

Invasive Species

An aerial photograph showing a large body of water, likely a reservoir or lake, heavily infested with a bright green algal bloom. The bloom covers most of the water's surface, leaving only a small, circular, forested island in the center. The surrounding land is covered in dense green trees and vegetation. The water in the upper part of the image is a darker, brownish color, possibly due to sediment or a different type of bloom.

Changing Hudson Project
Cary Institute of Ecosystem Studies

Photo by Kara Goodwin

Are these
animals
invasive?



Photo by
sarefo

Fir0002/Flagstaffotos

Are these plants invasive?



Photo by Huw Williams

Photo by Andrew Nelson

Game time!



Definitions

- Non-native: Alien, outside its native range
 - Exotic, introduced, weedy, non-indigenous
 - Not normally part of ecosystem
 - Established, self-sustaining population
- ‘10% rule’
 - ~10% survive
 - ~10% of these become invasive
- Human activities involved
- What is an invasive species? –one that is aggressive and threatens local biodiversity.

Why worry about invasive species?

- Tend to crowd out & replace native species
 - 60% originated as cultivated species
 - Are responsible for ~50% of threats to rare species



Photo by Meneerke bloem



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Peatcher



Why worry about invasive species?

- Tend to crowd out /replace native species
- Can severely damage ecosystem health



Photo by Andrew Nelson



Photo by Huw Williams



Why worry about invasive species?

- Tend to crowd out /replace native species
- Can severely damage ecosystem health
- Harm human activities (agriculture, forestry, fisheries, recreation)
 - \$137 billion/ year in damages and pest control costs (Pimentel, 2000)



USDA

\$37 million loss to mid-Atlantic apple production in 2010 alone

What is this a picture of?



Photo courtesy of IES

Photo by Kara Goodwin



What makes invasive
species so successful?



Characteristics of Successful Invasives

- Few natural enemies
 - Predators
 - Competitors
 - Parasites and diseases
- High reproductive rate
- Long lived
- Good dispersal
- Generalists
- Pioneer species



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