

PHYLO:

The Trading Card Game

Invasive Species Edition

Invasive species are among Canada's greatest threats to the survival of our wild animal and plant life. They arrive, often accidentally, and in the absence of natural predators they kill, crowd out or otherwise devastate native species and their ecosystems. Learn more about ecosystems and the dangers of invasive species in this exciting, points-based game!

DURATION: 20 - 30 minutes **AGE:** 8+

Watch the instruction video on our YouTube channel!

SETUP

- 1 Sit across from your opponent. Place two **HOME** cards adjacent to each other in the centre of the table, one facing each player.
- 2 Shuffle the deck and split into two **PICK UP** piles, one for each player. Reserve a spot for a communal **DISCARD** pile. Draw **5 cards** to form your hand.

PLAY

- 3 The youngest player begins. On each turn, **DRAW** one card from the pick-up pile and make **ONE** of the following moves:
 - 1) **PLAY** a card from your hand.
 - 2) **DISCARD** one card and **PICK UP** three cards.
 - 3) **MOVE** a card already on the table the number of spaces indicated on the card.Remember to play your cards facing you so that you can tally your points at the end!
- 4 The last round starts when a player draws the last card from their pick up pile. This player gets **THREE** final moves in their last turn, and so does their opponent.
- 5 Tally your points. The player with the most points, wins!

SPECIES

- Build your ecosystems like a game of dominos, with each card building off of another.
- You can build off of your own cards, or your opponent's.
- New cards added to the table must have at least one matching **TERRAIN** and must be of equal or greater **SIZE** to at least one adjacent card.
- Species **DIETS** must be compatible:
 - 1) **Autotrophs***: These cards can be placed anywhere around the **HOME** cards.
 - 2) **Herbivores, omnivores, other**: These cards can only be played next to an autotroph or another level 2 species of smaller size.
 - 3) **Carnivores**: These cards can only be placed next to other level 2 or 3 species.

*A species that produces its own food.

EVENTS

- Play event cards according to instructions on card.
- The opposition has their next turn to react to an event card. They can:
 - 1) Play a **SPECIES PROTECTION** card.
 - 2) Replace the affected card with a new species.
 - 3) Move a species card that will be affected.
- If the affected card cannot be protected, replaced, or moved, this card and all other cards supported by the affected card are removed.

COMMON NAME — Oak Tree

LATIN NAME — *Quercus Spp.*

POINT VALUE — 3 POINTS

CARD TEXT — **FACT:** Some oak tree species may produce up to 2000 acorns/year, providing ample food for several animals.

LEGAL STUFF — Image by: Momentmal
From URL: <http://pixabay.com/en/users/Momentmal>

ARTIST INFO —

SPECIES SIZE — 9 1

SPECIES DIET — 1: AUTOTROPHS
2: HERBIVORES, OMNIVORES, OTHER
3: CARNIVORES

CLASSIFICATION — Plantae, Magnoliophyta, Magnoliopsida

TERRAIN —

SET UP EXAMPLE

Remember: Cards are always played facing the direction of the player who placed them. This makes it easy to tally points at the end.

Blue Jay
Cyanocitta cristata
5 2
4 POINTS
PLAY: Blue Jay has a FLIGHT of 3
FACT: Blue jays can mimic the calls of hawks to use as warnings or trick other species

Invasive Species Centre
Home Card
About us: The Invasive Species Centre prevents the spread of invasive species in Canada by connecting stakeholders with knowledge and technology. Incorporated as a non-for-profit in 2011, the Invasive Species Centre is a hub for collaboration and knowledge sharing between stakeholders and has grown into a respected partner and leader in invasive species science, education, and action in Canada, and beyond.

Black Eyed Susan
Rudbeckia hirta
7 1
2 POINTS
FACT: Black-eyed Susans are pioneer plants, and are often one of the first plants to grow after a natural disaster.

