens



AUTO

Experimental Habitats		Foodweb Role
Lobe Diameter	3 - 8 mm wide	
Habitat	Tree bark	NE
Color	Greenish	
Spores	8 - spored	IUCN Redlist™
Lobes	Round shaped	

Adaptations + Energy Sources
 Growth: Slow development of about 0.01-27mm/year
 Reproduction: Asexual reproduction and creation of spores
 Energy: Absorbed nutrients from trees, and inner algae

Image: Malcolm Storey CC-BY-NC-SA

Isopods

Isopoda

eol
Malacostraca



HERB

Experimental Habitats		Foodweb Role
Body Length	0.5 mm to 500 mm	
Body Segments	3	NE
Antennae	2 pairs	
Eye Type	Compound	IUCN Redlist™

Adaptations + Energy Sources
 Physical: Two pairs of antennae for different stimuli
 Behavioral: Some curl into balls for protection
 Energy: Moss, bark, algea and fungi

Image: Stanislav Krejčík CC-BY

Red-legged Grasshopper

Melanoplus femur-rubrum

eol
Insects



HERB

Experimental Habitats		Foodweb Role
Adult Body Length	1.8-2.8 cm	
Development	Incomplete	NE
Adult Lifespan	45 days (avg)	
Number of Eggs	336 (avg) in lifespan	IUCN Redlist™
Wings	Two pairs	

Adaptations + Energy Sources
 Physical: Develop longer wings to disperse
 Behavioral: Fly short distances in swarms for forage
 Energy: Foliage of forbs and grasses

Image: Armin H. CC-BY-NC

Smooth Meadow-grass

Poa pratensis

eol
Liliopsida



AUTO

Experimental Habitats		Foodweb Role
Height (mature)	45.72 cm media	
Growth form	Forb/herb	NE
Life Cycle	Perennial	
Seeds	Brown	IUCN Redlist™
Soil Type	Fine/medium texture	

Adaptations + Energy Sources
 Growth: Survives in heat and severe droughts
 Reproduction: Buds develop into stems or rhizomes
 Energy: Sun, carbon dioxide and water

Image: Biopix CC-BY-NC

Western Mosquitofish

Gambusia affinis

eol
Ray-finned Fishes



OMNI

Experimental Habitats		Foodweb Role
Length	6 cm	
Habitat	Freshwater	NE
Lifespan	Up to 3 yrs	
Coloration	Greenish-brown	IUCN Redlist™
Dorsal Rays	7	

Adaptations + Energy Sources
 Physical: Upwards-facing mouth for efficient feeding
 Behavioral: Quickly adjust habits during changing conditions
 Energy: Zooplankton and invertebrate prey

Image: Wikimedia Commons



White Oak

Quercus alba

eol
Flowering Plants



Experimental Habitats

AUTO

Foodweb
Role

Height

30 m

Growth Form

Tree

Leaf Duration

Deciduous

Seed Color

Greenish-brown

Sunlight / Soil

Sun/shade; various

NE

IUCN
Redlist™

Adaptations + Energy Sources

Growth: Pioneer on frequently burned sites

Reproduction: Seed dispersal birds, squirrels

Energy: Sun, carbon dioxide and water

Image: Scott Namestrik CC-BY-NC-SA

eol species cards

Adaptation: A physical characteristic or behavior that helps an organism survive in its environment

Brood/Litter: Group of young produced at one time

Carapace: Shell of a turtle or head and thorax of arthropods

Clutch Size: Number of eggs laid in a nest at one time

Complete Metamorphosis: Some insects have a four stage life cycle: egg, larva, pupa, adult

Crepuscular: Active at dawn and dusk

Diurnal: Active during the day

Vocabulary

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Habitat: The area an organism lives and can find its resources

Growth Form: Classification of plants as trees, shrubs, herbaceous, and grasses

Incomplete Metamorphosis: Some insects have a three stage life cycle: eggs, nymph, adult

Molt: The act of shedding exoskeleton, skin or feathers as an animal grows

Snout-vent Length: In amphibians and reptiles, the length from tip of nose to tail base (cloaca)

Standard Length: In fishes, length from tip of snout to end of last vertebra

Vocabulary

