

Ecological Issues & Solutions



Christmas Fern (*Polystichum acrostichoides*)
Fern Valley, National Arboretum
Sara Tangren

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BIODIVERSITY COLLAPSE



FOOD WEB

TERTIARY CONSUMERS

(apex predators, omnivores)



Canines eat mice, birds, snakes, insects, plant materials, fawns, carrion



Humans eat plant materials, deer, cows, milk, birds, fish, fungi



Raptors eat fish, rodents, birds, snakes, carrion

SECONDARY CONSUMERS

(carnivores, omnivores)

Bears eat rodents, insects, plant materials, fish, carrion



Fish eat plant materials, insects, other fish, water-dwelling animals



Reptiles eat rodents, insects, baby birds



Songbirds and waterfowl eat insects, small fish, plant materials



PRIMARY CONSUMERS

(herbivores)



Insects eat plant materials, other insects, animals, carrion



Rodents eat insects, plant materials, fungi



PRIMARY PRODUCERS

(plants)



Plants make food (glucose) from carbon dioxide and water using the sun's energy, and release oxygen



DECOMPOSERS

(fungi, bacteria, protozoans, invertebrates)



Fungi help plants take up nutrients



Decomposers consume all dead plants and animals





Common Wood Nymph
(*Cercyonis pegala*)
Aaron Schusteff 2011



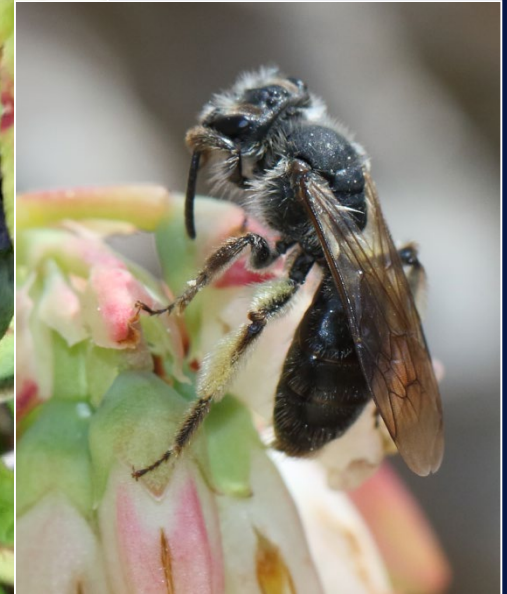
Purpletop
(*Tridens Flavus*)
Sara Tangren



American Tree Sparrow
(*Spizelloides arborea*)
Paul Tavares, Macaulay Library 2011



Trident Mining Bee
(*Adrena tridens*)
Michael Veit 2019



Lowbush Blueberry
(*Vaccinium angustifolium*)
Judy Fulton 2014



Indian Grass
(*Sorghastrum nutans*)
Judy Fulton 2021



Chesapeake Bay, Surface Reflectance Mosaic
USGS, Landsat 8, Oct. 23, 2018

PRESSURES ON NATIVE PLANTS





ALIEN PLANTS ONLY

NO VACANCY

STAY OUT

NO TRESSPASSING

NO LOITERING

NO PARKING







BIODIVERSITY SCENARIOS

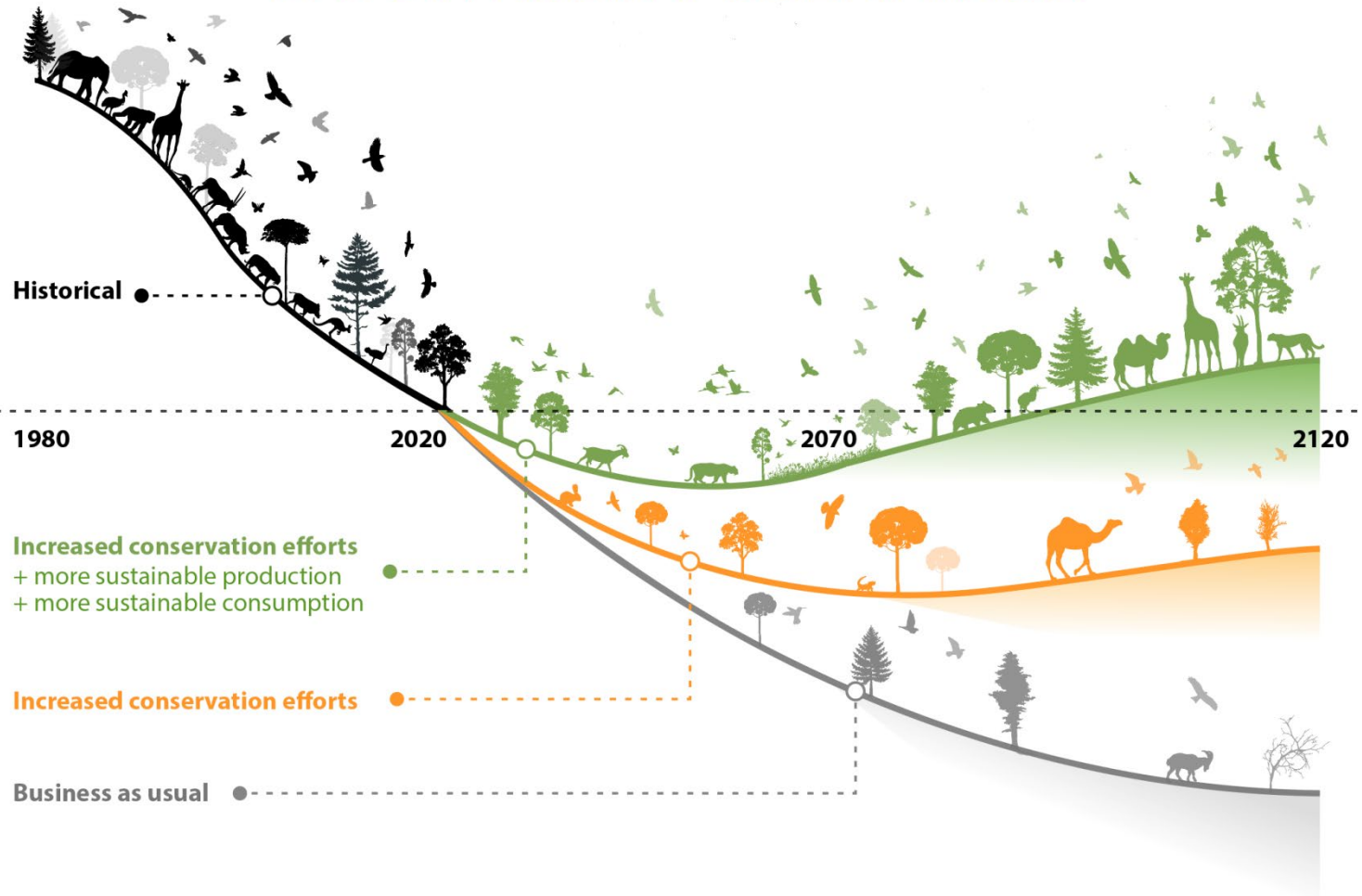


Illustration recreated from a graphics from IASA and Eurekalert



Cinnamon Fern (*Osmundastrum cinnamomeum*) in a Maryland Wetland
Judy Fulton 2020
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