Black Bear
Ursus americanus
8 2
5 POINTS
PLAY: Black bear has a MOVE of 3
FACT: The black bear is the smallest, yet most common of the three bear species found in North America

Chinook Salmon
Oncorhynchus tshawytscha
7 3
9 POINTS
PLAY: Chinook Salmon have a MOVE of 2
FACT: The chinook is the largest of the Pacific salmon species, the world record standing at 57.27 kilograms (126 pounds)

Phytoplankton
Class: Bacteriophyce
2 1
2 POINTS
PLAY: Phytoplankton has a MOVE of 1
FACT: Phytoplankton remove carbon dioxide from the water, release oxygen as a by-product, and store the carbon in the form of organic materials

Beaver
Castor Spp.
6 2
4 POINTS
PLAY: Beaver has a MOVE of 3
FACT: The large front teeth of the beaver never stop growing

Invasive Species Centre

Invasive Species Centre

Home Card



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Invasive Species Centre

Home Card



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Willow Tree

Salix Spp.

9 **1**



4

POINTS

Plantae, Angiosperms, Eudicots

FACT: Rare types of willow can grow to the height of 70 feet



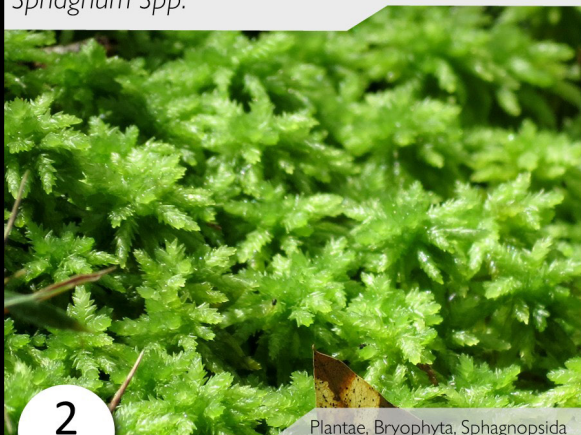
Image by: Kreutzfelder

From URL: <https://pixabay.com/photos/weeping-willow-tree-pasture-park-3637978/>

Sphagnum Moss

Sphagnum Spp.

5 **1**



2

POINTS

Plantae, Bryophyta, Sphagnopsida

FACT: Depending on the species, sphagnum moss may hold water up to 16 – 26 times their dry weight.



Image by: Katja Schulz

From URL: flickr.com/photos/treegrow

Black Eyed Susan

Rudbeckia hirta

7 1



2
POINTS

Plantae, Anthophyta, Dicotyledoneae

FACT: Black eyed Susans are pioneer plants, and are often one of the first plants to grow after a natural disaster.



Image by: Jim Lillicotch
From URL: <http://lillicotch.com/>



Oak Tree

Quercus Spp.

9 1



3
POINTS

Plantae, Magnoliophyta, Magnoliopsida

FACT: Some oak tree species may produce up to 2000 acorns/year, providing ample food for several animals.



Image by: Momentmal
From URL: <http://pixabay.com/en/users/Momentmal>



Maple Tree

Acer Spp.

9 1



4
POINTS

Plantae, Angiosperms, Eudicots

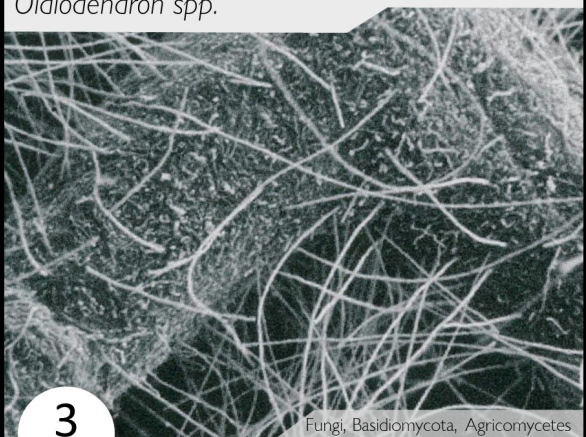
FACT: Maple trees can live to 200 years and beyond and have been tapped for 150 years or more.



Mycorrhizal fungi

Oidiodendron spp.

3 1



3
POINTS

Fungi, Basidiomycota, Agaricomycetes

PLAY: Mycorrhizal fungi must be placed adjacent to *Plantae* species.

FACT: Important in assisting the host plant with the uptake of phosphorus and nitrogen, two nutrients vital to plant growth.



From URL pacifichorticulturesociety.org

Blueberry

Cyanococcus Spp.

4 1



4
POINTS

Plantae, Angiosperms, Eudicots

FACT: The blueberry is one of the only foods that is truly naturally blue in colour.



From URL <https://pixabay.com/en/blueberries-fruit-food-berries-690072/>

Blueberry

Cyanococcus Spp.

4 1



4
POINTS

Plantae, Angiosperms, Eudicots

FACT: The blueberry is one of the only foods that is truly naturally blue in colour.



From URL <https://pixabay.com/en/blueberries-fruit-food-berries-690072/>

Phytoplankton

Class: Bacillariophyceae

2 1



2
POINTS

Heterokonta, Ochrophyta, Bacillariophyceae

PLAY: Phytoplankton has a MOVE of 1

FACT: Phytoplankton remove carbon dioxide from sea water, release oxygen as a by-product, and store the carbon in the form of organic materials.

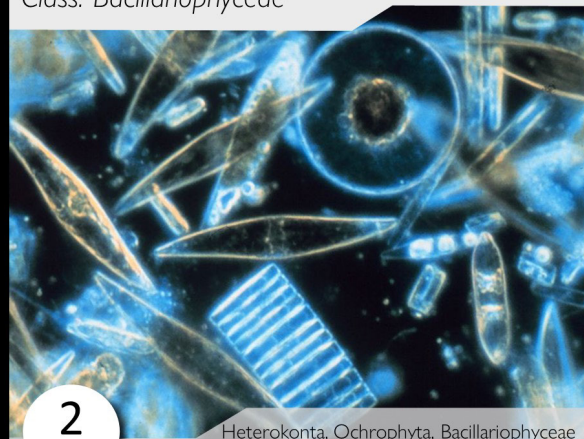


From URL https://en.wikipedia.org/wiki/File:Diatoms_through_the_microscope.jpg

Phytoplankton

Class: Bacillariophyceae

2 1



2
POINTS

Heterokonta, Ochrophyta, Bacillariophyceae

PLAY: Phytoplankton has a MOVE of 1

FACT: Phytoplankton remove carbon dioxide from sea water, release oxygen as a by-product, and store the carbon in the form of organic materials.



From URL https://en.wikipedia.org/wiki/File:Diatoms_through_the_microscope.jpg

Ash Tree

Fraxinus Spp.

9 1



4
POINTS

Plantae, Angiosperms, Eudicots

FACT: There are 45 to 65 species of ash trees that can be found in the northern parts of Europe, Asia and North America.



Image by: binael

From URL: <https://pixabay.com/en/trees-ash-ash-gate-m-farms-329314/>

Beaver

Castor Spp.

6 2



4
POINTS

Animalia, Chordata, Mammalia

PLAY: Beaver has a MOVE of 3

FACT: The large front teeth of the beaver never stop growing



From URL: https://commons.wikimedia.org/wiki/File:American_Beaver.jpg

Zooplankton

Copepoda subclass

3 2



2
POINTS

Animalia, Arthropods, Macillopoda

PLAY: Zooplankton has a MOVE of 1. It may feed on salmon species card.

FACT: Zooplankton are primarily transported by ambient water currents



Image by: Matt Wilson and Jay Clark

From websites: NOAA NMFS AFS C

Zooplankton

Copepoda subclass

3 2



2
POINTS

Animalia, Arthropods, Macillopoda

PLAY: Zooplankton has a MOVE of 1. It may feed on salmon species card.

FACT: Zooplankton are primarily transported by ambient water currents



Image by: Matt Wilson and Jay Clark

From websites: NOAA NMFS AFS C

Monarch Butterfly

Danaus Plexippus

4 **2**



5
POINTS

Animalia, Euarthropoda, Insecta

PLAY: Monarch Butterfly has a FLIGHT of 2

FACT: A large monarch caterpillar can eat a entire milkweed leaf in less than 4 minutes



From URL: <https://pixabay.com/en/butterfly-butterflies-monarch-17057/>

Earthworm

Lumbricus terrestris

4 **2**



4
POINTS

Animalia, Annelida, Clitellate

PLAY: Earthworm has a MOVE of 2

FACT: In one acre of land, there can be more than a million earthworms.



Image by: Natfot

From URL: <https://pixabay.com/en/earthworm-soil-dirt-macro-686593/>

Honey Bee

Apis mellifera

4 **2**



5
POINTS

Animalia, Euarthropoda, Insecta

PLAY: Honey bees have a FLIGHT of 3

FACT: Honey bees must gather nectar from two million flowers to make one pound of honey.



Image by: Pexels

From URL: <https://pixabay.com/en/bee-blur-close-up-flora-flower-1850116/>

Moose

Alces Spp.

8 **2**



5
POINTS

Animalia, Chordata, Mammalia

PLAY: Moose has a MOVE of 4

FACT: A moose can dive more than 5 meters underwater when searching for food



Blue Jay

Cyanocitta cristata

5 **2**



4
POINTS

Animalia, Chordata, Aves

PLAY: Blue Jay has a FLIGHT of 3

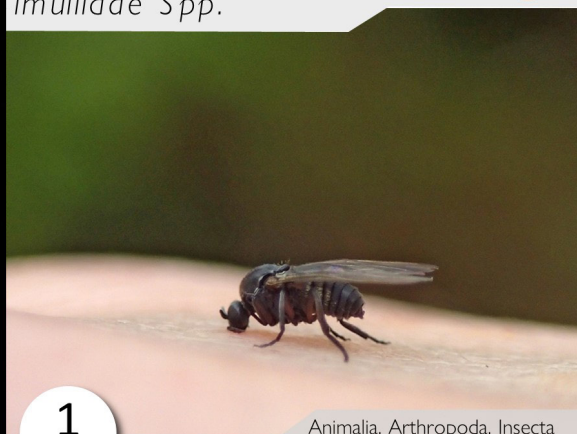
FACT: Blue jays can mimic the calls of hawks to use as warnings or trick other species



Black Fly

Simuliidae Spp.

4 **2**



1
POINTS

Animalia, Arthropoda, Insecta

PLAY: Black flies have a FLIGHT of 3. It may feed on any warm-blooded animal.

FACT: Female black flies must feed on blood before laying their eggs.



Image by: D. Sikes
From URL:



Black Bear

Ursus americanus

8 **2**



5
POINTS

Animalia, Chordata, Mammalia

PLAY: Black bear has a MOVE of 3

FACT: The black bear is the smallest, yet most common, of the three bear species found in North America



Image by: skeeze
From URL: <https://pixabay.com/en/black-bear-woods-wild-wildlife-1170229/>

Mosquito

Culicidae spp.

4 **2**



1
POINTS

Animalia, Arthropoda, Insecta

PLAY: Mosquitoes have a FLIGHT of 3. It may feed on any warm-blooded animal.

FACT: Female mosquitoes need to feed on blood before laying their eggs.



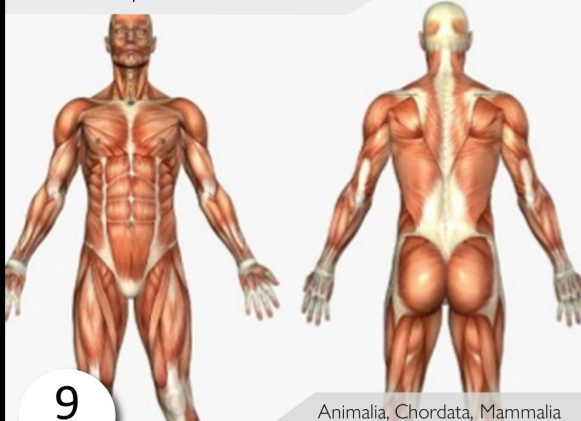
Image by: Wild Turkey
From URL: flickr.com/photos/wildturkey5300/



Human

Homo sapiens

8 2



9
POINTS

Animalia, Chordata, Mammalia

PLAY: Human has a MOVE of 3

FACT: 50,000 cells in your body died and were replaced by new ones while you were reading this sentence



Image by: alexandrebarrez

From URL: <https://www.slideshare.net/alexandrebarrez/unit-1-the-human-body>

Moss Mite

Cryptostigmata Spp.

4 2



5
POINTS

Animalia, Arthropoda, Arachnida

PLAY: Moss mite has a MOVE of 2

FACT: Mites don't have heads. They have a structure called the gnathosoma, housing the mouth and feeding parts.



From URL: <https://en.wikipedia.org/wiki/Oribatida#/media/File:Phthiracarid.jpg>

Crayfish

Paraneohrops planifrons

5 2



4
POINTS

Kingdom, Phylum, Class

PLAY: Crayfish has a MOVE of 1

FACT: There are 200 species of crayfish in North America



Image by: Makamuki0

From URL: <https://pixabay.com/en/crayfish-american-crab-1425800/>

Hawk

Buteo jamaicensis

6 3



8
POINTS

Animalia, Chordata, Aves

PLAY: The hawk has a FLIGHT of 3

FACT: Hawks can see 8 times better than humans, locating its prey from a distance of 100 feet



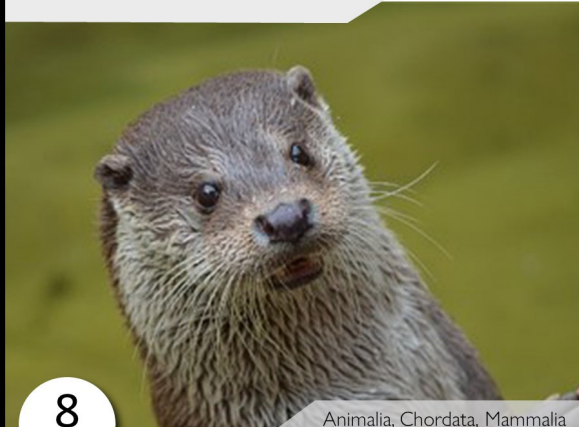
Image by: Bergadder

From URL: <https://pixabay.com/en/harris-hawk-parabuteo-unicinctus-859397/>

Otter

Lutra lutra

6 **3**



8
POINTS

Animalia, Chordata, Mammalia

PLAY: Otter has a MOVE of 3

FACT: Otters hold hands when they sleep so they don't drift away from each other



Image by: Huskyherz
From URL: <https://pixabay.com/en/otter-cute-animal-365370/>



Pike

Esox lucius

6 **3**



8
POINTS

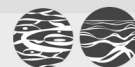
Animalia, Chordata, Actinopterygii

PLAY: Pike has a MOVE of 2

FACT: The biggest pike on record was 58 inches long and weighted 68 pounds



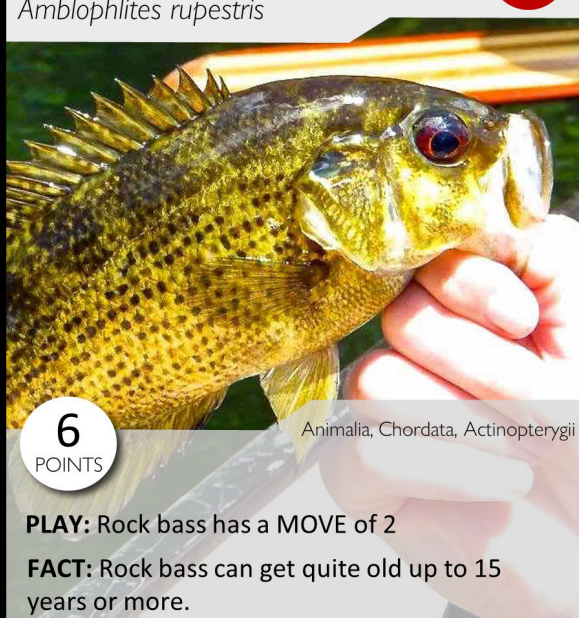
Image by: Meinig
From URL: <https://pixabay.com/en/pike-night-underwater-dive-fish-2276178/>



Rock Bass

Ambloplites rupestris

6 **3**



6
POINTS

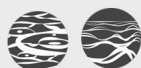
Animalia, Chordata, Actinopterygii

PLAY: Rock bass has a MOVE of 2

FACT: Rock bass can get quite old up to 15 years or more.



From URL: <http://hooklineandsinker.ca/rock-bass/>



Chinook Salmon

Oncorhynchus tshawytscha

7 **3**



9
POINTS

Animalia, Chordata, Actinopterygii

PLAY: Chinook Salmon have a MOVE of 2

FACT: The chinook is the largest of the Pacific salmon species, the world record standing at 57.27 kilograms (126 pounds)



From URL: <https://pixabay.com/en/fish-salmon-chinook-bay-landscapes-386853/>



Yellow Perch

Perca flavescens

5 **3**



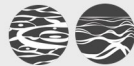
6

POINTS

Animalia, Chordata, Actinopterygii

PLAY: Yellow perch has a MOVE of 2

FACT: They live in large schools in the shallow waters of the Great Lakes



From URL: <https://www.ars.usda.gov/oc/images/photos/may14/d3149-1/>

Dragonfly

Anisoptera Spp.

4 **3**



5

POINTS

Animalia, Arthropoda, Insecta

PLAY: Dragonflies have a FLIGHT of 2.

FACT: Dragonflies are carnivores, but don't generally sting or bite people.



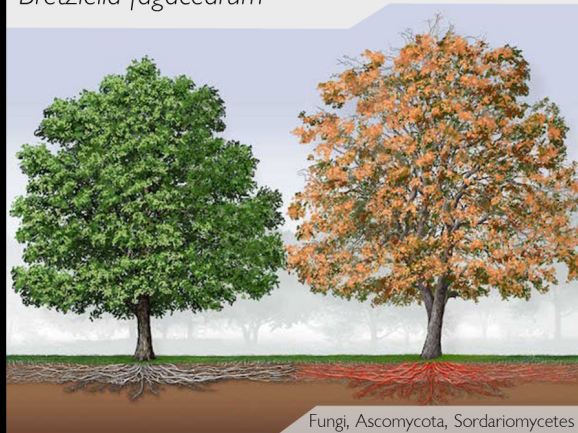
Image by: gayulo

From URL: pixabay.com/en/users/gayulo-3585927/

Oak Wilt

Bretziella fagacearum

Event Card



Fungi, Ascomycota, Sordariomycetes

PLAY: Place this card on any Oak tree species.

Effect: The Oak tree species must IMMEDIATELY be removed. You may leave this card on the table to show this space is invaded by oak wilt, and no other oak tree play be played here.



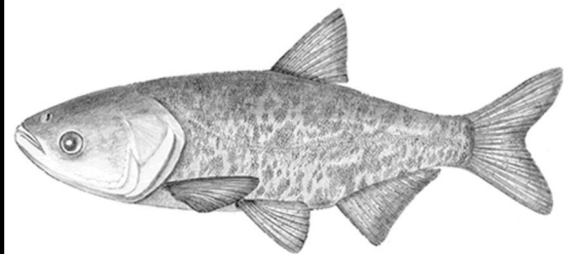
Image by: Wayne Baumgarten

From URL: <http://wimberleywebdesign.com/>

Bighead Carp

Hypophthalmichthys nobilis

Event Card



Animalia, Chordata, Actinopterygii

PLAY: Place this card on any ocean or fresh water based SPECIES card.

Effect: The SPECIES card must IMMEDIATELY be removed. You may leave this card on the table to show this space is now invaded by Carp, and no other ocean or freshwater species may be played here.

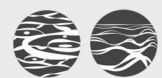


Image by: United States Geological Survey employee

From URL: <https://en.wikipedia.org/wiki/User:Carptracker>

Black Carp

Event Card

Mylopharyngodon piceus



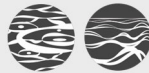
Animalia, Chordata, Actinopterygii

PLAY: Place this card on any ocean or fresh water based SPECIES card.

Effect: The SPECIES card must IMMEDIATELY be removed. You may leave this card on the table to show this space is now invaded by Carp, and no other ocean or fresh water species may be played here.



Image by: Ryan Hagerty of US Fish and Wildlife Services
From URL: <https://www.flickr.com/photos/acrc/>



Phragmites

Event Card

Phragmites australis



Plantae, Tracheophyta, Liliopsida

PLAY: Place this card on any terrestrial or grassland plant species, excluding trees.

Effect: The plant species must IMMEDIATELY be removed. You may leave this card on the table to show this space is invaded by phragmites, and no other terrestrial or grassland plant species (excluding trees) may be played here.



Image by: Mabel Amber
From URL: pixabay.com/en/users/MabelAmber



Emerald Ash Borer

Event Card

Agilus planipennis



Animalia, Arthropoda, Insecta, Coleoptera

PLAY: Place this card on any ash tree species.

Effect: The ash tree must IMMEDIATELY be removed. You may leave this card on the table to show this space is invaded by emerald ash borer, and no other ash species may be played here.



Image by: UACESCOMM
From URL: flickr.com/photos/uacescomm/



Asian Longhorned Beetle

Event Card

Anoplophora glabripennis



Animalia, Arthropoda, Insecta

PLAY: Place this card on any hardwood tree species (maple, willow, oak).

Effect: The tree must IMMEDIATELY be removed. You may leave this card on the table to show this space is invaded by Asian longhorned beetle, and no other hardwood species may be played here.



Image by: U.S. Department of Agriculture
From URL: flickr.com/photos/usdagov/



Habitat Loss



PLAY: Place this card on any species card and change it's habitat to URBAN permanently.

Effect: The species card must be IMMEDIATELY removed. You may leave this card on the table to show this place is now an URBAN terrain.



Image by: H.-J. Sydow
From URL: commons.wikimedia.org/wiki/File:Holzstaemme.JPG

Habitat Loss



PLAY: Place this card on any species card and change it's habitat to URBAN permanently.

Effect: The species card must be IMMEDIATELY removed. You may leave this card on the table to show this place is now an URBAN terrain.



Image by: H.-J. Sydow
From URL: commons.wikimedia.org/wiki/File:Holzstaemme.JPG

Oil Spill



PLAY: Place this card on any ocean or fresh water based species card.

Effect: This species card must be IMMEDIATELY removed.



Image by: Kris krug
From URL: flickr.com/photos/kk/

Wildfire



PLAY: Place on top of any species card of grassland or forest terrain.

Effect: The species card beneath the Wildfire must be IMMEDIATELY removed.



Image by: U. S. Department of Agriculture
From URL: flickr.com/photos/usdagov/

Wildfire

Event Card



PLAY: Place on top of any species card of grassland or forest terrain.

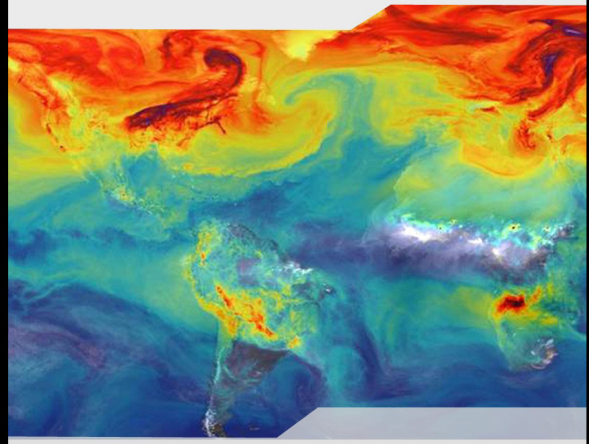
Effect: The species card beneath the Wildfire must be IMMEDIATELY removed.



Image by: U. S. Department of Agriculture
From URL: flickr.com/photos/usdagov/

Climate Change

Event Card



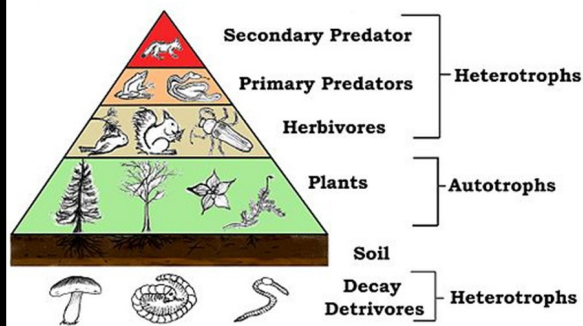
PLAY/EFFECT: Place this card on top of any species card to immediately remove. In the same action, this event card then moves to an adjacent species card. A game of rock-paper-scissors determines whether this card is also discarded. Continue moving this event card and removing species card until you lose. Card can only be played once per game.



Image by: prepared for NASA, Yarat
From URL: kh.usembassy.gov/author/unyx/

Species Protection Legislation

Event Card



PLAY: Place this card on any species you would like to protect from a development or destruction event.

Effect: The species of your choice is protected for this play.



Image by: Thompsma
From URL: commons.wikimedia.org/wiki/User:Thompsma

Species Protection Conservation & Restoration

Event Card



PLAY: Place this card on any species you would like to protect from a development or destruction event.

Effect: The species of your choice is protected for this play.



Image by: Richard Humphrey
From URL: geograph.org.uk/profile/39484

